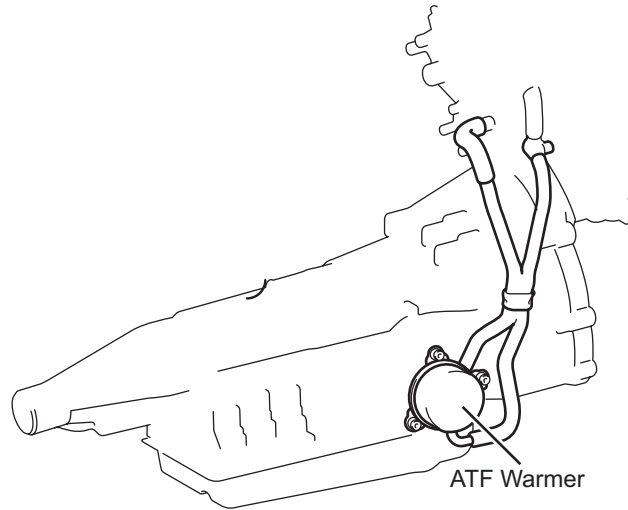


ATF Warmer

- An automatic transmission fluid (ATF) warmer is used on the models equipped with the 3GR-FSE and 3GR-FE engine.
- Because this construction does not use the ordinary oil cooler that is built into the radiator, it accelerates the warming of ATF when it is cold, thus shortening the time in which the flex lockup control starts. During normal operation, the ATF warmer keeps the ATF oil temperature high to reduce friction loss. Thus, it ensures superior fuel economy characteristics.



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Effect

Warming Up		Heat Exchange Method	Effect
When warming up		Coolant → ATF	Accelerates the warming of ATF and shortens the flex lockup starting time. Accelerates the reduction of the friction loss of the automatic transmission.
After Warm-Up	Low- to Medium-Load	Coolant ↔ ATF	Maintains the ATF at a higher temperature than an oil cooler that is built into the radiator, thus reducing friction loss.
	High Load	Coolant ← ATF	Uses the same heat exchanger to cool the ATF if it is necessary to cool the ATF, thus reducing the deterioration of the ATF.

Specifications

Core Type	Multiplate Aluminum Water-Cooled Type
Core specification	φ 90×6 gears
Oil Capacity [L]	0.06
Dry Weight [Kg]	0.48