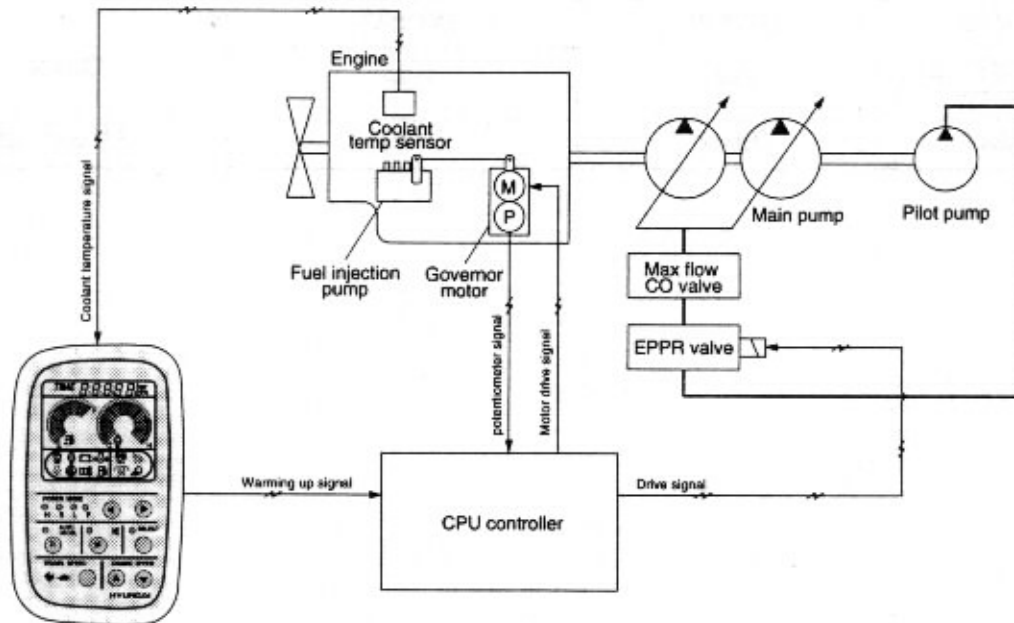


## GROUP 9 AUTOMATIC WARMING UP FUNCTION



1. Cluster reads engine coolant temperature through the temperature sensor, and if the coolant temperature is less than 30°C, it turns the warming-up lamp ON and sends warming-up control signal to the CPU controller.
2. When the CPU controller receives the warming-up control signal from the cluster, it changes the governor motor position and set the engine speed to 1250 rpm. At the same time, the mode display on cluster is not changed.
3. If the coolant temperature increases upto 30°C, or an operator changes mode set among the warming up function, the CPU controller cancels the automatic warming up function.

#### 4. Logic table(1)

	Condition	Function
Actuated	- Coolant temperature : less than 30°C (after engine run)	- Mode : Default - Warming up time : at least 10 minutes - Warming-up lamp : ON
Canceled	- Coolant temperature : above 30°C - Warming up time : above 10 minutes - Changed mode set by operator ★ If any of the above conditions is applicable, the automatic warming-up function is canceled	- Default mode - Default mode - Changed mode
Warming-up lamp	Coolant temperature : above 30°C	Warming-up lamp : OFF

5. Logic table(2)

	Coolant temp. $\leq 30^{\circ}\text{C}$	Coolant temp. $> 30^{\circ}\text{C}$	Description
Signal	Low(0V)	High(5V)	Cluster
Warming-up lamp	ON	OFF	
Mode	Default	Default	CPU controller