

DISAPPEARING PROPELLER BOAT CO. LIMITED

PORT CARLING P.O.

MUSKOKA,

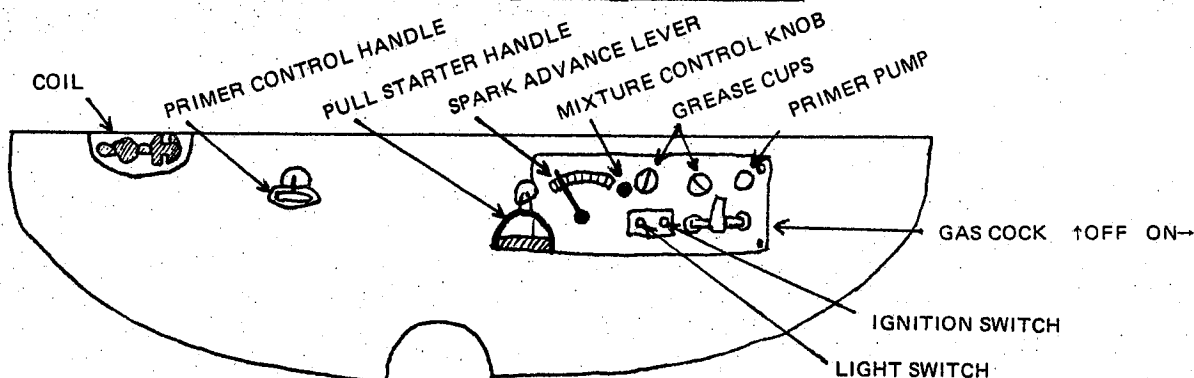
ONTARIO

P0B 1J0

(705) 765-5037

Operating and Maintenance Instructions for Disappearing Propeller Boats

Equipped with Copper Jacket Engines



Gasoline: Fuel mixture for newly rebuilt engines - 20:1 ratio. For engines which have been run over 5 hours - 24:1. Use only outboard motor oil and regular gasoline. Do not use automotive oil. One litre of oil in 5 gallons of gasoline is easy to make up, and is sufficiently accurate. Always strain gasoline through a fine-screened funnel to avoid the possibility of dirt and water entering the tank. Be sure the oil and gas are well mixed before putting fuel in the tank.

- Lubrication:
- (a) Main Bearings - Grease cups are located on the instrument panel. Give them 1/2 turn before starting the engine, and 1/4 turn every half hour while running. When re-filling cups, be absolutely certain that there is no dirt or grit in the grease, and use a medium grease which will not congeal and plug the copper grease lines. Cup grease is usually too stiff to pass through the lines.
 - (b) Water Pump Pin and Eccentric - Apply a few drops of oil to these points daily.
 - (c) Timer - Model E's with fibre disc timers must be kept very clean and the wiper pad must be kept well saturated with thin oil (3-in-1 or sewing machine oil.) Apply oil to wiper pad at least once each day the boat is used.

- To Start & Operate Engine:
1. Raise propeller, or else have boat aimed toward open water.
 2. Turn on gas cock on instrument panel.

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UNIVERSAL KNUCKLE

3. Prime engine as follows:

- (a) Unscrew and pull out primer pump knob.
- (b) Pull out primer control handle to second notch.
- (c) Push in primer pump and screw tight.
- (d) Push in primer control handle to first notch.

(Engine will require more prime in cold weather and less in hot weather. It may not need any if it has been recently running.)

4. Set mixture control to rich position. (knob pushed in.)

5. Be sure spark is fully retarded. (Lever on dashboard to extreme left of quadrant.) Do not advance to right until engine is running or starter damage may result.

6. Pull out ignition switch knob.

7. Pull starter handle quickly several times until engine starts.

8. After engine starts advance spark immediately, lower propeller, and gradually lean out the mixture by pulling out Mixture control knob. It is important that the engine be run with the mixture as lean as possible at all times; however, if it is too lean, it will slow down and backfire.

9. If engine backfires and stops, repeat steps 3 to 8.

Operating the D.P. Device: To raise and lower propeller by hand, flip the locking cam to the vertical position to release tension on brake. Re-lock cam to hold handle in desired position. Avoid raising or lowering propeller without releasing the brake, as this will wear out brake linings and the unit will require frequent adjustments to prevent the handle "wandering" up or down. Adjustment may be made when required by tightening wing nut below the cam. Only sufficient tension should be applied to prevent wandering. The propeller will automatically rise, even with the brake applied, should the skeg strike an obstruction. If the rock shaft begins to leak, the brass nuts on the left side may be tightened up a half-turn or so to adjust the packing.

Stopping the Engine: 1. Shut off ignition.
2. Shut off gasoline cock on dashboard. Never leave the gas on while the engine is stopped or carburetor may flood and drip large quantities of gas into bilge.

Normal Maintenance:

1. Timer: Keep timer contacts clean and the pad well oiled. If engine misfires, timer needs attention.
2. Water Pump: If water leaks from the pump, tighten large pack nut slightly, just enough to stop the leak. Don't overtighten. If necessary to re-pack, use graphited asbestos wick packing, or in an emergency, candle wick and grease may be used.
3. Oil starter drum bearing where it runs on propeller shaft at least once a month.
4. Adjust rock shaft packings when necessary as explained under "operating the D.P. device"

5. Battery: Easy starting of the engine depends mainly on the condition of the battery. "Hot Shot" batteries may be expected to last one season at least, but have often lost power the second year and will not give adequate spark. It is best to replace the battery at the beginning of each season to be sure.
6. Primer Pump: If it leaks gas down the instrument board, adjust the pack nut sufficiently to stop the leak. Don't overtighten, or else the plunger will be difficult to move in and out.
7. Wiring: Check over all terminals occasionally for tightness as they will eventually loosen up from vibration.
8. Spark Plug: Remove and clean it when necessary with a small pocket knife and gasoline. Gap should be .025" to .030".
9. About once a season, check the grub screws on the propeller shaft coupling for tightness. Keep them snug at all times. Sometimes they work loose.
10. Propeller Shaft Stuffing Box: Adjust pack nut whenever water drips in at this point. Loosen lock nut behind pack nut to allow pack nut to turn. Tighten only sufficiently to stop the leak, no farther. Be sure to jamb lock nut against pack nut to prevent rotation.

Trouble Shooting:

If engine won't start, try the following:

- (a) Gasoline: Is there enough in the tank?
Is there water or dirt in the gas?
Is it getting to the carburetor? Drain some out through tap on bottom of carburetor to be sure.
Has the needle adjustment been disturbed? Normal adjustment is 2/3 open when knob is in, and 1/3 open when knob is out.
Note: Carburetor will often flood and drip when engine is first started up at the beginning of the season, due to float sticking to bowl. Remove large brass nut above fuel inlet and poke the float mechanism gently with a wire or screwdriver to free it up. Replace nut. If engine is flooded, crank it over several times with primer control rod pulled out to 3rd notch.
- (b) Ignition: Check to see if coil buzzes by turning flywheel slowly one revolution. If coil does not buzz, battery may be dead, a wire may be disconnected, timer contacts may be faulty, switch may be faulty, or vibrator points on coil may be stuck. Vibrator points may be freed up by turning flywheel until timer is on contact, then "tweak" the black vibrator blade with your fingers.
Condition of spark plug and coil may be checked by removing spark plug, attaching wire, and laying plug on the top of the engine so that iron part of plug is grounded but wire and terminal do not touch engine. When flywheel is revolved past the contact with ignition "on", the coil should buzz, and a blue spark should be seen across points of spark plug.

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- (c) Compression: Sometimes the lubricating oil gets washed off the cylinder walls by excessive priming and the engine may stiffen up or lose compression. In this case, inject a few teaspoonsful of outboard motor oil into the priming cup on the side of the cylinder. Pull out the handle to the 3rd notch and revolve flywheel slightly to draw oil into cylinder. This is a very good way to start a temperamental engine.
- (d) Overheating: Operation of water pump may be checked by opening drain cock just behind carburetor. Copper Water Jacket should be warm to touch, but not enough to burn your hand. Do not run engine with a defective pump or serious damage will occur in a few minutes. Remove 2 brass nuts on top of pump and inspect check balls to see that they are not stuck, or that no foreign matter such as hemlock or pine needles, seaweed etc. is lodged between balls and their seats. Prime pump by pouring water into the holes and then replace nuts in their original positions. Large brass pack nut may require adjustment occasionally as packing wears, particularly if there is sediment in the water.
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- Winter Layup: 1. Start up engine and run a minute or so to warm it up.
2. Stop engine and open water drain cock on cylinder just behind carburetor. Be sure water comes out. Poke a wire in the hole to open it if water is slow to drain.
3. Remove the 2 5/8" brass nuts on top of water pump. With a fine wire, move the ball checks around to allow pump to drain. Revolve flywheel while doing this to displace any water in the pump cylinder. Replace brass nuts in the same holes.
4. Shut off gas at dashboard and drain carburetor.
5. Revolve flywheel so that square counterweight is at bottom. Remove spark plug and inject about 2 or 3 tablespoons of oil into cylinder. Revolve flywheel 90° back and forth a few times to distribute oil on cylinder wall. Stop flywheel with counterweight at bottom. Replace plug.
6. Disconnect battery wires.
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- Starting up in Spring: 1. Re-connect battery.
2. Prime water pump. Remove 2 brass nuts (Don't mix them up), be sure 2 balls are not stuck to seats (free them up with a fine wire) and fill pump chambers with water before replacing brass nuts.
3. Oil timer and water pump eccentric.
4. Turn on gas. Turn off drain cock on carburetor as soon as gas starts coming through. If carburetor begins to drip after 15 or 20 seconds, shut off gas at dashboard and follow gasoline instructions under "Trouble Shooting".
5. Start engine. Ensure that water pump is working by seeing if water spurts from cylinder drain cock.
6. If engine does not start, follow suggestions under "Trouble Shooting". Sometimes it is well to remember that Dispos respond favourably to highly abusive language.

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VIBRATOR COIL - INSTRUCTIONS

This coil has been carefully rebuilt and tested to perform as well as, or better than it did when brand new, many years ago. With ordinary care, it should have a much longer service life than when it was originally made. In fact, we guarantee it to function satisfactorily for two years from the date of purchase, provided that it is not abused.

To keep your coil in top operating condition, please observe the following

1. Take special care not to tighten the 3 thumb nuts excessively lest the terminals revolve in the wood. This will sever the internal connections and ruin the coil.
2. The vibrator adjustment is very delicate. Protect this area of the coil from abuse and do not change the adjustments.
3. Keep the coil dry. If it gets wet, put it in a warm, dry place for a while. Don't put it in a hot oven.
4. Spark plug gap should be .030" to .040".
5. Any battery voltage from 6 to 12 may be used. Model "E" copper jacket engines run best with 7 1/2 volt batteries; all others will operate on 6 volts. Dry cell batteries should be replaced annually to ensure trouble-free ignition. Don't blame the coil if the engine misfires or is hard to start; in most cases the battery is weak, the timer contacts are dirty, or a wire connection is loose.
6. On rare occasions, vibrator coils may cease to function either in service or after a period of idleness because the vibrator points become oxidised. In this case the vibrator will not "buzz" when the timer is on contact. Simply "tweak" the black vibrator blade once or twice with your finger, with the ignition "on" and the problem should be corrected.
7. Coil should be connected up as shown in diagram below.

