



HATS

The New Kid in Town

'FlyBy' was recently lucky enough to have a tour of 723 Squadron's HATS. It's a world-class system the like of which has never been seen in the Fleet Air Arm before, and it will revolutionise the way we train aircrew for years to come. Marcus Peake shares his impressions...

Everything about the Helicopter Aircrew Training System (or HATS) is remarkable: from the custom-built buildings that seem to stretch forever to the modules that make up this extraordinary facility: the new EC 135-T2 aircraft; the synthetic trainers for AvWOs (Observers, in old speak); the Level 3 full-motion simulators for pilots; the Virtual Reality modules for Marshalls and Aircrewmen and the Multi-Role Training Vessel for just about everybody. There's the best part of a billion dollars of investment ready to go, and its...well – impressive.

Back in the early 80s when I first served on HC723 Squadron, I reckon the total capital expenditure for the air station was about a hundred bucks a year. We lived and worked in old buildings and the aircraft sat in cold, leaky hangars. We made do with what we had, of course, but it wasn't much. The Fleet Air Arm was not the flavour of the decade and it showed – the newest aircraft on our inventory was the very old Iroquois, and the best structure was the Inflam Locker just outside my dilapidated office. And most frustrating of all – from a QH1's point of view – was that training

had to fit in with all the other tasks we did, and it suffered as a result.

So fast forward forty years. Exit the old training regimes and old aircraft. Roll in billion or two for new aircraft: the Seahawk Romeo, the MRH90. Bring back the anti-submarine role, surface strikes, reconnaissance. Throw in a completely new capability using unmanned drones. Bring in new ships with wider roles, and then go figure how you can most effectively train aircrew to make best use of this wealth of new capability. The answer is HATS.

My first view of HATS actually wasn't...it was one of the two buildings that contain it. Built where the old Moonbase Alpha once sat it stretches forever and boasts not only the various parts of the training system but also modern classrooms and



The ADF's EC 135s feature the Turbomecca Arrius engines rather than the alternative Pratt & Whitneys. Fifteen aircraft were ordered and will be used purely for training purposes.



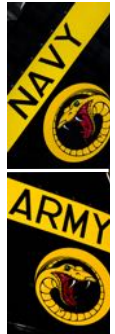
Left. An EC135T2 undergoing maintenance in the immaculate hangar. Centre. The Aircraft Replica Trainer, which uses Virtual Reality to teach winching. Right: the Marshalling Trainer, which also uses VR.

training facilities. Here the students download their lessons on their own issued computer and work through them either solo or with an instructor. They can even do exams on line, click a mouse to have the system mark them automatically, and get the results almost instantaneously.

Our first port of call was the hangar, where half a dozen or so EC135T2s sat under bright lights. It reminded me more of an operating theatre rather than a hangar, with the floors like polished glass and not a speck of dirt to be seen. I took a step into it and was gently admonished by my escort officer, Captain **Adrian Ludman**, who pointed out a sign advertising it as a zone requiring safety glasses before leading me to a separate area where 'mini-hangars (complete with wi-fi!) house individual aircraft.

Here we could get up close and personal with one of the new trainers. Twin engine, of course (the Navy doesn't have any manned single-engine aircraft left on the inventory). Much taller than I'd imagined, although there's a mod available for even higher skids – presumably for very tall people. A weather radar dome pokes out of the nose and clamshell doors are at the rear

to load a stretcher if the mood takes you. A huge aerofoil-section tail assembly houses the fenestron tail rotor. Four doors in the fuselage section, with up to five seats. Even the livery is impressive – a glossy midnight blue with yellow trim. In a sign of the joint nature of the school 'Navy' is emblazoned on one side of the fin and 'Army' on the other: I guess at air shows you put the appropriate side of the aircraft to the crowd.



Inside the cockpit that 'new car' smell still lingers, adding to the sense that everything is pristine and modern. It's a glass cockpit, of course, with a range of navigation aids and avionics I could only dream about as a young instructor. The visibility is excellent, as you'd expect. A winch can be fitted via a quick release bracket, as can floats, but somewhat inexplicably they must be manually initiated. One hopes the first ditching, if there is ever to be one, will be a controlled affair.

Maintenance support is provided by Boeing Defence Australia (BDA), who are the primary contractors for the supply of the aircraft, their maintenance and associated training systems.

As we walk from the hangar to see other parts of HATS I'm struck by the lack of people around – they are mostly BDA contractors, dressed in smart black overalls, or Thales (who supply the flight simulators, part-task trainers and other synthetic training devices). Adrian explains that the training hasn't started yet, although it will soon. Once it ramps up things will get busy... the expected annual rate of flying effort is 8,500 hours, which will accommodate 54 student pilots (10 Navy, 44 Army), 8 AvWOs, 30 Aircrewmen, 8 SENSOs, 8 QFIs (4 each for Navy and Army), and 8 Qualified Aircrewman Instructors (ditto). That's 116 students of one persuasion or another over the year, with 129 uniformed and civilian staff to keep the system running.

Our next port of call is the **Marshalling Virtual Reality Trainer**. Three large panoramic screens fill one segment of the room with a space in front of them where the trainee Marshaller stands. It wasn't operating when I was there, but the trainee wears VR goggles and wands to which the aircraft on the screen reacts. The advertising boasts that the MVRT is for 'aircrew marshalling training without the expense of operating a real aircraft'.

Next door is one of the two **Tactical Part Task Trainers (TPTTs)**, which comprise three smaller screens above a trainee's console. The TPTT provides generic tactical training to baby AvWOs and SENSOs: that is, a radar plot, sonar and weapons displays to introduce them to the concepts and procedures before they move on, in Navy's case, to the Seahawk Romeo.

Below: The EC135 cockpit. Pilot flying displays are the large screens top LH and RH side. Below them are the Navigation Displays. The three screens in the centre front panel are the Caution Advisory Display on the left and the two Vehicle Engine Management Displays, one above the other (shows Ts&Ps, for you old aviators!). Between the seats console is the usual collection of radios, comms and nav.



We then climb aboard one of the three **EC135 Cockpit Simulators**. These are identical units to provide sufficient capacity for the number of students and redundancy for maintenance. Another room is fitted for but not with a fourth simulator to provide space for growth. Nice to see that the project made provision for the future.

We strap in for a brief familiarisation of the aircraft. Adrian starts the aircraft – he can both instruct and operate the simulator from the left-hand seat from a small screen – explaining while he does a few of the features of the aircraft. In the types I flew you had to watch the rate of throttle advance so as not to exceed the Turbine Outlet Temperature (ToT), but this one does it all for you. Similarly, the engine management computer will decide which is the most likely engine parameter to be reached first (Torque, ToT etc.) and display the limits of that system to you.

The simulator visual is enormous. We are sitting on the threshold of runway 21 with the piano keys just ahead and the runway stretching into the distance. To my left I can see the old bomb dump, to the right the new(ish) Control Tower. The resolution is not pin-sharp, but it's good enough to make you think you're out there. He hands me control and I lurch into an unsteady hover before transition to forward flight. There's no sensation of movement in the seat that I could detect but the display reacts instantly to control input so there's a strong sense that you're actually flying. Unsurprisingly, the instruments are exact replicas of what's in the real aircraft, and you can plug in a whole range of malfunctions, extreme weather conditions and operational scenarios to allow students to gain experience before they set foot in a real aircraft. The current plan is to have 50% of the total course hours flown on simulators, which is a hell of a saving in costs.

Adrian's pulled an engine on me and I'm turning back to the airfield, easily spotted because Nowra Hill is where it should be and the runway shows up on cue. He's telling me that in the real aircraft you don't need to pull an engine to simulate failure: you can just instruct it to act as if one has failed. As I recall my own experiences of one-engine-out training with the unpalatable risk of over-pitching, I'm left wondering where all this technology was forty years ago when you needed it.

The approach is uneventful, with the graphics crisp enough to do precision approaches (not like mine). All too soon we're back in another dodgy hover and a barely controlled landing just short of the piano keys, and my simulator ride is over.

Somewhere in there (I forget which order it was in) we also called into to see the **Aircraft Replica Trainer**, which looks like a relatively crude aircraft mock up. It's Virtual Reality, though: the crewie crouches in the back with a winch simulator and sees in his goggles exactly what he'd see in the real situation: moving waves, a survivor in the water, the strop and the process of rescue.

† REST IN PEACE †

Since the last edition of 'FlyBy' we have become aware of the loss of **Brian Worthington, Ivan Carmichael-Bear, Leo Burggraaff, Graham Bessell-Browne, Bernard "Jingles" Matthews, John Clifford and J.B Dudley**. You can read of these sad events on our [Obituary page here](#).



I didn't get to see it on my visit, but the MATV, or **Multi-role Aviation Training Vessel** is also part of the HATS, although it was procured through a separate project. The MV *Sycamore* displaces nearly 3000 tonnes and provides a day and

night platform for deck landing training. Accommodation is available on board for short deployments, if necessary. The ship doubles up for sea familiarization trips, mine warfare training and for diving support and other consort duties.

The Commanding Officer of HC723, **CMDR Bruce Willington**, then spares me some time to talk a little about the background to the project and some of the opportunities and challenges HATS will provide. Not surprisingly, he's fired up and looking forward to managing this world-class system and why wouldn't he be! At the end of the visit I thank him for the time and effort expended on this old aviator, and the extraordinary kindness and patience of my escort officer in particular.

As I drive home I look for things I didn't like. There weren't any. No doubt there will be challenges in managing such a complex multi-faceted system. The interface between the commonwealth and the contractors will require extraordinary cooperation and liaison, and there will almost certainly need to be changes to courses as they mature, so the system will need to be nimble. I wonder also if the required staffing levels will ever be met (Navy has a poor track record for that), and to what extent the MATV will be snatched by the Fleet for other tasks.

But despite my pessimistic musings I was left with the overwhelming view that the tools to produce well-trained aircrew for the current and new generation of ADF rotary-wing aircraft have at last been put in place. And HATS is so much more than just shiny new equipment, too – it will sow professional ethos into the minds of aviators from day one - unlike the bad old days when students' first impressions of Naval aviation were of old equipment, shocking serviceability and being shuffled to the end of the operational priority chain. You can't put a price on that.

So the bottom line? That's an easy pick - the new training system is well considered, well resourced and well done. Bravo, HATS! ✈

Editorial – Is It Time To Think Again?



The FAAAA, like just about every other Ex Service Organisation, struggles to maintain its membership numbers. We are going backwards – albeit slowly – and unless we can find better ways to

Attract and Retain (A&R) members, our future is destined to be the same as the dinosaurs.

I spent fifteen years in the Navy dealing with A&R problems and I can tell you for nothing that there's no one solution. You must look for any opportunity to do business differently. You must understand generational change and be nimble, embrace technology and be prepared to step out of traditional comfort zones and try new things.

So it was of interest when a long-standing member recently approached me to say that he'd had a few folk ask him if better ways of conducting meetings could be found. They feel that the traditional face-to-face meetings held by each Division (and by the National Executive) are not working, as they invariably only attract people living close by... and even then, not so much.

It reminded me of a comment made by one of the Division Presidents at the last Federal Council Meeting. He remarked without rancor that the time and expense of travelling interstate for a meeting that would last less than two hours was prohibitive. There was a brief discussion on his point but no resolution, as it was neither on the agenda nor was there a ready solution. Clearly he was of the same view as the two members mentioned above, however. Perhaps this is something we can do differently, to involve more people and give a greater sense of unity.

The National Body has recently considered the possibility of video conferencing, but the lack of specific facilities in any of our localities was a killer. As far as I know, that was the extent of the research.

But surely that can't be the only option? I can pick up my iPhone, and chat to a room full of family members a couple of thousand kilometers away in Townsville and it costs me nothing. I could probably do Skype telephone conferencing with a few people in different locations too, if I had the time to figure out how. The point is, technology has moved on and I'd be amazed if there wasn't a way to connect to separate individuals, without having to physically sit in the same room as them.

So what we need is a willing volunteer. Someone who's got the time and/or the smarts to check out the options and come up with a suggested solution. I'm sure there's a Division somewhere who would then be prepared to try it out, and who knows – we might then have found a better way of doing stuff.

Anybody interested? ✈

Letters to the Editor

Dear Editor,

The 1st April will mark the centenary of the amalgamation of the Royal Flying Corps and the Royal Naval Air Service to form the Royal Air Force. No doubt there will be much written about this and the associated 'one Air Force' debate. But I thought your readers might be interested in a long-forgotten piece of trivia associated with this event, which can be found in the volumes of the official History of the Royal Air Force in the Great War. It concerns the naming of officers ranks in the new service.

To quote extracts from the official history at length:

"The air organisation committee had approved suggested titles, prepared by Sir David Henderson, mostly taken from the Navy or Army. The War Office, however, expressed the view that the new service should have distinctive titles of its own, and also drew attention to the point that, in the suggested list, naval titles were given to senior officers and military titles to junior officers, a subtlety of distinction which might cause some resentment. The Admiralty stated simply that the use of naval titles, especially those of the higher ranks, was objectionable, even if given a prefix such

as 'Air', and suggested that military titles should be used exclusively, or else other, suggestive of the air, fabricated. A new list of titles was manufactured as follows: Ensign, Lieutenant, Flight-Leader, Squadron-Leader, Reeve, Banneret, Fourth-Ardian, Third-Ardian, Second-Ardian, Ardian, Air Marshal...

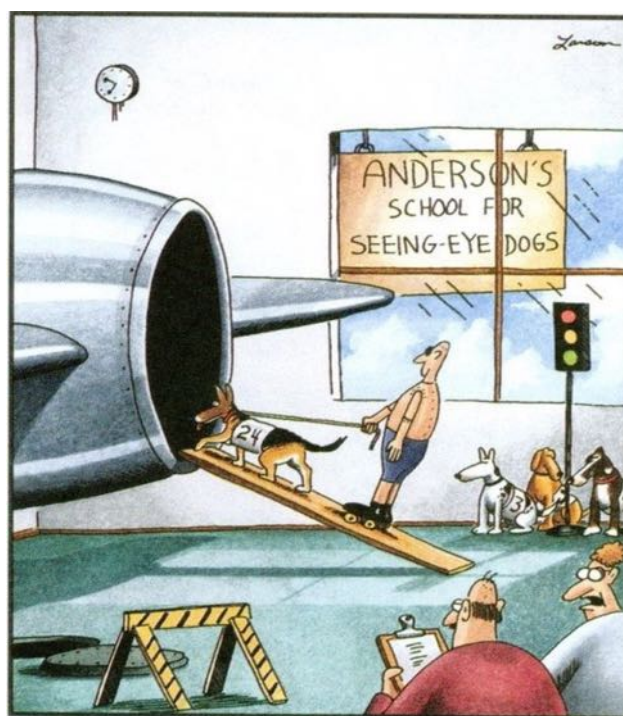
...Members of the service will read these titles with interest, the more so because the only two which are in use are Squadron Leader and Air Marshal. 'Reeve', perhaps, savoured a little too much of legal authority, but one may regret 'Banneret' which has a flavour and associations, more especially as the leader of a formation in the air went into battle flying a streamer which formed a rallying mark as did the banner of the knight for his vassals. 'Ardian' comes from the Gaelic "Ard" meaning 'chief' and 'lan' or 'Eun', a bird. The translation, perhaps, detracts from its dignity...

...No "Ardian" will ever grace a Lord Mayor's banquet, nor 'Banneret' pass on his way, evoking memories of another age because a much over-worked committee considered the proposed new titles as the last item on a long and tiring agenda, and they took the line of least resistance and decided to keep the list which they had approved at their previous meeting."

The agreed titles for Royal Air Force officers were adopted by the RAAF when it was formed in 1921, so the history has some application here. That said, I doubt that there was any enduring resentment over the subtlety of distinction associated with the current titles, nor any regret about not adopting the title of 'Banneret'. I suspect too that the Admiralty quickly dropped any objections it had to the use of naval titles in Air Force ranks.

Finally, as an aside, the Official History notes in passing that there is no reason why a unit of the air service should be called a 'Squadron', any more than a 'Company' or a 'Group' which were the original suggestions.

It is indeed difficult to imagine a Squadron being called anything else. But then I still think of Pluto as a planet and who would



"Well, scratch No. 24. He did pretty good, though—right up to the jet engine test."

have thought that we would need a new term to replace 'Observer' [now AvWO]. It leads me to wonder what rank titles we would come up with if we had to invent new ones. Given the comments and connotations of 'Banneret', perhaps 'Cyalume' might be a worthy term for future consideration.

George Sydney, Canberra ✈

Mystery Photo – No. 38



Mystery Photo No 38, which was kindly provided by **Phil Thompson**, asked readers the names of the three individuals in the photo and what they had in common.

We had a few folk respond. Most got the names of the two officers right, but were off the mark with the sailor on the left. There was also a consensus that it was something to do with A4 ejections, which was correct. **Vince Di Pietro's** answer was the closest, so he gets a gold star and the rest of the day off.

The individuals from right to left are ASLT **David Baddams**, LCDR **Clive Blennerhassett** and (perhaps) ABSE **Ralf Ralston**. I say perhaps because we've since been told that it could be Rick Newman, a SAR Diver who attended the ditchings. Perhaps if any readers can confirm one way or the other they could let the webmaster know. Both pilots ejected from their A4s either during or just after a catapult launch from HMAS Melbourne in October 1980, and ABSE Ralston was the bang seat boss in 805 Squadron who would have had a high degree of satisfaction that the ejection seats under his charge performed as advertised.

Our website page on David Baddams' ejection can be found [here](#). It includes a short article on the event by the pilot of the SAR helicopter and an even shorter video of the ejection. Details of Clive Blennerhassett's mishap can be seen [here](#), which includes a Touchdown article on the ejection. See page 6 for a new Mystery Photo. ✈

What was RATOG?

Without getting into the technicalities of it, Rocket Assisted Take-Off Gear was, as its name suggests, a rocket powered device fitted to accelerate the host aircraft quickly for short take-offs.

The concept goes back as far as the 1920s, when experiments to boost gliders were conducted in Germany. Both the Luftwaffe and the RAF then used fairly large solid-fuel rockets to launch planes (typically the Hawker Hurricane) off a ramp fitted on

armed merchant ships. It was not limited to Naval Aircraft, however, with a host of larger aircraft employing the technique. This even included (for a short period only), its use on the Comet I commercial jet liner, but its use was discontinued as the Rolls Royce Avons with which it was fitted were considered powerful to do the job. On carrier launched aircraft RATOG was spec-



JERVIS BAY AIRFIELD 1950
Armourers assembling and fitting RATOG equipment
All photographs this page courtesy AMoF



tacular but was unpopular with pilots because it required split second timing. **LEUT Barnett's** accident spelt the death-knoll for its continued use in the RAN, although the Royal Navy continued to utilise it for a while longer.

Readers may find the following RATOG story from Norman Lee of interest.

'I have a very vivid memory of RATOG, mainly because I have the dubious honour of having done the last Firefly RATOG from the deck of an aircraft carrier.

I was a newly joined member of 817 Squadron, having only recently completed the OFS in the UK. It was during the 1951 work up to go to Korea and it has been decided that with three squadrons onboard, it would be a sound idea to have a back up to the catapult should the latter become unserviceable. The fact that the Firefly wasn't cleared to jettison the RATOG motors after take-off didn't seem to have bothered anybody. However, I doubt that we would have been too keen to lug them around on armed recce sorties!



A reminder of the reunions coming up:

Vietnam Veteran's Reunion, Old Bar NSW

When: 17-21 August 2018

Where: Old Bar, NSW

Cost: Depends on the events you choose to attend.

Contact: John Macartney (02) 6557 4165

Open to all Vietnam Vets and their family and friends, and particularly 9 Squadron personnel. Full details can be found [here](#).

2018 General FAAA Reunion

When: Thursday 25 - Sunday 27 October 2018

Where: Nowra Locality

Cost: Depends on the events you choose to attend.

The big one! This reunion includes different events including an official 70th Anniversary Dinner. You need to register now, so click [here](#) to find out all the details. ✨

The briefing given to me for the big event was fairly basic; mainly, I believe, because nobody had any experience of RATOG from the deck, in fact I don't think anyone had done a RATOG from shore. I know I hadn't.

My aircraft was marshalled to just short of the island; the rest of the flight having already got airborne. I was briefed to hold the aircraft on the brakes and apply as much power as possible, and then, when I couldn't hold on any longer, to let the brakes off and to get full power on as quickly as possible, at the same time to literally stand on the left redner to prevent a swing to the right as I got the tail up.

There was a brave chap standing on the edge of the flight deck holding a large red flag to indicate the point at which the rocket motors were to be fired. The drill was to hit the RATOG button, which was sent in the end of the throttle, as you passed the flag. I did as briefed and to my relief all four motors fired, giving the old Firefly a hefty shove. We were off the deck in a trice, but I really had to pole forward to prevent the aircraft from pitching up due to the rapid increase in lift and resultant change in trim.

The motors all gave out at the same time and things returned to normal as I climbed away.

Unfortunately Bob Barnett in a Sea Fury, which was the next aircraft off, apparently torque-stalled when his motors cut out and he crashed into the sea. All this took place just off Jervis Bay. From memory, the Fury used six motors and the Firefly four, but I am unaware if there was a greater tendency for the Fury to pitch up. Those of us who had made a successful RATOG then flew to JB airfield, which was a matter of minutes

away, for the motors to be removed before we went back to the ship.

Being the most junior member of the Air Group, I was subsequently detailed off to be the officer of the Board of Inquiry, responsible for ushering in witnesses. Surprisingly I was not called to give evidence, even though I had taken off seconds before the crash.

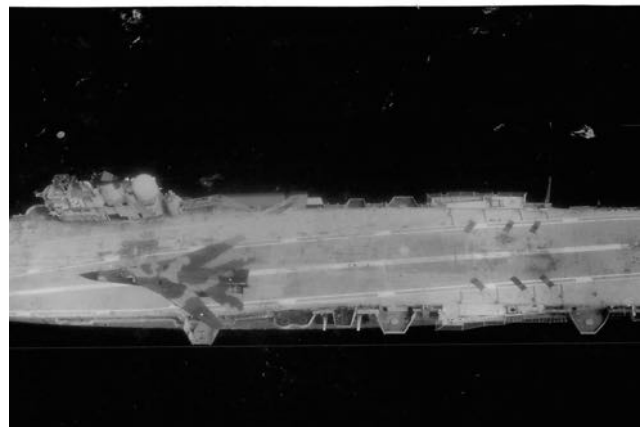
However, all these years later, what remains uppermost in my mind, apart from a very exciting takeoff, is that the Board was charged with inquiring only into the loss of one of His Majesty's (yes, George VI was still on the throne) aircraft and not the loss of the pilot!

I'm told that our Air Group Commander, Mike Fell, did a RATOG in a Sea Fury shortly after the crash to prove that it was safe, but I have no recollection of the event.

An order was subsequently issued that a RATOG from shore was a requirement before a pilot could make one from the deck. To my knowledge, that was the end of RATOG from RAN carriers, but they continued to be made from shore as part of air days as they were great crowd pleasers.'

Andrew Powell also remembered RATOG. When HMAS Sydney left Korea in January 1952 he was loaned to 812 Squadron and recalls his first RATOG launch was in a Fury with 2x500 lb bombs aboard. Like everyone who used the device there was a heartfelt prayer at that moment of pressing the button that all would work as advertised, which in his case it did – unlike his Squadron CO a little while later who pressed it to no avail. His Fury, which was by then committed to the take-off, still staggered into the air – just! The Brits continued to use RATOG long after we did. ✨

New Mystery Photo – No 39



Mystery Photo 39 was provided by **Ben Kelly**. It shows an aircraft overflying a ship. The four questions are: **what aircraft, which ship, when was it, and what was the occasion?** Answers to the webmaster [here](#) (quote MP 39 please). Note: you can see a larger image of this photo and/or look through all our previous Mystery Photos and their answers [here](#). ✨

Wall of Service Update

Our WoS administrator advises that Order No 37 (for names, see our last edition) has been received from the Foundry and the Plaques will be affixed to the Wall in March. Order No. 38 is now open with three applications so far. See website [here](#).

In Next Month's Edition:

KOREA

A short history of HMAS Sydney's deployment to the Korean War in 1951, and the stories of those who fought and maintained her aircraft.

Stop Press:

Ray Godfrey (aka Beachball) is asking if anybody has high definition photographs of the Company Board and/or of the two patches shown on this page. They are needed by the VHPA, who are looking to put material on the 135th EMU in their 2020 calendar.

If you can help, please email Beachball [here](#).



Korea War Service Medal Approved

And for our Korean Veterans, did you know that recent dispensation has been granted for eligible people to wear the Republic of Korea War Service Medal?

Read [here](#) for details.

STOP PRESS 2.

The Queensland Division of the FAAAA will be holding its Annual General Meeting on Saturday 10th March 2018. A sausage sizzle will follow the meeting and drinks will be available at good prices.

The Division desperately needs younger ex-FAA personnel and so the meeting is open to anybody who feels they can offer support, either by joining the Association and/or by offering their services on the committee in some capacity. There is no obligation so please come along and meet the team and enjoy the event.

Date/Time: Saturday 10th March 2018 @ 1000.

Place: Pine Rivers Naval Association Club Rooms.
3 Ogg Street, MURRUMBA DOWNS

“FlyBy” is a periodical of the Fleet Air Arm Association of Australia.

All contributions are welcome. Simply email the Editor, Marcus Peake, [here](#).