

# 📖 Installing a Full Flow, Thermostat Controlled Oil Cooler & Remote Filter

I get a lot of questions on this one 🤔

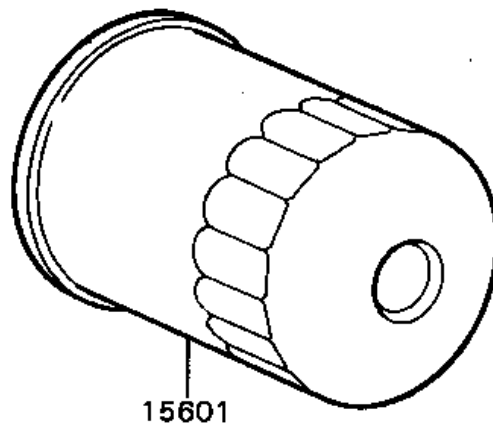
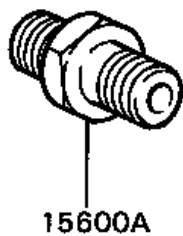
This eliminates the stock filter head on the 7M-GTE. I converts the cooler from a pressure based feed (not very effective IMO) to a thermostat controlled circuit. Much better at regulating oil temps.

There's a couple different ways to switch the stock oil filter cooler from the pressure driven type circuit to a full flow system. Both involve using a remote set-up for the oil filter. This can get a lot more complex...using an accumulator and in line filters for example. I'm going to keep it fairly simple:

## Type 1 - Single filter/cooler circuit with parts in a series

Part's list:

- NA Filter Stud - Part #90404-20173 (PNC #15600A)



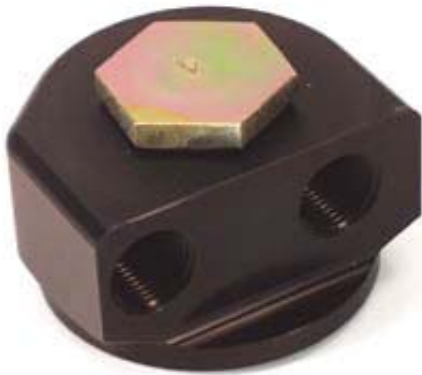
MA 6093-A

- Filter Adapter - Permacool #111 (1/2" NPT fittings, 3/4" x 16 filter thread)



- OR -

- Filter Adapter - Canton #22-595 (1/2" NPT fittings, 3/4" x 16 filter thread)



This adapter has side fitting vs top for the PermaCool. It also rotates 360 deg for max flexibility routing hoses.

- Remote Filter Head - Permacool Single Filter Head #1791 -or- Permacool Dual Filter Head #1221

(Both are dual port 1/2" NPT fittings, w/ 3/4" x 16 filter threads)



For a dual filter head, use a Trasko bypass filter for the 2nd one...available here: [Trasko Bypass Filter](#)

This filter removes particles down to 1 micron...use the TI-10S or T3/4-20S if you want a bit more capacity. Get spare filter elements...this filter will need to be changed every 5000 miles or so (the 1st time at 3K...it will remove a lot of particles from the motor initially). You will be able to estimate

the filter change time by the amount of "crap" the filter removes on the 2nd element...you'll see a dark area move up the element when you pull it out...just note the mileage and increase based on how high the dark area is up the filter. If you do not want to use a Trasko, there is no point in using two full flow filters...use a single filter head.



(Thanks Jag!)

A bit more info for the Trasko installed on a dual filter head:

[Dual Remote Filter Head](#)

- Oil Cooler - (1/2" NPT fittings) B&M, Longs TruCool, Derale (stacked plate design) or Setrab, Earls, Fluidyne, Flex-a-lite, Permacool (fin & tube design).

Min size approx 7" x 11" x 1.5" w/ 1/2" NPT fittings. Personally, I feel the stacked plate coolers are a superior design.

- Mocal Remote Oil Thermostat (AN-8 and AN-10 Fittings)

Available at Racer Parts Wholesale: [Mocal Oil Thermostat](#)



I recently became aware of a production change in this thermostat with regards to the position of the waxstat. Some have it on the side with the bolthead...more recent units have it on the side opposite the bolthead. Oil should enter from the engine on the side that has the waxstat...just look down the passageways for a spring to identify the waxstat side. That is the side that should have the engine feed/return installed.

Mocal Thermostat Install PDF:

[Mocal Install](#)

- OR -

- Earls Remote Oil Thermostat (AN-10 O-ring). This thermostat also has 1/8" NPT ports for gauge sensors.

Available at Summit Racing: [Earl's Oil Thermostat](#)



- Fittings & Hose - Min size AN-8 to 1/2" NPT for the above filter adapter, filter head, and cooler. You can go with larger AN size Hose (AN-10) if you want...this is especially useful with a shimmed pump, but not required for most motors. You can use stainless braid with AN screw on type fittings or rubber hose like AeroQuip Socketless with push lock AN fittings (this is easier to work with and is good hose). The length required will depend on where you mount the cooler/remote filter head. I have my remote filter mounted under the passenger side head light. Mounting the cooler will depend on how big it is...you can mount it in the stock location (if there is room), sandwich it between the IC and the radiator by fab'ing brackets, or mount under the drivers side head light with a fan mounted on the cooler. Get creative...what you need is good air flow 🤔

#### Routing:

- First, install all the 1/2" NPT to AN fittings to the filter adapter, filter head and oil cooler...use teflon tape on the NPT side, no tape or sealant on the AN side. Cut hoses to length and install AN fittings to the hose as you go.
- Start at the block with the NA stud installed and the filter adapter screwed on tight...lube the rubber seal with a little oil.
- From the outside fitting (out) on the filter adapter, run a hose to the "in" on the filter head.
- From the "out" on the filter head, run a hose to the Mocal thermostat to the "from engine" per the above Mocal instructions.
- From the "to engine" on the Mocal, run a hose to the center fitting (in) on the adapter mounted on the block.
- Run 2 lines from the opposite side of the Mocal (to/from cooler in the instructions) to the oil cooler...it does not matter the order...the cooler will work fine with either line hooked up on either fitting. There is no in/out for the cooler.

### **Before You Start the Car:**

- Change your oil...overfill to at least 1 quart above the top line on the dipstick.
- Check all fittings to make sure they are tight and install a filter (Wix or PureOne) on the filter head...the Trasko as well on a dual head.
- You will have to block the old oil return on the pan...M12x1.25 bolt with a correct size oil pan washer will work fine.
- Pull the EFI fuse and crank (make sure the battery is good) until you get an oil pressure indication on the gauge...this fills the lines/cooler with oil.
- Check your oil and fill to the same level as above.
- Reinstall EFI fuse and crank...check for normal pressure and run for a few minutes.
- Shut down and let the oil drain to the pan...check for leaks/drips under the car.
- Check the oil again and refill again to 1 quart above the top line on the dipstick.

### **Type 2 - Dual filter/cooler circuit in parallel**

A lot like the above, but you install the thermostat/cooler on one circuit (using a sandwich plate) and the remote filter on another circuit (using the filter adapter).

Additional parts:

Earl's Sandwich Plate Adapter (3/4" -16 thread w/ 3/8" NPT fittings) - (available at Summit Racing)



- OR -

Earl's Sandwich Plate (3/4" -16 thread w/ -10 O-ring fittings) w/ thermostat (available at Summit Racing)





- OR -

Mocal Sandwich Plate (3/4" -16 thread w/ 1/2" NPT fittings) w/ thermostat (available at Racer Parts Wholesale)





#### Routing:

- You use one of the above sandwich plates installed between the block and the filter adapter discussed above. Simply run two lines to the cooler from the sandwich plate. If you go with the top plate (no thermostat), the fittings are 3/8" NPT...a bit small, and you will still need a thermostat installed somewhere in the two lines.
- From the outside fitting (out) on the filter adapter, run a hose to the "in" on the filter head.
- From the "out" on the filter head, run a hose to the center fitting (in) on the adapter mounted on the sandwich plate/block.

The advantage of the bottom two is the thermostat is built into the plate, but they open a bit earlier at 160 degs (the Mocal says 180...I tested one and it started to open at 160 just like the Earl's). This is not optimum IMO...you want a 180 deg stat to help get the oil to ops temp (210 deg) as quickly as possible. On all of the above, the filter is not providing protection for the cooler. IMO, the single circuit type is a better option.

Make sure you follow the sequence I posted above to fill the lines with oil!