

CO-1

COOLING SYSTEM

	Page
TROUBLESHOOTING	CO-2
CHECK AND REPLACEMENT OF ENGINE COOLANT	CO-3
WATER PUMP	CO-4
THERMOSTAT	CO-6
RADIATOR	CO-7
ELECTRIC COOLING FAN	CO-12

CO

CO-2

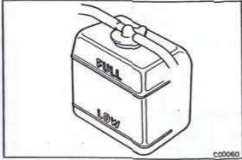
COOLING SYSTEM — Troubleshooting

TROUBLESHOOTING

Problem	Possible cause	Remedy	Page
Engine overheats	fan belt loose or missing	Adjust or replace belt	CH-4
	dirt, leaves or insects on radiator or condenser	Clean radiator or condenser	CO-7
	loose, water pump, thermostat housing, radiator, heater, core plugs or head gasket leakage	Repair as necessary	
	thermostat faulty	Check thermostat	CO-8
	injection timing retarded	Set timing	EM-20
	electric cooling system faulty	Inspect electric cooling system	CO-12
	radiator hose plugged or rotted	Replace hose	
	Water pump faulty	Replace water pump	CO-4
	radiator plugged or cap faulty	Check radiator and cap	CO-7
	cylinder head or block cracked or water passage clogged	Repair as necessary	

NOTE: If the engine tends to overheat, removal of the thermostat would have an adverse effect, causing a lowering of cooling efficiency.

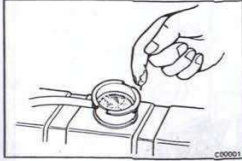
COOLING SYSTEM — Check and f



C00060

CHECK ENGINE

1. CHECK The cooling lines. If low, line.



C00051

2. CHECK There scales the cooling system. If excessive

3. REPLACE

(a) Drain the cooling system.

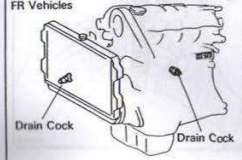
(b) Clean the radiator and condenser.

(c) Fill the cooling system with the correct amount of coolant.

(d) Start the engine and check for leaks.

(e) Run the engine for 10 minutes and check the temperature.

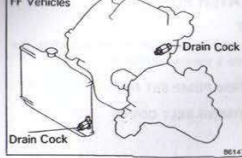
FR Vehicles



Drain Cock

Drain Cock

FF Vehicles



Drain Cock

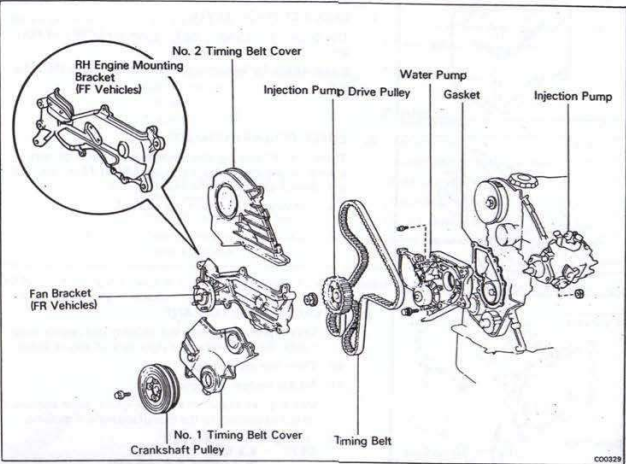
Drain Cock

BB147

CO-4

COOLING SYSTEM — Water Pump

WATER PUMP
COMPONENTS



CO0329

REMOVAL OF WATER PUMP

1. DRAIN COOLANT

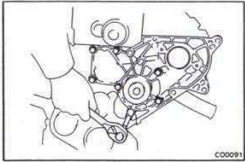
Open the radiator and engine drain cocks, and allow the coolant to drain into a suitable container.

2. REMOVE INJECTION PUMP SET NUTS

3. REMOVE NO. 3 TIMING BELT COVER

4. REMOVE WATER PUMP

Remove seven bolts, and remove the water pump with its gasket.



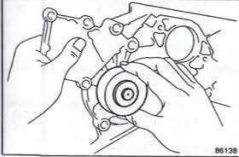
CO0091

COOLING SYSTEM

INSPEC

1. INSP

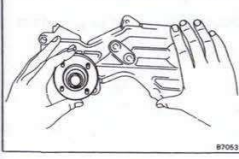
Check
noisy
If nec



86138

2. INSP

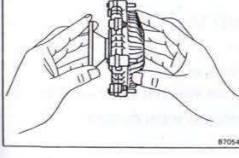
Check
If nec



87093

3. INSP

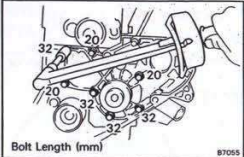
Check
leakage
If nec



87094

CO-6

COOLING SYSTEM — Water Pump, Thermostat

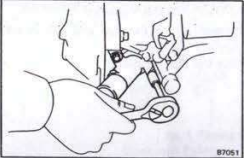


Bolt Length (mm)

INSTALLATION OF WATER PUMP

(See page CO-4)

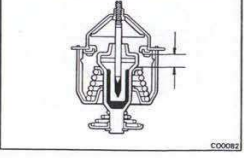
- INSTALL WATER PUMP OVER NEW GASKET**
Install the water pump on a new gasket with seven bolts. Torque the bolts.
NOTE: Each bolt length (mm) is indicated in the figure.
Torque: 185 kg-cm (13 ft-lb, 18 N-m)
- INSTALL NO.3 TIMING BELT COVER**
- INSTALL INJECTION PUMP SET NUTS**
- REFILL WITH COOLANT** (See step 3 on page CO-3)
- START ENGINE AND CHECK FOR LEAKS**



87051



CO0081



CO0082

THERMOSTAT

REMOVAL OF THERMOSTAT

- DRAIN COOLANT**
- REMOVE WATER INLET**
Remove two bolts and water inlet from the cylinder block.
- REMOVE THERMOSTAT WITH GASKET**

INSPECTION OF THERMOSTAT

NOTE: Thermostat is numbered with the valve opening temperature.

(a) Immerse the thermostat in water and heat the water gradually.

(b) Check the valve opening temperature and the valve lift.

Valve opening temperature: 80 – 84°C (176 – 183°F)

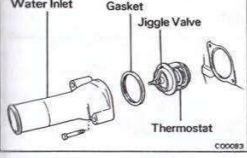
Valve lift: More than 8 mm (0.31 in.) at 95°C (203°F)

If the valve opening temperature and valve lift are not within the specifications above, replace the thermostat.

(c) Check that the valve spring is tight when the thermostat is fully closed.

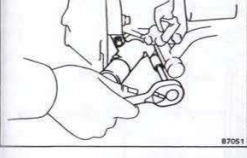
If not closed, replace the thermostat.

COOLING SYSTEM —

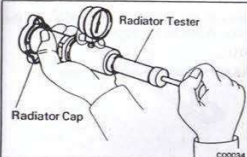


Water Inlet Gasket Jiggle Valve Thermostat

CO0083

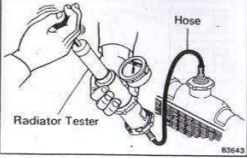


87051



Radiator Tester Radiator Cap

CO0034



Hose Radiator Tester

83643

INSTALLATION

- PLAC**
Install
most
- INST**
Install
Torqu
- REFIL**
- STAR**

RADIA

CLEANI

Using
from
CAUT
carefu
the cl
498
least
radial

INSPEC

- CHEC**
Using
valve
cm² (kPa).
Check
press
If eith
- CHEC**
Attac
to 0.5
does
If the
radiat
check

CO-II

COOLING SYSTEM — Radiator

DISASSEMBLY OF RADIATOR
(RESIN TANK Only)

A/T Vehicles Only

Oil Cooler

Upper Tank

Tank Plate

O-Ring

Core Plate

Core

Core Subassembly

Core Plate

O-Ring

Tank Plate

Lower Tank

1. REMOVE TANK PLATE

(a) Raise the claws of the tank plates with SST in the numerical order shown in the figure.

SST 09230-00010

NOTE: Be careful not to damage the core plate.

1

2

3

4

5

6

7

Tank

Tank Plate

SST

COOLING SYST

(b)

Tank Plate

2. REA

(a)

(b)

ASSEM

(See pag

1. INS

Insp

NO1

• If

rt

T

si

• V

g

p

2. ME

(a)

(b)

SS1

NO1

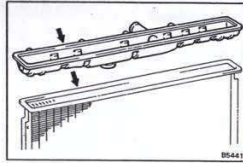
(c)

<https://cardiagn.com/cooling-c-engine/>

5/8

CO-10

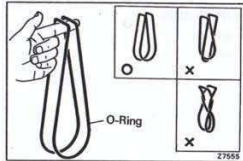
COOLING SYSTEM — Radiator



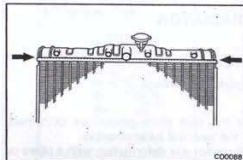
3. INSTALL NEW O-RING AND TANK

NOTE:

- (1) Clean the tank and core plate.



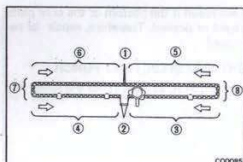
- (2) Inspect the O-ring for twists.



4. INSTALL TANK PLATES

Insert the tank plates from both ends in the direction of the arrows. Firmly set the tank plates in the core plate.

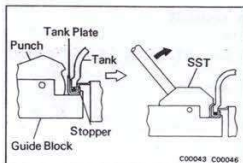
NOTE: The upper and lower tank plates are not the same so be careful not to interchange them.



5. STAKE CLAW OF TANK PLATES

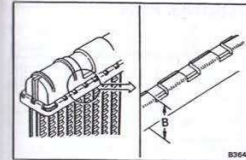
Stake the claws of the tank plates with SST in the numerical order shown in the figure.

SST 09230-00010

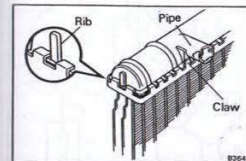


CAUTION: If the bottom of the core plate is staked with the SST on the guide block stopper, it may result in water leakage.

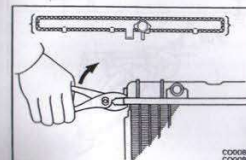
COOLING SYSTEMS



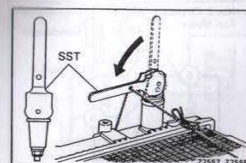
NOTE: (1) 9)
H
fi
Height



- (2) $\frac{1}{2}$

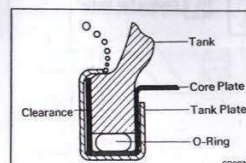


- (3) $T_{\text{eff}} =$
v
t

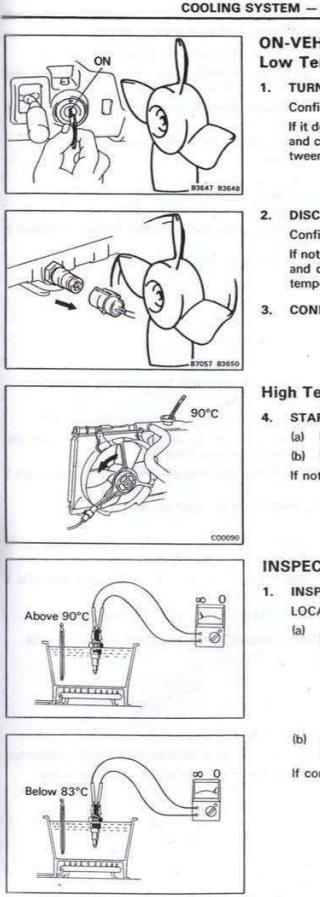
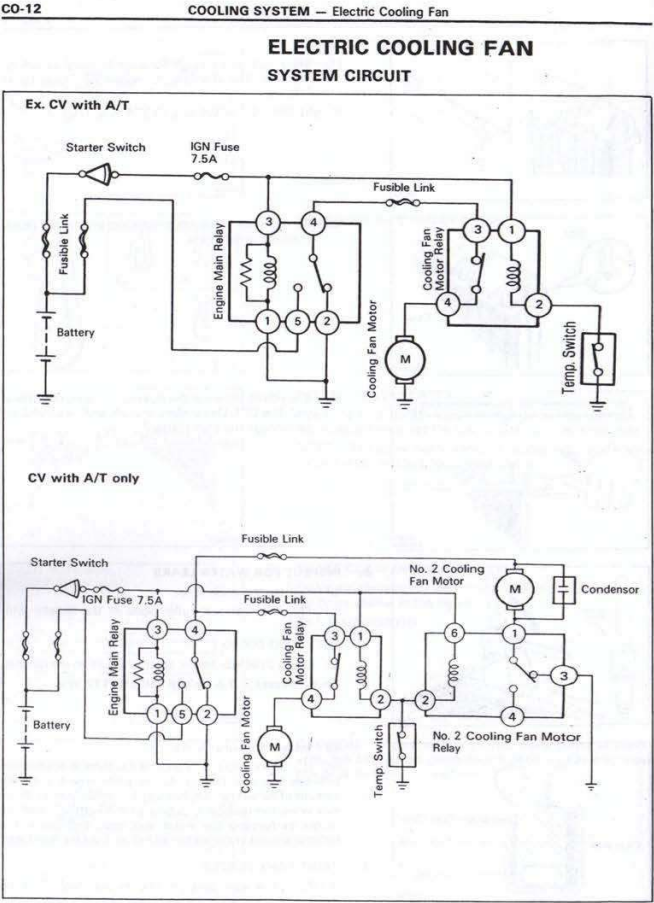


6. INSPWSE

- (a) $\tau(1)$
(b) $\tau(\infty)$
SST (2ST
(c) $\tau(2)$
Test nest

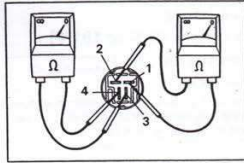


- (d) **NOTE** NOT between amount no leak weak before radiated
7. **PAIN** ALL **NOTE** NOT radiated



CO-14

COOLING SYSTEM — Electric Cooling Fan

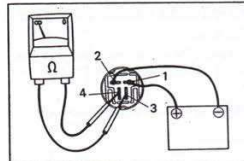


2. INSPECT COOLING FAN MOTOR RELAY

LOCATION: In the engine compartment relay box.

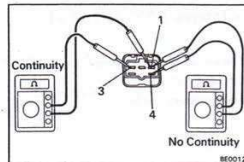
- (a) Using an ohmmeter, check that there is continuity between terminals 1 and 2.
- (b) Check that there is continuity between terminals 3 and 4.

If there is no continuity, replace the relay.



- (c) Apply battery voltage between terminals 1 and 2.
- (d) Check that there is no continuity between terminals 3 and 4.

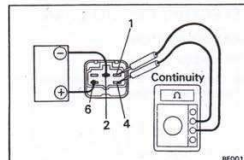
If there is continuity, replace the relay.

3. INSPECT NO. 2 COOLING FAN MOTOR RELAY
(CV with A/T only)

LOCATION: In the engine compartment relay box.

- (a) Using an ohmmeter, check that there is continuity between terminals 1 and 3.
- (b) Check that there is no continuity between terminals 1 and 4.

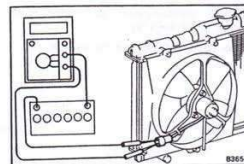
If continuity is not as specified, replace the relay.



- (c) Apply battery voltage between, terminals 6 and 2.
- (d) Check that there is continuity between terminals 1 and 4.

If there is no continuity, replace the relay.

4. INSPECT ENGINE MAIN RELAY (See page CH-19)



5. INSPECT FAN MOTOR

- (a) Connect battery voltage to the fan motor connector.
- (b) Check to see that the motor rotates smoothly.