

Trail markers

The Official Newsletter of the
Texas Endurance Riders Association

Volume 19, Issue 1
Spring 2019

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<http://www.txriders.org/>

Trace Trails, Jan 26-27



January 26-27, 2019
Trace Trails, Athens, TX



Trail Markers is the newsletter for the Texas Endurance Riders Association.

Kerry Lowrey (photo editor) and Carol Grosvenor (editor/designer) have stepped in to produce the TERA newsletter. Our hope is to help make TERA an inclusive organization for riders of all ages, skill levels and backgrounds. You will learn about advances in veterinary medicine, improve your technical skills, and pick up horse training tips, in addition to keeping up with upcoming rides and events.

Advertising rates are as follows: Black and white (left) and color (right).

Full page - \$80	\$130
Half page - \$50	\$85
1/4 page - \$30	\$60
Business Card - \$20	\$40

These are one time rates.

Classified section free to TERA members (up to 40 words).

No standing classifieds.

Classifieds to non-members— \$10.

Cover: Audrey Hager on Jazz, 2018 TERA Overall High Mileage Rider and Horse, at River Run.

Photo courtesy: John Nowell <http://www.remuda.smugmug.com>

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Classifieds

ANTIQUE ARABIAN STUD! 6 Kingdom of Saudi Arabia Bedouin descended geldings. Superior cardio/pulmonary recovery, culled in the desert for endurance for 10,000 years. Raised on creeks, woods, slopes, not box horses. Al Khamsa Blue Star desertbreds. SALE NOW. 903-848-9425 leave message

CEDAR GROVE HORSE MOTEL. Overnight stabling and hookups in Dripping Springs, <https://www.cedargrovetx.com>, 512-825-9076

Upcoming 2019 TERA Sponsored Rides & Clinics

Racing Stripes

April 12-13, 2019

Priefert Ranch, Daingerfield, TX
25/55 miles

mgr: Khristin Seymore-Norsworthy
832-928-6441

stormarab5@aol.com

Old Glory

April 27-28, 2019

C Bar Stables, Valley Mills TX
intro, 25 & 50 miles

mgr: Tommy Robichaux
512-826-7685

thomas.robichaux@gmail.com

Last Hoorah!

May 11, 2019

11404 FM 200, Cleburne, TX
intro, 25 & 50 miles

mgr: Kim Reeves
817-558-7146,

kimreeves87@yahoo.com

Ride Manager Clinic

May 12, 2019, 8 a.m. - noon

11404 FM 200, Cleburne, TX
Same location as Last Hoorah!

mgr: Dr. Valerie Bixler
214-514-3618

bixlerdvm@gmail.com

Intro 201 Clinic

May 25-26, 2019

Hico, TX

Contact Dr. Bob Rogers for info.
281-460-8996

Drbob@criterfixer.com

Quitaque Climb

October 5-6, 2019

Pole Canyon Ranch, Quitaque TX
intro, 30 & 55 miles

mgr: Dr. Valerie Bixler
214-514-3618

bixlerdvm@gmail.com

Armadillo Ride (1 day)

October 19, 2019

Davy Crockett National Forest,
Kennard, TX

25, 50 & 100 miles
mgr: Bo Parrish

936-852-3532

lindapparab@valornet.com

In the planning stages

Two more 201 Clinics, one near
Houston, one in San Antonio

Texas convention
(date to be determined)



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Spring is here, let's ride!

From the editor, Carol Grosvenor

Spring is finally here, and I hope all of you are out riding and enjoying this great wildflower season with your horses, friends and family. The TERA officers, ride managers and volunteers have all been busy putting on rides in spectacular places, and doing some administrative work, too! I'm excited that Dr. Bob has gotten his first 201 clinic planned for Memorial Day weekend. If you have friends who are interested, please tell them about these clinics. This edition's tech article on power basics for trailers aims to improve your camping experiences.

Volunteering with TERA

I am setting up a volunteer tree. Please let me know what type of volunteer work you're interested in doing, when, and where. We'll add you to a call list for RMs or board members in need of help with clinics, convention planning, *Trail Markers* content production and proofreading, as well as other administrative work.

TERA RMs need scribes, cooks, trail crews, ribbon makers, donations and prize procurement, truck parkers, timer assistants, clean up crews, mentors for new riders, etc. Please contact me, Carol Grosvenor at dstxus@gmail.com or text me at 512-825-9076 and get involved!

19 Great Reasons to Join TERA

1. TERA offers a discount at all TERA-sponsored rides.
2. TERA members may join a team for camaraderie and awards.
3. TERA gives year-end awards and nice prizes.
4. Members can run a classified ad in *Trail Markers* at no charge.
5. TERA's rules include: That you have a RM that is not drinking alcohol from the time the first rig pulls in until one hour after the last rider crosses finish line. (This includes Friday through Sunday if two-day ride). Believe it or not, there have been inebriated ride managers.
6. As a rider, you are guaranteed at least two veterinarians at your TERA ride. (Other rides outside TERA may have only one vet, so if a horse needs to be treated, or a vet has to go on trail for an injury, the ride could stop).
7. You know your TERA ride should be marked with trail markings on the right only unless there is a turn.
8. If you, as a rider, have a concern or issue, it's easier to ask for help, request a change etc., and go to a TERA board member if it can be handled that way rather than going to AERC.
9. If you are a new endurance rider, we offer 201 clinics.
10. TERA has ride manager (RM) clinics to help ensure that you as a rider will get a RM that is best prepared to give you and your horse a safe, fun, and well run ride.
11. We have a bandana program-purple for mentors and green for new riders.
12. You help support a wonderful organization that can do much for you as a rider for a minimal fee that will give you a complete monetary return after a few rides.
13. TERA has a website, a newsletter, and a Facebook page for communicating information to members.
14. TERA members build many of the trails at ride venues, so all equestrians who later ride those trails benefit from this work.
15. TERA puts on an annual convention that includes presentations from excellent guest speakers, an awards ceremony, and time to socialize with your friends.
16. TERA guarantees a gate check into a timed hold when coming off trail. This is the preferred way according to AERC. The benefit is consistency that helps avoid confusion and favors the well-conditioned horse.
17. Most TERA rides offer an "intro" ride, which is a non-timed ride, usually 10 to 15 miles in length.
18. TERA mentor riders to accompany new riders are usually available. Please inquire in advance.
19. Most TERA rides include a delicious dinner.

Nickers and Neighs

Words from our outgoing president and current vice-president

There's a lot going on!

Tommy Robichaux,

TERA President

I hope everyone is having a great ride year so far, and I want to encourage all of you to think about ways that we can all make TERA better. If you have ideas you'd like to share to improve and enhance TERA, I encourage you to contact me by email at thomas.robichaux@gmail.com with your thoughts.

I want to encourage everyone to do a little volunteer work this year. There's so much work to do, but often it is the same people who do more than their share. I know that not everyone has the same skills, or maybe much free time, but please think about what you can do in your own way. Our rides are spread out all over the state. If there is a ride in your area, the ride manager for that ride could use your help cutting or cleaning up trails, or cleaning up after a ride, making food, distributing water, scribing for a vet, mentoring new riders, helping people park, helping acquire awards, prizes, or funding to purchase these items, as well as many other tasks.

We want to compile a volunteer list so that we can match ride managers and event organizers with people who are able to volunteer, even small amounts of time. **Carol Grosvenor** has agreed to collect your names and what you are willing and able to do. Just email her at dstxus@gmail.com, and let her know which ride(s) you're interested in working on, your schedule constraints, and what you're interested in doing, including administrative work.

As RM for Old Glory, I have been hard at work with a team of volunteers getting C Bar ready for our ride. We're busy clearing and cleaning up trails, as well as working on all the logistics. The ranch already looks beautiful—covered in wildflowers and spring grass! I hope to see all of you there. **This is the only ride that TERA funds**, and we need a high turnout, as we use the profits to help fund other events like the Ride Manager Clinic, the 201 Clinics, this newsletter, awards, and our convention.

Please consider attending the **Ride Manager Clinic** organized by **Valerie Bixler, DVM**, which will be held on Sunday, May 12 at 6-0 Ranch, the day after Last Hoorah, also at 6-0 in Cleburne, Texas. Ride managers must attend one of these clinics every three years. There is only one of these clinics each year. It is free to attend, and you do not need to be a current RM to attend.

Bob Rogers, DVM, will be hosting the first of three **Endurance 201 Clinics** in Hico, TX on May 25/26 (Memorial Day weekend). Please see page six for information on this event. We're also in the process of planning a TERA convention. We will post more information on that in a future newsletter, as well as the Facebook page and website.

A Horse's First Ride

Jen Masters,

TERA Vice-president

It can be a daunting task to bring a horse to its first ride. I have a lot of miles and have ridden my entire life and I still get a little nervous when I bring a new horse to a ride. You never know if the horse you are riding is going to behave the same as it does at home when it gets in the ride environment. One thing that can really help is to have a plan in place. Plan to start a few minutes late so the horse doesn't learn to race or see any of the excitement that can happen when the words "trail is open" are said. I leave mine tied at the trailer and walk up on foot for roll call. Then when everyone leaves I get on and we walk for a while until they get relaxed and think it's maybe another "trail ride." Then we start moving.

If you can, plan to ride with a seasoned horse IF it is calm. It can do some damage to your horse if you think you have to ride with someone and they are on a dragon. It would be better to be alone if you have to choose.

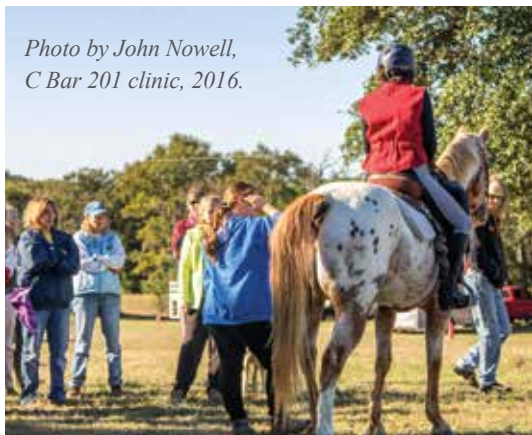
I have had new horses refuse to drink because the troughs are scary. That's fine, just adjust your speed down and let them rest some. Don't make it a huge deal to stand at the trough forever and make it a bad place of schooling. Just walk on and try again at the next trough. My decade horse will go 25 miles and not take a drink. He is still very successful and always gets A's anyway. I do recommend a good preload of electrolytes and beet pulp to help them through since they don't know how to take care of themselves yet.

Don't be afraid to ask for help. If something goes wrong and you need help, just ask. I have had to several times and someone always steps up. I have met so many wonderful people doing this sport. We are all a big family.

DON'T TRY TO TOP 10! Your horse doesn't know how to take care of itself yet. It needs to know how to relax and eat on trail. It probably has never gone this far its life. You never increase speed and distance on the same ride. Just because it can "win" doesn't mean it should. Soft tissue takes so long to get strong. Don't ruin your horse for a bucket or lead rope prize. If you teach your horse that endurance is a race then you will have a race-brained endurance horse. I'm not sure anybody wants that kind of horse. It's dangerous and no fun to ride.

Bringing a new horse to a ride can be a little intimidating, but it is also extremely rewarding. After all, once you cross that finish line you will have a real endurance horse, instead of just a prospect.

Photo by John Nowell,
C Bar 201 clinic, 2016.



Intro 201 Clinic Coming this May 25-26, Memorial Day Weekend, near Hico, Texas!

The Beginner 201 Clinic will be held at **Willemina DeBoer's** farm in Hico, TX, southeast of Stephenville, 9710 Co Rd 209, 76457 off Hwy 281 on May 25 and 26 (Saturday and Sunday). The clinic is open to 12 new riders.

The cost is only \$35, and three meals will be provided. There is an additional \$25 fee if you need a stall, \$15 for parking with your own pen, \$25 for hookups, and a cabin that can be rented for \$80 a night or \$35 per person.

The riding instruction on Saturday will be held in a covered arena, instructed by Willemina. Dr. Bob Rogers will present safety and Veterinary issues. Carol Grosvenor will teach the camping portion. Tommy Robichaux, the famous French chef, will be in charge of the meals.

The first day of the clinic will be instruction on rules, safety, camping, saddle fit, equitation for endurance, biting, hydration, and common veterinary issues. The second day's activities will include an explanation of the vet check and a ride at Proctor Lake.

Contact Bob Rogers to register at drbob@criterfixer.com or call 281-460-8996. Willemina's contact information is phone, 254-485-9361; and email, willeminadeboer@gmail.com.

Two more beginner 201 clinics are planned in the fall. One will be in Sam Houston National Park and the one near San Antonio.

TERA Education

Takeaways from the 2019 AERC Veterinary Continuing Education Presentations

Dr. Bob attended the national AERC convention and has written a brief summary for you of the veterinary continuing education.

"Harmful Effect of Smoke from Wildfires on Athletic Horses."

By Dr. Gillespie

Post fire particles and toxic compounds stay in the air for up to two weeks. Damage from inhalation can show up another two weeks later when white blood cells rupture from overload. Effects can cause permanent scarring. It is best not to ride a horse near a fire or controlled burn for two weeks.

Comparative medicine

By Dr. Brosnahan.

Her conclusion was that ulcers and subsequent ileus causing colic is the number one cause of illnesses and deaths in endurance horses. Riders need to improve their ability to "read" their horses and tell when ulcers, ileus, and colic are imminent. Horses did better if their body condition score was five or six and they gradually consumed calories during the ride.

Wound Care

By Dr. Dustin Major IV

Regional limb perfusion with Amikacin is very helpful for contaminated wound.

The most current wound care protocol is #1 Clean thoroughly with non-irritating soap (not betadine or chlorhexidine) or just water. Bandage with Silver Sulfadine for the first three days to help in debriding. Bandage with a steroid like Panalog or Tresaderm for 24 hours if excessive granulation is an issue. Then bandage

with an antibiotic ointment like Neosporin or BNP. Maluka Honey speeds wound healing.

Pacing

By Dr. Gillespie

In a poll of highly successful riders who finished or did not finish the strategy was similar. Riders started out fast, slowed down toward the middle of the ride and then sped up towards the end. The difference between a completion and a pull was that the finishers rode slower. **Every speaker at this convention recommended slowing down.** Factors influencing pace from most important to least important included:

1. The rider's knowledge and fitness
2. The environment, (heat, humidity, and terrain)
3. The horse's fitness and experience,
4. The veterinarian's suggestions
5. A heart rate monitor
6. Emotional issues of the rider. (anger or frustration to exhilaration.)

DON'T LET EMOTIONS INFLUENCE YOUR RIDE!

Conclusions

1. Don't hurry, don't tarry.
2. Listen to your horse.
3. Don't fight with your horse. There are better methods to get your horse to slow down like disengaging the rear end.
4. Smell the roses and enjoy your ride.

Ride Manager Clinic, May 12

When: Sunday May 12, 2019

Time: approximately 8 a.m. - noon

Location: 11404 FM 200, Cleburne, TX

Organizer: Dr. Valerie Bixler

Every summer TERA hosts a ride manager's clinic, which is free to attend by all TERA members. All ride managers must take the course every three years to remain certified to host a ride. This year, the clinic will have a shorter and different format than in previous years. It will be held from 8 a.m. - noon on May 12, the day after the Last Hoorah ride at the ride location. So, if you're coming for the ride, stay a little longer on Sunday and be part of the discussion that will be used to structure ride management in the coming year. TERA is facing some serious management issues involving ride attendance, a drop in TERA membership, the rule changes that took effect for LDs, and new efforts to bring more members into the organization. If you have ideas, please bring them with you.

Refreshments will be provided. We will not be going out on trail at this meeting. **Please RSVP in advance to Val Bixler, the RM Director,** and feel free to ask any questions. We hope to see you there!

Questions?

Call Dr. Bixler, 214-514-3618,

TERA RM Director or email her at bixlerdvm@gmail.com

Membership Report

Trina Church, Membership Director, reports that she has been in contact with about two dozen prospective members. She has seen about half of them attend at least one ride. She is mainly utilizing social media, often through connections made via the TERA Facebook page, to stay in contact with people interested in the sport.

2018 TERA Year End Awards

Mileage Awards:

Endurance

Endurance Featherweight

- 1-Kerry Lowrey
- 2-Katy Russell
- 3-Katherine King

- Takoda 415 miles
- HRZ Bask O Fire 160 miles
- Chant SF 155 miles

Endurance Lightweight

- 1-Breanne Smith
- 2-Khristin Seymore-Norsworthy
- 2-Caryne Edwards
- 3-Khristin Seymore-Norworthy
- 3-Carol Dufour

- RA Cash the Check 315 miles
- HRZ Phyre Flicker 210 miles
- WHR Vesuvius 210 miles
- HRZ Firenzic Wynds 205 miles
- AH Keys Dixiegirl 205 miles

Endurance Middleweight

- 1-Audrey Hager
- 2-Jim Matthes
- 3-Ross Carrie

- Dancers Southern Princess 470 miles
- Kozys Dreammaker 205 miles
- Tivio IXL 175 miles

Endurance Heavyweight

- 1-Jason Nelson
- 2-Lisa Skalski

- Misty Lu MHF 160 miles
- Tamar Quaszar 155 miles

Endurance Junior

- 1-Ellie Nelson

- Buckos Bay Olena 210 miles

Limited Distance

LD Featherweight

- 1-Heloise Lynn
- 2-Robin Howze

- RLA Moniets Moon 160 miles
- April's Truest 105 miles

LD Lightweight

- 1-Trina Church
- 2-Linda Albers

- Sunstone Sultan 145 miles
- SAR Tiki Flightto Fancy 110 miles

LD Middleweight

- 1-Jesse Reilly
- 2-Russell Betts
- 2-Beverly Gentry
- 2-Kay Conway
- 2-Brittani Murray

- Miracle Black Thunder 135 miles
- Tilaan 110 miles
- KEB Desperados Fiera 110 miles
- Painted Perfection 110 miles
- My Auroras Echo 110 miles

LD Heavyweight

- 1-John Dufour
- 2-Gail Conway
- 2-Al Prescott
- 3-Al Prescott
- 3-Valerie Lewis Jaffe

- Shotgun Dan 160 miles
- Flashes 135 miles
- MA Marauder 135 miles
- Im Ur Huckleberry 115 miles
- Scarlet Ribbons/Gold Rush 115 miles

LD Junior

- 1-Bethany Barwick
- 2-Olivia Phillips

- Jets Stars Allusion 55 miles
- Nadeem 50 miles

Overall High Mileage Horse and Rider (two awards, same team)

Audrey Hager

Dancers Southern Princess 470 miles

Husband & Wife Award

Joseph Reilly & Charlotte Reilly

435 miles

Family Award

Jason & Ellie Nelson

420 miles

Master Rider *Senior Award

LD - Al Prescott

250 miles

Endurance - Darolyn Butler

260 miles

High Vet Score - LD & Endurance

John Dufour (LD)

Shotgun Dan

1,415 points

Kerry Lowrey (Endurance)

Takoda

1,235 points

Nomination Awards:

Rookie Rider of the Year

John Dufour

Volunteer of the Year

David Fant

Ride Manager of the Year

Ann Goolsby

Horse & Rider of the Year

Dancers Southern Princess & Audrey Hager

Tech Corner:

Understanding Camping Power

By Carol Grosvenor; edited by Courtney Grosvenor, Electricity Analyst, Federal Energy Regulatory Commission

Watts = Volts x Amps

This is the main equation for power conversion. Watts is the constant unit of power, while volts and amps are variables. For example: 120 watts = 12 volts x 10 amps or 6 volts x 20 amps, or 120 volts x 1 amp. As you try to understand any electrical system, keep this formula in mind.

AC and DC power terminology

Most campers need to supply their own power sources to run heaters, fans, air conditioners, coffee pots, grills and the like. There are two types of electrical power—alternating current (AC) and direct current (DC). When I refer to AC here, I am not referring to air conditioners. AC power, when not supplied by a generator or inverter, is also known by the nautical term “**shore power**,” meaning power one has access to on shore, when the ship is plugged into the power supplied by a region’s electrical grid. In horse trailer parlance, we also refer to shore power as “**electrical hookups**.” When we camp off grid, we can still have access to AC power, but only through the use of a generator, inverter, or inverter/generator. The power stored in your batteries is DC power, and it is only about 1/10th the voltage of AC power, in most cases (12 volt versus 110 or 120 volt). DC power is used to power your trailer’s water pumps, lighting (preferably LED), awning, slide-out, fans, and electric or hydraulic jacks. None of these things require generation of either heat or cooling. You also use DC power to charge your phone and other digital devices.

Alternating Current (AC)

AC power, invented by Nikola Tesla, allows electrical current to travel both directions through wiring. It does this by using magnets that produce a sine wave, and heavy coil transformers to change the voltage of DC to AC power in an inverter. AC power can travel thousands of miles without degrading.

Direct Current (DC)

DC power, invented by Thomas Edison, only travels in one direction, and can’t travel very far without degrading, which is why DC wiring is often very thick, and DC devices need to be close to the batteries where the energy is stored.

DC power is not powerful enough to power items that require heating or cooling. To do that, you will need to add different power sources, or use an inverter, which is a device that converts DC power to AC power. To power your air conditioner off of DC power is not possible without a very large solar setup and a very small air conditioner. Because horse trailers are not big enough to hold the number of panels and batteries needed for even a small air conditioner, you cannot power an air conditioner off DC power in your horse trailer. For an air conditioner, you will need AC power, supplied by either a generator or shore power. If you have a refrigerator in your trailer, most trailers will be set up to use propane or AC power (two-way RV refrigerators), usually a Norcold or a Dometic. However, there are a few high-end compressor style refrigerators that can be run using minimal solar-generated DC power. I have a small three-way Dometic that runs off solar, but it takes 800 watts of solar and four six-volt batteries to do it. For heaters and cooking, propane is generally the best source of power, if you don’t have a generator to power those devices.

Propane

Propane is a quiet source of power, and there are even propane-powered generators available. Be careful with propane, though. A propane powered refrigerator and system requires a certified installer. That is not a do-it-yourself job, as even a small leak could be fatal. However, if you have a certified install, it will be possible to run most everything you need without a generator. Generators are problematic, whereas propane and solar-powered battery

systems are quieter and easier for camping.

All batteries are Not Equal

The batteries you choose for your energy storage are of utmost importance. Do not use a truck battery to power your horse trailer. Truck batteries are designed to give you quick start power, not hours of continued use. Most small RV systems are designed for 12-volt.

Marine Batteries Explained

There are three types of marine batteries that work best in RVs and horse trailers—lead-acid (flood cell), sealed lead acid known as “absorbed glass mat” (AGM), and lithium-ion (LI) batteries. Lead-acid flood cell batteries are the least expensive—they are heavy, must be housed outside the living quarters, stored upright, and they have to be watered. AGM batteries are closed-cell and do not need to be watered or stored upright, but must be outside the living quarters, as they leak fumes. Both of these have heavy lead plates designed for thousands of discharges, and are quite durable. To make them last, they should not be discharged past 50% of their capacity. Lithium-ion batteries, clearly superior, are lighter weight, can be stored inside the living quarters, recharge much faster, and can be discharged down to about 5% of their capacity, but are much more expensive and won’t charge below 32 degrees. They cost about \$1000 each, so usually they are housed under lock and key.

Battery Usage and Wiring

Many people with solar systems use two six-volt golf cart batteries and wire them in series (positive to negative, negative to positive), which adds the six volts together to make them 12 volts. If there is more than one pair, then the second pair can be wired in parallel (negative to negative, positive to positive), which allows them to maintain their voltage (12), but double their amps and amp hours (available usage hours). The total cost of my four six-volt batteries was about \$1000, producing a total of 450

amp hours versus 100 amp hours on a Battle Born LI battery, each costing about \$1000. However, because the lead acid and AGM batteries can't be discharged as far as an LI battery, that 450 amp hours is really 225, versus their 95 hours on a 100-amp hour battery. When you purchase your batteries, pay attention to the amp hour rating (AH) on the battery, or noted as reserve capacity (RC). You want as many amp hours as possible. You also should not mix battery types or batteries of the same type that aren't the same age and size.

Generators, Inverters, Inverter/Generators, and Converters

Inverters convert DC power to AC power. Converters convert AC power to DC power. Generators make power, whereas inverter/generators first make power and then clean up the rough sine wave produced by the generator and convert it to a pure sine wave (PSW), which is the same type of sine wave AC power produces.

Generators are larger, cheaper, louder and produce a modified sine wave of current. A modified sine wave (MSW) can damage anything with a microprocessor in it (including microwaves), so they are poor camping generators, but are fine for working with many types of power tools. They are very loud. The difference in decibel levels is logarithmic. For example, a 100 dB sound is twice as loud as a 97 dB sound!

Inverter/Generators are a newer technology, and a much better camping option. They are smaller, quieter, more expensive, and produce a pure sine wave (PSW), which is an identical sine wave produced by AC shore power. These will not damage computers or microwaves, and can be so quiet you can easily talk over them. A 2000-watt generator will produce enough power to run a small electric heater or cooking appliance, but not enough for an air conditioner. You will need about 4000 watts to run a rooftop air conditioner. You can daisy-chain the small ones together to increase the time that machines can run while maintaining their voltage. Onan is the brand used in many RVs and LQs. Onans are excellent machines, but are not portable. Most have an electric starter, so as with any electric-start device, you need to keep that battery charged using some type of trickle charge system. These need to be serviced in the trailer. All generators have an Emission Control Rating. You will see a little sticker on the generator with this rating. Yamahas carry a 500-hour rating. Hondas have a 250-hour rating. Most less-expensive brands are only rated to 125 hours. Honda and Yamaha are rated for usage in California, but most brands are not.

Inverters: In addition to inverter/generators, there are other devices simply called "inverters," that just make the power conversion from DC to AC. There are PSW (pure sine wave) inverters, which you want for anything with a microprocessor, and MSW (modified sine wave) inverters that produce a rougher sine wave, which is fine to run a fan or a lamp. A PSW inverter is much bigger and heavier, and significantly more expensive. When you use an inverter, there is about a 10-12% power loss in the conversion. So, if you have a choice between running an item straight off 12-volt or plugging it into the inverter, use it as 12-volt. Inverters have to be housed inside the trailer, can't get wet, and will require some air space around

them, as they can get hot. If you have room for a large one (2000 to 3000 watts) and you have enough solar power available, you would be able to run your microwave or small appliances off of it.

Converters are used in RVs to convert the power the other way—from AC to DC. These are useful if you need to use your generator to charge your batteries. These are found in higher-end LQs and most RVs. It is a good alternative to solar power, especially for long trips.

12-Volt Outlets

You can buy RV outlets (wall mounts) that are 4-amp/12-volt capacity and directly wire it from the battery I would suggest getting at least one of these with USB connectors so you can keep your cell phone charged.

Portable Power Source Devices

Schumacher and REI both sell a power source device for camping. These are AGM batteries with a built-in air compressor and inverter allowing for USB ports, 15-amp receptacle and 12-volt receptacle. The REI versions are very expensive. Schumacher makes one called a Jump Starter with Compressor (\$140), which is more affordable. It was designed for jump-starting a car, but it is not enough power to jump-start a truck. However, if you don't have a full LQ, it would provide a little extra power to run lights, fans, and charge your phone over the weekend.

Solar Energy

Solar energy is a safe, quiet, and reliable energy source, requiring little maintenance once installed. If you're careful, you never run out of power or have to charge your batteries yourself. The physical limitations of a solar system on a horse trailer are: available roof space; battery space under the gooseneck; and space for the controller (a device that keeps the batteries from being over filled with energy from the panels), and room for a breaker box. There is room for about 800-1000 watts of solar panels, enough for most of your camping needs except some refrigerators, long-running electric heaters, and air conditioners. However, if it rains for days on end, or in winter with fewer hours of sunshine, you would need a generator. For trailers with propane refrigerators and heaters, and a generator that isn't capable of charging the batteries, a 400-watt solar system would provide a great way to keep awnings, slide-outs, hitches, lights and pumps functioning without issues.

System Design

The local electricians I spoke with didn't install solar systems or understand solar for small-scale use. It was a Facebook group (Solar Powered RV's & Boondocking), a solar installation manual, a lot of reading, and several consultants that made it possible for me to design my system. The component parts of a horse trailer solar system run from about \$1000 to \$5000. In 2019, there is a 30% tax deduction on a solar install on an LQ trailer (RV or home), so this is a good year to build one. In the next issue, I'll explain how to go about designing and installing a small solar system.

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