

NUMBER: 79-4

DATE: 1/15/79

CIRCULATE TO:  
SERVICE MANAGER  
PARTS MANAGER  
MECHANICS

## TIMING/SYNCHRONIZING/ADJUSTING Merc 90-115-140 HP (1979) Models With Alternator Drive Ignition (ADI)

Firing Order	1-4-5-2-3-6
Firing Sequence	60° Consecutive
Spark Plug	AC-V40FFM or Champion L76V
Spark Plug Gap	Not Adjustable
Timing Maximum Advance	18" BTDC
Throttle Primary Pickup	1"-3" ATDC (90) 5°-7° ATDC (115) 4"-6" ATDC (140)
Full Throttle RPM	4500-5000 RPM (90) 5000-5500 RPM (115) 5300-5800 RPM (140)
Idle RPM (In Gear)	550-650 RPM
Water Pressure (at Cylinder Block)	2 to 5 PSI (0.14 to 0.35kg/cm*) @ 2000 RPM

### TIMING POINTER ADJUSTMENT

**SAFETY WARNING: Engine could start when turning flywheel, therefore, remove all spark plugs to prevent engine from starting.**

### TIMING ADJUSTMENTS (STATIC)

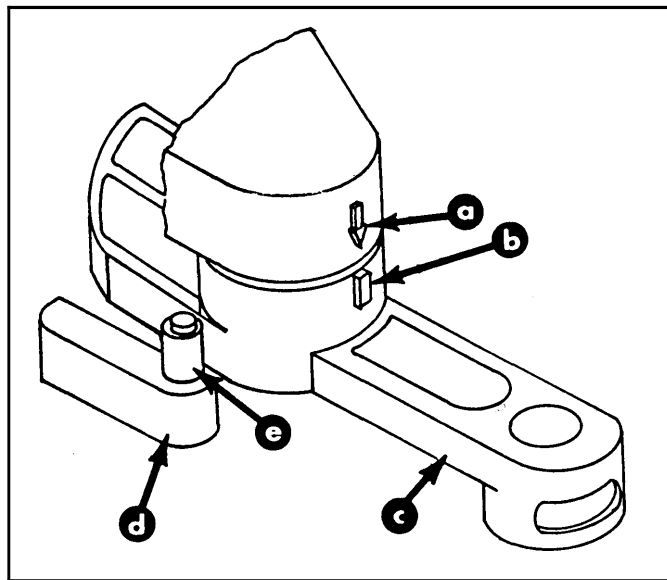
1. Move throttle cam until mark on cam is aligned with arrow on crankcase. (Figure 1) Set idle (bottom) screw on throttle lever to hold this position.
2. Loosen screw on top carb lever and reposition, if necessary, so that carb shutters are fully closed and roller is just touching throttle cam. (Figure 1)

*NOTE: Outboards may be equipped with an idle stabilizer (a small, black box with its wires attached to the switchboxes).*

(OVER)

When setting or checking engine timing by cranking with the starter motor, the black/white wire **MUST BE DISCONNECTED** from the idle stabilizer. **Also**, make certain that the nut is snug on the terminal when timing the engine and that the black/white jumper wire between switchboxes is connected properly and is not touching the metal housing.

3. Connect timing light to engine. Crank engine with starter motor. Adjust spark screw in spring housing for primary spark timing, as shown in chart, preceding. Tighten locknut.
4. Crank engine over with starter motor while adjusting the maximum spark advance screw to align the 20" mark on the flywheel with the rib on the timing pointer. (Due to the advance characteristic of this ignition system, this will automatically reduce to 18" BTDC at WOT RPM.) Tighten locknut. Carburetor shutters should be open approximately 15".
5. Advance throttle lever to wide-open-throttle and adjust throttle stop screw to allow full carburetor butterfly opening with sufficient clearance to prevent throttle linkage from binding. Tighten locknut.



a - Arrow on Crankcase      d - Carburetor Lever  
b - Mark on Throttle Cam    e - Roller  
c - Throttle Cam

**Figure 1. Arrow and Mark Aligned**

### **TIMING ADJUSTMENTS (ENGINE RUNNING)**

**SAFETY WARNING: Engine could start when turning flywheel, therefore, remove all spark plugs to prevent engine from starting.**

1. Connect throttle and shift cables, fuel line, tachometer, timing light and electrical harness.
2. Check ignition system linkage and wires for proper clearance and travel.
3. Reinstall spark plugs and spark plug leads.
4. Spark plug wires must be tight on plugs and pushed full depth into coils.
5. Start engine, check for tell-tale water discharge. Check water pressure for 2-5PSI (0.14-0.35 kg/m<sup>2</sup>).
6. Check throttle shutter synchronization (all shutters to be in closed position and to open simultaneously).
7. Advance throttle to WOT and check timing at 18" BTDC.
8. Set idle mixture and adjust idle stop screw on throttle lever for idle speed while in forward gear. Tighten locknut.
9. Check primary throttle pickup as shown in chart, preceding.