

# Engine Cooling Systems

7-189

## FORD MOTOR CO.

### COOLING SYSTEM CAPACITY

Application	Quarts
<b>1965</b>	
4 Cyl. Diesel .....	19
240" & 300" .....	19
352" .....	27
<b>1966</b>	
4 Cyl. Diesel .....	19
170" .....	
P100 .....	9
E100 & U100 .....	9.5
240" & 300" .....	
F100/250, E100 .....	13
F100/250 (4x4) .....	14
F350 .....	18
P350 .....	19
289" .....	20
352" .....	
F350 .....	24
All Others .....	21
<b>1967</b>	
4 Cyl. Diesel .....	17
170" .....	
P100 .....	9
E100 & U100 .....	9.5
240" & 300" .....	
F100/250, E100 .....	13
F100/250 (4x4) .....	14
F350 .....	18
P350 .....	19
289" .....	20
352" .....	
F350 .....	24
All Others .....	21
<b>1968</b>	
4 Cyl. Diesel .....	17
170" .....	10
240" & 300" .....	
E100 .....	12
F100/250 .....	13
F100/250 (4x4) .....	14
F350 & P350 .....	18
289" .....	16
360" & 390" .....	
F100/250 .....	21
F350 .....	24
P350 .....	18
<b>1969</b>	
4 Cyl. Diesel .....	17
170" .....	9.2
240" .....	
E100 .....	① 14.4
F100/250 (4x4) .....	14.4
F100/250 Man. Trans. ....	② 13.2
F100/250 Auto. Trans. ....	① 14.4
P350 .....	18.1
300" .....	
F100/250 (4x4) .....	14.4
F100/250 Man. Trans. ....	③ 14.4
F100/250 Auto. Trans. ....	① 14.4
F350 Man. Trans. ....	④ 14.4
F350 Auto. Trans. ....	⑤ 16.7
P350 .....	18.1

### COOLING SYSTEM CAPACITY (Cont.)

Application	Quarts
<b>1969 (Cont.)</b>	
F350 Auto. Trans. ....	⑥ 16.7
P350 .....	18.1
302", 360" & 390" .....	
U100 .....	14.5
E100/300 .....	⑦ 15.2
F100/250 .....	⑦ 21.9
F350 & P350 .....	⑧ 22.3
<b>1970</b>	
4 Cyl. Diesel .....	17
170" .....	9.2
240" .....	
E100 .....	① 14.4
F100/250 (4x4) .....	14.4
F100/250 Man. Trans. ....	② 13.2
F100/250 Auto. Trans. ....	① 14.4
P350 .....	18.1
300" .....	
F100/250 (4x4) .....	14.4
F100/250 Man. Trans. ....	③ 14.4
F100/250 Auto. Trans. ....	① 14.4
F350 Man. Trans. ....	④ 14.4
F350 Auto. Trans. ....	⑤ 16.7
P350 .....	18.1
302" .....	
U100 .....	⑦ 14.3
E100/300 .....	⑦ 15.2
F100 .....	⑦ 17.1
360" & 390" .....	
F100/250 .....	⑦ 21.9
F350 .....	⑧ 22.3
<b>1971</b>	
4 Cyl. Diesel .....	18.1
170" .....	9.1
240" .....	
E100 Man. Trans. ....	⑨ 14.1
E100 W/Auto. Trans. or Extra Cooling .....	⑨ 14.4
F100/250 (4x4) .....	⑩ 14.4
F100/250 Man. Trans. ....	② 14.1
F100/250 Auto. Trans. ....	① 14.4
P350 .....	18.1
300" .....	
F100/250 (4x4) .....	⑩ 14.4
F100/250 .....	① 14.4
F350 Man. Trans. ....	④ 14.4
F350 Auto. Trans. ....	⑤ 16.7
P350 .....	18.1
302" .....	
U100 .....	14.6
E100/300 .....	⑦ 15.2
F100 .....	⑦ 17.1
360" & 390" .....	
F100/250 .....	⑦ 21.9
F350 .....	⑧ 22.3

# Engine Cooling Systems

## FORD MOTOR CO. (Cont.)

### COOLING SYSTEM CAPACITY (Cont.)

Application	Quarts
<b>1972</b>	
170" .....	9.1
240" .....	
E100 Man. Trans. ....	② 14.1
E100 Auto. Trans. ....	③ 14.4
F100/250 (4x4).....	⑩ 14.4
F100/250 Man. Trans. ....	② 14.1
F100/250 Auto. Trans. ....	① 14.4
P350.....	18.1
300" .....	
F100/250 (4x4).....	⑩ 14.4
F100/250 .....	① 14.4
F350 Man. Trans. ....	④ 14.4
F350 Auto. Trans. ....	⑤ 16.7
P350.....	18.1
302" .....	
U100 .....	14.7
E100/300 .....	⑧ 15.2
F100.....	⑪ 12.7
360" & 390" .....	
F100/250 .....	⑦ 21.9
F350.....	⑧ 22.3
<b>1973</b>	
200" .....	9
240" .....	
E100 W/Man. Trans. & Extra Cooling.....	⑨ 14.5
E100 Auto. Trans. ....	⑨ 14.5
F100/250 4x4 Man. Trans. ....	⑩ 14.4
F100/250 Man. Trans. ....	② 14.1
F100/250 Auto. Trans. ....	③ 14.4
300" .....	
E100.....	③ 14.5
F100/250 4x4 Man. Trans. ....	⑩ 14.4
F100/250 Man. Trans. ....	⑥ 14.4
F100/250 Auto. Trans. ....	③ 14.4
F350 Man. Trans. ....	④ 14.4
F350 Auto. Trans. ....	⑧ 16.7
P350.....	18.1
302" .....	
U100 .....	14.7
E100/300 .....	⑫ 15.2
F100.....	⑫ 14.8
360" & 390" .....	
F100/250 (4x4).....	⑧ 22.3
F100/250 .....	⑬ 19.6
F350 & P350 .....	⑥ 22.3
460" .....	④ 21
<b>1974</b>	
200" .....	10
240" .....	
E100 Man. Trans. ....	② 14
E100 Auto. Trans. ....	14.5
F100 Man. Trans. ....	14.1
F100/250 (4x4).....	⑩ 14.4
F100/250 W/Man. Trans. & Extra Cooling.....	14.4
F100/250 Auto. Trans. ....	③ 14.4
300" .....	
E100.....	③ 14.5
F100/250 (4x4).....	⑩ 14.4
F100/250 Man. Trans. ....	⑥ 14.4

### COOLING SYSTEM CAPACITY (Cont.)

Application	Quarts
<b>1974 (Cont.)</b>	
F100/250 Auto. Trans. ....	③ 14.4
F350 Man. Trans. ....	④ 14.4
F350 Auto. Trans. ....	⑧ 16.7
P350.....	18.1
302" .....	
E100/300 .....	⑫ 15.2
U100 .....	16
F100.....	⑥ 14.8
F100 W/Super Cooling .....	17.5
360" & 390" .....	
F100/250 Man. Trans. ....	④ 19.6
F100/250 Auto. Trans. ....	⑫ 19.6
F100/250 W/Super Cooling.....	23.9
F350 & P350 .....	⑧ 22.3
460" .....	
All Models.....	⑧ 21
All Models W/Super Cooling .....	23.2

- ① — W/Extra Cooling or Air Conditioning, capacity is 16.7 qts.
- ② — W/Extra Cooling, capacity is 14.4 qts.
- ③ — W/Extra Cooling, capacity is 16.4 qts.
- ④ — W/Dual Rear Wheels or Extra Cooling, capacity is 16.7 qts. If equipped with both, capacity is 18.3 qts.
- ⑤ — W/Extra Cooling and/or Air Conditioning, capacity is 18.3 qts.
- ⑥ — W/Extra Cooling add 2.3 qts.
- ⑦ — W/Extra Cooling add .4 qts.
- ⑧ — W/Extra Cooling add 1.6 qts.
- ⑨ — W/Air Conditioning, capacity is 16.7 qts.
- ⑩ — W/Auto. Trans. or Extra Cooling, capacity is 16.7 qts.
- ⑪ — W/Extra Cooling add 2.0 qts.
- ⑫ — W/Extra Cooling, capacity is 17.5 qts.
- ⑬ — W/Extra Cooling, capacity is 21.9 qts. (360") or 22.3 qts. (390").
- ⑭ — W/Extra Cooling add 2.7 qts.

### PRESSURE CAP

Application	PSI
<b>1965-67</b>	
"F" & "P" Models .....	① 7
All Others .....	13
<b>1968</b>	
"F" & "P" Models (240").....	7
All Others .....	12-15
<b>1969-71</b>	
"P" Models.....	7
All Others .....	13
<b>1972-74</b>	
All Models.....	13
① — Some models may use a 13 psi cap.	

## FORD MOTOR CO. (Cont.)

### THERMOSTAT

Application	① Initial Open	① Full Open
<b>4 CYL. DIESEL</b>		
1965-67 .....	182-188 .....	200-205 .....
1968-71 .....	175 .....	180 .....
<b>6 CYL. ENGINES</b>		
1965-74		
Low Temp. ....	157-164 .....	184-186 .....
High Temp. ....	185-192 .....	211-214 .....
<b>V8 ENGINES</b>		
352"		
Low Temp. ....	157-164 .....	184-186 .....
High Temp. ....	175-182 .....	202-204 .....
302"		
Low Temp. ....	157-164 .....	184 .....
High Temp. ....	188-195 .....	212 .....
360", 390" & 460"		
Low Temp. ....	157-162 .....	182 .....
High Temp. ....	175-182 .....	200 .....

① — Specifications are in °F.

### WATER PUMP

#### 4 CYL. DIESEL "P" MODELS (1965-71)

**Removal** — Drain cooling system. Remove fan-to-fan hub bolts and remove fan. Remove alternator adjusting arm clamp bolt and loosen mounting bolt. Remove drive belt. Disconnect lower radiator hose from water pump. Remove water pump attaching bolts and water pump assembly.

**Installation** — Clean all gasket surfaces, install new hoses (as required) and gaskets. Reverse removal procedure, tighten bolts, adjust drive belt tension and refill cooling system.

#### 170" & 200" ALL MODELS (1965-72)

**Removal** — Drain cooling system. Disconnect lower radiator hose and heater hose at water pump. Remove drive belt. Remove fan, pulley and bolts from water pump hub. Remove water pump attaching bolts and water pump assembly.

**Installation** — Clean all gasket surfaces, install new hoses (as required) and gaskets. Reverse removal procedure, tighten bolts, adjust drive belt tension and refill cooling system.

#### 240" "E" MODELS (1965-67)

**Removal** — 1) Drain cooling system. Loosen alternator mounting and adjusting arm bolts and remove drive belt. Disconnect upper hose from radiator and heater hose at water pump. Remove radiator upper support retaining bolts and remove upper fan shroud.

2) Raise vehicle on a hoist. Remove lower radiator grille air deflector shield assembly. Disconnect lower radiator hose and oil cooler lines (if equipped) from radiator. Remove radiator lower support retaining bolts and lower fan shroud. Remove radiator.

3) Remove fan, spacer, pulley and bolts from water pump hub. Remove water pump attaching bolts and water pump assembly.

**Installation** — Clean all gasket surfaces, install new hoses (as required) and gaskets. Reverse removal procedure, tighten bolts, adjust drive belt tension and refill cooling system.

#### 240" "E" MODELS (1968)

**Removal** — 1) Remove engine compartment cover and drain cooling system. Loosen alternator and air supply pump (if equipped) adjusting arm bolts and remove drive belts. Disconnect upper radiator hose at thermostat housing, lower hose and oil cooler lines (if equipped) at radiator.

2) Remove radiator support brackets and remove radiator. Remove fan, spacer, pulley and bolts from water pump hub. Disconnect heater and radiator hose at water pump. Remove water pump attaching bolts and water pump assembly.

**Installation** — Clean all gasket surfaces, install new hoses (as required) and gaskets. Reverse removal procedure, tighten bolts, adjust drive belt tension and refill cooling system.

#### 240" & 300" "F" & "P" MODELS (1965-74) & 240" & 300" "E" MODELS (1969-74)

**Removal** — Drain cooling system. Loosen alternator adjusting arm bolt and remove drive belt. Remove fan, pulley and bolts from water pump hub. Disconnect heater hose and lower radiator hose at water pump. Remove water pump attaching bolts and water pump assembly.

2) Remove power steering pump attaching bolts and position pump to one side with hoses attached. Remove air conditioning bracket. Disconnect lower radiator hose and heater hose from water pump. Loosen by-pass hose clamp at water pump. Remove water pump attaching bolts and water pump assembly.

**Installation** — Clean all gasket surfaces, install new hoses (as required) and gaskets. Reverse removal procedure, tighten bolts, adjust drive belt tension and refill cooling system.

#### 289" & 302" "U" & "F" MODELS (1966-74)

**Removal** — 1) Drain cooling system. Remove bolts securing fan shroud (if equipped) to radiator and position shroud over fan. Disconnect lower radiator hose, heater hose and by-pass hose at water pump. Remove drive belts, fan, spacer, pulley and bolts from water pump hub. Remove fan shroud.

2) Loosen alternator pivot bolt and adjusting arm-to-water pump bolt. Remove air pump (if equipped) to water pump and cylinder head attaching bolts. Remove bolt at air pump adjusting arm. Remove water pump attaching bolts and water pump assembly.

**Installation** — Clean all gasket surfaces, install new hoses (as required) and gaskets. Reverse removal procedure, tighten bolts, adjust drive belt tension and refill cooling system.

#### 302" "E" MODELS (1969-74)

**Removal** — 1) Remove air cleaner and intake duct assembly including closed crankcase ventilation hose and oil breather cap. Drain cooling system. Disconnect radiator hoses at radiator and oil cooler lines (if equipped). Remove radiator attaching bolts and remove radiator.

## FORD MOTOR CO. (Cont.)

2) Remove drive belts, fan, spacer, pulley and bolts from water pump hub. Loosen alternator pivot bolt and adjusting arm-to-water pump bolt. Disconnect heater hose and by-pass hose at water pump. Remove water pump attaching bolts and water pump assembly.

**Installation** — Clean all gasket surfaces, install new hoses (as required) and gaskets. Reverse removal procedure, tighten bolts, adjust drive belt tension and refill cooling system.

### 352" "F" & "P" MODELS (1965-67)

**Removal** — Drain cooling system. Loosen alternator adjusting arm bolt and remove drive belt. Remove fan, spacer, pulley and bolts from water pump hub. Disconnect lower radiator hose, heater hose and by-pass hose at water pump. Remove water pump attaching bolts and water pump assembly.

**Installation** — Clean all gasket surfaces, install new hoses (as required) and gaskets. Reverse removal procedure, tighten bolts, adjust drive belt tension and refill cooling system.

### 360" & 390" "F" MODELS (1968-74)

**Removal** — Drain cooling system. Loosen and remove drive belts. Remove fan, spacer, pulley and bolts from water pump hub. Remove power steering pump (if equipped) and position to one side with hoses attached. Disconnect lower radiator hose, heater hose and by-pass hose from water pump. Remove water pump attaching bolts and water pump assembly.

**Installation** — Clean all gasket surfaces, install new hoses (as required) and gaskets. Reverse removal procedure, tighten bolts, adjust drive belt tension and refill cooling system.

### 460" "F" MODELS & MOTOR HOME (1973-74)

**Removal** — 1) Drain cooling system and remove all drive belts. Remove fan shroud attaching bolts. Remove fan, spacer,

pulley and bolts from water pump hub. Remove fan shroud. Remove alternator adjusting arm attaching bolts and spacer, then position bracket to one side. Remove air conditioning compressor (if equipped) attaching bolts and position compressor to left fender brace.

<b>TIGHTENING SPECIFICATIONS</b>	
<b>Application</b>	<b>Ft. Lbs.</b>
Water Pump Attaching Bolts	
4 Cyl. Diesel "P" Models	
1965-71 .....	12-15
"E" & "U" Models	
1965-67 .....	12-15
1968	
289" .....	12-15
170" & 240" .....	20-25
1969-70 .....	12-15
1971-74	
170" & 302" .....	12-15
240" & 300" .....	15-20
"F" & "P" Models	
1965-70	
170", 240", 300" & 302" .....	12-15
352", 360" & 390" .....	20-25
1971-74	
170" & 302" .....	12-15
240" & 300" .....	15-20
360" & 390" .....	20-25
460" .....	12-15
Motor Home	
1973-74 .....	12-15
Fan-to-Hub	
"E" & "U" Models .....	10-15
"F" & "P" Models .....	12-18