

Freedom is in the Air

A 13-ship formation aerobatic team made up primarily of home-built Van's RV aircraft will be stepping onto a big stage in August when they showcase their skills at the Pacific Airshow Gold Coast. **Tony Self** joined Freedom Formation at their second three-day training camp.



It was 1°C in Cowra at the 0700 start on a frosty Saturday morning in June. The first minibus was already full, with the windows starting to steam up. As the dashboard clock's second-hand reached the 12, Glenn in the driver's seat engaged Drive and the HiAce started its first run to the airport (via McDonalds to pick up breakfast, as little else was open in Cowra that early).

It's hard to coordinate a bunch of pilots, particularly early on this cold a morning, but the Freedom Formation team is not an ordinary bunch of pilots. And the minibus trip from the motel to the airport nicely illustrates why this team works: dedication, discipline, teamwork, professionalism, and a little dose of weird.

The 13 pilots had all managed to take a day or two off work so they

could get to Cowra, from Sydney and Brisbane, for the Friday to Sunday training camp. All 13.

A lot of organisations have put their weight behind the Freedom Formation; aviation is, of course, a community. Rob Mangan of SkyFuel was the first to back the group, with fuel sponsorship. FlyOz, the Cowra-based flying school, have given the team full access to their large meeting room, which is where briefing starts at 0730 precisely. It is 2°C outside now.

At the controls of the briefing is Jeremy Miller, Freedom One, the team leader and, there's no better word, choreographer. Miller starts by stressing that the team is not just the 13 in the air today. One of the most important members of the team, Trent Stewart, is the ground coach.

Stewart not only has eyes for safety, with the power to call

"knock it off" if he has concerns, but also will be critiquing the formation and aerobatic display sequence into a voice recorder for playback at the debrief.

Also in the room are other important ground-based team members, including Dominic Hubert and Lorenzo Harinan, who will be videoing and photographing for later analysis.

Briefing

The briefing is long and complex. Today will be the first time all 13 aircraft attempt the entire 13-minute routine together. The formation has four elements: Freedom, Acro, Solo Aero and Synchro. Miller runs through the start-up sequence, the taxi, and the run-up, noting that the cold has now been joined by fog.

There is dew on the grass, and

this will affect where run-ups take place. The take-off and join-up is stepped through in detail. The team listens attentively, taking notes, asking questions about specifics, methodically eliminating unknowns and uncertainties.

The briefing has been going for close to 30 minutes now. There will be a number of formation changes, as well as configuration changes: Balbo, Double Box, Diamond Nine, Eagle, and Leader's Benefit. This is very complex flying; lots of aircraft, transitions, formations of formations, aerobatics, and opposing passes.

There is discussion of gates and flight paths: Lima, Sierra and Romeo. Upper and lower boxes with safety separations between. The mention of the "primary display line" is a reminder that this is not just a formation practice, but an air display practice.



The Freedom Formation team rolls in from the right. The first practice run was virtually spot on.



TOP TO BOTTOM;

James Weightman in his RV-8 as Solo Aero overhead the remaining 12 aircraft.

Eddie Seve, one of the founders of the original Stooges, is Team Manager, and flies as Freedom 5.

The Freedom Formation Team after a successful first run-through of the complete display program.

For Miller, one of the few professional pilots in the room, the team has special personal significance.

"The most amazing part for me is that I trained every one of these pilots... their formation endorsement, or aero, or low level aero, or formation aeros," he said. "That's so special, and it feels so good when I'm out the front with the other 12 following, and I can see them in my cockpit mirrors."

Radio frequencies are next to be briefed. With 13 aircraft in the sky, radio traffic can easily get congested. Calls have to be short, such as "12 in", or "5 is visual", or "Acro pitch – go". Transponder settings, climb speeds, and rejoin speeds are next. Fuel requirements are covered, as well as use of smoke.

All aircraft have smoke systems, purpose of which is not just to make the display look good. For rejoins, smoke makes it easier to see other aircraft, and nothing is more critical than for the low-level opposing pass of the Synchro pair, where the two RVs have a closing speed of 320 kt.

The briefing is now up to the 50-minute mark, and the amount of information shared is bewildering to an outsider. There are still some lessons to be learned from the previous day's element practice. A new item in the checklist is to scan your neighbour's aircraft on start-up to make sure someone hasn't left their pitot cover on.

Freedom 12 points out he is running out of power on the outside of a particular turn, so a solution is devised to take advantage of parallax error, the optical illusion of the perceived shapes of the formation when viewed from the crowd line.

After an hour, the briefing is over, and now it's time for the walk-through. Similar to the "chicken dance" of aerobatic pilots, the walk-through is a rehearsal of the entire flight from start-up to shutdown, with team members walking through every step on the FlyOz apron. Pre-flight inspections follow on the chilly, damp grass.

Engine start was scheduled for

“Miller has designed the display so that spectators don’t know where to look”

0930, but the fog has thickened. It’s not till 1030, three hours after the start of briefing, that engines are started. In synch, as one.

Routine flight

The aircraft take off in pairs, eight seconds apart. The thumping noise of the radial engine of Miller’s YAK-55M is followed by the 11 following Lycoming-powered RV6 and RV7s. The last aircraft to take off is an RV-8 with the very different sound of a water-cooled 280-hp Subaru WRX car engine.

The next 13 minutes follows exactly the plan that was briefed. Looking at what is, in reality, an early practice for an event a few months away, it’s easy to forget that this team doesn’t do this for a

living. The team come from all walks of life: tradies, software developers, mechanics, retirees, builders ... even a retired airline captain. And while the team is amateur, not professional, in one sense they can only be described as a truly professional, disciplined, and focused outfit.

The display has lots of potential for danger, but the meticulous planning and practice reduces the risk. Nonetheless, there is a lot of trust and a lot of concentration required. As Miller points out, “it only takes a lapse of concentration even during taxiing to chew someone’s rudder off”.

Most of the team are based at Wedderburn in the Sydney basin. The team’s origin can be traced back to a group of friends flying formation as the Stooges in 2016.



ABOVE: Miller runs through one of the reversals; the routine is broken into numerous, carefully co-ordinated components.

LEFT: Comprehensive briefing notes make sure every pilot is on the same page.

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Eddie Seve, Mal Kains, Mark Newton and Glenn Bridgland were the kernels, and within a few years, the group were putting on formation displays at air shows. Miller, an immensely experienced instructor and air show performer, was more and more impressed with the Stooges, and transitioned from instructor to mentor. The more they were seen, the more they inspired other RV owners, particularly at Wedderburn.

The first formation experience for Martin Russell (Freedom 11) was when the Stooges were running up outside the hangar, and Seve signalled “jump in”. In fact, the Stooges were notorious for encouraging others to get their formation endorsements, and in 2022, the larger Freedom Formation team was born.

On show

In April 2023, the team were booked for the Pacific Airshow on the Gold Coast as a 13-ship

formation aerobatic display.

Miller has designed the display so that spectators “don’t know where to look”. Indeed, there is very little dead time between passes, as the large formation of 13 spawns a solo aerobatics display (James Weightman in an RV-8), Synchro pair (Kains and Newton), and Acro four (Bridgland, Seve, Pete Grogan and Kevin White). At some points there are three different displays happening on the same stage.

The display sequence in this first full practice is already very tight: in fact, if it looks at least as good in August at the Pacific Airshow Gold Coast, everyone will be very happy. Although not a deliberate choice as such, the fact that all aircraft (apart from the lead) are Van’s RV designs helps make the display spectacular.

For readers unfamiliar with the work of Richard Van Grunsven, this American designer has created an enormously successful series of kit aircraft, from the single-seat RV-3 of



1973 through to the RV-15 unveiled in 2022. The RV-6 is the most popular kit plane of all time, and is a two-seat, side-by-side aerobatic low wing. The RV-7 is an updated version with a slightly longer wingspan. Half of the Freedom Formation team built their own RV, with the others being purchased from other home builders.

The Sport Aircraft Association of Australia (SAAA) is a supporter of the team as it is a showcase of what homebuilt aircraft are capable of. The RV-6 and -7 typically have a Lycoming O-360 engine of 180 hp, and can cruise at over 170 kt, with load limits of +6 and -3 G.

The performance envelope of the Van’s aircraft makes it possible to maintain tight aerobatic formations, but the skill of the pilot is the far more important ingredient. The Freedom team practices in smaller groups almost every weekend, because skills take time

and repetition to hone to this level of performance.

It’s too difficult a task to describe the display in words, but the photographs in this article give a sense of what it will be like for the spectators on the Gold Coast in August.

The final mass pass ends with a pitch-and-break to expertly space all 13 aircraft for a stream landing. After the taxi back to the parking positions on the grass, all 13 engines shut down in unison. But the practice is not over by any stretch.

Debrief

Everyone in the team is now back in the briefing room. Harinan has the video cued, ready to go. Now, the dissection of the practice—what went right, what went wrong—commences. The analysis is thorough, with Stewart and Miller finding small defects to correct. Even the position of

Freedom Formation Team

Freedom 1	Jeremy Miller	VH-UOS	YAK-55M
Freedom 2	Gavin Nour	VH-XPW	RV-7A
Freedom 3	Ollie Geraghty	VH-NMG	RV-7A
Freedom 4	Brayden Rowley	VH-VII	RV-7
Freedom 5	Eddie Seve	VH-EWS	RV-7
Freedom 6	Kevin White	VH-LMK	RV-6A
Freedom 7	Don Harvie	VH-BSN	RV-6
Freedom 8	Mal Kains	VH-DWC	RV-6A
Freedom 9	Glenn Bridgland	VH-VNZ	RV-7
Freedom 10	Peter Grogan	VH-ZYU	RV-7A
Freedom 11	Martin Russell	VH-IMR	RV-7
Freedom 12	Mark Newton	VH-SOL	RV-6
Freedom 13	James Weightman	VH-ZZS	RV-8



the shadow that one aircraft casts onto another is used as a reference for minor changes. Miller is direct when an error is found, but with respectful good humour.

A truncated, eight-second timing gap is admonished with, "come on guys, you have to count with two hands, or at least one hand twice." The leaders in each element have a stopwatch in the cockpit ... it's that precise. Potential safety issues are discussed, with every person given the opportunity to air issues of safety.

In a quiet moment later, Peter Grogan says, "sometimes you have to pinch yourself ... we're just normal guys doing something we never would have dreamed of doing".

Gavin Dore is more philosophical about formation flying. "No matter what kind of day you've had, as soon as you get into the cockpit... it's like meditation".

Seve, who flies as Freedom 5, is Team Manager, and is probably most responsible for putting the team together. He

says he has "immense pride in the team and what they're doing", and knows that the endeavour is a big inspiration to others. He acknowledges that reality will set in "when we get to the Gold Coast and do the first practice over the water at Broadbeach".

There were a lot more practices scheduled for the weeks ahead; more briefings and de-briefing, more videos and more photographs.

All for 13 minutes of 13 aircraft in August. 📍

LEFT TO RIGHT:

Briefing over, it's time for the walk-through, where the entire routine is rehearsed on the ground.

Practice ensures spacing in the formation is consistent and accurate.

Jeremy Miller, on the wing on his Yak-55, shows his delight in the accuracy of the first full run-through.



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