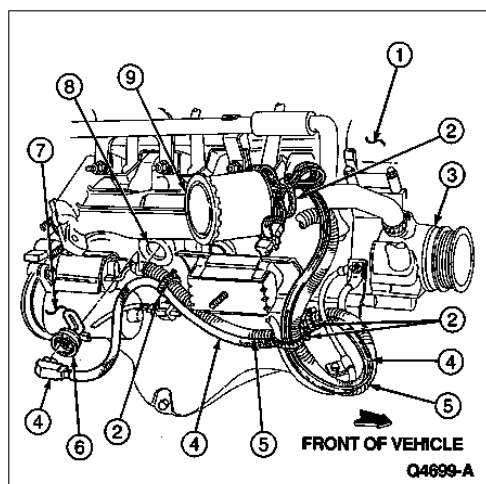


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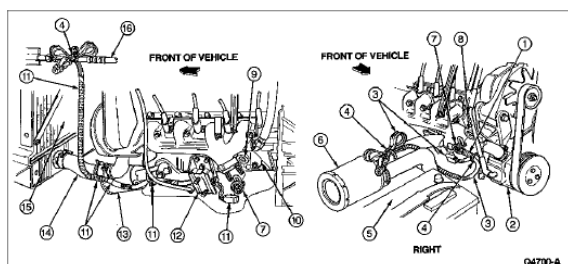
4	9A486	Secondary Air Injection Pump
5	6A051	Block Heater
6	6B018	Block Heater Wiring
7	14300	Battery to Starter Relay Cable
8	9G427	Secondary Air Injection Pump Silencer and Bracket
9	11001	Starter Motor

Block Heater 5.0L and 5.8L



Item	Part Number	Description
1	10300	Generator
2	95873-S	Strap
3	9A486	Secondary Air Injection Pump
4	6B018	Block Heater Wiring
5	14300	Battery to Starter Relay Cable
6	6A051	Block Heater
7	11001	Starter Motor
8	∅	Core Plug Hole (Part of 6010)
9	9H467	Secondary Air Injector Pump Silencer and Bracket

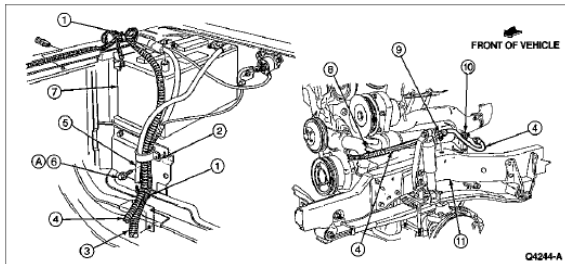
Block Heater, 7.5L



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Item	Part Number	Description
1	14300	Battery to Starter Relay Cable
2	9A486	Secondary Air Injection Pump
3	6B018	Block Heater Wiring (Right Side)
4	95873-S	Strap
5	10655	Battery
6	9G427	Secondary Air Injection Pump Silencer and Bracket
7	6A051	Block Heater
8	∅	Right Side Core Plug Hole (Part of 6010)
9	∅	Left Side Core Plug Hole (Part of 6010)
10	6010	Cylinder Block
11	6B018	Block Heater Wiring (Left Side)
12	6038	Front Engine Support Insulator
13	6731	Oil Filter
14	8286	Lower Radiator Hose
15	8005	Radiator
16	19D734	A/C Manifold and Tube

Engine Block Heater Cable Routing, 7.3L Engine



Item	Part Number	Description
1	95873-S	Strap
2	37806-S100	Clip
3	14B060	Battery Cable Assembly
4	6B018	Engine Block Heater Wiring
5	14301	Battery Ground Cable
6	N610957-S16	Screw, 6.3 ∅ 1.81 x 13
7	10655	Battery
8	∅	Locator (Part of 6B018)
9	∅	Locator (Part of 6B018)
10	6A051	Block Heater

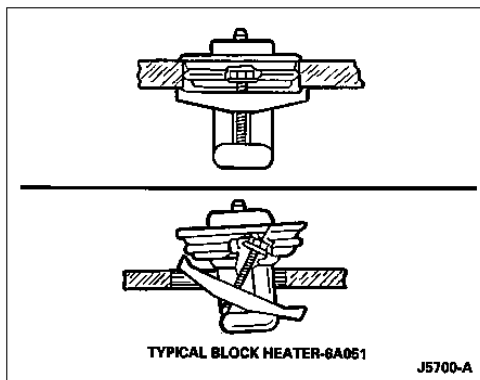
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11	5005	Frame
A	Â	Tighten to 7-9 Nm (62-79 Lb-In)

Block Heater

Removal and Installation

1. Drain the cooling system. Refer to the Cooling System Draining, Filling and Bleeding in the Cleaning and Inspection portion of this section.
2. Remove block heater (6A051). Note the position that the element is pointed (e.g. 12:00, 6:00, etc.)
3. Clean the inside diameter of the core plug hole machined surface and hole entrance. Remove any burrs at the hole entrance to avoid damage to the O-ring.
4. Cover rubber O-ring and core opening with a liberal coating of chassis grease (C1AZ-19590-B, C, D, E or equivalent).
5. Insert block heater in core plug hole in the same position as it was removed.
6. Tighten screw in normal clockwise direction. Torque to 1.6-1.8 Nm (14-16 lb-in).
7. Refill cooling system. Refer to Cooling System, Draining, Filling and Bleeding in the Cleaning and Inspection portion of this section.



Section 03-03: 1996 F-150, F-250, F-350, F-Super Duty, Bronco Vehicles and F-250, F-350 and
Engine Cooling F-Super Duty Vehicles with 7.3L Diesel Engines Workshop Manual
SERVICE PROCEDURES

Transmission Oil Cooler Connection Leaks, Aluminum Radiator

Check to see that the fitting nut is fully tightened. If the leak persists, apply a thin, even coat of Dow Corning 1200 primer or equivalent using a brush. Allow to dry for 10 minutes at room temperature. Apply Dow Corning Silastic 734RTV or equivalent in undiluted form around the leaking connection and allow it to dry for one hour.

NOTE: In-tank transmission oil coolers must not be replaced. Instead, for aluminum radiators, replace the complete radiator assembly.

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Section 03-03: 1996 F-150, F-250, F-350, F-Super Duty, Bronco Vehicles and F-250, F-350 and
Engine Cooling F-Super Duty Vehicles with 7.3L Diesel Engines Workshop Manual
CLEANING AND INSPECTION

Radiator Coolant Level Check

Engine (6007) should be at normal operating temperature.

In addition to maintaining the correct coolant level, the radiator fins must be cleaned and the cooling system inspected periodically for leaks in order to be sure the system operates at maximum efficiency.

Check the cooling system for dirty or rusty appearance. Dirty or rusty coolant requires replacement to protect the cooling system from corrosion damage.

Coolant Condition Check

1. **⚠ WARNING: NEVER REMOVE THE RADIATOR CAP (8100) UNDER ANY CONDITIONS WHILE THE ENGINE (6007) IS OPERATING. FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN DAMAGE TO THE COOLING SYSTEM OR ENGINE AND/OR PERSONAL INJURY. TO AVOID HAVING SCALDING HOT COOLANT OR STEAM BLOW OUT OF THE RADIATOR (8005), USE EXTREME CARE WHEN REMOVING THE RADIATOR CAP FROM A HOT RADIATOR. WAIT UNTIL THE ENGINE HAS COOLED, THEN WRAP A THICK CLOTH AROUND THE RADIATOR CAP AND TURN IT SLOWLY TO THE FIRST STOP. STEP BACK WHILE THE PRESSURE IS RELEASED FROM THE COOLING SYSTEM. WHEN IT IS CERTAIN ALL THE PRESSURE HAS BEEN RELEASED, PRESS DOWN ON THE RADIATOR CAP (STILL WITH A CLOTH), TURN AND REMOVE.**

NOTE: It is not sufficient to inspect only the coolant in the radiator coolant recovery reservoir (8A080). The coolant in the radiator coolant recovery reservoir may not be representative of the coolant in the rest of the system. For reservoir coolant to be representative of system coolant, engine must have been operated long enough and gotten hot enough for an extensive exchange of coolant between the radiator and the radiator coolant recovery reservoir since the last time coolant was added to the radiator coolant recovery reservoir.

Allow engine to cool and remove radiator cap.

2. Inspect coolant in both radiator and radiator coolant recovery reservoir. Coolant should be a green or blue color (depending on brand of antifreeze used).

Clear coolant or coolant only a very light green or blue indicates that there is only water or a very weak antifreeze mixture in the system. Advise the owner of the need for the correct 50/50 coolant mixture.

A very muddy brown color indicates an unauthorized brand of stop-leak has been used. This may eventually plug the system, causing overheating. Advise the owner that the best course would be to drain the system and repair the original concern, flush the system, and refill with correct 50/50 coolant mixture and, if necessary, Cooling System Stop Leak Pellet D9AZ-19558-A or Cooling System Stop Leak Powder E6AZ-19558-A or equivalent meeting specification ESE-M99B170-A.

Make clear to the customer that any stop-leak material is not a satisfactory repair for a serious cooling system concern such as a leaking water pump (8501), gasket, or radiator.

A reddish brown color indicates rust in the cooling system. Advise the customer that the best course would be to flush the cooling system and refill with the correct 50/50 coolant mixture. Ford Premium Cooling System Fluid, E2FZ-19549-AA or equivalent meeting Ford specification (ESE-M97B44-A and ESE-M97B43-A) contains corrosion inhibitors. In addition, add 1.4 liters (1.5 qts.) of Heavy-Duty Cooling System Additive FW-15 or equivalent meeting Ford specification ESN-M99B169-A.

An iridescent sheen on the top of the coolant indicates a small amount of oil entering the coolant. This is common in high-mileage vehicles.

3. **⚠ CAUTION: If there is coolant in the engine oil, the cause must be corrected and the oil changed or engine damage will occur.**

Check the engine oil on the oil level dipstick (6750) to see if any coolant is entering the engine oil as indicated by drops of coolant visible in the oil or a milky appearance to the oil. If the oil checks out OK, inform the customer that, while not an immediate problem, the situation should be closely monitored during routine maintenance.

4. **⚠ CAUTION: Severe oil leakage to the engine coolant, as indicated by a milky appearance to the coolant, must be corrected or severe engine damage will occur.**

If the coolant is a milky brown color (like coffee with heavy cream) engine oil is entering the coolant. On 7.3L diesel and 7.5L gasoline engines the most probable cause is a leak in the engine oil cooler. Remove and inspect to find the problem.

If the oil cooler checks out OK, the head gasket (6051) may be leaking around the oil passageway to the cylinder head (6049). It will be necessary to remove the cylinder head, inspect for the problem, and replace the head gasket. If the head gasket checks out OK, then a crack between an engine oil gallery and the cooling passageways could be the cause. Inspect the cylinder block (6010) and cylinder head. Refer to Section 03-00 .

A reddish milky appearance to the coolant indicates that transmission oil is leaking into the coolant indicating a leaking transmission fluid cooler (7A095).

5. **⚠ CAUTION: If coolant is found to be entering the transmission fluid, the cause must be corrected or transmission damage will occur.**

Check transmission fluid to make sure coolant has not mixed into transmission fluid as indicated by a milky appearance. If it has, it will be necessary to flush transmission (7003) and replace filter outlined in the appropriate section. Refer to Group 07. Replace radiator assembly, flush cooling system, refill transmission, and refill cooling system with correct 50/50 coolant and antifreeze mixture.

6. If chunks of rust are visible on top of the tubes in downflow radiators or in the inlet tank in crossflow radiators, flush the cooling system.
7. If there is puffy white corrosion around the tubes where they are attached to the core headers, flush the system. If there is corrosion on aluminum radiator parts, there is going to be corrosion on aluminum engine parts that come in contact with coolant.
8. Advise the owner of the importance of using the proper 50/50 mixture of water and Ford E2FZ-19549-AA Premium Cooling System Fluid or equivalent meeting specification ESE-M97B44-A that contains corrosion inhibitors. In addition, add 1.4 liters (1.5 quarts) of Heavy-Duty Cooling System Additive FW-15 or equivalent meeting Ford specification ESN-M99B169-A.
9. If the appearance of the coolant is OK, use a hand-held refractometer, such as Rotunda Battery/Antifreeze Tester 021-00046 or equivalent to verify proper coolant concentration. The range is: (minimum) 45/55, (maximum) 60/40.
10. If the cooling system is found to be low on coolant, top off only from a premixed solution.
11. If a weak concentration is found, add straight coolant sparingly until concentration readings are within acceptable levels.

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12. If too strong a concentration is found, remove a small volume of coolant and add water sparingly until coolant readings again fall within the specified levels.
13. **NOTE: Make sure coolant is thoroughly mixed before taking readings. This is accomplished by running the engine until the water thermostat opens.**

Recheck coolant concentration to make sure the coolant has been brought into the proper concentration.

Cooling System Hoses and Clamps.

1. **NOTE: Remember that the cooling system hoses operate under a positive pressure of approximately 90 kPa (13-16 psi), temperatures of over 95° C (200°F), and are subject to considerable vibration. Any hoses with cuts or deterioration should be replaced as they are likely to fail on the road with the attendant risk of engine damage.**

Inspect hoses for:

- Visible signs of deterioration such as cracking or checking. Replace if there is visible deterioration.
- Swelling near clamps and at hose ends. Replace if there is swelling.
- Oil or oily dirt on hoses from engine oil leaks or careless filling. Clean off oil and oily dirt on hoses. Oil will attack rubber over time. If there is weakening or deterioration of a hose, replace it.
- Cuts. If cut on hose is other than a very superficial cut, replace hose.
- Hose contacting metal parts, especially sharp edges. If contacting metal parts, loosen clamps and relocate hose. In some cases it may be necessary to put plastic shielding on hose to protect it. If hose has already been cut or worn, it should be replaced.

2. **NOTE: Reasonably fresh replacement hoses should be used. Replacement hoses that have been in storage for several years should be checked for ozone-caused hardening. Hoses which have become hard will be difficult to seal and may break in service.**

Inspect clamps. Replace as necessary.
