



Western Suburbs Radio Club Inc.

August 2013 Newsletter

ZL1AC, Branch 03 NZART 3000 Great North Road New Lynn,
PO Box 15-122 New Lynn WAITAKERE 0640

President: Ian Sangster ZL1RCA, Vice President – Grant Manning ZL1GSM.

Secretary: Roy Milam ZL1WI. Newsletter Editor – John Neill ZL1NE

VHF Club Net Wednesday 07:30pm 146.525 MHz,

HF Club Net Fridays 07:30pm 3.650 MHz

Website <http://www.qsl.net/zl1ac>

Club Calendar

| | | | |
|-----------|------------------|-----------|--|
| Saturday | 24 th | August | Committee Meeting – 9:00am |
| Saturday | 24 th | August | Club Meeting 10:00am – Bring and Tell |
| Saturday | 28 th | September | Committee Meeting – 9:00am Working Bee |
| Saturday | 28 th | September | Club Meeting 10:00am – Working Bee |
| Saturday | 19 th | October | Committee Meeting – 9:00am |
| Saturday | 19 th | October | Club Meeting 10:00am – Subject to be confirmed |
| Saturday | 2 nd | November | Used Equipment Sale |
| Saturday | 23 rd | November | Committee Meeting – 8:00am Working Bee |
| Saturday | 23 rd | November | Club Meeting 9:00am – Working Bee at the Club – Proposal is to paint the outside of the Clubrooms. |
| Saturday | 30 th | November | Working Bee Rain Day |
| Wednesday | 18 th | December | End of Year Dinner at the New Lynn RSA |

August Meeting

The August meeting will be a show and tell. Bring a project that you are working on and give a few minutes talk on it. It doesn't need to be a radio project, just anything that may have interest to other club members. The data projector will be paying a visit too so bring a few photos or a PowerPoint presentation if you can to go with your talk.

July Meeting

At the July meeting we had a talk by Vaughan Henderson, ZL1TGC, president of NZART. Vaughan brought us up to date on NZART matters, the draft Auckland Unitary plan, and answered many questions. Thanks Vaughan for a very informative and useful talk.

Club Nets

VHF Net 146.525 MHz 7:30pm every Wednesday, HF Net 3650 KHz +/- QRM/QRN 7:30pm every Friday. All are welcome to check in on the nets.

The HF Net roster is opposite. The full HF Net roster can be found on:

<http://www.qsl.net/zl1ac/wsrc-hf-roster.pdf>

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|-----------|--------|-------|
| 23-Aug-13 | ZL1NE | John |
| 30-Aug-13 | ZL1RCA | Ian |
| 6-Sep-13 | ZL1MW | Brian |
| 13-Sep-13 | ZL2ATZ | Tony |
| 20-Sep-13 | ZL1WI | Roy |
| 27-Sep-13 | ZL1NE | John |
| 4-Oct-13 | ZL1RCA | Ian |
| 11-Oct-13 | ZL1MW | Brian |
| 18-Oct-13 | ZL2ATZ | Tony |
| 25-Oct-13 | ZL1WI | Roy |

AREC

ZL1NE attended the AREC Section Leaders meeting at North Shore Branch Clubrooms. Reports were received from all branches present. The Memorandum of Understanding which is being developed was discussed amongst the group but no decisions were made. There is a need for Sections to identify on-going costs related to services provided and equipment maintained for AREC and Civil Defence purposes. We continue with the weekly checks of the Civil Defence radios at Elcoat Avenue, however this may not continue for too much longer. Civil Defence is evaluating their needs and it may be that the Elcoat Avenue facility is decommissioned. Coming up in February is an AREX/SAREX training exercise

NASA Researchers Work to Turn Blue Skies Green

Air travellers of the future could have quieter, greener and more fuel-efficient airliners because of NASA research efforts that are moving into further development and testing.

The Environmentally Responsible Aviation Project, which is part of the NASA Aeronautics Research Mission Directorate's Integrated Systems Research Program, was created in 2009 to explore aircraft concepts and technologies that will reduce the impact of aviation on the environment over the next 30 years.

During the first phase of ERA, engineers assessed dozens of broad areas of environmentally friendly aircraft technologies and then matured the most promising ones to the point that they can be tested together in a real world environment. Those experiments included non-stick coatings for low-drag wing designs, laboratory testing of a new composite manufacturing technique, advanced engine testing, and test flights of a remotely piloted hybrid wing body prototype.

"With the start of phase two, we will be able to take what we've learned and move from the laboratory to more flight and ground technology tests," said Fay Collier, ERA project manager based at NASA's Langley Research Center in Hampton, Va. "We have made a lot of progress in our research toward very quiet aircraft with low carbon footprints. But the real challenge is to integrate ideas and pieces together to make an even larger improvement. Our next steps will help us work towards that goal."

NASA has chosen eight, large-scale integrated technology demonstrations to advance ERA research. The demonstrations are designed to further the project's goals of simultaneous reduction in the amount of fuel used, the level of noise and the emissions produced by tomorrow's commercial transport planes.

Researchers will focus on five areas: aircraft drag reduction through innovative flow control concepts; weight reduction from advanced composite materials; fuel and noise reduction from advanced engines; emissions reductions from improved engine combustors; and fuel consumption and community noise reduction through innovative airframe and engine integration designs.

The integrated technology demonstrations, which build on work done during the first two years of NASA's ERA project, include:

- 1 Active Flow Control Enhanced Vertical Tail Flight Experiment: Tests of technology that can manipulate, on demand, the air that flows over a full-scale commercial aircraft tail.
- 2 Damage Arresting Composite Demonstration: Assessment of a low-weight, damage-tolerant, stitched composite structural concept, resulting in a 25 percent reduction in weight over state-of-the-art aircraft composite applications.
- 3 Adaptive Compliant Trailing Edge Flight Experiment: Demonstration of a non-rigid wing flap to establish its airworthiness in the flight environment.
- 4 Highly Loaded Front Block Compressor Demonstration: Tests to show Ultra High Bypass (UHB) or advanced turbofan efficiency improvements of a two-stage, transonic high-pressure engine compressor.
- 5 2nd Generation UHB Ratio Propulsor Integration: Continued development of a geared turbofan engine to help reduce fuel consumption and noise.
- 6 Low Nitrogen Oxide Fuel Flexible Engine Combustor Integration: Demonstration of a full ring-shaped engine combustor that produces very low emissions.
- 7 Flap and Landing Gear Noise Reduction Flight Experiment: Analysis, wind tunnel and flight tests to design quieter flaps and landing gear without performance or weight penalties.
- 8 UHB Engine Integration for a Hybrid Wing Body: Verification of power plant and airframe integration concepts that will allow fuel consumption reductions in excess of 50 percent while reducing noise on the ground.

Key to ERA research is industry partnerships. Each of the demonstrations will include selected industry partners, many of which will contribute their own funding. "We are excited that ERA's research portfolio provides a healthy balance of industry and government partnerships working collaboratively to mature key technologies addressing ERA's aggressive fuel burn, noise and emission reductions goals for tomorrow's transport aircraft," said Ed Waggoner, Integrated Systems Research Program director.

The technology demonstrations are expected to begin next year and continue through 2015.

The ERA project is one of many NASA Aeronautics Research Mission Directorate programs and projects working to develop technologies to make aircraft safer, faster and more efficient, and to help transform the national air transportation system. That research is being conducted at NASA Langley, NASA's Ames Research Center at Moffett Field, Calif., NASA's Dryden Flight Research Center at Edwards Air Force Base, Calif., and NASA's Glenn Research Center in Cleveland.

Kathy Barnstorff
NASA Langley Research Center

**NASA Tests Radio for Unmanned Aircraft Operations
June 14, 2013**



NASA's S-3 Viking research aircraft at NASA's Glenn Research Center in Cleveland.
Image Credit:
NASA / Michelle M. Murphy



The prototype radio, built under a cooperative agreement between NASA and Rockwell Collins, sits in its test rack in the rear section of the S-3 Viking.
Image Credit:
NASA / Jim Griner



A NASA engineer standing on the trailer assists with raising the communications tower that transmits to the NASA research aircraft.
Image Credit:
NASA / Michelle M. Murphy



NASA researcher Jim Griner coordinates the testing from his seat behind the cockpit of the S-3 Viking.
Image Credit:
NASA / Steve Walker

NASA's communications experts have begun flight testing a prototype radio as part of the agency's contributions toward fully integrating civil and commercial Unmanned Aircraft Systems (UAS) into the National Airspace System (NAS).

This particular radio is one of the first steps to provide the critical communications link for UAS pilots on the ground to safely and securely operate their remotely piloted vehicles in flight even though they are many miles – if not continents or oceans – apart.

"So far the tests are going well and we're learning a lot about how this prototype radio operates under various conditions, but we still have much more testing to do on this radio and others that will come," said Jim Griner, a project engineer at NASA's Glenn Research Center in Cleveland.

Currently there is not a great deal of freedom for civilian uses of UAS over our nation's skies. Police and fire fighters, for example, must use off-the-shelf systems and fly under special Federal Aviation Administration (FAA) approvals that restrict where and when remotely piloted vehicles can fly.

"There are some pretty good limitations on those operations, but the work we're doing to develop a new command and control radio for the UAS to use will help go beyond that," Griner said.

Built under a cooperative agreement between NASA and Rockwell Collins in Iowa, the current prototype radio is a platform to test operations at certain frequencies with specific radio waveforms that are unique to its particular task – in this case command and control of a remotely piloted vehicle.

Once testing concludes on the initial prototype, lessons learned will be applied to a second generation test radio, which is now scheduled to be delivered to NASA in September. Additional testing will follow, after which a final prototype design is to be delivered and tested in the 2015-2016 timeframe.

Ultimately the FAA will define the final requirements that will lead to certification of a UAS command and control radio for use in the NAS, but by building and testing prototype units now NASA is helping move the process along.

"Usually the requirements are defined first and then we try to build equipment based on those requirements. This short-circuits a number of years off the traditional process," Griner said.

The prototype radio was delivered to NASA Glenn on Feb. 28 and successfully put through its paces on a laboratory test bench. Flight tests in a NASA S-3 Viking twin-engine jet began in May and are expected to continue in June.

Tests of the prototype radio were preceded by a number of flights of the S-3 in which NASA researchers sought to characterize the way radio frequencies behave at the specific bandwidths assigned to civil UAS operations – something that had not been done before.

The way radio waves move through the air can be affected by a number of different things, including whether the ground is covered with leafy trees or snow and ice. Mountains, oceans, weather conditions, urban sprawl, skyscrapers and more can cause a change in a radio signal, for a good or bad.

These channel characterization flights began last December with the S-3 flying over areas of Ohio and Pennsylvania while a specially outfitted trailer with a 60-foot deployable antenna mast transmitted signals from the ground below.

With the prototype radio now in hand, the channel characterization and prototype radio tests will overlap a bit as there are plans for a visit to California this month to record data over coastal feature areas that include the ocean, mountains and desert.

NASA's UAS in the NAS Project is part of the Aeronautics Research Mission Directorate's Integrated Systems Research Program.

Jim Banke

NASA Aeronautics Research Mission Directorate

WESTERN SUBURBS RADIO CLUB: BRANCH 03

P.O BOX 15-122 NEW LYNN 0604 AUCKLAND

Branch03@nzart.org

To past sellers and buyers at our previous equipment sale, just a reminder of this year's sale. An invitation to all to our very entertaining and social function.

EQUIPMENT SALE

SATURDAY 2nd November 2013

At the ROSEBANK ROAD PRIMARY SCHOOL HALL
217 ROSEBANK ROAD, AVONDALE
(THE SAME PLACE AS PREVIOUS YEARS)

It's a lovely big hall and there is plenty of parking.

TABLES ARE \$10.00 each PRE PAID BEFORE SALE DATE
Or \$15.00 each ON THE DAY OF SALE
SELLERS: 0800HRS BUYERS: AT 0900HRS

NB: ONLY SELLERS IN HALL BEFORE 0900HRS

TABLE BOOKINGS - Please contact

ROY, ZL1WI (09) 814 9550

JOHN, ZL1JT (09) 827 3538 jbt.greenbay@xtra.co.nz

**Cheques to reach PO box 15,122 or 29 Cliff View Drive on or before
Friday 1st November 2013.**

NOTE: All unsold equipment must be removed by vendor at close of sale.
Come and discover in person some of the new or changed call sign holders.

Entry fee to sale of \$2.00 payable by all visitors.

SALE CLOSSES AT MIDDAY

Cafeteria with hot sausages, biscuits, tea or coffee available on site, tables and chairs available to sit down and have a rag chew.

Even if you are not buying or selling come along for the fun and meet fellow electronic enthusiasts.

All N.Z.A.R.T branches, private and commercial vendors are more than welcome.

Sellers Note: There are limited power outlets available, so please bring your own power boards and leads if required.

NOTE: to assist buyers a 12 volt 30 amp power supply with power meter and dummy load will be available on site to test any prospective transmitter purchase.