

2006-2012 BMW M5 | Moderate | 1-2 hours

TOOLS

Floor jack Jack stands Hex/Allen socket set Fluid transfer pump Drain pan Torque wrench Wire brush

PARTS

BMW-approved rear differential fluid Drain plug seal Fill plug seal

STEPS

- 1 Confirm the E60 M5 and gather fluid - This procedure is for the 2006-2012 E60 M5 with the S85 V10 and its limited-slip rear differential.** Get the correct BMW-approved differential fluid and the FCP Euro-style service kit referenced in the video, which includes new drain and...
- 2 Warm the fluid and raise the rear - Drive the car for about 10 minutes so the** differential fluid warms and drains completely, carrying suspended wear particles with it. Raise the rear of the M5 on a lift or with a floor jack and secure it on jack stands at the proper rear su...
- 3 Remove the fill plug first - Always crack the fill plug loose before touching the drain** plug, because a drained differential with a seized fill plug is a disaster. Use the correct Allen or hex socket on the fill plug on the rear cover. If the fill plug will not budge,...
- 4 Drain the old fluid - Position a drain pan under the differential and remove the drain** plug, letting the old fluid flow out completely. Note the fluid's color and any metallic sludge on the magnetic drain plug; the video's Blackstone oil analysis discussion sho...
- 5 Refill with fresh fluid - Pump fresh differential fluid into the fill hole until it** begins to seep back out, which indicates the correct level on a level car. Use a fluid pump with a flexible hose, since there is no room to tip a bottle up there. The E60 M5 differe...
- 6 Reinstall plugs and lower the car - Install the fill plug with its new seal and torque** both plugs to specification. Wipe the differential housing clean so any future leak is easy to spot. Lower the car off the stands and torque the wheels if they were removed.
- 7 Road test and recheck - Drive the car gently for the first few miles, listening for** differential whine or chatter on tight turns. Recheck the drain and fill plugs for seepage after the drive. Fresh fluid often quiets a noisy limited-slip unit noticeably.