

IVY LEAGUE LEARNING

Europe's sole airworthy Yale has flown very little since returning to flight in 2006.

Darren Harbar tells us how its new owner plans to change that

Right
High above
Cambridgeshire, 3349
displays the colours it
wore when first serving
with 1 Service Flying
Training School in Canada.
ALL DARREN HARBAR
UNLESS STATED

At first glance, the NA-64 looks like a T-6 Harvard or Texan. In fact, it's the 'cousin' to the more common retractable-gear trainer with both sharing a common ancestor – North American's NA-16. Fitted with a 450hp Wright R-975 Whirlwind radial engine and two-stage propeller, the NA-64 wasn't the most dynamic performer given its drag-inducing fixed undercarriage and earlier BT-9 style outer wing. Originally built for the French Armée de l'Air and Aéronavale in early

1940, in batches of 200 and 30 examples respectively, the type became known as the Nord (North). The French designated it the NAA-64-P2 (abbreviated from North American Aviation Model 64, advanced trainer, two seats).

LUFTWAFFE GENIUS

Of those ordered by France, 111 examples had been delivered before the nation surrendered to Germany following the Battle of France in May 1940. The Luftwaffe made good use of the aircraft acquired during the occupation, with the type being used for basic flying training and teaching advanced fighter tactics. Wearing

traditional Balkenkreuz (bar cross) and Swastika markings, it was designated the NAA-64 by the Luftwaffe, which pressed it into service with dive-bomber schools, target-tug squadrons and several combat units. At least one aircraft is said to have been used by the Zirkus Rosarius (a special test group tasked with evaluating captured allied aircraft), to familiarise German aircrew with the handling of American-built machines. A small number that escaped the Luftwaffe's clutches served with the Vichy French Air Force, while at least two made it to North Africa where they survived into the post-war years.

'O CANADA'

In August 1940, the remaining undelivered French NAA-64s were offered a new lease of life. The trainers were acquired by the British Purchasing Commission and transferred to the Royal Canadian Air Force (RCAF) for the British Commonwealth Air Training Plan. Some modifications were required from their

original – the throttle and mixture controls were reversed to match the Harvard and the French-language placards were replaced with English substitutes. With the changes complete, the aircraft were operational by November 1940. As was common for British training aircraft manufactured in the US, the NAA-64 was given a name relating to an American education institution. Yale was chosen.

One of the examples destined for Europe was NAA-64 No 139 (64-2171). Built by North American Aviation in Inglewood, California, the aircraft was rolled out on May 17, 1940. Disassembled and crated for shipping, it was redirected to

the National Steel Car plant at Malton, Ontario, outside Toronto. Reassembled, the French colours were swapped for a modified RCAF scheme – yellow patches painted on the upper surfaces instead of the standard overall yellow normally found on its trainers. Since No 139 was the fourth NA-64 to arrive at Malton, the airframe was given the fourth serial number from the block (3346-3464) allotted to the new type; accordingly, it became Yale 3349.

On August 23, 1940, Yale 3349 was accepted into service and sent to 1 Service Flying Training School (SFTS) at Camp Borden, Ontario, for use as a 'stepping-stone' between elementary trainers such as the de Havilland Tiger Moth or Fleet Finch and the advanced Harvard. While serving at Camp

Borden, the aircraft briefly appeared in the 1942 Warner Bros film *Captains of the Clouds*, starring James Cagney.

While later serving at 6 SFTS from Dunnville, Ontario, 3349 was involved in a Category B incident (not repairable on site, requiring work at a maintenance unit or contractor) when it struck a snowbank and overturned during a precautionary landing outside Toronto on January 24, 1943. However, after this incident, the Yale was converted to an airborne wireless trainer wearing an overall yellow scheme and flew with 4 Wireless School in 1944, and later 1 Wireless School at Mount Hope, Ontario.

HANGAR QUEEN

Following World War Two, the airframe was sent to 4 Reserve



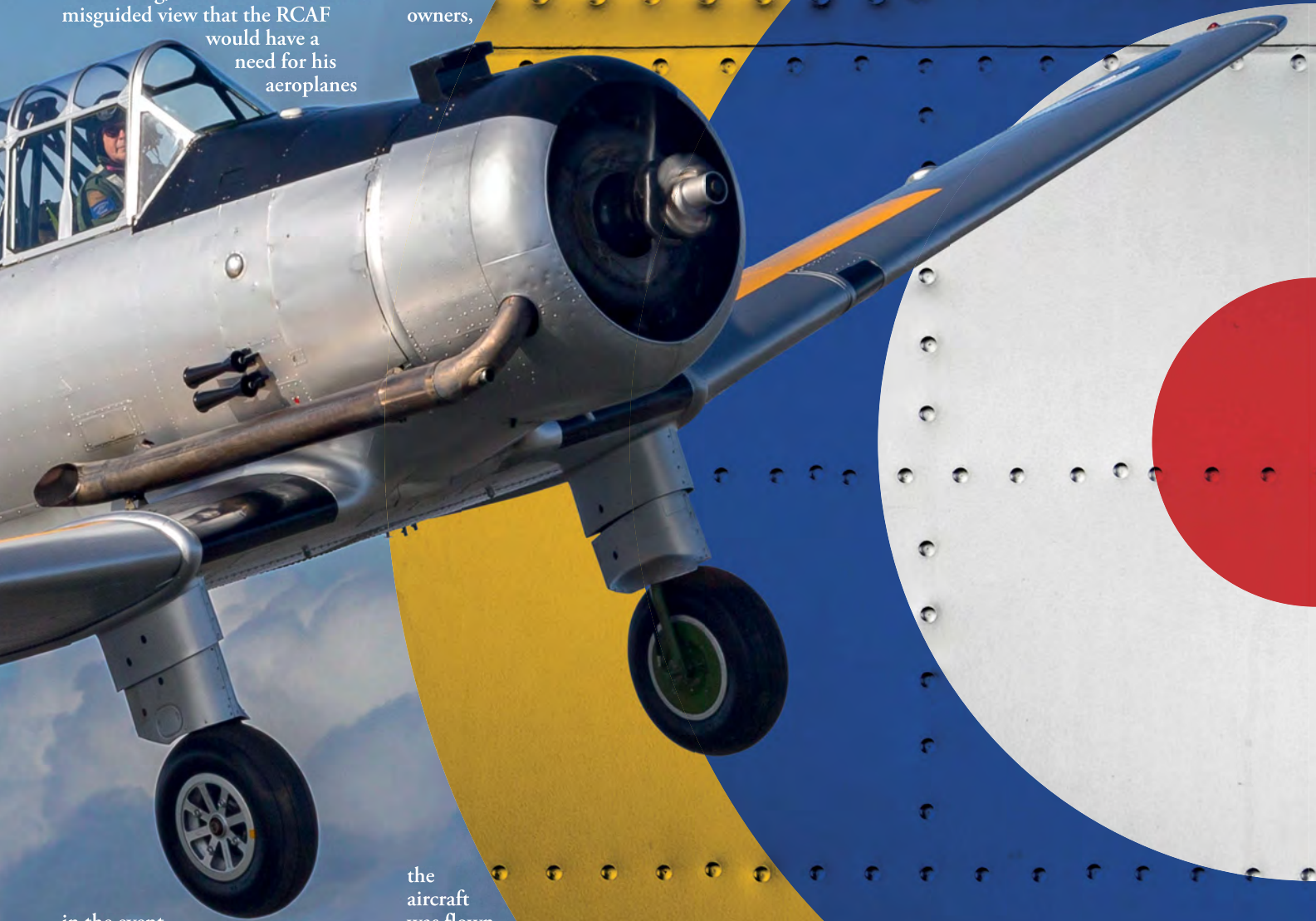
Equipment Maintenance Unit at RCAF Station Brantford for storage. In September 1946, 3349 was officially struck off charge and offered for disposal. Canadian company AMSCO based in Hamilton, originally purchased it along with several other Yales for scrap, but quickly put them back on the market again.

A new private owner, Ernest 'Ernie' Simmons acquired 3349 along with another 36 examples and stored them at his farm near Tillsonburg, Ontario. It was Ernie's misguided view that the RCAF

would have a need for his aeroplanes

September 1970 – 3349 was sold for a few hundred dollars and disappeared from the map. The aircraft then reappeared in Ocala, Florida, with Tom Reilly, who restored it to airworthy condition – 3349, now registered N55904, flew again on August 3, 1980.

Having passed through several owners,



in the event of another war, and he could sell them back at a profit! Unfortunately, they were obsolete and had held no attraction for the post-war RCAF. The airframes languished on his farm for more than 20 years until Ernie's death in early 1970. He didn't leave a will, so his collection of aircraft, engines, vintage motorcycles and automobiles was auctioned by the Province of Ontario. The famous 'Simmons Auction' took place during Labour Day weekend in

the aircraft was flown to the Netherlands aboard a Martinair Boeing 747 in May 1989 and spent several years operating from Lelystad, northeast of Amsterdam, wearing 'Drievorm Autogas' titles. Almost ten years after arriving in Europe, 3349 made its UK debut at the North Weald Aerofair in May 1998. Less than a year later, it ➡



Above
Following its relocation to Duxford, Cambridgeshire, 3349 underwent a full rebuild with the Aircraft Restoration Company.

Above right
NA-46 Yale 3349 at Malton, Ontario, following its roll-out in an adapted RCAF trainer scheme. Yellow patches painted on the upper surfaces were used in place of the traditional overall yellow.
JACK MCNULTY COLLECTION / CHAA

Right
Proud owner Ian Jones poses with his Yale at Duxford. He is currently in the process of converting to the type.



took up permanent British residence at Duxford, Cambridgeshire, and soon underwent a full sympathetic refurbishment courtesy of the Aircraft Restoration Company (ARC). On October 4, 2006 the Yale carried out its first post-restoration flight with the registration G-BYNE. However, over the past decade, the aeroplane ventured outside the Duxford hangar just a handful of times... and was flown even less. Offered for sale in October 2017, new ownership would trigger a fresh lease of life.

DREAM-MAKER

Having watched Ian Jones step out from the cockpit of his recently acquired Yale with a big smile, it's clear to see he loves his acquisition. He takes up the story: "As many *FlyPast* readers will empathise, I grew up with an interest in the war. I was raised in the shadow of the disused World War Two airfields of East Anglia... predominately USAAF Eighth Air Force. It was the likes of Woodbridge and Bentwaters that sparked my interest in all things World War Two, including aircraft.

"Fast-forward 40 years to 2012, and at 48 I started my flying training with Bourn Rural Flying Club and instructor Richard Francis. My sole aspiration was to fly warbirds and, looking back now, I think my wife regrets buying me the trial flight for my birthday that year!"

Ian continues: "In 2015 I gained my Private Pilot's Licence and immediately transitioned to a Yak-52 which I bought and hangared at Little Gransden airfield, [Cambridgeshire]. Here I was very honoured to be trained by well-known display pilots Mark Jefferies and Chris Heames and soloed in the Yak in August 2016. Many thought I was mad going straight from a Cessna 152 to the big Russian with its robust radial engine, retractable

undercarriage and variable-pitch prop. I was also aware that most pilots had hundreds of hours behind them before stepping into such aircraft. This made me very conscious of my capabilities... [and] to be aware of my limits. That has worked well for me and I have now flown incident-free in the Yak for nearly 50 hours – it's delivered that true warbird stick-and-rudder experience in buckets."

Having worked in information technology for more than 30 years and realising his life was lacking something, Ian thinks flying happened at the right period, as he candidly explains: "At this point I have to say flying came at a time when I began to question everything. I believe in fate and flying became the antidote, and for me now, an integral part of my life. I am constantly being challenged. The only limit is my flying ability and airsickness... which is improving!"

"In the summer of 2018 while visiting ARC at Duxford, I set eyes for the first time on the NA-64 Yale in the back of the hangar... it looked beautiful. Knowing very little about the type and specifically 3349, I started researching and it soon became apparent these were very rare aircraft indeed, with only a handful flying across the world.

"Having discussed it with ARC and understanding the rarity of the aircraft, I sold my Auster and Yak-52 to secure the purchase of 3349 in late 2018. Soon after, Neil Oakman from T6 Harvard Aviation kindly flew me in 'her' for the very first time.

"Back in 1980, I visited Duxford Museum with my granddad. He served in World War One and was part of the team which carried out wind tunnel tests for the Spitfire. It is quite poignant for me to now fly my warbird out of the same airfield 40 years later..."



INITIAL IMPRESSIONS

Ian has now accumulated several hours on the Yale and shares his initial thoughts: "The majority of my flying has been on nosewheel aircraft with a few hours flying an Auster. Before I could fly my Yale, though, time in a Chipmunk was required. This was a lovely aircraft and provided the basic tailwheel skills [needed] to progress. Neil has kindly taken me under his wing and is undertaking my conversion training.

"Sitting in the aircraft for the first time was quite overwhelming. I remember watching all those old black-and-white films like *The Flying Tigers* and *Reach for the Sky*, and thinking how small and fragile the aircraft looked. Standing next to the cowling you are suddenly hit by the Yale's size and presence. In the cockpit, you feel [like you're] suspended in the air when compared with the Chipmunk. You physically look down at people on the ground from 3349. The aeroplane was faithfully restored by ARC back in the early 2000s and evidence of that can be seen



“My sole aspiration was to fly warbirds and, looking back now, I think my wife regrets buying me the trial flight for my birthday that year”



in the cockpit, with the original identification and instruction plates still mounted to the frame.”

Ian’s first task was familiarising himself with the aeroplane.

He continues: “[The] throttle, mixture and pitch are all located together on the left-hand side and care must be taken when changing pitch, not to move the mixture by mistake. The ‘carb heat’ lever is positioned quite a way down by my left leg, and can be a challenge to locate when strapped in. Forward visibility is, as expected, very limited so ‘snaking’ on the ground is a must. With the canopy shut you do feel like you have been transported back to 1940.

“Learning the pre-flight tasks and start-up procedure was my first priority. One of the first jobs is turning the propeller through its first few pulls very carefully, while being mindful of the potential for a hydraulic lock. We have had to take out the lower plugs before to drain oil and ensure we did not cause damage to the con-rods. Careful attention when turning the prop’ here is vital. Once completed we check the oil.

“Engine start-up is pretty straightforward. Firstly, brakes ‘on’ by pulling the parking brake knob and pressing down on the toe brakes and then releasing. This locks the brakes. Using the manual wobble fuel pump lever on the left of the cockpit, I prime the fuel... normally I usually give it ten strokes and keep it open in case it’s required when starting. I set the mixture fully rich, open the throttle a quarter of the way forward and [set] pitch at coarse. Battery to ‘on’ and you are ready to start.

“[The] mags are selected as ‘both’ and then I engage the starter motor. At this point you hear the motor whirl into

action and after a few seconds you can tell by the sound, it’s ready to engage. At which point you pull the starter handle. If all goes well the engine will engage and roar into action. Once the engine has started and run at 1,000rpm, you monitor ‘Ts and Ps’ [temperatures and pressures], manifold pressure and other instruments. To date, an engine warm-up is taking 15-20 minutes. You may need to lean the mixture to ensure you don’t smoke out the whole airfield! Once warmed up, it’s time to taxi, which in the Yale is quite an easy job... a nudge of throttle and use the rudder pedals for direction.”

Above
Following an accident in 1943, the aeroplane was converted into an airborne wireless trainer, wearing overall yellow. It served with several wireless schools in Ontario between 1944-45.
SHANE CLAYTON

Below
Forward visibility in the Yale is limited, so ‘snaking’ on the ground while taxiing is vital.





Above
Breaking away from the
camera ship, the aircraft's
fixed undercarriage is
clearly visible.

HEADING ALOFT

Ian is part-way through his Yale training, of which he explains: "I must make it clear that at this point in time I am about four-and-a-half hours into my conversion, so I'm limited to what I can tell you about 'her' handling in the air. What I can describe is my experience so far..."

"Power checks are standard and, once completed, you line up. Trim and throttle friction set, mixture rich, reserve fuel tank selected, pitch lever fully forward to fine and the flaps are lowered using a wheel. Check 'Ts and Ps' and that the tailwheel is unlocked, and the harness and hood are secure. Controls full and free, tailwheel spring clutch lock.

"Deep breath and we are off... throttle fully forward and move the stick forward to help get the tailwheel up at about 40mph. Once raised, it's a matter of trying to keep her straight with rudder and at around 70mph you're up. At 300ft, I retract the flaps and focus on the attitude and at 1,000ft, move the pitch to coarse, which secures a reduction in the rpm.

"Monitoring [the] rpm is essential as you must never exceed 2,250rpm in a Yale. Keeping an eye on the engine temperature, a good rate of climb sits around 90mph at 600-700ft/min. The early Yale's engine is not as robust as the later Harvard's and needs to be treated with due care."

During this flight, Ian was put through his paces with high-level manoeuvres and circuit training including stalls, about which he comments: "[They] are far less brutal than I was led to believe, with a small wing drop at the stall... which is easily recoverable."

He added: "I found my first few circuits slightly overwhelming compared to those in the Chipmunk, although spending a few hours sitting in the cockpit on the ground, 'acting out' a circuit really helped. Knowing exactly where everything is without looking is a must. Add radio comms to the equation and your brain soon turns to mush downwind! [Flying] final approach at 100mph, I repeat the words, 'speed 85, ball centre, hit the numbers, speed 85, ball centre, hit the numbers...!'

"For me, I keep simple checks written down to ensure I don't forget anything if other tasks start to overtake me. 'Look outside, enjoy the flying' pipes Neil, knowing that I need to relax... he is correct. In the Yak I feel at home, so I need to attain the same level of skill and confidence in the Yale."

THE FUTURE'S BRIGHT

Despite the aeroplane looking almost new, there are still a few things on Ian's to-do list. Given the role that 3349 played during World War Two, the rear cockpit lacks instruments, which he is addressing with authentic replacements being installed by ARC; Ian hopes this could support future 'tail-dragger' training in the future. Given how little the Yale has been seen, Ian wants to ensure as many people as possible get to see the aircraft throughout the forthcoming airshow season. He has already booked a few events, including the Abingdon Air & Country Show in May and Little Gransden in August, with more in the pipeline.

It is hoped that Ian can join with T6 Harvard Aviation, which owns Harvard *Wacky Rabbit*

(G-BJST) and display the two together at some shows, providing a great opportunity to compare the two 'relations' in flight. As you can imagine, owning a warbird is costly. Ian is looking at all avenues of revenue to ensure 3349 remains airworthy, with potential new ventures coming up. He encourages show organisers to email him at: ian@yale3349.com if they wish to consider the aircraft for display.

Ian continues: "After four-and-a-half hours my confidence is building, and I am more relaxed and progressing well with the circuits. So, over the coming months with instruction and support from Neil, I hope to officially convert to the Yale... needless to say, it will provide that vintage warbird experience I'm seeking."

The author and Ian Jones would like to thank Shane Clayton from Ontario, Canada, for his contribution to this article. In his own words, Ian "has a thing for Yales", owning two of his own and overseeing the maintenance on a third. ●

Social media plays an important part in promoting warbirds and the Yale is no exception. Consider joining the NA64 Yale 3349 Facebook Group, or visit Instagram: [Ian_Jones_Fly_High](https://www.instagram.com/Ian_Jones_Fly_High) Website: www.yale3349.com