



## **ENGINE OIL COOLER INSTALLATION INSTRUCTIONS**

This Northern engine oil cooler will lower engine oil temperature under all types of driving conditions including trailer towing, heavy loads, hot climates and high performance uses.

The Northern engine oil cooler features a 100% welded Aluminum construction with high efficiency tubes and fins for maximum heat transfer.

This kit works only on engines with spin-on oil filters and must have adequate clearance around the filter area for the sandwich adapter and hoses necessary to connect the cooler to the engines oiling system.

A universal oil filter adaptor kit to supply the hose connections to plumb the oil cooler must be sourced from the engine manufacturer or another aftermarket supplier.

Prior to installation please check the oil filter mounting thread of your vehicle and the area around the filter to be certain you have adequate room for the sandwich adapter and the connecting hoses. Certain vehicles like some GM LS-1 engine blocks may have a factory block plate which can be replaced with a factory oil hose adapter (a GM part) and do not require the sandwich adapter.

### **BEFORE YOU START:**

**\*\*A Northern engine oil cooler is an easy installation; however we recommend the installation instructions be carefully studied before you start.**

**\*\*The cooler relies on air flow for heat transfer and we recommend a location in front of the radiator and or condenser which will receive maximum air flow. Care should be taken to mount the cooler at least 1/4" in from the radiator or condenser, the mounting should be rigid and should never allow the cooler to contact either the radiator or condenser.**

**\*\*The cooler may be mounted in any position and oil may flow through the cooler in either direction. However, use care and common sense to select a mounting location which will not subject the cooler to road surface contact or road debris.**

**\*\*The cooler will help protect your engine and engine oil from over heating but it cannot correct a faulty or worn engine. The mechanical condition of the engine must be good before the Northern Engine oil cooler is installed. If your engine condition is questionable, we recommend the repairs be made prior to oil cooler installation.**

**\*\*IMPORTANT NOTICE\*\*** For cold weather climate conditions (below 32°F), the engine oil should NEVER be operated below 140°F, or engine damage may occur. If your vehicle will be used during cold periods (below 32°F) we strongly recommend an engine oil thermostat from another aftermarket provider or to cover or disconnect this oil cooler to prevent over cooling of your engine oil.

**TOOLS & MATERIALS NEEDED:**

Screwdriver  
Wrench Set  
Knife  
Pliers  
Electric Drill  
Pipe Thread Compound  
Engine Oil  
Wire Ties to Secure Hoses

NOTE: This oil cooler is for Automotive & light truck use only!

**BEFORE YOU BEGIN:**

1. Review your work area to avoid sharp bends or sharp edges. Make certain your oil hose will not be exposed to hot areas (exhaust manifolds, headers, or exhaust pipes or components). Also make sure your oil hose will not chafe against other metal surfaces after installation.

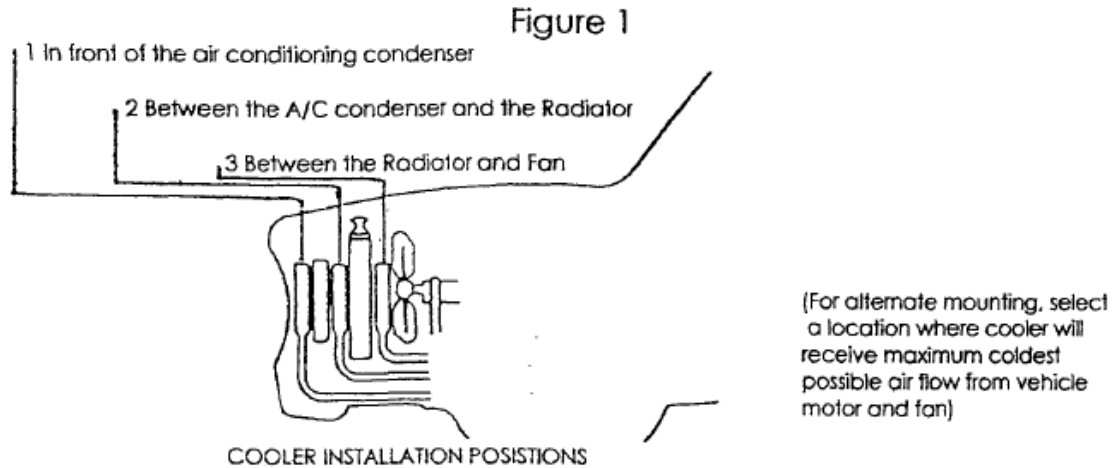
Safe Clearance Distances Are:

1" from fans  
1/4" from Radiator or Condenser  
2" from hood, wheel wells, firewalls, etc...  
6" from exhaust components

2. Always make your hoses at least 2" longer than your rough measurements – Remember once you cut the oil hose you can always shorten it but you cannot make it longer.
3. Tighten hose clamps until rubber extrudes through hose clamp slots, level with the metal surface of the clamp. After 6 months, hoses should be checked and retightened as necessary.
4. Pipe thread compound should be used on all fittings. Do not over-tighten fittings. 15 ft/lb is the correct torque.

## SUGGESTED MOUNTING POSITIONS:

Determine the best location for your vehicle from the positions shown in the illustration. See Figure 1.

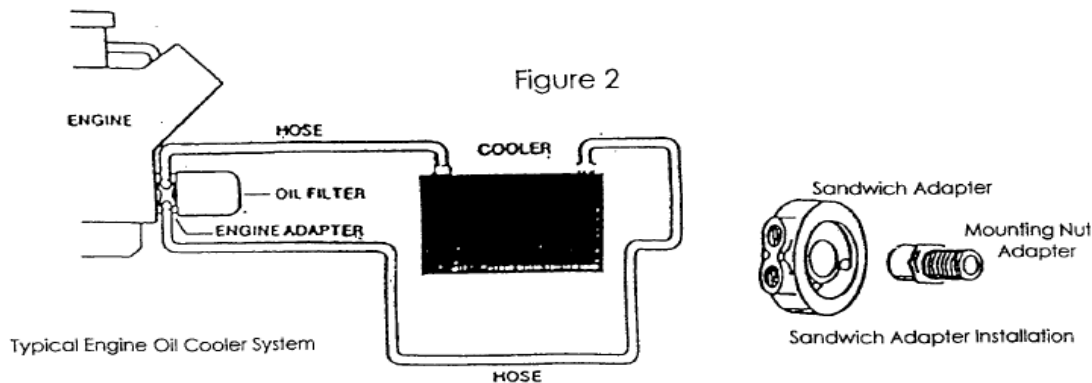


Position 1 is the preferred location, but positions 2 or 3 are acceptable. However, the mounting for position for 2 or 3 requires different mounting devices or fabricated brackets. Other positions can be used, but they must be locations where there will be a good, cold air flow through the cooler. The cooler can be mounted with the fittings facing up, down, or to either side as is convenient.

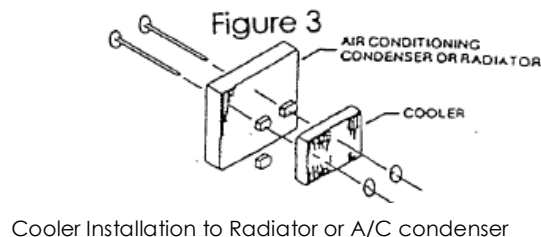
## INSTALLATION PORCEDURES:

Before starting the installation, check the oil filter clearance by adding the depth of the sandwich adapter to the filter length. If there is insufficient clearance the filter must be remotely mounted and additional mounting materials will be needed. In some cases a short filter will suffice. Make sure that the threads on a shorter filter will fit the adapter.

1. Install the 1/2" NPT fittings into the cooler and the 3/8" NPT fittings into the sandwich adapter. Use pipe thread compound or suitable thread sealer. Do not over-tighten.
2. Position the cooler in the location that you have determined. Do not install the cooler yet.
3. Select the mounting adapter and the correct colored threaded ring that will fit your application, and thread the ring into the adapter.
4. Apply a light coating of engine oil to the O-ring seal of the sandwich adapter. Insert the adapter, with the correct colored ring, and screw it over the threaded nipple in the cylinder block. The O-ring seal side of the adapter goes against the block. Locate the fittings on the sandwich adapter in the direction that the hose will be routed. Tighten the mounting nut on the adapter. See Figure 2.



5. Fit and rough cut hoses to length (remember to add 2" to your measurement and keep all bends to a 90 deg. or greater radius, smaller bends may restrict oil flow).
6. Mount the cooler using bolts or mounting screws. Use your electric drill to drill the mounting holes. If you choose a location other than #1 in figure 1 you may need other mounting hardware (see Figure 3). If needed, this mounting hardware will need to be sourced separately to complete the mounting.



Northern Part # Z18344  
Quick Mount Kit

7. Attach the fittings to the cooler. Be certain to support the fitting on the cooler with a wrench along with a wrench on the fitting installed.

### INSTALLATION NOTICE!

**IMPORTANT:** Use two wrenches when installing the adapter fittings. Always support the cooler with one wrench to prevent any pressure on the cooler connection or damage to the cooler may result!!

8. Complete the hose assembly, keeping well away from unprotected sharp edges, exhaust system, etc... Trim the hoses to the final length and tighten the hose clamps per instructions. Use tie wraps to secure hoses if necessary.
9. When installation is complete, test as follows:
  - a. Start engine; immediately check for oil pressure. If there is no oil pressure turn off the engine and look for problem.
  - b. Shut off engine after oil pressure is established, check for leaks and check the oil level.
  - c. Add oil as necessary, but do not overfill.
10. Restart the engine and allow the vehicle to idle for 10 minutes, be certain that the vehicle is in park or in neutral with the parking brake on.
11. Recheck for leaks.
12. Feel both ends of the oil cooler. Both ends should feel warm. If the cooler is cold, lack of oil flow due to a kinked hose may be the problem. Please review the installation and correct the restriction and repeat step 10.
13. Recheck the installation for cooling (step 12) and leaks in a few days and every 3 months after that.