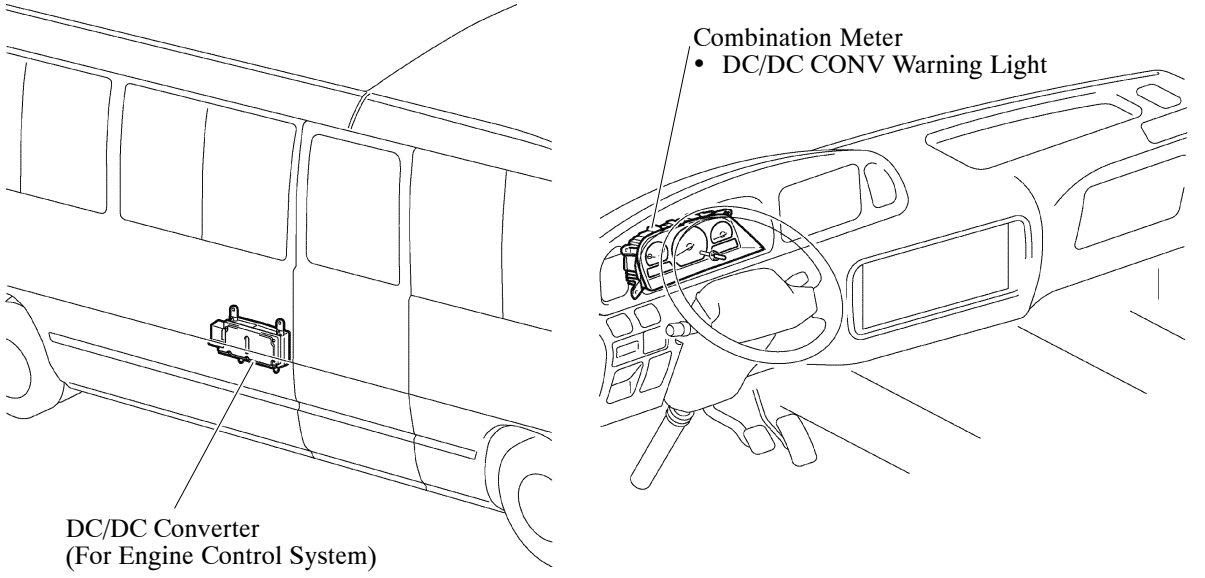
■DC/DC CONVERTER (Models for Europe)

1. General

- A DC/DC converter for engine control system is used in vehicles mounted with N04C-UH engines.
- As the power supplied from the battery is 24 V, a DC/DC converter, which simultaneously converts the power supplied to the engine control system to 12 V and outputs it, is used.
- The DC/DC converter supplies electrical power to the engine control ECU for two purposes; main power supply and memory backup power supply.



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Service Tip

- The DC/DC converter is earthed to the case. Do not move it, as there is the possibility that it could cause the engine to stop.
- Do not reconstruct this product or the harnesses, as an overload in output power may stop operation, and stop the engine. Do not use it with the power supply of another 12 V device.
- With the exception of its lower surface and connector section, the DC/DC converter is of a splash-proof construction. However, as it is not completely waterproof, take care not to expose it to water.
- Do not cover the product with anything, as there is the possibility that operation will stop if heat builds up.

▶ DC/DC Converter Specifications ◀

Input voltage [V]		24
Output voltage [V]	Main	13±1
	Memory backup	8 or higher
Maximum output current [A]		22

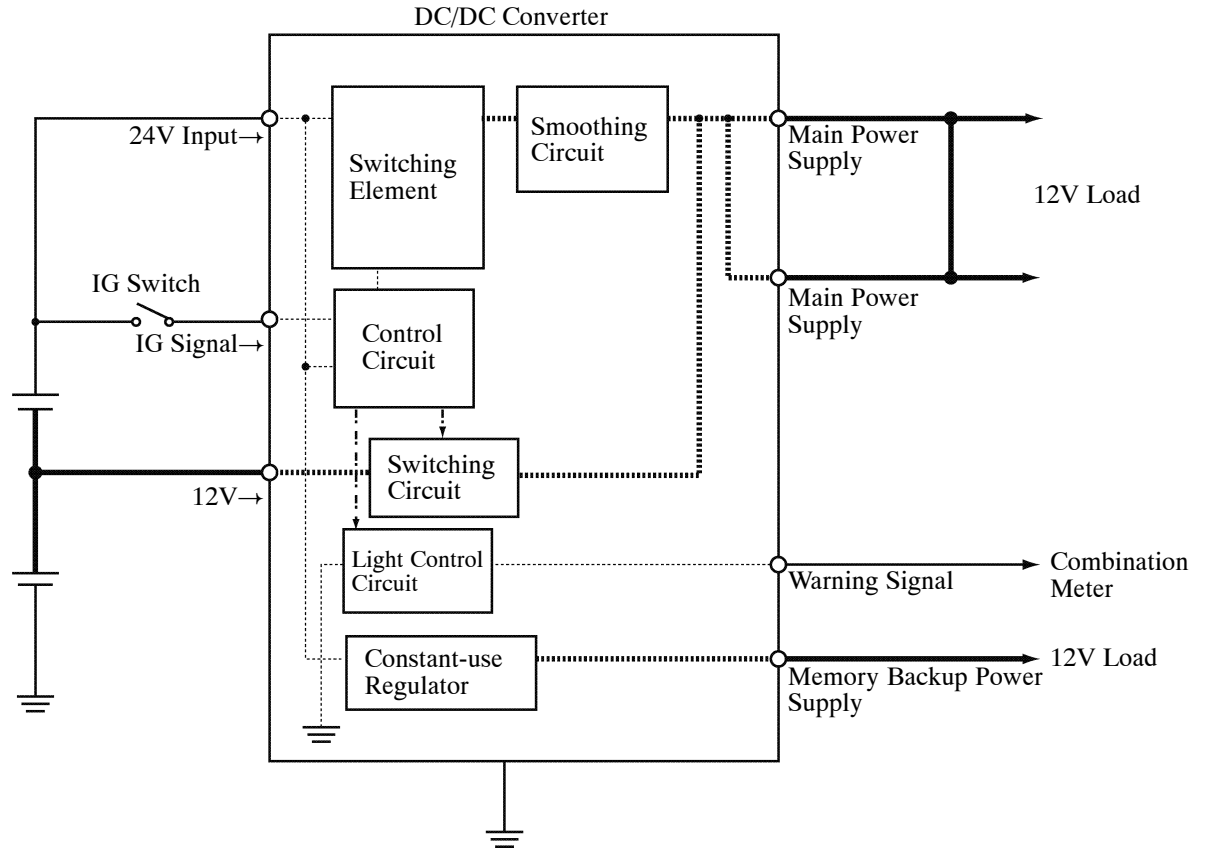
2. DC/DC Converter Characteristics

- The DC/DC converter outputs power from two systems; the main power supply system (for engine control system main power supply) and the memory backup power supply system (for engine ECU memory backup).
- When the DC/DC converter's main output power stops, 12 V of power is extracted from the series-connected batteries, and engine stalling during driving is prevented, due to the direct supply of power to the engine control system. The 12 V of power is not extracted from the batteries in malfunction mode.
- If the DC/DC converter malfunctions, the warning light in the combination meter illuminates to alert the driver.

3. DC/DC Converter Operation

Status	Operation
When the ignition switch is turned ON	• When the ignition switch is turned ON, an ignition switch signal is input into the control circuit. • The ignition switch signal causes the internal control circuit to illuminate the "DC/DC CONV" warning light in the combination meter for 1 second, and then turn it off.
During normal operation	When the control circuit detects the ignition switch signal, it outputs a drive permission signal to the switching element/lubrication circuit. When the drive permission signal is input, the switching element/lubrication circuit is driven, and the 24 V of power input into the DC/DC converter is converted to 12 V.
During fail safe operation	• If the control circuit detects an abnormality in the DC/DC converter, it causes the "DC/DC CONV" warning light in the combination meter to illuminate to alert the driver of the abnormality. • During heating conservation/internal malfunctions, 12 V of power is extracted from the batteries, and this is output as power directly supplied to the engine control system. When the output stops due to excessive electrical current, at times of output shorting and overloading, this operation is not performed, and output is stopped.
When the ignition switch is turned OFF	If the ignition switch is returned to "LOCK" or "ACC", the control circuit stops output from the main power supply after 30 seconds.
Backup power supply output	The constant-use regulator causes the memory backup power supply to output 12 V of power constantly, regardless of the status of the ignition switch.

▶ System Diagram ◀



Heavy Line: 12V

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