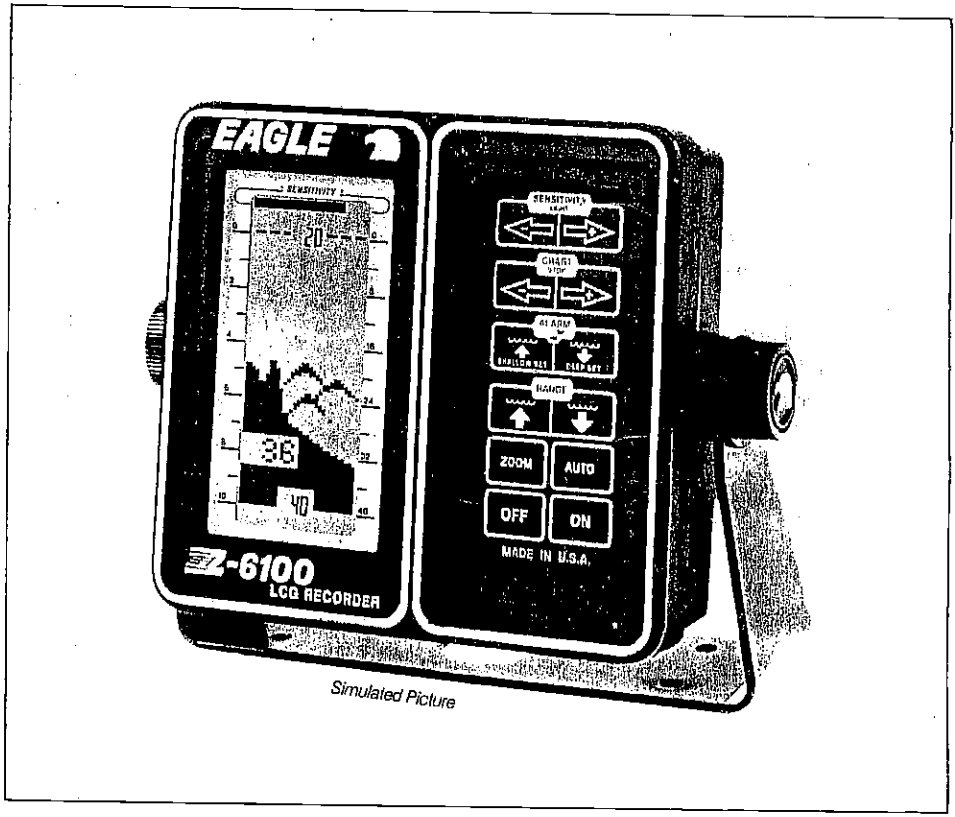
EAGLE

Z-6100

INSTALLATION AND OPERATION MANUAL



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SURVEYING A LAKE

The most successful anglers on any lake or reservoir are those who fish it day after day and year after year until they learn the hot spots that produce fish consistently. They discover through experience where, and at what depth, they can expect to find the kind of fish they want at any season. And they realize that these productive areas change throughout the year depending on water level, temperature, food, and other factors.

With the aid of the Z-6100, anyone can eliminate guesswork and concentrate on the areas where fish are likely to be—even if its the first time on the lake!

The most efficent way to become aquainted with a body of water is to survey it with your Z-6100. Start out with a map of the lake, if possible, and indicate the promising spots in relation to landmarks on shore.

As you go about your survey, your Z-6100 will tell you the depth and kind of bottom. It will also reveal suspended fish. Multiple signals on the dial usually indicate a good school of fish and it's worth it to stop and fish for them. You may not get any further.

Keep a few marker buoys in the boat, ready to toss overboard. When the Z-6100 indicates a school of fish, throw a buoy out. The string will unwind until the sinker hits bottom. Then, because of the marker's flat shape, it won't unwind any further. With the school thus marked, you can make your turn and come back to fish in exactly the right spot. This is essential when you're far from shore on a big lake. Unless you mark the school of fish when you're over it, you may not be able to find it again.

BAIT FISH

The importance of bait fish to successful fishing can't be over-emphasized. They are the principle food of all game fish in most waters.

Bait fish are the plankton feeding forage fish, such as minnows and shad. Bait fish can also be the young of game fish, such as crappies, bluegill, and bass.

Most bait fish are concentrated within five feet of the surface where sunlight promotes the growth of the plankton on which they feed. One method of fishing is to use the Z-6100 to find the bait fish first. A school of bait fish will look like a "cloud" on the Z-6100's display. Usually, game fish will be nearby, often directly beneath the school of bait fish.

Most fish don't spawn unless the water temperature is within rather narrow limits. To find the different temperatures, a surface temperature meter, such as the EDT-20 is a valuable aid to your boat. This unit provides an extremely quick response to identifying the desired surface water spawning temperatures for various species. Trout can't survive in streams that get too warm; bass and other fish eventually die out when stocked in lakes that remain too cold during the summer. While some fish have a wider temperature tolerance than others, each has a certain range within which it tries to stay. Schooling fish suspended over deep water lie at the level that provides this temperature in which, we assume, they are the most comfortable.

The temperature of water in the lake is seldom constant from top to bottom. Layers of different temperatures form, and the junction of a warm and cool layer of water is called a thermocline. The depth and thickness of the thermocline can vary with the season or time of day. In deep lakes there may be two or more at different depths. Thermoclines are important to fishermen because they are areas where fish are active. Many times bait fish will be above the thermocline while larger game fish will suspend in or just below it.

The Z-6100 can detect this invisible layer in the water, but the sensitivity will probably have to be turned up to see it.

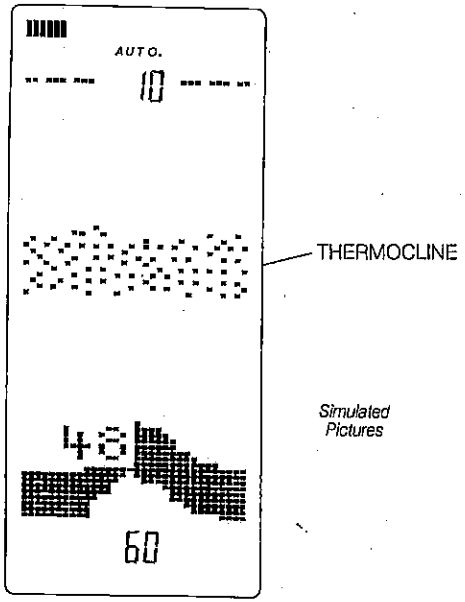

Figure 17

INTRODUCTION

When the Z-6100 Liquid Crystal Graph (LCG) is turned on, it will automatically find and display the bottom signal and other targets. As the depth of the bottom changes, the Z-6100 will automatically change the range and sensitivity to always keep the bottom signal on the display. If desired, the only key that needs to be touched is the ON key. However, the automatic mode can be disabled which allows the Z-6100 to be manually adjusted.

The Z-6100 is nitrogen filled and sealed for complete waterproof protection. The liquid crystal display and keyboard are backlighted for easy use at night, plus it's covered by a full one year warranty which includes all parts and labor for one year from the date of purchase.

To get started with your Z-6100, first read the installation section. This is where it all begins, and improper installation can cause problems down the road. After you've read these instructions and installed your Z-6100, read the rest of this manual in detail. The more you know when you get to the water, the more your Z-6100 will do for you.

INSTALLATION

Mounting

The Z-6100 can be installed in any convenient location, provided there is clearance when tilted for the best viewing angle. Holes in the bracket base allow wood screw or through bolt mounting. The bracket can be attached to aluminum panels with sheet metal screws. However, we suggest placing a piece of plywood on the back of thin fiberglass panels to secure the mounting hardware. **Make certain there is enough room behind the unit to attach the power and transducer cables.**

A 1⅛" hole in the base of the gimbal bracket allows the power and transducer cables to be routed straight down through the mounting surface. The smallest hole that will pass the transducer connector through is ¾". This will allow the transducer connector and cable to be passed up through the hole and gimbal bracket, then the power cable wire can be pushed DOWN through the bracket and dash. After the cables have been routed, the hole may be filled with silicone rubber adhesive (RTV), or the bracket can be offset so that the majority of the hole is covered.

Power Connections

The Z-6100 operates from a 12 volt battery system. The power cable can be attached to an accessory or power buss, but if you have problems with electrical interference (random dots or lines that show whenever the boat's engine or an accessory is on), then attach the cable directly to the battery.

The power cable has two wires, red is the positive lead and black is negative or ground. An in-line fuse holder containing a 3 amp fuse is supplied with the Z-6100. This attaches to the red wire on the power cable with the crimp connector. The other end of the fuse holder attaches to the battery or accessory buss. If the cable is not long enough, splice ordinary #18 gauge wire onto it. Be certain that the fuse holder is as close to the power source (battery or accessory buss) as possible. This protects the power cable and your Z-6100 in the event of a short. The Z-6100 is protected from accidental polarity reversals and will not be harmed if the wires are reversed. (However, the unit will not work until the correct polarity is applied.)

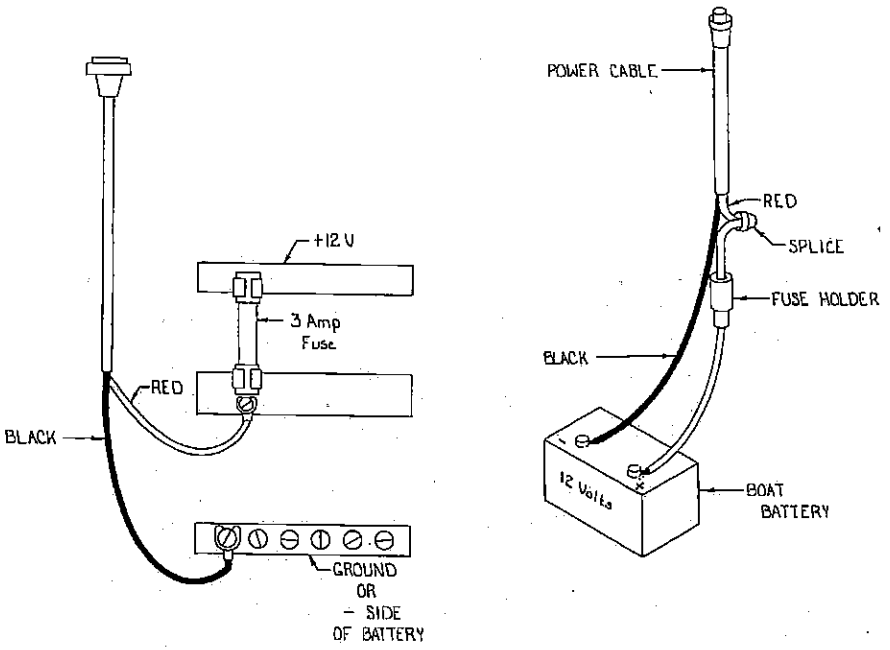

Figure 1

SURFACE CLUTTER

The markings at the top of the screen represent the surface of the water. They can extend many feet below the surface which can interfere with fish signals or other targets. These markings are called "surface clutter" and are caused by algae, plankton, bait fish, and air bubbles created by boat wakes or wave action.

These marks are normal and can be seen at any time during the year.

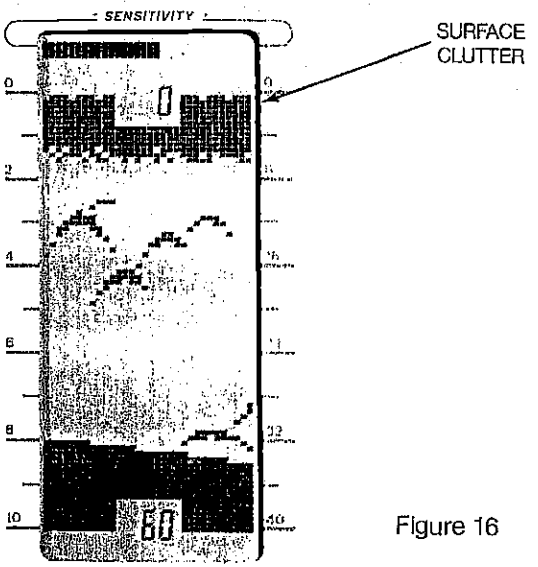

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Figure 16

WATER TEMPERATURE AND THERMOCLINES

Water temperature has an important—if not controlling—influence upon the activities of all fish. Fish are cold blooded and their bodies are always the temperature of the surrounding water. During the winter, colder water slows down their metabolism so that they need about a fourth as much food as they consume in the summer.

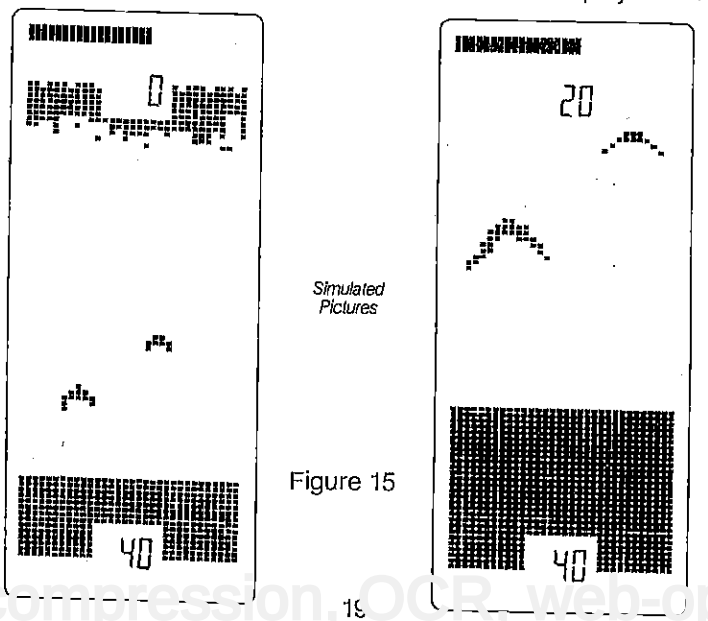
Remember, there must be some movement between the boat and the fish to develop the arch. Usually this means trolling at very slow speeds with the main engine in gear at a minimum throttle setting.

The depth of the water will affect the size and shape of the fish arch due to the cone angle diameter. For example, if the cone passes over a fish in shallow water, the signal displayed on the Z-6100 may not arch at all, due to the narrow cone diameter and the resolution limitations of the display. Even the 20 degree transducer has only a 3 foot diameter at this depth.

Compared to a paper graph, a Z-6100 cannot show as fine of detail because the pixels (dots on the screen) are much larger than a paper graph's markings. Therefore, the Z-6100 cannot show fish arches as well as a graph, and it requires a bit more work initially to read and interpret the screen than a paper graph.

Very small fish probably will not arch at all, while medium sized fish will show a partial arch, or a shape similar to an arch if they're in deep water. Large fish will arch, but the sensitivity needs to be turned up in deeper water to see the arch. Because of water conditions, such as heavy surface clutter, thermoclines, etc., the sensitivity sometimes cannot be turned high enough to get fish arches.

One of the best ways to get fish arches is to expand or "zoom" a segment of the water, for example 30 to 60 feet. The smaller the segment, the better the screen resolution will be. Then, turn up the sensitivity as high as possible without getting too much noise on the screen. In medium to deep water, this method should work to display fish arches.



Simulated Pictures

Figure 15

TRANSDUCER

Installation instructions for the permanent mount transducer are supplied with the transducer in a separate package. Please read the instructions carefully before you start installing the transducer.

NOISE

Electrical noise picked up by the power cable can be minimized by routing it away from other possible sources of electrical interference. One of the largest noise generators is the engine's wiring harness that runs from the engine to the instrument panel. This harness usually contains a wire for the tachometer which radiates RF (radio frequency) energy. For best results, keep the power and transducer cables away from the engine wiring. Also, bilge pump wiring can sometimes radiate noise so try to keep the Z-6100's cables away from those wires.

VHF radio antenna cables radiate RF energy at higher power levels than even the engine's wiring harness. It is very important to keep the Z-6100's power and transducer cables as far away as possible from a VHF radio antenna cable.

If there is no noise—interference—on the unit when the boat is sitting still with the engine running in neutral, but interference begins at slow boat speeds, worsening as the boat speed increases, then a probable cause is acoustic noise, or cavitation. This noise is not electrical, but rather mechanically induced noise from the transducer. Usually, acoustic noise is created by air bubbles passing over the face of the transducer. The faster a boat travels, the more air bubbles increase and generate noise on the display. To eliminate this problem, read the transducer owner's manual for proper mounting techniques.

KEYBOARD BASICS

SENSITIVITY These keys control the graph's sensitivity. (The digital's sensitivity is automatically adjusted.) The receiver sensitivity has 32 speeds which allows adjustment over a wide range of conditions. The left arrow key decreases the sensitivity, the right arrow key increases it.

ALARM KEYS This group of keys control the Z-6100's zone alarm. It can be used as a "fish alarm" with upper and lower limits set so that a target (such as a fish or school of fish) will set off the alarm if the target enters the alarm zone.

ZOOM The range can be expanded or "zoomed" on the display by using this key.

ON OFF These keys turn the Z-6100 on and off. To turn it on, simply press the ON key. To turn it off, press and HOLD the OFF key. You must hold the OFF key down for a few seconds in order for the Z-6100 to turn off.

You'll notice a beep every time a key is pressed. This is the Z-6100's way of telling you that it has accepted a command.

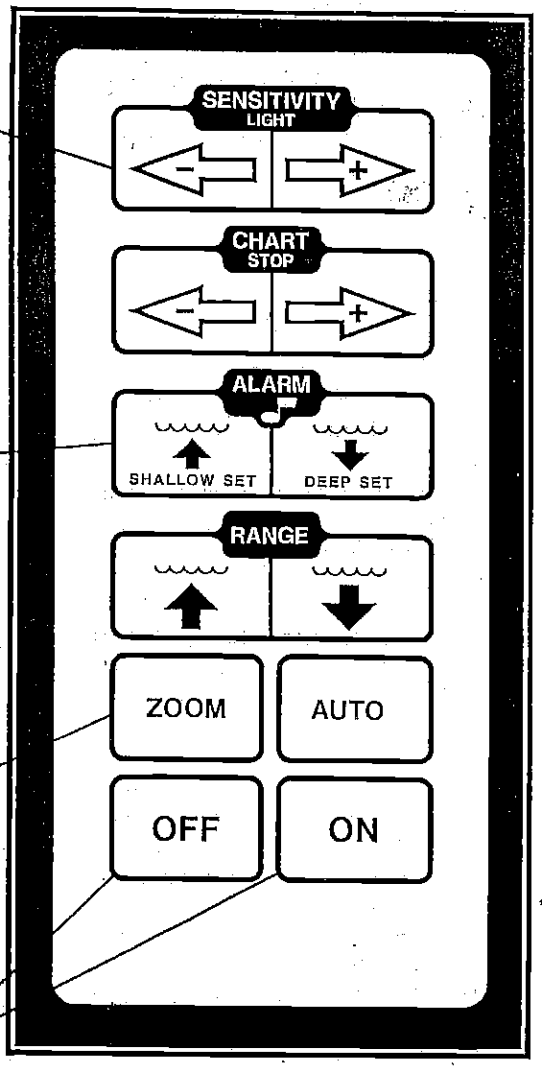


Figure 2

FISH SIGNALS

The signals displayed on the Z-6100 by fish can be identified by various shaped markings in certain patterns, as opposed to random marks created by noise, or the solid, continuous markings made by the bottom.

Individual fish can, at times, be distinguished by a characteristic arch that separates them from their stationary surroundings. The reason for this is shown below. The distance to a fish when it moves into the sonar's cone of sound is shown as "A" Figure 14. When the fish has moved into the center of the cone, the distance to it will be shorter, "B", and as it moves out of the cone, the distance will increase again as shown in "C".

If a partial arch occurs most of the time on your unit (the mark curves up, but not back down, or vice-versa) it could be the transducer is not pointed straight down. If the transducer is mounted on the transom, adjust it until the fish show the distinctive arch. This may take some trial and error until the correct mounting is achieved.

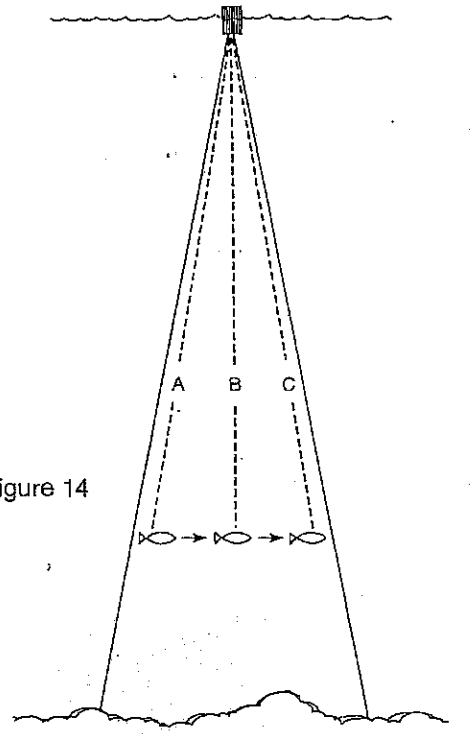
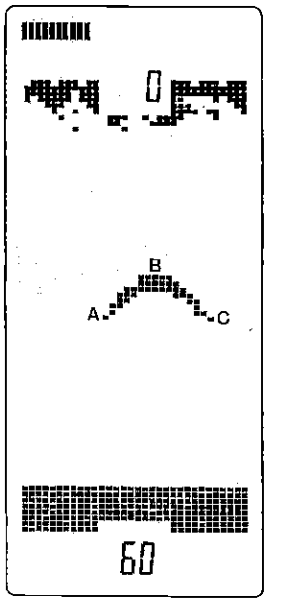


Figure 14



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Eagle offers a choice of transducers with either an 8 or 20 degree cone angle that will interchange with any of the 192 kHz sonar products. In other words, any Eagle sonar instrument can be used with any Eagle transducer of the same frequency with no loss of performance. However, the use of any other manufacturers' transducer will result in a loss of performance.

Generally, wide cone angle transducers (20 degrees) are ideally suited for operating in shallow to medium water depths. The 20 degree cone angle allows you to see more of the underwater world. In 15 feet of water the 20 degree cone covers an area about six feet across. The 8 degree transducer covers only about a two foot circle.

The 20 degree transducer is almost always the best to use in fresh water, while the 8 degree transducer is used mostly in salt water. In a deep water environment, (300 feet—fresh water, 100 feet—salt water) the narrow cone angle is more desireable because it can penetrate to much deeper depths since the sound energy is concentrated in a smaller area.

Both 8 degree and 20 degree transducers give accurate bottom readings, even though the bottom signal is much wider on the 20 degree model because you are seeing more of the bottom. Remember, the shallow edge of the signal shows you the true depth. The rest of the signal tells you whether you are over rocks, mud, etc.

Transducers on salt water boats need to be painted with a thin coat of anti-foulant paint to prevent organisms from growing. If unchecked, barnacles and other marine growth will cause a decrease in the transducer's sensitivity. Do not use a metal based anti-foulant paint as it will decrease the transducer's senstivity. There are special anti-foulant paints specifically designed for transducers. They're readily available at most marine dealers.

SIGNAL INTERPRETATION

Because your Z-6100 is both extremely sensitive and powerful, it can give you an accurate picture of the kind of bottom over which your boat is passing. A bottom of firm sand, gravel, shell, or hard clay returns a fairly wide signal. If the automatic sensitivity is turned off, and the signal narrows down, then it means that you have moved over a mud bottom because mud absorbs the sound wave and returns a weak signal. Turn up the sensitivity. If you have the automatic senstivity turned on, watch the sensitivity bar. As the boat passes over the mud bottom, the Z-6100 will automatically increase the sensitivity to maintain a good bottom signal. The sensitivity bar will help you in determining if the bottom is soft or hard. If it increases while in the same depth of water, then the boat has moved over a soft bottom. If it decreases, then it is over a hard bottom. Of course, as the water depth increases or decreases, the sensitivity will also change.

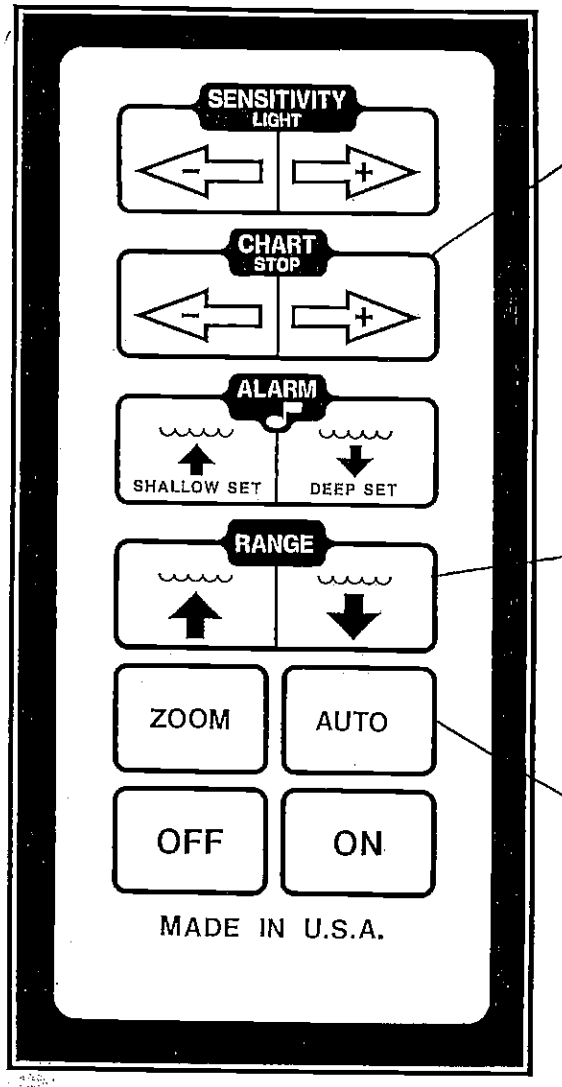


CHART The chart speed is controlled by the CHART group of keys. The Z-6100 has 32 chart speeds, ranging from very slow to FAST. Pressing the FAST key speeds up the chart speed. The slow key reduces it. The chart display can be stopped and started again by pressing both arrow keys at the same time.

RANGE The range keys allow you to select different depth ranges by pressing the up or down arrow. The available ranges are: 10, 20, 40, 60, 100, 200, 400, and 600.

AUTO The AUTO key switches the Z-6100 in or out of the automatic mode. When the Z-6100 is first turned on, it automatically adjusts the sensitivity and range selection, and the word "AUTO" will be displayed near the top of the screen. By pressing the AUTO key, you can take control of the Z-6100, making manual adjustments as desired. When the Z-6100 is in the automatic mode, the word "AUTO" will be displayed near the top of the display.

Figure 3

OPERATION

When the Z-6100 is first turned on, it automatically finds and displays the bottom depth, sets the sensitivity level, and much more. If desired, the Z-6100 can be left in this automatic mode and used for finding fish and the water and bottom conditions they prefer. However, virtually every function of the Z-6100 can be manually adjusted so that "fine tuning" of the unit to the surrounding conditions can be made.

ON

ON

The ON key is located in the lower right corner of the keyboard. It is placed in this location so that it can be easily found—even at night. To turn the Z-6100 on, press the ON key. An audible beep will be heard signifying the Z-6100 knows that a key has been pressed. The chart lights will begin flashing, then stop after six seconds. The chart will begin scrolling across the display and the number "0" will flash. This number is the digital bottom depth display. After the unit has found the bottom, the depth will be displayed.

OFF

OFF

To turn the Z-6100 off, press and HOLD the OFF key until the display is erased.

AUTO

AUTO

When the Z-6100 is first turned on, the automatic mode is on. To switch it into the manual mode, press the AUTO key which is located above the ON key. The word AUTO at the top of the display will be erased, auto sensitivity and auto ranging will both be cancelled, plus the digital display will be turned off and you will have complete manual control of the Z-6100. The Z-6100 can be returned to the automatic mode at any time by simply pressing the AUTO key again.

LIGHT

A light is provided for operation of the Z-6100 at night. When the unit is first turned on, the lights will flash for 6 seconds. The sensitivity keys are used to turn the lights off and on. To turn the lights on, simply press both the left and right arrow keys *at the same time* and the lights will stay on. To turn the lights off, press both arrow keys *at the same time* again. The lights will also go out when the Z-6100 is turned off.

TRANSDUCERS AND CONE ANGLES

The sound waves from the transducer spread out into the water in a cone shaped beam, much like the beam from a flashlight. The angle between the outside edges of the cone is called the cone angle.

Depth	Cone Angle Diameter	
	8°	20°
50	7 ft.	18 ft.
100	14	35
150	21	53
200	28	71

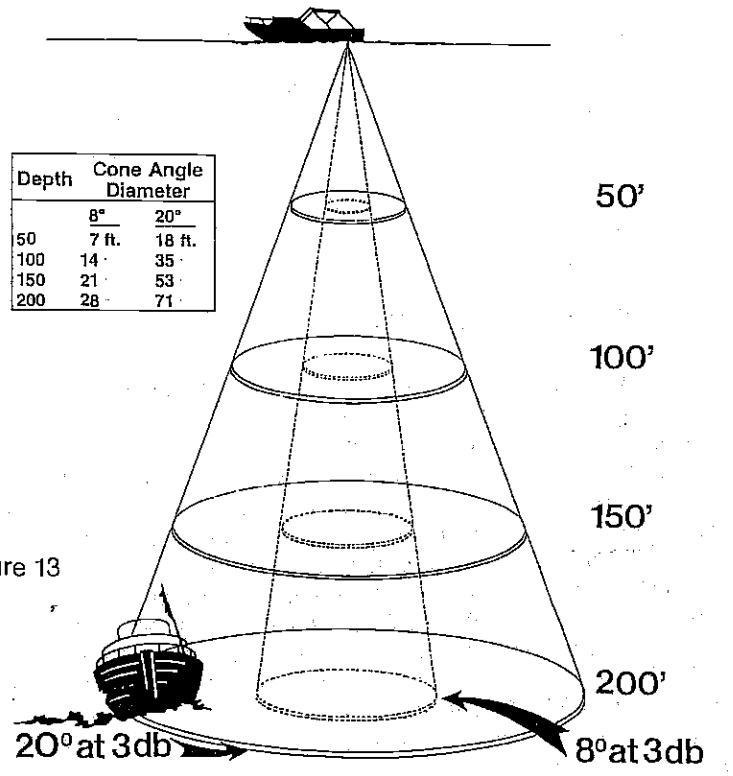


Figure 13

As long as the "ZONE ALARM" signal is displayed, the alarm is engaged. If you wish to view the zone alarm bar, simply press either the SHALLOW SET or DEEP SET keys and the bar will be displayed for six seconds.

If the zone alarm is set off by a fish or the bottom, the alarm will sound and the word "ALARM" will be seen at the bottom of the display.

If the range is changed, the zone alarm may need to be changed since it does not track range settings. Thus, its use with the automatic mode is possible but not recommended.

NOTE: If the digital is on, the chart bar may interfere with the digital display while the shallow or deep alarms are being adjusted. The digital display will return to normal after the zone alarm bar disappears and the bottom signal changes depth.

CLEARING THE ZONE ALARM

To turn the Zone Alarm off, press both the SHALLOW SET and the DEEP SET keys at the same time. The Zone Alarm settings will remain in memory until the Z-6100 is turned off. Pressing either shallow or deep set keys will turn the Zone Alarm back on with the previous settings.

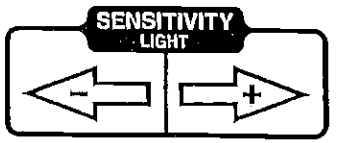
DIGITAL

A complete digital sonar is built inside the Z-6100. It automatically discriminates between the valid bottom echoes and false echoes from fish, thermoclines, or other signals. The digital display will show only the bottom depth.

When the Z-6100 is first turned on, the digital will flash "0" until it has "locked on" to the bottom signal. Once it has acquired the bottom depth, it will display the depth in the lower left of the display.

Although it is not necessary in normal use, to get the maximum performance out of your digital sonar, stop the chart by pressing both arrow keys in the chart section of the keyboard. This turns the Z-6100 into a digital sonar only and allows it to better track the bottom signal. One reason to use the digital in this manner would be if you are going to travel at high speed from one part of a lake to another and you just want to know them bottom depth.

The digital is turned off whenever the Z-6100 is taken out of the automatic mode.



SENSITIVITY

When first turned on, the Z-6100 is in the AUTO SEARCH mode. This means the sensitivity and range are automatically adjusted by the micro-computer to find and lock onto the bottom. The sensitivity can be left in the automatic mode or it can be manually adjusted to suit conditions.

The sensitivity level is displayed by a horizontal bar at the top of the display. When the sensitivity is at minimum, the bar is very short. As sensitivity is increased, the bar will travel to the right, increasing in length correspondingly. When the sensitivity is set to maximum, the bar will extend across the top of the display.

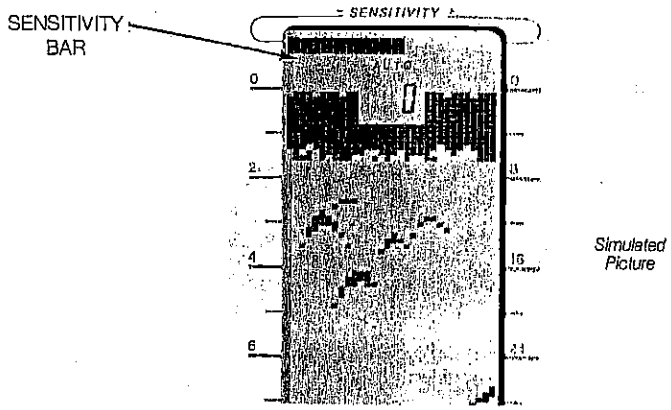


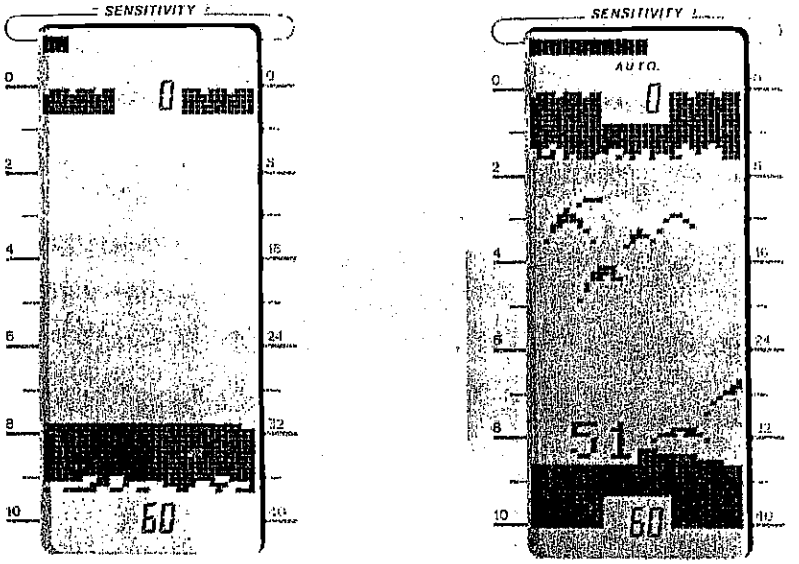
Figure 4

To manually adjust the sensitivity, press the AUTO key once, and auto sensitivity will be turned off. The word AUTO at the top of the display will disappear, signifying that the Z-6100 is in the manual mode. To increase the sensitivity, press and hold the right arrow key until the sensitivity is at the desired level. The left arrow decreases sensitivity in the same manner. Notice how the sensitivity bar moves as you change settings. When you press the right arrow key, the bar moves to the right, indicating an increase in sensitivity. Pressing the left arrow key moves the bar to the left, indicating the sensitivity has decreased accordingly. You'll also see the change on the display.

Figure 5 demonstrates a graph with too little sensitivity, while on the right, the sensitivity is adjusted properly; fish are visible, the surface clutter is more pronounced, and the bottom signal has widened.

TOO LITTLE SENSITIVITY

SENSITIVITY ADJUSTED PROPERLY



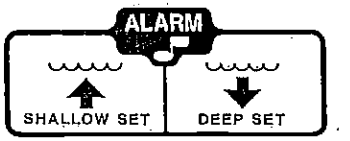
Simulated Pictures

Figure 5

Figure 6

When the horizontal bar reaches the far right hand side of the screen, the sensitivity level is at maximum. If high sensitivity settings are used, a second bottom echo may appear. This is normal and is caused by the returning signal reflecting off the surface of the water, making a second trip to the bottom and back again. This is called "second echo".

To turn Auto Sensitivity back on, press the AUTO key. Remember, both automatic sensitivity control and auto ranging functions are turned off and on at any time by pressing the AUTO key. The two controls cannot be turned off or on separately by pressing the AUTO key.



ZONE ALARM

The Zone Alarm can also be thought of as a fish alarm. It will sound when an echo is detected inside its window.

To set the Zone Alarm, press the SHALLOW SET key in the ZONE ALARM section of the keyboard. The words ZONE ALARM will be displayed in the lower left corner of the screen. A vertical bar will be displayed on the left side of the screen. This is the Zone Alarm's "window". Any echo that appears between the top and bottom of this bar will sound the alarm. Both the shallow and deep ends of this bar can be adjusted to make a smaller or larger alarm "window".

To adjust the shallow (top) alarm, press the SHALLOW SET key, then press the up arrow key to move the top of the alarm window up, or the down arrow key to move the top of the zone deeper. The bottom of the zone can be set in the same manner using the DEEP SET key. Wait for the zone alarm bar to disappear, press the DEEP SET key, the zone alarm bar will reappear, then press either the up arrow key to make the bottom part of the window move shallower, or press the down arrow key to move the bottom of the window deeper. After the keys are released, the bar will remain on the screen for six seconds, and then disappear.

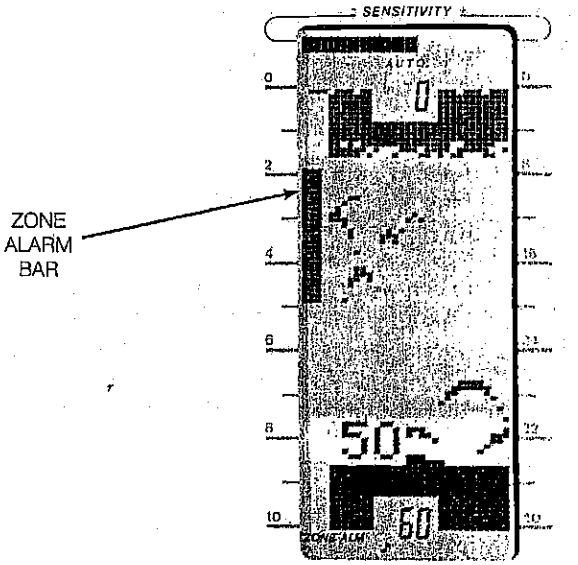


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Figure 12

AUTO RANGE WITH ZOOM BOTTOM TRACK

An optional Zoom feature is Auto Range with Zoom Bottom Track. When the Z-6100 is in the automatic mode, it picks a lower limit range that will keep the bottom signal in the lower ⅝ of the screen. The upper limit is normally set to zero. However, a "window" can be created to zoom or expand the area near the bottom and track it as the bottom rises or falls.

For example, suppose the bottom is 85 feet deep and the lower limit is 100 feet. To display a 30 foot window around the bottom, first press the ZOOM key. The number "50" will be displayed in the upper middle of the screen. This is the window size. The upper and lower limits will be changed to create the 50 foot window automatically. (See Figure 10).

To create a 30 foot window, press the up arrow in the RANGE section on the keyboard. The number "30" will be displayed for six seconds in the upper middle of the screen. This signifies that a 30 foot window is in effect. To change to a larger or smaller window, simply press the arrow keys in the RANGE section on the keyboard. The window size will be displayed for six seconds and the upper and lower limits will be changec to the new window size.

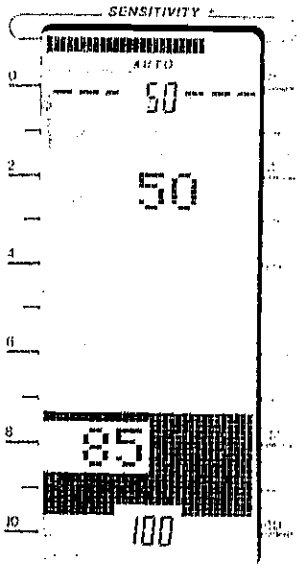

Figure 10

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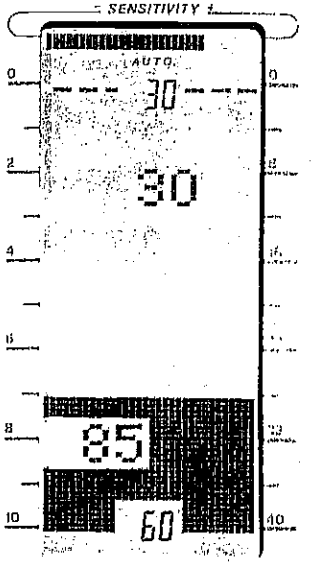


Figure 11

Note: The available window sizes are: 10, 20, 30, 50, 100, 200 and 300 feet.

To turn Auto Range with Zoom Bottom Tracking off, simply press the ZOOM key and the upper limit will return to zero.

AUTO SENSITIVITY ADVANCED OPERATION

When the Z-6100 is in the automatic mode, the sensitivity of the receiver will be adjusted to ten steps above the minimum required to pick up the bottom signal. (There are 32 steps of sensitivity available.)

The sensitivity level can be changed while the Z-6100 is in the automatic mode. This may be desirable if the level of sensitivity chosen by the Z-6100 is not enough to show fish or other small detail, or if it is too high for water conditions. Once the sensitivity has been changed, the Z-6100 will increase the sensitivity enough to pick up the bottom signal, then add in the level you programmed. If desired, any amount of sensitivity up to the maximum may be added.

To adjust the sensitivity while the Z-6100 is in the automatic mode, simply press either the right arrow key > to increase the sensitivity or the left arrow key < to decrease it. If the sensitivity is decreased to minimum, the Z-6100's audible tone will "flutter". The same is true if you try to go above the maximum level. As you press the arrow key, the sensitivity bar will move right or left, according to the amount of sensitivity chosen.

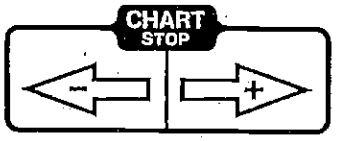


CHART SPEED

When the Z-6100 is turned on for the first time, the chart speed scrolls at a pre-determined speed. If a higher speed is desired, press and hold the right arrow > key in the CHART section of the keyboard until it runs at the desired speed. To slow the display, press and hold the left arrow < key. Whenever either of these keys are pressed, the sensitivity bar at the top of the display will change to a dashed line and the letters "CHT" will appear in a window near the top of the display. This bar represents the chart speed. If you press and hold the right arrow > key for example, the bar will start moving to the right, signifying that the chart speed is increasing. By holding either the right or left arrow keys, the display can be speeded up or slowed down. When the horizontal bar reaches the far right side of the screen, the chart speed is at its maximum value. The Z-6100 will "flutter" signifying the maximum chart speed has been reached.

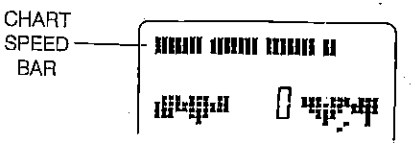
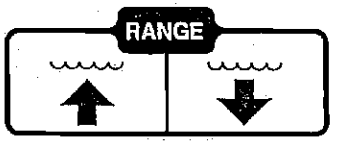


Figure 7

If the automatic mode is on, the maximum chart speed cannot be reached. (The chart bar will stop one step from the far right and the audible tone will "flutter".) Turning the automatic mode off will allow the maximum chart speed to be attained. There are 32 steps of chart speed in manual mode and 31 steps in automatic.

At times it is desirable to stop or "freeze" the display to examine an echo before it scrolls off the screen. Pressing both the right and left arrow keys in the chart section *at the same time once* will freeze the display. While the display is stopped, the top line on the display will flash on and off to signify that the unit is in the freeze mode. Pressing both arrow keys again will start the display moving at the last chart speed setting. If the digital sonar is on, the bottom depth will continue to be displayed on the screen. The digital does not stop when the chart is in the "freeze" mode.



RANGE

When the Z-6100 is in the automatic mode, the ranges will automatically change to keep the bottom signal on the display as the bottom depth changes. At times, however, it may be desirable to expand the range or zoom in on a target. The upper limit can be set to half the lower limit setting by using the "ZOOM" key described later in this section.

The depth range is always displayed at the top and bottom of the display. The scales marked on the sides of the display will help you determine the depth of a target. On the 0-10 foot range, each mark indicates one foot, while on the 0-20 foot scale each mark indicates two feet, etc. The scale markers can also be used on ranges deeper than 60 feet. For example, if the range is 0-100 feet, each mark is equal to 10 feet.

LOWER LIMIT

To change the lower limit, first make certain the word "AUTO" is not displayed at the top of the screen, signifying that the automatic mode is off. (Note: This also disables the automatic sensitivity function.) If the automatic mode is on, press the AUTO key once to disable it. Next, press the down arrow key in the RANGE section of the keyboard. Each time the down arrow is pressed, the lower limit will switch to the next deeper scale. Pressing the up arrow key will change the lower limit to the next shallower scale. The available depth ranges are 10, 20, 40, 60, 100, 200, 400, and 600 feet. The display will immediately change to the new depth range and display the new lower limit at the bottom of the screen.

For example, to set the range from 0 to 60 feet, press the down arrow key until the lower limit on the display reads 60. **NOTE:** Although the maximum lower limit the Z-6100 can display is 600 feet, the actual depth that the Z-6100 can reach is dependent on water and bottom conditions, plus the quality of the transducer installation.

The lower limit can be changed even if the Automatic function is on. However, the Z-6100 won't accept an entry if a lower limit is selected that is less than the depth of the bottom while the Z-6100 is in the Automatic mode. For example, if the Z-6100 is in Automatic, and the range is 0 to 100 feet, with a bottom signal at 80 feet, and you select a lower limit of 60 feet, the Z-6100 will leave the lower limit at 100 feet.

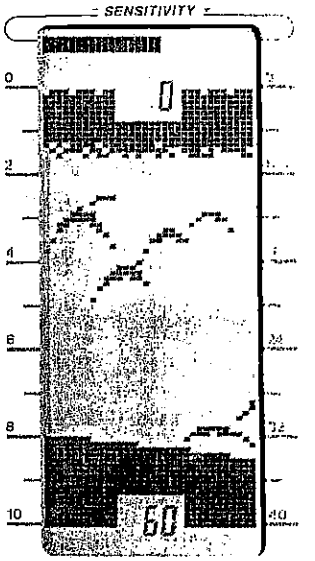


Figure 8

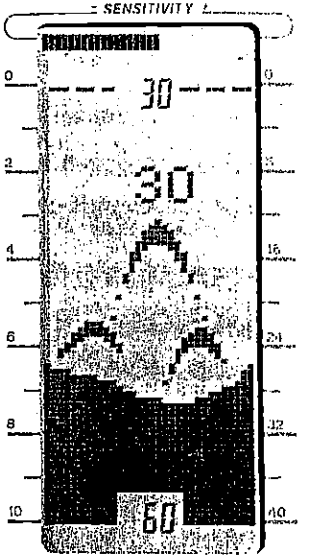


Figure 9

Simulated Pictures

Again, it is desirable to expand or "ZOOM" a section of the display to show more detail. Pressing the ZOOM key allows you to double the size of the targets shown on the lower half of the display. For example, if it's in the manual mode and the range is 0-60 feet, press the ZOOM key. The new range will be 30 to 60 feet. The segment size or distance between the upper limit and lower limit will be displayed on the screen for six seconds, then disappear. In this example, the segment size is 30 feet.

The segment size is displayed in the upper middle of the display. After 6 seconds it will disappear.