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TO:

## MERC 40 PERFORMANCE IMPROVEMENT KIT (All 1976 Merc 40 = Above Serial No. 9075838)

As a result of continuing engineering developments, a number of design changes, which improve overall engine performance of 1976 Merc 40 Outboards, have been completed.

The benefits from these design changes are such that we have incorporated them in a Performance Improvement Kit which we will offer to install for all 1976 Merc 40 owners at NO CHARGE.

Each registered owner (within specified serial number range) will be sent a letter which explains the program and requests the owner to contact the selling dealer and arrange an appointment for installation of the kit.

To properly schedule work load involved with this program, we suggest that you also contact each of your customers to verify when installation of the kit can be made.

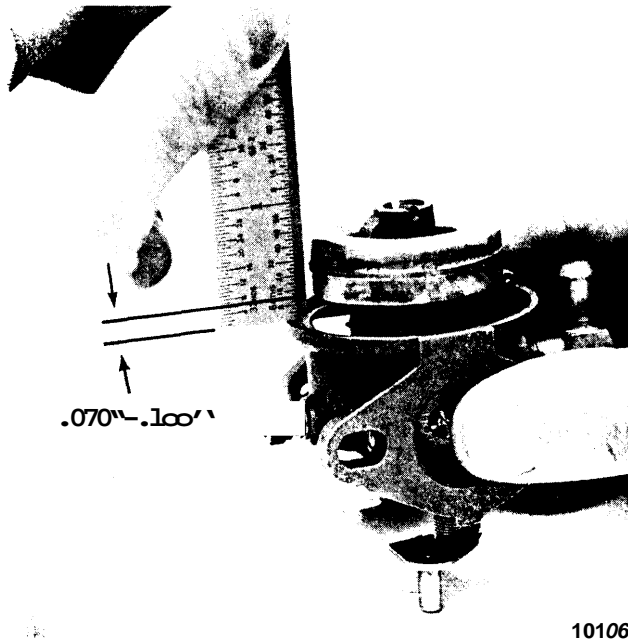
**Order the necessary quantity of Performance Improvement Kits (A-77372A1) that you will need to service Merc 40 Outboards which you have sold or have new in your stock.**

Credit for the Performance Improvement Kit and 1.5 hours labor-per-outboard will be issued upon receipt of a completed warranty claim. More than one outboard per claim is permissible, provided that all serial numbers are listed.

### Installation Instructions (Performance Improvement Kit)

1. Drain fuel from fuel tank.
2. Open fuel tank strap (or cut, if plastic) and remove fuel tank. Cut fuel line, leaving 1-1/2" (38mm) of fuel line on fuel tank outlet. Cut 1/4" (32mm) from remaining fuel line that leads to shutoff valve.
3. Remove 3 screws, which secure rewind starter to powerhead, then remove rewind starter and allow starter to hang over side of bottom cowl.
4. Remove horizontal bleed hose (between sound box and bottom crankcase tee fitting) and vertical bleed hose (between bottom crankcase tee fitting and top cylinder bleed fitting). Retain vertical bleed hose.
5. Remove top cylinder bleed fitting and replace with new elbow fitting (C-21-77206). Arrow (marked on side of new fitting) points toward threaded end. Apply Perfect Seal (C-92-34227) to threads.

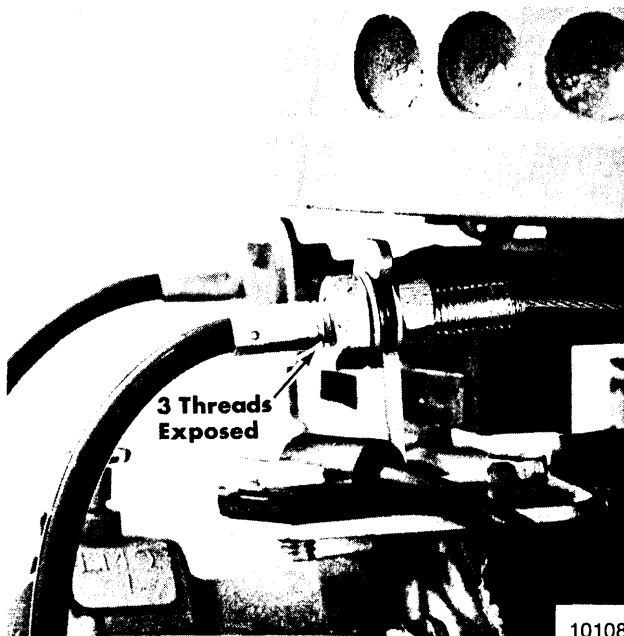
6. Remove bottom crankcase tee fitting and replace with new elbow fitting (C-21-77207). Arrow (marked on side of new fitting) points toward barbed end. Apply Perfect Seal to threads. Install vertical bleed hose (kept in Step 4) between fittings.
7. Remove carburetor sound box cover (4 screws) from sound box, then remove sound box (2 bolts and flat washers) from carburetor.
8. Remove bleed fitting from bottom of sound box and replace fitting with threaded plug (C-22-21290).
9. Remove and rework carburetor as outlined, following.
  - a. Cut and remove hose clamp that secures fuel line to carburetor, then remove fuel line from carburetor.
  - b. Remove choke cable from cable mounting bracket and disconnect cable end from carburetor choke lever.
  - c. Remove 2 locknuts and flat washers, which secure carburetor to powerhead, and remove carburetor.
  - d. Remove screw that holds carburetor throttle plate to throttle shaft, and remove throttle plate from carburetor.
  - e. Install new throttle plate (A-1395-6480) onto throttle shaft so that **3** holes in throttle plate are on same side of carburetor as the idle adjustment screw and that markings (stamped on throttle plate) are facing outward.  
Throttle plate must be positioned on throttle shaft to permit full closing, then tighten screw securely. Hold carburetor up to a light source and check that throttle plate seals the housing bore.



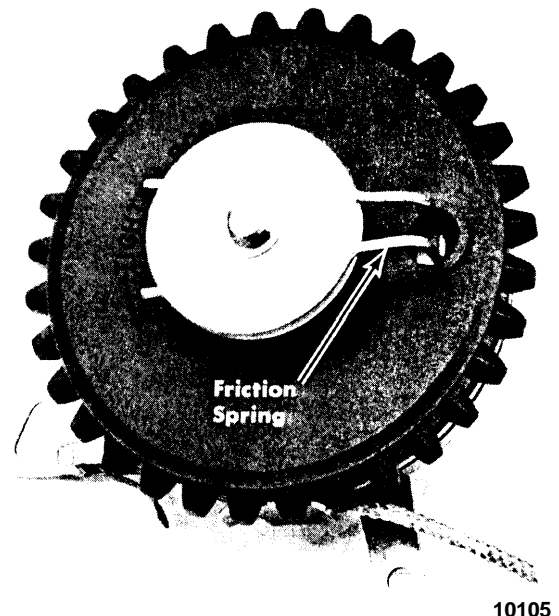
**Figure 1. Float Lever Adjustment**

- f. Remove retainer and gasket, which secure fuel bowl and gasket to carburetor, then remove bowl and gasket. Clean out fuel bowl.
  - g. Hold carburetor upside-down and set float lever to .070" to .100" (1.78mm to 2.54mm) from top of float to casting, as shown in Figure 1.
  - h. Reinstall fuel bowl gasket and fuel bowl to carburetor (flattened portion on bottom of fuel bowl must be centered over float pivot). Secure to carburetor with retainer gasket and retainer.
    - i. Set carburetor idle adjustment screw at 1-1/8 turns off seat.
10. With fuel shut-off valve open, blow out fuel line.
11. Reinstall carburetor to powerhead, using 2 flat washers and locknuts torqued to 70 in. lbs. (81kg-cm).
  12. Reinstall fuel line onto carburetor fitting and secure with new sta-strap (C-47764).
  13. Connect choke cable end into carburetor choke lever hole closest to choke lever pivot and secure choke cable to cable mounting bracket. Pull out choke knob and check that carburetor plate is fully closed. Push in knob and check that plate is fully open. Readjust cable if required.
  14. Remove and retain 2 bolts and flat washers, which secure switch box to powerhead, and move switch box away from exhaust cover.

15. Remove and keep 8 bolts, which secure exhaust cover to powerhead, and remove exhaust cover from powerhead.
16. Clean off exhaust cover gasket material from powerhead.
17. Install new exhaust cover gasket (C-27-74392) and new exhaust cover (A-77178) to powerhead with 8 bolts torqued to 30 in. lbs. (35kg-cm). Reinstall 2 black ground wires to lower left bolt.
18. Reinstall switch box to powerhead with 2 bolts and flat washers. Make sure that no wires are clamped under box. Slide switch box toward front of engine and torque bolts to 30 in. lbs.
19. Remove both spark plugs and regap to .050" (1.27mm). Reinstall spark plugs and torque to 20 ft. lbs. (2.77mkg).
20. Install fuel filter (C-35-76934) into cut end of fuel line leading to shutoff valve with large end of filter toward shutoff valve. Secure fuel line to filter with sta-strap (C-47764).
21. Invert fuel tank and blow out to clear of any chips or other matter. Blow in inlet with outlet plugged for best results.
22. Install fuel tank, being sure that the rubber grommet around the tank neck is not caught under the hold-down strap. If tank was held with a plastic strap, drill 2 holes in tank mounting bracket to accept C-10-29221 self-tapping screws. Install new metal strap (A-75689A1).
23. Connect small end of fuel filter to fuel tank outlet hose and secure fuel hose to filter with sta-strap.
24. While facing front of carburetor, loosen jam nuts on left throttle cable and remove cable from cable mounting bracket. Turn steering handle throttle grip to idle position and adjust jam nuts on right throttle cable to fully engage the mounting bracket, then back off the length of 3 threads. (Figure 2) Tighten both right throttle cable jam nuts. Place left throttle cable back into cable mounting bracket, and adjust jam nuts to remove slack from left throttle cable wire. Tighten both jam nuts.



**Figure 2. Throttle Cable Adjustment**



**Figure 3. Rewind Starter Assembly**

25. Reinstall sound box to carburetor with 2 bolts and washers torqued to 15 in. lbs. (17kg-cm). Reinstall sound box cover and gasket to sound box with 4 screws torqued to 70 in. lbs.
26. Loosen bolt (left hand thread), that retains rewind starter plastic friction disk, and check for washer between disk and center post. Remove friction spring and discard. (Figure 3) This makes the starter an inertia system and eliminates the possibility that pinion will bounce back

into flywheel after engine starts. After lubricating Helix with Multipurpose Lubricant (C-92-63250), install washer (C-12-30164), if missing, and retighten bolt to 30 in. lbs.

27. Reinstall rewind starter to powerhead with 3 screws (adjust starter away from flywheel as far as possible). Torque screws to 30 in. lbs.

*NOTE: If slack exists in starter rope when rewind starter is installed, remove rewind starter and wrap starter rope counterclockwise around starter sheave to remove slack.*

28. Using a solvent, clean all dirt and oil from decal on steering handle. Install new vinyl decal (A-37-77040) over original decal, aligning decal to give same position indication.

29. Setup and test as follows:

- a. Connect timing light and tachometer to engine.
- b. Start engine and let run at 3000 to 3500 RPM for minimum of 10 minutes.
- c. With engine running in gear, close throttle with twist grip and adjust idle link and carburetor idle screw for 750-850 RPM. Tighten both idle link jam nuts after adjustment is completed. Apply a hard closing pressure to carburetor throttle cluster and check for drop in idle speed. If speed drops, carburetor throttle plate is not centered in bore and correction must be made (see rework instructions, preceding).
- d. Advance twist grip until 6"-8" ATDC is reached. Adjust throttle cam to pickup carburetor cluster. Tighten adjustment screw.
- e. Advance twist grip until 24"-26" BTDC is reached. Adjust spark stop screw to touch stop, then tighten jam nut.
- f. Check the following:
  - 1) RPM at wide open throttle (WOT) 3700 to 4100.
  - 2) Choke -- to see if moving freely.
  - 3) Monitor idle operation for a minimum of 5 minutes to assure a consistent idle without stalling.
- g. At WOT, push stop button and hold until both cylinders cut out. Restart and repeat 3 times.
- h. Turn fuel valve to "OFF" position.