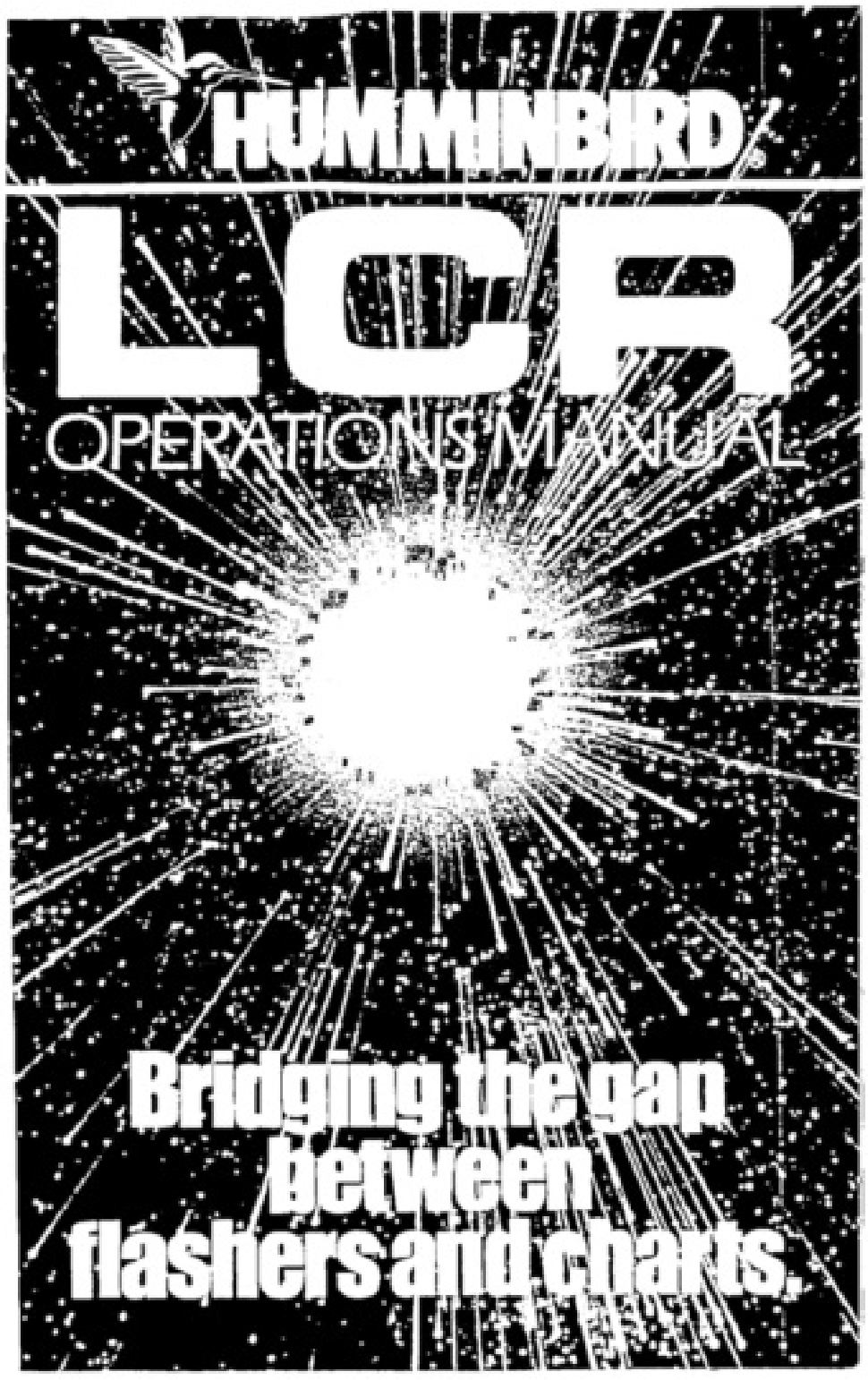
HUMMINBIRD LCR1000 Automatic Microprocessor Control User Manual



Before attempting to install or operate your Humminbird LCR, it is recommended that you read the operations manual thoroughly. The LCR is a totally new concept in sonar and has a number of special features not found on any other recorder. To completely understand all the features of the LCR, we suggest you follow the instructions set forth in this manual. If, after reading the instructions, there is something you do not completely understand about the operations of your unit, we recommend you contact our Customer SAniino ^^rnrtment-CALL TOLL-FREE 1-800-633-1468.

IMPORTANT: Complete your warranty card and return it to us immediately.

Thank You.

Contents

INTRODUCTION

Congratulations on selecting the most advanced piece of sonar equipment ever designed. Your new Humminbird LCR (Liquid Crystal Recorder) incorporates the most advanced, innovative concepts in sonar equipment. The LCR is .probably the most intelligent depth sounder ever created. Advanced micro-computer technology is used to simplify its operation, not complicate it, so you can quickly learn the basics of operating your unit. After a couple of trips on the water, you will be operating your unit as an expert. . Your Humminbird LCR has a number of outstanding features including a unique automatic feature. This computer-controlled feature makes using your LCR as simple as pushing the “On” button. The computer will automatically adjust the sensitivity, change the depth scale oven if the bottom goes off the screen and blackout everything below the bottom to make the display easy to read. Other features include a High Visibility LCD readout, night light, low profile swivel mount, waterproof enclosure, four depth ranges beginning with a super-shallow 15-foot depth range, and more. Read this operations manual thoroughly for all the outstanding features of your LCR.
You will be amazed at its capabilities. Since there are virtually no moving parts, your LCR will function more trouble-free than any sonar unit you have ever owned.

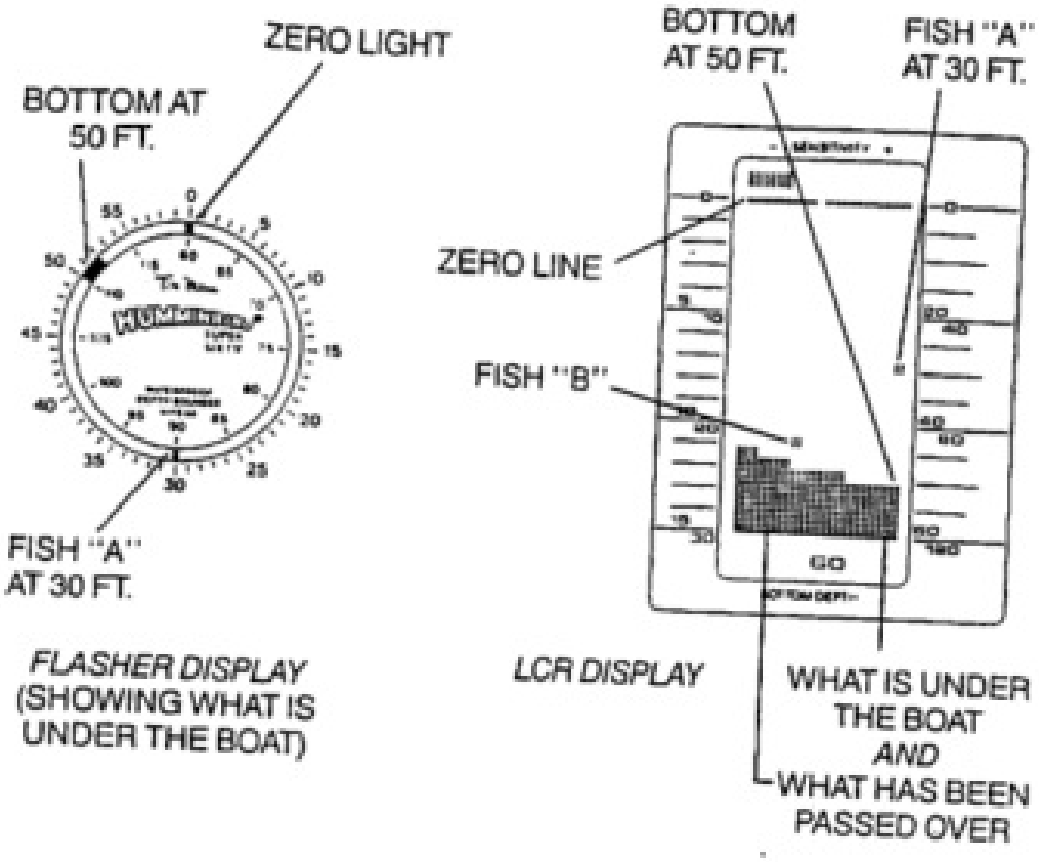
THEORY OF OPERATION

Your Humminbird LCR works on the basic principle of sonar. An electronic signal is generated within the control head of the unit. When coupled to the transducer, this signal is converted to an ultrasonic signal and is transmitted toward the bottom. The speed of the ultrasonic signal traveling through the water is approximately 4800 feet per second. The signal travels through the water until it strikes an object or the bottom. At this instant, it is reflected back, picked up by the transducer, reconvened to an electronic signal, and is recorded on the display of the LCR.
The reading at the far right-hand position of the display illustrates that which is being passed over at that time. If you are familiar with a flasher unit, you might think of the information coming on the right side of the screen as the information that would be seen at one instant on a flasher (See Fig. 1). However, unlike a flasher, this information is not lost but is shifted or moved to the left as new information comes on. Therefore, the information is retained until it disappears from the left-hand position of the display. The display used on the LCR is a Liquid Crystal Display. The material in the display is a liquid that can be aligned such that it either “blocks” light or let’s light pass through. This “blocking” of light is what makes the black dots on the screen.
Since the LCR’s display depends on light passing through it to make the images, increasing the light source will make it easier to see. This is why your LCR can be seen so well in direct sunlight. You will also notice that the display can be seen better at certain angles. The LCR mounting has been designed for tilting and pivoting so that you can easily maintain a good angle for viewing. Another characteristic of an LCD display is that you may find that some polarized glasses might affect the view by causing a rainbow prism to appear. This condition can possibly be improved by a slight adjustment in tilt,
The high visibility readout of the LCR allows you to see fish, bottom contour, and underwater structure. Targets as close as 6 inches apart can be separated on the 15-foot setting. The LCR 1000 and LCR 2000 are designed to

operate with a standard 16° transducer included with the unit. Other transducers, such as 32°, cannot be used. In order for your LCR to operate well at high speeds, you must have a properly mounted transducer. Please read the transducer mounting procedure carefully.

TRANSDUCER MOUNTING PROCEDURE

In order to achieve good high-speed operation, the proper installation of your transducer is critical. Your LCR will not work properly when air bubbles are flowing across the transducer face. Since boat designs are so different, there is no one best transducer mount, however, FOR OPERATION ABOVE 40 MPH WE SUGGEST USING THE INSIDE HULL MOUNT OR KICK-UP TRANSDUCER MOUNT. Carefully consider the following options and read the section “Mounting Considerations” before installing your transducer.



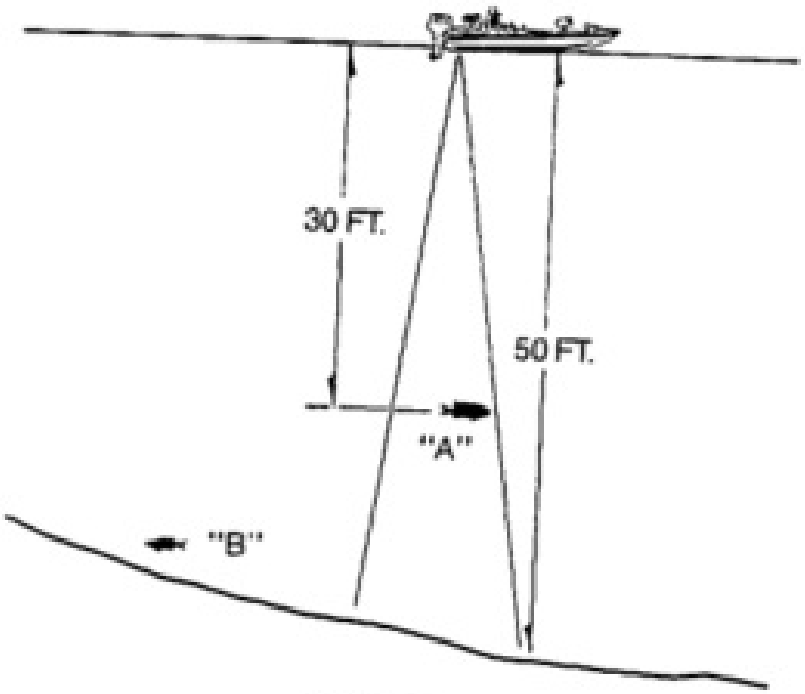


FIGURE 1

Transducer Mounting Options:

1. Transom Mount—The bracket for transom mounting is supplied with yew LCR. This is a very popular way of mounting, however, the good high-speed operation may not be possible, particularly on some smaller and lighter boats and on aluminum hull boats.
2. Inside Hull Mount—Shooting Through the Hull Normally Gives the Best High-Speed Readings. You cannot shoot through the hull of aluminum boats. The transducer supplied with your LCR can be used for inside hull

mounting but with the proper epoxy. such as Humminbird's Epoxy Kit, must be used.

3. Kick-up Transducer Mount—This transducer is not supplied with your LCR but for an additional cost you may exchange your new standard transducer for a kick•up transducer. Call the Humminbird Customer Service Department. This Transducer is Designed to Give Good High-Speed Operation on all boats but is particularly effective on aluminum boats and on boats that cannot use inside hull mounts.
4. Trolling Motor Mount—This transducer is not supplied with your LCR. it is designed to mount on the foot of a trolling motor. Please consider the following before installing your transducer:

   A. The inside hull mount is usually best for high speeds. Some boats cannot use this mounting due to hull construction or inaccessibility to the rear of the boat. This type of mount is easy to test before permanently mounting.

   B. Some boats cannot travel at high speeds without causing air to travel under the hull. This is especially true of aluminum boats and lighter fiber-glass boats. The Humminbird kick-up transducer is designed to mount below this turbulence in order to give good highspeed readings.

   C. Aluminum boats create a large amount of turbulence Usually tho only way to achieve good high-speed results is with the kick-up transducer.

   D. The LCR will operate at high speeds with a properly mounted transducer Remember, a transducer will not work properly through the air or through air bubbles.

   E. Very small changes in tilt and depth of a transom-mounted transducer can make big improvements.

TRANSOM MOUNTING PROCEDURE

1. Locate the position on the transom where the transducer is to be mounted It is very important that the transducer be mounted where water flow across the face will be smooth, with no turbulence or air bubbles in the streams. You may wish to observe the boat while it is moving through the water to determine the best mounting location. Also, keep the transducer as close to the center of the transom as possible.

   Refer to Figure 2 and drill four 9/64″ holes at the mounting location. Position the transducer on the right side whenever possible. If the driver is alone, t

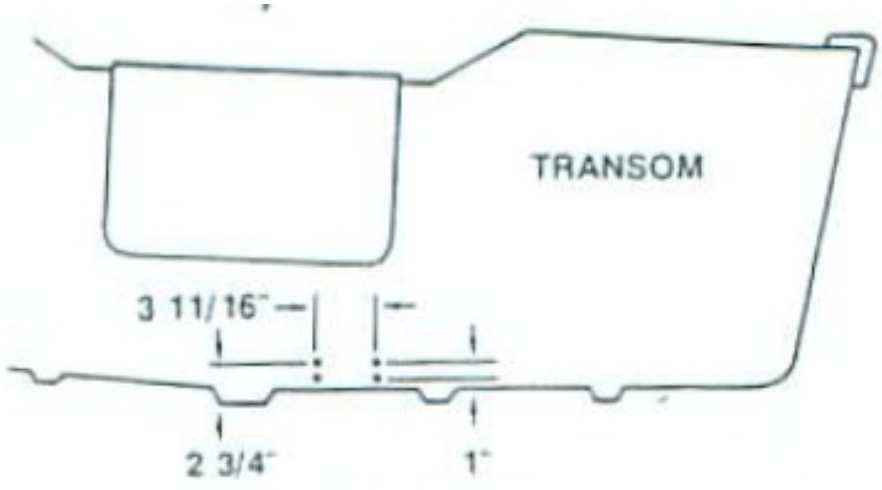


FIGURE 2

the boat might tend to lean in that direction. The face of the transducer must be flush with the bottom of the boat even if it means that the transducer is mounted at an angle; this is better than having a transition from the hull of the boat to the transducer which is not smooth. If there is a slight separation between the hull and the transducer

used the “General Electric Silicone Bathtub Seal” available at most hardware stores to fill this gap. Smooth the bottom with your finger and remove any excess from the bottom of the transducer before the sealer hardens.
Important: Do not use the Silicone Bathtub Seal as a sealer on the control head like the fumes from the sealer will attack the components and void the warranty. Refer to Figure 3 and assemble the transducer and mounting brackets as shown. Use the hardware supplied with the transducer. Do not tighten the hardware.
Note: Do not apply Loctite or similar locking compounds to the transducer hardware as they will attack the plastic. Refer to Figure 4 and mount both transducer mounting brackets to the transom with the wood screws included with the transducer. Adjust the transducer so the face is flush with the bottom of the boat and tight against the transom.

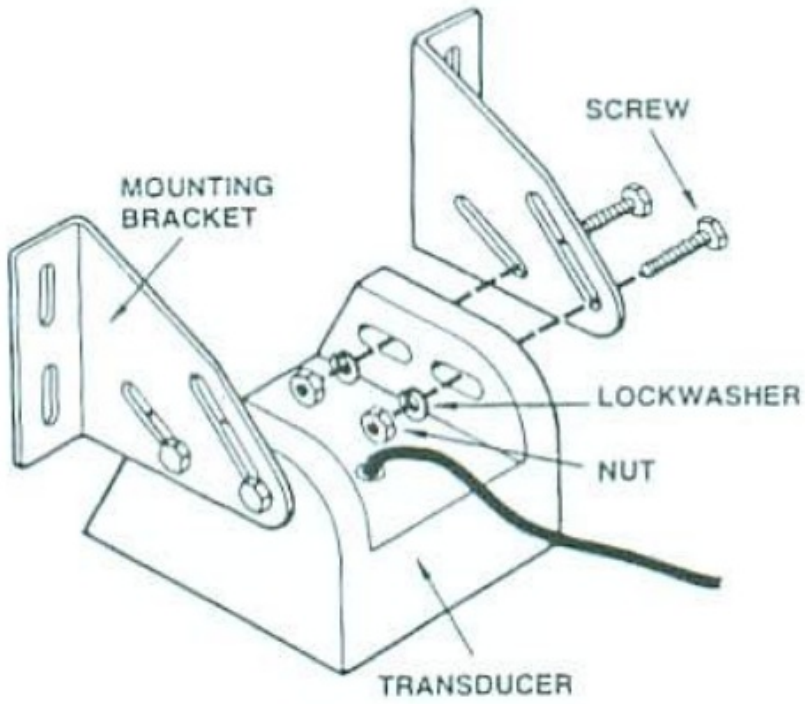


FIGURE 3

Tighten transducer mounting bracket hardware and this will complete the transducer installation.
If the high-speed operation cannot be obtained with the transducer mounted as specified above, the following changes should be made in the order listed.

1. Loosen the four screws holding the transducer to the mounting bracket and rotate the transducer slightly forward so that it is at a slight angle to the bottom of the boat rather than flush with the hull as shown in figure 4. Tighten the mounting screws and check again for high-speed operation,
2. If step one does not produce the desired results, loosen the four screws that mount the angle brackets to the transom of the boat and lower the transducer to a maximum of 3/8″ below the bottom of the boat. Retighten the mounting screws. With this type of installation, you will throw a rooster tail unless the silicone bathtub seal specified on page 7 is used.
3. If you still have problems obtaining high-speed operation, experiment by increasing or decreasing the angle of the transducer with respect to the bottom of the boat and the distance the transducer is placed below the bottom of the boat. In practice, we have found that changes as little as 1/16, have produced desired results. Also, remember that the transducer will not transmit through the air and must be in solid contact with the water to produce desired results.

INSIDE HULL MOUNTING PROCEDURE

Procedure for Mounting Transducer Inside Hull of Fiberglass Boat—Warning: In order to achieve proper results with this type of installation, it Is Important that the transducer be mounted by someone familiar with the use of two-part epoxy adhesives. For this reason, Techsonic Industries, Inc. will not be responsible for any damage due to the mounting of your transducer in this manner.
NOTE: An Epoxy Kit (Part•No. EPK) is available from Humminbird. This Epoxy Kit has been formulated for Inside Hull Transducer Installation.

1. Select as flat an area as possible near the aft end and center of the boat where the hull is thin and not double. If the bottom has a runner down the center of the boat, select an area to one side of the runner, but as close to the runner as possible.
2. Clean the inside of the boat with lacquer thinner in the area transducer is to be mounted. Outside of boat in this area should also be cleaned. (Not with lacquer thinner).
3. Put approximately one inch of water in the bottom of the boat.
4. Put transducer in the water. The bottom of the transducer should be in a flat area and should be in good contact with the bottom of the boat.
5. Operate the LCR with the boat stopped and operating at high speed. The transducer may have to be moved in order to find an area where satisfactory operation is observed.
6. When an area is found that produces satisfactory operation, mark the location of the transducer.
7. Remove the water and transducer and clean the marked area and the bottom of the transducer thoroughly.
8. Using the Humminbird Epoxy Kit or equivalent, mix an ample amount of epoxy without causing it to bubble and pour it into the area the transducer is to be mounted. The puddle should be larger than the bottom of the transducer.
9. Coat the bottom of the transducer with epoxy, then put it in the center of the puddle and push down on the transducer while moving it around in a circular motion. This forces out any air bubbles that may be trapped between the bottom of the transducer and the hull of the boat.
10. Let the epoxy cure then the transducer is ready to operate. No water is now required at the bottom of the boat and gas and oil that are spilled inside of the boat will not degrade performance as It will if the transducer is placed only in water.

    Caution: Do not use a silicone seal or any soft adhesive to bond the transducer to the hull. This will reduce the sensitivity of the unit.

KICK-UP TRANSDUCER

The Humminbird kick-up transducer is designed to improve the high-speed operation of the LCR on problem hull boats, such as aluminum. At medium to high speeds these boats create turbulence or air bubbles which interfere with the operation of conventionally mounted transom transducers, The kick-up transducer is designed to mount below the surface of the boat, below the turbulence created by the hull. The streamlined shape will not create drag, and the bracket design will allow the transducer to slide up if hit by an obstruction and reset once the obstruction is passed. Due to varying conditions of hull design, transducer mounting position. water conditions, load distribution, and boat speed, a constant LCR signal might not be possible in all conditions. The following mounting procedures should be followed to optimize results.
KICK-UP TRANSDUCER MOUNTING PROCEDURE (PLEASE READ THE ENTIRE PROCEDURE BEFORE MOUNTING)

Locate the position on the transom where the transducer is to be mounted. If you are removing a Humminbird transom mount transducer, the kick-up transducer has been designed to mount on the same hole pattern. It is

important that the transducer be mounted where air bubbles or turbulence across the face will be minimized. For aluminum boats, it is recommended that the transducer be mounted between rows of rivets. You may wish to observe the boat while it is moving through the water to determine the best location. Position the transducer on the right side since when the driver Is alone the boat will lean in that direction.

Once the mounting location has been determined locate and drill four holes (see Figure 5) so that face of the transducer will be 1/2″ below the surface of the boat (see Figure 6).

For mounting to the aluminum hull, holes should be 7/32″, using supplied hardware as shown in Figure 7 for mounting. It is important that a silicone sealant be applied in the holes and under the flat washers to prevent leaking. For mounting to fiberglass hull, drill 9/64″ holes, using brass or stainless steel wood screws (not supplied) for mounting. Before tightening hardware, adjust the transducer so the face is parallel with the bottom of the boat. This adjustment is accomplished by loosening the four large screws shown in Figure 6 and then tilting the transducer. After adjusting. securely tighten these four screws.

Now adjust the transducer up or down so that the face is 1/2″ below the bottom of the boat (See Figure 6). IMPORTANT: Do not allow any part of the metal bracket to be below the surface of the boat since this could cause damage to the transducer or boat if hit. After adjusting, securely tighten the hardware. IMPORTANT: For aluminum, the hull observes the sealing procedure previously discussed. Its high-speed operation cannot be obtained with the transducer mounted as specified above, the following changes should be made in the order listed.

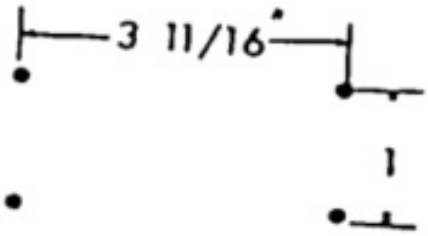


FIGURE 5

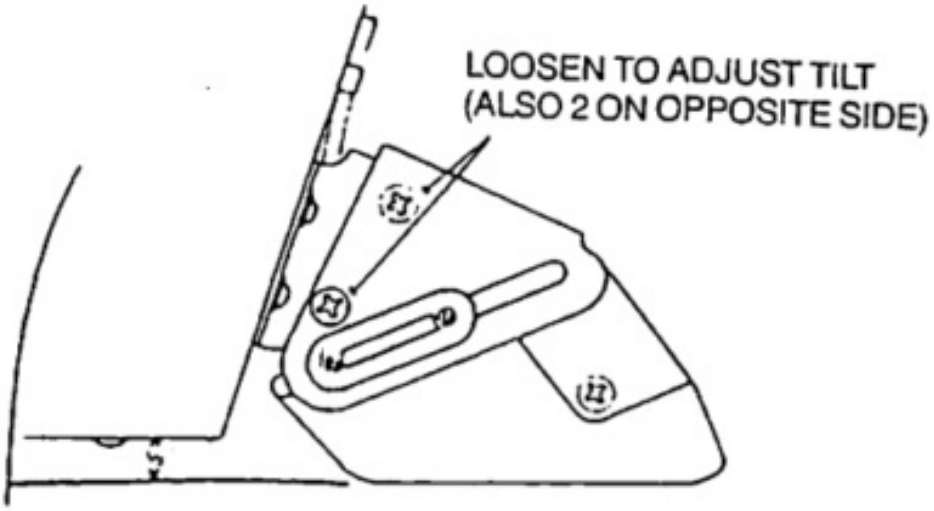


FIGURE 6

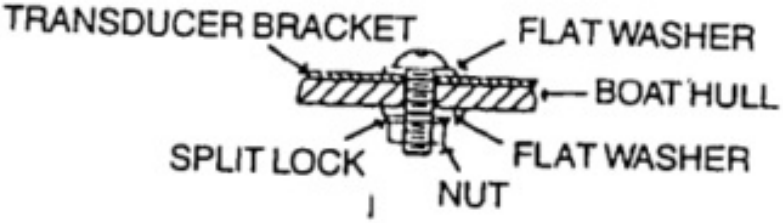


FIGURE 7

1. Loosen the four large screws on the side of the transducer and tilt the transducer slightly forward (toward the

boat) rather than parallel with the bottom of the boat. Securely retighten screws and check again for high-speed operation. You should experiment by increasing this angle before moving to Step 2. A change as little as 146″ can produce improved results.

2. If Step 1 does not produce the desired results, loosen the four screws that mount the transducer to the transom and move the transducer down to where the bottom of the metal bracket is even with the bottom of the boat (see Figure 6).

   IMPORTANT: Do not allow any part of the metal bracket to be below the surface of the boat since this could cause damage to the transducer or boat if hit.

TROLLING MOTOR MOUNTING PROCEDURE

A “Trolling Motor Transducer,” is designed to be mounted on the foot of the trolling motor with the aid of an adjustable clamp, including standard (See Figure 8). Your trolling motor transducer will give an excellent reading with no interference from the electric motor. Some boat manufacturers are now glassing in a second transducer beneath the front deck for the hull reading of the forward-mounted depth sounder. This installation also serves a dual purpose in that a fisherman can run his big motor at idle speed and use his front depth sounder to scan for submerged stumps or obstacles. Such a practice can often prevent damage to props and lower units of the big outboard.

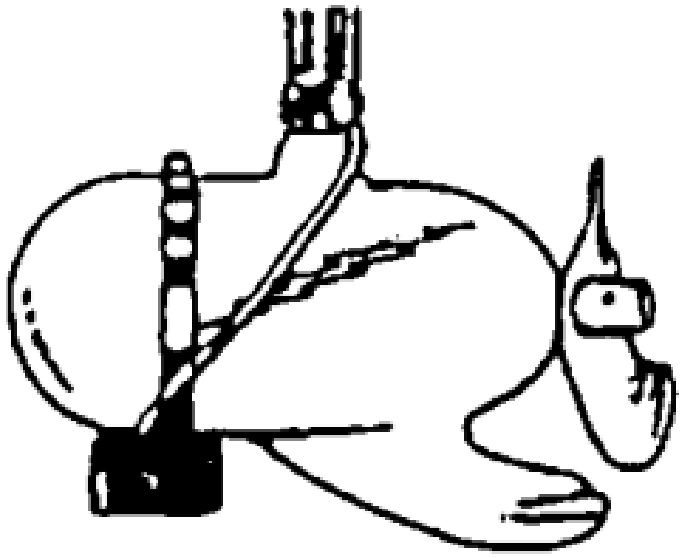


FIGURE 8

CAUTIONS

1. Occasionally the “eye” of your transducer may become dirty from storage or from contact with oils present in boats or marine environments. (Oil will cause the “eye” to lose intimate contact with the water which is necessary for efficient operation.) The “eye” may be cleaned with liquid detergent.
2. Improper installation of the transducer can alter the efficiency and accuracy of the entire system.
3. If your boat or transducer is out of the water for a period of time, it may take a short period of time for the transducer to become thoroughly “wetted” when returned to the water. Also, re-entry may cause turbulence which will create air bubbles on the “eye” of the transducer. The bubbles will disappear! in a short time or can be removed by rubbing the transducer “eye” with your fingers while the transducer is in the water.
4. If your instrument should fail to function, be sure to check all the electrical connections before removing the transducer or calling a serviceman.

5. Inspect your transducer cable and make sure that it has not been cut or damaged to the point where it will affect the performance of the transducer.
   A slight nick or cut, exposing the outer cable, can be repaired by wrapping it with electrical tape. A transducer can be damaged if the inner cable and outer cable are allowed to make contact. Such a problem can sometimes be corrected by properly splicing the coaxial cable. This should only be attempted by a qualified service technician.
6. If your LCR Is not working properly and you suspect the problem might be In your transducer, we would recommend you borrow a unit from a friend and try it on your boat. If the symptoms are the same, you can almost be assured that the problem is in the transducer.

INSTALLING THE LCR

The LCR should be mounted on a flat, solid surface for maximum stability.
The low-profile swivel mount has four holes drilled in the base. It is recommended that all four holes be used. Position the swivel base and drill four 1/4″ diameter holes.
Note: The LCR hole pattern is the same as for all Humminbird flasher units. Use hardware provided to mount this base to the boat. See Figure 9.
Next, place the gimbal bracket on the swivel base and attach it with four small machine screws, provided. See Figure 9. Place the LCR in the gimbal mount and make certain the rubber washers provided are placed between the unit and the gimbal bracket. Important:
Note which side of the gimbal faces forward. See Figure 10.
Install the mounting knobs and tighten them snugly. The unit can now be swiveled and tilted to any desired position.

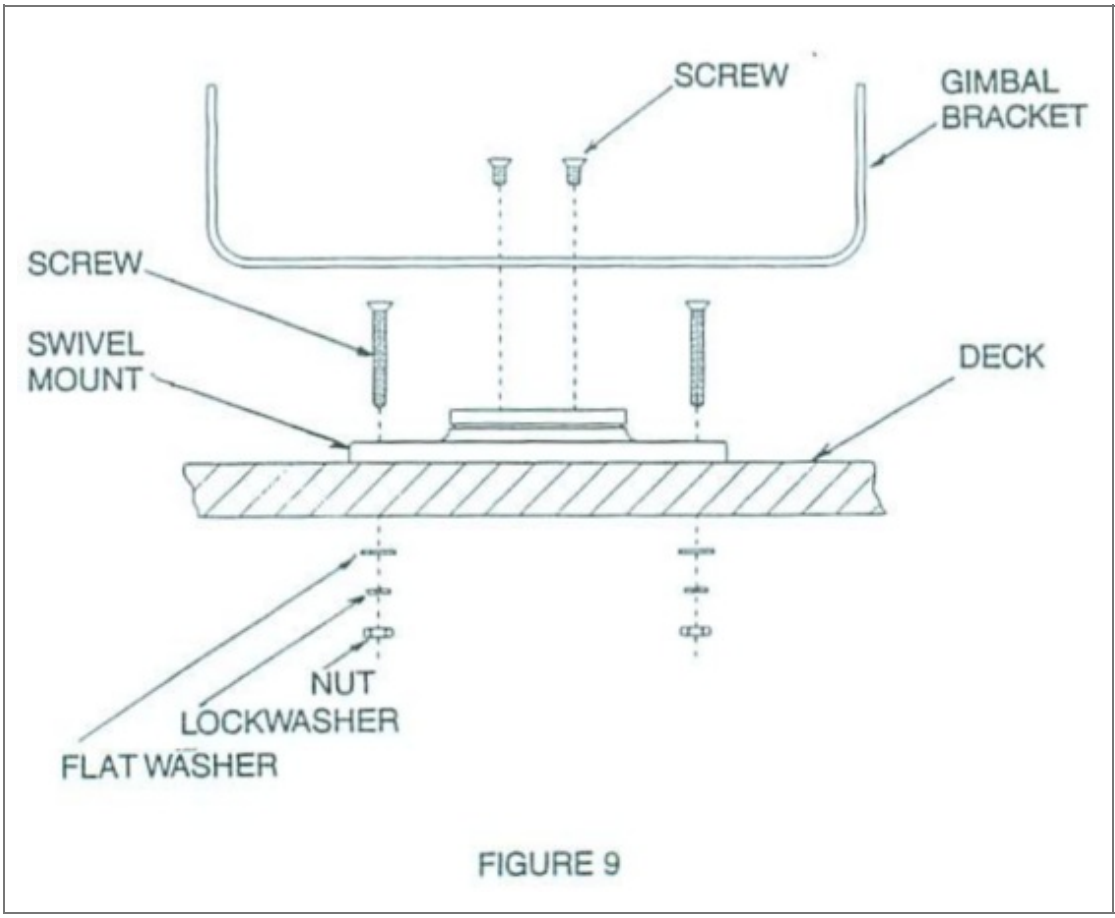


FIGURE 9

Other Mounting Options:

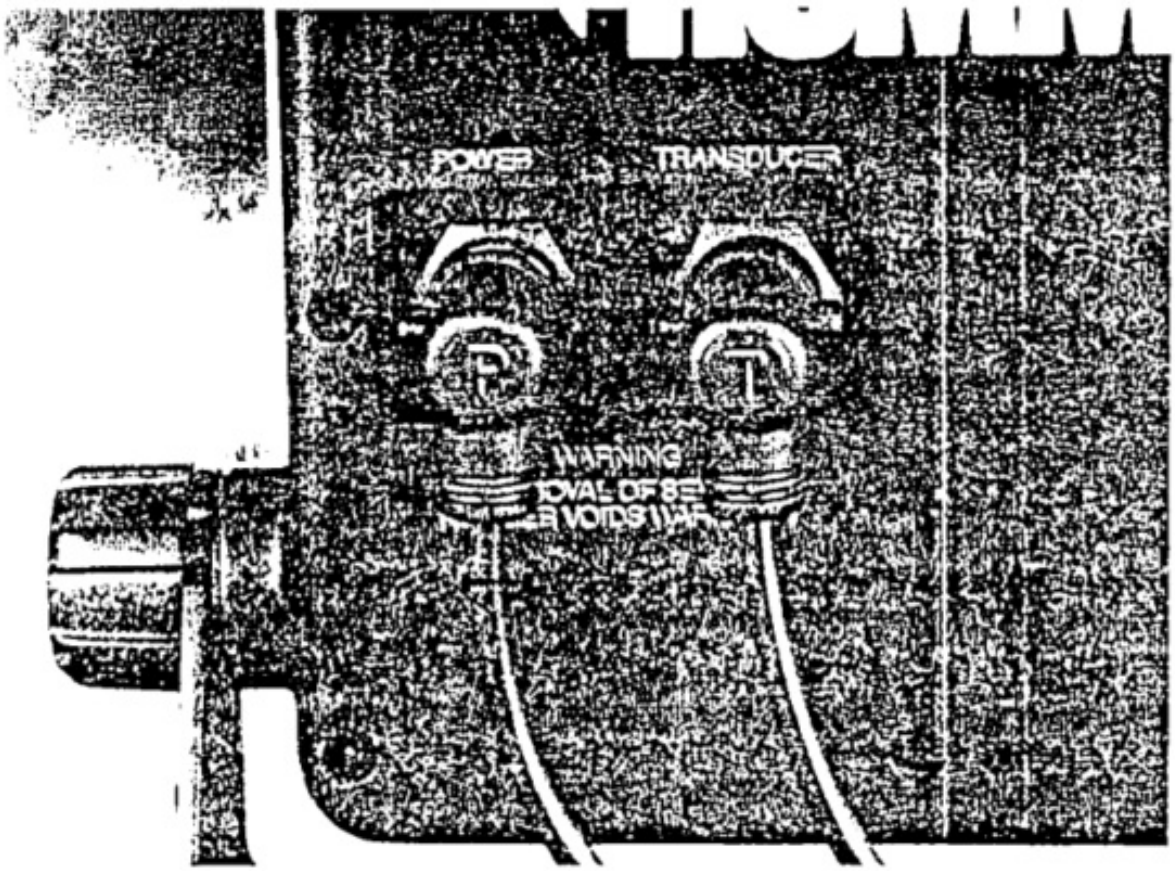
1. The LCR gimbal bracket can also be mounted on the SM-4, quick disconnect swivel mount.

2. The LCR gimbal bracket can also be mounted directly to the dash without the swivel mount, however, this method is not recommended since the unit cannot be rotated.

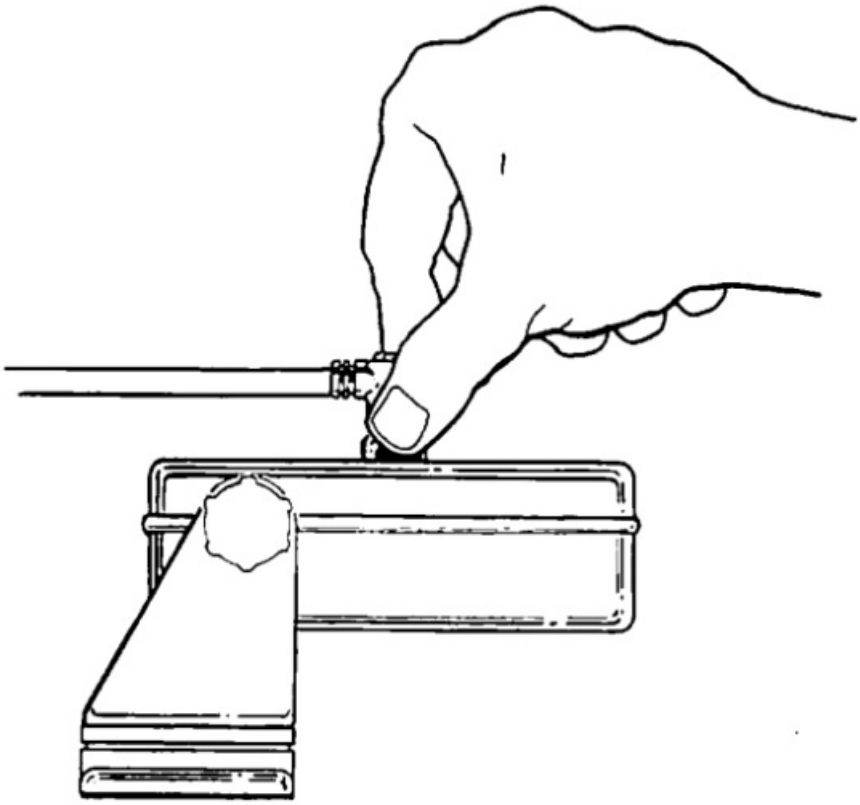
INSTALLING THE CABLES

Your LCR comes equipped with Humminbird's new Angle-Lock'power and transducer connectors. The power connector is identified with the letter P on the back of the plug.

It plugs into the outlet on the back of the unit marked "Power". The transducer connector is identified with the. Letter T and plugs into the outlet on the back of the unit marked "Transducer". Note: An adapter (AD-4) is available to allow the use of an old waterproof (BNC) transducer with the LCR, but be sure that the transducer is a 16°. A 32° transducer cannot be used.
An 11/4″ hole must be drilled to pull through the transducer connector. After drilling the hole. pull the transducer connector up through the hole. If you are installing two units, both transducer connectors can be pulled through this 11/21-inch hole. Next, push the power cable wires down through the hole. A hole cover has been provided which will dress and hold the wires. Install the hole cover after determining the necessary wire length from the hole.
The power cable has a red lead and a black lead. Connect this cable to a 12 volt DC Power Source (battery). Attach the red lead to the positive (+) post and the black lead to the negative (—) post. Install a 3 amp slow-blow fuse between the red cable and the positive post of your 12-volt battery.
If a fuse panel is available, we recommend wiring the power cable into the fuse panel. * Note: The LCR must be fused separately from any other accessory.
Your Angle-Lock" connectors can only be plugged in one way. Position the connector so the letter P or T can be read and the 90-degree bend is pointed downward. See below. Push the connector in as far as it will go. Turn the positive locking ring as far as it will go clockwise until you feel it lock. Your connector is now locked into place.



Note: For easy access to the connectors, simply loosen the mounting knobs and tilt your LCR forward as shown below. The connectors are now in full view and easy to plug or unplug.



OPERATIONAL INSTRUCTIONS FOR LCR 1000

AUTOMATIC MICROPROCESSOR CONTROL

Thanks to the use of microcomputers, your LCR 1000 is fully automatic. It is the simplest depth sounder ever created, making it easy to learn and interpret readings.
When activated the LCR 1000 will find the bottom, adjust for the proper amount of sensitivity and advance to the proper depth range automatically to display the bottom, fish, and structure.
It is suggested that you familiarize yourself with the four control buttons before attempting to operate your LCR 1000. All controls are activated through the front-mounted switch panel.

1. Power: (See Figure 11) The Power “On” switch activates the unit. Since the operation is automatic, the unit will find the bottom by varying the sensitivity and selecting the proper depth range for a satisfactory return. Also, the display below the bottom is blacked out to make the display easier to read. Surface clutter is automatically eliminated by the Sensitivity Time Control (STC). Electrical interference is screened out thanks to an automatic digital noise reject feature.

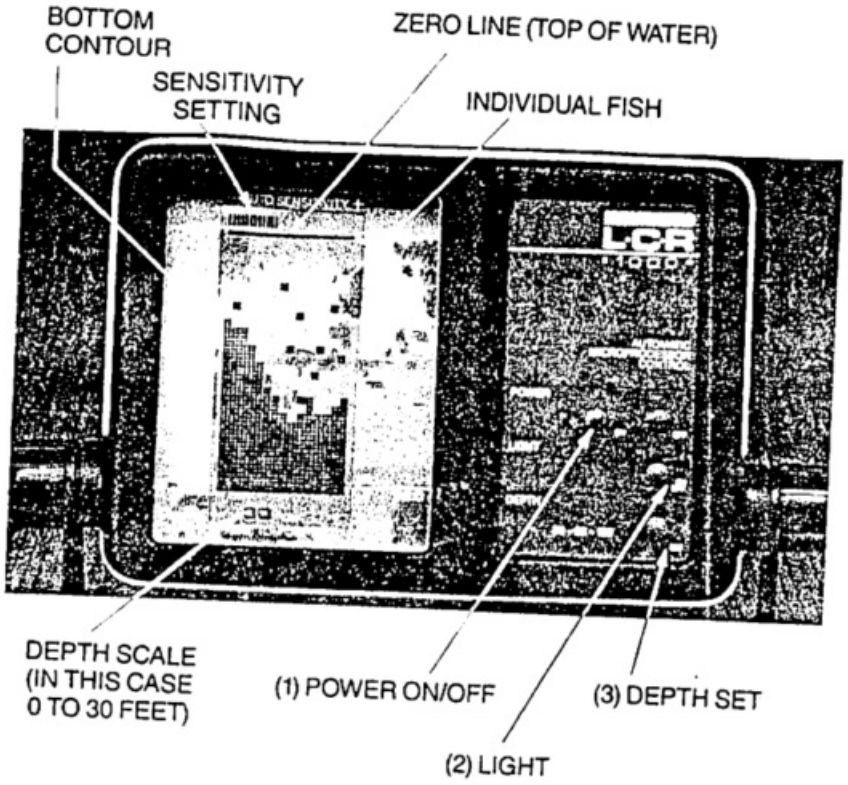


FIGURE 11

The uppermost readout of the display is the sensitivity bar (See Figure 11). You will notice this bar increasing or decreasing based upon the amount of sensitivity being used. It is possible to use this feature to interpret the bottom texture. A harder bottom will require less sensitivity thus a narrower series of sensitivity bars displayed. A softer bottom displays an increased number of bars due to the increased sensitivity needed to give an adequate return. To turn the unit off, simply depress the Power “Off” button.

2. Light: Depress the light “On/Off” switch to activate the display light for night or low light conditions. The light is turned off by again depressing the “On/Off” switch.
3. Depth: Since the LCR 1000 is fully automatic, the proper depth range is found as soon as the unit is turned on. As you move into deeper water and the bottom goes off the screen, the next deeper depth range will automatically be activated. In order to return to a shallower depth range, you must manually depress the depth “set” button. Each time this button is depressed, the range is decreased by one setting. Thus, this control will work in the opposite direction from the automatic depth advance.

   Note: Should you attempt to change to a depth scale that is less than the actual bottom depth, the computer will automatically change the depth scale back to the proper position. For example, if you are in 40 feet of water and you change the depth scale to 30 feet, the computer will automatically change back to the 60-foot scale.

   The depth range is always displayed at the bottom of the LCR display. The LCR 1000 has four depth ranges, 0-15′, 0-30′, 0-60′, and 0-120′. The graduated depth scales down the left and right sides of the display will identify the proper depth based on the range you are on at the time. On the 0.15′ scale, each line represents a one-foot increment. On the 0-30′ range a two-foot increment, on the 0-60′ scale, a five-foot increment, and on the 0-120′ scale, a ten-foot increment.

Some additional things you should know about the LCR 1000.

- Some polarized glasses might affect your view of the LCR display. It could result in a prism or rainbow effect. This condition can possibly be improved by a slight adjustment in tilt.

- In water about three feet or less, it wilt be difficult for the LCR 1000 to “lock” onto the bottom. In this case, the unit might go to the. 120-foot scale in attempting to find the bottom.
- In order for your LCR to operate well at high speeds, you must have a properly mounted transducer. Please read the transducer mounting procedure carefully.
- The transducer for the LCR 1000 is a 16°. just like most standard Humminbird flasher units. Other transducers, such as a 32° cannot be used.
- Low profile swivel mount is standard on all LCR models or the LCR can be used with Humminbird SM-4 for quick removal.

Caring for Your LCR:

Since your Humminbird LCR is completely waterproof, it can be cleaned with soap and water or hosed off after saltwater use with no fear of damage to the unit or its electronics. When cleaning the lens, it is suggested you use a chamois cloth and a non-abrasive cleaner such as Windex. Do not wipe while dirt or other gritty material is on the lens. Care should be exercised to avoid scratching the lens.

LEARNING TO USE YOUR LCR 1000

Please refer to page 22. These instructions will help you quickly learn to use your LCR 1000 or help you if you are having operational problems.

OPERATIONAL INSTRUCTIONS FOR LCR 2000

The Hu Humminbird LCR 2000 will operate fully automatic or manual at the discretion of the operator. At the heart of the LCR 2000 is a microcomputer that is making thousands of decisions every second. With the LCR 2000’s automatic features you will quickly and easily learn the basics of operating your unit and after a couple of trips on the water, you’ll be operating the LCR 2000 like an expert. It is suggested that you familiarize yourself with each of the features and controls prior to operating your LCR 2000.

1. Power: (See Fig. 12) To activate the unit, depress the Power “On” switch. The LCR 2000 always comes on in automatic mode. In the automatic mode, the unit will find the bottom by varying the sensitivity and selecting the proper depth range for a satisfactory return. Also, the display below the bottom is blacked out to make the display easier to read. To turn the unit off, depress the Power “Off” switch.
2. Depth: In the automatic mode, the proper depth range is found as soon as the unit is turned on. As you move into deeper water and the bottom goes off the screen, the next deeper depth range will automatically be activated. In order to return to a shallower depth range, you must manually depress the depth “set” button. Each time this button is depressed, the range is decreased by one setting. Thus, this control will work in the opposite direction from the automatic depth advance.

   Note: Should you attempt to change to a depth scale that is less than the actual bottom depth, the computer will automatically change the depth scale back to the proper position. For example, if you are in 40 feet of water and you change the depth scale to 30 feet, the computer will automatically change back to the 60-foot scale.

   In the Manual Mode (See Paragraph 4 below) the automatic range change is not active. This means that you must manually set the depth scale. For example, if you are on the 0-30 foot scale and the bottom goes from 25 feet to 35 feet, you would press the depth set button three times to go from 0-30 to 0-15 to 0.120 to 0-60 foot scale. The bottom would then be displayed at 35 feet.

   The depth range is always displayed at the bottom of the LCR display. The LCR 2000 has four depth ranges. 0-15′, 0-30′, 0-60′, and 0-120′. The graduated depth scales down the left and right sides of the display will identify the proper depth based on the range you are on at the time. On the 0-15′ scale, each line represents a one-foot increment. On the 0-30′ scale a two-foot increment, on the 0-60′ scale, a five-foot increment, and on the 0-120′

scale, a ten-foot increment.

3. Light: Depress the light “On/Off” switch to activate the display light for a night or low light conditions. The light is turned off by again depressing the ”On/Off ” switch.
4. Sensitivity: Automatic Mode—Each time the unit is turned on, the automatic feature is on. In the automatic mode, the sensitivity is adjusted automatically to give a good return and the correct depth range is

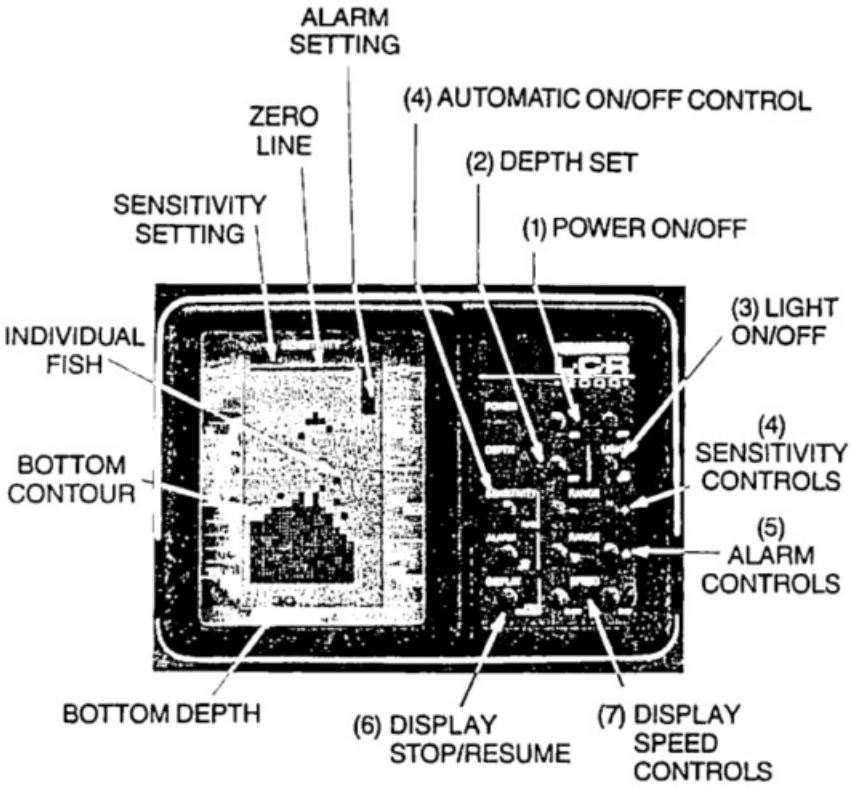


FIGURE 12

selected. The word Auto will appear in the upper right-hand corner of the display anytime the unit is in the automatic mode. The sensitivity bar at the top of the screen (See Figure 12)will increase or decrease automatically indicating the amount of sensitivity being used. In deeper rater or soft bottom conditions, this bar will increase indicating more sensitivity. In shallow water or when a hard bottom is being read, the sensitivity needed to achieve a good return will be less. Also in the automatic mode, the unit will black out the display beneath the bottom line.

Manual/Mode—There are two ways of putting the LCR 2000 in the manual mode: (I) depress the Auto “On/OH” button or (2)depress either the manual decrease(–) or increase(+) button. You will notice that the word “Auto” in the upper right-hand corner of the display has gone off. The operator can control the amount of sensitivity by depress-ing the(+)or(–)button. There are t5 sensitivity settings. When the (+)or (–) button is pressed once, the sensitivity setting at the top of the screen will change by one division. If the (+) or (–) button is held

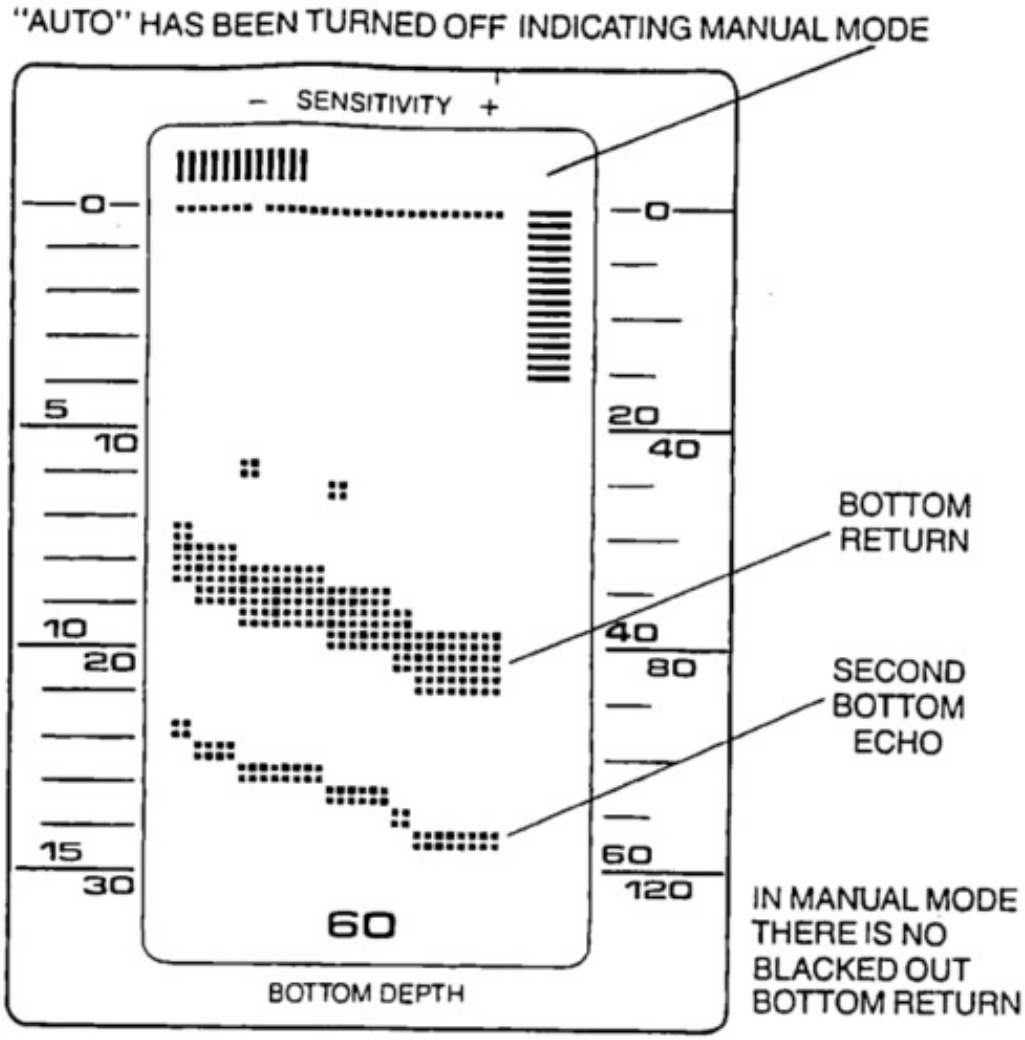


FIGURE 13

down the setting will move up or down as long as the button is held down. When the maximum or minimum setting is achieved, the unit will make a “Chirping” sound indicating a limit has been reached. In the manual mode, everything below the bottom is no longer blacked out. therefore a second return or double echo can be displayed if desired. (See Figure 13). Also, the hardness of the bottom can be determined by the thickness of the bottom return. For example, a hard or rock bottom will give wider bottom returns compared to a soft or muddy bottom. (See Figure 14).

Note: You will find the manual sensitivitycontrol most useful when looking for smaller targets such as smaller fish. In the automatic mode, the computer might not be using enough sensitivity to show smaller targets. Al higher sensitivity settings more targets will be seen. Therefore. you might want to use the automatic mode while running and then use the manual mode for charting and finding fish.

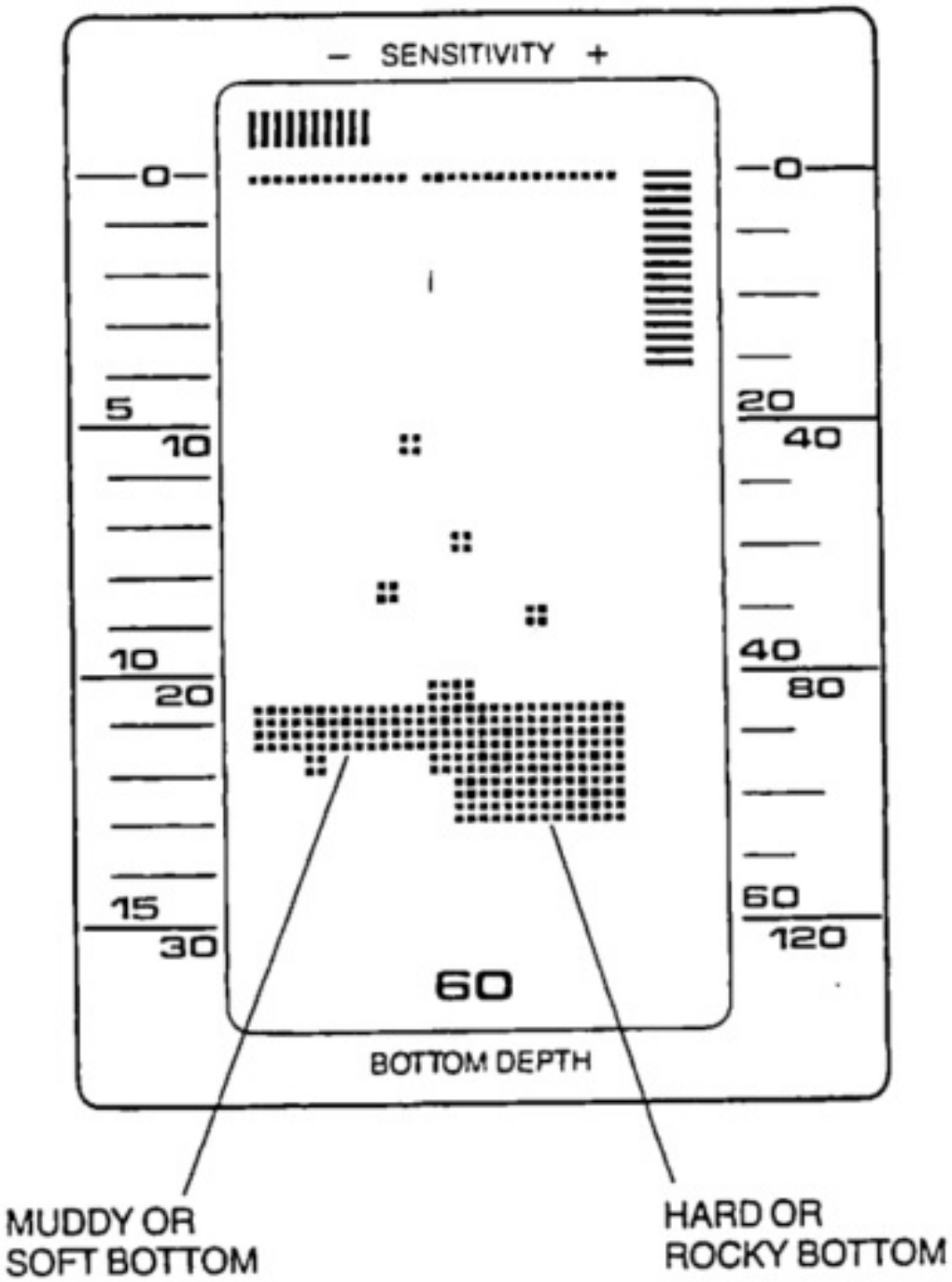


FIGURE 14

You should also note that it is possible to have the sensitivity set too high such that reflection off of suspended matter or air bubbles will begin to blackout the display. In the manual mode, the depth scale does not change automatically (See Paragraph 2 under Manual Mode). To once again activate the automatic mode, depress the Sensitivity Auto “On/011” switch.

5. Alarm: The LCR 2000 Is equipped with an audible alarm that, when activated, will advise the operator of the presence of fish, structures,s, or shallow water. The alarm controls are distinguished from the other controls by their yellow color. The alarm is activated by pushing the Alarm “Onratf” button. When

- If you get confused while in the manual mode, for instance, If you don’t know where the bottom is, then press the auto on/off button to turn on the automatic mode. The LCR 2000 will find the bottom by selecting the proper sensitivity level and depth scale. You can then go back to the manual mode if desired.
- In order for your LCR to operate well at high speeds, you must have a properly mounted transducer. Please

read the transducer mounting procedure carefully.

- The transducer for the LCR 2000 is a 16°. just like most standard Humminbird flasher units. Other transducers, such as 32°, cannot be used.
- Low profile swivel mount is standard on all LCR models, or the LCR can be used with Humminbird SM-4 for quick removal.

Caring for Your LCR:

Since your Humminbird LCR is completely waterproof, it can be cleaned with soap and water or hosed off after saltwater use with no fear of damage to the unit or its electronics. When cleaning the lens, it is suggested you use a chamois cloth and a non-abrasive cleaner such as Windex. Do not wipe while dirt or other gritty material is on the lens. Care should be exercised to avoid scratching the lens.

LEARNING TO USE YOUR LCR:

Note: Steps 1, 2, 3, & 4 apply to both LCR 1000 and LCR 2000. After installing the unit, transducer, and power cable as instructed, the LCR is ready for use. By following the steps below you will be able to quickly learn how to use the LCR. Also, troubleshooting suggestions are listed in these steps. Note: Perform steps 1, 2, & 3 at idle or slow speed. These steps will ensure that your LCR is working properly.

Step 1

After making sure that you are in water deeper than three feet, turn your LCR on by pushing the “On” button. The LCR’s computer will automatically adjust the sensitivity and depth scale so that in about one second you will see images appear on the right side of the display and move to the left. The small gap in the zero line allows you to see movement on the display even when the bottom is not changing.

TROUBLESHOOTING:

If nothing happens when the “On” button is pushed, check your electrical connections and fuse. Also, check that the red wire on the power cable is connected to the positive battery terminal and that the black wire is connected to the negative battery terminal. If these wires are reversed It will not damage the LCR. It is normal if when reversing the boat, the bottom return is lost since air from the prop is being forced under the transducer. Remember the transducer cannot transmit through air. first activated, the alarm is set at five feet. The desired alarm depth can then be adjusted up or down by pressing the Increase range ▼ or decrease range ▲. When the increase or decrease button is pressed once, the alarm setting will change one division. If the button is held down the setting will move as long as the button is held down.

The alarm setting is indicated down the right-hand side of the display. It is possible to set the alarm anywhere between the 4′ to the 120′ range. When the bottom enters the alarm range it will trigger a continuous audible signal. Fish that enter the alarm range will trigger a short alarm. Therefore, if you want to use the alarm feature to locate fish simply set the alarm close to the bottom and listen for the short alarm indication. The alarm depth will adjust itself when the depth range changes from one scale to another. Thus a depth alarm set at ten feet deep while on the 15-foot depth scale will remain at ten feet deep should the unit advance to the 30-foot scale.

Note: To set the alarm with the most accuracy, set it using the lowest scale. For example, for a ten-foot alarm setting, use the 0-15 foot scale to set in ten feet exactly. Turn off the alarm by again pushing the Alarm “On/Off” button. The alarm setting will then go to zero. If the alarm is turned on again before the unit is turned off, it will still be set at the previous setting.

6. Display: Stop/Resume: Anytime during the operations of the LCR, the operator may “freeze” the display by simply pushing the display “Stop/Resume” button. This feature will aid in the learning and interpretation of the signal on your LCR display by giving you time to study the display. The “Stop/Resume” will not change any original settings when once again activated.

Note: No settings on the LCR 2000 may be changed while the display is stopped. When the “Stop/Resume” button is pressed again the unit will resume reading at the immediate point at which the boat is sitting in the water.

7. Display Speed: The LCR 2000 has a total of eight display speeds. When the unit is turned on the display will be advancing at a medium speed. To increase the display speed, depress the “Fast” button once or hold it down to change rapidly. An audible sound is heard each time the speed is advanced. When the limit has been reached a chirping sound will be heard. At this point, the speed will be advancing at its maximum. To decrease the speed,

simply depress the “Slow” button until the desired advance is reached.
It is suggested that you experiment with various display speeds until you achieve the desired results. You should select the fastest display speed for high-speed operation, but use a slower display speed for idle or trolling speed.
Some additional things you should know about the LCR 2000.
• Some polarized glasses might affect your view of the LCR display. It could result in a prism or rainbow effect. This condition can possibly be improved by a slight adjustment in tilt.

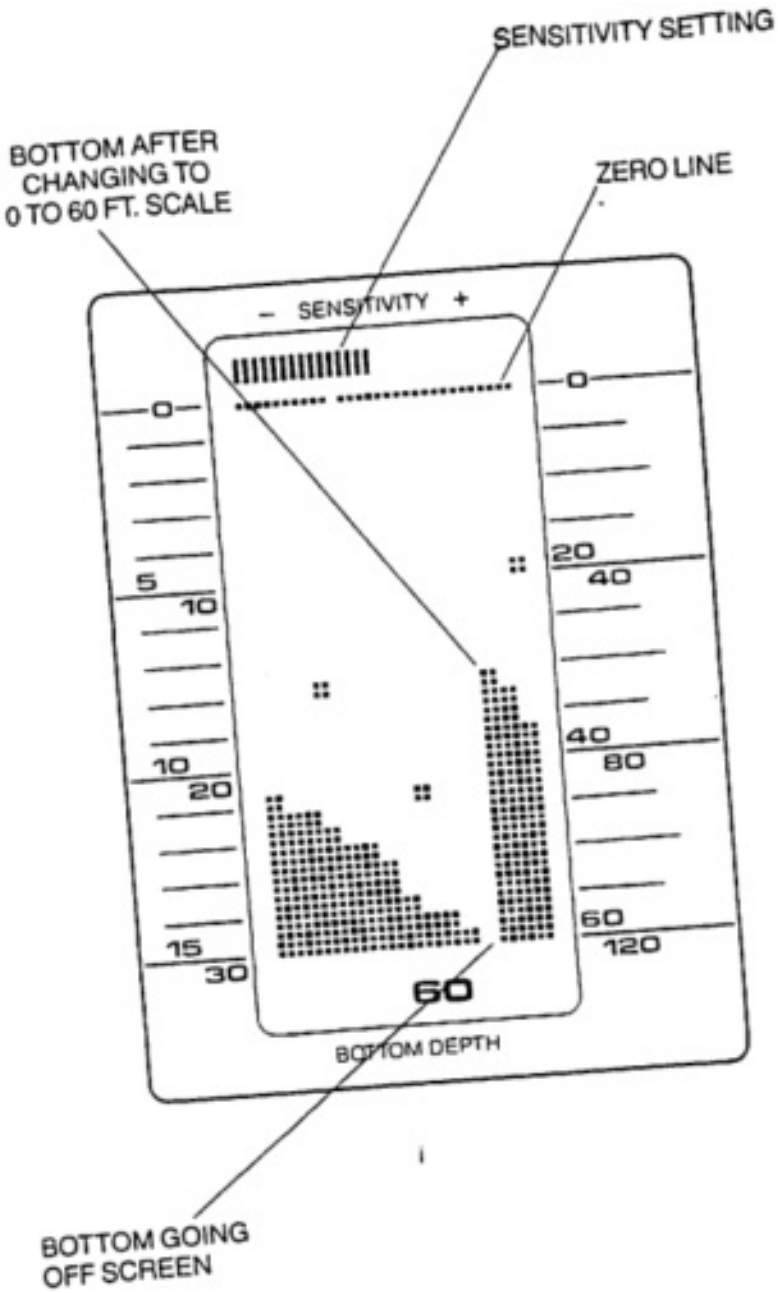


FIGURE 15

TROUBLESHOOTING: If the display comes on when the “On” button is pushed but no bottom information is seen, check that the transducer con• nector is securely locked to the rear of the LCR. Also, ensure that the transducer is completely submerged. A transducer cannot work properly in the air or through air bubbles in the water.
TROUBLESHOOTING: In very shallow water, the bottom reading might have gaps or the scale might change to the 0420-foot scale. This is normal in about three feet or less. The automatic mode cannot “lock” onto the bottom in very shallow water.

Step 2

Still moving at a slow speed, begin going toward deeper water. You will see that the LCR will display changes as small as 6 inches on the 0-15 toot scale. Continue to move into deeper water until the bottom return goes off the display. The LCR will automatically change to the next deeper depth scale (indicated at bottom of the display). See Figure 15 for a display of a typical range change from 0-30 toot scale to 0.60-foot scale, you will notice that now the bottom is about halfway up the screen.

Step 3

Press the depth set button once to change to the next lowest scale. If the bottom is deeper than this scale, the computer will automatically change back to the proper scale. By pressing the depth set button three or four times you will see that the depth scale will change down to the 0 to 15-foot scale and then to the 0 to 120-foot scale.

Step 4

Steps 1, 2, and 3 have verified that your LCR is working property. You are now ready to increase boat speed to test the transducer installation. As you increase boat speed the LCR should give a continuous bottom Tatum. With a proper transducer installation, your LCR will perform well at speeds over 75 mph.

TROUBLESHOOTING: If at high speeds the bottom return is not continuous or there are gaps in the bottom, then the transducer installation or location is such that air is going under the transducer face. Remember that a transducer cannot work properly through the air or through air bubbles in the water. The Inside Hull Mount and Kick-Up Mount are best for high-speed operation. Refer back to the transducer mounting procedure for adjustments or for other mounting options.

TROUBLESHOOTING: If when making a hard turn, the bottom reading is lost, it is the result of the transducer coming out of the water during the turn.

LEARNING TO READ THE DISPLAY

The following illustrations show some typical displays with bottom, structure, and target returns. These should help you in interpreting the Information being displayed on your LCR.

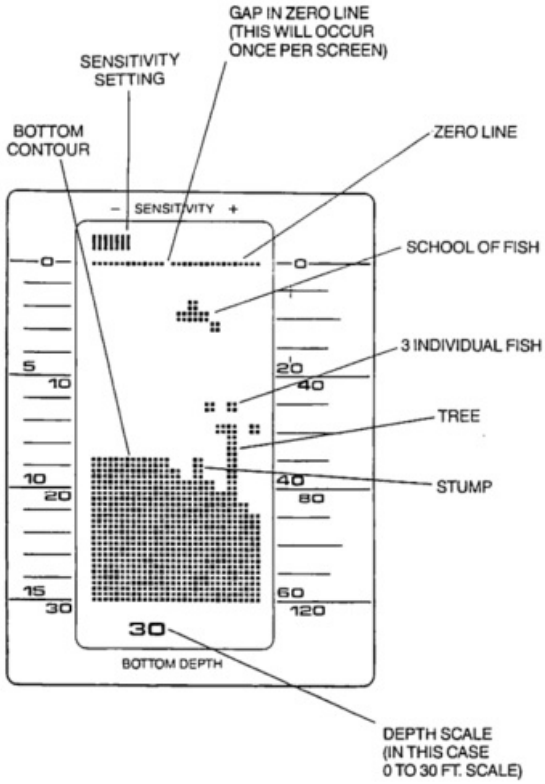


FIGURE 16A

Surface clutter: The STC in your LCR will normally eliminate surface clutter, however, in some water conditions or when going across the wake of a boat the surface clutter will appear as shown above.

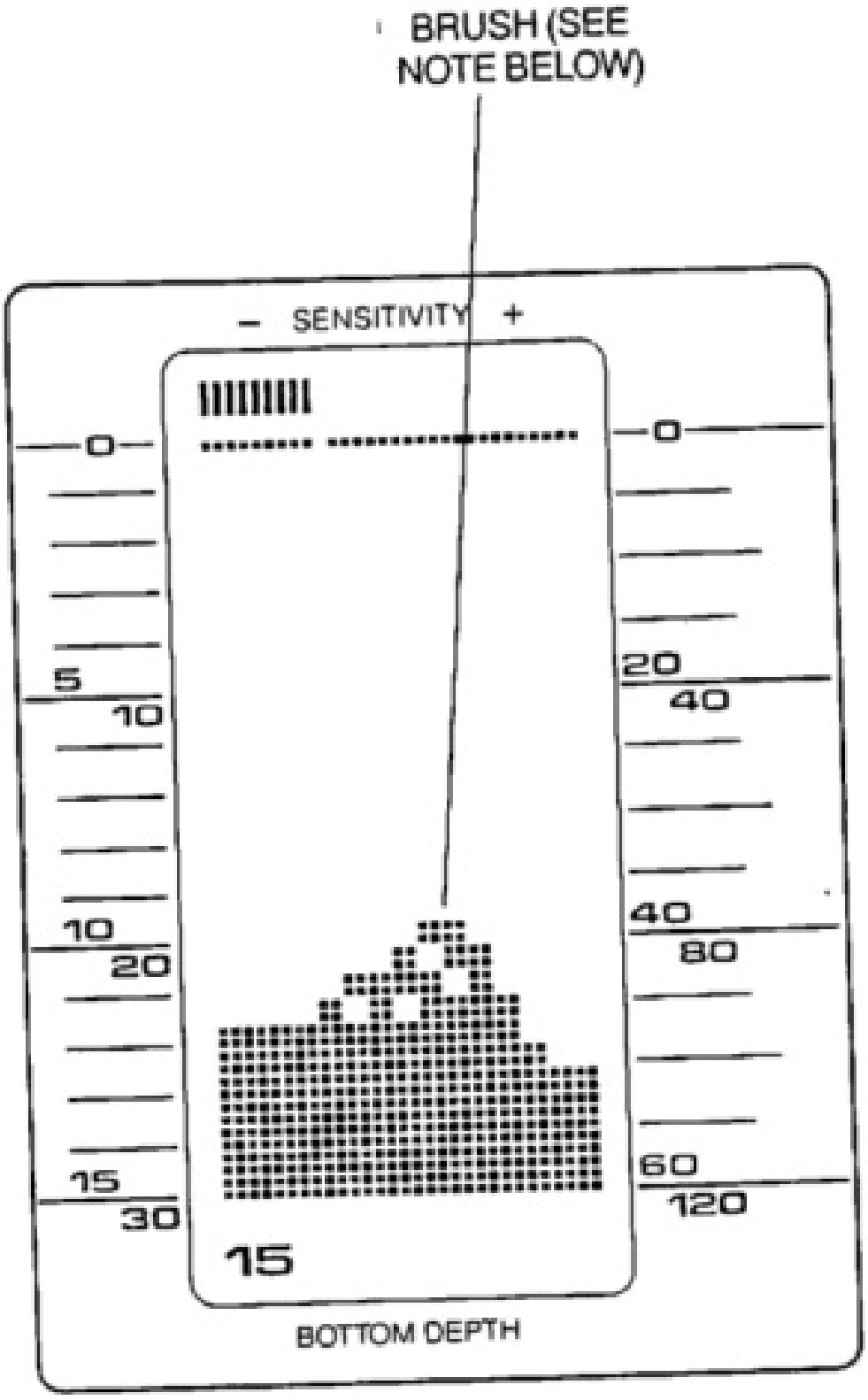


FIGURE 16C

Brush or thick standing timber will appear as a thick mass with holes or gaps as shown above.

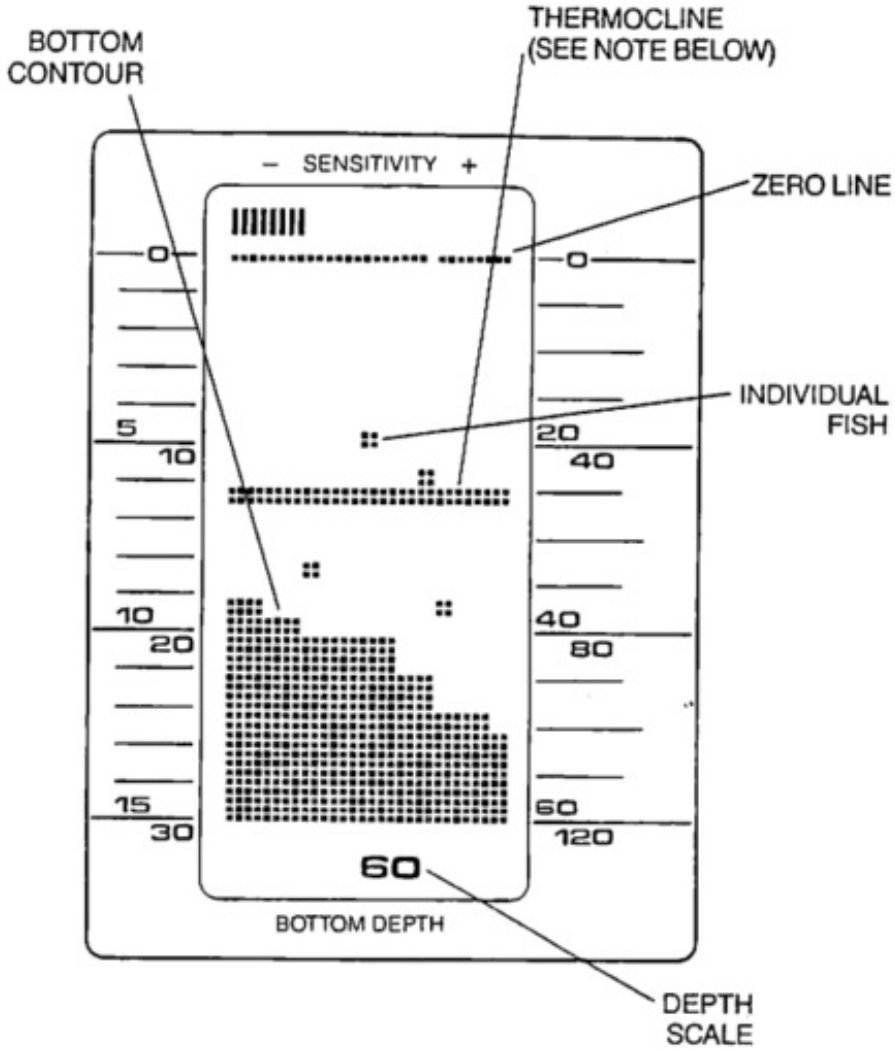


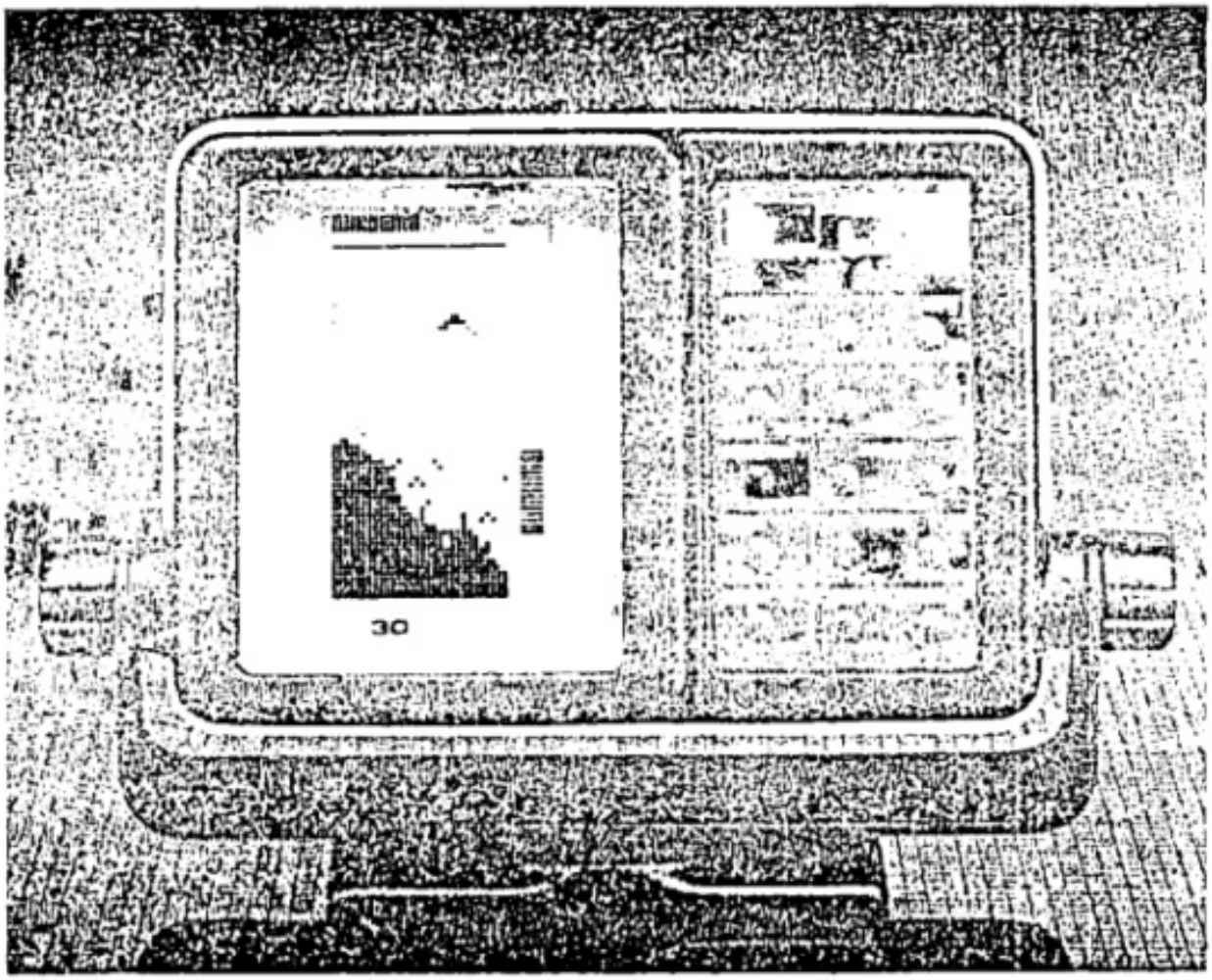
FIGURE 16D

The thermocline is a temperature change at a certain depth in the water. In some conditions, the sonar waves will actually reflect or bounce off this temperature change and therefore it will be displayed on the LCR as shown above.

One of the best ways to learn to use your LOR is to logo over familiar locations. If you know what's under the water and can see it displayed on the LCR, then you're on your way toward gaining the experience you need.

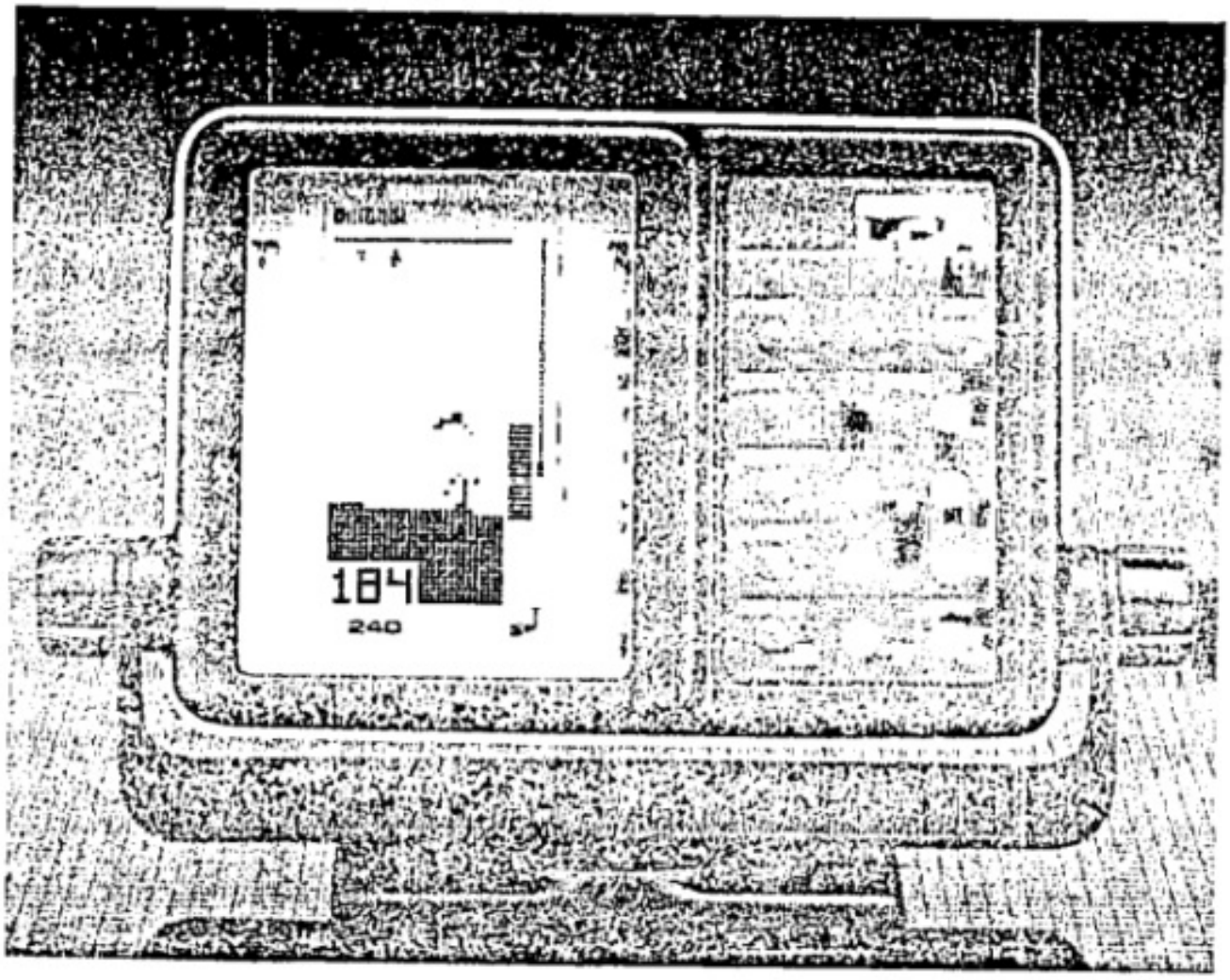
Other Humminbird LCRs:

The top of the line that bridges the gap between flashers and chart recorders—is the incredible new LCR 4000. It's undoubtedly the most intelligent depth sounder ever created. The LCR 4000 uses the most advanced microcomputer technology in existence, but that doesn't make it more complicated. Intact. LCRs are the simplest. most effortless depth sounders on the market because of their unique automatic features. With tour depth ranges and sensitivity controls, the LCR 4000 does offer the option to manually fine-tune, if you prefer, and its zoom feature with memory and Total Screen Update- provides the most accurate. close readings in marine electronics. It's the creation of a new generation—Humminbird's LCR 4000.



LCR 4000

The deep-water version of the depth sounder that's taking America by storm! Humminbird's LCR 3000 reads depths down to 480 feet. without sacrificing computer-controlled accuracy. Zoom in for 11/2-inch target separation. Set the adjustable alarm to sound when fish or underwater hazards are present. See the water's depth displayed digitally on the screen at all times. Control the depth range and sensitivity yourself, or let the microcomputer take care of them. Advanced technology puts you in control of the simplest-to-use deep-water unit on the market—the Humminbird LCR 3000.



LCR 3000

Documents / Resources

	HUMMINBIRD LCR1000 Automatic Microprocessor Control [pdf] User Manual LCR1000, Automatic Microprocessor Control