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## *An “aerobatic” affair*

### **Fulvio Ferrari**

The photograph of ingegner Eugenio Mollino stepping out of a Saiman 202 and the one of his young son on the same airplane show the last two generations of the Mollino family, united in their common interest. This was mainly the field of construction, but photography, skiing and advertising also played their parts though, unlike his father, Carlo's attitude was far removed from the rigid rules dictated by his profession, and more attentive therefore to exploiting the opportunities for expression that each, and all, of these areas could offer him.

But how can one "express" oneself in aviation, a world governed by the inevitable laws of physics so fatefully put to the test by Icarus?

The falcon or the swallow, with their darting flight and their weaving and unexpected turns, help settle the matter: the essence of Mollino's aerobatics lies in the imitation of those perfect manoeuvres. As he himself pointed out - when piqued by an uncalled-for remark - these stunts had nothing to do with exhibitionism, challenges or the (Futurist-style) risk required to accomplish the feat. On the contrary, they were aerobatics carried out to perfection, with the elegant manoeuvres of classic textbook figures. He admitted he had been aware of "how and to what degree aerobatics can take hold - more than one might ever suspect - of a young... spirit enamoured of harmonious exploits".<sup>1</sup>

It seems necessary to take into consideration some sort of mythology when introducing the chapter on Carlo Mollino's flights. The oldest aeronautical document in his library actually dates all the way back to the archaic "Comitato Promotore del Volo Umano Muscolare" (VUM), the committee for the advancement of muscle-powered human flight. This series of photographic prints, dated 1910-1911, belonged to his father, and illustrated the practical results of studies carried out by Eugenio with his friend, ingegner Giovanni Sartorio<sup>2</sup> using a system of beating wings which were moved solely by the power of human muscles. Carlo had kept a copy of an application to take part in the VUM events in Turin in 1939. As well as providing the reassuring information that a similar committee existed abroad, and had already been active for more than a decade, it stated that "the conquest of Human Muscle-Powered Flight would be a great success for Imperial Italy in the world, and would bring industrial and economic advantages to the Nation".<sup>3</sup>

The illustrations in this chapter show sketches produced by a precocious Mollino who was taking up his father's interests, by doing meticulous drawings of implements and real aeroplane engines, but also of visionary flexible wings and helicopters. He never lost his talent for dreaming and at a much later age he outlined his delightful "elitopo" [mouse-helicopter] which would still fit admirably into the Hollywood-style "Star Wars" movies of today.

After over five years flying activity, he wrote about the aviator: "Everyone knows old folk like me, that a craze for flying is followed by a sense of boredom, which means that now, more than ever, flying becomes less interesting even than playing at being a stationmaster with a toy train set (going to Cannes or Agnano, going in a bag and coming back in a trunk, eating in a glass cage and

returning with some French perfume or a silly carton of cigarettes: this is the only point of getting there. These displays should be discouraged!). Others, after the gimmick of stopwatch trials - which are at about the same level as the game Sardinian women play when they thread ten different needles with ten different strands in the shortest possible time - stop after ten trophies at the most".<sup>4</sup> As a result one may wonder what Mollino's interest was in flying, but a revealing antecedent to this aerobatic affair appeared in the early 1930s in the lines of "Vita di Oberon",<sup>5</sup> in which the autobiographical protagonist Mollino the demiurge - introduces excerpts that reveal his vision of Aerobatics, in this case referring to the movements of a motorcycle racer, who: "racing at high speed... abandons himself to the most extraordinary feats... a pure and prodigious thing: a master piece of Aerobatics"... the racer... "traces a circle close to the vertical track with stunning accuracy... the motorcycle suddenly tilts over as though magically released from the force of gravity, and, horizontal, with rapid spirals, rises up the inside surface face of the great cylinder: the inhuman impression of being like an aeroplane flying upside down... He transfigured legendary skills... into a perfection of style, as for a ceremony suspended over the void... by now he had surpassed his Japanese master who taught the mystique of aerobatics". Lastly, "the crowd expected that one day... he would kill himself, but in five years he never even creased his trousers."<sup>6</sup> Fantasy did not surpass reality in Mollino's life and indeed his two and a half accidents as a pilot never even creased his trousers.

Mollino was mainly interested in the arabesques formed by the flight of winged creatures, that sort of natural Aerobatics in space, in full compliance with the all-embracing laws of the cosmos, including the celestial arabesques that the enlightened architect was able to capture - and even transfer to the curved plywood tables that we admire so much. An aerobatics companion wrote to him of the "curls of impalpable atmosphere traced by the magnificent bird of steel".<sup>7</sup>

He was thus distant from the arena - like world of the motorcycle rider so vividly described in Oberon. This is confirmed with a certain amount of lyricism in a document addressed to the airport control authorities in which he justifies an infringement of flight regulations: "At the tender age of 60, with my body and soul in excellent shape, I am living proof that I look after myself exceedingly well and I am not apt to be careless. I have always paid careful attention to the gifts that fortune has granted me. Those who know me recognise that I do not do aerobatics out of vanity, but as a sport designed to attain harmony in the conscious use of meticulous control. This passion is closely connected to my profession and, as a matter of principle, excludes any desire for thrills, risk or exhibitionist daring. There again, this is the spirit of the latest "corkscrew" aerobatics, better known abroad as "vol de virtuosité" instead of the ambiguous Italian "Aerobazia". Or even, "Kunstflug".<sup>8</sup>

On the same day, and referring to the same offence, he wrote to ingegner Castagna, "what I would like to make clear... is that I am indeed an amateur civilian pilot and yet extremely reserved, even though an 'Aerobat'. This improper term [aerobatics] should be clarified in its current, almost opposite meaning, for which any exhibitionist fearlessness is awarded a negative judgement in contrast to an expected harmony and dignity within strict limits". He attached "a German newspaper cutting which indeed acknowledges this particular research of mine".<sup>9</sup>

His research led him to acquire a number of aeroplanes that were prepared according to his precise instructions, including the specific paintwork and colours for each aircraft. They appeared regularly at flying rallies, also at international level, and their success can be seen in the letters seen from many flying clubs.

And once again aerobatics - which became a life project as well as an architectural one - was the main theme of the last chapter of Mollino's involvement in aeronautics. In the early 1970s he regularly went to the Porrentruy aerodrome, in the Swiss Jura, where Albert Ruesch<sup>10</sup> had opened an aerobatics school in 1966. This was the home of a tempting fleet of Bücher aircraft, with the

accompanying presence of aerobatic pilots, and this environment led him to consider taking up a more permanent residence in the area. He therefore asked his friend Ruesch to find him a plot of land that he could purchase in order to build a private landing strip and home. His flight companion Giorgio Olivero, a friend of Bücher's and regularly at Porrentruy, was entrusted with seeing to the business. A series of available "unforeseeable cantonal rivalries" delayed this achievement beyond the day when "one of the most outstanding careers in modern architecture came to its end".<sup>11</sup>

The complex flying activities of Carlo Mollino are listed in the following chronology.

### ***1954-1955***

In 1954 Carlo inherited the great wealth that Eugenio had built up during his career as an engineer. Having access to financial means that his father had certainly not permitted him previously, he made his de facto entry into the world of automobiles and aircraft. Taking his cue, and his technical ideas, from the world of aeronautics, he produced a racing car in 1954-55, whose unusual shape derived from the concepts applied to aircraft, at a time when the speeds reached by sports cars and aerobatic planes were about the same.

The epicentre of this story was the Aero Club Torino (ACT), accommodated by Fiat-owned company Aeritalia in its vast Campo Volo airfield, which had a grass airstrip on the outskirts of Turin.<sup>12</sup> An unusual event was taking place at that time in the Aeritalia hangars: worn down FIAT G46s and G59s were being disposed of.<sup>13</sup> ACT, with Gianni Agnelli as president, owned some aircraft that members were allowed to charter. There are records of Mollino flying every aircraft that could be chartered from ACT: the FL 3, designed by Francis Lombardi, the plane with which he began his flying experience, the high-wing Stingson Sentinel 45, which was still being used by the US Air Force at the end of the war, an unidentified model registered as I-BIOT and the MB 308 "Macchino", a high-wing plane in which the altitude control system and lift flaps were not easy to manoeuvre. Together with engineer Faraggiana, Mollino studied<sup>14</sup> a suitable modification for it and submitted a detailed technical report and drawing to the Italian Civil Aircraft Register for the approval required for its reconstruction.

### ***1956***

On 5 October 1956 he obtained a first-level private pilot's license. At the end of the year he bought his first aeroplane, a Jodel, with which he experienced what he described as the "ecstasy" of his "first loopings". Thirteen years later he wrote: "There was a time when navigating was a delight: I can honestly say that I flew the length and breadth of the Alps and all over Europe - capital cities and airstrips lost in the wild were all the same to me, always following the CFR, with no direction gyroscope, but with a compass as big as a hundred-lire coin."<sup>15</sup>

### ***1957-1958***

Even though he owned the Jodel, in 1957 Mollino also continued to fly the I-BIOT, L-5 and FL3 mentioned earlier.

With his friend from, Rome, Francesco Giambalvo, a Swissair captain,<sup>16</sup> he was also part-owner of a stunning two-seater aerobatics biplane, with a red fuselage and white wings, "an absolutely beautiful, ambitious and aggressive sight in the Aeritalia hangar."<sup>17</sup> This "highly-strung marvel" was a Jungmann 131 Bücher,<sup>18</sup> registered as HB (Swiss nationality) RAK, which Giambalvo had purchased from Ruesch.

On 3 January 1958 the RAK made a landing at the Aeritalia airfield in weather conditions that were not exactly ideal - this led to two articles in the local daily papers about the hazardous behavior of the pilot Mollino. He justified the appropriateness of his Basle-Locarno-Turin flight, accusing the

journalists of having invented "everything", since he had followed "a prudent route... flying over... the greatest possible numbers of alternative fields, even in the heart of the Alpine chain... including the air fields at Vergiate and Malpensa, then reaching the motorway at Novara... and following it all the way to Turin."<sup>19</sup> This written account, which ended with the contact flight along the motor way that led to the safe return of the aerobatic lane conveys the literary flavour that flying could still provide at the dawn of the 1960s.

It was in April 1958 that, through his friend Giambalvo, he first contacted Albert Ruesch, the flying ace who was invited to the aerobatic event in Turin the following month.

In April the RAK was again involved in a forced landing when one of the engine cylinders ceased: the plane struck the 9000-volt cables of SIP's telephone transmission line, which caused a "doleful" 60% damage.<sup>20</sup> The RAK was wiped off and taken to Switzerland as scrap in 1959.

Through the good offices of Ruesch and Liardon, Giambalvo tried to procure another Bücher Jungmann for him from the Swiss Air Force, with the binding provision that the plane would maintain its Swiss registration.<sup>21</sup>

In a sort of aeronautical frenzy, Mollino equipped the Jodel with a 10-channel radio and a radio compass, ordering them from Radiostal in Bernay. At the same time, he set in motion a search in France for the purchase of an aerobatic Stampe able to withstand inverted flight,<sup>22</sup> requested the address of the owner of a Piper 105 he had seen on sale at Bernay, and asked Omnipol of Czechoslovakia for the price of a Zlin 226.

In September, together with contractor Cogerino, he ordered a two-seater 90 HP Jodel D117A Grand Tourisme from S.A.N., requesting them to deliver as soon as possible and offering his Jodel D112 in part exchange.<sup>23</sup> He gave precise instructions for the supply of a variable pitch propeller, a VOR and a 12-channel YHF radio from Radiostal. Right from the start he planned to exchange, a year later, the D117 he had just ordered for a new Jodel D140 Mousquetaire, which was currently being developed.<sup>24</sup>

In order to obtain a better price, he offered his services as a possible advertising agent for the new aeroplanes, which he offered to exhibit throughout Italy. In his correspondence with Lucien Querey, director of S.A.N., an outstanding pilot and inventor of the "beau et séduisant" Jodels, he explained that he wanted his new purchase to be a means with which, with passengers aboard, he would undertake 'raids' of particular importance in terms of tourism and sport. He complained of the lack of Italian aeroplanes available for real tourism and referred to the Super Falco, which he was interested in buying, as a brilliant and oppressive "femme de luxe" - a far cry from the 'runabout' plane he really wanted. Lastly, for tax reasons, he inquired about the feasibility of registration in Austria.

In September he also sounded out manufacturer Omnipol of Czechoslovakia about the possibility of buying a Zlin 226 for aerobatics.<sup>25</sup>

In the belief that "by the time I find something better, I'll have lost all my teeth"<sup>26</sup> in December he bought, together with some friends "who almost never fly", a Gemini-Miles twin-engine "in magnificent condition and with a radio compass", a "four-seater barge that goes just fine". He wrote to his friend Giambalvo, "The faculty of Architecture has taken over the whole of the Castello del Valentino and my study is 10 metres by 10, which is distasteful because I feel so small among all the stucco decorations, the ceilings with angels and young girls (made of stucco) who are two metres tall and joined at the buttocks. I've put my desk at the apposite end from the entrance so as to make up for this inequality by intimidating the visitor on his way through: it's an old trick".<sup>27</sup>

He sold his Jodel Juna for a good price, but, "Of course, I still fly it all the time, as though it were mine".<sup>28</sup>

## **1959**

The delivery of the D117-A was consistently delayed and in January '59 he modified the order, replacing the D117 with the new three-seater Ambassadeur D140 Mousquetaire. He enquired about the aerobatic potential of the plane and confirmed that he wanted to organise a 'raid' to Japan with a co-pilot friend. He was therefore interested in purchasing a specially equipped version of the D140, and indeed he ordered one on 20 March. He again listed the necessary, more advanced navigation instruments needed for long-distance flights.<sup>29</sup>

With a close eye on costs and, especially on "cette satané question", by which he meant "this damned exportation bureaucracy", in other words, the taxes to be paid, he suggested that the aeroplane should be registered in the name of a friend who lived in... New Caledonia. They answered that it was "très possible".

After numerous, unjustified delays in the delivery of the aeroplane by S.A.N., Mollino cancelled the order and, at the end of numerous exhausting attempts, managed to involve his Parisian friend Michel Tapié in the recovery of the million old French francs he had already paid as a deposit.

## **1960**

This year marked the beginning of what was to become a lifelong friendship with Albert Ruesch, based on their mutual passion for the same sports. Evidence of this friendship was given by the lively exchange of letters between the two,<sup>30</sup> despite the complication of having to translate Ruesch's letters from his native German.

In those years Czechoslovakia was the leading nation in the field of aerobatics, where there was a semi-militarised national aerobatics team that Ruesch knew well from sports competitions. Ruesch endorsed his friend Mollino's decision to buy an aerobatic biplane - a "capricious" Bücher Zlin 226,<sup>31</sup> - directly from the Ompol factory in Prague. His friend Giambalvo,<sup>32</sup> a Swiss citizen, offered to make a fake purchase of the Bücher Zlin 226, so that Mollino could have an aircraft with Swiss registration: HB-USF. Ruesch's sophisticated technical capabilities enabled him to suggest improvements to the Zlin's rudder and engine,<sup>33</sup> raising its power output to 180 horsepower. Mollino followed his advice, entrusting the champion with the direct supervision of the work to be carried out. The improvements to the engine were carried out in the Czechoslovak factory, which later delivered the aeroplane unpainted, while the subsequent "expensive painting" was done in Switzerland, to Mollino's precise instructions. Mollino thus owned one of the finest Aerobatic competition planes in Western Europe.<sup>34</sup> In the same way as one-off models were created by coach builders in the automobile sector, for individual customers, the aerobatics section of the aviation industry made use of manufacturers, mechanical workshops and engine constructors. They produced countless variations of basic models according to their pilot-customer's specifications, with each aeroplane built to order.

Mollino sent Giambalvo the graphic designs with some variations, as usual - for the profiles and colours to be used for his new aircraft. 'I've tried to create a snappy or, even better, crackling overall effect'.<sup>35</sup> He took inspiration from "certain birds", by creating white wings with black and blue markings, so that when it zoomed and looped "there will be a contrast, almost a revelation." His side decorations were asymmetrical, "a solution that by no means gives it a Harlequin look when seen on the airfield. In reality, the plane cannot be seen on both sides at the same time, so we have two different aircraft, depending on whether you see it from the right or the left. The visual transition becomes apparent during aerial manoeuvres, during slow rolls and inverted flight, etc".<sup>36</sup> He suggested a variant using yellow, and assured that it would not be garish but simply "a little Columbus's egg conceived to enhance aerobatic precision." Lastly: "As for the initials, try to spoil it

as little as possible." For the tail, he gave instructions to keep the size of the regulation Swiss flag to a minimum, "unless Ruesch intends to shout to the whole world: I'm. Swiss!" As agreed, the aeroplane was put at Ruesch's disposal in Switzerland, so that he could train for the world championship which was due to take place in August and September. Mollino naturally became his aerobatics pupil, and wrote to him: "as you will have understood, rather than aiming for approximate amateurism, I tend by nature to go for concrete results. I hope, with your truly precious guidance, to achieve them."<sup>37</sup> He hoped his Bücker Zlin 226 would soon arrive after September in Italy so that he could start practising, while awaiting further, more advanced lessons. He repeatedly carried out individual aerobatic figures and later started stringing them together according to his teacher Ruesch's plan.<sup>38</sup> Mollino's aim was quite clearly Aerobatics: he would be able to prove his skills in future competitions.

To achieve this, he immediately had Ruesch explain what criteria the jury would use to judge the contestants, so that he could begin practising from the start with these in mind. His desire to learn the necessary skills was so strong that, through Omniavia, the organisation owned by Sandro Vallini, the Turin-based agent of Omnipol, he also tried to contact some Czechoslovak aerobatic champions, and planned to go to reach them the following spring, at his own expense, to perfect his training on a higher-level course. And indeed, his papers contain a press release referring to a course held by the "Zlin Air" school of aerobatics,<sup>39</sup> as well as some written comments<sup>40</sup> which show how he hoped to acquire a sufficient level of training by the following spring so that he could learn "the absolute maximum, even about the plane's finer points... which only a true specialist could hope to teach me unless, of course, I turn out to be a good-for-nothing." In a letter addressed to "Maestro Blaha" of Prague, Mollino complained he was unable to understand the advice he had received because of difficulties in the translation. "I imagine I have made your beard grow long with all my requests: please let me offer you a battery-powered razor so that, when you think about me while flying, you can put that right".<sup>41</sup>

## **1961**

In this period, and up to the end of 1962, Mollino was co-owner with Luigi Leone of a "magnificent" Piper Comanche, registration number I-LEMO, which he used for flying rallies and tourist 'raids'. He took a number of amateur portrait pictures, in front of this aeroplane, of the model Evi, who was the main figure in one of the finest sequences of photos taken by Mollino in villa Scalero in the 1950s.<sup>42</sup> Using the "in transit" procedure, his Bücker-Zlin 226 was now at the Aeritalia airfield in Turin. In the early months of 1961, he obtained definitive Italian registration for it. The HB-USF initials became I-RIRI, registered in the name of the 'obliging' Aero Club Torino "for the usual tax reasons".

He managed to convince ACT to purchase a Bücker Jungmann biplane<sup>43</sup> to be used for the aerobatics school. At the end of May he complained to Turin Omnipol agent, Vallini, of faults in the carburetor of his Bücker-Zlin 226, which the Czechoslovak mechanics of Omnipol had failed to put right when they visited Turin. He confirmed these faults "after a special flight" and declared that it would be impossible to go on demonstration flights together with Colonel Salvi,<sup>44</sup> "one of the finest aerobatic pilots in Italy", to publicize the aircraft on 9 July in Turin during the "Giro Aereo dei Mille Chilometri" rally for the Centenary celebrations of the Unification of Italy. Though he acknowledged it was "the finest aerobatic plane in existence today", he bemoaned the fact that his Bücker Zlin 226 - the only one of its kind in Italy - would not be able to stand out amongst the other aerobatic Bückers and Stampes. Dissatisfied with the lack of assistance from Omnipol, he considered selling the aeroplane and cancelling the order for a new Meta Sokol that was to replace the Piper Comanche, which had in any case already been sold. The engine of the Zlin later let him

down in the skies above Pinerolo, when the petrol pump shaft broke. Thanks to his training and to the characteristics of the aeroplane, Mollino emerged unscathed from the emergency landing, but he complained that any "puffing Bücker" would have let him make inverted flights, "as I did recently in Switzerland without discredit", which would have been almost impossible with his I-RIRI because of the aforementioned faults. This explains why he had already asked Captain Kammacher in April to find him a Bücker Jungmeister "in excellent condition and at a reasonable price", and repeated his request in a letter to Vallini: "... please find out how, with our help, I can get one under my bottom in Turin".<sup>45</sup>

## **1962**

On 12 February he reorganised his ownership and co-ownership of aeroplanes - no fewer than three at the time - by selling off his shares in the Gemini - registration number I-JAKR - which he owned with Vaglio and Cogerino. The two friends were sorry, and they nostalgically recall the "historic" partnership between the three of them.

He persevered his almost daily training flights and finally declared he was satisfied with his Zlin. He regularly took part in flying events and was invited to rallies - taking part in the one at Levaldigi - and his plane, which was now well known among enthusiasts, took part in the October air show in Bologna. It was flown very successfully by Colonel Eugenio Salvi, who had become an important new character in Mollino's flying world. Dr Dante Labanti of the board of directors of the local Aeroclub wrote to Mollino: "Salvi was marvellous, the crowd on the ground held its breath and we rusty old pilots died of envy as we watched Gelsomino,<sup>46</sup> so outstanding and in such good form. Without the participation of your aircraft, our event would have been boring."

He designs an Aerobatic single-seater fitted with a 240 HP engine and dual wings.

In November Salvi ran into a "disciplinary flying offence" at the Aeritalia airfield in Turin, which was reported by Colonel Isaia.<sup>47</sup> This episode introduced a new personality, Marcel Charollai, from Saint Malo, an Aerobatic pilot from the Aéroclub de la Côte d'Emeraude, owner of an Aerobatic Stampe of long-standing fame and the winner of the important 1962 Coventry competition. The episode involved a 'fake chase' - in other words a series of attacking manoeuvres and turns by Mollino's Zlin, piloted by an "exuberant" Salvi<sup>48</sup> (with Mollino as co-pilot) against Antonio Costanzo's 'enemy' Zlin 326, which was piloted by Charollais (with Costanzo as co-pilot). Incidentally, these were the only two aerobatic Zlins in Italy. The episode gives us further confirmation of the level of Aerobatic skills achieved by Mollino,<sup>49</sup> who defended Salvi's conduct with a "smarmy" letter.<sup>50</sup>

## **1963**

Ruesch bought two second-hand Bücker Jungmann biplanes, which he referred to as "two miraculous birds". Both the first - a two-seater HB-UTH, built in 1939 - and the second - a two-seater HB-UTD were later modified,<sup>51</sup> as usual, with reinforcements, new propellers and the instruments required for top-level Aerobatics. The plan was to fit both planes with Lycoming 180 HP engines and dual controls so that the co-pilot could be taught all the nuances of aerobatics during training. In February Ruesch offered to sell Mollino his HB-UTD for Swiss Francs 65,000<sup>52</sup> promising to deliver it at the end of April. Mollino paid a confirmation deposit in March. We know that he later bought both aircraft, probably anticipating a commitment with the aerobatics school of Turin.

While stopping off in Vienna in May, he met Wilhelm Schweizer, who invited him to take part in the city's flying festival. Schweizer subsequently helped with the long search in Vienna for two Thonet rocking chaises-longues, a rare and expensive model that Mollino wanted for his new

apartment, which he was renovating in via Napione.

The delivery of the HB-UTD was delayed and Mollino complained to Ruesch that he and Salvi would not be able to take part in the August championship in Coventry - with the advantage the new aircraft would have given them - saying he did not want to go with his Zlin. In the end he lent it to French aerobatic pilot Charollais, who was thus able to participate at Coventry with a better aircraft than the Stampe he owned.<sup>53</sup> He sold his Zlin (but in the end the sale did not work out) to ACT, expecting the new plane to be delivered, but the delay grounded him, and he was worried he would not be able to train properly for the tough qualifying round of the Barcelona championship. This event called for a series of inverted-flight tests "which demand extreme precision in training". He was practising with Costanzo's Zlin 326,<sup>54</sup> and even though he did inverted nosedives at 260 kph, the plane "always ran out of breath, even just to carry out a slow roll with some degree of determination." Colonel Salvi spotted him: "...from my home I saw a Zlin manoeuvring. It was you, without a doubt! I was the teeniest bit envious and, at the same time, filled with a certain pride. You were flying brilliantly. I think many down at the airfield muse have envied your joystick. You seemed come to be supple and constant, always mastering the situation. Safe and correct".<sup>55</sup>

He procured two extremely light and compact parachutes for the new UTD, which left his stomach free so that the safety belt and braces would fit perfectly.<sup>56</sup> He sent Ruesch the design for the paintwork: "This is a competition plane that needs to be decorated in an original and restrained manner. The solution will therefore be to use classic red. The sample red I'm sending you is very attractive and chosen from among many... It will make the plane aggressive and sporty, yet classic: it recalls the Schneider Cup aeroplanes, Italian racing cars, etc... Please follow the finishing instructions to the letter, for they add sobriety and elegance to the whole... I beg you to make sure the paint is absolutely smooth and glossy... It needs to be elastic and of the highest quality."<sup>57</sup>

In September after two terms,<sup>58</sup> he resigned from the ACT board of directors preferring to concentrate on half an hour's daily practice in aerobatics, which he saw as "a bit of worker's recreation that refreshes my spirit and nerves".

In a "pointless" letter to Colonel Buzzi, director of Caselle Torinese airport, he complained that aerobatic pilots were thought of as "flying lice and, as such, irritating and doomed to gradual elimination".<sup>59</sup> The practice of teaching aerobatics in the Bücker was struggling to survive, and he asked Colonel Isaia<sup>60</sup> to let the ACT school "breathe without suffocating it", indicating an area over Aeritalia which might allow more freedom of movement. He requested a minimum of rules: "those good-for-nothing F104s, which are only good for propaganda and certainly not for warfare, should be kindly asked to go and play somewhere other than in the exact direction of our schoolground".<sup>61</sup> And he continued, to Colonel Buzzi: "Coming back to aerobatics, I should like to point out that our Aeroclub is the only one in Italy that tries, with its own means and with sufficiently specialized aircraft, to develop this discipline, which is highly developed and widespread in every flying club abroad. This can be seen in the fact that Italy, a nation of 'Saints, Seafarers and Bureaucrats' is the only country nor to take part in international events, which, I should like to point out, are kept alive solely thanks to the participation of civilian pilots".<sup>62</sup>

An Aerobatics section, designed mainly to "perfect the quality of pilots in manoeuvred flight" had been set up at ACT, in large part through the good offices of Mollino.<sup>63</sup> The teachers were: Ferruccio Vignoli, head instructor at ACT, Colonel Eugenio Salvi, an instructor pilot and champion, Albert Ruesch. Mollino compiled the notes for the course, writing in the introduction: "These theory notes... do not claim to reveal the secrets, tricks or wizardry of some transcendental science in the hands of a small elite. They simply provide an explanatory introduction to the practical course and have been drafted, not by a specialist, but by a sportsman who has encountered, and still encounters, the same difficulties and uncertainties that a beginner generally faces. These are

difficulties and uncertainties he possibly experiences more than an old expert, so he can explain them more clearly, while making the best use he can of the lessons he has received from his instructors. Therefore, what he is conveying is the experience he has built up under their guidance and correction - not something picked up from manuals, which are often no more than second-hand compilations.

That year he took part in competitions in England, Czechoslovakia, and Hungary, and he was thanked for the advice and help he gave the Italian Air Force to ensure its participation at the first "Salone della Montagna" in Turin.<sup>64</sup>

In October he sent a project with three versions of the two-colour decorations for the new Morava D that his friend Sandro Vallini had purchased in Czechoslovakia. Vallini commented: "All three designs have truly beautiful features and colours... let me express my unreserved enthusiasm for the solutions that you have created with your customary skill".<sup>65</sup> The Morava was later painted in Neuthatel.

The Super-Jungmann was ready at last... but still not in Turin!

### **1964**

When asked, he expressed his ideas about setting up an Italian aerobatics team: "Italy's long aerobatic tradition has remained in the hands of a few former Air Force pilots, who don't have the right sort of planes to practice with, and even fewer financial means to purchase such planes abroad. When invited to train our hypothetical team, they should start with a tough training course themselves before taking on students. I had thought of starting in Turin, but we don't have the wherewithal to start off - in other words, the planes. The two available Bücker Jungmanns might be useful to start with, but certainly not to reach competition-training level... The French are currently working with the same handicap, with their Stampes, and the same is true of the Swiss, so there are only semi-military Iron Curtain pilots with their Jacks and the Zlin 226, which is no longer even in production... I have found myself quite unable to organise anything in the Aeroclub other than a ghost 'aerobatics section' which was only offered theoretical moral support - and possibly not even that. Subject to the usual budget constraints, I was not even able to purchase my Zlin 226... As for finding some Italian manufacturer with a mind for constructing a small series of aerobatic planes, the matter is quite out of the question, for when one suggests it, they look at him as if he were a dreamer".<sup>66</sup> In his study he kept an article from the American magazine *Flying*, which described the Citabria produced by Champion as, "the only American aerobatic plane in production today."

In spite of everything, his aerobatic activities continued and in May he was once again at Levaldigi and in Aosta, and in the same month his Zlin 226, piloted by Salvi, was chartered out for an event in Parma.<sup>67</sup>

At this point, our pilot declared he had clocked up 500 hours of flight, including 200 of aerobatics. The HB-UTD was at Mollino's disposal and there was also talk of the HB-UTH being sold in September at a price of over 60,000 Swiss Francs.

### **1965**

In February, FFA<sup>68</sup> delivered the Bücker HB-UTH to Turin. It now had a 150 HP engine (and not the 180 HP version as originally planned). It was sold to him by Ruesch and registered in Switzerland. For the usual tax reasons, the ownership was registered in Ruesch's name, but in actual fact Mollino paid the last part of an invoice of convenience to FFA, sparking off an intricate legal wrangle that ended up with the plane still having a Swiss registration in 1968.

Once again, Mollino was the owner of three planes: Bücker Zlin I-RIRI, Bücker HB-UTH and the Bücker HB-UTD. After over a year of research, training and work, in the summer the HB-UTD 13I

took part in "a successful Aerobatic presentation in Karlsruhe". After this it went on to the subsequent aerobatic event at Landau, Stuttgart, where, during the "landing and takeoff" exercise, it hit a stone and chipped the propeller: "even at full power I couldn't gain height. The plane veered obstinately to the left, I went off the airfield and landed on the plane's belly: I was unharmed but the plane was half destroyed on a grassy knoll".<sup>69</sup> The "wonderful, legendary aircraft", which was half written off, was left in "very expensive" storage in the Sportflug Service hangar at Stuttgart airport until March '67.<sup>70</sup>

### **1966**

In April he once again offered to sell the Bücher Zlin 226, referring to it as "a bride who has almost not yet been run in", to ACT for 7 million lire: "when I emerge from the (fascinating) Aerobatics of the project work I am involved in, I intend to return to flying with my legs up, in peace. I will [still], I hope, have one and a half Büchers in excess to fill my thoughtless life - my life".<sup>71</sup> In December he set about re-utilising the damaged Bücker HB-UTD 131, which was still in storage in Stuttgart, by using its intact parts for the construction of a new aeroplane, the Bücher Lerche.<sup>72</sup> This plane used a new injection engine derived from the Lycoming 180 HP, a variable pitch propeller and wings with "laminar profiles which let you fly like a jet" and a single canopy over the two pilot seats.<sup>73</sup> It was to cost 73,700 Swiss Francs, including the "paintwork" as indicated by the client. Mollino requested, and waited for, the flight results of this new model before making his final decision.

### **1967**

He trained in aerobatics almost every day with his Zlin 226, with Costanzo's 326, and with the Bücher UTH 150 HP. He would have liked to take part in the Moscow world championship with Ruesch, but nothing came of it. In March he accepted the offer from Max Datwyler to transform the damaged HB-UTD into a Bücher Lerche.<sup>74</sup> he was however worried that the work being carried out on his plane would be surpassed by the new models the manufacturing companies were bringing out, and he asked for a 200 HP engine to be mounted: "I know... what 20 HP more or less can mean in a competition. In today's world of competition, it's no longer so much a matter of handling, which is now taken for granted, as of making use of these fractions of power when coming out of vertical manoeuvres and so on...".<sup>75</sup>

At the end of November, when he saw that Max Datwyler was not keeping its word, he asked for a quotation from competitor Pilatus Flugzeugwerke, which offered to reconstruct the Bücker HB-UTD131 with a Lycoming 180 HP engine for 78,000 Swiss Francs.

In June, the ingegner Bosio, a former customer of Eugenio Mollino's and later of Carlo's, introduced him to his brother-in-law, a lawyer, notary and pilot from Lugano, Angelo Parola, to whom Mollino gave power of attorney to solve the delicate problems involved in the Italian registration of his aircraft.<sup>76</sup> Parola assisted in the procedures required to register the plane in Italy. At this point, there is no further information about the fate of the Bücher Jungman HB UTD 131. In the early part of November the negotiations started up with ACT in April '66 for the sale of the Bücher Zlin I-RIRI and, in a parallel offer, also for the Bücker Jungmann HB-UTH, were almost complete (10 November). Not only were they to go well,<sup>77</sup> but despite the fact that the HB-UTH was registered in Switzerland (since it was still legally the property of Ruesch, even though entirely paid for by Mollino) ATC undertook to solve the matter and shoulder the customs and registration costs. The contract also established that "in view of the particular merits you have acquired in the field of aviation and in recognition of the work you have undertaken in the interests of ACT, we grant you free use of the aircraft concerned for up to 80 hours of flight per year".<sup>78</sup>

This clause in the contract was to last six years, and there was a surprising coincidence: the year it ended, 1973, also marked the end of Mollino's life.

In July, he was invited to the British International Aerobatic Competition, and in November he went through La Chaux-de-Fonds in the Aeromacchi I-SATT, together with Salvi.

### **1969**

Mollino made a design for a "pure aerobatics" aeroplane and, through Colonel Salvi, sent it to Partenavia in Naples, whose president, ingegner Luigi Pascale, replied, "I much appreciate your work and agree with your points of view."

### **1970**

The HB-UTH did not manage to obtain Italian registration and Mollino bought it back from the ACT. In September he asked - and authorised Ruesch to put it back on sale in Switzerland.

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<sup>1</sup> Letter dated 14 April 1966.

<sup>2</sup> The pictures were taken in Turin in Via Bellezia 19, in the courtyard of the hydraulic-construction workshop that belonged to Giovanni Sartorio, Eugenio's friend and customer. Carlo Mollino later referred to this machine as an "ortottero".

<sup>3</sup> The chairmanship and the technical and sports commissions of the Turin section of VUM had thirty illustrious members, including Eugenio Mollino, who also worked in the research and development centre. Members included the rector of a university, a dozen engineers who taught at the Polytechnic and at the Military Academy, as well as Ettore Thovez and Cesare Gorla Gatti with Ettore Caretta, pioneers of motoring and of the aeronautical industry. Bollettino no. 1 of 15 June 1938.

<sup>4</sup> Letter dated 14 April 1966.

<sup>5</sup> *Vita di Oberon [Life of Oberon]* was the autobiographical novel Mollino wrote "a priori", at the age of 28, publishing it in four episodes from July to September 1933 in the *Casabella* magazine.

<sup>6</sup> *Vita di Oberon*, Casabella, July 1933, pp. 40-41.

<sup>7</sup> Letter from Franco Giambalvo, dated 29 December 1958.

<sup>8</sup> Letter to Colonel Alvaro Buzzi, director of Caselle airport, dated 7 July 1964.

<sup>9</sup> Letter to D. Castagna, Caselle airport official, dated 7 July 1964.

<sup>10</sup> Albert Ruesch was an international aerobatics champion.

<sup>11</sup> *Vita di Oberon*, Casabella, July 1933, p.40.

<sup>12</sup> The airfield owned by Aeritalia, a FIAT company, was under the control of Caselle, Turin's city airport. The (military) command was considered by Mollino to be "restrictive but impeccable".

<sup>13</sup> In his *Considerations on civilian aerobatics in Italy and Abroad*, typewritten on 31 August 1969, Mollino stated that he had owned a G46.

<sup>14</sup> After discussing the problem of aerofoils with Mollino, on an unknown date, L. Faraggina, a FIAT designer, sent him a sketch of an aeroplane with dual supporting system, asking him for his opinion. The plane was to have a rear-mounted prop engine, normal wings and dual counter-rotating rotors: a "composite helicopter".

<sup>15</sup> From *Considerations on civilian aerobatics in Italy and Abroad*, typewritten document, 31 August 1969. On 11 December 1956 he completed the purchase from the Associazione Volovelistica Fossanese of a "simple and economic" Jodel Aviojeep JPI twin-seater with a 60 HP engine. It was registered as I-Juna ("I" for the nationality, and "Juna" as the registration name). Bought in "aeronautical partnership" with industrialist Italo Brusa Cappellini, it was later registered in the name of "Società Semplice Aerosport Torino", which was created for the purpose. Brusa Cappellini left Aerosport and Giovanni Vaglio Ostina joined, as did Oddino Casadei, even though for only 40 days. Aerosport was liquidated on 5 December 1961.

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<sup>16</sup> "Giambalvo has notched up 7500 hours of flight without incident (touch wood):" Letter dated 31 January 1957 to the director of Campo Volo Aeritalia, Captain Valentino Cus. As from 1960 Giambalvo was employed by the Federal Aeronautics Office of Zurich.

<sup>17</sup> Letter (nine pages pages long!) from Giambalvo to Mollino dated 29 December 1957.

<sup>18</sup> The Jungmann 131 Bücher, a biplane built in 1934 by Carl C. Bücher, was considered a strategic aircraft and thus could not be exported from Switzerland, so Mollino had it officially registered in the name of Giambalvo.

<sup>19</sup> Letter of 31 January 1957.

<sup>20</sup> Letter of 27 April 1957. The landing took place on the Aeritalia airfield at noon. Mollino emerged unscathed from the plane, looked at his watch and said: "it's lunchtime, let's go and eat".

<sup>21</sup> The second-hand aircraft was to cost 8000 Swiss francs (CHF 1 = ITL 146).

<sup>22</sup> Flying upside-down causes fuel-supply and engine-lubrication problems. It can therefore be maintained only for a few minutes. Mollino wanted a Renault 4.PO5 engine and, on the advice of English champion Nottingham, an automatic rev control which would be independent from the speed of the aircraft.

<sup>23</sup> The Jodel 112 was able to take off in 120 metres and land in 90 metres. The cruising speed was 160 kph, landing was at 80 kph. It had a range of 600 km.

<sup>24</sup> He also asked what the conditions would be for a special version of the D140 equipped with extra fuel tanks, an inflatable dinghy, two VHF radio compasses, a VOR and room for 4-5 passengers.

<sup>25</sup> Letter dated 1 September 1958.

<sup>26</sup> "In my life I act in a certain way - in terms of feelings in another: I've been waiting for exactly the son of wife I want, and look how I've ended up." Letter dated 28 December 1958.

<sup>27</sup> Ibid.

<sup>28</sup> Ibid.

<sup>29</sup> The instruments were listed as follows: Goniostal, Directional Giro, Horizon artificiel, Indicateur virage Gyro, Réservoir supplémentaire grand raid, Vor complet, and, lastly, a "Hélice à pas variable automatique", a delicate matter for which he asked detailed information and the name of the brand.

<sup>30</sup> "Dear Albert, I feel great friendship and gratitude towards you, thanks to the natural affinity of our similar temperaments as authentic old sportsmen, a vanishing species." Letter dated 1.10.63. A year later he wrote to Giambalvo: "...I have discovered that Ruesch is mad, harmlessly mad. I doubt if you have ever noticed".

<sup>31</sup> The Bücher, designed by Swedish engineer Andersson, took its name from its builder Carl Clemens Bücher. This version had a wingspan of 10.3 metres. It was 7.8 metres long.

<sup>32</sup> Giambalvo had a "Zlin Z131 Bücher biplane, registered as HB-USV. In March 1960, the plane was in Turin where, during maintenance work in the hangar of the Aero Club Torino, it was damaged in a collision with a Fiat G-46. Giambalvo gave the ACT the addresses of the Swiss workshop Flug und Fahrzeugwerke A.G.- F.F.A. - of Altenrhein for repairs to the airframe, and NAEF A.G. of Fischenthal for repairs to the engine of the Zlin. One year later Giambalvo managed to sell the "wreck" of the plane to the ACT in Turin. In April 1962, however, the 'scrap' had still not been nationalised in Italy.

<sup>33</sup> A Walter Minor 6-III engine was used.

<sup>34</sup> The plane was tested for unlimited K4 and K5 aerobatics.

<sup>35</sup> Letter of 27 May 1960.

<sup>36</sup> Ibid.

<sup>37</sup> Undated Letter.

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<sup>38</sup> Mollino had a basic understanding of engines, and of the structure, construction and instrumentation of the planes, so he could devote his time to Aerobatic exercises which, in order of difficulty, are the stall, spin, emergency landing, loop, slow roll, the Immelmann turn, the Fieseler, the overturn, inverted flight, inverted spin, inverted loop and half loop, inverted turn and snap-roll, snap-roll and timed slow roll, slow roll while turning, rimed, 360° and a general combination of all these manoeuvres.

<sup>39</sup> The school used the Zlin 526 aircraft and was based at the airfield of the Moravian aircraft manufacturer in Otrokovice, Czechoslovakia. It provided three levels of training, which culminated in the course on top-level competition aerobatics.

<sup>40</sup> He cites the excellent instructors at his disposal in Turin: Vignoli, Salvi, and Mascellani.

<sup>41</sup> Undated letter.

<sup>42</sup> Evelina was the only enlarged and retouched photographic portrait taken by Mollino in the post-war period. It was published on the cover of: Ferrari, Carlo Mollino. Photographs, 1956-1962, Museo Casa Mollino Editore, Turin, 2006.

<sup>43</sup> Letter dated 11 April 1961 to Captain Alphonse Kammaker, Lausanne. The Bücker Jungmann 131 had a wingspan of 7.40 m. It was 6.62 metres long.

<sup>44</sup> Salvi, who had represented the Italian Air Force in the first international top-level aerobatics contest after the war in Bordeaux, in 1950, was one of the first Italian pilots to be trained in jet flight in Great Britain. A professional instructor, in those years he had taken up residence in Cameri and he became a very close friend of Mollino's. When he left the Air Force in 1973, having reached the age limit, he wrote: "Even though you have never worn the blue uniform, your aviator character and your great passion for flight have always been an example and of great help to me".

<sup>45</sup> Letter of 14 June 1961. Prague offered Mollino a Bücker that the Czechoslovaks referred to as "Aero 131".

<sup>46</sup> Gelsomino was Salvi's nickname. Letter dated 11 October 1962.

<sup>47</sup> Letter dated 4 December 1962.

<sup>48</sup> Salvi agreed "that in the fake chase I was rather aggressive, in the sense that I could have shortened those two or three minutes of insistence".

<sup>49</sup> In the defence report, Salvi wrote: "...the magnificent pilots from Campofornio based their aerobatic groundwork on the "fake chase" [...] this exercise is the only one that enables a pilot who wants to specialise to attain the maximum level of sensitivity, confidence and self-assurance." Document dated 8 January 1962.

<sup>50</sup> Letter of 2 January 1963 to Domenico Castagna, director of Caselle Torinese airport.

<sup>51</sup> The modifications, for mounting the engine, were carried out at Flug & Fahrzeugwerke A.G. (F.F.A.) in Altenrhein, and others at Pilatuswerke in Staus.

<sup>52</sup> The Swiss franc was worth 144.5 lire.

<sup>53</sup> Charollais took part with his Stampe in the meeting on 21 July at ACT. In a Letter he wrote to Salvi about Coventry on 16 October, he said: "Mon colonel...Mollino a été très chic avec moi" and went on, "Je garde un souvenir merveilleux de ces quelques jours passé à Coventry et de notre soirée Chez Gustave".

<sup>54</sup> He referred to his friend Antonio Costanzo as a "brilliant joystick in artistic-flight" and the Zlin 326 was the wrong sort of aeroplane - one the Czechs never used in competitions.

<sup>55</sup> Pilot Colonel Eugenio Salvi was taking over command of the Orio al Serio airport at the time. Letter dated 15 October 1963.

<sup>56</sup> He bought them in Paris, through Charollais, who managed to get a special price for them. Mollino needed them urgently and wrote that he wanted them before "la saison quand j'aurais besoin pas du parachute, mais de la chaise langue a roues".

<sup>57</sup> He also gave instructions for a script in real gold, typographically perfect: "Carlo Mollino - Squadriglia Albert Ruesch - Super Jungmann o Super Bücker". Letter dated October 1963.

<sup>58</sup> On 3 October 1963 he received handwritten thanks from the president, Gianni Agnelli.

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<sup>59</sup> The airport of Caselle was responsible for the Aeroclub airfield, where it had its own aerobatics school. Letter of 24 October 1963.

<sup>60</sup> Colonel Pilot Alfonso Isaia was the director of the ACT flying school for powered aircraft from the mid-fifties to the mid-sixties. In his Letter of 24 October 1963 Mollino pointed out that he did not "practice aerobatics simply out of exhibitionism".

<sup>61</sup> Letter dated 24 October 1963.

<sup>62</sup> Ibid.

<sup>63</sup> The aerobatics training course consisted of a thirteen-point theory programme, and exercises were scheduled on Bücker Jungmann B 131s.

<sup>64</sup> Letter of 12 June 1963 from the management of Telecomunicazioni e A.V. della prima Regione Aerea, signed by the director, Lieutenant Colonel Pilot Giannino Balboni.

<sup>65</sup> Letter dated 16 October 1964.

<sup>66</sup> Letter of 3 February 1964 to Silvio Pierotti.

<sup>67</sup> The charter fee for the Parma event was 144,000 lire.

<sup>68</sup> See note 30.

<sup>69</sup> Considerations on civilian aerobatics in Italy and abroad, typewritten text, 31 August 1969.

<sup>70</sup> In November he received an offer for the purchase of the "wreckage" of the plane from José Luis Aresti, the organiser of the aerobatics world championship in Bilbao in 1964, who wanted to have some spares for his Bücker 131. Mollino did not let it go: "It cost so much money and passion to me and to my friend Ruesch... and I'd given my heart to it".

<sup>71</sup> Letter to Captain Vignoli of 14 April 1966, in which he points out that "the French" and the English champion Williams were interested in his aeroplane which, after the modifications made for the aerobatics contests, was equivalent to the new 526 that was about to be launched on the market at a starting price of 14 million lire.

<sup>72</sup> Design by engineer F. Dubs of Zurich.

<sup>73</sup> The new model was made by the Max Dätwyler company of Bleienbach. Dätwyler indicated Swiss champion Liardon as a reference for the Bücker Lerche. Letter of 11 January 1966.

<sup>74</sup> He asked them to tell him if the plane would have a self-starter and disc brakes. Letter of 7 March 1967.

<sup>75</sup> In his Letter of 7 March 1967 to Max Dätwyler, from "a serious and direct source of information from the aeronautical section of Fiat", he listed the future competitors: the Zlin 626, which was having a 200 HP engine mounted for the Czechoslovak aerobatics team, Stampe & Renard was testing a 200 HP SR 11 biplane which was to replace the famous Stampe, while Aveo-Lycoming of Munich would have a new 200-HP injection engine.

<sup>76</sup> Italian legislation required a certificate of origin from the Swiss Chamber of Commerce, an invoice stamped by a Swiss notary public and by an Italian consul, and then validated by the Swiss State Chancellery and, lastly, a certificate indicating the cancellation of the aircraft from the Swiss register.

<sup>77</sup> The case was discussed by the board of directors of ACT Captain Vignoli and the legal representative and councillor Avvocato Eudo Saccomani took care of it.

<sup>78</sup> The purchase was signed on 15th November by Vittore Catella, vice president of the ACT.