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REF: Oiling & Lubrication

External Oil Coolers

Why Use an Oil Cooler?

One thing to remember is the temp reading at the oil tank and the actual highest oil temp in the engine are not the same things. ¹⁾
It depends where the reading is taken.

Oil coolers may not be needed in cooler climate. The engine is not only air cooled, it is also oil cooled. ²⁾
The oil circulation carries a lot of the internal engine heat away. Engines are built to run certain specs. Operating temperature has an effect on the specs due to heat expansion of the metal.
Minor point maybe, but the engines are not built to different specs to be sold in different climates. We run different oil weights for different climates. The closer you stay to the ideal operating temp, the easier it will be on the engine.
It will also slow the oil breakdown.

People argue either way on the benefit of an oil cooler. ³⁾ However, the reasoning for using an cooler ranges from:

Larger oil capacity, lower oil temp and better engine cooling in summer (especially in high temp climates).

You will have to make your own decision on when to use an oil cooler.

Sometimes it just boils down to piece of mind. But using one can't hurt the engine.

Here is some verbiage from an old Lockhart oil cooler advertisement:

Your bike works hard to conquer retarded ignitions, low octane fuel, heavy loads and stop and go traffic. Under these conditions, the oil gets hot fast so that each 20° above 200F cuts your oil's usefulness in half.

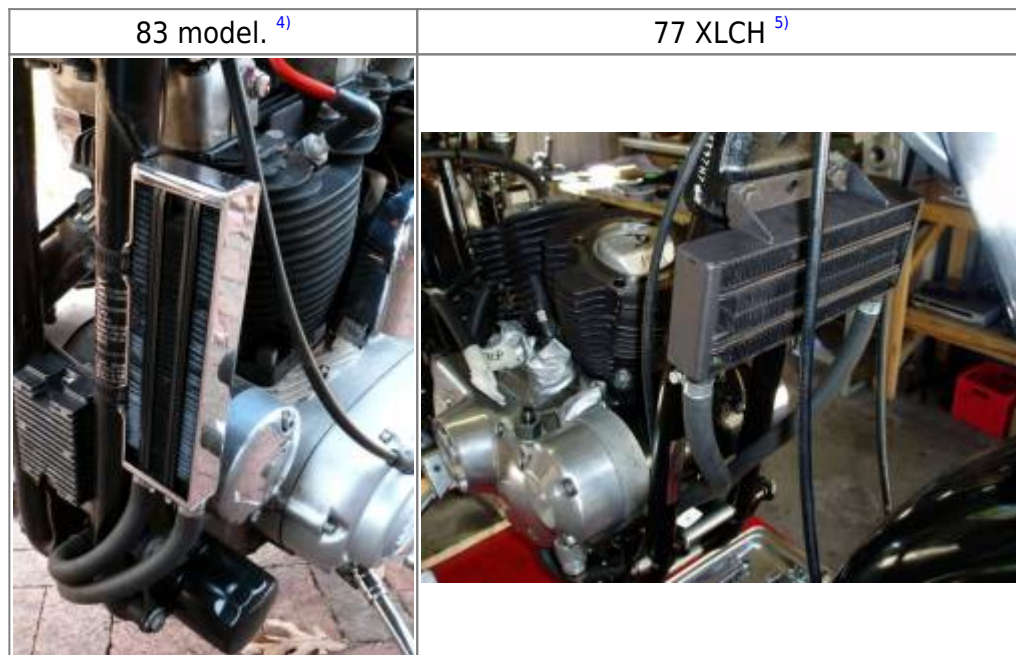
(An oil cooler) will prolong tune-up periods, reduce engine wear and get you some peace of mind.

Installing an Oil Cooler

*———[Click Here](#) to reference different PDF "Instruction" documents for oil cooler installations as offered by the MoCo over time.

All oil coolers and lines are plumbed in the part of the oil flow loop that returns engine oil to the oil tank. Do not pull hoses too tight or oil flow restrictions can occur.

Oil Coolers on Ironheads



HD Oil Cooler (62497-82)

Vertical mount oil cooler sold for 1982-later Sportsters. Superseded by part# (62497-82A).



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Lockhart Oil Cooler

The model below has a built-in thermostat bypass.



Thermostat Bypass Valve

Some oil coolers have a built in thermostat to divert cooler oil from going thru the oil cooler. However, external thermostat bypass valves were sold for Sportsters starting in 1979: Chrome (26248-78) and Black (26251-78).

Below are thermostat valves sold for 79-up Sportsters (also used on FX models, maybe others).





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Hose Routing

*———[Click Here](#) to reference hose connections for Ironhead Sportsters using an oil cooler. Scroll further down that page for Converting 57-78 Models to an Ext Oil Filter and Oil Cooler

Hoses must be routed so they do not contact or interfere with any hot or moving parts. Hoses must be routed above the bottom of the frame tube to prevent hose damage if the frame should contact the pavement or a highway obstacle.

Pics of Hose Routing on a 1978 XLH

Photos by IronMick of the XLFORUM ¹⁶⁾

1. The return line here is coming out of the front of the pump, going up to the cooler, then back along the frame.
2. Then it goes thru the clip, and up behind the cam cover.
3. The oil return from the pump (or in this case from the cooler) continues from the clip.
Note, the return line keeps the feed line away from the chain.
There are two zip ties on the return line;

One at the bottom of the vertical frame member (about where that red cable is).

This keeps the line back from the chain.

Another on the squared frame member at the top to keep the line up.

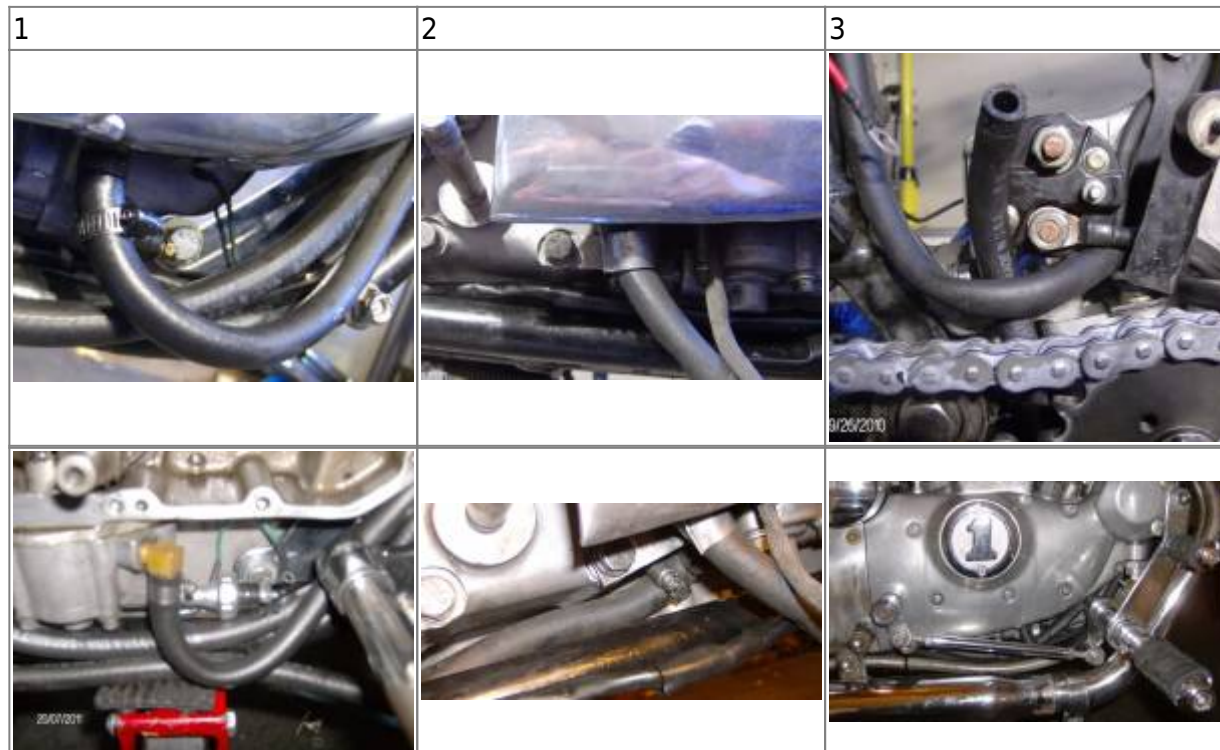
Note: If you ever want to remove the solenoid you are somewhat screwed

You cannot get at those two little 1/4" bolts because the lines are in the way.

And you must use a socket as there is not enough space between the bolt head and the sol to fit a wrench.

It is possible to get it out thru the hole in the bottom of the battery box, but it is much quicker to remove the battery box completely.

Which involves removing a whole inventory of parts.



1. The vent starts at the cam cover fitting.

2. This is the most difficult part of the whole thing.

If these are not perfect you cannot get the starter motor in.

Vent line on the bottom/front, oil line running under the starter drive housing with no kink! and the starter cable woven between the other two.

3. The oil line and the starter cable go thru the big grommet.

The the vent goes behind the oil tank mount.

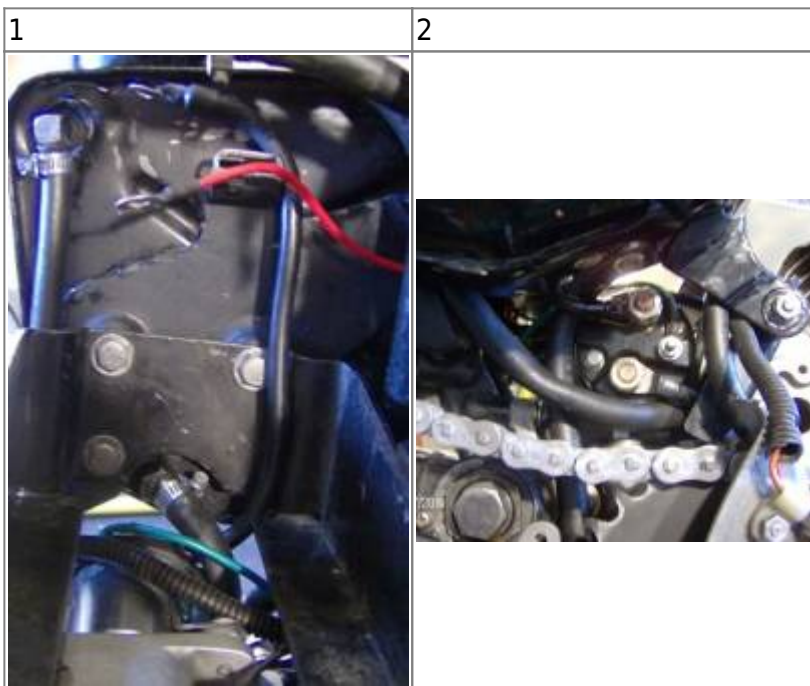
There is no extra length on the starter cable - it just fits right against the boss.

NOTE: The vent line was pulled up away from the chain and with a zip tie around the oil tank mount.





1. Here's the vent line left running up behind the battery box to the fitting on the oil tank.
2. Vent line on the right running up past the solenoid.



Here's the lines running to the oil cooler.



Oil Coolers on Evos

HD Oil Cooler (62996-07A) on 2004 1200C

Note: if you have a "Custom" or forward controls you will need to remove the right side to gain access to the oil hose from the pump: ¹⁷



Disconnect the feed hose from the oil pump to the engine.
Thread the included nipples (with thread sealer) into the pump and the case.
Install the (2) short metal lines to the fittings on the right side of the bike (18mm short wrench).
(it would be a good idea to install the plastic stand off's per the instructions)



Next, extend the metal lines with rubber hose to the cooler on the left side of the bike.
Use the clamps to mount the cooler unit to the downtube.



Jagg Oil Cooler

Jagg has several oil coolers to choose from including a chrome version, slimline, a deluxe with diamond cut fins and a wideline cooler.

They also offer a fan assisted cooler.

- Jagg's original "Deluxe Oil Cooler System" was first designed with Harley Davidson motorcycles in mind. ¹⁸⁾

(perimeter, vertical frame tubes)

- The cooler mounts to the left frame down-tube, spaced away from the frame to allow airflow to

both the oil cooler and the engine.

- It's mounted to the frame using Uralite mounts which have a shock-absorbing effect.
- It's a six-tube, two-pass design.
- In-line turbulators add to the cooler's efficiency with minimal oil pressure loss or restriction.
- Aluminum construction with durable powder coated finish.
- Billet aluminum end caps with machined fins to match and complement the style of the engine's cooling fins.

Jagg Slimline Oil Cooler:



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Jagg Slimline oil cooler installed²²⁾



Oil Filter Adapter

Jagg's thermostatically-controlled offset oil filter adapter provides an easy access point to the bike's oil supply for the installation of the oil cooler.²³⁾

- The sandwich-style adapter is machined from two pieces of billet aluminum and then hard-anodized to a satin black finish.
- The adapter installs between the bike's stock oil filter mount and the oil filter.

The offset filter adapter (4700) may hit the motor mount when mounted with the fittings down. It may have to be mounted so the fittings are up to install the filter. In this instance, the anti-rotation device is not required.

Note for 04 and up Sportsters:

- Jagg oil filter adapter (4550) is required for oil cooler installation on 04 and up Sportsters.²⁴⁾
- Features:
 - Unique built-in oil by-pass valve and includes ProLine M22x1.5 swivel fittings for easy oil plumbing.
 - Installs between the oil filter landing and the oil filter for easy access to the oil supply to install an oil cooler.
 - Built-in thermostatic oil valve which allows oil to by-pass the oil cooler until reaching operating temperature for faster vehicle warmup times.
 - Filter O-rings (SK4550)
 - Flows oil through the filter first, for better flow

Fittings mounted down wouldn't work²⁵⁾



Jagg oil cooler with filter adapter²⁶⁾



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1) , 2) , 3)

Graywolf of the XLFORUM

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-engine/sportster-motorcycle-engine-conversions/82462-what-use-is-an-oil-cooler/page9?t=611969&page=9>

4)

photo by 83XLX of the XLFORUM

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-era-specific-and-model-specific/ironhead-sportster-motorcycle-talk-1957-1985/146604-first-harley-1975-xl1000-caf%C3%A9-project/page22?page=22&t=1592463>

5)

photo by Hopper of the XLFORUM

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-era-specific-and-model-specific/ironhead-sportster-motorcycle-talk-1957-1985/50355-and-yet-another-77-ground-up-rebuild/page10?t=209347&page=10>

6) , 7)

photo courtesy of Ebay seller, jrsvintageharley1990. [Link to Ebay Store](#)

8) , 9) , 10)

photo courtesy of TomsCyberShop.com www.TomsCyberShop.com

11) , 12) , 13) , 14)

photo courtesy of Ebay seller, jrs vintage harley parts. [Link to Ebay Store](#)

15)

photo courtesy of Ebay seller, Cycle Warehouse. [Link to Items for Sale Page](#)

16)

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-era-specific-and-model-specific/ironhead-sportster-motorcycle-talk-1957-1985/104294-oil-line-routing?t=920306>

17)

pics by 04xl1200c of the XLFORUM

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-era-specific-and-model-specific/rubber-mount-sportster-motorcycle-talk-2004-2006/128917-oil-cooler-p0rn?t=1341854>

18) , 23)

<https://jagg.com/collections/harley-davidson-sportster/products/deluxe-hd>

19) , 20) , 21)

photo courtesy of TomsCybershop www.TomsCyberShop.com

22)

photos by Graywolf of the XLFORUM

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-motor-engine/sportster-motorcycle-engine-conversions/82462-what-use-is-an-oil-cooler/page9?t=611969&page=9>

24)

<https://jagg.com/collections/oil-filter-adapters/products/jagg-oil-filter-adapter-with-thermostat>

25)

photo by WVDevil of the XLFORUM

<https://www.xlforum.net/forum/sportster-motorcycle-forum/lubrication-and-lubricants/177057-jagg-oil-cooler-install-problem?t=1901105>

26)

photos by kilroykarr of the XLFORUM

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-era-specific-and-model-specific/rubber-mount-sportster-motorcycle-talk-2004-2006/64404-jagg-oil-cooler-wtf-thought-it-was-easy?t=403064>

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