

SOUTHWEST

CHAPTER



# SouWester

The Southwest Chapter-Antique & Classic Boat Society  
serving Arkansas, New Mexico, Oklahoma, and Texas.

Fall 2016

## From the Bow

**Boaters and Boatresses...Fall is here and October's mild weather**  
offers some of the best boating we have in the Southwest!

This weather change is just in time for the LBJ Show, starting October 7th, and the Fall Festival of Yachting starting September 30th (**with our WBA partners**). **Let's make sure we have all our safety** equipment on our vessels and the bilge pumps are working as we enjoy this beautiful time.

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Karen and I are looking forward to seeing our boating family next weekend at Lake LBJ!  
Brian



34<sup>TH</sup> ANNUAL HILL COUNTRY  
**WOODEN BOAT SHOW**

SATURDAY, OCTOBER 8 | 10AM-3PM | HORSESHOE BAY RESORT MARINA



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# 34th ANNUAL HILL COUNTRY WOODEN BOAT SHOW

Fellow Skippers...its time to register for the 2014 Thirty-fourth annual Austin / Hill Country Classic Boat Show of October 7th thru 9th.

Schedule:

FRIDAY LUNCH CRUISE to Sunrise Beach Marina

FRIDAY EVENING fajita buffet DINNER CRUISE aboard the Horseshoe Bay dining yacht. Boarding time is 5:45pm, and the cruise departs at 6pm sharp! THIS WILL SELL OUT! Limited to the first 70 paid. Get your name on the waiting list.

SATURDAY MORNING BOAT SHOW at the Horseshoe Bay Resort Marina from 10:00 am to 3:00 pm.

**SATURDAY EVENING 'after show' PARTY will begin at 6pm**  
at a nearby Horseshoe Bay waterfront residence.

SUNDAY MORNING DONUT CRUISE to a Sunrise Beach waterfront residence for coffee and donuts.

Cost for the weekend will be \$20/ person for Southwest Chapter members and \$25/ person for non-members.

# \$60,000 boat on a \$200 Trailer - Part I by Bill Nalle.

Photos C. Stanfield and the internet

Last year's Keels and Wheels found me admiring the quality of entrants with fellow member and good friend Jacob Deegan. One thing led to another, as they usually do, and we started noticing the number of \$60,000 boats arriving on \$200 trailers. Gorgeous boats arriving on little more than a wing and a prayer.

First, a little about myself. By day, I am a Professional Engineer specializing in accident reconstruction. In that capacity I have had numerous cases involving trailers with deadly results. In addition, I have designed and built custom trailers for both my wife's and my wooden boats, *Natte* and *Dawn Treader*. Her *Natte* is 28 feet and 8,000 pounds while *Dawn Treader* is 38 feet and 6,500 pounds. *Dawn Treader*'s custom trailer was recently completed by Lagoon Trailers in Port O'Conner, TX. It is a welded aluminum, "I" beam trailer with torsion axles, electric over hydraulic disc brakes and all LED lights. John Stapp, owner of Lagoon, is a master at dealing with the special needs of our wood boats and getting the details done correctly.....

**down to the blue accent lights inside the "I" beams that light up under the boat.** I thought it was time to share some insight on this complicated topic of trailers.

Most of the accident cases I see generally fall into one of the following categories:

1. Worn out, junk trailers
2. Improperly sized trailers
3. Too small a tow vehicle for the trailers
4. Unbalanced trailers
5. Uncoupled trailers
6. Poorly lit trailers

Nearly every trailer accident I see involving one of these problems could have been prevented had someone taken a bit of time, identified the problem and sought a solution. To that end I want to look at the various parts of a trailer pulling operation, identify potential problems and offer solutions.

In Part I of this article, I will cover a discussion of the number of axles, types of axles and suspension, brakes, couplers, safety chains, and winch peculiarities. In Part II, I will cover the tow vehicles, axles weights, tongue weights, and balance of the trailers.



## How Many Axles:

How many axles do you really want to have? Here are some things to consider. First of all a single axle trailer is good for only the very smallest of boats. One simple way to look at it is if your boat is big enough to tow a skier or boarder you really should have four tires on the ground. A single axle trailer is very critical on balance. A few loaded ice chests, empty or full fuel load or some sloshing water can change the balance greatly. Also, consider the control of your trailer when a tire or wheel fails. Something as simple as a blow out or tread failure on one tire leaves a grossly unbalanced situation.

A dual axle trailer does solve a lot of problems. On a light duty trailer most people will put brakes on the front axle and leave the rear axle as a "tag axle" to carry weight and provide stability. Considering the wide range of axle capacities available, the dual axle trailer is the solution for most recreational boaters. On a heavier duty dual axle trailer you will want brakes on both axles. We will talk about brakes later.

When do you want or need a triple axle trailer? First consider that triples are hard on tires when maneuvering in close spaces. It is possible to literally shear a tire off the rim when making slow, tight turns. On the positive side, a triple is very stable on the highway and can carry a lot of boat. A single tire failure on a triple is for the most part a non issue. Some people do not even carry a spare with a triple. If a tire or bearing fails, just take off the wheel, chain the axle up and move on down the road.



Take a careful look at axle ratings. It is not as simple as one might think. You can't just look at the boat weight and call it a day. First you need to look at the full gross weight, that is **... the loaded boat plus the empty weight of the trailer. Then consider the overload on the** front axle when coming over the break point on a boat ramp. Most people never think about this seemingly minor point. Some ramps transition quickly from the down slope into the water to the flatter part at the top. This "break" causes what can be a severe overload on the front axle. I recommend at least a 50 % factor of safety on axle specifications. If your boat and trailer weigh in at 7,000 pounds, I would look at two 5,000 or 6,000 pound axles under it. For the most part the only price paid for extra heavy axle ratings is a slightly stiffer ride. Axles that are too light for the duty are prone to failures of the axle, wheels, bearings, suspension and tires. Be safe. Be over spec with the axle ratings.

In conclusion, my thoughts about the number of axles are these. A small boat, say less than 2,000 pounds can live on a single axle trailer. I draw the line between dual and triples somewhere in the 6,000 to 7,000 pound boat range. For example, we built a triple for my wife's boat, *Natte*, which weighs in around 8,000 pounds. *Dawn Treader*, at just over 6,000 pounds, is on the brand new dual axle trailer we discussed earlier.

## Types of Axles / Suspension:

There are two basic types of axles in wide use today, the conventional spring axle and the internal torsion axle. As with almost everything else in the trailer world one costs more than the other.

The old standby is the spring axle. It comes in almost any size one might desire and is quite durable. The **main draw back is that it is going to rust.... fresh or salt** water, it is going to rust. The spring hangers and bolts are subject to wear and problems in the long run. For infrequent use and an owner willing to keep up with maintenance there is nothing wrong with a conventional spring trailer. These axles are less expensive and have been around a long time.



There are several manufacturers who make internal torsion axles. There are no leaf springs to rub and rust.

The attachment to the trailer frame is hard bolted with no moving parts. The axle tube is a square steel tube, either straight or with a dropped middle section bolted to the bottom of the trailer frame rails. The wheel assembly shaft has a solid square rod that goes inside the axle tube and is mounted at a 45 degree angle. Between the solid square rod and the hollow axle tube are four rubber "rods" and the whole thing is thermally assembled. Although sizes will vary according to the loads to be carried, some typical dimensions might be a 3 inch ID axle tube, a 1.5 inch solid square rod with the four rubber "rods" about 1 inch in diameter. Again the length of the square rod and the four rubber "rods" will vary according to the capacity of the axle.

The tire and brake is mounted on an arm about 12 inches long. As the wheel moves up and down over bumps the solid square rod rotates only a few degrees inside the axle shaft and energy is absorbed by the four rubber "rods".

By the very nature of a conventional spring axle, that trailer will stand a bit higher than the internal torsion axle units. With the torsion axles the arms can be set at different angles thus allowing some latitude in overall trailer height, so if you have a clearance problem getting into the garage the torsion axles might be the answer. Lower trailers tend to be more stable on the highway and easier to launch on shallow angle ramps. However, the lower you are to the ground the more you will drag, especially on long trailers that have a lot of rear overhang.

Drop axles can offer you a bit lower keel height which might be nice on a deep V boat. One must be careful not to get too low and do possible damage to the running gear. A good trailer builder will design a "must have" protection cage for your props and shafts. On more flat bottom boats a straight axle will make the build easier and not cost anything on height.

## Brakes:

Starting at the bottom end you always have the option of having no brakes. This is fine, but only for the very smallest of boats. After deciding that you need brakes there are two basic types to choose from, disc and drum. Next you have several methods to control the brakes. After having all kinds of trailers, large and small, I would never buy another trailer with drum brakes. It is just that simple, I think drum brakes are cheap and in their own way can be dangerous, especially with electric actuators.

Drum brakes can't be easily seen, they tend to hide problems, and you don't realize there is an **issue until the emergency arises and there you are ... with no brakes. They are prone to getting** lubricant from leaking seals on their shoes, can develop worn magnets and cause adjustment problems. Having said all that, IF you are very diligent and keep them serviced, they will work, but you HAVE to stay on top of it. Most recreational boaters just don't put the effort into keeping drum brakes up to speed.

Disc brakes are on nearly every car made today, and there is a reason. They are good! You can just look at them and see that they are wearing evenly. If you see rust on the rotors, there is a problem. Can't do that with drum brakes. You can look at the disc brake pads to see if they are worn. The disc rotors are out in the open and out of the way of most flailing grease. If grease gets on them, you see it and can go fix the leaking axle seals. This is the only brake I will put on a trailer now.



When I stop for gas I always check the temperature of each hub to see if they are all about the same temperature. This can be done by simply placing the back of your hand near the dust cap. This practice allows me to "see" a bearing failure before it occurs. With disc brakes you can do the same thing. Gently, and I MEAN GENTLY, feel the heat on each rotor. You should feel equal heat from each brake telling you that each brake is functioning equally. Do be careful here, as a rotor can be very hot. If one is colder than the rest you know it is not working or if one is hotter than the rest it might be dragging. In any case you can see a problem before it becomes a big issue.

There are two basic choices for actuating your hydraulic trailer brakes. The simple and least expensive choice is a surge hydraulic system. It mounts in the coupler and the force of the trailer pushing on the slowing tow vehicle actuates a cylinder to apply the brakes. This is what trailer rental places such as U Haul use. This works well and on balance surge brakes are a very good choice. The disadvantage is that the driver cannot apply the trailer brakes independently. The advantage is that they are very dependable and require no modification or specialized brake control unit in the tow vehicle. Emergency break away stopping is just a cable attached to the hitch that pulls the lever on the brakes if the trailer comes loose. There is also the "thump and bump" as the coupler is compressed on braking and released on acceleration. Some operators find this to be annoying.

## Couplers:

This is pretty simple. Just super-size it, oversize your hitch and ball. The ratings should be marked on the coupler. If you see wear on the coupler replace it. Any wear or damage to a hitch or ball mandates replacement. After a jack knife you need to give serious consideration to replacing the hitch, especially if the tongue shows any bending.

What happens is the coupler yields and gets a bit bigger, leaving the opportunity to slip off the ball when going over hard bumps. It won't be a problem until you hit one of the "roller coaster" bumps at highway speeds and then the trailer pops off. A very bad thing to happen.

If you see any bending in the coupler there is a high probability that you have microscopic cracking in the metal. Most couplers are made of cast iron which is different from ductile steel in that it is relatively brittle and forms the microscopic cracks when bent. Fatigue cracking and ultimate part failure begins at the microscopic cracks. If it is bent, replace it before it breaks.



## Chains:

You should have two chains, suitable size to the trailer. They should cross each other forming a "bridle" under the tongue of the trailer. If the coupler fails or pops off when you forget to close the hitch, the goal is to catch the tongue and cradle it without it gouging into the ground. If the chains are too loose you can have a trailer digging into the asphalt and that can lead to huge problems. If they are too tight you might bend some metal while turning in the parking lot.



The winch/bow support:

Most classic boats want to be "floated" onto the trailer instead of being pulled up with a winch. Picture this. Your cherished classic boat is floating. Horizontal. The trailer, however, is following the angle of the ramp. Most bow supports are fixed. They contain the winch at the top, and a bow stop. This creates some geometry changes as you pull out, especially in longer boats. With the fixed bow support, once the boat and the trailer come out, there is a foot or two gap between the boat and the bow support, and probably another foot or two between where the **transom 'is' and where you 'want it to be.'** The fix is a custom designed, retractable winch/bow support. If you have a really nice boat, build a **really nice trailer for her! Otherwise, you'll be** slamming on the brakes of your tow vehicle to hopefully move the boat into position on the trailer.



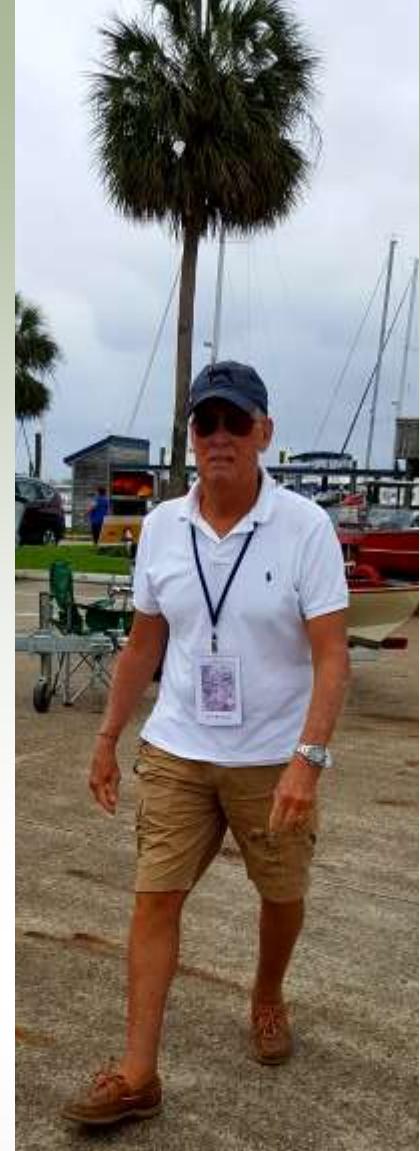
That does it for part 1 of this complicated subject. In *Part II*, for another issue, I will cover tow vehicles, axle weights, tongue weights and the balance of the trailer. These topics can be very complex and I hope to shed a bit of light and offer at least a few tips that will help you



A Pictoral gallery of Keels and Wheels 2016 during the show.  
Sit back, turn the pages and enjoy!

Below is the Canadian delegation with their Dispro.





Texas Chapter Outboard Motor Club. This a very enthusiastic group of boaters that work hard to involve **the public. Their “rebuilding an outboard” was a huge success with the youth. We enjoy working together.**





Ray Balsam and Jeff Tanner part of the placement crew.





## Southwest Chapter Meeting





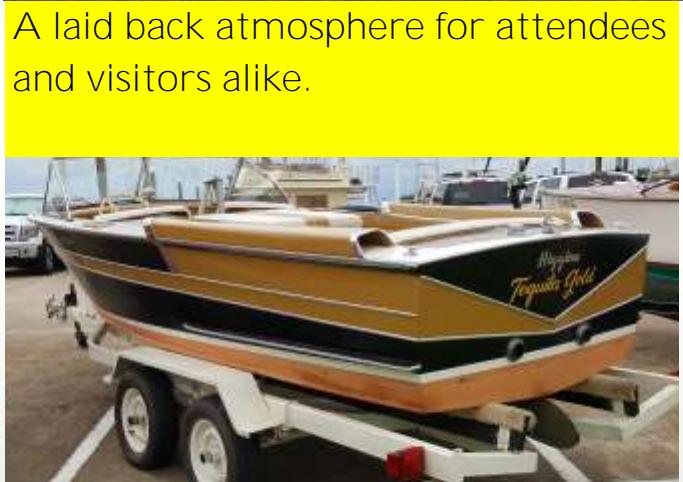
Boats every-  
**where....and**  
all were stun-  
ners! Specta-  
tors took their  
chances with  
the weather  
and won.





From  
grand  
to basic.  
Wood,  
metal,  
glass.





A laid back atmosphere for attendees and visitors alike.



Every turn was a reason to reunite with old friends in celebration. The show gives entrants the ability to interact with the show visitors and the Lakewood Yacht Club members. A great time by all.

Every where you turn, a more awesome car or boat awaits. Woody cars, fifties boats, aluminum, sixties big blocks, brass era, road racers, thirties triple cockpits, fins, poodle skirts, live music, great food.

The winning cars drove through the show, rattling the eardrums. Vintage boats were able to take runs into the nearby waters.





The McLaren's were like jelly beans. Very expensive and very fast jelly beans!





Here is a good glimpse of sixties Hatteras and Chris Craft, pre war Elcos, Seventies Bertrams, and forties Custom Runabout.

**Below, you'll note plank on frame, strip planked, plywood, and aluminum used in**  
the construction below. Glass and composite were also in attendance.





Both the Kids Boatbuilding and the Kids Engine Building were a huge success. Many young folks participated with the doting parents in tow. This has become a major part of each of our events. Details to follow in the next issue.

Geronimo, hailing from Oklahoma, was just outrageous. The photos do not do it justice. The planks, the stain, the design, the power...wow!



Rivas and Cobras are huge crowd pleasers. The show is fortunate to have doting owners anxious to show their rare vessels. The unique small vessels also are engaging to the show goers.





Rains held off until most of the boats were back on their trailers. A huge thank you goes to the launching crew.





Mexican dinner for Keels volunteers  
at the end of the show on Sunday.  
Some wet, some dry. All happy.



# Upcoming Events

October 1-2, 2016

WBA Fall Festival of Yachting

Pier 121, Lake Lewisville

October 7-9, 2016

Lake LBJ ACBS Show  
Horseshoe Bay, Texas

March , 2017

Sunnyland Boat Festival

Wooten Park, Tavares, FL

April , 2017

Keels and Wheels  
2017

Lakewood Yacht Club, Seabrook, Texas

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For individual contact information, go to [Southwest-acbs.org](http://Southwest-acbs.org)

For detailed information and vision of the Antique and Classic Boat Society, go to [ACBS.org](http://ACBS.org).