



# GLIDE FREE FOILS

1

**Glide Free Design Pty. Ltd.**  
ACN 144 984 529

## Product description



Glide Free Foils in action on a Laser dinghy

### Introduction

The concept of foiling has been well established over the past 12 years since the advent of the foiling Moth and has been further publicised with the Americas cup. This unique sailing experience has so far been limited to just those few sailors with the skills to launch, balance and afford these state of the art craft.

Glide Free Design aims to provide everyone who can sail a dinghy, the opportunity to experience the thrill of foiling. Just as the first windsurfers were so popular reaching back and forth in a nice breeze for the pure fun of it! We have chosen to apply our foils to the Laser dinghy because it is by far the most popular single handed sailing dinghy, it is relatively simple and cheap, and yet has sufficient power to enable fun foiling.

To make foiling simple, practical and fun, we needed to address the many limitations of today's foiling dinghies. Over the past 4 years, we have developed a system with flapless foils and integral wand which enables many unique design features not previously available on foiling craft. This has resulted in easy launching in shallow water, safe, efficient and fast foiling, along with good non-foiling light wind performance.



# GLIDE FREE FOILS

2



Glide Free Foils on a Laser Radial upwind in 12kts of wind.

Application of Glide Free Foils to a standard Laser hull has been achieved without any alterations, or fastenings. A simple toggle pin is used to attach the foils, which are strong, stiff & robust employing simple materials at a reasonable cost. At the same time we have achieved a more stable boat which is easier to sail and right after capsizes, with a lighter helm and an impressive turn of speed.

Sure, with double the weight, half the beam and a smaller sail you could never expect a Laser to perform as well as a foiling Moth. Takeoff will always be on a reach, but we think you will be impressed with what you can achieve once you are up and going!! Surprisingly, Lasers are a pretty good foiling platform, as they actually have low wind drag, which makes up around half the total resistance at high speed. Lasers are stable and easy to sail in all conditions and very forgiving when returning to displacement mode.

We wish you many pleasureable hours of fun on your foiling Laser.

## **Product description**

The Glide Free foiling kit consists of the following key components:

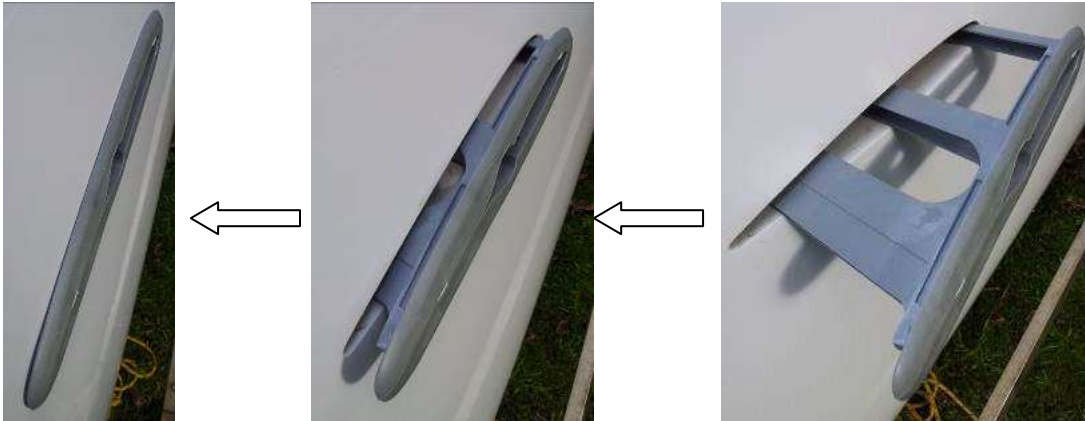
- \* *Centrecase insert, gearblock and toggle pin*
- \* *Centreboard with integral wand, pushrod and handle*
- \* *Centreboard lifting foil with standard and speed foil tips, Tee joint and spring clips*
- \* *Rudder with pushrod and adjusting nut and retaining cord.*
- \* *Rudder stock with retaining clips, thrust washer, spacers.*
- \* *Tiller with cleat and universal joint.*
- \* *Rudder lifting foil with Tee joint and spring clip*
- \* *Safety hook, gear block packers*
- \* *Carry bags for Centreboard, Rudder and Centrecase insert.*



# GLIDE FREE FOILS

## Centrecase insert

The centrecase insert and gear block enable attachment of the centreboard to the boat without any screws or fittings. Tip your boat on its side on the trolley and insert the Glide Free centre case insert from the underside. Then fit the gear block over the top of the centrecase insert and insert the toggle pin.



The centrecase insert slides into the underside of the Laser centrecase.



Gear block mounted on the centrecase insert with toggle pin inserted



Gear block with toggle retaining pin inserted



Gear block packers



# GLIDE FREE FOILS

## Centreboard

The centreboard consists of a main foil with high strength over moulded duplex stainless steel handle. The board is fitted with the patented Glide Free integral wand and pushrod, which controls the angle of attack of the horizontal foil.

Assemble the centreboard by inserting the Tee joint in the horizontal foil, into the centreboard, push until the locking clip engages.



Assembly of Centreboard foil and lifting foil.

When returning to the beach, it is recommended to pull the foils apart for washing, transport and storage. To do this, depress the spring retaining clip with a key, or retaining hook as shown below.



Depress the spring clip and pull the foils apart.



# GLIDE FREE FOILS

5

## Safety Clip

The large centreboard retaining safety clip is attached to your existing shock cord and is initially used to pull the board forward. This clip has multiple purposes and **MUST** always be fitted prior to leaving the beach and immediately the centreboard is inserted. The Safety clip secures the board into the boat, prevents you chopping your fingers off when they are in the handle and positions the centreboard for engagement into the gear block at the correct height.



Safety clip attached to the shock cord



Safety clip

If you do not attach this clip you risk losing the centreboard completely out the bottom of the boat, destroying the internal face of the centrecase, chopping your fingers off or incorrectly engaging the gear block.



Once engaged in the gear block, rotate the large retaining clip 180 degrees and wrap the cord around the pin as shown. This pulls the board aft into the gear block and acts as a quick release should the foil hit an object in the water.



# GLIDE FREE FOILS

## Rudder

The rudder contains a pushrod and thumb nut to allow adjustment of the horizontal trim of the boat while foiling. The rudder can retract aft and locks into place with a clip.

The rudder stock is supplied with a retaining pin to lock the foil down in position while sailing and a tiller is also provided with cleat and tiller extension universal joint.



Rudder assembly including vertical rudder blade, horizontal foil and rudder box

As each Laser rudder mounting is subtly different due to the location of the gudgeon fittings, we provide a set of Glide Free spacers, specifically to suit our foiling kit and at the same time solve an age old problem of the tiller hitting the traveller cleat on the deck.



Spacer and thrust washer set



Thumb nut adjuster on rudder head for boat trim

A thrust washer is used in combination with a retaining clip which **MUST** be installed prior to foiling. Otherwise the rudder will come off the boat when you foil.



# GLIDE FREE FOILS

7

It is extremely important to tighten the bolt attaching the rudder blade to the rudder box. There should be no sideways movement of the rudder blade within the rudder box.

To attach and detach the rudder horizontal foil, use the spring clip as previously shown for detaching the centreboard. You will also need to detach the cord at the rear edge. To re-attach this cord, push a loop from the underside of the foil into the hole and bring the knot through the loop on the upper side, then pull tight.

## Operation

Once your centrecase insert is placed in the boat and gear block attached with the toggle pin, you are ready to attach the rudder in the normal way and go sailing.

a) Launch the boat and take it to knee deep water. Pull on the mainsheet and tip the boat on its side, sufficiently to allow you to insert the centerboard lifting foil into the centrecase insert from the underside of the hull. Allow the board to tilt forward, just as the standard centerboard does. Slide the centerboard up, fully within the centrecase until the wand prevents it going further and cant the front of the foil forward to wedge it in the top front of the insert. At this point you can tip the boat upright and the top of the foil should clear the boom, making the boat easy to handle.

b) Connect the safety clip immediately!. This is absolutely essential to prevent the foil falling out of the boat. Allow the board to be pulled forward, which holds/locks it at the appropriate height.



Launching in shallow water

c) Now lower the rudder to position two, hop on the boat and sail away. Once clear of the shore and in deep water (>1.5m), firstly release the retaining clip and lower the rudder, pull on the hold down cord and cleat in position in the normal way.

d) Lower the centerboard by pulling it backwards a little until it is free and lower it until the large retaining safety clip sits on the upper surface of the centrecase insert. Now use the handle to pull the board towards you until it engages with the toggle pin and gear. You must then rotate the large safety hook backwards and wrap the cord around the toggle pin. You are now ready to go foiling!!



# GLIDE FREE FOILS

8

e) Now it is just a matter of practice and having some guts!! Start in a moderate 10-15kt steady breeze, bear away on to a reach and lean hard, as the boat lifts, bear away and pull in the mainsheet. Experience the thrill of lift off and foiling. Get the feel of the boat. Some of the things you will notice are the boat remains stable but all goes quiet save the swish of the foils and wand as the boat accelerates well beyond the wind speed. This feels like low level gliding and is a surreal experience.



For your first sail, choose a steady breeze and moderate 10-15kt winds. Lighter sailors can use a Laser Radial rig, with very good performance.

You will also, perhaps for the first time experience high speed apparent wind sailing. As you speed up, you will quickly need to adjust the sails to prevent the boat simply falling back into the water as the sail luffs. You will need to respond by bearing away and sheeting in, always steering to keep the boat moving and prevent the sail luffing. In stronger breezes you will soon find yourself going very fast downwind with the sail sheeted in quite tight.. enjoy the rapid increase in speed and sheer thrill. This is what foiling is all about!!

Once you get the hang of reaching, gradually head the boat up into the wind, sheeting in and leaning hard. Allowing the boat to heel to slightly to windward is one key to successful upwind sailing and requires great skill to achieve. At all times you should use gentle, steady movements of the tiller, being over aggressive can make it more difficult to stay foiling.

## High performance

For experienced skippers, we have developed the option of clip on wing tips. You can choose to sail with either high lift, Spitfire large tips or the smaller Delta wing “speed” foils for high speed sailing in strong breezes.



High lift Spitfire wingtip for light winds



Low drag Delta “Speed foils” for high performance





# GLIDE FREE FOILS

9

## Maintenance

Maintenance is a key part of looking after your investment and keeping your Glide Free Laser foils in the best possible working order.

It is most important to thoroughly wash all items with fresh water after each sail.

While the foils are manufactured from corrosion resistant materials, they can be susceptible to attack from salt residues especially if left in the hot sun. It is also most important to remove any silt, sand or abrasive material, especially from the internal surfaces of the main foil and pushrod as this can wear and jam the pushrod. We have provided a flushing port for this purpose. Remove the rubber plug and flush the interior of the foil with a hose. This will clear the internal cam and pushrod mechanism.

Unclip the lifting foil and wash thoroughly with fresh water. Preferably allow the foils to dry before placing them in their bags. Do not leave the foils in sand or mud, avoid leaving them in direct hot sun. This is why protective bags are supplied.

Importantly, please remember that it is important to take care when rigging, launching and sailing your boat at high speed as safety of yourself and others is a primary consideration.

We wish you the many hours of enjoyable fun, foiling your Laser.

## Glidefree Design

### Product specification

The Glide Free Foiling kit consists of the following high quality components:

#### Centrecase insert and gearblock

*\* High tensile glass reinforced nylon moulded Centrecase insert, hand riveted.*

*\* Moulded glass reinforced polypropylene gearblock and packers, 316 grade stainless steel toggle pin with spring.*

#### Centreboard

*\*Grade 6063 T6 temper high strength extruded aluminium foil section.*

*\* CNC precision machined surfaces with 25 micron corrosion and scratch resistant clear anodised surface after machining to ensure the highest possible corrosion resistance.*

*\* Strong flexible glass reinforced nylon integral wand and pushrod*

*\* High strength duplex stainless steel handle to take the high loads, overmoulded with pure Nylon for toughness and easy of handling*

#### Horizontal main foil

*\*Grade 6063 T6 temper high strength extruded aluminium horizontal foil section.*

*\* CNC precision machined surfaces with 25 micron corrosion and scratch resistant clear anodised surface after machining to ensure the highest possible corrosion resistance.*

*\* Strain hardened high tensile duplex stainless steel axle and stiffening rod.*

*\* High strength glass reinforced Nylon moulded "Spitfire" and "Delta" speed foil wing tips*

*\* Hyper strength custom Glide Free stainless steel investment cast Tee joints overmoulded with high strength glass reinforced Nylon for extreme strength and toughness.*

*\* 316 stainless spring clips for attaching the Tee joint.*



# GLIDE FREE FOILS

10

## Rudder

- \*Grade 6063 T6 temper high strength extruded aluminium foil section.
- \* CNC precision machined surfaces with 25 micron corrosion and scratch resistant clear anodised surface after machining to ensure the highest possible corrosion resistance.
- \* Strong flexible glass reinforced nylon pushrod
- \* High strength glass reinforced Nylon moulded rudder head and thumb nut.

## Rudder stock

- \*Grade 6061 T6 temper high strength, light weight machined aluminium cold formed casing.
- \* CNC precision machined surfaces with 25 micron corrosion and scratch resistant grey anodised surface after machining to ensure the highest possible corrosion resistance.
- \* 316 stainless machine riveted construction
- \* Custom glass reinforced polypropylene spacers in 2,3,4 & 5mm thicknesses
- \* Glass reinforced polypropylene thrust washer and 316 stainless steel retaining clip.

## Tiller

- \* Moulded polypropylene tiller end, 25 micron anodised lightweight aluminium tiller
- \* Cleat for retaining tiller to the rudder stock
- \* Flexible urethane universal joint

## Rudder horizontal foil

- \*Grade 6063 T6 temper high strength extruded aluminium horizontal foil section.
- \* CNC precision machined surfaces with 25 micron corrosion and scratch resistant clear anodised surface after machining to ensure the highest possible corrosion resistance.
- \* Strain hardened high tensile duplex stainless steel axle
- \* High strength glass reinforced Nylon moulded "Shark fin" wing tips
- \* High strength pultruded glass Tee joints overmoulded with high strength glass reinforced Nylon for high strength and toughness.
- \* 316 stainless spring clips for attaching the Tee joint.

## Safety hook

- \* High strength glass reinforced Nylon moulded "Safety hook"

## Carry bags

- \* Three high quality Glide Free Foil carry bags for Centreboard, Rudder and Centrecase insert.
- \* Multiple internal flaps and robust chunky zippers for Centreboard
- \* Tee foil carry bag for Rudder when fully assembled
- \* Multi purpose Glide Free carry bag for Centrecase insert, Gear block, spare wing tips and clips.

For detailed instructions on the use of Glide Free Foils, please refer to our comprehensive "Operating Instructions" document.

## **Glidefree Design**