



OUTBOARD

11/07/00

O2000-015A

TECH EXCHANGE

- SUBJECTS:** 1. Ignition System/Spark Plug Change - Late Production HPDI Models
2. Engine Idle Speed Control Adjustment - F/LF115

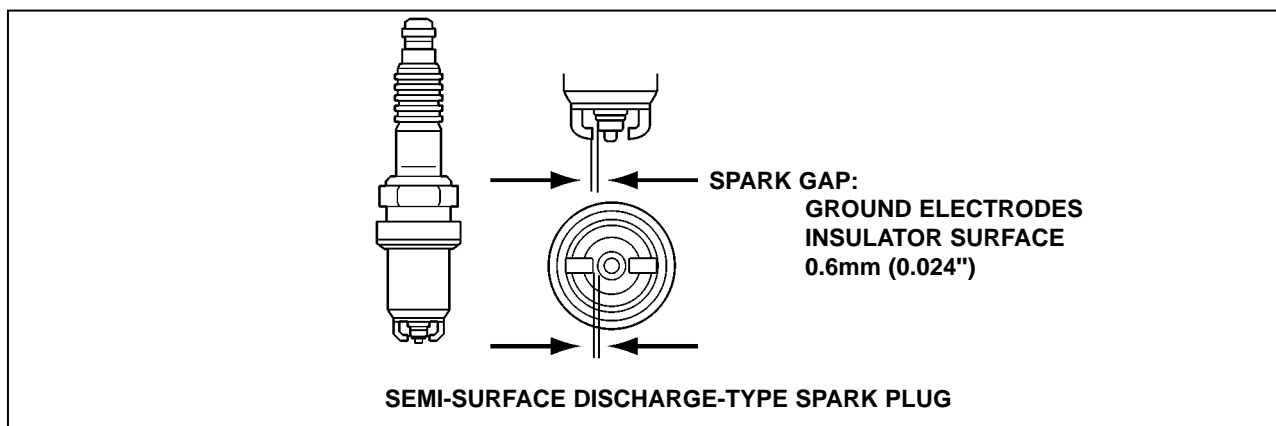
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Effective 12/04/00, this Tech Exchange replaces O2000-015; please remove and destroy O2000-015 (pages 1~2 only). ► denotes a change from the previous version of this Tech Exchange.

Ignition System/Spark Plug Change - Late Production HPDI Models

The ignition system on 2001 HPDI models was changed in mid-production. Changes include the engine control unit, ignition coils, and spark plugs. The correct spark plugs for the ignition system type must be used for proper performance and reliability.

Use the conventional spark plugs as specified in the service literature for earlier production engines. Later production outboards, however, use a semi-surface discharge-type spark plug. This spark plug has two ground electrodes, rather than the traditional single electrode.



NOTE:

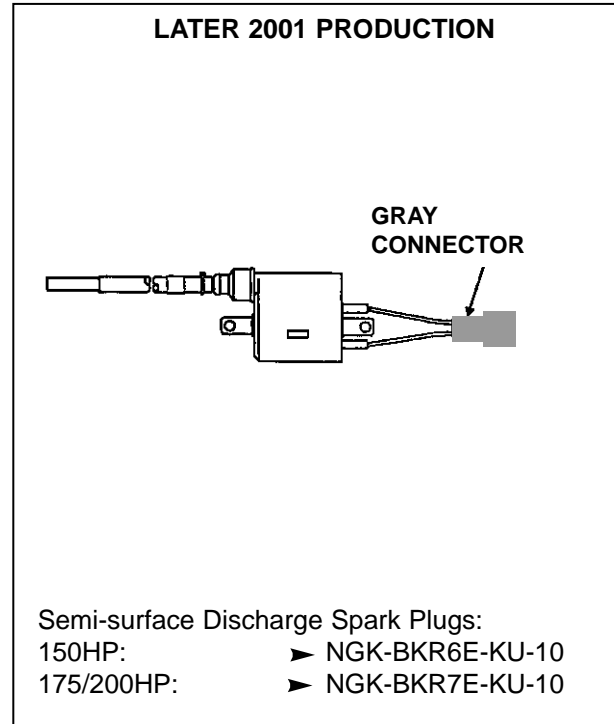
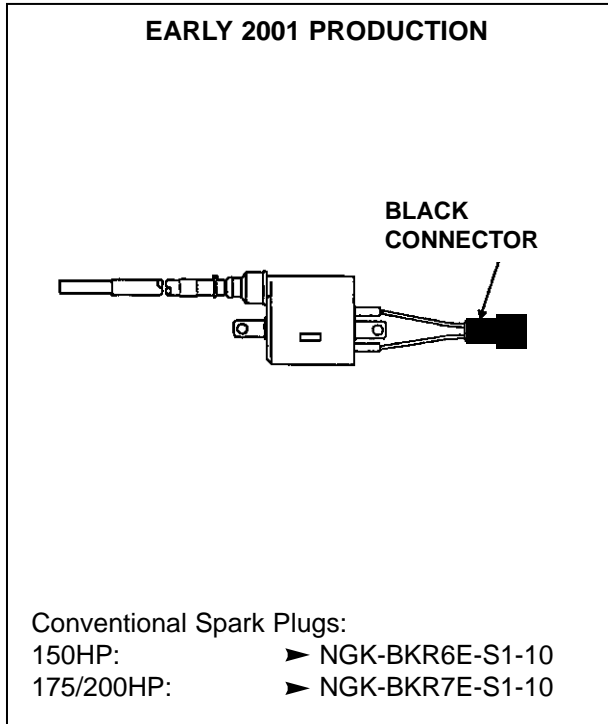
Checking and adjusting spark plug gap is somewhat different from a conventional plug. As shown in the illustration above, the gap is set between the ground electrode and the insulator surface, not the center electrode.

The change is effective with the following serial numbers:

Z150TLRZ:	6G4L-800453~
Z150TXRZ:	6G4X-851536~
LZ150TXRZ:	6K0X-800555~
VZ150TLRZ:	6J9L-800712~
VZ175TLRZ:	62HL-800232~
Z175TXRZ:	6G5X-800202~
Z200TLRZ:	6G6L-150690~
Z200TXRZ:	6G6X-102421~
LZ200TXRZ:	6K1X-100875~

If you have technical tips you think other dealers could use, let us know. You'll receive credit in the Tech Exchange for the ideas we use, and we'll send you an exclusive Yamaha Tech Exchange hat as our thanks.
Send your tips to: Yamaha Motor Corporation, U.S.A., Attn: Tech Exchange, P.O. Box 6555, Cypress, CA 90630

To confirm which spark plugs should be used, check the color of the ignition coil connector. Earlier production engines have a black connector and use conventional spark plugs. Later production engines have a gray connector and use the semi-surface discharge-type plugs (see illustrations below).



Part Name	Model	Part Number	Qty	Dealer Cost	Retail Cost
Conventional Spark Plugs	150HP	▶ NGK-BKR6E-S1-10	10	\$1.68	\$2.80
Conventional Spark Plugs	175/200HP	▶ NGK-BKR7E-S1-10	10	\$1.68	\$2.80
Semi-surface Discharge Spark Plugs	150HP	▶ NGK-BKR6E-KU-10	10 ▶	\$4.25	\$6.50
Semi-surface Discharge Spark Plugs	175/200HP	▶ NGK-BKR7E-KU-10	10 ▶	\$4.25	\$6.50

Engine Idle Speed Control Adjustment - F/LF115

The attached *Adjusting the Engine Idle Speed Control* procedure page is to be inserted between pages 3-9 and 3-10 of your current F/LF115 Service Manual (LIT-18616-02-18).

If the idle speed control is not properly set upon initial delivery, the engine may stall during shifting. Be sure to check the following before adjusting the Engine Idle speed Control:

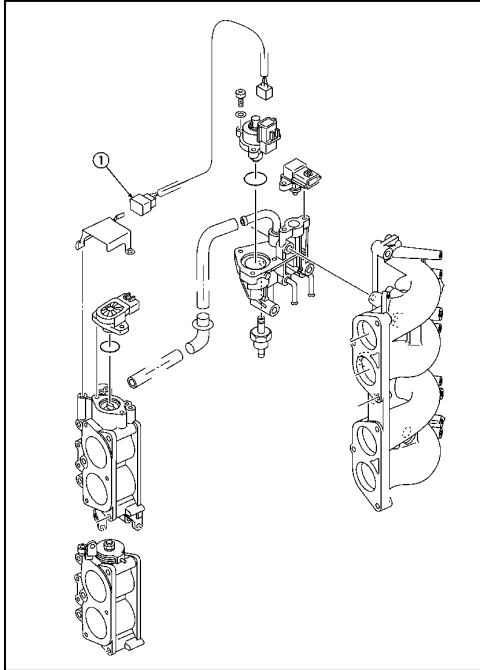
1. Inspect the throttle cable adjustment.
2. Inspect the shift cable adjustment.

3. Inspect the synchronization and adjustment of the throttle valves and throttle position sensor.

NOTE: Perform the following remaining checks with the engine at operating temperature.

4. Synchronize the throttle valve intake vacuum between cylinders as detailed in the Service Manual (pages 3-8 and 3-9).
5. Measure the TPS output voltage. If it is less than 0.72V, perform the *Adjusting the Engine Idle Speed Control* procedure.

Outboard motor



ADJUSTING THE ENGINE IDLE SPEED CONTROL

CAUTION:

Do not adjust if the engine is operating normally, otherwise, the performance of the engine can be adversely affected.

1. Measure:

- Check engine idle speed.
- Check the output voltage of the throttle position sensor.
- Check the synchronization of the throttle valves. (Check that the difference in the vacuum between the cylinders is within $\pm 15\text{mmHg}$.)

NOTE:

- Be sure to warm up the engine more than 10 minutes before making the measurement.
- Set the digital tester to the manual range and measure the output voltage of the throttle position sensor.

2. Adjust:

Engine idle speed control.

Adjustment Steps:

- 1) After 15 seconds or more has elapsed from the time the engine start switch has been turned OFF, disconnect coupler ① (6-pin).
- 2) Start the engine in the state described in step "1)."
- 3) In neutral, adjust idling screw ② to adjust the idle speed.

	Engine idle speed with coupler ① disconnected $920 \pm 25\text{r/mm}$
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- 4) After 15 seconds or more have elapsed from the time the engine start switch has been turned OFF in the state described in step "3)," reconnect coupler ① (6-pin).
- 5) Start the engine and check that the engine idle speed is within specification at neutral.
- 6) Loosen screw ③ and adjust it so the output voltage of the throttle position sensor will be within specification.

	Engine idle speed $750 \pm 50\text{r/mm}$
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	Throttle position sensor output voltage P (pink) – B (black) $0.735 \pm 0.005\text{V}$
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NOTE:

After making the adjustment, race the engine two or three times. Then, check that the idle has settled to specification and that the output voltage of the throttle position sensor has not changed.

