

## BODY ELECTRICAL

### BODY ELECTRICAL SYSTEM CONTROL

#### ■ MULTIPLEX COMMUNICATION SYSTEM

##### 1. General

- A multiplex communication system has been adopted for body electrical system control and to achieve a slimmer wiring harnesses configuration.
- There following are the types of multiplex communication systems used:
  - BEAN (Body Electronics Area Network)
  - AVC-LAN (Audio Visual Communication-Local Area Network)
  - Local Protocol Unidirectional Communication
- The multiplex communication system consists of two buses: the door bus and the instrument panel bus.
- The communication between the control signals related to the audio and visual systems and the gateway ECU is established via the AVC-LAN. The transmission of the signals exchanged between BEAN and AVC-LAN is carried out by the gateway function of the gateway ECU.
- A customized body electronics system, which improves the malfunction diagnostic function, enables the functions to be changed according to customer needs, and reduce the types of parts, has been adopted.
- The multiplex communication systems and their configurations are listed below.

##### ► ECUs that Support Multiplex Communication System ◀

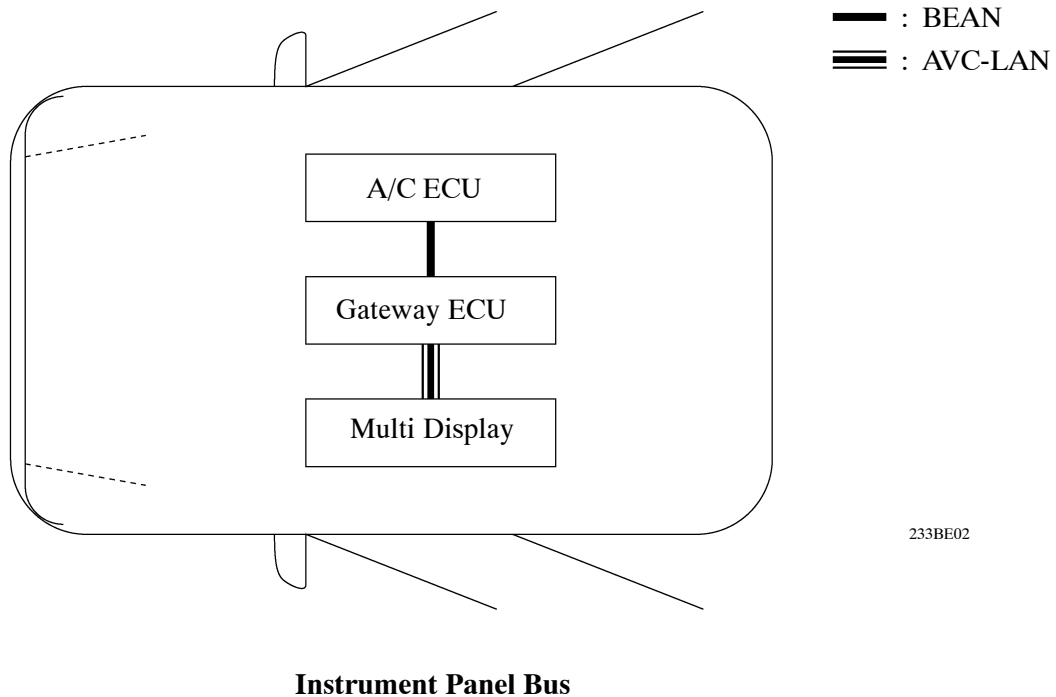
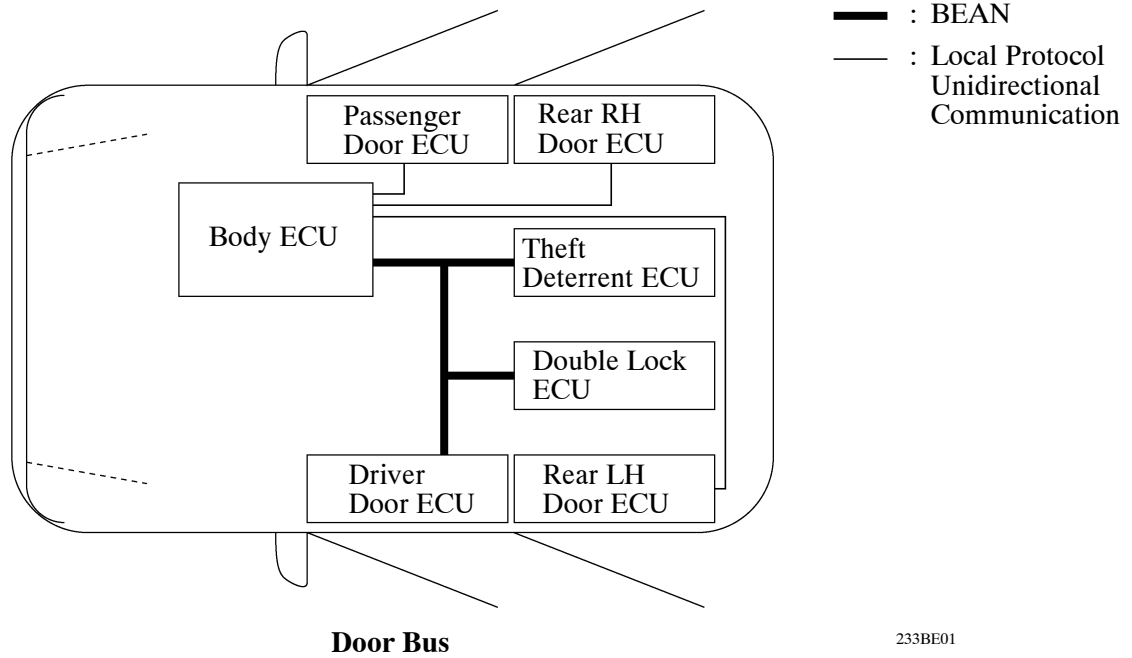
○: Standard Δ: Option

Item			Destination			
Communication System		ECU	Europe	Australia	G.C.C. Countries	General Countries
Door Bus	BEAN	Body ECU	○	○	○	○
		Driver Door ECU	○	○	○	—
		Theft Deterrent ECU	Δ	Δ	Δ	Δ
		Double Lock ECU	Δ	—	—	—
	Local Protocol Unidirectional Communication	Passenger Door ECU	○	○	○	—
		Rear LH Door ECU	○	○	○	—
		Rear RH Door ECU	○	○	○	—
Instrument Panel Bus	BEAN and AVC-LAN	A/C ECU	Δ <sup>*1</sup>	— <sup>*2</sup>	— <sup>*2</sup>	— <sup>*2</sup>
		Gateway ECU	Δ	—	—	—
		Multi Display	Δ	—	—	—

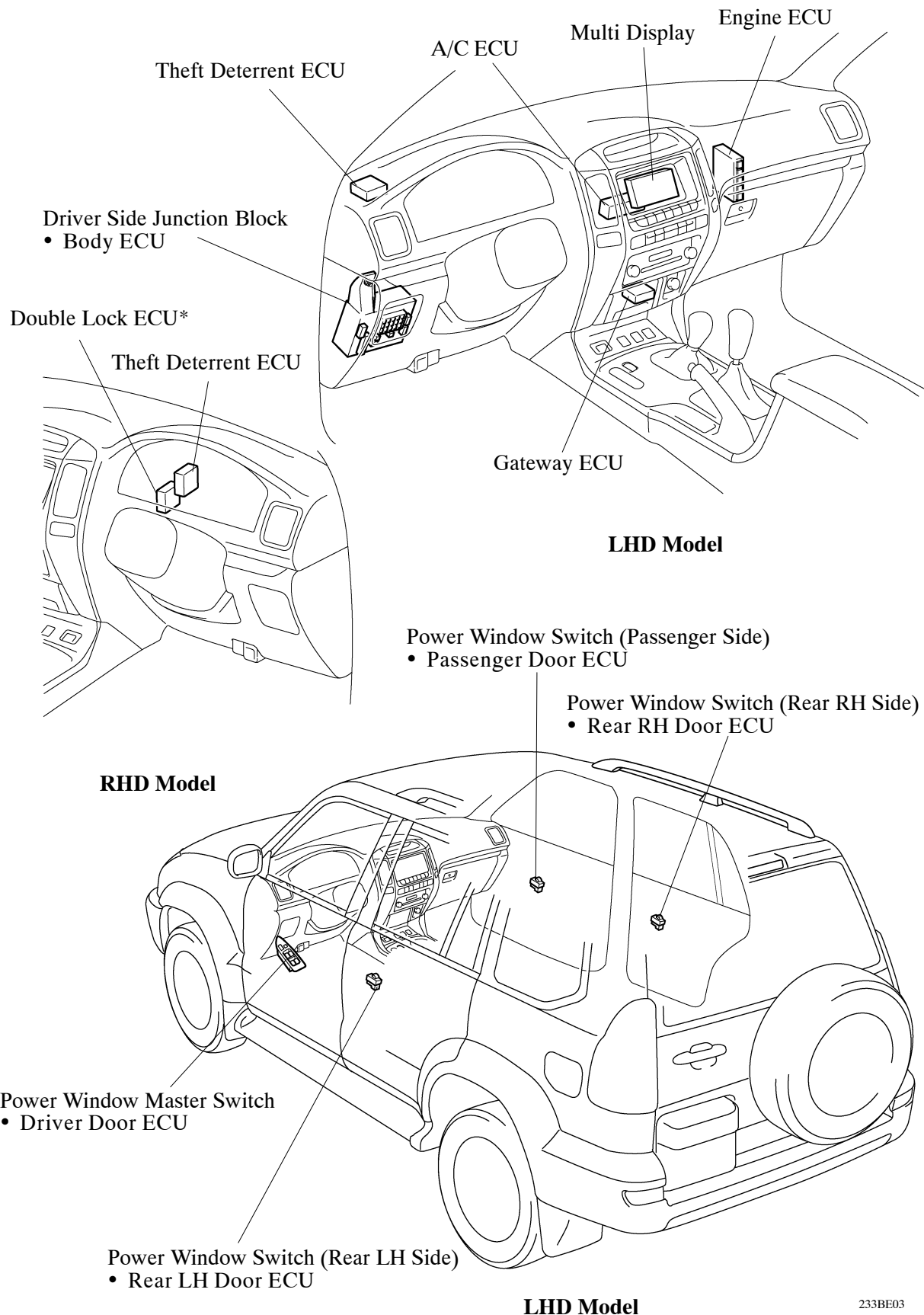
\*1: Only in when equipped with the Multi Display, A/C ECU will be consisted of multiplex communication system

\*2: A/C ECU is not part of the multiplex communication system.

## 2. System Diagram



### 3. Layout of Main Component



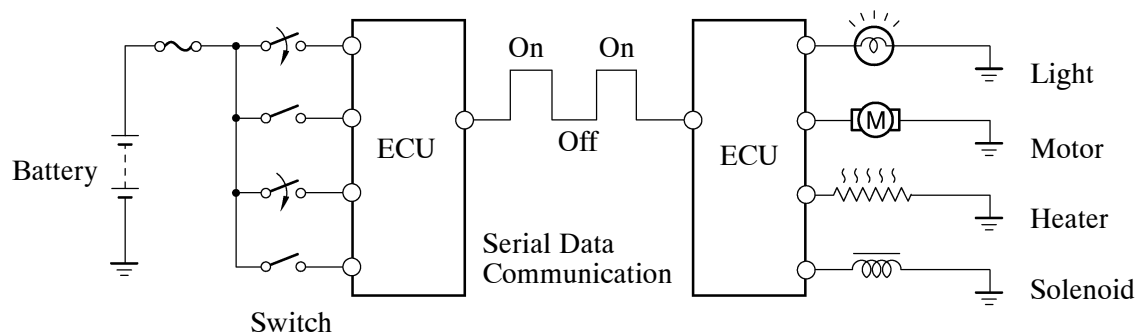
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\*: Optional Equipment Only for European RHD Model

## 4. System Outline

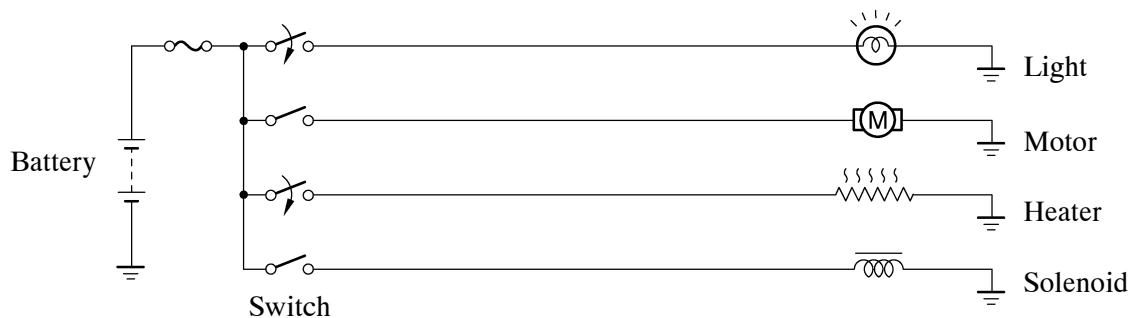
In the conventional system, electrical loads such as motors and lights were directly connected by wire harness to their switches which controlled their operation. However, in the multiplex communication system, the wire harness is replaced by serial data communication by the ECU, to provide functions similar to the conventional system, through a single serial communication bus. With this system, even when multiple tasks demand additional switches and electrical loads, communication among ECUs can be implemented through the serial communication bus only, resulting in the only reduction in wire harnesses.

### ► Conceptual Drawing of Multiplex Communication System ◀



**Multiplex Communication System**

208BE03



**Conventional System**

208BE51