Chapter one: Air Cadets and old style military transports

Nothing in my early years pointed to aviation as a possible career for me. During my early youth I thought about a wide variety of future jobs, from garbage truck driver via architect to captain of commercial ships. My interest in aviation only got triggered around age 13, when an older nephew who was terribly disappointed he couldn't become a pilot due to bad eyesight, elected to become a doctor and gave me all his aircraft models and books. Two years later I was visiting a large annual recreational exhibition in Brussels with my mother, and got interested by a promotional stand of the Belgian Air Cadets. They had a skeleton of a Fouga Magister jet trainer in which you could sit on display, and when you actuated the controls it showed the effect on wings and tail. I got fascinated how all those movements got mixed into a simple V-tail*. As the Air Force representative seemed more interested talking to my mother, I spent quite some time looking at all the pictures and items on display. Of course we left with leaflets, and after a while I was able to convince mom to give me the permission to join the Air Cadets. She wasn't keen to see me flying, and probably must have hoped I'd lose interest during the 2 years of weekend ground school before starting the flying phase. I was proud to wear a blue uniform at the age of 15, and liked the semi military atmosphere and sharing time with fellow future pilots one weekend out of two. The Brussels Wing was located at the back of the (now demolished) old military terminal called Batavia, opposite Brussels national airport, but we hardly ever saw airplanes or pilots because our activities took place during weekends. During the week we attended regular high school.

my first picture in uniform as an "aspirant cadet" at the age 15 (AC)

1967

Stampe SV4 part 1

One year later all Cadets got invited for air rides during the open door of the Air Force's Elementary Flying School at Goetsenhoven. In 1967 student-pilots still spent their first year training on the classic Stampe SV4-bis* biplane trainer, flown from a large square grass strip without specific runway direction. I stood waiting in line for my turn, in an old baggy grey coverall, a seat pack parachute dangling between my legs, and no anxiety whatsoever for what was to be the very first time airborne in my life. The Stampes rolled on and off while the passengers got strapped in the back seat with running engine. Dad was filming all of this on 8mm, and I later discovered I was in such a hurry that I fitted the leather helmet backwards and had been unable to close the sliding canopy hood during the short taxi out. The enclosed canopies were typical for the 65 Stampe trainers of the Belgian Air Force. Most of the other 1000+ Belgian pre-war designed, but post-war produced Stampe biplanes, had open cockpits. The reason we didn't get briefed on its operation was that with the back cockpit closed, the front one using the same rails couldn't be opened and in case anything would happen, the instructor pilot would be stuck under his canopy as well. Passengers got neither goggles, nor oxygen mask (thus no microphone), and with the non-fitting leather cap, whatever came in the ears was engine noise and draft instead of audio through the headset.

A Stampe SV4bis being hooked up to tow an awaiting glider (AC)

The movie shows me flying in tail number 41 and more about that aircraft in chapter 7 of this book. What I didn't know was that my pilot was Commandant Christiaens of the internationally praised aerobatic team "Les Manchots". He and Captain Feyten became famous performing close-formation stall-turns at 300 feet, and very close mirror formation passes. Thanks to the special carburetors called integral system, the same Gipsy engine as used in the Tiger Moth could now run forever inverted, proven by somebody crossing the whole English channel inverted in a Stampe.

Not long after being airborne I saw the pilot observing me through his mirror on the top wing, and I gave him the thumbs-up. This immediately got followed by a looping*, barrel roll*, aileron roll*, stall turn*, Cuban eight* and inverted flying. Can you imagine what effect this had on a 16 year boy having his first ride in an in an open cockpit airplane. Twenty minutes later we landed, and the enthusiasm on my face and body language was more than obvious on the film, taken whilst my mom and the rigger helped me remove the WW2* era gear.

All smiles when helped out after that first flight, still with unstrapped back-to-front flying helmet that miraculously remained on my head despite the open cockpit aerobatics. (AC)

An hour later I was on the other side of the field and got my first glider ride in a RhoneLerche towed by a Stampe. To me it was clear, I wanted nothing less than pilot wings and the freedom of movement in 3D*. 21 May 1967 had been day one for more than 40 years of joy in the air. Unfortunately we weren't allowed to solo before age17, so another year of ground school had to be endured before we even moved to a glider field.

In June I went to the last military air show organized at Melsbroek (the military side of Brussels national airport). It was very impressive with the participation of many international aerobatic teams, but what I remember most was the full-size replica of the X15 Mach6 research airplane on a trailer, a for that time enormous C133 Cargomaster transport aircraft, and the unforgettable touch-roll-touch maneuver performed by Bill Ongena in a natural metal Belgian F104. He later perfected that maneuver to perform 3 touch-roll-touches on one runway length, I watched in awe and was convinced you had to be a kind of Superman to fly that rocket with no wings at such speeds. Also noteworthy was an inverted crazy flying performed by a factory Aeromachi MB326, the Frecce Tricolori on Fiat G91, Patrouille de France on natural metal Fouga Magisters, and the Red Arrows on Folland Gnat. Being the home base of our transport wing, we got treated by a mass flyby of around 30 C119 flying boxcars low over the runway. That airshow certainly triggered things in my body and mind; Why remain earthbound when you could fly like the birds, be free and do things most people admired but had no guts to try for themselves? At my sweet age of 16, that looked like a better prospect and challenge than what my classmates were doing. Most still had no idea about their professional future and concentrated all their efforts on conquering girls. I wasn't mainstream then, and still am not now. I'm neither from Venus nor from Mars, maybe I'm just a Vulcan like Mr Spock of Star Trek fame

The (for then) colossal C133 Cargomaster at the 1967 Melsbroek airshow (IP)

C119 Flying Boxcar

Luckily they kept the (not yet flying) Air Cadets motivated by allowing us to join along any trip with any plane of the Belgian military transport 15th Wing during 2 weeks of the summer holiday. At that time they still had an impressive fleet of 4 DC6s, 2 DC4s, 12 Percival Pembrokes, a dozen DC3 Dakotas and two squadrons of 18 C119 flying boxcars each.

Looking in my passenger logbook I see a flight in a C47 Dakota, but also a couple of trips to Solenzara Corsica by C119G Flying Boxcar. With any payload*, a fuel stop in Istres was mandatory, but the French kitchen certainly also played a role in that. Nowadays C130s fly up-and-down in a day, but with the slow boxcar the overnight in Corsica was a must, and nobody complained. Mind you, at that time the island hardly saw tourists, and you could eat and drink very well and cheap in local restaurants, as long as you ate what the cook had in mind and available in the kitchen, instead of trying to ask for a non-existent menu card.

The cockpit of a C119 was an enormous greenhouse comfortably seating six crewmembers plus a jump-seat occupant. To get anywhere they took along a pilot, co-pilot, flight engineer, navigator*, radio telegrapher* and a load master*. Needless to say a new world opened to me, observing everything from the jump-seat* during the whole duration of the flights. I only left that seat for my first half hour of stick time* high above the Mediterranean. That went well but the rest of the crew preferred the auto pilot. I still convince myself it was the excess of “pastis” and “eau de vie” the night before that caused them the nausea, instead of my hand-flying.

I had been pleasantly surprised about the light controls and lack of rudder-need* during the very moderate maneuvers I was allowed. Saying I was cramped and nervous at the controls was an understatement, but how proud did I feel piloting such a monster all by myself, only being coached by voice inputs from the captain. That day I got the real basics about setting the bottom of the windscreen on a reference point far away, and using only occasional glances at the altimeter to make minimal corrections to that attitude.

Rather impressive for a young cadet, to pilot a flying boxcar from the right seat (IP)

The same system applies for small bank angles to keep the gyro compass aligned. That day I learned all those instruments on the dashboard were in fact only control gages, attitude (visual or gyro) was the primary thing to look at. Flying seemed easier than I ever thought.

Those long trips through Europe were flown around 6000 feet when loaded, or 9000 feet when empty, providing either a beautiful view of the scenery, or a rough ride through build-up cumulus clouds in dark and cold. Being unpressurized and badly insulated offered few other choices. Crossing the Alps was impossible with the ridiculous single-engine-ceiling*, and any mountain had to be circumnavigated.

Although at sea level, Mediterranean airports were hot in the summer. Luckily noise-abatement-climbs* still had to be invented. In fact even with both engines at takeoff power, they stayed very low to quickly reach Vmca* (minimum controllable speed one engine out) and then reduced to climb power (maximum continuous). It took forever to reach 500 feet but nobody complained in the aircraft overflying the beaches full of bikini-clad holiday farers.

Spacious greenhouse with person on jumpseat visible in this C119 picture (AC)

Another trip I won't forget was a night parachute drop of a jeep, which I was able to experience from the back of the airplane. The C119 had large clamshell doors between the twin booms, but those couldn't be opened in flight. When dropping outsize cargo, they just flew without the doors. Imagine sitting next to the loadmaster in the side canvas webbing less than a meter from the huge gaping hole…at night.

Takeoff in the cockpit already had been noisy, but in the back it was even more terrifying. The long blue exhaust flames lit up the cargo interior through the few portholes, and vividly contrasted the cold of the night entering through the back. For the drop, the canvas seats got folded up, and I was requested to stand unattached but with a backpack type parachute at the other side of the Jeep. When released, the slow movement of the jeep caused serious pitching of the airframe, and it felt rather uncomfortable looking from the edge at the red rotating beacon illuminating the three huge white deployed parachutes.

For the rest of the flight I felt more comfortable watching the night approach and landing from the jump seat behind the pilot. Both squadrons of faithful Korean-war era old shaky Boxcars were replaced by a dozen of C130H Hercules in 1972-1973. The C119s had proven their worth during two decades carrying men, machines, and even complete airplanes to our former colony of Congo.

I can remember only two tragedies, one crashing into a mountain in Congo (single-engine) and one being shot down (by accident) by a British mortar shell over Sennelager range in Germany.

Examples of those impressive machines can still be seen inside the Brussels Air museum and on the parade ground of the 15th transport Wing at Melsbroek.

1968

After another year studying boring mathematics at school and theory of flying, aerodynamics, meteo, engine, navigation and regulations during the weekends, the summer of 68 arrived. For many this meant students revolting throughout Europe, Russian troops invading Prague, and flower power spreading love and peace, versus the harsh reality of a Vietnam war the US thought they could win with their superior military power. To me 1968 had a more restricted scope: finally learning to handle a stick in the narrow confines of archaic fabric-covered tubes called a fuselage. I couldn't care the rest of the world was on fire. I had a 3-speed Honda 50 motorcycle which I decorated with emblems of our fighter squadrons, and a personalized helmet, not really cool, but for me a major progress towards life in the fast lane.

Note the Indian badge of the C119sqn and 349sqn emblem and…coat and tie ! (AC)

On July first I boarded a Belgian Army Piper Super Cub for a familiarization flight of half an hour. We flew from the back seat and just took over controls in the air to learn about basic flying using the natural horizon as pitch and roll reference (there were no instruments in the back seat), and use of rudder to compensate for the adverse yaw created by deflecting the ailerons during turns. One (windy) day we lost a Piper, the pilot attempted a landing on the concrete with severe crosswind. He came in with the correct wing low, but on touchdown the balloon tire bounced the wing back up, the wind pushed the airplane off the runway, and the pilot attempted a go-around. He was unable to clear the high trees and crashed downwind into them. We never understood how, but the air cadet in the back exited the aircraft and was on the ground when we arrived (it happened 200m from us and everybody was watching). Dany was the pilot and he was bleeding seriously after having hit the magnetic compass with his head. He made it, and after the year 2000 still flies Stampes, Spitfire, Harvard and various WW1 biplanes out of Antwerp.

Cadets boarding Army L18C super cubs for orientation rides, note the tall radio antenna to communicate with the artillery as spotter for shell impact accuracy (AC)

Schleicher RhönLerche

Next day I met my instructor Mr. Van Baelen, a calm and quiet Air Force airframe mechanic in his 40's, but a good flight instructor on the ground as well as in the air. The first 3 days, flights of 45 minutes in the Piper alternated with hops of around 11 minutes in the 1959 built Schleicher Ka4 RhönLerche gliders. We were towed to 1500 feet (about 500 meters) by the old Stampe biplanes, and fell like a brick when released, the gliding ratio being a mere 19:1. I still wonder why they even had spoilers* on those early gliders because with a little sideslip* you came down steeper than a space shuttle. The instructor sat at the center of gravity with his head between the straight high wings, offering him little side view unless he bent down.


Myself and instructor boarding the uncomfortable cockpit of a RhönLerche with in the background the tow plane coming in for landing. (AC)

The student sat almost upright, and rather deep compared to present gliders where you almost lie down on top of a narrow fuselage. At that time I was so skinny that to remain within the cg* limits, I had to install two 5kg sausage shaped weights in a cradle between my feet. With maximum lift-over-drag occurring at 43 knots, the Lerche was quickly airborne and wanted to climb, but allowing it to do so pulled the cable of the tow plane up more than the down force his elevator could provide at such low speeds, resulting in the inability for the Stampe to leave terra firma. With this underpowered combination, even from 6ft up we sometimes 'dove down' again to create some slack on the rope, allowing the Stampe to gain a few precious knots so it could get airborne before the levelled grass ended. If you didn't do that, you saw the tow pilot getting momentarily airborne, jumping concrete access roads and bad areas, but touching down again a bit further until the whole combination finally got out of ground-effect*. This was often the case in no wind and very hot weather. I still have it on film, very frightening as recorded by my dad from the gliders' front seat! The climb was slow, and without thermals took longer than the glide back, so we often had more training time on the way up! Sometimes the tow pilot felt updrafts* and tried to take advantage of it by flying that thermal. Imagine yourself with a total of less than an hour flight experience, 100feet behind a plane trying to center on the invisible updraft whirlwind under a cumulus cloud, catching up on other earlier released gliders … and passing them. I can assure you the leather gloves we wore were no luxury because our hands were sweating on the stick, trying to keep up with his continuous bank angle changes (sometimes up to 45°), keeping the rope tight in the fluctuating vario* conditions, and using feet to try to keep the piece of string on the windshield centered (indicating no sideslip), while maintaining the tow ship, rope and glider more or less in one line.

Once released, it felt so peaceful, but we had little time to enjoy. At the speed it flew, you had little choice where to go to, hopefully finding an updraft, the landing pattern entry point and altitude never being far away. The few times we picked up a thermal, the altitude gain was used to execute the essential stall* and spin* recovery exercises, which I quickly mastered and even enjoyed. Other cadets waited for their turn to fly, so we never stayed up long. Everybody could have a flight in the morning and one in the afternoon. When not flying, we all were kept busy running after, and pushing back landed gliders into takeoff position, running after released tow cables, connecting them and launching the next tow. Morning and evening, all the gliders (10+) had to be transported back and forth between the hangar and the middle of the decommissioned Nato airfield of Oostmalle (known for its warbird* events in the nineties). For an abandoned airfield it sure looked like a beehive with all the Cadets wearing orange flying suits for higher visibility.

Typical Oostmalle flying scene during a new student phase (AC)

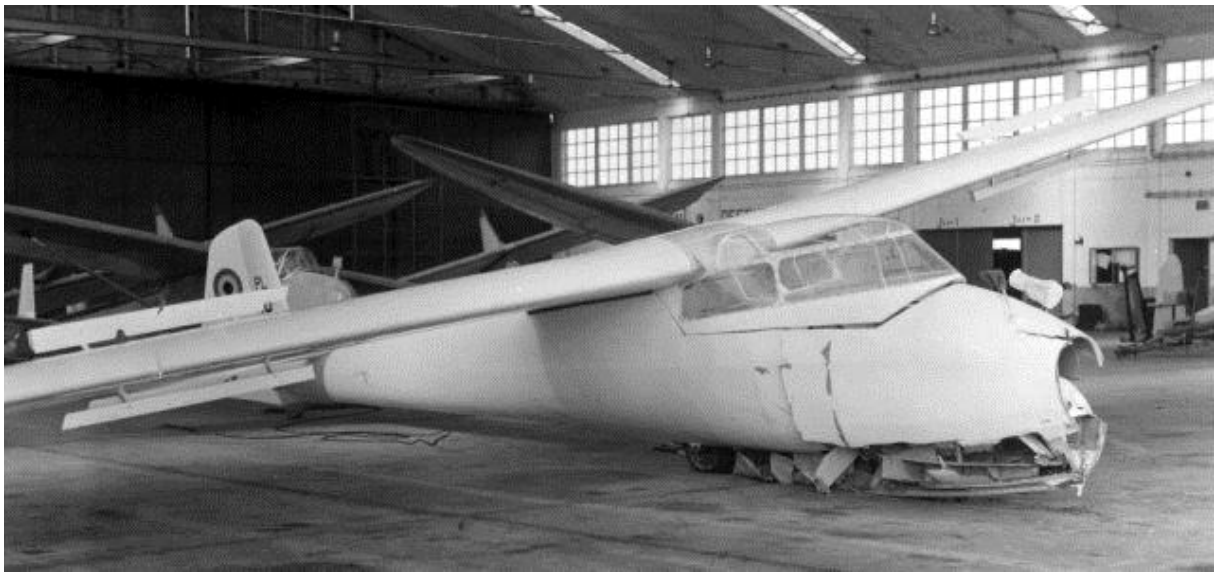
First Solo

My logbook shows that even after skipping a day because of bad weather, 7 days after my first flight, that magic moment already came. Two consecutive flights in the morning, then after supper three consecutive flights. After the first of the latter, the instructor stepped out and when I prepared to do the same he told me to remain strapped. I thought he would go for a quick pee between flights but he neatly buckled the straps in the back together, and it slowly downed on me that my next ride would be solo. Contrary to beliefs, such first solo flights are non-events. In a tandem* seat aircraft you don't even see the absence of the instructor, and although he isn't there anymore, you'd swear you still can hear him giving you guidance during all phases of the flight. The difference in weight was noticeable, especially in the pattern, but just a tad of spoiler* deployment brought the usual glide picture back during the final approach. You are so busy that there is neither time for terror nor enjoyment. The first landing was perfectly smooth and I stopped right in front of the time keeper's table. I felt proud and relieved but had no time to celebrate or absorb. My instructor gave me the thumbs up, shouted I had to remain strapped, and whilst the other cadets pushed me in the start position and hooked up the towline, the Stampe taxied into position, and within two minutes I was airborne again. This time it was even easier, I didn't think about what I had to do, it came by itself, was my flying mechanical or already instinctive? Fact is that this time I found it easier to enjoy my newly learned skills, to savor the delights of being airborne. The movie Jonathan Livingston Seagull (with the fantastic music and lyrics by Neil Diamond) later illustrated very well this incomparable feeling, so different from what passengers nowadays experience in modern light planes, or in the confines of airliners in which you already might be lucky to see a piece of land through the badly placed small windows. Approaching sunset, the evening air was super smooth. After disconnecting from the towship, I found myself gliding effortlessly, looking at the sun touching the horizon, with nothing but the steady whisper of the wind along the cockpit. The airspeed indicator became an unnecessary luxury, any change in speed produced a different whistle. This was flying by the seat of the pants. The altimeter was the only instrument I looked at just to make sure I flew the prescribed traffic pattern. I felt the freedom of birds, the total relaxation of my body and mind… nothing compares to glider flying. That's why later in my career I always was able to isolate pilots who started by gliding, from the ones who learned on modern tricycle-geared powered aircraft. The finesse and feelings of the former is very different from the mechanical instrumental way the latter fly, and it remains noticeable even decades later. Back on the ground, the other Cadets and instructors came cheering around my cockpit, and I even didn't have to carry my parachute back. I had been the first solo of the class, days before the next guys, and after only 16 duals, totaling 3 hours and 7 minutes. I was proud, satisfied, and apparently talented. We had a big party (with only lemonade or Coca Cola for the students), and I had a wide grin on my face when falling asleep that night.

Schleicher Ka2

One week later, a few other guys had soloed as well, and it became obvious we needed more gliders on our field. On the nearby airfield of Weelde, the senior cadets got their training and flights by winch launch. The newbies for this launch method had been trained on the RhönLerche as well, but by then some had progressed on more advanced gliders, allowing us to ferry one of their RhönLerches back to Oostmalle. With already 6 solo flights I spent much time on the ground, because priority was given to the non-solo guys to get checked out. It was logical that I was chosen to accompany an instructor for the ferry flight.

Upon arrival (by Jeep) I was fascinated by the impressively steep climbs of the gliders, pulled up by an operator on mighty V8 engines, anchored on the other side of the airfield. Because our glider was still airborne (excellent thermals that day), my instructor thought we both had time (and envy) for a winch start, and when nobody of the guys out there showed enthusiasm to crawl on board of the next in line old Ka2 RhönSchwalbe, he winked at me and we strapped ourselves in. Takeoff (or should I say liftoff) was even more impressive from the front seat than from the ground, but of course was flown by the instructor in the back. More about winch starts later in this chapter. After release I got the controls, and this was a much better flying machine. It flew well but was difficult to handle on the ground. Lifting the tail just a bit already caused the nose skid to scrape the ground, making it very difficult to move around, especially over uneven terrain, plus it was heavy. Its canopy was a long heavily framed narrow affair in which only the two pilot heads came out, and allowing not more than a rather claustrophobic view through all those small Perspex rectangles, very reminiscent of German WW2 aircraft.



Air Cadet Ka2 PL10 after a prvious mishap (Daniël Brackx)

With its 24:1 glide ratio at a higher speed, it gave you more time and area to look for thermals. We could have stayed up much longer, but we brought back the borrowed plane after half an hour. We then ferried the Lerche to his new home, also in half an hour. During this overland flight I got many pointers on how to fly out of reach of airfields, always keeping an eye on emergency landing grounds. Typical Belgian summer weather (in other words lousy) caused us to skip a few flying days, but I was able to conclude this 3 week camp with 23 dual and 8 solo flights.

Grunau Baby

Following months were not that exciting because Cadets only got called to fly one weekend out of two, and with our typical Belgian weather, we were lucky to fly one weekend a month till the season stop end of October. At that time we still had school till Saturday noon so I went to school with a suitcase containing my Air Cadet stuff and uniform, then took a tramway to Brussels railroad station, a train to Antwerp where we hopped in the back of a waiting old military Bedford S-type truck for an hour drive to Oostmalle airfield. We swapped our civvies for flying gear during the truck trip, so we'd be ready to fly when we finally arrived on the field, half asphyxiated by the exhaust fumes of the venerable petrol engine.

By that time it was already late in the afternoon, but with a bit of luck we still could make our check flight(s) in order to fly a couple of solo rides on Sunday. In September this worked smooth, and after 2 check flights and 3 solos on the Rhonlerche I proved I was doing well because the last trip I remained airborne for 53 minutes attaining a height of 2400 feet.

My instructor took note, and promptly decided to free one Lerche by assigning me to a vintage Grunau Baby III. This glider had been conceived in 1931 and much used by the Germans to train pilots who would later become the nucleus of the emerging Luftwaffe. That single-seat glider had a fuselage completely made of glued plywood panels. Few Cadets got to fly it so I had no idea how different this machine was from the more "modern" two-seaters we usually flew. I got briefed by my instructor but was totally surprised by the rough ride on the ground. The noise of the single rigidly attached wheel bouncing on the numerous rabbit holes got amplified so much in this plywood fuselage box that it was deafening, and I expected the whole thing to fall apart in a matter of seconds. If sitting in a subwoofer listening to a bass solo could be feasible, the effect would come very close.

The author along the Grunau Baby III awaiting the solo briefing by the instructors (AC)

Take off roll was extremely short because max lift/drag speed was a mere 33 knots*. There was no trim so you had to push the stick hard under the dashboard in order to remain in the correct position behind the Stampe, who did it's best to climb barely over his stall speed. The narrow enclosed cockpit in front of the pylon mounted high wing was anything but airtight, and the wind noise during this "high-speed climb" also reverberated and was very prominent.

I was glad when the tow pilot gave me the aileron rock, signifying I could open the hook and start soaring at a speed much more appropriate to this old timer. Speed is maybe an inappropriate word to describe the minimum sink rate of 0,79m/s occurring at a mere 25 kts (only 46km/h). Unfortunately this also meant it took forever to fly from one cloud to another, and with a 1:17 glide ratio*, you were going down fast. On the other hand, if you found a thermal, you climbed much faster than more recent gliders because you could fly extremely tight circles right in the middle of the thermal, where maximal vertical velocity of the air column occurred. It was fun, kind of hovering in the midst of all those nice elegant gliders circling around you, it looked as if you were in a vintage open cage elevator going up much faster than the athletic-built people running up the stairs around it.

In October during a flight in the rain, not a single updraft was encountered and I found myself on the ground after only 9 minutes of flying, tow included! With that high wing it was stable and easy to fly, but on a windy day groundspeed* (or the lack thereof) could be alarmingly worrying and final turn judgment critical in order to land at the correct spot. On the balance, if you couldn't make the field, any garden worth its name was large enough for a safe landing, even after dropping in past obstacles such as trees or power lines. Of course the landing was as noisy as hell and I never got used to it. Of the few Cadets who were given the opportunity to fly it (on the rare days they took it out of the hangar), most elected to skip the offer, but I never missed an occasion.

A year later I also flew the open cockpit version, promptly losing my flying cap in the wind when turning my head to clear the sky after cable release. In that machine, hearing the wind got replaced by feeling the wind. The minuscule piece of Perspex in front of your face was an ideal slip instrument. As soon as the ball was off center, you could feel the wind on one ear or the other, very effective. If you felt it on a cheek, you had bad coordination and lost precious altitude in the progress. Each time I visit the Brussels Air museum I look with nostalgia at the Grunau PL37 hanging from the ceiling, and thank the Air Cadets for having given me the chance with less than 10 hours of total experience, to fly that (already then) historic machine.

The same glider still hanging in the museum today (Daniel Brackx)

Douglas DC4/C54 Skymaster

During a ceremony with family and military music band, I received my glider-pilot wings from a General and was proud to wear them on my service dress. During winter no Flight Cadet flying activities took place, but I volunteered to represent our organization and distribute pamphlets during so called vulgarization flights. At that time our Air Force tried to recruit personnel by offering 45 minute flights to schools during their free Wednesday afternoons. This mostly happened in one of the 2 Douglas DC4 transports.

BAF DC4s OT-CWV and CWU motivated many youngsters to join the Air Force (IP)

Each Wednesday I again took a small suitcase with my uniform to school, and at noon changed and drove my motorcycle to Melsbroek airfield. The stewards aboard were glad to have some help getting all those kids' seatbelts fastened for takeoff and landing. After distributing the leaflets and answering any related questions during taxi, I moved to the cockpit and stood behind the flight engineer for takeoff and landing, absorbing every bit of aviation knowledge I could get. I don't think nowadays you'll find many transport pilots allowing an adolescent to stand on his feet behind him, holding the captain seat for equilibrium, and having no seatbelt whatsoever, and that during the most dangerous parts of the flight, takeoff and landing.

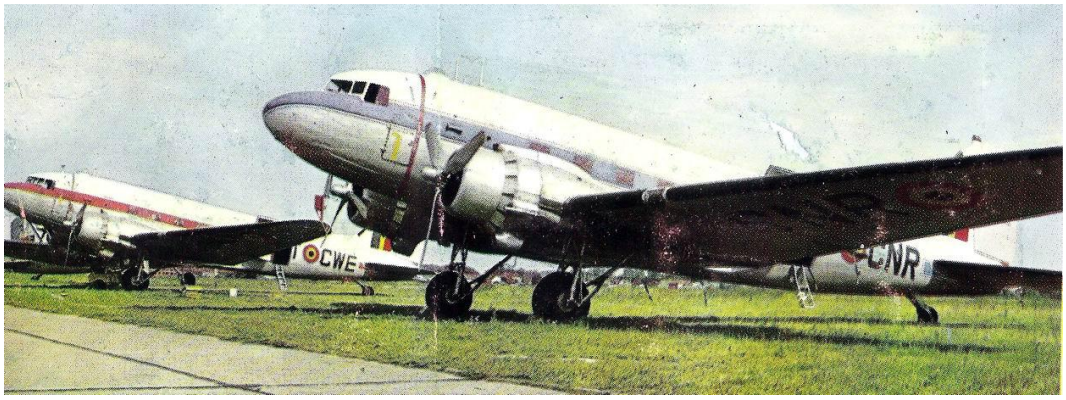
The instrument panel and in fact the whole cockpit was packed with instruments of all kinds, most of them unfamiliar to me, and I showed much respect for people able to put all that information to good use. Frans, besides being one of the flight engineers, also was an Air Cadet glider instructor, and he gave me all the information I wanted. It's hard nowadays to imagine the job of those 'flight eng'crews in multi-engine piston airliners. Present electronic advances and easy to operate jet engines have eliminated them from most cockpits, but in those days they played a vital role. They were seated on an elevated foldable seat between the pilots, and in front of them they had all the engine controls and related instruments. Behind them on the side, and overhead, they had control over most of the aircraft systems located on huge panels packed with instruments, switches and circuit breakers.

Starting-up four old Pratt&Whitney 14 cylinder radial 1450hp engines took a lot more finesse than today's push-to-start jets (more of that technique in later chapters about DC3 and B25 Mitchel flying). Individual engine run-up checks before engaging the runway meant the whole airplane was shaking and shuddering for quite a while. Individual magneto operation was checked not only by rpm drop, but also by watching an oscilloscope type of instrument displaying the spikes of each individual spark plug performance. Propeller constant speed units were checked and cycled to circulate hot oil into the domes, plus feathering* and unfeathering. Carburetor-heater* operation also had to be checked, as well as fuel mixture*.

Typical DC4/DC6 cockpit, wheel on top of dashboard is the rudder trim (IP)

The flight engineers' hands performed a ballet over the dozen colored handles in front of him, quite impressive and mostly unseen nor appreciated by passengers. On takeoff, the pilot advanced the throttles, but the flight engineer then made all the adjustments, and after takeoff was the only one to touch those until after touchdown. Having no powered flight controls, the pilot needed both hands to manhandle the yoke for the approach and landing, and just called out the required boost (manifold pressure) to the flight engineer who constantly adjusted boost, rpm, prop synchronization, fuel mixture, cowl flaps and carburetor-heat to provide the desired power till touchdown. He for sure earned his modest flight pay.

For those school trips we flew up to five consecutive rides, at 1000ft via Nicky and Bruno VOR* back to Brussels. Because it often was the same crew, and the pilots found it boring, I sometimes got the opportunity to fly from the co-pilot seat during a quarter of an hour between those 2 VOR's*. A few of those flight were made with DC3 Dakota or DC6, and in 2 years' time I was able to clock more than 50 hours in those majestic time-machines. The latter were kept in our service till 1976 but more about those in chapter 5.



We had over 40 Dakotas in various colors for over 30 years (AC)

In the meantime I had exchanged my grandpa-style motorcycle for a 5-speed Honda CB50S with fiberglass fairing, on which I painted a huge shark mouth reminiscent of Claire Chenaults' flying tigers. Contrary to my shy frail-guy appearance, I became a determined daredevil when given the appropriate mechanical means.

After I accidentally ran over a bicycle rider, I painted a bicycle on the fairing with the date of the 'victory' underneath it, similar to what fighter pilots displayed under their cockpits after air victories during the war. This probably should light a bulb regarding the evolution going on in my mind.

With aviation inspired markings on my school bike (AC)

ASK13 and Ka8

1969 became a milestone year for air and space due to the first flight of the supersonic passenger aircraft Concorde, and the first human steps on the moon with Apollo 11. My achievements during that year were more modest, but nevertheless provided me unforgettable experiences. Early April I got checked out again for gliding, but gusts up to 25 knots (fully cross on one day) made the solo flights very challenging.

Early May the weather improved, and during the first flying weekend I had met both requirements about altitude gain and endurance for my C license qualification. This also meant I could progress to better performing gliders. Forth flight of the day was a checkout in the ASK13, a beautiful forward swept wing trainer with one-piece hinged canopy offering a superb all around visibility. At that time we only had one of those, and were not allowed to solo in them.

Posing besides the ASK13 PL61, the new toy for the instructors (AC)

Its 1:28 glide ratio was a big improvement, and identical to the ratio of the single-seat Ka8. The 20 minute checkflight must have been satisfactory, so for the fifth flight of the day, I got assigned one of those large cockpit Ka8s and felt very proud and happy about the swift progression. We also had Ka8 gliders with a smaller bubble framed canopy, but apart from that they didn't differ much. These 1964 gliders were a delight to fly, much quieter, faster, and lighter on the controls. You were lying instead of sitting in them, and that made longer flights much more comfortable, also because you could fly much faster from one cloud to the other. The following weekends were excellent, and I sometimes flew all five of my previous glider types in 2 days. June saw no flying because of the school exams.

A Ka8 glider just before their Air Cadet retirement in 2004 after 40 years of service (IP)

Exchange to Canada

Instead of a summer flying camp, I got selected for the International exchange program of Air Cadets. I initially was disappointed being selected for Canada instead of the USA, until the commander explained me it was a much better destination, and exceptionally covered both the East and the West coast that year. He also told me I would have many more chances to be in the States later in my life, and that proved more than correct.

Although the exchange program is mainly a socio-cultural affair, I got the opportunity to fly in some interesting aircraft. All Belgian Cadets got transported by C119 Flying boxcar to the main exchange hub on the Frankfurth Rhein-Main airport. The apron was full of transports from all the participating nations, including some rarities as an Israeli camouflaged twin-boom Nordatlas, or French Nord 262. The place was a delight for young aviation buffs and I made good use of the opportunity to shoot some 8mm images of the activities, including a KC97 Stratotanker (with auxiliary jet engines) taxiing by with lots of blue smoke puffing through the exhausts. A pity I couldn't record the sound of that.

For the next leg we swapped aircraft according to our final destination, and I joined a bunch of British Air Cadets in their RAF Bristol Britannia for a short flight to Lahr, the Canadian air hub in Germany. After having flown in nothing but noisy piston airplanes, the turboprop* powered Britannia felt like pure luxury with minimal vibration. Its four Bristol Proteus engines produced significantly less noise inside and outside, resulting in this airliner to be referred to as "Whispering Giant". We had an overnight at Lahr and that was also my first acquaintance with the cheap goods available at the tax-free base exchanges of overseas forces.

A comfortable Britannia of the Royal Air Force (IP)

Canadair CC106 Yukon

Next day was my first crossing of the Atlantic, in those days quite an event for an 18 year old middle-class boy. I remember a few Royal Canadian Air Force C47/CC129 Dakotas on the flight line, each of them gleaming in the sunshine with immaculate white tops, red and white thunder motive striping, and a highly polished aluminum lower fuselage. The Canadians for sure maintained their planes to a very high (aesthetic) standard, irrespective of their age. We boarded a very elegant CC106 Canadair Yukon, a Canadian produced longer range version of the Britannia, able to take 134 passengers and 10 crew directly from Lahr to Trenton in a 10 hour flight. Its four 5500 ESHP(equivalent shaft horsepower) Rolls Royce Tyne turboprops gave it a respectable 290mph cruising speed at FL300*. This was quite an amazing airplane that set a few speed/distance/endurance records only beaten by Boeing 747SP (special performance) decades later. It also was very comfortable and quiet, but unusual in having all passenger seats facing backwards. The rationale behind that was pure safety, in the event of a water/crash-landing, occupants would much better support the abrupt deceleration than in forward facing seats, where the corps gets projected onto the seat in front of you, only restrained by a seat belt on the stomach. How many lives could have been saved if this had become the standard? Of course the present steep noise-abatement climb* angles would make such arrangement uncomfortable, but at that time it proved feasible.

After all those years I still remember that lesson, and whenever I am in a train, elect to sit facing backwards. Another particularity of this plane was that all control surfaces hung down by gravity. There was no direct connection between the sticks and the actual surfaces of ailerons and elevators. These surfaces aligned with the airflow as speed increased, and deflected only due to the servo/trim tabs which were manually operated by cables from the control column. That way it eliminated complex and heavy hydraulic systems, but it was a weird sight during the takeoff or landing roll on bumpy runways. The weather en-route was perfect, and the sight of drifting icebergs and North Canadian permafrost plains are still engraved in my memory. Strong headwinds had forced us to cruise at only FL160, so we made a fuel stop at Goose Bay, final destination Trenton being reached just prior to sunset.

Very elegant long-range Yukon of the Canadian Forces (IP)

We then travelled by bus and train to Toronto, Hamilton and Montreal, where the World Fair was taking place. We also visited Niagara Falls, from the ground and air, because we all got a sightseeing flight by the St Catherines flying club over these impressive falls, mine being in the right seat of a Piper Cherokee 140.


With the club Cherokees over the Horseshoe falls (Canadian side of the Niagara)(AC)

I can assure you I experienced a serious culture shock in those cities. Everything was so modern, so widely spaced, so well kept, the cars were enormous and travelled on 8 lane highways through town. We visited the locks between lake Erie and lake Ontario, the ships were 5 times longer rgan what we saw on interior waters on the old continent, and they had a huge steering bridge at the front. All of that was really very impressive for a European person.

After a week on the East coast, we again boarded a Yukon and it took more than 7 flying hours to cross the vast Canadian country, with scheduled stops at Winnipeg and Edmonton. Final stop was Vancouver, which was reached shortly after crossing the beautiful blue colored Rocky Mountains, another unforgettable sight. After the obligatory official visits, we took a ferry to Victoria on Vancouver Island, for more exploration of Canada's huge territory, including an impressive tour of a private logging exploitation about the size of Belgium.

Canadair CP107 Argus

We also had a day's visit at Comox airbase, home of the Mc Donnell CF101 Voodoo 2-seat long-range fighters of 409sqn, and HU16 Grumman Albatross search-and-rescue amphibians. The Voodoos were big elegant fighters and impressive to hear getting airborne with their twin J57 engines in full afterburner*.

Impressive CF101 voodoo's of 409sqn (AC)

The best part of that visit certainly was a flight for all of us in a Canadair CP107 Argus. This again was an indigenous design based on the Britannia, but with a complete new fuselage tailored for anti-submarine warfare, and powered by shaky turbo-compound 3400 BHP Cyclone engines.

I'll never forget the view sitting in the fully glazed nose while buzzing fishing trawlers at mast height. The speed might not have been terrific, but buzzing the waves at that height for sure gave the impression we were flying extremely fast.

Rare Argus clearly showing its anti-submarine design features (AC)

After a week, we again boarded our trusted Yukon for Trenton, and next day we got a flight in a Schweitzer SGU2-22 glider. With a 1:17 glide ratio and a winch start, we were on the ground in 4 minutes. Next day was the non-stop flight back from Trenton to Germany in 10-1/2 hours, bringing my total Yukon passenger time to 37-1/2 hours. At Lahr I slept for a non-stop period of 24 hours, thereby missing a free day when most other cadets spent their remaining dollars and traveler checks in the tax-free LX Lahr Exchange. They had to wake me up to be in time for boarding the RAF Britannia to Frankfurt RheinMain Then by Flying Boxcar back to Brussels to complete this much appreciated exchange.

In September and October I resumed glider flying, mostly on Ka8, and after some precision landings and a checkflight by an examiner, obtained my international glider license with a mere 20 hours total time. Weekly vulgarization flights also continued on DC3, DC4 and DC6 during the whole winter. Stick time was minimal or sometimes nil, like on a Dakota trip captained by the C119 display pilot, in which his 10 year old son occupied the right seat* including takeoff and landing. The kid must have liked it because he later became an Air Force transport pilot and squadron commander.

1970

Winch starts

During the first semester, the completion of my studies had high priority, together with the required tests to be able to join pilot training in the real Belgian Air Force. My then best friend killed himself, misjudging a curb while driving a competition type motorcycle along a challenging sinuous narrow road we negotiated a few times a week.

That prompted my grandma to sell my motorcycle and buy me a used Triumph Herald car. Within a week I redecorated it with personalized striping, christened it Mirage (our Air Force just introduced those French iconic delta winged fighter-bombers in service), and labelled the whole instruments panel with yellow on black placards denoting cautions and warnings similar to aircraft cockpits.

Period paint accents on my first car (AC)

I also remember skipping classes at school the day that the first Boeing747 Jumbo landed at Brussels national airport. It had been announced through the media that the Pan Am monster would make a single demonstration flight, but there was no intent to fly this aircraft on a regular basis into our country (yet), so a lot of people showed up for that unique opportunity. I joined the others on the terrace on top of the terminal arm, along which the aircraft would park. In those pre-terrorism days, being in the open air, one could almost touch the aircraft and sniffle the fumes of jet fuel of the aircraft being handled slightly below in front of you.

When this huge jet was on finals, we all moved forward to see the touchdown. I was surprised to almost bump into my father, who also had 'diverted' from his planned regular work to witness that appearance. We never expected to encounter each other there, and had a good laugh about the situation. The sight of the 747 dwarfing the Caravelles, Comets, and similar older jets, was definitely something special, but I'll never forget the frightening sight I experienced when it took off, climbing out steeply at a seemingly very slow speed, in almost total silence compared to the deafening noise the preceding Aeroflot Tupolev 104 had made. We all held our breath because we had the impression this huge Jumbo would fall out of the sky any minute. These few hours had made a lasting impression in my mind about the rapid advance in technology boundaries, but did not trigger any envy to fly airliners for a living.

I only resumed glider flying during the summer camp at Weelde airfield, with a mathematics degree and notification of selection for Air Force class 71B in my pocket. After three re-familiarization flights behind a tow-ship, I started out on winch with the venerable Rhönlerche again. That was a completely different ballgame. For those of you unfamiliar with this launch procedure I'll elaborate a little.

A jeep pulled out 2 about a kilometer long cables from the reels of a trailer mounted V8 engine on one side of the airfield, to the gliders on the other side. The cable then was connected to a hook on the side and below (instead of in front) of the glider. When the pilot gave the ok sign, the winch operator got a field-telephone call to inform him what type of glider, how many aboard, and sometimes the skill level of the pilot, or instructions regarding training of an emergency simulation. He then slowly took away the slack on the cable, and another ring confirmed the glider was moving.

At that moment he applied full throttle, and the glider was in the air in a matter of meters. As soon as climb speed was attained (a matter of seconds), the pilot rapidly pulled the stick back to about 60° of pitch. This was the most critical phase, because if he pulled too hard, the cable could snatch or the winch engine could stall, in both cases leaving you at your mercy in a nearly vertical attitude around a hundred feet from the ground.

Needless to say you'd better be very quick pushing the stick fully forward to recover from the perilous situation, and land straight ahead with a tremendous heartbeat. This procedure got exercised on purpose at a more comfortable altitude of about 200 feet, before you were allowed to launch solo.

Typical glider attitude after the initial rotation during a winch-start (IP)

Now back to the normal launch. If you didn't pull hard enough, you went forward instead of up, which wasn't the idea. In order to reach maximum altitude with the given amount of cable, the pilot slowly but steadily nosed over at optimum speed during the very steep climb, whilst the winch operator reduced the power in order not to pull the glider back to earth. This interaction required much feeling by the guys on both ends of the cable, especially when glider types with different characteristics were launched randomly in the pre-radio era. Nowadays glider pilots radio their speed during the climb, allowing the winch operator to adjust the power of their powerful high torque diesel winches, which cannot stall anymore because they use a torque converter to transmit the power to the multiple cable reels.

Cable release was done almost vertically over the winch, at altitudes between 900 and 1700 feet, according to the capabilities of the individuals at the controls. After release, the cable came down on a small parachute, allowing the winch operator to reel in the whole length before repeating the operation on the second cable. The hook was designed to release the cable automatically when you passed the winch, but you also disconnected manually. In case that failed, the winch operator had an axe to cut his end of the cable, in which case you would have to land with a ½ km cable dragging the ground, but luckily I never saw that happen.

After only four dual launches, I was allowed to solo, and I can tell you my hands were sweating in my gloves after I separated in silence after reaching altitude.

This of course is a much cheaper and quieter way of getting gliders airborne, but the downside is that it only brings you to one spot, and the thermals might be far away. A good tow-pilot releases you close or into thermals.

All things mentioned in the last paragraph might explain why the Belgian Air Cadet logbooks had separate columns for logging flying hours, minutes and even seconds! Whenever time was logged in seconds (after a cable break), be assured the adrenaline had pumped hard, and the experience gained was vaster than the many hours of boredom that (airline) pilots log on autopilot.

I completed a few more launches that week, but by that time slowly had lost interest and was mostly daydreaming about jet flying in a not so distant future. I might not have amassed much experience on gliders (85 flights) but it for sure provided me a solid base to work on. Later it would become obvious that pilots who were initially taught flying by the seat of their pants on gliders, always had an edge over the ones who started with powered flight. The finesse of tiptoeing rudder pedals to keep the string on the windshield centered at all times evolved in a natural sense of rudder use, very useful later in spin prevention, and even air combat maneuvering.

Non-glider trained pilots tend to only watch the ball on the instrument panel when they experience things aren't going as expected, but that instrument is by far not as sensitive as the piece of string on glider canopies, and will never teach anybody the subtle inputs required to achieve maximum performance through coordinated flight. The latest generation of pilots even don't need to master this anymore because since a few decades, new planes are 'directed' by a pilot, but flown by a computer which automatically compensates for all those secondary effects or gust inputs. More about that and the effects on a conventionally trained pilot on F16s in chapter 7.

Freedom of flight

During that initial contact with the aviation world, I learned more than just flying. I opened-up from the protected world of a school going single-child, to a person aspiring for freedom, but preferably surrounded with people whom I could share my enthusiasm with. A few years after discovering the relaxing but challenging world of sailing boats (I was also an avid dingy sailor at the age of 14), I found out how much I loved the lonely confines of a single cockpit. It was mostly me against the elements. Only skill and continuous split decisions kept me happy in environments so threatening to other people. I literally had my life in my own hands, and savored the challenge of exploring boundaries, mine as well as those of the machines offered to me. I also noted the Belgian military aviation world (just as Belgian drivers in general) took much freedom in interpreting governing rules.

A striking example of this was the way we got the gliders to and from the hangars located at the very end of 500m taxi tracks perpendicular to the runway, with high trees on all three sides. Early morning, the Stampe would be pushed out of the hangar, and the pilot mostly went for a weather check. In practical it meant it was his only time of the day he would take off without a cable behind him. Can you guess what an active (jet) flying Air Force pilot does when given a fully aerobatic biplane with inverted fuel system? Yeah…and sometimes they took a cadet along. Guess who always volunteered going out early to open the hangar doors, refuel the Stampe and drive the Jeep with fire extinguisher trailer to check for Foreign Object Damage on the runway and taxitracks?

During that weather check, other cadets manhandled more than ten gliders out of the hangar and set them up on the taxiway. The Stampe then landed either on the runway, or on the taxiway, dropping off his passenger, and took off with each glider in turn from the stretch of narrow taxiway ahead, irrespective of wind direction. The combination would stay below treetop level (to minimize wind influence) until reaching the perpendicular main runway, and make a climbing turn once into that open space.

Needless to say, on windy days this could be very challenging, and full stick deflections were often needed to counter the turbulences, because with larger gliders the wingtip clearance would be less than five meters total ! Those flights always were short, because the selected instructors who were deemed capable of this, were brought back from the runway location to make subsequent ferries till all the gliders were on the main grass field. Nowadays pictures taken by digital small cameras or smartphones would be readily available, but in those times, taking a picture with a camera (lightweight throw-away cameras still had to be invented), having it processed (expensive) and the risk of having it damaged during the critical handlings, result in hardly no pictures of those rather tricky operations being available to illustrate how it was done in those times.

It was amazing how much confidence they had by allowing us to handle the controls during such hairy takeoffs in dual gliders, using shorter than normal tow cables. They coached (shouted) more than actually intervening on stick or rudder movements, and we learned a lot from that. Senior cadets (3 year flying) were allowed such takeoffs with single-seat gliders in calm weather. All this was mainly done in order not to have to push the gliders to the open runway. Belgians being a bit lazy, the same thing happened in reverse every evening. The gliders were flown in one by one with experienced instructors on board, on the same taxi track stretch, but in reverse direction. The big difference was that at the end there was no open runaway space, but an old fashioned barrier and trees only 10 meters behind the hangar spot.

The end with barrier (left) and high trees, no overshoot possible here. (IP)

It was even more tricky on Weelde airfield, because there was a bend of about 15 degrees in the taxiway just prior the approximate touchdown point. Downwind landings in such conditions were definitely not for the fainthearted. On the other hand, I never heard of any accident, operating that way for more than 10 years.

Throughout my career, I would encounter many occasions where written air rules were kind of waived off unofficially, as long as the guys knew what they were doing, and it would help the mission to be accomplished 'more efficiently'. The final point in that was (and sometimes still is): if you've done well, everybody closes the eyes and it provides excellent bar talk, but if something goes wrong, they will nail you with the rule book in hand. I always liked the freedom of doing things my way, and the excitement during and after provided me the adrenaline and sense of fulfilment to live a challenging life.

Belgians have a very good reputation regarding flexibility and unconventional solutions to resolve problems. We often refuse to accept rules made up by lesser qualified people who limit the possibilities of the more experienced ones. Just drive around Belgium in a car for a couple of hours, and you will understand what I mean. This attitude shared by most of the Belgians, certainly isn't the safest way of getting things done, but ensured our forces (and industry) to be highly competitive versus much richer and better equipped nations. Belgians' dismissal of rules, and their inventivity reach their climax when they fill in their income tax papers each year.