

# 320N MAINTENANCE MANUAL

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# **WARNING!**

The 320N echosounder is capable of generating hazardous voltages at the output of the transmitter.

Transducers, connectors, and cables should not be handled while the echosounder is operating.

Internal protective panels should not be removed except by qualified technical personnel.



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## **1 INTRODUCTION**

### **1.1 About this manual**

This manual provides an introduction to the maintenance of the 320N Navigation Echosounder with important reference information for both the novice and the advanced user. It is advisable for all users to become familiar with the relevant sections in this manual to ensure that the echosounder is used to its optimum capability.

## **2 MAINTENANCE ITEMS**

The frequency of maintenance on a 320N Navigation Echosounder is something that will vary between users depending on the duration of time at sea, duration of time at port, and already existing maintenance schedules. For example cleaning of the touchscreen can be done on a regular basis as opposed to internal voltage checks which are typically done less frequently.

The following is a list of suggested maintenance items that should be performed to aid in the longevity of the performance of the echosounder.

### **2.1 Touchscreen Cleaning**

Power off the 320N Echosounder before commencing cleaning of the touchscreen. A microfiber cloth (or similar) is recommended for removing fingerprints, smudges, and imperfections. Distilled water or any standard touchscreen cleaning agent (avoiding products containing ammonia) can also be used to clean the touchscreen, but only if needed. If liquids are used, always spray the glass cleaner on the cloth or towel and then clean the touchscreen.

### **2.2 Touchscreen Calibration**

This involves running a 25 point touch screen calibration.

- Run Hampshire TSHARC Control Panel executable
- Go to the Calibration tab
- Select 25 point calibration
- Select Begin Calibration
- Touch or click the calibration target
- Verify Screen Target
- Press Accept Button
- Calibration is complete, close TSHARC Control Panel

### 2.3 Data Transfers

Data can be downloaded from the 320N either via a USB storage device or by connecting the 320N to another PC via the network connection. The 320N can store up to one month of data depending on the amount of usage, water depth, and bottom type.

NOTE: Any data offload must be done in accordance with on-board security measures.

### 2.4 Transmitter Checks

Set the EchoSim to Simulator Mode. Connect the 320N transducer output (J2) to EchoSim sounder connector. Set the echosounder transmit power to 1, pulse length to 0.75ms, and record the voltage, current, power, measured pulse length, and the start / stop frequencies. Vary pulse lengths up to 24ms and record all results. Repeat all steps for power levels 2, 3, and 4. Refer to Transmitter Checklist (Section 3.1).

### 2.5 Receiver Checks

Set the 320N Parameters to the following:

Units:	Meters
Transmit Power:	1
Gain:	Auto
Pulse Length:	3.0ms
Processing Shift	1

Set the EchoSim to Simulator mode and change units to meters. Set the depth to 50. Wait until depth stabilizes and record digitized depth value. Repeat steps with depths stated on Receiver Checklist (Section 3.2). Results should be compared back with baseline measurements as well as previous checks to determine possible changes or degradation.

### 2.6 Transducer Checks

Set the EchoSim to Transducer Test Mode. Connect the transducer cable to the marked Transducer connector on the EchoSim. Using the Adjust Frequency keypad, enter frequency of 10.0kHz. Press Start test button. Record measured impedance value. Repeat steps in 500Hz increments until 14kHz. Enter values on Transducer Checklist (Section 3.3). Results should be compared back with baseline measurements as well as previous checks to determine possible changes or degradation.

## 2.7 Voltage Checks

The 320N Power Supply Assembly accepts an AC input and generates 5V, 12V, and 24V DC voltages. These DC voltages are used to power other assemblies and modules within the 320N Echosounder. These voltages should be measured and adjusted if needed to ensure proper functionality of the 320N.

For the following checks, the front panel of the 320N will need to be opened and the door stop engaged. The 320N should always be powered off when opening and closing the front panel. Power must be supplied to the 320N Echosounder when performing the tests described below, but transmit must be set to OFF.

### 2.7.1 5V Check

With the 320N Echosounder powered off, disconnect J101 from the Signal Distribution Module. Turn on 320N. Using a voltmeter (or multimeter set to DC volts) measure between the red wire (5V) and corresponding black (GND) on the housing. If the measured voltage is less than 5V, the CH2 adjustment potentiometer on the power supply may need to be trimmed. Contact the factory.

### 2.7.2 12V Check

With the 320N Echosounder powered off, disconnect J101 from the Signal Distribution Module. Turn on 320N. Using a voltmeter (or multimeter set to DC volts) measure between the yellow wire (12V) and corresponding black (GND) on the housing. If the measured voltage is less than 12V, the CH3 adjustment potentiometer on the power supply may need to be trimmed. Contact the factory.

### 2.7.3 24V Check

With the 320N Echosounder powered off, disconnect the power input connection to the USB Processor Module (J901). Turn on 320N. Using a voltmeter (or multimeter set to DC volts) measure between the orange wire (24V) and corresponding black (GND) on the housing. If the measured voltage is less than 24V, the CH1 adjustment potentiometer on the power supply may need to be trimmed. Contact the factory.

## 2.8 Fan Intake and Exhaust Filter Replacement

The filter within the system fan intake and exhaust may require routine cleaning or replacement depending on the 320N Echosounder's surrounding environment. Refer to document D101-05523 (System Filter Replacement) within the 320N Service Manual.



**3 CHECKLISTS**

**3.1 Transmitter Checks**

320N Serial Number:	
Date of Check:	
Check performed by:	

Transmit Power 1

Pulse Length	0.75ms	1.5ms	3.0ms	6.0ms	12.0ms	24.0ms
Measured Pulse						
Volts						
Current						
Power						
Start Frequency						
Stop Frequency						

Transmit Power 2

Pulse Length	0.75ms	1.5ms	3.0ms	6.0ms	12.0ms	24.0ms
Measured Pulse						
Volts						
Current						
Power						
Start Frequency						
Stop Frequency						

Transmit Power 3

Pulse Length	0.75ms	1.5ms	3.0ms	6.0ms	12.0ms	24.0ms
Measured Pulse						
Volts						
Current						
Power						
Start Frequency						
Stop Frequency						

Transmit Power 4

Pulse Length	0.75ms	1.5ms	3.0ms	6.0ms	12.0ms	24.0ms
Measured Pulse						
Volts						
Current						
Power						
Start Frequency						
Stop Frequency						

### 3.2 Receiver Checks

320N Serial Number:	
Date of Check:	
Check performed by:	

Simulator Depth	Digitized Depth
50	
100	
200	
500	
1000	
2000	
5000	

### 3.3 Transducer Checks

Transducer Model Number::	
Transducer Serial Number:	
Date of Check:	
Check performed by:	

Simulator Frequency	Measured Impedance
10.0kHz	
10.5kHz	
11.0kHz	
11.5kHz	
12.0khz	
12.5kHz	
13.0kHz	
13.5kHz	
14.0kHz	