

## FLY-IN DATES

1-2-3 APRIL, 2011

## Cessna 182 Association of Australia

### AUTUMN FLY-IN



Port Lincoln N.S.W.

## THE PRESIDENT'S CORNER

The year of 2010 is rapidly drawing to a close and it has produced a considerable change in weather patterns, with lots of rain to revitalise the country generally, and at the same time producing some flooding. It reminds me of the weather I recall as a school boy. (They really did have schools that long ago!).

So, our Cessnock Fly-In was enjoyed with fewer than usual attending, the Friday arrival day was affected by a line of storms passing through, and a couple of members having an overnight pitstop, another delaying the trip until Saturday, but arriving in time to join in all the activities.

This Fly-In was novel in that there were as many cars attending as aircraft, a couple of these belonging to local members, but importantly, it emphasised the keenness of members who being, unable to exit their home bases by air because of weather, still attended. The Cessnock story inside.

Preparation for our Autumn Fly-In to Port Lincoln is progressing and is planned for 1, 2 and 3 April next. There is some more information

further in the NEWSLETTER on this one, and if you still have our last NEWSLETTER go to the back page story by member Tony Human and whet your appetite for Port Lincoln.

Also, Association member Russell Hicks has prepared an article on the C182 based on a chapter from the book "Cessna, Wings For The World" by William D. Thompson, which was kindly loaned by Doug Sprigg from Arkaroola. Kind permission was obtained from the author's daughter, Connie Thompson who lives in the U.S.A. — her father now deceased. I think you will find it interesting.

Don't forget that the NEWSLETTER is your magazine, and if you have something of interest, aviation or otherwise, please share it by contacting our Editor Andrew Mladen.

Association member Trevor Davis in South Australia is tackling cancer head on, the Chemotherapy has knocked him around somewhat, but it is now in remission. Any members planning a visit to S.A. would be most welcome

to contact Trevor for a catch-up, he is hoping to make it to the Port Lincoln Fly-In. Contact details for Trevor can be had from Secretary Peter Jones.

Next Fly-In is our AGM, so please give some thought to joining the COMMITTEE and be part of organising the gatherings of our unique Fellowship, Fun and Friendship Group. You will find it very rewarding.

Hope to see everyone at the next Fly-In, until then safe flying, smooth landings.



*Trevor Corlett*

### FROM THE EDITOR

Thank you to each and every person who has generously contributed articles and photographs to this Newsletter. If you would like any particular topic included in future Newsletters, please let me know.

## CESSNOCK FLY-IN FULL STORY PAGE 2-3

### CESSNOCK ATTENDEES

John & Gladys Chapman (JC), Robert and Mary Collins (KDZ), Trevor and Dianne Corlett (REO), Chris and Maree Crockett (KEI), Barry Dean with Muriel Atherton, Pauline Jones, Tony Iremonger (IEG), Peter & Allison Jones (JSF), Chris Hirst (AOK), Russel Hicks and Sylvia Kappl (JIK), Keith and Jenny Hilles (KJY), Allan Kellett (ATT), John & Cilla Lillyston (TFE), Andrew & Rosemary Lott (DNL), Godfrey & Ruth Lucas (PKM), Andrew & Joan Mladen (KKV), Sven and Madlen Peters (new Members), Alwyn and Jenny Rogash (JTY), John Rogers with Greg Cox, Darrel Lewis, Don Davis (SLQ), Gunhild and Armin Sickinger (RGX), Russell & Pat Skeritt (VMN), Ian Spicer (PGC), Colin Stanfield and Karen Briggs (WLN), Ian and Denise Thomason, (EUY). **APOLOGIES** Garth and Ceri Bartlett (TMB), Ross and Jenny Bate (ESS), Garry and Loretta Besson (BMJ), John and Beccy Blair (IRM), Neil and Louise Davis (DOO), Dick and Sue English (WTO), Malcolm Flavel (SKP), Chris Gillam (ADX), Lance and Jan Grant (TLC), Noel and Jayne Handley (JNH), Ian and Roslynn Hope (NIH), Anthony Human and Terri Liew (NSL), Frank and Johanna Kuypers (CYB), Lisle Lawson (TIQ), Frank and Leslie Lewis (RQP), John Nixon (STA), Rob and Val Plackett (RMF), John and Elaine Stuart (MPZ), Roger and Susan Toole (DGC), Leedham and Judy Walker (WWB).



# CESSNOCK FLY-IN 10-11-12 SEPTEMBER 2010



Friday morning was not looking flying friendly. By lunchtime rain and storms covered most of the east coast, and with airstrips too wet to use, out came the road maps. Seven planes did arrive safely and were met at the Hunter valley Recreational Flying Club and transport to Potters Brewery Hotel for our accommodation.

Friday night was a most enjoyable and casual get together at the Potter Brewery Hotel Bistro for everyone to catch up.

Saturday morning dawned a bright sunny day and the arrival of two more aircraft.

We all boarded the bus for a trip around the Hunter Valley, first stop was the Hunter Valley Gardens, which hosts over 25 hectares of magnificently themed display gardens, with something different around each corner. I am sure we all left feeling very envious and inspired to go home and get our gardens into ship shape order. The Hunter Valley Gardens served us up a very delicious lunch and entertainment by a very entertaining Jazz band.

After lunch we strolled back to the bus for a short trip to Tyrrell's Winery for a wine tasting and talk. Then onto Robin Drayton's winery for a very great host and very nice wines. Once the bus again this time to a slightly different winery the Golden Grape Estate Winery, tasting some of the Hunter Wines and exotic liqueurs from around the world, one being The Dragons Breath Chilli Schnappes. Back on the bus and feeling a little snooty, the bus driver decided he would show us a breath-taking view of the Valley and a little time for a photo shoot, so off we went to Audrey Wilkinson's Winery Car



Park for a quick viewing.

Arriving back at the Hotel for a quick spit and polish for our Formal dinner at the Potter Brewery Hotel Conference Centre. After a very nice dinner and a bit of a chit chat, Trevor introduced our special guest for the night Jim Hazelton. He entertained us with some of his early agricultural flying experiences in Australia and also about ferrying planes out to Australia from all around the world. Jim is in his





early eighties and is still flying and ferrying planes.

For Sunday morning, Peter Jones had organised a flying Safari around the Hunter Valley for those who wished to fly to Luskintyre for morning tea and a look at the museum. Those unable to fly boarded the bus for the short trip to Luskintyre. While there, we were able to see the oldest plane on the Australian register a Gypsy Moth own by David Salter of Walcha, take off and do a low pass-over before departing for Walcha. Luskintyre has a viewing tower named after Nancy Bird Walton and Nancy's ashes are scattered over the airfield. After a most enjoyable morning tea we returned to the Hunter Valley Recreational Flying Club for an enjoyable lunch and the announcement of the winners of the safari, who were Ian and Denise Thomason.

We would like to thank our trusty President Trevor and his wife Di and our Secretary/ Treasurer Peter and his wife Alison for organising such a great weekend and hope to see you all in Port Lincoln.

*by Maree Crockett*



# SUNDAY FLY-IN COURSE

During the Sunday morning, commencing around 10a.m. -10.30a.m., a fun flying coursewas completed by 6 Cessna Planes with pilots and companions.

The course was divided into 5 Sectors.

- **1st Sector.** - Cessnock to Singleton NDB here we were asked to check out certain features of the NDB which were only visible from the airplanes.
- **2nd Sector.** - Singleton flying over the Hunter River and questions regarding number of bridges across the river and the direction of two airstrips.
- **3rd Sector.** - Continuing on over restricted area because of Denman Army Explosives storage and on to the town of Muswellbrook.
- **4th Sector.** - From Muswellbrook continued over several open cut coal mines counting the number of cooling towers and smoke stacks at the power stations to Luskintyre landing on a grass strip. It was here that we enjoyed a welcome morning tea served by a delightful young lass - granddaughter of one of the ladies serving morning tea. There were several yellow and silver Tiger Moth airplanes parked to the side of the strip.
- **5th Sector.** - Returned to Cessnock where we were well catered for with a chicken and ham salad followed by dessert of pineapple and ice-cream provided for us by members of the Hunter Recreational Flying Club.

A great time had by all who participated.

*Reported by Jenifer Hilless*





## Cessna 182M , VH-EHV. (18259777)

Built by Cessna in 1968, 182M 'Echo Hotel Victor', serial number 18259777 was allocated the U.S registration N71849.

It was the 472nd production machine to come off the line at Wichita in 1969, and one of only nineteen 182M's imported into Australia, the majority of which arrived in 1969, with a notable exception being 18259528, VH-NML which was imported in 1989.

VH-EHV was apparently imported by REX for Perth's Simpson Aviation and registered to them on July 25th 1969. It is possible however, that this was just a paperwork exercise as the aircraft was never noted at Jandakot, and by the 21st of August the aircraft was registered to M.J. Marshall P/L. of West Ryde, New South Wales.

Marshall's traded the aircraft to Rex Aviation, Bankstown on May 26th 1972. On the 10th of November of that year, while still apparently owned by Rex, the aircraft was badly damaged when it was ripped from its tie-downs by a storm and blown over at Brewarrina, New South Wales. After repairs, and a colour scheme change to represent a 1972 182P, Rex on-sold the aircraft to Richard Foster.

Richard used the aircraft in his Tasmanian based charter business Air Charter Services of Devonport. A long time Cessna operator Richard had previously operated the 182E, VH-RBU, and the 182G VH-DIW, amongst others.



**EHV in factory Valor Red and Imperial Burgundy, at Bankstown in the early '70's. Photo: J.Streeter**

forced landing the nose gear collapsed.

It was later revealed that the number 5 piston had failed due to fatigue, and all other pistons exhibited similar fatigue cracking.



**EHV at Essendon in October 1978 after repairs following its accident in January of that year. Photo: Author**

The aircraft was dismantled and trucked to Moorabbin for repairs and some twelve months later it was offered for sale by Civil Flying Services at Moorabbin. By late August the aircraft had been sold to local tractor dealer Hendrik Jan (John) Berends of Dandenong, Victoria.

On November 7th 1988, ownership passed to Don Cowling of the nearby suburb of The Basin.

After a remarkably short time with Mr. Cowling, the aircraft was again on the move, this time to Benalla, Victoria with John Buckley.

Melbourne businessman Martin Robson purchased the aircraft in October 1991, and in March 1997 his company, Paraflite P/L., disposed of the aircraft to the

Victorian Parachute Centre.

EHV's fate was sealed, and after a relatively short career as a parachute platform operating from Melbourne's Coldstream airfield, the aircraft was undergoing a routine inspection about six years later when severe corrosion was discovered in various parts of the airframe. Events subsequent to this are unclear, but anecdotal evidence suggests the aircraft became the subject of legal action, and for unknown reasons this resulted in it being permanently grounded.

It still languishes at Melbourne's Essendon Airport to this day minus all major flight controls and engine, apparently beyond redemption.

A truly sad sight indeed.



**Could this be the end of the line for a classic 182M? 'EHV' lies derelict at Essendon on April 5th 2008. Photo: Author.**

**Compiled by Greg THOM.**

[gthom@connexus.net.au](mailto:gthom@connexus.net.au)

Talk to me about YOUR Cessna...!!!!



## NOTES FROM THE COMMITTEE

Port Lincoln is shaping up to be a great destination for our April 1-3 Fly-in. Tony Human has already put in some of the hard yards (see last Newsletter). The Port Lincoln Flying Club has agreed to host our Sunday BBQ lunch and the members are keen to ensure that our fly-in is successful. Your Committee will hold a meeting there early next year to finalise arrangements. Be sure to mark the weekend in your calendar.

Tony Human has recently undergone major surgery and is recovering well. We wish him a speedy recovery and an early take-off clearance.

Peter Jones thanks all who have renewed membership and assisted with the new identification system. He has even had time for an Angel Flight! Even if you missed the November discount the normal membership fee is still only \$40.00 so give yourself an early Christmas present.



**Your committee works hard to give you interesting places to see and things to do, but if you have a great idea, please speak to one of the committee, contacts listed in this newsletter, because your idea may not have been thought of yet!**





For many C182 members the thought of planning a flight into one of Australia's International airports is probably one that doesn't come up that often. The C-182 Association has had a fly in to Cairns which can be considered a major airport but not to many others. Planning an arrival to Sydney or Melbourne would mean deep pockets and there are less stressful alternatives in Bankstown and Essendon. But an invitation to go to a family members 75th birthday in Adelaide started me thinking about airports around Adelaide. JIK has been into Parafield and Aldinga previously but both are not good places to pick up hire cars or taxis from. So as the party venue was close to the CBD, Sylvia suggested we consider Adelaide International. Her reason for doing this was that several of her past students had gone into YPAD and given her good reports regarding the GA friendliness of the place.

A few phone calls were made and we were told that; yes YPAD would take a C-182; yes, YPAD had a GA terminal and yes, YPAD thought they did have a couple of parking bays with tie down points. This last point was most crucial to us and our enquiry did cause some head scratching on the airport ground staff's part. I assume they went out to look as they rang us back shortly with the good news; there were two outside the Police Air Wing hangar which meant JIK should be safe.

They also said that we should ring them on departure from Coldstream and they would have a "follow me" vehicle to guide us to our parking location when we arrived. This was sounding all very civilised and Sylvia said it meant JIK was getting valet parking.

The cost figures from ERSA were confirmed and seemed to be reasonable. The landing charge of about \$10 and an overnight parking fee of \$15 were less expensive than taxi's from Parafield. Try parking a car at an international airport for that!! Hopefully there will be no other hidden extras.

On October 1, Sylvia flew IFR from Coldstream over the top of Melbourne and after a stop at Horsham to change pilots, JIK trundled on towards Adelaide. With about half an hour to go we were passed to Adelaide approach to be given

a perfect slow descent profile – not like some other places that seem to think JIK is a helicopter. After ATC vectoring over the southern section of the Adelaide Hills, we were passed to YPAD Tower frequency and were told to track toward Keswick for a visual approach.

At this point a little railway knowledge came in useful; Keswick is the main Adelaide railway depot and is just to the west of the CBD so I knew where to go. What do they say IFR is – I Follow Railways? As it was now mid to late afternoon, the Adelaide CBD stood out well and shortly after JIK was positioned on a left downwind for RWY 23. I was given traffic as a Virgin Blue 737 on a straight in and told to report passing. Fortunately as Virgin planes are bright red, there was no trouble spotting him so I advised tower that "I have Virgin in sight."

Landing clearance (with a wake turbulence warning) came shortly afterwards. I did not dare think about the consequences of doing a go-around as there seemed to be a Qantas 737 doing a RWY 23 straight in behind me.

On final all the full blaze of approach lighting was clearly visible and dear old JIK straightened herself up and flew down final as though on rails. We could almost hear her thinking "I must be a very important aircraft." After pulling off RWY 23, ground gave us very clear taxi directions. At almost the same time Car 1 came on frequency and said that he was expecting us.

From there on we just followed Car 1 to the only tie down parking on the airport – no chance of a C-182 Association fly-in unfortunately. The driver waited whilst we tied down and unloaded and then guided us to the GA terminal and gave us advice as to where the hire car depot was. This turned out to be about 100 metres from the GA doorway. Talk about valet parking – it could not have been better.

Two days later we departed YPAD and the procedure was also smooth. All in all it was very enjoyable visit into Adelaide International and if staff from the airport ever read this, I would like to say to you a big thank you for making it so easy for a little C-182 to visit.

By Russell Hicks



## SOME GOOD NEWS from Member Warwick Henry

### No landing fees for private aircraft at Maryborough (Qld) and Hervey Bay Airports

The Fraser Coast Regional Council which controls both Hervey Bay and Maryborough Airports agreed at its council meeting on 27 October to not charge landing fees for private aircraft below 2,000 kg.

Several months ago the Council announced its intention to charge all aircraft for landings, touch and goes and even for an approach with no touch down(!). Clearly the council needed some guidance.

A group of concerned pilots and others with an interest in aviation from the Hervey Bay and Maryborough area formed a group; the Fraser Coast Aviation Group, to engage with council. The FCAG has worked with the council on the development of an MoU and ongoing relationship to provide the council with a network of aviation experience and knowledge that they wouldn't otherwise have access to without significant cost.

FCAG has shown that aviation groups can work in a positive way with airport operators to improve the lot of aviators.

**Warwick Henry**  
Vice Chairman, FCAG

**Below is the joint media release from Fraser Coast Regional Council and Fraser Coast Aviation Group:**  
**COUNCIL AND AVIATION INDUSTRY JOIN TO PROMOTE AVIATION ON THE FRASER COAST**

Recreational flyers using Fraser Coast airports will not pay landing fees as part of ambitious plan to increase aviation tourism.

The plan was developed by the Fraser Coast Regional Council and the Fraser Coast Aviation Group.

The Council and the aviation industry have worked well together in the past couple of months to develop this plan, Fraser Coast Mayor Mick Kruger said.

We are now on the same page and working together to promote the aviation industry and the Fraser Coast.

While Council might not collect as much in landing fees to offset operations at the airport, we believe that increasing the number of visitors to the region will have an economic flow on to all residents.

Tourism is our major industry and we need to do whatever we can to promote it.

To promote Fraser Coast aviation Council and the FCAG will develop a Memorandum Of Understanding which clearly lays out the objectives and outcomes that need to be achieved in the next 12 months.

We look forward to establishing the Memorandum of Understanding and hope to co-operatively facilitate the development and operations of both airports to the benefit of the residents of the Fraser Coast, Chairman of the Fraser Coast Aviation Group Mike MacBeth said.

FCAG has already developed a strategy that will promote aviation and build sustainable aviation businesses in the region which it plans to implement with Council assistance.

The strategy and way forward was sparked by discussions between Council and FCAG over plans to increase landing fees.

We suggested that Council could get a better economic return to the region through promoting free recreational use and attracting aircraft than it would through charging recreational flyers landing fees, Mr MacBeth said.

FCAG believes that by promoting free recreational use, aviators from across the country will be attracted here which will help tourism and aviation businesses.

Some of the strategies that will be investigated include promoting Aviation Tourism for recreational Flyers to stay on the Fraser Coast, hosting community aviation activities and events and encouraging the development of general aviation businesses at the airports.

Under the amended fees structure adopted by Council at its Ordinary Meeting today (Wednesday 27 Oct) all landings (including touch and go) where the aircraft is used strictly for private/recreational purposes and non-commercial purposes will be free.

Landing fees for commercial users will depend on the weight of the aircraft.

**Kevin Corcoran**  
Principal Officer Corporate Communications  
Corporate Marketing and Communications  
Fraser Coast Regional Council



# APPLYING AN STC2

*(Russell Hicks has come across an STC that will interest some C182 owners. This application does not require any work to be carried out on the aircraft, but by some manipulating of the Flight Manual, you can increase your useful load.)*

Some Notes on C-182 P and C-182 Q model Take Off and Landing Weights

When Cessna first certified the C-182 series aeroplanes back in 1956, the maximum design gross weight (both landing and take-off) was 1156 kg. The standard useful load was then just over 453 kg. As the years passed, gross design weights were incrementally increased as changes were introduced to the basic C-182 design.

When production of the C-182S model was finally restarted in 1996, the Maximum Take-off Weight (MTOW) had grown to 1406 kg, or about 250 kg above that of the first C-182. And yet, the standard useful load had increased by less than 90 kg, to only 544 kg.

The aeroplanes had gained weight. More and more systems, modern avionics and instruments, all took their toll and increased the basic empty weight. What was considered a luxurious upgrade, or was simply not available in 1956, became necessary

and standard basic equipment.

This trend continues today. Higher empty weights reduce payload and performance, compromising utility, range, endurance and consequent safety. All of the early C-182's were certified to Part 3 of the Civil Air Regulations (CAR 3) incorporating amendments 3.1 through to 3.12. For single engine airplanes, those regulations prohibited a design landing weight less than the MGTOW.

Only sometime after Cessna's type certificate was awarded did the CAA (later the FAA) amend the regulations (3.14) allowing a greater take off weight than landing weight, recognizing that

*"...this requirement has restricted unduly the utility of small airplanes. Accordingly, CAR § 3.242 is being amended to permit [the] design landing weight of all small airplanes to be as low as 95 per cent of the maximum weight."*

Cessna had been able to certify the C-182N in 1970 with a MTOW of 1338 kg, while keeping the landing weight at 1270 kg. In 1981 Cessna certified the C-182R models with MTOW as 1406 kg, while landing weight was 1338 kg. In both cases there was a 68 kg difference between the MLW and the MTOW.

These numbers have been retained in all later fixed-gear C-182's, including the "restart" 182S, 182T, and T182T models.

But along the way, something was missed out. Cessna did not apply the FAA certified C-182R MTOW/MLW figure differential to the structurally identical C-182P and C-182Q models whose landing weight was 1338 kg. They were thus limited to a MTOW of 1338 kg.

There was no technical reason why under the CAR 3-14 the MTOW weight for these models could not have been certified for 1406 kg. However this was not done and there is no obvious reason for this omission.

To remedy this and gain revised FAA certification for the P and Q models to have a MTOW of 1406 kg an STC, SA03608AT, has been issued to Trolltune Corporation of Cheyenne, Wyoming by the FAA.

This STC can be bought and applied to Australian C-182 P & Q models. JIK now has it. If purchasing this STC, would you please let Tom Storli of Trolltune know you saw it in "Australian C182 Association" newsletter.



## FOR SALE

Aeroflash 12volt power supply for wing-tip strobe light. New in box, with all required documents. As fitted to pre 1978 Cessna 172, 177, 182. \$99.00.

Ring Andrew 0408 878 942. (I ticked the wrong box when I placed an order for a 24volt unit)

## POSITION VACANT

*For the past few years Ceri Bartlett has been maintaining our Association's important website. You may be aware that earlier this year Garth and Ceri entered into a new business venture at Bankstown Airport. The engine overhaul business, combined with all the work of their Billyara business means that Ceri does not have the time that is required to keep the website up to date. If you are computer savvy and want to exercise your creative juices, you may be just the person for this job. **Contact President Trevor for more details.***

## LIST OF COMMITTEE CONTACTS

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Past President	Tim Brooks	0429 990 954
Past President/CPAA Rep	Garth Bartlett	02 4294 9345
Historian	Greg Thom	03 9744 1941



## INTERESTING WEBSITES

Don't forget to visit the C182 website:

[www.cessna182.org.au](http://www.cessna182.org.au)

Another useful site with many interesting links is:

[www.landings.com](http://www.landings.com)

Take a look at the Cessna Pilots Association of Australia to find out what is happening

[www.cessnapilotsassociationofaustralia.org.au](http://www.cessnapilotsassociationofaustralia.org.au)



THANKS! We are totally indebted to John Weston of Westonprint in Kiama for the final layout of this Newsletter and its absolutely superb reproduction.

# HISTORY OF THE HUMBLE CESSNA 182

## *THE C-182 STORY – abridged from Cessna Wings for the World - pp 83-92.*

Note – Units used in this article reflect the units of 1970's American aviation. Speeds are miles per hour not knots and weights are in pounds.. Fuel capacities are in US gallons. Prices are in dollars of the year concerned.

For the Cessna Corporation of Kansas, the mid 1950's introduced a marketing problem. The Beech Bonanza and Piper Tri Pacer, both with tricycle undercarriage had just appeared and this meant that Cessna had to follow suit, first with the C-172 to compete with the Tri-Pacer and then the bigger C-182 to compete with the Bonanza. The prototype C-182 maiden flight was on September 10, 1955 at Kingman, Kansas and the aircraft was a modified C-180 with a Continental O470L engine rated at 230 HP at 2600 RPM connected to Hartzell 82 inch propeller.

The positioning of the new nose gear strut meant that the exhaust system used for the C-180 could not be used and a new forward mounted lateral muffler was installed with an exhaust outlet location to reduce cabin noise. This prototype did not have C-180 style cowl flaps but rather a single large cooling air exit fitted with a fixed lip. The strut was attached to a beefed up firewall and C-172 style nose wheel steering system was used.

Initial hard landings plus the weight of the engine and propeller caused some problems and the firewall in the prototype was strengthened to eliminate wrinkling of the fuselage. Horizontal stabilisation was provided by C-180 style tail assembly and a similar rudder was also used.

C-180's had an overhead fuel vent and this location proved to be a problem with the new C-182 due to the tanks new level position. When braking the C-182 after landing, fuel would surge up the vent pipe and spill on the windscreen. This problem was not solved until the current underwing location was selected.

Both the first C-172 and C-182 had very high spindly main landing gear inherited from tail dragging aircraft which made for difficult handling when taxiing downwind or on rough terrain. Pilots found the first model C-182 top heavy compared to later models and the C-182 was easily upended during a fast taxi turn. The factory mechanics had to rescue the test pilot from the upended prototype on at least one occasion.

When compared to a C-180, the additional drag of the new nose strut resulted in a 5 mph reduction in cruise speed and the weight penalty of 100 lb caused an 800 ft reduction in the service ceiling. However, the less than 600 ft take off roll and 1000 ft per minute climb rate was still impressive.

Cold weather testing was done in Canada and Cessna attempted to keep the new type secret but the Cessna dealer in Regina spotted the plane

when it was on the way to Price Albert and showed early enthusiasm for the new machine. During the testing, the prototype ran off a snow packed taxiway into a soft snow drift causing a door to open. Before the engine could be shut down, the propeller had blown powder snow into a huge cloud which got into every crevice of the fuselage. After the plane was cleaned and thawed, testing resumed.

After FAA certification in early 1956, the new aircraft was an immediate sales success and 844 being sold in that year. An improved version designated C-182A was launched in 1957 with many improvements. The main landing gear was altered to lower the fuselage by 4 inches and the track was increased by 6 inches to provide greater stability. Stiffness was increased by increasing spring thickness whilst the nose strut was shortened by 2 inches.

The A model was the first to have an exterior luggage door and extra fuel capacity meant the MTO/LW was increased to 2650 pounds. Refinement such as increased rear seat room, flush door handles, electric fuel gauges and better instruments came with this model. In 1957 911 units were sold, the price being \$13,995.

A few customers requested that the C-182 have a utility category and be suitable for spinning to enable its use as a trainer. The US CAR 3 regulation of the time was that aircraft should be able to recover consistently from a six rotation spin in one and a half turns with the most adverse C of G position. Like the C-180, the C-182 had a natural spin attitude that was steeply nose down but the rate of rotation was faster. This, plus the inertial effects of larger fuel tanks, meant that the recovery criteria could not be met and so the program was abandoned.

In 1958 a deluxe version of the C-182A model was introduced and called the Skylane. For this model the exhaust tailpipe was relocated to the right to keep the exhaust gas flow away from the left hand door and an enhanced radio package was provided. The Skylane sold for \$16,850, \$2,500 more than the standard C-182 and 802 of both were sold in that year.

The C-182B was introduced in 1959 with a more streamlined cowl and cowl flaps. Flying with the cowl flaps closed gave a top speed of 170 mph which equalled the equivalent 1959 C-180 speed in spite of the extra drag of the nose gear. Coincidentally 802 units of the B model were sold in that year.

Entering the 1960's Cessna decided that a styling change was necessary and the swept tail C-182C was introduced in 1960 with the D model coming in 1961, this yearly model change being similar to the motor industry practice at the time. The fuselage shape was still straight back to the tail but with a third side window now fitted. For the D

model, the height of the landing gear was further reduced by 4 inches and it was the first to feature a rotating key starter switch and Cam-lock cowl fasteners.

The use of a swept back rudder produced aerodynamic penalties in rudder authority and spin recovery but these were not deemed significant for a non-trainer. In 1960 650 units were sold and 591 in 1961, the 1961 price being \$17,950. It was felt the swept tail emphasized the old fashioned fuselage shape and did not compare well with the sexy C-310, then also being manufactured by Cessna.

About this time Cessna chief engineer Jerry Gerties announced that the next model would have a 4 inch wider cabin and a sloping rear window would be added to the cabin. The redesign was handled by Harry McCarter and Ted Moody and the new cabin gave pilots a more spacious environment. A lot of design effort went into a completely new tail cone and tailplane assembly and much testing was needed to determine the stabiliser incidence angle together with elevator and trim tab size.

There was some doubt about the use of new thinner panel material on the new model but this meant that the BEW increased by only 10 lbs over the previous model. Another interesting manufacturing change by Cessna at this time was the use of aluminium from rolls rather than sheets. The surface finish criterion was lower with rolls and thus the decision to produce aircraft with all over paint finish was introduced to cover the surface imperfections. The weight penalty for all over painting was 20 lbs.

Despite the increase in width and weight, the 170 mph top speed was still achieved, but climb and take off performance decreased. For example, take off distance over a 50 ft obstacle increased from 1080 ft in standard conditions to 1205 ft.

So the C-182E model appeared in 1962 and this was a completely new type of C-182. It featured not only new styling but a new instrument panel with rocker switches and electrically operated flaps. Neoprene rubber fuel bladders were introduced on this model plus stronger landing gear allowing a 140 pound increase in payload. The gross TO/LW was now 2800 lbs. Selling at a price of \$18,490 the 1962 Skylane deliveries totalled 826.

The customer demand for a floatplane version materialised at this time. Cessna were reluctant to introduce such a version as the C-182 did not have a heavy cross section landing gear box at the front door post location as the C-180 did. The C-180/185 was the largest selling small float plane in the world at the time and Cessna saw no need to rock the boat.

Cessna also investigated British research on



drooping wing tips featuring conical camber shapes. The wing tip droop had to be large to achieve any noticeable effect and the idea was not adopted in full, however mini drooping tips were fitted to Cessna aircraft after 1970 as a styling feature. Another research program in 1967 investigated cantilever wing structures for the C-182 but the added weight and manufacturing costs saw this program quickly dropped.

During the late 1960's the C-182 received numerous cosmetic changes, such as one piece wind shield, magnesium control yokes, flashing beacon, standard T layout of instruments and a pre selector flap switch. A significant aerodynamic change was an increase in the span of the horizontal tailplane by 10 inches and this modification was made to combat user complaints of inadequate elevator authority during landings with a forward C of G. It was this failing that contributed to the C-182 reputation for having nose wheel landing accidents.

In an effort to consolidate their grip on the South American market, Cessna began assembling the C-182 in Argentina and those aircraft were known as the A-182J through to A-182L. In the US a C-182 Skylane cost \$19,950 in 1969.

Several aftermarket manufacturers produced STOL kits for the C-182 including Robinson, Horton and Sportsman. The most interesting STOL version was that produced by Wren Aircraft of Ft Worth in Texas. It featured a canard front wing, double slotted flaps plus ailerons that lowered with the flaps and the so called Wren's teeth anti yaw plates on the main wings. This aircraft was technically proficient but was not a commercial success and saw limited production.

During the period from 1970 to 1977 Cessna produced the C-182N, P and Q models where there were a string of cosmetics enhancements including mounting the landing lights in the lower engine cowl. In 1974 the C-182P wing profile was altered to give a slightly drooped leading edge and the rudder fin was slightly extended. At this time a long range fuel tank option was introduced giving 84 USG capacity. A wider undercarriage track with tubular steel struts was also introduced with this model.

Production quantities varied with 390 being sold

in 1970 up to 1040 in 1973 and down again to 880 in 1976. Reims Aviation in France assembled 25 P models and 39 Q's. The MTO/LW for these models was now 2950 lbs and this resulted in lower levels of performance with cruise speeds coming down by 2-3 mph.

NB: See supplementary article on MTO/LW for C-182 P and Q models.

In 1977 when a Skylane sold for \$34,950, the C-182Q had an O470U high compression engine fitted to reduce propeller tip speed by limiting engine RPM to 2400 and thus give lower take off noise levels. About this time a major electrical change occurred with Cessna shifting to 28V wiring in lieu of the previous 14V. Whilst saving weight, it added a level of difficulty for those caught with a flat battery.

The next Cessna attempt at something extra occurred when they fitted a stronger version of the C-177 Cardinal retractable landing gear to a C-182 resulting in the C-182RG. The maiden flight of an RG took place on August 27 1976, and it had a MTO/LW of 3100 pounds. With a 235 HP O540 Lycoming fitted it would climb at 1140 ft/min. This engine was longer than the Continental and thus a longer nose fairing had to be fitted.

During certification testing of the RG, the FAA demanded Cessna demonstrate that in the event of hydraulic failure, the gear could extend safely at Vne. Fortunately the nose gear doors survived this test.

By 1979 turbo charging was being offered as an option for the C-182RG after being developed jointly between Cessna and AiResearch and this feature enabled RG certification for flight up to 25,000 ft. It also became available for fixed gear C-182 in 1981, these also being fitted with the O540 Lycoming engine in lieu of the normal Continental.

A rather bizarre research program was launched in 1981 into the possibility of having a C-182 with retracting nose gear but fixed main gear. Fortunately this was discontinued for both safety and cosmetic reasons.

From 1979 on to 1986 few changes were made. However wet wing technology was used to eliminate the neoprene fuel bladders in both

the Q, R and RG models, giving an increase in fuel capacity to 88 gallons. The C-182R introduced in 1981 had a MTOW weight of 3100 lbs and a MLW of 2950 lbs. The Continental O470U engine had numerous enhancements to improve durability including Nitralloy exhaust valve guides, steel insert compression ring, and nitrided cylinders which gave a TBO increase from 1500 hours to 2000. By 1986 the price of a base level C-182R had risen to \$80,950.

In 1986 US production of most light aircraft ceased due to product liability issues and this hiatus lasted until the US Congress passed the General Aviation Revitalization Act (GARA) of 1994 to limit product liability exposure for manufacturers of general aviation aircraft. Cessna hailed the legislation as a long overdue measure that saved the general aviation industry from a commercial grave.

The C-182 remains a durable and popular aircraft but the two most troublesome features both came about by Cessna's use of military components, fuel bladders and recessed fuel caps. Cessna being located in dry Kansas had not thoroughly investigated the effect of water pooling in bladders or leakage past aging cap rings. When they did run tests they found the engine would tolerate quite large amounts of water being ingested. A series of AD's have subsequently been issued to alter the fuel caps and for smoothing of fuel bladders.






Apart from these issues the C-182 remains incredibly popular and over 22,000 have been made over 30 years. Some second hand aircraft can now sell for more in dollar terms than when they were made and the C-182 is the most prized second hand aircraft exported from the US. It is the world's third most popular aircraft being beaten only by two other Cessna products, the C-172 and the C-150.

**Editor's Note** *The use of this article was made possible by the kind permission of the author's family and it was edited by Russell Hicks.*



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