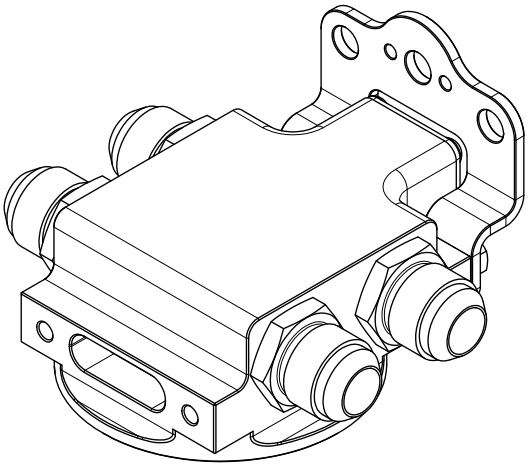
REMOTE OIL FILTER MOUNT WITH INTEGRATED THERMOSTAT

PART NO. ENV-170-TX

MADE IN USA



Important: Read these instructions in their entirety prior to installation.

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Rev 200609

APPLICATIONS

- The ENV-170 is an oil filter mount that has an integrated thermostat. It is designed to be used with a heat exchanger.
- The maximum supported oil filter OD is 3.44 inches
- An oil filter adapter screw, sold separately, is required. See table below.

Part Number	Filter Thread Size
HSC-5000-01	3/4”-16 UN - 2A
HSC-1042	13/16”-16 UN - 2A
HSC-1039 **OR** HSC-5013-01	M22x1.50 -6h

- A list of compatible filters is available on the product page on Improved Racing’s website at www.improvedracing.com.

⚠ **WARNING: Not recommended for use with corrosive fluids.**

SCHEMATIC, HARDWARE & PARTS LIST TABLE

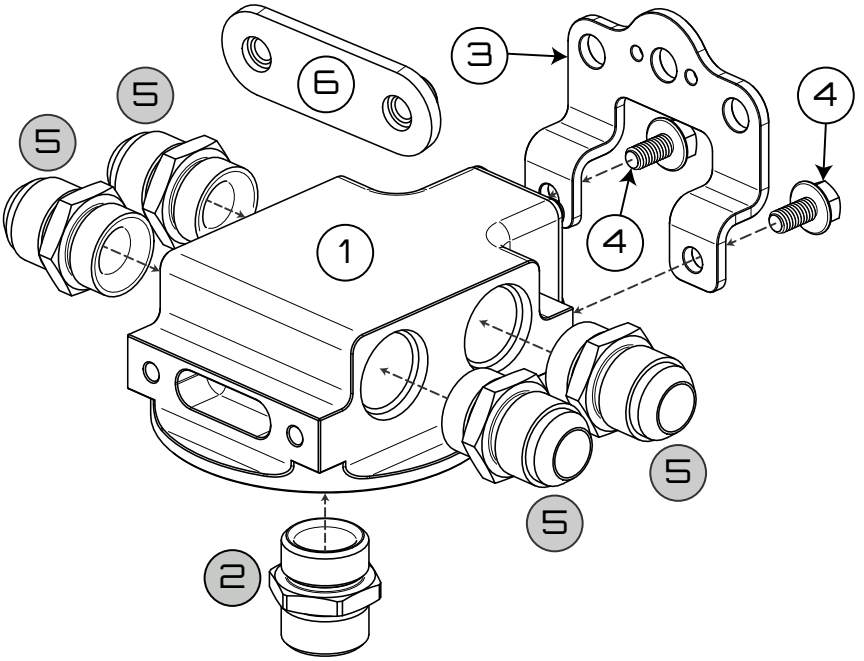


Figure 1 - ENV-170 Schematic

Item	Qty	Part Number	Description
1	1	ENV-170	Remote Filter Mount with Thermostat
2	1	HSC-10XX	Oil Filter Screw (Choose Thread Size)
3	1	ENV-170-05-B	Mounting Bracket
4	2	HSC-1040	Mounting Bracket Screw
5	4	OX-10-XX	-10 SAE J1926-1 O-ring Boss Adapter Fittings (Optional)
6	1	ENV-170-07	Backing Plate for Mounting Bracket
7	1	HCM-1271	High-Strength Thread Locker Capsule, 2 ml

TECHNICAL SPECIFICATIONS TABLE

Max Operating Temp.	302°F (150°C)
Min Operating Temp.	-22°F (-30°C)
Max Operating Pressure	300 psi (20.68 bar)
Max Oil Filter O.D.	3.44” (87.4 mm)
Dimensions (W x H x D)	3.44 inch x 2.10 inch x 4.47 inch (87.4 mm x 53.3 mm x 113.5 mm)
Weight (No Hardware)	17.7 ounces (501.5 grams)
Fitting Ports	4 x -10 SAE J1926-1 Straight Thread O-ring Boss Ports, $^{7}/_{8}$”-14 UNF - 2B
Housing Material	CNC-Machined 6061-T6 Billet Aluminum
Housing Finish	MIL-A-8625 Type II Anodizing
Valve Material	CNC-Milled 6061-T6 Billet Aluminum
Thermal Actuator	Brass Body, Steel Ram, Paraffin Wax
Valve Spring	304 Stainless Steel, Passivated per ASTM A967
Seals	Viton (FKM) Elastomer
Filter Screw Material	CNC-Milled 410 Stainless Steel
Estimated Service Life	> 10,000 Heat Cycles
Mounting Brackets	8 Gauge 5052-H32 Aluminum, MIL-A-8625 Type II Anodizing
Mounting Bracket Backing Plate	8 Gauge 5052-H32 Aluminum, MIL-A-8625 Type II Anodizing, M8x1.25 Threaded Inserts

TEMPERATURE SPECIFICATION TABLE

Part Number Suffix	Activation Temp.	Stabilization Temp.
-T1	140°F +/- 2°F (60°C +/- 1°C)	145°F +/- 2°F (63°C +/- 1°C)
-T2	160°F +/- 2°F (71°C +/- 1°C)	165°F +/- 2°F (74°C +/- 1°C)
-T4	180°F +/- 2°F (82°C +/- 1°C)	185°F +/- 2°F (85°C +/- 1°C)
-T6	200°F +/- 2°F (93°C +/- 1°C)	205°F +/- 2°F (96°C +/- 1°C)
-T7	212°F +/- 2°F (100°C +/- 1°C)	215°F +/- 2°F (101°C +/- 1°C)

PRODUCT NOTES

- The integrated thermostat accelerates warm-up and prevents over-cooling of the fluid by the heat exchanger.
- Under no circumstances can the thermostat fail such a way that oil flow to the engine or transmission is blocked.
- Should the unit fail, purchase a rebuild kit or ship it back to Improved Racing for a rebuild.

The rebuild kit can also be used to change thermostat temperature.

- The fluid temperature exiting the ENV-171 will typically settle at the stabilization temperature shown in the Temperature Specification Table if the heat rejection rate of the heat exchanger exceeds the heat load of the system.

OPERATION & FLOW DIAGRAM

Figure 2 illustrates how the thermostat bypasses up to 98% of the total flow back to the engine or transmission during warm up. This occurs because the heat exchanger is more restrictive to flow than the bypass passage, and the fluid will take the path of least restriction.

When the activation temperature listed in the Temperature Specification Table is reached, the internal valve begins to close and gradually forces the fluid through the cooling circuit. This is illustrated in Figure 3.

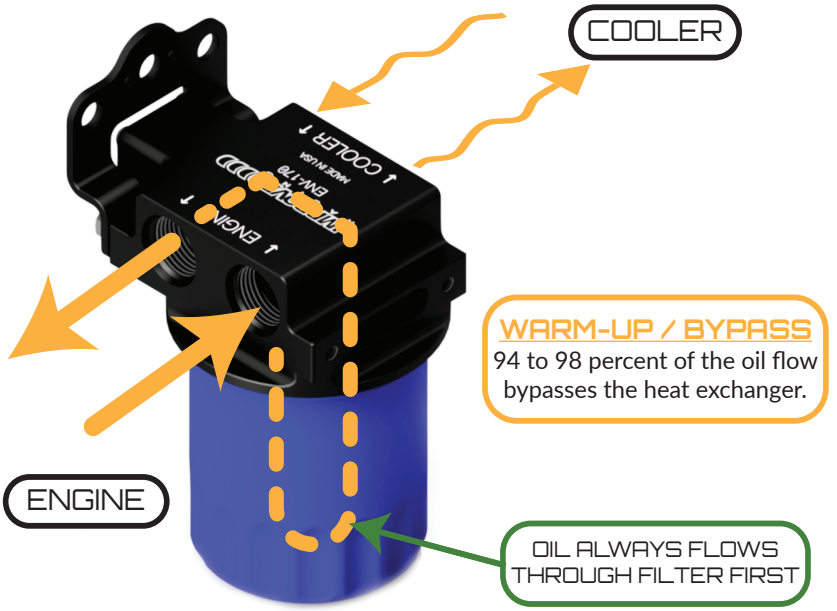


Figure 2 - Flow Diagram During Bypass

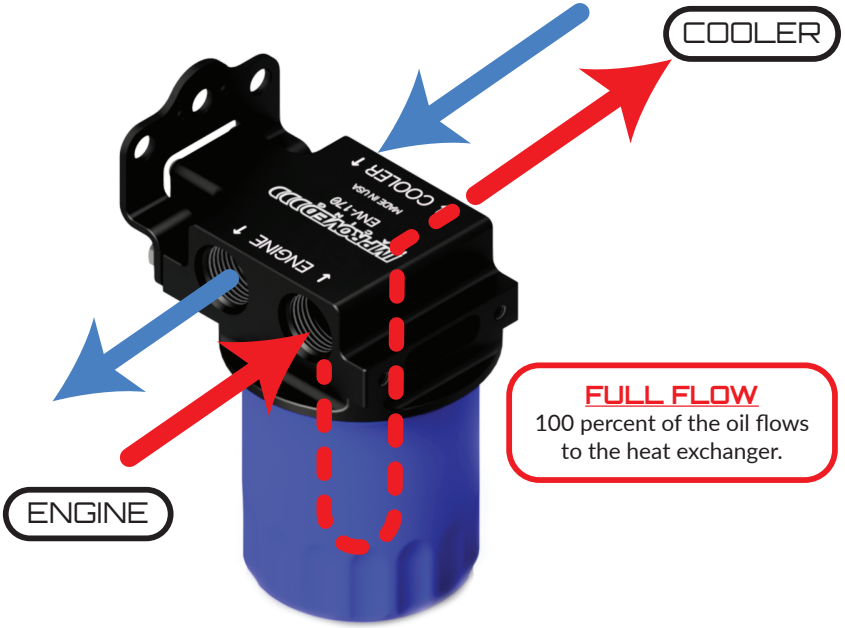


Figure 3 - Flow Diagram During Full Flow

PLUMBING

WARNING: DO NOT CAP OFF ANY OF THE OIL PORTS. Running the engine with the ports capped will block oil flow and result in catastrophic engine damage.

WARNING: This product is only designed to be used with remote oil filter systems and a heat exchanger. DO NOT plug the COOLER ports. Loop the lines together to connect the fluid paths if removing the heat exchanger.

Connect the heat source and heat exchanger to the thermostat as shown in Figure 4.

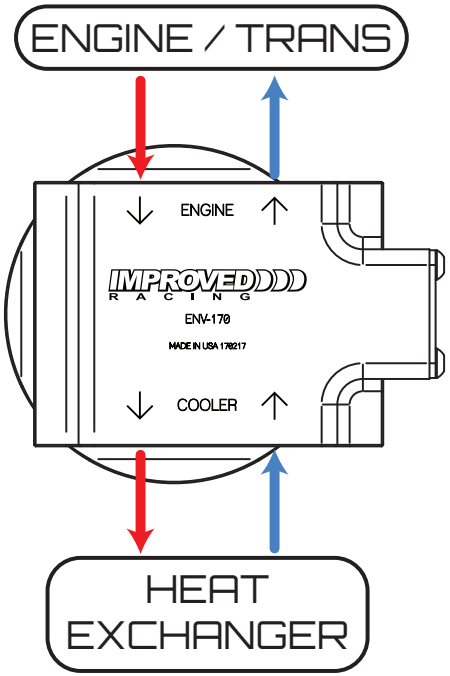


Figure 4 - Plumbing the ENV-170

MOUNTING

- Attach the mounting bracket to ENV-170 using the provided M6 screws in one of the configurations shown in Figure 5.
- Use at least two holes to secure the ENV-170 to a sturdy part of the vehicle such as the frame or firewall using M8 or $^{5}/_{16}$" hardware.
- Use the ENV-170-07 backing plate for reinforcement when through-mounting to thinner panels.

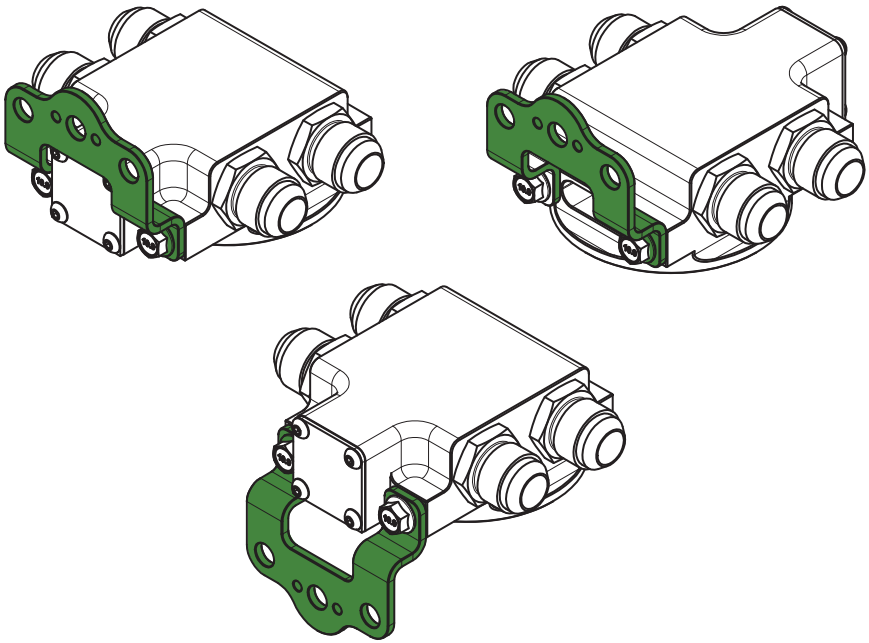
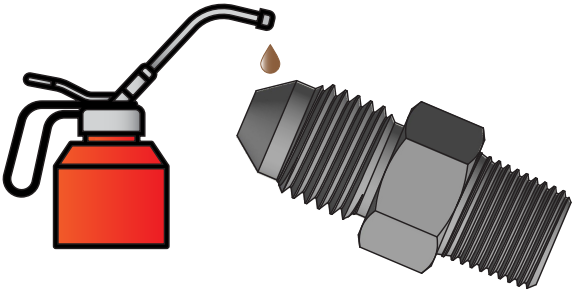


Figure 5 - Mounting Bracket Orientation Options

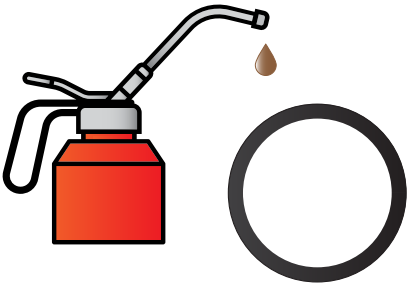
BEFORE YOU BEGIN

WARNING: This product should only be installed by a qualified mechanic. Improper installation could result in severe engine damage.

Tip: Use aluminum tools to avoid damaging the aluminum fittings.



Lubricate the fitting flares for a better seal.



Lubricate O-rings prior to installation to prevent damage and ensure a leak-free seal.

INSTALLATION INSTRUCTIONS

1. The parts kit includes a 2 ml capsule of high-strength thread locker. Remove the cap and use scissors to snip open the capsule's applicator tip.
2. Apply the high-strength thread locker to the threads on the **SHORT END ONLY** of the HSC-10XX filter screw (Item # 2 in Figure 1) as shown in Figure 6.

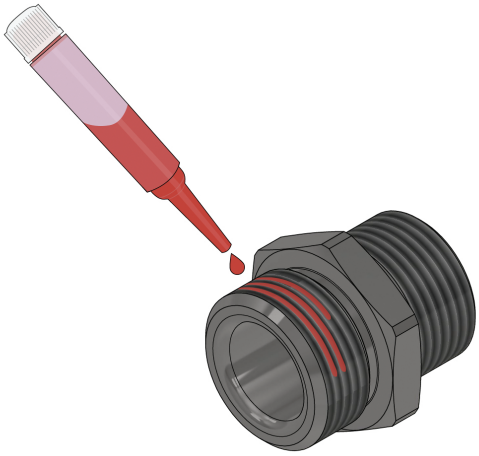


Figure 6 - Apply Thread Locker to the Short End of the Filter Screw

3. Screw the short end of the HSC-10XX filter screw into the ENV-170 as shown in Figure 7 and torque to approximately **25 lb-ft (34 N-m)**. Allow at least 10 minutes for the thread locker to set. It will be fully cured in 24 hours.

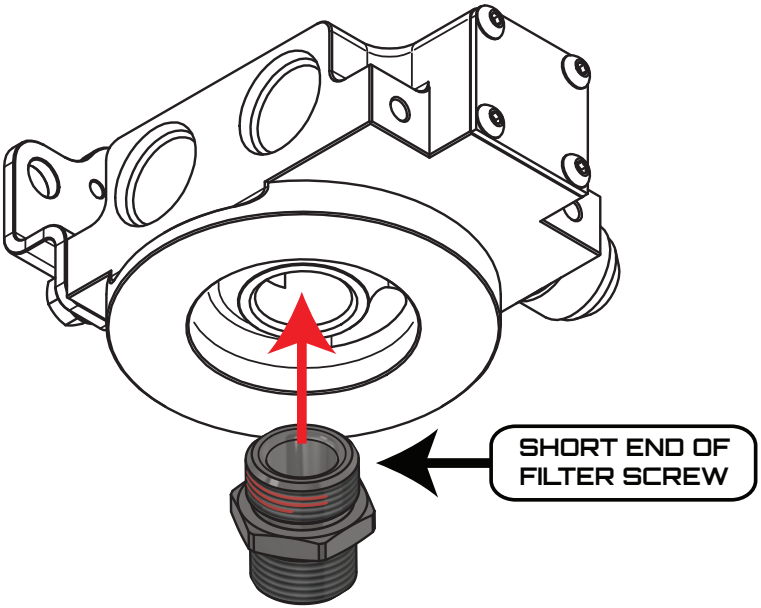


Figure 7 - Screw the Filter Screw into the Filter Housing

4. Install the line adapter fittings into ENV-170. Torque the fittings to **20 lb-ft (27 N-m)**.
5. Secure the filter mount to the vehicle using the provided mounting bracket and M8 or $^{5}/_{16}$" hardware.
6. Configure and assemble the hydraulic lines for the system.
7. Pre-fill and install the oil filter after lubricating the seal with oil.
8. Pre-fill the heat exchanger with fluid prior to connecting the lines.
9. Connect and tighten the system lines. DO NOT overtighten.
10. Secure the heat exchanger to the vehicle.
11. Refill the all fluids in the system to their proper levels.
12. Prime the system to build fluid pressure and fill the lines and heat exchanger with oil before starting. This can be achieved by temporarily removing the fuel pump fuse to prevent starting, then cranking the engine over 2-3 times for about 5 seconds at a time.
13. Start the vehicle and inspect for leaks.
14. Turn-off the vehicle and inspect the fluid level. Add fluid if necessary.
15. Re-inspect the hydraulic lines and fittings for leaks after 1-2 heat cycles.

Installation is now complete. Thank you for purchasing an Improved Racing product!