



THE READOUT

The Stanislaus Amateur Radio News

22 YEARS OF SERVICE TO THE COMMUNITY

May 1998

[HTTP://WWW.WAC.COM/~STANARA](http://www.wac.com/~stanara)

Field Day is coming soon , next meeting, plans

Sara says;

Remember to place the coax on the antenna...

Then raise it!



Rain report

Date: Wed, 04 Mar 1998

23:04:09 -0800

From:

BerryGriffin <serazin@pacbell.net>

New ARRL director is interviewed.

Real Audio file at:

<http://www.rrsta.com/rain/index.html>

check it out soon!

Antenna Design

Antenna Design, Analysis, Fabrication, Development, and Testing

The MSFC Antenna Range Test Facility provides MSFC with the capability of performing accurate measurements of impedance, insertion loss, isolation, frequency, power, and antenna radiation distribution patterns between 10 MHz and 40 GHz. The facility utilizes both a 400-foot and a 2,640-foot range to measure far-field antenna radiation distribution patterns on scale models of spacecraft and/or payloads. Antenna pattern data on all ranges can be recorded in analog or digital form and presented in polar or rectangular form. The facility also has a 120 X 30 X 30 foot tapered anechoic chamber.

A small, onsite machine shop is used for construction of items needed in tests, such as small model antennas, ground planes, and mounting brackets. The shop, and offices for test engineers are located in building 4194, which also serves as the primary control/monitor center for antenna measurements. There is also a building with a roof-top radome, which provides a free-space environment for some antenna measurements and protects personnel and equipment from the weather.

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Belden Wire & Cable

Article for Broadcast Engineering

Solving Signal Problems

Effective shielding is key to enhancing the

reliability and performance of broadcast cables.

by Marty Van Der Burgt

There is perhaps no other industry which values reliable cable performance as highly as broadcasting, for the failure of broadcast cable performance often produces immediate,

far-reaching and embarrassing results. From outdoor news

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The 400-foot antenna test range, located adjacent to building 4194, is used to measure antenna radiation patterns from 100 MHz to 60 GHz. The transmit tower is mobile, which makes the range length adjustable, and the transmitting antenna height may be adjusted for optimum test conditions. The model tower at the receive end is constructed of dielectric material for minimum disturbance of measurements. The range is equipped with a gantry that can be moved over the model positioner. The gantry allows work to be done on the models, and protects them from inclement weather.

The 2,640-foot antenna test range consists of two 90-foot test towers used to elevate the test article and the transmit antenna to simulate free-space conditions. Positioning control and data recording instrumentation are located in a trailer adjacent to the receive site. The transmit site is equipped with an eight foot parabolic dish and a small building for placement of signal generators and power amps. This range is suitable for antenna pattern measurements from 2 to 60 GHz.

The facility also has a 120 X 30 X 30 foot tapered anechoic chamber. The chamber is shielded to prevent interference from external electromagnetic sources, and is equipped with shielded doors which allow test devices to be moved into the chamber. Models or test devices up to

12-feet in diameter may be supported on the 15-foot tower in the chamber. The control room, located underneath the tapered end of the chamber, is equipped with a complete antenna pattern measurement system. The chamber is most often used for antenna pattern measurements to support antenna design work, to verify scale model antenna patterns, and to measure free-space patterns of prototype or flight antennas. It is also used to measure antenna impedance and field strength. The chamber operates from 200 MHz to 40 GHz and has a shielding of > 80 dB at S-band.

gathering, to studios and control rooms, to post production, the broadcast industry faces critical challenges from EMI/RF interference. Since broadcast systems were launched, system engineers have been in perennial pursuit of shielding that would effectively ensure signal integrity, prevent downtime, maintain sound and picture quality -- and provide a high level of confidence in audio and video transmissions. Cable shielding has proven to be an effective strategy for dealing with problems of signal ingress and egress caused by electromagnetic interference (EMI). And, today, with the FCC's Cumulative Leakage Index (CLI) standard, maximizing cable shielding effectiveness is even more critical than everbefore.

Signal Problems

EMI was first recognized in the early 1960's, as interference problems broadened to encompass the entire electromagnetic spectrum. Prior to that time, most interference problems were experienced with radio signals, and hence, were referred to as radio frequency interference (RFI). Today, EMI refers to electromagnetic interference in its broadest sense. Thus, within the non-ionizing portion of the electromagnetic spectrum, all emitters, receptors and frequency bands are part of the EMI definition. For this reason, such diverse problems as interference from ground loops, common impedance paths, direct magnetic/electric field coupling (AC Hum), electrostatic discharge (ESD), power line conducted emissions or radiated emissions from all sources fall under the umbrella category of EMI.

In broadcasting, there are mechanically-induced noise interference problems as well. Triboelectric noise is generated by movement in the cable's components, resulting in a static or piezoelectric effect. Mechanically-induced noise is a critical and frequent concern in the use of guitar cords, microphone cables, and other cables that may be flexed while in use.

Fortunately, both EMI/RFI and noise problems

can be solved with the right cable shielding solution. Let's take a closer look at how cable shielding works and the different types available on the market for various applications.

Shielding Solutions

A cable shield is placed between the core or components of a cable and the outer jacket, or over individual components within a cable, to contain the RF signal or keep out unwanted interference. Cable shielding is offered in a wide range of designs and configurations. Each type of shielding has its own distinct advantages and disadvantages that need to be considered when selecting the best and most cost-effective option for a given application. Shields available on the market today include:

Braid Shields

Braid shields provides superior structural integrity while maintaining good flexibility and flex life. These shields are ideal for minimizing low frequency interference and have lower DC resistance than foil. Braid shields are effective at audio, as well as RF ranges. Generally, the higher the percentage of braid coverage, the more effective the shield.

Foil Shields

Foil shields consist of a aluminum foil typically laminated to a polyester or polypropylene film. Foil shields provide 100 percent cable or component coverage, improving protection against radiated emission and ingress at audio and radio frequencies. Because of their small size, foil shields are commonly used to shield individual pairs of multi-pair cables to reduce cross talk. Foil shields may also be bonded to a coaxial cable insulation or cable jacket with a layer of adhesive, allowing for faster, easier and more reliable termination. They have less weight, bulk, and cost less than braid shields and are generally more effective at higher frequencies. Foil shields are more flexible than braid but have a shorter flex life. Drain wires are generally used with foil shields to ease termination and ground electrostatic discharges.

The shorting fold construction technique in continued page 3

coax

foil shield design helps improve high frequency performance by maintaining metal-to-metal contact, thereby increasing the foil shield's range of effectiveness to higher frequencies. This is achieved by folding one edge of the shield tape back upon itself. Thus when the tape is wrapped around the cable, there will be metal-to-metal contact along the seam or edge of the shield tape, better approximating the performance of a seamless tube. Without the shorting fold, a slot is created through which signals can leak and cause interference.

Combination Foil/Braid Shields

Combination shields consist of more than one layer of shielding and provide maximum shield efficiency across the frequency spectrum. The combination foil/braid combines the advantages of 100 percent foil coverage with the strength, flexibility, and low DC resistance of a braid. Typical braid coverages range from 60 to 95 percent. Other combination shields available include various braid/braid, foil/braid/foil, and foil/braid/foil/braid designs.

French Braid & trade;

A relatively new development in cable shielding technology, especially suited to audio and RF cable applications, is an ultra-flexible double spiral shield. This design consists of dual spirals of bare or tinned copper conductors, with the two spirals tied together by one weave. The french braid shield construction provides longer flex life than standard spiral shields, and greater flexibility than conventional braid shields. It produces a much lower level (up to 50 percent less) of micro phonic and triboelectric noise than either spiral or conventional braid shields. In addition, since it is not fully woven, the double spiral shield is easier to terminate than a standard braid. It also provides for lower DC loop resistance than a single spiral, resulting in improved performance.

Testing Methods

Securing reliable and comprehensive test data is the surest and most effective way to select cable shielding

which will protect against the kind of interference anticipated. Several questions need to be asked: What kind of interference is anticipated? What frequency range? Is ingress or egress the primary concern? Is triboelectric or other mechanical noise likely to occur? Following is a description of several kinds of commonly conducted shield performance tests--their purpose, methodology, and the significance of their results.

Transfer Impedance Test.

The transfer impedance test is the most widely accepted non-relative or absolute measure of a shield's performance. It is used to evaluate cable shield performance against ESD and radiated emissions coupling at a frequency range of DC to 1000 MHz. This testing method is recommended by the International Electrotechnical Commission as well as the military. The transfer impedance value is dependent upon the sample cable's shield construction. The lower the transfer impedance value, the more effective the shielding. Theoretically, the absolute interference level of a cable can be determined using the transfer impedance value. Typically measured in a triaxial fixture, the transfer impedance takes into effect the relationship between the signal carrying regions of a coax cable and the surrounding detector. The shield separates these two regions. Therefore, the transfer impedance test is a true measure of the shield effectiveness of the cable.

Absorbing Clamp.

The absorbing clamp is an accurate, portable testing device which is effective at detecting radiation directionally, as well as locally. It has a great capacity for electromagnetic compatibility cable measurements in the frequency range of 30 to 1000 MHz. It is also non-destructive to the sample. The test fixture clamps over the shielded sample cable and inductively detects signal leakage. The radiation values are then compared to those of an unshielded sample of the same length. Shielding effectiveness is defined as the difference between the two values.

GTEM Cell.

The GTEM cell is arrectangular

transmission line segment which operates in the Gigahertz Transverse Electromagnetic Mode (GTEM). Cables, cable/connector assemblies, and/or electronic devices are placed inside the chamber. The item under test can be subjected to a known field intensity provided by powering the cell or, alternately, the cell can be used as a detector to measure radiation emitted by the cable or device inside the cell. Frequency range covered by this method is DC to 1 GHz.

Flex Test.

Shield performance during the life of the cable is an important consideration, especially in field or stage cables. Flex testing is performed on these cables because vibration, sway, continuous movement, coiling and uncoiling can cause degradation of shield performance over a prolonged period of time. Testing before and after flexing may be of value and concern for cables used in these types of applications.

Summary

Cable technology has become increasingly more complex since EMI problems were first discovered. The evolution of broadcast technology, and its resulting regulations, has created a growing need for more sophisticated cable shielding and reliable testing methods. For these reasons, it's more critical than ever for system designers to evaluate, right from the outset, the conditions of each application in order to specify the most appropriate shielding option.

Martin J. Van Der Burgt is a Senior Product Development Engineer with Belden Wire & Cable Company,

Richmond, Indiana.

This sheds a new lite on just throwing up an ole antenna and jamming another ole piece of coax on it. Oh yes, then YOU could be like our president of our club and not need coax! Coming to Field Day, ED?....

Thanks to Jim n6ugh for finding this one.....

n6kmr, Jim

S.A.R.A. MINUTES March 17, 1998

The meeting was called to order at 7:44pm. Introductions, there were 26 in attendance. OFFICER REPORTS

Treasurer Report income -----
---- \$865.00 expence -----
\$530.61 check book balance -----
\$3623.97 equipment fund -----\$
728.20

We now have 76 members. To report on the bulk rate postage- we need at least 178 members to break even on the bulk rate postage. This year, with the members we have, the club will loose \$565.00 by using the bulk rate rather than the 32 cent stamp. At the end of the year, depending on the amount of members, the club will decide on regular postage or bulk rate postage.

Presidents Report

Ham classes finish up this week. The next classes will be a bit different, they will include video tapes and training material. Also wanting to have classes for other class of licences. Al WG6M has agreed to teach morse code classes as well.

MS walk-a-thon will take place on Sunday April 19, still needing volunteers. Canyon Classic bike-a-thon will take place on Saturday April 25, needing volunteers. Tour De Cure will take place sometime in May.

Would like to see a minor change in the weekly net, insert a club forum inbetween the Officers reports and the Swap net, to receive some ideas from the members.

There has been a change in the meeting, the Satelite demonstration has been canceled due to the fact the person to put on the demonstration is out of town, the RF Exposure meeting last Saturday was taped and after the break the tape will be showed for those interested.

QST magazine will list all the call signs of the people involved in helping out in the floods.

Vice President Report

RF meeting on Saturday was a good meeting.

Secretary Report

Would like to thank Lou KF6NPG on a
The Readout

job well done on the SEMS and ICS classes. The RF Exposure meeting was real informative.

Meeting came to a break at 8:10pm

After the Break the RF Exposure tape will be played for those interested.

Presented by the Secretary Nanette
Hartman KF6BOZ

S.A.R.A. MINUTES April 21, 1998

The meeting was called to order at 7:44pm. Introductions were made, there were 33 in attendance. OFFICER REPORTS

Treasurer Report income -----
---- \$1,197.94 expence -----
\$1412.67 check book balance -----
\$3074.85 equipment fund -----\$
728.20

We now have 82 members, 40 has not re-upped. We have 17 new members and at this point we are not meeting the budget.

Presidents Report

Al WG6M has agreed to teach a code class for those who are interested in learning or enhancing their skills. Kirk KF6GKM brought in pictures of MT. OSO and hopefully the will make it to the web sight.

MS walk-a-thon took place on Sunday April 19, people who volunteered were Steve KC6YCB, Jim KF6BPC, Charles KF6FOP, Mark WB6BJN and Paul W6UHF. Thanks to all who helped out. Canyon Classic bike-a-thon will take place on Saturday April 25, still needing volunteers. I have 3 of 9 volunteers. Crop walk is on Sun. April 26, and have all the volunteers.

Their was a vote put to order for adding a forum to the net roster, all were in favor.

Vice President Report

Gene donated a Code keyer to S.A.R.A. Thanks

Secretary Report

No report at this time.

New business

We have 2 guest tonight W7WN Don which is the section manager for AARL. Don covered on what AARL does besides putting out a magazine once a month. AARL is always trying to keep the Ham spectrum for the Hams and not letting the businesses take over. Don also talked about the National Weather Service which is located in the save building as NIRAD. It still in the developing stages but the N.W.S. is looking for volunteers to report on weather in their area, and also looking for storm chasers. To get in touch with them and find out more information you can call 584-0585 or write them at 900 foggybottom Rd., Hanford CA. , 93230.

The 2od guest is Kent K6IN which is the emergency coordinator for Merced Co. Kent updated us on the Floods in Merced, they had 3 1/2 inches of rain in 6 hours. Water had no where to go and for people that were not in flood planes were getting in their homes. The following day was when Bear Creek overflowed and 1000 people were evacuated from their homes. Thanks to all who helped from Stanislaus Co. which included Lou KF6NPG, Duane KF6BPA and Ed KF6FIR.

Meeting came to a break at 8:24pm

After the Break Field Day discussion. Lou KF6NPG will be going up to the site with in the nest 3 weeks to see how the snow is holding up. Bring your own accommodations, it will be cool at night so bring a jacket, and also bring insect spray just in case. There will be Port-O-Potties which will be delivered on Thursday. Also bring a power source such as Batteries, Generator, etc..., and extension cords. Field Day is on June 27-28 at 1800-2100 UTC Location is up Hwy. 4 above Arnold, just past the 6000 ft marker on your left hand side. look for 7N23 which is also called Black Springs rd. All Hams will have an Extra License that day providing that there is a person present with an Extra license. For those of you who are interested in participating in the Bar-B-Q there will be a \$7.00 charge. There will be a drawing held on Sunday afternoon for donated prizes, everyone will receive a ticket, and for those who would like more tickets a small donation will be accepted. Presented by the Secretary Nanette

Product Review by:

N6UGH Icom IC-756

I recently purchased a new Icom IC-756, my first brandy new HF rig. After being a ham for over 30 years I thought I deserved a new HF transceiver. When first powering up the 756 the 4X3 inch blue screen is overwhelming. The controls are laid out in typical Icom fashion, but the main tuning knob has to be offset to the right because of the screen. One feature that I like over some of the other new rigs on the market is the "old style" analog s-meter.

The Icom IC-756 has a general coverage receiver that is continuous receive from 30 kHz thru 60 MHz. The transmit will cover all the ham bands from 160 meters thru 6 meters. The 756 has a quad conversion receiver which has sensitivity levels down to .13 uv and selectivity of less than 3.8 kHz at -60 dB. This is a very good receiver that really pulls in the weak ones. The transmitter is typical of most on the market in claming 100 watts output power, but on 80 meters with a good match into the antenna I have seen 150 watts out.

Along the left side and the bottom or the screen are the designators for the buttons. These designators change when other options are brought up on the screen. The preamp and attenuator buttons were a real surprise when I started using them. The preamp has 2 settings, 10 dB or 16 dB. This really come in handy when trying to work some of the weak ones 10 or 6 meters. The attenuator on the other hand has three settings, 6 dB, 12 dB, and 18 dB. This is a real plus when other hams are close by.

The VOX works flawlessly. I have used VOX on many occasions and no one has ever commented that they ever noticed. So in my opinion if it works so well that no one noticed then it must work very well.

The dual watch is one nice feature. The operator is able to listen to two frequencies at the same time. There is a balance control knob to adjust the volume for each frequency. This comes in handy when the operator is listening to a net on one frequency and also waiting for his

buddies to show up on another frequency.

There are also controls for the twin passband tuning. These adjust the passband width of the 455 kHz and the 9 MHz IF filters. There is also a small graph at the top of the screen to display how the controls are set. A real help when interference is close to the listening frequency.

When the passband tuning might take a few seconds to tune out someone tuning up close by, the auto notch switch is real handy. When the headphones are on and all the preamps are on and then someone keys down a few K away then pressing the auto notch switch will quickly get rid of the eye crossing carrier quickly. This also works for many other offending squeals and squawks heard on the bands.

Placing frequencies into memory is as simple as pressing a button. Once the frequency is dialed up then press the memory write button and the frequency is saved. A frequency can be dialed up by turning the tuning knob or direct

frequency input can be accomplished by using the key pad. The key pad can also be used to go to a different band by simply pressing a button. There is also a triple stacking feature for each band switch button. Pressing the band switch 2 or 3 times will call up stacked frequencies on that band. Great for storing that DX station that was swamped earlier. With the press of a button the operator can be back on the DX station frequency.

Different 455 kHz and 9 MHz filters can easily be mixed and matched to make receiving SSB or CW signals a real easy task. With the press of a few buttons the filters can be changed into the receive circuit in many different configurations. And all this can be done while still listening to the received station.

About the neatest feature of the front screen is the spectrum scope. This can be used to display the relative signal strengths of signals on both sides of the received frequency.

continued page 6

SARA Membership Application

Call : _____	Date: _____
Name: _____	
Address: _____	
City & State: _____	
Zip Code: _____	ARRL Member?: (yes) (no)
Home Phone: _____	Alt Phone: _____
Occupation: _____	
Date Of Birth: _____	Clas Of Lic: _____
Year First Licensed: _____	
Dues: Renewal \$20.00 per year. Out of area more than 150 miles from Modesto is \$11.00. New first time applicants dues are pro-rated from the month you join the club. Use \$1.66 times the number of months remaining in the year. I.E- You join in July = 6 x \$1.66 = \$9.96	

SARA, repeaters are, on MT.OSO.. 2mtr > 145.390 pl 136.5, 220band > 224.14 pl 136.5, 440 band >440.225 pl 136.5, 6mtr. > 52.800 , packet> SARA, 144.91and IPMOD, 145.650 TCP/IP&ax25 radio mailbox & Internet e-mail... Internet address > Sara@modesto.n6kmr.ampr.org Webpage: [HTTP://WWW.wac.com/~stanara](http://www.wac.com/~stanara)
CHECK US OUT....

review

The span can be adjusted to show +/- 12.5kHz, +/- 25 kHz, +/- 50 kHz, or +/- 100 kHz of the center frequency. I have found that when working 10 meters I can set my center frequency to 28.4 MHz and then set the scope to show +/- 100 kHz. This way I can monitor the complete Novice/Tech phone portion at the same time (where most of the activity is). This also come in handy when looking for a clear spot on a band.

With two coaxial and one receive only antenna inputs the operator can have a separate receive antenna on 160 meters and the 756 will automatically switch between antennas for transmitting.

There are only two minor things that I would like to see changed on the 756. One being that if the screen was larger with a larger frequency display I would not need to keep my bifocals on to read the frequency. The other small change I would like to see is the addition of another speaker jack on the back panel. Then one speaker could be the main band and the other could be the sub band.

If any of you out there are considering buying a new HF rig then serious consideration should be given to the Icom IC-756. There are so many features that I cannot give the 756 its just rewards in this short article. Seems every time I take the instruction manual to the reading room I find something new to try. The IC-756 is truly a world class medium priced transceiver.

N6UGH

Subject: heres one Date: Sat, 21 Feb 1998 17:13:54 -0800 From: Jim Jones <tiremart@townsquare.net> To: Jim Hertel <stanara@wac.com>

GNB - Battery Frequently Asked Questions, copyright 1996, GNB Technologies, Inc.

COMMON MARINE BATTERY QUESTIONS:

What are MCA's/Marine Cranking Amps? MCA is the commonly used rating for marine/RV starting power. It is the number of amperes a lead acid battery at 32 degrees F (0 degrees C) can deliver for

30 seconds and maintain at least 1.2 volts per cell (7.2 volts for a 12-volt battery). This lets you know how much power you have to start your boat's engine.

What are Amp Hours? This rating applies to deep cycle marine batteries. Amp hours are simply a unit of measure for a battery's electrical storage capacity. This is obtained by multiplying the current in amperes by the time in hours of discharge. For example: A battery delivering 5 amperes for 20 hours, delivers 5 amperes X 20 hours = 100 Amp Hr of capacity.

Put another way, this rating lets you know how many amps, for how long, you can draw from your deep cycle battery.

What is Reserve Capacity? *Reserve capacity is the time in minutes that a new, fully charged battery will deliver 25 amperes at 80 degrees F and maintain a terminal voltage equal to, or greater than, 1.75 volts per cell. This rating represents the time the battery will continue to operate essential accessories if the alternator or generator of a vehicle fails.

Put another way, reserve capacity is a battery's ability to sustain a minimum vehicle electrical load in the event of a charging system failure.

What are "Deep Cycle" Batteries? These batteries are designed to provide "deep cycle" power - and that makes them very different from ordinary car batteries. Starting a car requires a high amount of energy for a short period of time (about 5 seconds). Only a small amount of the battery's capacity is used. Once the engine starts running, the battery is recharged quickly by the alternator, which carries the basic electrical load.

On the other hand, deep cycle batteries supply a relatively low amount of current for a long period of time. They are specially designed to power electric trolling motors and other electrical accessories in boats and RVs. Unlike ordinary car starting batteries, they can be run down and recharged (deep cycled) repeatedly with minimum loss of capacity.

When a car starting battery is deep cycled, it loses capacity very rapidly and in some cases has lost its useful capacity in 50 cycles (discharges and recharges) or less. These limitations make car batteries

a poor investment when used for marine and RV deep cycle applications. A single deep cycle marine/RV battery will outlast 2-4 car batteries.

Are "Deep Cycle" Batteries Constructed Differently? Yes! Deep cycle batteries are specially designed with denser active material and thicker plates to withstand deep discharge-recharge service. They are also reinforced by envelope and glass mat separators to reduce shedding of the active material and damage from the jolting vibration of a boat on choppy water.

Car batteries, on the other hand, use porous active material and thin plates so that high-amp energy can be quickly delivered for maximum starting power. Repeated cycling weakens the positive plates and makes the active material shed from the grids. Thus, in repeated deep discharge-recharge applications, the capacity of the car battery drops below desired levels in about 50 cycles. They are not built to withstand the heavy buffeting experienced by marine batteries. They are simply designed to do a different job.

Where can I use a deep cycle battery? Deep cycle batteries can be used wherever the battery is continually discharged for an extended period of time, and then recharged.

In boats for powering trolling motors, fish finders, depth finders, lighting and other accessories. In motor homes, travel trailers, and tent campers to run accessories, radios, TVs, fans, refrigerators, etc. In outboards and sailboats to power lights and accessories.

How long should my battery last? The life of a battery is determined by a number of factors, with the most important being proper maintenance. Amount of use, proper charging and climate are other elements that also need to be considered. A battery that is stored for prolonged periods of time without use or recharging can develop sulfation on the plates which will greatly reduce the time a battery will perform.

How can I tell if my battery is charged? The battery's state of charge can be tested using a hydrometer or a voltmeter. A

hydrometer will determine the specific gravity of the electrolyte in each cell, while a voltmeter will give you a voltage reading. There are some batteries that come with a state-of-charge indicator eye built in the battery's cover.

Do I need a special charger for a deep cycle battery? No. But properly charging a deep cycle battery is a very important factor which can affect battery performance and life.

What is the best way to charge my deep cycle battery? The electrical capacity of the battery charger determines how long it will take to charge your battery. In most applications, a 10-25 amp charger is recommended.

First, determine the battery's state of charge using a hydrometer, voltmeter or state-of-charge indicator.

Check electrolyte level before charging. Add distilled or good quality drinking water if the electrolyte level is below top of the plates.

Follow the instructions provided with the charger. There are many chargers on the market, each with their own features.

Be sure the battery is completely recharged. Use a hydrometer to determine the percent of charge, following the manufacturer's instructions.

Recharge within 24 hours after each use. Discharged batteries can freeze.

Do not overcharge your battery. Overcharging causes grid corrosion and reduces battery life. A charger with a timer switch is best.

Do not use a fast boost charger. A slow charge is best for a deep cycle battery.

Unhook the charger when the battery is fully charged.

Can you overcharge a deep cycle battery, and what are the effects? Yes. Overcharging causes grid corrosion and reduces battery life. An automatic or timer switch charger are best.

Will placing my battery on concrete drain the charge? A battery will not lose its state-of-charge strictly from placing it on a concrete surface, but will discharge it over a period of time, due simply to

neglect.

Will adding aspirin or other additives to my battery prolong its life? There is no real evidence that aspirin will prolong life. However, some other additives will clog up your hydrometer.

Is my marine battery "maintenance free"? While your battery is maintenance free, it is also maintenance accessible. For optimal performance the electrolyte level should be checked approximately every 30 days. The electrolyte level should be maintained between the top of the plates and the bottom of the vent cap openings.

In an emergency, can a deep cycle battery be used to start an outboard motor? Yes. But **ONLY IN AN EMERGENCY!** For maximum battery life, a two-battery system is recommended.

Can I charge my travel trailer batteries while I'm pulling the trailer? Yes. Install a solid-state battery isolator to the vehicle's electrical system. This allows the trailer's batteries to be charged while driving and prevents discharge of your vehicle's starting battery. The isolator is becoming standard equipment on many motor homes.

What is the proper way to store marine batteries? Clean battery case and terminals with baking soda and water, being careful to make sure the solution does not get into the battery. Always check to ensure the battery is fully charged before storing. Batteries stored in a discharged state are susceptible to freezing and an increased rate of further discharge. Store in a cool dry place (not next to a furnace or other heat source) and out of reach of children and pets. Check the state of charge every 45-60 days and add distilled water if needed.

Are marine batteries recyclable? GNB Battery Technologies, conscientiously applying a comprehensive business approach called Total Battery Management (TBM), plays a leading role in one of America's most effective and successful recycling programs.

TBM encompasses manufacturing and distribution of lead-acid batteries, responsible collection and storage of spent batteries, safe transportation and reclamation of battery materials, and use

of those materials in the production of new batteries.

Every year, GNB recycles the components of 18 million batteries, returning 400 million pounds of lead and 40 million pounds of plastic to battery manufacturing while diverting these materials from waste stream. GNB batteries are 99% recyclable.

FCC ENACTS INTERNET MORSE CODE REQUIREMENT

The FCC, under pressure to clean up the Internet, especially after the Communications Decency Act provisions regarding Internet content regulation were stricken as violating the U.S. Constitution, has decided instead to require a Morse code requirement for Internet users. Citing the success of the Amateur Radio Service and the general belief that its requirement for operators to pass a Morse code proficiency exam and other technical requirements, has kept the A.R.S. "clean", the FCC will enact a 5 word-per-minute requirement for all Internet users. They are leaving open the issue of whether there should be a "codeless" class of Internet user and are soliciting comments on this proposal. Persons wishing to develop a web site having only links to other web sites having links to other web sites, and so forth, must pass a 13 word-per-minute test and demonstrate proficiency in HTML, the Internet authoring language. Persons wishing to develop web sites that have actual content, as compared to just links to other web sites, must pass a 20 word-per-minute Morse proficiency test, demonstrate proficiency in HTML and the Java programming language, and show that they have mastery of at least one human language, such as English. The FCC, which lacks budgetary authority to implement the testing program, has stated that it intends to create Volunteer Examiner programs for Internet applicants.

Hey this was Just a late April fools Joke..... Got your attention though huh?...

Have good month and happy Field Day to All... Jim



THE READOUT

!! READ ME... IMPORTANT INFORMATION HERE !!

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