

## Notes on Valve Adjustment for V-Star 1100

The engine should be stone cold for this operation.

Tools needed:

A 22mm deep wall socket

Metric (or SAE) thickness gauge

Metric Allen wrenches (wrenches with ball ends are easier to use here)

13/16 spark plug wrench,

### **Process:**

1) Remove Seats and Fuel Tank

a) Passenger Seat – Single 5 mm Allen head bolt at the rear of the passenger seat.

b) Seat Bracket – (not necessary on Classic)

c) Riders Seat – Single 5 mm Allen head bolt on a Classic, the Custom's seat was held on by the seat bracket.

d) Fuel Hose - Turn fuel selector to "off", then compress the fuel hose clamp and pull the fuel line from the fitting. Keep a wipe rag under the line, as some fuel will run out.



e) "Igniter plate" (Spelled Ignitor in the manual and found directly to the rear of the tank bolts) This assembly, with a rectangular electronic module on it is held on by three (3) "quick fasteners". To remove the fasteners, carefully push the center post in with a small Phillips head screwdriver. Not too far or you will be looking for the post down inside the bike as it will slide down out of the



fastener body. There is no need to remove it from the bike, but it must be loose to access the Speedometer lead connector.

*To reinstall the pop fasteners, you must push the post back up through the body of the fastener until it extends far enough up from the fastener top to allow the body to compress. Insert the fastener into the hole and depress the post to where it is flush with the fastener body.*

f) Mud Guard – The “ignitor plate” was mounted to it on the Custom, on the Classic, as you pull up on the ignitor plate, you’ll pull the mud guard up and out of the way.

g) Speedometer lead connector – You will find the connector under the “Ignitor plate”.



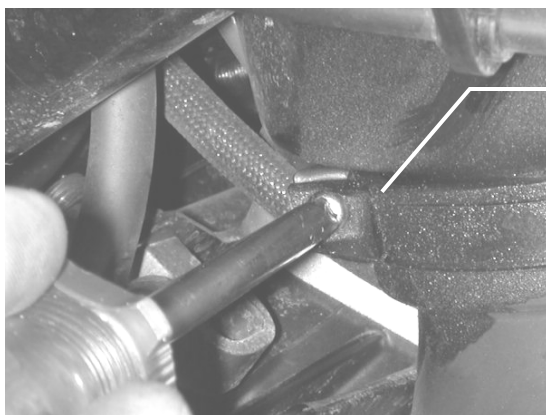
h) Remove the Fuel Tank. – Two 12 mm bolts, on both the Custom and the Classic.



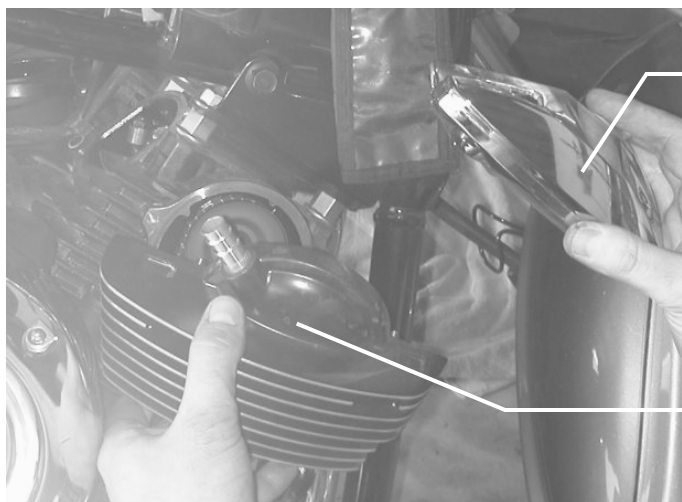
2) Remove the Spark Plug covers (2) and Spark Plugs.



3) Remove the Air Intake Box – The “easier” way to do this is to remove the Air Cleaner Assembly and the Air Duct first. The Air Intake Box is held in place by a hose clamp on each Carburetor, another on the top end of the Air Duct, and another on the breather hose that comes out of the front cylinder head.



Air cleaner clamp

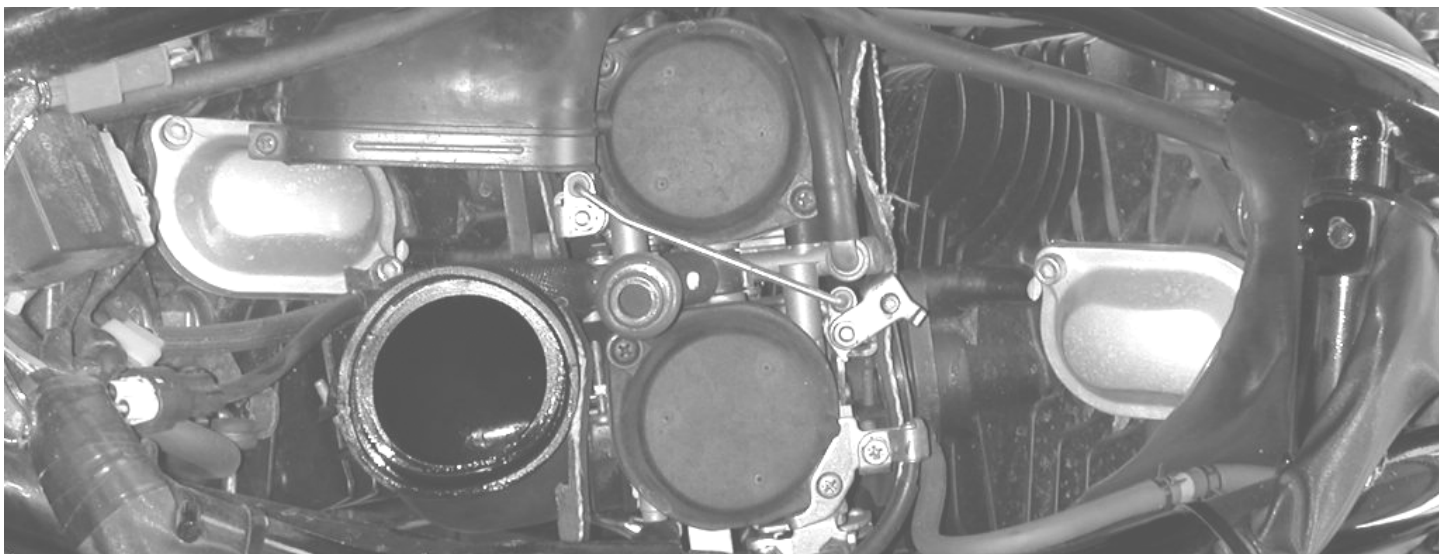


Cylinder head cover

Camshaft sprocket cover

4) Remove the front and rear Cylinder Head Covers and Camshaft Sprocket Covers.

5) Remove the Tappet Covers (4) two are inside engine (below) and two are outside of the cylinders.



6) Remove the Camshaft Sprocket Covers on front and rear cylinders. (See photo on page 3)

7) Remove the Timing Plug (Generator Rotor port) and the larger Straight Plug on the (left engine case)  
To remove the Plugs, use a large coin or very large screwdriver. (A spark plug gapping tool – non wire kind – works great!)



### ***Start with the Rear Cylinder***

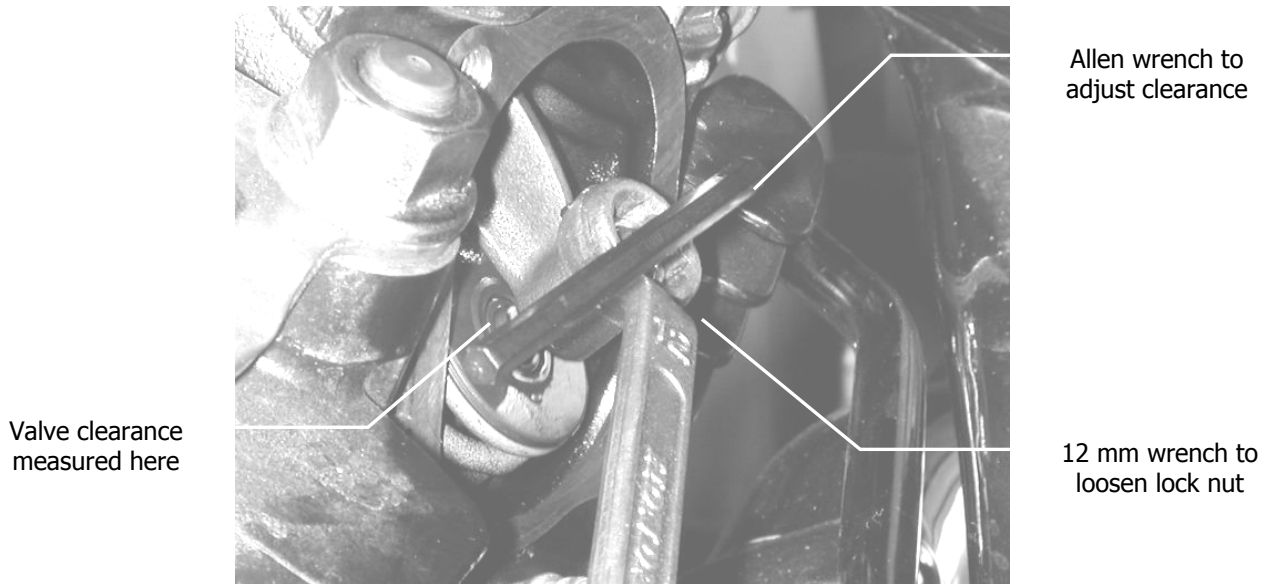
1) Using an extension and a 22mm deep socket, on the large nut in Straight Plug access port, turn the engine clockwise until the indicator hole on the rear camshaft sprocket plate is aligned with the stationary pointer near the top of the cylinder head at TDC on the compression stroke. Make sure that the socket is a tight fit on your socket extension as it is very easy to pop the socket off of the extension as you remove it from the Straight Plug hole. If you drop it into the case, it will be very-very bad, as it will require you to see more of the inside of your engine case than you really needed to visit.

2) Check the rocker arms. There should be some free play in the rockers, on the cylinder that you are working with. If there is no free play, then you are at TDC on the exhaust stroke and need to turn the engine clockwise, 360 degrees until the mark comes up again. You should now be on the top of the compression stroke and ready to check the clearance for that cylinder.

3) For the exact TDC point on the rear cylinder, align the " T | " mark on the crank – You will need to look through the small Generator Rotor (Timing) port to see it. The fixed indicator slot is at the 11:00 position, not the 1:00 position as illustrated in the manual.

4) For TDC on the compression stroke, both the cam marks and the crank mark must be in alignment for the cylinder you are working with, and there should be some play in the rocker arms. When the two markings align you are ready to measure the Valve Clearance

5) Measure Valve Clearance on the Intake and Exhaust valves by inserting a thickness gauge between the bottom of the adjusting screw and the Valve tip.



INTAKE VALVE: 0.07 to 0.12 M.M. SAE: 0.003 to 0.005 ( Inside the V )

EXHAUST VALVE: 0.12 to 0.17 M.M. SAE: 0.005 to 0.007 ( Outside the V )

6) If the Valve clearance is incorrect, adjust the valve(s).

To Adjust Valve Clearance

1) Loosen the Tappet locknut

2) Insert a thickness gauge between the bottom of the adjusting screw and the Valve tip. The thickness gauge should slide tightly.

3) Using an Allen wrench, turn the adjusting screw until the specified Valve clearance is obtained (clockwise to decrease, counter clockwise to increase)

4) Hold the adjusting screw to prevent it from moving and tighten the locknut. (This is a learned skill... bet you can't get it right the first or second time!)

5) Insert a thickness gauge between the bottom of the adjusting screw and the Valve tip, and measure the valve clearance again. If the Valve is still out of specification repeat the process.



Adjustment here

6) Rotate the engine through all 4 cycles (360 degrees x 2) and check your work again.

Now for the Front Cylinder

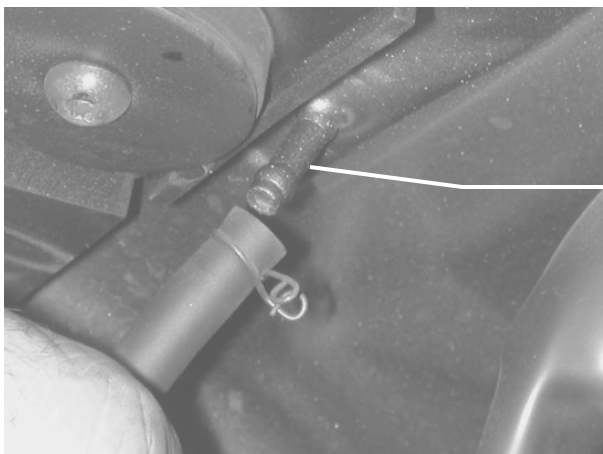
Turn the Crankshaft clockwise 290 degrees (that would be just a bit more then  $\frac{3}{4}$  of a full turn) and repeat the process on the front cylinder. The indicator hole on the front camshaft is on a round metal plate, not a gear.

(On the front cylinder, align the " | " mark on the crank)

Install all removed parts in the reverse order of their disassembly. Make sure that all O-rings are clean and free of any dirt, sand or grit that would prevent a tight seal.

- Torque on the Camshaft Sprocket Covers 10 Nm (1.0 m-kg, 7.2 ft-lb.)
- Torque on the Tappet Covers 10 Nm (1.0 m-kg, 7.2 ft-lb.)
- Torque on the Spark Plugs 20 Nm (2.0 m-kg, 14 ft-lb.)

Oh, and don't forget to install the vent hose tube here...



Underneath the gas tank

Do you feel confident yet? You can do this job perfectly; you just don't know it yet! When you get inside the belly of your bike, you will start to develop a greater feel for the machine, and a greater confidence in knowing that you can take it just about anywhere without the fear of not knowing what to do in case of an unexpected mechanical problem.

Keep it in the wind...