

# Engine Removal

## FORD MOTOR CO.

### 4 CYLINDER MODELS

- 1) Drain crankcase and cooling system. Disconnect all electrical wiring, vacuum and water hoses. Remove radiator and fan. Remove A/C compressor from mounting bracket and lay aside with refrigerant lines attached.
- 2) Disconnect flexible fuel line from fuel tank line and remove starter. Raise vehicle and remove flywheel or converter housing upper bolts. Disconnect exhaust pipe at manifold, then right and left engine mounts at underbody bracket. Remove flywheel or converter housing cover.
- 3) With manual transmission, remove flywheel housing lower bolts. With automatic transmission, disconnect converter from flywheel and remove converter housing lower bolts.
- 4) Lower vehicle and support transmission on a jack. Attach suitable hoisting tackle to engine lifting brackets and remove engine from vehicle.

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

### V6 MODELS

- 1) Remove hood, drain cooling system and crankcase, then disconnect battery cables. Remove air cleaner and intake duct

assembly, then disconnect all coolant and vacuum hoses and fuel lines. Remove radiator and fan shroud.

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

- 2) Disconnect alternator ground wire and remove alternator with bracket. Disconnect all wiring, engine-to-body ground straps, carburetor linkage, and brake booster line. Raise vehicle, remove starter, and disconnect exhaust pipes from manifolds. Remove front support through-bolts.
- 3) On automatic transmissions, remove converter inspection cover, disconnect flywheel from converter, remove downshift rod, and remove converter housing-to-engine block bolts. Remove adapter plate-to-converter housing bolts.
- 4) On manual transmissions, remove clutch linkage and remove bell housing-to-engine block bolts. Lower vehicle and support transmission. Attach suitable lifting sling to lifting brackets at exhaust manifolds. Carefully remove engine from vehicle.

### V8 MODELS

- 1) Drain crankcase and cooling system; disconnect battery and alternator ground cables from engine. Remove hood, 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, pulley, and starter motor. Position alternator and power steering pump out of way. Isolate A/C compressor and remove from engine.
- 3) Disconnect all wiring, engine-to-body ground straps, and transmission and carburetor controls. Disconnect exhaust pipes from manifolds. On manual transmission vehicles, remove clutch equalizer bar and any other clutch linkage. On vehicles with automatic transmission, remove converter housing cover and disconnect flywheel from converter. Remove engine front support bolts on all models.
- 4) 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 from 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-Trans. ....	40-60
Rear Mount-to-Crossmember	
Pinto & Bobcat .....	20-30
Mustang II .....	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-Trans.	
3-Spd. Floor Shift .....	17-32
All Others .....	40-60
Rear Mount-to-Crossmember .....	30-50
Crossmember-to-Frame .....	20-30

## FORD MOTOR CO. (Cont.)

### FORD MOTOR CO. TIGHTENING SPECIFICATIONS (Cont.)

#### V6 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-Trans. ....	40-60
Rear Mount-to-Crossmember	
Pinto & Bobcat .....	30-45
Mustang II .....	20-30
Crossmember-to-Frame .....	20-30

#### V8 MODELS

Application	Ft. Lbs.
<b>302" &amp; 351" W</b>	
Motor Mount-to-Engine .....	35-60
Motor Mount Bracket-to-Frame	
Granada, Monarch & Versailles .....	35-60
Comet & Maverick .....	20-37
LTD II, Cougar & Thunderbird .....	35-50
Mustang II .....	20-30
Motor Mount Through-Bolt	
Comet, Maverick & Mustang II .....	20-30
Rear Mount-to-Trans.	
Man. Trans. With Floor Shift .....	17-32
All Others .....	40-60
Rear Mount-to-Crossmember .....	30-50
Crossmember-to-Frame .....	20-30

#### V8 MODELS (Cont.)

Application	Ft. Lbs.
<b>351" M &amp; 400"</b>	
Motor Mount-to-Engine .....	35-60
Motor Mount Bracket-to-Frame	
LTD II, Cougar, Thunderbird, & Continental Mark V .....	35-50
Ford & Mercury .....	20-35
Lincoln Continental .....	40-55
Motor Mount Through-Bolt	
Ford & Mercury .....	20-35
Rear Mount-to-Transmission .....	40-60
Rear Mount-to-Crossmember	
LTD II, Cougar & Thunderbird .....	20-35
Ford & Mercury .....	25-40
Lincoln Continental & Mark V .....	30-50
<b>460"</b>	
Motor Mount-to-Engine .....	35-60
Motor Mount Bracket-to-Frame	
Ford & Mercury .....	25-40
Lincoln Continental & Mark V .....	35-50
Motor Mount Through-Bolt .....	20-35
Rear Mount-to-Transmission	
Ford & Mercury .....	40-60
Mark V .....	20-35
Rear Mount-to-Crossmember	
Ford & Mercury .....	25-40
Mark V .....	30-50

## GENERAL MOTORS

### BUICK

#### V6 & V8 MODELS

1) Remove hood and mark hinges for installation. Disconnect battery, remove air cleaner and drain cooling system. Remove air conditioning compressor (if equipped) from mount without disconnecting lines and position out of way. Remove fan pulleys and drive belts. Disconnect radiator hoses and remove fan shroud.

2) On models equipped with 305", 350" (VIN L & R) or 403" V8, remove radiator. Remove power steering pump (if equipped) from mount without disconnecting lines and position out of way. Disconnect all electrical and vacuum connections at engine. Disconnect accelerator cable or linkage at carburetor.

3) Raise vehicle and position on safety stands. Disconnect exhaust pipes at exhaust manifolds. Remove flywheel or converter housing cover. Scribe mark aligning converter to flex plate for installation. Remove converter-to-flex plate bolts.

**NOTE** — The remainder of the engine removal procedure will vary depending on model and engine as follows:

4) All Models W/231" V6, 305", 350" (VIN H, J, & L) & 403" V8 — Remove starter cable and cable shield from

engine. If equipped with automatic transmission, remove transmission-to-engine bolts.

**NOTE** — Manual transmission is removed with engine. On manual transmission models, remove drive shaft, shift linkage, clutch equalizer shaft and transmission mount. On all models, remove motor mount fasteners, lower vehicle and support automatic transmission with a jack and a wood block.

5) Attach a suitable hoist to engine and raise enough to take weight off front engine mounts. Remove front mount through bolts. Raise engine and transmission support until engine and automatic transmission can be separated and remove engine. Remove engine and manual transmission assembly (if equipped).

4) All Models W/350" (VIN R) & 403" V8 — Remove motor mount bolts. Remove three bolts on right side securing engine-to-transmission. Remove starter with wires attached and secure starter to frame, out of way.

5) Lower vehicle and support transmission with a jack and a wood block. Remove three bolts on left side securing engine to transmission. Attach a suitable hoist to engine and remove engine.