

Fig. 7-11

Requirements on coolant

The long-term reliability and cooling capacity of the engine cooling system depends much on the quality of cooling water used. "Hard water," if used, will foul up the cooling circuit by scale formation, for such water is usually high in silicate and mineral contents. Scales are poor heat conductors.

Use of water high in acid concentration is just as bad; such water promotes rusting. For similar reasons, river water, well water, not to mention sea water, are not fit as engine cooling water.

Tap water available from city water supply is the best available water, in a practical sense, for the cooling system. Distilled water is ideal but is a luxury in most cases.

For protection of the cooling circuit, it is recommended that GOLDEN CRUISER 1200 (which is included as a regular item in the supply of materials from SUZUKI) be added to the cooling water in a proportion determined by the lowest atmospheric temperature expected.

Standard vehicles is shipped from the factory with its cooling circuit filled with a 30 % solution of GOLDEN CRUISER 1200; this solution does not freeze down to -16°C (3°F).

NOTE:

For the vehicles to be shipped to European market, a 50% solution of GOLDEN CRUISER is poured in the cooling circuit.

Many brands of ANTI-FREEZE compounds are sold in the market. In no case, allow two or more different brands to be mixed in the cooling circuit of the engine.

GOLDEN CRUISER 1200 - "Anti-freeze and Summer Coolant" - its effects and use

(1) Effects of GOLDEN CRUISER 1200 coolant.

- (a) Its freezing temperature is much lower and depends on the concentration of GOLDEN CRUISER 1200. It is an anti-freeze coolant.
- (b) It does not corrode the metal surfaces of the cooling circuit. It is an anti-corrosion coolant.
- (c) It does not develop foam or bubbles. It is a foam-inhibited coolant.
- (d) It stands long usage. The renewal intervals is much longer.



Fig. 7-12

(2) How to proportion GOLDEN CRUISER 1200 to cooling water

GOLDEN CRUISER 1200 is a multi-purpose anti-freeze compound. Its aqueous solution as engine coolant can be kept in service as long as two years in a single stretch, regardless of changes of season.

To prepare an anti-freeze coolant with GOLDEN CRUISER 1200, proportion this compound to water according to the following chart, in which the proportions are indicated for seven levels of temperature as the lowest expected levels:

ANTI-FREEZE PROPORTIONING CHART

Freezing Temperature	°C	-9	-12	-16	-20	-25	-30	-36
	°F	16	10	3	-4	-13	-22	-33
GOLDEN CRUISER concentration	%	20	25	30	35	40	45	50
Ratio of compound to cooling water	ltr.	0.72/ 2.88	0.90/ 2.70	1.08/ 2.52	1.26/ 2.34	1.44/ 2.16	1.62/ 1.98	1.80/ 1.80
	US pt.	1.52/ 6.08	1.90/ 5.70	2.28/ 5.32	2.66/ 4.94	3.04/ 4.56	3.42/ 4.18	3.80/ 3.80
	Imp. pt.	1.27/ 5.07	1.59/ 4.75	1.90/ 4.44	2.22/ 4.12	2.54/ 3.80	2.85/ 3.49	3.17/ 3.17

NOTE:

Remember, the radiator capacity is 3.6 litres (7.60/6.34 US/Imp. pt.) which includes the reservoir tank capacity of 0.6 litre (1.27/1.06 US/Imp. pt.)

Water temperature gauge

This gauge constitutes a system of its own, with an indicator mounted in the instrument panel, an engine unit or sensor of thermistor type and a regulator for passing a constant current. These three-engine unit, indicator and regulator-are connected as shown in the diagram below:

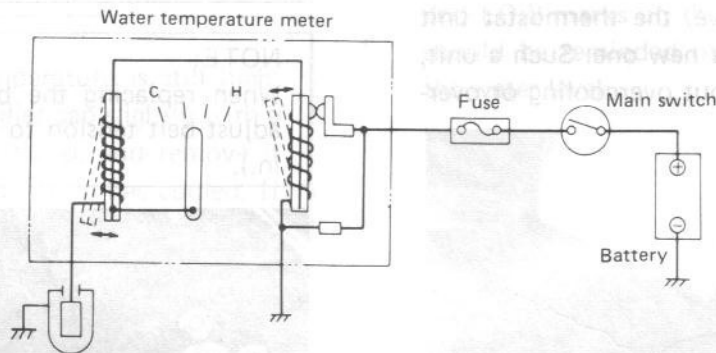


Fig. 7-13

Water temperature gauge

The indicator is of bimetal type; its bimetal element is wrapped with a heater coil and becomes heated by the current flowing in the coil. By deflecting, the element actuates the indicating hand, making the hand move along the temperature scale.

The magnitude of the current is determined by the state of the thermistor in the engine unit. This unit is installed on the intake manifold. Speaking generally, a thermistor is a semiconductor resistive element whose ohmic resistance decreases as its temperature rises; its resistance has a negative temperature coefficient. When the coolant temperature rises, the thermistor offers a decreasing resistance, so that the current increases, thereby deflecting the indicating hand wider.

The regulator is a means of maintaining a constant current in the circuit for each ohmic resistance state of the thermistor, and does so function under the varying voltage condition of the battery.

7-5. Cooling System Services

Thermostat

If the thermostat valve is suspected of malfunctioning, check first the possibility of some foreign matters being stuck on the valve seat to prevent the valve from seating tight. Next, check the thermostatic movement of the wax element in the following manner:

Heat water in a pan by placing the pan on a stove, as shown in Fig. 7-14. Grip the end of a thread or small string by pinching it in the valve and suspend the thermostat unit by holding the other end of the thread or string. Immerse it in the water, holding it about 20 mm (0.78 in.) above the bottom, and read the water temperature on the column thermometer.

If the suspended unit falls to the bottom (by releasing the gripped end of the thread or string) just when the temperature rises to 82° C (179° F) or thereabout (which is the temperature at which the valve should begin to open), the thermostat unit may be deemed to be in sound condition.

If the valve begins to open at a temperature substantially below or above, the thermostat unit should be replaced by a new one. Such a unit, if re-used, will bring about overcooling or overheating tendency.

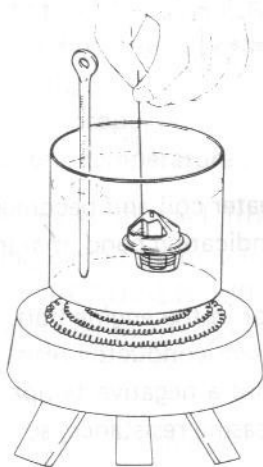


Fig. 7-14

Make sure that the air bleed valve of the thermostat is clear. Should this valve be clogged, the engine would tend to overheat.



Fig. 7-15

Water pump belt

This belt drives both alternator and water pump. Check the belt for tension. The belt is in proper tension when a thumb pressure applied to the middle point of its span deflects it about 10 - 15 mm (0.4 - 0.6 in.). Inspect the belt for signs of deterioration and replace it as necessary.

Belt tension specification	10 - 15 mm (0.4 - 0.6 in.) as deflection
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NOTE:

When replacing the belt with a new one, adjust belt tension to 8 - 10 mm (0.3 - 0.4 in.).

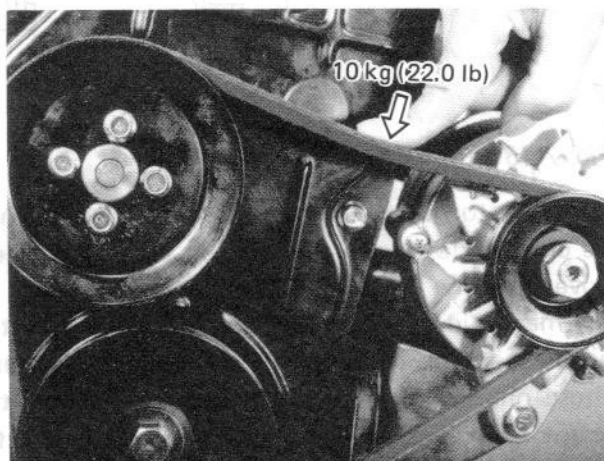


Fig. 7-16