



Newsletter May 2022

Monthly Meetings are held on the 4th Wednesday of each month at the Manning Seniors Centre, 3 Downey Drive, Manning.

Arrive 7.15pm, grab a cuppa and be ready to start at 7.30pm.

Presidents Message

Hi everybody.

Debi is away this next couple of weeks so I am trying my hand at newsletter editing.

I see that Ted is back online so hopefully my efforts in the IT area haven't done too much damage.

Thanks to Barry and Tony Van we now have some trips scheduled for this month and next month. I would like to extend my thanks to all those who plan trips and send in articles for this letter. We also have some participants for the Christmas in July event so if you want to join us for that please register so we can send in the numbers attending.

This time of the year is a busy time for us as planning needs to be started for the AGM and membership registration for 2022 -2023.

Colleen and myself attended the WA4WDA Presidents and Secretaries meeting held at Kaarakin earlier this month and a report will be given at the next meeting. The WA4WDA certainly seem to be trying to lift the exposure of themselves and the member clubs and I certainly hope this continues. There is still no response about the article that Peter has written about our club for The Western 4W Driver magazine, but I have been told at the meeting that this is not unusual; apparently the article just gets published. It is worth subscribing to this, our own WA based 4x4 magazine for a good read. Also check out their Facebook page.

<https://www.facebook.com/western4wdriver/> .

Photographs are needed urgently for our show banners and displays and our club calendar.

bringing them to the meeting on a USB memory stick, or uploading them to the G-suit, It is important to upload photographs in full definition as reducing their size for face book or faster transmission by email reduces the quality. You may also email photographs to ynot4bye4@gmail.com.au but remember do not reduce the size or quality. This is your opportunity to have your photographs on a banner or calendar for the world to see. Please note however that in uploading by any method you are assigning FAWDCWA non-exclusive rights to the photographs. They may be edited and used for club related advertising and/or promotions. Please also note that any identification of the photographer or vehicle will be edited out or otherwise removed from the picture prior to publication.

This will be discussed at the next meeting so see you there.

Tony Allender. President.

Lithium Batteries

Article by Chris Potts

Hi everyone it came up at our recent Anzac camp about Lithium batteries and their safety so I thought I would do a short but by no means definitive article about Lithium batteries , the types and construction of them, dealing with the rechargeable types only as these are what we are most likely to use for our activities.

The type of cathode used is what normally defines what type of Lithium battery it is and the six types are.

1. Lithium Cobalt Oxide
2. Lithium Manganese Oxide
3. Lithium Nickel Manganese Cobalt Oxide
4. Lithium Iron Phosphate
5. Lithium Nickel Cobalt Aluminium Oxide
6. Lithium Titanate

These combinations each have their own specific power and specific energy profiles. If you think of 200ml of water in a measuring jug, that is energy and if you pour it out fast it comes out with force and that is specific power and it does not last long. If you pour it out slowly it does not have much force but it lasts longer that is specific energy (my simple explanation).

Lithium Cobalt Oxide has high specific energy as compared to the other batteries which make it the preferred choice for laptops and mobile phones. It also has a low cost and a moderate performance. However, it is highly unfavourable in all the other aspects when compared to the other lithium-ion batteries. It has low specific power, low safety, and a low lifespan.

Lithium Manganese Oxide has moderate specific power, moderate specific energy, and a moderate level of safety when compared to the other types of lithium-ion batteries. It has the added advantage of a low cost. The downsides are its low performance and low lifespan. It is usually used in medical devices and power tools.

Lithium Nickel Manganese Cobalt Oxide has two major advantages as compared to the other batteries. The first one is its high specific energy which makes it desirable in electric power trains, electric vehicles, and electric bikes. The other is its low cost. It is moderate in terms of specific power, safety, lifespan, and performance when compared to the other lithium-ion batteries. It can be optimized to either have high specific power or high specific energy.

Lithium Iron Phosphate only has one major disadvantage when compared to other types of lithium-ion batteries and that is its low specific energy. Other than that, it has moderate to high ratings in all the other characteristics. It has high specific power, offers a high level of safety, has a high lifespan, and comes at a low cost. The performance of this battery is also moderate. It is often employed in electric motorcycles and other applications that require a long lifespan and a high level of safety.

Lithium Nickel Cobalt Aluminium Oxide offers one strong advantage as compared to the five other batteries and that is high specific energy. It is pretty moderate in the rest of the characteristics like performance, cost, specific power, and lifespan. The only downside to this

battery type is its low level of safety. Its high specific energy and moderate lifespan make it a good candidate for electric power trains.

Lithium Titanate offers high safety, high performance, and a high lifespan which are very important features every battery should have. Its specific energy is low compared to the five other lithium-ion batteries but it compensates for this with moderate specific power. The only major disadvantage of lithium titanate as compared to the other lithium-ion batteries is its extremely high cost. Another important feature of this battery worthy of mention is its remarkably fast recharge time. It can be used for storing solar energy and creating smart grids.

The table below gives a comparison of these types of lithium batteries only.

Lithium-ion battery Types	SP	SE	SF	LS	CS	PF
Lithium Cobalt Oxide	L	H	L	L	L	M
Lithium Manganese Oxide	M	M	M	L	L	L
Lithium Nickel Manganese Cobalt Oxide	M	H	M	M	L	M
Lithium Iron Phosphate	H	L	H	H	L	M
Lithium Nickel Cobalt Aluminium Oxide	M	H	L	M	M	M
Lithium Titanate	M	L	H	H	H	H

- **SP** stands for specific power
- **SE** stands for specific energy
- **SF** stands for safety
- **LS** stands for lifespan
- **CS** stands for cost
- **PF** stands for performance
- L stands for low
- M stands for moderate
- H stands for high

There are also 3 different types of construction of Lithium battery cells just to confuse things. These are;

1. Cylindrical cells just like the old AA batteries and come in varying lengths and widths and as power or energy cells and are generally used in things with low Ampere hour ratings like power drills where light weight is required.
2. Prismatic cells are used when a rectangular shape is preferable and while having a larger footprint than cylindrical pack more ampere hours per cell than the cylindrical cells due to more lithium per volume.
3. Pouch cells are just an aluminium pouch with its components inside and are highly customisable to size and shape and are designed to be used in its application without a case if needed.

So I guess what Lithium batteries we need to look at for us as 4wd drivers are;

1. The LFP or LiFePo4. These are what we would look at for powering our fridges and lights and can be used for cranking if configured for it. These have some issues when cranking in low temperatures. Very safe will not go up in smoke normally, even if casing pierced and internals shorted, and have a long lifespan.
2. LCO has been the battery of choice for phones, laptops, tablets and other gear that needs light weight but has been losing favour due to low lifespan. It can go up in flames easily and the flames do not go out.
3. NCA batteries are the battery of choice for Tesla and some others they have a longish lifespan and high energy. Pray the insurance company will pay out if their safety systems do not work because the fireys will struggle to put the fire out.



So I guess in conclusion do your own research for what you need, as the venerable old lead acid battery has its issues as well due to gassing off while charging or shorting and releasing hydrogen gas (think Hindenburg). The AGM battery is a safer lead acid battery than what is normally under your bonnet but at a price.

P.S. I am no expert and this article is just meant to give some basic guidelines of what to look for according to your needs.

Cheers Chrispy

New Trips.



Our recent Anzac camp at Gidgigannup

Have an idea for a trip? Let us know where you would like to go, or invite other club members along if you have a trip planned.

We've still got some gaps in our calendar but some ideas brewing in the back ground.

If you've got some must see destinations please suggest them to us and we'll try and include them in our planning. With the current COVID border arrangements we've all seen camp sites fill up far more often so we need to book in early, and/or get further away from the crowds and facilities.

Trips: Day, full weekend, and extended visits to all parts of the State and Interstate. The aims of these trips include viewing scenery and wildlife, Photography, visiting places of Historical Interest or just getting away from it all with a group of friends.



Last year we celebrated Christmas in July at the



*We had so much fun we want to do it again and we would like you to come along.
Please let us know if you would like to join us on July 23rd.*

A couple of photos from Julimar last year. Its on again on the 22nd of May.



Jokes and puzzles.

What town in WA is that.

Just to give you a start, the first one is Dwellingup.

A house up the hill -

D _ _ _ _ _

Needle the wood -

P _ _ _ _ _

Unripe shrubs -

G _ _ _ _ _

A bread roll underground -

B _ _ _ _ _

Opposite to Off fast -

O _ _ _ _ _

A breezy pig -

W _ _ _ _ _

A purposeless coil -

U _ _ _ _ _

Answers at the meeting.

The Philosophy of Ambiguity

FOR THOSE WHO LOVE THE PHILOSOPHY OF AMBIGUITY, AS WELL AS THE IDIOSYNCRASIES OF ENGLISH:

1. ONE TEQUILA, TWO TEQUILA, THREE TEQUILA, FLOOR.
2. ATHEISM IS A NON-PROPHET ORGANIZATION.
3. I WENT TO A BOOKSTORE AND ASKED THE SALESWOMAN, "WHERE'S THE SELF- HELP SECTION?" SHE SAID IF SHE TOLD ME, IT WOULD DEFEAT THE PURPOSE.
4. WHAT IF THERE WERE NO HYPOTHETICAL QUESTIONS?
5. IF SOMEONE WITH MULTIPLE PERSONALITIES THREATENS TO KILL HIMSELF, IS IT CONSIDERED A HOSTAGE SITUATION?
6. IS THERE ANOTHER WORD FOR SYNONYM?
7. WHERE DO FOREST RANGERS GO TO "GET AWAY FROM IT ALL?"
8. WHAT DO YOU DO WHEN YOU SEE AN ENDANGERED ANIMAL EATING AN ENDANGERED PLANT?
9. IF A PARSLEY FARMER IS SUED, CAN THEY GARNISH HIS WAGES?
10. WOULD A FLY WITHOUT WINGS BE CALLED A WALK?
11. IF A TURTLE DOESN'T HAVE A SHELL, IS HE HOMELESS OR NAKED?

10. IF THE POLICE ARREST A MIME, DO THEY TELL HIM HE HAS THE RIGHT TO REMAIN SILENT?

11. DOES THE LITTLE MERMAID WEAR AN ALGEBRA?

12. IF YOU TRY TO FAIL, AND SUCCEED, WHICH HAVE YOU DONE?

13. WHOSE CRUEL IDEA WAS IT FOR THE WORD 'LISP' TO HAVE AN 'S' IN IT?

AND

14. MONEY CAN'T BUY POVERTY
