



# Royal Australian Electrical and Mechanical Engineers



RAEME

# CRAFTSMAN

Edition 72 2021

*Serving the Nation*

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### DEADLINE

1 October 2022

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## ARTWORK

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The Royal Australian Electrical and Mechanical Engineers (RAEME) is a technical corps tasked with the maintenance of the Army's modern hardware and equipment.

RAEME personnel are represented in most Army units, with the representation varying in size from one or two tradespersons, to small groups of 20 to 30 tradespersons, to large maintenance units with over 150 personnel and a totally integrated military and civilian workforce.

## The Royal Australian Electrical and Mechanical Engineers motto is:

*Arte et Marte',*

(Latin for)

'With Skill and Fighting'.



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## HEADS OF CORPS

### Message From Head of Corps - RAEME

#### Brigadier James Allen

G'day Spanners,

2022 is already proving a busy year for the Army, with RAEME doing its fair share of heavy lifting in the numerous activities and operations. Similarly, 2022 will continue with last year's theme of significant changes and modernisation. I see these changes as overwhelmingly positive. They will prepare our Army and Defence Force for the future and as a Corps we must embrace these changes and ready ourselves.



To prepare for this changing environment we must be informed by the past but not anchored by it. As a Corps we need to be adaptive and evolve. We need to be purposeful, bold and creative. We need to be aligned, and part of the wider Australian Defence Force and national approach. We must be part of an Army in Motion, to do so we must be a Corps that balances and transitions between the present and future in individuals, teams, support concepts and the way we conduct equipment maintenance. This is the mantra of the Chief of Army and it should resonate with us all.

I want to just tease out a little more about what I think Future ready means for us as Corps. It means we will need to be more joint and integrated, more ready and able to upscale as well as change form in response to the strategic context. The 55 billion dollar investment in land capabilities has been triggered by Government and we are well into the delivery stages with RAEME at the centre of acquisitions, trials, introduction into service activities and employment of the new equipment. These capabilities include larger and more capable watercraft, short range air defence and long range fires, Apache helicopters, armoured fighting vehicles, soldier systems and an increasing array of robotic and autonomous systems. Our approach to acquiring new capabilities must ensure that each one contributes to a more connected, protected, lethal, and enabled land force. Capabilities which as part of a bigger system, and underpinned by Australian industry, will enable us to generate land power as a critical and enduring element of military power.

Australia, and with it the unique support provided by all RAEME members, has transitioned out of our longest involvement in a war in our nation's history. Yet now more than ever we face an uncertain future with recent developments within our immediate region and the clear instability currently unfolding in Europe. There has been no greater need to continue ensuring that we provide the essential RAEME support to assure Australia's military capability, but we must also expertly and efficiently acclimatise to our new and emerging capabilities at the same time. On a more sombre note, I have been liaising with my UK counterpart regarding REME's intentions for the replacement of HRH Prince Philip, Duke of Edinburgh with a new Commander in Chief. I have also been in touch with Army HQ about the matter and seeking guidance from the Chief of Army. We have not formed a view as yet, but it is one of my priorities going into 2022.

*Arte et marte*



## Message From Deputy Head of Corps – Air

### LTCOL Trent Groves

Hello to all a part of this great Corps. As we progress toward COVID normal I promise that is the last mention of the pandemic in this article, and I'll start by saying two words that aren't border closure: brevity.

I cannot recall when it has not been exciting to be a part of our Corps, but also I cannot remember when that sentiment may have been truer than right now. Consequently, there are a lot of worthy achievements/activities by those in our Corps that deserve acknowledgement. However, I intend to leave them to be explored by the articles in the later pages. Instead I want to be brief, and confine this article to one topic: providing you a quick update/intro to the Specialist Service Soldier Trial (The Trial), and specifically the RAEME Specialist; a moniker that may become as synonymous with RAEME as 'Craftie'.



Figure 1: Specialist Insignia

We all know that Army must be designed for change and prepared for uncertain and demanding environments. Those supporting Army Aviation will know that the introduction of the Defence Aviation Safety Regulations, a national level shortage of STEM educated school leavers, TAFE certified tradespeople and university graduates, and the impending arrival of the AH-64E and the Special Operation Light Utility Helicopter have created a new and demanding support environment. This new environment has required re-evaluation, and in most cases, change of, old practices to ensure we are future ready. At the heart of any change is always people, and RAEME Aviation have sought to leverage The Trial in order to capitalise on our people's tremendous skillsets – specifically those of us with 'The Knack'.

While our peers across Army may argue that all of us in RAEME have 'The Knack', and that we are all specialists, we know that a significant part of our time is actually occupied with the generalist skills common to all of us in Army. The Trial seeks to reduce the time our members may be employed on these generalist tasks, and instead primarily employ our tradespeople for their technical expertise.

The Trial started in April 2020 with W10 volunteers who were current serving aviation



maintainers; five avionics technicians and five aircraft technicians. These participants were provided with training in their opposite trade, as well as advanced courses to be able to build a deeper understanding of their trade and aircraft. In return, these Specialists are offered location stability with a posting exemption and a career path to advance their technical skills by relieving them from command, lead and manage roles. In 2021 a further five aircraft technicians were brought into The Trial, with potentially another five in 2022. In the future it is envisaged that up to 10% of the maintenance workforce may become Specialists. This will adapt our workforce and provide Army with the specialist knowledge and expertise we need to ensure we can maintain increasingly complex warfighting platforms.



The Knack. Curable?

The Trial has been given CASAC approval out to 2024, and should it ultimately be successful we can expect to see the Specialist concept roll out to other areas within RAEME, and Army.

Finally, although I promised to be brief I want to leave you with a quote I'm fond of using in the halls of the RAEME Aircraft Maintenance School. It comes from the late 20th Century American storyteller W.E. Houston and it reads such:

I believe Craftsmen are our future, teach them well and let them lead the way.

Although I know that not all of you are engaged in formally training our future workforce, I think if we keep this quote front of mind we will not only ensure initiatives such as the Specialist Trial will be successful, but we will ensure RAEME will continue to be exciting place to serve. And perhaps more importantly we will be able to continue to assure Army that we will keep the punch in Army's fist.

Good soldiering

**Arte et Marte**

## Message From Corps RSM / RSM ASEME

### WO1 Scott Collard

It is with some amazement that I introduce myself as the Corps RSM. Apprentice Collard never thought in a million years that he would ever make LCPL, let alone end up where I am now. Firstly, I would like to thank WO1 Colefax for his dedication and hard work over the last three years. He has left the Corps in a good position.

2021 has been a difficult year. COVID has made everyone's life particularly difficult, especially with postings and interstate movements. 2021 has also brought some tragic events for the Corps, with the deaths of WO2 Ryan Leslie, CFN Brendon Payne, CFN Lachlan Clulow, SGT Steven Davidson and MAJ Stephen Bird. This will have a lasting impact on many members both past and present. RAEME will endeavour to continue to engage with their families so that they know and understand they are always part of the Corps and Army family. I offer my congratulation to the 2021 Corps Award recipients. The hard work and commitment of our tradespeople should always be recognised. Their efforts have brought credit upon themselves, their units and the Corps.

During my engagements with RAEME soldiers throughout the year, I fielded many questions from you relating to the numerous changes occurring across Army. There will be varying levels of understanding at the moment for things like Future Ready Training Systems and the Technical Workforce Review. Keep asking questions, please stay engaged, and don't be a passenger with all the changes that are occurring. We need to modernise, again, and be ready. Having now had the opportunity to "peek behind the strategic curtain", there is a lot of good work going on within higher headquarters to effect change. It will take time for our Corps to realise the benefits of some of these changes, but rest assured the work and analysis is being done to ensure we get it right. Some of you will have been engaged to get your thoughts and ideas on how we can get even better. We will continue to engage NCOs from across the Corps, from all trades, as we further progress new trade models. We will continue to do this – you are the future leaders of the Corps and your input is critical.

I would also like to pass on my thanks to 2 RAR Workshop for organising the Corps Port for 2021. WO2 Brad Everson and his team have done a mountain of work to make this happen.

I would also like to thank WO1 Reinhold Dekrell. A lot of you don't know him, but the work he does behind the scenes is phenomenal. He collates and makes up all the awards and presentations that are given out during the course of the year, as well as running the Corps finances. WO1 Dekrell is retiring after 47 years of service. Without him, the HOC Cell will be running at a greatly diminished capacity. I am looking for any SERCAT 3 or 5 members who would be interested in assisting in the HOC Cell in 2022 and beyond. If anyone would like some more information, please email me directly at [scott.collard@defence.gov.au](mailto:scott.collard@defence.gov.au). As 2021 closes, take some time to rest and recharge, ready for what 2022 will bring.

**ARTE ET MARTE**



## Master Artificer – ECN 146

### WO1 Michael Waters

As we see the end of another busy year in which it has been filled with; courses, war fighter exercises and support to overseas and domestic operations, we look back in the rear vision mirror of 2021 and once again say "Did that just actually happen?" Once again we come to realise our two critical resources; time and people are stretched thin and are reminded of the need to continually go back to the basics of prioritising, planning and scheduling to keep on top of it all. We certainly don't have the time to go back over old ground and if it does go wrong the consequences of burnout can be catastrophic. But I thank every one of you for continually backing it up day after day.

As the Technical Workforce Review enters into its next phase shortly, we will see minor changes being introduced into the current training at the ITT level. Also during these phases, we will see the application for the creation of the ECN 222 Marine Technician. Once this trade has been endorsed, transition is expected to be managed over a period of time but those employed in the marine environment or wishing to be employed, should be offered an EOI. You will be required to choose which path you want to follow for continued employment within Army. More information regarding this will be promulgated from the project once the trade is created. We currently have a decent intake of abinitio soldiers coming through however the trade will be impacted when members migrate to ECN 222. This transformation will impact the trade significantly, across all ranks, but primarily at the rank of CFN/CPL so a loss of all that experience will take time for ECN 146 to recover from. But as always due to the people within the trade, we will accept the challenge, regroup take what opportunities we can and move forward.

As the Army is optimised through the Army Objective Force (AOF), it represents the next steps in the future design of the Army in support of the Joint Force. There are terms that you need to have a better understanding of, as they will greatly impact not only our trade but RAEME as a whole; Land Force Forward Staging, Land Force Support System, Fires Brigade and Littoral Manoeuvre. I suggest that you become familiar and understand what the AOF will bring. As we see the introduction of new and emerging technologies, we must be ever mindful that, as an organisation, need to be more agile and adaptive to meet these challenges. With that there is the need to continually explore more efficient ways of doing our job and pushing the boundaries. If you are in a position of influence, I encourage you to mentor members of our trade and to allow opportunities for them to build on their base trade skills in order to pursue professional technical mastery.

In closing, during the upcoming holiday period take the opportunity to refresh/rewind and appreciate the ones important to you. The Corps has been hit hard with the loss of some great people this year, and I ask that you take the time to pause and remember the ones sadly lost. If you are one of the many members that will separate from Army this year to take on new challenges, good luck to you in your future endeavours and thank you for your service. For those who are passionate about our trade, are willing to provide input and assist in influencing the future endeavours of our trade, please feel free to contact me directly at [michael.waters@defence.gov.au](mailto:michael.waters@defence.gov.au) to discuss.



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## Master Artificer – ECN 226

### WO1 Peter Marron

G'Day fellow Recovery Mech's. 2021, is about to close out, but it has not been without some highlights, and a deeply saddening event that shook the entire Trade.

I would like to extend my deepest of sympathies to the families of our lost "Brothers in Arms", Warrant Officer Class Two Ryan Leslie, and Craftsman Brendon Payne.

You have departed, but you will never be forgotten!

There has been significant steps within the procurement space to sort a COTS fit for purpose Steel wire Rope(SWR) lubrication applicator, that will meet the requirement to lubricate into the strands and core of the SWR's that pertain to the 24mm and 16mm SWR's (45M & 42M).

In the last quarter of 2021, Recovery Platoon (the school of recovery), CATW, ASEME hosted a VIPER lubricator demonstration by Lubrication Engineering, to determine the suitability/usability and effectiveness of the applicator. I have requested through CA16, that two applicator kits be procured for a user trial at the school. If the trial is successful, the intent is to codify the applicator kit and have it managed in Block Scale as ST&TE. Further work has been conducted to source an Australian supplier of an OEM compliant low cost lubrication, which meets the specifics of the SWR, and will also work with the Applicator.

I would like to personally thank the school of recovery more specifically WO2 O'Brien for short listing the applicator and arranging the time to host the demonstration.

The 2022 posting cycle will see a bolster to NCO/SNCO and WO ranks as members move around units, and commence additional leadership responsibilities.

The Career Advisers are anticipating the following promotions for CMC22:

- WO2 – 3
- SGT – 4
- CPL – 15

I congratulate you all on your promotions and the trade looks forward to you applying yourselves within your new roles.

The RAEME trades will go to Defence Force Remuneration Tribunal (DFRT) in Q3 2022. If DFRT approves the requested changes, there will be a name change to Technicians for all trades. Further changes will also see WO2's of all trades, on promotion (including Recovery) be titled as ECN 013 Art Land. ECN 226 Recovery Technicians will be considered for potential growth and opening up of other position around Australia to support the future Land Force Structure out to 2030. The Technical Workforce Structure Review are currently working on multiple courses of action to fill the extra manning requirements in support of future projects like L8160 Under Armour Bridging and Breaching for engineers and Land 8116 Self Propelled Artillery. The predicted extra



manning requirements may see additional recovery technician's positions filtering back into Artillery Regiments and Engineer Regiments.

WO1 Ken Roberts has been quietly toiling away on producing a history snap shot of the Australian Recovery Mechanic. Robbo has been establishing contact with all past and present WO1 RM's' to get their Biography's, and collate the history of the ECN 226 trade in the Australian Army.

There have only been 17 Recovery Mechanics attain the rank of WO1 in trade as either Senior Instructor or Senior Technical Advisor. As you can well imagine some have fading memories, and material is becoming increasingly hard to gather. The intent will be to publish this material in the Army newspaper with a short version and Honour Roll. A more detailed article is planned in a future edition of the Craftsman magazine, as a centre spread. Watch this space.

Army Knowledge Centre (AKC) has requested the CO ASEME's endorsement to proceed with the Rewrite of the LWP CSS 4-2-1 Recovery Mechanics Handbook. If and when the approval to proceed occurs, AKC will contact the nominated representative from recovery, to commence work. The update would likely commence in the first quarter of 2022. Each and every member of the trade should look to have an input into our bible.

In conclusion, we survived another year under testing conditions and came through the other side with newly adapted skillsets. Looking forward to what the trade can do with 2022 as we progress our mighty trade. Continue to develop yourselves and the trade as you actively mentor your subordinates and peers to further build trade skills and professional mastery of the Recovery trade to Army and the wider Australian Defence Force.

### **ARTE et MARTE**

"Twist to Open"

## Master Artificer – ECN 229

### WO1 James (Jim) Grant

Fellow Vehicle Mechanics, I can't believe that it has been a year since the Master Artificers last had input into the CFN Magazine. Last year I started by saying we had come to the end of an unprecedented year well guess what.....

What has happened this year and what is the nearest crocodile to the boat? The Technical Workforce Review is ongoing and will lead to increased skills and responsibilities for the vehicle mechanic such as Power Generation systems maintenance, Hybrid engine maintenance and Complex Automotive Electrical maintenance.

New equipment will be introduced in due course such as a Self-Propelled Gun and a new water transport platform to name just two, so we are certainly continuing to evolve. The Technical Workforce Review is available on the DRN and I encourage you to have a look at the presentations available.

The Enterprise Resource Planning Program (ERP) will be rolled out towards the end of next year, initially as a trial in South Australia and then across the rest of Army and Defence. This should be a more intuitive system which will make our job easier with regard to data input and maintenance planning.

ERP and planning is a great nexus into an area I am keen to highlight. In my current role as a Team Leader within ACAU I have the pleasure of conducting Land Materiel Maintenance Audits of units across FORCOMD. During these audits it is evident that RAEME is still not very good at planning maintenance.

We cannot provide 100% equipment availability to commanders 100% of the time and that should not be our goal. In consultation with Brigade and unit OPS, we need to understand what equipment is required, when and where it is required and plan to provide that capability. As mentioned above ERP will be rolled out towards the end of next year although the maintenance planning mechanism is not yet set in stone.

EMEOPS remains the hub within the workshop that plans production and planners should have a full understanding of work planner and work order management.

An understanding of current planning mechanisms will make conversion to SAP much easier and will get us to that point in a good state.

WO1 Cliffe recently provided invaluable work planner training to personnel from 5 AVN, SOLS and personnel from ACAU south company and he has provided a short brief regarding planning below.

What is Production Planning? Production planning is the understanding of outstanding maintenance liability and the forecasting of future maintenance in order to plan and assign resources (parts, facilities and labour) to achieve efficiency and the required capability.



Benefit of Production Planning. The benefits of production planning are:

- efficient and effective use of resources.
- ability to understand liability and make judgements based on known facts.
- unit capability.
- Proactive and reactive approach to identify issues, opportunities and risk.

**Consequence of Failure to Production Plan.** The consequence of failing to plan are:

- failure to effectively and efficiently use available resources resulting in over/under commitment of available resources.
- delays in production.
- failure to provide capability.
- And ultimately, risk and mission failure.

**Production Planning Tools.** Pre MILIS the production planning tools within the production program were essentially non-existent. With MILIS came "Work Planner" which provided an efficient capability to:

- forecast the maintenance liability.
- forecast available resources.
- compare the two.

This enables an efficient means to plan maintenance periods and when not to, depending on unit tempo and equipment requirements. A standard set of production reports also became available to provide visibility of production data and records.

**What is the State of Production Planning in Army?** The state of production planning within Army varies but is generally poor. This is due to a number of factors including:

- training.
- conflicting roles/priorities for workshop staff.
- lack of experience and knowledge at all levels.

A major contributor to Defence's poor application of MILIS Work Planner was the initial failure to recognise the capability of the tool and adjust the "way of doing business" at MILIS go live. Unfortunately the benefits of the tool have been to a large extent lost due to the points raised above; however, the new generation of maintainers have been better trained and are more open to and accepting of the tool and the concepts.

**What are the Difficulties in Performing Effective Production Planning in Army?** Other than the issues previously identified, the largest single deterrent to conducting production planning is the lack of dedicated application of labour resources both to planning and production. Due to the multi roles and requirements for Army staff, often the time available for workshop functioning is the last consideration and the first to be lost. Effective production and planning requires dedicated staff.

**What is the Future?** From a tools perspective there is a like capability in the MILIS replacement program. The success of production planning will greatly depend on the initial concept of planning and the training of such. Army maintenance staff will always be subject to multi roles and conflicting priorities and the initial concept of operations will greatly affect the success of production planning into the future.

Work planner is not a dark art and training assistance is available should units require it. ACAU can provide an Advice and Assist service to enhance EMEOPS performance within units and WO1 Russ Cliffe is also available to pass on his knowledge.

Ending on a high, as you should all be aware a body of work has been happening over the last 12-18 months to 'build' an Artificial Intelligence search engine (CogAID) for the purpose of simplifying the seeking of information from our EMEI suite. It works well on the standard desktop DRN (Microsoft Edge is best) but has been specifically designed to work on the MMD's.

The following vehicle fleets are available:

- BUSHMASTER PMV
- MHC
- PMV-L (Hawkei)
- TANK (part thereof)
- ASLAV

**Arte et Marte**

## Master Artificer – ECN 235

### WO1 Keith Brown

The year so far (just another year of COVID) and while I am currently posted to ASEME my main role as ASM Armament and Construction Wing. The year has continued as normal (COVID normal) as the training conducted at Latchford barracks for all trainees in the Wing is essential to Defence's maintenance capability.

With the future Ready training introduction and the name change to ECN 235 from Metalsmith to Material Technician, there is possibly a need to explain what changes are coming so that the Metalsmith can understand the upcoming changes to the trade and how those changes will affect them.

Currently qualified entry for the Material Technician is the same as for the Metalsmith, but there is an option to start training for non-qualified entry as per the other RAEME technical trades. The trade will still be to a CERT III level, but parts of the trade will be delivered either in units or by a local training solution.

The employment category structure will change once approved to what is listed in the below table.



Serial	ECN	Name	Rank	Pay Group
1	235-0	Material Technician Trainee	CFN	Trainee
2	235-1	Material Technician Grade 1	CFN	PG 3
3	235-2	Material Technician Grade 2	CFN	PG 3
4	235-3	Material Technician Grade 3	CFN - LCPL	PG 4
5	235-4	Material Technician Grade 4	CFN - LCPL	PG 5
6	235-31	Material Technician Advanced Grade 1	CFN - CPL	PG 4
7	235-41	Material Technician Advanced Grade 2	CFN - CPL	PG 5
8	235-32	Material Technician Supervisor Grade 1	CPL - SGT	PG 4
9	235-42	Material Technician Supervisor Grade 2	CPL - SGT	PG 5
10	235-33	Material Technician Manager Grade 1	SGT	PG 5
11	235-43	Material Technician Manager Grade 2	SGT	PG 6

The Material Technician will still conduct specialist welding but will also have additional skills that will be linked to either unit requirements or to future FORGEN training. These will include complex lathe and mill operations, basic engineer drawings, Computer aided design and leading to additive manufacturing. Further details will be provided by the Employment Category Manager along with RAEME career managers.

So back to the Master Artificer Stuff and all things welding (the important stuff) that I provide advice for on behalf of the HOC RAEME.

As part of my roll I responded to a request from the PMO due to a RODUM being raised on cracking of the ASLAV F Spades in the welds (crack shown below). While there is a qualified procedure written by the manufacturer, the lack of availability of the recommended filler wire alloy 4145 in Australia required the substitution of alloy 4043 welding wire. The issue with the spades is that the components are made from both 6061 and 2024 series aluminium.

The main alloying element copper combined with a small amount of magnesium in the 2024 series makes the material prone to grain boundary segregation leading to cracking in the welded material. Alloy 4145 is the recommended wire for this type of repair, but due to time constraints we could only source the 4043 welding wire which has a slightly different alloy composition. This meant that the weld procedure had to be tested IAW Australian Standards and qualified due to the change of the filler wire.

This work was done at ACW supervised by SGT Ray Perry (the trade WO Metalsmith) with the welds completed by CFN Luke Fahy while he was on the Special Alloy Armour Maintenance course. All the welds were both visually and destructive tested against the Weld Standard AS 1665 Category B, table 6.1. The testing confirmed that the updated weld procedure was successful. Now IAW the new weld repair JLU-VIC will start repairing the ASLAV F spades for Defence.

Other projects we are looking at is the welding repairs for the G-wagon chassis, ACW is getting a 6X6 chassis to conduct weld repair procedures and to qualify them. Once these are completed the SPO will be able to send the repair procedures on request to units to conduct the repairs.

Other minor issues that have been seen when conducting ASLAV Armour repairs is that units have been using the incorrect gas when conducting welding repairs not IAW the consumables table in EMEI J066-1 Field Weld Repair Procedure. The identified welding



ASLAV spade weld crack

gas is a mixture of 75% Argon and 25% Carbon Dioxide, if your unit has a BOC supplier the correct gas is Argoshield 52 for all ferrous armour repair on the ASLAV FOV.

If you have questions about repair procedures for armour/specialist metals please email me or contact the specific equipment SPO at CASG.

**Art et Marte**

RAEME CORPS FUND SUBSCRIPTION		
<b>Surname:</b>	<b>Initials:</b>	<b>Rank:</b>
<b>PMKeyS (Regimental) Number: *</b>		
<b>Appointment: *</b>		
<b>Unit: *</b>		
<b>Address:</b>		
<b>Suburb:</b>	<b>State:</b>	<b>Postcode:</b>
<b>Defence Email:</b>		
<b>Civilian Email:</b>		
<b>Subscription Type:</b>		
<input type="checkbox"/> Life Subscriber CFN - SGT (\$260) WO2 - CAPT (\$390) MAJ+ (\$520)		
<input type="checkbox"/> Periodic Subscription \$..... every Fortnight/Month/Year or .....		
1. Lump sum payment, or 2. Instalments #(number of payments) x \$(Amount per period) = Life Membership A Period is fortnightly or yearly. 3. Each contributor to the Corps Fund will receive a bronze St Eligius Membership medallion. 4. Personnel contributing to the full Life Membership will receive a silver St Eligius Membership Medallion and a framed copy of the RAEME Corps Print 'AFV in the Light Green'. 5. For retired personnel, please use your details as at your retirement/resignation.		
<b>Forward this form to:</b>		
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## Master Artificer – ECN 418

### WO1 Wayne Davis

Well, it has been another busy year, especially transitioning out of a training establishment position into a Land unit ASM appointment whilst continuing to fulfil the responsibilities of the MATE - the year has been demanding but rewarding. My two-year tenure in the appointment as MATE has also come around quick, but I was pleased to be asked to extend my term in the position, again in 2022.

This year, as the MATE, I have been called in on many occasions as a consultant to provide strategic technical trade advice on electrical and refrigeration matters, and requested to provide advice to a range of stakeholders on current and future Army projects. Some of these included:

Involvement in activities with L8140. A Defence Innovation Hub (DIH) project with QinetiQ Australia is to develop a powergrid controller for high capacity generators that will power a camp of a scale, known as the Deployable Adaptive Smart Grid (DASG). I assisted by providing an understanding of the technical parameters, to identify suitable replacements to the in-service Field Power Distribution System (FPDS) as well as contributing in a meaningful way in the shaping and managing of outcomes for the project. The Deployable Force Infrastructure branch at AHQ, also involved in activities with L8140, requested my input for assurance that the selection of a Defence-wide replacement of low and intermediate generators had been devised at the right capacity and in the right amounts between units.

I was requested by AHQ, on my thoughts for the sponsorship of a proposal (through the DIH) on a compliant military inverter to allow for 240V AC exportable power from ADF land based vehicles. The inverter would provide a 75% reduction in energy losses through the inversion process, with a 70% reduction in size and weight. It will require no active cooling, increase reliability and longevity, costing less than comparable output military inverters. It is Australian designed and made inverter, providing employment and export opportunities.

The Robotic and Autonomous Systems Implementation Coordination Office (RICO) requested my support, in the project designed to replace a PMV-M (Bushmaster) combustion engine system with a hybrid system. The Hybrid Electric Power Platform (HE2P) is planned to have the ability to connect into a FPDS, to export power and also to charge from in-service generators. I was called upon on a number of occasions to confirm AHQ was providing the right electrical advice to the contractor. I have engaged regularly with 3ME Technology, on the specifications of PMV's power requirements.

As a result of these and other equipment acquisitions and emerging technologies being explored within Army, new challenges are being faced for our corps and trades. In response AHQ and the Technical Workforce Review Team (TWRT) are close to finalising the trade innovations. In June, the Master Artificers met in Canberra as a part of a working group to be briefed on the concepts being developed for presentation at the TWR COA Analysis. This activity was designed to bring parties up to speed with the



current direction of the review and to enable further engagement within the wider RAEME/technical workforce, prior to presenting at ECREM. The Master Arts provided input on the propositions and transition plans for each trade; for myself focus was on the Energy Technician (the replacement trade to ECN 418 Technician Electrical).

I attended the SEQLD RAEME Corps networking convention with the HOC prior to the Land Forces seminar in Brisbane. The aim of the convention was to share RAEME knowledge amongst currently serving, ex-serving, and industry reps located in SEQLD.

The RSM-A requested the support of the Master Arts with the Logistic Corps Conductors, the administrative leaders and trade managers, to assist him in formulating related topics and framework for the first Non-Regimental Senior Enlisted Seminar. Our assistance in the seminar's development provided an opportunity for non-reggie WO1s to engage, contribute and collaborate with peers, senior leaders and RSM-A as a collective group to ensure we are leading and developing our subordinates appropriately into the future. The seminar was successfully conducted 'virtually' over two days in late October, the next seminar is planned to be conducted 'face to face' at ALTC, in March 2022.

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## SO2 Corps

### MAJ Steve Howells

Hello all, I was honoured to have taken over the position of SO2 Corps from MAJ Scott Babington in Jun 21. Scott thanks for the handover and for all your work in the position since you took over when it was changed from a full time to an ARES position, much appreciated.

For those that don't know me, a quick introduction. I enlisted in Jan 73 as a 28th intake Electronic apprentice and approx. 18 months after completing my apprenticeship was fortunate enough to be selected to become a Radar Mechanic and subsequently spend 7 months in the UK completing the Rapier ground to air missile system repair course. A few years at 16 Air Defence Regiment, a posting back to Army Apprentice School as an instructor, then a posting to School of Artillery, where I completed the first AN/TPQ-36 Weapon Locating Radar course. A posting to Melbourne was followed by Brisbane and ASM of 131 Divisional Locating Battery. After a quick posting to RAEME Training Centre as instructor and OPSWO, I spent a few years at Proof and Experimental Establishment Port Wakefield. Before being posted back to Melbourne as an assistant project officer, assisting with the introduction of the Tactical Engagement and the Weapon Training Simulation Systems, before Commissioning in 2001 and being part of the introduction of the Land Material Maintenance System. Posting back to Brisbane I spent 7 years on HQ 7 Bde in a variety of positions before Melbourne again and a couple of years unaccompanied with Joint Logistic Command. My final ARA posting was Defence Community Organisation (a difficult but fulfilling experience), before transferring to ARES and being part of the Plan CENTAUR team. I now spend my time with Army Compliance and Assurance Unit as a NPMA and WHS compliance officer, event managing activities for HQ 7 Bde within Gallipoli Barracks and RAEME SO2 Corps and in my spare time I'm the treasurer for the RAEME Association Queensland among other things.

As I take over the role of SO2 Corps, I think what else can the HOC cell do to support the members of the Corps? I have a few ideas, but rely on others to let me know their thoughts. If you have any thoughts of where the HOC Corps cell could improve, please don't hesitate to drop me a line (Email: raeme.hoccell@defence.gov.au) or give me a call. No guarantees, but I will definitely give every suggestion serious consideration.

Arte' et Marte'



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## Editor

### WO1 Dave Clarke

Welcome to the 2021 edition of the RAEME Craftsman. Just when we thought things couldn't get worse after 2020. COVID introduced us to the Delta strain and it seemed like ground hog day for 2021; and when we weren't dealing with bushfires, we were assisting with floods!

I thank all of you that took the time to write something. Although the articles submitted this year are down on what we normally receive. We still managed to get a good variety of articles and I think there will be something in there for everyone. I'd also like to thank the people that responded to my call for articles and photos from RAEME Birthday celebrations on Facebook. My email was bogged down for a while there, but I managed to get everything into the magazine.

As I say every year, my favourite part about being Editor, is that it gives me the opportunity to read all the articles first. I find myself being a little envious of some of the posting open to members of the Corps today such as; The Pilbara Regt, 51 FNQR, Ships Army Establishment (SAE) on HMAS Canberra or Special Operations Rapid Fabrication Cell (SORFC). There are some very interesting insights into what these and other units have been up to in 2021 and the specialist capabilities they provide Defence.

There are a number of articles from members on operations on Op Accordion, FSE-13 and JTF 633. These members have been doing their very best to represent the Corps with pride, be it assisting with the refugee evacuations from Afghanistan; preparing equipment for return to Australia from the Middle East Area of Operations; or closing down the workshop facilities at Al Muthana Air Base (AMAB). As usual we have our Lean Six Sigma article and how it was used to assist with Operation COVID Assist.

There is an interesting article outlining how the Technical Workforce Review will revolutionise the RAEME Ground Trades structure introduce new trades, including a Technician Assistant trade for GAP year entrants and Marine Technician to cope with the proposed increase in Defences Littoral Operation capability.

RAMS have once again been busy and have submitted an interesting article about all the activities at the school; including piloting the introduction of Augmented Reality into their training in 2022.

Meanwhile at ALTC, OC Careers and Advanced Training Wing (CATW) has written an article explaining how Distributed Maintenance Training (DMT) is progressing and how CATW are continuing to develop it and are working through the issues with it. Whilst ASLO have been working with Applied Virtual Simulation (AVS) and the Protected Mobility Tactical trainer (PMTT) to create realistic and immersive FRT scenarios for the Subject Two CPL course.



There are also a number of interesting articles from past members; including a wonderful tribute to one of the few remaining original members of the Corps BRIG Herbert 'Bert' Barker (Retd) who turned 100 in December 2021. Plus, the NSW & SA RAEME Associations and The RAQ have submitted articles detailing how they have been fostering Esprit de Corps amongst current serving and past members.

I would like to congratulate all of those members of the Corps that received awards throughout the year. This includes those very deserving members that received Corps Awards. Unfortunately, I don't have many photos of these awards being presented. Can I ask that when members are presented Corps Awards where photos are available, copies are sent to the RAEME HOC Cell for inclusion in the magazine?

This also goes for any other awards that our members receive, I've seen numerous posts on Facebook and in the Army Newspaper this year of RAEME members receiving awards, yet nothing is being forwarded to HOC Cell recognising these achievements. It doesn't have to be war and peace, just a paragraph in a word doc and some photos with captions.

Due to privacy laws, we are no longer able to get lists of members that have retired from DOCM or SCMA, so if you would like your service recognised, please let us know by sending an email to the Corps RSM or the RAEME HOC Cell. On behalf of the Corps, I thank you for your service.

Unfortunately, we lost a number of serving members of the Corps in 2021. There are tributes to both WO2 Ryan Lesley, CFN Brendon Payne and CFN Lachlan Clulow in this edition.

The worst part of my job as editor is compiling the list of members that have passed away. Each year we receive a number of emails regarding members that have passed and keep an eye on the RAEME Facebook pages. Unfortunately, the details provided varies greatly and can be light on for detail. Therefore, I've kept the rest of the Vale' notices to just the members name and month they passed.

Can I ask that if you are providing articles for the 2022 Craftsman, we cannot send articles to the publisher that are formatted in columns or with the photos embedded in them? As such, please send photos separate to the article and labelled as you want them to appear. If you decide to just send photos that's fine, but please provide some sort of explanation of why/where the photo was taken and who is in it.

Unfortunately, due to financial constraints the number of hardcopies of the magazine being printed are being reduced. However, all editions of the RAEME Craftsman can be accessed in electronic format on the RAEME website under publications and on the RAEME Association webpage at: <https://raeme.org.au/index.php/publications/raeme-craftman-mag>. Over the past couple of years, the electronic version of the RAEME Craftsman has been available online months before the hardcopies have been printed.

I also need to acknowledge Army Newspaper and the RAQ Spanner News as I have reproduced a couple of articles from these publications.

I hope you enjoy the 2021 edition of the RAEME Craftsman as much as I've enjoyed putting it together.

**Arte' et Marte'**

## ARTICLES

### The Technical Workforce Review

The Technical Workforce Review (TWR) was initiated in 2019 to ensure technical capabilities within Army were contemporary and fit-for-purpose to support the significant investment in new ADF equipment being introduced across the next decade. This review was Corps agnostic, with significant engagement with the other technical Corps (RAE, RASIGS, some elements of RAAOC as well as RAAF and RAN) to build a common understanding of effects, skills, trades and officer categories across the ADF. There was positive and constructive engagement from all parties which enabled the TWR team to build a comprehensive picture of the cross-over between RAEME trades and trades from other Corps and Services.

While the Review commenced under Plan Centaur, it kicked off in earnest under the guidance of LTCOL Troy Wilson, current CO ASEME. In 2021, LTCOL Ben Shaw (RAAOC (ATO)) took the reins and proved to be a good sounding board for the RAEME-centric thinking up until this time. In the first quarter 2021, the TWR sponsored a series of workshops to design future RAEME trades and incorporate the analysis undertaken through the Land Engineering Officer Review, modernisation initiatives from 'Future Ready Workforce' and the new HR system in ERP.

Just as LTCOL Shaw was hitting his straps, he was redirected to SOCOMD and MAJ Matt Jefferies stepped up to lead the TWR team from May 2021. The Team's focus was on engagement with Master Artificers, as the senior representatives, and JNCOs from ASEME as the future of their trades. Through this time, the TWR team was able to build workforce propositions to adapt current trades to provide the support that will be required in the near future, and expected in the longer term. After a lot of feedback in 2020 and with the sage advice of the Master Art's still ringing in our ears the following key proposals were developed:

New Trade	Current Trade	Capability Change
<b>Artificer Land</b> Remain ECN 013	Artificer Mechanical/Electronic	Merge with ECN 006/007 and WO in ECN 226 No change in overall establishment
<b>Technician Assistant</b> Reinstate ECN 034	Trades Assistant	Technical Gap Year to bridge diversity gap and enable mobilisation
<b>Weapon Technician</b> Remain ECN 146	Fitter Armament	Complex weapon systems (CRV, IFV, Protected Mobile Fires) ~40 positions move to ECN 222 - ~330 positions remain
<b>Marine Technician</b> New ECN 222	Reinstated trade	New Army Littoral Manoeuvre capabilities initially ~40 positions (from ECN146 establishment) - ~120 positions from 2026
<b>Recovery Technician</b> Remain ECN 226	Recovery Mechanic	Recovery capability-based training No major change in establishment - ~183 positions
<b>Vehicle Technician</b> Remain ECN 229	Vehicle Mechanic	Hybrid/Electric Motors No major change in establishment - ~640 positions
<b>Material Technician</b> Remain ECN 235	Metalsmith	Advanced manufacturing (i.e. metal 3-D printing) Additional 24 positions - 63 positions
<b>Energy Technician</b> Remain ECN 418	Technician Electrical	Alternate energy generation & deployed Air Con systems No major change in establishment - 209 positions
<b>Electronics Technician</b> Remain ECN 421	Tech Elect Sys	Robotic Autonomous Systems and Long Range Fires No major change in establishment - 185 positions

### **RAEME Gap Year – Technician Assistant**

The ADF Gap Year program was introduced in 2015 and has been so popular that positions for each program are generally filled by March the year before each intake. The TWR borrowed ALTC Workforce and Training Group's concept to get a RAEME Gap Year option endorsed and the review introduced a new Employment Category, Technician Assistant. This role will also pave the way for future recruitment of individuals outside of the Gap Year program if the time comes that we need to rapidly expand the size of our workforce and we need Technician Assistants to supplement our fully qualified technicians.

### **ECN 146 Fitter Armament – Weapon Technician**

Analysis showed that Fitters spent a lot of time learning advanced machining at ASEME but spent very little time using the skill once in a unit. Coupled with the desire to create a single manufacturing trade, it made sense to reduce machining skills in the Fitter trade and move it to ECN 235. Weapons Technicians will still fix pumps, small engines and miscellaneous equipment, so no change in civilian qualifications is expected. Weapons Techs will see an increase in work on turrets and cannons, with the introduction of Boxer and Land 400-3, as well as the Under-Armour Breaching systems entering service. Weapons Techs and Vehicle Techs will still be responsible for 'Small Boats' too, so there's still plenty of additional skills available, post IET.

### **ECN 222 Marine Technician**

Marine Techs are designed to look after big boats – essentially boats that need a Survey (QACS), but they will also maintain 'small boats' in the Water Transport Sqns. Those familiar with, or qualified in, marine maintenance will be aware that Fitter or VMs have been providing Army's marine maintenance capability, after completing a suite of marine maintenance courses. Defence has committed to replacing the aging fleet of LCM-8 and LARC-V watercraft as well as introducing multiple new vessels to significantly increase our Littoral Operation capability. This project will result in the need for a sizeable increase in Army's marine maintenance workforce and thus Army will introduce a dedicated Marine Technician trade. This will allow us to train individuals from scratch, without needing to qualify them as Fitters or VMs first, and in addition enable us to recruit qualified and experienced marine technicians from civil industry.

### **ECN 235 Metalsmith – Material Technician**

With the advent of 3-D printing metal and other advanced manufacturing techniques in the pipeline, Metalsmiths will gain more skills and provide a single manufacturing trade, which can also provide the 'welding up holes' part of Battle Damage Repair capability. We have also proposed creating ab initio training for ECN 235 to provide a wide recruiting pool and in response to the amount of re-training that is often required for qualified entrants. This gives Army ownership of the training standard and ensures a consistent capability is delivered.

### **ECN 226 Mechanic Recovery – Recovery Technician**

Feedback from the Recovery Mechanics is that the new recovery fleets are more 'temperamental'. Additionally, the supported fleets are getting heavier and the work is more complex. WO1 Pete Marron and WO1 Terry Jones have worked to simplify the training continuum and create total workforce solutions to allow alternate entry paths into the trade.

### **ECN 229 Mechanic Vehicle – Vehicle Technician**

The key change for greasers is the start of a gradual transition towards a future of hybrid/electric vehicles and better definition for the responsibility for auto elec jobs. ECN 229 will complete more auto elec training at IETs and become the primary auto elec trade (noting 418s are never too far away if it needs some high amperage oversight). The LAND 121 fleet and the new LAND 400 platforms have more and more integrated electrical and electronic systems and thus the need for the 229 to become the authority in all things auto elec is a clear solution. In 2022, Robotic and Autonomous Systems Implementation and Coordination Office (RICO), will deliver the ePMV platform (below), consisting of a fully electric twin drive system with two auxiliary radial diesel engines. The ePMV is expected to generate conversation about future vehicle technology and maintainability. RICO also intends to commence further investigation into alternate electric power plants for current in-service vehicle platforms.



### **ECN 418 Technician Electrical – Energy Technician**

For Tech Elecs, apart from the reduction in Auto Elec, the TWR proposal flags the push towards alternate energy sources for deployable force infrastructure (LAND 8140) including generation, storage, distribution and management. Whilst solar/wind/hydrogen technologies provide future options, the short-term will see smarter diesel generators being introduced and managed by micro-grids and various battery systems. RICO's ePMV will also be a generator on wheels, able to be charged via a Field Power Distribution System (FPDS) or provide the source of power. The Energy Technician trade will remain the primary trade for deployable energy generation requirements, whether from diesel, solar, wind, hydrogen and also all types of refrigeration systems. Energy techs will continue to work closely with RAE Electricians where energy generation and distribution cross-over with fixed infrastructure and 'the grid'.

### **ECN 421 Technician Electronic Systems – Electronics Technician**

Perhaps the biggest impact for Boffins will be the increased size of the workforce to maintain some significant increases in capabilities being introduced into the Land domain. The investment in Robotics & Autonomous Systems including Unmanned Ground Vehicles, Optionally Crewed Combat Vehicles-OCCV (M113 AS4 trials) and future Leader-Follower systems as well as expansion in Long Range Fires and enhanced radar capabilities signal an increased workload for the Electronics Technician trade. Armoured Calvary (including SOARMD) units are already evaluating small wheeled and tracked UGVs, with Engineer Regiments recently receiving SPUR UGVs to allow skills development and experimentation with new sensors and emerging technologies. Additional small man portable UGVs will be provided to all Infantry Units (and School of Infantry) to allow further exploration of potential force enabling technology; all these systems in our future will require maintenances and repair. ECN421s may even need to get out of their 'clean rooms' and get their hands dirty.



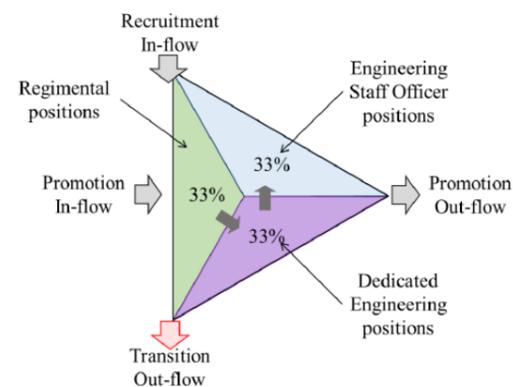
### ECN 013 Artificer Ground – Artificer Land

Under this proposal all Ground RAEME WO2s and WO1s, including Recovery Mechanics, will amalgamate into a single EC. For many years, every Ground RAEME CPL and SGT has completed the same Subject (1, 2 & 4) courses and received the same ‘maintenance management and assurance’ training. It has become common place for CFN-CPL to be managed by a SGT and/or WO from a different trade, chiefly because the guidance and management function they provide is common across all trades. Additionally, supervision and assurance will generally be provided by a balanced team of experienced SNCOs and SSO/GSOs. The team acknowledges that an individual’s background (training and experience) is critical for certain positions and this will continue to be clearly visible to CM-A to ensure the right person is posted into the right position, but positions such as EMEOPS or a RAEME designated non-Corps job can be filled by any Land RAEME individual, independent of their base trade.

### RAEME Officers – Engineers and GSOs

The TWR worked very closely with COL McLachlan to include the outcomes of the Land Engineering Officer Review which sought to formalise the pathway for RAEME (and non-RAEME Engineering) officers to address job satisfaction and technical development issues. Whether GSO or GSO+ (Engineer (Engr) Qual), the future is very bright for RAEME Officers. For Engineers, you don’t need to be in an Engr job to be doing engineering.

In the early years the focus is to learn Army so you can provide context to the engineering proposals and CASG solutions. The Land Engineering Officer employment spec incorporates a formalised sequence of position types for each officer to progress through at each rank level, shown below, to ensure we develop well rounded officers who are also technically capable engineers. The review also clearly articulated ADFA Recruiting Targets by engineering discipline to better balance the workforce against the demand.



### The Total Workforce System and Industry Partnerships

There has also been some structural changes made to the trades and across the Corps to better balance the workforce and improve the integration across all SERCATs. No longer will we have ECN-bars for REG and RES-A, instead your ECN-bar will reflect your level of training and there will be opportunities to up-skill throughout your career. This leads nicely into the recognition of the benefits of secondment opportunities for our technicians and thus we’re expanding the opportunities for CFN and Engrs to be immersed in industry placements for weeks, months and up to a couple of years. Not only will this increase the military-industry partnerships and enhance the knowledge and skills of our personnel but also give some of you time away from the green. The intent is to link these opportunities to specific follow-on postings to ensure the lessons learnt can be quickly absorbed back into the maintenance system and shared with the rest of the workforce.

### Future Work

The team is now focussed on developing a remuneration proposal to present to DFRT, and ensure RAEME tradies are getting fair pay for the high skill-level and capability they provide the Army. The last major proposal was in 2006, and those that were serving then will attest the Army looked very different to what we know today.

2022 will see a significant change over in staff with MAJ Matt Jefferies being the only continuity. He will be supported by WO1 Mick Nolan, as the team pushes towards implementation of the change. COVID-19 dependant 2022 will also see face to face engagement with as much of the workforce as possible to explain the changes and how they will be implemented. This year’s paired-back Corps conference provided a good opportunity to update the current cohort of COs, OCs, ASMs and various RSMs who will provide an update to their members in the near term. Thank you for your continued support as we work to ensure RAEME as a Corps is Future Ready.

## Training Differently

### MAJ Adrian Luke – OC CATW, ASEME

#### Introduction

It would be remiss of me (I'm sure you're all acutely aware), to not begin with – due to the impacts of the global pandemic, 2020/21 have been chaotic at best! Whilst the situation has been disruptive to many of our routines with lock downs and border closures, there has been a silver lining in this dark cloud. That silver lining is the opportunity provided by lock downs and restrictions which has helped shift resources to expedite the introduction of Army's Future Ready Training System (FRTS). The FRTS is a transformation program to update our current training system and has been in the winds for some time now; however, COVID-19 gave it the impetus it required to prioritise surrounding activities, so we could commence transforming to become 'future ready'. Our current training system (~20 years old) is based on an industrial age approach, which simply cannot meet the needs of a rapidly developing organisation such as ours. Furthermore, harnessing new training methods and techniques, will allow Army to maintain the qualitative advantage in our people.

*"It is the Army training system that gives Army the capacity to adapt to Accelerated Warfare. It changes the shape, purpose, scope and size of Army teams. At present, it does not do this quickly enough or in ways optimised for how Army's people learn"*

#### Training Transformation at ASEME

The RAEME Subject Four (SUBJ 4) suite of courses began as the test case to transform ASEME's training. What started with the development and trial of the SUBJ 4 CPL ARes course (2017/18), quickly grew legs and moved to the ARA SUBJ 4 courses, whereby in Q2/20, the full suite of SUBJ 4 courses were programmed to be delivered online. This was a great outcome for ALTC and students alike, as travel from parent units was no longer required. This could be considered a win, as border restrictions and closures could do little to negatively impact the delivery of career courses for our technicians.

Now not to down-play the significant efforts of staff who contributed to the SUBJ 4 courses, the larger body of work in Career and Advanced Training Wing (CATW), was the task to transfer all specialist courses onto ADELE, and enable these courses to be delivered remotely from ASEME. In Sep 19, a workshop was conducted with ALTC's strategic partner (Wodonga Institute of TAFE – WIOT) and KBR, to reconfigure specialist equipment maintenance training. In Nov 19, funding was approved to commence developing (proof of concept) a model utilising the M113 as the platform. Subsequently in Feb 20, the CATW Flexible Learning Model (FLM) was developed. FLM was touted to deliver training in a number of variations; however, in Mar 20, the global pandemic took hold and the race was on to develop a larger scale of online training.

To facilitate the achievement of this body of work, ASEME's specialist courses were grouped into three tranches and work began to transfer content which would normally delivered face-to-face (F2F), to the online format.

Table 1: ASEME Course Transformation Journey

Tranche 1 – Sep 20	Tranche 2 – Jul 21	Tranche 3 – Dec 21
Bushmaster Maint	M1A1 Abrams Maint*	ASLAV Turret Maint*
M113 Maint	M88A2 Hercules Maint*	M2A2 Salute Gun Maint
M113 Turret Maint	M1A1 Turret Maint	Spec Ops Veh Maint*
M777A2 / Ord Exam Maint	ASLAV Control Sys Maint	KALMAR Maint*
Abrams Sys Control Maint	RBS-70 Maint	
	Recovery Specialist Cses – ARVH, ARVL, ASLAV-R	

\* Courses still under development

Significant work continues to go into the development of online courses; however, key for ASEME in these initial stages of transformation, is the ability to receive feedback which will enhance current courses and improve the development work being conducted in the final stages of Tranche 2 and 3.

#### Distributed Maintenance Training (DMT)

DMT has been designed to ensure specialist courses can be delivered to technicians across Australia, without the requirement to travel to ASEME. DMT is not exported training. One clear goal of DMT is to keep soldiers at home to reduce the friction that often exists with the work-life aspect (or balancing act) of serving in the ADF. Now I will say upfront, we do not attest that DMT has, or will solve all of our issues with training delivery to RAEME technicians – it is but one way which Army is working to better support the workforce (families and units), and ensure the Directed Training Requirement (DTR) is met.

As we work through 2021, ASEME is consistently seeking opportunities to learn more about DMT and understand the nuances (and frictions) of delivering training via this method. One major aspect of any change management activity is to ensure there is continual stakeholder engagement. Change management is a shared responsibility and constructive feedback provided by trainees, chain of command and course facilitators is helping us to understand and improve our delivery methods. An example of this has been the M777A2 Howitzer course. Factors such as available assets, workshops space, replacement parts and S&TE all pose risks to trainees (and units) achieving success with this particular platform. That said, some platforms (M113, ASLAV and Bushmaster) have seen great success with DMT and as we iteratively improve these courses, the flow-on will see strong development with our 'A' Vehicle courses this year for delivery in Q1/22.

1 Army in Motion – Army's contribution to Defence Strategy 29 Jul 19, p. 41

ASEME is cognisant that online delivery is well suited to specific types of training, such as academic-only courses. DMT faces the issue of replacing instructional staff in a course that requires both academic and physical task requirements to ensure the training is sufficient. All those little tips and tricks that an experienced instructor / facilitator would pass on in general discussion, can now be difficult to articulate – not impossible but definitely a challenge for staff and trainees alike via the online format. These are just some small examples of natural occurrences in a changing environment and I challenge all to reflect on the multitude of changes (projects) that have occurred in Army over the years that have gone without an opportunity to learn or further develop concepts to a more mature state.

Whilst delivering training via this method is a paradigm shift away from the norm, it has also given rise to numerous opportunities; such as ASEME conducting a deep-dive into the multitude of Learning Management Plans (LMP), so we can understand the possibilities of modifying these documents to better support DMT. This body of work is being conducted with the support of Workforce and Training Group (W&TG) and staff from the Army Education Centre - Vic (AEC-V) to ensure the intent of the LMP and graduation standards are continually maintained. A question we are always asking ourselves is – how do we achieve the intent of the LMP, but in a different way? Not only are we understanding LMP requirements better, we are also learning that resource restrictions / implications can constrain the effective delivery of training through DMT. Initial LMP work has seen the importance of understanding the task-verb associated with a particular teaching point. The task-verb is designed to give instructional staff (and students) a clear understanding of what they are required to do within that task, i.e. observe, participate, remove, refit etc; however, with a students workplace (Workplace Mentors) are now more heavily involved. ASEME course facilitators are looking to these mentors to ensure tasks and maintenance standards are upheld or conducted in strict adherence to technical manuals. As depicted in figure 1 below, a requirement of an ADELE course package would have requested that trainees show evidence that they can make particular adjustments to our platforms. Course facilitators have analysed all tasks within the LMP and that this confirmation of learning (photographic evidence) matches the LMP teaching point and therefore, would meet the objectives of the Learning Outcome.



Figure 1. Allen key positioned in the winch out counter-balance valve on a M806 AS4 (ARVL) & associated pressure indication

One important line of feedback from units has been the 'additional requirement of the workplace to assist in the management of trainees on behalf of ASEME'. Whilst ASEME will maintain the governance aspects for courses (unless courses are fully exported), units will be required to share some of the workload required with training our members. Presently, there is no way around this; however, we are working closely with units and HQ FORCOMD to find solutions or reduce friction in this challenging area. As alluded to earlier, DMT is in its infancy and will require a number of iterations before it becomes the norm or more palatable.



Figure 2. A multi-media technician captures work being conducted on an M1A1 to be loaded to ADELE as a demonstration of the required task by trainees

To date, there has been an immense amount of work achieved to transfer courses online and work is still progressing to ensure course material is at the best possible standard so trainees can work through the tasks in the allocated time frames. We must also be aware or consider wisely, that all workplaces have their own inherent pressures. As seen in figure 2 above, work packages are constructed to assist trainees and their understanding of the tasks. Comparable to if they were on course at ASEME, trainees are given the opportunity to view (or have it demonstrated) the actual maintenance procedure and in most cases the video will have a voice-over or hot-spots to explain any safety critical or specific techniques that will aid in the process.

A further improvement by ASEME has been the modification to course session lengths. In 2020, course lengths were increased to enable trainees to work through each course utilising live jobs in the workplace. Course sessions have now been increased to 12 months to allow even more flexibility (tempo, leave, field etc.), and will be treated much the same as a rolling range practice. DMT methodology lends itself much better to this as it also ensures units can actively manage their workforce.

### Our Next Steps

Our intent is to have all specialist courses loaded to ADELE and accessible to be delivered via DMT by Q2/22. In the interim, we still have some development work to do on a number of courses (refer Table 1). What this means is that in some cases, we will be conducting some limited F2F training to ensure we are meeting DTR. Clearly, border closures and COVID-19 restrictions will dictate how we actually achieve this. It is considered that ASEME will be in a very good position once we have all planned courses

online; however, the important (or flexible) aspect will be how we actually deliver the courses. For instance, if ASEME was required to train double the annual DTR (up-scale rapidly) on a specific platform, we could train those with easy access to unit platforms online and train an additional number of trainees at ASEME via a F2F course.

We are also acutely aware that some trainees conducting ASEME DMT courses have found it difficult to gain access to some systems or platforms. For this reason and as an example, we may see a course broken into two modules. Mod 1 is the academic and in-unit phase, while Mod 2 would be F2F at ASEME. As mentioned, work and details such as this are TBC with the assistance of W&TG, AEC-V and most importantly, the wider capability. We will keep the Technical Support Network updated with this aspect of our work.

### Conclusion

DMT is a paradigm shift away from how ASEME has previously trained technicians. Whether it be career courses, such as the SUBJ 4 suite, or our more technical platforms, training must continue under all circumstances to ensure we meet our capability requirements and have sufficient trained technicians to provide RAEME's fundamental role. We will continue to work closely with all of our key stakeholders and where necessary modify our methods to ensure we not only meet Army's strategic intent of Training Transformation but also meet DTR. Whilst we still have our foot firmly on the accelerator, we are in no rush to build a training system that has yet to be fully analysed and tested that may cause an inordinate amount of work and tension in some already stressed work environments.

For further information on DMT, please contact the ASM CATW, WO1 Duane Maggenti at [duane.maggenti@defence.gov.au](mailto:duane.maggenti@defence.gov.au) or 07 4441 1654.

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## Better Utilising Technology for Career Development and Beyond

### SGT Nitin Biswas

If the COVID-19 pandemic has taught us anything here at Army School of Logistic Operations (ASLO) it is that we needed to drastically update the way we conduct and deliver the RAEME SUBJ 2 CPL course.

The re-imagined course has come a long way from having students drive vehicles through the state forest with instructors verbally initiating quick decision exercises (QDE's). The RAEME cell has spent a lot of time interacting with Applied Virtual Simulation (AVS) and the Protected Mobility Tactical Trainer (PMTT) located in Puckapunyal to create environments which immerse students into more realistic scenarios. By additionally utilising the functionality within ADELE-U, we are now able to deliver the first week of the curriculum online. Whilst the use of ADELE is not a new concept it is important not to just mass transfer the information in the same old PowerPoint lesson format. As a result, we achieved this by creating interactive H5P lessons and content aimed at keeping students engaged with learning (learner centric design).



After achieving a package that was able to be delivered remotely, with the potential of the commanding a forward repair team (FRT) component being exported, it allowed us to delve deeper into what we can create on Virtual Battlespace 3 (VBS3). After spending time on the PMTT, we were able to record multiple QDE scenarios with drills being performed correctly and incorrectly, with resulting events for each path. This footage was then edited, with a potential for voice overs, to create scenarios that essentially allowed students to choose what path they would take during an FRT mission. The QDE that occurs is unknown to the student and they must choose the appropriate path to be able to proceed with the mission. Poor command choices result in a short video that shows

what could be the worst case with an explanation why, the scenario then resets and allows the student to make different choices. By recording and splicing footage together, with decision points, we have been able to create a “choose your own adventure” style learning activity. This is training that usually takes place on course in the PMTT to provide students more realistic QDE encounters with contacts, IEDs, breakdowns, hostile air, protestors and a variety of situations.

The video below shows a quick example of what students will be exposed to. Interactive scenarios like this can be used during the learning process before consolidating in a PMTT. These scenarios can be further enhanced by adding time pressures. It is important to remember that this learning activity is not designed to replace training in the PMTT or real life, but to aid in student learning.

The footage can also be pieced together and played from a top-down view to allow students to visualise road moves, movements through towns and other critical points. A voice over then provides feedback on good and bad points as well as considerations a commander must take into account. This method is currently being used to create a fly-through of a basic CSST position, to allow junior officers to visualise just how large a CSST and the ORBATS are on their basic and intermediate courses.



Whilst the PMTT and the after-action review (AAR) function within it was being used prior to the COVID-19 world, the pandemic has highlighted that we do not harness learning technology to its full potential. Utilising simulation widely, by creating interactive videos and fly overs explaining layouts is just scratching the surface of what can be achieved. With more PMTTs, hopefully becoming available across Australia, we are working on creating exportable packages of scenarios that can be delivered to units to run FRT commander training for their soldiers. With time, better accessibility to VBS3 and equipment we will be able to begin creating more complex scenarios which means more QDE's for better exposure than just driving through a state forest with no actual stimulus for decision making. These scenarios would also have the potential of being used in pre-deployment training, incorporating QDEs for situations that troops are likely to encounter in the region they will be entering.

The RAEME Cell has also been exploring other programs available to us to design more professional and user-friendly courses. This has included SCORM package generators such as Adobe Captivate, Articulate Rise 360 as well as H5P content inbuilt to ADELE. A lot of what we have learned and created is self-taught through prior knowledge and trial and error. The first product created required some polishing as expected, but as we continue to learn new things and discover better ways to deliver learning using technology the refining of product will progress. The knowledge and ability to create this content is very much falling into a full-time job, not something that can be double hatted. As this technology becomes more widely used the quality and content must be monitored by the subject matter experts within Schools/Training Centres which create it. Additionally, the procurement process for obtaining computers capable of comfortably running programs like VBS3 will need to be simplified. One possibility being to raise a dedicated simulation cell here within ASLO for logistics specific development, allowing Army to tap into existing potential of members in each corps to combine simulation and job specific subject matter expert knowledge.



## 101 Field Workshops 3D Printing Capability

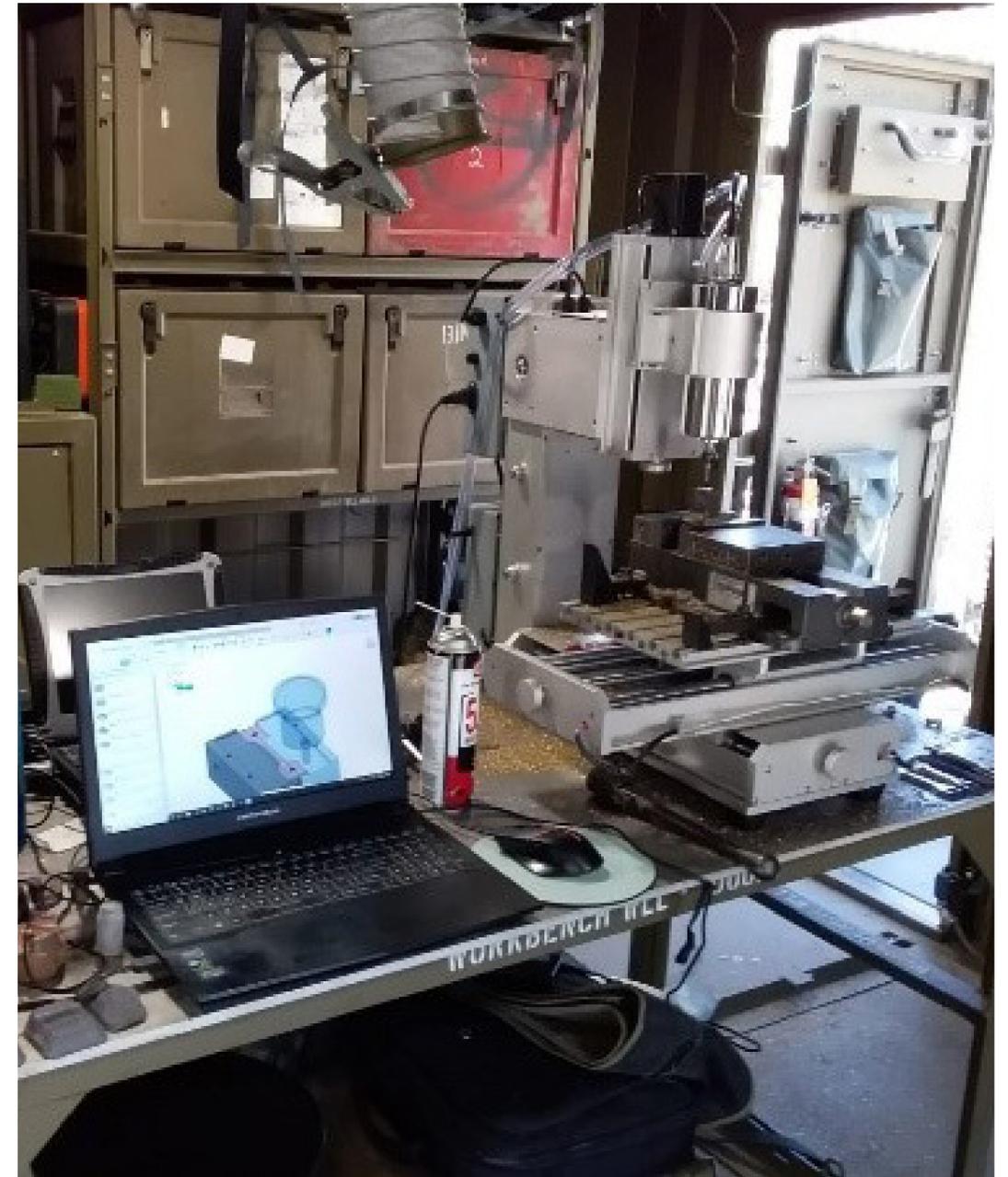
### LT Jenna Freeman

1 CSSB has joined an exclusive group of units who hold a 3D printing capability. This unique opportunity presented itself at the end of 2019 when 1 CSSB put forward the idea of acquiring a metal 3D printer at the 'Good Idea's Expo'. This was the beginning of developing and improving a 3D printing capability to assist Army as a whole in printing obsolete, hard to acquire or completely re-designing parts. While 3D printing has been around for a number of years, it is only recently that the full potential and value has been noted.



*WARPSPEE3D metal 3D printer deployed at MT Bundy*

The 3D printing trial within 101 Field Workshops commenced in 2020. It saw the company presented with a unique opportunity to partner with SPEE3D and Charles Darwin University. SPEE3D is a company based in Melbourne and Darwin which is the leading developer of supersonic deposition. It is the world's first large format metal 3D printer to use patented SPEE3D technology that enables significantly faster, more cost-effective production than traditional manufacturing. Comparatively, Charles Darwin University is the global academic leader in the field of 3D printing. The trial utilised these world leading companies to train ten members predominantly from the General Engineering Platoon, in 3D printing processes such as computer aided design (CAD).



*Designing a vehicle part using CAD technology*

This trial was extended into 2021 to continue to develop the 3D printing technology to suit Army's needs. A dedicated Additive Manufacturing and Fabrication section was created in 101 Field Workshop to focus solely on the 3D printing trial and advancing this emerging capability. While being utilised on barracks the 3D printer has also been deployed in the field environment. To test its durability and to identify further improvements the 3D printer was taken on numerous 1 CSSB field exercises to Mount Bundy and the Bradshaw Training Area. A number of metal parts were printed such as an exhaust shroud and wheel bearing cover for the M113 armoured personnel carrier. Not only were these parts printed in the field environment, they were also machined and fitted to the vehicles.



*Fitting a wheel bearing cover for M113*

The ultimate aim of this 1 CSSB led trial is to validate that the metal 3D printing capability can produce high-quality repair parts and specialist tooling at the point of need within the field environment. The success of this trial will demonstrate that Additive Manufacturing plays an important part in the future of Defence readiness.

## Special Operations Rapid Fabrication Cell (SORFC)

### SORFC Purpose

Special Operations Rapid Fabrication Cell (SORFC) was established in 2011. It was established to rapidly solve niche operational shortfalls. SORFC has evolved into a local engineering cell that designs, fabricates and modifies equipment to deliver innovative and enhanced capabilities to SOCOMD units in shorter timeframes than is traditionally available. Material solutions inspired from the tactical level are realised while alleviating demand on larger capability delivery organisations.



### SORFC Organisation

SORFC is nested within the Special Operations Logistic Squadron (SOLS). SORFC consists of members located in Holsworthy, Sydney, and Swanbourne, Perth. SORFC is led by an Engineering Officer and supported by a SGT. There are a number of positions for welders, fitters and boffins at various rank levels. SORFC has a well-established technical support network, ensuring projects of varying technical complexities can be developed in a lean, scalable, time efficient and reliable manner.

### SORFC Equipment

SORFC is committed to pursuing any and all development opportunities to ensure SORFC remains at the forefront of advanced manufacturing. SORFC boasts cutting edge manufacturing equipment such as:

- Five axis CNC mill,
- CNC lathes,
- CNC benders,
- Waterjet cutter,
- 3D metal and polymer printers and
- 3D laser scanning capabilities.

### SORFC Training

Tradesman employed within SORFC are able to enhance and push their trade skills by participating in advanced manufacturing courses covering:

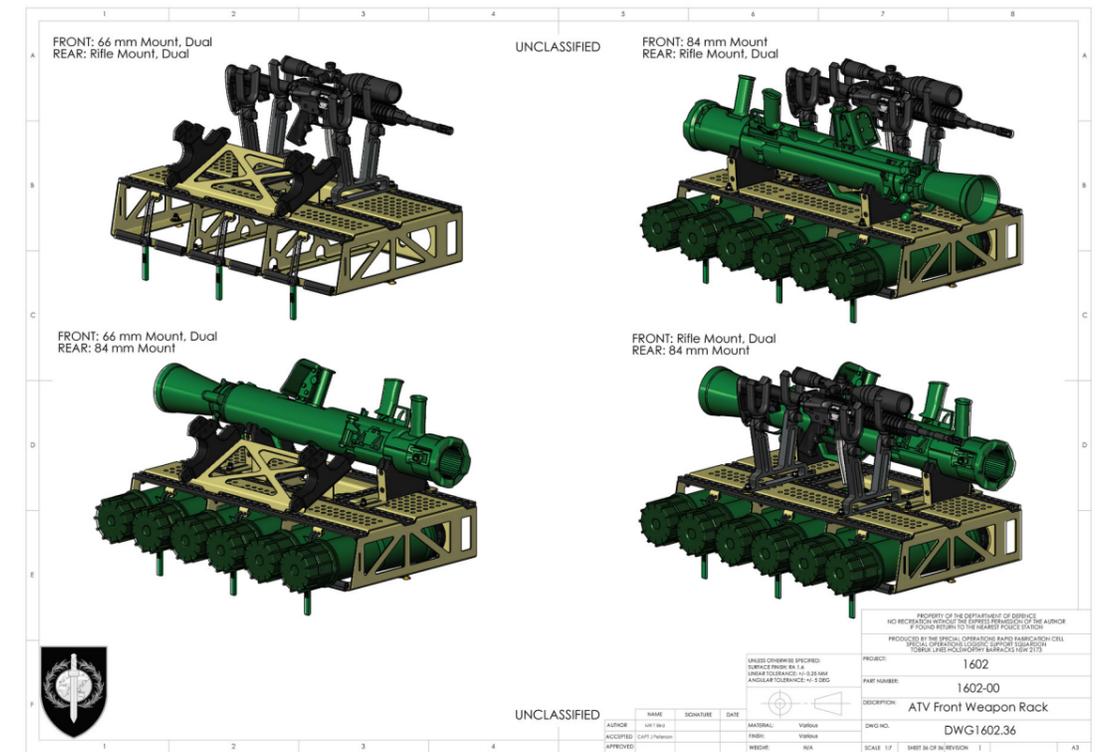
- Computer aided design (CAD).
- Computer aided manufacturing (CAM) and
- Advanced manufacturing machinery operation.

## SORFC Projects

Special Forces operators bring various capability deficiencies and innovative capability ideas to SORFC. SORFC use their problem-solving abilities, engineering network, and advanced technical training to – understand the problem and its impacts, reliably and professionally develop solutions, and certify materiel is fit for purpose (in accordance with Army's technical regulatory framework). Below are some of SORFC's projects:



Zodiac F470 Navigation Unit



ATV Rear Weapon Mounts Drawing

## Advanced Manufacturing's Future in Defence

Recent events have highlighted how fragile global supply chains are, and how important it will be for Defence Forces to have a sovereign advanced manufacturing capability – To ensure materiel survivability, and enhance materiel capabilities.

Advanced manufacturing is beginning to receive more analysis and planning at the strategic level and is a growing modernisation effort across Defence. This presents exciting technical opportunities for Army's tradesmen to be more effectively and meaningfully employed.

## How to be part of SORFC

SORFC tradesman are given a unique, rewarding opportunity unlike anywhere else in Defence. The tradesman within SORFC are able to extend the boundaries of their professions in a controlled environment that encourages innovation. The roles require drive, creative thinking, and problem solving. If you'd like to be a part of SORFC be sure to include it as a posting preference in your soldier career planning tool.



Dog Insertion Crates



## RAEME Afloat

### CPL Jason Bell



*HMAS Canberra with M113AS4s on deck*

It is not widely known amongst RAEME brethren that there have been a limited number of posting opportunities for Vehicle Mechanic's and Boffin's to RAN L class navy vessels. Currently, VM CPL Jason Bell and CFN Peter Styles are posted to HMAS Canberra, with VM CPL Andrew Tomlinson and CFN Jeffrey Batobalani posted to HMAS Adelaide. These postings were first opened to ensure that LHD's had an integral capability to service and maintain a variety of Army land equipment, ranging from variants of manual handling equipment, light marine equipment and medical and dental equipment.

In addition to the small RAEME team on board LHD's, there are 50-60 Army officers and soldiers posted to vital roles within the Ship's Company, including, cargo specialists, cooks, signallers, clerks, and distribution staff. Although Army personnel are dispersed throughout the different departments on each ship, they are collectively referred to as the Ship's Army Establishments (SAE). The SAE is currently commanded on both HMAS Canberra and HMAS Adelaide by RAEME LTCOL's, LTCOL Pete Francis on HMAS Adelaide and LTCOL Will Viggers on HMAS Canberra who each ensure that our prestigious Corps flag flies whenever the opportunity arises.

Life at sea certainly has ups and downs (pun intended), however, the opportunity and experiences gained through a tri-service posting to an SAE allows for a greater understanding of how the RAN supports the deployment of ADF capability in a wide variety of amphibious operations. Additionally, these postings highlight very clearly how each service works together to achieve strategic outcomes.

Immersed within the RAN culture and working with sailors across a number of trades also provides insight into the difficult, forever evolving work / rest lifestyle that is sometimes very difficult to balance at sea. Aside from extended time away from family, the ships' primary role and subsequent tasking's have been evolving within the current climate. In previous years, positions to an LHD have provided many opportunities to engage with international partners and to conduct ports visits with leave granted to explore. Unfortunately due to COVID 19, this year has had limited opportunity to visit the beautiful countries we have viewed from a distance at anchor. Even so we have welcomed aboard contingents of US Marines, Royal Marine Commandos, Japanese Marines, and exchange officers from UK, Malaysia, Philippines, and France.

The year has seen HMAS Canberra participate in Ex COVID Assist, EX Sea Explorer, EX Sea Raider / Talisman Sabre (pictured), Regional Presence Deployment 2021, and a variety of exercises as part of Exercise Indo-Pacific Endeavour 2021, and ending the year online in support of potential call out for humanitarian aid and disaster relief.



*HMAS Canberra crew - Embarked Maritime HQ and Landing forces including Companies from MRF-D, 3 RAR, and 2 RAR (Amphib) as part of Regional Presence Deployment*

However, as of January 2022, all technical RAEME posting opportunities on board Naval Ship's will sadly end. As Army builds a greater emphasis on Amphibious Warfare, Maritime Operations and joint capability, including the LAND 8710 project, it will be interesting to see whether these opportunities may arise again in the future.

### **Arte Et Marte**

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## From the Aviation Desk of CATW Ops

WO2 Wayne Robinson (CATW OPSWO) was unexpectedly required to deploy as the Quality Manager for the Aviation Division aboard HMAS Canberra (LHD02). This was a short notice (16 Apr 21) request from Navy via HQ FORCOM. As he had previously been posted to the same position for 3 years aboard HMAS Adelaide, CO ASEME, approved the request and he departed on 29 Apr. The deployment timeframe was 03 May to 13 Nov 21 covering ship workups, Talisman Sabre 21 and a deployment to various countries around the South China Seas.

**Part 1. 03 May – 20 Jun 21.** The first section of the deployment was a workup period, where the ship and crew are tested and assessed for rapid reactions timings to Fires, Flood or system breakdowns where stringent timings are to be met IOT allow the ship to proceed to sea post Extended Maintenance Period (EMP).

**Part 2. 11 Jul – 23 Aug 21.** The ship deployed from Sydney on 11 Jul for Ex Talisman Sabre (TS21), HMAS Canberra was involved with the conduct of beach landing trials utilising the integral Landing Craft transporting M1A1 Tanks, M113 and B vehicles ashore. Aerial assault and Infantry insertions with Gunship support from the 5th and 1st Avn Regiments utilising MRH, CH47 and ARH helicopters were also conducted.

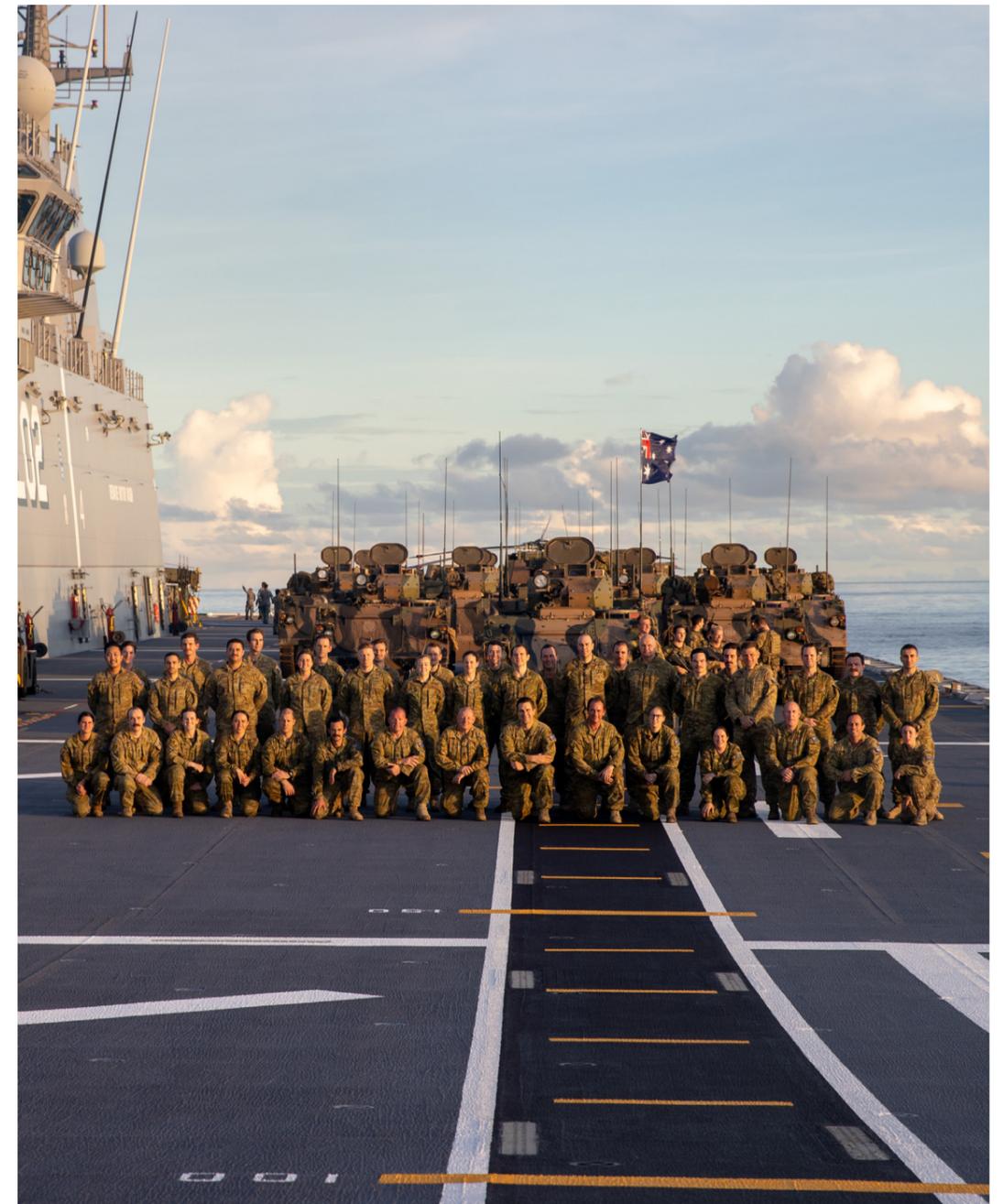
Following TS21, plans had were made to sail north to Darwin for some crew respite prior to deploying to the Australian Station for Indo Pacific Endeavour (IPE 21) and a Regional Presence Deployment (RPD 21).

**Part 3. 27 Aug – 13 Nov 21.** The IPE / RPD 21 deployment was to operate and conduct Exercise Basama Gold in the southern section of the Indo Pacific region with various regional defence partners' conducting cross deck aviation operations, ship to ship transfers, refuelling and ship manoeuvre exercises. HMAS Canberra conducted ship manoeuvre exercises with the US, UK, Malaysia, Singapore, Thailand, NZ and Vietnam Naval war ships. During these exercises HMAS Canberra was under constant observation of Chinese naval vessels.

**Port Visits.** Unfortunately, due to World Wide Covid restrictions during the deployment, crew were not allowed to go ashore during visits to ports. The ship visited Malaysia, Thailand, Cambodia, Vietnam, Philippines, Singapore x 2 and Jakarta prior to our return to Australia via Brisbane and finally pulling into Sydney the ships home port on 13 Nov 21.

**Deployment Length 195 days**

**Time at sea 162 days**



*HMAS Canberra Ships Army Establishment Talisman Sabre 21*





Tiger ARH firing



Typhoon 25mm Remote Weapon Station



HMAS Canberra

## A Service of Thanksgiving

His Royal Highness the Prince Philip,  
Duke of Edinburgh 1921 – 2021

### Captain Frank de Waard

On the 29th March 2022 at 1130 h the royal trumpets sounded in Westminster Abbey and the crowd rose to its feet as Her Royal Highness Queen Elizabeth II made her way to her seat next to Prince Charles and I couldn't believe I was standing in this crowd of dignitaries in a building with centuries of history representing The Royal Australian Electrical and Mechanical Engineers. I am writing this article so that all past, present and future members of RAEME that get the chance to read the Craftsman magazine will get an insight into how it felt to be at the thanksgiving service of our former Colonel-in-Chief Prince Philip, who passed away in 2021 but was unable to have a thanksgiving service then due to the COVID restrictions.

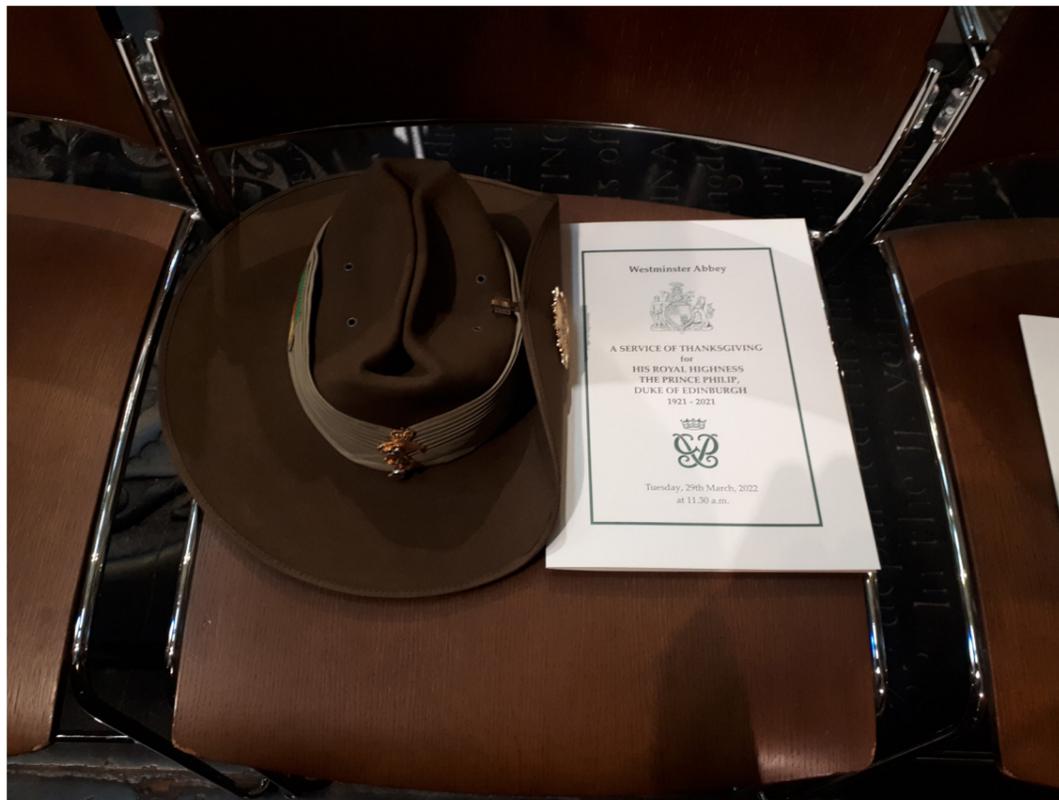
RAEME were given two seats to this prestigious event and I was joined by MAJ Stephen Venning as we are two of the four RAEME members posted to the UK at the time of the service. My day began with a trip down the M4 and then on the tube to Australia House which is located near the Thames River at a place called the strand and opposite the St Clements Dane Church. Originally built by the Danes in the 9th century and rebuilt in the 17th century and famous for the line in the nursery rhyme referred to in the George Orwell book 1984 as "the bells of St Clements". Once inside Australia house I met BRIG Grant Mason, DSC, DSM, ADC, who is the current Head of Australian Defence Staff (HADS) who was also coming to the service. He quickly showed me around the impressive building which was gifted to Australia in 1918. The building is covered in Australian marble and the foyer has been used for Harry Potter films and the staircase is in one of the Wonder Woman movies.

After this quick tour it was in a London Cab and down along the Thames to Westminster Abbey where there was already a crowd of journalists assembled for the arrival of the dignitaries to come. Of course, this was not us and the cabbie expertly weaved his way through the crowds and road blocks to drop us off at the end of the already long queue to get in before he was off to escort some American company executives around London for the day. Once in the queue the person behind us introduced herself in a familiar accent and as it turned out she had travelled from Hobart to be at the event and was the secretary of a sailing club based out of London that Prince Phillip was also affiliated with. Whilst I wouldn't have a clue how to tack or jib, if that even is a sailing term, BRIG Mason is a super keen sailor and showed her a boat he had previously built to sail around in lake Burley Griffin.

When we got to the entry point, I had my multiple forms of ID checked along with my ticket and then had to be security scanned off to the side because everything on my uniform set off the detectors, now we were ready to enter. There was a guard of honour at the entrance that comprised of a number of cadets from different services, I said G'day to them on the way past but they were too focussed say anything back and I wondered if they were going to be switched out as there was still two hours before the service began. Once inside we showed our ticket to someone and I was impressed when they said to make our way to the front as I was expecting to be up the back somewhere.

Walking through the Abbey I marvelled at the history in the place as I walked past the Christopher Hawking memorial stone and Poet's corner with the statue of Shakespeare and the hundreds of other members from centuries gone by.

Once at our seats a row of Canadian Infantry filled in behind, we got talking and turns out Prince Philip was associated with their Regiment and that one of the soldiers there belonged to a Battalion that had fought alongside 3RAR in the battle of Kapyong. I then noticed some REME CPL's so I decided to go and talk to them, turns out they drove the Land Rover for the funeral procession back in 2021. Their Corps RSM and HOC had brought along the youngest member of the corps, a 17-year-old crafty, who had just about fainted when he was called up to the COMDTs office to get the news. We swapped a few Bluebell warries and then I went back to my seat. The Abbey was starting to get very full with numerous members of great importance, there were a bunch of Generals a few rows in front of me and the lady I was sitting next to said she had something to do with horses but I suspect it was a bit more than riding around in the paddock as she was off to Lords for an official lunch after the service.



There was music playing as dignitaries started to arrive, Boris Johnstone came in and sat down just a few rows in front of us and members of the royal family started to make their way to their seats which were about 10 rows in front of where we were sitting but facing our chairs so I had clear vision of Prince Charles and behind him Prince William. As per my opening paragraph the Queen arrived and the service was underway. There was a very good speech by a recipient of the Duke of Edinburgh award who described how doing the tasks in the program to get the award helped her get her first job and build the skills we take for granted in the Defence such as teamwork, courage and organisational skills. There was plenty of hymns sung in which I kept to a very low tone, although some people around were belting them out. There was one amazing performance from a young

boy in the choir and at the end of the service the crowd rose to its feet for the British national anthem. Whilst I have no personal opinion on being a republic or remaining a monarchy, standing to attention, listening to God Save the Queen being sung in full patriotic passion to the actual Queen, its notes rebounding from the stone walls and pillars soaked in history in a building that has been used to crown all of the British monarchs since 1066 did have a special feel to it I must admit.

After the anthem the royal family and the other dignitaries started to leave and the service was over. In all the service was quite short, just the way Prince Philip would have wanted it, no fuss just as the Dean of the Abbey described in his opening bidding. I found myself wondering how Prince Philip would have been on 20th May in Bandiana in 1986 when he presented us our banner, I imagine he was keen for a beer at the end of it. As we filled out of the abbey it was back in a cab and back to Australia house to get changed and hop on the tube back to my car to head down the M4 back home.

I remain honoured to have been able to attend this service, alongside MAJ Stephen Venning, to be able to represent on behalf of all members of RAEME. I will be handing my copy of the service booklet and ticket to the HOC cell to do whatever they want with it as I believe it belongs to the corps not me. I hope this article can give all the readers an insight into what it felt like to attend the service of thanksgiving for His Royal Highness the Prince Philip, Duke of Edinburgh, 1921 – 2021, Colonel-in-Chief Royal Australian Electrical and Mechanical Engineers.

#### *Arte et Marte*



*CAPT Frank de Waard; BRIG Grant Mason, DSC, DSM, ADC; MAJ Stephen Venning*

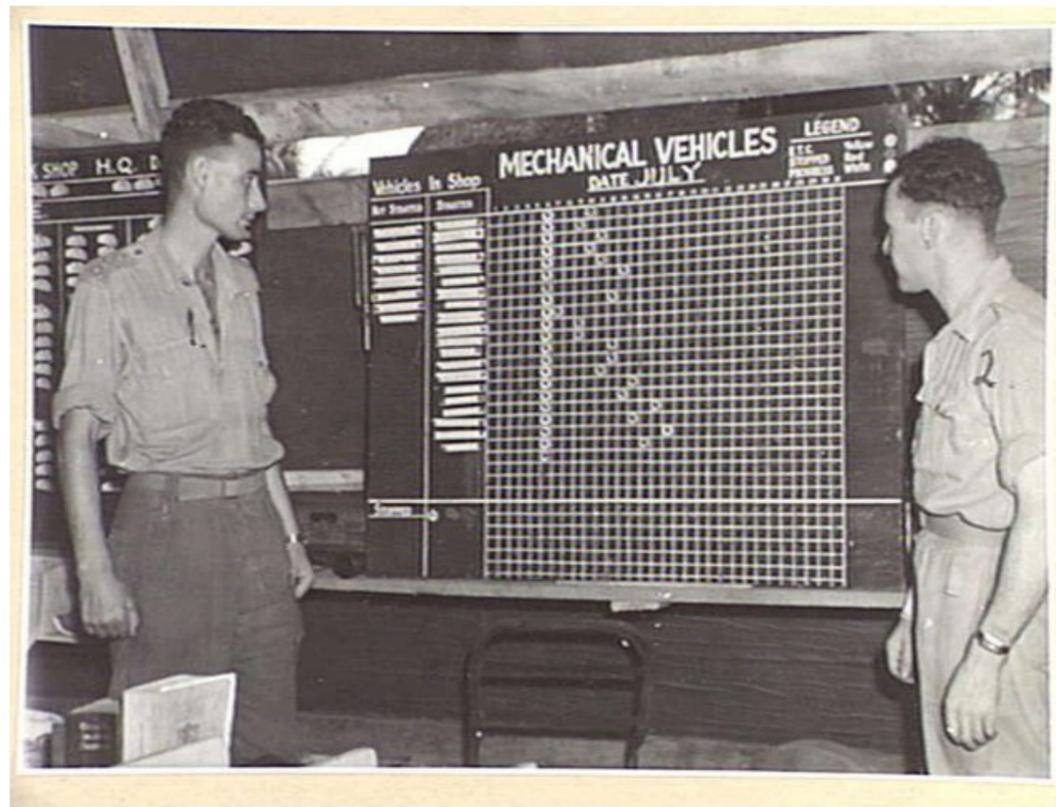
## 100TH BIRTHDAY CELEBRATIONS

### FOR AN ORIGINAL RAEME MEMBER (VX104343, V158035, 337556) BRIG (RETD) HERBERT “BERT” WHEATLEY BARKER

BRIG Herbert “Bert” W Barker (Retd) joined the Army in 1941, following completion of the second year of a Bachelor of Electrical Engineering course at Melbourne University. Although he didn’t complete his degree, he had previously completed a Diploma of Mechanical Engineering, and as a result, he was allocated to Australian Army Ordnance Corps (AAOC), as a Private. He then attended an Infantry Officer Training Course at Bonegilla.

Bert was commissioned in June 1942 and appointed to raise and command 320 Aust LAD attached to a major Signals unit at Balcombe, Victoria. A short time later, while attending an Ordnance Mechanical Engineering Wireless Course at the AAOC School, Broadmeadows, Victoria, he was transferred to the newly formed AEME Corps on 1 Dec 42. He celebrated his 21st birthday on 13 Dec 42.

Lieutenant, and later, Captain Barker, spent most of WW2 at Oatlands Golf Course, Parramatta, where the HQ of the Second Australian Army responsible for commanding forces in the Australian eastern states, was located. He then spent time on the Atherton Tablelands (1943) before heading to New Britain in 1944, where he served with 1 Infantry Troops Workshops till War’s end.



AUSTRALIAN WAR MEMORIAL

093794

1 Infantry Troops Workshops Pamalmal Plantation, Jaquinot Bay, New Britain, 1944-1945. CAPT Barker and Sergeant S Aaron review vehicle repair and maintenance production

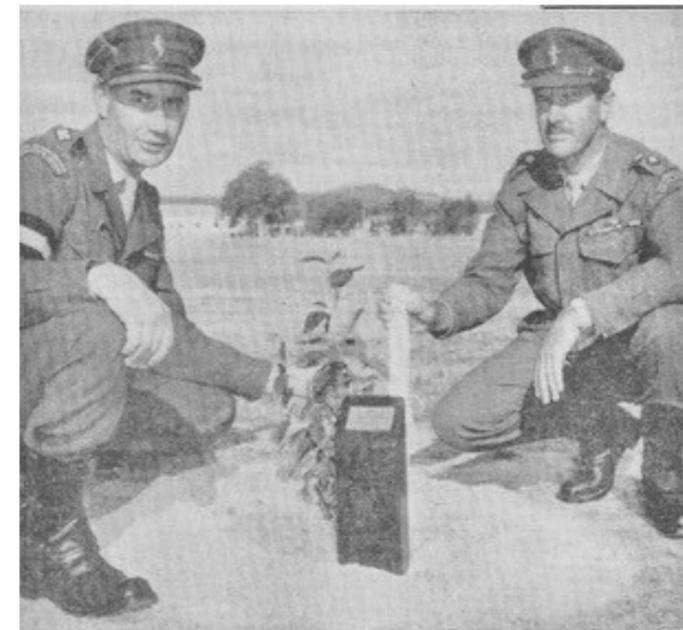


AUSTRALIAN WAR MEMORIAL

093787

Pamalmal Plantation Jaquinot Bay, New Britain, 1945 showing the Jeep repair line

Post WW2, BRIG Bert continued his service in several workshops’ postings in Australia until 1950, when he went to the UK to attend the Long Electronics Engineering Courses at REME Training Centre, Arborfield. He attended Army Staff College, Queenscliff, Victoria, in 1956 and was appointed CO & CI RAEME Training Centre from 1959 - 64.



LTCOL “Bert” Barker (left) handing over command of RAEME Training Centre (RTC) in 1964 to LTCOL Bruce C. Sefton, signified by a tree planting in the grounds of RTC

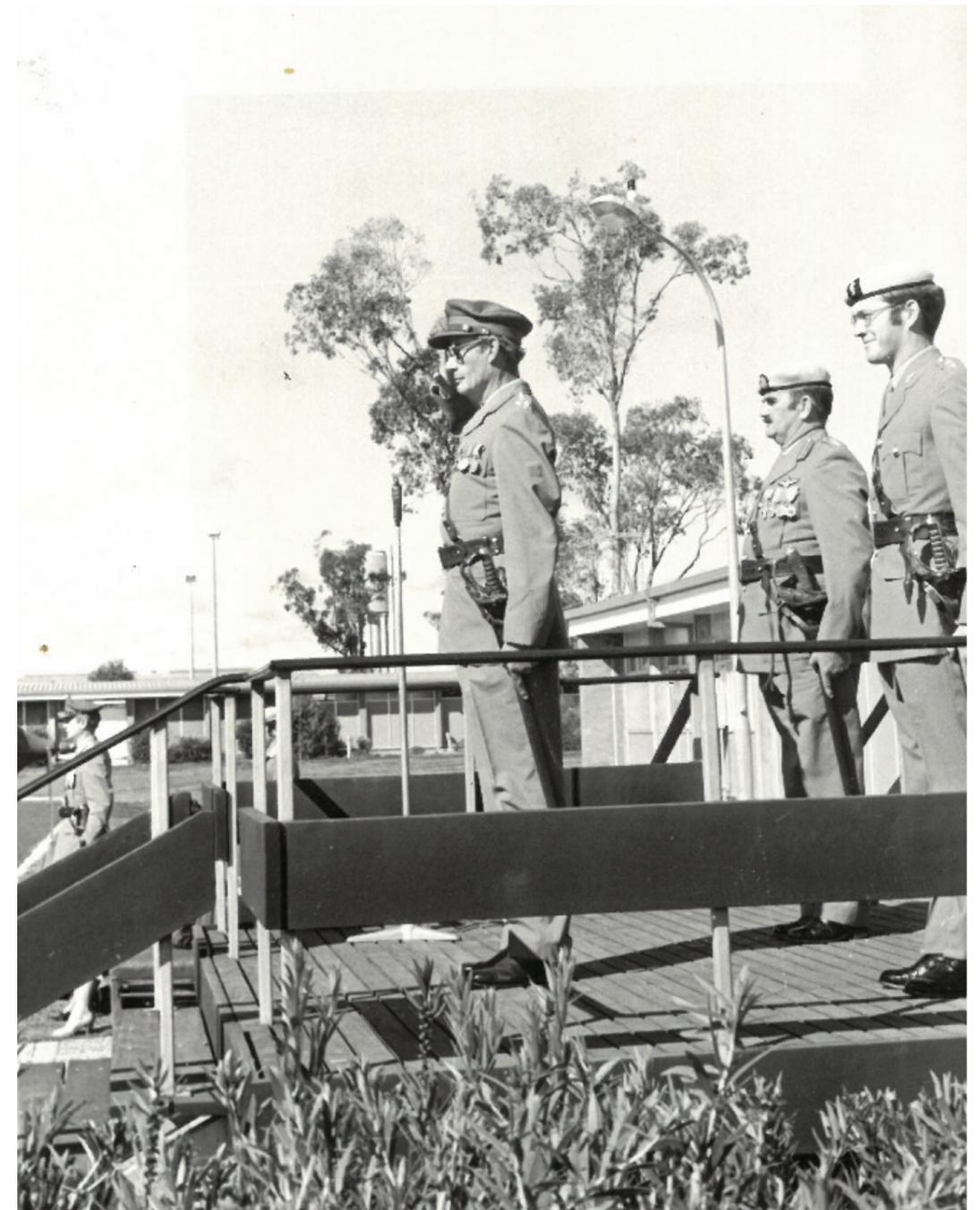
After three years as DDEME Eastern Command, Bert was promoted to Brigadier and appointed as Chief Superintendent Army Design Establishment (ADE), Maribyrnong, Victoria. He served for a further three years until resigning from the Army in 1974. During his time at ADE, he took part in the Rapier trials in Darwin.

In his subsequent civilian career, BRIG Bert worked as Regional Engineering Manager for STC, 1975, the Boy Scout Jamboree Executive Officer and CEO of Australian Fire Protection Association, each for about a year before relocating from Melbourne to a warmer climate in Northern NSW in late 1977.

He served as Colonel Commandant 1 Military District from 1980 to 1984.



*BRIG Barker, COL COMDT 1 MD visiting 5 Base Wksp Bn 1981, Oakey, discussing repairs to an aerofoil with CO, LTCOL Bob Millar*



*BRIG Barker taking the salute on the occasion of the 9th Anniversary of 5 Base Wksp Bn, Oakey 31st July 1981*

Bert married Nona in 1944 and they have three daughters, six grandchildren and eight great grandchildren. He and Nona live in Darlington Retirement Village, Banora Point, NSW. Whilst Nona receives full time care, he enjoys semi-care in the same facility, and is still driving his car and routinely attends local RAQ events. Bert turns 100 on 13 Dec 21.



*A recent photograph of two RAEME Brigadiers, BRIG Bert Barker and BRIG (now MAJ GEN) Andrew Freeman AM at an RAEME Association Queensland Lunch, Maroochy RSL, 2019*

BRIG Bert belongs to a rare surviving cohort of servicemen, not just because they are closing in on their 100th Birthdays, but also because they are original members of the proud Corps of RAEME, which will celebrate its 80th Birthday in December 2022. Bert is indeed a pioneer of the Corps and through his many postings, his various commands, training, and staff appointments, over 33 years' service, it is clear he made a huge contribution to the Corps, the Army and the ADF.

BRIG Bert is much admired by his peers but also by those members of the Corps who came later. Most recently, he has been an inspiration to a new generation of RAEME servicemen and women (serving and retired), as an active member of RAEME Association Queensland, where he regularly attends its many activities and lunches in Brisbane, and on the Gold and Sunshine Coasts. Congratulations, Bert, on this most important birthday.

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## A Personal History with RAEME

### WO1 Terry Dillon (Retd) 11th F&T

Served: Jan 1956 – Feb 1976

My love affair with RAEME started when I graduated from the Army Apprentice School in December 1958.

I graduated as a Fitter and Turner, but transferred to be an Instrument Fitter on completion of my apprenticeship because they received 1 shilling and 9 pence more a fortnight than fitters.

Over the next few years, I moved between Base Wksp to Field units. I completed my Artificer Course in 1965.

During my stay at 3 Base Wksp Broadmeadows in 1961, we had a great deal of trouble modifying Divers Watches. To facilitate the new bands we had to drill out the existing holes. As they were stainless this proved to be a problem. One day, whilst talking to a friend who was a machinist, he gave me some brown looking cutting fluid which proved to be very successful.

In 1968 I was posted to 102 Fd Wksp in Vung Tau, South Vietnam as the Artificer Instruments. The biggest frustration there was the delay in getting parts. I started up a close relationship with a Sergeant Costello from the American Army based at the Vung Tau Airport. He was a great source of supplies for a few of our instruments. We found that because the Instruments, particularly sighting equipment, were needed back in the fighting units ASAP that we had to cannibalise a great deal. This was done with BER (Beyond Economical Repair) equipment where possible.

Sgt John (Dutchy) Holland was a great example of innovation within RAEME. The APC 113's were having trouble with diesel leaking out of cracks in the fuel tanks inside the vehicle. There was thick layer of padding over the inside of the tanks, which was problematic as access had to be gained to the tank. The modification was to place baffles in the tank to restrict the movement of the fuel that was causing the cracks. Sgt Holland came up with the idea of using a circular saw to plunge cut into the tank from the outside. After the baffles were in place it was quite an easy matter to TIG weld the cut-out piece back in place.

My life was fairly normal until one day after laying concrete outside the Sergeants Mess; as it was Sunday we had consumed quite a few cans of liquid amber. Vehicle Mechanic Sgt Bruce Robertson (deceased) and I were asked to go immediately to the hospital and give blood as we had the right type A2 neg.

On arrival at the hospital I informed the Pathologist that we had consumed quite a deal of beer, hoping of course to be dismissed. His immediate response was "It's ok Sergeant Major we will keep him alive tonight and cure his headache tomorrow morning" RAEME to the fore.

In late May of 1968 I was asked to try and fix a couple of Infra-Red Sights on Centurion tanks at Fire Support Base Balmoral. What used to happen was that the sights would be turned on in the daylight and blow the Infra-Red Multiplier. After refitting I had to wait for

darkness to test them, which added to the task. This was made even more difficult as we were under attack and the tank crew wanted their positions back.

October 1968 saw the birth of 106 Fd Wksp at Nui Dat. I was in the advance party that spent the first couple of weeks filling sand bags and erecting tents, sighting and digging weapon pits. There were 120 American sand bags and 100 Australian sand bags to each tent.

The Instruments and Tels trucks were sighted alongside one another where we resumed our duties as a field repair team. After several weeks the Engineers built us a shed that we could work out of. The biggest problem in the dry season was the dust, as we had a vehicle access right passed the side of our shed. Cleaning optics and repairing pieces of equipment such as watches were confined to the workshop trucks.

We were supposed to be carrying out Field Repair, but invariably we were doing Base Repair. Parts were always hard to get in any time frame, so a great deal of cannibalising took place. We maintained a close relationship with 102 Fd Wksp and interchanged parts where necessary. This was done mainly on "the old boy" net. After all, we were all there for the one reason and that was to keep our Arms Services in the field.

My friend from the American Army helped out where possible. He was astounded at the repair we carried out under difficult circumstances. One day I asked if he could assist with some watch parts. He arrived a few days later with a bag full of about 70 BER watches. The repair of these necessitated the removal of the plastic glass. I gave the boys in the machine shop a design and they made up a device to remove the glass. Just about every Officer and Senior NCO in the Unit got a nice green field watch.

Being Soldier Tradesmen, we were responsible for our own patrols in what was called TAOR Patrols (Tactical Area Of Responsibility). Some Senior NCO's were selected to train with a Battalion before taking our own Patrols. I trained with Whiskey Company; New Zealanders attached to 6 Battalion. I was very proud to be an ANZAC!

My first training patrol was a little scary, because even though we had completed some infantry training before arriving in country it was nowhere near the real thing! I arrived at Whiskey Company around 1000hrs in time for pre-patrol briefings and the Orders Group. These are where you receive radio frequencies, map coordinates, support from Artillery, Armour, evacuations, etc.

From there we gathered to check weapons, ammunitions, rations, radios, compasses and water etc. The Corporal, who was to lead the patrol, introduced me to the other eight soldiers taking part. The introduction went something like this: "I will read the order of March; Warrant Officer Dillon, Private X, Private Y and so on". I thought to myself, hang on, I'm not really a forward scout. The whole section must have seen the blood drain from my face as they all had a good laugh at this very raw Warrant Officer!

We left the 6 Battalion perimeter at 1630 hrs and headed towards Nui Two, which was approximately 1000m. As darkness fell we went to ground and waited for approximately an hour. We patrolled into our night position which was only 750m away and formed a defensive formation for the night. The M60 machine gun and claymore mines were positioned and a roster made to man the M60 for two hour periods during the night. We patrolled the next day until 1200 hrs before returning to base. The section leader was impressed with my navigation and map reading skills which made my chest stick out. It was an uneventful exercise, however I learnt more from those guys than I ever did on

exercises in Australia. After another training patrol, I carried out two patrols with our Wksp personnel who performed to a very high standard.

My replacement arrived not long after this and most of the time was taken up showing him the ropes and introducing him to the wonderful contacts I had made. Small items like 'what instruments are likely to be a priority or estimating what to pre-order' are very important in active environment.

On my return to Australia in the April of 1969, I was posted to 4 Base Wksp Bandiana which was wonderful as my family could live with me. Although, I read a report which said that the children of service personnel were academically stronger than their civilian counterparts.

In January 1970, I was posted back to where it all began as the Wing Sergeant Major of the Metal Trades Wing at the Army Apprentice School, Balcombe. This was 14 years to the day since I arrived as a 15 year old not really knowing what end was up. I found nothing had really changed, however this time the Apprentice's couldn't work out how I caught them doing something wrong. My last posting in 1975 was to 3 Base Wksp at Broadmeadows in the General Engineering Wing.

I decided to discharge in 1976; as my two children had started Secondary College. I acquired several State Training Managers jobs in the next 20 years as the training and organisation skillset which I obtained whilst in RAEME were sort after in civilian life. I was also selected to manage the Australian Team of young Tradespeople to the World Skill Olympics in 1983, 1985, 1988 and 1990. This is a competition between under 23 year old tradespersons, held every two years around the world.

The highlight of my career was in 2003 when I received the Order of Australia Medal (OAM) for services to Vocational Education. I believe that to have a direct correlation to what I learned from being an Apprentice to Warrant Officer Class 1 in RAEME. I shall never forget it.

## Another First for RAEME

Des Kearton, a RAEME vehicle mechanic, was on the Centurion Recovery Vehicle, 169122, in March 1968 on the first Centurion Tank Operation, Pinnaroo, in Vietnam. My unit was 1st Armoured Squadron Workshop, RAEME, to repair and recover the first Centurion Tanks to go Vietnam in February 1968.

The ARV on operations did RAEME proud. Our unit was attached to C Squadron, 1st Armoured Regiment in Vietnam 1968, and was in the Battle of Coral and Balmoral in May 1968. In May 2018, we were awarded the Insignia to the Unit Citation of Gallantry for this battle in May 1968.

In September 2020, I, Des Kearton, had a ride on our ARV, 169122, 52 years after Vietnam.

The ARV has had a complete overhaul, and is ready to go to war again.

Tim Wood, who now owns the ARV drove it, and we went around the test track.

I had my black beret with my RAEME badge, also my Army dog tags, and the 30 Cal shell that I fired in anger on the operation in May 1968.



Tim Wood and Des Kearton in front of ARV 169122



Centurion Armoured Recovery Vehicle (ARV)

Also on the day was the Centurion Bridge Layer that was with us in Vietnam in 1968. It is also fully operational.



Centurion Bridgelay



Centurion Dozer Tank

Centurion Dozer Tank was on display and went for a drive on the test track.

Tim Wood of TANK RIDE, is located near Tamborine Village, in South East Queensland, and you can see all his vehicles on his web site.

A lot of water has gone under the bridge in 52 years, and we would do it all again.

WE KEPT THEM ON TRACK.

## OPERATIONS

### The last Bluebell in the Middle East

#### WO2 Alex Fay

I'm WO2 Alex Fay, the ASM of 10 Force Support Battalion in Townsville and currently the ASM of Joint Task Force 633 Log, formerly known as Middle East Support Unit, and Force Support Element/Unit prior to that. Along with the changes in what our element has been referred to by name, there has been a gradual reduction in all ADF personnel in the Middle East.

I am a newly promoted Warrant Officer in my first ASM appointment. It was already a great honour to be appointed as ASM of an enormous logistics unit like 10 FSB and I was delighted to learn that my unit would become the mounting headquarters for Middle East Support Unit – 2 (MSU-2) in 2021. I quickly learned that I was going to lead a small team of both RAAF ground support equipment (GSE) maintainers and RAEME tradesmen split between an airside workshop, and a ground workshop in separate precincts of Al Minhad Air Base in the UAE. This is nested within a larger force of logistics personnel.

In July 2021 we concentrated our joint force of logistics personnel in Townsville under the command of our RAEME OC, MAJ Geoff Barbour. MAJ Barbour also appointed me as his 'CSM' since he wasn't allocated one on the staffing as a "development opportunity" in his humour. It was during our force concentration that we came to realise that the ADF presence in the Middle East Region (MER) was rapidly changing and that none of our positions on the deployment were safe. Are they ever though?

Nevertheless we progressed through the classic hoop jumping required in pre-deployment training which included pistol shooting, tactical care of a combat casualty, CBRN training and mission rehearsal exercises. This was all intersected by the usual briefs on things like welfare and money management. Apparently, financing a \$50k Ford Mustang on a 15% p.a interest rate isn't a sound decision! You live and learn I guess. The team worked together really well and we spent some time together discussing our similarities and differences between the RAAF way of life in maintenance, and the RAEME way. Perhaps somewhere in between is the 'right' way of doing it.

Unfortunately, through all the turbulence of organisational changes we lost a position off our team and sadly, our fitter armourer, CFN Sam Walsh wouldn't join us any longer.

Finally, we were set to deploy. Before we left it was decided that the MSU organisational name would cease and we would now form a logistics element under the direct command of the Joint Task Force 633 HQ. What did this mean to us? Not a lot.

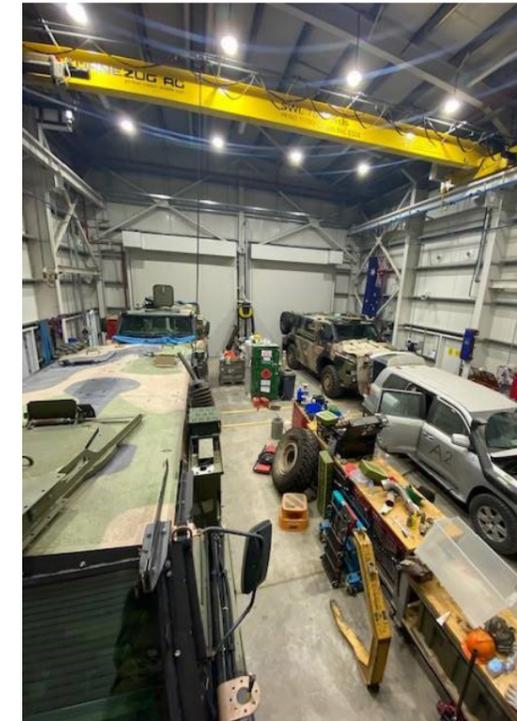
We arrived in country in September at the tail end of the end of the Australian Non-Combatant Evacuation Operation out of Afghanistan, the greatest humanitarian evacuation in Australian history. 1 RARs ready combat team were still around, HQ staff were tired but full of interesting stories and the camp was on a high COVID alert with full-time mask wearing in effect. The place was buzzing!

WO2 Jamie Smith was the ASM of MSU-1 and welcomed us into the precinct with his team. I was also lucky to have WO1 Mark Warde in the HQ who I hadn't seen since 2005. Small world! The RAEME lads inherited a large air-conditioned workshop that would rival

anything we had back home. Well-resourced with every tool and consumable you could ask for. A result of the forward workshops rolling back into our location as they closed up and bringing their workshops and tools with them.

The main effort was the preparation of equipment for return to Australia with the odd amount of small arms and medical equipment maintenance along the way.

CFN Jake Whitlock was kept busy de-fitting electronic countermeasures from armoured Landcruisers and mucking in with the VMs. LCPL Williams-Flack became an honorary medic and maintained the health centre to make sure we had a decent amount of service life on all their equipment once we departed. Lastly, the VMs hooked into the PMV sea preparation and the RAAFies were kept busy by the Air Task Group and their C-130 GSE.



The RAEME workshop with PMVs and an up-armoured Land Cruiser inside

Jamie's team designed the equipment return process. PMVs had the power pack removed along with its floor plates, any local modifications and the remote operated weapons stations, if fitted were removed too. Once the vehicle was hollowed out, it was towed via A-frame to the wash point and steam cleaned. When the vehicle dried (and it didn't take long!) the power pack and interior was re-fitted. The wheel stations and difficult to access areas were sea-prepped with preservative and the vehicle became ready for its general preservative spraying.



A PMV at the wash point, CFN Whitlock steam cleaning the engine bay

The final process could now occur. A large quantity of equipment including PMVs, MHE, Satellite Comms Stations, Tricons, Aircraft Tow Motors, Aircraft Loaders and Armoured Landcruisers were set aside to return to Australia in a large hangar. Final prep was conducted by donning the 'sperm suit' and respirator before applying final coats of Iron Clad preservative and treating fuel systems.



LCPL Pates applying IronClad preservative



All sea move equipment prepared and ready for transit



CFN Whitlock lowering the RAEME tri-colour for the final time



The RAEME team with the tri-colour after it was lowered

The workshop teams worked well together to get everything completed on time with only a few bumps and scrapes (mainly sustained by LCPL Pates) along the way. It seemed like our team were getting ready to depart AMAB whilst feeling like we'd just arrived, but that's the nature of our work. We cleaned up the workshop, returned many of the tools and turned the lights off, making it ready for whatever comes next. Finally, the tri-colour was lowered for the last time in the Middle East on 08 November 2021.

I may have been destined for this task in the Middle East. I first deployed to the region in 2007 as a junior CFN, with only 6 months post-IET time under my belt, as part of the Overwatch Battle Group 4 in Iraq. Towards the end of our trip there, 'Kevin 07' roared through the camp gates in an ASLAV and announced we were finished and heading home. It became the final rotation to Iraq and Op CATALYST ceased in 2008. I was amongst the last RAEME in Iraq, until we went back more recently of course...

In 2013 I deployed as a CPL to the Solomon Islands as part of Op ANODE. The country was already in the midst of a handback of security to the Royal Solomon Islands Police Force and backed by the AFP. Our small workshop lowered the tri-colour, packed our things and headed home.

Now I find myself back in the MER as an ASM on the tail end of Op ACCORDION, again drawing things down, shipping things home, and again, lowering the tri-colour for the final time in a country. Our team have returned to Australia and I was asked to stay on for a little longer as the Operations Warrant Officer in the joint HQ under the new RAEME-less structure. Upon being asked to write this article I was curious as to how many of us remain in the region as a whole and with some help from the personnel officer, he confirmed that sadly, I'm the last (enlisted) Bluebell.

I'd like to acknowledge all Bluebells who have contributed to their respective missions in this region. I think it's clear that some outcomes were not achieved as we would have liked and that recent events have provoked some strong emotions. However, I do believe that one thing is clear irrespective of what happened strategically. Bluebells get things done, they look after their mates and they do it all with a unique humour that is typically RAEME. For that we can all be proud.

### **Arte et Marte**



Members with their 'spanner packs' from the National RAEME Association

#### The 2021 JTF 633 Workshop team

- ASM – WO2 Alexander Fay
- Vehicle Section – CPL Josiah Palombini
- Med & Dent Tech – LCPL Joshua Williams-Flack
- MEOMS GMEFITT – LAC Jai Thomson (RAAF)
- ECM Technician – CFN Jake Whitlock
- SNCO MEOMS – SGT Gareth Loftus (RAAF)
- MEOMS GSETECH – CPL Yuki Masaoka (RAAF)
- MEOMS GSETECH – LAC Ben Marschall (RAAF)
- Vehicle Section – LCPL Timothy Pates

## Vehicles Come Home

### FLTLT Clarice Hurren

(Article reproduced from Army News Issue 1500 20 Oct 2021)

A team of Army vehicle mechanics and technicians is busy preparing Protected Mobility Vehicles (PMV) to be transported to Australia from the Middle East. The majority of the personnel in the team deployed on Operation Accordion are from the 10FSB base in Townsville. The vehicles will be transported via ship, and preparing them for transport is providing the mechanics and technicians with new skills to bring home.

Artificer Sergeant Major and OIC of Workshops WO2 Alexander Fay said the work undertaken in the Middle East was different to what the team would normally be exposed to, especially in a tri-service environment. “The team is made up of fairly junior specialists consisting of eight members split between the air-side maintenance section and the land side,” WO2 Fay said. “Here in the Middle East, they have the ability to do far more hands-on work with the PMVs than they typically would.”

“A lot of the equipment is exclusively kitted-out for operations in this region, creating unique challenges and opportunities for the team to develop new skills.”

WO2 Fay said the sea preparation of PMVs involved an initial deep clean and de-fitting of equipment installed for the Middle East environment. The power pack is then removed and the vehicles are towed over to the wash point where they receive a further clean, are reassembled, and the fuel systems are treated for transit.



LCpl Timothy Pates in front of a protective mobility vehicle prepared for deep clean at Australia's main operating base in the Middle East. Photo: Sgt Glen McCarthy

“The largest challenge we have is the environment in the Middle East. It’s hard to keep everything clean for the sea move once a task is considered complete,” WO2 Fay said.

“The qualifications gained and experience had while deployed on Operation Accordion will greatly assist each mechanic and technicians’ careers moving forward.”

Mechanic Cpl Josiah Palombini said each PMV required a six-hour pressure wash as part of the process to prepare the vehicles for transport and took six days to complete the whole preparation task.

“Basically, we have to completely hollow out the vehicle. We have to strip up the floors, remove transmission covers, pull the power pack out and a whole lot more,” Cpl Palombini said.

“In Townsville, I haven’t worked on PMVs since my technical training course, so it’s great to re-learn.”

Mechanic LCpl Tim Pates said it was rewarding to see the work achieved by the small workshop team in just a few months.

“It’s really fulfilling to see the work complete. 10 years’ worth of dirt, grime, dust and build-up all gone,” he said.

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## RAEME Comfort Care Packs 2021

### Major R.G. Norman, OAM (Retd) on behalf of the Chairman RNN and RAQ

In early 2007, the RAEME Association New South Wales (RANSW) commenced a comfort care pack program for RAEME men and women on operations. Mr Fred Jolly and Mr Clyde Cook managed and coordinated this early program on behalf of then President and Committee of RANSW. During this period approx three hundred packs were dispatched to RAEME members on operations.

In November 2007, the President RANSW, Mr Brendan Robertson, wrote to other state and territory RAEME Associations requesting assistance with this program and RAEME Association Queensland (RAQ) agreed to take over the management and coordination of the program.

“Operation Spanner Pack” was created by the RAQ and the program was managed and coordinated by RAQ until 2011, at which time, the RAEME National Association (RNA) now the RAEME National Network (RNN), was formed. The President of the RNA negotiated with RAQ to take over management of “Spanner Pack”, as it became known, as well as the coordination function, to remain with RAQ. In 2016, RAQ once again for various reasons assumed the management and coordination function of “Spanner Pack”.

Many former and serving members of the Corps have assisted in the packing and distribution of these packs over the years, and all those who have participated are delighted that our serving men and women get a significant lift in their morale, and a break of the daily routine, from the content of the packs, but also knowing their Corps members (old and new) care about them on operations.

To date October 2021, 4782 (approx 9100 Kg) “Spanner Packs” have been dispatched to RAEME members on operations in Iraq, Afghanistan, Middle East, Solomon’s and Timor including embedded RAEME members. The program will continue while there are RAEME person serving overseas in operational areas. We have been grateful for the support of many organisations who have funded the program over many years including the following:

- RAEME Corps Committee;
- All RAEME Regional Associations;
- Individual RAEME members; and
- Several Defence Contractors Nationally

Spanner Packs have included item such as magazines, grocery items, RAEME memorabilia and merchandise, and solar charging panels to name a few. We are always looking for new and popular items to put in the pack and appreciate feedback on their contents.

Operation Spanner Pack has been a great success and a moral boosting program. Many letters of thanks from our RAEME men and women have been received over the years (see next article).

Donations to Spanner Pack can be made by visiting [www.qld.raeme.org.au](http://www.qld.raeme.org.au) the “SHOP” page and the donation field.

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## Letter of Gratitude

### WO1 Mark Warde

WO1 Mark Warde  
HQJTF633 J4 EMEWO  
AFPO 12  
Australian Defence Force  
Sydney New South Wales 2890

*Dear Raymond,*

I just wanted to take some time to write to you in regards to 'Operation Spanner Pack'.

First and foremost, a personal thanks to you and all members of our wonderful Association for my own spanner pack. The pack provided a great spread of treats as a 'pick me up' when needed, and of course it is always good to have more Corps paraphernalia to display. The stubby coolers in particular always make it easy to identify a fellow Bluebell on bar night.

As perhaps the last EMEWO in the Middle East Region (who knows what the future holds in that regard) I would also like to say thank you on behalf of all the RAEME members that have received a Spanner Pack over the years. To every member (past and present) of our fine Corps that have contributed to the Spanner Packs via the RAEME National Network, state and Territory RAEME Associations and the RAEME Corps Committee, thank you. Your efforts have been greatly appreciated by a generation of RAEME members while they have served here in the Middle East Region on various Operations.

Secondly, to you, Raymond, on behalf of our current generation of tradies thank you for your efforts over many years in providing these Spanner Packs and your efforts in support of our Corps in general.

Arte et Marte.

Kind regards,

*Mark Warde*

Mark Warde  
Warrant Officer Class One  
HQJTF 633 J4 EMEWO

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## Spanner Pack letter from ASM JT633

Hello Ray,

I am the current ASM of the Joint Task Force 633 workshop here in the Middle East. Back home I'm the ASM of 10 FSB in Townsville. I have a small team deployed here with me; 2 Vehicle Mechanics and 2 Boffins. I'm also responsible for some of our RAAF brothers who maintain the ground support equipment for air operations. We arrived in September.

I wanted to write and express my sincere gratitude for your operation spanner packs you sent. Im almost certain that I've received one of these for each of my three deployments, dating back to 2007 in Iraq! It's so pleasing to receive these. It's not just about the goodies, but it's a warm feeling to know we have the corps association behind us, reinforcing that special camaraderie that is unique to RAEME. We had more packs than we needed so decided to extend the corps love to our orphan RAAF GSE guys. Perhaps one will defect to our corps one day because of it? They were very well received!

A little about what we're up to over here. We're drawing down operations in the middle east and sending lots of equipment home. Our work here has been centred around sea preparation of equipment to go home via sea. For the PMVs we've removed each power-pack and thoroughly cleaned the insides of the hulls and under the floor plates. We replaced the packs, removed local mods and applied preservative to the exterior of the vehicle to protect it from corrosion. Now all we're waiting for is a ship to come and collect them. It's been a short trip for the guys but they're fortunate to have had this opportunity.

Unfortunately, once we depart it will be the end of RAEME representation in this country and the region. I am transitioning to a role in the HQ OPS room and by my calculations, will be the last bluebell in the Middle East. Please keep an eye out in the Craftsman magazine as I'm currently writing an article for it based on my experiences. I also encourage you to look at a video that was made showing what we're up to here <https://youtu.be/Fg1oIMVnGLg>.

Thanks again Ray. To you and the RAEME Association. We're so very lucky to be looked after in this way. I have put together a small package of RAEME memorabilia that was spared from the recent visit by the Army History Unit. Perhaps you can display it somewhere or just keep it for yourself. Please keep in touch with me for anything I can help with. I have CC'd my normal home email address.

Kind regards, **Arte et Marte**

Alex Fay



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## On the Tools

(Article Reproduced from Army News edition 1483 4 Mar 21)

### MAJ Kris Gardiner

The workshops of Force Support Element - Rotation 13 (FSE-13) in the Middle East region gained an eager new recruit on February 12.

Commander Joint Task Force 633 Rear Admiral Michael Rothwell spent the afternoon gaining an understanding of the down and dirty of keeping everything functioning properly, from protected mobility vehicles to medical equipment.

Officer Commanding FSE-13 Major Peter McAuley said he was more than happy to take on the new recruit, who was eager to get onto the tools.

“The workshops are pretty busy at the best of times, so to have an extra, and willing, set of hands available, particularly those of Rear Admiral Rothwell, was very welcome,” Major McAuley said.

Joining The Royal Australian Electrical and Mechanical Engineers at Camp Baird and wearing a specially prepared protective dress uniform, Rear Admiral Rothwell was thrown into the deep end, undertaking a Bushmaster engine replacement.

Like a good apprentice, the commander took advice and guidance from the qualified mechanics to prepare for and subsequently remove the entire power pack.

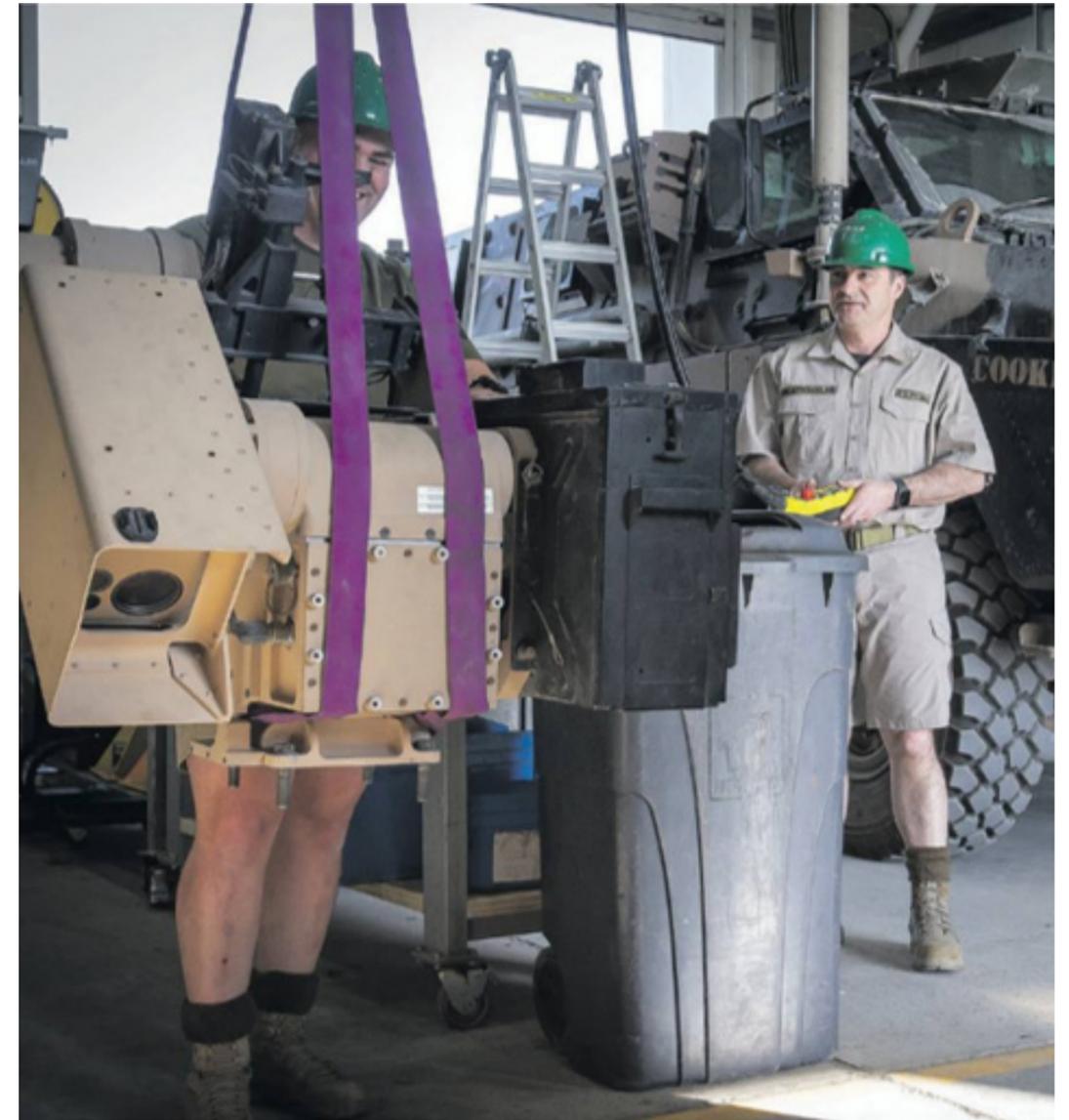
Beyond the work experience, it was the first time Rear Admiral Rothwell had seen the process of engine removal of the vehicle type, leaving him impressed with its functionality and design.

While the chance to turn spanners was all good fun, on-the-job experience provided an opportunity for the commander to understand the different roles within Joint Task Force 633.

“Command is strongly enhanced by personal presence and not just working in a headquarters all the time, although of course the latter remains important to the function of a geographically displaced Joint Task Force,” Rear Admiral Rothwell said.

“I very much enjoyed mixing with our troops and understanding their day-to-day functions. I hope they enjoyed the opportunity to interact with me too.

“By engaging in activities like those in the workshop, I form a clear understanding of what our fine and talented people do, in this instance, a Bushmaster engine change. The uniform was pretty special too.”



*RAdm Michael Rothwell, right, and Cfn Brenton O'Brien use a workshop crane system to remove the powered weapon system from a protected mobility vehicle at Camp Baird. - Photo: Sgt Ben Dempster*

## Operation COVID-19 Assist

### Application of Lean Six Sigma tools and Systems Thinking Approach- for Victorian Aged Care Response Centre (VACRC)

Colonel Jason Cooke <sup>a</sup> and

Lieutenant Colonel Sandeep (Sunny) Jadhav <sup>b</sup>

<sup>a</sup> Senior Australian Defence Force Liaison Officer, Victorian Aged Care Response Centre Joint Task Force 629, <sup>b</sup> Chief Engineer Land Vehicles Systems Branch, Capability Acquisition and Sustainment Group

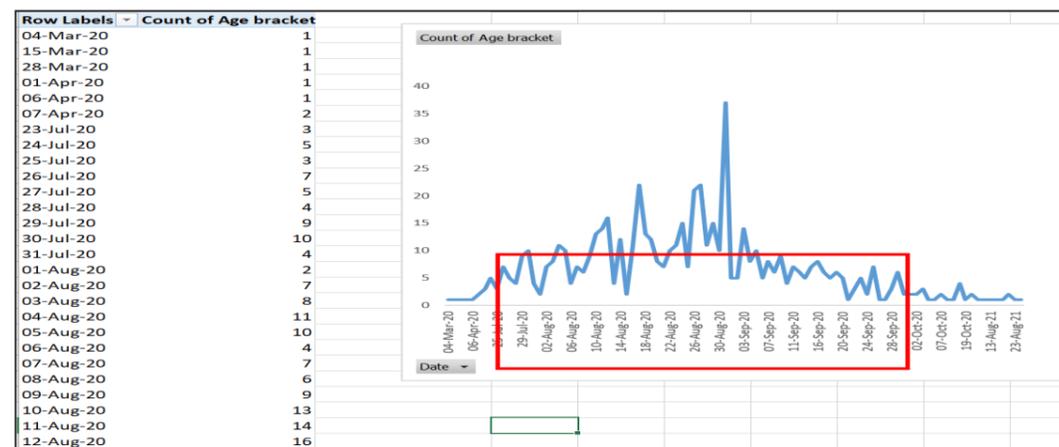
Email: [Jason.Cooke4@defence.gov.au](mailto:Jason.Cooke4@defence.gov.au), [Sandeep.Jadhav@defence.gov.au](mailto:Sandeep.Jadhav@defence.gov.au)

#### Abstract:

The six sigma tools and systems thinking approach were the catalyst for addressing the COVID-19 outbreaks in aged care sector of Victoria in 2020. When COVID-19 started to spread rapidly within Melbourne aged care facilities, a response centre was formed at extremely short notice to stabilise the situation. In that centre there were excess of 21 different organisations with multiple backgrounds, values, terminology, routines and corporate cultures that needed to work together in concert. This article will discuss how the Australian Defence Force assisted and supported their civilian counterparts in responding to the COVID-19 crisis in the Aged Care Sector, and depict how megatrends of management frameworks, predictive approach to solution design and six sigma principles were applied to:

- Identify synergies and value streams to coordinate resources across the numerous stakeholder agencies.
- Predict the outbreak to get ahead of the disease.
- Develop protocols that arrested and stabilised the situation.

The article will also discuss the underpinning threads to understand 'economies of speed', decision making in uncertainty and ambiguity, and a Metric that Matters the Most to assess Aged Care facility's wellness. It will also detail critical inputs to achieve the required medical effect and their interactions.



Number of deaths within the aged care sector vs Time in Months. (Source: [www.dhhs.gov.vic.au](http://www.dhhs.gov.vic.au))

## INTRODUCTION

The criticality of Coronavirus Disease 2019 (COVID-19) outbreak was identified within Victorian residential aged care facilities on 22 Jul 2020. This outbreak went on to claim the lives of over 35 senior Australians within one month. The Secretary of the Department of Health (DoH) and other Senior Officials met to develop the best approach for responding to this situation. On 24 Jul, the Victorian Aged Care Response Centre (VACRC) was established. The VACRC quickly identified the lack of coordination between supporting agencies fuelled by a lack of clearly-defined roles or responsibilities. This was creating confusion across the broader aged care community.

The complexity of the VACRC's initial response was further exacerbated by the rapidly evolving crises and subsequent outbreaks. It therefore became apparent to the Executive Officer (EO) that agility in the response time was critical and the importance of this meant the original expectations regarding governance, authorities, facilities and systems, although important, were lower priorities.

Commercial entities or complex Defence projects environments commonly develop and apply mathematical models and employ systems engineering principles for knowledge discovery. They typically use a series of purposed verification and validation activities or detailed analysis of systems under study. The mathematical model-based experiment discipline is also increasingly being used in product and process life cycle testing, to mitigate program risk by revealing problems early in system design and/or sustainment. Testing informs acquisition management systems and fundamentally identifies the inputs which are potential causes of risks. With timely knowledge these system key inputs being critical, many organisations seek specialist subject matter expert (SME) advice to address challenges and develop solutions. In the case of COVID-19 management, the vast range of potential variable combinations becomes virtually impossible to manually solve.

Statistical design of experiments (DOE) provides a method for optimising the inputs of greatest influence, understand the system-effect of their variability, and address any uncertainty especially in a resource and time constrained environment.

This article describes the systems-thinking approach adopted to introduce an agile, predictive model to support the VACRC in its response to the COVID-19 crisis in the Victorian Aged Care Sector.

## BACKGROUND

On 24 July 2020, key stakeholders were identified and a small planning team was established by VACRC to scope out the agencies, policy and departmental boundaries associated within the Aged Care Sector. Initial scoping and planning identified that Australian Defence Force (ADF) support would be crucial in strengthening the response arrangements. (Interview, Mr Joe Buffone, EO VACRC circa Aug 20)

The VACRC team was formalised to commence the operation on 27 July due to the worsening situation occurring in selected Aged Care Centres. Each of the 21 identified stakeholder agencies, brought diverse skill sets, cultures, IT systems, business goals and responsibilities along with reporting demands and expectations. The VACRC was galvanised by a common stakeholder resolve to work to their full capacities however COVID-19 was winning the fight. The COVID-19 infection was rapidly spreading through our most vulnerable residential aged care facilities where the velocity, capacity and modes of infecting had overwhelmed their structures. Residential Aged Care facilities

were not specifically set up to combat an aggressive virus, lacking adequately trained staff, non-clinical physical designs and layouts of facilities nor having clinical processes or procedures documented nor implemented. Additionally, they lacked agility with their information systems and reporting procedures with data stored in silos and not integrated across the datasets, facilities nor the departmental agencies assisting in their daily operations.

These were all major contributors in the Aged Care Sector being unable to combat, stem or control the spreading virus across the facility network within Victoria. The computation of real time or near real time risk analysis of the facilities was not possible. This was further aggravated by lack of clarity in the process understanding and identifying key input variables and the outcome.

The first challenge for the VACRC was to orchestrate and develop a robust intelligence feed and a functional common operating picture (CoP). The VACRC needed to fuse multiple streams of data and information with varying levels of coherence to assemble the CoP. They then needed to determine the next Course of Action to achieve steady-state operation of VACRC underpinned by an evidence-based decision-making process.

Taking a quality approach for shifting the paradigm from Detect-to-Prevent to Predict-to-Prevent was required to defeat outbreak of COVID-19 within the aged care sector of Victoria under such an ambiguous and uncertain circumstances.

## IDENTIFYING KEY COVID MANAGEMENT INPUTS AND CLARITY OF PROCESS

### 3.1 Phase 1. Planning

To accelerate knowledge discovery and to identify key input and output variables involved in provision of the requisite medical effect to aged care facilities, a cross-functional stakeholder engagement activity was conducted. To challenge potential organisational bias from the stakeholder agency SMEs, a non-prescriptive approach was adopted to determine best approaches for detecting and preventing further outbreaks. The paradigm-shifting methodology is in Figure 1.

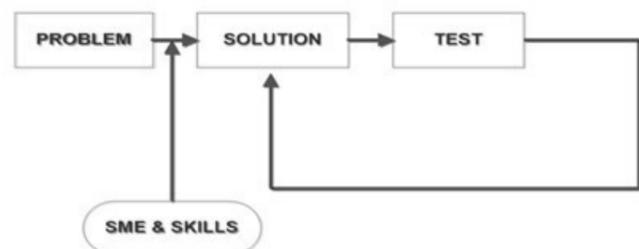


Figure 1. Detect and Prevent Approach

A checklist was developed for SME compilation which had over 40 entries assessing more than 20 factors. This proved to be extremely challenging for the SMEs to provide knowledge of approximately 1,080,000 combinations generated by these factors. To overcome this, the approach was refined as depicted in Figure 2 was deployed using SME knowledge and skills to identify key variables and to predict their effects. (EA /CE forum of 2 Aug 21)

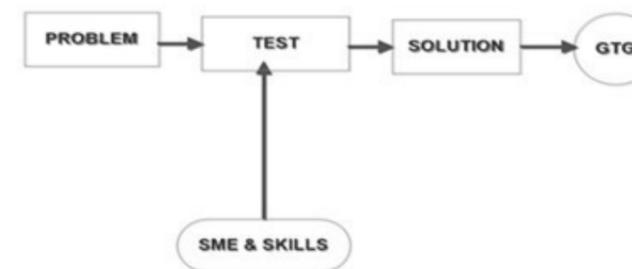


Figure 2. Predict and Prevent Approach

Using the refined approach and through using targeted brainstorming sessions, the following key inputs impacting Aged Care Facilities were identified as:

- Leadership
- Infection, Prevention and Control (IPC)
- Operations Management (e.g., PPE, training, efficiency and effectiveness of extant processes), and
- Clinical element within the Aged Care Facility

Once the inputs were identified, measures of system performance—or medical effect scale—was developed in order to provide guidelines for assessment of the output measurement, accuracy and precision. Random replications were created using Taguchi-L8 for the DoE setup. A regression model approach was utilised to illustrate the relationship between a response that is medical effect and input variables such as leadership, IPC, operations management and clinical. Statistical significance of input variables was understood using p-values and their importance was analysed. In order to develop a regression model based on the significant effects either main or interaction, the first step was to determine the regression coefficient.

SMEs ranked the medical effect of the random combinations on a scale of 1-10. This was done as a well-designed trial that could answer the unknowns more efficiently with fewer trials if the responses were repeatable, accurate and measured on a continuous scale. As a rule of thumb, binary responses often require ten times as many test samples as objective measures for the same degree of statistical precision (Bisgaard and Fuller 1995; Montgomery 2009). Numerical or categorical responses fall somewhere between the extremes of accuracy and reliability. Subjective judgement was a combat multiplier and extremely important, particularly when the response data was not available or when assessing outlier responses. The lack of information presented by binary responses has long been recognised in the statistical community (Bisgaard and Fuller 1995; Cook 1996, 1998). Wherever possible, professionals should try to develop alternative quality measures, including subjective grading if necessary. Experience has shown that many responses may be converted into continuous variables after thoughtful consideration of physics behind the response (Simpson, Listak, Hutto 2013).

With the responses documented and all combination of factors considered, a mathematical model was created (as detailed in Figure 3). This was absolutely mandatory for building a predictive approach to the response function, that is, the medical effect. Whilst it was clear from regression coefficients of Figure 3 that leadership, IPC, and operations management had more importance due to their higher coefficients; it was necessary to examine the interactions of these inputs.

SUMMARY OUTPUT		Force Constant to Zero FALSE							
<b>Regression Statistics</b>									
Multiple R	0.978	Goodness of Fit >= 0.80							
R Square	0.956								
Adjusted R Square	0.936								
Standard Error	0.494								
Observations	16								
<b>ANOVA</b>									
	df	SS	MS	F	P-value				
Regression	4	57.75	14.4375	59.09302326	0.000				
Residual	11	2.6875	0.244318182						
Total	15	60.4375							
Confidence Level: 0.95									
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 99%	Upper 99%	
Intercept	0.53125	0.305823567	1.737112694	0.110	-0.141863132	1.204363132	-0.41858	1.481079	
Leadership	0.625	0.247142763	2.528902694	0.028	0.081042446	1.168957554	-0.14258	1.392578	
IPC	0.421875	0.030892845	13.65607455	0.000	0.353880306	0.489869694	0.325928	0.517822	
Ops Mgmt	1.375	0.247142763	5.563585927	0.000	0.831042446	1.918957554	0.607422	2.142578	
Clinical	0.109375	0.030892845	3.540463772	0.005	0.041380306	0.177369694	0.013428	0.205322	
y = 0.531 + 0.625*Leadership + 0.422*IPC + 1.375*Ops Mgmt + 0.109*Clinical									
<b>RESIDUAL OUTPUT</b>				<b>PROBABILITY OUTPUT</b>					
Observations	Predicted	Residuals	Standard Resi	Sorted Residu	Percentile	Response-2	LCI	UCI	LPI
1	1.06250	-0.06250	-0.14766	-0.81250	3.12500	1	0.692033	1.432967	-0.0481
2	1.93750	0.06250	0.14766	-0.68750	9.37500	1	1.567033	2.307967	0.826091
3	5.81250	-0.81250	-1.91953	-0.06250	15.62500	2	5.442033	6.182967	4.701091
4	6.68750	-0.68750	-1.62422	-0.06250	21.87500	2	6.317033	7.057967	5.576091
5	3.06250	-0.06250	-0.14766	-0.06250	28.12500	3	2.692033	3.432967	1.951091
6	3.93750	0.06250	0.14766	-0.06250	34.37500	3	3.567033	4.307967	2.826091

Figure 3. Mathematical Model and Regression Analysis

### 3.2 Phase 2. Understating Key Interactions

Whilst engineers, technologists, logisticians and professionals in general historically tend to analyse problem causes, the common failure to understand key performance input variables and more importantly, their interactions risk the success of any experiment.

The main effects plots of the above key inputs are depicted in Figure 4. All consider the change in the output medical effect based on the changing input variables.

As evidenced by the highest gradient from the four factors, the effect of varying the IPC was seen to have the greatest effect on the medical effect. However, the interaction between Leadership, IPC, Clinical and Operations Management was a major concern to doctors, nurses, epidemiologist, senior executives and the ADF officers. As such, it required careful attention.

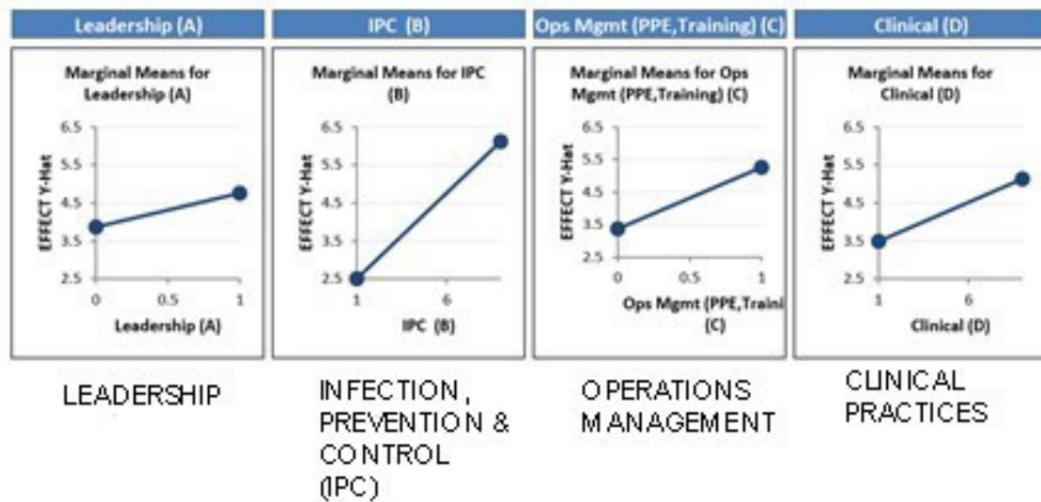


Figure 4. Main Effects

The Pareto plot (Figure 5) highlights the inputs which had interaction effects that were most important to the process design and optimization study. The most important input variables, their absolute values and interactions form the Pareto graph shows that the factor IPC was the most important followed by Operations Management, Clinical Practices and the Leadership.

Input factors: A=Leadership, B=IPC, C=Operations Management, D=Clinical Practices

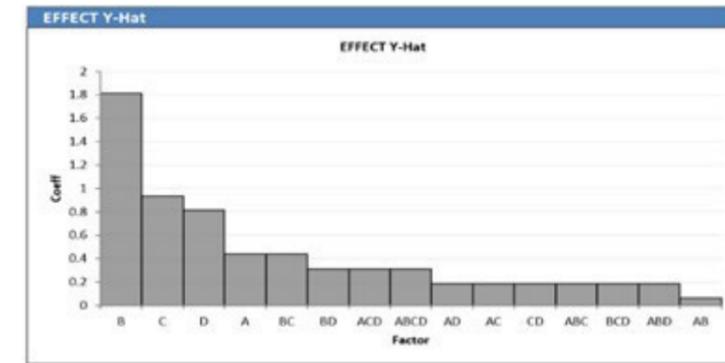


Figure 5. Pareto Chart

Response interaction and surface plots proved to be useful for establishing desirable response values based on individual operating conditions. In the interaction plot for the Clinical Effects (Figure 6), the response surface is viewed as a 2-dimensional plane where all points that have the same response are connected to produce control lines of constant responses. The surface plot displays a 3-dimensional view that may provide a clearer picture of the response.

In this case, if the regression model that is first order model contents only the main effects and no interaction effects, the fitted responses face will be a plane control lines curved and not straight.

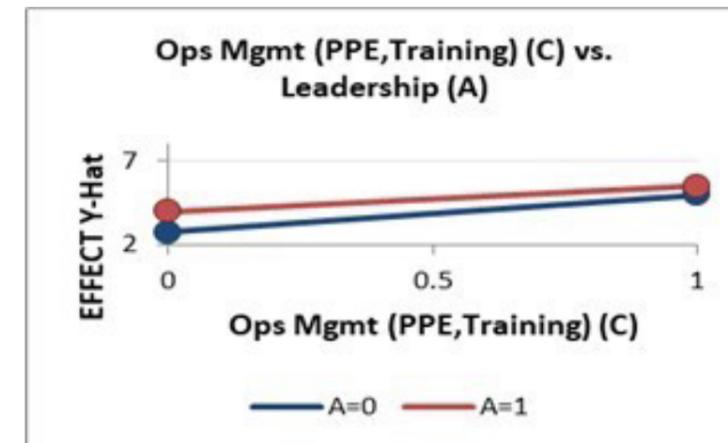


Figure 6. Effects Interactions Plot

The surface plots for the Clinical Effects input is at Figure 7. Both surface plots helped professionals to understand the nature of the relationship existing between the IPC, Operations Management and Clinical Practices inputs with the resultant medical effects. It can be seen from both Surface Plots that the medical effect increases with increases to IPC and Clinical Practices; in addition to increases in IPC and Operations Management. These factors were key contributors for enhancing the resultant medical effect.

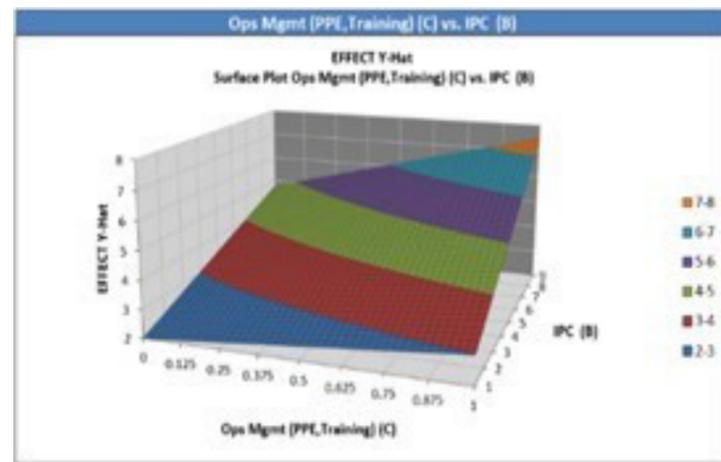


Figure 7. Clinical Effects Surface Plot

### 3.3 Phase 3. Validation using Control Charts

Whilst charting data provides a simplified manner of conveying information, the use of the common bar charts, pie charts and line graphs and trending of variables tends to depict the 'after the fact' or 'for information' data. Of greater importance is the depiction of 'during the fact' or 'near real time' data as this lends itself better to the predictive approach. Multiple data models were developed to understand things such as 'when to reopen' and 'likely cluster outbreak'. The accuracy of models is however of critical importance to build confidence in them.

Decisions made based on numerical data (or structured data) alone will rarely provide the appropriate confidence levels. Combination of structured data and unstructured data (text fields, written reports) are instrumental for sound decision making (Dr Anita Sable, Symbiosis Law School, India, 2020). For this reason, the ADF-generated models were validated using SME knowledge and use of control charts which were then used to understand trend, probable outbreak and process change within multiple clusters of aged care centres within Victoria. These data feeds were obtained through the checklist data obtained from deployed force elements. Figure 8 depicts average of 'nurses to resident' ratio and their control limits. It was identified with the help of the chart that the facilities with nurse: resident ratios below the average had high likelihood of outbreak and vice versa. This predictive modelling was validated when outbreaks were predicted in at least 12 of the Aged Care facilities 48 hours before they occurred.

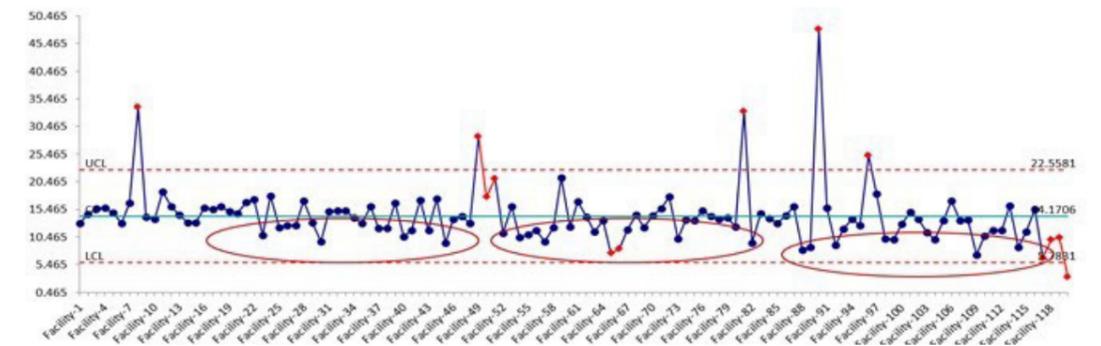


Figure 8. Control Chart for nurses to resident ratio within the aged care centres (Source: VACRC)

Deployment of control chart became a combat multiplier as it allowed potential outbreak points to be anticipated, that is the likely times and places where outbreaks were likely to occur. This then allowed the force element applied to the region to be adjusted to analyse how much of a change was required or occurring in the provision of the clinical effect. In turn, it permitted the balancing of staff numbers within individual aged care facilities as the COVID-19 data was changing rapidly. Whilst this modelling was not precise due to the rapidly-changing pandemic and the questionable data quality, the methodology provided actionable data (with good estimate) and analysis backed by a logical thought process that provided clarity in decision making.

### IMPLEMENTATION OF SYSTEMS THINKING APPROACH

On review of the business management methodologies used by some organisations, it became apparent that many follow the common paradigm of addressing issues as they arise to align with schedule and budgetary requirements. Whilst this may functional (at best) for day-to-day business, work done in isolation or by employing ad hoc initiatives such as 'process improvement' events and 'business process re-engineering' proved to be missed opportunities to strengthen holistic improvement strategies. Several Victorian aged care centres were found to bear many striking similarities to this paradigm.

An ideal structure would be to employ a 'system thinking' approach for management within all sectors with a set of guiding principles that are common to organisations regardless of their type, shape, size and complexity. This approach notes most organisations are typically comprised of closely connected elements including; leadership, strategy, customer engagement, performance management, employee relationship, core business processes and data management (Jadhav, S. 2019).

The research shows that many organisations are realising the value in implementing process improvement standards, frameworks and enterprise strategy to achieve business excellence (NIST, 2014, TSO, Norwick, U.K., 2008). There is strong evidence that superior business performance can be achieved with alignment and integration of business functions (Chan & Reich, 2007). The challenges faced by practitioners and researchers are to understand how to effectively do this in order to achieve 'why' of the business. The commercial business environment is increasingly driven to increase stakeholder value, customer loyalty, staff retention, corporate governance, market share and profit whilst reducing overall costs (Samson, 2008).

When considering these elements in the context of Victorian aged care facilities, the cost drivers have put increased pressure on individual aged care centres to become more efficient and effective.

#### 4.1 Integrating the systems approach in the Aged Care Sector

According to Ketan Chandaria ([www.lsssp.org](http://www.lsssp.org)), only three fundamental methodologies exist for problem solving; Lean, Six Sigma (LSS) and the Theory of Constraints. There are multiple tools and techniques within each of these methodologies. Out-of-the-box thinking may be employed design a combination of unique tools and techniques to re-define individual Organisational Excellence (OE) or to baseline new standards required. An integrated systems approach to OE is a broader programme of improving and sustaining business performance in which quality management is embedded (Basu, R. 20008).

The approaches, or as they are known, ‘frameworks’, include “Define, Measure, Analyse, Improve, And Control” (DMAIC), “Plan, Do, Check, Adjust” (PDCA), Agile, Scrum and Design Thinking.

An organisation may choose either a single framework or a combination of frameworks or tools to standardise its systems approach. Sound combinations predetermine a structured approach to identify problems, their validation and verification, analysis and finally solving them. In order to understand any of these frameworks, it extremely important to understand the individual tools and techniques of each.

As DMAIC is the most widely-used framework and was extensively employed for LSS projects within the Australian Defence Organisation, it was extended to develop the strategic excellence framework for the Victorian Aged Care Sector.

#### HOLISTIC ASSESSMENT USING A METRIC

To survive and grow, an organisation must meet its stated objectives. A business, including Aged Care Facilities needs to measure its performance frequently to evaluate its past performance and identify where the gaps are and improve them. Historically, as supply geared up to meet the rising demand for consumer product, the productivity of an organisation became the most important performance measure. As the gap between supply and demand decreases and competition increases, customers have better choices and they begin demanding more features and better service. Customer demand traditionally propels companies to innovate and diversify in order to grow their businesses which, in turn, become more complex. Productivity alone thus became an insufficient measure of business performance.

The global integration and increasing competition also created challenging business dynamics. In addition to this the changes brought about by COVID-19 pandemic, organisations such as aged care centres are facing ever-evolving landscape of frequent collapse, mergers, acquisitions, competitions from parallel and substitute products and threats from buyers and suppliers. Excelling in this environment requires a comprehensive reporting system that can accurately read the business dynamics (Gupta, P. 2006). A metric that provides holistic view of the organisation and provides feedback for timely response for monitoring and improvement purposes is required.

With the current and anticipated unsettling environment (pre and post COVID-19), the aged care centres require a performance measure that is robust and that addresses various aspects of organisation including leadership, strategy, customer, operations, and processes to provide a holistic view of organisational wellness, performance gaps and associated risks.

#### CONCLUSION

Operation COVID ASSIST’s involvement in support of the Victorian Aged Care Sector was a complex, ambiguous and uncertain environment with real-world consequences for any action or, more importantly, inaction. Any delay within the decision-making processes could have not only cost lives of elderly Australians but also endangered the various emergency services and health organisations assets, including the ADF’s deployed force element. In order to stabilise the situation, an agile and predictive approach was developed to understand processes involved and their associated data. The predictive thinking approach, deploying LSS tools and utilising SME knowledge to develop robust solutions in a data-poor environment were key contributing factors to the success of the support. There is a broad consensus and clear evidence within the aged care sector context that the alignment of management functions can produce significant improvements.

It was also observed that maintenance of pockets of excellence (silos) within the aged care sectors may deliver a business effect however, without alignment and integration of organisational variables (systems thinking), Organisational Excellence may be unachievable. This will be further aggravated by the following:

- non-extant data collection regime for measurement analysis and knowledge management
- a lack of relationship between operations focus, employee focus and key result areas
- loose connection between workforce planning and strategic planning, and
- non-alignment of IT frameworks with business policies.

Employment of a System Thinking Approach with a single metric that matters the most, within aged care centres will help to improve organisational efficiency and effectiveness, compliance improvement, and achieve the somewhat allusive goal of Organisation Excellence. The ADF support to the Sector has demonstrated this through actively facilitating or supporting the reduction of unnecessary infections and deaths.

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Victorian Aged Care Response Centre (VACRC), and The Joint Task Group (JTG) 629.2 of the Australian Defence Force, Operation COVID-19 Assist for Victorian Aged Care Sector, established circa July 2020

## UNIT JOTTINGS

### Rotary-wing Aircraft Maintenance School (RAMS)

It has been another successful year with several significant achievements and notable events across RAMS and the specific training wings. These include, but are not limited to; new and innovative training aids, the Kokoda Challenge and open/family days. Of note, the new Aircraft Maintenance Trainer (AMT) for the MRH-90 is a fantastic addition to the training suite which aims to improve the experience and confidence of Craftsmen on key aircraft systems.

Before delving into the achievements and events, it would be rude to not mention the stellar efforts from the staff and all the Craftsmen. The Craftsmen have demonstrated a keen and eager attitude towards learning despite the difficulties that COVID has posed. Their resilience has led to continuous improvement and a deep understanding of the platform they are training on. The staff have worked tirelessly throughout the year to accommodate for all situations, COVID related or not. Their passion and persistence to deliver high quality training has ensured the best possible experience for the Craftsmen and in turn directly contributes to the aviation operational capability.



*RAMS members at the Oakey ANZAC Memorial*

#### Augmented reality training

Instructors are excited by the opportunities provided by the innovative and modern Augmented Reality Training Project that sees Australia's Department of Defence and Airbus working together to develop a training system to suit the Australian Army's requirements.

This has led to the successful trials of the three-dimensional Holographic Lens technology to allow Craftsmen and instructors to access virtual models of aircraft components in the classroom.

The benefits of this type of learning delivery are numerous. Craftsmen are able to get a clear view of what the instructor is describing and explaining, without the usual crowding to get a good look, or obstructed view of traditional teaching methods. 3D modelled aircraft components may be manipulated, enlarged, shrunk, pulled apart and assembled, in a virtual environment where all can participate. This enables interaction with the components, as well as the knowledge and understanding of systems and assemblies, without any members having to leave their seats. Complete immersion in the learning environment, and the flexible nature of the viewing experience, makes it an effective tool for teaching and learning with Craftsmen engagement high, enabling easier retention of information.

It is intended that a trial version of the program, specifically modelled for use by RAMS, will be at the pilot stage by early next year, drastically improving the teaching methods at the school.



*Virtual reality goggles*

### **Kokoda Challenge**

This year members from RAMS showed their respect to the brave soldiers who heroically defended Australia by participating in the Kokoda Challenge on 17 Jul 21. AAvtTC entered four teams of four with many of the participants being RAEME Craftsmen representatives. They stepped off from Mudgeeraba at 0700 and finished at Nerang Velodrome, 96 hilly kilometres later.

The challenge, run by the Kokoda Youth Foundation, was established to raise awareness for the Kokoda values of Courage, Endurance, Mateship and Sacrifice. The money raised will fund a life skills program for disadvantaged 15 - 17 year old kids designed to stimulate their personal growth.

So, while this challenge is a drop in the ocean when compared to the efforts by the original soldiers on the Kokoda track, it's our way of showing that we are invested to understand the immense hardship they endured and our promise to never forget the incredible efforts that they went to for our country. Each participant was more than happy to suffer a few short kilometres of knee pain and blisters to show that we still thank them for their service.



*RAMS Staff and Craftsmen ready for the Kokoda Challenge*

### **Open Day**

The 2021 Swartz Barracks Open Day was hosted at the Army Aviation Flying Museum and was visited by an estimated 2,500 people who enjoyed perfect conditions throughout the day.

Static displays of both in service and historic military aircraft lined the taxiway outside the Museum's hanger, and inside attractions provided guests with a close up view of Australian Army Aviation history from the First World War through to contemporary operations. RAMS staff and Craftsmen could be seen at the in service military aircraft stations providing insight on their specialist platforms they work with day in and day out. Additionally, it was a great opportunity for many of the Craftsmen to develop a greater understanding of both the history and capabilities of Army Aviation whilst having a bit of fun.

A highlight of the day was the mock combat insertion of troops by two MRH-90, as two ARH Tiger escorts repeatedly attacked and suppressed the simulated 'enemy' troops. For the younger visitors a number of more grassroots activities were on hand including face-painting and an age-appropriate obstacle course, as well as a popular information booth manned by Defence Force Recruiting staff eager to engage with Oakey's youth on possible military careers.



*CFN Cho at Open Day*



*An ARH Tiger thrills the crowd with a low pass during Open Day*

### **Aircraft Maintenance Trainer**

We are proud to announce the delivery of Australia's first MRH-90 Aircraft Maintenance Trainer (AMT) to RAMS.

Delivered by Reiser Simulation and Training GmbH (RST), the AMT establishes an enhanced MRH-90 maintenance training capability for aircraft technicians conducting their on-the-job training in Oakey.

The AMT is a non-flying replica of the advanced MRH-90 to be used by maintenance and technical personnel for both training on mechanical systems and components. This limits the need for Craftsmen to conduct the maintenance on safety critical live aircrafts and reduces the fair wear and tear on 70% of the components that are repetitively serviced.

Over 800 maintenance tasks have been replicated for the Craftsmen including handling, removal, repair and installation of serviceable parts. Additionally, the compliance of the

AMT with Defence Aviation Safety Regulations and the high fidelity of manufacturing permits the installation of additional role change equipment, proving beneficial for Army Aviation Test and Evaluation Section.

With 30 years of experience in simulator technology and training equipment for aviation, RST delivered the AMT on time and under budget with a stellar effort from the RAMS crew, constructing the trainer in only five days. The construction phase was aided by augmented reality provided by the HoloLens Smart glasses. The HoloLens uses sensors, advanced optics and holographic processing to allow real time interactive assistance from Reiser engineers in Germany.

Along with the cockpit fault replication capabilities of the Aircraft Simulation Trainer (AST) in the training suite, the AMT further strengthens RAMS training capabilities whilst supporting maximum operational readiness for domestic and international operations.



*The MRH-90 AMT*

### **Commandant's Cross Country**

Commandant's Cross Country run took a colourful turn in October with the inclusion of pink attire – all for a cause. The run aimed to cause awareness of Breast Cancer, and to raise some money for Toowoomba charity Blush Cancer Care. Blush do fantastic work in the Toowoomba area providing care and rehabilitation for breast cancer patients. RAMS members did not disappoint, with costumes from Pink Panther to Ballerina. A great effort on all parts resulted in raising \$500 for Blush.



*RAMS members dress up in pink for Breast Cancer awareness, Commandant's Cross Country*



*LT Cartwright conducts a handover of funds raised for Blush Cancer Care*

## 1 Aviation Regt

### Exercise Griffin Eagle (Land of the Free, Home of the Brave)

While Army Aviation regularly takes part in large exercises with foreign militaries in Australia and international deployments on the LHDs, the recent deployment of ARH Tigers to America was a different kind of involvement. Exercise Griffin Eagle ran from 15 August – 21 October 2021, the deploying Task Unit Marlin was formed around 162 Sqn with internal attachments from all other Sub-Unit elements at 1 Avn Regt. External attachments also participated from Army Aviation Test and Evaluation Section (AATES) and Advanced Warfighting and Evaluation Section (AWES) from the Army Aviation Training Centre (AAVNTC), as well as Joint Health and Joint Movements personnel. The two month exercise consisted of two flying phases, the first in California working with the U.S. Navy, and the second in Arizona with the U.S. Marine Corps (USMC) at Air Base Yuma. Being the first time that 1 Avn had sent the ARH Tiger overseas independently, there were a number of challenges to be overcome.



162 Sqn Technical Support Troop

“Limited access to in-depth technical support and deeper level maintenance meant that preparation of aircraft started approximately one month prior to departure, this was to ensure that the maintenance requirement was reduced for the duration of the trip and removed the need to conduct complex servicing.” said 162 Sqn Technical Support Troop (TST) Hangar Artificer, Patrick Morris (1 Avn). “Maintenance was also limited by transport space, as maintenance requires a large amount of personnel and specialist test equipment. We had limited space to work with while bringing four Tigers to America, so we had to ensure that we had the minimum essential equipment, and that we were able to cope with contingencies without bringing surplus equipment and parts.”

The time spent flying with the U.S. Navy involved a very regular flying program which allowed for effective maintenance planning, however due to the flying windows and operating environment the bulk of maintenance was planned to be carried out at night. Maintenance was slowed as a result, however the inclusion of maintenance days proved sufficient to allow the TST to support flying for the entire four week period. Successful deployment to Arizona was challenged with schedule changes for the USMC led Weapons and Tactics Instructor (WTI) course. This compressed the timeline to just three days between last flight with the U.S. Navy and the first flights in Yuma. The TST split into two parts, sending an advance party to support ops in Yuma and prepare for the upcoming flying before the main body arrived.

CPL Dylan Breeze (1 Avn) was the B2 Military Aircraft Maintenance Licence (MAML) Trade Supervisor sent to Yuma as a part of the advance party. “The move down to Yuma went really smoothly, we were able to rock up and meet the six TST members who had just arrived in country and start preparations for the next four weeks of WTI course. The Marines were really helpful in supporting us with familiarisations of the base, as well as offering assistance with equipment and personnel where required.” said CPL Breeze. The advance party were operating independently for a week including arrival of aircraft and the initial reconnaissance flight for aircrew. He continued “The flights went off without a hitch, all four aircraft arrived in good condition, and having our work areas squared away meant we could get straight into maintenance and have them prepared for the recon two days later.”

The WTI course is run by the Marine Aviation Weapons and Tactics Squadron – One (MAWTS) (USMC), and is where USMC pilots become instructors in advanced aircraft combat missions including strike and close air support. While Australian pilots had participated in the past, this was the first time that Australian Army aircraft had taken part in the course with two students enrolled. Throughout the entire exercise the Task Unit’s performance was fantastic by all accounts. Climate and environment were a constant consideration while operating in an environment different to Darwin, and in addition to the complexities with preparation, the maintenance team also had to overcome the difficulties associated with the physical distance from parts supply and establishing new logistics chains. Overshadowing all of this was maintainers adhering to social distancing requirements, separation of maintenance teams, and other mitigations to reduce likelihood and impact of COVID cases prior to departure within a high risk COVID environment.

By the end of the exercise, the tradespersons had not only contributed to the Task Units success as a whole, but had provided ARH Tigers online for every single planned sortie with an excellent serviceability rate of above 50%. “It’s a great achievement for the troop. The flying program at MAWTS was pretty irregular since it was simulating real operations which kept us on our toes when planning maintenance. The benefit to that was the schedule given to us by ops had buffer between sorties allowing us to have maintenance days, which really came through as a big benefit when you look at the number of missions we achieved” said SGT Aaron Cleggett, one of the Maintenance Managers deployed on the exercise. “The hard work that the tradies put in to get aircraft online, along with the preparation before we left really allowed us to get on top of the work. The support from the Marines was also invaluable when it came to enabling some specific maintenance tasks, and assisting us in preparing for our return”.

Successfully completing the exercise and achieving every scheduled flight with only 4 aircraft was due to a number of contributing factors that supported the maintenance effort. The flying program that was executed differed to what is normally conducted by

1 Avn Regt, as the WTI course run by the Marines allowed days for student pilots to plan missions, followed by flying days. On these planning days, maintenance was able to conduct uninterrupted work on unserviceable aircraft without dealing with preparation for flights or additional unscheduled repairs. The preparation of aircraft prior to departure also contributed, and involved the conduct of scheduled servicing in advance. This meant that servicing with large intervals and complex procedures and equipment requirements did not fall due during the exercise. These two considerations in combination allowed for more efficient work to repair larger unscheduled repairs, and reduced the work hours required for scheduled servicing to be conducted during the exercise.

In spite of the successes, a number of difficulties were also experienced due to dislocation from 1 Avn Regt. Concurrent work had to be conducted for both the intra-theatre deployment as well as the return to Australia. What made a big difference was the ability to dedicate a section to packing and stores preparation for the return trip, instead of the decentralised preparation used for the intra-theatre deployment. Having a dedicated team proved to be a much better method especially when needing to account for all of the equipment as it meant that those specific members had oversight of the locations and preparation of items for transport. This required a larger lead time as there were less people allocated to conduct the stores preparation, and delays when the preparation team was required to conduct aircraft work. In addition to this, quarantining of equipment to be transported was conducted as much as possible on the return. Some items to be taken on exercise were used for maintenance work during the intra-theatre deployment, which mean that they had to be located again within the pre-packed equipment. This cost time when preparing to deploy, and quarantining items and managing them through the dedicated packing team on return saved conducting extra work. Shift planning was also important in achieving mission success, with unscheduled repairs and potential recovery of aircraft from the range area posing significant risk to critical timings. Allowing for rest days to reset duty periods while operating under a 6 day week duty extension at Yuma, provided flexibility for conducting unexpected work. This mitigation proved helpful when recovering an aircraft over the weekend prior to departure, successfully returning it to MCAS Yuma in time for return to Australia with minimal additional risk due to fatigue for the members involved.

The exercise was a success for maintenance, with learning points being realised for improvement both while deployed, and after return. The opportunity to take aircraft overseas and work alongside the U.S. Marines was also a valuable experience and a first for a number of the tradespersons, which will put them in a good position for the remainder of their careers.



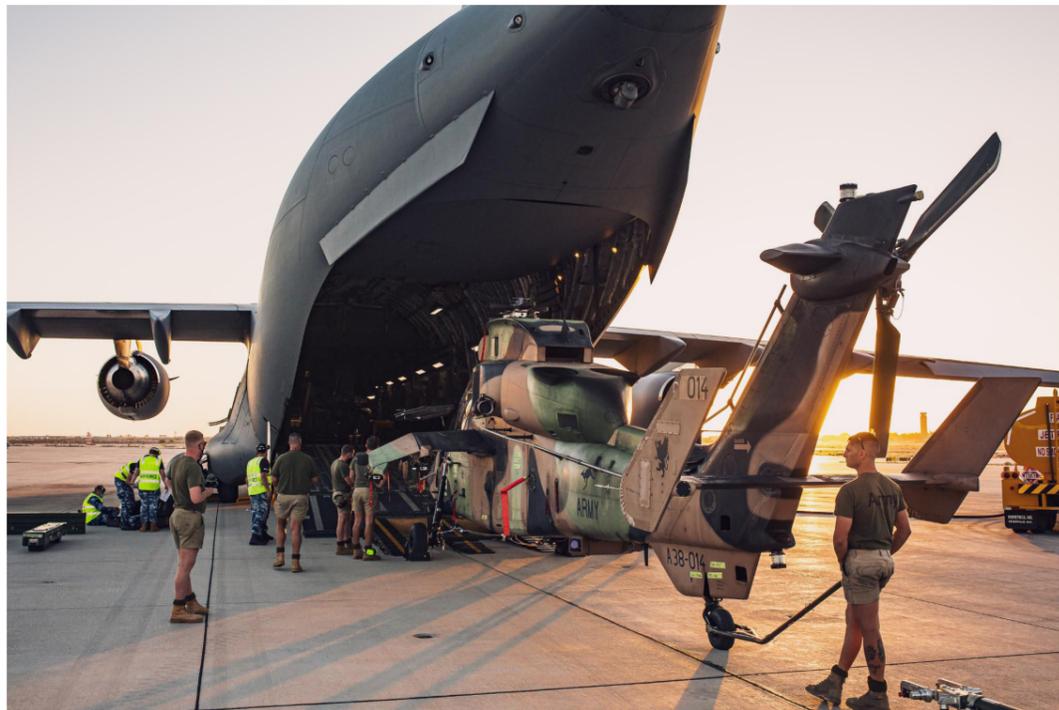
*SGT Philip Stokes (Left) supervises the replacement of a Roof Mounted Sight by CPL Dylan Breeze (stubby left) and CPL Nicholas Butler (stubby right)*



*An ARH Tiger from 1 Avn Regt landing at a U.S. Marine Corps deployed refuelling point*



CFN Dylan Wegner (ground left), CFN Kayden Burn (ground middle), LT Harry Foxton (ground right), LT Joel Hobley (stubwing left), and CPL Nicholas Butler (stubwing right) remove blades from an ARH in preparation for return to Australia



TST members load an ARH into a C-17 bound for 1 Avn Regt in Darwin as CFN Shannon Armstrong (right) steers

## 106 Field Workshops

2021 proved to be another tumultuous year for 106 Field Workshops, off the back of a challenging 2020 the workshop was prepared to walk the tight rope of training, sustainment and production obligations as well as varied DACC tasks as they arose. Once again, the resilience and character of the workshop members shone through and our people showed that they are more than capable of rolling up their sleeves and getting the job done.

The high training tempo of the year was set early in February with the commencement of the Echidna. A series of training serials developed and refined by WO2 Bruce Harvey (RAINF). This proved effective at baselining the member's skillsets, allowing strengths and weaknesses to be identified and addressed effectively before stepping up to the next expected level of competence.

The planned training serials were a continual progression of skills in the field environment and the staggered approach allowed members to reacquaint themselves with the basics before diving deeper into the tactical and technical aspects of living and operating in the field. Specific soldiering skills were focused on including a round-robin activity conducted during phase one. There were ten stands designed to refresh basic soldier skills, their knowledge and to qualify them in additional weapon systems and new equipment. Phase two saw formal weapon system and NFE training followed by a confirmatory shoot at the range in the weeks following.

EX Echidna Walk, which was held in a particularly wet Shoal Water Bay Training Area (SWBTA), allowed consolidation of skills in the field environment. There was also simulation of dependencies and mock FRT missions were conducted in real time to confirm efficacy of SOPs and allowed an excellent opportunity to put RATEL into practice. The conditions proved challenging but rewarding and provided ample opportunity to show how valuable a skilled recovery element can be in keeping the team moving along. The CSST members were exposed to arduous conditions, long hours and a good amount of digging. The ability to stay focused on achieving outcomes during this time is a credit to the work ethic of the CSST members. The command team was very impressed at the constant support the team would give each other during these challenging situations and how teamwork got the entire CSST element through some very muddy situations. All whilst simultaneously keeping their sense of humour intact, setting them up for success moving forward into 7X's Diamond Series.

EX Diamond Walk allowed the unit to take forward lessons learnt from the previous exercise and stage a larger element, comprising of almost 80 workshop members, in a Brigade Maintenance Area (BMA). The BMA was laid out over an area about the size of three football fields wide by 8 football fields long, substantial by any regard. It was an eye-opening experience for many of the more junior members who had not deployed in such scale before. The dependencies supported during the exercise included 6 RAR, 2 CER, 2/14 LHR QMI and 1 Fd Regt. This provided the workshop many opportunities to enact FRT's on legitimate vehicle casualties.

The exercise also allowed a demonstration of the continued assimilation of the new Rheinmetal MAN fleet within the logistic support roles. The new vehicles proving to be a great platform to mobilise CSST elements from 106FD, 6 FSC and 5 TPT. With substantially improved weather conditions than the previous EX, the vehicles

spending much less time playing in the mud. The ability to load and unload the HX77 in the field without the use of MHE proved again to add invaluable flexibility, substantially enhancing the delivery of flat rack mounted logistics. Lima call signs were utilised for deployment away from the BMA, under the instruction of the OC, with a continued focus on self-defence.



*Crane Lift, Repair by night, and PMV Packlift*

Before 106 Field Workshops knew it July had rolled around and once again 7 CSSB sent forward a support component to EX Talisman Saber (TS) held at SWBTA, albeit only a small contingent to act as white box support. Whilst the maintenance liability was primarily borne by elements organic to the deployed units, this allowed 106 FD WKSP members to observe the battlespace in a new light, the highlight of the trip being the witnessing of a Patriot Missile fire mission.

The culminating training EX for the year saw 106 Field Workshops head to Townsville along with the rest of the 7 Brigade. This was an opportunity to take all lessons learnt and built upon for the year and ensure that the training packages had achieved their desired outcome. Staging was conducted southwest of Fanning Airfield and workshop support was given in the form of FRTs to vehicle casualties as well as pre planned Brigade maintenance activities. The North Queensland weather was fantastic and the exercise saw logistic support given to mechanised infantry, cavalry, tank and artillery Brigade assets.



*Cross Parade*



*40MSunset*

Despite the above overwhelming training program, 106 Field Workshops continued their strong support to Defence Assistance to the Civil Community (DACC) tasks. During the year continued support was provided to the COVID Task Group, which comprised of managing and manning Quarantine Hotels in both Brisbane and Gold Coast locations in cooperation with QPS and Qld Health.

Operation NSW Flood Assist, which saw elements travel to damaged areas in Northern NSW in March IOT provide logistic, clean-up and recovery support. This support helped supplement the civil authorities after unseasonably high rainfalls inundated parts of Port Macquarie/Wauchope. Recovery was particularly busy during this period and all the practice recovering bogged vehicles from EX Echidna Walk came back to prove useful.

As the year drew to a close, 106 Field Workshops once again supported The Endeavour Rally with workshops providing maintenance support to all who needed it. Eight G-wagons and trailers provided maintenance and logistic support to the rally participants. It was a fantastic opportunity for greasers to get their hands dirty on something that wasn't green fleet and the interactions with the public was a great opportunity for defence.



Endeavour Rally

At the time of writing 106 Field Workshops stand ready with members assigned to assist in the High Risk Weather Season task groups should the need arise.

Overall, 2021 presented its share of challenges, highlights and hard times. The command team is immensely proud of the level of professional conduct displayed by those representing 106 Field Workshops throughout the year, with many and varied challenges and opportunities for development faced. We look forward to what lies ahead in 2022.

RAEME CORPS FUND SUBSCRIPTION		
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## 16 REGT RAA TST

### The year that was 2021

#### LT Srujan Kumar

Back from a peaceful period of rest and 40% of the Workshop turning over in the last posting cycle, many new faces walked around unaware and unsure of what this bespoke regiment and “best kept secret” of the Australian Army was all about. A new LT, an old ACE, a minimalistic GE section, a heavy EIR workshop and the ever constantly churning Vehicle Mech’s hit the ground running preparing to push the air defenders out the door for the first exercise in March. Out at Cultana, the ground barren and great as tank country, the workshop attached as part of an A2 hiding in plain sight ready to support the firing of the Bollide missiles whilst constantly caring for the extremely temperamental Giraffe. Out for a week, then back for five, two FRT’s headed back out to Cultana for a second trip.

June and July saw the workshop humming, repairing and servicing the PMADV’s (Air Defence variants) before doubling up on two major field exercises, the first being EX Talisman Sabre in the North East as part of a US/Australian joint live fire where the first ever Patriot missiles were fired by the US on Australian soil. The second being EX Koolendong working in conjunction with the USMC. A heavy toll on the Workshop manning, these exercises saw 3 FRT’s detach to the Bird Gunnies spreading the workshop thin, not to mention the border and QCM tasking’s the workshop had to take up as covid ran rampant in the eastern states.

EX Koolendong was an interesting time, invited by 1 BDE, but then left to fend for ourselves out at Bradshaw Field Training Area, there were incredibly long periods of watching ants, buffalo’s, crocodiles, birds and the one-off brown snake make their way around the deployed element. It was about 4 weeks before the target operators could make their way across the border and finish their quarantine requirements before 16 REGT could start the live fire, long after 1 BDE had finished the actual EX Koolendong.



TST and Log Tp as part of the A2

After the many nuances and challenges of this year, the craftiest finally try to rest their head, however this will have to wait until the 11 or so social functions throughout November, culminating in an all corps soldier skills competition, brings 2021 to an end.

## The future for 16 REGT RAA Workshop – Land 19 Phase 7B

#### WO1 Mark Ledinek

2017 saw the Australian Government approve a game changing asset for the ADF, being the Raytheon/Kongsberg enhanced National Advanced Surface to Air Missile System (eNASAMS). This system will replace the legacy Ground Based Air Defence (GBADR) consisting of the SAAB RBS-70, Giraffe Agile Multi Beam Radar and various other sensors and RADAR.

To put the capability into perspective, the current system being RBS-70 has an effective range of approximately 8km and limited by human reaction/tracking time. Where eNASAMS, firing the AIM-9X or AMRAAM will extend its effective range out to approximately 160km as well as being integrated within a joint air picture.

eNASAMS will broadly consist of:

- Hawkei High Mobility Launcher (HML) carrying up to six AIM-9X or AMRAAM missiles
- Hawkei with CEA sensors and RADAR
- Rheinmetall HX77 with six by canister launchers
- Rheinmetall HX77 with CEA RADAR
- Rheinmetall 40M with Fire Distribution Centre

With this massive leap in technology the 16 REGT WKSP will see an increase of manning and a move to RAAF base Edinburgh in 2025. Staffing for CMC22 will see the EMEOPS SGT position being upgraded to an EMEWO (WO2), with more increases being seen from CMC23 onwards. The most significant increase will be in the ECN 418 space, with a high reliance on eNASAMS bespoke power generation.

Members of the WKSP have already been heavily involved with the project, with the former TP COMD LT James Pretty being promoted to CAPT to take up a role at Raytheon’s Mawson Lakes Facility as an Army secondee. Other trials have seen WKSP members conduct working groups to create safe work procedures for lifting and loading missiles from Missile Resupply Vehicles (MRV - yes, they stole our acronym) to the Hawkei High Mobility Launcher (HML).

The WKSP continues to work closely with the project teams, and expects to see the first assets within the REGT by 22/23 to prove IOC, leading to FOC by 2025.



Raytheon Image of eNASAMS

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## Exercise Koolendong 2021

### CPL Callum Munro

After the majority of 2021 training in dusty Cultana and Woomera, it was time to head to Bradshaw to feel the heat and work with the USMC. Earlier on in the year, the workload was frantic to say the least. With COVID-19 ruining plans and manning stretched thin, Ex KD21 was looking to be the busiest (extended) exercise yet...

The Crafties were ready and had honed their skills through the previous exercises, busy road moves and hectic maintenance periods throughout the year. Luckily the unit's equipment on exercise KD21 ran smoothly and it allowed the attached FRT and Giraffe FRT to finally have some well-deserved down time, setting up illustrious campsites with CFN Markobotsaris cooking meals envied by the gunnies we were attached to.

That being said, work was still required... CFN Baraiolo "Barra", was busy repairing the US Hummers and repairing a crushed Air-intake manifold with the newly in-field promoted LCPL Atkinson. Minor repairs continued to the dust-clogged PMV's and G-Wagons, as well as re-fitting a G-Wagon seat, an operator decided would make good a camping chair; and repairing air-conditioning systems that destroyed the Gunners morale.

The newest member of TST... CFN Phan, Stepped up for his first real field ex. With the responsibility of maintaining the 60KVA Genset's power output to the GAMB Radar Det, and being chief translator to CPL Birchall's thick British accent. Birchy wasted no time taking over CPL Stopp's role as GAMB FRT Commander, doling out such sagely tech advice to the operators as, have you tried "turning it off and on again" (a legit SAAB approved fault finding technique) and explaining that the big bright light in the sky causes the Giraffe to get too hot at times and unlike an actual Giraffe this one doesn't cope well with temperature extremes.

The acting mini-Ace: SGT Somerville, was the lone RBS70 qualified maintainer in the field. With great self-determination, he placed down the notepad and got on the tools. After being shuffled from four or five different vehicles, it was his time to shine. It started off with testing the test equipment more than the sights themselves, then avoiding sweating on any sights and circuitry... but before long, the sights were dialled in and the Gunnies were ready to punch clouds with the marines.



*FRT setup to support and relax*

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## CSS BTY EIR

### CPL Luke Stopp

As the unit gets used to being out of lockdown (for now), EIR welcomed CPL Birchall, CPL Munro, CFN Fuller and CFN Phan to the section in early 2021. Kicking the year into gear with a GAMB maintainer course to break the ice among the young and old. The ice, once broken, is very much turned to slush during the year's exercises with EIR WKSP's dance card well and truly full for the year. In support of the Regiment, EIR WKSP boogies up to Ex Raptor Strike, Tangos over to Ex Talisman Sabre, Cha Chas through Ex Koolendong and will end the year with a Paso Doble with Ex Phantom Dawn. Once back in Unit, there is no slowing down for the ever-busy EIR WKSP as we prepare to hold the annual RBS-70 equipment course. The course sees CPL "Paul-e" Birchall and CFN "Marko" Markobotsaris, join a few out of regiment ring-ins, being inducted into the "Black Arts Society" of RBS-70 Maintainers.

As the Christmas season draws closer, we promote CFN (now Mr) Apoyan to a civilian. Mr Apoyan has transitioned to a highly competitive civilian job with BAE Systems, one of the many defence contractors located here in Adelaide. We also send SGT Somerville and LCPL Hall back to school to learn/teach a thing or two with their future postings at ASEME. After sanitising their desks, we prepare for everything that 2022 threatens to bring, with skill and fighting.



*CFN (now Mr) Thomas Apoyan displaying emotion at future prospects*



*LCPL Hall instructing on the RBS-70 Cse (notice Marko, far right with moustache, attempting to Bi-cep curl another piece of delicate equipment)*

## Yurrebilla 56km Ultramarathon

### GE Section

Each year, 16 REGT RAA conducts a resilience event through the Adelaide Hills. The purpose of the event is to enable Regiment members to test their limits outside their comfort zones. The event is a choice of either a run or walk of the original Yurrebilla Trail which is a 56km route that stretches from Belair through to Amber's Gully and covers all sorts of terrain, varying from rough single track to roads and wide gravel paths. It has over 2000m of elevation across the course and finishes with a punishing climb and descent in the last 5km. The trophy has three awards attached to it; individual male, individual female and highest completion percentage for each Battery across the Regiment.

The event starts before sunrise with teams of walkers stepping off at 0500 under the light of headlamps. An hour later, just as the sun peaks over the horizon, the runners begin their journey. The weather gods smiled on us and a light fog hung in the air until late morning keeping the spring heat at bay. Unfortunately, as the day wore on, many found their limit or twinged an ankle or knee on the rough terrain.



One of the CSS walking groups; CPL C. Munro, CFN T. Apoyan, CFN A. Phan, CFN P. Markobotsaris and CPL A. Hopgood approaching CP3 near Kavell's Lookout

For those who made the distance, towards the end of the course just before the final heartbreaking climb, the ASM WO1 Mark Ledinek had an aid station set up for CSS members as they passed through. It's important to take a moment to imagine the joy on the faces of the Gunners as they approached what they thought must be checkpoint 8, only to be bitterly disappointed to find that the array of drinks, lollies, fruit and other delicious snacks wasn't for them!

CSS Bty, who were the trophy holders from the last time the event was conducted in 2019, managed to get in a fairly reasonable amount of training and looked like having a good chance at retaining the trophy for 2021. Unfortunately, this year it wasn't to be, and RHQ/AGO took out the highest completion percentage. It wasn't all bad news though, SGT Mick Smail from GE Section was able to complete the course in 6 hours 20 minutes, breaking the 16 REGT record by around 22 minutes (held by RAEME CAPT James Pretty), and finishing over 1 hour ahead of second place.

As the daylight started to dwindle the last teams of walkers began trickling across the line. Bodies aching and stiff, the final few trudged and limped or some even managed a small shuffle to finally meet the relief of crossing the line. Those who started before the sunrise and finished after last light embody the spirit of the event and the resilience expected of an Australian Soldier.



CClerk WO2 J. Micallef and ASM WO1 M. Ledinek at the CSS aid station near CP8 on Montacute Rd

## AA back to the Heyday

### CFN Jayke McNellee

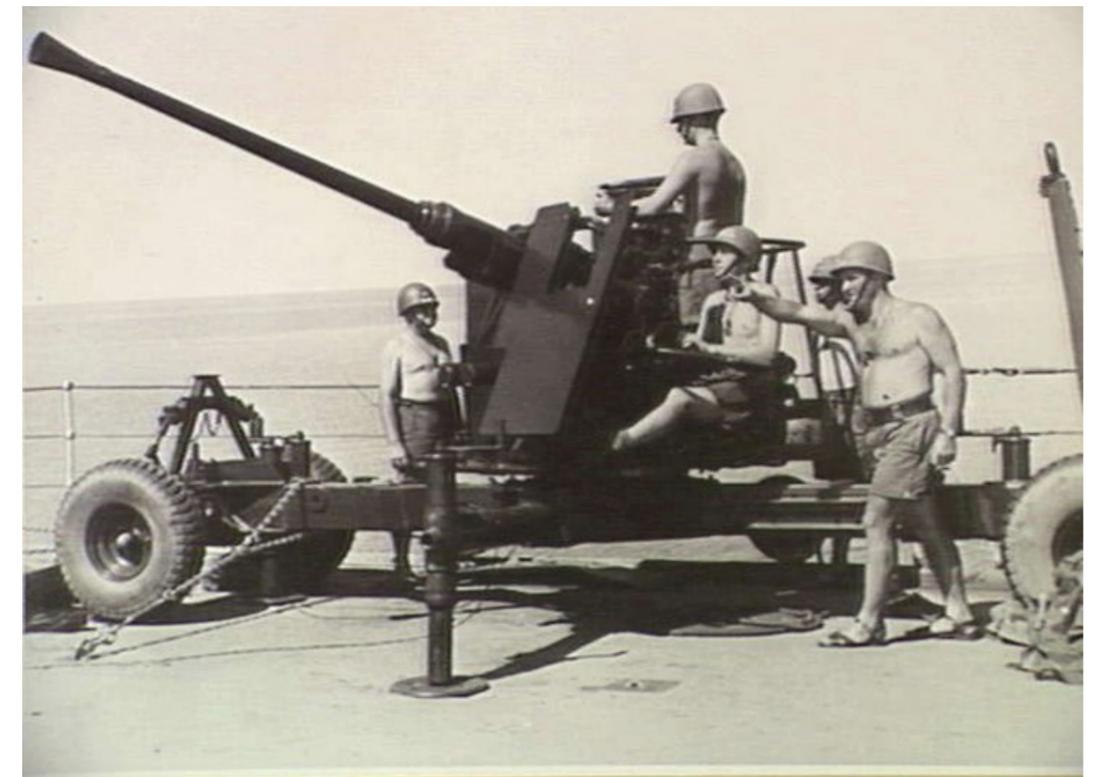
Resting quietly, awaiting attention, the old war horse sits turned out to pasture. Her barrel drooped, honourably wearing her past, a story of rust and flaked paint. The still operable 40mm MK16 "Bristol" Bofors Anti-Aircraft cannon rests idle slipping quietly into disrepair. A relic of a bygone era for the 16th Regiment Royal Australian Artillery, this gun patiently awaits overhaul. Becoming the focus of General Engineering spare time; a quest of love, we seek to restore this memoriam to her former glory.



The old warhorse in her current state 25.10.2021

A call for nom's; if anyone has pamphlets, manuals we request your knowledge, please lend us your valuable information.

With only a 36 of these guns ever being adopted into service, and this being the last intact outside of the Australian War Memorial, we are grasping at a chance to retain a critical bit of history for the Regiment and the Army as a whole.



AUSTRALIAN WAR MEMORIAL

P01004.001

An Australian army anti-aircraft crew with a 40mm Bofors gun mounted aboard HMAS Sydney after the ship's conversion to a troop carrier (1960-1969) Source: Australian War memorial

## 7 RAR TST

Rolling into 2021, we thought that our COVID woes were behind us and this was going to be our year...but oh how we were wrong.

Early March, straight into a sprint. A few of the lads had a joyful time FRT-ing Ex MAROON DAWN. One senior member of the WKSP, (he who shall not be named), struggled to install a 40M windscreen; two windscreens later and Oh Oh Oh O'Brien was called to get the job done.

Around comes June. A select few were lucky enough to witness the trials of the Infantry Fighting Vehicle replacements in all their glory during the LAND 400 Phase 3 trial.

Straight into August. Some poor sods bode farewell to their family and made the long trip north on Ex KOOLENDONG. From all reports, she was hot. The boys were rarely wearing clothes and working on their tans.

All throughout the year, random tasks kept coming down range with Op COVID-19 ASSIST, the gift that keeps on giving. Even with this and deploying field, the boys still (as of Sep) had doubled the previous years' maintenance output.

Since the start of 2018, the tradies of 7 RAR have been slaving away out of operator maintenance bays (thank you 1 CSST). At the start of 2021, the ASM fought the good fight against the Mech Gods of 7 RAR and gained the VM's another operator maintenance bay. With the gaining of extra space, we could finally do some "legal" modifications to our original area to make it feel a little more homely.



7RAR TST Brew Room

In addition to the new work space, the WKSP purchased itself a new portable crane. On first inspection it seemed like this crane was going to be legit and upon assembling, it was not. Unfortunately, half of the bolts provided were the wrong grade, the holes for the wheels did not line up. That did not deter us, oh no. Holes were drilled, bolts were ordered and the crane was assembled...now we just need an electrician to wire the puppy up.



7RAR WKSP Crane - Rolling into the future, a large portion of the WKSP posting out of location. The ones remaining look forward to a new and exciting challenge that is 2022. It can't get worse? Right??

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## 2 Cav Regt

### CPL Closter and CPL Gale

(Article reproduced from RAQ Spanner News Edition 2-21)

#### Introducing 2 Cav Regt Spt Sqn and Technical Support Troop.

The Regiment. The 2nd Cavalry Regiment (2 CAV) is an armoured cavalry regiment of the Australian Army. Formed in 1965 as the 1st Cavalry Regiment, it is the second most senior regiment in the Royal Australian Armoured Corps.

In 1970, the regiment was redesignated as the 2nd Cavalry Regiment to differentiate it from the 1st Armoured Regiment, and was based at Holsworthy until 1992, when it was allocated to the 1st Brigade and relocated to Darwin in the Northern Territory. In late 2014 the regiment was transferred to the 3rd Brigade, and is now based in Townsville in Queensland. The unit derives its combat power from M1A1 tanks, Australian Light Armoured Vehicles (ASLAV) and M113AS4 APCs.

To provide the Regiment with its integral maintenance support (1st Line) it is established with a Support Squadron, which includes a Technical Support Troop (TST), which may be supplemented from its supporting Combat Service Support Battalion, in this case, 3 CSSB. Support Squadron is equipped with L121 vehicles, ASLAV and M113 logistic variants, and recovery vehicles (M88 and 45M).

Spt Sqn. After a COVID affected 2020, this year saw the Spt Sqn and TST make up for lost time and continue to develop their combat effectiveness and field deployment practices, commencing with EXERCISE SIDON. This Squadron-directed troop-training activity saw the TST deploy to Townsville Field Training Area (TFTA) to test and enhance its SOPs and establish a strong foundation, enabling maintenance and recovery support to BG EAGLE. It also provided an opportunity for the SQN and TST to trial dispersed hides, thus increasing survivability and achieving SPT SQN's mission to closely support the Regiment – hence the Squadron motto “Regiment before Squadron, Squadron before self”.

The Spt Sqn is made up of two troops: Distribution Troop – consisting of protected Land 121 vehicles of differing variants including fuel modules, water modules and cargo capabilities; and the TST - consisting of 40M crane variants, HX77s for RPS and specialist tooling, and an M113-AS4F as an FRT vehicle. The HQ consists of PMVs, 40M stores trucks and G-Wagons.

For Spt Sqn, the aim of EXERCISE SIDON was to establish new SOP in situations where the squadron concurrently conducts a replenishment task and an FRT task, with the new vehicle capability. TST quickly adapted to the new situation using the different variants of vehicles effectively within the troop. TST achieved the objective to occupy hide locations



by day and by night, using break-hide drills in the event locations are compromised. The drills allowed the operators and commanders to establish a better understanding of the L121 fleet of vehicles, and their off-road mobility by day and by night.

The concurrent activity for TST during SOP development involved the maintenance and enhancement of basic soldier field-craft and JNCO skills. The squadron implemented various tasks and training tasks which included fire control orders, weapon drills, use of mud models and FRT/occupation orders.

EXERCISE SIDON also saw the first live task of our most recently qualified recovery mechanic, CFN Fiscaro, supporting the recovery of a neighbouring unit's PMV roll-over on the Hervey Range Road by night. This complemented tasks in the broader exercise scenario – the TST is now established and capable to continue supporting the Regiment through the next major exercise.

May 2021 saw TST deploy to TFTA to support 2 Cav Regt's involvement in EX 1 RAR WARFIGHTER, conduct further Squadron directed troop-training in preparation for EXERCISE TALISMAN SABRE 2021, and support the Regiment during their subsequent squadron training. SPT SQN and TST seized this opportunity to further enhance capability through two specific phases – Vehicle Operations Phase and a Live Firing exercise.

The training allowed the development a full understanding of the best employment of Land 121 fleet of vehicles. Key training outcomes built on previous FRT planning and execution, replenishment, methods of movement, individual vehicle craft, re-deployments and break hide training, both by day and night. The employment of two dispersed hides, with commensurate capability (FRT, rations, water & fuel) demonstrated an increased requirement for TST soldiers to be confident in the use of L121 and understand the capabilities of other logistic trades, in particular pertaining to replenishment.

The highlight of this exercise was the live fire phase, qualifying members of TST on Mag 58 and .50 Cal machine guns, both ground and vehicle mounted, by day and at night using Night Vision Devices. Additionally, the training included individual battle runs (IBR) in a PMV to develop the lethality and survivability of the TST.

The remainder of 2021 will see the TST deploy on EXERCISE TALISMAN SABRE 2021 in July before transitioning to a Bde courses period to prepare for 2022, with the obvious inclusion of multiple ASM Golf Days and RAEME Birthdays celebrations!

#### **Arte et Marte**

## Pilbara Regiment Workshops



The Pilbara Regiment workshops started the year with the following three new members;

SGT J Osborne (VM)  
CPL D Southwood (Boffin)  
CFN J Kelly (Fitter)

To join the remaining members from 2020;

WO2 A Kuilboer (ASM/SSM/A-RSM)  
CPL J Arnold (VM)  
CPL T Stiller (Fitter/Marine Specialist)  
CPL B Hodgson (RPS – Shared with Main Q)  
CFN J Harding (VM)

Starting the New Year is a little different in the Pilbara, because our depots are quite far away from each other (some are 600km+ between) the only time to do group training is to align it with induction. Only problem with the start of the year in the Pilbara is that it is cyclone season. We had a tropical low the week before induction which threw a spanner in the works! Carnarvon depot was nearly cut off by the flooding. We managed to survive induction week and our courses week without too much drama. Then it was time for our first FRT of the year.

Due to the distances between our depots we only get to go to each depot for a FRT once every 12 months. The depots are (in FRT order) Exmouth, Carnarvon, Geraldton, Newman, Port Hedland and Tom Price. The first one was Exmouth during March. SGT Osborne, CFN Harding, CFN Kelly and I were sent from Karratha to conduct the FRT. While we were at Exmouth, we were able to visit Cape Range National Park and snorkel at Turquoise Bay. Not a bad way to spend a Thursday afternoon.

The Gascoyne Dash was conducted over the Easter Long weekend at Geraldton. CFN Harding took the GMV down there to support the event. With the GMV being the centre of attention. All the old blokes (some young as well) couldn't get enough of the GMV, constantly harassing CFN Harding about how they didn't have something so luxurious back in their day. The GMV was used as a support and sweep vehicle to check if the track was clear. This was the first time the workshop sent the GMV down to support the event, hoping to go again next year as it was a great success. CFN Harding made it back to Karratha just before another Tropical Cyclone hit the W.A. coast.

This one was Tropical Cyclone Seroja, which caused extensive damage to Indonesia, East Timor and the mid-west coast area including Kalbarri. CPL Hodgson, CPL Stiller, CFN Harding and CFN Kelly were sent along with other members from the Pilbara Regiment to Kalbarri to help with the clean-up efforts. From what the guys said and the photos they sent of Kalbarri, there was not one home that survived TC Seroja undamaged. The NW Coastal Highway was also heavily damaged just north of Carnarvon, which delayed certain items such as fresh fruit and vegies getting to Karratha. One of the drawbacks about being so remote.



*Damage to the Lone Pine Tree at Binnu from TC Seroja*

After the TC Seroja clean-up it was time for our second FRT of the year. This time it was Carnarvon's turn. Teams changed a bit for this one, due to a course SGT Osborne was unable to attend. We were able to use one of our reservists (CFN Small) to fill his spot. The FRT was quite busy as we were helping get the depot ready for the Op Resolute that was happening the following week.

Op Resolute (Op Res) 4 was conducted out of Carnarvon end of May to start of June. CPL Stiller and CPL Arnold were sent down to be the FRT for the Op. This was to be CPL Arnold's last Op Res due to his transition to reserves, after finding another job here in Karratha. Straight after the Op it was Geraldton's turn for a FRT. This year it was conducted by CPL Pates (Fitter) and CFN McCain (VM) from Pilbara Regiment's workshop detachment based out of Perth.

July was Op Res 5, based out of Carnarvon again, CPL Stiller was again sent down from Karratha. CPL Pates and CFN McCain were sent up from Perth to support it as well. Once CPL Stiller got back to Karratha (Tuesday), the GMV was cleaned and re-packed (Wed-Fri) and sent on our next FRT (Monday) to Newman and Port Hedland. Members for the FRT were SGT Osborne, CPL Stiller, CFN Harding and I. Due to the distance from Newman to Karratha and Port Hedland the decision was made for the FRT to go from Newman to Port Hedland. This would save us an extra 800km of travelling, but it also meant we could make a detour on the way to Port Hedland.

We left Newman on Saturday morning to make our way towards Running Waters and Carawine Gorge. We reached Running waters after a very rough and long day (had a blow out on one of the GMV's tyres). Running waters was amazing, it is a natural spring on the edge of the Great Sandy Desert. The water also comes out of the ground at about 28-30 degrees, which makes it a very weird experience, when it was the middle of winter (it was only a 25 degree day) yet you can go swimming in warm water on the edge of a desert! Once we had a swim at Running Waters we left for our campsite for the night which was on the edge of the Oakover River.



*Campsite on the edge of the Oakover River*

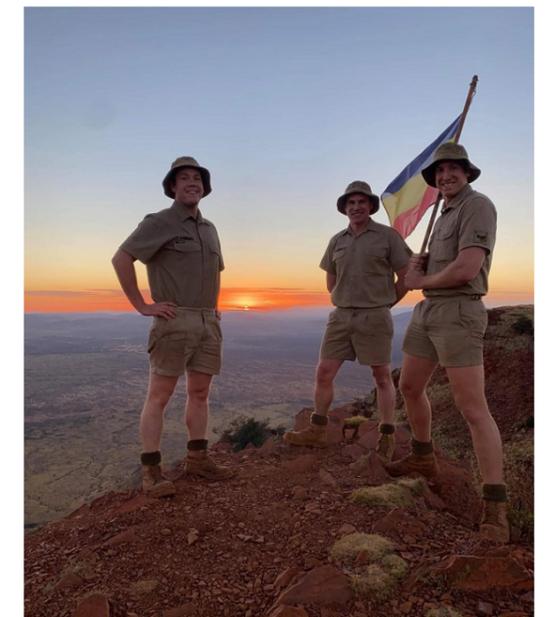
Sunday morning we visited Carawine Gorge and then made our way via Marble Bar to Port Hedland. The Port Hedland part of the FRT was non-eventful but we still got to see another part of Australia. Our next and last FRT of the year was to Tom Price in September.



*Shire of East Pilbara sign, just outside Marble Bar*

One of the main benefits of Tom Price is that it is right on the edge of Karijini National Park. So, of course during our road run we had to go check out the amazing gorges. There are so many things to see and do in Karijini (obviously we didn't have the time to see them all). We were able to see Dale's Gorge which has the iconic Fern Pool and Waeno Gorge which has Handrail and Kermit's Pool. But the adventure doesn't end there. SGT Osborne, CFN Harding and I braved an early start on Friday morning (0330) to drive to Mount Bruce (CPL Stiller needed his beauty sleep). We managed to climb Mount Bruce (second highest mountain in W.A. @ 1234m) for sunrise. It was a good way to end the last FRT of the year and the last FRT for CFN Harding as he is posting at the end of the year.

The last major event of the year was the consecration and presentation of the Queen's and Regimental Colours Parade (39 years in the making). Workshop's had a vital role, not only in the Parade itself but also in the lead up to it. Covering lots of the last minute tasks that needed to be done.



*Top of Mount Bruce*



Colours Parade at Dampier

In summary, my first year experience with the Pilbara Regiment, I've seen many parts of W.A. that I had never seen before, even though I grew up in Perth. I've been to Karijini three times now on 3 different trips (two of them for work). I've seen Marble Bar, a place I didn't think I'd ever see due to the distance it is from everything. Speaking of distances, you do get used to driving a lot up here. Our GMV for example has covered 19,000km from February to the end of September. It is currently on a road run to Broome (CFN Harding and CPL Hodgson) to pick up two boats. We still have some small trips to do, so that total will be well over 20,000km by the end of the year. According to MILIS our GMV has the most kms than any GMV in the Army.

It has been a wonderful work experience up here in the Pilbara. Mainly due to the size of the workshop, as we started the year with 7, now down to 6 (been at 5 a lot of the time due to CFN Kelly being on course for the past 4 months). Living up in Karratha can be challenging at times, but the things you can do up here and the places you can see are amazing. My kids have loved every weekend up here, as we are always out visiting the local areas. Their favourite (and closest) has been the Burrup Peninsula, but they have also been to the Karijini National Park, Python Pool, Fortescue River and Miaree Pool just to name a few. If you also enjoy fishing, you can throw a line in anywhere along the coast and pretty much guaranteed to catch something, there is so much marine life up here (added bonus - no crocs). If you have a boat, the Dampier Archipelago has some amazing islands to visit and explore, probably some of the nicest in Australia (come up here and check them out).

I'm looking forward to 2022 up here in the Pilbara.

## 51 Far North Queensland Regiment (FNQR) Workshop Platoon

### CPL Michael Rogers

For the RAEME personnel of the 51 FNQR Workshops platoon, the remote geography and dislocation of assets within their unit presents unique challenges to the task at hand.

51 FNQR workshops is based in Porton Barracks, Cairns. Their area of operations however, is distributed across the far north of Queensland with company depots in the Atherton Tablelands, the Torres Strait, Weipa and Mt Isa.

So far in 2021, the workshop has conducted multiple Forward Repair Tasks to their outstations to conduct servicing and maintenance on the mission essential equipment held there.

Due to of the dislocation of the depots, these tasks usually involve a workshop contingent driving to the stations to perform the maintenance in location.

During the wet season much of the Cape is cut off by road, so any FRTs require freighting parts and flying the tradesmen into location via regional flights.

The EMEOPS Cell, consisting of ASM WO2 James Gorman and Workshop Sergeant SGT Jason Homan, recognise the extra layer of complexity this situation brings. Not having tradesmen in the remote locations means there isn't always an accurate diagnosis on equipment faults.



WO2 Gorman inspects undercarriage of G-Wagon SRV

The workshop maintains a wide array of equipment, from small arms and G-wagon fleets up to Regional Patrol Craft (RPC) and Radar equipment that is used on operations.

CFN Brenton O'Sullivan is newly posted in, and has gotten a good taste of working in the remote regions of FNQ, conducting short notice FRTs out to communities such as Pormpuraaw and Aurukun to fix vehicles damaged on exercise.

While the primary role is to maintain the various equipment within the unit, the members of the 51 FNQR workshops have also performed tasks outside of their regular scope.

Vehicle Mechanic CPL Andrew Smith has been employed as a Military Driving Instructor to assist with qualifying members of the unit on the G wagon FOV's, primarily the Reconnaissance and Surveillance 6x6 that the unit employs as their main platform for patrolling.

With the knowledge and experience that comes with being both an equipment maintainer and operator, CFN Sean Wheeler, a Fitter in his final year at the unit, has been involved in multiple courses, providing maintenance advice and instruction during the units Small Watercraft Handler courses.

CPL Christopher Barker, a lateral transfer from the British Army who has recently posted into 51, is the Electronics Technician who maintains the radio and radar systems which are vital to the success of the units operations. He has also recently undertaken extra training to enable him to maintain the Units electrical integrity by providing an integral testing capability.

After multiple rotations of Operation Resolute throughout 2020 on which he deployed as both marine engineer and RPC Crew, CPL Luke Noble was keen to head back up to the Torres Strait for one last time before posting out, and has the unique distinction of performing the first RPC engine lift in the Thursday Island workshop.



CFN Luke Noble performing engine lift on Regional Patrol Craft

He was also chosen to be part of the Chief of Army's Leadership Symposium in 2020, and participated in a number of conferences during 2021.

Also in the Torres Strait, CPL David Young is the mechanic posted to Thursday Island as part of the 51 FNQR C Coy. He is the only RAEME member in location and is tasked with ensuring the equipment on the island remains at an operational level.

The remote location of the unit can lead to long wait times for essential parts and servicing consumables, which is handled by CPL Bec Johnston in the Repair Parts Store. Her efforts ensures that work can be planned and completed with minimal wait time.

The workshop is helped by a small number of reservists who are always willing to spend a day or two on the floor when the work starts to build up. Most of the reserve members have been a part of the unit for many years, and their presence helps maintain a continuity in the culture and experience of 51 FNQR.

A small team, high tempo, and a unique operating environment means that time spent in 51 FNQR Workshops is challenging but rewarding.

### **Arte et Marte**



51 FNQR Workshops 2021

## 113 Workshop Company, 13 CSSB



With the challenges presented in 2020 as a result of COVID-19, 113 Wksp Coy had high hopes for 2021. It was therefore somewhat of a disappointment that the first parade night of the year was cancelled due to a short notice lockdown in WA. When the sub-unit did finally meet the new faces of both workshop and CSSB personnel, they were only exposed to the top half of their faces due to the mask requirement. That being said, the workshop crew have been acutely aware of how fortunately that WA based members have been in comparison to our friends and family “over East”. To date the impact of COVID on Western Australians everyday lives has been quite minimal.

The start of the year saw CPL Jack Eldridge complete his deployment with the Transit Security Element (TSE). Jack returned from his time with Navy with a great report and a better tan. On his return he was quickly re-employed to assist EMEOPS.

SGT Chris Brown joined 113 Wksp Coy this year on transfer from SERCAT 7 to 5 after an extended posting at ASEME. As a highly qualified and respected Recovery Mechanic he was put straight to work in training our group of very enthusiastic SERCAT 5 Recovery Trainees. The Trainees were well prepared for his practical training after a year of remote learning conducted in 2020. The training kicked up a gear when the Wksp took delivery of the CSSBs 42M and 45M recovery vehicles - which were the shiniest, newest pieces of kit that 13 Bde had received in a while.

After a few lean years for Metalsmith trade work, CPL Mark Vincent was given a high profile task this year – to rectify and ‘beautify’ the front gate of Irwin Barracks that was in need of a face lift. It was great to hear the sound of grinders and welders being used for a few parade nights.

LT Amelia Swenser-Smith and LT Maciek Bilski both had several attempts at getting to Albury Wodonga to complete their LOBC this year, after at least one false start each in 2020 due to travel restrictions. Thankfully, ASLO were able to run a remote LOBC in October (the first of its kind ever) which both the Wksp LTs were able to attend, along with another of the RAEME LTs in 13 CSSB. LT Shannon Power was posted to 10 Tpt Sqn as a Tp COMD this year due to insufficient other logistic Corps junior General Service Officers. Shannon is posting in to 113 Wksp Coy for 2022 where she is expected to use her in depth knowledge to work on some preventative maintenance strategies for the Bde.



RAEME LTs complete remoted LOBC (1st) LT Power, (2nd) LT Swenser-Smith & (4th) LT Bilski

With the re-raising of 10 Light Horse Regt in WA this year, 13 Bde saw the introduction of the Hawkeye PMV-L. Within a 13 Bde context this represents a big leap forward in capability (and maintenance liability) for 13 Bde and 113 Wksp.

In late September, 13 CSSB was requested to provide support for the funeral of CFN Lachlan Clulow. CFN Clulow was a trainee Fitter at ASEME, and the son of a RAEME veteran. He was farewelled at a service in his home town of Albany by a RAEME Bearer party, commanded by WO2 Paul Lewis. 113 Wksp Coy were proud and honoured to be able to provide support to his family on behalf of Army and RAEME.



13 CSSB 113 Workshop Coy RAEME Bearer Party

2021 has been a big year for SGT Chris Wright. He started the year as CPL Wright and received a bronze commendation for his efforts in 2020, in support of the JTG and providing all-corps training for a large part of 13 Bde. It was the first commendation presented by BRIG Chaloner the new Comd 13 Bde with Chris' wife and young kids also present. CPL Wright was promoted early and became SGT Wright on 14 Sep 21 - again with his children in tow, but this time, his wife had to dial in via video due to her service keeping her away from Perth at this time.



CPL Wright with his family after being presented his Bronze Commendation by COMD 13 BDE BRIG Chaloner

All in all, 2021 was another busy year for 113 Workshop Coy. The Coy finishes the year with fewer members than we started as work has picked up in both the mining and Defence Industries within WA, making it harder for some of our SERCAT 5 members to commit to reserve days. Several of our SERCAT 7 members also transitioned to SERCAT 5, however we're looking forward to seeing them back in the workshop as SERCAT 5 members in 2022.

## 6 LSC Workshops

To begin this edition of the 6 LSC Workshop Jottings I would like to say farewell to CFN Jimmy Sewell, who unfortunately had to leave us earlier this year and join the ranks of the veteran community. To you Jimmy I say good luck on the outside and I hope to see you on a RAEME Birthday sometime soon. Where one leaves another will take his place however, as just recently the workshop has welcomed CFN Christian Furness into our ranks as a new fitter armourer. And with CFN Cameron Bell having completed his recruit training, the workshop is in pretty good shape. Now that we have our hellos and goodbyes out of the way I can get on with what I'm here for, letting you lot all know what we've been up to for the six (or more) months since the last jottings.

In April the workshop engaged in a number of activities around the state, notably several members from the workshop conducted themselves well under scrutiny of the public when they mounted the catafalque party during the ANZAC day commemorations at the Cygnet war memorial and RSL. Also, a routine drive to put some kilometres on our vehicles and maintain the skills of some of our newer driver qualified members was conducted through the back roads around Collins Vale to New Norfolk.



In May members from the workshop participated in an exercise at the Buckland training area involving a mixture of cross country and convoy driving along with some basic soldier skills training where they conducted an observation post. The driving portion of the exercise gave the members involved some much needed refresher driving on difficult terrain. Another weekend in May saw the workshop conducting winch maintenance on the HRV with the assistance of WO2 Peter Barrett from JLU-V. May also saw one of our newest NCOs completing the first phase of their promotion courses for CPL away on the mainland.

With June and July being a rather slow period for those in Tasmania the tempo picked up again at the end of August and into September with some quality convoy driving practice driving through the central highlands to link up with elements from the Devonport depot at Penstock Lagoon after passing through Victoria Falls. The high tempo continued through September with members attending the courses camp conducted by 12/40 RTR to renew their competence on Army First Aid and Tactical Care Combat Casualty. September culminated with a resilience training activity held by 2 FSB where members from the unit travelled to the north of the state to test their endurance with some mountain biking around Derby followed up with a highly competitive paintball session at Latrobe in the worst weather conditions that the paintball operators had seen in their five years of operation. Also of note was LCPL Matthew Jordan who completed his Land 121 40M and HX77 conversion course and will now be able to drive the new fleet in preparation for Land 121 recovery vehicle training.



Conducting crane drills on Land 121 conversion course



HX77 Performing manoeuvres during Land 121 conversion course



Bakery visit

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## Straight from the Horse's Mouth

Pete Shefford and Ian Cook

2021 will be remembered for several reasons, not least of which will be the release of Straight from the Horse's Mouth; 101 tall tales from our Nation's finest tradies. This book captures some of the funniest moments from our Corps history.

Following the tradition of the greatest story tellers from Spanner Clubs everywhere, many of the stories have been embellished and the degree of truth in them is questionable however they are bound to make you laugh.

All stories, which were gratefully provided by numerous Corps members or supporters, cover all ranks and all trades. The stories also describe events in every decade since our Corps' formation. Some of the older stories describe events that would not occur in today's modern Army (who wouldn't want to watch a tug-or-war between a Centurion recovery vehicle and an armoured dozer!) but they all note that special thread that bonds us all; our ability to find humour regardless of the situation in which we find ourselves.

The initial print run was an incredible success with the entire stock selling out in a matter of weeks. The competitive pricing was only possible thanks to generous sponsorship from (in no particular order) Ironside Resources, Ryno Fabrication, Mainline Dynolog Dynamometers, Roadrunner Parts, Revive Exercise Physiology and the NSW RAEME Association. 100% of profits from the project will be donated to the RAEME National Association to aid both serving & current members.

Due to the rapid stock depletion, another print run will follow in early 2022. Orders can be placed at: <https://forms.gle/4YQ5bnA7oPqbf2Ru5>.

As humorous events continue to occur across RAEME, a Second Edition is already in development. Release is expected in late 2022 however more stories are needed. If you'd like to share a laugh from your time in our Corps, please send whatever you have to [FunnyStories@raeme.com](mailto:FunnyStories@raeme.com).

Remember, your story doesn't have to be true, just believable!



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## RAEME Association

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### RAEME Association Queensland

Jeff Maurice

**Introduction.** The RAEME Association Queensland (RAQ) held its Annual General Meeting (AGM) on 6 Oct 21 in Brisbane. The following summarised reports provided by the RAQ Patron and some of the Executive, speak volumes for the wonderful team I lead as Chairman. This summary also encapsulates the busy nature of our Association in any given year, but is especially true, in a year dominated by Covid restrictions.

As Chairman, now entering my 10th year at the helm, I am very proud of the team we have in Queensland; the strong support we receive from our loyal membership; and the well-established connections we have with our local ARA and ARES units and Defence industry in Queensland. In my view, we are truly meeting the goals of the RAQ, which are as follows:

- Promoting the Corps' identity and reputation in Queensland.
- Recognising and celebrating achievements of members of the Corps in Queensland.
- Providing a focal point for Corps activities in Queensland.

**AGM Chairman's Report.** Our association continues to take great strides as an active and hardworking association within the RAEME National Network (RNN), expanding and delivering results to our membership, units in Queensland and the Corps more generally. At the close of our trading year, at 30 Sep 21, RAQ membership numbers have grown steadily across Queensland, but most pleasingly, it is led by growth in our widely distributed regions.

Despite the challenges of 2021 for our membership and RAQ committee, with health orders and restrictions always just a news conference away, we were able to hold all our scheduled activities/functions. This required us to remain adaptable with occasional adjustments to event dates and some challenges complying with restrictions, but they all went ahead, which I am proud to say, allowed the RAQ to achieve our Association's goals.

The Association's outcomes this year were due mainly to the work and effort not only from the Executive, but the many people who make up the committees, and individuals who carried out specific tasks in planning for and executing a range of events and functions in Brisbane and regionally. Critically for me, I must commend the team for its efficient administration and running of the association - may I offer my heartiest congratulations to all.

As a result of the recent AGM, readers will be pleased to know the current RAQ executive has been re-instated completely - while this loyal band deserves many accolades, I have asked our membership to remember, we always need more volunteers - firstly to assist, but secondly to refresh some of the older faces in the team. So, my plea is, come and join us and contribute - on behalf of your comrades.

The RAQ remains in a sound operational and financial position and continues to grow.

Our main challenge will remain bringing new faces on to the management teams in 2022, with fresh ideas, enthusiasm and good management skills.

**AGM Patron's Report.** The Patron, BRIG Ross Grant, was pleased to point out to members attending the October AGM, that the RAQ has undertaken sterling work throughout 2020-2021, despite Covid restrictions, which has seen the Association move forward substantially and secure its position in the life of the Corps, particularly in Queensland. He was equally pleased with support received from our RAQ membership across Queensland, which responded exceptionally well to our communications program and strongly supported all RAQ activities and events.

He also congratulated the many chapters and sub-associations of the RAQ in Brisbane, North Queensland (Townsville and Cairns), on the Gold and Sunshine Coasts, and in our newest locality, Toowoomba, for their efforts and many recent successes. He said regardless of how one measures success over 2021, the following list illustrates the health of our current Association:

- Increasing membership, mostly in SE QLD, Townsville and Toowoomba – a total of 65 new members since 1 Oct 20 till 30 Sep 21, consisting of 24 Annual Subscribers, 41 Life Subscribers and 8 upgrades from Annual to Life Subscriber for a total membership of the RAQ of 623.
- Large number of events and functions which the various sub-branches and chapters have conducted this year – some 15-17 functions, including involvement with Spanner Clubs at our local ARA units, ARES organisations.
- Establishment and consolidation of two new sub-associations in Toowoomba and Townsville respectively with further prospects in central QLD in 2022.
- Ongoing and substantive collaboration between each of the sub-associations to subsidise events and make them financially viable and encourage attendance.
- Contributing to our involvement with the improving relationships across the RAEME National Network.
- Timely reconnection with the Corps Committee through our supportive RAEME Colonel's Commandants, led by BRIG (Retd) Dave Creagh, the Representative Colonel Commandant, and our own COL COMDT-QLD, COL Steve Evans.
- Provision of support to our wider RAEME family across QLD in difficult times, citing the recent sad losses of the two recovery mechanics killed in a training accident in north Queensland;
- Our ability to routinely attend the funerals of members who have passed this year and support families despite restrictions.
- Celebrating various key members of the Corps who have received awards or passed noteworthy milestones.
- Vastly improved financial situation of the RAQ due largely to record sales of memorabilia and Association utility items.
- Finally, BRIG Grant complimented the RAQ Executive on the work they do on behalf of the RNN, maintaining the flow of Spanner Packs to our colleagues and friends serving overseas on operations; and RNN financial management and routine administration. All in all, a wonderfully productive year for the RAQ.

BRIG Grant went on to say he was also encouraged by the huge support the RAQ has received from local RAEME units and their important contribution to "Spanner News", together with the very timely RAQ "Friday Files", our most popular media platform. He also expressed his thanks to all our "contributors" over the last 12 months, who have made the editors' work easy. Of course, none of our communications work can be done as well as it is without help of the RAEME National Support Team (RNST), part of the RAEME National Network, which has built and maintains a very effective IT network, with Association webpages and useful webpages – he especially mentioned the huge effort of Alex Smithers, Richard Legge, Adrian Butcher, Morgan Cornelius, Glen Hay, Dean Ellis and Lyell Wedd – but warned we will have some costs to manage in 2022.

BRIG Grant reminded everyone of the many members of the Corps who have received awards this year, or passed important milestones, or who have played a part in the life of the Association over many years. He especially cited BRIG (Retd) Herbert "Bert" Barker, who turned 100 in on 13 Dec 2021. The RAQ is tried hard to get him to our annual "All Ranks Lunch" at the Port Office Hotel on 28 Nov 21, but as Bert lives in NSW (on the Tweed River), it was not possible. Bert's life spans four generations of the Corps and he has had a very interesting life – it is wonderful to have our links with Bert, an original member of the Corps from 1942, and we know he is proud of his contribution to the Corps. One way and another, we will celebrate his 100th birthday.

Finally, BRIG Grant thanked the Corps Committee, but especially the HOC, BRIG Allen, and comprising the REP COL COMDT, BRIG Creagh, and the COL COMDT QLD, COL Steve Evans, for their support throughout the year – we look forward to continuing the evolving relationship in 2022.

**AGM Deputy Chair's Report.** Peter Matthews, the Deputy Chair of the RAQ, advised those present at the AGM that from his perspective, the last 12 months have been very challenging. He elaborated by saying "the COVID 19 pandemic has again been the RAQ's focus ensuring the health and safety of our members was not compromised, and barring a few snap lockdowns, we've been in the enviable position of continuing with our activities, and in true RAEME style, we have overcome many obstacles to ensure our Association delivered on our goals.

He also went on to say that despite COVID restrictions, the RAQ has maintained its ability to be an enabler for Corps activities for functions across most regions of Queensland including Cairns, Townsville, Sunshine and Gold Coasts, Brisbane; and most importantly for the newest chapter recently established on the Darling Downs, with a very successful inaugural function in Toowoomba, and an RAQ visit to the RAEME Aircraft Maintenance School and Museum of Army Flying at Oakey.

Peter also explained how fortunate he was to attend the Land Forces HOC Breakfast in Brisbane on 2 June 2021, with our Patron and Comms Chair, BRIG Grant. This initiative led by our HOC, BRIG James Allen, and COL COMDT, was a first, and it's envisaged the networks formed at these and other sessions will strengthen our Corps, the Associations of the RNN, and connections with Industry. As was explained on the day, by coming together on occasion to discuss and help solve the challenges of the future, the RAQ remains connected to the current members of the Corps as well as those past members pursuing their new careers in Industry.

Peter went on to say how pleased he is with Friday Files and the part that newsletter has played in the growth of our membership. Membership continues to grow, particularly

in the North Queensland and Darling Downs regions, and he expressed his thanks to the hard-working Committees in those areas with whom he works on a regular basis. To support our 2020-2025 Strategic Plan, Peter is keen to now focus on is the Central Queensland regions of Central West, Capricorn and Wide Bay. Our challenge is to find a group of members, who can take on the task of building of the Association in that large region, and appealed to any ex-RAEME people, who are keen to form a committee, to let one of the Executive know.

Finally, Peter, pointed out, that we can't do the things we do without being in a sound financial position. This results from very sound management by our Treasurer MAJ Steve Howells, and two significant and successful areas of revenue – RAQ membership fees and merchandise sales. He went on to say that the RAQ has striven to keep fees as low as possible, with Annual Subscriptions not having risen since rejuvenation of the RAQ in about 1999. The “once off” life subscription being the most popular option for 90% of RAQ's members. The other key revenue stream is merchandise. In the last twelve months the RAQ has brought in several new items including, umbrellas, plaques, decals, key rings and decanters. May also gave a huge vote of thanks to the RAQ's Merchandise Officer, Bruce Hermann, whose efficiency in processing the many orders the RAQ receive, is outstanding. Bruce also kept busy attending most functions, including RAEME unit “Spanner Clubs”, all of which supports our sales.

In closing out our 2020/21 Financial year, I believe we have a highly motivated team, which always keeps our goals foremost in mind, and I am personally thankful for the support I receive from the Executive as we undertake our many tasks. I look forward to continuing to play a part in the success of the Association with the team in 2022.

#### **Arte et Marte**

### **RAEME Association Queensland – What we are about?**

The purpose of the RAEME Association Queensland is to promote and reinforce the spirit, reputation and image of the Corps through its past, present and future members.

The goals of the RAEME Association Queensland locally are to:

- promote the Corps' identity and reputation.
- recognise and celebrate achievements of members of the Corps; and
- provide a focal point for Corps activities.

To obtain RAQ membership benefits, join for \$10/year, or upgrade to Life Subscription for \$100. All proceeds support and promote the goals of the Association.

Go to: <http://www.qld.raeme.org.au/index.php/component/rsmembership/view-available-memberships?Itemid=249>



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## **RAEME Association of South Australia**

### **Memorial Service – Prince Philip, Duke of Edinburgh**

#### **Richard Moyses**

The RAEME Association of South Australia enjoys a close relationship with the REME Association, South Australian Chapter so it was readily agreed to jointly acknowledge the passing of Prince Philip, The Duke of Edinburgh as he was Colonel in Chief of our Corps.

As the Commander in Chief of many Military organisations, including The Royal Australian Electrical and Mechanical Engineers and the Royal Electrical and Mechanical Engineers it was agreed that we should hold a memorial service to recognize his service.

Since HRH was also a Freemason of 69 years, the Grand Master of South Australia and Northern Territory advised they would also like to be included in this Service. A meeting was held between the three groups and a date of June 6th was agreed to.

The RAEME Association and REME Association, with the assistance of the Freemason's Grand Chaplain, Grand Organist and Grand Director of Ceremonies organised the service which was held in The Freemason's Great Hall and was attended by many past and present servicemen and Freemasons.

The Standards of the three organisations were slow marched in to the Duchess of Kent and presented to the Grand Chaplain. After an opening prayer the Hymn “For those in Peril on the Sea” was sung.

Major Arron Kinleyside, senior RAEME Officer South Australia, provided a wonderful Eulogy and highlighted our Colonel in Chiefs service and achievements during his Naval service of WW2 and support of many organisations both military and civilian.

The Grand Master then gave a Eulogy on his Masonic career which began in 1952. He was a Master Mason and maintained his association with his lodge during his lifetime, receiving his 50 year Jewel in 2002. A sermon was given by the Grand Chaplain followed by the Ode.

W02 Alwin Kidney then played the Last Post, a minute's silence, followed by Reveille.

A closing Hymn (When the Roll is Called up Yonder) was sung and the Standards were marched out to Lilibullero.

A closing prayer was offered by the Grand Chaplain.”

The memorial was well attended and considered to be an appropriately simple but respectful acknowledgement of the service and dedication to the life of HRH Prince Philip, Duke of Edinburgh.

Our main challenge will remain bringing new faces on to the management teams in 2022, with fresh ideas, enthusiasm and good management skills.



MAJ Arron Kinleyside proving the Eulogy



WO2 (Rtd) Lou Leeuwrik



RAEME Assoc of SA members (l-r) LTCOL (Rtd) Greg Rosser, MAJ Arron Kinleyside, Senior RAEME Representative SA), Bob Killoran, Mike Cully, and MAJ Richard Moyses



Assembled guests at the service

## RAEME Association of NSW

The RAEME Association of NSW was founded in October 1972 in Victoria Barracks Paddington. The objectives of the association, in part, were to;

- Preserve the memory of service comrades;
- Develop and maintain fellowship and camaraderie between people who are serving and those who have served in the Corps;
- promote the welfare of Corps members, former Corps members and their dependents, and
- Do all such acts as may promote the welfare of the association.

Over the past number of years with Independent Workshops being amalgamated into units such as the CSSBs and the move of a large number of the ARA Units north, the access to the remaining ARA and ARES serving members has become harder. The basis of the Association, now, is to preserving the existing camaraderie and maintaining contacts and traditions whilst endeavouring to attract younger members.

To this end the Association organises 2 major functions a year which all RAEME members past, present and their partners and friends are welcome to attend. These being;

- ANZAC Day march and Luncheon in the Sydney CBD, and
- CORPS Birthday/Christmas Luncheon. In 2022 it will be held at the Campbelltown Catholic Club on 20 November.

The Committee of the Association holds 4 Committee Meetings followed by a Casual Luncheon at various RSL Clubs in Sydney and 1 in the Hunter Valley each year. These luncheons are open to all past and present RAEME personnel their partners and friends. Full details of dates and locations are available on the Web Site, [nsw.raeme.org.au](http://nsw.raeme.org.au).





ANZAC Day 2021



LT Hannah McClung



Christmas/Corps Birthday Luncheon 2019

## RAEME Association of Tasmania (RATS)

On Sunday 12th December 2021, the RAEME Association of Tasmania Celebrated RAEME Birthday, with a gathering of 49 on the day we continue to get good representation from our members. If you are reading this and didn't come and would like to come next year, please contact our Secretary Mr Russell "Shirly" Clark @ [rclark-7@hotmail.com](mailto:rclark-7@hotmail.com)



COL Andrew Herbert presenting the Corps Recognition of Service to Maj Peter (Phantom) McDonough (Retired). Phantom served 20 years in the ARA and 20.5 years in the GRES. Whilst Peter last paraded in 2013 his discharging unit never provided him with his recognition of service. It was with great pride that the RAEME Association of Tasmania was able to rectify this.



*The RAEME Association of Tasmania (RATS) birthday cake, it seems appropriate that splinter is our emblem as the average age of our membership is on the high side of 60!!*



Mr Brian Parker (Eldest member) and L/CPL Barnaby Matton-Johnson



RATS on parade!

## AWARDS

### 2021 Craftsman of the Year (COTY) Recipients

#### National CFN of the Year

	Unit	Rank	Initials	Surname
ARA	7 CSSB	CFN	D	Zabala
ARes	SOLS	CFN	D	Brizzi

#### Regional CFN of the Year

Vic/Tas Region	Unit	Rank	Initials	Surname
ARA	No Nominations			
ARes	No Nominations			

Central Region	Unit	Rank	Initials	Surname
ARA	7 RAR	CFN	S	Mundie
ARes	No Nominations			

Western Region	Unit	PMKeys	Initials	Surname
ARA	No Nominations			
ARes	No Nominations			

Northern Region	Unit	Rank	Initials	Surname
ARA	No Nominations			
ARes	No Nominations			

NSW Region	Unit	Rank	Initials	Surname
ARA	2 CDO	CFN	B	Clifford
ARes (National winner)	SOLS	CFN	D	Brizzi

South Queensland Region	Unit	Rank	Initials	Surname
ARA	2 CER	CFN	C	Parker
ARes	No Nominations			

North Queensland Region	Unit	Rank	Initials	Surname
ARA	10 FSB	CFN	T	Sager
	No Nominations			



National ARA Craftsman of the Year CPL Dominique Zabala (7 CSSB).  
Dominique was promoted to CPL on 6 Dec 2021

SA ARA



MAJ Arron Kinleyside with SA Craftsman of the Year recipient CFN Shayne Mundie of 7 RAR



CFN Shayne Mundie COTY and ASM 7 RAR WO2 Troy Pitt

NTH QLD ARA



CAPT Mick Gordon presents the NQ COTY Award to CFN Tim Sager (10 FSB)

SE QLD ARA



CFN Colin Parker 2 CER COY SE QLD Award

2021 Corps Awards

Junior Regimental Award (Sub 2 SGT)			
Rank	Initial	Surname	Unit
CPL	K	Toomer	2 CER

BRIG HLC Martins OBE Award (Sub 4 SGT)			
Rank	Initial	Surname	Unit
CPL	S	Reed	SOER

Regimental Award (WOLOG)			
Rank	Initial	Surname	Unit
WO2	P	King	7 CSSB

Artificers Award (Sub 4 WO)			
Rank	Initial	Surname	Unit
SGT	J	Nicholas	10 FSB

LT Peter Jennings Award (LOBC)			
Rank	Initial	Surname	Unit
Not Awarded			

Artificers Award



CAPT Mick Gordon with Artificers Award recipient SGT Jake Nicholas 10 FSB.

Unit Awards

ASEME



CO ASEME LTCOL Troy Wilson presents the ALTC Instructor of the Year to SGT Kallum Maitland



Trainee of the Year Armament & Construction Wing CFN Matthew Greet



Trainee of the Year Vehicle Technology Wing SPR Alex Gelsi



ASEME Obstacle Course Winners Electrical & Electronics Systems Wing

ASEME



1 CSR Unit COTY CFN Carl Holmes presented by ASM Roshan Haverfield & CAPT Evert Van Der Steeg

103 Workshop Coy



CFN Fryer - Soldier of the year



LCPL Lambourne - most improved Soldier



LT McClung - ASM's award

# RAEME Birthday Celebrations

## ASEME RAEME Birthday



LT Mark Piovarchy delivering the welcome address for ASEME 79th RAEME Birthday



Spanner Toss



Truck Pull



Tug of War



Billy Cart Races



Show and Shine



Trade Show



AWMA RAEME Birthday Cake



Youngest Craftsman at ASEME, CFN Samuel Colquhoun from VTW cutting the RAEME cake with ASEME CO, LTCOL Troy Wilson

## SE QLD RAEME Birthday



## NQ RAEME Birthday



10 FSB Team with electric go cart



10 FSB electric go cart driven by CFN Rebecca Dunnett



102 FD WKSP Billy Cart

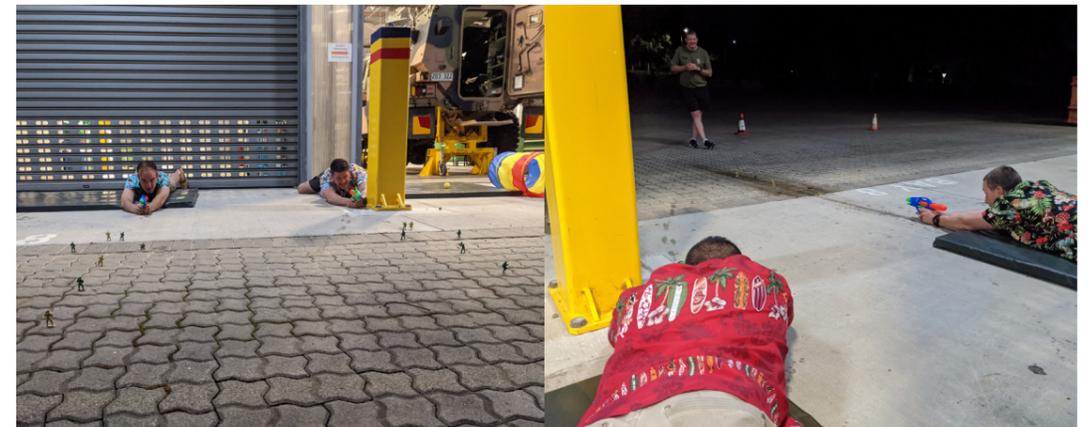


2 Cav Regt Billy Cart



3 CSR Billy Cart

## 103 Worksop Coy RAEME Birthday



# NT RAEME Birthday



RAEME Flag



Ironman Competition



Touch Football Competition



Tug of War



Cart Races



Obstacle Course



Cutting the cake



WO1 Mark Barnes ASM 101 WKSP Coy with MAJ Shadrack 'Shad' Marsh XO 1 CSSB

## SA RAEME Birthday



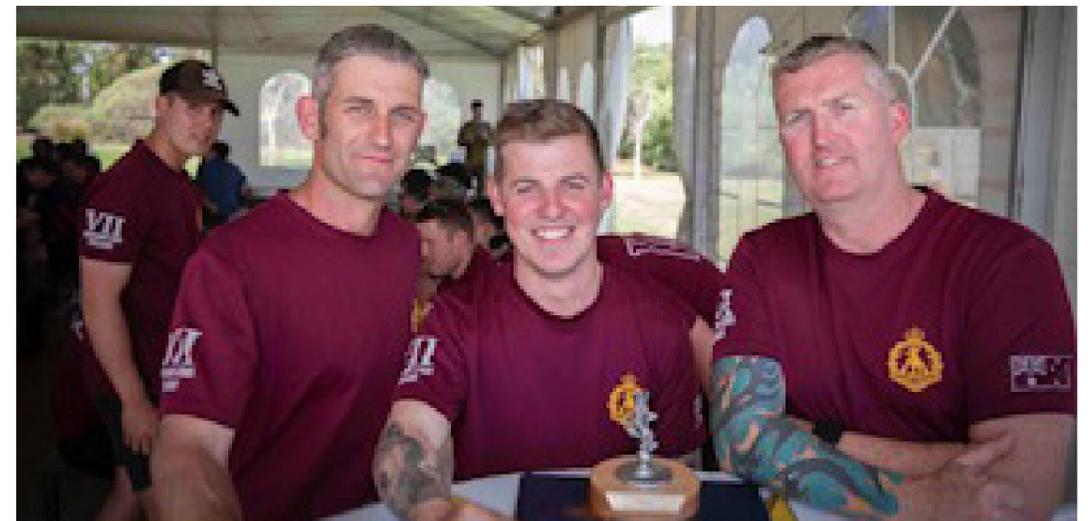
Spanner Toss



1 CSSB Gazebo



Cutting the cake



SA Craftsman of the Year – CFN S Mundie

## Bathurst 1000 2021



## APS Retirements

### MR Don Cullen

MR Don Cullen an Australian Public Service (APS) Technical Instructor at ASEME retired in April 21 2021, bringing to an end a 44-year involvement with Defence. Don enlisted as an Army Apprentice in Jan 1977. Don transferred to the Army Reserve and commenced his APS career in Dec 1996. He was a Technical Instructor with RAEME Training Centre and ASEME in its many guises for 25 years and worked in all the intervening Wings over that period; Armament, Maintenance, Armaments and Construction and finally Careers and Advanced Training Wing.



His 20 year of ARA service was highlighted by the fact that in all his time he only had one posting outside of Victoria. That was to 2nd Cavalry (2 Cav) Regiment when it was in Sydney; where he was part of the Light Armoured Vehicle (LAV) trials when they received the initial USMC LAVs. He was posted to RAEME Training Centre in 1992; where he commenced his career as an instructor; both Military and APS. Although operations during his time in the green were few and far between, he managed numerous trips overseas to PNG, the USA, Canada and the Pacific Islands.

Don did his Diploma in Education whilst posted to RAEME Training Centre and used this qualification for almost the next 30 years. During this time Don was involved in the Introduction into Service (IIS) of ASLAV, M113AS4 and ABRAMS and the developing the maintenance training for their Turret Armaments Systems. He was also a part of the team that received a Training Commanders Commendation for the successful IIS of the ABRAMS.

Over the years Don has taught and influenced hundreds, if not thousands of RAEME, APS and contractors. He has instructed on a range of courses delivered at ASEME; including Initial Trade Training (ITT), Subject Four courses and Specialist Equipment maintenance training.

Don has been the SME for all the AFV turret courses for more than 20 years. This has been acknowledged by CASG, as they often sought his advice with technical problems associated with AFVs turret systems. Don was also involved in training Navy personnel on the M242 25mm cannon when the for the typhoon remote weapon stations was IIS with the Navy. In the 90's Don completed the RAAC Driving and Servicing Instructor Course at School of Armour and was a leader in getting 1st and Reverse; now Ground Guide Only (GGO) licences issued to RAEME tradespeople, so they could safely move them around the workshops.

Don and his wife Debbie plan to spend their retirement travelling; be it around Australia in their caravan and new Dodge RAM or when it safe travelling the world, be it by air or by doing cruises. They have two sons who have no longer live locally, but they still have close relationships with.



Don on ABRAMS with WO2 Al Clarke & MR Steve Stroyan (US ABRAMS Technical Trainer) during ABRAMS IIS training at ASEME

## MR Wayne Allan

MR Wayne Allan a long serving member of ASEME Headquarters retired from the Australian Public Service (APS) on 15 December 2021. This was the culmination of 45 years' service in Defence; 24 years in the ARA and just under 21 years in the APS.

Wayne started his career as a 16-year old Army Apprentice and finished as the National Technical Training Manager (NTTM) at ASEME where he was responsible for managing more than 900 Defence apprentices.

Wayne has had an impact on the careers of thousands of Defence members over his time in the ARA & APS; be it as ASM 8/12 Medium Regt and Armaments and Construction Wing; a Career Adviser at SCMA; or as the NTTM, a position he pioneered. He was also influential in the development of Defence trades holding positions on National Industry Training Advisory Boards.

Wayne is well regarded by all who that have worked with him for his professionalism and humility. He is long suffering Richmond supporter that has enjoyed their recent success.

In retirement, he plans to improve his golf handicap, volunteer and start travelling again if/ when the world opens up. Wayne and his wife Chris are settled in Wodonga, with both their children and two granddaughters settled in the area as well.



The presentation putter manufactured by ASEME trainee of the Year 2021 for Wayne Allan

## Vale

### 8214675 Warrant Officer Class 2 Ryan Allan Leslie

8214675 WO2 Ryan Allan Leslie was born on 14th September 1980 in Wollongong, NSW, and passed away on 30th August 2021 in High Range Training Area, Dotswood, QLD whilst serving with 2/14 LHR (QMI).

Ryan enlisted in the Australian Regular Army in 8 June 1999 serving both at home and overseas. He was a very proud and dedicated soldier, but also a loving husband, father, son, brother and friend.

Ryan lived and breathed Army and was passionate about what he did. He embraced teaching his skills to the next generation of Recovery Mechanics and was the first to volunteer to get down and dirty in the mud. He found great comfort in music and lived for his sports.

Ryan will always be remembered for his playful personality, his dedication to those he cared for, and his complete love of life. Ryan leaves behind his wife Tara, daughter Montana, and a large loving family and many hundreds in the Corps lucky enough to have been trained, mentored or simply had the pleasure of knowing and being able to call him mate.

Ryan was posted to the following units during his service, most recent first:

- 2/14 Light Horse Regiment (Queensland Mounted Infantry)
- 7 Combat Service Support Battalion (7 CSSB)
- Army School of Transport (AST)
- Army Logistics Training Centre (ALTC)
- Army Recruit Training Centre (ARTC)
- 2 Combat Engineer Regiment (2 CER)
- 9 Force Support Battalion (9 FSB)
- 10 Force Support Battalion (10 FSB)
- 2/14 Light Horse Regiment (Queensland Mounted Infantry)
- 1 Combat Service Support Battalion (1 CSSB)



Ryan enjoying a beer

During his military service Ryan received the following honours and awards;

- Australian Active Service Medal with Clasp EAST TIMOR - 2000
- Returned from Active Service Badge - 2000
- International Forces East Timor Medal - 2001
- Meritorious Unit Citation – 10th Force Support Battalion – East Timor 1999 to 2000 - 2002
- Australian Service Medal with Clasp SOLOMON ISLANDS II - 2004
- Australian Defence Medal - 2006
- Defence Long Service Medal 2014
- Defence Long Service Medal with First Clasp 2019

Ryan was a superstar that was on the road to greater things. This fact was widely acknowledged by all members who knew him. He had been selected for promotion to WO1 in 2022 and the Corps will be a poorer place without his input into our future role.

Ryan's funeral and remembrance service was conducted with full military honours on the 24th of September 2021, by 2nd/14th Light Horse Regiment (Queensland Mounted Infantry), at Enoggera, Brisbane with a RAEME guard of honour provided by Corps members from all over Australia.

Rest in peace brother.

### **Arte et Marte**

the workshops.



Ryan & Tara Brisbane

Ryan recovering G Wagon

Robyn, Montana, Ryan, Tara & Kerry at their wedding

## 8658427 Craftsman Brendon Anthony Payne



*Brendon always enjoying whatever he was doing with an infectious smile*

8658427 Craftsman Brendon Anthony Payne born on 7th of September 1991. He enlisted on the 30th March 2020 and passed away on the 30th of August 2021 after a vehicle accident on exercise in Dotswood, High Range Training Area, Townsville

Brendon enlisted into the Australian Regular Army on the 30th of March 2020 from where he completed his recruit course 22nd June of that same year, prior to commencing his Initial Employment Training at the Army School of Electrical and Mechanical Engineers, as a Recovery Mechanic. He successfully completed his training and was on his first posting to 2nd/14th Light Horse Regiment (Queensland Mounted Infantry).

Brendon had a great adventure for life but also revelled in the simple pleasures. He loved travelling to many new and exciting places, had a strong passion for his fitness and martial arts, a dedicated love for his cars and barbecues, but, more than anything, would always be there for his mates in any time of need, bringing along his cheeky smile with him.

He leaves a great hole behind in many lives, in particular his ever-loving wife Aimee and very proud parents Mark and Julie, as well as many families and friends. Brendon was so proud to join the Australian Army and enter into RAEME life. He was looking forward to the future and where this journey would take him and his family.

Brendon's funeral with full military honours and a celebration / remembrance service was conducted on the 22nd of September 2021, by 2/14 LHR (QMI), at Enoggera, Brisbane with a guard of honour provided by a mixture of Regimental members from all Corps.

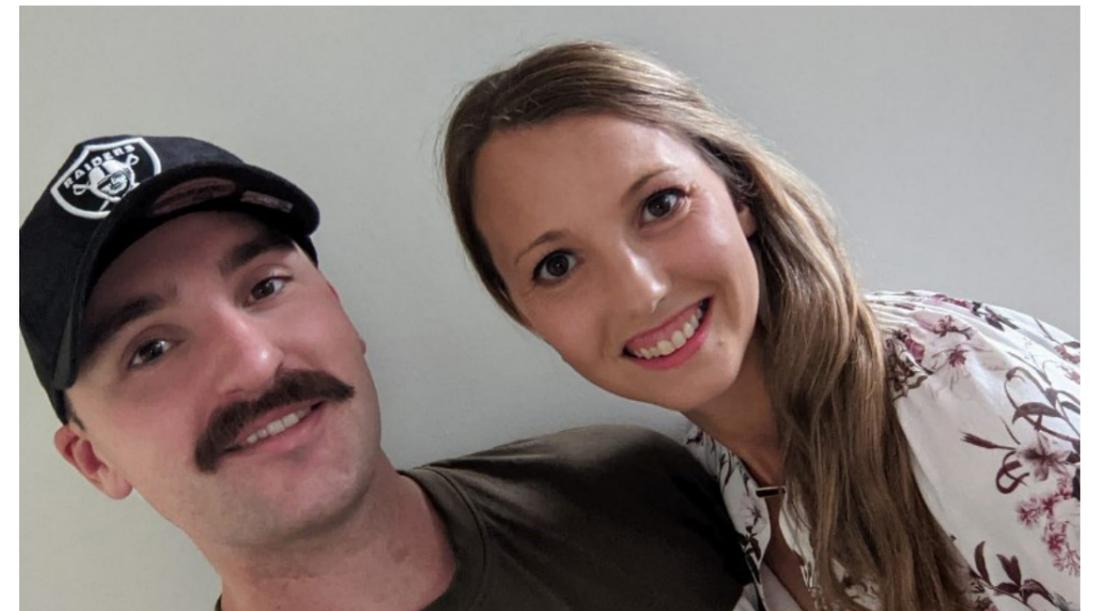
Brendon served his time with dignity, integrity and compassion that set him apart and ensured that he will be remembered. He will always be missed and never forgotten.

Rest in peace our brother.

**Arte et Marte**



*Brendon with friends CFN Kennedy, CFN Hawkins, and CFN Thom*



*Brendon with the love of his life Aimee*



*Brendon conducting Boxer top deck lift - Ex Diamond Dagger-45M*

## 8659432 CFN Lachlan Clulow

Our RAEME community sadly experienced another loss in 2021 with the passing of one of our junior members being 8659432 CFN Lachlan Clulow on 11 Sep 21. Lachlan was training to be a Fitter Armourer at the Army School of Electrical and Mechanical Engineering following in his father's footsteps. He had spent a year and four months in service with the Army and was close to graduating from his course. Sadly, Lachlan lost his life in a single motor vehicle accident whilst 4WDing with mates near El Dorado in the Victorian High Country.

His loss is deeply felt across the staff and trainees of ASEME and he will always be remembered as the jovial larrikin, who was able to bring people together and bring a genuine smile to peoples' faces no matter the situation. His sense of humour, care for others and strong work ethic will be missed amongst his peers at Armament and Construction Wing and the Wing offers its deepest condolences to his family.



CFN Clulow's funeral was held on 06 Oct 21 in Albany, WA at the Desert Mounted Corps Memorial and was attended by family, friends and colleagues both in person and online. Lachlan Robert Clulow is survived by his parents Geoff and Emma; his sisters Bethany and Imogen; his brothers Finn and Jaeger and his partner Jess.

### A Simple Word of Thanks

"He's a Larrikin that bloke", they said,  
as Lachie walked off the stage  
and you knew he'd done it once again,  
their laughter was the gauge.

In a world of seeming madness he  
saw humour as the cure  
and the Larrikin within him was  
infectious that's for sure.

Though his stature was quite impish, you  
could never doubt at all,  
on the stage of life the Larrikin  
stood out as ten foot tall.

Charismatic was his nature and  
he drew a following,  
as they loved his Aussie banter and  
the laughter it would bring.

His encouragement to new comers  
and so many owe a vote of thanks –  
I know I surely do.

So I thank you Lachie Clulow, mate  
for all you did for me,  
for the friendship... and your love of life,  
expressed in poetry.

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## Vale 2020/21

### November 2020

McNeill, John Joseph, MAJ (Retd) OAM (18th RM)

Cox, SGT Alan (Retd)

### December 2020

Peters, Kevin, (35th Elec Fit)

Shepard, Shane

## 2021

### February

Irvine, John

Willis, Herbert Rex WO1 (Retd) (16th FT)

Horsley, Don

Reynolds, Timothy Parker MAJ (Retd) (36th VM)

### March

Moll, Bob

O'Day, Pat (19th VM)

Ivanoff, SSGT (Retd) Alexander George

### April

Webb, Robert (Bob) (19th F&T)

Webb, Jack

Rickards, Ted

### May

Warwick, Barrie James

Thompson, WO1 (Retd) Robert Charles "Bob"

Clewes, Geoffrey Alan May

Playford, MAJ (Retd) Rohan "Rusty" Paul 33rd VM

Ellis, WO1 (Retd) John "Jack"

Martin, Mathew (Matty)

O'Brien, David William (14th F&T)

### June

Caldwell, CPL (Retd) Henry Elworthy "Corky" OAM

Gibson, BRIG (Retd) Ken Arthur

Maunsell, CPL (Retd) Maurice "Maurie"

Lowry, MAJ (Retd) Douglas Milsom

### July

Kenefick, SGT (Retd) Kevin (20th F&T)

Smiley, MAJ (Retd) Jack Irving (14th Elec Mech)

Trigg, LTCOL (Retd) Norman "Norm" Alexander

Rawling, SGT (Retd) William "John"

Malowski, Toamsz

Bony, CPL Rene Robert "Bob" (Retd)

### August

Perkins, Noel (17th VM)

Binning, LCPL Walter Harcourt "Wally" (Retd)

Mulvaney Kevin

Leslie, WO2 Ryan Leslie

Payne, CFN Brendon Payne

### September

Watson, Rowley

Clulow, CFN Lachlan

Muir, Ken, WO1 (Retd)

Tinkler, AM, COL (Retd) Maxwell Bruce

Connolly, Aaron Cpl (34th VM)

### October

Bird, Major Stephen "Birdy" (ex-REME)

Craig, Kevin

Davidson, Steven SGT ASEME

Risk, Ian James

Elliot Michael (Mick)

### December

McIlroy, Tim

*'Arte et Marte'*





