“TOFTE”

OPERATION MANUAL

CATALINA 30
# TOFTE

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# "TOFTE"
## CATALINA 30

### GENERAL DESCRIPTION AND SPECIFICATIONS:

<table>
<thead>
<tr>
<th>Documentation Number</th>
<th>1149973</th>
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<tr>
<td>Registration Number</td>
<td>WN 8362 NE</td>
</tr>
<tr>
<td>Catalina 30 Hull Number</td>
<td>CTYN57584J990</td>
</tr>
<tr>
<td>VHF Radio Call Sign</td>
<td>WDB 6902</td>
</tr>
<tr>
<td>Year of Production</td>
<td>1990</td>
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### GENERAL DESCRIPTION:

| Overall Length | 29’ 11” |
| Water Line Length | 25’ 0” |
| Beam | 10’ 10” |
| Draft | 5’ 3” |
| Displacement (light) | 10,200 lb. |
| Ballast – lead | 4,200 lb. |
| Sail Area in Sq. Ft. | |
| Main | 201 |
| Jib (furling) | 375 |
| Mast Height Above Water | 45’ 6” |
| Total Height Including VHF Antenna | 48’ 0” |
| Water Capacity: | |
| Forward Tank | 25 Gallons |
| Starboard Tank | 17 Gallons |
| Hot Water Tank | 6 Gallons |
| Fuel Capacity (No. 2 Diesel) | 18 Gallons |
| Engine | Universal M 25 Xp |
| Horsepower | 23 |
| Holding Tank Capacity | 17 Gallons |

*Documentation Number Located Under Quarterberth*
ENGINE OPERATION:

Pre-start:

Check engine coolant, (Compartment #10, pg. 14). Coolant level should be about one inch below the filler neck. If necessary add water or 50% coolant mix. Do not remove cap when engine is hot.

Make sure raw water engine cooling intake valve is open, (Compartment #10, pg. 14).

Engine oil level should be checked at least every other day. Access is through the small hatch opposite the navigation station. Dipstick should be removed and wiped, then reinserted and checked.

Gear Shift (black handle) should be in neutral and Throttle (red handle) advanced about half an inch.

Starting:

1. Switch batteries to “All” at Navigation Station. Switch engine battery to “on.”
2. Turn ignition key on (clockwise). The overheat and low oil pressure alarm (light and buzzer) will activate.
3. Switch bilge blower on and activate the glow plug (turn key to second position) for thirty seconds.
4. Press start button. If it doesn’t start in 5 to 10 seconds release the start button and press the glow plug switch for another 10 to 20 seconds.
5. After start, check at stern to insure that water-cooling the exhaust is flowing out in spurts. Warm engine at idle for at least 5 minutes before moving boat.
6. If warning buzzer doesn’t stop within 20 seconds of starting the engine, shut down the engine and determine the reason.
7. Always slow engine to idle before shifting. A slight pause in neutral reduces clutch wear when going from forward to reverse or vice-versa.

Cruising Under Power:

Recommended cruising RPM is 2,000 – 2,250. Do not exceed 2,300. Higher engine speeds cause extra wear and tear on the mechanical system, and use excessive fuel without any appreciable increase in speed.

The engine instrument gauges should be monitored (near the ignition key) because the warning buzzer is difficult to hear with the engine running. The engine temperature should remain slightly under 160 degrees. The engine ignition must remain on during operation.

Engine Shut Down:

1. Idle engine for 5 minutes for cool down. Make sure transmission is in neutral.
2. Pull up on the black tee-handle (please be careful not to tear off the Plexiglas instrument panel cover with your finger tips) and hold the handle up until the engine stops (by starving it of gas). Push lever back down after engine stops.
3. Turn the key off after engine stops.
4. Switch engine battery to “off.”

CHARGING BATTERIES:

1. To charge house battery bank #1 and #2 while motoring, you must turn main selector to “all.” (engine starting battery is always charging when the engine is running)
2. To charge both battery banks when docked (110 V AC) turn main selector to “all” and engine starting selector to “on.”
ELECTRICAL SYSTEM AND PANEL:

12 Volt DC System (Batteries):

The main battery switch controls all 12-volt DC systems, except the bilge pump, and refrigerator. Rocker switches on the electrical panel control all systems. Two deep cycle batteries supply the DC system. A third battery (located in the port storage Compartment #11 pg. 14) is specifically dedicated to engine starting. On the main battery switch, position #1 draws on the house batteries (Bank #1 and #2), #2 is not used.

Even with two “house” batteries power is somewhat limited and prudent use is recommended to avoid running out of power. The radar unit and the anchor power windlass are the heaviest users of power. Running the engine while using these two accessories is recommended. There is a meter to monitor the batteries located below the panel. To charge the batteries with engine running, switch selector to “all.” When the engine is off, switch the engine battery selector to “off” and the main battery switch to #1 to avoid drawing down the engine starting battery. Save it for engine starting.

120-Volt AC System (Shore Power):

Shore power switch is located on the upper left of the electrical panel, which you need to turn on after the power cord is connected. The 50-foot shore power cord is a 30-amp cord. 15 and 20 amp adapters are located in the bottom drawer, adjacent to the hanging locker (Compartment #2, pg. 14) The “Accessory” switch must be depressed to turn on the battery charger.

WATER SYSTEM:

General:

The water system is a pressurized hot and cold system, and is controlled by a breaker switch on the main panel. **CAUTION** – please turn the pressure switch OFF after each use when cruising under power. Engine noise precludes hearing the pressure pump and could result in the pump running dry for an extended period should a malfunction develop such as an air lock, dry tank or blown hose. Also, please turn the pump off whenever you leave the boat.

If the water runs out, immediately turn off the pressure pump and the 110 AC heater. We suggest leaving both tanks open; the water level can be checked visually, under the forward starboard settee and under the V-berth.

Water Heater:

Water is heated in two ways:

1. When under power, the engine heats the water tank, which takes 30 to 40 minutes.

2. When hooked up to shore power, there is a 110 AC water heater. The switch is under the AC breaker switch on the main electrical board. Please make sure the pressure pump is on.

Water Tank Filling:

The water tank fill fittings are on the starboard deck, forward. When filling it is best to check levels visually to avoid over filling, in case the vent lines become blocked. The water levels can be checked visually under the forward starboard settee and under the V-berth.
THE HEAD:  (TOILET)

General:

In U.S. waters the holding tank must be used at all times. The Coast Guard is intensifying boat inspections for this. To comply with the regulations the Y-valve handle has been locked. In Canadian waters direct over-board discharge is still allowed.

BE SURE TO INSTRUCT YOUR CREW AND GUESTS ON THE OPERATION OF THE HEAD. Also, be sure to supervise use of the head by children. Make sure that absolutely nothing but human waste and minimal amount of special biodegradable toilet paper provided is put into the head. Paper towels, Kleenex, sanitary napkins, cigarettes, etc. will clog the lines and result in a messy and expensive disassembly of the system. Always keep the seat cover down to prevent anything from accidentally falling into the head.

Periodically put a little vegetable oil in the head to lubricate the pump.

Valves:

All thru-hull valves, like many other valves, turn clockwise to close and counter-clockwise to open. Valves are open when the handle lines up with the valve and closed when the handle is straight crosswise to the valve. Thru-hull valves turn 90 degrees to operate.

Compartment #13 (pg. 14) contains a “y” valve, which directs toilet contents either to the holding tank or directly overboard. The two discharge hoses leading from the valve are labeled “tank” or “overboard.” The blunt end of the handle points toward the hose to be shut. Arrows on handles indicate direction of flow.

Using the head with holding tank:

Open access Compartment #18 (pg. 14) at the right of the head. Open “sink drain/head intake thru-hull valve” only to provide intake water to flush head. When open, valve handle is parallel to valve fitting.

BEFORE USING:  Pump a small amount of water into bowl to partially fill and wet inside of bowl. Then push lever back to closed position so that no additional water may enter.

AFTER USING:  Pump enough water to flush contents into holding tank. Leave a small amount of water in bowl.

NOTE:  It is recommended that the “sink drain/head intake thru-hull valve” remain closed between uses, to avoid flooding sink when sailing.

Use of the Head with direct overboard discharge:

Blunt end of handle points toward hose to be shut. Turn handle to open the direct discharge hose. Next, open large discharge valve (Compartment #11, pg. 14) Note:  With direct discharge, unlimited water can be flushed through the system.
Emptying the holding tank at pump-out station:

1. The holding tank should be emptied via the deck discharge plate **ONLY** at approved shore based pump-out stations.
2. Remove the cap from the deck discharge plate. The threads of the plate-cap should be periodically coated with silicone spray or petroleum jelly to ensure a good seal.
3. The pump-out station suction hose should form a seal at the deck plate.
4. After the tank is empty, open head inlet valve and pump some water through the toilet and into the tank to dilute residual sludge and rinse the tank lines.
5. Check that all valves are closed after the tank is emptied and recap the deck plate.

Emptying the holding tank using the macerator pump:

1. **IMPORTANT – FIRST** Open thru-hull valve in Compartment #11 (pg. 14). Turn on macerator pump at main panel. Pump out should only take a few minutes. *(NOTE: It may take a few seconds to prime the pump)*
2. Assign someone to monitor pumping. When pumping is finished air bubbles will be coming up along the port side.
3. After tank is empty, open head inlet valve and pump some water through the head into the tank. Then repeat the procedure for emptying the tank. This will flush clear water through the system to rinse the tank, the hose lines and the macerator pump.
4. After turning off macerator switch on main panel, **REMEMBER** to turn off the discharge thru-hull valve in compartment #11 (pg. 14).
5. After emptying and flushing tank, add about 8 oz. of deodorizing chemical with about one gallon of water and pump into tank.

**CAUTION:** Pump valves can be destroyed in a matter of seconds if pump is operated with the through-hull valve closed. YOUR NICKEL to repair.

**PROPANE STOVE AND OVEN:**

**Stove operation:** Propane tank located in stern lazarette (Compartment #20, pg.14)

1. Turn on valve on propane tank (turn counter clockwise)
2. Activate gas switch on main electrical panel in cabin.
3. Turn on surface burner and light with lighter *(NOTE: It may take a moment for air to drain from lines)*
**Oven operation:**

1. Light a surface burner prior to lighting oven to make sure all air is drained from system.

2. To light oven, open oven door, turn control to “Pilot On” and hold lighter flame in position until a small pilot flame is visible. Turn oven control to desired temperature. The pilot will get larger and in 30-60 seconds oven main flame will come on. Operation from here is automatic.

3. Propane is heavier than air and can settle to the bottom of the boat; therefore, it is recommended that you close the valve at the propane tank and turn off the electrical switch at the panel if you do not plan to use the stove/oven again shortly, are leaving the boat, or are going to bed. Be sure to turn the oven pilot off.

**REFRIGERATOR:**

The refrigerator can run from the 12-volt DC house batteries or from 120-volt AC shore power. Use ice to supplement the electrical refrigeration.

Battery power for the refrigeration does not go through the main battery switch on the electrical panel. Therefore, the main battery switch may be turned off when leaving the boat. The refrigerator will continue to run as long as the “Refrigerator” switch on the main DC panel is “ON.”

The temperature control in the refrigerator should be set at 2 1/4 to maintain 40 degrees. You should check the temperature frequently to avoid frozen tomatoes (the voice of experience). Moving the control to a colder setting will not cool the box any faster. The refrigeration unit cools as fast as it can until it reaches the set point.

When you are straightening up the cabin after your charter, look carefully to make sure you have retrieved all of your items from the refrigerator. Please leave the refrigeration unit off and leave the lid open.

**VHF RADIO:**

The VHF radio carries all authorized transmit and receive channels. The radio instruction manual is located in the AYC gray manual and should be reviewed.

To operate radio, battery switch must be on. Depress “NAV/COMM” rocker switch on main electrical panel. (This switch also activates the AM/FM stereo system).

Radio call sign is **WDB 6902**. Refer to posted card above radio for procedure and available working channels.
NEWPORT PROPANE FIREPLACE/HEATER:

Heater operations:

1. Turn on valve on propane tank (located in stern lazarette, compartment #20, pg. 14)
2. Open heater door
3. Turn gas knob and light burner manually
4. Keep knob depressed for 15-20 seconds. Release knob and flame will remain lit.
5. Close heater door.
6. Low or high may now be selected.

On each lighting of the heater, flame will create a roaring sound for about five minutes until the direct draft system stabilizes and reaches operating temperature.

Initially the flame is extremely blue and vibrates. After a short period of time the flame will increase in size and become less vibrant and more yellow. This will create more of a fireplace effect.

Selecting low and high settings will only make a small difference to the height of the flame; however, at high the heater is burning 40% more fuel than at low and producing 40% more heat.

At the high setting the baffle at the top of the combustion chamber will glow red. This is normal and maximizes the efficiency of the heater.

Use of the blower fan is optional and greatly enhances heat output and hot air circulation.

Spare propane tank is in chain locker. Remember that when you change tanks that LPG fittings are left-hand threaded, i.e., opposite from “normal” threads.

NOTE: Using the propane fireplace uses up propane “big time.” Make sure your spare tank is full. It takes only one pound of LPG, so a full tank doesn’t heft much differently than an empty tank.

NAVIGATION INSTRUMENTS:

Vessel is equipped with a GPS unit which includes a depth sounder, knot meter/log, position location and direction, etc. See GPS Manual for operation and additional features.

To operate, main battery switch must be on. Turn on rocker switch on main electrical panel marked “INSTR” (both instruments will come on)

RADAR:

The operations manual for the Furuno Model 1721 Radar Unit is in Navigation Station. The Radar is connected directly to batteries (to minimize resistance and interference).

Refer to the Radar manual for guidelines on determining your location and the location of other vessels around you, etc.

ANCHORS:
Anchoring equipment - Primary anchor is a Bruce 10 kg. With 230+ feet of rode (nylon line and chain). Spare anchor is a 14 lb. Danforth type with about 175 feet of rode. Spare anchor and rode is stored in the aft lazarette.

**Anchoring:**

Chapter 6 in “Chapman’s Piloting” is an excellent reference for proper anchoring procedure. Following; however, is a brief but good description of proper anchoring. (Written by another boat owner): “The experts say that the proper scope (ratio of length of line to depth of water) should be 7:1. It is often not practical to use this much scope unless strong winds are expected. However, you should try for a 5:1 or 6:1 scope for overnight anchoring.”

1. Bring bow of boat to point into the prevailing wind or current.
2. Stop forward motion.
3. While stopped or with a slight rearward motion, lower anchor until it touches bottom. Judge depth.
4. While backing very slowly, pay out rest of scope. **DO NOT** pay out scope while sitting still since chain and line can pile up on top of anchor, fouling it so it cannot dig into the bottom.
5. When all scope is paid out, tie off line to cleat and back boat slowly to “set” anchor – make it dig in. (If you attempt this before all scope is out, anchor will not set and will foul itself with weeds raked off the bottom).

When the anchor is set, the line will tighten and the boat will stop rather quickly. When setting the anchor, watch the line or place a hand on it beyond the cleat. If you feel or see a vibration or a bumping sensation, anchor is **not** set. When it sets there is a strong, steady pull to stop the boat. Operate in reverse with 1/3 throttle for minimum 30 seconds to confirm the set.

**Anchor windlass:**

This boat is equipped with a “Maxwell-Nilsson” electric windlass located in the anchor locker, forward. The breaker switch is located on the main panel above the “LPG” switch. To activate, push in and to deactivate, pull out. A foot switch in the anchor locker controls the operation. Use the windlass only on the nylon line section of the rode. (No chain) The engine should be running since the windlass uses a great deal of battery power. After use make sure the panel breaker switch if off.

**SAILING:**

**Main Sail:**

Lazy jacks: The main boom is equipped with lazy jacks. Adjustment cleats are located on both sides of the boom, aft. Normally the lazy jacks are slacked when under sail and tightened when ready to drop the main. **WARNING!** The transmission **must** be in **reverse or neutral** when sailing. If it is left in forward the transmission may be damaged.
Reefing: The main has one set of reef points for jiffy reefing. If possible, the need for reefing should be anticipated and accomplished before weather conditions deteriorate. It is good practice to familiarize yourself with the reefing lines and procedure and to practice before the need arises. Refer to “Chapman’s Piloting” for a thorough review of reefing procedures and precautions.

Roller furling genoa: To unfurl genoa come to a heading about 30% off windward. Uncleat furling line on port side of cockpit. Pull on, but keep some tension on, furling line so it will spool properly on furling drum. Genoa can be reefed pulling in on furling line. (Sail shape may be compromised somewhat)

To furl the sail, head up into the wind and ease the sheet. To furl the drum, pull the part of the furling line that rolls the sail in the correct direction so that the sail cover is on the outside. Keep minimal sheet tension to create a properly furled sail. Cleat off both furling lines to the cleat on the port side of the cockpit.

BILGE PUMPS:

Automatic electric bilge pump:

Controlled by electric panel switch. Bilge pump will operate only if sufficient water in bilge to activate automatic float switch.

NOTE: Leave panel switch “Bilge Pump” on at all times. Test float switch to confirm proper operation – switch is located under salon floorboard beneath the table. Note: table and pedestal have to be removed to accomplish this.

Manual pump:

Manual pump is on port side of cockpit. Handle stored in navigation station.

EMERGENCY STEERING:

An emergency tiller is provided in case of a failure in the wheel steering system.

Tiller is located in a long, red bag in the forward part of the port cockpit locker. A wrench to operate the emergency steering access plate is included. Access plate is located aft of the steering pedestal.

DINGY:

The “TOFTE TENDER” is a 9’ Avon inflatable dinghy and is quite stable with up to 4 persons. New Coast Guard regulations call for a life vest for each occupant of the dinghy. (Throwable float cushions are no longer acceptable).

The oars should be secured and tied when being towed. Always shorten the towing line (painter) when maneuvering near docks or moorings. This will avoid the embarrassment, danger and expense of wrapping the painter around the propeller.

DODGER:

A few words about the cockpit dodger. The window areas are a rather heavy thickness of LEXAN and should receive special care. If cleaning is necessary, please rinse well with fresh water and do not scrub or use brushes, paper towels or anything abrasive as LEXAN is easily scratched. PLEASE do not attempt to fold or remove any part of the dodger.
Extension (Bimini):

In the event of rainy weather you may want to install the dodger extension. The extension is located in the quarterberth and may be attached by zipper to the dodger. The aft end should be secured to the backstay and stern pulpit by the attached lines.

Finally:

Whenever you are underway in “TOFTE” please be aware of floating debris, especially around rip tides and eddies. Never depend on any one piece of equipment while navigating and always keep the full picture in mind, i.e., depth sounder and charts should be taken into consideration and as a rule never take a short-cut around points when you are not sure of the depth. Use common sense and be prepared!

Last of all: Enjoy! Enjoy! Enjoy!
"TOFTE"

Emergency Equipment Locations

Deck Fill / Pump Out Locations
Contents of compartments and numbers:

1. Forward water tank (25 gal.) with shut off valve.
3. Hanging locker – vacuum cleaner
4. First aid kit, horn with extra can.
5. Hand flares, flare gun, and folding radar reflector, ship’s bell.
6. Available for storage.
7. Starboard water tank (17 gal.) no shut-off valve.
8. Batteries and available storage.
10. Engine access and engine cooling through-hull valve.
11. Access to head direct discharge through-hull and holding tank macerator pump discharge through-hull valve and engine battery.
12. Head holding tank (17 gal.)
15. Access to bilge and bilge pump.
17. Behind cushions: available storage.
18. Under sink: holding tank additive, toilet paper.
19. Port cockpit: PFD container with 4 adult and 2 child PFD, emergency tiller, 50’ of hose with nozzle, power cord, magma propane BBQ, 4 – 25 foot dock lines, extra utility lines, boat hook, deck brush, ice/tote bag.
20. Stern lazarette contains: 3 adult PFD, 2 plastic buckets with cleaning materials.