



Timing/Synchronizing/ Adjusting (3 Cylinder Models) Specifications

70, 75 and 80 Models

Serial Number and Above

U.S.	B239242
Belgium	9502135
Canada	A730007

Full Throttle RPM Range	4750 - 5250
Idle RPM (in "FORWARD" Gear)	650 - 700
Maximum Timing @ 5000 RPM (@ Cranking Speed)	26° B.T.D.C. (28° B.T.D.C.)
Idle Timing	0° - 4° B.T.D.C.
Spark Plug	NGK BUHW-2
Firing Order	1-3-2

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Serial Number and Below

U.S.	B239241
Belgium	9502134
Canada	A730006

Full Throttle RPM Range	4750 - 5250
Idle RPM (in "FORWARD" Gear)	650 - 700
Maximum Timing @ 5000 RPM (@ Cranking Speed)	22° B.T.D.C. (24° B.T.D.C.)
Idle Timing	0° - 4° B.T.D.C.
Spark Plug	NGK BUHW-2
Firing Order	1-3-2

90 Models

Full Throttle RPM Range	5000 - 5500
Idle RPM (in "FORWARD" Gear)	650 - 700
Maximum Timing @ 5000 RPM (@ Cranking Speed)	26° B.T.D.C. (28° B.T.D.C.)
Idle Timing	0° - 4° B.T.D.C.
Spark Plug	NGK BUHW-2
Firing Order	1-3-2

Mariner 75 Marathon/Merc 75XD

Full Throttle RPM Range	4750 - 5250
Idle RPM (in "FORWARD" Gear)	650 - 700
Maximum Timing @ 5000 RPM (@ Cranking Speed)	16° B.T.D.C. (18° B.T.D.C.)
Idle Timing	0° - 4° B.T.D.C.
Spark Plug	NGK BUHW-2
Firing Order	1-3-2

Special Tools

Part No.	Description
*91-58222A1	Dial Indicator Gauge Kit
*91-59339	Service Tachometer
*91-99379	Timing Light
91-63998A1	Spark Gap Tool

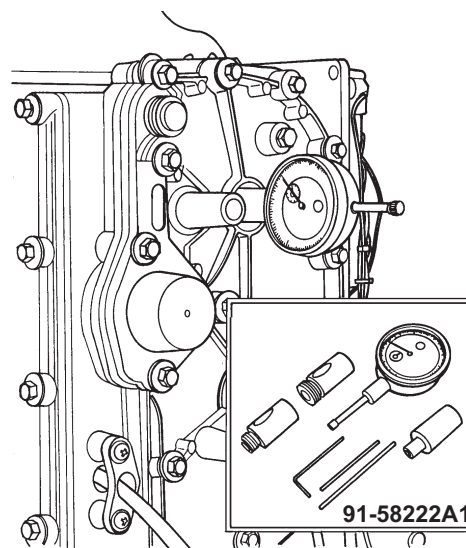
* May be obtained locally.

Timing Pointer Adjustment

⚠ WARNING

Engine could start when turning flywheel to check timing pointer alignment. Remove spark plugs from engine to prevent engine from starting.

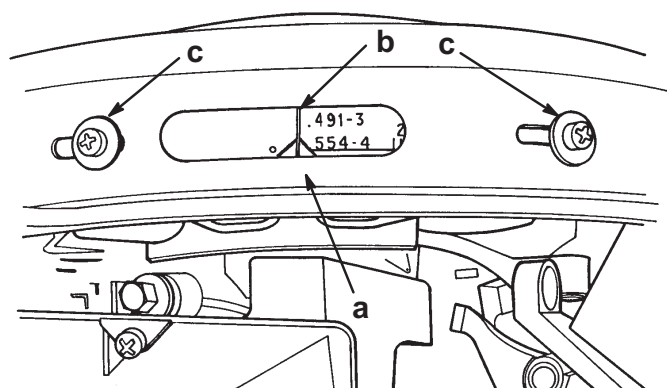
1. Install Dial Indicator P/N 91-58222A1 into no. 1 (top) cylinder.
2. Turn flywheel clockwise until no. 1 (top) piston is at top dead center (TDC). Set Dial Indicator to "0" (zero).



3. Turn flywheel counterclockwise until Dial Indicator needle reads approximately 0.550 (13.97mm) BTDC, then turn flywheel clockwise so that needle reads 0.491 in. (12.47 mm) BTDC exactly.



4. Reposition timing pointer if necessary, so that timing pointer is aligned with 0.491 in. (12.47 mm) timing mark on flywheel. Retighten attaching screws.



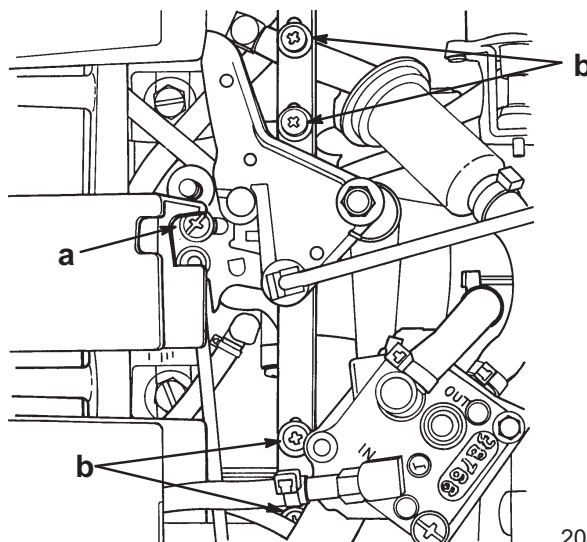
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- a - Timing Pointer
- b - Timing Mark
- c - Attaching Screws

5. Remove Dial Indicator, and reinstall spark plug and high tension spark plug lead of no. 1 (top) cylinder only.

CARBURETOR SYNCHRONIZATION

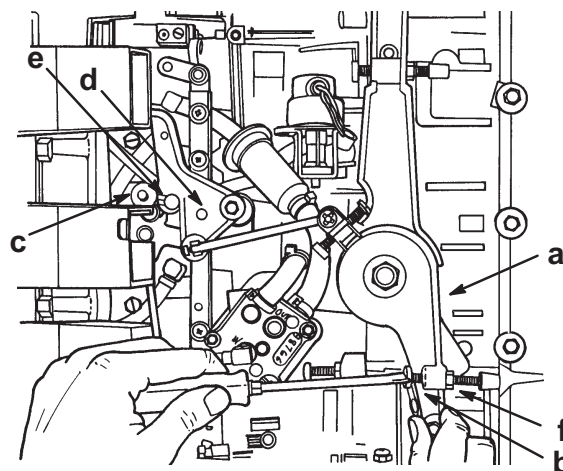
1. Disconnect remote fuel line from engine.
2. Connect remote control electrical harness to engine wiring harness.
3. Remove throttle cable barrel from barrel retainer.
4. Remove sound air box cover.
5. Loosen screw from throttle cam follower.
6. Loosen 4 synchronizing screws.
7. Look into throats of carburetors and make sure all throttle shutters are completely closed. Tighten synchronizing screws.
8. Recheck throttle shutters and make any necessary adjustments.



20440

- a - Set Screw
- b - Synchronizing Screws

9. Hold throttle arm so that throttle stop screw is against stop.
10. Place roller of cam follower against throttle cam and adjust throttle stop screw to align raised mark of throttle cam with center of cam follower roller. Tighten locknut.

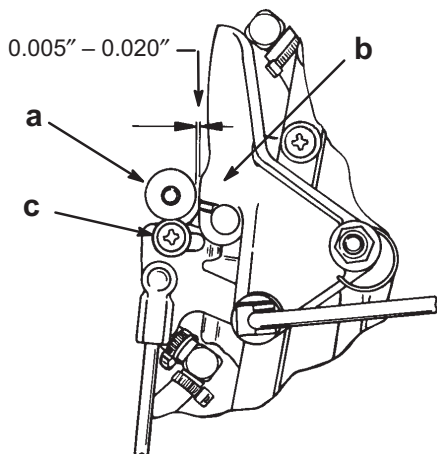


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- a - Throttle Arm
- b - Throttle Stop Screw
- c - Roller
- d - Throttle Cam
- e - Raised Mark
- f - Lock Nut



11. Holding throttle arm against throttle stop screw, adjust cam follower, so that a clearance of 0.005 in. - 0.020 in. (0.127 - 0.508 mm) exists between roller of cam follower and throttle cam. Tighten set screw securing cam follower.



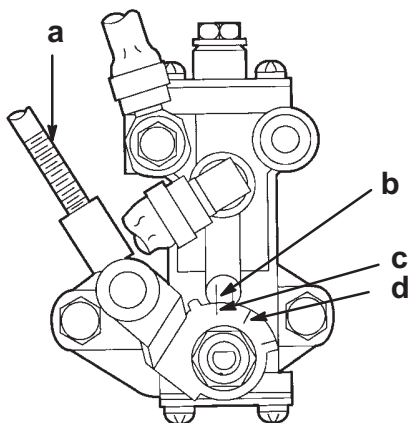
52472

- a - Roller
b - Throttle Cam
c - Set Screw

CARBURETOR/OIL PUMP SYNCHRONIZATION

IMPORTANT: Some engines may have an additional stamped mark (d) which **SHOULD NOT** be used.

1. While holding throttle arm at idle position, adjust length of link rod so that stamped mark of oil pump body aligns with stamped mark of oil pump lever.



22977

- a - Link Rod
b - Mark of Oil Pump Body
c - Mark of Oil Pump Lever
d - Mark NOT Used

TIMING ADJUSTMENTS

⚠ CAUTION

Engine is timed while cranking engine with starter motor. To prevent engine from starting when being cranked, all spark plugs must be removed, except no. 1 (top) cylinder plug.

NOTE: If initial timing adjustments are made without engine running, then final timing checks should be made with engine running due to timing advance characteristics of ignition system. Minimum engine RPM required to check maximum timing advance is 3000 RPM.

IDLE TIMING ADJUSTMENT

1. Connect timing light to no. 1 (top) spark plug.

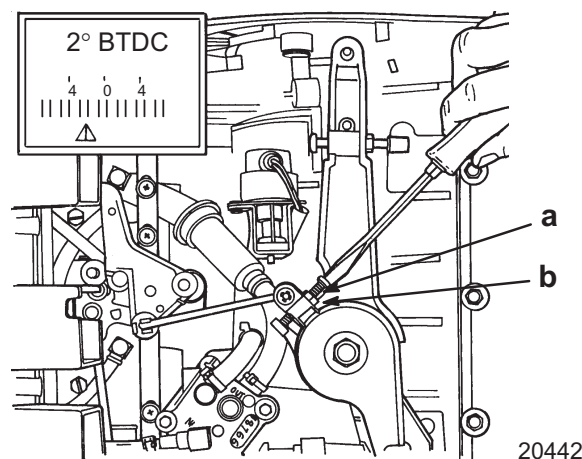
⚠ WARNING

Before cranking engine, keep clear of propeller as it may rotate.

2. Shift engine to "Neutral".

IMPORTANT: To accurately time engine at cranking speed, a fully charged battery must be used.

3. Holding throttle arm at idle position, crank engine with starter motor and adjust idle timing screw to align 2° BTDC timing mark of flywheel with timing pointer. Tighten locknut.



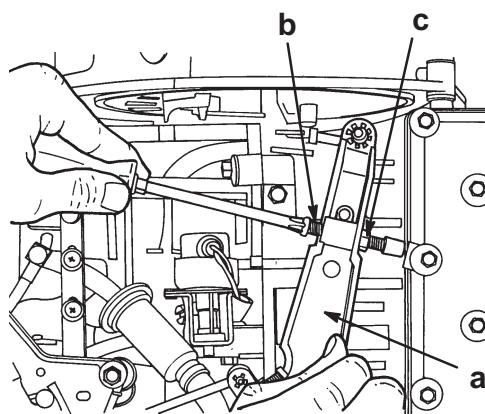
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- a - Idle Timing Screw
b - Locknut



MAXIMUM TIMING

1. Hold control arm so that maximum spark advance screw is against stop.
2. Crank engine with starter motor and adjust maximum spark advance screw to align the specified BTDC timing mark on flywheel with timing pointer (due to the advance characteristic of this ignition system, this cranking speed adjustment will automatically be reduced by 2° at an engine speed of 5000 RPM). Tighten locknut.



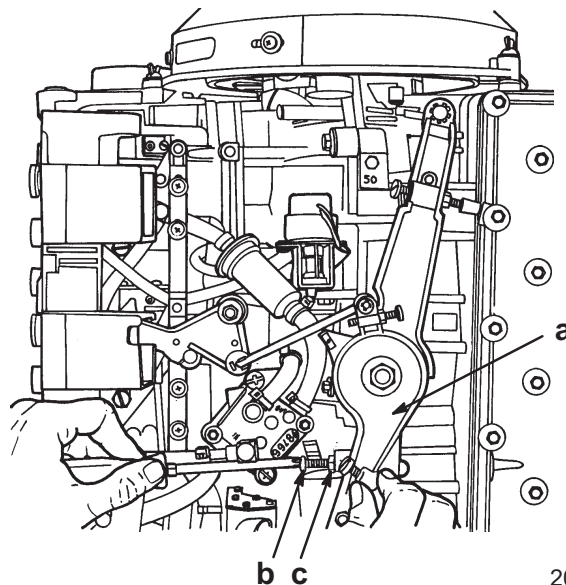
- a - Control Arm
b - Maximum Spark Advance Screw
c - Locknut

NOTE: If initial timing adjustments are made without engine running, then final timing checks should be made with engine running due timing advance characteristics of ignition system. Minimum engine RPM required to check maximum timing advance is 3000 RPM.

MAXIMUM THROTTLE

1. Hold throttle arm against full throttle stop screw. Adjust full throttle stop screw to allow throttle shutters to open fully, then turn stop screw in (clockwise) an additional 1/2 turn, to prevent throttle lever of center carburetor from acting as a stop. Tighten locknut.

2. Install remaining spark plugs and high tension spark plug leads.



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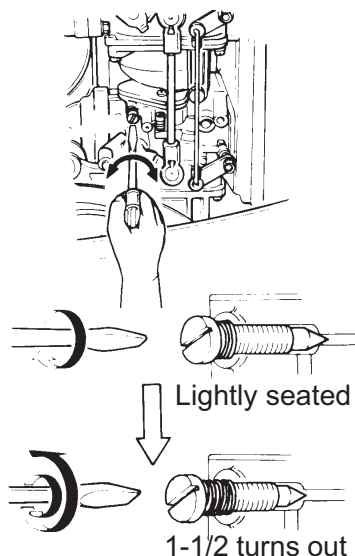
- a - Throttle Arm
b - Full Throttle Stop Screw
c - Locknut

IDLE ADJUSTMENT

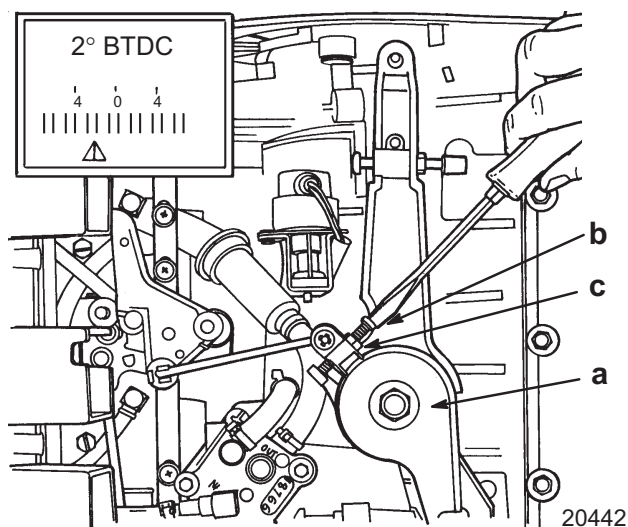
1. With engine in water, connect electrical harness and fuel line to engine. Start engine and allow to warm up.



2. Shift into "Forward" gear and adjust carburetor low speed mixture screws properly (refer to "Carburetor" section).



3. Holding throttle arm (NO TAG) at idle position, adjust idle timing screw (NO TAG) to attain an engine idle RPM of 650-700 RPM in "Forward" gear. Tighten locknut (NO TAG) and turn off engine.



- a - Throttle Arm
b - Idle Timing Screw
c - Locknut

NOTE: On this type of engine, idle RPM is adjusted exclusively with ignition timing.

Throttle Cable Installation

1. With end of throttle cable connected to throttle lever, hold throttle lever against idle stop. Adjust throttle cable barrel to slip into barrel retainer on cable anchor bracket with a very light preload of throttle lever against idle stop. Lock barrel in place.

IMPORTANT: Excessive preload on throttle cable will cause difficulty when shifting from forward to neutral. (Readjust throttle cable barrel, if necessary.)

2. Check preload on throttle cable by placing a thin piece of paper between idle stop screw and idle stop. Preload is correct when paper can be removed without tearing but has some drag on it. (Readjust throttle cable barrel, if necessary.)