

Engine Removal

FORD MOTOR CO. (Cont.)

6 CYLINDER MODELS

1) Mark hinges for installation and remove hood. Drain crankcase and cooling system, disconnect battery and remove air cleaner. Disconnect all radiator and heater hoses and remove radiator. Remove fan, spacer, belt, and pulley. Disconnect accelerator linkage, fuel line, all electrical connections, and vacuum lines at engine.

NOTE — If engine is equipped with Thermactor system, remove or disconnect all components of system that will interfere with removal of engine.

2) On models equipped with power steering or air conditioning, remove unit from mount and lay aside with hoses attached. Remove starter.

3) On manual transmissions, disconnect the clutch retracting spring. Disconnect clutch equalizer shaft and arm bracket at underbody rail and remove.

4) Raise vehicle and remove flywheel or converter housing upper attaching bolts. Disconnect muffler inlet pipe at exhaust manifold. Disconnect right and left engine mounts at underbody bracket. Remove flywheel or converter housing cover and lower attaching bolts.

5) Lower vehicle and support transmission on a jack. Attach suitable hoisting tackle to engine lifting brackets and remove engine from vehicle.

V8 MODELS

1) Mark hinges for reinstallation and remove hood. Drain crankcase and cooling system. Disconnect battery and alternator ground cables from engine. Remove air cleaner and intake duct assembly. Disconnect all coolant and vacuum hoses, fuel lines and transmission oil cooler lines.

NOTE — If engine is equipped with Thermactor system, remove or disconnect all components of system that will interfere with removal of engine.

2) Remove radiator, A/C condenser, fan, spacer, pulley and shroud. Position alternator and power steering pump out of way. Isolate A/C compressor and remove.

3) Disconnect all wiring and transmission and carburetor linkage. Remove flywheel or converter housing upper bolts, engine-to-body ground straps, and raise vehicle. Remove starter and disconnect exhaust pipes from manifolds.

4) On manual transmission vehicles, remove clutch equalizer bar and any other clutch linkage. Remove lower flywheel

housing-to-engine bolts. On vehicles with automatic transmission, remove converter housing cover and disconnect flywheel from converter. Secure converter assembly in housing, and remove lower converter housing-to-engine bolts. Remove engine front support bolts on all models.

5) Lower vehicle and support transmission with floor jack. Attach suitable lifting sling to engine lifting brackets. Lift engine slightly and pull forward and away from transmission. Lift engine out of vehicle.

FORD MOTOR CO. TIGHTENING SPECIFICATIONS

4 CYLINDER MODELS

Application	Ft. Lbs.
Motor Mount-to-Engine	35-60
Motor Mount Through Bolt	20-30
Motor Mount Bracket-to-Frame	20-30
Rear Mount-to-Transmission	40-60
Rear Mount-to-Crossmember	30-45
Crossmember-to-Frame	20-30

6 CYLINDER MODELS

Application	Ft. Lbs.
Motor Mount Bracket-to-Engine	17-32
Motor Mount Bracket-to-Frame	30-50
Motor Mount-to-Engine Bracket	20-32
Motor Mount-to-Frame Bracket	40-60
Rear Mount-to-Transmission	40-60

V8 MODELS

Application	Ft. Lbs.
Motor Mount-to-Engine	35-60
Motor Mount Through Bolt	
Ford, Mercury, Continental & Mark VI	29-36
Motor Mount-to-Crossmember	
Ford, Mercury, Continental & Mark VI	35-50
All Others	35-60
Rear Mount-to-Transmission	40-60
Rear Mount-to-Crossmember	20-30
Rear Crossmember-to-Frame	
Granada, Monarch & Versailles	28-40
All Others	20-30

GENERAL MOTORS

BUICK

4 CYLINDER MODELS

1) Mark hinges for reinstallation reference. Disconnect battery, drain cooling system and remove air cleaner. Disconnect all electrical connections, vacuum hoses and linkage from engine.

2) Remove upper radiator hose, if equipped with A/C remove compressor and set aside. Remove front engine strut assembly. Remove transaxle-to-engine bolts leaving upper 2 bolts in place. Remove front mount-to-cradle nuts.

GENERAL MOTORS (Cont.)

BUICK (Cont.)

3) Remove forward exhaust pipe. Remove flywheel inspection cover and starter. Remove torque converter-to-flywheel bolts. Remove power steering pump and bracket bolts. Jack up transaxle and place wooden block under it.

4) Raise jack until engine front studs clear cradle. Connect engine lift equipment to engine, put tension on engine. Remove 2 remaining transaxle bolts, slide engine forward and lift from vehicle.

V6 SKYLARK

Mark hinges for reinstallation reference. Disconnect battery, remove air cleaner and drain cooling system. Disconnect all electrical connections, vacuum hoses and linkage from engine. Disconnect radiator hoses from radiator. Remove power steering pump and bracket assembly, if equipped.

1) With automatic transmissions only, raise vehicle, remove exhaust pipe. Remove engine front mount-to-cradle nuts (right side of vehicle). Remove flex plate cover and remove bolts from torque converter-to-flex plate.

2) Remove transaxle case-to-cylinder support bracket bolts. Lower vehicle, place support under transaxle. Remove engine strut bracket from radiator and swing rearward. Remove transaxle-to-cylinder case retaining bolts. Install lift fixture and remove engine from vehicle.

3) With manual transmissions only, disconnect clutch cable and shift linkage from transaxle. Disconnect speedometer cable. Install engine support fixture between cowl and radiator support. Connect engine rear lifting hook. Raise engine until weight is relieved from mount assemblies, remove all but 1 transaxle-to-engine retaining bolt.

4) Unlock steering column and raise vehicle, remove stabilizer-to-lower control arm attaching nuts. Remove side and crossmember plate-to-side attaching bolts on right side. Remove crossover pipe.

5) Remove all powertrain mount-to-cradle nuts. Remove left front tire, remove front crossmember-to-right side member attaching bolts. Using tool J-28468, pull both cradle-to-body mount bolts.

6) Swing side crossmember assembly to left and secure outboard of fender well. Lower left side of engine transaxle assembly by loosening tool J-22825, place jack under transaxle. Remove final transaxle-to-engine attaching bolt and separate transaxle from engine and lower.

7) Lower vehicle, install engine lifting fixture. Disconnect forward strut bracket from radiator support, swing aside. Lift engine from vehicle.

V6 (EXC. SKYLARK) & V8 (EXC. RIVIERA)

1) Mark hinges for reinstallation and remove hood. Disconnect battery, remove air cleaner and drain cooling system. Remove air conditioning and power steering pump (if equipped). Do not disconnect lines, just position out of way.

2) Remove fan, pulleys and drive belts. Disconnect radiator hoses and remove fan shroud. Disconnect all electrical and vacuum connections at engine. Disconnect fuel line, accelerator cable or linkage at carburetor.

3) Raise vehicle and position on safety stands. Disconnect exhaust pipes at manifold and remove flywheel or converter housing cover.

4) With automatic transmissions only, scribe mark on converter and flex plate for reassembly reference. Remove bolts holding converter to flywheel. Disconnect cooler, vacuum lines and starter. Remove bell housing-to-engine bolts.

5) With manual transmissions only, disconnect propeller shaft, shift linkage and clutch equalizer shaft. Remove motor and transmission mount bolts. Lower vehicle and attach suitable hoist to remove engine. Support transmission with jack and wood block. Raise engine until engine and transmission can be separated. Remove engine.

V8 RIVIERA

1) Mark hinges and remove hood. Disconnect battery, drain cooling system, remove cooler lines and radiator. Remove air cleaner, all vacuum lines and electrical connections from engine.

2) Remove air conditioner and power steering pump. Do not disconnect lines, just position out of way. On turbocharged models, disconnect turbo output exhaust pipe from turbocharger assembly.

3) Raise vehicle and support on safety stands. Remove starter, converter cover and converter-to-flywheel bolts. Remove bolts from transmission, motor mounts, and output shaft. Install chain to support final drive, remove engine to final drive bracket, and remove engine.

BUICK TIGHTENING SPECIFICATIONS	
Application	Ft. Lbs.
Motor Mount-to-Block	
4 Cylinder	35
Riviera	75
All Others	59
Motor Mount-to-Frame	
4 Cylinder	41
Riviera	50
All Others	30-35
Motor Mount Through Bolt	
All (Exc. Riviera)	33-35
Converter Housing-to-Engine	30-35
Clutch Housing-to-Engine	25
Rear Mount-to-Transmission	40-45
Rear Mount-to-Crossmember	60