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## REF: Engine Mechanicals - Sub-07P

# Testing with a Slack Tube (Manometer) by bustert

### Sub Documents

- [Building Your Own Slack Tube](#)
- [Using / Diagnosing with a Slack Tube \(Manometer\)](#)
- [Slack tube testing on a 1998 1250S model](#)

Testing was done from the timing plug hole and then from the oil tank with a slack tube on a 2001 XL1200S (with no load) by bustert of the XLFORUM. <sup>1)</sup>

On the left (from timing hole plug), the engine begins at high vacuum (green liquid line on scales in pics below).

Notice that there is a transition to a positive pressure above the 5k mark.

On the right (from oil tank), there is an equalization on positive and negative at 5K.

One could speculate anything from over-running vent capacity to time factors.

The numbers are subjective to ambient temps and elevation.




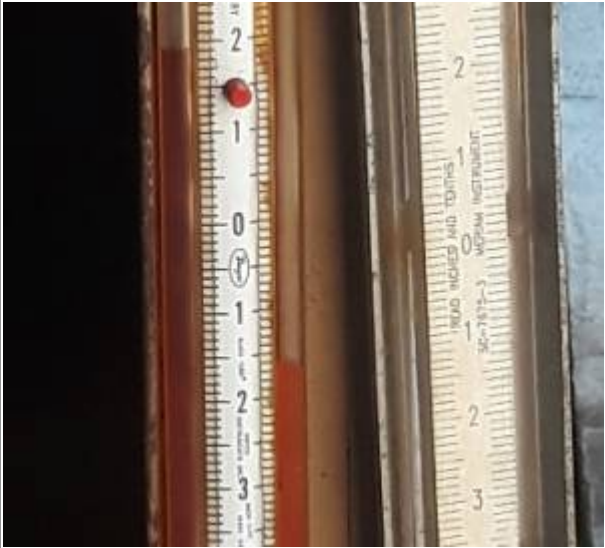

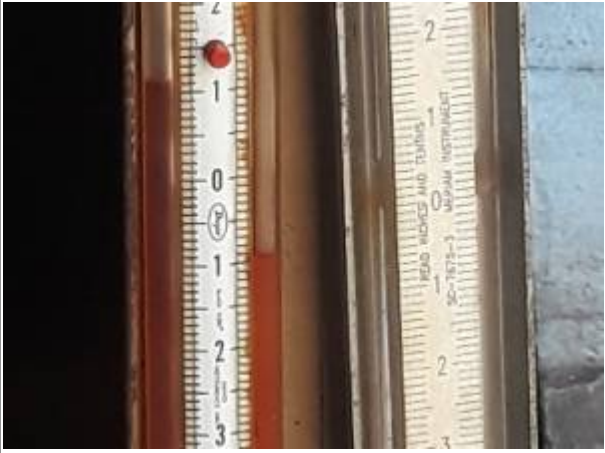
However, we could use it as a tool to determine engine wear like they do on a diesel engine.


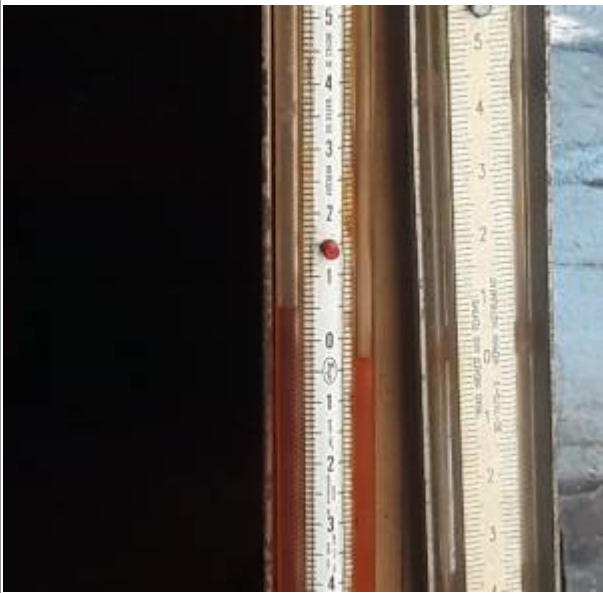


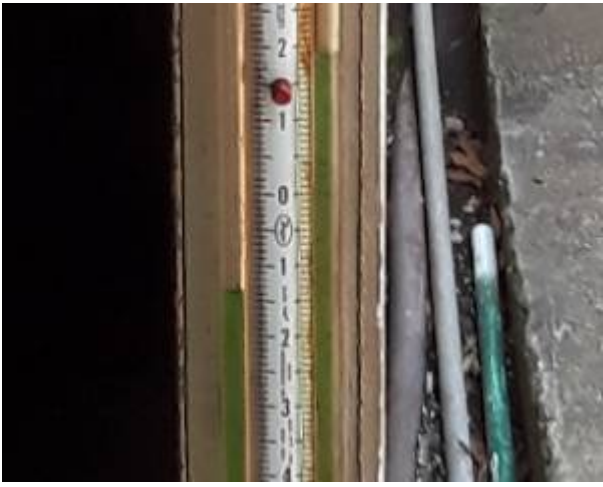

All-in-all, the subject engine operated as HD intended (within the intended most used rpm range).

The results are in (inches of water) and you can convert to psig but remember, you have to add both sides.

So a 15 on one side with a 15 on the other would be 30".

Slack Tube testing from timing hole plug. <sup>2)</sup>	Slack Tube testing from oil tank
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1000 RPM	 A vertical thermometer with a green liquid column. The scale ranges from 10 to 16. The liquid level is approximately at 14.5.	 A vertical thermometer with a red liquid column. The scale ranges from -4 to 4. The liquid level is approximately at 1.5.	1000 RPM
2000 RPM	 A vertical thermometer with a green liquid column. The scale ranges from 6 to 11. The liquid level is approximately at 9.5.	 A vertical thermometer with a red liquid column. The scale ranges from -3 to 2. The liquid level is approximately at 1.5.	2000 RPM
3000 RPM	 A vertical thermometer with a green liquid column. The scale ranges from 5 to 10. The liquid level is approximately at 7.5.	 A vertical thermometer with a red liquid column. The scale ranges from -3 to 2. The liquid level is approximately at 1.5.	3000 RPM

4000 RPM			4000 RPM
5000 RPM			5000 RPM
6000 RPM			6000 RPM

The testing showed that the test bike acted as intended with head breathers (venting through lines bypassing the A/C to atmosphere).

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1)

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-motor-engine/sportster-motorcycle-bottom-end/197307-sportster-crankcase-pressure-engine-breathing-wetsumping-and-mods/page31#post4326111>

2)

photos by bustert of the XLFORUM

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