How-To

uView 550000
Airlift Cooling System Leak Checker and Airlock Purge Tool Kit

Above: The parts of the uView 550000 kit include adapters to fit all sizes of radiators and the necessary connector tubing. The clamping pliers are needed, but not included. uView now has a less expensive kit as well, the 550500 Airlift II Economy Cooling System Refiller. Advertised prices over the internet are approximately half of list ($186.43 for the kit above).

One advantage to being a Honda Gold Wing owner in the Phoenix area is the proximity to motorcycle mechanic extraordinaire Stu Oltman. The Senior Technical Editor for Wing World Magazine, the Gold Wing Road Riders Association’s (GWRRA) monthly publication, Oltman has forgotten more about how motorcycles work than most will ever know, and on occasion he is called upon to diagnose problems that stump even the most seasoned factory wrenches.

On a recent visit to his garage, Oltman unveiled a discovery that has made me rethink the effectiveness of every coolant change I’d ever done. With 37,000 on my 2002 GL1800 and no memory of changing the coolant, I figured it couldn’t hurt to see what Oltman was up to when he offered to change my coolant and show me something special. I was, indeed, in for a real surprise.

Changing coolant, if done properly, is a hassle most of us avoid. The procedure—removing old coolant, disposing of it properly, flushing the system to remove the guak, bringing the engine up to operating temperature, allowing it to cool, draining the system again and then adding fresh coolant—is too tedious. An easier solution? Take it to the dealer.

But when Oltman tells me that most dealers are unlikely to get all the old coolant out of my GL1800, and that a suboptimal job cuts into the life of my engine, all of a sudden, I’m all ears. Before wheeling my bike into the garage, Oltman describes the old-coolant issue.

“With a typical coolant change, they empty the old coolant, fill the radiator to the brim with new and start the engine,” he says. “Because some of the coolant system still contains air, the coolant level in the radiator begins to drop as the coolant circulates. They then keep adding coolant, topping the system off as they run the engine. Though not common, occasionally an air bubble in the system will make the system appear full, when in fact, it’s not even close. When this happens, the fluid in the partially filled system begins boiling and spewing from the radiator neck, making the task of topping up while running impossible.

Even if we get the fluid level to the top of the radiator without boiling, the throttle must be repeatedly ‘blipped’ to jar loose the remaining air and allow it to escape at the radiator neck,” Oltman continues. “Despite the best efforts, some air usually remains, and it can cause real problems. Eventually most of the air will escape to the top of the radiator during regular use where the coolant recovery system purges it and replaces it with fluid from the overflow bottle, which is why [you should] always keep the overflow bottle topped up to the full mark.”

So, I’m confused. It sounds to me like the air will work itself out. What’s the big deal?

“Oh, no,” Oltman continues. “I say ‘most’ of the air, because some cooling systems have passages and cavities that can trap air in a way that won’t be purged by throttle blipping or normal use. The GL1800 Gold Wing is especially susceptible.”

Oltman goes on to explain that these pockets of trapped air, especially if in the cylinder heads, can result in localized hot spots that can cause detonation (pinging). If an air pocket is in the vicinity of the coolant temperature sending unit, it could result in inaccurate temperature gauge readings as well. This is where the uView comes in. It’s the magic device that Oltman has found to solve this problem.

The uView Airlift 550000 consists of a vacuum gauge attached to an assembly designed to seal off the radiator filler neck. A hand wheel expands a rubber plug to ensure a tight seal. Various adapters allow the device to fit virtually all filler necks. A quick-detach fitting with a ball valve is attached to the venturi hose or the refill hose at various stages in the process.

In addition to the supplied parts, you will need a small hose-pinching pliers to close off the radiator overflow hose to create a vacuum in the radiator if the vent hose outlet is below the filler neck—as was the case with my GL1800.

Preparation

For purposes of demonstration, before using the uView, we drain my radiator in
the traditional way, giving it plenty of
time to drain and starting the engine
briefly to purge all remaining coolant.
Oltman then asks me how confident I am
that we’ve eliminated all of the old
coolant. “With the possible exception of
a few drops, yes, pretty confident,” I
answer. We empty the catch basin and put
it back under the bike. Oltman then pro-
cceeds to attach the uView (as we’ll
describe below), and turns it on to draw
vacuum once again. This collapses the
bike’s coolant hoses (the GL1800 has a
ton of them) and forces the coolant they
still contain out towards the drain valve.
He then releases the vacuum and opens
the coolant drain valve. I watch in wonder
as additional old fluid pours from the
bike. Pouring the additional fluid into an
empty quart-sized container, we fill it
nearly to the top. One quart of coolant is
roughly 26% of the capacity of the sys-
tem, excluding the overflow bottle. Pro-
ceeding to put new coolant in prior to
purging the system with the uView would
have meant that 26% of my “new
coolant” would have been, in fact, old
coolant—37,000 miles old, to be precise.
Oltman then proceeds to show me how
to use the uView.

Step 1

We install the Airlift into the filler neck
and expand the plug using the hand
wheel. The GL1800 is a perfect fit so we
do not need any of the adapters. For bikes
with larger filler necks, you’d use the
adapter that most closely matches your
opening size, press it over the rubber end
of the Airlift, and expand with the hand
wheel until tight. A bit of tube (coolant
works fine) applied to the rubber end of
the tool helps seal off the radiator.

Step 2

Next, we attach the venturi tube to the
Airlift with the supplied quick disconnect
fitting, making sure the ball valve lever is
in the closed position. Then we attach a
compressed air line to the venturi tube.
We clamp the overflow hose, then open
the ball valve (turning the handle parallel
to the hose). The venturi immediately
begins removing air from the cooling sys-
tem. When the vacuum stops increasing
(24–26” Hg), we close the ball valve and
watch the system for a minute or so. If
both the equipment and the cooling
system are leak-free, the vacuum reading
will hold steady. Mine holds steady.

Step 3

Then, we remove the venturi and attach
the refill tube. The refill tube needs to be
primed before actually filling the system
to prevent the volume of air in the tube
from going into the radiator. No problem.
Oltman has me install the refill tube into
a container of coolant—one we’d filled
with enough coolant to refill the system.
We slowly open the ball valve on the Air-
Airlift and gently crack open the valve on the
refill tube until coolant has filled the entire
tube. Then we close both valves. Oltman
has me reinstall the venturi, suck down
the cooling system again, then swap back
to the refill tube. Then we open both
valves, and the cooling system sucks up
the necessary coolant in less than 30 sec-
onds, without spilling a drop. When the
vacuum gauge reading stops dropping, we
know that the cooling system is full.

Step 4

While an additional ounce or two of
fluid might be needed to bring the level to
the top of the filler neck, we are certain
that all of the air pockets deep in the sys-
tem are relieved of air by the vacuum
drawing in coolant. We remove the equip-
ment from the filler neck, take the pincher
off from the overflow tube and install the
radiator cap.

Step 5

Lastly, we flush out the overflow bottle
and fill it back up with the correct level of
fresh coolant.

I kept an eye on the bike for the next
week or so and didn’t notice any drop in the
coolant level on the coolant overflow
dipstick. I’m confident the bike’s cooling
system contains all new fluid and zero air.

Conclusions

The uView 550000 Airlift Cooling Sys-
tem Leak Checker and Airlock Purge Tool
Kit lists for $186.43 and is available online
for as low as $97. It’s a terrific tool for indi-
viduals who enjoy doing their own work
and, maybe more importantly, doing a bet-
ter job than a local shop. The uView
quickly assesses the integrity of your cool-
ing system and makes changing coolant
less messy, faster and easier. It actually
takes more time to describe what we did
than to actually do it. In addition, the peace
of mind you get from knowing you’ve
eliminated all old coolant and air from your
system is, as they say, priceless.

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