

Prop Shop

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What's all this noise about SDS™?

With SDS...the biggest "noise" is that there virtually is none.

SDS is Yamaha's acronym for its patent-pending Shift Dampener System, and only Yamaha has it.



Propellers equipped with this system use a unique, splined rubber hub and special aft spacer on the propeller shaft to distribute and absorb the forces and the resulting sounds and vibration, which are normally associated with shifting an outboard into gear. The result: far quieter and smoother clunk-free shifting.

SDS was an instant success upon its introduction in 2010, and demand for it has been increasing ever since. That's why you'll see it used on a rapidly growing list of Yamaha propeller families. For more information, please visit: yamahaoutboards.com/propellers/propellers-by-application.

What's news?

- What's all this noise about SDS?
- Reliance propellers now available with SDS
- You've got questions? We've got answers.
- Don't judge a prop by its name
- Dual Thrust Prop on F70

Reliance® propellers now available with SDS

Since its introduction in 2006, Yamaha's Reliance propeller has time and again proven itself as a complete performer on a wide variety of applications and boating platforms. At the same time, Yamaha's patent-pending Shift Dampener System (SDS) has quickly become the sought-after standard in propellers for its quiet, smooth, "no clunk" shifting. Now, the two technologies have been combined into the Reliance SDS propeller, and the result is ideal for a great many boats.

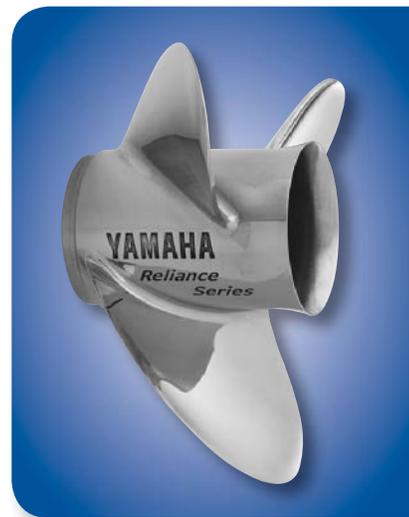
➤ Proven Performance

Reliance Series propellers are many times the go-to choice when using Yamaha's high-power, four-cylinder outboards, which now include the venerable F150, Yamaha's most-popular selling outboard of all time. Reliance props have also proven to offer excellent all-around performance in outboard applications up to 300 horsepower, since they're faster at all RPM ranges and offer better anti-ventilation characteristics (grip) than Yamaha's proven Black Stainless Steel propellers in most applications.

➤ Quiet Convenience

The SDS system greatly reduces shifting noise and vibration. It's what we call "no-clunk" shifting. Ever since its first day of availability, Yamaha's Shift Dampener System has been an instant hit. It's so impressive, there is a patent pending.

Using a specially-designed splined center hub and a uniquely shaped aft spacer, the SDS system absorbs much of the force resulting from an outboard shifting into forward or reverse gear. That means noticeably quieter and smoother shifting. SDS is ideal for general cruising, docking, and helping to maintain quiet when fishing or positioning your boat over bait.



(continued on next page)



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➤ Reliance propellers now available with SDS™ | continued

➤ Quality Built, Widely Suitable

Reliance SDS propellers are meticulously manufactured using highly-polished 15-5 stainless steel, feature impressive cast-in naming on the barrel, and offer excellent corrosion resistance. New for this year, a 15" pitch left-hand rotation model has been added. That means Reliance SDS props now come in 15," 17," 18," 19" and 21" pitches in both right- and left-hand rotation.



➤ Reliance SDS Propeller Models Yamaha Prop Series T (Gear case size 4.75")

Description	Diameter/Pitch/# of Blades	Rotation	Yamaha Part #	Availability
Reliance SDS	14 1/2 x 15 x 3	RH	68F-45970-10-00	Currently Available
Reliance SDS	14 1/2 x 15 x 3	LH	68G-45970-10-00	Currently Available
Reliance SDS	14 1/4 x 17 x 3	RH	68F-45972-10-00	Currently Available
Reliance SDS	14 1/4 x 17 x 3	LH	68G-45972-10-00	Currently Available
Reliance SDS	14 1/4 x 18 x 3	RH	68F-45978-10-00	Currently Available
Reliance SDS	14 1/4 x 18 x 3	LH	68G-45978-10-00	Currently Available
Reliance SDS	13 3/4 x 19 x 3	RH	68F-45974-10-00	Currently Available
Reliance SDS	13 3/4 x 19 x 3	LH	68G-45974-10-00	Currently Available
Reliance SDS	13 3/4 x 21 x 3	RH	68F-45976-10-00	Currently Available
Reliance SDS	13 3/4 x 21 x 3	LH	68G-45976-10-00	Currently Available

NOTE: The new Reliance SDS propellers will backfit all Yamaha four-stroke engines F150 and above (except V8 models). For those models not equipped with SDS hardware as standard equipment, the special aft spacer will be needed (6CE-45997-00-00).



SDS Components



SDS Aft View

Reliance SDS propellers from Yamaha are domestically manufactured by Precision Propeller Industries, Inc., Indianapolis, Indiana; a wholly-owned subsidiary of Yamaha.

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➤ You've got propeller questions? We've got answers.

Our continuing series, aimed at 'demystifying' the world of propellers.

Q. I sometimes hear a slight 'rattling sound' coming from my outboard at in-gear idle. What is that, and how can I make it stop?

A. While we can't speak to every possible cause, that sound may be what's known as 'prop chatter.' In this instance, the resistance provided by the turning propeller does not maintain constant contact between two components inside the gearcase (dog clutch and forward gear). This sometimes occurs in a small percentage of applications, and then usually only at minimum rpm in-gear idle, with in-line four-stroke engines using stainless steel props. When it occurs, it can create something similar to a rattling sound.



This condition is not at all harmful to your outboard. Still, it can be annoying when it occurs. So how do you make it go away?

The simplest, most effective method is to slightly increase your engine's rpm whenever this occurs. Many times, a bump of the throttle resulting in less than a 100 rpm increase will do the trick. This loads the prop sufficiently to maintain contact between the gears.

Another possible solution is Yamaha's exclusive Shift Dampener System. This system has been proven to alleviate this condition in the vast majority of instances. SDS is available on more Yamaha props than ever before. This includes the new Reliance propeller, which is designed especially for, and around, large displacement in-line four-cylinder outboards like the Yamaha F150.



If the above remedies are not used and the specific situation warrants, another possible solution is changing to a Turbo propeller, which uses the Guardian SQ-Lok™ hub system. This system can also alleviate this condition in certain instances. Lastly, it may require use of a lighter propeller, such as one made of aluminum.

For proper overall operation, though, always be certain that the propeller you use maintains the appropriate wide open throttle rpm as stated by the engine manufacturer (**see "Is Your Prop the Right Prop?" Prop Shop Volume 2, Edition 1 – February, 2012.**

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Don't judge a prop by its name

Propellers come in many sizes, types, and styles; because no one prop is right for every boating application. Also, there's always that "oddball" application that requires a little something different for proper propeller performance. But don't limit your thinking based on a prop's name. That may make you prematurely or unnecessarily discount a certain series of props from consideration.

Each 'family' of Yamaha props is given a name to distinguish it, such as "Saltwater Series," but that doesn't mean that it's the only environment or application in which these props can be used. Consider what performance needs or issues you have and what parts of a propeller can help provide those attributes, then look for a prop family that has them. Have a ventilation problem at low speeds? Maybe consider a prop with more diameter or a four-bladed model. What about ventilation issues at high speed or in turns? Consider a prop with increased blade area or blade tip cup, or even lowering your engine's mounting height. The thing to do is look at the propeller's attributes relative to your need, not necessarily its name.

Keep an open mind, and think about how a certain propeller's properties can help find a solution to your particular situation. You might just find your answer under an unexpected name! For more, see yamahaoutboards.com/propellers/propellers-by-application.



> Dual Thrust™ Propellers on the F70

One effective outboard and propeller combination to consider is Yamaha's four-stroke F70 and our Dual Thrust propeller.

Our F70 has been a huge success story in part because of versatility. From family boats to fishing boats and everything in between, the truly remarkable power, light weight, and fuel efficiency of the F70 makes it an excellent all-around performer. It also features a high 2.33:1 gear ratio, which can help it perform effectively in high thrust applications, as well.



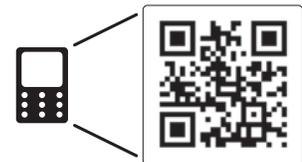
Meanwhile, Yamaha Dual Thrust propellers, which are so effective they're patented, feature a unique combination of large diameter and blade surface area with low pitch and rake angle. These props move a large amount of water easily. They also have a specially-designed oversized exhaust tube that re-directs exhaust away from the blades when in reverse. That means they're perfect for pushing heavy loads, especially in environments where added control can be a big benefit.

Used together, our F70 and Dual Thrust propeller provide outstanding power, light weight, fuel-efficiency, and added thrust and control. It's an ideal combination for many family boating applications where these attributes are important, and another shining example of Yamaha's commitment to providing Endless Propeller Solutions. For more, visit YamahOutboardsUSA on our YouTube® channel.



If you'd like more information about which Yamaha propeller is right for your needs, contact your local authorized Yamaha Marine Dealer at yamaha-motor.com/outboard/dealers/dealerhome/home.aspx.

For short videos on Yamaha propellers, including proper installation, maintenance, and more, scan this symbol using your smart phone or tablet.



Message and data rates may apply. May not be available on all devices.

Also, please join us on Facebook at facebook.com/yamahaoutboards. We'll be happy to help you get pointed in the right direction.

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