

## 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-

## GENERAL MOTORS (Cont.)

## OLDSMOBILE (Cont.)

haust crossover pipe. Remove transaxle housing inspection cover. Remove starter motor.

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

**3.8L (231") & 4.1L (252") Exc. 88** — Raise vehicle and support with safety stands. Drain crankcase. If necessary, remove converter housing inspection cover and disconnect exhaust crossover pipe at manifold. Remove oil pan bolts and remove oil pan.

**3.8L (231") & 4.1L (252") 88** — 1) Disconnect negative battery cable at battery. Remove fan shroud-to-radiator attaching screws. Remove air cleaner. Disconnect accelerator cable and TV linkage at intake manifold. Raise vehicle and support with safety stands.

2) Drain crankcase. Remove converter housing inspection cover. Remove shift linkage bolt and position shift linkage aside. Disconnect exhaust crossover pipe at manifold. Remove motor mount through bolts. Disconnect idler arm at frame and swing assembly downward.

3) Install engine lifting tool (BT-6501 or equivalent) and raise engine. Remove oil pan bolts and remove oil pan. If necessary, rotate crankshaft to clear oil pan.

## V8 MODELS

**4.3L (260") & 5.0L (307") Exc. Toronado** — 1) Remove distributor cap and align rotor to number 1 firing position. Disconnect negative battery cable at battery and remove engine oil dipstick. On Cutlass model, disconnect upper fan shroud. On 88 and 98 model, remove upper radiator support and fan shroud screws.

2) On all models, raise vehicle on hoist and drain crankcase. Remove converter housing inspection cover. Disconnect exhaust and crossover pipes at manifolds. Remove starter motor. Install engine lifting tool (BT-6501 or equivalent).

3) Remove motor mount through bolts and raise front of engine as far as possible. On Cutlass model, remove motor mounts from engine block. On all models, remove oil pan bolts and remove oil pan.

**5.7L (350") Exc. Toronado** — 1) Remove oil pump drive and vacuum pump. Disconnect battery cables at batteries. Remove engine oil dipstick. Remove upper radiator support and fan shroud screws. Raise vehicle on hoist and drain crankcase. Remove converter housing inspection cover.

2) Disconnect exhaust and crossover pipes at manifolds. Remove engine oil cooler lines at filter base. Remove starter motor. Install engine lifting tool (BT-6501 or equivalent). Remove motor mount through bolts and raise front of engine as far as possible. Remove motor mounts from engine block. Remove oil pan bolts and remove oil pan.

**Toronado (All Engines)** — 1) Disconnect negative battery cable at battery or batteries. Remove 3 final drive-to-transmission bolts. Raise and support vehicle on safety stands. Disconnect both frame braces. Disconnect idler and pitman arm at relay rod using suitable tool (J-24319-01 or equivalent).

2) Disconnect drive axles at output shafts and battery cable bracket at output shaft support. Disconnect output shaft support at engine block. Remove 3 final drive-to-transmission bolts. Remove final drive using transmission jack. Remove splash shield and starter motor. Drain crankcase, remove oil pan bolts and remove oil pan.

OLDSMOBILE  
TIGHTENING SPECIFICATIONS

| Application                         | Ft. Lbs. |
|-------------------------------------|----------|
| 2.5L (151") 4-Cyl.                  |          |
| Oil Pan Bolts .....                 | 6        |
| Timing Cover-to-Oil Pan Bolts ..... | 7        |
| V6 Engines                          |          |
| 2.8L (173")                         |          |
| 6 mm Bolts .....                    | 6-9      |
| 8 mm Bolts .....                    | 14-22    |
| 3.8L & 4.1L (231" & 252") .....     | 14       |
| V8 Engines                          |          |
| All Models .....                    | 10       |

## PONTIAC

## 4-CYLINDER MODELS

**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 (231")** — 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

**4.3L (265") & 4.9L (301")** — 1) Disconnect negative battery cable. Remove fan. If necessary on A/C equipped models, remove compressor from mounting brackets and position aside, leaving refrigerant lines connected. Remove distributor cap. Raise vehicle on hoist and drain crankcase.

2) Disconnect exhaust pipes at manifolds. Remove starter motor. Remove transmission housing inspection cover. Position

## GENERAL MOTORS (Cont.)

### PONTIAC (Cont.)

No. 1 cylinder at bottom dead center. Loosen fuel pump-to-timing cover bolts for clearance.

**3)** Install engine lifting tool (J-23515-2 or equivalent) to engine with adapter tool (J-23515-16 or equivalent) bolted to lifting tool. Tighten tool to timing chain cover bolts. Remove motor mount through bolts.

**4)** Remove oil pan bolts and, allowing tool to swing freely, raise engine using jack screw in tool until oil pan can be removed. Support engine with blocks of wood and remove oil pan.

**NOTE** — Do not exceed 35 ft. lbs. torque on engine lifting tool jack screw when raising engine assembly.

**5.0L (305") - 1)** Disconnect negative battery cable. Remove air cleaner and snorkel. If equipped with heavy duty radiator, remove entire fan shroud. On all other models, remove upper fan shroud half. Remove distributor cap and position aside.

**2)** Raise vehicle on hoist and drain crankcase. Disconnect exhaust crossover pipe at manifold and catalytic converter. Remove starter motor. Remove transmission housing inspection cover. Remove motor mount through bolts.

**3)** Remove oil pan bolts and lower oil pan. Raise engine using suitable engine lifting tool and reinstall motor mount through bolts in frame brackets without tightening. Remove oil pan. If necessary, rotate crankshaft to clear oil pan.

**5.0L (307") & 5.7L (350") - 1)** On diesel models, remove oil pump drive, vacuum pump and engine oil dipstick. On all models, disconnect negative battery cable at battery or bat-

teries. On gasoline models, remove distributor cap and position rotor in No. 1 firing position.

**2)** On all models, remove upper radiator support and fan shroud attaching bolts. Raise vehicle on hoist and drain crankcase. Remove transmission housing inspection cover. Disconnect exhaust and crossover pipes at manifolds.

**3)** On diesel models, disconnect engine oil cooler lines at oil filter base. Remove motor mounts from engine block. Remove starter motor.

**4)** On all models, install engine support tool (J-23515 or equivalent) and adapter tool (J-23515-20 or equivalent) to front of engine. Raise engine as far as possible using engine support tool. Remove oil pan bolts and remove oil pan.

| <b>PONTIAC</b>                      |                 |
|-------------------------------------|-----------------|
| <b>TIGHTENING SPECIFICATIONS</b>    |                 |
| <b>Application</b>                  | <b>Ft. Lbs.</b> |
| <b>2.5L (151") 4-Cyl.</b>           |                 |
| Oil Pan Bolts .....                 | 6               |
| Timing Cover-to-Oil Pan Bolts ..... | 7               |
| <b>V6 Engines</b>                   |                 |
| <b>2.8L (173")</b>                  |                 |
| 6 mm Bolts .....                    | 6-9             |
| 8 mm Bolts .....                    | 14-22           |
| 3.8L (231") .....                   | 14              |
| <b>V8 Engines</b>                   |                 |
| 4.3L & 4.9L (265" & 301") .....     | 12              |
| 5.0L (305") .....                   | 6-7             |
| 5.0L & 5.7L (307" & 350") .....     | 10              |