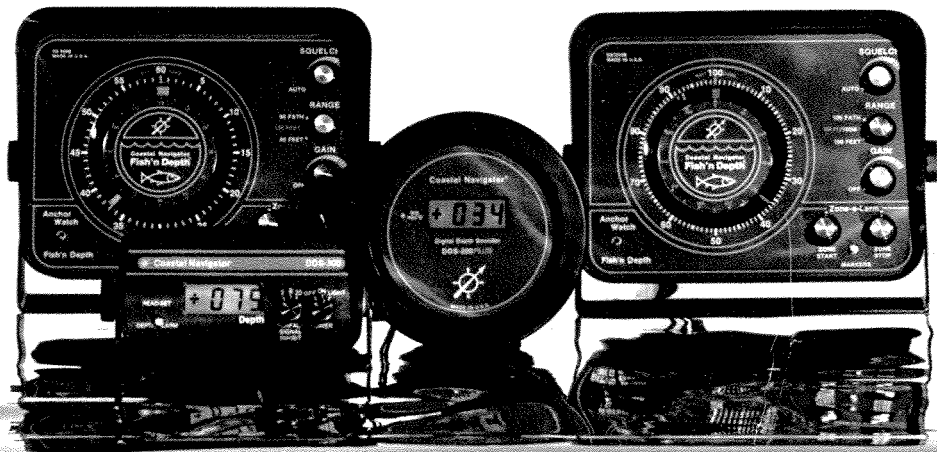


Coastal Navigator

DEPTH SOUNDER OPERATION MANUAL

PRICE \$2.00



INTRODUCTION

Congratulations, you have just acquired the finest depth sounder that money can buy. Made and serviced in the United States at Seattle, Washington. Superior design characteristics, high-quality solid-state circuitry and twenty-four (24) hour quality-control operation burn-in means your Coastal Navigator will provide you with many years of accurate depth soundings for your fishing and navigating enjoyment.

Throughout your boating experience you will find yourself in waters of varying depths. It is recommended that you buy the sounder that displays those depth conditions that you operate in most frequently. On a clear day in familiar waters there may be little need for accurate depth readings. Add fog, poor weather, or a place you've never been before and accurate depth readings can be essential. The right depth sounder can take the guess work and worry out of these situations and add immeasurably to your boating pleasure. The use of sonar for fish finding has become almost a requirement in these days of keen competition for a limited resource. All of our flasher units are designed with the sensitivity needed for locating fish or structure at various depths. Whether you are fishing for bass or salmon, Coastal Navigator has a fishing sonar right for you.

This manual is intended to familiarize you with the operation of your depth sounder. Please read it *carefully* so that you may fully enjoy all the features of your Coastal Navigator instrument.

Should questions arise not covered in this manual, please contact your local dealer who is well versed in your sounder's operation. If desired, please feel free to contact us directly at our office:

Coastal Navigator, Inc.
P.O. Box 31153
Seattle, WA 98103
Phone (206) 633-1950

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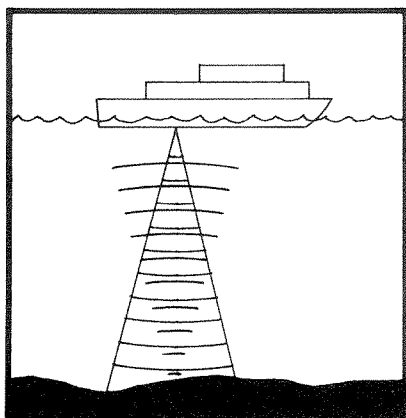
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HOW YOUR DEPTH SOUNDER WORKS

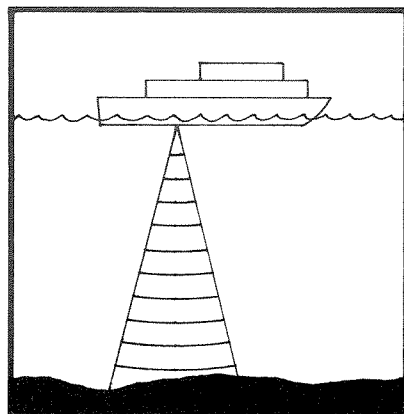
Your Coastal Navigator Depth Sounder is designed to operate on a 12-volt DC electrical system. Current requirements are very low so the equipment may be used on sailboats as well as on powerboats.

Depth sounders measure the distance between your boat's hull (i.e., from the face of the transducer) and the bottom, and/or to fish or other submerged objects between the boat and the bottom.

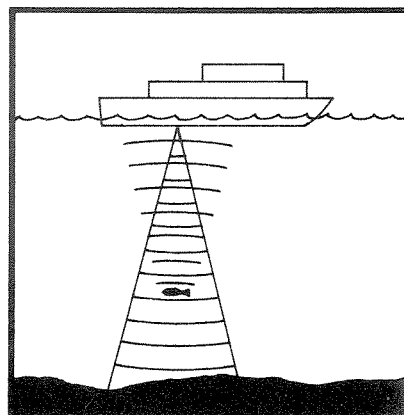


A flasher type depth sounder will display the distance to the bottom and the depth location of fish or other objects beneath the surface simultaneously. A digital depth sounder is programmed to display only the strong bottom signal, and will reject most of the weak signals created by fish. A digital depth sounder can display only one reading at a time (see "How to Read your Depth Sounder" section).

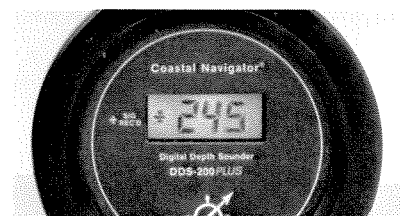
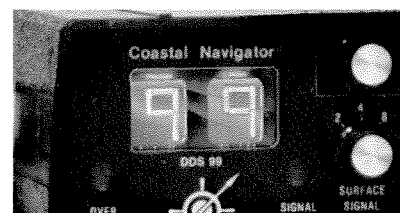
All depth sounders regardless of type of display (i.e., flasher, needle, digital or chart recorder) operate on the same principal: A pulse of high frequency electrical current is generated within the depth sounder. This pulse of current is then transmitted to the transducer where it strikes (contacts) a barium titanate crystal converting it to a pulse of high fre-



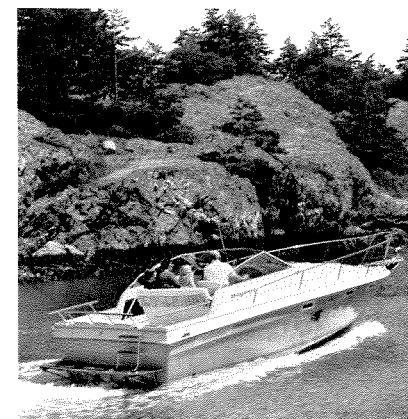
quency sound (200KHz). The sound radiates (travels) through the water in a cone shape from the transducer to the bottom. The transducer generates this sound signal at regular intervals that can range as high as 2400 pulses per minute in some of the Coastal Navigator sounder models. This pulse sound wave is generated in a manner similar to the way a radio speaker radiates sound. The sound waves echo off of the bottom, fish or other submerged objects between the transducer and the bottom and then return to the transducer. The transducer accepts the reflected signal much as a microphone picks up sound waves in the air, and



converts it back into an electrical pulse that is then transferred back through the transducer cable to the depth sounder. This weak echo pulse is then amplified through the receiver circuitry and transmitted to the flash tube, LED or digital readout, producing a depth reading.



The signal that is generated by the transmitter to the transducer travels through the water at a *known* and *constant* rate. The rate in fresh water is 4,800 feet per second, in salt water: 4,950 feet per second. (This difference in speed through fresh or salt water is so slight that it does not affect the relative accuracy of your depth sounder to a meaningful degree). The deeper the water, the longer it takes for the sound to make a round trip from the transducer to the target (i.e., bottom, fish) and back. The time is electronically converted into a distance (depth) reading.



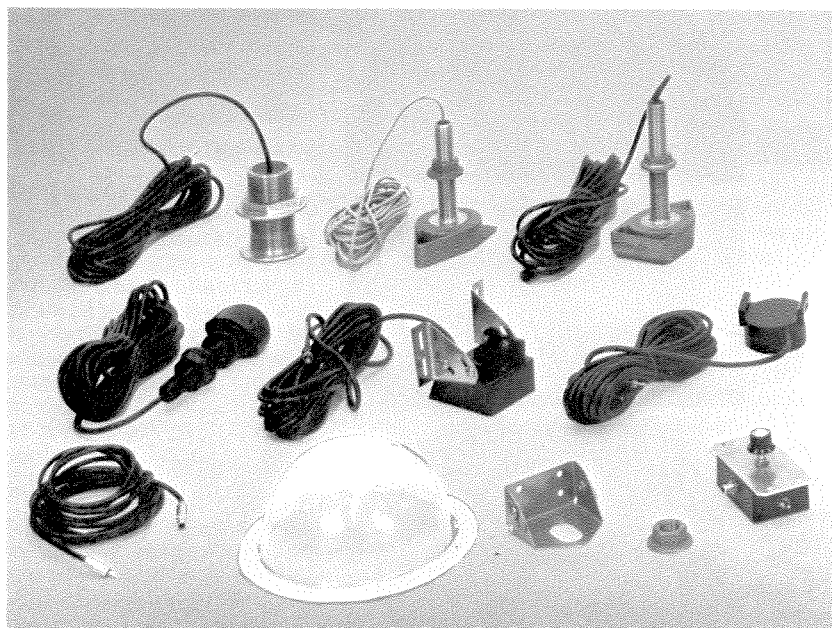
Your depth sounder advises you of the depth *directly* beneath the transducer by radiating sound through a relatively narrow cone. Rock pinnacles and deadheads (water soaked logs floating in a vertical position) that project sharply upward may not appear on the readout or activate the alarm (should your model have one) until you are upon them. Your depth sounder cannot eliminate all the dangers of shallow water, however, it can assist you in identifying shoals, rocks, submerged debris and other dangers. When in unfamiliar or shallow waters: **GO SLOWLY, AND GO CAREFULLY.**

INSTALLATION

Enclosed with this Operation Handbook and separate from it, is a very complete set of Installation Instructions. Upon completion of the installation, keep these separate instructions for future use. However, should they become lost or otherwise unusable and a

need for them arises, contact us for replacement:

Coastal Navigator, Inc.
P.O. Box 31153
Seattle, WA 98103
Phone (206) 633-1950



The quality of the installation of your transducer and power head readout, and their connecting wires, will determine how well your depth sounder will operate. Shoddy workmanship (poor electrical connections, etc.) will result in poor performance from your high quality depth sounder. Follow the instructions carefully and if they are not understood by you, please contact your dealer (or Coastal Navigator) for clarification or further explanations. We at Coastal Navigator pride ourselves on the quality of our equipment, but it will not perform well if it is improperly installed.

Here are a few highlighted

reminders that are fully explained in our enclosed installation instructions.

Depth Sounder Installation

1. Consider full visibility from pilot station when choosing location.
2. Allow for ease of access to front and/or rear mounted control knobs and switches.
3. Keep display out of direct sunlight if possible.
4. Locate your depth sounder where it will have minimum exposure to weather and spray.

Transducer Installation

1. Locate the transducer surface parallel with the surface of the water so the sound beam will be transmitted straight down into the water.
2. Locate the transducer so that it will be operating fully submerged and free from air bubbles. The sound signal generated by the transducer WILL NOT travel through air bubbles and frothy turbulence.
3. For through-hull and in-hull installations, locate the transducer ahead of or to one side of the propeller, rudder or any other underwater turbulence-creating protrusion.
4. On sailboats locate the transducer at least 12" or more from the side of the keel- or aft- or forward of it.
5. The transducer cable should be routed separately, away from other wiring — especially electric tachometer cables, spark plug wiring, and radio antenna cables.
6. The 20' transducer cable MUST NOT be shortened. Specially tuned extension cables in 5', 10', 15' and 20' lengths are available as accessories if lengthening is necessary. Use only Coastal Navigator cables.
7. DO NOT under any circumstances mount a bronze transducer against or through an aluminum hull without proper insulation and zinc protection. The lexan CN-110 transducer is intended to be exproxiated inside or transom mounted on metal hulls.
8. Keep the face of your transducer clean. (See maintenance section).

Electrical Connection

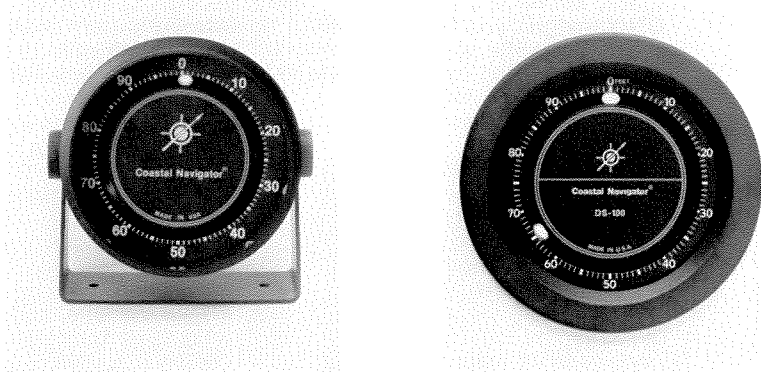
1. ONLY connect your sounder to a 12-volt DC power supply that has a battery. Direct connection to a generator or alternator will damage instrument and VOID the warranty.
2. NEVER operate sounder when a battery charger that exceeds 15 volts is connected to your electrical system. Disconnect the sounder when charging battery(s) with such a charger.
3. Connect sounder power lead directly to battery or to battery switch.
4. Use black (ground) and red (power supply) wires of 14 or 16 gauge for connection.
5. Install a 2 amp. inline fuse where your positive lead connects to the power source.
6. Do not reverse polarity. The sounder will not operate with a reverse polarity connection.
7. Solder all connections for added resistance against the marine atmosphere's ability to corrode.

Remember:

If your depth sounder and transducer are not properly installed, and if the connection between them — as well as to the power source — are not properly laid out, your depth sounder will not perform to its capability and may not operate at all.

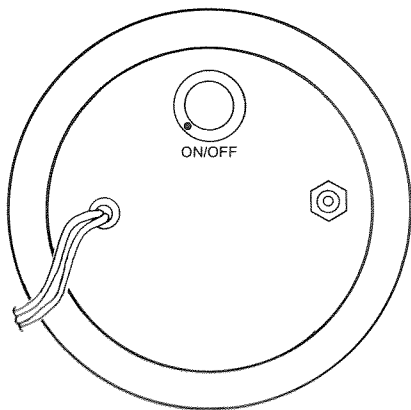
OPERATING INSTRUCTIONS I

MODELS DS-100, DS-100A, DS-210, DS-210A Flasher Type Depth Sounders with LED Display



Gain Control:

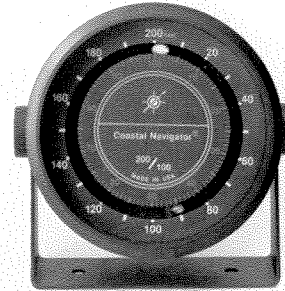
To turn on your depth sounder rotate the gain control knob clockwise past the "click" or "off" setting. A constant light or flash will appear at the zero point on your dial. This is referred to as the "zero flash" and is the sending pulse from the transducer mounted on your boat. Continue to rotate this knob clockwise until a second light or flash appears on the dial. This is the return or bottom flash. Its location on the calibrated dial tells you the depth of the water between the transducer (mounted on the bottom of your boat) and the bottom.



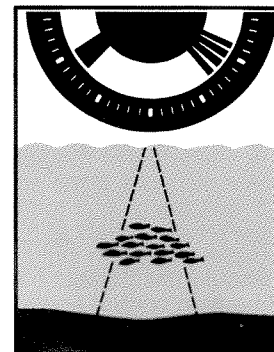
This gain control knob operates a rheostat type control. As you turn up the gain control you increase receiver sensitivity so that the receiver is correctly matched to the strength of the return signal. (This is like turning up the volume on a hearing aide — the further the gain is increased the deeper the sounder can read.)

The adjustable gain control should always be set to return only *one* bright, steady bottom flash. In relatively shallow water if the gain is turned up high (too strong) more than one bottom signal will appear as 2nd and possibly 3rd or 4th echo's from the bottom. For example, if the depth beneath your transducer is 5 feet you may receive bottom return signals at 10 feet, 15 feet and 20 feet as well. Should this occur, adjust the gain control counter-clockwise until you receive only the shallowest signal reading. Conversely, if your bottom signal becomes weak and starts to fade, turn up your gain control until a bright, steady flash is displayed on the dial.

A remote Flex Shaft Kit is available as an accessory so that the ON-OFF-GAIN control switch may be surface mounted for the DS-100A and DS-210A.



In deep water, under normal operating conditions, with a good reflective bottom (i.e., rock, gravel, sand, clay, etc.) your unit will receive bottom flashes (return signals) that are beyond the maximum calibrated depth on the dial. For example, on a 100' depth sounder the bottom flash will rotate around to and pass the zero flash at the top of the dial. It is not unusual for our 100' depth sounder to give readings in excess of 200' with good bottom conditions.



Fish will appear on the dial as flashes between the "zero flash" and the bottom. Single fish and schools of fish will be displayed as

a single narrow flash, or as a close grouping of narrow flashes, respectively. By adjusting the gain control fish can be displayed as deep as the maximum range of the dial.

For added convenience, and more easily recognized and accurately displayed depth readings, the Coastal Navigator Model DS-210 series is available in a dual range. The DS-210 series has a 100' and a 200' scale on the dial. A range control switch is located on the back of the unit at the bottom. Depending upon the depth of the water you are operating in, you can choose the 100' or the 200' range. Changing the switch adjusts motor speed, allowing the unit to accurately display either depth scale.

REMEMBER: Your depth sounder cannot eliminate the dangers of shallow water, rocks, submerged debris, etc. It can only assist you in recognizing SOME of them. When in shallow water or unfamiliar waters the best rule of thumb is: "GO SLOW — GO CAREFULLY."

OPERATING INSTRUCTIONS — II

MODELS: DS-606, DS-606L, DS-606B and DS-1010B

Fish 'N Depth Model Series:



Designed to meet the needs of discriminating boaters and serious fishermen alike. The additional features, combined with the increased power output and correspondingly greater receiver sensitivity, allows for excellent resolution in return signals from fish. Fish can be read on the dial to the deepest capability of these models.

Gain Control: As with the shallower models, the gain control knob turns the sounder on. Turn it clockwise past the initial "click" or off setting. A constant light or flash will appear at the zero point on your dial. This is referred to as the "zero flash" and is the sending pulse from the transducer on the bottom of the boat. Continue to rotate this knob clockwise until a second light or flash appears on the dial. This is the return or bottom flash. Its location on the calibrated dial gives you the depth of water between the transducer (mounted on the bottom of your vessel) and the sea-bed.

This knob operates a rheostat type control. As you turn up the

gain control, you increase receiver sensitivity, so that the receiver is correctly matched to the strength of the return signal. This is like turning up the volume on a hearing aid. The further the gain is turned up, the deeper the sounder can read. This adjustable control should always be set to return only one bright steady bottom reading for navigating. (When fishing, turn gain control up as needed.) In relatively shallow depths the gain may be set too high. In this instance more than one bottom return will be displayed in multiples of the actual depth. (For example: If the actual depth is 5' and the gain is too high you will get return signals at 5', 10', 15', etc., depending upon signal strength). Should this condition occur, rotate the gain control knob counter clockwise (turning the gain down) until only the shallowest return is visible. Conversely, if the bottom signal becomes weak and starts to fade, turn up the gain control until a bright clear signal flash is displayed.



Range Control: The DS-606 and DS-1010 models of our Fish 'n' Depth Series are triple range depth sounders. They allow for the selection of a range that corresponds to the depth beneath your vessel. For the most accurate and efficient reading always keep the range adjustment at its shallowest setting for the actual depth your boat is in.

The available ranges for the DS-606 models are: 60 feet, 120 feet and 60 fathoms. (At 6 feet per fathom this gives you a maximum calibrated range of 360 feet.)

The available ranges for model DS-1010B are 100 feet, 100 meters and 100 fathoms (this gives you a maximum calibrated range of 600'). In addition — the 100 meter range may also be read in feet, up to 300 feet.

As with other Coastal Navigator Depth Sounders, strong power output combined with superior receiver sensitivity allows these flasher depth sounders to display readings well in excess of their calibrated scale. A quick check

of depth is performed by turning to the next deeper range (if you suspect the return flash may have already gone past the "zero flash"). If you are already on the deepest range setting you must remember that you have already gone past the "zero flash" once, and add 60 fathoms or 100 fathoms (depending on which model sounder you have) to the depth displayed on the dial.

Squelch Control: This control provides you with a manual adjustment as well as an "automatic" setting for rejection of unwanted electrical interference from outside sources (such as engine ignition or on-board electrical equipment). This is done by means of variable pulse width discrimination, which enables the unit to eliminate narrow interference (noise) pulses while allowing the wider (fish and bottom) pulses to read normally. In the "automatic" position, this pulse width discrimination circuitry is preset to factory specifications. However, if interference persists in the form of extraneous flashes on the dial,

rotate the squelch control knob clockwise until they disappear.

Since SQUELCH and the GAIN control both affect the signal received, manual adjustment of one of these controls may require a similar or balancing adjustment of the other. If necessary, adjust each control as needed to obtain the desired signal intensity. Under normal conditions the automatic setting should be adequate for your needs.

Battery Condition Indicator:

This is a built-in function that can save the average boater untold hours of inconvenience (if not outright danger) by telling you if your boat's power supply is failing, or your batteries are getting low. The circuitry that drives the "zero flash" is programmed so that the "zero flash" will disappear when your vessel's battery or power supply voltage drops to eleven (11) volts or less. If the "zero flash" goes out, it is (immediately) time to recharge your battery by starting your engine or to search out the problem. (The average engine will still turn over with 11 volts of battery power. Any lower however, and there will not be enough life left in a battery to start most marine engines.) The important bottom signal will continue to be received (until the voltage drops into the 9 volt range), which allows for accurate usage of your sounder at shallow depths even when your battery is extremely low.

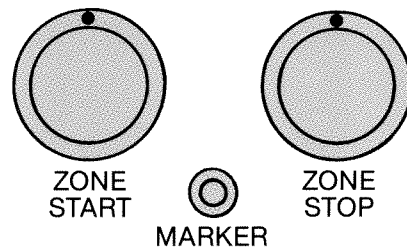
REMEMBER: for optimum sounder performance 12 volts are required.

The DS-606 does not incorporate the Zone-A-Larm[®] and Anchor Watch[®] features so further reading of this section is not necessary for owners of this unit.

Depth Alarm: The DS-606L incorporates a shallow water alarm. This alarm is valuable for warning of shoaling conditions, under water rocks and debris, as well as audibly alerting the operator to the presence of fish. To fully acquaint yourself with this alarm, read the Shallow Alarm section of the Zone-A-Larm[®] instructions.

Zone-A-Larm[®] : Coastal Navigator's exclusive Zone-A-Larm[®] feature provides the ultimate depth alarm system for fishermen, pleasure boaters and blue-water yachtsman. The patented Zone-A-Larm[®] allows you to preset and to monitor with your dual alarms any chosen zone between your transducer and the bottom.

Zone-A-Larm[®]



The "Alarm Zone" has two boundaries, deep and shallow. The deep alarm is set with the 'Zone Start' control knob, and the shallow boundary is set with the 'Zone Stop' control knob. To activate the alarm system you first depress the marker button and, while holding the button down, turn the control knobs until the desired zone is alarmed. (See instructions through the four illustrations that follow.)

The Zone-A-Larm[®] system includes: a shallow water alarm, a deep water alarm and a Zone-A-Larm[®]. Either or both of the former may be used at one time, or you may elect to use the Zone-A-Larm[®].

A. The Shallow Water Alarm may be set with the zone stop control to alarm any area between the zone stop setting and the surface. This is useful for timely warning of shoaling conditions, rocks or underwater debris. It will also alert you to the presence of fish within the alarmed area. For example, it can be set to nearly the bottom and will audibly alert you to fish while allowing you to devote all of your attention to operating the boat.

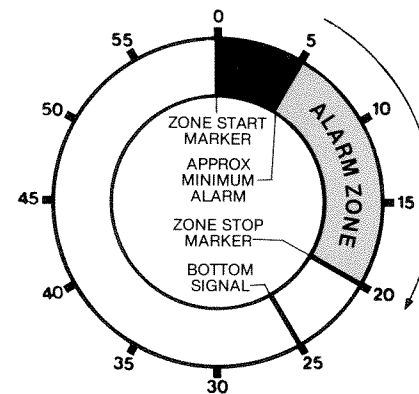


FIGURE 1

FIG. 1 illustrates an alarm zone setting of 0-20 feet while your boat is in a 25 foot depth. Let's assume for safety reasons, while cruising near shore or navigating a narrow channel, you want to keep your boat in at least 20 feet or more of depth to avoid running aground. While pressing the marker button in, rotate the zone stop control clockwise to 20 feet and release the marker button. The zone start control should be left in the "off" position for a setting of zero feet. Now, any obstacle or fish in 20 feet or less of water will sound the alarm except for the last approximately five feet of depth. The minimum depth alarm setting is approximately five feet.

B. The Deep Water Alarm may be set with the zone start control to alarm any area beyond a certain depth. This is useful to

fishermen or divers looking for their favorite hole, or when trolling over a shoal, to alert you that you have left the "hot" area.

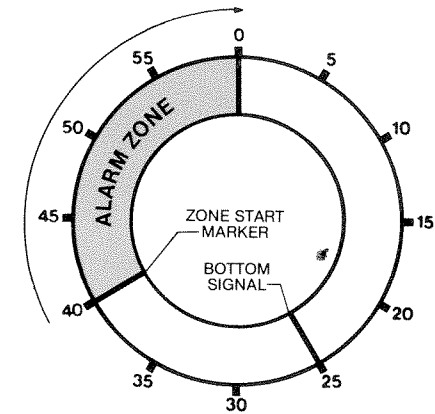
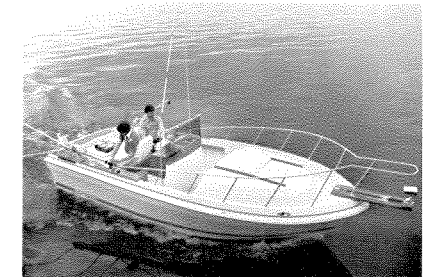


FIGURE 2

FIG. 2 illustrates an alarm zone setting of 40'-60'. While pressing the marker button, rotate the zone start control to 40'. The zone stop control should be left in the "off" position. Now, any time a depth greater than 40' is reached, the alarm will sound.



C. The shallow water alarm and deep water alarms may be set simultaneously. This feature can be used while anchoring to alert you if the boat drifts into either shallow or deep water (a sign that your anchor is dragging). It can also be used when fishing a "hot" area, or when navigating along an unknown coast in heavy fog. You can devote 100% of your visual attention to fishing or the fog ahead,

knowing the depth sounder will audibly alert you to shoaling conditions, or that you are straying too far from shore.

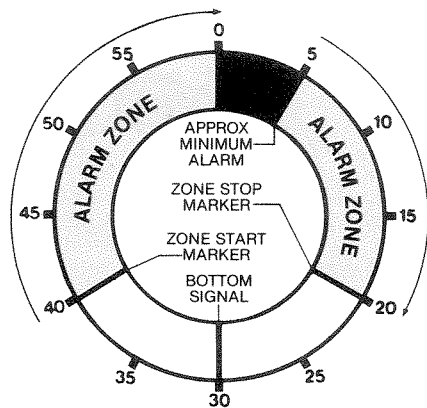


FIGURE 3

FIG. 3 illustrates a simultaneous alarm zone setting of 0'-20' and 40'-60'. Let's assume you are anchored in a 30' depth, and, allowing for tidal changes and anchor line slack, you determine that the normal swing should not exceed, say 10' from either side of the 30' depth (i.e., 20' to 40') if the anchor does not drag. (Therefore, any depth reading of less than 20' or more than 40' might indicate that the anchor is dragging and you would want to be warned of this condition.) While pressing the marker button in, set the zone stop control for 20' and set the zone start control for 40'. This dual alarm zone setting can be used for fishing and navigating, and during short period anchoring, or for overnight anchoring with the Anchor Watch® feature.

D. Zone-A-Larm® is effected by crossing the deep and shallow water alarms, so that any desired zone of water between the boat and the sea-bed may be alarmed. Echos returning from shallower than the shallow side of the alarmed zone, or deeper than the deep side of the alarmed zone will not set off the alarm. Echos returning from within the alarmed zone will.

Zone-A-Larm® is probably the greatest aid to fishing since the invention of the hook! While trolling or drift fishing, you can alarm the area of depth a few feet either side of your bait. Bait fish at the surface or debris at the bottom will not set off the alarm, yet fish at the depth zone of your bait will. (If you do not hear the alarm occasionally, there are no fish at the depth of your bait and a change of strategy is in order.)

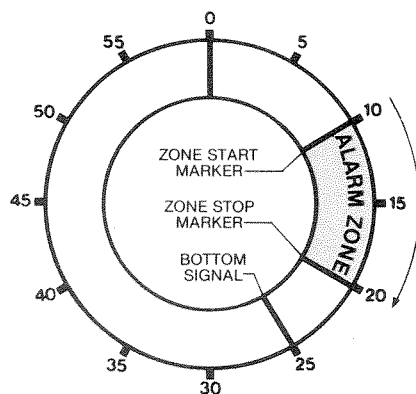


FIGURE 4

FIG. 4 illustrates an alarm zone setting of 10' to 20'. While pressing the marker button, rotate the zone stop control to 20' and then rotate the zone start control to 10' and release the marker button. Now any return signal between 10' and 20' will sound the alarm.

The audible feature of Zone-A-Larm® allows you to devote all of your attention to operating the boat or your fishing gear. Your Coastal Navigator depth sounder can alert you to rocks and underwater debris as well as the presence of fish.

Anchor Watch® : A Coastal Navigator exclusive that no boater or yachtsman should be without. Anchor Watch® safeguards against your boat drifting aground or out-to-sea while your sleep, or are at rest. Once the desired Zone-A-Larm® setting is set (see Figure #3 above), you simply flip the Anchor Watch® toggle switch into

position (up) — the motor and rotating arm holding the light will stop. (The unit is still transmitting and receiving, however, as indicated by the slowly pulsing light on the dial.)

NOTE: The location of the slowly pulsing light is of no importance, it will stop at a different location each time the anchor watch switch is turned on. It is not indicating the depth at this time.

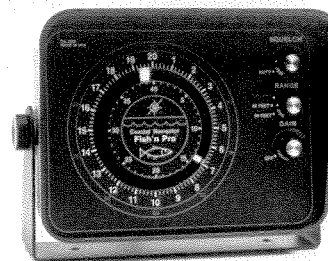
The electrical draw is reduced to less than 1/10th of an amp, down to milliamps when your

Anchor Watch® switch is set. The small amount of current used during the night will not affect the strength of your battery; in fact, if left on by mistake for a week or so, you would find no appreciable reduction in battery strength.

REMEMBER: Your depth sounder cannot eliminate the dangers of shallow water, rocks, submerged debris, etc. It can only assist you in recognizing some of them. When in shallow or unfamiliar water, the best rule is: "GO SLOW — GO CAREFULLY."

OPERATING INSTRUCTIONS III

MODELS DS-2040, DS-2040B Fish N' Pro Model Series



Designed to meet the needs of serious bass fishermen. The additional features, combined with the increased power output and correspondingly high receiver sensitivity, allows for excellent resolution in return signals from fish. Fish can be read on the dial to the deepest capability of these models.

Gain Control

To turn on your depth sounder rotate the gain control knobs clockwise past the "click" or "off" setting. A constant light or flash will appear at the zero point on your dial. This is referred to as the "zero flash" and is the sending pulse from the transducer on the bottom of the boat. Continue to rotate this knob clockwise until a

second light or flash appears on the dial. This is the return or bottom flash. Its location on the calibrated dial gives you the depth of water between the transducer (mounted on the bottom of your vessel) and the bottom.

This knob operates a rheostat type control. As you turn up the gain control, you increase receiver sensitivity, so that the receiver is correctly matched to the strength of the return signal. This is like turning up the volume on a hearing aide. The further the gain is turned up, the deeper the sounder can read. This adjustable control should always be set to return only one bright steady bottom reading for navigating. (When fishing, turn

gain control up as needed for the finest fish and structure definition.) In relatively shallow depths the gain may be set too high. In this instance more than one bottom return will be displayed in multiples of the actual depth. (For example: If the actual depth is 5' and the gain is too high you will get return signals at 5', 10', 15', etc. depending upon signal strength.) Should this condition occur, rotate the gain control knob counter-clockwise (turning the gain down) until only the shallowest return is visible. Conversely, if the bottom signal becomes weak and starts to fade, turn up the gain control until a bright clear signal flash is displayed.

Range Control

The DS-2040 and DS-2040B models of our Fish N' Pro series are triple-range depth sounders. They allow for the selection of a range that corresponds to the depth beneath your boat. For the most accurate and efficient reading always keep the range adjustment at its shallowest setting for the actual depth your boat is in.

The available ranges for the DS-2040 and DS-2040B models are: 0-20', 0-40' and 100'. To avoid ambiguity when going into deeper water the bottom flash disappears at the end of the two shallow ranges.

As with other Coastal Navigator depth sounders, strong power output combined with superior receiver sensitivity allows these depth sounders to display readings well in excess of their calibrated 100' scale.

Squelch Control

This control provides you with a manual adjustment as well as an "automatic" setting for rejection of unwanted electrical interference from outside sources (such as engine ignition).

Since the SQUELCH and the GAIN controls both affect the signal received, manual adjustment of one of these controls may require a similar or balancing adjustment of the other. If necessary, adjust each control as needed to obtain the desired signal intensity.

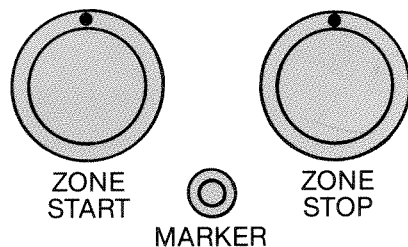
Under normal conditions the automatic setting should be adequate for your needs.

The DS-2040 does not incorporate the Zone-A-Larm® feature so further reading of this section is not necessary for owners of this unit.

Zone-A-Larm®

Coastal Navigator's exclusive Zone-A-Larm® feature provides the ultimate depth alarm system for fishermen and pleasure boaters alike. The patented Zone-A-Larm® allows you to preset and to monitor with your dual alarms any chosen zone between your transducer and the bottom.

Zone-A-Larm®



The "Alarm-Zone" has two boundaries, deep and shallow. The deep alarm is set with the "Zone-Start" control knob, and the shallowest boundary is set with the "Zone-Stop" control knob. To activate the alarm system you first depress the marker button down, turn the control knobs until the desired zone is alarmed.

The Zone-A-Larm® system includes: a shallow-water alarm, a deep-water alarm and a Zone-A-Larm®. Either or both of the former may be used at one time or you may elect to use the Zone-A-Larm®. The alarm can be set as shallow as 2 ft.

For further explanation of the Zone-A-Larm® circuitry, turn to page 12.

OPERATING INSTRUCTIONS IV

MODELS DDS-99, DDS-RW and DDS-RB Dual Range Digital Depth Sounder and Liquid Crystal Digital Repeaters

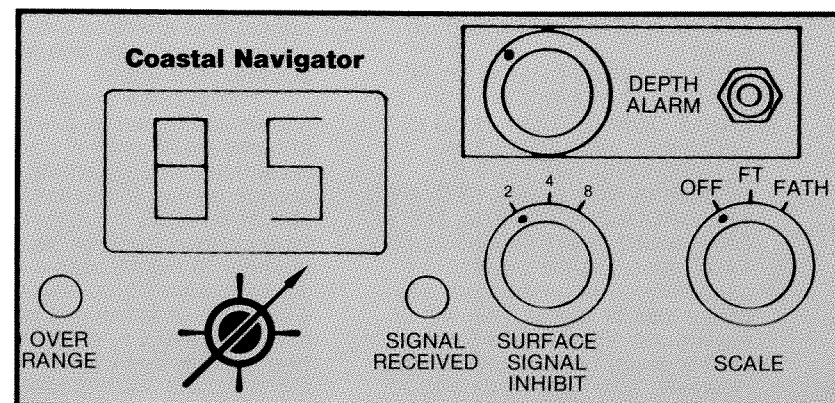


Digital Depth Sounders are easy to read and translate to navigational value. But without the right design characteristics and functions they can actually misread the bottom depth and confuse the operator with a continuous series of false readings. For this reason Coastal Navigator has carefully designed the DDS-99 with several unique features that allow reliable and consistent performance.

With Digital Readout Depth Sounders, proper installation of the transducer, correct routing of the transducer cable and direct con-

nections to the power supply are of the utmost importance. Careless installation or failure to follow installation instructions will result in poor, if not unuseable performance from any Digital Readout Depth Sounder.

99 Foot - 99 Fathom Control: Turn the sounder on by switching the control knob from the off position to the FT (Foot) or FATH (Fathom) position. The FT position displays depth in feet and the FATH position displays depth in fathoms. (NOTE: For first time boaters — a FATHOM is six (6) feet of depth. All



readouts are two-digit, reading from 02 to 99 feet or 02 to 99 fathoms.

Light Intensity Control: On the back panel of your DDS-99 Digital Depth Sounder is a light intensity control knob. Turn it clockwise to brighten the numetron readout; counter-clockwise rotation dims it. At full counter-clockwise position it turns the readout display off. If when you first turn your DDS-99 on, no readout appears, be sure to check this control to determine if it is turned off. This feature has been included for better operational use at night. Its bright readout will diminish your night vision if the intensity is not lowered. Turning the readout light off reduces electrical consumption from .5 amp to milliamps. Good for overnight anchoring.

Signal Received Light: This light located on the front panel (below and to the right of the readout window), flashes every time a return signal is received by the unit. It is normal for this light to blink at a random or irregular rate. Deep water and/or rolling conditions will cause more irregular and fewer flashes. In shallow water, when on the foot setting, the light will not blink. A momentary failure of this light to blink may occur on occasion, and can be caused by some type of temporary physical interference or loss of return signal. Possibly a stream of air bubbles passing beneath the hull over the transducer face — or your transducer cable connection may have worked loose on the back panel.

NOTE: ALWAYS CHECK TO BE SURE THAT YOUR TRANSDUCER CABLE CONNECTION PLUG IS SECURELY AND FIRMLY INSERTED INTO THE UNIT IF SIGNAL IS NOT BEING RECEIVED. THE GROUND (EXTERNAL METAL GRIP) MUST MAKE GOOD CONTACT. Also, depths beyond the capability of the instrument will cause loss of signal. This will occur around 100 fathoms for soft mud or weed bottom conditions. However, with hard clean bottom conditions this unit is capable of

receiving signals in excess of 99 fathoms.

During any lapse of the regular pulsing of this light, the readout panel will continue to display the last received valid depth until a new valid bottom signal is received.

Over Range Light: Located below and to the left side of the readout window, this light appears whenever your depth reading exceeds 99 feet (on FT Scale) or 99 fathoms (on FATH Scale). If on the FT Scale and this light appears it is recommended that you immediately switch to the FATH (Fathom) Scale. This will assist in reducing the chance that you may misread your unit.

The Over Range Light extends the depth capability of your readout display. When the light is on, you know that your display has passed 99. For example: Light on with an 01 display equals 101 feet, 102', 103', etc. (or fathom) light on with a 15 display equals 115 ft. (or fathoms).

Surface Signal Inhibit Control: This control is perhaps the MOST IMPORTANT on your depth sounder and is unique to Coastal Navigator. Digital sounders without this feature will often confuse you with continually changing random numbers.

Fresh water layers over saltwater, warm and cold water inversion layers (thermo-clines), schools of bait fish, all can return echos that digital sounders will receive. This will cause readings to appear that are false indications of shallow conditions, and may also activate your alarm.

The Surface Signal Inhibit control should be set at 2 feet or fathoms under normal operating conditions. Should erratic numbers appear, switch the control to 4 or 8 feet or fathoms. In so doing you have programmed the depth sounder to simply ignore any signal received from shallower than 4 or 8 feet or fathoms. Only the bottom signal (i.e., those returning from deeper than the Surface Signal Inhibit setting) will be displayed.

CAUTION: When your SURFACE SIGNAL INHIBIT control is at 4 or 8 (feet or fathoms) NO readings will be accepted by your sounder from any shallower depth than the setting. For example, a setting of 8 feet when your boat is in 5 feet of water will give you an 8 foot readout (however the Signal Receive light will not be on). If your alarm is set at less than 8 feet, it will NOT sound off, as no signal can be received for its lower setting.

REMEMBER TO LOWER YOUR SURFACE SIGNAL INHIBIT TO 2 WHEN IN SHALLOW WATER. It is also recommended that you always use the FT (foot) range when in less than 99' of depth. If you should turn on the sounder with the Surface Signal Inhibit at a setting deeper than the water you are in, virtually any number may appear on the depth display.

Depth Alarm: Your DDS-99 Depth Alarm is fully variable from 02 to 99 feet or 02 to 99 fathoms depending upon the range that you are operating in. To set the alarm, depress the Depth Alarm button and turn the knob clockwise. As you turn the knob (with the button depressed) the readout will display *only* your alarm setting. When you reach the desired alarm setting, release the button. The next valid signal received (signal receive light will blink) will be the bottom reading. Your alarm is now set for the depth that you dialed in with the knob control. To set a shallower alarm depth simply reverse this pro-

cess. To turn the alarm off, completely depress the button and rotate the knob counter clockwise as far as it will go.

NOTE: If the alarm is set at 15 when on the FT (foot) range, and you change to the fathom range, the alarm will now be set generally at 15 fathoms (which is 90 feet). **WHEN YOU CHANGE RANGES REMEMBER TO ADJUST YOUR ALARM ACCORDINGLY. THIS COULD CAUSE A DANGEROUS CONDITION IF NOT WATCHED CAREFULLY.** If you are on the fathom range with an alarm setting of 04 fathoms (i.e., 24 feet), and you change to the FT range as you approach a shoreline or reef area, your alarm will remain on 04 but now is set for *only 4 feet*. This is too shallow for many boats, and will not allow adequate warning should a sand bar or rock outcropping loom up. **ALWAYS CHECK YOUR ALARM SETTING WHEN YOU CHANGE RANGE SETTINGS.**

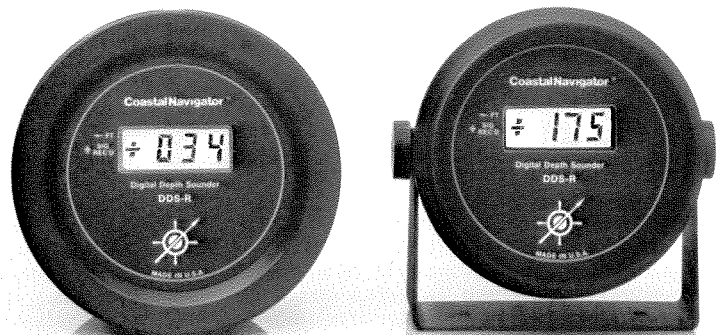
Your alarm, once activated by shallow bottom conditions, will not stop sounding until you:

1. Enter deeper water
2. Change the alarm setting
3. Turn off your depth sounder

It is recommended that you never use option #3 above. Always turn away from the danger by steering into deeper water, or reset the alarm at a shallower, yet safe depth.

REMEMBER: When in shallow or unknown water — **GO SLOWLY AND CAREFULLY.**

MODELS DDS-RW and DDS-RB Digital Repeaters (for DDS-99)



The digital repeaters connect into a plug on the back of your DDS-99. They simply repeat the depth displayed by your DDS-99 Depth Sounder. They DO NOT have any alarm function. They are solely for remote readout purposes.

The DDS-RW is a waterproof bulkhead unit that should be recessed into an instrument panel or bulkhead, such as the aft face of a cabin. The DDS-RB is a bracket mount unit designed to be mounted on flat surfaces such as a flying bridge console or hung from an overhead surface. Both units have a rheostat light intensity control on the back for night vision. A Remote-Flex Shaft Kit is available as an accessory for the RW bulkhead unit so that the light control knob may be surface mounted if desired. Both remote units are designed for outdoor usage. On the bridge or in the cockpit, their Liquid Crystal Display gives excellent visibility in the brightest direct sunlight.

Signal Received Sign: Both remotes indicate when a valid depth signal has been received by

pulsing a plus (+) sign to the left of the numerals except when in shallow water.

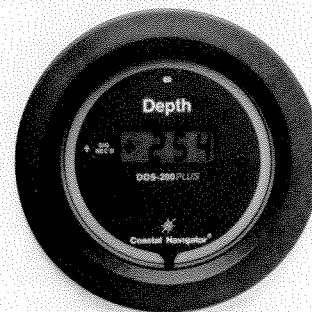
FT Sign: If your DDS-99 Sounder is on the the foot range, the remote repeater connected to it will display 3 digits up to 499 feet. So, although the DDS-99 can only display up to 99 ft. when on the foot setting, your remote can continue on up to 499'. This allows for convenient bridge or cockpit use without having to go below to change ranges as deeper bottom conditions occur. At 500 feet the unit will read 000 and at 501 feet will read 001', 002', etc.

The Liquid Crystal Ft Display Sign appears on the repeater readout panel when your Depth Sounder is on the foot range. When on the fathom range no sign appears.

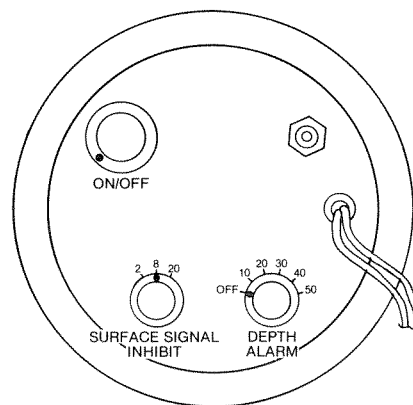
The DDS-99 has a remote alarm speaker jack allowing you to remote an alarm near the DDS-RB or DDS-RW.

OPERATING INSTRUCTIONS V

MODELS DDS-200 +



This exceptional instrument is designed specifically for sailboat cockpit use. Mounted through the aft bulkhead of a cabin, its face is fully waterproof for protection against saltwater damage. The readout is a LIQUID CRYSTAL DISPLAY (LCD) for excellent visibility in direct sunlight. This model is equally at home mounted in the instrument panel on a large power cruiser's fly bridge.



All control knobs are rear mounted to give you a fully waterproof face plate (which is normally exposed to the elements). To operate the controls you simply reach through the companionway

entrance, or use the Flex Shaft Kit for remoting the controls (available as an accessory).

On-Off Knob: This control is used to turn the unit on if a remote on-off is not used.

Backlight: A photoelectric cell mounted in the upper center of the unit's face automatically turns the backlight on at night, off at daybreak. The cell automatically adjusts light intensity based on ambient light conditions.

Signal Received Sign:(+) The LCD panel contains a signal received sign. This is a plus sign (+) to the left of the numerals. Each time a signal is received the (+) sign will pulse. Temporary interruption of this sign may be caused by air bubbles passing over the transducer, depths in excess of the unit's capability, or a loose transducer cable connector plug at the back of the unit. ALWAYS CHECK TO BE SURE THAT YOUR TRANSDUCER CABLE PLUG IS CLEAN AND IS SECURELY AND FIRMLY INSERTED INTO THE UNIT IF A SIGNAL IS NOT BEING RECEIVED.

This unit can read depths well in excess of 400 feet. When the signal receive sign is not pulsing, the unit will display the last valid depth signal received (which may be well beyond 400 feet).

The signal receive sign **MUST** pulse for the unit to be operating properly.

Over Range Capability: The DDS-200+ can read depths well in excess of 400 feet. Under ideal conditions it will, in fact, read in excess of 500 feet. Since 499 feet is the LCD readout's greatest readout capability, it will display 000 for a signal of 500 feet, and then begin counting again at 001, 002, 003, etc.

Depth Alarm: The depth alarm switch may be set for depths of 10', 20', 30', 40' or 50'. It may also be set at 0 to turn the alarm off. The alarm will sound when the depth under your transducer is at or shallower than your alarm setting.

REMEMBER it is the depth between your **transducer** and the bottom that you are reading.

CAUTION: When setting the alarm, be sure to check the Surface Signal Inhibit control setting. The alarm will not sound if it is set at or shallower than the surface signal inhibit setting (i.e., if the surface signal inhibit setting is at 20' the alarm MUST be set for 30' or deeper).

Surface Signal Inhibit Control: This control is perhaps the MOST IMPORTANT on your depth sounder, and is unique to Coastal Navigator. Digital sounders without this feature will often confuse you with continually changing numbers.

Fresh water layers over salt water, warm and cold water inversion layers (thermo clines), schools of bait fish, all can return echos that digital sounders will receive. This will cause readings to appear that are false indications of shallow conditions and may also activate your alarm.

The Surface Signal Inhibit control should be set at two feet under normal operating conditions. Should erratic numbers appear,

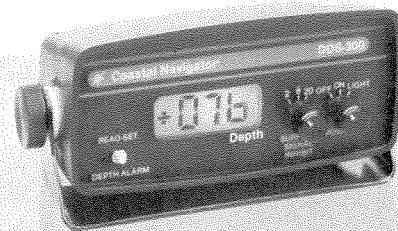
switch the control to 8 feet or 20 feet. In so doing you have programmed the depth sounder to simply ignore any signal received from shallower than 8 feet or 20 feet. Only the bottom signal (i.e., those returning from deeper than the Surface Signal Inhibit setting) will be displayed.

CAUTION: When your Surface Signal Inhibit control is at 8 feet or 20 feet NO readings will be accepted by your sounder from any shallower depth than the setting. For example, a setting of 20 feet when your boat is in 5 feet of water will give you a 20 foot reading (however, the Signal Receive Light will not be on). If your alarm is set at 10 feet it will NOT sound off, as no signal can be received for its lower setting. REMEMBER TO LOWER YOUR SURFACE SIGNAL INHIBIT TO 2 WHEN IN SHALLOW WATER. If you should happen to turn on the sounder with the Surface Signal Inhibit at a setting deeper than the water you are in, virtually any number may appear on the depth display.

REMEMBER: Your depth sounder cannot eliminate the dangers of shallow water, rocks, submerged debris, etc. It can only assist you in recognizing some of them. When in shallow or unfamiliar water, the best rule is "GO SLOWLY AND GO CAREFULLY."

is substantially less than one tenth amp. The controls are front mounted for accessibility and ease of operation.

On-Off Knob: This control is also a back light control for night visibility. After turning the control knob to the "on" position, continue to rotate it clockwise. As you do so, the back light (behind the LCD



display) will come on. The back light cannot be seen in daylight, so check to be sure that it is not turned on (by adjusting the control knob to the "on" position only).

Depth Alarm: The depth alarm may be set at any two foot increment between 0 and 30 feet. To check the depth alarm setting, simply depress the depth alarm button for a second or two. The depth at which the alarm is set will be displayed. Release the button, and the water depth below the boat (transducer) will be displayed. To change the alarm depth setting, simply depress the button. After three seconds the digital display will begin progressing to deeper depths in two foot increments. When the desired depth alarm setting is reached, release the button. Your alarm is now set at the new depth. After an alarm reading of 30' is reached, the next reading is 000. At this point there is no depth alarm set, so, should you not wish to use the alarm, allow the readout to remain at, or progress to 000. After this, the readout again progresses upward in two foot increments.

REMEMBER, it is the depth between your transducer and the bottom that you are reading.

CAUTION: When setting the alarm, be sure to check the surface signal inhibit control setting. The alarm will not sound if it is set at or shallower than the surface signal inhibit setting (i.e., if the surface signal inhibit is set at 20' then the depth alarm must be set at 22' or deeper).

Signal Received Sign (+): The LCD panel contains a signal received sign (to the left of the num-

erals). It is a plus sign (+) — each time a signal is received, the plus sign will pulse. Temporary interruption of this sign may be caused by air bubbles passing over the transducer, depths in excess of the unit's capability, or a loose transducer cable connector plug at the back of the unit. ALWAYS CHECK TO BE SURE THAT YOUR TRANSDUCER CABLE PLUG IS SECURELY AND FIRMLY INSERTED INTO THE UNIT IF A SIGNAL IS NOT BEING RECEIVED.

This unit can read depths well in excess of 300 feet. When the signal receive light is not pulsing, the unit will display the last valid depth signal received. The signal receive sign MUST pulse for the unit to be operating properly.

Over Range Capability: The DDS-300 can read depths beyond 300 feet. Under ideal conditions it will, in fact, read in excess of 500 feet. Since 499 feet is the LCD readout's greatest capability, it will display 000 for signals of 500 feet, and then begin counting again at 001, 002, etc.

Surface Signal Inhibit Control: This control is perhaps the MOST IMPORTANT on your depth sounder, and is unique to Coastal Navigator. Digital sounders without this feature will often confuse you with continually changing random numbers.

Fresh water layers over salt water, warm and cold water inversion layers (thermo clines), schools of bait fish, all can return echos that digital sounders will receive. This will cause readings to appear that are false indications of shallow conditions and may activate your alarm.

OPERATING INSTRUCTIONS VI

MODEL DDS-300

This triumph of Coastal Navigator engineering packs many superior features into a very small package. It is designed for installation in the restricted space available on or under the dash of small fishing and ski boats. The readout display is Liquid Crystal (LCD) for excellent visibility in direct sunlight. The electrical draw

The Surface Signal Inhibit control should be set at 2 feet under normal operating conditions. Should erratic numbers appear, switch the control to 8 feet or 20 feet. In so doing, you have programmed the depth sounder to ignore any signal received from shallower than 8 feet or 20 feet. Only the bottom signal (i.e., those returning from deeper than the Surface Signal Inhibit setting) will be displayed.

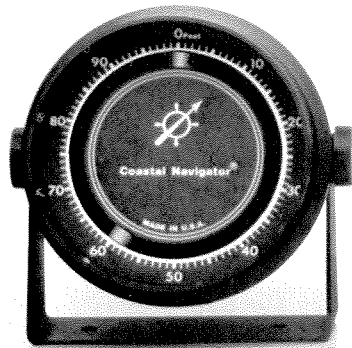
CAUTION: When your Surface Signal Inhibit control is at 8 feet or 20 feet NO readings will be accepted by your sounder from any depth shallower than the setting. For example, a setting of 20 feet when your boat is in 5 feet of water will give you a 20 foot reading (however, the Signal

Receive light will not be on). If your alarm is set at 10 feet, it will NOT sound off, as no signal can be received for its lower setting.

REMEMBER TO LOWER YOUR SURFACE SIGNAL INHIBIT TO 2 WHEN IN SHALLOW WATER. If you should happen to turn on the sounder with the Surface Signal Inhibit at a setting deeper than the water you are in, virtually any number may appear on the depth display.

REMEMBER: Your depth sounder cannot eliminate the dangers of shallow water, rocks, submerged debris, etc. It can only assist you in recognizing some of them. When in shallow or unfamiliar water the best rule is: "GO SLOWLY AND GO CAREFULLY."

HOW TO "READ" YOUR DEPTH SOUNDER

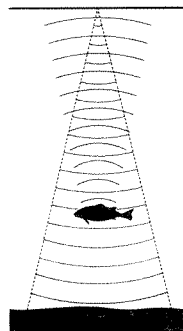


A depth sounder is important for navigation and safety. In fact, most experts recommend a depth sounder as the first piece of electronic gear to be put on a boat.

A compass, chart and depth sounder are the basic tools for navigating. These tools are the main means of establishing and checking position during coastal navigation, and by carefully using a depth

sounder, you can keep from accidentally running aground, because you always know exactly how much water you have below.

Your Coastal Navigator depth sounder will provide a great deal of information, and it may take some practice to interpret the readings displayed. You may wish to take your boat to an area you're familiar with so that you can see how specific bottom conditions are displayed.



Determine Bottom Conditions Accurately . . .

Coastal Navigator depth sounders show a hard, flat bottom as a strong wide flash (Fig. 1). Mud bottoms tend to absorb some of the sound waves, and produce a narrow "soft" flash (Fig. 2). Irregular rock bottoms and underwater wrecks produce irregular flashes (Fig. 3).

FIG. 1

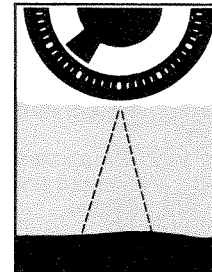


FIG. 2

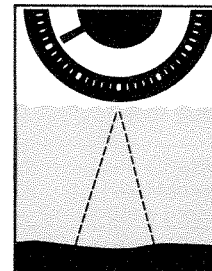
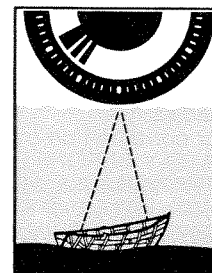
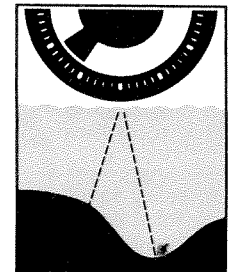


FIG. 3



weather. When following a channel, the broadening flash (Fig. 4) shows you when you stray towards the edge.

FIG. 4



Find Fish

A Coastal Navigator depth sounder makes fishing more productive. Just as you pass over a fish, it produces a flash between the bottom flash and the permanent zero flash. (Fig. 5) Schools of small fish produce a broad, flickering flash. (Fig. 6)

FIG. 5

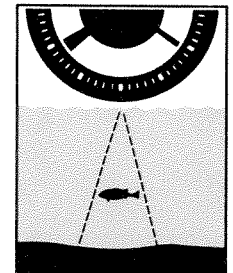
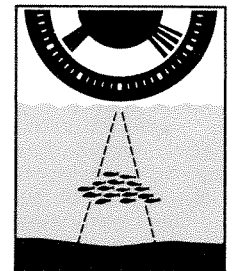


FIG. 6



Cruise Safely

Comparing depths indicated by your sounder with recorded depths shown on a chart can help "fix" your location. And the contour lines on a chart can guide you in foul

TROUBLESHOOTING

If you find your Coastal Navigator operating poorly, or not at all, check the following symptoms for possible solutions:

SYMPTOM	POSSIBLE SOLUTION
Nothing works (no lights, no rotor moving)	— Is depth sounder turned on? — Check depth sounder power connection — Is it plugged in?
OR	— Check battery conditions: the leads may be reversed or loose. — Check all wires and connections for tightness and/or corrosion. Are connections soldered?
Everything else on boat works, except for depth sounder.	— Check battery; it may be dead or weak. All sounders have a drop-out voltage below which sounder will not operate.
Rotor spins, but no lights — or weak lights.	— Check your battery for drop-out voltage. It could be low.
OR	— Check battery for low voltage and/or poor charging system. — Check tightness of alternator belt.
Sounder becomes weak after fishing, or when other accessories are turned on.	
Zero flash, but no bottom flash	— Is transducer cable plugged in? — Is gain turned up high enough? — Is transducer cable snugly plugged into indicator (not loose)? Wiggle connector for intermittent bottom flash. If loose, crimp cable connector for tighter fit. — Are you using Coastal Navigator pretuned extension cables? — Check for corrosion on transducer connector. — IMMEDIATELY BEFORE LAUNCHING (USUALLY TRAILERABLE BOAT), CLEAN DIRT AND ROAD OIL LAYER OFF TRANSDUCER FACE WITH LIQUID CLEANER (I.E. FORMULA 409) AND WATER — FOR COMPLETE "WETTING." — Check transducer for damage from contact with underwater objects. When transducer is out of water, and sounder is operating, put ear up to transducer face and listen for transducer noise (click). No noise indicates a problem. — Check transducer cable for damage (i.e., damaged insulation, broken wire). — If using an extension cable, check for a possible bad cable: look for damage and/or any broken wires inside plug connectors. Does sounder work if extension cable is bypassed by plugging

transducer cable DIRECTLY INTO depth sounder? Now is there a bottom flash?
— Have you used more than one extension cable in line? (This cannot be done).
— If using dual station switch, is switch turned to respective station (upper or lower)? Can you test for faulty switch by bypassing switch with extension cable? (Plug extension cable directly into depth sounder.)
— Check transducer installation. If an "inside-the-hull" mount, refer to Transducer Section of separate installation instructions.

Intermittent echo return.

— Check for broken wire in transducer cable or extension cable plug connector.— Check for broken wire in coaxial cable (possible transducer cable "flapping loose" against boat).
— Check transducer cable at transducer for breaks or crimps.
— Check that transducer is mounted under water.
— Check to be sure that transducer is in air bubble free solid water when the boat is in motion.

Sounder will not reach maximum depth capability.

— Is transducer mounted inside the hull? Check section titled "Inside-the-Hull Transducer Installations."
— If using extension cables, additional tuning may be required.
— Is the transducer face clean?
— Is gain control set high enough?

Dial or depth sounder completely lit up OR Interference

— Check for loose or poor transducer connection.
— Review separately enclosed Transducer Installation Instructions.

INTERFERENCE

Protection against interference is built into your Coastal Navigator Depth Sounder: An exclusive pulse discrimination circuit virtually eliminates interference from engine, radio, ignition, pump, motor and other marine electrical devices. Like all electronic equipment, however, the Coastal Navigator can be susceptible to abnormal electrical interference. The origin of interference will vary with different types of boats:

Electrical Interference

Interference produces lines on

the dial of your flasher depth sounder which bear no relation to the "echo" being received. If a well defined "pinwheeling" occurs, normally the ignition system, battery charging system, or impulse tachometers are to blame. Usually the source of electrical interference can be identified. And interference usually disappears when the interfering equipment is shut off. On digital sounders, interference will appear as continuously changing random numbers.

TEST for the interfering equipment by shutting off, or disconnecting (one at a time) each possible interference-producing device while your boat is drifting freely in open water.

- Be sure your depth sounder works properly when *everything* else on boat is OFF.
- Check to be sure the transducer cable and power leads are installed per the installation instructions.
- START MOTOR. While idling in neutral, "REV" motor or engine to high RPM. If interference results, pinpoint the problem area by checking the following:

1. Disconnect tachometer from engine. If interference persists, check point 2.
 2. Remove alternator drive belt. If interference persists, check point 3.
 3. Disconnect electric windshield wipers. If interference persists, check point 4.
 4. Filter the ignition system by replacing spark plugs and ignition cable with resistance-type plugs and suppression cables.
- Once the source of interference is located, special filtering of the specific equipment may be necessary. CONSULT YOUR DEALER or marine electronic technician for technical assistance.

SERVICE

If you have tried the simple remedies outlined in TROUBLE SHOOTING, and your Coastal Navigator does not operate properly, consult your local Coastal Navigator dealer for additional suggestions. Or:

- Describe COMPLETELY, IN DETAIL the problem(s) you are having with your unit.
- Describe where and how the transducer is mounted. Are extension cables used?
- Include your name and PHONE NUMBER.

- All repairs must be returned freight prepaid to Coastal Navigator.
- Pack all parts securely to avoid damage.
- SEND THE PACKAGE FREIGHT PREPAID VIA UNITED PARCEL SERVICE OR U.S. MAIL, (PLEASE DO NOT SEND BY BUS) TO:
COASTAL NAVIGATOR, INC.
P.O. Box 31153
Seattle, WA 98103
Attn: Service Dept.

MAINTENANCE

This instrument was designed to provide a maximum of trouble-free service with little or no maintenance. It is important, however, to keep your depth sounder and all connectors dry. No grease or oiling of the unit is required.

You should keep the exterior of plugs and connectors clean and protected with vaseline, lubriplate, or a silicone-base lubricant.

Whenever corrosion appears, clean as necessary with contact cleaner.

Normally, the transducer requires no service. However, you should scrub the transducer face at least once a year with a soft bristle brush, liquid cleaner (mild detergent) and water. *Any marine growth* on transducer face will impair the performance of your depth sounder.

LIMITED WARRANTY

Two full years warranty from date of purchase. Upon receipt of the instrument at our Seattle office, or at an authorized warranty repair station, Coastal Navigator, Inc. will repair and/or replace parts or subassemblies as necessary and return the instrument to purchaser, (transportation prepaid). If Coastal Navigator, Inc. determines that the defect, malfunction or failure of the instrument was the result of damage by unreasonable use or negligence, or by accident, faulty installation, salt water corrosion or over-voltage, this warranty will not apply. Requested repairs will then be charged for at Coastal Navigator, Inc.'s current rate.

Repair service by other than Coastal Navigator, Inc. or one of its authorized warranty repair stations will render this warranty null and void.

Coastal Navigator, Inc.'s obligation under this warranty is limited to repairing or replacing any defective parts that, in our judgment, fail(s) during the course of normal use and service. Coastal Navigator, Inc. assumes no contingent liability of any nature,

and makes no other representations or warranties except as expressed herein.

Coastal Navigator, Inc. reserves the right to make changes or improvements in its products from time to time, and is not obligated to effect such changes or improvements on equipment previously manufactured.

In order for this warranty to be effective, the following two conditions must be met:

1. The warranty registration card must be completed and returned to our office within thirty (30) days from date of purchase.
2. The defective instrument and/or accessory(ies) must be returned *freight prepaid* to Coastal Navigator, Inc. or one of its authorized warranty repair stations (with a copy of the sales receipt or proof of purchase date).

Coastal Navigator, Inc.
P.O. Box 31153
Seattle, WA 98103
(206) 633-1950





Coastal Navigator

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