TERMINAL BUILDING 3530

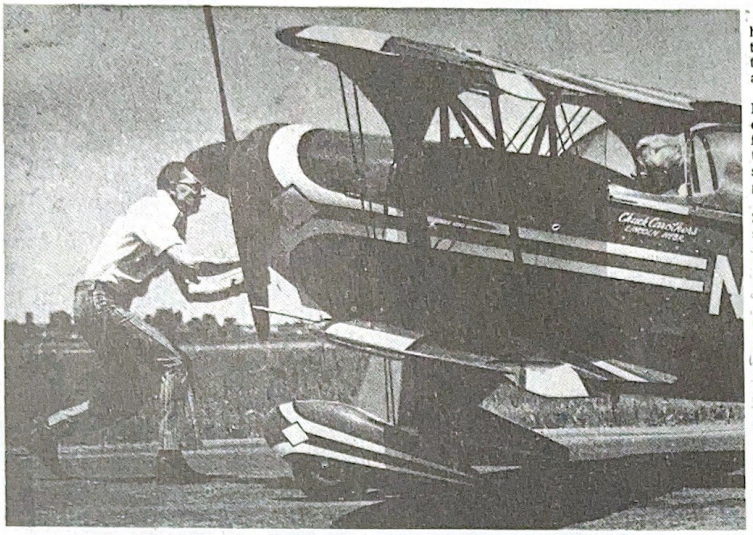
Miscellaneous Correspondence

Seventh Day Adventist Church, Lincoln, Nebraska

Delivery and erection of the 33 laminated wood beams for the sanctuary of the new College View Church is progressing amidst broad community interest. The beams were fabricated and delivered to the site by Midwest Lumber of Lincoln, and are the longest members the company has supplied. Ranging in length from 84 to 125 feet, each 12 inch by 54 inch beam is hoisted into place by crane and suspended over the platform from an eight foot deep steel space truss. The fan-shaped structure will provide seating for 1600 people.

Lincoln Air Terminal
Lincoln, Nebraska

At the annual Central States Regional Awards Program of the American Institute of Architects held this October in Omaha, Nebraska, the Lincoln Air Terminal was the recipient of one of seven honor awards given to recognize buildings of exceptional design quality in the surrounding five-state area. Designed by the offices of Clark & Enersen, Hamersky, Schlaebitz, Burroughs & Thomsen and Davis, Fenton, Stange, Darling, the new facility was cited for its "straightforward plan and simple, honest expression of structure and function" which results in a "tasteful and quiet solution" for which the "materials selected are appropriate and the details of the exterior, successful."



Dr. Charles Carothers, Lincoln dentist, divides his time between filling and flying. A member of his ground crew, Jake Heater, is turning the prop over to start the engine.

EDITORS NOTE

The Pitts S-2 is the best aerobatic trainer but the lighter faster S-1 single place has much more performance and is the choice of most serious competition aerobatic pilots.

By Nancy Newhouse

Why would a 46-year-old dentist take to the skies each evening after supper? According to Dr. Charles Carothers, a local dentist who can't seem to keep himself on the ground, because "you get hooked."

Carothers, who began aerobatic (stunt) flying in 1963, says he has never found anything more challenging or rewarding. And he is careful to warn those about to embark on the adventure that the feelings of freedom and satisfaction they will feel soaring through the air may be habit-forming.

"I could say it's a challenge," he says musing over the fascination of flying. "But that's not true," he continues. "It becomes a way of life."

Carothers flies a gaily striped Pitts Special, a tiny biplane designed solely for aerobatic flying. Once behind the wheel, the airplane becomes an extension of himself. "It's alive. It's got a personality," he says.

Carothers has competed in 15-20 contests and over 100 sky shows since he began stunt flying. He says his airplane "pays its own way" in that payment at air shows covers the costs of owning and operating it.

Last week Carothers took second place in the Rebel Regional Aerobatic Contest in Memphis, Tenn. Several times in the past few years Carothers has taken first place in national competitions.

Carothers explains simply what appears to be an impossible schedule combining dentistry with flying. "I get out of bed in the morning. When everyone else is sleeping . . . I'm drinking tea."

Dr. Carothers will be featured in an aerobatic show at 12-1 p.m. at Arrow Airport, north of 48th and Superior Sts.

Also on the program will be a demonstration of skydiving by the Lincoln Sky Nights. This noon entertainment is a special feature of the Air Radio Control Model Airplane contest being held today. All events are free to the public.

Among the most spectacular of events on Carother's program is the double lomcevak, in which the tail of the airplane tumbles over the prop in an end over end tumble. Appropriately enough, lomcevak translated from Czech means headache.

In what could be "the last act of the show" in more ways than one, Carothers will demonstrate what he calls an inverted flat spin. In this event Carothers intentionally causes the plane to spin half a dozen revolutions, in a flat position and upside down, before recovering to normal flight.

Carothers insists there is no danger involved. However, he said he doubts it too many spectators would volunteer as passengers, even if the tiny plane had room for them.

"After all, not everyone likes hanging upside down several hundred feel above the ground. Even having a tooth pulled would be more pleasant than that."

At 203 mph (327 km/h) in an open cockpit biplane, the slipstream is like no hurricane nature has ever seen. As we plunged almost vertically towards the peaceful Buckingham countryside, it wasn't only the bracing wires of the little Pitts S-2A that were screaming. A stomach-wrenching pull-up on the threshold of black-out until the long nose was spearing vertically into the sky, and then hard left stick pivoted the Pitts around once, twice into a couple of sizzling upward rolls.

As our forward momentum slowed despite the 200 hp Lycoming bellowing away up front at full power, the Pitts, still rolling furiously, began to tail slide. With the stick snatched over to the other side of the cockpit to reverse the ailerons, however, we continued rolling to the left, incredibly, while descending vertically in an unchanged nose-high attitude. There was no room for doubt about our flying backwards. As instructed by The Voice in the front cockpit, I had flicked the smoke switch on beneath the rear panel as we started our dive, and here we were in a rolling tail-slide totally enveloped in a choking white cloud.

"That was a torque roll" remarked The Voice as we finally flipped over, briefly, into level flight. "And this is a snap roll."

The nose reared up as though a shell had exploded beneath it. Then it was just as if someone had instantly sawn off both wings on one side. The horizon did indeed snap round and under so fast that my eyeballs were still trying to catch up when we suddenly slammed into straight and level flight again.

As an introduction to the Pitts — surely the world's most aerobatic aeroplane — this was appropriate enough. Multiply it by four, however, and you have "Manx" Kelly's Rothmans Aerobatic Team — just about the greatest show off earth.

Come to Wycombe Air Park, said the invitation, and meet the team. Fly with them, too, if you wish. As the proud owner of the only Bücker Jungmann aerobatic biplane on the British Register, I did not need asking twice. Everyone, of course, has heard about the Rothmans team in the four years or more since this first full-time civilian aerobatic group was formed with veteran Stampe SV-4s, under the leadership of "Manx" Kelly, and getting on for millions of people have now seen their spectacular shows throughout Europe.

Flying with the team, however, is something else again. It adds a new dimension to any aviator's experience, even without the Pitts. But then the Pitts itself is unlikely to remotely resemble anything encountered in the average pilot's previous experience. Having started life in 1944 as a design for amateur construction with an 85 hp Continental engine, the tiny Pitts now has 200 hp from its Lycoming IO-360 fuel-injected powerplant driving a Hartzell constant-speed propeller. Fuel injection ensures uninterrupted power output regardless of attitude or g-load, while oil supply for up to a couple of minutes when inverted is guaranteed by the Christen modifications incorporated into the Pitt's Lycoming engine.

So one's first impression of the Pitts is power — smooth, continuous and instantaneous with every movement of the big throttle projecting from the port cockpit wall. In contrast, the propeller pitch control takes some finding at first, but finally identifies itself as a curious little tag on the end of a thin rod above the throttle. The tag can be rotated to select the required rpm, which are normally left at about 2,500 for most aerobatics. Hence the characteristic red-blooded howl of the Pitts during a typical work-out.

The power margin of the 1,575-lb (715-kg) gross Pitts thus overcame one of the main problems of the 1,700-lb (770 kg), 145 hp Stampe, in which, according to "Manx" "it was a constant struggle to gain and hold altitude." It was also evident that despite continuous innovational refinement of technique, development of the team's presentation was being limited by the Stampe's capabilities. Another major advantage of the Pitts is that it is now fitted with a symmetrical section wing, so that it flies just as well either way up, while it combines infinite controllability with the necessary airframe strength to withstand repeated demonstrations of the most advanced manœuvres.

Why the two-seater S-2A for Rothmans rather than the even more agile single-seat S-1S? "Being quite a bit longer, the S-2A is easier to see and more enjoyable to watch at air shows" says "Manx". "It is also more useful for ferrying between displays and for taking up photographers, film cameramen, journalists and other passengers on practice and demonstration flights." And since the main object of the team is unashamedly to obtain the maximum publicity for Rothmans, this is quite a consideration. It also explains how I came to find myself being strapped into the rear seat of one of the blue, white and gold Pitts at Wycombe Air Park, and being fitted with the bone dome, oxygen mask with built-in microphone, and goggles worn as standard by the team. The Rothmans Pitts have been fitted with a superb (and expensive) five-point aerobatic harness by RFD/GQ, plus a back-up lap strap for the rear seat. The Voice from the front, which belonged to team pilot Mike Findlay — ex-RAF like his three fellow-members, and erstwhile Queen's Flight — commented rather pointedly that since he had no back-up harness, prolonged negative g manœuvres were out. He also pointed out that as the front cockpit (normally faired over in team displays) had only basic instruments and controls, I would be responsible for several of the vital actions involved in the flight. Before aerobatics, for example, the alternator has to be switched off as the battery does not take kindly to being charged while inverted.

Unlike some open cockpit biplanes, there is no shortage of space in the Pitts S-2A and the big moulded windscreens afford plenty of protection from the slipstream. On the ground, view directly forwards is completely obliterated by the long nose, but the usual zig-zag taxi technique presents no problems with the help of the steerable tailwheel and powerful toe-brakes. One of the few disadvantages of the Pitts, which shows up immediately on uneven grass, is the lack of damping on its rather hard bungee-sprung main undercarriage. This results in a somewhat rough ride and a tendency to bucket, particularly on landing. Take-off is less of a problem since you are not on the ground long enough, as I discovered on opening up when instructed by The Voice. It seems that almost by the time the throttle lever has reached the end of its travel, the Pitts has rocketed into the air, after a quick prod to get the tail up and a smart heave to avoid touching the prop on the ground.

The team normally starts and finishes with a stream take-off and landing conducted — like all its manœuvres, organisation, planning and operations — apparently very much on RAF lines. That the team's HQ at Wycombe has the same casual cameraderie as most RAF squadrons is hardly surprising in view of the fact that the four pilots currently comprise two ex-Squadrons Leaders — "Manx" and Iain Weston — and two former Flight Lieutenants — Mike Findlay and Derek "Tim" Mills. The RAF's informal but highly effective flight discipline is equally evident in the air, where formation changes are co-ordinated both by hand signals and R/T instructions. Since re-equipment with the Pitts last year, the team has extended its full programme to include loops in diamond and vic formation, the rarely-seen double mirror in which two aircraft fly inverted in formation immediately above the remaining two Pitts, and

Another striking thing about the Pitts, compared with most biplanes of the average pilot's acquaintance, is the scaling-up of airspeeds encountered as a function of the big and beefy Lycoming. A typical cross-country speed of 125-130 mph (201-209 km/h) results from a conservative power setting of about 18-19 in Hg and 2,500 rpm, whereas most vintage biplanes such as the Jungmann, Stampe or Tiger are pushed to reach more than about 90 mph (145 km/h). Similarly, for aerobatics the speeds are extraordinarily high by most biplane standards — around 150 mph (241 km/h) for a loop or stall turn, 115 mph (185 km/h) for a flick roll, 90 mph (145 km/h) for an outside flick and 203 mph (327 km/h) — red-line or never-exceed speed — for a torque roll.

It says a great deal for the Pitts controls that they remain so magnificently harmonised and pleasant throughout the increased range of airspeeds conferred by the 200 hp engine, and yet are still effective down to and below the stall. Although by any lightplane standards the Pitts is a really hot ship, its low-speed handling is classically innocuous. With power off, a gentle breakaway at about 60 mph (96,5 km/h) comes without any warning buffet, although sometimes preceded by a gentle wing rock. Not only is the stall quite straight, but the very light ailerons remain effective throughout. And as The Voice demonstrated, the Pitts has so much power that it is possible to accelerate out of the stall simply by opening up to full throttle, without any change of attitude at all.

As a prelude to some solo aerobatics, we broke formation for a highly exhilarating tail chase, which also forms part of the team's programme. This is a great limbering-up exercise, especially with a skilled and imaginative leader in a lightplane with virtually no airframe or engine limitations. The Pitts is nominally cleared for +6g and −3g, but I remember seeing some startlingly higher figures on the three-needle accelerometers of some of the S-1s flown by the winning US team at the World Aerobatic Championships at Salon-de-Provence in 1972. Among the manœuvres then performed in a Pitts S-2A was a completely flat inverted six-turn spin at low altitude.

As it happened, we were unable to explore the more extreme corners of the Pitts very wide flight envelope because of the back-up harness restrictions, and after a stall turn or two — (don't leave it too long in a vertical climb recommends The Voice, otherwise it will start a torque roll) — we took a look at getting the mighty midget back on the ground. Because of the Pitts infinite controllability, the main problem remaining when landing is seeing where you are going. A long-ish straight-in approach is therefore suggested, with the controls crossed for a gentle sideslip. Initial approach is flown at about 100 mph (161 km/h), reducing to about 70 (113) on kicking straight over the hedge, and the Pitts three-points sweetly enough on its unforgiving undercarriage. It is advisable to stay on the rudder, however, to minimise the risk of a dirty dart until the aircraft has slowed right down.

So although the Pitts is a delight to fly, even a brief trip with the Rothmans team is enough to show how much skill, hard work and sheer professionalism goes into their apparently effortless displays. "Manx" Kelly now has a second team of Pitts operating in Canada under the sponsorship of Carling Breweries and must be credited with the development of new standards of lightplane flying, as well as a highly effective means of advertising. □