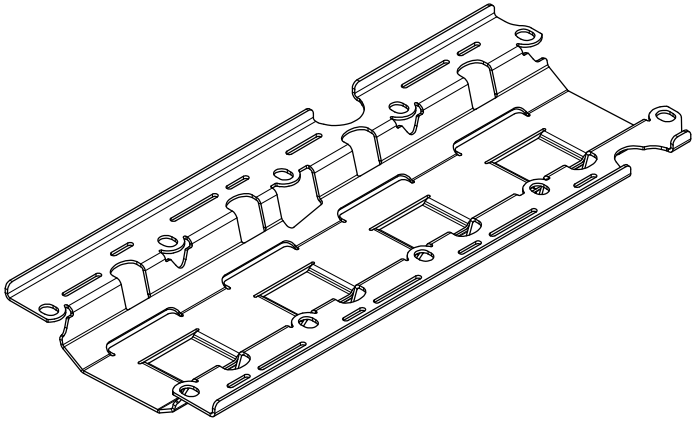
PERFORMANCE WINDAGE TRAY FOR UP TO 4” STROKE LS ENGINES

PART NO. EGM-241

MADE IN USA



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

For contact information, visit www.improvedracing.com
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Rev 240326

APPLICATIONS

- Fits LS / Vortec engines with up to a 4.000" stroke.

⚠ **DOES NOT fit 4.125" stroke engines.**

⚠ **DOES NOT fit LS engine blocks using stepped main caps, such as Dart Industry's LS Next engine blocks.**

FACTORY OIL PANS

- 1997+ GM LS / Vortec engines with factory or aftermarket bottom ends, equipped with any of the oil pans shown in Table 1.
- CAD-verified to fit the factory oil pans listed in Table 1.

GM Part Number	Factory Oil Pan for These Vehicles
12599397, 12581209, 12599398 and 12581210	Holden Commodore (VT, VX, VY & VZ), 1997-2006 Holden Monaro (V2 CV8 & VZ), 2001-2005 Pontiac GTO, 2004-2006 Vauxhall Monaro, 2002-2005
12640748 and 12622559	Chevrolet Camaro SS (LS3 and L99), 2010-2015 Chevrolet Camaro ZL1, 2012-2015 Chevrolet Caprice (PPV) V8, 2006-2017 Chevrolet SS, 2014-2017 Holden VE/VF Commodore, 2006-2017 Pontiac G8 GT & GXP, 2008-2009 Vauxhall VXR8, 2008-2017
12640746, 12619776 and 12627903	Cadillac Escalade, 2007-2014 Chevrolet Avalanche, 2007-2013 Chevrolet V8 Gasoline Express, 2008-2020 Chevrolet V8 Gasoline Silverado, 2007-2015 Chevrolet Suburban, 2007-2014 Chevrolet Tahoe, 2007-2014 GMC V8 Gaoline Savana, 2008-2020 GMC Yukon / Yukon XL, 2008-2013 Hummer H2, 2008-2009
12613437	Buick Rainier (5.3L), 2004-2007 Chevrolet SSR (5.3L, 6.0L), 2003-2006 Chevrolet Trailblazer (5.3L, 6.0L), 2003-2009 GMC Envoy (5.3L), 2005-2009 Saab 9-7x (Arc / 5.3i, Aero), 2005-2009

Table 1 - Factory Oil Pans Confirmed to Fit EGM-241

FACTORY OIL PRESSURE RELIEF VALVE

- EGM-241 is designed to install with the oil pressure relief valve found in some factory oil pans under one condition:
  - The grey sheet metal shroud is removed first.
- Purchase PO-M14-KIT to delete the relief valve.

AFTERMARKET OIL PANS

- The Holley 302-1 oil pan is the only aftermarket oil pan that is CAD-verified to fit this windage tray.
- This part could install into other aftermarket oil pans if:
  - The aftermarket pan uses an oil pickup tube (screen) from a vehicle listed in Table 1.
  - The aftermarket pan uses dip stick hardware from a vehicle listed in Table 1.
  - The aftermarket oil screen fastens to the main cap locations shown in Figure 1.

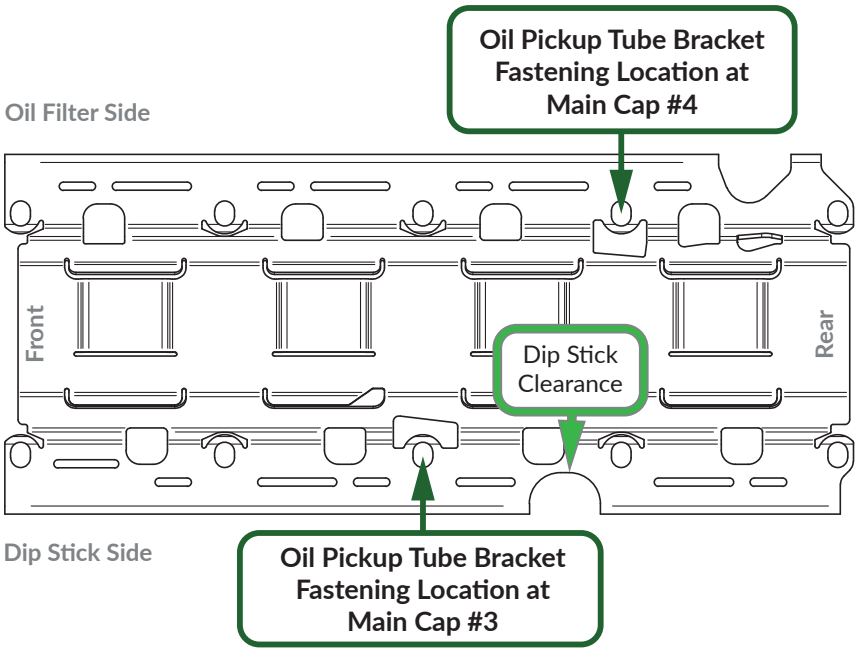


Figure 1 - Pickup Tube Fastening Locations for EGM-241

- Refer to Figure 2 to confirm the aftermarket pan is deep enough.
    - Minimum clearance is 1.72” from the gasket surface.

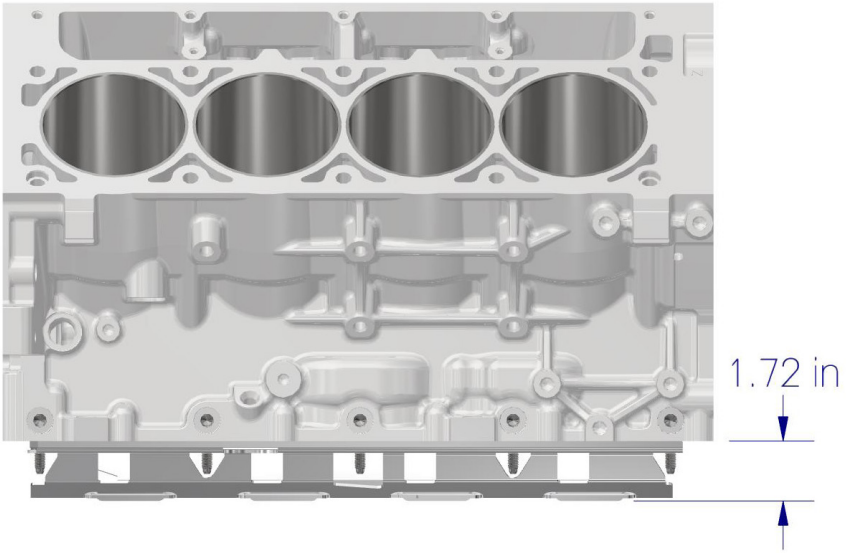


Figure 2 - Minimum Aftermarket Oil Pan Depth

- Expect to trim the tray for aftermarket oil pickup tubes.
    - Use a marker and cutting tool to trim the windage tray until it clears the oil pickup tube mounting bracket by about 1/8”.

PARTS CHECK

- Visit the website product page to confirm vehicle application and confirm all parts have arrived by checking the images:

TECHNICAL SPECIFICATIONS

Maximum Operating Temperature	302°F (150°C)
Minimum Operating Temperature	-22°F (-30°C)
Dimensions	Refer to Figure 3
Weight	18.1 oz (514 g)
Tray Material	5052-H32 Aluminum Sheet
Bushing Material	6061-T6 Billet Aluminum

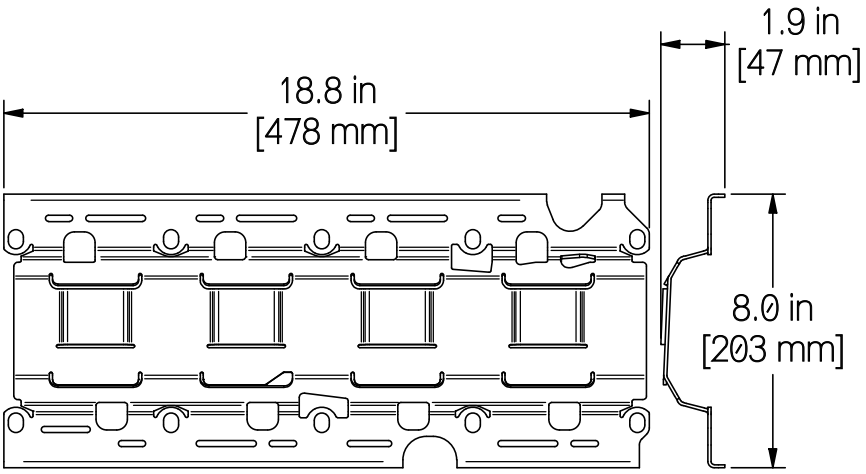


Figure 3 - EGM-241 Dimensions

BEFORE YOU BEGIN

WARNING: NEVER work under a vehicle supported by only a jack.

WARNING: This product should be installed by a qualified mechanic.

WARNING: Improper installation could result in severe engine damage.

Replace the oil pump O-ring and oil pan gasket during installation.

Consider installing an oil pump flange brace, such as EGM-500.

INSTALLATION INSTRUCTIONS

1. Review the vehicle's service manual and follow the steps to remove the oil pan and windage tray.
2. Clean the part to remove contaminants from the manufacturing process.

3. Install the new windage tray:
   a. Factory main studs: Install included HSP-1009 reducing bushings over the windage tray (on the oil pan side)

   The kit may include more reducing bushings than is required for your application.

   WARNING: DO NOT install HSP-1009 reducing bushings under any oil pick up tube mounting bracket locations.

   This makes the oil pickup tube too close to the oil pan floor.

   b. Aftermarket main studs: Install the windage tray without the HSP-1009 reducing bushings.

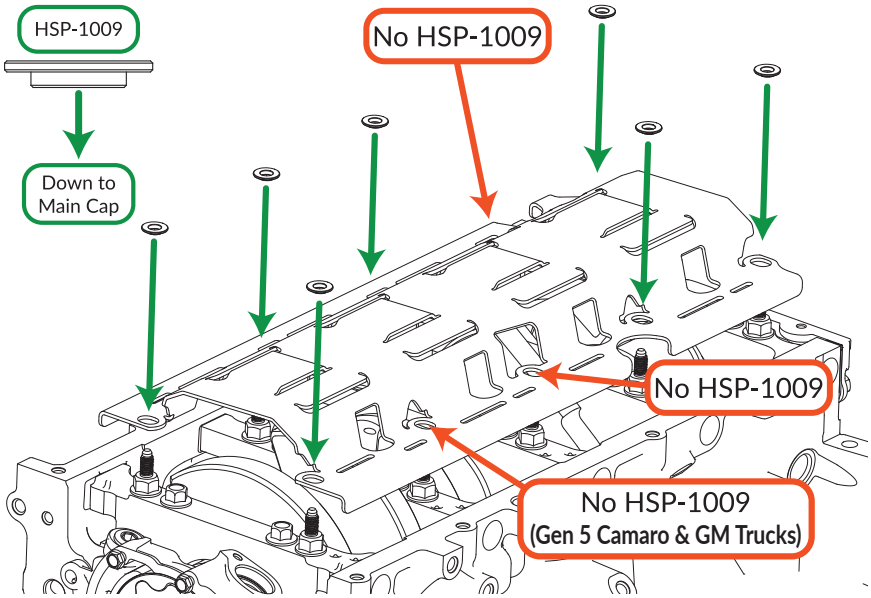


Figure 4 - Installing HSP-1009 Reducing Bushings on Factory Main studs

4. Secure the windage tray:
   a. Use the included M8 lock nuts for factory main studs and torque to 18 lb-ft (24 N-m).
   b. Use the nuts supplied with the aftermarket stud kit and torque to the manufacturer specification.
5. Turn the engine clockwise using a 24mm (15/16”) socket and breaker bar on the crank pulley to confirm there is no interference between the windage tray and rotating assembly:

a. Loosen and adjust the new tray until clearance is adequate.

Make this easy by removing the spark plugs and shifting the transmission into neutral.

6. Perform the remaining steps in the vehicle service manual to reinstall the oil pickup tube and oil pan.

WARNING: Confirm the oil pickup tube flanges are flush with the oil pump and the new windage tray.

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