

## **MMGG Gazette April 2009 – From The Garage, Adjusting the Valves**

### **CORRECTED ARTICLE FOLLOWS:**

Please pay particular attention to the correct wording and valve adjusting sequence at the end of paragraph 4. A typo appears in the original article in the Gazette where a reference to valve 3 appears, which should read valve 6. Also note the correct sequence for adjusting the valves, the sequence in the article reflects the corresponding valves to adjust, NOT the adjustment sequence. One must follow the sequence listed below to obtain proper adjustment with minimal pushing of the car.

### **ARTICLE**

From the Garage

This month's item concerns setting the valves. The engine is a big air pump and the first tune-up item the average MG guy or gal should do is to adjust the breathing of their car. We're going to, assume compression is OK, but even if it is not, setting the valve lash will help. The valves open and close in concert with the pistons moving up and down in the cylinders. Too much or too little opening will waste the power stroke or strangle the engine. The crankshaft controls the up and down of the piston, and the camshaft controls the opening and closing of the valves, how fast they open (the ramp of the cam lobe) and how long they are open. For this reason the timing chain for the camshaft is timed to the crankshaft. The pistons go up and down twice for each power stroke, so the camshaft rotates once per every two engine revolutions. The tappets sit on the cam lobe and convert the rotary motion of the lobe into the straight motion of the pushrods. Just under the valve cover are the rockers at the other end of the pushrod and this is where you will find your valve adjuster, When one valve is open with the push rod hard against the rocker, another valve is completely closed, with a gap between the push rod and rocker. That gap is what we want to set. With the engine in fourth gear you can push the car a bit over three feet and see all the valves open and close.

The procedure is simple, and very satisfying. You will need a set of blade type feeler gauges, a medium flat screwdriver, an open end wrench that fits your adjuster locking screws, a wrench to remove the valve cover, and possibly a new cork gasket if you tear your old one, and a spark plug wrench.

Remove the valve cover and set it aside. With the spark plugs out, and the car in fourth gear, roll the car until valve number eight, closest to the back of the car, is fully open. The rocker arm will be completely compressing the valve spring. Hanging a wrench on the locking nut on rocker eight will help you see the movement of the rocker. Now adjust the completely closed valve number one, which is in the very front of the engine. Early cars used a 15 thousandths (.015 in) clearance when cold, later cars used .013 in. but check your manual to be sure. You may need to know what engine is in your car, and possibly what camshaft, as things have been swapped about a bit over the years. If you have doubts, one of the tech reps can help you determine what is in your car. But .015 cold is not a bad place to start regardless. Loosen the locking nut and turn the adjusting screw

until a .014 feeler gauge will slip right in, and a .016 feeler gauge will not. This 'Go-No Go' method is easier to detect than just using the .015 feeler gauge. Snug the locking nut down being careful not to disturb the setting of the adjusting screw, so you have to keep the blade of the screw driver on the screw head. Pushing the car forward will next make valve six open, and you can repeat the procedure on closed valve number three. This rule of nine (the open valve and the adjusted valve add up to nine) will allow you to push the car the minimum distance to do the adjusting. The full order is:

Valve fully open	Check and adjust valve
8	1
6	3
4	5
7	2
1	8
3	6
5	4
2	7

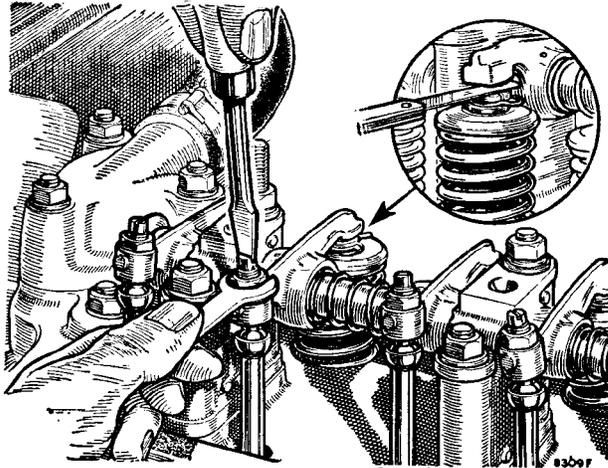


Fig. A.9  
The method of adjusting the valve rocker clearance and the correct position for measuring it

If you have to replace the cork valve cover gasket, clean the surface of the head very carefully and also remove all traces of the cork from the valve cover. Install the new gasket with a sealant like Permatex Form-A-Gasket No. 2 on the head side of the gasket only.

The B Series engine is especially responsive to good valve setting and breathing. Engine life, reduced cam lobe and valve wear, and performance are all benefits you can have just by setting your valves. Next month: Spark Plugs and Wires.

Safety Fast!