

December 2019



www.marcwireless.org



MARC Christmas
Potluck
Thurs Dec 12, 6:00 pm

Lafayette Community
Center
133 Adams Lafayette

Bring a Gift Get a Gift
Santa will be there!

RSVP Required

Starting in January
2020 Dues will be
collected. Dues
payments should be
made by the March
General Club Meeting.
If any information on
your prior membership
application as changed,
please fill out a new
application.



Lead Acid Batteries for Off Grid Operations

Last month I covered the method I'm using to determine battery capacity for a planned project of building a solar/battery generator for my personal radio operations at my QTH. This month I'm covering some research I've made on lead acid batteries. Lead acid batteries are those batteries that are made up of lead plates with an insulated separator between the plates. Both the positive and negative plates are made of lead, the positive plate is usually covered with a past of lead dioxide. A sulfuric acid electrolyte provides the chemical reaction that provides the excess electrons resulting in the DC current from the battery.

Engine starting batteries are one of the two major categories of lead acid batteries that are easily available for creating a battery generator. In comparison to between the two for lead acid batteries, starting batteries have a larger number of thinner plates per cell. Having more plates provides more surface area for the chemical reaction that generates the electricity. This produces a large burst of current in a short period needed to turn over an engine for starting. These batteries are designed with the expectation that engines alternator will immediately begin the maintenance charging. Over discharging causes irreversible damage to

the battery plates. Resulting in reduced performance and shortened life spans.

The usual rating for starting batteries is in their Cold Cranking Amps. In a 12 volt battery, the specification of Cold Cranking Amps is measured by the total current a fully charged battery can provide for 30 seconds at zero degrees Fahrenheit without dropping below 7.2 volts. For automotive purposes the larger the cCA rating, the larger the engine the battery can turn over, or provide for easier starting in colder weather.

The second category are the Deep Cycle batteries. As their name suggests, these are designed specifically for deep cycling applications. With their thicker and fewer number of plates, the lower total surface area results in lower max currents, but are capable of having a much deeper state of charge, and can be discharged about 10% more than a starting battery without causing permanent damage to the plates. Typically a lead acid deep cycle battery can be discharged to 50% of their capacity without shortening their normal life span. The rule of thumb recommendation for sizing a lead acid deep cycle battery is to select one with a residual capacity of three times the estimated daily use. While they can take a longer period of partial discharge than a starting battery, they should be brought back to full charge as often as possible and the discharged period should not exceed three months.

The usual rating of a deep cycle battery is by their amp hour rating. Last month issue was how to estimate the Ah consumption that would be needed for radio operations. Assuming I was transmitting FT8 at 40 watts with a 50-50 duty cycle for the whole field day period, I would be consuming around 40 amps. Using the rule of thumb sizing would require at least a 120 Amp hour battery. Limiting the depth of discharge to no more than 50% of the capacity, a deep cycle battery should be good for around 750 discharge/charge cycles.

Lead acid batteries come in different formats. The most common format in use are the Flooded Lead Acid battery. These are most frequently found in automotive applications, as they provide the most cost effective solution. These days they can be found in maintainable and maintenance free styles. They both are essentially similar batteries, but there are some key differences. Maintainable batteries have removable caps which enable you to visually check the electrolytic fluid level in each cell. Loss of fluid is caused by overcharging, heat exposure and evaporation. Maintenance Free batteries are also known as Valve Regulated Lead Acid, or Sealed Lead Acid. These are sealed for the life of the battery, and so do not require maintenance of the electrolytic levels. Depending upon their manufacturing these can still tend to lose their electrolyte, but at a much slower rate than Maintainable models. Maintainable and the more simpler sealed batteries have potential for spillage, so must always be situated in an upright position. And when shipped are usually shipped dry in separate packaging from the shipment of the electrolytic.

There are two styles of Sealed Lead Acid batteries that allow ease of shipping and mounting positions that may not always be upright. These are Absorbed Glass Matt (AGM) and Gel batteries. AGM batteries have a highly porous, micro-fiber glass as the separator between the plates within the battery. These also have a much lower resistance than conventional flooded batteries, which boosts their capacity, so they can often be found in smaller sizes than conventional batteries. The Gel batteries electrolytic is composed of the standard sulfuric acid that has been mixed with a microsilica. This non-crystalline form of silicon dioxide has polymorphic properties allowing to behave as a liquid as well as a solid, creating a gel that won't flow. This gel acts as the electrolyte between the battery plates. Some forms of this style of battery use a spiral cell technology that provide for a high vibration resistant, non-spillable battery.

For my solar/battery generator, portability is part of the need. Usage of a Lead Acid battery will need to be either an AGM or Gel battery. With the requirement of constant current draw, it will then need to be of a deep cycle variety.

YCARES Emergency Frequency List

The list of frequencies provided here are published to all Hams to be informed of where communications operations will occur within Yamhill County during emergency operations. All ARES members should have the repeaters and simplex frequencies programmed into their primary hand held VHF/UHF radio. MARC members are encouraged as well. Simplex Frequencies can change or added due to conditions and needs. Know how to add and change simplex frequencies in VFO Mode on your radio!

Priority	Mode	Frequency PL Tone	Offset	Call
Primary	Repeater	441.800 MHz 114.8 Hz	+5.0 MHz	W7YAM
Secondary	Repeater	146.640 MHz 100.0 Hz	-0.6 MHz	W7RXJ
Tertiary	Repeater	442.550 MHz 114.8 Hz	+5.0 MHz	KOINK
Primary	Simplex	146.400 MHz	VHF	
Secondary	Simplex	147.520 MHz	VHF	
Primary	Simplex	432.150 MHz	UHF	
Secondary	Simplex	431.150 MHz	UHF	
Eola Hills	WinLink	144.920 MHz	VHF	W7YAM-10
EOC	WinLink	144.960 MHz	VHF	W7YAM-11
Eola Hills	WinLink	441.050 MHz	UHF	W7YAM-12
Newberg Dundee	Winlink	145.080 MHz	VHF	W7OWO-10

Local Nets

MARC Net			YCARES Net			
Monday December 9 th	7:00 pm	146.640 - PL100	Monday December 9 th	7:30 pm	441.800-PL114.8	Jeff, NI7X
Monday December 16 th	7:00 pm	146.640 - PL100	Monday December 16 th	7:30 pm	441.800-PL114.8	Paul, KE7IQL
Monday December 23 rd	7:00 pm	146.640 - PL100	Monday December 23 rd	7:30 pm	441.800-PL114.8	Keith, AA6TK
Monday December 30 th	7:00 pm	146.640 - PL100	Monday December 30 th	7:30 pm	441.800-PL114.8	Jenny, KE7FLV
Monday October 31 st	7:00 pm	146.640 - PL100	Monday October 31 st	7:30 pm	146.640-PL100	
Monday January 6 th	7:00 pm	146.640 - PL100	Monday January 6 th	7:30 pm	441.800-PL114.8	
Monday January 13 th	7:00 pm	146.640 - PL100	Monday January 13 th	7:30 pm	441.800-PL114.8	
Yamhill County Weather Spotter Net			CERT Net			
Sunday December 15 th	6:00 pm	146.640 - PL100	Sunday December 15 th	7:00 pm	146.640 - PL100	

If you have a newsworthy small point of interest you would like presented in the MARC newsletter. Here is the place for them. Just send an email to me (Brian, W7OWO) my email address shown in the Club Officers call-out. Entries will be approved by the board.

*Special Services
Club*

About Us

The McMinnville Amateur Radio Club
PO Box 891
McMinnville, Oregon 97128

The McMinnville Amateur Radio Club (MARC) was founded in mid- 1981 by a group of Yamhill County area amateur radio operators who wished to share their common interests. An association was formed of men and women devoted to probing all facets of amateur radio.

2019 Club Officers

President	Anthony Perez, KI7ZBQ	anthony.perez@marcwireless.org
Vice President	Jeff Monahan, NI7X	jeff.monahan@marcwireless.org
Secretary	Jayne Wolf, KI7MZP	jayne.wolf@marcwireless.org
Treasurer	Katie Perez, KI7ZLL	katie.perez@marcwireless.org
Board Member	Craig Merrick, W7EEO	craig.merrick@marcwireless.org
Board Member	Fred Rodley, N0NNO	fred.rodley@marcwireless.org
Board Member	Brian Wright, W7OWO	brian.wright@marcwireless.org

December 1st Treasurer's Report

Account	Funds
Repeater Maintenance & Project Account	\$5,233.9
Education Fund	\$230.63
MARC Business Account	\$1689.81
Total:	\$7,154.34

Local Open Repeaters

W7RXJ 146.640- PL tone 100 Hz
W7YAM 441.800+ PL tone 114.8 Hz
K0INK 442.550+ PL tone 100.0 Hz

Repeaters

If you have a newsworthy small point of interest you would like presented in the MARC newsletter. Here is the place for them. Just send an email to me at W7OWO@marcwireless.org. Entries may require Board approval.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Nov 24	25 Club Net YCARES Net	26	27	28	29	30
Dec 1	2 Club Net YCARES Net	3	4	5 Board Meeting	6	7
8	9 Club Net YCARES Net	10	11	12 Club Christmas Potluck	13	14
15 WX Net CERT NET	16 Club Net YCARES Net	17	18	19 Library Lunch	20	21 VE Testing
22	23 Club Net YCARES Net	24	25	26 YCARES Meeting	27	28
29	30 Club Net YCARES Net	31	Jan 1 New Years Day	2 Board Meeting	3	4

Regular Events

Monthly YCERT Net,
3rd Sunday at 7PM on
146.640- PL 100

Monthly MARC Board
Meeting, 1st Thursday
of every month at
China House in
McMinnville, next to
Bi-Mart. Starts at 7PM

Monthly MARC Club
Meeting, 2nd Thursday
of every month, starts
7PM at the OSU
Extension Service
Office 2050 NE
Lafayette Ave,
McMinnville

Monthly No Host
Dinner Gathering, last
Friday of the month.
Location to be
determined during Board
Meetings, starts at
6PM

Monthly library lunch.
Bring your lunch at
11:30 am on the 3rd
Thursday in the
Carnegie room at the
McMinnville Library,
225 NW Adams St

YCARES Monthly
Meeting, 4th Thursday
of each month. Meet at
the Lafayette
Community Center.

Significant Event Items:

McMinnville Amateur Radio Club

- Annual Christmas Potluck December 12, 6:00 pm
 - Lafayette Community Center
 - 133 Adams in Lafayette, Oregon
- Monthly Library Lunch, December 19, 11:30 am
 - Carnegie Room, McMinnville Library
- Monthly VE Testing, December 21, 9:00 am
 - Lafayette Community Center
- Next Month's Board Meeting, January 2, 7:00 PM
 - China House Restaurant, McMinnville
 - Arrive early and join many Board Members for dinner.
- Next Month's General Club Meeting, January 9th, 7:00 pm

*Legal Disclaimer: The information contained in this document is for general guidance on matters of interest only.

*MARC VE
Exam Session
Results*

New General

Fred Shipley
KJ7JYG

New Extras

Nicholas Grinich
WB5RVP

Kurt Sunderman
KI7SY

Local VE Testing Locations

McMinnville Amateur Radio Club – VE testing via ARRL. Lafayette Community Center located at 133 Adams in Lafayette, Oregon. Monthly ARRL VE exams on the third Saturday every month, testing begins at 9:30AM. Contact Jeff Monahan, NI7X at 503-583-2733 or NI7X@oregon.com for more information.

Portland Amateur Radio Club is currently offering sessions on a request or by appointment basis. Contact Pete W7PR, via email w7pr@juno.com for more information.

Oregon Tualatin Valley ARC – VE Exam sessions are held on the first Saturday of each month except June at 1:00 PM at the Sunset Presbyterian Church 14986 NW Cornell Rd, Portland, OR 97229. Contact John Bucsek, KE7WNB, 503.803.6134, ke7wnb@gmail.com, to preregister.

Hoodview Amateur Radio Club offers one session at 9:00AM on the 3rd Saturday morning of every odd numbered month at Mt Hood Community College in Gresham. Arrive early as the doors close at 9:00am to Room HF1, the Horticulture Fisheries Bldg. Map available at club website http://www.wb7qiw.org/map_vetest.htm.

McMinnville Amateur Radio Club 2020 MEMBERSHIP APPLICATION

(A completed application form must be included with yearly dues if there are **any** changes)

Please print:

Name: _____ Call Sign: _____ Class: T G A E

E-mail address (required): _____ @ _____ **Total \$** ____.

Address: _____

City: _____ State: ____ Zip: _____ Phone #: _____

Date first licensed: ____ / ____ / ____ Birthday: ____ / ____ / ____ ARRL Member? Y / N
month year month year

Renewal? Yes / No (New to MARC? You will receive a MARC Membership Badge!)

Annual Club Membership - **\$20.00** per person/family at the same address.....\$ **20.00**

Your MARC membership begins from date of sign-up or renewal to December 31 of the same calendar year.

Additional Voluntary donation – for repeater support and club projects.....\$ ____.

Total \$ ____.

Additional Family Members:

(**ALL** family members must reside at the same address.)

Name: _____ Call sign: _____ Birthday: ____ / ____ Class: T G A E

E-mail address: _____ @ _____

Name: _____ Call sign: _____ Birthday: ____ / ____ Class: T G A E

E-mail address: _____ @ _____

Please include any additional family members on back.

Signature of Applicant: _____ Date: _____

Make check payable to “MARC”. Give to Club Officer or mail application to:

McMinnville Amateur Radio Club
PO Box 891
McMinnville, OR 97128

Club meetings are the second Thursday of each month at 7PM:

OSU Extension Service Office
2050 NE Lafayette Ave
McMinnville, OR 97128

For Office Use Only:

Processed by Treasurer: _____ Secretary: _____

Date Received: _____

Cash/Check #: _____

Amount: _____

Receipt: _____