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

Throttle Cable Installation

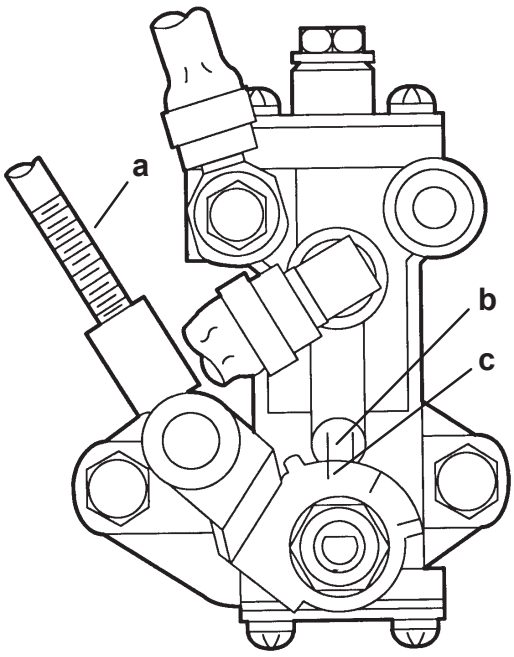
1. With end of throttle cable connected to throttle lever, hold throttle lever against idle stop. Adjust throttle cable barrel to slip into barrel retainer on cable anchor bracket with a very light preload of throttle lever against idle stop. Lock barrel in place.

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.)

CARBURETOR/OIL PUMP SYNCHRONIZATION

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.



a - Link Rod
b - Stamped Mark of Oil Pump Body
c - Stamped Mark of Oil Pump Lever

2. Reinstall engine cowling.

Timing/Synchronizing/ Adjusting (4 Cylinder Models)

Specifications

Models 80 JET/100/115/125

Full Throttle RPM Range	4750 - 5250
Idle RPM (in FORWARD Gear)	675 ± 25
Maximum Timing	
1994/1995 Models	
@ 3000 RPM	20° B.T.D.C.
@ Cranking Speed	22° B.T.D.C.
1996/97/98 Models	
@ 3000 RPM	23° B.T.D.C
@ Cranking Speed	25° B.T.D.C
Idle Timing	4° A.T.D.C. - 2° B.T.D.C.
Spark Plug Type	NGK BP8H-N-10 0.040 IN. (1.0MM)
Firing Order	1-3-2-4

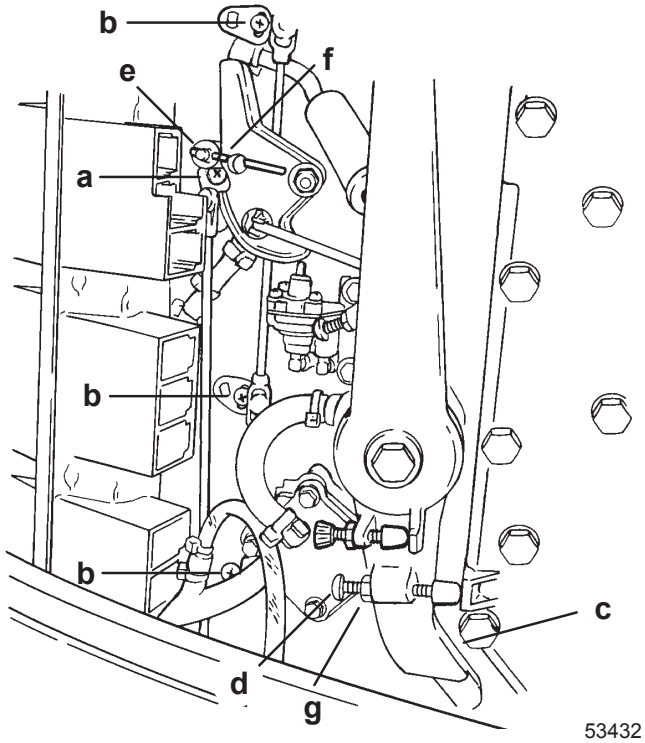
Special Tools

Part No.	Description
*91-59339	Service Tachometer
*91-99379	Timing Light
91-63998A1	Spark Gap Tool

CARBURETOR SYNCHRONIZATION

1. Remove sound box cover.
2. Loosen cam follower adjustment screw.
3. Loosen 3 synchronizing screws.
4. Look into throats of carburetors and verify all throttle shutters are completely closed.
5. Apply light down pressure on carburetor synchronizing shaft and tighten 3 synchronizing screws from top to bottom.
6. Recheck throttle shutters and make any necessary adjustment.
7. Hold throttle arm so that idle stop screw is against stop.

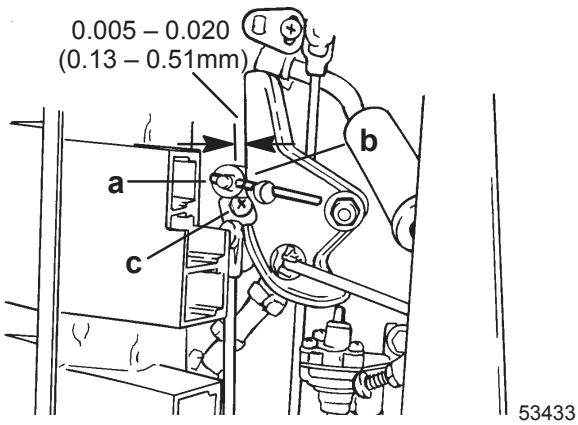
8. Place roller of cam follower against throttle cam and adjust idle stop screw to align raised mark of throttle cam with center of cam follower roller. Tighten locknut.



53432

a - Cam Follower Adjustment Screw
b - Synchronizing Screws
c - Throttle Arm
d - Idle Stop Screw
e - Roller
f - Throttle Cam
g - Locknut

9. Holding throttle arm at idle position, adjust cam follower so that a clearance of 0.005 in. - 0.020 in. (0.13mm - 0.51mm) exists between roller and throttle cam. Tighten screw securing cam follower.



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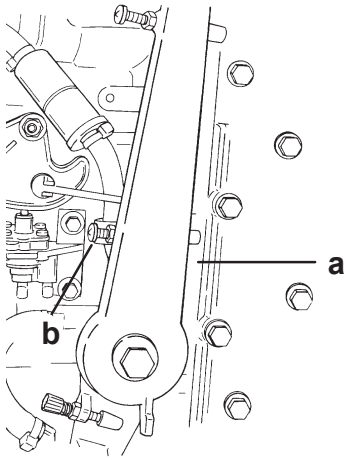
a - Roller
b - Throttle Cam
c - Screw

10. Hold throttle arm against full throttle stop. Adjust full throttle stop screw to allow throttle shutters to open fully. To prevent throttle shutters to act as a stop, screw in stop screw until there is a gap of 0.015 in. (0.40mm) between roller of cam follower and throttle lever.



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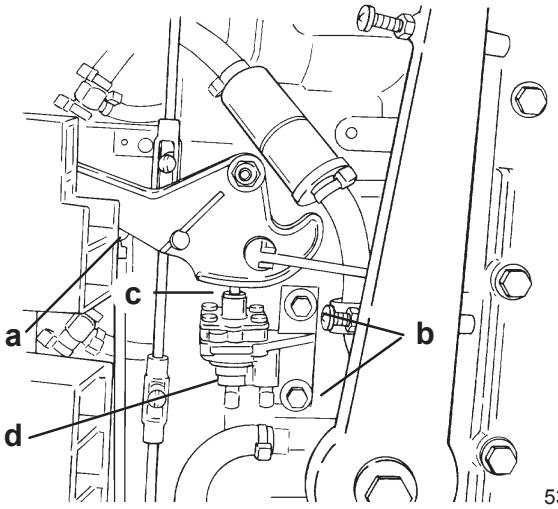
a - Throttle Arm
b - Full Throttle Stop Screw

11. Hold throttle cam in full throttle position. If necessary adjust acceleration pump adjusting bolts position so that a gap of 0.030 in. (0.76mm) exists between throttle cam and top of acceleration pump aluminum housing.



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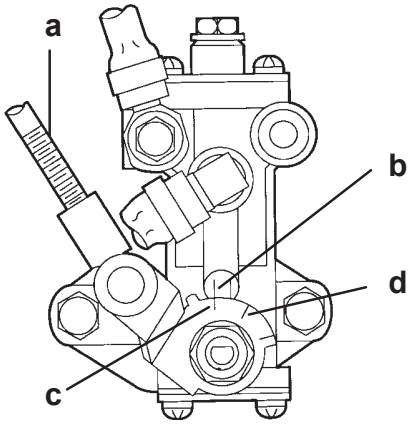
a - Throttle Cam
b - Bolts
c - 0.030 in. (0.76mm) Gap
d - Accelerator Pump

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.



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

TIMING ADJUSTMENTS

⚠ CAUTION

Engine can be timed while cranking engine with starter motor. To prevent engine from starting when being cranked, all spark plugs should be removed.

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. Maximum engine RPM required to check maximum timing advance is 3000 RPM.*

1. Insert Spark Gap Tool (91-63998A1) in no. 1 (top) cylinder spark plug boot and attach alligator clip to good ground.
2. Remove throttle cable barrel from barrel retainer.

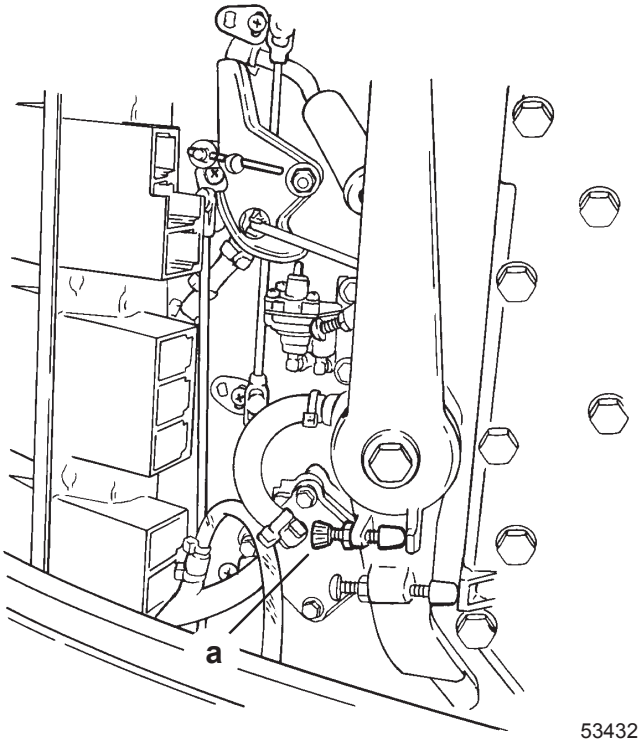
IDLE TIMING ADJUSTMENT

⚠ WARNING

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

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

1. Connect timing light to no. 1 (top) spark plug lead.
2. Shift engine into neutral.
3. Holding throttle arm at idle position, crank engine with starter motor and adjust idle timing screw to align 2 degrees BTDC timing mark of flywheel with timing pointer.



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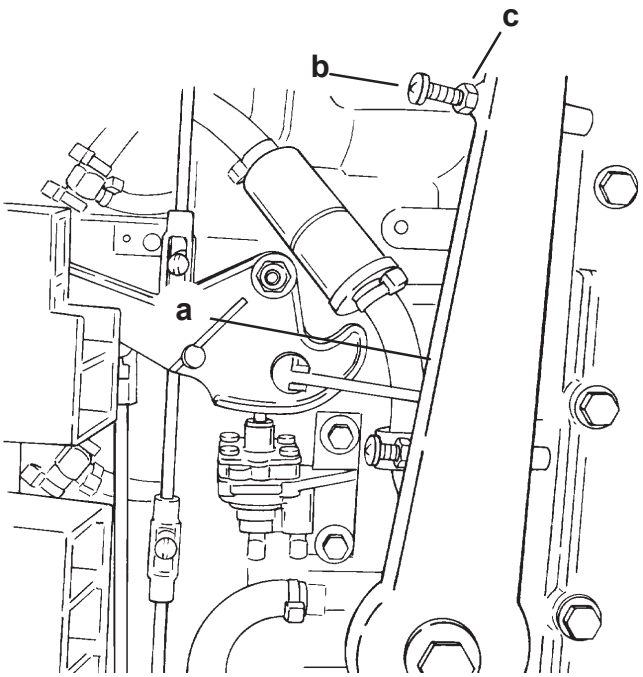
a - Idle Timing Screw

MAXIMUM TIMING

1. Hold control arm against maximum advance stop. **1994/1995 Models –** Crank engine with starter motor and adjust maximum advance screw to align 22° BTDC mark on flywheel with timing pointer (due to the advance characteristics of ignition system, this cranking speed adjustment will automatically be reduced to 20° BTDC at engine speed of 3000 RPM). Tighten locknut. **1996/97/98 Models –** Crank engine with starter motor and adjust maximum advance screw to align 25° BTDC mark on flywheel with timing pointer (due to the advance characteristics of ignition system, this cranking speed adjustment will automatically be reduced to 23° BTDC at engine speed of 3000 RPM). Tighten locknut.



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

INITIAL STARTING ADJUSTMENTS

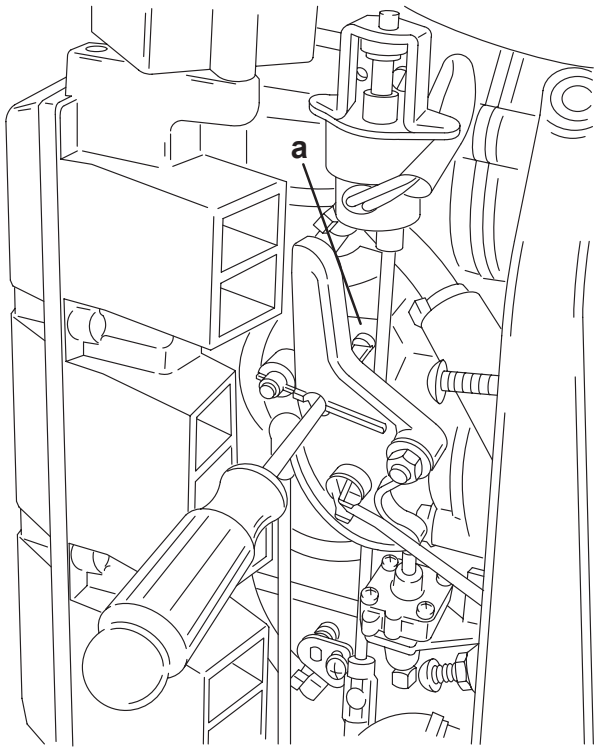
NOTE: *For adjusting carburetor throttle linkage and synchronizing carburetors, see section "Timing/Synchronizing/Adjusting" of this manual.*

After service or replacement of carburetor, turn low speed mixture screw adjustment in (clockwise) until it seats lightly, then back off (each carburetor) to specifications **(80 JET/100/115/125 -** 1-1/2 turns). This will permit engine start-up.

LOW SPEED MIXTURE ADJUSTMENTS

NOTE: *Only the top two carburetors on four cylinder models have an adjustable low speed mixture screw.*

1. Start engine and allow to warm up (run for several minutes). Throttle back to idle for about one minute to allow RPM to stabilize.
2. With engine running at idle speed (in water) in "Forward" gear (prop on), turn low speed mixture screw, IN (clockwise) until engine starts to "bog" down and misfire. Back out 1/4 turn or more.
3. Check for too lean mixture on acceleration.
4. DO NOT adjust leaner than necessary to attain reasonable smooth idling. When in doubt, stay on the slightly rich side of the adjustment.

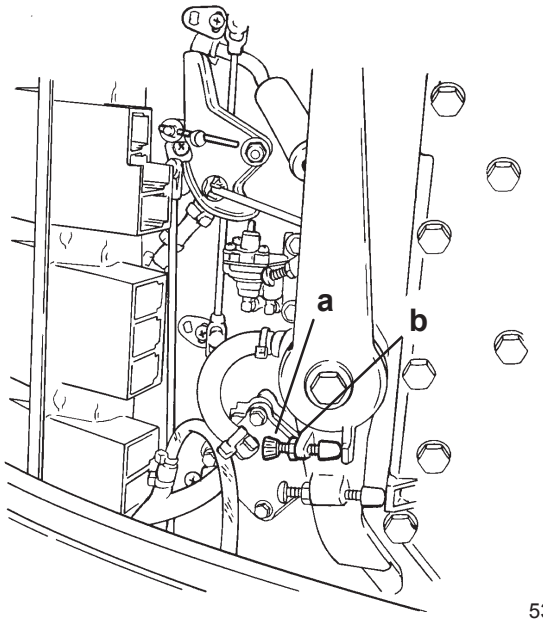


54171

a - Low Speed Mixture Screw

Idle Adjustment

1. With engine in water, connect electrical harness and fuel line to engine. Start engine and allow to warm up.
2. Properly adjust carburetor low speed mixture screws. Refer to “Carburetor Adjustments” section 3A.
3. Holding throttle arm at idle position (throttle cable barrel removed from barrel retainer), adjust idle timing screw to attain an engine idle RPM of 650-700 RPM in “Forward” gear. Tighten locknut and turn off engine.



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a - Idle Timing Screw
b - Locknut

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.)
3. Reinstall sound box cover.