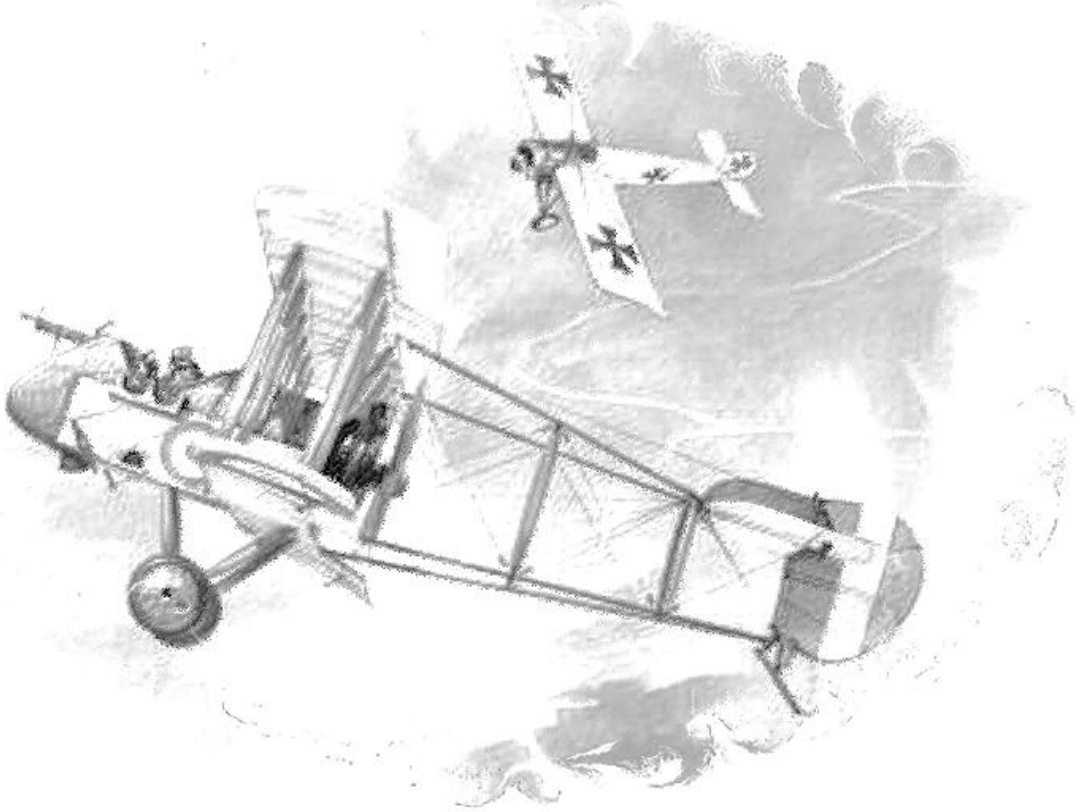


Flying and Air Fighting in the
Airco D.H.2 & D.H.2 Late
Over Flanders Fields

A Guide for New Pilots

By

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Quick Rating to Fly: Initially tricky but dependably behaved... mostly

Introduction

The purpose of this guide is to give to you chaps who are to fly the DH2 - the machine that will reverse the 'Fokker Scourge' - a hint of how best to fly and air fight the machine against the Hun. This guide will cover the general characteristics of the machine; her strengths and weaknesses; things to watch out for taking off and landing and how to manoeuvre and use the DH2 and her superlative forward view and turning ability in air and ground combat. Now, this author does not claim to know everything there is to know about the DH2 so hopefully some other fellows can add stuff, qualify what's laid out here or, if needs be, shout it down as just plain wrong.

By the way, everything written below assumes that your crate is still exactly as she came out of the Airco Works. That is to say, your rigger and fitter haven't worked any wonders in that magical workshop of theirs to soften the DH2's

behaviour or make your crate stronger or your guns more powerful or any of that sort of palaver.

They can do all that sort of thing course. In fact, it's rumoured they can even influence the weather... but this author personally prefers not to depend on them, stout fellows though they be.

General Characteristics

The DH2 is a rotary-engined 'pusher' type single seat scout in which the pilot sits in a nacelle forward of the leading edges of the planes with the engine at his back and the airscrew turning between twin tail booms that connect the empennage to the wings. This engenders both positive AND negative characteristics... eh bien, comme on dit en Français - quelle surprise!

Whilst having the engine at one's back affords a superlative view forward and offers a degree of protection if attacked by an enemy behind (both of which are good things) it also means a great deal more difficulty in watching one's tail unless prepared to lean over the side or practically stand up in 'the office'. As a 'pusher', the necessary combination to support this configuration, i.e. twin booms, comparatively large tailplane, rudder and fin assembly and lots of bracing wires generates a huge amount of drag. The engine itself being further back relative to the overall length increases this and being a rotary engine it is also seriously underpowered. Thus, in the DH2, stall speed and flying speed are much closer to each other than one would wish. Moreover, that same rotary engine produces torque, albeit not a lot, but in a near stall condition it is enough for a spin to be incipient at the end of almost every energetic manoeuvre one might adopt when air-fighting in the DH2, short of diving. Duw, and she's sensitive on the controls too! All this has occasioned the DH2 gaining the unwelcome and undeserved nickname of the 'Spinning Incinerator'. However, if you remember three key things, namely that she's under-powered, sensitive, and doesn't like a nose-up attitude for very long at all you will find she is actually quite docile and manoeuvrable... as long as you don't try to throw her about the sky. That said, if you do get into trouble, letting the DH2 'do her thing' and get her nose down will usually be rewarded with control - if it's not too late!

Pre-flight and Take-off

The aspects of the DH2 most likely to cause new pilots alarm on take-off are torque and the relatively large empennage. The former will cause a little dip of the port planes but nothing to worry about if expected. The fin and elevators on the other hand are more of an issue - delicacy is the key. The DH2 simply does not appreciate heavy-handedness and will bite back. This author recommends 'driving' the machine around the 'field for a while, at various speeds below take-off speed using rudder and ailerons only to appreciate the shallow turn capabilities offered by the configuration. When it comes to 'wheels off' be gentle on the elevators or her nose will pop up really quickly and she won't like it.

For guidance in climbing: with the horizon level with the bottom of the ammunition drum on the Lewis she's climbing at approx. five degrees; with the horizon at the top of the Lewis mounting post she's climbing at approx. ten degrees. Much more than that and she'll start to wallow - at risk of repeating oneself - SHE DOESN'T LIKE NOSE UP!

Normal Flight

In normal flight, at a climb angle of around 10 degrees the DH2 is well behaved. Torque is negligible and certainly not enough to induce more roll than needs a gentle opposite pressure on the rudder bar and the occasional tweak of the ailerons to overcome.

Combat (Air)

This author would remind the reader at this juncture that the DH2 comes in two flavours, the original DH2 with a 100hp Gnome Monosoupape and the DH2 Late, sporting a 110hp Le Rhone 9J. The latter machine's more powerful engine allows one to swank around the sky a little more but not as much as might be supposed because the designers have seen fit to mount a bloody great tank on the centre section which not only increases drag, look you, but also screams "shoot me, shoot me" to any Hun pilot who fancies himself having an ounce of marksmanship... 2 mph extra in top speed is all one gets in the end!

That notwithstanding, the early DH2 is more than a match for the Fokker Eindecker. The DH2 is faster and much more manoeuvrable, provided you keep her speed up. Broadly speaking the DH2 is a turn fighter, i.e. that is where her advantage lies, but she has a critical dependence on airspeed and unless you have abundance of the latter, flattish turns are the order of the day. The DH2 can turn well inside the E.III even in a gentle bank. Don't be tempted to bank hard unless your Hun is below you and you can drop her nose, bring your sights to bear and finish him off quickly. Otherwise, be prepared for some protracted air-fighting against E.IIIIs that you don't at least damage on the first pass. You daren't follow the Hun down (normally - but see below for exceptions) unless he's alone because you won't get back up as quickly. In a DH2 the enemy above you is one to avoid, even an E.III. In fact, regarding your position vis-à-vis the Hun's you will want to be 'always above, seldom on the same level, never underneath' and engage accordingly. Awareness of your situation and planning ahead is what will win you dogfights in the DH2. Let the Hun bleed away his airspeed in a zoom and then use your superior forward visibility and turn capability to get behind him and stay there as he levels out. That same turning ability means you can track him in a shallow bank too if you've a good lead angle and know what you're doing.

All dogfights descend, and most of the above is directed at advising the newer pilot to be conservative in trading altitude for advantage - shallow banking employing lots of rudder will keep you aloft longer - giving you a better overall view of the fight and leaving you with more options.

However if you do decide to follow the dogfight down the DH2 is correspondingly more forgiving. Employing dive and zoom tactics will keep your speed healthy for more violent turns but at the expense of altitude. Indeed, whilst admonition is made above not to throw the DH2 about in the sky, she'll happily roll in a dive and in actual fact she can bank vertically very well - with the correct amount of top rudder - if you've plenty of speed. That can be a winning tactic, but you've barely more than two turns on the level before she'll stall out of it... and can spin viciously if you had her nose up rather than level - SEE ABOVE!

Being so critically dependent on airspeed, throttle control in the DH2 is more important than in most other machines. Don't go 'balls out' all the time, keep a reserve. In a steep dive cut the engine back, let gravity grant you speed and boost it with full throttle as you come out... it may give that extra bit of nose up you need for the 'coup-de-grace' on your Hun. Equally, when you're coming up on the tail of one of the blighters, be careful as you throttle back or you'll stall. Practise. Get a really good feel for where her nose is versus the throttle position and her speed.

Sadly, once the Hun gets the Halberstadt DII the easy days are over. Nevertheless, the DH2 plus a pilot with experience can best a Halberstadt DII. Your tactics will not change (it's all you have)... but the planning is more important. For both the EIII and the Halberstadt the easy victory is the one where your Hun has had enough of the turn fight and seeks to fly straight for a bit. You have the power to catch them and with nothing obscuring your forward view - how can you miss? Alas, come the Albatros DII the DH2 is totally outclassed. Any competent Hun pilot in an undamaged Albatros DII has the power to stay out of your way. Your dogfights will be long and go very low if you've a chance at all. If you engage at a good height you can still turn better but with each drop of the DH2's nose to regain speed you should ask yourself - if you've not got him yet - whether it isn't time to put her nose right down and run for home. 'Discretion' is definitely the 'better part of valour' versus the Albatros DII. A small consolation, if you are shot about, is that the old girl can take quite a bit of damage, and, of course, the Hun behind you has less than the average surface area to shoot at! But you need to get to ground quickly. Keep her nose down - are you getting the idea? You should be able to land safely even with your engine shot out as long as you keep the speed up and don't allow the dead engine to pull you back. Flatten out at the last minute.

Combat (Ground)

In theory, the DH2 should make a very good ground attack machine. However, her lack of speed and poor climbing ability count against her. Should you though, by happy chance, be attacking a Hun aerodrome whose machine-gunners have all been on the schnapps the night before then you've a spot of fun ahead. You can traverse the front of the hangers like a flying machine gun post using your rudder to aim and, with a dint of luck, pick off every other machine on the first pass, then turn

and pick up the remainder on the return. Except in such fortunate circumstances, avoid anything other than fleeting ground attacks.

Landing

The only pitfall inherent in landing the DH2 is... Duw, you've guessed it... maintaining airspeed. Remember you've a bloody great engine at your back which will drop you heavily if you've not enough forward momentum. Bring her in straight and low and switch off at the last minute, keeping her nose only slightly up.

Advanced Tactics

Once again, the inimitable Louvert has offered his invaluable advice. Rumour has it that the powers that be seek to remove him from frontline service and confine him forever to testing new machines at Farnborough. Apparently, officer and gentleman that he is, he has refused point-blank. Anyway, here is his input:

"Fly it a bit and pull rather hard climbing turns to starboard and watch for the point when it almost seems like it wants to 'shudder', (hard to explain it exactly but watch for it a number times as you stall and fall into the spin and you will see what I mean). Once you can recognise that point you only need push forward on the stick to get some air speed back and continue the fight. The DH2 can assuredly hold its own and win against a good DII flyer if you practice with the little beast for a while."

There you are - contrary to this author's experience, the DH2 can beat the Albatross DII.

Final Note

A last word from this author - whilst our duty out here is to serve King and Country and beat the Hun - do try to find the time to take the DH2 up on a 'jolly'. She's a delightful machine for sightseeing. I recommend a late sunny afternoon, if you can, staying aloft until the setting sun sets the clouds aglow and casts gilt-edged shadows on the 'field as you approach for landing.

It's what you learned to fly for!

Statistics

DH2

Length: 25 ft 2½ in (7.69 m)

Wingspan: 28 ft 3 in (8.61 m)

Height: 9 ft 6½ in (2.91 m)

Wing area: 249 ft² (23.13 m²)

Empty weight: 942 lb (428 kg)

Max takeoff weight: 1,441 lb (654 kg)

Powerplant: 1× Gnome Monosoupape rotary engine, 100 hp (75 kW)

Maximum speed: 93 mph

Range: 250 mi (400 km)

Service ceiling: 14,000 ft (4,265 m)

Rate of climb: 545 ft/min (166 m/min)

Wing loading: 5.79 lb/ft² (28.3 kg/m²)

Power/mass: 0.069 hp/lb (110 W/kg)

Endurance 2½ hours

Climb to 5,000 ft (1,500 m) 24 minutes 45 seconds

Armament 1x .303 Lewis machine gun

DH2 Late

Powerplant: 1× Le Rhone 9j rotary engine, 110 hp

Maximum speed: 95 mph