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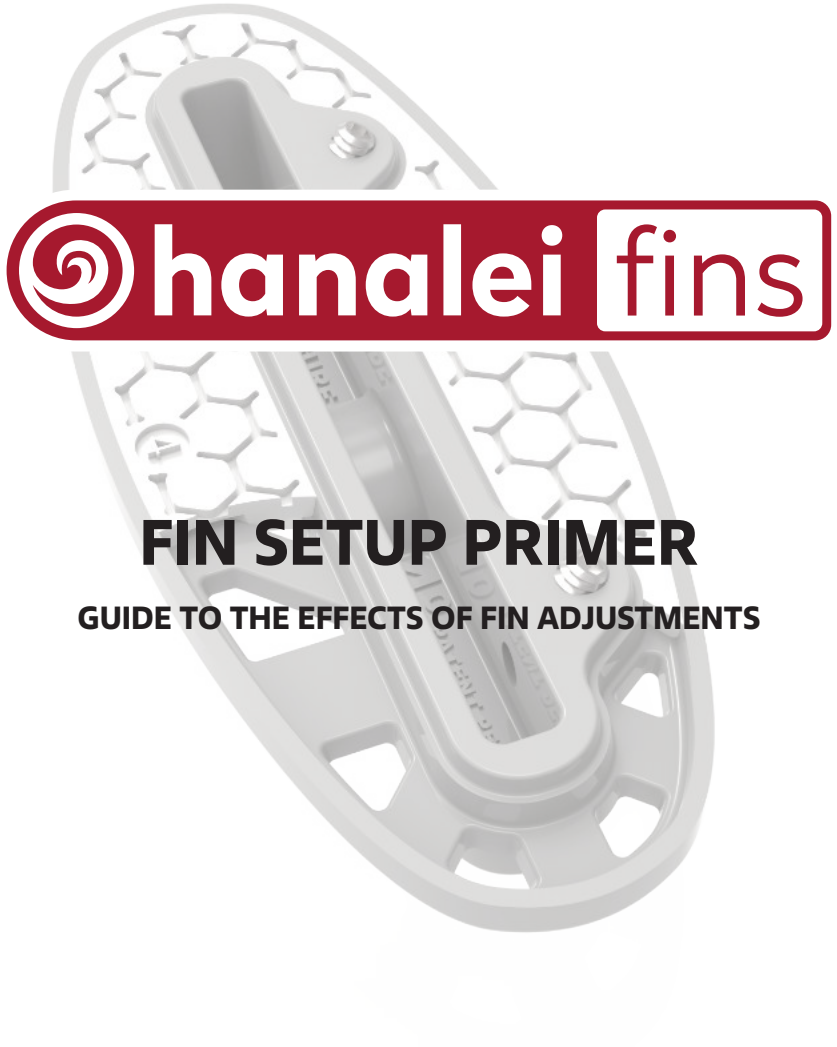

hanalei fins

FIN SETUP PRIMER

GUIDE TO THE EFFECTS OF FIN ADJUSTMENTS

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Fin placement and adjustment can have a dramatic effect on the performance of a surfboard!

This primer is geared towards providing our customers with a better understanding of how the forward and backward adjustment of the fin setup, and placement of the fins, can affect the performance. At best this is more art than science, but the beauty of an adjustable fin system is that you can go out and experiment for yourself to verify what effect a change in fin placement can have on the overall performance of a board.

This primer will use some terminology that is best explained up front so that we are all speaking the same language.

TERMINOLOGY

TERM	DESCRIPTION
FIN TRIANGLE OR CLUSTER	this is the grouping of the fins, whether it be a thruster, quad, or 2+1, it refers to the entire fin layout
FIN SETUP	this is position of the entire fin cluster as a unit, either all forward all back, spread apart, grouped together, etc.
CANT	also referred to as fin angle, is the amount by which the side fins are leaning out from the centerline of the surfboard, bottom up
TOE-IN	this is the amount that the front of the fin boxes are pointed in (toed in) from the centerline of the box towards the stringer
FORE 'N' AFT	this is the position of the fin in the box forward or backwards along the length of the board
SPREAD FIN CLUSTER	this is where all the fins in the cluster are spread as far apart as possible, side fins all the way forward, center fin all the way back, this generally makes the board stiffer. In quads the fins are as spread apart as the box adjustment will allow.
TIGHT FIN CLUSTER	the opposite of the spread out cluster, typically side fins all the way back and center fin all the way forward, makes the board looser and more pivotal. In quads the fins are as close together as the box adjustment will allow.

When experimenting with your fin placement always start with the fins centered in the GEARBOX, then start making adjustments from there, typically this is the position the fins will be in when on the shaper's marks. Although the range of adjustment in a GEARBOX is limited even this small amount can make a difference. Because the system does not support cant adjustment it is important to consider the cant selection before the board is constructed.

It is also worth mentioning that while fin adjustment can have a dramatic impact on performance, the templates of the selected fins are even more critical. Selecting the wrong fin shape for the intend use can easily override any changes that are made in the adjustment of the setup.

So it is worth paying close attention to the selection of the fin templates and their intend use!

FIN SETUP CHARACTERISTICS

CLUSTER SETUP	CHARACTERISTICS	CONDITIONS
SPREAD FIN CLUSTER	longer turning arc, more common on longer boards or guns	larger faster waves, situations where a gun would more likely be used
TIGHT FIN CLUSTER	shorter turning arc, the common setup for smaller thrusters	wide range, depending on skill and the shape of the board
CLUSTER FORWARD	looser, shortest arc, less hold	pivotal surfing on small to medium waves
CLUSTER NORMAL	loose with control, typically the position designed by the shaper	versatile wide range of conditions
CLUSTER BACK	more control, shorter arc	bigger, tube/pocket waves, once again typical for situations for a gun
MORE FIN CANT	looser with less drive, requires more turning to generate speed	small to medium surf
LESS FIN CANT	stiffer with more drive	bigger, faster hollow surf, commonly used in twinnies, guns or tow-in boards

Above is just a small sampling of the more obvious combinations, there are many more in between or with subtle variations. The intent is to provide a little insight into the more general characteristics of fin placement.

Obviously, the position and cant of the fins are very important and greatly affect the performance of a surfboard. The smallest change can sometimes have a dramatic effect on the board, but it is not a magic bullet, sometimes the opposite effect can occur. Fin setup is just one piece in a complex dynamic system of shapes and curves that make up a surfboard. Each board is different, as is each surfer, so any changes could have different results depending on the board and the surfer!

The information provided above is applicable to a 2+1 fin setup, except in that type of setup the size of the center fin has a more heavily weighted effect on the cluster. The smaller the center fin the more it will perform like a thruster. Placement of the center fin is going to be by far the more controlling aspect of the performance of a 2+1 setup. Of course there are other factors that can affect fin setup, the size and shape of the fin, even the foiling of the fin. Whether all of the fins in the cluster are the same size, or not. We believe the beauty of an adjustable system is that it allows the surfer to experiment for themselves to determine what works for them and to help them learn the significance of being able to adjust the fin setup on a surfboard.

Our system was designed to provide some adjustability, making it easier to experiment hands on with fin adjustment.

FIN SETUP ILLUSTRATIONS

The renderings on this page show illustrations of some of the terms used in the fin setup discussion. Hopefully, these will provide a visual guide to the terminology.

IMAGE 1

Shows what is referred to as a fin cluster, which is the combination of all of the fins in the layout.

IMAGE 2

Another view of the fin cluster from the rear of the board, showing the cant angles of the fins in the cluster. When talking about fins this is the most common view used to refer to the left and right fins.

IMAGE 3

Shows how the cant angle is measured. With the GEARBOX fin system the cant angle is built into the box. The correct cant angle needs to be selected before installation.

IMAGE 4

Another critical measurement is the toe-in of the boxes shown in this drawing. This is the distance that the boxes are pointed in towards the stringer, from the box centerline. In quad setups this can vary from the front to the back fins.

IMAGE 5

Showing a spread fin cluster, where the fins are spread as far apart as the boxes would allow.

IMAGE 6

Showing a tight fin cluster, where the fins are as far close together as the boxes would allow.

There is also a lot of information on the GEARBOX website about fin layout. There are a number of layout guides that provide the various measurements needed to achieve successful layouts for the various types of fin setups.