

## **Adjusting Speed**

### ***Trigger Shift Speed Control***

To use the “On the Fly” Trigger Shift Speed Control the diver simply double clicks the trigger to go faster and single clicks the trigger to slow down. The clicks have to be fast enough so the X-Scooter does not stop running and not so fast that it does not recognize the command. The speed of the trigger click is about the same as a double click on a computer mouse. Note: The X-scooter should not stop running when changing speeds.

There are 5 speeds on the Trigger Shift Speed Control and when the diver plugs the battery in, the Trigger Shift Speed Control will start on the middle speed setting of three (3). If the diver wants to accelerate they simply double click the trigger and the motor will speed up. Once they have reached the top speed of five (5) the motor will not speed up (or down) when they double click the trigger. In order to slow down, the diver will single click the trigger and they will slow down. Once they have reached the slowest speed of one (1), when they single click they will not slow down any further.

To dive simply pitch the prop to max and then adjust speed using the Trigger Shift Speed Control. Only turn down the pitch when needed to stow or tow the X-Scooter. (See stowing and towing section)

### ***Pitching the Prop***

The X-Scooter, Sierra model, comes with an adjustable pitch propeller. This system is designed so the user can adjust the amount of thrust produced by the propeller. The propeller can be set in the Zero Thrust Position (Image 1- pg 41) or can be set to the Optimum Thrust Position (Image 2 - pg 41) or can be adjusted to Over Thrust (maximum pitch) position. (Image 3 - pg 41).

*Note:* Look closely at the distance from the top of the propeller blade to the propeller hub. Zero Thrust is approximately 1/2” / 12 mm. Optimum Thrust is approx. 1/8” / 3.0 mm and Over Thrust or max is 0” / 0 mm or jammed up against the hub.

### *Zero Thrust Position:*



Turn the propeller pitch knob anti-clockwise until it stops. Notice the top of the propeller blade is approx. 1/2" / 12 mm away from the propeller hub. This setting was designed for redundancy, when the user does not want the propeller to produce any power if the X-Scooter is accidental activated. By pitching the propeller blades down (Turn pitch adjustment knob anti-clockwise) the X-Scooter will produce no thrust, (will even reverse thrust in some cases.) It is generally used when you want to stow your X-Scooter on a line or outside the wreck or when you want tow an extra or broken scooter. This step in the "stow process" prevents an unintentionally activated scooter from generating any power and therefore pulling you around or causing additional problems.

### *Optimal Thrust Setting:*



Turn the propeller pitch knob clockwise approx. 1 & 3/4 turns. The top of the propeller blades should move closer to the propeller hub. In this setting they should be approximately 1/8" / 3.0 mm. (note: There should be equal distance from the top and bottom of the propeller blade edge to the propeller hub.) The Optimum thrust position is a general setting for all Scuba Divers and should be a starting point at which to set your propeller pitch. This setting will produce best thrust results based on the average scuba diver. Keep in mind speed is adjusted through the Trigger Shift Control.

*Over Thrust or Max Setting:*



Turn the propeller pitch knob clockwise until the top of the propeller blades hit the propeller hub and jam up. This is the over pitched or max setting. In this setting there is 0” / 0 mm distance from the top of the propeller blades to the propeller hub. This setting should NOT be used by Scuba Divers. It is over pitched and will cause the X-scooter to over draw current causing less burn times without increasing speed. When over thrust pitching the X-Scooter, the motor RPM will slow down and therefore you will have less speed and you may even experience the electronic relay cutting out power to the motor. This is a built in protection circuit so as not to over draw the current from the battery. If you experience the over draw cut out it is because there is too much pitch and therefore too much current draw. You should turn the

propeller pitch knob anti clockwise pitching the propeller back to a more optimum position. The Over Thrust or Max setting should only be used by free divers or when the scooter is pulling light loads.

*Advanced Scooter User Setting:*

As you become a more advanced scooter operator so you can slightly adjust these setting according to the table below.

Use the following chart to calculate your optimum pitch setting.

Pitch figures are turns clockwise from the fully counterclockwise (unscrewed) position, or lowest pitch.

Basic Pitch Setting	1 & 3/4 turns
<b>Adjust the basic pitch settings using your total from the following three sections</b>	
<b>Weight</b>	
<100 lbs	+1/4
101-150 lbs	+1/8
151-200 lbs	0
201-250 lbs	-1/8
251<	-1/4

<b>Exposure Protection</b>	
Minimal	+1/8
Wet Suit	0
Dry Suit	-1/8
<b>Equipment</b>	
Single Tank	+1/8
Doubles	0
Doubles + Stages	-1/8

For Example: 210 lbs diver in dry suit and doubles = 1 1/2

Note: If you experience automatic slow downs of the motor RMP or over current draw cutouts then slightly drop the pitch of the propeller blade.

Propeller pitching tip:

To change the pitch on the propeller you simply hold the propeller assembly with one hand and turn the pitch hub with the other. Turning the pitch hub clockwise will increase the pitch, while turning it counter-clockwise will decrease the pitch. Another trick is to hold the pitch hub firmly and rotate the propeller assembly in the opposite directions. (Counter-clockwise to increase the pitch, clockwise to decrease the pitch).





**Image 1: Zero Thrust**  
Top of blade from hub 1/2 " / 12 mm



**Image 2: Optimum Thrust**  
Top of blade from hub 1/8 " / 3.0 mm



**Image 3: Maximum/Over Thrust**  
Top of blade from hub 0 " / 0 mm