SML-206

ULTRACOOL

OIL COOLING SYSTEMS

M8 Liquid Cooled Models 2017-Current • Includes Trikes
M8 Touring Models with Lower Fairings 2017 - Current
"Naked" Black 3.0 Dual Fan Assisted
For Coolers #SMT8-6N

Oil Cooler Installation Guide

Welcome to UltraCool Oil Cooling Systems

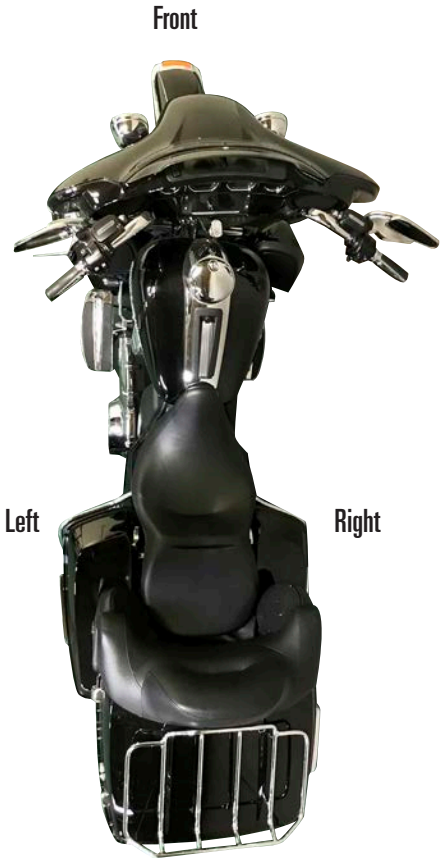
Thank you for making UltraCool your oil cooling system of choice. We hope you will find our installation guide helpful in your installation process. If you need more assistance please call our Tech Dept at (951) 698-4962 or email us at info@pcracingusa.com. If you run into a problem with your particular bike or fitting with other accessories etc, please call us before returning as we likely have a solution or part to make it work for you.

Thank you, UltraCool

Tools Required

The tools you will need to complete this installation:

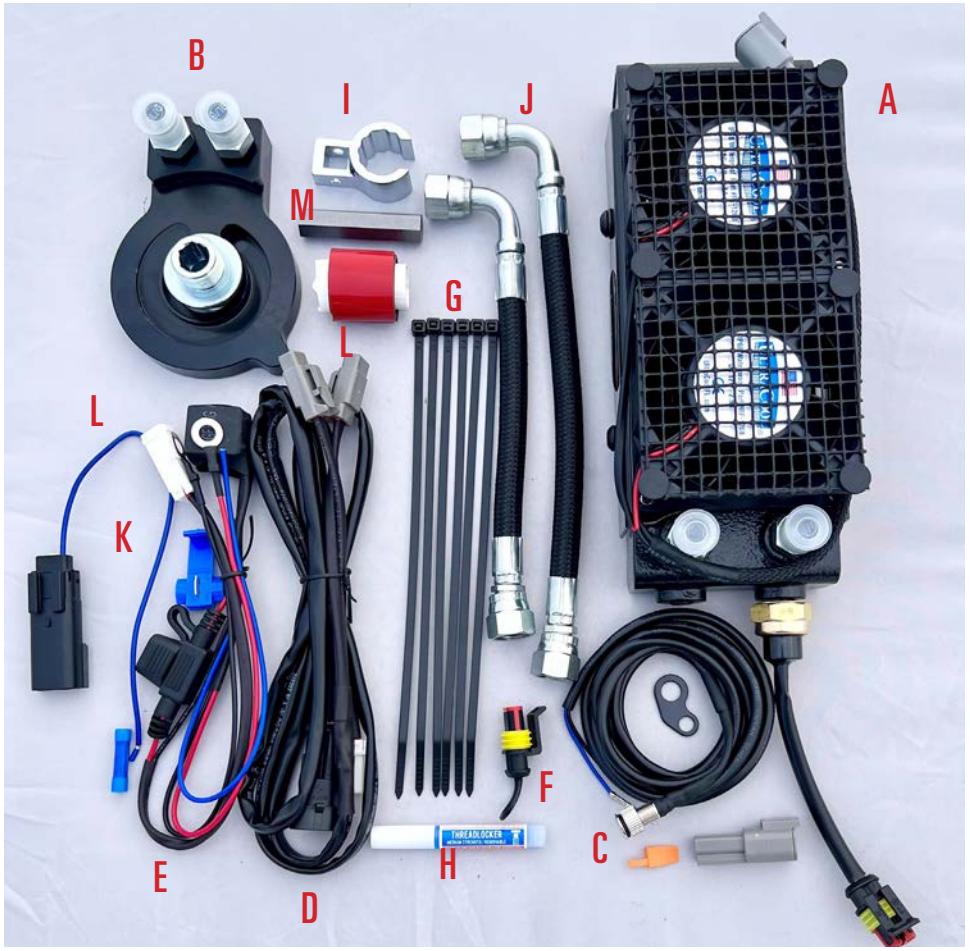
- ❑ New hacksaw blade appropriate for plastic
- ❑ Small hand pick
- ❑ 2" Putty knife
- ❑ Razor knife and extra blades
- ❑ 1/4", 9/32" and 5/16" drill bit and drill
- ❑ Fine and Ultra Fine Point black marker
- ❑ Flat head screw driver
- ❑ 5/32" Allen socket
- ❑ Short 11/16" Open end wrench no longer than 7 inches
- ❑ 1/2" and 7/16" Open end wrench
- ❑ Ratchet with 3/8" drive
- ❑ Extension with 3/8" drive
- ❑ 1/2", 7/16", and 7/8" socket
- ❑ Oil Filter wrench
- ❑ 17mm socket if installing a FLO Oil Filter
- ❑ Torque wrench - check your lbs
- ❑ Bike lift - nice to have
- ❑ Oil can
- ❑ Torx #25, 27, and 40
- ❑ Power drill
- ❑ Wire Strippers and Crimper
- ❑ 7/16" Allen driver (Included in kit)



Note: Instructions are illustrated and explained from a rider's point of view

If your 3 pin accessory plug is already being used or you want to install more accessories in the future, UltraCool #SMB-Y128 Allows for electrical connection of all UltraCool Oil Coolers plus and additional 4 pin port on all Touring Models 2017-Current. It can also be used with #RFB-Y126 to provide two 4 pin ports)

Installation Videos available at UltracoolFL.com/installation/



- A Complete Oil Cooler Assembly
- B Complete Oil Adapter with thermal switch wire
- C LED Indicator Light
- D Wiring Harness
- E Relay
- F Test Jumper
- G Tie Straps
- H Thread Locker
- I Fitting Wrench
- J Hoses
- K Blue Wire Connector
- L Double Sided Tape
- M 7/16" Hex Tool

Step 1

Oil Filter Adapter

Remove oil filter and stock threaded bushing from engine. Clean old thread locker with towel or cotton swab.

Step 2

Install Oil Filter Adapter

Install oil filter adapter with threaded bushing supplied. This requires the 7/16" allen hex driver, provided in kit. Torque to 18-20lb-ft. Be sure to use blue thread locker. If the adapter doesn't fit due to an after market exhaust pipe oxygen sensor, call UltraCool for other options.

Step 3 Disassemble Left Lower Fairing

Scan for YouTube Video installation instructions

1a. With a flat head screw driver pop off the inside top cover as shown.

1b. Remove inside top nut as shown to allow removal of opposite side cover.

1c. Remove outer cone cover.

1d. Remove bottom screws and top nut for removal of inside cover.

1e. Remove outside bolts to allow removal of inside cover.

1f. Pinch to disconnect door lever and remove the air door & inside cover.

1g. Remove door lever from inside cover.

1h. Pop off front grill.

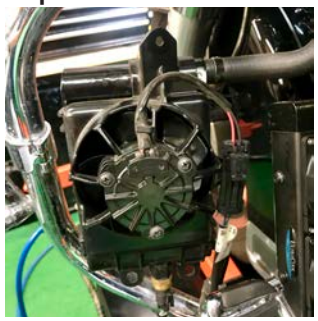
1i. Remove lower fairing while leaving the radiator & water lines in place.

Step 3 Continued

1j.

1k.

1L. Leave the radiator & water lines in place



Step 4 Remove the fairing insert

2a. Fairing insert is double side taped into the fairing. Starting at the top corners pry off the tape connection to remove the insert.

2a.

2b.

2c.

2d. Scrape off double sided tape residue

Step 5 Hack Saw Cuts

With a new hack saw blade cut off the air door pivot arms as flush as possible with the surrounding sides. This area will not show when completed can but not cutting flush can interfere with cooler position.

With a hack saw blade cut the two support pieces off both sides of the air duct. Making this a flat piece will make marking and cutting the air duct much easier and precise. Cut as flat as possible.

Step 6 Mark and Cut Air Door Duct

Carefully cut out the template and tape on the air door duct and trace with a marker. Extend through the bends on each side as you will use these to mark the other sides.

At the corner bend measure 1 1/4 inch from the top and mark with a marker.

Draw a straight marker line from the 1 1/14 " mark to the ½" mark made from the paper template then also mark the 1 ¼" measurement line as shown.

On the opposite corner bend, measure 2 inches down the slanted corner.

Draw a straight marker line from the 2 inch corner mark to the ¼" mark made from the template. For a better fit the 2 inch cut should be right on the corner bend or trim with a razor knife after the cut is made. The opposite end fits well with a small corner lip but this end fits better onto the heat exchanger when it is flat and has no lip.

After carefully reviewing the instructions and photos to be sure you have marked the air door duct correctly, slowly and carefully score your marks with a razor knife. Go over the score marks several times to create a small channel that will prevent slipping out of the mark.

Once your cut lines are scored well, you can use more aggressive tools to speed up the cutting process. One easy trick is to heat up the razor blade with a torch. Although it takes more time, the entire cut can be made with just a good razor knife and new blades. Patiently cutting with a razor knife results in a very clean cut.

Modfied
Air Duct

Step 7

Drill bolt holes through painted Fairing

From the radiator hose edge measure 5 ½ inches.

Now make a point on your 5 ½" mark ¾" from the edge as shown. Drill a ¼" hole as precise as possible to your 5 ½ x ¾" center point mark. Use a hand pick to mark the center drill point.

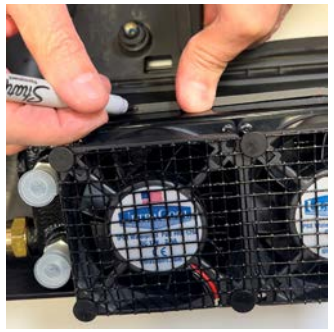
Mark your second hole which should be 3 1/2" center to center from your first mark but only 11/16" from the edge as opposed to the ¾" from the edge that the first hole was. You can use the fan bracket for guidance but precise measurements is best. You want to perfectly measure the two bolt holes to bolt into the heat exchanger. If needed you can enlarge the holes to fit, but ideally your measurements create a perfect alignment of the bolts. Drill 1/4" second hole.

Bolt the UltraCool Oil Cooler to the painted fairing. Ideally your measurements perfectly line up the heat exchanger threads but enlarge the holes to 9/32" if needed or oblong the holes. Be careful not to cross into the aluminum heat exchanger, so make certain you have the holes aligned or enlarge them to avoid cross threading. Do not completely tighten bolts. Insert the modified air duct into the painted fairing and around the UltraCool oil cooler but do not tape in place. If the air duct does not sit flat, trim any area necessary on the air duct.

Step 8

Drill bolt holes through Air Duct

With a Ultra Fine Point marker mark the center of the heat exchanger treads with it already bolted through the painted side.



On the inside of the air duct mark the center alignments and center drilling point using the lock washer supplied. Use a hand pick to mark the center drill point. Leave a 1/16" gap from the top of the slanted side and put the washer to the top on the opposite straight side. Drill marks should be 3 1/3" inches apart.

With a ¼" bit carefully drill first hole, check alignment and bolt this hole to double check the second drill mark. Adjust second mark if necessary (3 ½" apart?) and drill the second ¼" bolt hole. Ideally your measurements perfectly align the bolt holes, but enlarge the holes if needed.

Step 9

Finalize the UltraCool Oil Cooler Installation in the Fairing

Apply provided red double side tape to fairing. Put threadlocker on the two bolts holding the Cooler to the painted fairing. Peel the red from the tape.

Thread the two bolts far enough into the air duct to be able to put a drop of blue threadlocker on the 2bolts and apply lock washers. Insert the air duct into the painted fairing as shown so the lock washers stay in place. Tighten all four bolts on the Cooler assembly and apply pressure to the taped area.

Step 10

Modify the Glove box frame

From the end of the air door handle slot measure 1 ¾ inches. Then with a ruler aligned on the edge of the slot draw a line from your 1 3/4" mark as far a feasible as the part slants down.

From the edge that the water line comes out mark 2 ½ inches. Then hand draw to connect your lines so the final mark is as shown.

Modified Glove Box frame: With a razor knife (new blade) score your marks several times then cut the marked section completely.

Install the radiator duct then glove box to check fitment. Trim if needed for a better fit.

Once everything fits well remove the glove box frame and radiator air duct. Install the modified fairing back on the bike and water cooling if applicable.

Step 11

Oil Fittings & Tighten Hoses

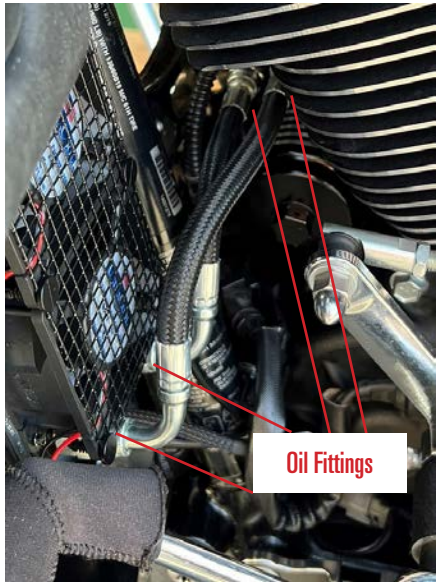
Very important to oil the oil line fittings then install the hoses as shown.

Do Not over-tighten.

Install Oil Filter

To tighten the 90 degree hose fittings on to the heat exchanger, a short (less than 7") 11/16" wrench needs to be used. If you don't have a shorter wrench or have trouble tighten the 90 degree fittings you could loosen the two crash bar mount points of the entire fairing assembly for enough wiggle room to get the fittings tight.

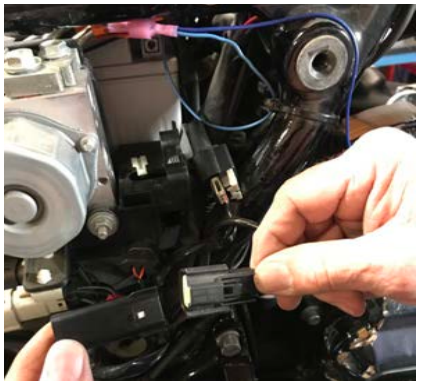
For best results and to take some pressure off the fans, we recommend using a FLO Oil Filter for additional cooling. The 17mm nut on the filter also makes oil changes much easier. FLO Oil Filters must be torqued to 15ft lbs and checked after the first ride.



Step 12 - Touring Models

Wiring

Remove seat, left and right covers and the main fuse. Gain access to the battery terminals.(Refer to your service manual if needed). Locate wiring harness with relay and attach red (pos) and black (neg) wire to battery.



Step 13 - Touring Models

Under right side cover, remove plug from the accessory connector. Install black connector with blue wire that came with the kit. Connect the two blue wires together with supplied connector.

*If your 3 pin accessory connector is already being used, purchase an Ultracool Mulitple Accessory Connector, part #SMB-Y128.

Remove the two bolts on the left side fuse box area to allow you to bring the white connector on the wiring harness under the frame and into the battery area. Run the wiring harness out the bottom opening of the fuse box and run/ tie wrap the wire along and under the frame to the front of the bike.

Step 14 - Touring Models

Remove the two bolts on the left side fuse box area to allow you to bring the white connector on the wiring harness under the frame and into the battery area. Run the wiring harness out the bottom opening of the fuse box and run/ tie wrap the wire along and under the frame to the front on the bike.

Step 15

Installing Wiring Harness

Locate wiring harness with black connector and two grey connectors. Connect black connector together with the red/yellow connector on the thermal switch. Connect grey fan connector to one of the grey plugs (doesn't matter which one). The other grey connector is for the LED light. Route the wiring harness down the right side of the frame rail up to the side box and connect two white connectors together. Tie up wiring and test with test jumper provided by unplugging the thermal switch and inserting the the test jumper.

Wiring Harness

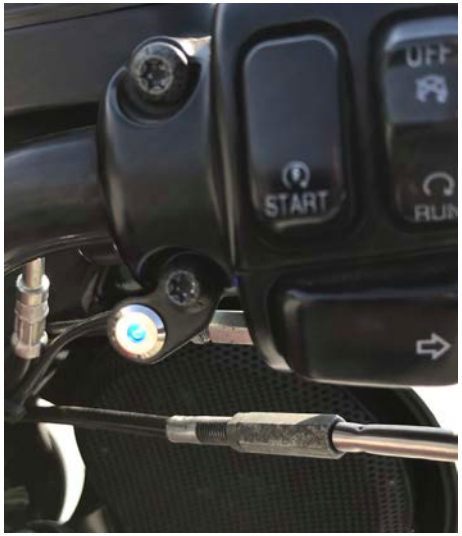
1) White Power Connector
2) Grey Connectors to Fan and LED Light (Interchangeable)
3) Black Connector to Thermal Switch

Step 16a

Installing LED

3 Options:

1) In your kit is a small toggle mount that fits under a screw on your handlebar controls. This is usually the best option.
2) A nice option is mounting the LED light under a speaker grill so it is only seen when on.
3) You can also mount the LED light in a fairing by drilling a 5/16" hole.

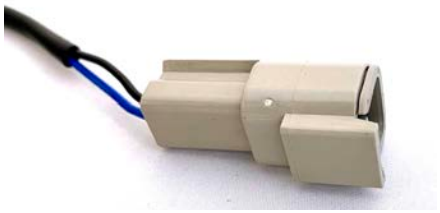


Mounting LED light with provided Toggle mount to the throttle/Front brake perch is usually a good option. Mounting to the clutch perch is also a good option.

Step 16b

Install LED light connector last so you can feed the LED wire through tight areas on the handle bars, frame, etc.

To install the LED connector, push the 2 wires through the back of the connector – either way is fine. Be careful not to break wire connectors when pushing through. Use the orange clip as shown to snap/lock the wires in place.



Step 17

Test Electrical Connections

Locate the test jumper in your parts bag. Unplug harness from the thermal switch and plug jumper into the harness instead. Turn on bike ignition. Fans and LED light should run.

If the fans and LED work with the test jumper, remove the jumper and plug in the thermal switch. Save the test jumper to trouble shoot in the future.

Note* The test jumper can also be used to continuously run the fans for extreme conditions, heat, parades, Rally traffic, racing, etc.

Step 18

Check List

- ❑ Check Hoses are tight
- ❑ Install Oil Filter and Clean up any oil
- ❑ Start Engine and Check oil

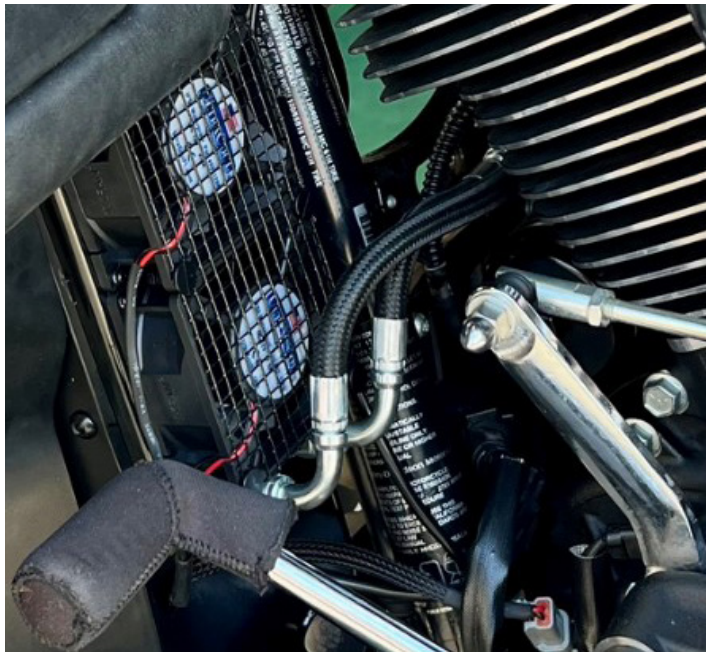
Note: the UltraCool system requires only about 5 oz of additional oil. Initially, add the OEM recommended amount oil in the bike. Warm the bike up, then add additional oil until the dipstick reads full.

Trouble Shooting:

If the oil line fittings leak at all, simply loosen and retighten the fitting with the provided tool.

Congratulations! You are good to go!

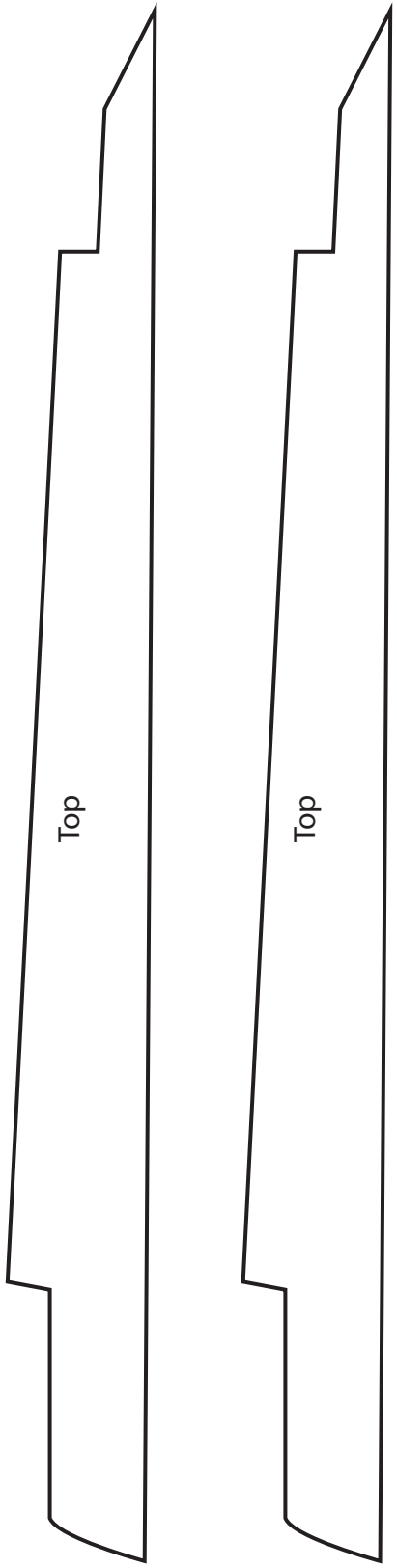
Note: On your next warm day ride (after a minimum of 10 miles) the fans will turn on when the oil reaches 210 degrees. Do not test by letting your engine idle in your driveway as this will not get your oil hot.



Accessories: FLO Oil Filter

Provides additional 10 degrees of cooling power and consistent filtering across the entire surface. Flows 7 times more than paper or synthetic filters while filtering to 35 microns (absolute, 1 pass test). Unaffected by water, heat or pressure and the bypass valve will not open on cold startups and high RPM. Built in 17mm hex nut for easy removal. It is easily cleaned and reused, paying for itself. Available in Polished Aluminum with clear anodize part #PCS4C, Black anodize part #PCS4B, and black anodize with polished fins Part #PCS4BC. (We do not chrome or paint our filters as that holds in heat)

Template



Trouble Shooting

Fans are not turning on when the bike is hot:

Keep in mind that the oil is always circulating through the UltraCool system and therefore always working. The fans typically only turn on hot days after the bike has been ridden at least 10 miles and you get stuck in some traffic or city driving (stoplights etc). The fans normally will not activate during highway riding. If they regularly do, then we highly recommend using a FLO Oil Filter as the additional 10 degrees of cooling power will usually keep your fans from having to activate at highway speeds.

Anytime you feel your 3.0 UltraCool fans are not working, the first action is to unplug the thermal switch and plug in the test jumper. With the test jumper plugged in, the fans and LED light should turn on when you turn your ignition key to the accessory position. If the fans and LED light turn on with the test jumper installed, but you feel the fans are not turning on around 210 degrees of oil temperature, you can easily check the bikes oil temperature with a thermal gun. When the bike is at an oil operating temperature you feel is above 210 degrees, turn the bike off, remove the oil dipstick and shoot the oil directly with a thermal gun. If the oil temperature is well above 210 degrees and the fans turned on with the test jumper installed then visit www.UltraCoolFL.com for a new 3.0 thermal switch. If the oil temperature is slightly below 210, you can let it idle and the thermal switch will likely turn on the fans within a few minutes. DO NOT LET THE BIKE IDLE FROM A COLD START UP TO TRY TO ACTIVATE THE FANS. THIS SHOULD ONLY BE DONE AFTER RIDING THE BIKE FOR AT LEAST 10 MILES.

Fans and LED Light DO NOT turn on with the test jumper installed:

Check the fuse on the UltraCool Relay Harness that is connected to the battery and replace if necessary. If the fuse breaks again, search for the source of the short (burned or worn wires, stuck or damaged fan etc). If the UltraCool Relay fuse is ok, check the bikes accessory fuse if it has one.

If the fuses are ok, you can test the UltraCool Relay by touching the blue wire on the Relay directly to the positive battery terminal. When doing so the fans and LED light should turn on with the test jumper installed. If fans do not turn on when touching the positive terminal with the blue relay wire, the Relay may be bad. You can cut the protective wrap off the Relay and check for damaged wires or disconnected wire solder. Repair wires or visit www.UltraCoolFL.com for a new 3.0 Relay Harness.

Fan Maintenance or Replacement

UltraCool uses IP68 sealed waterproof fans. You can extend fan life by simply spraying them with water when you wash your bike to keep them clean.

Fans typically go out one at a time, so unless you didn't notice that only one fan was working it is unlikely that both are bad at the same time.

Replacement 3.0 fans are available at www.UltraCoolFL.com

If you are still having trouble, contact UltraCool Customer Support at info@pcracingusa.com or 1(951) 698-4962

PC Racing

ULTRACOOL

OIL COOLING SYSTEMS

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UltraCoolfl.com

WARRANTY

One year parts only from date of purchase.
Warranty registration must be completed in full and received
within 45 days of purchase to validate warranty.
Warranties are non-transferrable
Register for warranty at www.UltraCoolfl.com/warranty-registration/

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Patent #6955150

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