

Name: _____ Date: _____
Instructor: _____ Period: _____

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Cooling System Testing, Maintenance, & Repair



Objective: After studying this chapter, you will be able to explain common tasks performed on engine cooling systems.

Cooling System Problem Diagnosis

1. The sensors built into a modern OBD II system will set a **trouble** _____ if temperatures seem out of range.
 2. List four (4) cooling system functions often monitored by the **OBD system**:
A. _____
B. _____
C. _____
D. _____
 3. A cooling system _____ should be consulted when problems are difficult to locate and correct.
 4. What potential problems should be checked in a **visual cooling system inspection**? _____

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Cooling System Problems

5. How can a coolant leak problem be recognized?

 6. Why is it unsafe to remove a radiator cap when the engine is **hot**?

 7. How does a **cooling system pressure test** work?

 8. A _____ is one of the most commonly used and important cooling system testing devices.
 9. What could happen if **too much pressure** is pumped into the cooling system during testing?

 10. A _____ leak test should be performed when indications of a blown head gasket, cracked head, or cracked block are suspected.

 11. What is a likely explanation for a milky white substance found in the valve covers?

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12. Loose water pump belt, collapsed lower hose, rust or scale in coolant, or ice in the coolant are four causes of _____.

13. What would be an indication of **overcooling**? _____

Water Pump Service

14. Indications of a bad water pump may include: _____

- A. failure to circulate coolant.
- B. produce a **grinding** sound.
- C. leakage of coolant.
- D. all the above.

15. List two (2) common reasons for water pump failure: A._____
B._____

16. How would you check for worn water pump bearings?_____

17. A _____ can be used to pinpoint failing water pump bearings.

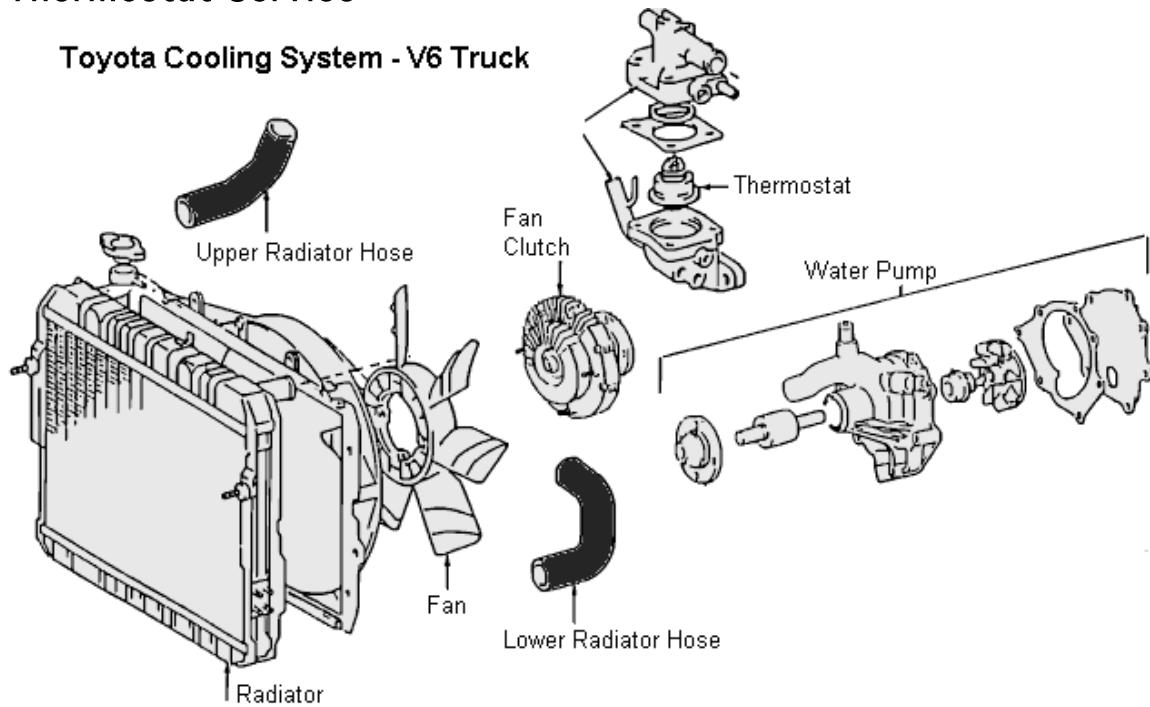
18. You should **never** use excessive force when separating a water pump from an engine because _____

19. Why are few water pumps rebuilt?_____

20. When replacing or installing a water pump, use the correct _____ to adhere the water pump gasket to the water pump.

Thermostat Service

Toyota Cooling System - V6 Truck



21. A stuck or malfunctioning thermostat can cause an engine to:_____

- A. Overcool
- B. Overheat
- C. Both A & B
- D. Neither A or B

22. How can a **digital thermometer** be used to check component temperatures and cooling system efficiency?_____

23. How is it to damage the thermostat housing?_____

24. Some automobile companies use a rubber _____ seal instead of a paper gasket between the housing and engine.

25. An air pocket in an engine can cause a buildup of heat called a _____

26. A _____ is often provided to help eliminate trapped air in cooling system.

Cooling System Hose Service

27. An old radiator hose may _____. .

- A. become soft and mushy.
- B. cause cooling system problems.
- C. become hard and brittle.
- D. All the above.

28. What steps are involved in removing a radiator hose?

- A._____
- B._____
- C._____
- D._____

Radiator & Pressure Cap Service

29. What conditions can often limit airflow through a radiator?_____

30. A radiator _____ will measure a cap's opening pressure and sealing ability of the sealing washer.

31. List the steps in removing a radiator from a vehicle:

- A._____
- B._____
- C._____
- D._____
- E._____

Fan Belt Service

32. What conditions can an **over tightened** fan belt cause?_____

33. What conditions can a **loose** belt cause?_____

Engine Fan Service

34. What conditions can a defective cooling fan cause: _____

35. How is a **thermostatic fan** tested? _____

36. Most electric cooling fans are activated by a sensor placed in: _____

37. How is an electric cooling fan tested? _____

38. Check the operation of an electric cooling fan using a high impedance test light or a

Freeze Plug Service

39. Engine freeze plugs (core plugs) are made _____ than the metal in the engine block and will fail much sooner than other parts of the engine.

40. What are the steps in replacing a freeze plug?

A. _____

B. _____

C. _____

D. _____

E. _____

Coolant Service

42. What tool is used to measure the acidity of a coolant solution? _____

43. How often should coolant be changed? _____

44. A cooling system _____ is used to test the boiling & freezing point?

45. What is one of the most common causes of cracked blocks and cylinder heads?

Flushing a Cooling System

46. What is the purpose of flushing a cooling system? _____

47. What effect does rust (iron oxide) have on a cooling system? _____

48. Describe the process of **reverse flushing**: _____

Temperature Gauge Service

49. What indicates a defective temperature gauge? _____

50. What should happen when the gauge sending unit wire is grounded? _____

51. A gauge tester is a special device with _____.

52. What is the procedure in testing a temperature indicator light:

