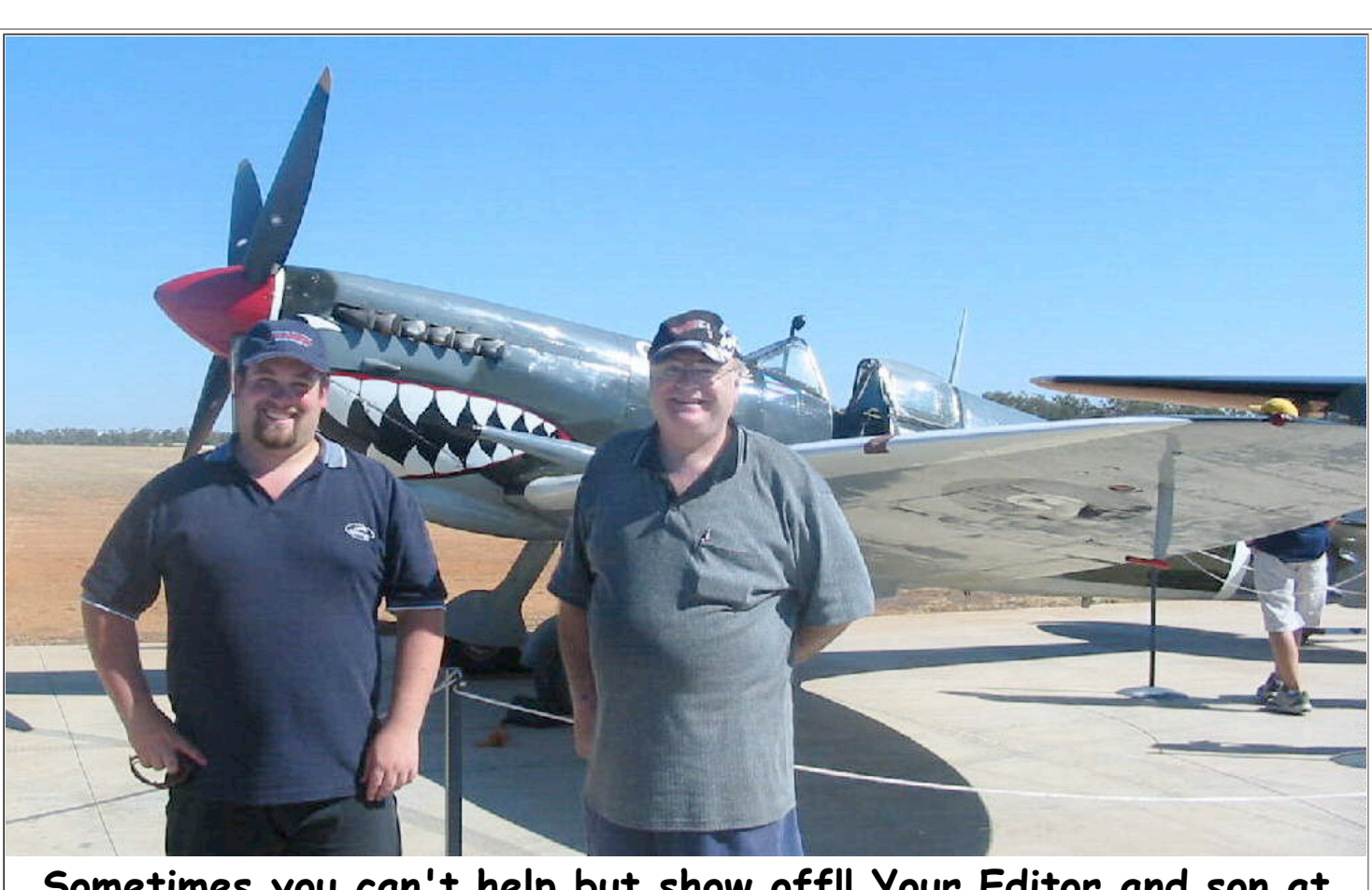
Warringah Radio Control Society Incorporated

(Incorporated under the Association Incorporation Act 1984)

Newsletter - May 2004



Sometimes you can't help but show off!! Your Editor and son at the Temora Air Show in March keeping good company with a Supermarine Spitfire Mk.VIII.

ANNUALGENERALMEETINGANNUALGENERALMEETING
The Annual General Meeting will be on Tuesday, 29th June 2004 at Tennis Cove, Eastern Valley Way, starting at 7.30 pm. Come along to renew your membership and get your new key to the field!!

FROM THE SECRETARY'S DESK

It was brought to the Committee's attention that someone drove a 4WD in through an unlocked gate recently, left unlocked by a member, presumably to let someone in who did not have a key! The result was rubbish dumped and allegedly witnessed by our neighbour who is said to have cleaned up.
The gate has to be left locked as part of our lease agreement. No one is to leave the gate unlocked for someone coming soon unless that person is in close convoy and within sight. Certainly, the gate is not to be left unlocked for some non member or potential member due to meet for lessons or whatever.
I confess I have left the gate open for the convenience of a contractor. Not any more, because if I or anyone else commits this offence then the Committee may well be looking to terminate membership! **BE WARNED!** Do not leave the gate unlocked and unattended. Meet relatives/clients/friends/new members at the gate, then relock the gate.

If for some reason you missed the Play by the Rules article in the March newsletter then please make yourself aware of the contents because a claim of ignorance is not a defence if in the future you are found to have transgressed.

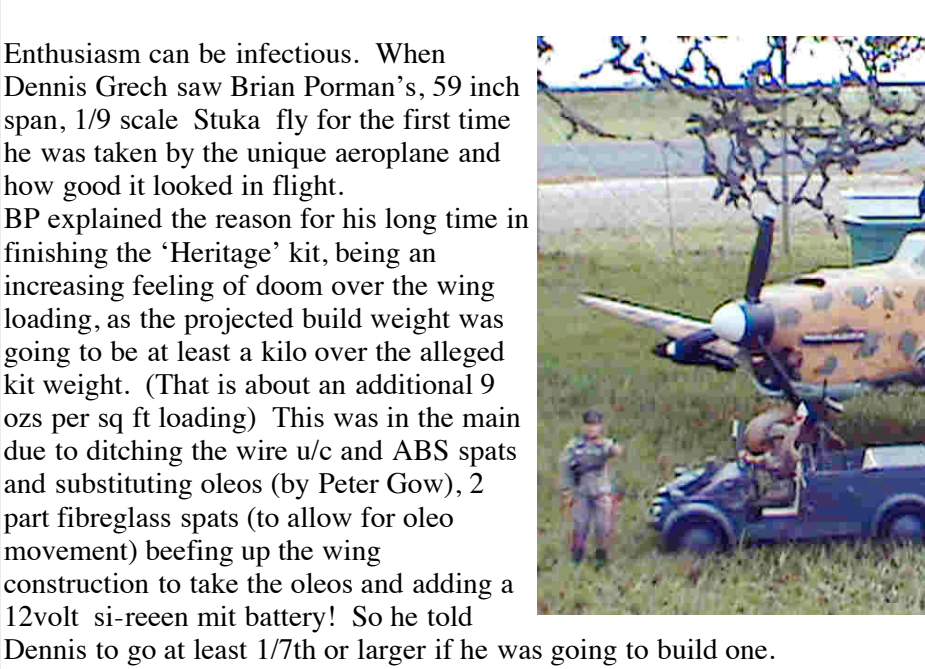
CONTAINER SHED LEFT UNLOCKED
Des Rim arrived early Thursday morning, 8 April, to do some maintenance, to find that the right hand shed door was unlocked and ajar.
This is not good enough. **IF YOU UNLOCK THEN YOU LOCK, NO EXCEPTIONS.**. Because obviously someone has promised to lock but didn't when using the buddy box.
The Committee will class this in the same category as not locking the GATE, so don't get turfed out because of slackness.

POSITIONS VACANT

At the upcoming Annual General Meeting all positions on the Committee will become vacant, some of the present Committee members have indicated that they will not seek re-election!!
It is time for each and every Club Member to give serious consideration to joining the Committee in one of the following positions:

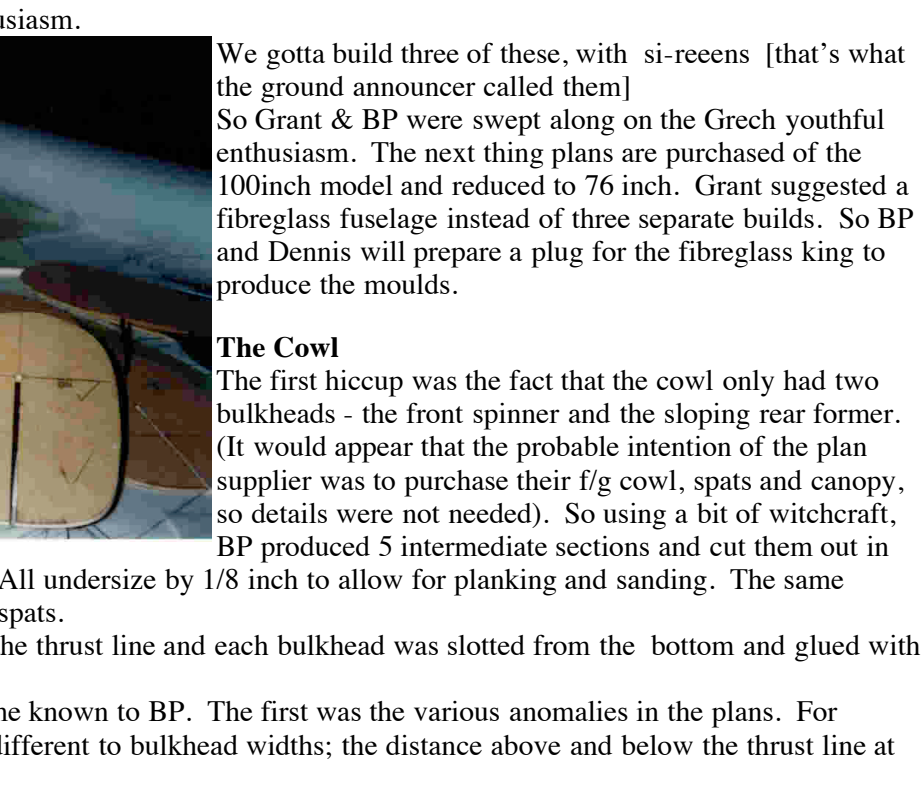
President
Vice President
Secretary
Registrar & Treasurer
Chief Flying Officer
3 to 5 Committee Members
Competition Co-ordinator
Newsletter Editor

Nominations must be in writing. Forms are available from the Secretary, contact Brian Porman on 9488 9973

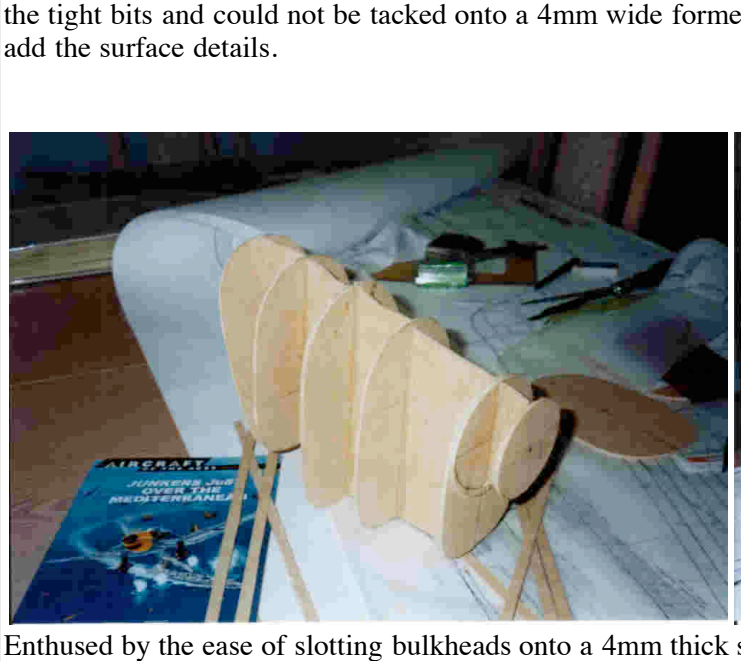


FROM THE WORKSHOP

(A LONG TERM PROJECT - AGAIN!)

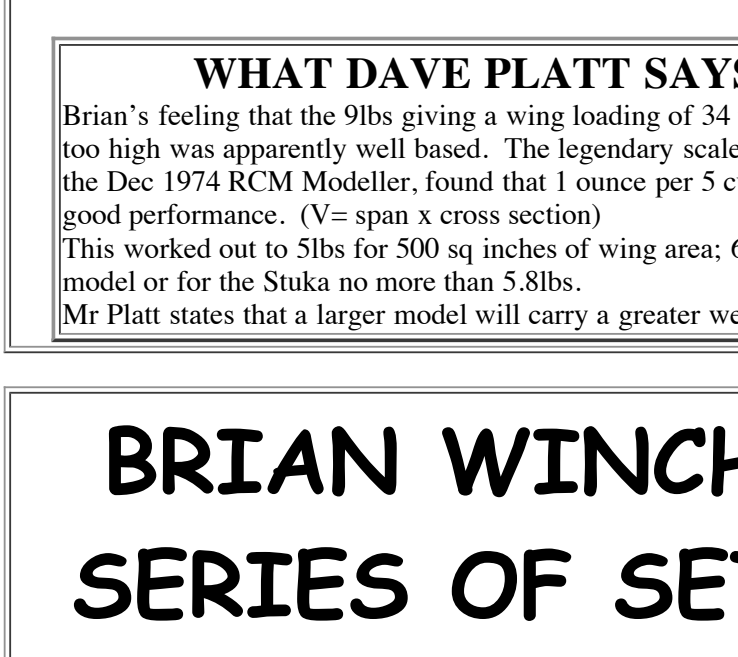


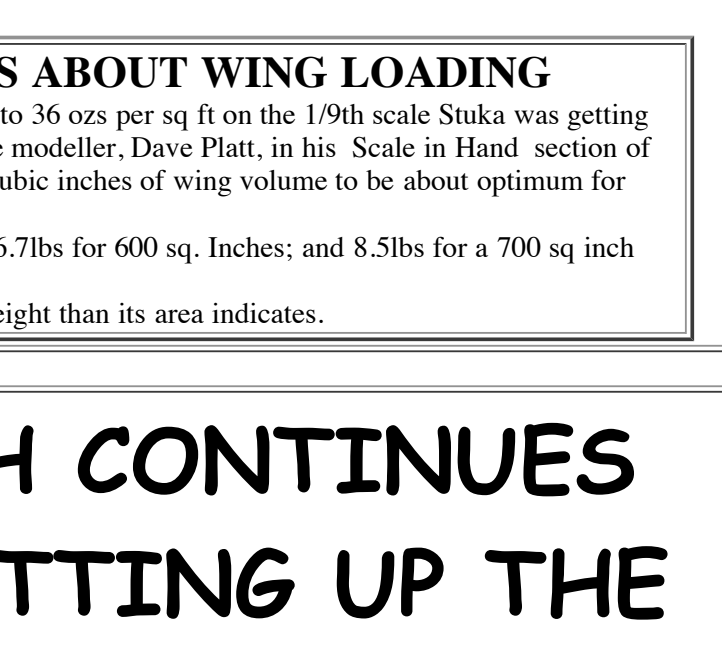
Enthusiasm can be infectious. When Dennis Grech saw Brian Porman's, 59 inch span, 1/9 scale Stuka fly for the first time he was taken by the unique aeroplane and how good it looked in flight.
BP explained the reason for his long time in finishing the 'Heritage' kit, being an increasing feeling of doom over the wing loading, as the projected build weight was going to be at least a kilo over the alleged kit weight. (That is about an additional 9 ozs per sq ft loading) This was in the main due to ditching the wire u/c and ABS spats and substituting oleos (by Peter Gow), 2 part fibreglass spats (to allow for oleo movement) beefing up the wing construction to take the oleos and adding a 12volt si-reeen mit battery! So he told Dennis to go at least 1/7th or larger if he was going to build one.
Fast forward to Bomber Field, Houston, Texas. There the three Amigos (Grant; Dennis and Brian) were exposed to half a dozen Zenoah 62 powered 100 inch Stukas in the air at once.
Dennis became almost apoplectic with enthusiasm.



We gotta build three of these, with si-reeens [that's what the ground announcer called them]
So Grant & BP were swept along on the Grech youthful enthusiasm. The next thing plans are purchased of the 100inch model and reduced to 76 inch. Grant suggested a fibreglass fuselage instead of three separate builds. So BP and Dennis will prepare a plug for the fibreglass king to produce the moulds.

The Cowl
The first hiccup was the fact that the cowl only had two bulkheads - the front spinner and the sloping rear former. (It would appear that the probable intention of the plan supplier was to purchase their f/g cowl, spats and canopy, so details were not needed). So using a bit of witchcraft, BP produced 5 intermediate sections and cut them out in 4mm MDF board with a hand held jigsaw. All undersize by 1/8 inch to allow for planking and sanding. The same exercise will need to be done for the wheel spats.
The cowl spine was slotted from the top to the thrust line and each bulkhead was slotted from the bottom and glued with white glue.
This was when a number of problems became known to BP. The first was the various anomalies in the plans. For example the plan view fuselage width was different to bulkhead widths; the distance above and below the thrust line at the spinner differed by 2mm.
Possible cause is that the purchased plans were copies of copies [who knows how many times!]and not first copy off an original drawing and so different stretch characteristics of the paper and slip in the copier cause dimensional errors.
Intending to use the cheaper MDF board it became very quickly apparent to BP that MDF strips don't bend too easily on the tight bits and could not be tacked onto a 4mm wide former. So Dennis took the finished carcase to plank in balsa and add the surface details.





Enthused by the ease of slotting bulkheads onto a 4mm thick spine, BP produced the fuselage carcase in the photograph MISTAKE! The spine was not stiff enough and was too flexible. The whole carcase structure waved around and was not stiff enough to maintain its alignment. The fix was thought about and stiffening up the spine by running one or two wood beams along the centreline was dismissed as too much work in altering every bulkhead. It was thought that by careful attention to planking with the 10mm wide 4mm thick balsa then the spine could be held straight. WRONG!

Next episode, Progress on the planking. (Warning this 3 plane build could be longer than Blue Hills as just what to use for power has only been decided for one and how to integrate with the Fuse is at this time a complete mystery!)

WHAT DAVE PLATT SAYS ABOUT WING LOADING

Brian's feeling that the 9lbs giving a wing loading of 34 to 36 ozs per sq ft on the 1/9th scale Stuka was getting too high was apparently well based. The legendary scale modeller, Dave Platt, in his Scale in Hand section of the Dec 1974 RCM Modeller, found that 1 ounce per 5 cubic inches of wing volume to be about optimum for good performance. (V= span x cross section)
This worked out to 5lbs for 500 sq inches of wing area; 6.7lbs for 600 sq. Inches; and 8.5lbs for a 700 sq inch model or for the Stuka no more than 5.8lbs.
Mr Platt states that a larger model will carry a greater weight than its area indicates.

BRIAN WINCH CONTINUES SERIES OF SETTING UP THE ENGINE.

[Reproduced by Brian Porman from R/C Scale Aircraft with the permission of Brian Winch]

If you read this entire series and follow the points set down, I can guarantee you the best reliability for the engine, so all you have to worry about is if the rubber band will hold the wing on.

FUEL METERING CARBURETTORS
This type of carby is so called due to the high speed and idle adjustments being controls over the flow of liquid fuel. The air is the absolute domain of the aperture set by the opening of the rotor. Typically the main mixture is adjusted by a needle with a fine point or acutely angled end and its rotary movement is controlled by a spring detent (ratchet), compression spring or friction provided by a tight fitting 'O' ring.
Between the main needle and the venturi will be a fuel nipple leading to a fuel chamber. A fuel chamber is a small reservoir that maintains enough fuel to supply the demands as the rotor is opened, in order that the increase in engine speed is instant.
This is as close to a float chamber as you get on a simple carby. It surrounds, or is adjacent to the needle seat through which the metered fuel flows. [I'll wager not everyone was aware of that?]. The seat is a small hole, large enough for most of the tapered section of the needle to enter. The further the needle enters the seat, the less fuel flows. This is leaning the mixture. The basic principle is the same for all types and that is the supply and metering of the fuel.
It goes without saying that any interruption in this area means engine failure in some form. Either the engine will stop due to lack of fuel, overheat due to a lean mix or run erratically due to an uneven fuel supply. Luckily this area is generally trouble free mechanically but the human element is hard to beat. The main cause of any problems are foreign materials. The final aperture(s) for the metered fuel is extremely fine, it takes only a minute particle to cause problems.
The first problem is dirt - a word encompassing dust, grass seed, lint, animal hair, rust flakes, paint flakes wood dust and fibres, particles of glue, glass fibres or just unrecognisable grot.
There is only one way of preventing these 'nasties' from getting into the fuel stream and that is effective filtering. If you use only one filter it has to be as close to the fuel nipple of the carby as possible.
Why take chances? Filter the fuel as it is mixed (if you mix your own). Filter it as you fill the tank and filter it between the tank and the engine. Would you run your car without a fuel filter? [a filter on the pressure line from the muffler is also practised by some]
The other type of blockage in the fuel chamber is the 'mouse's eyelash'. This is a tiny crescent of silicone about the size of a 'mouse's eyelash, and it can be a real 'bitch'. You might have no problems for several runs then an engine failure. The engine will often start again and run for several tanks then fail again - very frustrating.
Inside the chamber the eyelash floats around and every so often, one will enter the fuel system and disrupt the flow. When the engine stops, the eyelash floats back into the chamber until it is in position again to sometime cause another disruption.
This 'eyelash' is a tiny sliver of silicone fuel tubing caused by a sharp edge on a metal fuel tube cutting it off the inside of the silicone tubing as it is slipped on the metal tube. Smooth all metal tube ends and nipples with super fine wet and dry paper and polish with metal polish to be certain there are no sharp edges. To clear the 'eyelash', backflush through the jet tube with fuel, having removed the fuel nipple if possible.

JET PROPELLED
Follow the flow of fuel through the needle seat, along the jet tube and out of the aperture. This aperture is our carby jet and can be in the form of a crescent shape slit, a straight and narrow slit, a rectangular slot across the diameter or just straight out the end of the tube. The fuel is sucked out of the aperture by the action of the air changing pressure and speed through the venturi. Air is sucked into the carby and down the venturi which narrows at the middle causing a change of air pressure and subsequent speeding as it passes the jet.
In so doing, it sucks the measured fuel supply with it to supply the demands of the engine. Too much and the mixture is too rich. Too little fuel and the mixture is lean. The engine will run on a disproportionate air/fuel ratio until the mix is so far out the engine stops. Stopping rich is no great problem but stopping lean can kill an engine in a remarkably short time.

JUST IDLING ALONG
On the opposite side of the jet tube to the main needle is the idle mixture control and this can be in the form of a tapered needle, parallel needle or encompassing tube all of which impede the flow of fuel from the jet. A fuel metering carby of the common type has a helical slot in the rotor so that rotary movement induces side movement. This causes the idle needle or tube to slide into or over the main jet and 'meter' the amount of fuel in proportion to the now reduced venturi opening.
This adjustment needs considerable care and checking as it also controls the change from idle to mid-range operation. In all types of idle metering devices the amount of movement for a considerable result is very small - 1/10 of a turn at a time. Fortunately, once set they are not prone to changes in weather like the main needle so it is rare that you would need to readjust once it is set provide you do not make radical fuel changes.

OTHER KNOBS AND BOBS
Generally, once the high and low mix is set, the engine is brought to mid-rpm and adjustment made to mid-range to obtain smooth running. Other bits will be a spring loaded bolt or bolt with a collet nut such as in OS carbies. These are idle speed adjustments and are a simple mechanical adjustment to stop the travel of the rotor. Unless it is a large engine, you should set your idle speed between 2,500 and 3,500 rpm. Under this and the engine might stop as it cools down on the landing approach, higher than this might provide too much speed for landing. Some carbies do not have this adjustment, so set it with your servo.
The usual method for reliable idle for back stick - high trim on the transmitter and low trim to kill the engine. These carbies will have a slotted or hexagon head bolt to retain the rotor which must remain firmly tight at all times. If the carby has both adjustments and retaining bolt you might find that removing the adjustment bolt will provide more control from the T/x.
It would be wise to replace the bolt with a shorter one screwed snug to prevent air leak.

SETTING THE JETS
Connect a length of fuel tubing to the nipple and close both needles gently. Open the rotor fully and blow into the tubing as you slowly open the main needle. As soon as you can feel the air flowing, stop adjusting.
Do the same thing with the idle (needle) after closing the rotor so that just a fine crescent area is open. Now open the main needle two more turns so we don't start lean. Start the engine, take it up to full rpm and let it heat up for a minute or so.
Two clicks at a time close the needle valve (assuming the engine is running rich, if the engine is a Saito then open the needle four full turns) and listen to the rpm. Wait about 10 seconds after each adjustment for the engine to settle, then close down another two clicks and wait. Continue doing this until you do not hear a change in the engine speed.
At this point the engine is fully adjusted for static running. When the model is in the air, the static load on the engine is reduced and the rpm will increase. For this reason we are going to tune slightly rich, so wind the needle open four clicks.
The absolute final adjustment will be achieved in the test flight. By now the engine is nicely hot so we can set the idle. Take the speed down to about 2,800 rpm and listen to the engine. If it stops or loses rpm it is too rich, so wind the needle in two clicks. If it speeds up and stops it is too lean, so wind out two clicks. Keep adjusting until you obtain the maximum steady rpm at which the engine will keep running.
You might have to readjust the idle stop screw during this operation. Very slowly take the engine up to full rpm and let it run there for a minute or so. This will clear any residual fuel in the case, then let the engine return to the optimum operating temperature as this generally lowers during idle. Now back down to idle and try the transition from idle to high speed, moving the throttle lever at a speed similar to which the servo will move it. If the engine falters after idle, make a small adjustment to the idle mix as it is too lean. If the engine chokes and coughs it's too rich.
From now on, using the same fuel, prop and plug you will need only a very small adjustment of the main needle for extremes of weather. Do not wind the needle back and forth each flight, as only minor adjustments will be needed. If you have a bit more than adequate power for the model, set richer at the start and never touch the needles. If the engine runs richer some days it won't matter as you are not after every last drop of power.

REMOTELY SPEAKING
You can fit a remote mixture control for inflightmixture changes. Before you consider this, make sure you aren't having yourself on that you are a beaut engine tuner. You need a very good ear to understand what the engine is telling you in the air, so don't fit a remote tuner just for the sake of having a complex gadget or one-up-man-ship. If you must, I recommend you consider the Varsane Inflight Mixture Control due to the precision manufacturing and reliability. These units work very well and will last. The instruction sheet is comprehensive for the simple method of operation.
The other remote to consider is the needle valve. Any engine will run from a remote needle valve and it is worth considering for the sake of easy operation with awkward cowl situations, also for finger safety. Again, I can recommend the Varsane unit for the same reasons. Just keep them mounted and all connections airtight. The new OS Fx series engines come complete with a remote needle that is part of the backplate.

CLEAN AIR
Sucking dust and even grass seeds into the engine via the air intake rarely bothers the fuel supply or causes running problems. It does cause accelerated wear (in the case of four strokes, power loss if it upsets the seat of the intake valve). Another consideration is the supply of air to the engine and the problems of hot air, tight cowls and air suction pulling the fuel out of the carby.

Should you wish to ask Brian a question on these topics please send a self addressed envelope and print your name, to Brian Winch, 33 Hillview Parade, - LURNEA NSW 2170

KISS ME, I'M IRISH

(IF YOU KNOW A BETTER ONE THEN SUBMIT IT ...)

Paddy gets home early from work and hears strange noises coming from the bedroom. He rushes upstairs to find his wife Moira naked on the bed, sweating and panting.
"What's up?" he says.
Moira cries "I'm having a heart attack,"
Paddy rushes downstairs to grab the phone, but just as he's dialing, his 4-year-old son comes up and says "Daddy! Daddy! Uncle Mick's hiding in your closet and he's got no clothes on!"
Paddy slams the phone down, storms upstairs into the bedroom, past the screaming Moira, and rips open the wardrobe door. Sure enough, there is his brother Mick, totally naked, cowering on the closet floor.
"You rotten SOB," screams Paddy, "Moira's having a heart attack and all you do is run around naked scaring the kids!"

DOWN ARCHIVE ALLEY

[brian porman]

STILL LEARNING TO FLY - WITH CHARLES PEAKE

Last time we left you in a spiral dive or a spin - now Charles moves on to other problems faced by the novice....

THE ROLLER COASTER EFFECT. If insufficient backstick is applied in a turn, the nose will drop and speed will increase. When the wings are rolled level, this excess speed may cause the model to climb, perhaps quite steeply, depending on how it is trimmed. This is often particularly marked with a flat bottomed or lifting aerofoil, and sometimes worries the student. As long as the wings are held level, speed will decrease quite rapidly, the nose will drop and it may do this 2 or 3 times before it settles down to normal flight, which is why I have called it the Roller Coaster Effect. (Often made worse by pilot correction during the period)
Too much backstick in the turn causes the model to slow down. Stall speed is higher when turning and this is the condition when a high speed stall may occur, though usually only in models with high wing loadings. The average trainer will just waffle and aileron control may become sluggish, which indicates less back stick is required.

USES AND EFFECTS OF RUDDER. Deflection of the rudder yaws the aircraft around its vertical axis. But like the secondary effect of the ailerons causing the nose to drop, the rudder has a secondary effect. This is our old friend the inside/outside effect.
If the rudder is deflected to the left, the nose yaws to the left, the left wing is then travelling more slowly than the right wing and therefore generates less lift and the aircraft rolls to the left. The same will be true of right hand rudder application, in fact the plane will have to be watched closely as often the yaw is barely visible, all the is seen is the rolling effect. This can be quite useful. The chief one is when the aircraft is so close to the stall that the ailerons have become ineffective, application of rudder in the opposite direction to a dropping wing will lift that wing.

HENCE THE SPIN RECOVERY BY USE OF THE RUDDER. There is a manoeuvre called the Falling Leaf in which each wing is stalled in turn and recovered so it descends in a series of swooping steps like a falling leaf, a very pretty manoeuvre.

The next in this archival series will be the final one from the late Charles Peake and will continue with more on the use of the rudder.

COLUMN 9.9

(incl. GST)

Kerry Smith has brought our attention to an article about glow-plugs. It is truly a most informative article, but at a mere 23 pages in length it is totally unsuitable to be printed fully in the Mag. If you are interested, the article called "Glow Plug Mini How To" by Roy Hars can be found on the Internet at www.angelfire.com/space/helisonly/GlowplugHowTo.pdf - thanks Kerry.

While on the subject of great articles on the Internet, Garry Welsh has found an indispensable checklist on the Wagga Model Aero Club site. Regardless of what model you are flying, it is a must to visit www.waggamac.org.au/Docs/checklists.pdf - thanks Garry.

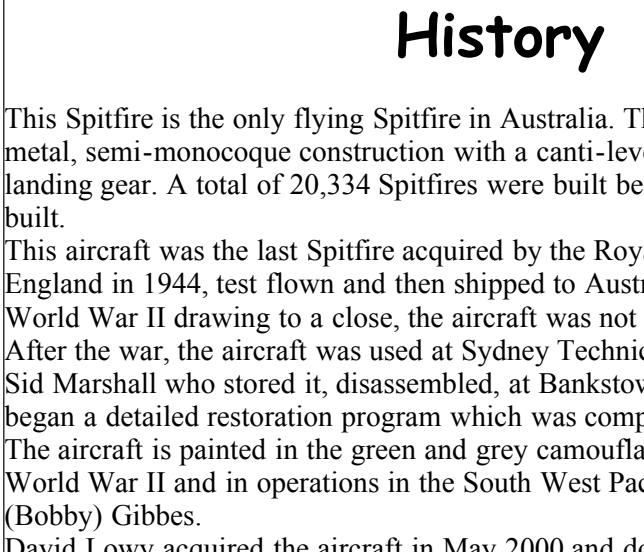
Although some time in coming, the competition scores are again on the Internet thanks to Kerry Smith's efforts

Your Editor went to Temora for the Air Show in March, to his surprise the Show was visited by no other than Chuck Yeager! He was in Oz to help Dick Smith celebrate his birthday. As for the Air Show, it is undescribably fantastic, if you've never been for a visit you don't know what you've missed.

By the way your Editor and family were not evicted from their motel room in Temora but previous mutual scouting experience probably came in handy.

The Web page couldn't be updated for a short time while the Editor's computer was off the air, but now it is business as usual.

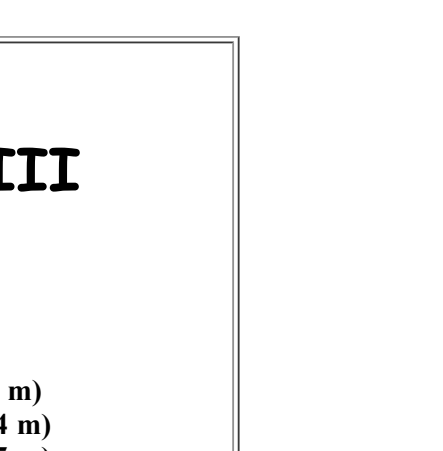
Mike Minty left us with a promise that he'll be back later in the year and that he'll take over the editorial tasks ... you've heard it before! "It's moments like these that you need a Minty"



SUPERMARINE SPITFIRE Mk.VIII

Unquestionably the most important British fighter of World War II, and not inconsequently one of the most important piston-engined fighters of all time, Supermarine's immortal Spitfire came to life during the mid-1930s as a result of the successes the company had enjoyed in major air race events—most notably the Schneider Cup competitions of the 1920s and 1930s. The first Spitfire flew in 1936 and by the beginning of World War II the type was in limited production.
Early Spitfires met their match in the Me 109, and later, the Focke Wulf Fw 190, but steady improvements in the airframe and engine eventually created a fighter that was the equal of anything the Axis could throw into the sky.

VH-HET
Military S/N: A58-758
History



This Spitfire is the only flying Spitfire in Australia. The Spitfire Mk VIII is an all-metal, semi-monocoque construction with a canti-levered wing, fabric covered elevators and rudder and retractable landing gear. A total of 20,334 Spitfires were built before, during and after the war. 1652 Spitfire Mk VIII variants were built.
This aircraft was the last Spitfire acquired by the Royal Australian Air Force (RAAF). It was built by Supermarine in England in 1944, test flown and then shipped to Australia. The Air Force took delivery of the aircraft in April 1945. With World War II drawing to a close, the aircraft was not required on active service and was place into storage.
After the war, the aircraft was used at Sydney Technical College as an instructional airframe. It was then acquired by Mr. Sid Marshall who stored it, disassembled, at Bankstown until 1982, Mr. Colin Pay of Scone obtained the Spitfire and began a detailed restoration program which was completed in 1985 when the aircraft flew again.
The aircraft is painted in the green and grey camouflage colours worn by the RAAF aircraft defending Darwin during World War II and in operations in the South West Pacific. The aircraft carries the markings of Wing Commander R.H. (Bobby) Gibbes.
David Lowy acquired the aircraft in May 2000 and donated it to the Temora Aviation Museum in July 2002. The aircraft is maintained in an airworthy condition and regularly flown at Museum displays and airshows.

STATISTICS OF THE SPITFIRE Mk.VIII

Manufacturer:	Supermarine
Model:	Spitfire Mk.VIII
Year:	1944
Span:	36 ft 10 in (11.23 m)
Length:	31 ft 3 1/2 in (9.54 m)
Height:	12 ft 7 3/4 in (3.85 m)
Wing Area:	242 sq ft (22.50 sq. m)
Empty Weight:	5,805 pounds (2,633 kg)
Max take-off Weight:	8,021 pounds (3,638 kg)
Max. Speed:	361 knots 416 mph 669 km/h
Cruise Speed:	220 knots 253 mph 407 km/h
Engine:	Rolls-Royce Merlin 70 1710 horsepower (1275.66 kW)