

BassCat Boats

presents

The Instrument Panel of the Future

Model BP100

Designed and Manufactured by:

Omega Two, Inc. - Marine Division

in association with

DDK Technologies, Inc.



Manual 2.0B

FOR
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OWNER'S MANUAL

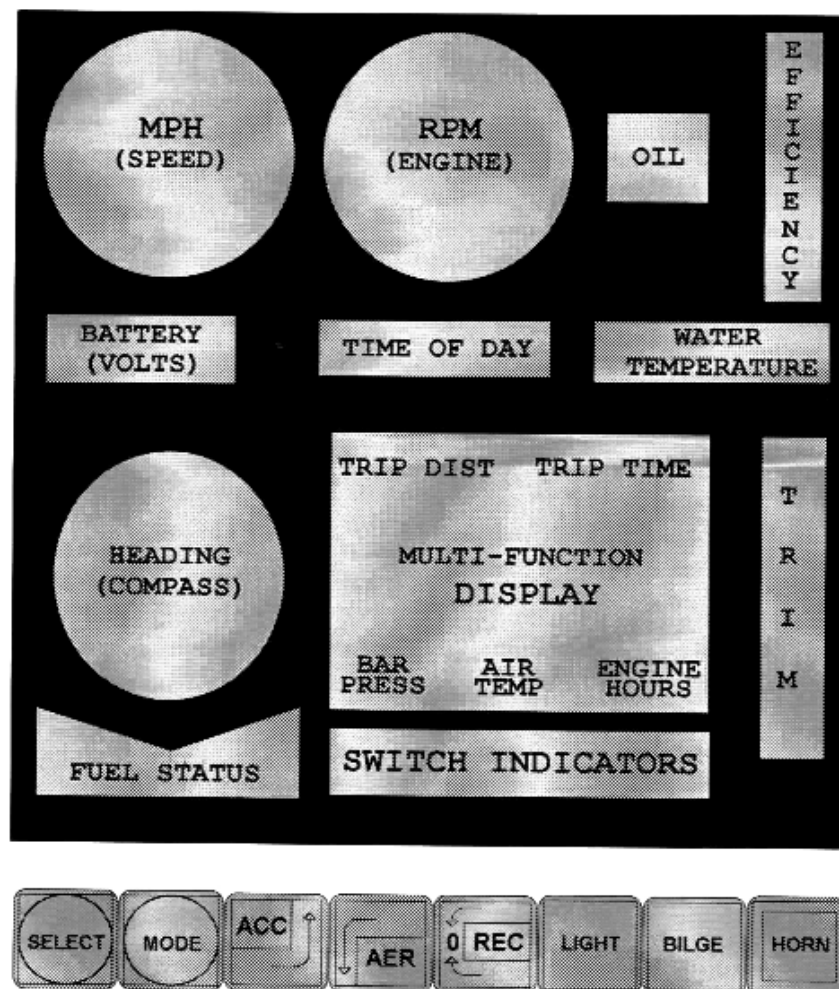
BP100-MAN

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THE DISPLAY and KEYPAD ---- FIGURE 1

Section I -- OPERATIONS -- FEATURE SUMMARY

The BP100 instrument panel is a state-of-the-art device specifically designed for the boat owner that wants the very best. A powerful microprocessor makes possible the following list of easy to use features possible:

1. a large liquid crystal display (LCD) that groups all instrument functions together in a neat logical arrangement.
2. displays revolutions-per-minute (RPM) of the engine in both digital and graphical formats.
3. displays the speed of the boat in miles-per-hour (MPH) in both digital and graphical formats.
4. displays the angle of the engine to the boat (TRIM)
5. displays the water temperature (SURFACE)
6. displays the temperature of the (AIR) .
7. displays the barometric pressure (BAR).
8. displays the fuel available in two tanks. (L FUEL & R FUEL)
9. displays the condition of the battery (VOLTS).
10. displays the direction in which the boat is heading. (HDG) in both digital and graphical formats.
11. displays the time of day (TIME).
12. displays a warning if the (OIL) level is low, and (in some boats) if the oil level is too high.
13. displays the total time (HOURS) the engine has been running.
14. displays (TRIP TIME) and (TRIP DISTANCE).
15. displays an efficiency gauge (% EFF) that allows the boat operator to adjust trim for best speed.
16. controls navigation (NAV) and anchor (ANCH) lights.
17. controls aeration (AER) and recirculation (REC) pumps for live wells. ON & OFF times are programmable.
18. controls the (HORN).
19. includes an alarm system to deter theft from storage compartments.
20. includes a battery monitor that will turn off pumps, storage compartment lights, and the accessory sockets before the battery is discharged too low for the engine to start.
21. includes a light behind the LCD to allow the boat operator to see the instrument after dark.
22. internal circuit protection for pumps and lights.

**NOTE: The boat must include sensors and be properly wired for most of these features to work.
All of the above are standard equipment on most BassCat Boats.**

Section I -- OPERATIONS -- SPECIFICATIONS

SPECIFICATIONS:

| | |
|--------------------------------|---|
| SIZE: | 7.3 (width) by 8.3 (height) by 2.75 (depth) inches Requires a panel cutout of 7.30 (width) by 7.60 (height) |
| WEIGHT: | approximately 3.5 pounds. |
| OPERATING VOLTAGE: | 12 volts DC nominal. Will operate from 7 to 15 volts. |
| CURRENT REQUIREMENTS: | approximately .1 amp with Master Power Switch ON, but all pumps and lights turned OFF. This current drops to about .05 amp when the Master Power Switch is turned OFF (again, with all pumps and lights OFF). |
| OPERATION TEMPERATURE: | 32 to 120 degrees Fahrenheit. The unit will operate outside these limits, but performance parameters have not been established. We recommend that the LCD display be shielded from extended periods of direct sunlight during hot summer days. |
| STANDARD EQUIPMENT: | one - BP100 instrument with plastic overlay. one - Cable assembly to connect instrument into boat. one - Air temperature sensor with an 18 inch cable. one - Water surface temperature sensor with a 12 foot cable. one - Compass sensor with a 7 foot cable. one - Owner's manual. one - Warranty Registration card. |
| CUSTOMER SUPPLIED ITEM: | speed is measured by sensing the water pressure on an opening exposed to the water known as a PITOT tube. This is normally part of the engine. The customer will need to supply this pitot tube, enough hose to reach to the instrument, and a hose-to-hose adapter. |

Notice: Omega Two reserves the right to make changes to this product without prior notice and without liability.

REPLACEMENT PARTS

| DESCRIPTION | PART NUMBER | COST |
|--|---|-----------------|
| INSTRUMENT ASSEMBLY | BP100-ASSY | CALL FOR PRICES |
| AIR TEMPERATURE SENSOR (18 INCHES LONG) | BP100-AIR/18 | CALL FOR PRICES |
| WATER TEMPERATURE SENSOR (12 FEET LONG) | BP100-H20/12 | CALL FOR PRICES |
| COMPASS ASSEMBLY WITH CABLE (7 FEET LONG) | BP100-COMP/7 | CALL FOR PRICES |
| PLEXIGLAS OVERLAY | BP100-OVRLAY | CALL FOR PRICES |
| OWNER'S MANUAL | BP100-MAN | \$15.00 |
| CABLE HARNESS (all except Yamaha engine) | BP100-CA | CALL FOR PRICES |
| CABLE HARNESS (YAMAHA engine only) | BP100-CA-YAM | CALL FOR PRICES |
| NEW INSTALL PACK-INCLUDES ALL OF THE ABOVE | BP100-ALL | CALL FOR PRICES |
| | (prices are subject to change without notice) | |

Section I -- OPERATIONS -- DESCRIPTION OF OPERATIONS

DESCRIPTION OF OPERATIONS

The BP100 instrument panel is the most advanced instrument available today for high-performance boats. The following is a description of each of the functions it incorporates and step-by-step instructions for using the keypad. While this description may look intimidating, most functions have already been set for you so that all you have to do is get into your new boat, go fishing, and enjoy our great outdoors. Later, as you get more comfortable with the instrument, you can change it to meet your unique needs and desires.

THE MASTER POWER SWITCH IS TURNED OFF:

1. When the Master Power Switch is turned off, the LCD display will be blank and (unless the boat operator has selected otherwise) all relays and other output drivers will be "open" so that devices they are driving are also turned off. An exception is sounding the horn.
2. The microprocessor is always active monitoring the various inputs and controlling the relay outputs if the boat operator has selected any of them for automatic operation. One of these inputs is the set of switches that turn on the lights in the storage compartments. If one of these inputs show that a switch is open, the microprocessor checks to see if the security system has been enabled. If the security has not been enabled, the lights to the compartment are turned on. By using the microprocessor to turn ON the lights provides the ability to turn OFF the lights after 10 minutes in case the operator forgot to shut the lid. This keeps the battery from being discharged. **Note:** Closing the lid and reopening it will turn on the storage compartment lights again.
3. The microprocessor also continuously monitors the condition of the battery in an attempt to keep enough of a charge to allow the engine to start. When the voltage drops to 10 volts, all functions that draw considerable current from the battery will be turned OFF, except the Navigation lights and the Bilge pump. They cannot be turned back ON until the battery voltage increases to at least 11 volts. The battery display will begin to flash when the voltage drops below 10 volts.
4. If the security system is enabled, opening any storage compartment or other enclosure protected with a switch and lamp will cause the horn to sound intermittently for five minutes.

THE MASTER POWER SWITCH IS FIRST TURNED ON: (ENGINE IS NOT RUNNING)

1. The segments of the display will turn on and show the value that their respective sensor is measuring at that moment.
2. Both **MPH** and **RPM** will display "0.0" and leading digits will be blank. Only one segment of the "C" bars will be ON.
3. The measured battery voltage is displayed. A typical value for **VOLTS** is between 10 and 14. A voltage less than 10 volts will cause this part of the display to flash.
4. The **TIME** of day is displayed. If this is the first time the instrument has been turned ON after being connected to the battery, the time will be "12:00", and it will be necessary to reset to the correct time.
5. The water **SURFACE** temperature is displayed. If the temperature is less than 32 degrees Fahrenheit or more than 120 degrees, all segments will be blanked since these readings are not considered valid.

Section I -- OPERATIONS (continued)

6. The "TRIM" angle of the boat to the engine is displayed. Each of the segments in this display may be programmed to suit the desires of the boat owner, or the factory settings may be used.

7. The direction the boat is pointed is displayed as the COMPASS heading. The compass display will have all of the direction arrows ON except the heading the boat is pointed, which will be blinking. The digital display in the center of the compass will show the actual heading. Compass readings are averaged over an one second period in order to minimize the unstable readings that would result from waves and rocking of the boat.

8. The FUEL status of the two gasoline tanks is displayed. If the fuel is low, the smallest segment will be blinking.

9. The multifunction display will show HOURS. This value is the total hours of operation since the panel was installed. It is saved in a memory that retains data even when power is turned off.

10. The OIL square will be blinking if the oil level is low. Otherwise, this square will be off. This function operates ONLY with the Master Power Switch ON. (On engines equipped with an Oil High sensor, the Oil square will be on solid if the oil reservoir is overfilled.)

11. The AIR temperature is the temperature measured at the end of the 18 inch sensor located under the control panel. This sensor is accurate only when it is in the shade and air can move freely around it.

12. The BARometric pressure is measured by an on-board sensor. It will vary with atmospheric pressure or altitude changes. For accurate readings, the barometric pressure must be calibrated each time the boat is moved to a lake at a different altitude. See discussion of keypad usage for adjusting Barometric Pressure offset.

13. Air can be injected into the live well by turning on the AERator pump. When in MANUAL, the AERator is always ON. When in AUTOMATIC, the pump turns ON and OFF at regular intervals. These intervals may be programmed or factory defaults may be used. Factory defaults are-- 1 minute ON and 12 minutes OFF. See discussion of keypad usage for adjusting AERator pumps On and OFF times.

14. Water can be circulated in the live well by turning on the RECirculation pump. When in MANUAL, the RECirculation pump is always ON. When in AUTOMATIC, the pump turns ON and OFF at regular intervals. These intervals may be programmed or factory defaults may be used. Factory defaults are-- 1 minute ON and 12 minutes OFF. See discussion of keypad usage for adjusting RECirculation pump On and OFF times.

15. Pressing the LIGHTS switch will turn on the ANCHOR light or both the ANCHOR and NAVigation lights. The LCD display is lit from the back when the NAVigation lights are ON as it is assumed that it is dark.

16. If you feel that the MPH is not reading correctly, it may need to be zeroed. This is done by putting the boat into the still water without the engine running. Next, hold down the MODE switch and turn the Master Power Switch OFF and then back ON. The microprocessor will read the PITOT tube for 5 seconds to calculate zero miles per-hour.

Section I -- OPERATIONS (continued)

AFTER THE MASTER POWER SWITCH IS TURNED ON: (ENGINE IS RUNNING)

1. The engine RPM is continuously sensed and displayed in both digital and graphic forms.

2. The speed of the boat in MPH is displayed (in both digital and graphic forms) if the RPM is above 250. Below this value, MPH is shown as "0.0".

3. Time is added to total engine HOURS if RPM is above 250.

4. TRIP TIME is computed whenever RPM is above 250. TRIP TIME is the time the boat is moving, not the time since the boat left the dock.

5. TRIP DISTANCE is the distance the boat has traveled in miles. It is computed only when RPM is above 250 and is computed by using the MPH and TRIP TIME.

6. The EFFICIENCY gauge is a computed value that compares the actual MPH with a computed MPH that assumes a certain propeller pitch and gear-box ratio. It should not be considered as the worthiness of the boat. It should be viewed as a way to compare how the boat performs with various trim settings and other factors that affect the boat such as wind, water currents, etc.

General comment: The unit is designed so that if an unrealistic value is received from any sensor (i.e. water temperature, compass, etc.) that portion of the display will blank.

Section I – OPERATIONS – QUICK REFERENCE

Quick Reference - Functions of command buttons:

This is the Keypad Layout.



Each key may have multiple functions. For example (ACC) and (0 REC) both use the same button. Some functions require holding a button and pressing another button at the same time to perform the function.



Select Button:

Each time the select button is pressed the multifunction display will change to display a different selection. The display selections are as follows:

- **Engine Hours** - Displays the total time the engine has been operating.
- **Trip Miles** - Displays the distance traveled since last reset of trip miles.
- **Trip Time** - Displays the time the engine has been operating since last reset.
- **Barometer** - Displays barometric pressure. This reading must be referenced to your elevation.
- **Air Temperature** - Displays current air temperature in degrees Fahrenheit.



Mode Button:

The mode button is used mainly for multiple button commands. Each use of the mode button will be discussed later in this manual. Look for the image of the button shown above. Some of the mode button functions are:

- Setting the clock
- Setting RPM Ratio
- Setting the barometer
- Resetting trip time and distance
- Setting various values during installation



Accessory Button:

The accessory button is used to turn accessory equipment ON and OFF. To turn ON, push once. To turn OFF, push again. The accessory function will only operate when the instrument panel is turned on and will automatically turn off when the Master Power Switch is turned off.

Section I – OPERATIONS



AERATOR BUTTON:

The AERator button is used to turn the aerator pump ON and OFF. To turn ON (manual mode) push once. To turn ON (timer mode) push again. To turn the pump OFF, press the AER button one more time. Each time this button is pressed, the function of the pump will rotate to the next mode as just described and as shown below. The aerator pump will automatically turn OFF if the battery voltage drops below 10 volts.

- **Pump ON - Manual Mode** - Pump will turn ON and remain ON until the aerator button is pressed again.
- **Pump ON - Timer Mode** - Pump will turn ON and OFF based on a programmable timer. The pump will cycle ON and OFF until the aerator button is pressed again.
- **Pump OFF Mode** - Pump will turn off and remain off until the aerator button is pressed again.

NOTE: If the Master Power Switch is in the OFF position, the user can only turn the aerator off.



Recirculating Pump Button:

The REcirculator button is used to turn the Recirculating pump ON and OFF. To turn ON (manual mode) push once. To turn ON (timer mode) push again. To turn pump OFF, press button one more time. Each time the button is pressed the function of the pump will rotate to the next mode as just described and as shown below. The Recirculating pump will automatically turn OFF if the battery voltage drops below 10 volts.

- **Pump ON - Manual Mode** - Pump will turn ON and remain ON until the recirculator button is pressed again.
- **Pump ON - Timer Mode** - Pump will turn ON and OFF based on a programmable timer. The pump will cycle ON and OFF until the recirculator button is pressed again.
- **Pump OFF Mode** - Pump will turn OFF and remain OFF until the recirculator button is pressed again.

NOTE: If the Master Power Switch is in the OFF position, the user can only turn the Recirculating pump off.



Light Button:

The LIGHT button is used to turn the anchor and navigation lights ON and OFF. To turn ON the anchor lights, push once. To turn ON both the anchor and navigation lights, push again. To turn all lights OFF, press the LIGHT button one more time. Each time the button is pressed the function of the lights will rotate to the next mode as just described and as shown below:

- **Anchor Lights ON** - Anchor lights will turn ON and remain ON until the LIGHT button is pressed again.
- **Anchor and Nav Lights ON** - Anchor lights and Navigation lights will turn ON and remain ON until the LIGHT button is pressed again.
- **Lights OFF Mode** - Both lights will turn OFF and remain OFF until the LIGHT button is pressed again.

NOTE: If the Master Power Switch is in the OFF position, the user can only turn the lights off.

Section I -- OPERATIONS



Bilge Button:

The **BILGE** button is used to turn the bilge pump ON and OFF. To turn ON the bilge pump (manual mode) push once. To turn the bilge pump OFF (ignoring the float switch) press again. To set the bilge pump to automatic (float switch) mode, press the **BILGE** button one more time. Each time the button is pressed the function of the bilge pump will rotate to the next mode as just described and as shown below:

- **Bilge Pump ON** - Bilge pump will turn ON and remain ON until the bilge button is pressed again.
- **Bilge Pump OFF** - Bilge pump will turn OFF and remain OFF until the bilge button is pressed again.
- **Bilge Pump AUTO** - Bilge pump will turn OFF until the float switch requests the bilge pump to turn ON. It will remain in auto mode until the bilge button is pressed again.

NOTE: If the Master Power Switch is in the OFF position, the user can only turn the bilge pump OFF.

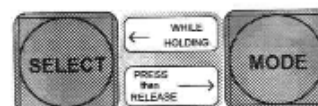


Horn Button:

The **HORN** button is used to turn the horn ON. The horn will sound while pressing the **HORN** button. The horn will also sound if the security system is triggered (see **Security System** section).

Section I -- OPERATIONS -- HOW TO SET AND CLEAR FUNCTIONS

HOW TO SET AND CLEAR FUNCTIONS:



SETTING THE CLOCK :

This command allows the user to set the **hours** and **minutes** in 12 hour format. Pressing the mode button toggles between hours and minutes. The number flashing is the value you are currently editing. The time will start counting with seconds at :00 when you exit this editor.

TIME display shows: HOURS : MINUTES



Change editing from hours to minutes and back to hours.



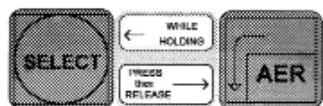
Increase time value by 1 (one).



Decrease time value by 1 (one).



Exit time set editor, save changes and return to normal operation.

Section I -- OPERATIONS**HOW TO SET AND CLEAR FUNCTIONS: (Continued)****AERATOR PUMP****Automatic Timer Programming:**

This mode allows the user to select an **OFF** time and an **ON** time in minutes for the timer mode of the aerator pump. The time display will show the OFF time and the ON time for the pump. The time that is blinking is the value that you are currently editing. OFF time is blinking when you first enter this mode.

TIME display shows time pump is: **OFF : ON**

example: **12:01** indicates 12 minutes is the OFF time and 1 minute is the ON time.



Change editing from OFF time to ON time and back to OFF time.



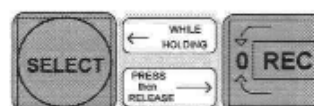
Increase timer value in minutes (maximum 15 minutes).



Decrease timer value in minutes (minimum 1 minute).



Exit timer editor, save changes and return to normal operation.

Section I -- OPERATIONS**HOW TO SET AND CLEAR FUNCTIONS: (Continued)****RECIRCULATING PUMP****Automatic Timer Programming:**

This mode allows the user to select an **OFF** time and an **ON** time in minutes for the timer mode of the Recirculating pump. The time display will show the OFF time and the ON time for the pump. The time that is blinking is the value that you are currently editing. OFF time is blinking when you first enter this mode.

TIME display shows: **OFF : ON**

For example: **12:01** indicates 12 minutes is the OFF time and 1 minute is the ON time.



Change editing from OFF time to ON time and back to OFF time.



Increase timer value in minutes (maximum 15 minutes).



Decrease timer value in minutes (minimum 1 minute).



Exit timer editor, save changes and return to normal operation.

Section I -- OPERATIONS

HOW TO SET AND CLEAR FUNCTIONS: (Continued)



SECURITY SYSTEM

or



(Hold for 5 seconds - only with Master Power Switch ON)

Enabling and Disabling:

If the Master Power Switch is ON:

The above commands will toggle the security system OFF and ON each time the command is pressed.

NOTE: If the security system is enabled a single line will appear above the VOLTS display. This is to let you know that the security system is enabled. Since the Master Power Switch is ON, the storage compartments can be opened without the horn sounding. When the security system is enabled, it is immediately armed when the Master Power Switch is turned OFF.

If the Master Power Switch is OFF:

Warning! There is no indication if the security system is enabled when the Master Power Switch is OFF. This is done so that a would-be thief cannot tell until he opens a storage compartment lid. By that time it is too late...the horn will sound.

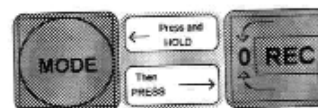
NOTE: The security system controls the power to the storage compartment lights when the Master Power Switch is OFF. When a door is opened the microprocessor is requested to turn a light to turn ON. It then monitors the door every 30 seconds to see if the door has been closed. Because of this technique you will notice a 1 second blink of storage compartment lights every 30 seconds while the Master Power Switch is OFF. (The lights do not blink when the Master Power Switch is ON.)

Security system will be Triggered ON and the horn will sound whenever the system is enabled and a storage compartment door is sensed open for two continuous seconds. This will cause the Horn to sound ON and OFF each second for five minutes. The horn can be silenced by disabling the security system as discussed above.

The security system can be turned OFF as described above without the Master Power Switch being turned ON, but it cannot be turned back on without first turning on the Master Power Switch.

Section I -- OPERATIONS

HOW TO SET AND CLEAR FUNCTIONS: (Continued)



ZERO TRIP TIME AND MILES

Doing this each time the boat leaves the dock will provide a record of how far you went and the time you spent going to and from that favorite fishing spot.

NOTE: While it is not recommended, an additional feature of this function is that the boat owner may zero the total engine hours displayed in the multifunction window by holding this command for 5 seconds.



BAROMETER CALIBRATION

When the boat is moved to a location with a different altitude, this calibration should be accomplished for the barometer to read correctly. First call a local weather service office or airport for the current barometric pressure. Then, complete the following calibration. Values to be changed appear in the Multifunction display.

NOTE: Code 121 is displayed when entering this editor.



Press >

To increase reading by .01 inches of mercury.



Press >

To decrease reading by .01 inches of mercury.



Press >

To reset barometer offset to zero (sea level).



Press >

Pressing MODE while pressing UP or DOWN will change reading by .10.

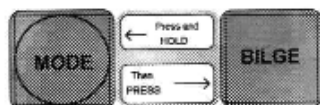


Press >

To exit barometer editor, save changes and return to normal operation.

Section 11 -- INSTALLATION

THE FOLLOWING ROUTINES NEED TO BE DONE ONLY ON NEW INSTALLATIONS OR WHEN AN INSTRUMENT PANEL OR SENSOR HAS BEEN REPLACED.




RPM DIVIDE RATIO SETTING

This routine must be done so that the instrument knows how many pulses it will receive from the engine during one revolution. The choices are 4, 6, 8 and 12. Failure to do this routine will cause RPM readings to be incorrect.


Values are read in the Multifunction window.

NOTE: Code 122 will be displayed when entering this editor.

Press  To increase reading to next selection.

Press  To decrease reading to next selection.

When the desired reading is displayed,

Press  To exit RPM editor, save changes and return to normal operation.



SETTING MPH TO ZERO

When the boat is first put into the water, the pressure of the water into the PITOT tube will cause the instrument to read 5 to 10 MPH even when the boat is in still water. The following will cancel out this error. This should only need to be done one time.

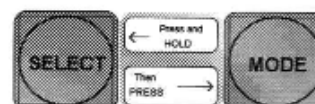
Put the boat into still water without the engine running.

Press and Hold the MODE switch while turning the Master Power Switch OFF and back ON.

Hold down the MODE switch for 5 seconds. The microprocessor will now assume that value sensed on the PITOT tube as being zero.

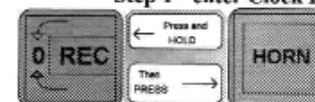
Section 11 -- INSTALLATION

The vertical bar graph labeled **TRIM** can be set to the exact positions of the engine trim where each of the segments turn on. This would normally be done only when the instrument is installed in the boat. The instrument is shipped from the factory with default values that will work in the majority of installations, but the following steps will set the trim for any situation.



TRIM Programming

Step 1 - enter Clock Editor



Step 2 - enter special TRIM programming mode.

Step 3 - select bar segment with up or down button.

Step 4 - position engine with electric trim switch.

Step 5 - press MODE button to save this value.

Step 6 - repeat steps 3 to 5 until all segments are programmed.

Step 7 - press SELECT to exit TRIM programming mode.

NOTE: TRIM bar graph and number in **TIME** display will flash the position number to program. As long as you don't press (MODE) when in this mode, no data will be changed.

TIME window displays number from 2 to 10 indicating the number of the bar being programmed. **MULTIFUNCTION window** displays value being saved in the microprocessor's memory.



The **INVERT** flag for the trim sensor toggles each time the HORN button is pressed. Some engines have a trim potentiometer that is reversed from the normal. Setting the **INVERT** flag tells the microprocessor to compensate for this. Inverted readings are indicated by decimal point in the multifunction display.



Increase bar segment number by 1.



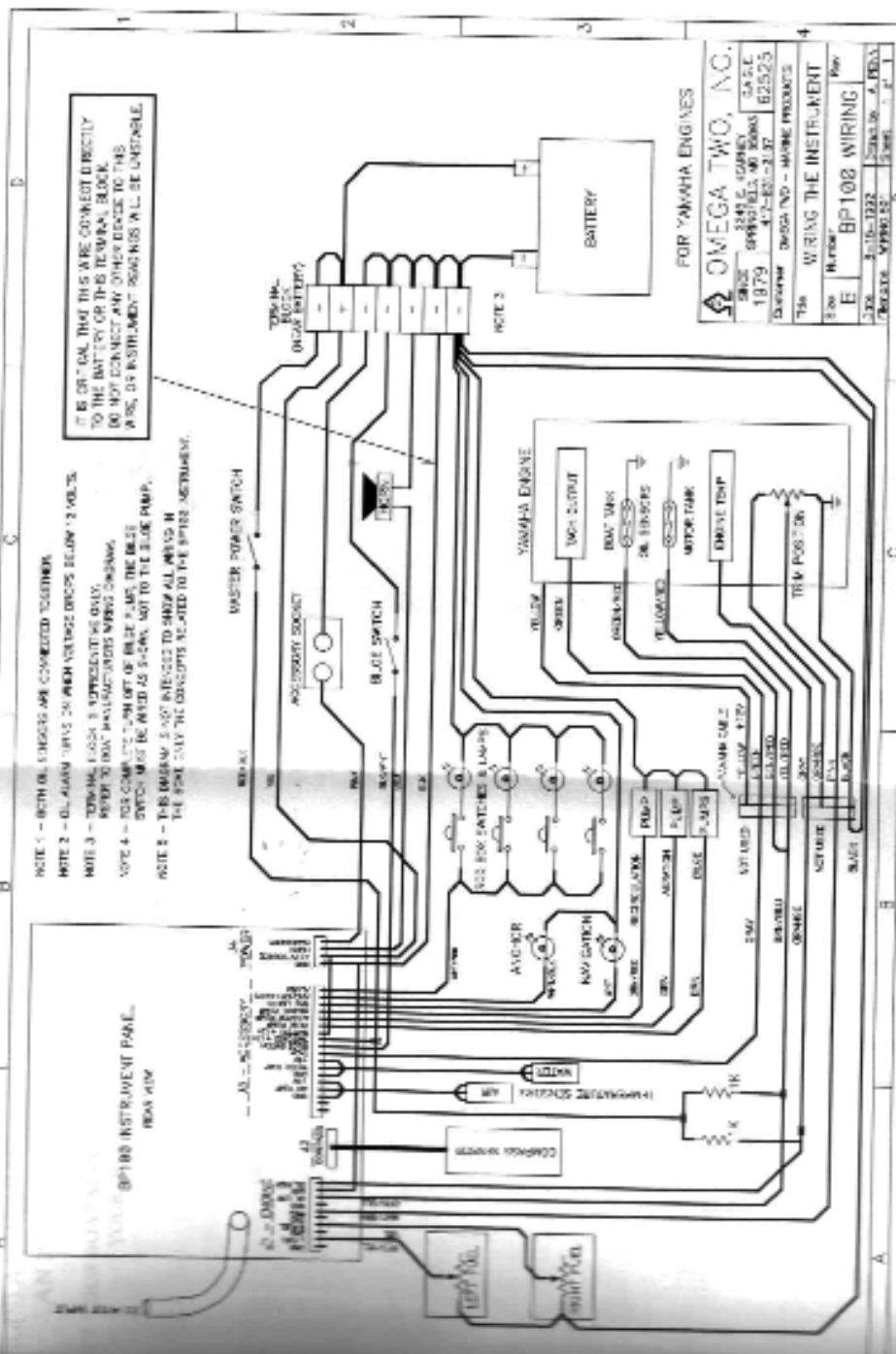
Decrease bar segment number by 1.



Store this bar segment into memory.



EXIT Press when all bar segments have been programmed.



Section III -- SERVICE

Things you can do to find and correct a problem:

Because of the nature of the product, we would prefer that you not attempt to get into the instrument and ***your warranty is void if the unit shows signs of being opened.*** There are some things you can do to make sure the problem is in the instrument and not in the boat wiring or the sensors.

1. Make a list of each function that does not work or work properly. This can give you a good insight as to where the problem originates. Look for anything that is common to some or all of the defective functions. For example, if both fuel tanks and the oil low indicator do not work, suspect the connection of J1 to the rear of the instrument. (See wiring diagram).
2. Most electronic equipment failures are related in some way to connections. Look for broken or frayed wires. Gently unplug and reconnect each cable on the rear of the instrument.
3. Ask your dealer to assist you in finding the problem.
4. Call the factory. You will need the information your dealer wrote on your portion of the warranty registration card including the serial number, the date purchased, and the dealer from whom you bought it. You will also want to know the functions that do not work that you listed in #1 above.

Call 417-831-2157 8 AM to 4:30 PM -- Monday through Friday
 Ask for "marine service"

Section III -- SERVICE (continued)

Things your dealer can do to find and correct a problem:

**ALL SERVICE WORK MUST BE DONE EXTERNAL TO THE INSTRUMENT.
WARRANTY IS VOID IF THE UNIT HAS BEEN OPENED.**

Symptom: Unit appears dead.

1. Make sure the unit has power by momentarily removing the positive battery cable. When it is reconnected, the instrument will go through a self test where all segments of the display are scanned. If the unit does this test correctly, the unit is probably not getting the +12 volts from the Master Power Switch to tell the microprocessor that it is time to turn on the display. If this self test did not produce a display, the unit may not be getting +12v or a ground to the red and black wires respectively on J4 (the four pin connector)

2. A quick check is to press the **HORN** button. The horn should sound even with the display OFF if the units have power and the microprocessor is working.

Symptom: Some sensor does not work, but all other functions appear OK.

This includes the air temperature, water temperature, compass, fuel, oil level, trim and RPM.

1. Check the wiring to that sensor.
2. Replace that sensor.

Symptom: Water is dripping from under the dash. This is probably an indication of a leaky pitot tube. Connect a garden hose to the pitot input on the engine and watch where the water is coming from. If it is at the splice where the tubing that comes with the instrument mates to the tubing that is part of the boat, make repairs as appropriate. If the water is coming from within the BP100 instrument, do not attempt to make repairs. Send the unit back to the factory for repairs.

IMPORTANT! The hose clamp where the tubing enters the instrument is there to prevent the tubing from turning or pulling on a sensitive pressure sensor in the instrument. DO NOT LOOSEN THIS CLAMP. The best way to remove the tubing from the instrument is to cut the tubing near the splice. Sufficient length of tubing is provided for several removals.

Symptom: A pump (aerator/recirculation/bilge) will not run. A circuit protector is built into the BP100 instrument that limits the current to any of these pumps if that current becomes excessive. This can happen if the pumps stalls for any reason.

1. Free the pump from what is causing it to stall.
2. Allow several minutes for the current-limit device to cool. As soon as it is cool, the circuit will return to normal operation.
3. Turn on the pump.

Section III -- SERVICE (continued)

Symptom: The security system is not triggered when one door is opened, but it is when other doors are opened. The security circuit must have a low-resistance path to ground when the door is opened. If only one door does not set off the alarm, the problem is probably a burned-out light bulb in that compartment.

1. Replace the lamp.
2. Replace the switch.
3. Check the wiring to that compartment.

Symptom: The Horn or Accessory socket will not work. The BP100 instrument does not have any internal protection for these circuits. It must be provided elsewhere in the boat. Find the circuit protection device and reset or replace it.

Symptom: The battery seems to discharge when the boat is not being used. The BP100 instrument uses very little current from the battery when every light and pump is turned off. Like the electric clock in your car, the instrument can discharge the battery after several weeks of not recharging the battery. For extended periods of no usage, keep a trickle charger on the battery, or disconnect the positive lead from the battery. Also:

1. Make sure that a storage compartment switch is not staying ON even though the door is closed. This will cause the light in that box to discharge the battery. (The microprocessor will also turn off this light even with a defective switch after 10 minutes.
2. Make sure no pumps are left in the ON or AUTO position.
3. Make sure that the anchor or navigation lights are not in the ON position. It is not sufficient to just unplug them from their socket. If the instrument shows them ON, one or two relays will be energized. The current for these relays can discharge the battery in a week or two.
4. Make sure the battery is not defective.

Section III – SERVICE

Service Policy:

It is intended that all instrument repairs are to be done by the factory. Service parts and repair information will not be furnished to dealers or service establishments. Exceptions are sensors and cable information.

Please call 1-417-831-2157 for a return material authorization (RMA) number before returning a unit for repair.

Returning an instrument to the factory for service:

Unit is considered in warranty:

1. Call the factory and discuss the problem with a service technician to make sure that the problem is actually in the instrument. Sending in the instrument and leaving the problem in the boat will not cure the problem.
2. Ask the service technician for an "RMA" number.
3. Package the unit securely, preferably in the original box. We will be glad to send you a carton designed specifically for this instrument if you will ask. **The warranty does not include glass breakage, so it is best to do it right.**
4. Include a note taped to the instrument that tells us about the problem. Comments like "doesn't work" are of no value in helping us find the problem. Comments like "RPM is intermittent above 1000 RPM" are very helpful.
5. Make sure your name, phone number, and RMA number are on BOTH the inside and the outside of the shipping carton. An envelope taped to the outside is acceptable for including this information.
6. Insure the package.
7. We prefer you ship UPS or Federal Express.
8. You pay the shipping charges to us. We pay them when we ship the unit back to you. We will refuse packages shipped C.O.D.

Unit is out of warranty:

1. The procedure is almost the same to send an out-of-warranty instrument back for repair as that described above for a warranty return.
2. The difference is you will be charged for the repairs. We will call you once we know what the repair charges will be. You may send a check for that amount or we can return the unit to you C.O.D. Dealers who have previously completed a credit application and have been approved may have their units returned on account.

Section III – SERVICE

WARRANTY

The instrument you have purchased is the finest product of its kind on the market today. It was thoroughly tested and has had several hours of operation before you received it to make sure it would not fail "just out of the box".

We are pleased to warranty this unit to be free of workmanship defects and component failure for a period of 2 years from the date you purchased it. If for any reason it does not perform as described in this manual, return it to us and we will repair it within two working days or send you a "loaner" until yours can be repaired.

We do have to make the following limitations:

1. There is no warranty if the warranty registration card is not completed, mailed, and received by Omega Two, Inc. when the instrument was purchased.
2. The warranty is void if the instrument was installed or maintained improperly. This includes, but is not limited to breakage of the LCD glass.
3. The plastic panel covering the LCD glass can be easily scratched. We consider this normal usage and is not covered by this warranty.
4. The warranty is void if it has been flooded, struck by lightning or other act of God.
5. You must pay shipping charges to us and when the unit is repaired, we will pay the shipping charges back to you. We use UPS surface unless you want to pay the difference.
6. Omega Two reserves the right to repair or replace the unit at our discretion.
7. This warranty is to the original owner only and cannot be transferred.
8. In no case shall Omega Two be liable in contract or in tort (including negligence) for special, indirect, incidental or consequential damages such as, but not limited to, loss of profits or revenue, property damage, other damages, costs or expenses which might be claimed as a result of the use or failure of the product, excepting only the expense of the repair to the instrument as described above. (Whew! Now our attorney has earned his money.)

If a unit is returned to Omega Two and we determine that for any reason it is not "in Warranty", you will be notified by phone (if possible) or in writing, to let you know the cost of repair before any work on the unit is accomplished. You may then approve the work or ask that we return the unit to you freight C.O.D. If you do not wish the unit returned, we will keep it for 30 days (in case you change your mind) and then dispose of it as we see fit.

THE END

LAST MINUTE CHANGES AND ADDITIONS

The customer must protect the **ACCESSORY SOCKET** with an external circuit breaker or fuse. No protection is provided inside the instrument.

Do not connect any device which requires more than 15 amps to operate to the **ACCESSORY SOCKET** as the BP100 instrument may be damaged.

NAVIGATION and **ANCHOR LIGHTS** are protected by a "polybreaker" as are the **AERATOR**, **RECIRCULATION**, and **BILGE** pumps. This device works by changing from a closed circuit to an open circuit when it is heated by excessive current. If any of these circuits fails to operate, correct the reason for the excessive current (pump is stalled, etc.), turn off the affected circuit for at least 2 minutes so the polybreaker will cool, and the circuit will now function properly.

This **COMPASS**, like any other compass, will only read correctly when the sensor is level. It is mounted in the boat at the angle the boat would normally be when traveling at 20-30 miles per hour. Therefore, expect some inaccuracy when the boat is not moving in the water or when the bow of the boat is high in the air. This inaccuracy is most noticeable when traveling east or west.

The **COMPASS** reads magnetic North. It is affected by local magnetic disturbances such as iron ore deposits. It is also affected by metal tools or apparatus within a two-foot radius of the sensor. The sensor is mounted under the deck to get it away from the metal of the motor and most of the wiring. For best accuracy, do not put metal tackle boxes or other metal items on the deck near the compass sensor.



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