



www.perma-cool.com

Installation Instructions

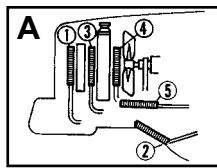
This guide covers the following:

Universal Engine Oil Cooler

Congratulations, you have made a wise decision. Thank you for purchasing our product.

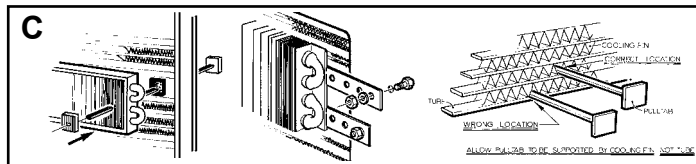
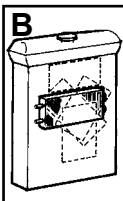
Universal Engine Oil Cooler System

IMPORTANT! READ ALL INSTRUCTIONS BEFORE BEGINNING INSTALLATION.

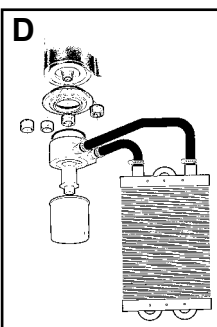


Your engine oil cooler, when properly installed, will keep your oil in its optimum operating temperature range. This results in longer engine life and better performance. Your cooler coil relies upon air moving over and through its fins to extract the heat from the oil. The coil can be mounted in any location, however, the location of the coil directly affects its efficiency. It can be placed in front of or behind the radiator, although the two should not touch each other, 1/4" (3mm) is adequate (see illustration A).

Naturally the coil should be protected from flying objects and contact with any other moving parts. The coil can be placed vertically or horizontally (see illustration B). When mounting the coil to the vehicle, consider the length of the hose supplied. Attach the coil with the nylon tie straps and secure with a nylon button on the other end. Place foam pads (and rubber spacer washers, if applicable) between the two coils (see illustration C). If the coil has mounting brackets, you may use nuts, bolts, screws, and metal straps to attach. If additional hose is required, use 1/2"(13mm) I.D. oil hose suitable for 300°F (149°C) and 250 lb. pressure. See below for available lengths.



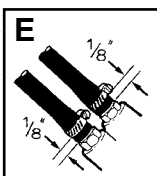
"SANDWICH" METHOD



With the engine cool to the touch, remove the oil filter. Wipe the engine sealing surface and filter nipple clean of any dirt or grease. Install the hose fittings in the engine adapter. If applicable, install fittings in the oil cooler coil. Always use a backup wrench on the coil. Seal the threads with Teflon® tape or appropriate sealer. MAXIMUM TORQUE on the fittings is 28 ft. lbs. (38Nm). DO NOT OVERTIGHTEN!

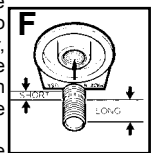
One of the four provided adapter bushings may fit the filter nipple. To determine which bushing is correct, spin each one on the filter nipple. The correct bushing will spin on to the filter nipple easily. Remove the correct bushing from the filter nipple and install it in the "sandwich" adapter sleeve nut (thread first/knurl last). Some adapter bushings are designed with partial internal threads. Tighten securely. To determine whether the large adapter plate must be used, position the plate on the engine filter mount and compare O-Ring/gasket landing surfaces. Apply a thin film of oil to the adapter O-Ring (large adapter plate O-Ring, if required). Install the adapter(s) in place of the old filter. Hold adapters in place and tighten sleeve nut. Do not tighten more than 14-16 ft. lbs. (19-22Nm). **Note: An O-Ring MUST be used between all adapters and the engine (see illustration D).** Install hose from the "sandwich" adapter to the engine oil cooler coil. It makes no difference which hose goes to which position on the oil cooler coil. Position the hose clamps 1/8" (3mm) from the ends of the hose and tighten. Do not over tighten the clamps — the proper tension is when the hose bulges up slightly through the slots in the bands (see illustration E).

CAUTION: Avoid hot exhaust pipes, manifolds, or headers. DO NOT BEND the hose sharper than a 5 inch radius. Secure hoses with clamps or tie-straps if necessary. Start engine and immediately check for leaks. Add oil as needed. After installation, operate the vehicle in a normal manner for a day or so. Recheck all fittings and clamps for proper tension. Retighten if necessary.

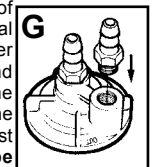


"SPIN-ON" METHOD

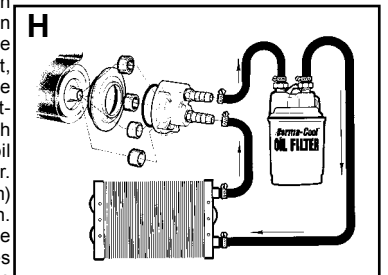
Considering the quantity of hose supplied, locate a convenient location to mount the remote oil filter mount. This may be the firewall, fender, or frame. Install the threaded nipple into the filter mount. Install the shortest end of the nipple into the filter mount (see illustration F). Now attach the mount to the desired location. Install the hose fittings in the engine adapter, remote oil filter mount, (see illustration G) and if applicable, the engine oil cooler coil using a backup wrench. Seal the threads with Teflon® tape or appropriate sealer. MAXIMUM TORQUE on the fittings is 28 ft.lb. (38Nm). DO NOT OVERTIGHTEN!



With the engine cool to the touch, remove the oil filter. Wipe the engine sealing surface and filter nipple clean of any dirt or grease. One of the four provided adapter bushings may fit the engine filter nipple. The correct bushing will spin on to the filter nipple easily. Remove the correct bushing from engine nipple and install into the "spin-on" adapter casting. Note the position of the knurl. Some adapter bushings are designed with partial internal threads. Tighten securely. To determine whether the large adapter plate must be used, position the plate on the engine filter mount and compare. To install apply a thin film of fresh oil to the engine adapter O-Ring (large adapter plate O-Ring, if required). Install the adapter(s) in place of the old filter. Tighten by hand 1/4 turn past O-Ring contact with sealing surface. **Note: An O-Ring MUST be used between all adapters and the engine (see illustration H).**



Install the hose from the "OUT" port on the engine adapter to the "IN" port on the remote oil filter mount. From the "OUT" port of the remote filter mount, route hose to the oil cooler coil. There is no difference between the two outlets on your oil cooler coil. Next finish by routing hose from the oil cooler coil to the "IN" port in the engine adapter. Position the hose clamps 1/8" (3mm) from the ends of the hose and tighten. Do not over tighten the clamps — the proper tension is when the hose bulges up slightly through the slots in the bands (see illustration E).



CAUTION: Avoid hot exhaust pipes, manifolds, or headers. DO NOT BEND the hose sharper than a 5 inch radius. Secure hoses with clamps or tie-straps if necessary. Start engine and immediately check for leaks. Add oil as necessary. After installation, operate the vehicle in a normal manner for a day or so. Recheck all fittings and clamps for proper tension. Retighten if necessary.

NOTE: All filter mounts and sandwich adapters utilize a Ford type oil filter. Use the guide below to determine which oil filter to purchase. Some vehicles have extra long oil filter nipples. For these models it may be necessary to cut the nipple at about 5/8" (16mm) from the face of the filter landing. File and remove all chips.

U.S. Patent Numbers: 4,190,105; 4,335,688; 4,617,702; 5,291,969

Brand Name	Standard Fit	Tight Fit
PERMA-COOL®	81008	81043
AC®	PF2	PF13
FRAM®	PH8A	PH43
LEE®	LF1	LF16
MOTORCRAFT®	FL1A	FL173A
NAPA®	1515	1068
PUROLATOR®	L30001	L14670
WIX®	51515	51068