

CVR 1000



The world's only totally automatic,
totally waterproof color video.

OPERATIONS MANUAL



HUMMINBIRD

Absolutely Brilliant Technology!

Congratulations on choosing Humminbird, America's #1 name in depth sounders. Your new Humminbird is designed for years of enjoyable, trouble-free use. We encourage you to read this operations manual carefully in order to get full benefit of your Humminbird and all its features. If you have any questions, call our toll-free Customer Service Hotline:

1-800-633-1468
 throughout the U.S. and Canada
 Monday—Friday, 7 a.m. to 10 p.m.
 Saturday, 8 a.m. to 12 noon
 Sunday, 1 p.m. to 5 p.m.
 (all times Central)

PARTS CHECKLIST

To properly install and use your new Humminbird, be sure all these parts are enclosed:

CVR 1000 depth sounder	1
High-speed transducer	1
Sun shield	1
Gimbal mounting bracket	1
Mounting knobs	2
11½' power cable	1
Mounting hardware kit	1

Important: Complete and return your warranty card immediately.

TABLE OF CONTENTS

Care and safety tips	3
Features and functions.....	4
Mounting the transducer	6
Mounting the CVR 1000.....	8
How sonar works.....	10
Built-in simulator.....	10
Testing the installation	11
Reading the CVR 1000 screen.....	12
Operating the CVR 1000.....	14
Options and accessories.....	16
Service policy.....	18
Before you call for service	20
Transducer installation template	21



Humminbird products are designed and made right here in the U.S.A., at our factory in Eufaula, Alabama. We're proud of this great country of ours, and we're proud to display this emblem wherever you see Humminbird depth sounders. It stands for American-made quality—Humminbird quality! That's what makes us America's #1 depth sounder!

CARE AND SAFETY TIPS

Please read these important guidelines and keep them for future reference.

Do not attempt to repair the CVR 1000 yourself. Because of high voltage within the unit, repairs should be performed by authorized Humminbird technicians only.

Your CVR 1000 is completely waterproof—that means you can simply hose it off to remove dirt and salt.

Clean the display screen with a soft damp cloth **only**. Never use chemical cleaners or solvents to clean the case or screen because they will damage the plastic surfaces.

Periodically check the gold connector contacts on the back of the CVR to see that they are clean. Deposits, particularly from salt water, can cause a faulty connection and interfere with the performance of your unit.

Keep the CVR 1000 away from magnetic fields such as those created by speakers, radar transmitters or large transformers. Magnetic fields will distort the colors and the linear tracking on the screen.

Keep the CVR 1000 away from heat sources, such as heaters or direct sunlight, with temperatures higher than 120 degrees F.

Allow plenty of space at the sides, top and rear of the unit when mounting it, for adequate ventilation and for easy removal.

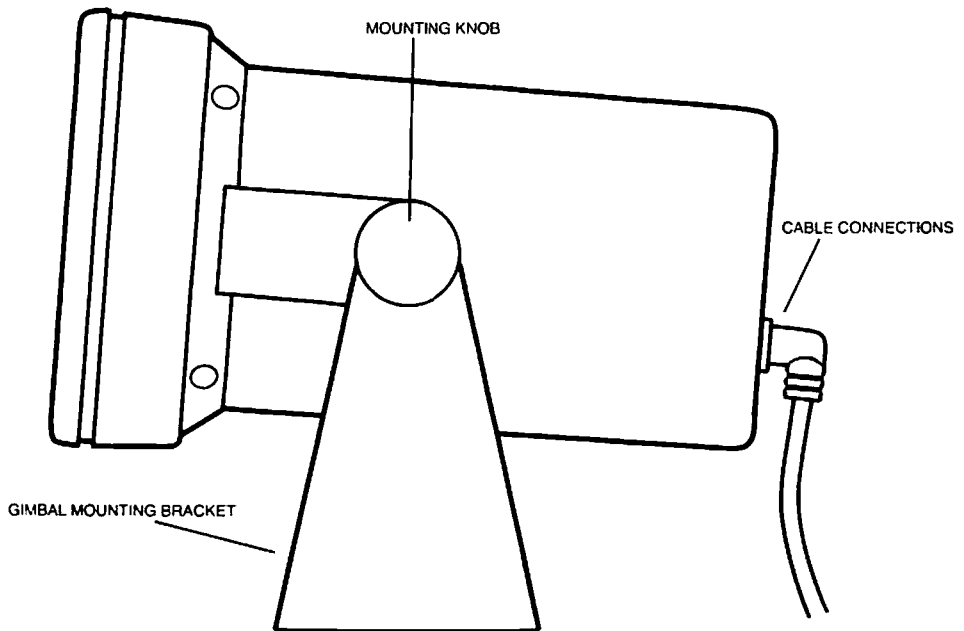
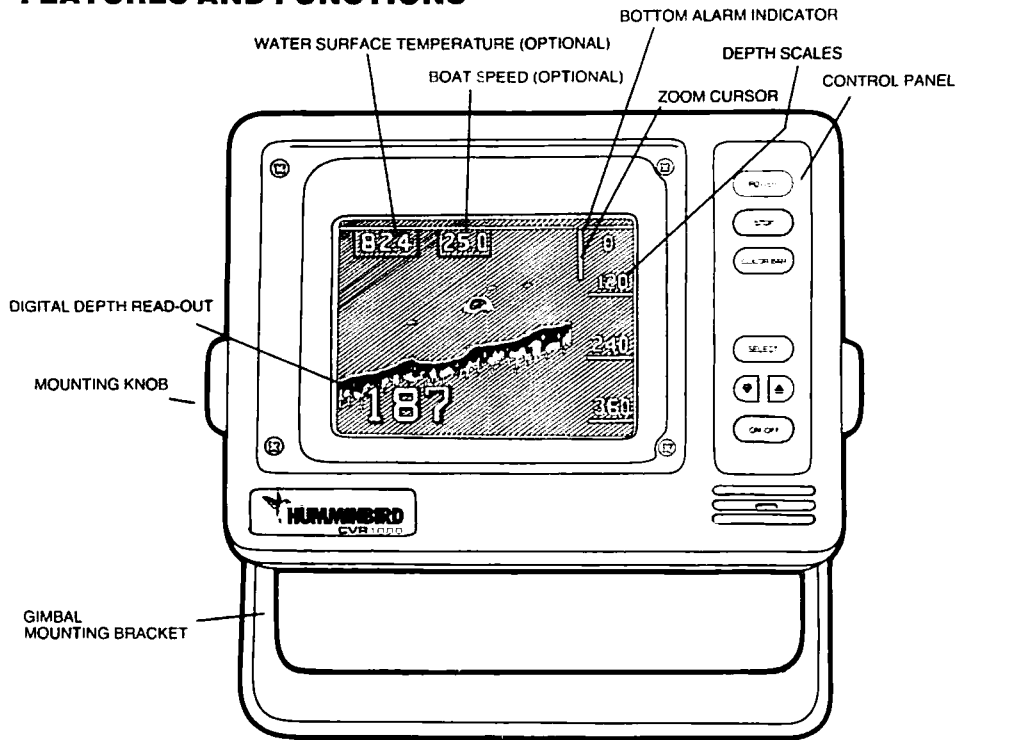
Never leave your CVR in a closed car or trunk, especially in extreme temperatures.

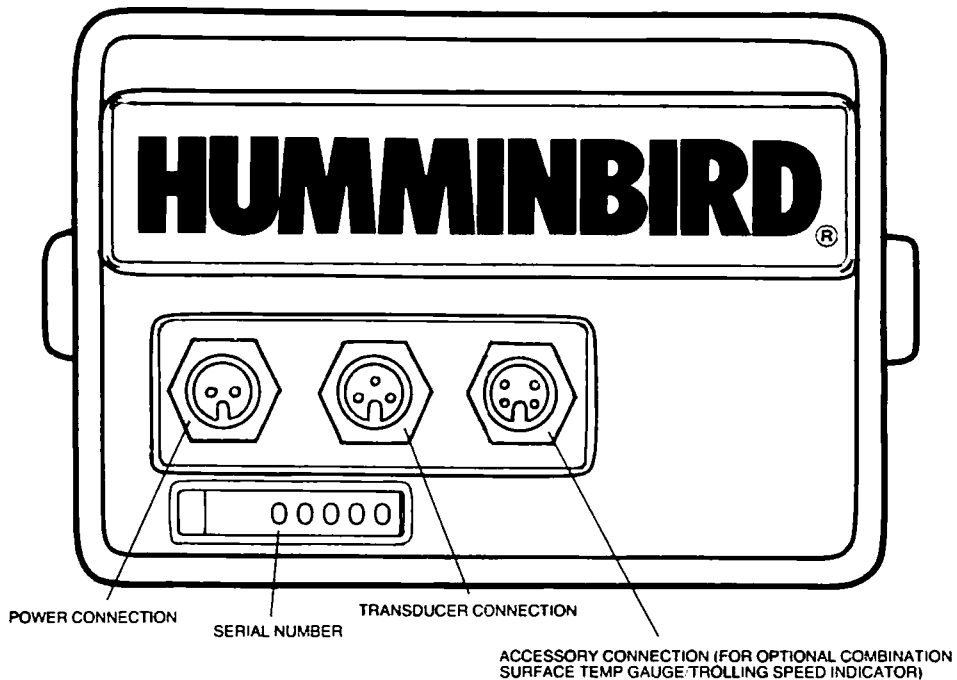
Periodically clean the face of your transducer to remove deposits that can severely reduce the power output and sensitivity of the unit.

Turn your CVR unit off when you're not using it. This will conserve power and prolong the life of the picture tube.

WARNING: This device should not be used as a navigation aid to prevent collision, grounding, boat damage or personal injury. When the boat is moving, submerged objects will not be seen until they are already under the boat or bottom depths may change too quickly to allow time for the boat operator to react. Always operate the boat at very slow speeds if you suspect shallow water or submerged objects.

FEATURES AND FUNCTIONS





Specifications:

Operating Frequency	200 KHz
Power Requirement	17 volts max., 12.5 volts min.
Power Cable Length	11½'
Transducer (standard)	high-speed
Transducer Cone Angle	16 degrees
Transducer Cable Length	20'
Depth Ranges	0-15', 0-30', 0-60', 0-120', 0-180', 0-240', 0-360', 0-480', 0-600', 0-750', 0-1050'
Mounting (standard)	gimbal bracket
Unit Construction	Lexan (R) case
Dimensions	8½"W x 6¼"H x 11¼"D
Display	8-color CRT
Viewing Area	6" diagonal

MOUNTING THE TRANSDUCER

Parts involved:

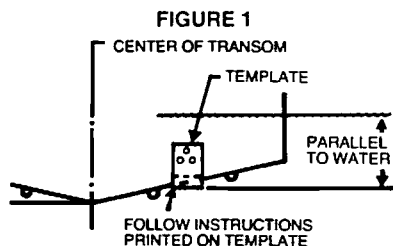
High-speed transducer
 Template (provided in rear
 of this manual)
 Transducer bracket
 Transducer mounting
 hardware
 Allen wrench (provided)

Tools you'll need:

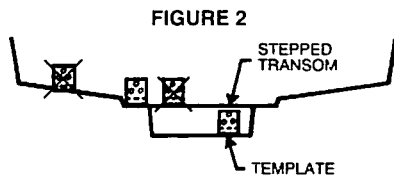
Drill
 Phillips head screwdriver
 Pen or pencil
 Silicone sealant

FOR BEST RESULTS. . .

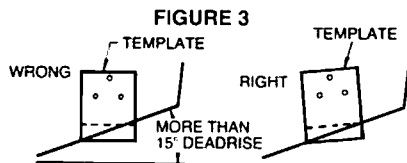
Read all the mounting instructions before you begin the installation. The overall performance of your unit can be greatly affected by the transducer installation, so be sure to follow the instructions carefully.



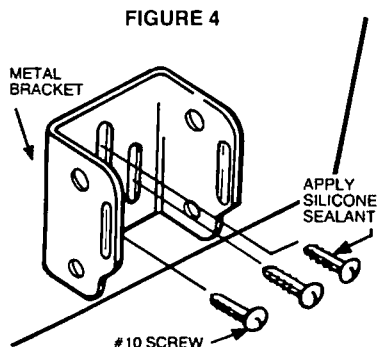
1. Position the template at the bottom of the boat transom as shown in Figure 1, following the directions printed on the template. Keep in mind that, when mounted, the bottom of the transducer should be at least $\frac{1}{4}$ " below the bottom of the transom, but the top of the transducer must not be below the bottom of the transom.



NOTE: If your boat has a stepped transom below the main transom, we recommend mounting the transducer there, as shown in Figure 2, for good readings at very high speeds.

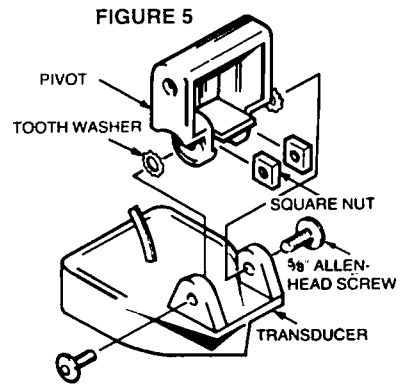


NOTE: If your boat has more than a 15-degree deadrise angle, you will need to mount your transducer slightly off parallel with the water, as shown in Figure 3, for best performance.

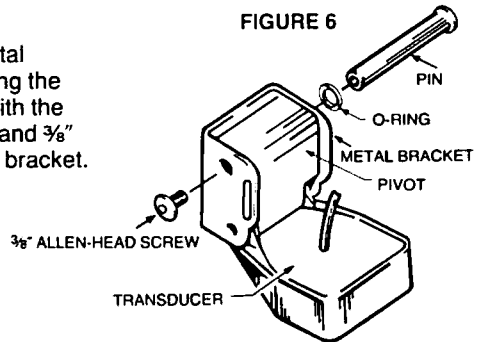


2. Mark and drill the holes as shown, and attach the metal bracket with the screws provided. Be sure the screws are centered in the slots.
3. Apply a silicone sealant between the screw heads and the bracket to keep water from leaking into the hull of your boat.

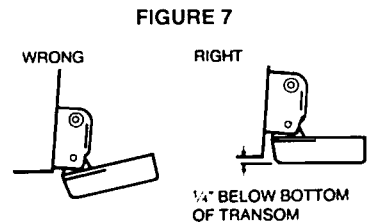
- Attach the pivot to the transducer by using the $\frac{5}{8}$ " allen-head screws, tooth washers and square nuts, according to Figure 5. Do not completely tighten the allen screws yet.



- Insert the transducer/pivot assembly into the metal bracket on the transom from the bottom up, sliding the assembly up until the holes in the pivot line up with the holes in the bracket. Use the headed pin, O-ring and $\frac{3}{8}$ " allen head screw to secure the transducer in the bracket.

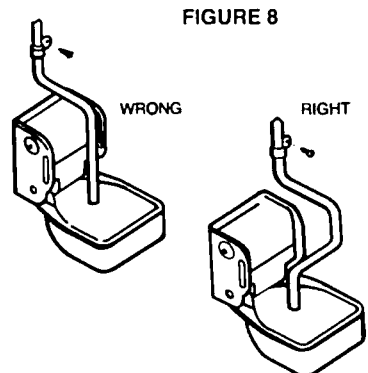


- Adjust the transducer's running angle so that it's parallel with the bottom of the boat hull. Then tighten down the allen-head screws that hold the transducer to the pivot. Be sure that all screws are tightened completely.
- Check the mounted transducer to see that it is positioned as described in Step 1. If any adjustments are needed, the slotted mounting bracket can easily be moved up or down by loosening the screws.



- Install the cable clamps by drilling $\frac{1}{8}$ " holes and using the clamps and screws provided. Be sure to run the cable to the side of the transducer, not in the center, to prevent damage to the cable.

NOTE: If you have taken advantage of Humminbird's transducer exchange program, your new transducer will come with mounting instructions.



MOUNTING THE CVR 1000

Parts involved:
 CVR 1000
 Gimbal mounting bracket
 Mounting knobs
 Mounting hardware kit
 Power cable
 Transducer cable

Tools you'll need:
 Phillips-head screwdriver
 Drill
 Ruler
 Pencil or pen
 12-volt DC power source
 5-amp fuse

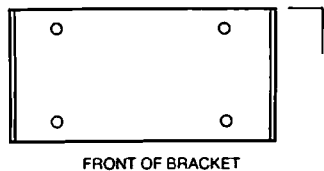
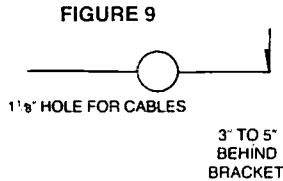


FIGURE 10

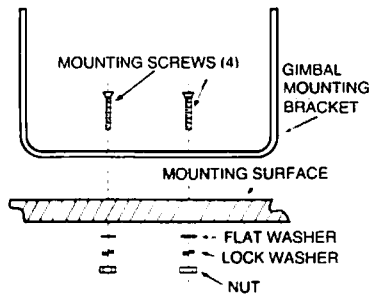
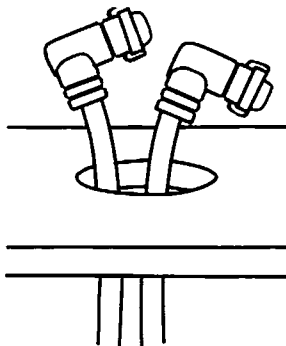


FIGURE 11



FOR BEST RESULTS . . .

Your CVR 1000 should be mounted on a flat, sturdy surface, allowing plenty of room at the sides, top and back for the installation, and for removing the unit when needed. Also, be sure that the mounting location is not near any magnetic fields or heat sources—these conditions can affect the performance of your CVR.

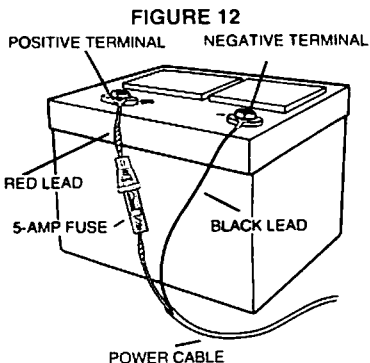
1. Set the mounting bracket on the mounting surface.
2. Mark 1/4" holes for the mounting bolts.
3. At least 3" to 5" behind the bracket, mark a 1 1/8" hole to run the cables through.
4. Set the mounting bracket aside and drill the holes as marked.
5. Mount the bracket as shown in Figure 10, using the mounting hardware that is supplied with your CVR 1000. Be sure that the slots at the top of the bracket point toward the rear.
6. Pull the transducer cable up through the rear 1 1/8" hole, and push the power cable down through the hole, leaving the "connector" ends above the mounting surface. If you are also installing the optional Combination Surface Temp Gauge/Trolling Speed Indicator, pull its cable up through the hole in the same way.

STOP: If your transducer cable is not long enough, extension cables are available. See the "Options And Accessories" section in this manual.

7. Included with your CVR is a hole cover to "dress" the 1 1/8" hole and to hold the cables securely. Measure how much cable length you need from the hole to the connections on the back of the unit, and install the hole cover.

- To connect the power cable to the 12-volt DC power source, we recommend that you wire the CVR through your fuse panel; however, if your boat doesn't have a fuse panel, you can wire the power cable to the battery with an in-line 5-amp fuse. For safety, do not connect directly to the battery. Attach the black lead to the negative (-) terminal, and wire the red lead through a 5-amp fuse to the positive (+) terminal.

NOTE: Do not use any power cable other than the one provided with your CVR 1000.

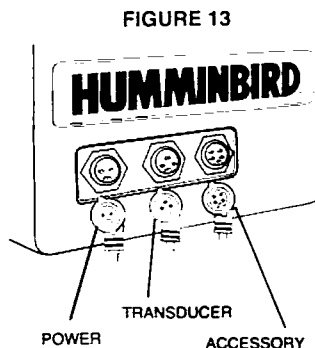


- Connect the cables to the CVR 1000. Our unique Angle-Lock[®] connectors are foolproof—there's only one way to connect them, and it's easy to tell which cable is which.

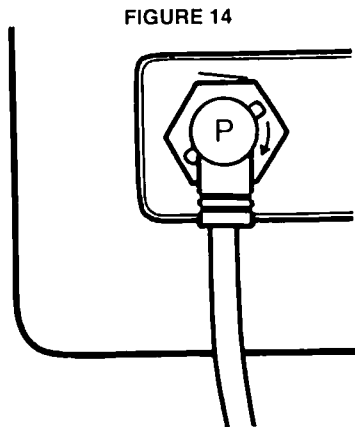
The power cable has a 2-pin connector and is identified by a "P" on the back of the plug.

The transducer cable has a 3-pin connector and a "T" on the back of the plug.

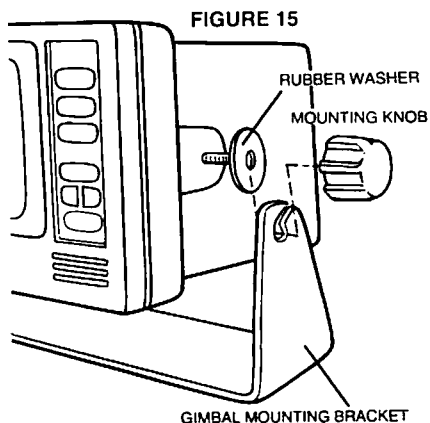
If you are installing the optional Combination Surface Temp Gauge/Trolling Speed Indicator, you can identify its cable by its 4-pin design and the letter "A" (for Accessory) on the plug.



Hold the plug so that its letter is upright and its cable points downward. Push the plug into its proper connection. When the plug is in as far as it will go, turn the outer locking ring clockwise until you feel it lock. Use this procedure for connecting each cable.

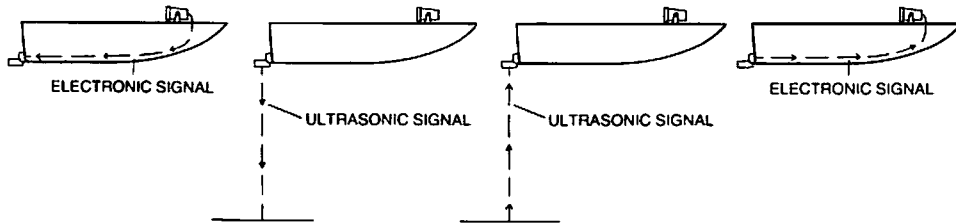


- Mount the CVR on the bracket by loosening the mounting knobs and slipping the unit into the bracket. Be sure to keep the rubber washers between the bracket and the unit. Tighten the knobs to hold the CVR in viewing position.



HOW SONAR WORKS

Humminbird depth sounders work on the basic principles of sonar. An electronic signal generated in the unit is changed to an ultrasonic signal by the transducer, which sends the signal toward the bottom. The signal travels downward until it strikes either the bottom or an object above the bottom. Then, signals or echoes bounce back to the transducer, which receives them and changes them back to electronic signals that can be displayed on the unit's screen.



BUILT-IN SIMULATOR

To help you learn to use your new unit, Humminbird has built a simulator into the CVR 1000. The simulator will display a typical underwater scene, and will allow you to use the controls for practice.

Activating the simulator is easy—with the unit turned off, hold down the power button for about 2 seconds, until a chirping sound begins. When you release the button, the built-in simulator will be on and ready for your practice session. Turning your unit off and back on again will disengage the simulator, for operating the CVR 1000 in actual conditions.

TESTING THE INSTALLATION

Once you've installed your CVR 1000, transducer and cables, it's time to test the installation. This testing should be done on the water, since that is the only way to check your transducer's performance.

Test Your CVR

With your boat at idle, turn the unit on. Its unique automatic capabilities will select the right depth range and sensitivity level for the conditions. After about one second, you'll see the reading start to "march" across the screen from right to left.

Test Your Transducer Installation

Increase your boat speed to ensure that you get a continuous bottom reading as the boat moves. Your CVR 1000 and its transducer are designed to operate at up to 75 mph, so feel free to test them at very high speeds.

If the CVR 1000 performs well at idle or slow speeds, but the display is not continuous at higher speeds, then the transducer is not installed properly. Air bubbles or turbulence from the boat hull are passing across the face of the transducer, blocking the transmitted signal. Following the instructions in "Mounting The Transducer", you can make adjustments that should take care of the problem.

NOTE: Should problems occur during your tests, first consult the "Before You Call For Service" section in this manual for troubleshooting tips from the Humminbird engineers. If you don't find the solution there, call our toll-free Customer Service Hotline listed on page 2.

Maximum Operating Depth

The CVR 1000 has depth ranges to 1,050 feet. However, your actual maximum operating depth may vary, depending on many factors. Water conditions, the amount of algae or microscopic growth in the water, the air content of the water, your transducer installation (especially at higher speeds), electrical and accoustical noise generated by the boat—all these factors play a role in the maximum operating depth of your CVR.

If the bottom depth exceeds your unit's maximum depth, the CVR 1000 will still operate but the following features will turn themselves off: digital bottom reading (digits turn red), automatic depth range change, bottom-lock, bottom alarm and fish alarm.

When this happens, follow these steps to continue operating the unit:

1. Increase the sensitivity to the maximum level.
2. Turn off the automatic range change.
3. Manually select the depth range that will display the bottom on the screen.
4. Remember that you'll have to manually change the depth range if the bottom goes off the screen again.

READING THE CVR 1000 SCREEN

Colors:

If you've never used an 8-color video depth sounder before, you'll be amazed at all the information and detail it provides. The 8 colors stand for signal strengths from weakest to strongest. You can clearly distinguish small fish, large fish, structure and bottom by learning the colors and the signal strengths they represent.

COLOR		SIGNAL
Blue Mode	Black Mode	
Deep blue	Black	None (water)
Light blue	Deep blue	Weakest
Green	Light blue	
Purple	Green	
Yellow	Purple	
Red	Yellow	Stronger (large fish)
Black	Red	Strongest (bottom or heavy structure)



White, the 8th color, is reserved for displaying the depth scales, and for outlining the bottom reading. If you have installed the optional Combination Surface Temp Gauge/Trolling Speed Indicator, you'll see the temperature and speed readings displayed in light blue at the top of the screen.

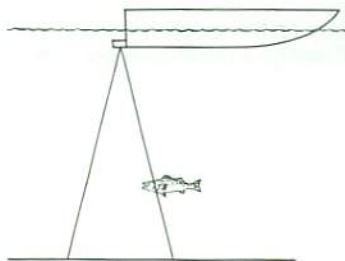
Color Bar:

Press the color bar button to display the color bar on the screen. It's a handy reminder of the signal strength that each color represents. The color bar will appear on the left side of the display, and then "march" off just like other readings.

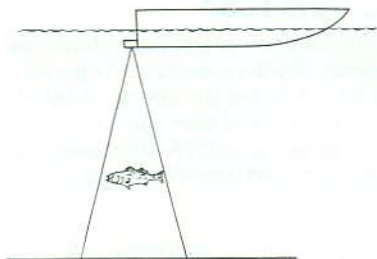


Readings:

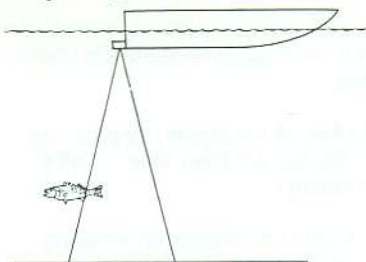
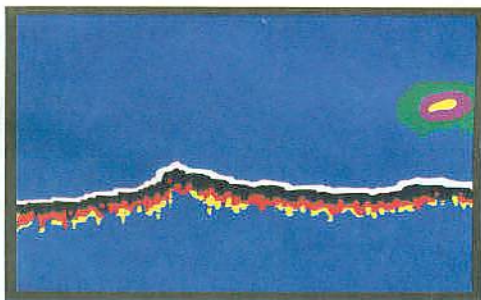
Most readings will have a "core" color surrounded by other colors. This is because the signal strength changes as you move over an object.



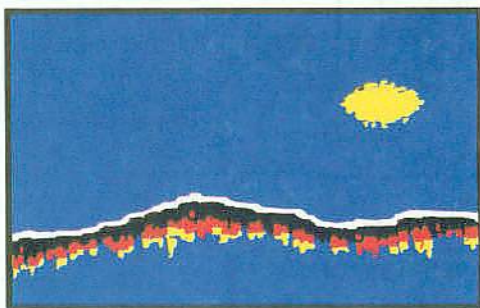
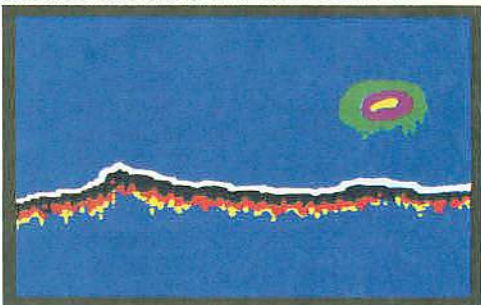
As a fish begins to enter the cone angle, its signal is weak and is displayed in a "weak" color such as light blue or yellow.



As you move directly over the fish, putting it in the center of the cone, the signal gets stronger and changes to "stronger" colors until it creates a core. The core color is the strongest signal return from the fish.

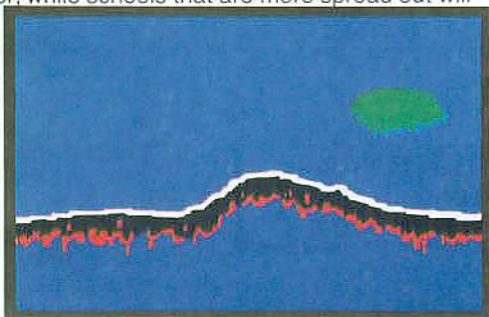
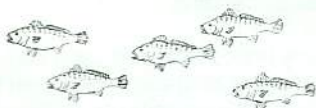


As you move past the fish, its signal gets weaker and decreases back to the weakest colors until the fish leaves the cone angle.



Schools of fish are displayed as "clouds" of color. You can tell how close together the fish are by the color of the cloud.

Dense schools will show you a stronger color, while schools that are more spread out will have a weaker signal.



Also, keep in mind that some fish will give you a stronger signal than normal because of their air bladder size and their bone structure.

Of course, the best way to learn to read your CVR is to use it—especially in familiar locations. If you know what's underwater and can see it displayed on the screen, then you're on your way to being an experienced CVR user.

OPERATING THE CVR 1000

Your new CVR 1000 offers unique automatic features, as well as many adjustable ones. If you're learning to operate the CVR 1000 with its simulator, follow the directions listed at "Built-In Simulator" on page 10, and then come back to this page. If you're learning to use your CVR 1000 using actual, on-the-water readings, proceed with the following instructions.

Power:

Pressing this button once turns the CVR 1000 on. Pressing it once again turns it off. When the unit is turned off, holding this button down for about 2 seconds activates the built-in simulator.

Stop:

By pressing this button once, you can stop or "freeze" the display. Pressing the button once again re-starts the display at its previous speed setting.

Color Bar:

You can call up the color bar on the screen by pressing the color bar button. The color bar will then "march" off the screen just like a normal reading.

Select System:

The CVR 1000 Select System commands an amazing number of functions with only four buttons: Select, Up and Down arrows, and On/Off.

When you press the "select" button, each function appears in a block on the screen with easy-to-understand instructions for using the function. You use the "up" and "down" arrows and the "on/off" button to adjust the functions. Also, certain settings are stored in memory and are retained when the power is turned off and back on again—sensitivity, bottom alarm depth, bottom alarm on/off, brightness and screen color, and depth units.

The following describes the functions and how to use them, in order of appearance after you turn the unit on.

1. Sensitivity

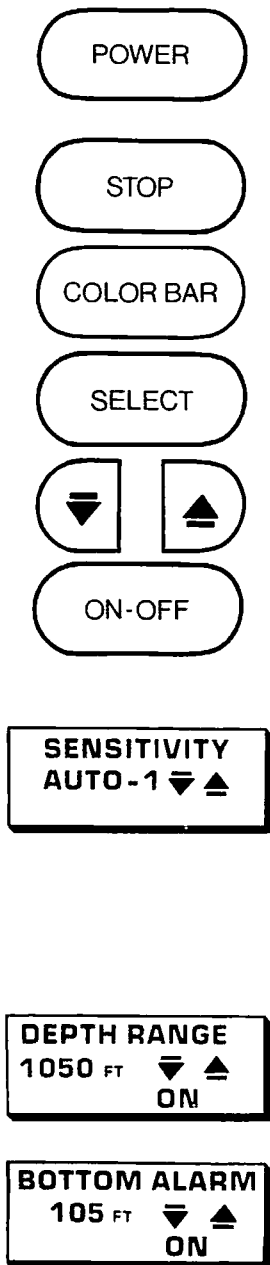
When you turn the CVR on, the sensitivity is automatically set at "0", or normal. As conditions change, the computer will automatically increase or decrease the sensitivity setting. You can manually increase or decrease the automatic setting from a range of "+ 4" to "- 4". This level will maintain itself as long as you have the unit on, automatically, as a result of our sensitivity bias feature. For example, if you set the sensitivity at "+ 2", the sensitivity will always be two settings higher than the normal automatic setting.

2. Depth Range

The CVR automatically finds the bottom, and then sets and displays the ideal depth range when you turn the unit on. You have the options of increasing or decreasing the depth range, or turning the automatic range change on or off according to your preference.

3. Bottom Alarm

The bottom alarm is off when you turn the CVR 1000 on. You can set it to alert you to shallow water, or to maintain your position over structure.



4. Fish Alarm

The CVR 1000's fish alarm is automatically off when you turn the unit on; however, you have a choice to turn it on and see the word "FISH" within the depth scale to indicate that the alarm is on.

As an added feature, you can use the arrow buttons to set the fish alarm to sound for all fish (all colors), or to ignore weaker signal colors and alarm only for stronger signal colors. This is based on the order of colors on the color bar. For example, you can set the alarm for signals that are purple or stronger, ignoring the weaker light blue and green signals.

5. Zoom

On the CVR 1000, the zoom is off when you switch the unit on. When zoom is activated, it creates a "window" of expanded, up-close information. This window is marked by a cursor at the right of the screen and can be moved up or down with the arrow buttons. The exact depths of the upper and lower limits of the window are displayed as depth scales while you are in zoom.

You can move the zoom cursor into position before you turn the zoom on and, after you turn it on, you'll see the word "ZOOM" displayed in the depth scales. Using your arrow buttons, you can move the zoom window while the zoom is activated, without having to press "select" to call up the instructions on the screen.

6. Bottom-Lock

The automatic setting for bottom-lock is "off", although you can easily turn it on when you need it. When on, this function displays "B.L." within the depth scale column, and shows up-close zoom readings in reference to the bottom. You can set the size of the zoom window at 15 ft., 30 ft., 60 ft. or 120 ft., and the window will automatically move up or down to stay on the bottom. This is an ideal feature for finding structure or locating fish near the bottom.

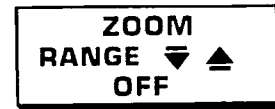
7. Display Speed

The speed at which the CVR display moves depends on the display speed setting. You can easily change it to a faster or slower setting by using the arrow buttons.

8. Brightness

The brightness and the colors displayed on the CVR screen can be changed to suit your personal preference or the current sunlight level. You can choose a deep blue background with a black bottom reading, or a black background with a red bottom reading. Then, you can adjust the brightness with 9 "Blue" settings and 9 "Black" settings.

With this screen, you can also change the way the depth is measured and displayed. The CVR 1000 is automatically set for depth readings in feet. But, using the on/off button, you can choose to see depth displayed in feet, meters or fathoms.



OPTIONS AND ACCESSORIES

TRANSDUCERS

Transducer exchange program:

Your new Humminbird comes with a high-speed, transom-mounted, 16-degree transducer as standard equipment. If this doesn't meet your needs, you can exchange the unused transducer for one of the models listed below by returning it to your local dealer. Or, call Humminbird's Customer Service Hotline (on page 2) to make a factory-direct exchange.

Most transducers can be exchanged at no extra cost. The models that carry an extra charge for exchanging are marked with an asterisk (*)—please see your local Humminbird dealer or call our toll-free Customer Service Hotline for the current price.

Model #	Transducer Type	Crystal Size	Cone Angle
XHS-5-16	High-speed	2"	16 degrees
XTH-5-16	Thru-hull*	2"	16 degrees

