

Oil Pan Removal

GENERAL MOTORS (Cont.)

CADILLAC

V6 MODELS

4.1L (252") - 1) Raise vehicle and support with safety stands. Drain crankcase. On all models except Eldorado and Seville, remove converter housing inspection cover. Remove exhaust crossover pipe. Remove oil pan bolts and remove oil pan.

2) On Eldorado and Seville models, remove both frame brace front attaching bolts and position braces outward to gain access to final drive assembly. Install drive axle boot seal protectors (J-28712 or equivalent).

3) Remove right and left drive axle-to-output flange attaching bolts and separate flanges of both output shafts and drive axles to allow removal of final drive assembly with shafts attached. Remove 2 bolts attaching battery cable retainer to right side output shaft support.

4) Remove 2 bolts attaching output shaft support-to-engine block, and tie support arm in upright position to output shaft with wire. Remove final drive dust shield. Remove 5 final drive-to-transmission attaching bolts. Remove final drive support bracket-to-engine block bolts.

5) Using puller tool (J-24319 or equivalent), separate steering linkage intermediate shaft from pitman arm and idler arm. Push linkage toward front of vehicle and position above frame crossmember. Support final drive assembly with suitable jack.

NOTE - Do not use output shafts as "handles" to maneuver or support final drive assembly during removal. Damage to splines and/or seals may occur.

6) Slide final drive assembly forward, off transmission splined shaft, and remove final drive assembly with output shafts attached from vehicle. Remove exhaust crossover pipe. Remove oil pan bolts and remove oil pan.

V8 MODELS

All Models (Exc. Eldorado & Seville) - 1) Disconnect negative battery cable. Remove bolts attaching strut support rods at radiator cover and position support rods out of way. Remove bolts attaching top radiator shroud-to-radiator support, and screw attaching upper radiator hose to shroud.

2) Using suitable drill, drill out rivets attaching upper shroud to lower shroud. Remove bolts attaching radiator cover to radiator support and remove cover. Loosen fan belts and remove belts and pulleys. Raise vehicle on hoist and drain crankcase.

3) Remove exhaust pipe at manifold and catalytic converter as an assembly. Remove motor mount through bolts. Remove starter motor. Remove converter housing inspection cover. Using suitable jack and block of wood positioned under crankshaft hub, raise engine. Remove oil pan bolts and remove oil pan.

NOTE - Observe clearance at cylinder heads, throttle linkage, and A/C-heater case. Damage by contact in these areas could occur.

Eldorado & Seville - 1) Remove both frame brace front attaching bolts and position braces outward to gain access to final drive assembly. Install drive axle boot seal protectors (J-28712 or equivalent). Remove right and left drive axle-to-output flange attaching bolts and separate flanges of both output shafts and drive axles to allow removal of final drive assembly with shafts attached.

2) Remove 2 bolts attaching battery cable retainer to right side output shaft support. Remove 2 bolts attaching output shaft support to engine block, and tie support arm in upright position to output shaft with wire. Remove final drive dust shield.

3) Remove 5 final drive-to-transmission attaching bolts. Remove final drive support bracket-to-engine block bolts. Using puller tool (J-24319 or equivalent), separate steering linkage intermediate shaft from pitman arm and idler arm. Push linkage toward front of vehicle and position above frame crossmember.

NOTE - Do not use output shafts as "handles" to maneuver or support final drive assembly during removal. Damage to splines and/or seals may occur.

4) Support final drive assembly with suitable jack. Slide final drive assembly forward, off transmission splined shaft, and remove final drive assembly with output shafts attached from vehicle. Remove starter motor and drain crankcase.

5) On diesel model, remove motor mount through bolts. Using suitable jack and block of wood positioned under crankshaft pulley, raise engine. On all models, remove oil pan bolts and remove oil pan.

CADILLAC	
TIGHTENING SPECIFICATIONS	
Application	Ft. Lbs.
V6 Engines	14
V8 Engines	10

CHEVROLET

4-CYLINDER MODELS

1.6L (98") Exc. 200 Auto. Trans. - 1) Disconnect negative battery cable and drain cooling system. Remove upper radiator support. If equipped with A/C, remove upper fan shroud half. If equipped, disconnect transmission oil cooler lines. Remove radiator hoses, radiator and grille.

2) If equipped, remove A/C condenser from radiator support and lay on top of engine. Remove heater core housing and lay on top of engine. Remove motor mount nuts and clips. Raise vehicle on hoist and drain crankcase. Disconnect exhaust pipe at manifold.

3) Remove body-to-crossmember braces. Remove front steering rack and pinion assembly from crossmember and steering shaft. Pull rack and pinion assembly down and position out of way. Remove stabilizer from vehicle. Install engine lifting tool (J-26436 or equivalent) on front of engine and raise engine.

4) Remove oil pan bolts and pull oil pan down, away from engine block. Remove oil pump suction pipe and screen. Remove oil pan through front of vehicle.

1.6L (98") 200 Auto. Trans. - 1) Disconnect negative battery cable. Remove air cleaner. Remove heater housing.

GENERAL MOTORS (Cont.)

CHEVROLET (Cont.)

assembly from front of firewall and lay on top of engine. Pull back motor mount wire restraints and remove motor mount nuts.

2) Remove upper radiator support or fan shroud. Raise vehicle on hoist and drain crankcase. Remove converter housing inspection cover. Remove front steering rack and pinion assembly from crossmember. Loosen converter-to-rear exhaust pipe clamp bolts.

3) Install engine lifting tool (J-26436 or equivalent) on front of engine and raise engine. Remove oil pan bolts and remove oil pan.

2.5L (151") - 1) Raise vehicle on hoist and drain crankcase. Remove cradle-to-front motor mount nuts. Disconnect exhaust pipe at manifold and at rear transaxle mount. Disconnect starter and remove transaxle housing inspection cover.

2) Remove upper alternator bracket. Install engine lifting tool (J-22825-40 or equivalent) and raise engine. Remove lower alternator bracket and engine support bracket. Remove oil pan bolts, wiring harness guide, and remove oil pan.

NOTE - Upon reinstallation of oil pan, timing gear cover bolts should be installed last. Cover bolts are installed at an angle and holes align after other pan bolts are snugged.

V6 MODELS

2.8L (173") - 1) Disconnect negative battery cable. Raise vehicle on hoist and drain crankcase. Remove exhaust crossover pipe. Remove transaxle housing inspection cover. Remove starter motor.

2) On manual transaxle, remove motor mount nuts and raise engine $\frac{3}{4}$ ". Remove front cover-to-oil pan and oil pan bolts. Remove oil pan.

3.8L (229") - 1) Disconnect negative battery cable. On Impala and Caprice models, remove upper fan shroud half. On all other models, remove entire fan shroud. If equipped, remove cruise control servo bracket. Raise vehicle and drain crankcase. Remove exhaust crossover pipe nuts at manifold and lower crossover pipe.

2) Remove starter motor. Remove converter housing inspection cover. Remove left motor mount through bolt and loosen right motor mount through bolt. Raise engine and reinstall left through bolt in frame bracket without tightening. Remove oil pan bolts and remove oil pan.

3.8L (231") - 1) Raise vehicle on hoist and drain crankcase. Remove converter housing inspection cover. Remove exhaust crossover pipe. Remove oil pan bolts and remove oil pan.

V8 MODELS

5.7L (350") VIN 6 - 1) Disconnect negative battery cable. Raise vehicle on hoist and drain crankcase. Disconnect idler

arm and lower steering linkage. Remove transmission housing inspection cover. Remove oil pan bolts and remove oil pan.

All Other Engines - 1) On diesel models, remove oil pump drive, vacuum pump and engine oil dipstick. On all models, disconnect negative battery cable at battery or batteries. Remove air cleaner. On Impala and Caprice models, remove upper fan shroud half.

2) On diesel models, remove upper radiator support. On all other models, remove entire fan shroud. If equipped, remove cruise control servo bracket. Raise vehicle on hoist and drain crankcase. Disconnect exhaust and crossover pipes at manifolds and (if equipped) catalytic converter.

3) Remove converter housing inspection cover. Remove starter motor. On diesel models, disconnect engine oil cooler lines at oil filter base. Remove motor mounts from engine block. Using suitable jack and block of wood positioned under crankshaft pulley, raise engine. Remove oil pan bolts and remove oil pan.

4) On all other models, remove motor mount through bolts. Remove oil pan bolts and lower oil pan. Raise engine and reinstall motor mount through bolts in frame brackets without tightening. Remove oil pan bolts and remove oil pan.

NOTE - Mounts should be reinstalled and engine lowered to frame for extended work.

CHEVROLET	
TIGHTENING SPECIFICATIONS	
Application	Ft. Lbs.
4-Cylinder	
1.6L (98")	4-5
2.5L (151")	
Oil Pan Bolts	6
Front Cover-to-Oil Pan Bolts	7-8
V6 Engines	
2.8L (173")	
6 mm Bolts	6-9
8 mm Bolts	14-22
3.8L (229")	
$\frac{1}{4}$ " Bolts	7
$\frac{5}{16}$ " Bolts	14
3.8L (231")	14
V8 Engines	
All Engines (Exc. Diesel)	
$\frac{1}{4}$ " Bolts	7
$\frac{5}{16}$ " Bolts	14
Diesel	10

OLDSMOBILE

4-CYLINDER MODELS

2.5L (151") - 1) Raise vehicle on hoist, disconnect battery and drain crankcase. Remove cradle-to-front motor mount nuts. Disconnect exhaust pipe at manifold and at rear transaxle mount. Disconnect starter and remove transaxle housing inspection cover.

2) Remove upper alternator bracket. Install engine lifting tool (J-22825-40 or equivalent) and raise engine. Remove lower

alternator bracket and engine support bracket. Remove oil pan bolts, wiring harness guide, and remove oil pan.

NOTE - Upon reinstallation of oil pan, timing gear cover bolts should be installed last. Cover bolts are installed at an angle and holes align after other pan bolts are snugged.

V6 MODELS

2.8L (173") - 1) Disconnect negative battery cable at battery. Raise vehicle on hoist and drain crankcase. Remove ex-