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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. ¹⁾

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.




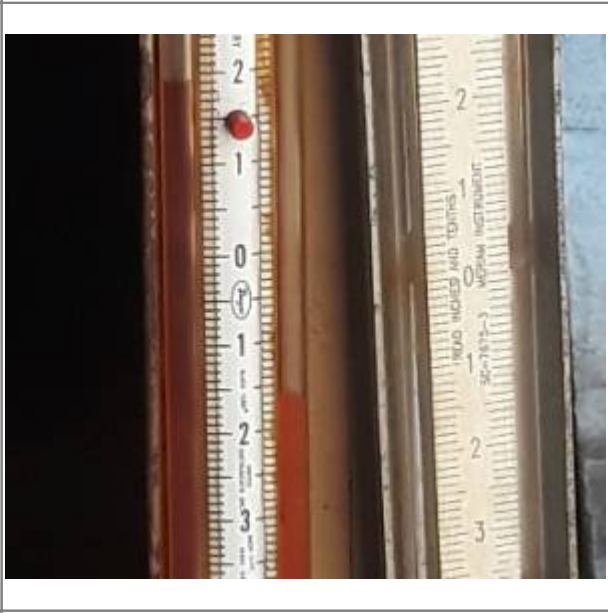

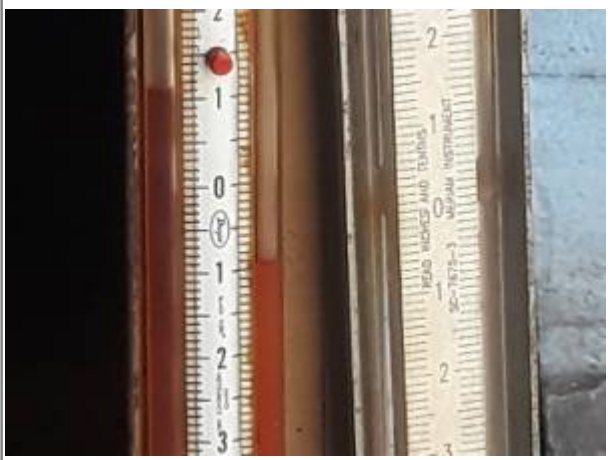
However, we could use it as a tool to determine engine wear like they do on a diesel engine.


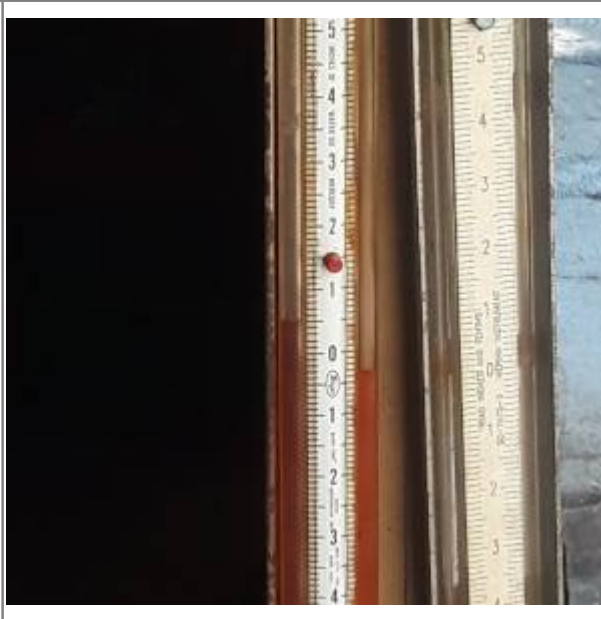
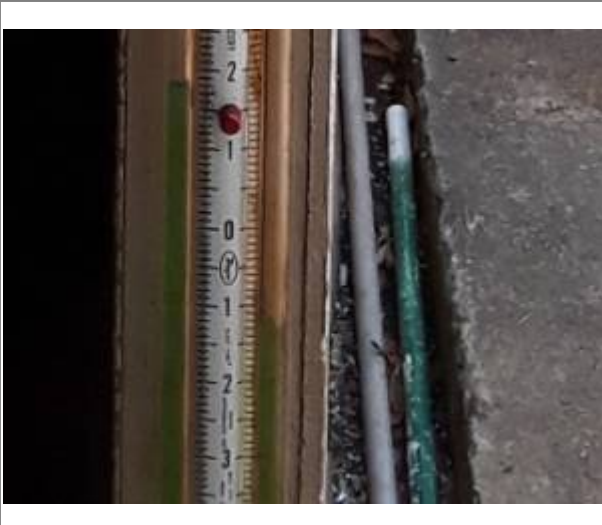

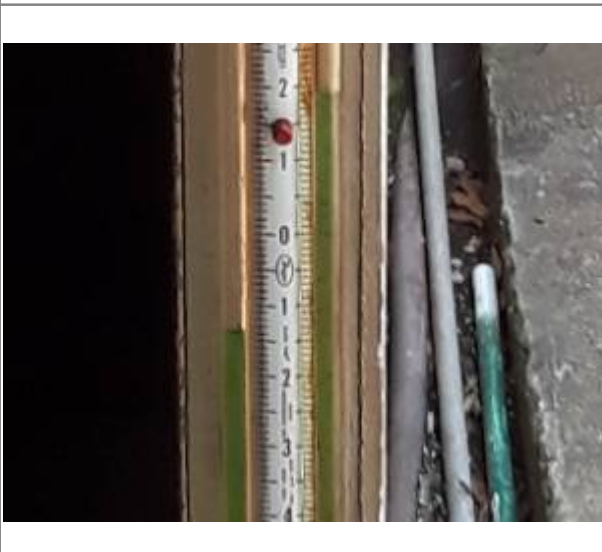

All-in-all, the subject engine operated as HD intended (within the intended most used rpm range).

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. ²⁾	Slack Tube testing from oil tank
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1000 RPM	 A photograph of a manometer with a green liquid column. The scale on the left ranges from 10 to 16, with the liquid level at approximately 14.5.	 A photograph of a manometer with a red liquid column. The scale on the left ranges from -4 to 4, with the liquid level at approximately 1.5.	1000 RPM
2000 RPM	 A photograph of a manometer with a green liquid column. The scale on the left ranges from 6 to 11, with the liquid level at approximately 9.5.	 A photograph of a manometer with a red liquid column. The scale on the left ranges from -3 to 2, with the liquid level at approximately 1.5.	2000 RPM
3000 RPM	 A photograph of a manometer with a green liquid column. The scale on the left ranges from 5 to 10, with the liquid level at approximately 7.5.	 A photograph of a manometer with a red liquid column. The scale on the left ranges from -3 to 4, with the liquid level at approximately 1.5.	3000 RPM

4000 RPM	 A photograph of a manometer at 4000 RPM. The left column shows a green liquid level at approximately 1.5 inches. The right column shows a red liquid level at approximately 1.5 inches. A red marker is visible on the right column at the 1.5-inch mark.	 A photograph of a manometer at 4000 RPM. The left column shows a red liquid level at approximately 1.5 inches. The right column shows a red liquid level at approximately 1.5 inches. A red marker is visible on the left column at the 1.5-inch mark.	4000 RPM
5000 RPM	 A photograph of a manometer at 5000 RPM. The left column shows a green liquid level at approximately 1.5 inches. The right column shows a red liquid level at approximately 1.5 inches. A red marker is visible on the right column at the 1.5-inch mark.	 A photograph of a manometer at 5000 RPM. The left column shows a red liquid level at approximately 1.5 inches. The right column shows a red liquid level at approximately 1.5 inches. A red marker is visible on the left column at the 1.5-inch mark.	5000 RPM
6000 RPM	 A photograph of a manometer at 6000 RPM. The left column shows a green liquid level at approximately 1.5 inches. The right column shows a red liquid level at approximately 1.5 inches. A red marker is visible on the right column at the 1.5-inch mark.	 A photograph of a manometer at 6000 RPM. The left column shows a red liquid level at approximately 1.5 inches. The right column shows a red liquid level at approximately 1.5 inches. A red marker is visible on the left column at the 1.5-inch mark.	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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