

# MARINE INSTALLATION INSTRUCTIONS & WARNING NOTICE

## 199R9808

**NOTICE:** For safety and protection of persons and property, all United States Coast Guard (U.S.C.G.) and other marine safety requirements and recommendations, as well as the following instructions, must be carefully studied and applied.

Failure to follow the above WILL result in an improper installation, which may lead to personal injury, including death, and/or property damage. Improper installation and/or use will also void your warranty.

**WARNING:** For the safety and protection of yourself and others, ONLY a trained mechanic, having adequate marine fuel system experience, must perform the installation, adjustment, and repair. It is particularly important to remember one of the very basic principles of marine safety: fuel vapors are heavier than air and tend to collect in lower places. This means that ANY fuel spilled will vaporize and remain in the lowest extremes of the engine compartment of your vessel where an explosive fuel/air mixture may be ignited by any spark or flame. Great care must be exercised to prevent spillage and thus eliminate the formation of such fuel vapors. In all cases it is necessary to have and properly operate the bilge blower for a length of time sufficient to remove all vapors before starting your vessel's engine.

**NOTE:** Due to the large distance between the helm and the engine in most boats, it is STRONGLY recommended that the mechanic have an assistant to operate the appropriate helm controls during removal, installation, adjustment, or repair of the marine fuel system, and during the starting procedure.

### REMOVAL OF THE CARBURETOR

**WARNING!** The following steps MUST be carefully studied and applied when disconnecting ANY part of the fuel system.

1. Disconnect the battery (to prevent accidental arcing) and any other equipment, which may or can cause arcing. Extinguish ANY flame—NO SMOKING!
2. Label and remove all hoses going to the flame arrestor.
3. Remove the flame arrestor.
4. Remove the existing carburetor following the procedure outlined below:
  - A. Carefully disconnect the fuel line. Catch all fuel left in the fuel line in a suitable container and REMOVE the container from the vessel before proceeding further. Absorb any spilled fuel immediately with a shop towel or rag and remove from the vessel.
  - B. Label and disconnect all vacuum hoses attached to the carburetor. Hoses that exhibit surface cracks when bent to a 180° position should be replaced.
  - C. Disconnect any choke rods, heat tubes, and any electrical wires from the carburetor.
  - D. Disconnect and remove the throttle linkage. Save all retaining clips.
  - E. Unbolt the carburetor and remove.

**WARNING!** Be EXTREMELY careful not to tilt the carburetor, which may cause fuel to spill. REMOVE the carburetor from the vessel. If fuel spillage occurs, see instructions 4A above.

- F. Stuff shop rags or paper towels into the manifold opening and remove the original flange gasket. Clean the manifold face, taking precautions to prevent particles from falling into the manifold.

**WARNING!** In all cases where the fuel line has been cut, it is essential that it be clean to ensure that no metal particles enter the fuel bowl after new carburetor installation. This is performed by disconnecting the fuel line at the pump and blowing the line clean with compressed air. Holley DOES NOT recommend the procedure where the coil wire is disconnected, the engine cranked for a few revolutions, and the fuel collected in a container. This procedure is unsafe because sparking can occur either at the coil or at the distributor end of the coil wire, and then ignite any fuel spilled in the engine compartment.

- G. Perform the carburetor disassembly, service, and reassembly off the vessel.

### INSTALLATION

5. Remove the shop rags or towels from the manifold opening and place a new flange gasket provided on the manifold.

**CAUTION:** Overtightening the carburetor flange hold-down nuts may result in a warped or cracked carburetor throttle body. The carburetor should be tightened down progressively, with the hold-down nuts, in a criss-cross pattern so that vacuum leaks are prevented, but without resulting in damage to the throttle body.

6. Reinstall the carburetor, reversing the steps outlined in step 4A – 4E.
7. Reconnect the throttle and throttle return spring. With the engine off, check the throttle operation. Check for sticking by having the assistant at the helm operate the throttle controls while the experienced mechanic watches the operation of the carburetor(s) to detect any malfunctions. Be certain that there is no manner of bracket interference when the throttle lever is operated between the idle and wide-open positions.

**WARNING!** If any binding, sticking or malfunction is found... it **MUST** be corrected before proceeding further. Any interference could cause the throttle to stick during operation and could possibly result in the loss of carburetor throttle control (uncontrolled engine speed).

8. Reinstall the flame arrester and reconnect all the hoses.
9. Open all hatches and allow the bilge to ventilate naturally until no fuel vapors are present.
10. Reconnect the battery and operate the bilge blower for a minimum of ten minutes.

**WARNING!** The bilge blower should be operated until ALL fumes have been safely expelled from the bilge area. The blower should be run for at least ten minutes or longer, if necessary.

## STARTING

1. Without operating the throttle, crank the engine. It may take 15 to 30 seconds of cranking to allow the fuel bowls of the carburetor to fill. If the engine does not start, stop cranking, open and close the throttle twice, and crank again until the engine starts.

**WARNING!** After starting the engine, check the fuel lines and inlet fittings for possible leaks. If ANY fuel leakage or weeping is detected, shut off the engine immediately. The presence of liquid fuel demands the tightening of fittings, hose replacement and re-torque of fuel system component flange nuts (where applicable). Wipe any leaked fuel up and remove the rag or towel from the vessel. Operate the bilge blower as directed above before proceeding to correct the cause of the leakage. Be sure to operate the blower again before attempting to restart the engine.

**GENERAL:** Correct engine timing, spark plug gap and heat range, distributor point condition and gap, condenser and wiring, valve lash, condition of the PCV valve, and correct operation of the exhaust heat valve are very important to obtain optimum efficiency and performance.

## ELECTRICAL CHOKE CAP CONNECTION

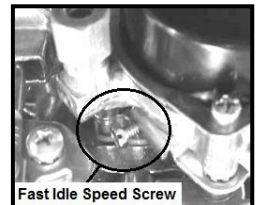
1. For electrical choke connection, attach the bayonet end of the long electrical lead wire supplied to the positive terminal on the choke cap. **The other end must be connected to an ignition-activated 12-volt source.** The distributor side of the ignition coil is **NOT** a 12-volt source. It is a 7-9-volt source after cranking. The shorter wire and terminal assembly provided is for the electrical choke ground. Connect the bayonet end of the wire and terminal assembly to the negative side of the choke cap. Connect the round terminal end to a good ground point. The choke housing screws or the secondary diaphragm housing screws can be used for this.

**WARNING!** Connecting the choke cap to the ignition or ignition coil could result in unacceptable choke operation, poor fuel economy, and possible engine misfiring, since the voltage delivered to the spark plugs will be severely reduced by the drain imposed by the choke cap. Suitable ignition-activated 12-volt sources are most electrical relays, as well as the leads to the accessories, such as windshield wipers. **DO NOT** connect this wire to the original equipment (O.E.) electric choke source. This may not be a 12V source.

**NOTE:** Check the voltage source with a volt-ohm meter to ensure proper voltage and choke operation.

## CHOKE ADJUSTMENT

1. You can control the choke operation by rotating the choke cap. If the choke comes off too soon, rotate the cap counterclockwise one notch at a time, until the choke operation is satisfactory. Reverse the procedure by loosening the screws, if the choke comes off too late. The choke setting from the factory is on "index" or at the center position. After making the final adjustments, start the engine and make sure the choke plate opens completely.
  - A. A choke that comes off too soon could exhibit one or more of the following symptoms: stalling, surging, backfiring, stumbles, or poor vehicle driveability when the vehicle is cold.
  - B. A choke that comes off too late could exhibit one or more of the following symptoms: black smoke from the tail pipe, poor driveability when cold, poor gas mileage, misses, or rough idle.
2. If the Fast Idle RPM (the engine RPM speed while the Choke is on) is too low or too high for your preferences, **SHUT DOWN THE ENGINE!** Advance the throttle to wide – open, exposing the fast idle set screw below the choke housing.
3. Using a 1/4" open end wrench, turn the screw clockwise to increase the RPM or counterclockwise to decrease the RPM (as shown in the following picture). The factory setting should give you a 1500 – 1600 RPM fast idle speed.



## FUEL SYSTEM STORAGE INSTRUCTIONS

During extended periods of vessel storage (60 days or more), gasoline may deteriorate due to oxidation. This can damage rubber and other polymers in the fuel system. It may also clog small orifices such as main jets, idle feed restrictions, and power valve channel restrictions. A commercially available fuel stabilizer such as STA-BIL or an equivalent should be added to the vessel's fuel tank whenever actual or expected storage periods exceed 60 days. Follow the product instructions for the amount of additive to use. The engine should be operated at idle for a minimum of ten minutes after the addition of the stabilizer to assure that it reaches the carburetor.

For additional information, consult the Holley Carburetors and Manifold Book (P/N 36-73).

**Holley Technical Support: 1-866-464-6553**

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