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# SHEE-MAR, INC. INSTALLATION GUIDE

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**PART NUMBERS: SM2547 / SM2616**

**Application: 3.6L “Pentastar” V6 — Oil Filter / Oil Cooler Housing Assembly**

***\*Overtightening is a leading cause of housing cracks or leaks — use correct torque tools and values.***

## **General Safety & Preparation**

1. Read the complete instructions before beginning work.
2. Have an owner's manual or online videos to references as needed for access to oil filter housing.  
*\*Always refer to owners' manual specification if different from stated below.*
3. Work in a clean environment: keep debris, dirt, and contaminants away from open engine/coolant/oil passages.
4. Use proper personal protective equipment (gloves, eye protection).
5. Gather needed tools, parts, and ensure you have fresh engine oil, coolant, and a new oil filter cartridge ready (included).

## **Tools & Supplies Required**

- Torque wrench capable of low (in-lb) and moderate (ft-lb) torque values
- ¼-drive or small torque adapter for accurate torque at low values
- Deep & regular sockets, extensions, wobble or universal joints
- Screwdrivers, hose clamp pliers, rags/towels
- Coolant drain pan or collection bucket
- Clean shop vacuum or absorbent towels for any residual oil / coolant in engine valley
- New oil filter cartridge (included)
- Fresh engine oil (per manufacturer specification)
- Coolant (verify correct type for vehicle)
- Thread locker (already applied)
- Clean workspace and lighting for visual inspection of work

## **Removal / Disassembly Procedure**

1. Disconnect battery (negative terminal).
2. Allow engine to cool; remove any intake ducting or components blocking access to the oil filter / cooler housing.
3. If required by your vehicle design, remove the intake manifold(s) to gain full access. Label or tag any connectors, hoses, fuel-lines or wiring for reassembly.
4. Partially drain the engine coolant if necessary; collect any coolant that will be lost.
5. Loosen the oil filter cap to allow residual oil drainage before full housing removal (optional but recommended to reduce mess).
6. Disconnect wiring, sensors, and coolant lines attached to the housing.
7. Remove the bolts securing the oil cooler to the housing (if separate), then remove the housing-to-block mounting bolts.
8. Carefully remove the housing, keeping it level to avoid spillage of oil or coolant.
9. Discard old gaskets/O-rings; clean mating surfaces thoroughly (block face and housing face). Ensure they are flat, clean, dry, and free of debris.
10. Clean the engine valley or area around the housing to remove oil or coolant residue before installing the new housing.

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## Installation / Assembly Procedure

1. Check all parts: ensure the housing (SM2547 or SM2616) is in good condition, no shipping damage, no casting flash/debris. Check for all O-rings and gaskets to be properly installed.
2. If the oil cooler is separate, attach the cooler to the housing.  
\*Tighten cooler-to-housing screws to 35 in-lbs (ensure even seating).
3. Position the new housing against the engine block, aligning bolt holes.
4. Install housing-to-block mounting bolts by hand to ensure correct alignment.
5. Torque the housing-to-block mounting bolts to 106 in-lbs in the proper bolt sequence (tighten gradually in stages for even seating).
6. Install any sensors (oil pressure, coolant temperature, etc.) and torque them to 177 in-lbs.
7. Install the oil filter cartridge and cap; torque per specification (18 ft-lbs).
8. Re-connect coolant lines, sensors, wiring, and other removed components.
9. Reinstall intake manifold(s) and ducting as required, following the vehicle-manufacturer's torque spec for manifold bolts.
10. Refill engine oil to the proper level, using recommended oil for the engine.
11. Refill or top off coolant; bleed cooling system if required by vehicle manufacturer.
12. Reconnect the battery.
13. Start engine and inspect for leaks (oil and coolant) around the housing. Re-inspect after a short drive to confirm no seepage.

## Torque Specifications

Fastener / Fitting	Torque Value	Notes
Oil cooler → housing screws	35 in-lbs	Ensure even seating; avoid over-tightening.
Housing → engine block mounting bolts	106 in-lbs	Tighten in stages, following proper bolt sequence.
Sensors / fittings (oil pressure, coolant temp, etc.)	177 in-lbs	Clean threads, ensure proper seating; avoid over-torque.
Oil filter cap (cover)	approx 18 ft-lbs (25 N·m) — confirm with vehicle spec	Do <b>not</b> overtighten; ensure proper O-ring seal.



**SHEE-MAR INC.**

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