

GENERAL MOTORS (Cont.)

BUICK (Cont.)

4) Disconnect accelerator cable and TV cable at engine. Disconnect all electrical wiring and vacuum lines at engine. Disconnect left side exhaust pipe at manifold. If equipped, remove upper mount heat shield. Remove left side transmission mount through bolt.

5) Remove final drive-to-engine bracket bolts and remove bracket. Raise vehicle on hoist. Remove splash shield. Remove converter housing inspection cover. Disconnect right side exhaust pipe at manifold. Disconnect starter wiring and remove starter motor. Remove converter-to-flex plate bolts. Remove front motor mount attaching nuts.

6) On diesel model, lower vehicle partially and remove right front tire and wheel assembly. Remove right side exhaust manifold. Disconnect oil cooler lines at oil filter base and remove oil filter base. Raise vehicle to full height. On all models, use sharp tool to mark position of washers on right side output shaft support bracket.

7) Remove right side output shaft support bracket-to-engine block attaching bolts. Remove lower right side engine-to-transmission attaching bolts. Install final drive support chain (BT-6322 or equivalent). Lower vehicle and install engine lifting device.

8) On diesel model, move oil cooler lines rearward and remove radiator. Remove water control valve. On all models, use floor jack and block of wood to raise or lower transmission while removing remaining engine-to-transmission attaching bolts. Remove engine from vehicle.

BUICK TIGHTENING SPECIFICATIONS

Application	Ft. Lbs.
Motor Mount-to-Crossmember Nuts	
4-Cylinder	41
Motor Mount-to-Frame Nuts	
4-Cylinder	45
V6 & V8 (Exc. Riviera)	35
V6 & V8 Riviera	50
Motor Mount-to-Engine Bolt	
4-Cylinder	35
V6	55
V8	75
Motor Mount Bracket-to-Engine Bolt	
V6 Skylark	92
Motor Mount Bracket-to-Support Bolt	
V8 Diesel	60
Motor Mount Through Bolt	55
Strut Bracket-to-Radiator Support & Strut Bracket-to-Engine Bolt	
V6 Skylark	35
Strut Bar-to-Bracket Bolt	
V6 Skylark	41
Engine-to-Transmission Bolt	35
Converter-to-Flex Plate Bolt	35
Right Side Output Shaft-to-Engine Bolt	
V6 & V8 Riviera	55
Transmission Mount-to-Frame Nut	
V6 & V8 Riviera	40
Crossmember-to-Frame Bolt	40
Rear Mount-to-Transmission Bolt	40
Rear Mount-to-Crossmember Nut	40

CADILLAC

V6 MODELS

4.1L (252") - 1) Mark hinges for reinstallation and remove hood. Disconnect battery cables at battery. Drain cooling system. Remove air cleaner. Disconnect electrical connectors at A/C compressor. Remove A/C compressor from mounting bracket and position aside, leaving refrigerant lines connected.

2) Remove fan, pulleys and belts. Disconnect radiator and heater hoses at engine. Remove radiator and fan shroud assembly. Remove power steering pump from mounting bracket and position aside, leaving hoses connected. Disconnect fuel pump hose and plug line.

3) Disconnect all electrical wiring and vacuum lines at engine. Disconnect accelerator cable and TV cable at carburetor. If equipped, disconnect cruise control servo cable at mounting bracket. Remove alternator. Disconnect engine wiring harness at engine.

4) Raise vehicle and support with safety stands. Remove starter motor. Disconnect exhaust pipes at manifolds. On Eldorado and Seville models, remove both frame brace front attaching bolts and position braces outward to gain access to final drive assembly.

5) Install drive axle boot seal protectors (J-28712 or equivalent). Remove right and left drive axle-to-output flange attaching screws and separate flanges of both output shafts

and drive axles to allow removal of final drive assembly with shafts attached.

6) Remove 2 screws securing battery cable retainer to right side output shaft support. Remove 2 screws securing output shaft support-to-engine block and tie support arm in upright position to output shaft with wire. Remove final drive dust shield.

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

8) 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.

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

9) On all models, remove converter housing inspection cover. Mark flex plate and converter for reassembly and remove converter-to-flex plate bolts. Remove engine-to-transmission attaching bolts. Remove motor mount through bolts and lower vehicle.

Engine Removal

GENERAL MOTORS (Cont.)

CADILLAC (Cont.)

10) Support transmission with suitable jack or support stand. Install lifting device to engine. Raise engine and transmission alternately until engine clears motor mounts and can be disengaged from transmission, then remove engine from vehicle.

V8 MODELS

5.7L & 6.0L (350" & 368") - 1) Disconnect negative battery cable at battery or batteries. Drain cooling system. Remove bolts attaching strut support rods at radiator cover and position support rods out of way. Remove screws 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 screws attaching radiator cover-to-radiator support and remove cover. Mark hinges for reinstallation and remove hood. Remove air cleaner and inlet duct assembly.

3) Disconnect upper radiator hose at engine. Disconnect electrical wiring and position harness out of way. Disconnect brake vacuum hose from brake pipe. Disconnect throttle linkage and vapor canister hose. Disconnect power steering pump and position pump aside, leaving hoses connected.

4) Remove fan. Disconnect lower radiator hose. Disconnect right side spark plug wires and retainer and position wires out of way. Remove A/C compressor and position aside on right fender, leaving refrigerant lines connected. Remove heater hoses from water valve at rear of right side cylinder head.

5) Raise vehicle on hoist. Remove engine-to-transmission attaching bolts. Remove motor mount through bolts. Remove starter motor. Remove converter housing inspection cover. Remove converter-to-flex plate bolts. Support transmission using suitable jack or support stand.

6) Support exhaust system so weight is removed from hangers. Disconnect exhaust pipes at manifolds. Disconnect and plug

fuel line and vapor return line at fuel pump. Remove transmission jack or support stand and lower vehicle.

7) Move right side lifting bracket to a position so it straddles No. 1 cylinder. Install lifting device to engine. Raise engine slowly, pulling forward to disengage transmission, and remove engine from vehicle.

CADILLAC TIGHTENING SPECIFICATIONS

Application	Ft. Lbs.
Motor Mount-to-Engine Bolt	
V6	65
V8 (Exc. Diesel).....	①20
V8 Diesel	70
Motor Mount Bracket-to-Support Bolt	
V8 Diesel	65
Motor Mount Bracket-to-Frame Bolt	①30
Motor Mount Through Bolt	45
Engine-to-Transmission Bolt	35
Converter-to-Flex Plate Bolt	
V6	35
V8 (Exc. Diesel)	30
V8 Diesel	40
Rear Mount-to-Transmission Bolt	35
Rear Mount-to-Crossmember Nut	
V6	35
V8 (Exc. Diesel)	45
V8 Diesel	39
Crossmember-to-Frame Bolt	
V6	35
V8 (Exc. Diesel)	20
V8 Diesel	48

① - Eldorado and Seville models: 70 ft. lbs.

CHEVROLET

4-CYLINDER MODELS

1.6L (98") - 1) Mark hinges for reinstallation and remove hood. Disconnect battery cables. Remove battery cable clips along right frame rail. Drain cooling system and remove radiator hoses at engine and heater hoses at heater.

2) Disconnect engine wiring harness at firewall connector. Remove radiator upper support, radiator and fan. Remove air cleaner. Disconnect fuel line at rubber hose connection along left frame rail.

3) Disconnect automatic transmission throttle valve linkage. Disconnect accelerator cable at carburetor. If equipped, remove A/C compressor attaching bolts and position compressor aside leaving refrigerant lines connected.

4) Raise vehicle and support with safety stands. Disconnect exhaust pipe at manifold. Remove converter or clutch housing inspection cover. On automatic transmission, remove converter-to-flex plate bolts. Remove converter or clutch housing-to-engine retaining bolts.

5) Lower vehicle. Support transmission with suitable jack or support stand. Remove safety straps from front engine mounts

and remove engine mount nuts. Install engine lifting device and remove engine from vehicle.

2.5L (151") - 1) On automatic transaxle, disconnect cables at battery. Drain cooling system. Remove air cleaner and heat tube. Disconnect engine wiring harness connector. Disconnect all vacuum lines. Remove accelerator and transaxle linkage at carburetor.

2) Remove upper radiator hose. If equipped, remove A/C compressor from mounting brackets and position aside, leaving refrigerant lines connected. Remove front engine strut assembly. Disconnect heater hoses at engine.

3) Remove transaxle-to-engine bolts, leaving upper 2 bolts installed. Remove front mount-to-cradle nuts. Remove forward exhaust pipe. Remove converter housing inspection cover and remove starter motor. Remove converter-to-flex plate bolts.

4) If equipped, remove power steering pump and bracket and position aside. Remove lower radiator hose. Remove 2 rear transaxle support bracket bolts. Remove fuel line at fuel pump. Position suitable jack and a block of wood under transaxle and raise engine and transaxle until front engine mount studs clear cradle.

GENERAL MOTORS (Cont.)

CHEVROLET (Cont.)

5) Install engine lifting device and raise engine slightly. Remove 2 remaining transaxle-to-engine bolts. Slide engine forward and remove from vehicle.

6) On manual transaxle, disconnect battery cables at battery. Raise vehicle and support with safety stands. Remove front mount-to-cradle nuts. Remove forward exhaust pipe. Remove starter, leaving wiring connected and position out of way.

7) Remove clutch housing inspection cover. Lower vehicle. Remove air cleaner. Remove all clutch housing-to-engine bolts. Remove forward torque reaction rod from engine and core support. If equipped, remove A/C compressor belt and compressor and position aside.

8) Remove emission control hoses at canister. Remove power steering hose (if equipped). Remove vacuum lines and electrical connectors at solenoid. Remove heater blower motor. Disconnect throttle cable at carburetor. Drain cooling system.

9) Disconnect heater hose at engine. Disconnect upper and lower radiator hoses. Disconnect engine wiring harness at firewall connector. Install engine lifting device. Lift engine, disconnect heater hose and fuel line at intake manifold. Remove engine from vehicle.

V6 MODELS

2.8L (173") - 1) Disconnect battery cables at battery. Remove air cleaner. Drain cooling system. Disconnect all vacuum lines to non-engine mounted components. On automatic transaxle, disconnect detent cable at carburetor lever.

2) On all models, disconnect accelerator linkage at carburetor. Disconnect engine wiring harness connector. On automatic transaxle, disconnect ground strap from engine at engine forward strut. On all models, disconnect radiator hoses from radiator and heater hoses from engine.

3) If equipped, remove power steering pump and bracket from engine. On automatic transaxle, raise vehicle. Remove exhaust crossover pipe. Disconnect fuel line at rubber hose connection at right side of engine. Remove engine right front mount-to-cradle nuts.

4) Disconnect battery cables at starter and transaxle housing. Remove transaxle housing inspection cover and remove converter-to-flex plate bolts. Remove transaxle case-to-engine block support bracket bolts. Lower vehicle. Position support stand under transaxle rear extension.

5) Remove engine strut bracket from radiator support and swing rearward. Remove transaxle housing-to-engine bolts, noting location of ground stud bolt. If equipped, remove A/C compressor from mounting bracket and position aside, leaving refrigerant lines connected. Install engine lifting device and remove engine from vehicle.

6) On manual transaxle, disconnect clutch cable from transaxle. Disconnect shift linkage from transaxle shift levers. Remove cables from transaxle bosses. Disconnect speedometer cable from transaxle. Install engine support fixture tool (J-22825 or equivalent) to rear of engine.

7) Raise engine until weight is removed from engine mounts. Remove all but 1 transaxle-to-engine attaching bolts. Unlock

steering column and raise vehicle. Remove stabilizer-to-lower control arm nuts. Remove side, crossmember plate-to-side and crossmember assembly attaching bolts.

8) Remove plate on left side. Loosen plate bolts on right side. Remove exhaust crossover pipe. Remove front, rear and side powertrain mount-to-cradle nuts. Remove left front tire and wheel assembly. Remove front crossmember-to-right side member bolts.

9) Using axle puller tool (J-28468 or equivalent), remove both axle drive shafts from transaxle assembly. Remove left side cradle-to-body mount bolts. Swing side and crossmember assembly to left and secure outside of fenderwell.

10) Lower left side of engine and transaxle assembly by loosening engine support fixture tool. Position jack under transaxle. Remove last transaxle-to-engine attaching bolt and separate engine from transaxle. Lower vehicle. Install engine lifting device.

11) If equipped, remove A/C compressor from mounting bracket and position aside, leaving refrigerant lines connected. Disconnect forward strut bracket from radiator support and position aside. Remove engine from vehicle.

3.8L (229" & 231") - 1) Mark hinges for reinstallation and remove hood. Disconnect battery cables at battery. Remove air cleaner. Drain cooling system. Remove radiator and heater hoses at engine. Remove fan shroud, radiator, fan, pulleys and belts. Disconnect all electrical wiring, vacuum lines and fuel inlet line at fuel pump.

2) Disconnect accelerator linkage at engine. If equipped, remove A/C compressor and power steering pump from mounting brackets and position aside, leaving hoses connected. Remove alternator. Raise vehicle and support with safety stands. Drain crankcase.

3) Disconnect exhaust pipe at manifold and converter bracket (if equipped) at transmission rear mount. Remove starter. On automatic transmission, remove converter housing inspection cover. Remove converter-to-flex plate bolts. Remove engine-to-transmission attaching bolts. Manual transmission is removed with engine.

4) Remove drive shaft, shift linkage, clutch equalizer shaft and transmission mount. On all models, remove motor mount through bolt and cruise control bracket (if equipped). Lower vehicle and support transmission.

5) Install lifting device to engine, raise engine and remove motor mount-to-engine brackets. Raise engine and transmission alternately until engine can be disengaged from transmission. Remove engine from vehicle.

V8 MODELS

1) Mark hinges for reinstallation and remove hood. Disconnect battery cables at battery or batteries (if equipped). Remove air cleaner. Drain cooling system. Disconnect ground wire at inner fender panel. Disconnect engine ground strap. Disconnect radiator hoses.

2) Disconnect automatic transmission oil cooler lines, heater hoses, vacuum lines, fuel hose from fuel line, electrical wiring and throttle cable at engine. Remove A/C compressor and power steering pump from mounting brackets and position aside, leaving hoses connected (if equipped).