

## ELECTRICAL FAN CONTROL OUTLINE

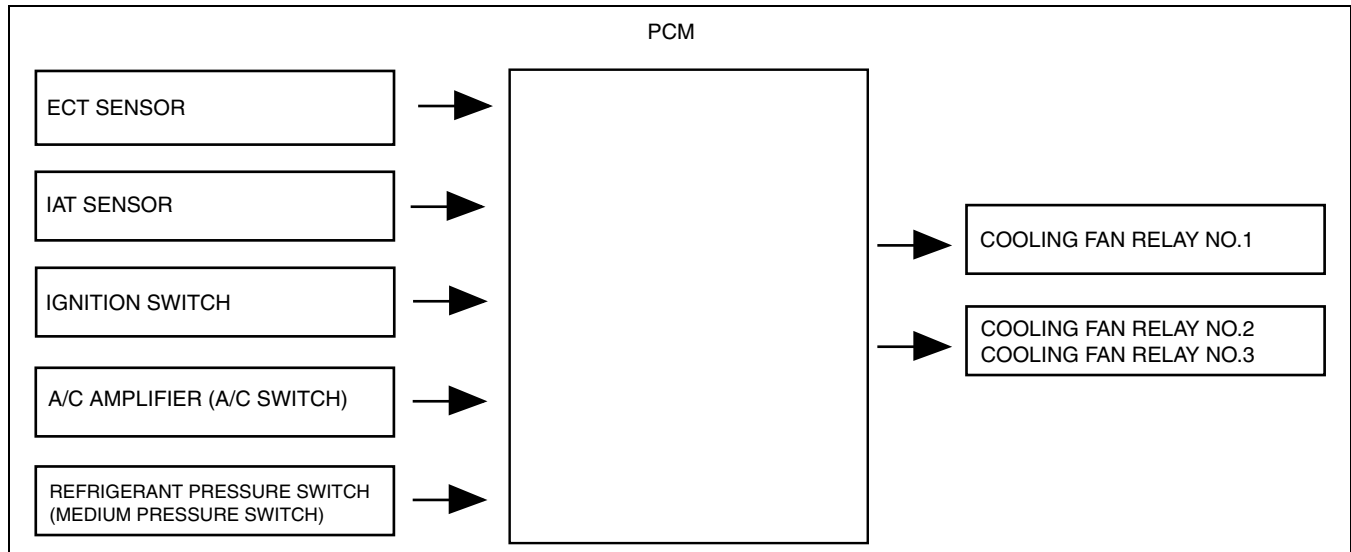
CHU014000140S45

- Cooling fan relays No.1, No.2, and No.3 turn on and off to control operation timing and rotation speed of the cooling fan motor according to the engine conditions. Due to this, the radiator and condenser are cooled efficiently, preventing overheating and overcooling.
- The electrical fan control includes the regular-driving cooling function and the after-cooling function.
- The regular-driving cooling function operates according to the engine conditions during the engine operation.
- The after-cooling function operates when the vehicle has stopped at high engine temperature (ignition switch off).
- After the ignition switch is turned off, a main relay on request is sent to operate the after-cooling function. (See 01-40-10 MAIN RELAY CONTROL OPERATION.)

## ELECTRICAL FAN CONTROL BLOCK DIAGRAM

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- The PCM determines the engine conditions based on input signals and sends an on/off signal to cooling fan relay No.1 or No.2/No.3.



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## ELECTRICAL FAN CONTROL OPERATION

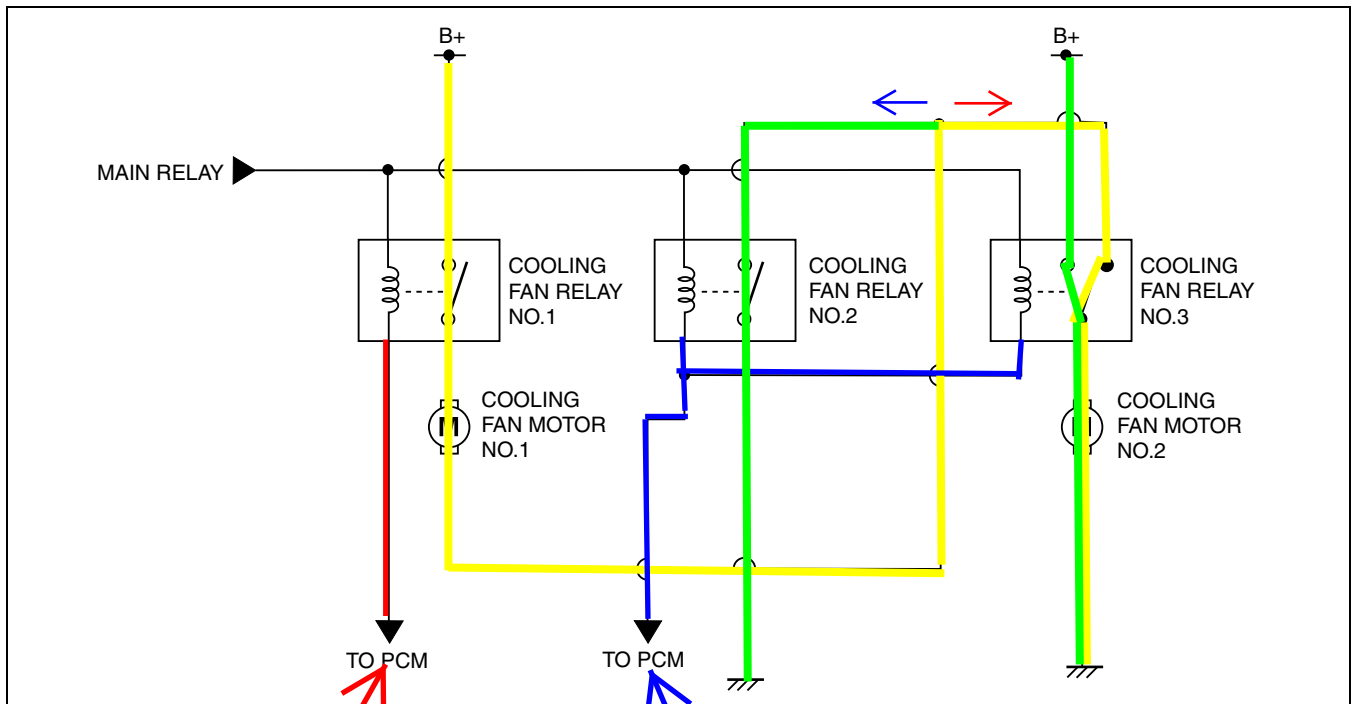
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- When the operation conditions are met for each function, the PCM sends an operation signal to cooling fan relay No.1 or No.2/No.3 to operate the cooling fan motors.
- The rotation speed of the cooling fan motor is switched between two levels according to a combination of the cooling fan relays.
- When only cooling fan relay No.1 is on, the rotation speed is low and when in addition to No.1, No.2 and No.3 are on, rotation speed is high.

# CONTROL SYSTEM

## Operation Conditions

Function	Operation condition	Cooling fan motor		Cooling fan relay	
		No.1	No.2	No.1	No.2/No.3
Regular-driving cooling	ECT: Less than 97°C {206.6°F}	Stop		OFF	OFF
	ECT: 97°C {206.6°F} or more	Low speed rotation		ON	OFF
	<ul style="list-style-type: none"> <li>When all the following conditions are met:                             <ul style="list-style-type: none"> <li>ECT: 97°C {206.6°F} or more</li> <li>During fuel cut at deceleration</li> </ul> </li> </ul>	Low speed rotation		ON	OFF
	A/C amplifier (A/C switch): ON	Low speed rotation		ON	OFF
	ECT: 101°C {213.8°F} or more	High speed rotation		ON	
	<ul style="list-style-type: none"> <li>When all the following conditions are met:                             <ul style="list-style-type: none"> <li>ECT: 101°C {213.8°F} or less</li> <li>A/C amplifier (A/C switch): ON</li> <li>Refrigerant pressure switch (medium-pressure switch): ON</li> </ul> </li> </ul>	High speed rotation		ON	
After-cooling	<ul style="list-style-type: none"> <li>When all the following conditions are met:                             <ul style="list-style-type: none"> <li>Ignition switch: OFF</li> <li>Drive-by-wire relay: OFF</li> <li>Metering oil pump: Other than during ignition switch off mode</li> <li>Engine compartment temperature high.</li> </ul> </li> </ul>	High speed rotation		ON	
	<ul style="list-style-type: none"> <li>When all the following conditions are met:                             <ul style="list-style-type: none"> <li>Ignition switch: OFF</li> <li>Drive-by-wire relay: OFF</li> <li>Metering oil pump: Other than during ignition switch off mode</li> <li>ECT: 110°C {230°F} or more</li> </ul> </li> </ul>	High speed rotation		ON	
Forced drive	During test mode (during test mode with WDS) when the AP is depressed.	High speed rotation		ON	
Fail safe	When a failure occurs in the ECT sensor.	High speed rotation		ON	



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When relay 1 is on, Fans 1 & 2 Run in series - low speed operation

When Relays 1, 2 & 3 are on, Fans 1 & 2 run in parallel - high speed operation