

Adding HKS CAMP 2 Optional Boost, Oil Pressure and Intercooler Water temperature sensors to an XK8/R (rev 2)

Installation notes for the Meter interface unit

If you want some of the non-OBDII gauge functions described above (which I expect most of you will), the meter interface unit is needed.



ADDITIONAL MATERIAL LIST:

Meter Interface Unit HKS pn 44008-AK011

The HKS CAMP 2 manual recommends installation of the meter interface unit under the hood (or in the 'engine room' per the Japanese manual translation ☺). This is good advice, since it makes it easier to add on additional sensors later, because it is a pain to get through the firewall...and we only have to do that once to install the meter interface unit.

The brake booster compartment on the driver's side provides an ideal location for mounting the meter interface unit because it provides some protection from the elements, and has a firewall boot which can be utilized to pass the wiring back under the dash. It even has an M6 welded nut mounted on the compartment wall that can be used with the mounting bolt that is included with the Meter Interface unit. Just remove the existing torx bolt, and replace with the included nut, bolt, washer and lockwasher as shown below.

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To run the harness back to power and the HKS CAMP 2 under the dash, use the JTIS instruction reference to remove the plastic grill under the wipers and the wipers to gain easier access. Pry loose the corrugated rubber boot near the fender (see photo below). Use a stiff sold wire (I used a 3 ft length of #10 insulated wire) as fish line. Poke the fish line in from the top until it emerges under the dash. Carefully tape the harness to the fish line and pull it up into the brake booster compartment. Untape the top of the boot from the harness. Once the harness is in the compartment, use the fish line to pull it through the rubber boot. Be sure to reattach the rubber boot with some RTV around the rim to seal against possible water leaks.



For our application the battery and ignition fused power feeds can be tied together and connected under the dash to the switched ignition source (cigarette lighter). The white dimmer wire and fuse is not used and can be cut off (tape up the wire to prevent shorts).

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Installation notes for the Oil Pressure Sensor in and XK8/R

ADDITIONAL MATERIAL LIST:

- HKS 44999-AK020 Oil Pressure Sensor and Harness
- BrakeQuip pn BQ41 M10x1 male to M10x1.25 female adapter
- BrakeQuip pn BQ42 M10x1.25 male to M10x1 female adapter
- Qty 2- BrakeQuip pn BQ1016 10mm copper washer
- Neoprene O-ring: approx. dimensions: 9 mm OD, 5.4 mm ID, 1.8 mm thick
- 42 Draft Designs pn 42-022 VW oil pressure relocation kit
- Teflon tape pipe thread sealant
- Ty-wraps

With proper adapters, the new HKS oil pressure sensor can be installed in the port used for the oil pressure switch, which is adjacent to the oil filter of the XK8/R. You can also keep the original oil pressure switch using an oil pressure relocation kit or tee adapter (when it comes to oil pressure, it seems to me that redundancy of sensors is a good thing). There is actually another factory sensor in this location near the oil filter: this is the oil temperature sensor for the ECM. The oil pressure switch can be identified as the one with a SINGLE wire emerging from its connector. Leave the oil temperature sensor (the one with two wires) alone, because moving it out of the oil flow might have an undesired effect on the temperature readings for the ECM.

Jaguar has really set themselves apart with this oil pressure switch, which for some reason probably only known to them, uses exceedingly unusual threads. Nearly all automotive oil pressures switches and senders use either 1/8" NPT, M10x1, or 1/8" BSPP or 1/8" BSPT threads (you would think a British car would use British Standard Pipe threads). Not so for Jaguar. They used M10x1.25 (parallel) threads for this sensor. (**Note:** The Jaguar EPC shows two different oil pressure switches, depending on engine number. Verify that your sensor is also M10x1.25 by measuring the diameter, which should be 10mm and the distance between 7 threads, which should be about 8.75mm, and the threads should be parallel without a taper).

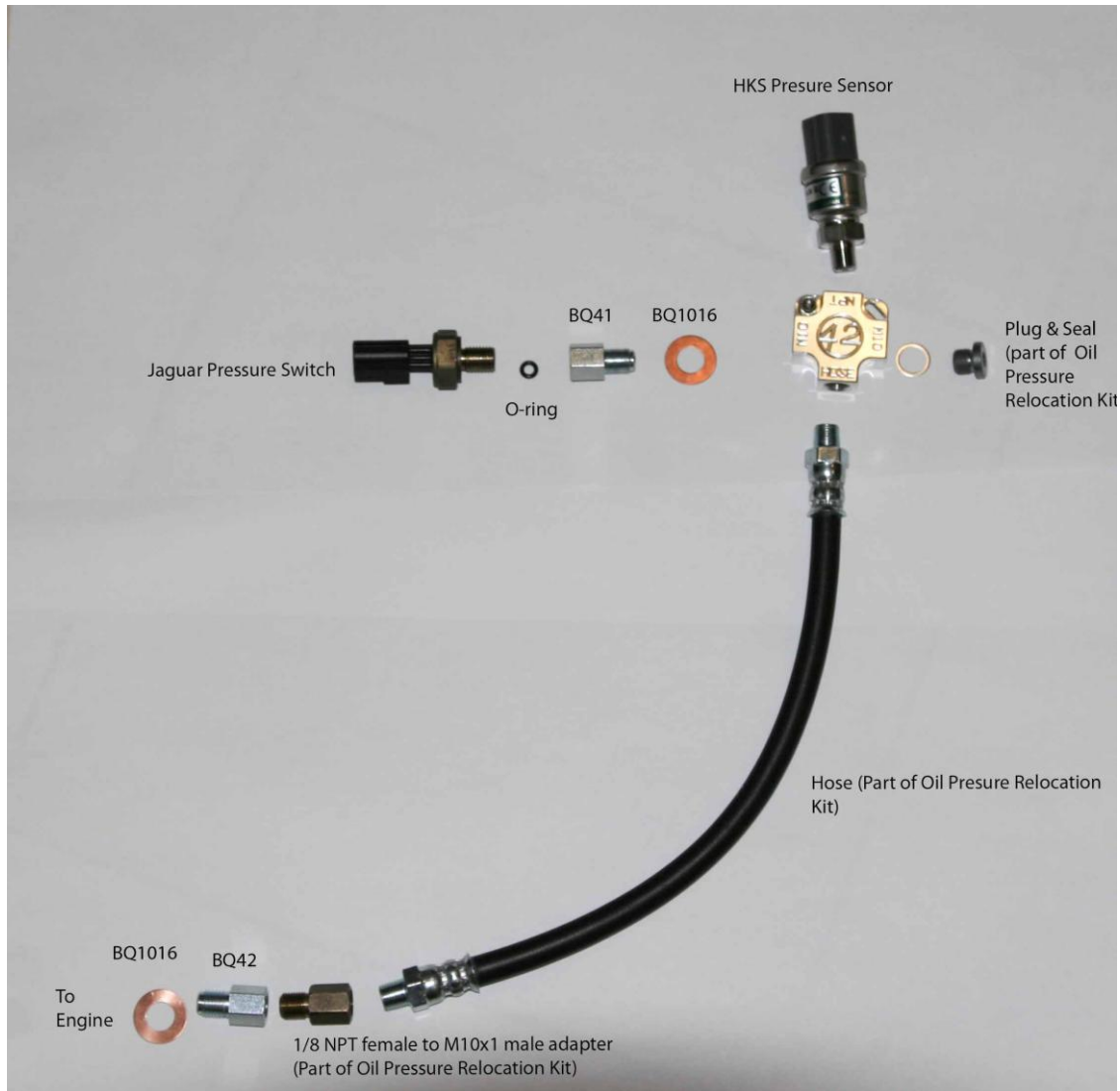
I have found adapters for the M10x1.25 size to be scarce. This size is occasionally used for brake lines, and I was able to find a suitable adapter from a hydraulic supplier. The company is BrakeQuip (<http://www.brakequip.com/mfthread.html>), and they sell through local hydraulic distributors around the US. Your local distributor can be found on their website. The adapters available convert between M10x1.25 and M10x1, and we need an adapter and seals for the engine sensor port and for the original brake switch. The parts are identified in the material list.

Once converted to a more mainstream thread size, we can use a commercial oil pressure relocation kit or tee adapter to connect both the original pressure switch and the HKS pressure sensor (which uses 1/8" NPT threads or 'PT 1/8' as the Japanese call it in the HKS manual).

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A company called '42 Draft Designs' makes a particularly nicely designed oil pressure relocation kit that works well in this application: http://store.42draftdesigns.com/VW-Oil-Pressure-Relocation-Kit_p_314.html.

The following photo illustrates the assembly sequence:



Use 2-3 turns of Teflon pipe thread sealant on each connection. Also do not forget to attach the ground wire (not shown in the photo).

This photo below shows the oil pressure relocation kit installed and mounted with ty-wraps on the 'fulcrum tie' part of the front suspension (this is the stamped steel bar that runs horizontally in front of the oil filter and the plastic oil filter cover (with one screw) is mounted to.:

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Note:

Subsequent to this install, I found another alternative that is a bit less costly and simpler than the Oil Pressure Relocation Kit (pn 42-022 from 42 Draft Designs). As an alternative you can consider using this adapter:

<http://www.germansupply.com/home/customer/product.php?productid=16853&cat=437&page=1> along with this 1/8" NPT female to M10x1 male adapter

http://store.42draftdesigns.com/M10x1-Male--18-NPT-Female-Adaptor_p_57.html . All of the other hardware identified is still required.

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Installation notes for Boost Pressure Sensor in an XKR

ADDITIONAL MATERIAL LIST:

- HKS pn 44999-AK021 Boost Sensor and Harness
- HKS pn 4599-RA017 hose mini vacuum filter, 4 mm
- 5/32" ID rubber vacuum hose, 6 feet (available from auto parts stores)
- 5/32" x 5/32" x 5/32" barbed fitting vacuum tee (such as VacuTite 47333, available from auto parts stores)
- Ty-wraps
- M6 bolt and lockwasher

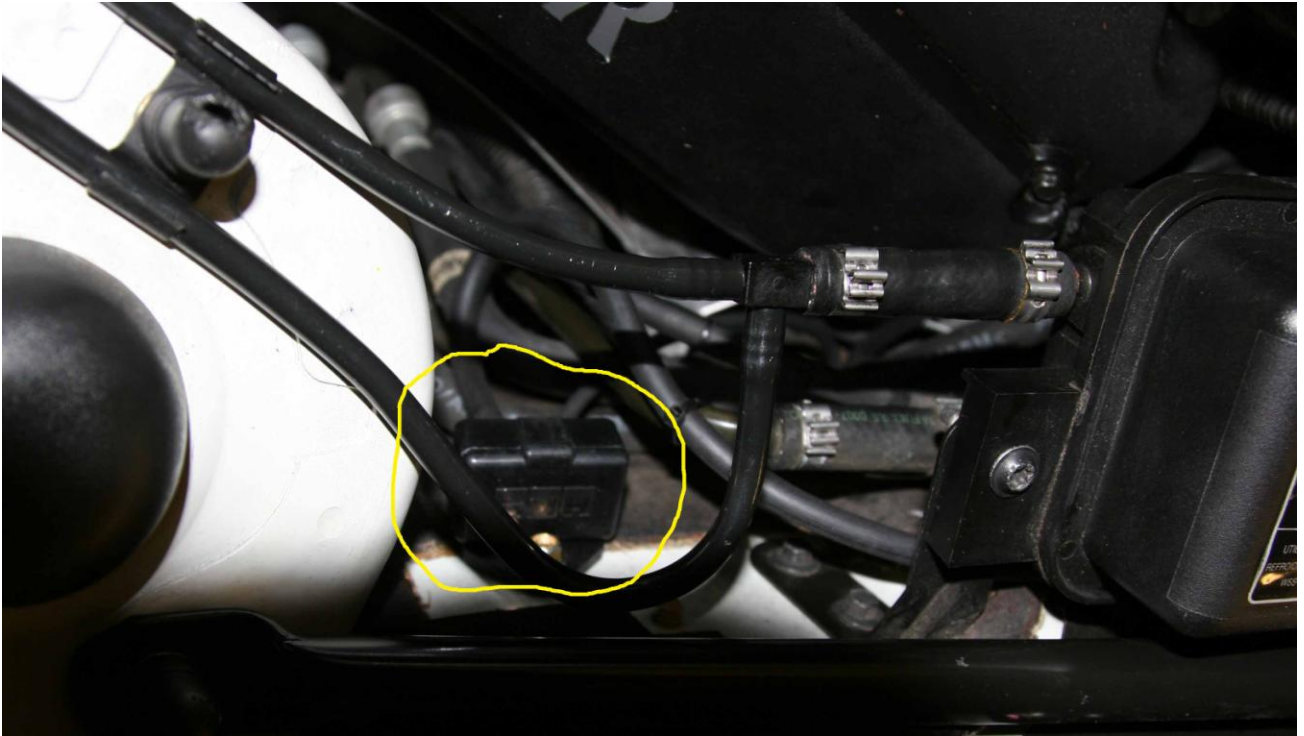
The boost pressure sensor can be installed easily by tapping into the manifold vacuum with a plastic vacuum tee connection. A very convenient point of access is the vacuum hose that runs from the top of the intercooler assembly to the fuel pressure regulator. This hose is visible at the top of the engine.



The fuel pressure regulator is under the right intake charge cooler, in the rear, and is accessible by just removing the intake pipe. Use fresh new vacuum hose when you make these connections. Also, according to the HKS instructions, the hose feeding the pressure sensor should be fitted with the inline air filter specified in the materials list to prevent contamination.

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The boost pressure sensor can be mounted on an unused threaded hole under the hood. There is a convenient unused threaded M6 welded nut outside of the brake booster enclosure.



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Installation notes for Intercooler Water Temperature in an XKR

The intercooler is critical to the performance of the XKR supercharger, and we all know that the XKR is susceptible to heat soak. With boost upgrades this can be even a greater problem. With this in mind, and also with a planned intercooler upgrade in the future, I thought that an intercooler water temp gauge would be very useful.

ADDITIONAL MATERIAL LIST:

- HKS pn 44999-AK011 Temperature sensor and Harness
- Palmer Pursuit pn FITT012, 1/8 NPT female to 1/8 NPT male extension
- AutoMeter pn 2281 3/4" Heater hose temperature sensor adapter.
- Teflon tape pipe thread sealant
- Ty-wraps

This is a fairly simple sensor to add. After draining the intercooler, per JTIS, the charge cooler feed hose is cut and AutoMeter adapter (<http://www.summitracing.com/parts/ATM-2281/>) and temperature sensor assembly is spliced in with included hose clamps. The hose that needs to be cut is the right most hose on the right charge cooler that runs down to the intercooler electric pump. The brass sensor assembly is shown in the photo below installed (in the lower right):



Note that the airbox has been removed in this photo.

The sensor is mounted in an 1/8 NPT female to male extension adapter (<http://www.palmer->

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pursuit.com/cart/index.php?main_page=product_info&products_id=13) in order to still be in contact with the coolant flow, but to avoid significantly restricting the flow in the narrow $\frac{3}{4}$ inch hose:



Use 2-3 turns of Teflon tape sealant on each connection.

Once installed be sure to follow proper JTIS procedure to refill the coolant to the proper level at both the coolant tank and the intercooler fill locations.

This sensor will be plugged into the 'WATER TEMP' connector on the meter interface unit and will be labeled "IF WATER" on the display. Note that the OBDII radiator water temperature gauge is named just 'WATER' on the HKS CAMP 2 display.

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