

Oil Pan Guide

Supplies:

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|----------------------------------|------------------------------------------------------------------------|
| 1. Oil | 6. Oil filter |
| 2. Differential oil (2-3 quarts) | 7. Oil pickup o-ring |
| 3. Brake Cleaner | 8. Oil pan gasket |
| 4. Gasket Kleen | 9. Oil cooler gasket (oval hole for block off, 2 holes for oil cooler) |
| 5. Oil resistant RTV | 10. Towels |

Tools:

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|-------------------------------------------------------|----------------------------------------------------|
| 1. Hydraulic trolley jack, floor jacks | 9. Cordless impact (not required but VERY helpful) |
| 2. Transmission jack helpful, not required | 10. 3/8" Cordless ratchet is nice, not required |
| 3. Metric socket set, 1/4", 3/8 and 1/2", up to 22 mm | 11. fluid drain pan |
| 4. Metric deep socket set up to 22 mm | 12. Pry bar |
| 5. 3/8", 1/2" extensions (up to 10") | 13. Bungee cords |
| 6. lb-ft torque wrench up to ~150 lb-ft | 14. Flat blade screwdrivers (prying off clips) |
| 7. lb-in torque wrench | 15. Box open end wrenches (21 mm) |
| 8. oil filter wrench | 16. Wire brushes for cleaning threads, surfaces |
| | 17. Single edge razor blades |

1. Support vehicle on 4 jack stands.
2. Remove both front wheels (22 mm works well, actually fits better than the imperial).
3. Drain oil. Leave oil filter in place for now.
4. Remove
 - a. skid plate (3×18 mm)
 - b. front splash shield
5. Remove cross member (2 short, 2 long bolts, 18 mm)
6. Drain front differential fluid. (Not necessary, but easy to do and a good idea)
7. Remove drive shaft bolts (4×11 mm)
 - a. Mark front drive shaft position
 - b. Set parking brake
 - c. remove drive shaft bolts (4×11 mm)
 - d. Release parking brake, place transmission in N or D, rotate drive shaft 180°, reset parking brake to get remaining 2 bolts.
 - e. Return transmission to Park
8. Remove drive shaft from front differential, support with bungee cord.
9. Front differential
 - a. Remove electrical connector to front differential.
 - b. Open electrical wire loom clamp on top of differential to release wire.
 - c. Remove vent hose.
 - d. Remove axle-differential bolts. (2×6×15 mm, 58 lb-ft) (not necessary, but this step makes removing the oil pan MUCH easier with less strain on the CV joints)
 - e. Support axles with bungee cord to protect CV joints.
 - f. Loosen differential bolts/nuts but do not remove (4×21 mm) (75 lb-ft)
 - g. Support differential with transmission jack. (trolley jack is ok, but transmission jack makes this easier and safer.)
 - h. Remove the bolts/nuts from differential.
 - i. Lower and allow differential to rest on center link.
10. Oil pan
 - a. Remove oil level sensor wire
 - b. Remove side plastic shield bolts from transmission. (10 mm)
 - c. Remove starter bolts (13 mm 37 lb-ft), push aside. (do not remove)
 - d. Remove transmission coolant line bracket (10 mm, 18 lb-ft)
 - e. Remove wire bracket from front of transmission (10 mm). Bracket slides to DS to release.
 - f. Remove oil filter
11. Oil pan
 - a. Remove pan-block bolts (14, 18 lb-ft) (12 short, 2 long)
 - b. Remove transmission-pan bolts (2, 106 lb-in)
 - c. Remove oil baffle from pan for cleaning (4 bolts, 106 lb-in)
 - d. Remove oil pickup (2 nuts (18 lb-ft), 1 bolt (106 lb-in))
 - e. Replace oil pickup o-ring (lubricate first!)
 - f. Replace oil cooler gasket if necessary (106 lb-in)

Installation notes:

1. Installation is essentially the reverse of the above steps. Torque specifications are given for convenience.
2. Clean all gasket surfaces.
3. install new gasket: a piece of fishing line installed through the rivet hole works nicely to hold the gasket in place. Just remember to cut it off before it melts and stinks the next time you drive!
4. Add 1" bead of oil resistant RTV at 4 corners where the rear and front cases meet the block.
5. Hand tighten 14 pan-block bolts.
6. Tighten rear cover-oil bolts (transmission-oil pan) to remove gap between pan and rear cover. Check with gauge to make sure gap is less than 0.01".
7. Tighten pan bolts according to RTV instructions, then torque properly.