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IH: Oiling & Lubrication - Sub-06A

Dr Dick on Oil Leaks

Articles by Dr Dick of the XLFORUM [1\)](#) [2\)](#)

No Sportster should leak even a single drop. Any one who says otherwise isn't on top of his game.

This is going to explain some stuff I learned about the rocker box / cylinder head interface. What you take away from this article is your business.

I've done 100's of leaking rocker gasket jobs. I doubt there is a failure mode I haven't seen. So, I have some hands on education with this.

Let's define what constitutes a leak.

- Leak: Liquid oil on the outside of your box or head.
- Weep: An oily residue that traps road dust leading to a damp, dirty build up.
- Sealed: No oil migration at all.

History:

The 1st leaks showed up after 1969. All non molested 70> will seal totally for 50,000+ miles if assembled correctly.

Once they begin to weep, it's only a matter of time till they leak.

No 69< factory bikes ever leaked, unless some hack wrecked the mating surfaces.

All 69< will develop a weep given enough miles, but they never leak no matter the mileage or decades.

All 69< bikes with chrome boxes or heads leak all the time, every time.

The only way to keep plated parts from leaking is to use the 70> gaskets.

What happened in 1970 to allow true leaks to occur? Gaskets got introduced. No gaskets existed before.

Why did the gasket get introduced? The top end got painted black for the 1st time.

What does that have to do with anything you ask? All 69< heads were painted with aluminum enamel.

Look in any 69< FSM and see what it says about sealing boxes to heads (a thin coat of aluminum paint).

Using any kind of powdered aluminum on a black top end wasn't an option, hence the gaskets.

What did HD use on the gaskets as a sealer? They used the same sealer they always used on all gasketed joints 52-85.

Obviously it's the one they found to work best.

What was it? Nothing. Gaskets went on clean and dry. What a bunch of fools, huh? What did HD know about keeping their oil inside their product?.....

Observations:

All gasket failures are from one issue. The gasket 'splits' down its spine and migrates to the each edge of mating surfaces.

When the split meets the joint edge, a leak starts. The gasket has been 'spit out' of the joint.

Take a marshmallow and set it on work bench. Take your FSM and place on top of the marshmallow. Press on the manual to compress the marshmallow.

The marshmallow goes flat but doesn't split apart.

Now take a 2nd marshmallow and set it on bench.

This time just push on it with your finger. You will note that it wants to split in two because its not compressed uniformly.

Show bike guys trim gaskets for looks. Pro wrenches do it to extend joint integrity.

On disassembly of bikes with split gaskets, an obvious trend could be seen.

80% of them had RTV on them and the amount didn't make any difference.

15% had some other sealer on them.

Of the remaining 5% that were assembled dry and still had split gaskets, a 2nd trend was always there.

The center bolt was loose and usually the center gasket was gone due to the box dancing on it.

You split box guys might want to think about this.

So, is there some kind of movement between the box an head that kicks the gaskets ass? Yes.

Does sealer exasperate that? Yes.

The top motor mounts moved to the rocker boxes in 77.

By 79, the heads and boxes were cast in heavier sections adjoining the gasket joint.

Now what do you think about that? Did your lite bulb go on? Did AMF add material and pay for new molds because.....

Oh, and the top mounts are off the boxes, and back on the heads on Evos....coincidence?

Non cement type 'sealers':

Grease, oil, molybdenum disulphide or mold release spray will not increase sealing in the long term over a dry assembly.

But they will allow the gasket to release cleanly on disassembly. A God send to pit guys everywhere.

Anti seize, graphite, talcum, chalk or gypsum must be used with care as they are abrasive.

Base gaskets:

Original 900 were .010"-.012" thick brown paper (printed on one side). The other side was waxed.

Use no goop with these. If they are shrunken, soak them in water and install while wet.

If using the thicker black 015" / .020" repop bases, you can put anti-seize or grease if desired. This acts as release agents for the next time.

Using nothing is also perfectly fine.

Under no circumstances put any commercial gasket goop on them. That stuff allows the gasket to move

around in the joint.

Goop is the mayonnaise that makes your lunch meat jettison the roll.

900 base gaskets fit over the studs on 2 possible positions.

Only one of those positions allows the outer profile of the gasket to match the case configuration (the thin surface of the gasket adjoins the tappet blocks).

Head gaskets:

If using the original graphite coated black gaskets, use nothing (the graphite will rub off so be aware).

If using the AMF black replacements (no graphite), use anti seize.

Nothing also works but you will curse yourself on the next head removal.

If using the blue Teflon ones, use nothing.

Under no circumstances put any commercial gasket goop on them. That stuff allows the gasket to move around in the joint.

Again, Goop is the mayo that makes your lunch meat jettison the roll.

Rocker box:

Gaskets 1st appeared here in 1970 (and they have caused untold heartache to the uninitiated).

Using no gaskets; (previous to that the entire head and jug for that matter) got aluminium paint including gask surfaces.

This aluminum powder acted like an aluminum gasket.

But it would slowly migrate away. High mileage 69< will have damp joints.

Using gaskets:

Any goop will lead to premature leaks (from the mayo effect) and can happen incredibly quick.

Dry is best. Anti-seize is OK if you're concerned with easy removal.

Dr Dick's super top secret rocker box gasket trick:

The gasket is a 3 piece affair.

2 gaskets per head for spring pockets and one washer shaped for under the center bolt.

Ditch that center one. Just leave it out.

The thing that starts rocker box gasket problems is when the center bolt gets loose.

The gasket just takes away the mechanical integrity of the center hold down. You anal guys can make a steel shim.

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1)

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-era-specific-and-model-specific/ironhead-sportster-motorcycle-talk-1957-1985/178459-considering-cork-rocker-gaskets?t=1918224>

2)

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-era-specific-and-model-specific/ironhead-sportster-motorcycle-talk-1957-1985/173895-xlch-vs-xlh-piston/page2#post3726322>

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