

corded prior to removal. The screw should be approximately two turns out from the lightly seated position.
5. Use an appropriately sized socket to push a new plug into the screw opening.

LINKAGE, THROTTLE POSITION SENSOR, SYNCHRONIZATION AND IDLE SPEED ADJUSTMENTS

WARNING

Safely performing on-water testing or adjustments requires two people. One person is needed to operate the boat, the other to monitor the gauges or test equipment and make necessary adjustments. All personnel must remain seated inside the boat at all times. Do not lean over the transom while the boat is moving. Use extensions to allow all gauges and test equipment to be located in normal seating areas.

75-100 hp Models

An accurate shop tachometer, digital multimeter, test harness (Yamaha part No. YB-06443/90890-05657) and a carburetor synchronization gauge set (Yamaha part No. YU-08030/90890-03094) or a commonly available carburetor tuner (**Figure 2**) are required for the synchronization adjustment. Adapters included with the gauge set usually fit the plug openings in the intake runner. Remove one of the synchronization port plugs (**Figure 3**) from the intake runner and compare the plug diameter and thread pitch with the adapters. Purchase the correct size adapters from a tool supplier as required.

1. Disconnect the negative battery cable to prevent accidental starting.
2. Locate the throttle cam and roller on the lower port side of the power head. See **Figure 4**.
3. Move the throttle arm (A, **Figure 4**) toward the idle position until it contacts the stop (B).
4. With the throttle arm against the stop, the tip of the throttle cam (C, **Figure 4**) must align with the center of the throttle lever for the bottom carburetor. If not, carefully pry the throttle linkage off the throttle arm post (D, **Figure 4**). Loosen the jam nut and rotate the connector on the linkage to achieve the length necessary for proper cam tip-to-lever alignment. Turning the connector clockwise moves the tip down and turning the connector counter-clockwise moves the tip up.
5. Carefully snap the linkage connector on the throttle cam post and check the tip-to-lever alignment. Readjust the link as needed.
6. Adjust the throttle cable as described in this chapter.

7. Locate the throttle position sensor (B, **Figure 5**) on the lower port side of the engine.
8. Move the throttle arm (A, **Figure 4**) toward the idle position until it contacts the stop (B). Hold the arm in this position during the throttle position sensor adjustment.
9. Disconnect the throttle position sensor harness (**Figure 6**) from the engine harness. Connect the test harness (Yamaha part No. YB-06443/90890-05657) to the throttle position sensor and engine harness connectors. See **Figure 7**. Connect the positive meter lead to the pink test harness wire. Connect the negative meter wire to the orange test harness wire.
10. Loosen both sensor screws (A, **Figure 5**) just enough to allow rotation of the sensor body. Rotate the sensor body (B, **Figure 5**) until the meter indicates 0.68-0.72 volt. Hold the sensor in this position, then tighten both screws evenly to 1.7 N•m (15 in.-lb.). Disconnect the test harness, then reconnect the throttle position sensor harness to the engine harness connector.
11. Connect the battery cable. Prepare the engine for operation under actual running conditions.

NOTE

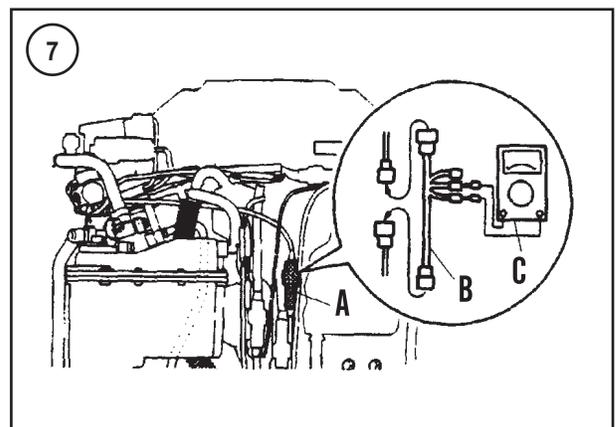
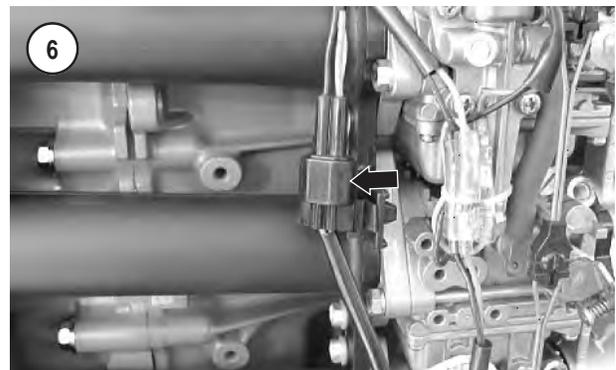
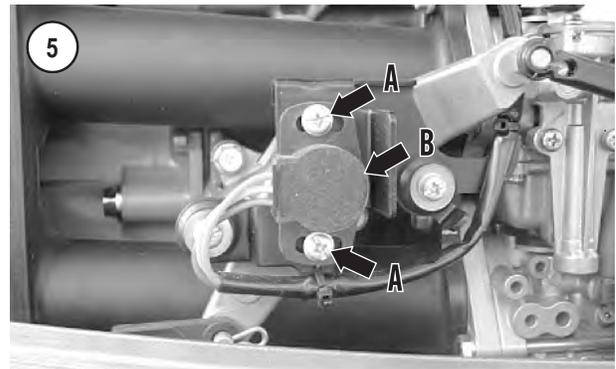
Perform the synchronization adjustments only under actual running conditions. Attempts to perform these adjustments using a flush/test device will result in a less than ideal synchronization.

12. Remove all four synchronization port plugs (**Figure 3**) from the intake runners. Thread the adapters (**Figure 8**) into all four ports. Connect the gauge set hoses to the adapters. Mark the cylinder number for the corresponding intake runner number on the hose and gauge set.
13. Attach an accurate shop tachometer to the engine, following the manufacturer's instructions.

WARNING

Use extreme caution if working on or around a running engine. Stay clear from the flywheel, timing belt and pulleys.

14. Start the engine and allow it to run at fast idle, in NEUTRAL gear, for approximately ten minutes or until the engine reaches normal operating temperature. In cold operating conditions, this may take as long as 20 minutes.
15. Place the throttle in the idle position and wait a few minutes for the idle speed to stabilize.
16. Rotate the idle speed screw (**Figure 9**) until the engine reaches exactly 850 rpm. The idle speed adjusting screw is located on the bottom (No. 4) carburetor. Clockwise screw rotation increases idle speed and counter-clockwise rotation decreases idle speed.



17. Locate the synchronization screw (**Figure 10**) on the No. 3 carburetor. Observe the reading on the gauge for the No. 3 and No. 4 carburetor, along with the tachometer. *Slowly* turn the synchronization screw until the vacuum gauge readings for the No. 3 and No. 4 carburetors are equal. The actual vacuum readings are not relevant for the adjustment. Stop immediately and adjust the idle speed (Step 16) if the engine speed changes during adjustment. Continue adjusting the screw until equal gauge readings are attained with the engine at 850 rpm.