Why Pontoon Water Glide????

Here at Pontoon Water Glide we constantly hear the avenues that people are researching to increase the performance of their pontoon boats. The bottom-line that most people are trying to determine is how to achieve the most performance for the least amount of money. We hear many ideas and concepts that people have; we would like to take this opportunity to discuss these options.

Option #1: Add a Full Length Third Pontoon: This is probably the option we hear the most about. People see the videos of the big triple toons out there blasting across the water at 40+ MPH while turning like a run about and think all they need to do is to add a third pontoon and that will be them. The reality is those boats are very impressive and so is their price tag. Let's look at what makes those bad boys tick:

First, They need a third pontoon to add floatation and planing surface. The third pontoon is not very effective unless it is equipped with either a flat bottom or lifting strakes. With out one of these the center tube is just another tube, adding stability and floatation while increasing the drag on the boat as a whole. The biggest step towards creating a performance hull is to reduce drag; the only way to reduce drag is to get it up and out of the water!

Second, they have a center toon that provides more lift that the outer tubes. This enables the boat to pivot about the center tube and is the basis reason the boat can turn much sharper that a twin tubed boat. The one of the best ways to increase the lift of the center tube is by shear size; many of these boats have a larger diameter center tube. The other way to increase the lift on your center tube is to add lifting strakes to both sides of the center tube (see below for more on lifting strakes).

Third, to make all of this achieve higher speeds you will need lots of horsepower. Triple tooned boats require a minimum of 150 hp to achieve speeds above 30 MPH. The average triple tooned boat is running I excess of 200 hp.

If you add a third pontoon you will probably have to switch out your steering cables and possibly your control cables. The trailer will have to have another set of bunks added to it for the center tube to rest in. Shipping costs are very high for a full size tube, so look for a manufacturer in your area. (Parts only price, Self Install $5,000-$7,500 not including motor costs)

Option #2: Lifting Strakes: In order to produce more lift with pontoons many manufacturers have started adding lifting strakes to their boats. They comprise of aluminum wings running full length along each of the pontoons. With a triple toon boat you will need to have strakes on both sides of the center tube and the inboard side of the outer tubes. With a tandem tubed boat it would be necessary to have strakes on both sides

of the outer tubes (the only tubes) however, to place lifting strakes on the outside of the boat causes a real problem. The boat that didn't like to turn before not hates the idea! The outer strakes will dig in to the water, lowering your boat to the outside of the turn. This effect can become even more exaggerated at higher speeds. Lifting strakes on a tandem pontooned boat will raise the boat up and reduce drag; it just won't turn well or provide any addition floatation.
If you have ever experienced submarining in a pontoon boat you will understand how scary and dangerous this situation is. Considering lifting strakes to remedy this problem is not a good idea. Once the boats bow dips downward lifting strakes provide the same characteristics as diving planes, they actually force the boat to dive deeper into the water with the boat in a "Bow down" position.

Remember that if you are going to install lifting strakes to your existing boat to be very careful! You will be welding to the only floatation source your boat has, any weak welds will cause leakage and costly repairs. (Installed price $2000 - $2500)

Option #3: Add a half center tube: Some people have added a partial center tube forward of the motor pod. This provides lift to the forward section of your boat without helping the stern, where all the weight of the motor is. By lifting the front half of the boat more than the rear you will add floatation and reduced floundering of the bow. The stern however will still ride much lower in the water, limiting the boats ability to get up on plane.

The added drag and weight of the partial too, in conjunction with the rear of the boat still dragging in the water limits the ability to speed the boat up. In some cases the boat actually will run slower.

The plus of this option is a much easier installation than a full toon, seeing how you are not relocating the motor. However, you will still need to support the center tube with a bunk on your trailer. (Parts Only Price, Self Install $2500-$4500)

Option #4: Sheeting the underside of your Deck: This is something every boat should have done. Not only will skinning the underside of your boat reduce the drag on your boat, it protects your decking from constant exposure to moisture. The cross members under your boat work like brakes against the spray coming from the inside of your pontoons. Remember, the spray you see on the outside of your boat is happening under your boat as well.

This is by far the cheapest and easiest way to improve the speed of your boat. In a few hours you can install aluminum sheeting under your boat that will last its entire life. You should see a 2 mph gain. Make sure that you have your metal bent to seal the top of the pontoon from the spray as well. (Parts Only, Self Install $200-$350)

Option #5: Get a Larger Motor: This is probably the first thing that comes to mind in speeding up a boat and of course it is effective. The first thing to remember is that every

boat is rated to handle a maximum size motor, this rating should NEVER be exceeded. Even if you have added a third pontoon to your boat, your boat has only been rated for the origin specified horsepower by the manufacturer. The exposure that you would have by over powering your boat would be very high, in the event of an accident you would be accepting addition exposure. Be very careful in deciding on your new motor.

More power will give you more speed at a price and loss of efficiency. A bigger motor will be heavier causing your boat to ride even lower in the water. Meanwhile, the faster speed with a lower position in the water will absorb a large portion of the extra energy and fuel you are exerting.

While a larger engine alone may not be the answer, it may be the hot ticket combined with the proper performance enhancements. One very important thing to keep in mind is if your propeller is not in the water you are not going anywhere! Always get a shaft length that will put your prop well below the bottom of your pontoons. With every option we have discussed the solution to a faster boat is to get it up on plane. If you raise the boat up the prop is coming with it. A longer shaft will not measurably reduce the efficiency of your boat and will keep your motor head up away from the boat spray. Conversely, too short of shaft will erase any efforts you make to speed up you boat! (Price Varies)

Performance Hints…

- Check your pontoons for leaks.
- Don't carry more than you need.
- Run a prop that uses ALL of your motor: with a light load you should be able to get your motor RPM's very close to the redline.
- Trim your motor for your speed.
- Check your prop for damage.
- Make sure your engine is at peak performance.
- Clean your toons.
- Look for any drag, fix it.
- Load your boat evenly.

Cavitation/Ventilation/Slippage…why are there three?

It is very common for people to refer to any loss of performance from the prop as cavitation. While cavitation is one of the main problems facing propellers it is only one of the three main issues. Let's review each one:

Cavitation: This is caused when a prop grabs the water too hard and fast. The water actually develops a hole in it, vacuum bubbles to be exact. When these bubbles collapse they actually cause damage to the propeller and adjacent surfaces. This is very common when a boat is pushing or pulling a heavy load and too much power is supplied. The operator will feel a vibration, similar to a chattering. The remedies for this are larger props with more blades.

Ventilation: Here is the most common issue facing people with trailerable boats. Ventilation is really just what it sounds like; it is the effect when a propeller is too close to the surface of the water. The Prop then sucks air in instead of water greatly reducing the efficiency of the motor. Typically, you will experience very drastic increases in the motors speed, particularly in turns and under full power. The best way to alleviate this problem is to lower the propeller in the water. There are many ways to accomplish this; Shaft extensions, Jack Plates, Transom modifications or switching to a long shafted motor entirely.

Slippage: This refers to the efficiency of your propeller relative to your boat. If a prop was 100% efficient it would propel your boat forward at a speed equal to your pitch multiplied by you motor RPM's divided by your gear ratio (i.e. a 15 pitch prop times 4000 RPM/2.0 gear ratio would move at 30000 inches per minute or 28 MPH!). Too bad we can't be 100% efficient! When becomes extreme you will then begin to experience cavitation.

Q. What Is propeller "slip"?

A. Slip refers to apparent slip and is a non-dimensional figure expressed in percentage. It is the difference between theoretical mph and actual mph divided by theoretical mph. Theoretical mph is calculated by multiplying propeller pitch and propeller rpm and dividing by 1056. As an example, a boat that goes 20 mph measured speed, is driven by a 12" pitch propeller turning 2600 rpm. Theoretical mph is 12 x 2600 divided by 1056 equals 29.6 total mph. Subtracting 20 from 29.6 equals 9.6 which divided by 29.6 equals 32.5%.

Q. What are normal slip percentages for various craft?

A. With propellers correctly selected for the operating conditions, the slip percentages would be as follows:
racing hulls 10 to 15 percent
planing runabouts 15 to 25
planing cruisers 25 to 35
displacement cruisers 30 to 40
sailing auxiliaries 35 to 40
work boats 40 to 80.