# BRISBANE VALLEY FLYER

## February - 2022

www.bvsac.com.au

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Wivenhoe Dam, from Vern Grayson's immaculate Zenith Zodiac 601 XLB.

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# From the Club


Hello all,

The Committee would like to welcome all our members to the new year. 2022. We hope you all had a festive Christmas and New Year and all are well and looking to a prosperous year ahead.

The club Christmas party again was well attended, and it turned out to be a very pleasant day, indeed, with plenty of food and much good company. For those who missed it, there is always this year, or just come along to one of the monthly meetings and feel the same hospitality.

We be starting off the year with our first meeting on the 5th of February. You are most welcome join us and start the New Year with good friends and BBQ lunch.

Please remember, if you are entering the club house, as per our Covid-19 policy, please sign the visitors book on the table. This will make sure that we are compliant with the rules. There is also plenty of hand sanitizer available as well.

Regards

Peter Ratcliffe
President BVSAC

# The Sound of Silence

By Rob Knight

All pilots are tested. Not just during training to assess their level of competence, but also on every flight they ever do. Fortunately, on most flights, it's whether they make a good landing at the end, but on every flight there's the chance, not a great one I'll admit, but still a chance they'll experience an engine failure.

There are two types of engine failure. One is a partial failure where engine power reduces and may fluctuate with or without alarming vibration and this is the greatest test because far more decisions must be made in this event to maximize the chance of achieving the best outcome – a success and safe landing in the best place considering the engine problems and the terrain available. The other is the total engine failure where blade fade stops the prop in front of the window, and an eerie silence settles across the aircraft. It is this type that is the topic of this treatise.

In my experience as a pilot, flight instructor, and flight examiner, several seconds will pass before it sinks in to any pilot that something is not right. The expected is always obvious but nothing is obvious to a pilot in the first few seconds after silence strikes unexpectedly. Most pilots spend time, perhaps up to 10 seconds, assessing the sudden change before they realize what is different and begin to respond to the new situation.

The major difference is the experience level of the pilot – experienced commercial pilots on proficiency flight tests react and respond in much less time than most barely current private pilots when not expecting the engine to fail. If the pilot has been warned that he (or she) is about to get their forced landing the test becomes a mechanical exercise for the pilot to display to the instructor or examiner that they can follow a set of ritualized actions and judgements in a theoretical environment. It is more realistic to the examiner if the engine fails whilst the pilot's mind is on other things.

So, what should a pilot do in the event of such a loud silence? Obviously, the stage of flight where it occurs will have a profound effect on what is available. An engine failure at 5 feet above a runway on take-off leaves little option but to land straight ahead. In fact, the wheels will probably be back on the ground before any pilot is fully cognizant of the total scope of the situation whereas when experiencing an engine failure at 8500 feet an hour after departure, there is (relatively speaking) time to spare.

Assuming time is available, then, what are the immediate actions for a pilot to undertake? This is simple. With no engine power, the aeroplane will immediately begin to slow down so lowering the nose to the glide attitude is a logical first action. OK, Then what?

If the aeroplane has a carburettor heat system, then immediately apply carburettor heat. The engine is cooling rapidly and soon there will be no heat available if the system utilizes heat from around the thin-walled exhaust system. Note that the throttle should be left alone at its current position – do not close it! Closing the throttle will create a sudden and substantial drop in air pressure inside the carburettor throat and this can lead to ice forming where none previously existed or aggravating a build-up already there. Also, with the throttle closed, very little air will pass through it so its throat will be exposed to very little heated air. Obviously applying the carburettor heat to a partly opened throttle will maximize the uptake of what heat is available as the heated air passes through the carburettor throat. If fitted, also check the mixture control is in the fully rich position.

Where fitted, the fuel pump should now be turned ON. Don't start looking for fuel pressures or at fuel quantities – just get the pump turned on. It will support any engine driven pump and help drive fuel through the lines to the engine. If the aircraft has a single tank and a fuel cock, now check that the fuel cock is turned ON. If the aeroplane has multiple tanks, then change tanks; so, if fuel

exhaustion is the underlying cause of the failure, fresh supplies are immediately available, and you have maybe two pumps restoring the petrol level in the carburettor to most quickly restore engine power. Trim for the glide attitude.

If engine power has not been restored the problem is probably not a simple one. Now is the time to PLAN for a power-off approach and landing into a selected field.

To select the best available field, first you need to know the wind velocity to ensure that the field is as into wind as possible. Note that, ideally, this should be the wind velocity at GROUND LEVEL. Away from an airfield, this is best done by looking for smoke or wind waves across long grass or farmers' crops. Dams and/or lakes, or even rivers if they are wide enough, will have the least ripples on the upwind edges. If there are neither, cloud shadows or recalling past wind drift affecting the aeroplane might help.

Now, where to land? Obviously, the chances of 2000 feet of black bitumen with a couple of windsocks and a painted centreline is unlikely so pilots must just settle for the best of what's left.

Where to look for a field is a good question. A quick scan of the area around the aeroplane is a good place to start and, for most light aircraft, any area below $45^{o}$ to the horizon will be within easy gliding distance. Above $45^{o}$ and it may be necessary to consider the wind direction before deciding whether a potential good field is within gliding range and the aircraft can be manoeuvered to land in it. Remember – gliding range increases when flying downwind because the aeroplane's groundspeed will be increased and it's a ground distance that we are considering.

Which field? Herein lies a mighty big question. In essence, there are but three types of fields seen from the cockpit – green ones, light-brown/orange ones, and dark-brown ones. These can immediately be reduced to two types – because dark brown fields are usually ploughed or prepared for seeding and are either too rutted or too soft to land on and may be discarded.

Green fields maybe a little better. If they have a short crop or a grass surface, they can be excellent but the green might be from a crop of corn or sugar cane and these can cause a nose-over after landing. To gather an impression of the actual surface, look along the edges and corners of the field and check the apparent texture. Tall standing crops will usually give an impression of their height and the character of their surface. Consistency of colour is also important as a line or area of darker green might depict drains or wet or boggy areas.

This leaves light brown fields and, while generally the best, one should be aware that light brown fields can be dark brown fields that have dried out and may still retain their unfavourable attributes. Otherwise, they are usually OK. With a solid supportive surface and easily seen obstacles such as hay bales, it might be possible to pass diagonally through the pattern. Select the ideal point at which to flare and guestimate where you might be able to stop.

Now that the approach and landing has been planned, check for high ground adjacent to the selected field and decide whether to make a left or right-hand circuit. After estimating the elevation of the selected field, chose a 1500 ft AGL geographic area on the downwind leg side at the upwind end of the runway. This can be about the upwind end of what will be the downwind leg. Head towards it in such a manner that the aircraft will be at 1500 feet AGL and established on the downwind leg in that area.

Then select a 1000-foot area, generally abeam the downwind end of the runway. This should be a location from where the pilot KNOWS that they can make a safe approach and landing from 1000 feet.

Whilst descending, trimmed, and at the correct glide speed, towards the 1500-foot area, carry out a more in-depth check of the engine.

- Check fuel pressure and fuel quantities. If these are normal the problem doesn't lie with fuel issues that can be remedied by the pilot.
- Ensure the fullest fuel tank is selected (where individual selection is available). Check for partial power, then, if no partial power, Close the throttle. If partial power is available, decide whether it is sufficiently reliable to trust it to ongoing flight or whether to continue with the off-airfield landing.
- Check the magnetos/CDIs by switching between them.
- Transmit MAYDAY and brief passenger(s). Ensure harnesses are tight.
- Turn magnetos/CDIs OFF, fuel pump OFF, fuel selector or fuel cock OFF.
- Turn MASTER OFF if electrical system not further required.

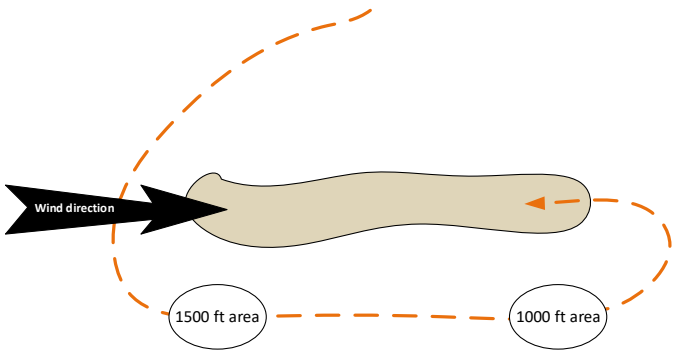
  NOTE: Addendum to the last item in the list above, the MASTER switch may need to be left ON where electric flaps are fitted. Otherwise, flaps will not be available for the approach.

Unlatch hatches as appropriate.

The pilot should now check again the progress towards the 1500 ft area and ensure that the flight path can reach the 1000-foot area.

Continuing to fly to the 1500-foot area and then to the 1000-foot area. Carry out the downwind checks to ensure the brakes are not parked and double check that all harnesses are tight.

At the 1000-foot area, turn and make a base leg. Aim to flare 1/4 or 1/3 into the field. If the pilot is sure of getting into the field apply flap, as much as the pilot feels comfortable with keeping in mind that the plan is to land with full flap (if possible) to minimise the groundspeed at touchdown and use their drag to aid braking to shorten the landing roll-out.




When the selected field is about in the 10-o'clock position, the aircraft heading can be adjusting to make the appropriate distance to fly to the flare point. Aim to land a quarter or a third of the way into the field with full flap (or use sideslip to steepen the final approach when established).

Fly into the field and land; emergency over. Listen, the silence has gone - the birds are singing.

Happy Flying

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**Yet more Covid news:**

**The seven dwarfs have been advised by the Queensland Chief Health Officer that they may now only congregate in groups of six. One of them isn't Happy.**

# Hash-Up on Hand-Helds

We still need portable radios. Models from Icom and Sporty's are favourites, (Note – all prices are in $US).

Marc Cooke, October 27, 2021

Even with modern gee-whiz panel integration, there are obvious reasons why the portable com radio soldiers on. When the electrics quit, it could be the last tool in the bag for talking your way down for a landing (and for some, an instrument approach), it's useful for pre-flighting and copying a clearance when you don't want to turn on the master switch, and for some, it may be the one and only radio when flying aircraft without electrical systems or avionics.


*L-R: 1ICOM IC-A16, Yaesu FTA 750L, Sporty's PJ2*

As you'd expect, portable com radios have advanced (yet slowly)—some sporting Bluetooth, GPS and other features you may not use or get along with, especially if the radio will be used for belt-and-suspender backup. That means choosing the features you'll actually use. Herewith is a scan of the relatively slim market.

**Spec the Basics First**

Before shopping, think hard about how you'll actually use the radio and based on that, how it should be powered. If it's primarily for emergency use, battery consideration is important. For emergency use I favour AA alkaline power, and not Li-ion rechargeable. Remember, the radio might sit in the bottom of the flight bag or in a map pocket for long periods and inevitably when you need it most, that rechargeable battery might be flat. With AA power, at least you can carry a spare set should you need them.

Do you want and will you really use navigation functions? Icom, Sporty's and Yaesu all have models with built-in nav capability—GPS and analog VHF for ground-based navaids, including ILS with onscreen CDI. These navigation functions perhaps had more utility before everyone flew with tablets running navigation apps, so when choosing a handheld com, raw nav capability is sort of an afterthought. Is it really practical flying an ILS with the radio in hand? I've tried and it's a dance. If that's your backup, how will you mount it?

The other things to consider are performance and simplicity. An emergency is no time to be fumbling with a complex feature set and deep menu structure, so I think simpler is better. Plug in the headset, power it up, dial the frequency and start talking. But there's more to it. Since portable radios don't have anywhere near the transmit power of say a 10- to 12-watt panel radio (they typically half that power and even less when radiating through a whip antenna), don't expect to talk the distance you can with your panel-mounted rig. That means having to install a dedicated VHF antenna to connect with the radio. See the sidebar on below for more on how to do it.

Last, for inflight use, you'll want to connect your headset to the radio, and perhaps even connect a push-to-talk switch. The Sporty's PJ2 has a direct plug-in for the mic and phone plugs of a GA headset, but others require a separate adapter—an accessory that often gets lost in the shuffle when you need it the most. Want to listen through your headset wirelessly? One radio—the Icom A16B—does just that with a Bluetooth connection.

**Icom**

Icom (a staple in the land mobile com market) has enjoyed sizable success in the aviation market over the years with its line of portables, and the current flagship model is the $499 (street price) A25N. The "N" nomenclature means it has a built-in nav receiver, plus it also has Bluetooth. This radio has been a permanent extension of my own flight bag (and for use in the hangar) and has proven to be reliable, rugged and with far more features than I use. The radio ended up replacing the venerable Icom A22, which served me well—once talking me down from a real-deal electrical failure at dusk. I gave up on it when I couldn't affordably source a replacement battery.


*Icom's A25N seems just the right size in the hand, has good ergos and a large display*

What I like most about the A25N is the build quality and chassis size. Weighing 13.6 ounces with the rechargeable lithium-ion battery and whip antenna attached, the waterproof Icom measures 5.8 inches high, 2.3 inches wide and 1.3 inches deep. It stands tall with the antenna attached, so you'll have to remove the long antenna to fit the A25N into a dedicated radio pocket of a smaller flight tote, which I use. The antenna uses a quick-disconnect BNC connector, which makes it easy to saddle the radio up to an external antenna equipped with typical coax cable.

Where the early-gen A22 and other Icoms had 5 watts of transmit power, Icom built the current transmitters with 6 watts (every bit counts). When it's not in service, I leave the radio plugged in to the standard desktop drop-in charger, and Icom sells a cigar lighter plug for powering it in the airplane. Still, I think it's time Icom added a USB-C power port for on-the-fly charging from a power bank or panel USB power port. Battery endurance is spec'd at roughly 10 hours, but you can expect a lot less when transmitting—the duty cycle of the transmitter on portables eats power.


*Icom A25N Bluetooth pairing (left) and GPS status (right)*

But the A25N is still efficient; I put it on the test bench and measured a 1.8-amp current draw while keying the transmitter for 10 seconds. If the radio is used for emergencies, I suggest buying the optional AA battery pack. I've grown to like the on-screen battery strength indicator, which works with the standard rechargeable cells and with the optional AA pack.

The Icom comes standard with a headset adapter, which can be used with a portable push-to-talk switch. During transmit the radio generates artificial sidetone (the sound of your voice you hear in the headset) just like a panel com. That's more useful than you might think. Using the radio without headsets means keying the switch on the left side of the chassis and talking into the microphone on the front grill. Speaker volume is adequate, but again, in the real world it's better paired with a headset—especially in loud cabins. That struggle is real. One thing that is improved over older Icom radios is the display—a large 2.3-inch LCD screen with a day and night mode. Hit with bright sunlight it does fine, and it's easy to crank down for a dark cockpit. There's also a contrast adjustment that's easy to tweak.


*We think a USB power input would make the radio better for backup*

The A25N's ergos are decent, but after not using it for a while I still struggle with finding the darned power key, which is on the lower left area of the keypad. Icon ought to colour the key red or green so it doesn't get buried. You can set in the active frequency with the keypad or use the rotary dial at the top of the case, which I prefer. And so you don't inadvertently tune it off frequency, you have to press the Function key for fingering the frequency buttons, plus the keypad has a lock—plenty of failsafe for ham-fisted users like me.

The radio has plenty of advanced features, including a squelch level adjustment (two buttons on the side of the chassis) with a dedicated onscreen squelch graphic that shows the triggering level that's set. Even better is the ANL feature, for automatic noise limiter. It's supposed to help clean up noise (engine ignition, for example) that might sneak into the com receiver. When the receiver has an incoming signal, RX is displayed on the screen. For emergencies, there's a dedicated one-touch 121.5 MHz key, but don't forget to hit the Function key to activate it.

One thing I never use is the 300-channel/15-group storage memory bank, where you can name channels and assign them a type. This includes GND, CLR, APP and other com and nav acronyms. There's also frequency recall and a VFO scanning mode that sweeps the entire band. The other feature I never use is the onboard VHF nav receiver, which is limited to VOR—no ILS. When the nav band frequency is in use, the set displays a CDI screen with a basic compass rose, CDI, OBS value indicator, the heading to or from the VOR station and a TO/FROM indicator. The nav functions are accessed via the keypad by pressing the Function key and then the corresponding nav function on the 1,2,4,5 and 6 function keys.

There's also built-in Bluetooth for loading in flight plans (based on lat/long coordinates) from Icom's RS-AERO1 tablet app. Once the data is in the radio, the built-in GPS/GLONASS provides navigation guidance. Don't look for topo or map data on the A25N's display—it's not that advanced. The display shows estimated time enroute, speed over the ground, distance to destination and display range. It also stores waypoints in memory and saves transferred flight plans previously built on the app and sent over via Bluetooth, plus you can edit and delete them in the radio's Manage FPL menu. Again, with better utility available in even the most basic navigation apps, I wonder how many users even bother with the Icom's nav and flight plan features. What is useful for me is the NOAA weather receiver. I use it all the time for fetching conditions and forecasts.

Icom sells a com-only version—the A25C—(without Bluetooth) that's street priced at $449. For the small price delta, I think it makes sense to spring for the flagship A25N. But there's also the $259 Icom A16 series, including the Bluetooth-equipped A16B that's street priced at $299. It's a bare-bones radio, but with a 6-watt transmitter and loud (1500mW) speaker. It also has a large-capacity battery pack with 17 hours of advertised endurance when not transmitting and with the Bluetooth and LCD display backlighting turned off.

Pairing the A16B Bluetooth to a headset is a bit roundabout, and for some might be awkward compared to the way we're used to pairing devices. Press the Function key and hold the Set key for one second, which puts the radio in Settings mode. The MR button (not the arrow keys, as you might expect) is used to scroll into yet another menu where you scroll some more to find the Bluetooth settings. Then back to MR for pairing. Once you do it a few times it may be easier, but I think Icom can do better and buyers will expect it.

But Icom built in some of the good features it uses on the flagship A25N, including the ANL noise-limiting circuit, transmit sidetone, NOAA weather radio, and a programmable 200-channel memory storage bank. The A16 series weighs 9.1 ounces and measures 2.1 by 4.4 by 1.3 inches with the BP-280 whip antenna. You can pair the radio with Bluetooth headsets (up to four of them at once) for listening to the receiver audio. There's a version without Bluetooth that is street priced at $259, but the savings doesn't seem worth it. Visit www.icomamerica.com for more information.

**Sporty's**

We covered the $199 Sporty's PJ02 handheld in the March 2020 issue and also in video, so we'll summarize it here. Sporty's set out to offer a radio that's simply easy to use without a lot of bells and whistles. Made exclusively for Sporty's by Rexon in Japan, the PJ2's key features include standard headset jacks on the top of the chassis so you won't need a separate adapter to plug in, a USB-C plug-in for backup power input, and an AA alkaline battery pack.

*Sport's PJ2 (left) and SP-400 (right)*

But even for the low price, the radio seems to have just enough features to satisfy buyers. It will store up to 20 frequencies and has a last-frequency flip-flop (handy when the radio is used as a primary.) It also has NOAA's weather channels. I've been using the radio for a year and find it stone simple to use—turn it on, key in all six digits of a frequency, and the radio will automatically tune it without you having to press the enter key. There's also a single button to flip one frequency to the standby window like you find on a panel radio.

*Sporty's PJ2 gets high marks for direct headset plug-in without an adapter*

The simplicity continues throughout the chassis and feature set. There are dedicated volume and squelch knobs, an oversized backlit (and adjustable) display, simple oversized keys and a transmit/receive indicator light to guard against a stuck microphone.

In the real world, the PJ2 is a decent performer, but like most portables it won't talk the distance (it has a 5-watt transmitter) without an external antenna. Its receiver sensitivity is quite good, able to pull in a signal almost as well as some panel radios. Connect the radio to an external antler and it should perform quite well.

We've heard of some owners having battery pack issues with early production PJ2 radios, and as expected, Sporty's stepped up and provided redesigned replacement packs free of charge. It's the kind of exceptional customer service that pays back big when you run into a problem, proving that where you buy is as important as what you buy.

Although it's getting long in the tooth, Sporty's still sells its VOR/ILS-equipped SP-400 radio priced at $300. Several SP-400s have been in the long-term test pool at sister publication Aviation Consumer for years, where they have mostly survived the test of time.

Measuring 6.54 inches tall, 2.35 inches wide and 1.46 inches deep, the radio is one of the larger ones on the market, but I think it's also one of the easiest to use (along with the PJ2). The controls are simply placed right where you might expect them to be, including a dedicated volume (which also serves as a power control) and squelch rotary knob on the top of the chassis. The display was updated a few years ago for the better, and it works well in sunlight and has enough adjustments for tweaking it in a dark cabin.

Don't look for lots of advanced features on the SP-400—there aren't many except for a 20-frequency storage bank, NOAA weather radio and, as a deal-sealer for some, VOR and ILS capability. I put one on the nav test bench, injected a signal and found that the receiver sensitivity was close to that of a vintage nav/com radio—impressive. The built-in electronic CDI is utilitarian but gets the job done. You'll need the optional headset adapter if you want to plug in your headset. I have no issues recommending the SP-400, especially if you want a good-performing nav receiver with glideslope.

But I suspect Sporty's might offer an updated replacement, especially since the SP-400 has sold well over the years. I'll keep my eyes open for it. For more information visit www.sportys.com.

**Yaesu**

*Yaesu FTA-550 (left) and FTA-250 (right)*

The Yaesu brand is no stranger to portable transceivers, excelling with products for the amateur radio market. My Yaesu Ham HT rig from the early 1990s still works, and the company has been selling aviation handhelds for a while. The company's Vertex Standard line of land mobile equipment (which included air-band transceivers) was taken over by Motorola during a division merge. Yaesu continues to manufacture the aviation radios, but dropped the Vertex name.

The flagship is the FTA-750L (street priced at $379), which has a 66-channel built-in GPS engine, a VHF nav receiver with VOR and ILS, and a compact chassis with a lot of features packed inside. The waterproof (PIX5 rated) chassis measures 5.2 by 2.4 by 1.3 inches and sports a 1.7 by 1.7-inch full dot matrix, adjustable backlit LCD display. It's a mediocre performer in bright sunlight, although it does have a contrast adjustment for some tweaking. The 750L is powered by a high-capacity Li-ion battery pack, and also accommodates a six-AA alkaline battery tray.

In my view, the radio's GPS falls short because it doesn't have the functionality you might expect from a portable GPS navigator as it doesn't have a database of airports and navaids. Instead, you either manually enter or download the lat/long coordinates of the waypoints with Yaesu's YCE01 programming software connected to a PC via USB cable. The feature set is menu driven and at first seems complex, but it's actually pretty logical. A dedicated Menu key and bezel-mounted arrow keys (or use the inner rotary knob) move you around the menu structure, while an Enter key selects the function—plenty of them.

There's also plenty of frequency storage capability—up to 200 channels—which are accessed from the Memory Book icon from the unit's on-screen menu. It also has 15 alphanumeric character assignments for frequency recognition. The menu screen also gains access to a countdown timer, NOAA weather channels, a setup menu for adjusting the display and accessing what's called the Split Mode, which allows you to transmit a call to a flight service station while receiving on the VHF navigation band.

The display automatically shows the CDI, based on the signal it's receiving, including localizer and glideslope. There's also a compass rose and an SOG (speed over ground) function, based on the unit's internal WAAS GPS receiver—a helpful feature in an emergency—but it could be better with a full-up GPS navigator function. It does have GPS position logging, storing lat/long data at pre-set intervals.

As for the radio's main feature set, the Yaesu is logically designed, and adjusting the frequency is accomplished with the outer knob on the top of the radio (or by direct keypad entry), while volume is adjusted with the inner knob. It's just natural having a dedicated rotary knob for volume. What's missing is a one-shot squelch control. Instead, press the squelch button on the side of the radio (below the transmit button) and then rotate the knob to set squelch threshold. The squelch settings are linear, but it could be better with a dedicated squelch knob.

One good feature is the Dual Watch mode that automatically checks for activity on a pre-set priority channel. For example, if an approach frequency is set to priority, the Dual Watch will monitor it for 200 millisecond intervals while you continue to operate on another frequency. This feature is similar to what's standard on higher-end panel radios that monitor the standby frequency, and it's nice to see it on a handheld.

The $289 FTA-550L is a defeatured version that doesn't have GPS but shares many of the other features found on the flagship 750L. There's also the $199 FTA-550AA version, which comes standard with an AA alkaline battery tray rather than re-chargeables. The FTA-450L loses the VHF nav in favour of com only and is street priced at $249 with the Li-ion rechargeable battery pack.

Downscaled more is the FTA-250L ($209), a bare-bones com-only model with Li-ion and a more utilitarian high-resolution dot matrix display and stripped-down feature set. It's a rugged little radio with a waterproof polycarbonate chassis and a blaring 700mW speaker. It's pocket sized at 2.1 by 4.1 by 1.2 inches and has 250-channel memory storage. The little rig has a mega-capacity Li-ion battery (1950 mAh) and like the rest of the line comes with a removable whip antenna, headset adapter, belt clip, drop-in charger and a 3-year warranty. Visit www.yaesu.com for full details.

**Portable Transceivers Compared**

| MODEL | STREET PRICE $US | SIZE (Inches) | Battery | NAV | BLUE-TOOTH | TX POWER (Watts) | NOAA WX | ANTENNA |
|---|---|---|---|---|---|---|---|---|
| **ICOM** | | | | | | | | |
| A25N | $499 | 2.3 x 5.8 x 1.3 | Li-ion | VOR, GPS | Yes FLT Plan Transfer | 6 | Yes | BNC |
| A25C | $449 | 2.3 x 5.8 x 1.3 | Li-ion | No | No | 6 | Yes | BNC |
| A16 | $249 | 2.1 x 4.4 x 1.3 | Li-ion | No | No | 6 | Yes | BNC |
| A16B | $299 | 2.1 x 4.4 x 1.3 | Li-ion | No | Yes, for RX Audio | 6 | Yes | BNC |
| **Sporty's** | | | | | | | | |
| PJ2 | $199 | 2.3 x 6.0 x 1.6 | AA Alkaline | No | No | 5 | Yes | BNC |
| SP-400 | $299 | 5.5 x 2.5 x 1.4 | AA Alkaline | VOR, ILS | No | 5 | Yes | BNC |
| **Yaesu** | | | | | | | | |
| FTA-750L | $369 | 5.5 x 2.5 x 1.4 | Li-ion | VOR, ILS, GPS | No | 5 | Yes | BNC |
| FTA-550L | $289 | 2.4 x 5.2 x 1.3 | Li-ion | VOR, ILS | No | 5 | Yes | BNC |
| FTA-550AA | $199 | 2.4 x 5.2 x 1.3 | AA Alkaline | VOR, ILS | No | 5 | Yes | BNC |
| FTA-450L | $249 | 2.4 x 5.2 x 1.3 | Li-ion | No | No | 5 | Yes | BNC |
| FTA-250L | $209 | 2.1 x 4.1 x 1.2 | Li-ion | No | No | 5 | Yes | BNC |

**Top Picks**

There really aren't any bad picks, so you might choose based on feature set and an operating system you can master during high-workload situations. In many cases less is better, but if satisfying the inner geek is your goal, the two most feature-packed flagship radios in the group are the Icom A25N and the Yaesu FTA-750L—both sporting very different menu structures. I suggest trying before buying from an outlet that has a liberal return policy.

If I had to pick one, it would be close between the $199 Sporty's PJ2 (for its simplicity and direct headset interface) and Icom's $259 A16. For flagship features packed in a rugged chassis, I favour the Icom A25N for its intuitive menu structure, although I would spring for the $50 AA battery pack if the radio never left the airplane or flight bag. Saying that, it would be better with a USB-C backup power input like the PJ2 has. Last, for a no-nonsense radio with an ultra-compact rugged chassis and high-capacity battery, the little Yaesu FTA-250L gets high marks.

**Antennas, Ho!**

Handheld com radios, as we can see, are useful around the shop in addition to providing an inexpensive backup to your panel radio. Unless your goals are very short-range transmissions, however, you aren't going to get the best (or even adequate) in-flight performance with the standard "rubber ducky" antenna that comes with most handhelds.

*Hang a bent whip under the belly*

The only real alternative is a real antenna. There are several ways you can approach the problem. First, you can just install another antenna like the one or ones destined for your current onboard coms. If you're a lover of symmetry and you only have one panel-mounted com, this is easy. An alternative is a belly-mounted antenna to supplement, say, a pair of them on top of the wing (for high-wing designs) or on the fuselage (for low wingers). Install like you would for a panel mount but terminate the coax in a BNC bulkhead connector somewhere in reach. A short jumper to your handheld will do it—and it can even be the lighter RG-142 to reduce bulk. (RG-142 isn't as efficient as RG-400, but a short segment won't have a big enough impact on performance to worry about.)


*…or mount the antenna that came with your handheld in the tail*

Some builders don't want their airplane to become "antenna farms," so here are some alternatives. For all-metal airplanes, consider one of the wingtip antennas, like the Archer models designed to tuck into fiberglass wingtips. They're not as efficient as more conventional com antennas, but they're a lot better than using the flexible antenna on the handheld itself—even if they're not perfect, they'll greatly extend the radio's effective range. And no added drag.

Builders with composite aircraft have additional options. There are several commercial antennas meant to go inside a fiberglass fuselage or wing. (The main difference here is that they are self-contained in the sense they have their own ground planes; the Archer wingtip antenna must be grounded to the wing and uses part of the wing and end rib as a ground plane.) It's common for fiberglass airplanes to have one big dipole antenna in the vertical stabilizer, so additional antennas will have to be located in sub-optimal locations like the tail cone behind the baggage bay. This is OK; you're not going to rely on this antenna for everyday use, and even a less-than-ideal location is better than hand holding.


*Coil up some coax with a BNC and twist it on to talk the distance*

Another option is to repurpose the flexible antenna that came with your handheld to a fixed location using a ground plane. A couple of female-to-female BNC bulkhead connectors, a bit of RG-400 or even RG-58 coax, the appropriate connectors and a bit of ingenuity building the ground plane are all you need for a simple, cheap extra antenna. Radio experts will tut-tut that this isn't an ideal RF radiator, and they're right. But, again, you're simply trying to improve on the performance you'd get with the handheld literally in your palm. And that's not hard to do, even with a sub-optimal secondary antenna.

A few last things to consider. Never try to tee into the existing antenna line unless you have a way of completely removing the panel radio from the circuit. Keep your new com antenna away from other antennas, including the ELT antenna, as much as you can. And be sure to keep all the accessories you need to put your handheld into play nearby—including the headset adapter, if needed. All this work means nothing if the connecting coax is out of reach at the back of the baggage bay when you need it the most.

Note that quoted process may not reflect changes caused by Covid issues.

------ ooOOoo ------

# Mustang Musings: What it's Like to fly the Legendary P-51

By Jay Miller

Several years ago, my close friend Lewis Shaw and I took a trip south from Dallas to Encinal, TX, in his North American P-51D Mustang. We were flying to the remote and little-known town to visit with an associate who was a serious collector of warbirds. He was looking to buy a second Mustang to add to his collection and Lewis was looking to sell his—a polished aluminium beauty that was an exquisite example of the legendary WWII fighter in every way.

*Acceleration in a North American P-51D is rapid and seriously forceful*

Neither Lewis nor the interested buyer were new to the Mustang world. Lewis had owned two beautiful Mustangs prior to this one and the interested buyer had one already in his stable and a number of other perfectly restored and flightworthy warbirds to boot. I had arranged the meeting between the two and was invited along for the ride to handle introductions.

Acceleration in a North American P-51D is rapid and seriously forceful. If you've ever put the pedal to the metal in a high-dollar sports car, no further explanation is required. During the first few seconds following brake release, the pilot has no direct forward view. Because the tailwheel is still on the runway, all Mustang (and taildragger) pilots must momentarily compensate by developing a peripheral sense of where the airplane is heading. Once a little forward stick is applied (which, incidentally, also unlocks the tailwheel from the rudder) and the tail lifts, the view forward is excellent. At that point, the mission objective becomes simply keeping the airplane on the center line while it accelerates to take-off speed.

During acceleration, engine power is metered out in measured quantities. Too much torque can be a dangerous thing when airspeed and lift are marginal, so max power (approximately 40 inches of mercury at 3,000 rpm) isn't applied at the very beginning of the take-off roll. It is, in fact, eased into at a somewhat conservative pace using a good mix of experience, book learning, and common sense.

Staying centered is no overly simple task; the P-51D's Rolls-Royce Merlin engine and Hamilton Standard four-blade propeller develop a lot of torque. Right rudder in serious quantities is required to offset the pull to the left (five degrees of right rudder are, in fact, pre-set by the pilot prior to take-off to ease rudder pedal forces), but once the airplane's airspeed gets to the point where the rudder and vertical tail have acquired some authority, the pilot can reduce the right rudder input and start concentrating on other things.

Once airborne at just over 100 miles per hour, the landing gear are retracted and, if flaps were used (20 degrees–optional), they are retracted also. The oil and coolant shutters are usually operating in automatic mode, so they are not an issue–particularly on a cool day.

Immediately after take-off, the pilot has to be conscious not only of too much engine power being applied too quickly, but also P-factor. Sometimes referred to as asymmetric blade effect, it is a condition that occurs usually at low airspeeds and relatively high angles of attack. Without getting into the modestly complicated aerodynamics of it all, suffice it to say that P-factor forces a propeller driven airplane to yaw, usually to the left, in concert with the added force of torque. At low airspeeds and low altitudes, P-factor and torque can create a deadly duo that P-51 pilots do their best to avoid at all costs, particularly during take-off and landing.

My friend, pilot, and Mustang owner, Lewis Shaw and I were, of course, communicating throughout the take-off roll and departure from Addison Airport. I was having a seriously enjoyable time in the back seat documenting everything with my Nikons and trying to keep up with all the activity in the

front seat. After some radio chatter with the tower, ATC got us heading in the right direction and out of the way of Dallas-Ft. Worth International Airport traffic. Basic route for us was due south/southwest to Waco, Austin, and San Antonio, and then a slight veer to the west after we passed over the Alamo.

Encinal—population 629—our destination, is just over 100 miles south of San Antonio, so air time from Addison (just north of Dallas) to Encinal was just about an hour and fifteen minutes cruising at around 300 mph. Cruising altitude was around 6,500 feet. All in all, a comfortable setup for the airplane and Lewis and me.

The Merlin, at cruise, is a relatively smooth and responsive engine. With a helmet and headset on, the cockpit noise level is easily bearable but far from quiet.

Finding that I had overdressed a bit and had put on a sweatshirt that proved redundant, I decided to remove it in the tight constraints of the back seat. This required some serious twisting and turning, a complicated unbuckling of belt and chute harness, and of course the removal of my helmet. The latter quickly gave me a much better sense of actual ambient cockpit noise without any ear protection. Suffice it to say it was a relief putting the helmet back on after I got the sweatshirt off!

*Cruising along in the P-51D is an unforgettable experience*

Midway through the flight Lewis turned the stick over to me. This was not a simple matter of communication, but also involved my pulling the back seat stick from its storage clamps on the right side of the cockpit and installing the stick in the base stub on the floor just in front of my seat. No major effort involved, but it was easy to understand why the stick was removable. Getting in and out of the rear seat area would have been all but impossible without this feature.

Rudder pedals are permanently installed, so there was no issue there and nothing to do but place my feet on them. After that, it was grip-the-throttle and have a good time!

With Lewis's blessing I did a few gentle manoeuvres, input some partial rolls to the left and right, watched my horizon flip flop around without a lot of effort, and, overall, thoroughly enjoyed the rare treat of flying a real-deal Mustang. Though this was not my first Mustang ride, it was most certainly the first time I had been given full control of the airplane. It was a most memorable experience.

The Mustang's stick and rudder coordination are excellent and very smooth. Response is near instantaneous to inputs from either, and the throttle response is equally fast. One has to be conscious of the engine/propeller torque (and airspeed) at all times, as too much power input too quickly, even at cruising airspeeds, can quickly affect the airplane's direction and stability. Everything on the other end of the throttle handle needs to be handled with finesse and forethought until flying the Mustang becomes second nature. Even then, it's nothing to be taken for granted. Mustangs do not bear fools lightly…

As noted previously, the Mustang's back seat is not the most comfortable perch on the planet. After an hour of flying, keeping an eye on the GPS and compass, and cooking under the clear bubble canopy, I was ready to land and stretch my legs and rub my back. When Encinal finally appeared on the horizon, I was not unhappy about it. After locating our destination runway, we made the

customary high-speed pass down the centerline, pitched up, rolled, and turned onto base leg and final.

*Made for performance, not comfort*

The wheel landing, with Lewis back in control, was uneventful. Approach, with a modest amount of flap, was around 110 mph with touchdown taking place at about 95 mph. Once the tailwheel was on the ground, things slowed in a hurry. Five minutes after the main gear kissed the asphalt, we were pulling up in front the main hangar and shutting down.

Our visit lasted for about two hours. The airport proprietor was a kind and absolutely first-class host. After Lewis and our host finished their business, we were fed and the Mustang was fully fueled for the trek back north. The Mustang holds around 180 gallons of hi-octane avgas internally and has a range of about 1,100 miles in standard fighter configuration. Add two 75-gallon external wing tanks (which Lewis has on his Mustang), and the range jumps to just short of 2,400 miles. Either way, those are long non-stop hauls. If you're in the back seat, you better take some pain pills with you and possess a very large bladder.

Departure from Encinal was uneventful except for the obligatory high-speed pass and roll. Aiming north and getting back up to cruising altitude and airspeed, Lewis again turned over the stick. For the next hour and several minutes, I cruised along fat, dumb, and very happy while my pilot dozed for a few minutes in the front seat.

All too soon it was over. After turning control back to Lewis, I pulled the stick from its stub connector, inserted it into its storage clasps to my right, took my feet off the rudder pedals, and relaxed back into passenger mode. Before I knew it, we were on final to Addison. A minute or two later, the mains kissed the runway and the Mustang began to decelerate. A few seconds after that, the tail wheel was back on the ground with a light bump and the snake dance back to Lewis's well-known "Toy Barn" hangar got underway.

One thing that sticks with me is how many people came out of their hangars and buildings lining the Addison Airport runway and taxiway to watch our cackling and popping passage. Though Lewis flew his Mustang regularly from Addison, it's obvious the locals never got tired of seeing or hearing it. Polished aluminum, a Rolls-Royce Merlin, and the name Mustang are eye candy that no red-blooded aviator can ignore.

Once the big Hamilton Standard prop came to a halt and Lewis extricated himself from the front seat, I was able to follow suit. I must say that that moment arrived none too soon, as by then my back and butt were absolutely killing me!

Would I do it again?

In a heartbeat…

------ooOOoo ------

# A Neglected 172 Turns Toxic

From Plane and Pilot, By Dave English, November 2021

Flight tracking showed the Skyhawk doing 13 ever-tightening turns. Investigators found the cause in the wreckage.


*The track of the plane seems puzzling, but the NTSB's investigation of the mishap was ultimately able to make sense of it. Photo courtesy of the NTSB*

Alone in his Cessna 172, weather good, engine running well, the private pilot flew a mostly straight course for an hour. Then he began wandering, curving left and right, pitching up and down. He flew repeated tight circles, again and again, eventually crashing inverted into dense trees, dying on impact. It happened in January 2020, and the National Transportation Safety Board (NTSB) has now released its final report.

It found that the cause of the accident was chemical poisoning. It's a cautionary tale of maintenance missed.

The 1966 C172 H model, with a 145 hp Continental 0-300-D engine, took off from R. G. LeTourneau Field (KTOC), in Toccoa, Georgia, at about 12:30 in the afternoon. The weather was lovely—clear skies, light winds out of the west, 62 degrees Fahrenheit. The 72-year-old pilot was heading about 240 miles south, to the Cairo-Grady County Airport (70J) in Cairo, Georgia. His daughter told the NTSB he was likely flying to Cairo to look for property in the area. His brothers and cousins lived there, and he wanted to be near them. After an hour in cruise, not yet halfway, his flight took a strange turn. Or, rather, several strange turns.

The radar track shows 10 miles of multiple winding lefts and rights, "meandering," the Safety Board calls it — then several left 360-degree turns. His groundspeed was fairly constant, around 70 to 80 knots. This was followed by right 270-degree turns and some more snake-like wanderings. Then 13 consecutive tight right 360-degree turns at low altitude. Groundspeed was now oscillating between 60 and 130 knots. One eyewitness told the country sheriff, "I saw a small plane circling the lake…all of a sudden it seemed to take a sharp turn and began settling quickly and fell past the tree line. I heard the impact crash and about two minutes later saw smoke."

Other than impact and fire damage, the plane was found complete with no apparent defects. Fuel caps in place, flaps up, flight control cables connected. The “what happened?” part seemed easy. The Skyhawk departed controlled flight at low altitude following aggressive steep turns. But why did it happen? Why did he lose control? Why was this pilot maneuvering over the small town of Newborn, Georgia?

After the accident, an answer seemed elusive. The pilot had over 350 hours of flying experience, earning his private pilot certificate in 2007. He was flying his familiar personal 172, heading on a purposeful cross-country, reportedly in fine spirits and good mental state. The weather was benign, the plane had fuel, and the pilot made no radio transmissions indicating a problem.

The pilot didn’t have a current FAA medical, nor had he completed a BasicMed course. His last FAA medical exam was back in 2013. The NTSB obtained medical records from his primary care doctor, showing in 2019 he had “known coronary artery disease, paroxysmal atrial fibrillation, a previous stroke, high blood pressure, arthritis, and carotid artery disease.” At that time, he was taking eight different daily medications. The FAA’s Forensic Science Laboratory found many in his blood, including bupropion (an antidepressant), citalopram (another antidepressant), diphenhydramine (an antihistamine), diltiazem (a blood pressure medication), atorvastatin (a cholesterol-lowering drug) and sildenafil. But there was also another chemical no doctor had prescribed.

The Georgia Bureau of Investigation Forensic Sciences division identified 61% carboxyhemoglobin (COHb) in the pilot’s blood. The sample tested by the FAA Bioaeronautical Sciences Research Branch had 43% COHb. Nonsmokers typically have COHb levels below 3%, while smokers may have levels of 10%. High levels of carboxyhemoglobin disrupt the normal oxygen transport process in the human body. It causes functional anemia. Elevated COHb levels may cause vague symptoms like headache, fatigue, dizziness and nausea. Levels above 40% may lead to confusion, blurred vision, marked drowsiness, seizures, loss of consciousness and death.

Carboxyhemoglobin is formed in the bloodstream when carbon monoxide (CO) gas binds to hemoglobin (Hb). Carbon monoxide gas is one of the by-products of incomplete hydrocarbon combustion. It’s in engine exhaust gases.

The engine had remained mostly intact, except for some thermal damage near the firewall. Forensic teardown of the powerplant itself “did not reveal any pre-impact anomalies that would preclude normal operation.” The mufflers, and their shrouds, had separated during the crash and were found partially buried in mud. That protected them from the post-accident fire and allowed for detailed examination by the NTSB Materials Laboratory. The left muffler had been replaced in 2010 and appeared mechanically sound. However, the right main muffler was older, and the tube shell had holes and cracks caused by metal wastage. These would allow exhaust gases to enter the cabin hot air ducting, exposing the pilot to carbon monoxide gas.

Exhaust systems are checked as part of an airplane’s annual inspection. They function in a hot, highly corrosive environment, and cracks or leaks can cause significant amounts of damage under the cowling. The accident airplane’s most recent annual inspection was in September 2018. It was conducted in its T-hangar, not in a maintenance shop. The Skyhawk’s maintenance logbook only showed three other entries in the 10 years before the accident.

A mechanic who worked on the Skyhawk in 2013 told the NTSB it was airworthy then but had fallen into “bad shape,” and he felt it was no longer airworthy. The mechanic said the owner/pilot “had a somewhat cavalier attitude towards the rules” and “tried to do the minimal amount of work on the airplane that he could get away with.” When the owner recently asked him to fix a problem with the electrical system, the mechanic declined, saying he’d only put his name in the logbook if allowed to do a full annual inspection. The owner reportedly found someone else who was less expensive.

Carbon monoxide gas is colourless, odourless, tasteless and non-irritating. You can't tell it's leaking into the cockpit until you start to feel bad. And it's easy to attribute feeling bad to fatigue, hypoxia or a lousy breakfast. A short flight might not produce enough CO gas to impair you noticeably, but after an hour on a chilly January day with the cabin heat on, all of us would be severely impacted.

In 1997, a family physician flying his Piper Comanche fell asleep at the controls due to CO poisoning from a cracked right muffler. After 250 straight-line miles on autopilot, the selected tank ran dry, and the plane glided to a soft wings-level crash landing in a hayfield. The fresh air that resulted allowed the pilot to wake from what would have been a permanent nap. As his confusion cleared, he staggered to a farmhouse for help. He was lucky to be alive.

We can only speculate on the condition of the Skyhawk pilot—dizzy, confused and then maybe worse. We don't know if he was conscious when he crashed.

The NTSB found the plane was out of annual, and the pilot didn't have a medical certificate. Neither legality caused the accident, but were both safety checks blown past. The Board concluded, "…it is most likely that the pilot experienced carbon monoxide poisoning during the flight when carbon monoxide entered the cabin from the degraded right muffler. The carbon monoxide poisoning led to the pilot's impairment/incapacitation and his inability to control the airplane."

Because of post-accident fire damage, the NTSB could not determine if the airplane was equipped with a cockpit carbon monoxide detector. One popular online pilot shop I checked sells several types. The cheapest one is $4.95.

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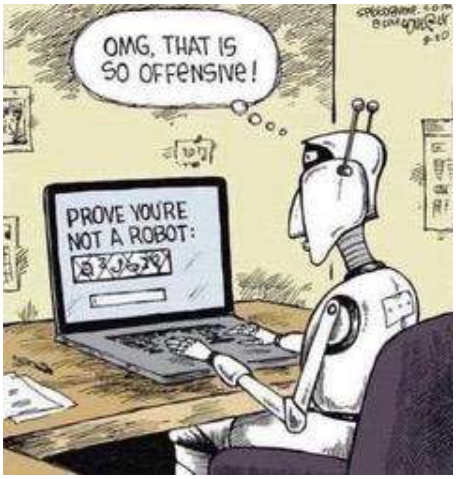



## FLY-INS Looming

| | | |
|---|---|---|
| **Due to Covid issues, until further notice, the Burnett Flyers request that pilots and others wishing to attend their Brekkies at Murgon check their website www.burnettflyers.org for the next confirmed event date.** | Murgon (Angelfield) (ALA) | Burnett Flyers Breakfast Fly-in |

**The US Federal Government, which has Tomahawk cruise missiles, Apache, Blackhawk, Kiowa, and Lakota helicopters, and used the code-name Geronimo in the fatal attack on Osama Bin Ladin, officially objects to the name of the *Washington Redskins*.**

**Eh! What? Really???**



I failed math at school more times than I can count!

# My friend George, the Stuka pilot

By John laming

*A CAC Wirriway*

In late 1952, the sole Royal Australian Air Force contribution to the defence of Darwin was two Wirraways, a Lincoln bomber and a Dakota. A few weeks before my first arrival at Darwin, one of the Lincoln pilots, Warrant Officer Jack Turnbull, a former Spitfire pilot, wrote off a Wirraway in a crosswind landing. The Wirraway was tricky to land in crosswinds and Jack had lost control and ground-looped seconds after touch down. He exited stage left quickly as it caught on fire.

The CO of the base, former Catalina pilot Wing Commander "Bull" McMahon, was none not too happy at losing the Wirraway, effectively reducing Darwin's airborne defence capability by half. The Dakota and Lincoln didn't count because they had no guns.

Having recently flown Mustangs, I prevailed upon the Wing Commander to let me fly his remaining Wirraway, on what we termed continuation training. In reality, that meant buzzing herds of buffaloes in the plains to the east of Darwin and scarping at 50 feet above dozing crocodiles in Arnhem Land. To make the trip strictly legal, we would carry out a VHF DF (Direction Finding) instrument approach on returning to Darwin an hour later. In turn, this gave the RAAF air traffic controller practice at bringing aircraft in to land in bad weather.

When not flying the Lincoln, I would inveigle members of our crew to come with me in the  and teach them aerobatics. Naturally, we would finish the sortie beating up more buffalo and it was on one of these beat-ups I saw the leader of the herd turn and face us head on. While the rest of the buffs thundered away tails high when they saw the Wirraway coming at them low and fast, this big hairy bull buffalo just propped, head lowered and pawed the ground. He was a brave beast and I was glad that our engine didn't pick that moment to stop because that bull buffalo would not have taken prisoners.

*The Wirraway could flick roll violently*

While based in Darwin I became friends with a Sergeant reservist pilot called George Petru. In 1948, George had escaped the communist regime that had taken over his native Czechoslovakia and, after many adventures, eventually arrived by ship in Darwin where he found a job as a surveyor with the Department of Works. Previously he had flown Junkers 87 (Stuka) dive bombers with the Czech Air Force.

Faced with marauding Russian troops, he stole a Messerschmitt ME109 fighter and fled his homeland chased by Russian fighters. The ME109 was a fast German designed single seater, which enabled him to outrun his pursuers. Perhaps more out of admiration of his exploits than pressing need, the RAAF accepted him as a reservist and George was given RAAF pilot wings despite never having been flight tested to service standards. He loved Australia and having read of the exploits of the RAAF fighter ace Bluey Truscott, was so impressed that he changed his name by deed poll from Petru to Truscott.

George came along on many Lincoln sorties but he was not allowed to land or take off. He had never flown a heavy bomber and understandably was pretty ropey on instrument flying. For that reason, we would only let him at the controls when the sun was shining. For all that, George was one of the most enthusiastic pilots I have ever flown with and he would willingly come along as a crew member on some of our long ten-hour SAR sorties.

*Our Lincoln crew with George far left*

While the captain was having a break snoozing down the back on the hard metal floor of the Lincoln, I would slip George into the co-pilot's seat and let him fly, while I kept my eyes open for the missing light aeroplane or yacht or whatever we were looking for. I was never game to leave the cockpit to stretch my legs while George was flying because I knew that if we had a sudden engine failure (common on Lincolns in the tropics), George would be unable to handle the situation.

One day I rang George at work and asked him would he like to come with me in the Wirraway for low flying practice – meaning chasing hapless buffaloes. I saw my mate – the big bull buffalo as a hairy cloven-footed version of Jaws, in need of a bit of stirring up – from a safe height, of course.

George was delighted to get into a single-engine aircraft again – his last one being the Messerschmitt hijacked from the Czech Air Force. After kitting him out with a parachute and Mae West life jacket we took off in the Wirraway, heading east to find the herd. Sure enough, we found the old bull buffalo and George took a few photos of him from the relative safety of the back seat of the Wirraway.

After that, we followed river tributaries towards the coast for more low flying along deserted beaches to the east of Darwin. This was more dangerous than chasing buffalo because it was here that huge salt water crocodiles lay in wait for unsuspecting wild pigs and dogs. Perish the thought of an engine failure here.

George, of course, occupied the back seat of the Wirraway and was unable to see forward beyond my head in the front seat. For this reason, I decided it would be unwise to hand over control to him while low flying. This turned out to be one of my better decisions in life.

Having made rude gestures to the crocodiles and with plenty of fuel remaining, I climbed to 5000ft for some aerobatics. After completing a few barrel rolls and inadvertently spinning off a roll off the top, I handed over to George in the back seat, inviting him to try a loop.

Now you must remember that George had never flown a Wirraway before and therefore had no idea what a vicious beast it could be if roughly handled.

After a clearing turn, I talked George into the initial dive at 160 knots then told him to pull up and over into the loop. In the excitement of the moment, I must have forgotten that George had flown the Stuka, an aircraft specifically designed as a dive bomber. The typical dive angle of a Stuka was sixty degrees and the drag from its huge wing dive brakes kept the speed back to eighty knots. The stick-force needed to pull out of the dive in a Stuka was not much at all and a harsh pull back on the stick at the bottom of the dive would easily convert the dive into a rocketing climb. Well, all I can say is that a Wirraway is not a Stuka and it quickly showed George who was boss.

George reefed about 4G at the bottom of the dive, causing the Wirraway to flick violently into a series of high-speed vertical rolls and bouncing George's head against the side window panels. I attempted to take control from the front seat to counteract the inevitable incipient spin. In the flurry of swear words from both cockpits, George had not understood my polite request for him to let go of the controls, and kept hauling back. And so the Wirraway stuck it right up him and kept on flick rolling.

Eventually he let go of the stick and after recovering from the last known inverted position, I abandoned the sortie and we flew sedately back to base. Safely on the ground, George muttered ruefully that flying Stuka dive-bombers was a damn sight safer than aerobatics in a Wirraway and thanks very much for the offer but in future he would rather give Wirraways a miss, and stick to flying Lincolns in sunny weather.

Some Lincoln crews were irritated by his fractured English, and fanatical keenness to fly. As a result, he was often knocked back after turning up at the airport. When that happened, he would walk away sadly, knowing he was not wanted. Few knew that he was a brave man who had seen bloodshed and murder in his home country. It took great courage to steal a Messerschmitt and risk being shot down in a hail of cannon fire, and I felt small in stature against this man.

For my part, I could rarely find it in my heart to knock him back when he turned up in his flying suit, cloth helmet, and a big smile. As I saw it, he was in the RAAF reserve and trying hard to do his bit for his new country. When the last of the Lincolns went to the wreckers in 1960, George had logged over 200 hours in the right-hand seat.

From Darwin he moved with his family to Canberra. His English improved steadily and eventually he obtained his private pilot's licence. A few years later, George made media headlines after getting lost near Oodnadatta in his Cessna 172 and forced landing on a clay pan. He was on his last legs when he was located, badly sun burnt, after surviving for one week by chewing his leather belt and shoe laces and eating toothpaste.

Back home his wife reminded him of his responsibilities as a husband and father and after recovering from his desert ordeal he took up gliding. The years passed until one day I saw a newspaper report that said a lone glider pilot had died in a crash near Canberra. Luck had finally run out for my old friend George, the Stuka pilot.

------ ooOOoo ------

## Keeping up with the Play (Test yourself – how good are you, really?)

1. A GAF provides the following details. “MOD TURB BLW 6000FT IN PO AND THERMAL LAND FROM 00Z”. For what is “PO” the abbreviation?
   A. Mechanical turbulence.
   B. Standing wave.
   C. Dust devils.
   D. Protected origins.

2. How often are GAF charts Issued
   A. Twice daily.
   B. Three times daily.
   C. Four times daily.
   D. Three hourly.

3. Which of the following are the lower limits for not maintaining magnetic track altitudes?
   A. Below 5000 feet AMSL or higher, or below 5000 feet AMSL where practicable.
   B. Below 5000 feet AMSL or above.
   C. Below 3000 feet AMSL.
   D. Below 3000 feet AMSL, or below 1500 feet AGL

4. Will lowering flaps change the position of the Centre of Pressure on the chord line?
   A. No.
   B. Yes, it will move forward with increasing angle of attack.
   C. Yes, it will; move aft with increasing angle of attack.
   D. Yes, but the change in position depends on the C of G position.

5. A pilot is lined up on runway 26 for departure. The wind velocity is steady at 230/16. What crosswind will the aircraft experience on take-off?
   A. 15 knots.
   B. 12 knots.
   C. 8 knots.
   D. 5 knots.

See answers and explanations overleaf

If you have any problems with these questions, See Notes below or call me (in the evening) and let's discuss them. Rob Knight: 0400 89 3632 (International +64 400 89 3632), or email me at kni.rob@bigpond.com.

1. C is correct. PO is the abbreviation for "dust devils".
   *See: Graphical Area Forecast User Guide.*

2. C is correct.
   Graphic Area Forecasts (GAF) are issued four times a day
   *See: Graphical Area Forecast User Guide.*

3. D is correct. Below 3000 feet AMSL, or below 1500 feet AGL.
   *See VFRG Version 7.0 page 217.*

4. B is correct. The centre of pressure on an unstalled aerofoil advances (moves forward) with increasing angle of attack. At the point of stall, the centre of pressure moves abruptly rearward.

5. C is correct. With a crosswind blowing at 30° to the runway heading, 50% of the wind speed will be effective crosswind. However, in this case, the effective headwind component will be around 13.8 knots, or 86% of the wind speed value.
   *Note: At 30 degrees across the runway, 50% of the wind speed is crosswind component, but 86% of the wind speed is head (or tail) wind component. If the wind was at 60° to the runway heading, these ratios would be reversed, i.e., 86% crosswind and 50% headwind.*
   Also, for interest and an alternative method of solving crosswind component issues, see:
   *https://www.youtube.com/watch?v=f9YsCEl9Fno*

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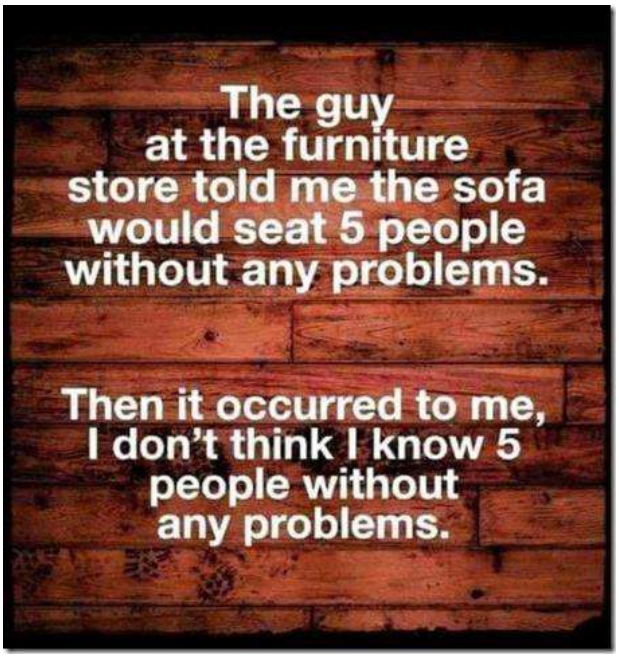

# Aircraft Books, Parts, and Tools etc.

## Parts and Tools

| Item | Condition | Price |
|---|---|---|
| VDO Volt Readout instrument | Brand New | **$70.00** |
| Altimeter. Simple – single hand | As new | **$50.00** |
| Oil Pressure indicator, (gauge and sender) | New – still in box | **$80.00** |

## Tow Bars

| | | |
|---|---|---|
| Tailwheel tow bars. Only two available | Good condition | **$50.00 EA** |

## Headsets

| | | |
|---|---|---|
| AvCom headset. Functions perfectly | Excellent | **$150.00** |

## Propeller Parts

| | | |
|---|---|---|
| Propeller spacers, Assorted depths, all to fit Rotax 912 UL/ULS propeller flanges | Excellent | **$100.00 each** |
| Spinner and propeller backing plate to suit a Kiev, 3 blade propeller, on a Rotax 912 engine flange. | Excellent | **100.00** |

Contact Rob Knight via either kni.rob@bigpond.com, or **0400 89 3632**.

# Altimeter for Sale


This simple altimeter I purchased at Oshkosh is now surplus to my requirements and I am seeking a new home for it.

Its face is absolutely clear, it has never been used, and the subscale is provided in "HG.

It is in as-new condition and certificated. For a copy of the certificate, and/or further details, contact

Colin Thorpe. Tel: LL **(07) 3200 1442**, or

Mob: **0419 758 125**

**$120.00**

# Aircraft for Sale

**¾ scale replica Spitfire**

**$55,000 neg**

This aircraft is airworthy, flown regularly, and always hangared. Registered 19-1993, it is powered by a 6-cylinder Jabiru engine (number 33a-23) with 300 hours TTIS. The airframe has logged a mere 320 hours TTIS. This delightful aircraft has recently been fitted with new mounting rubber, a new alternator and regulator, a new fuel pump, and jack stands. It is fully registered and ready to fly away by a lucky new owner

Hangared at Kentville in the Lockyer Valley, parties interested in this lovely and unique aircraft should contact either:

Kev Walters on Tel. **0488540011** or

William Watson on Tel., **0447 186 336**

# Aircraft for Sale

**$ Make Me an Offer$**

## Cobham Cobra

An opportunity to buy a unique aircraft.

I now have a Foxbat, and can't to afford to keep 2 aircraft. The Cobra was advertised for about a year in Sport Pilot, with many enquiries, but no resulting sale. Rather than continuing to spend on hangarage and advertising I decided to de-register it, remove the wings, and trailer it home to my shed. I don't intend to ever fly it again so, make me an offer. It provides very cheap and enjoyable flying.

It is a one-off design, a single seater with a fully enclosed cockpit. It has a 24-foot wing-span, and is powered by a VW engine that provides sporty performance and superb handling. The airframe has logged 653 hours and the engine 553 since installation. It is easy to start, but requires hand-propping.

To see it in action, go to
https://www.youtube.com/watch?v=V5Qx4csNw_A&list=PLpBv2A6hk66Tg9DiCsjEtt4o4o8ygcTju&index=1&t=22s

It cruises at around 80 knots at 11-12 litres/hr. The tanks hold 48 litres so it has a very reasonable range. For my approaches I use 50 knots on my initial approach down to 40 knots on short final. You will want a fair bit of tailwheel time.

For further details contact Tony Meggs on (02) 66891009 or tonymeggs@fastmail.fm

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**Slipstream Genesis for Sale**

# $14,000.00 neg

Imported and built 2001. Two seats side by side, powered by 80 hp 912UL Rotax, driving a Warp Drive 3 bladed prop. Cruise 70-75 knots. Empty weight 304kg, MTOW 544 kg, Payload 240 kg. Fuel tanks hold 78 litres. With fuel burn averaging 16 litres/hr, still air endurance (nil reserve) is theoretically 5 hours, or 350 nm. Aircraft always hangared. It has been set up for stock control/ mustering or photography, and is not fitted with doors. Registered until 13 October 2021, currently flying, and ready to fly away.

Total Hours Airframe: 144.6. Current, up-to-date, logbook.

Total Hours Engine: 1673.9. Annuals/100 hourly inspection due 10/09/22. Sprag clutch replaced January 2020, gearbox overhauled January 2020.Just undergone ignition system overhaul. One CDI Ignition unit replaced PLUS brand-new spare unit included in sale. Easy aircraft to maintain - everything is in the open. Comes with spare main undercarriage legs, spare main wheel, and nosewheel with other assorted spare parts included.

Fabric good, seats are good, interior is tidy. Fitted with XCOM radio/intercom. Basic VFR panel with appropriate engine instruments, and compass.

An article on this aircraft was published in Sport Pilot, June 2019 issue. See front cover and pilot report within.

Must sell: two aeroplanes are one too many. Quick sale - Fly it away for $14,000 neg.

Contact **Rob Knight tel. 0400 89 3632**, **or email** kni.rob@bigpond.com for details and POH.

**AIRCRAFT for Sale**

**LIGHTWING GA-55.** **$25,000.00 (Neg)**

**Registered 25-0374**

**Engine ROTAX 912, 80HP, 853.3 Hours**

Reluctant sale of this great aircraft, I have owned her from June 2004.

Excellent fabric, Red and Yellow, always hangered, and comes with the following extras:

* 2 Radios
* Lowrange GPS
* EPIRB
* Aircraft Dust Covers.
* Manuals – various
* Fuel Pressure Gauge
* Extra Tachometer
* New Headsets
* Paint
* Oil

**Work performed at Lightwing Ballina:**

* Wings recovered, tanks resealed, new brakes, wheel bearings and hubs, new wing tips.

**Other work carried out:**

* Windscreen replaced, door panel replaced, choke cables replaced, ignition upgrade.

**Rotax:**

* Engine modifications, gearbox rebuild.

Currently hangared at Boonah in Queensland.

**Contact Kevin or Natalie McDonald on 07 54638285**

# Aircraft Engine for Sale

ROTAX 582 motor. Ex flying school, TTIS 600 hours, and running faultlessly when removed from aircraft for compulsory replacement.

No gearbox, but one may be negotiated by separate sale if required.

Interested parties should contact…..

Kev Walters on Tel. **0488540011**

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