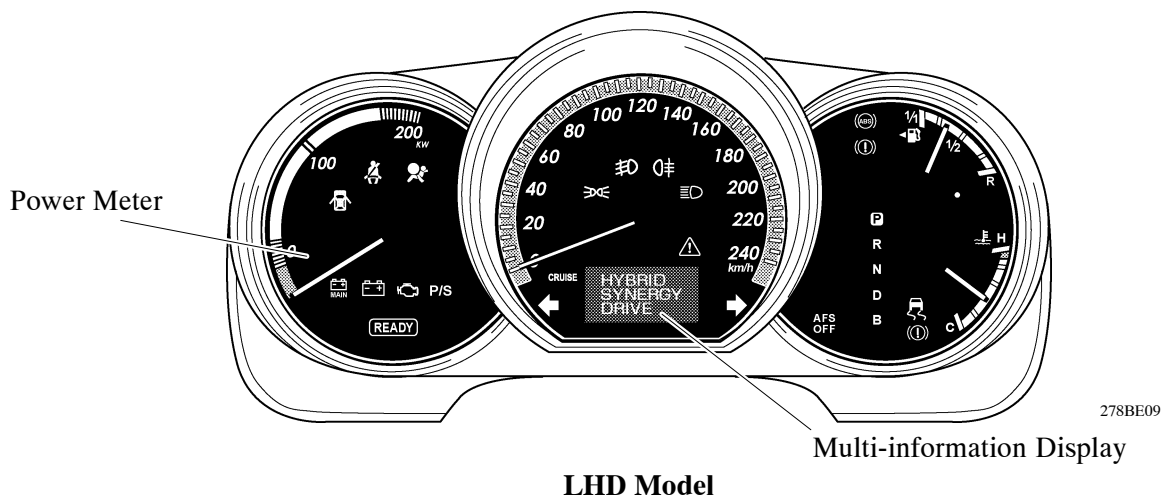


METER

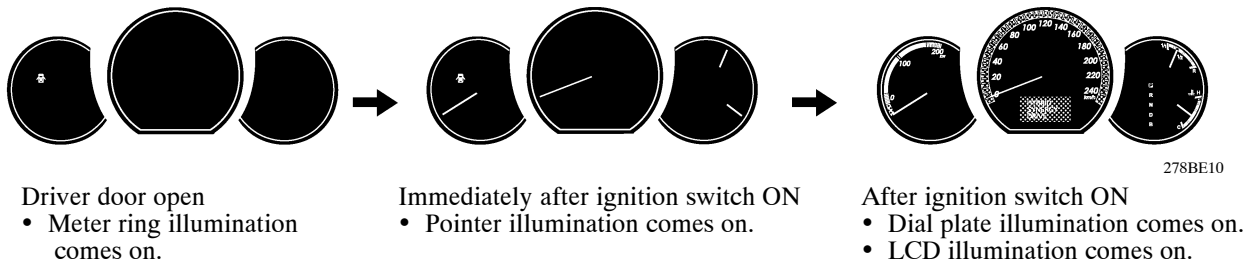
■ COMBINATION METER

1. General

- An optitron display type combination meter is used. The optitron display type meter realizes excellent visibility through the use of smoke acylic in the protective panel, and LEDs (Light Emitting Diodes) that is very bright and has high contrast for illuminating the indicator and the dial.
- A new power meter has been provided, in order to indicate the total of the engine output and motor output.
- A multi-information display has been provided on the speedometer, in order to display an energy monitor and a warning message. The indication on the multi-information display can be changed by pressing the DISP switch provided on the steering pad.
- READY indicator light, master warning light and ECB warning light have been provided in the combination meter.
- A meter ECU and buzzer are enclosed in the combination meter. This ECU maintains communication with other ECUs through the BEAN (Body Electronics Area Network). In addition, this ECU maintains communication with other ECUs or devices comprising the CAN and AVC-LAN networks, via the gateway ECU.
- A function is used to control the combination meter illumination (combination meter ring illumination, and illumination of meter pointers, dial plates and odometer/trip meter) linked to opening of the driver door.
- The movement for actuating the indicator of the speedometer, the fuel gauge, the water temperature gauge and the power meter is used a step-motor type.



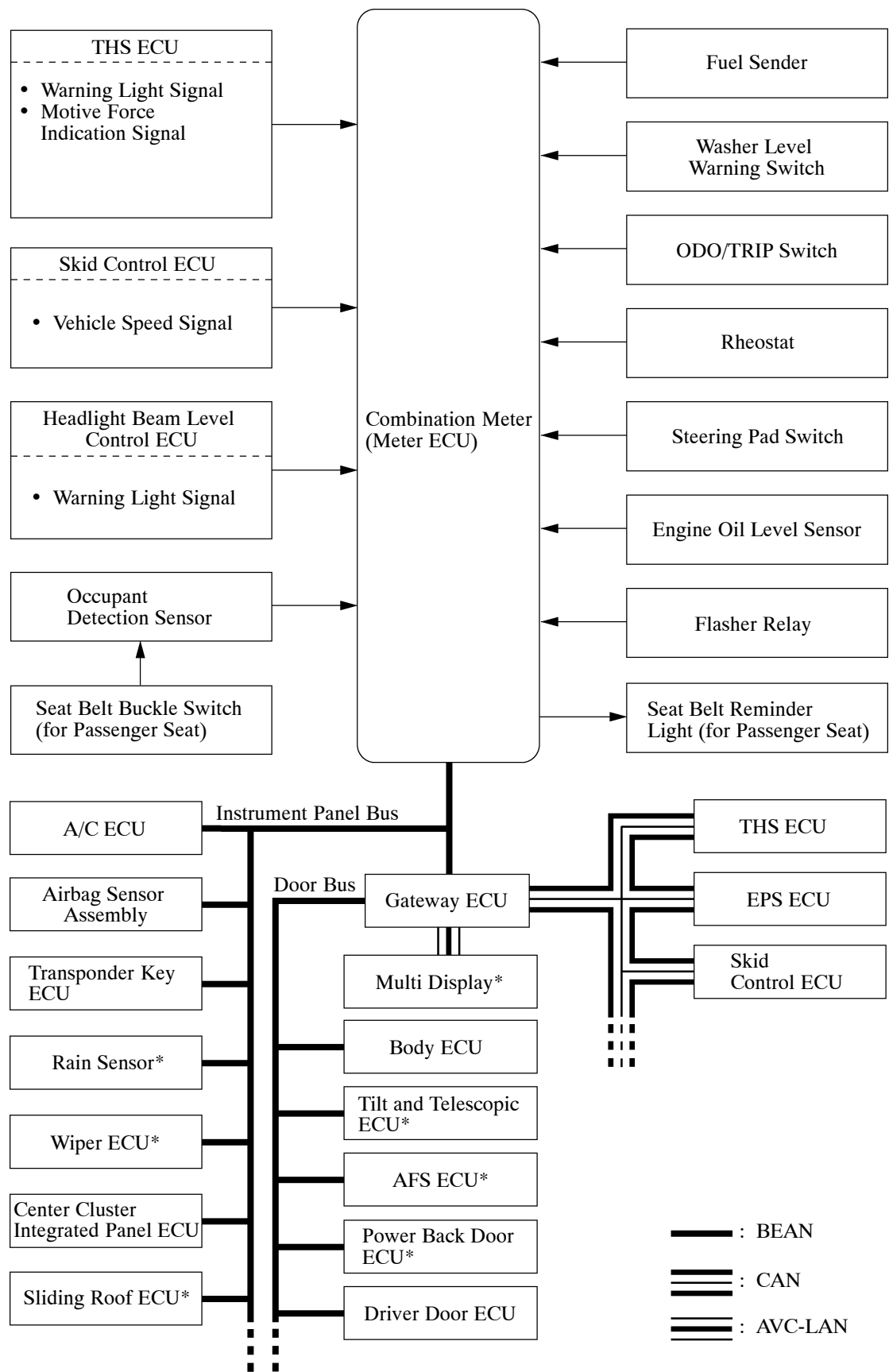
► Combination Meter Illumination ◀



Service Tip

If the LEDs malfunction, it must be replaced as a combination meter assembly. Refer to the LEXUS RX400h Repair Manual (Pub. No. RM1139E).

2. System Diagram



*: Optional Equipment

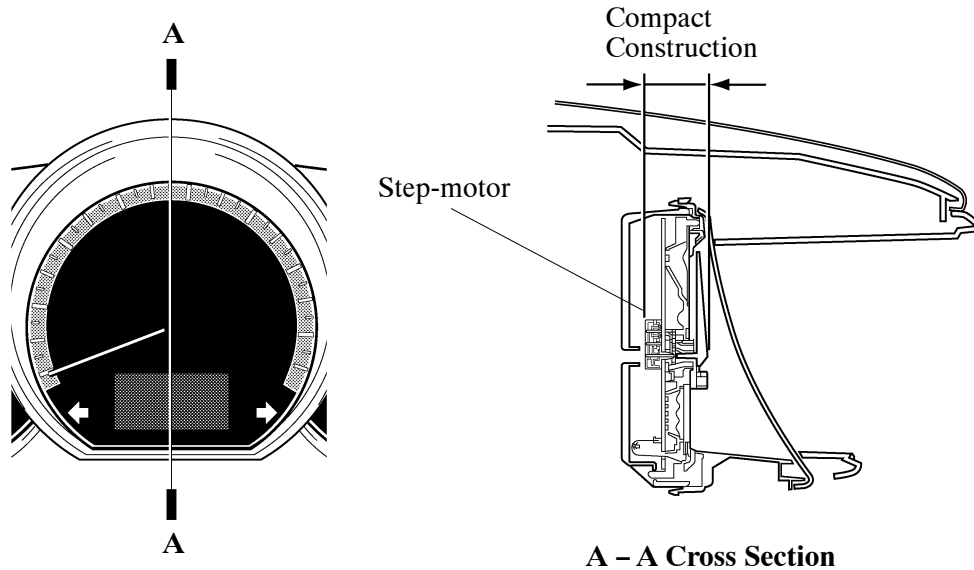
► MPX Communication ◀

Protocol	ECU	Signals Exchanged with Combination Meter (Meter ECU)
BEAN (Instrument Panel Bus)	A/C ECU	• Transmits ambient Temp. signal • Receives vehicle speed signal
	Airbag Sensor Assembly	• Transmits Driver's buckle switch signal • Transmits airbag warning light illumination or blinking signal • Receives vehicle speed signal
	Transponder Key ECU	• Receives vehicle speed signal
	Rain Sensor*	• Receives vehicle speed signal
	Wiper ECU*	• Receives vehicle speed signal
	Sliding Roof ECU*	• Receives vehicle speed signal • Transmit sliding roof warning message signal
	Center Cluster Integrated Panel ECU	• Transmits a trip information operation signal • Receives trip information display signal • Receives vehicle speed signal
BEAN (Door Bus)	Body ECU	• Transmits a meter illumination light dim request signal • Transmits door courtesy switches signal • Transmits all door courtesy switch signal • Transmits a headlight illumination signal • Transmits a tail light illumination signal • Transmits front fog light illumination signal • Receives vehicle speed signal
	Tilt and Telescopic ECU*	• Receives vehicle speed signal
	Driver Door ECU	• Receives vehicle speed signal
	AFS ECU*	• Transmits an AFS OFF indicator light illumination or blinking signal • Receives vehicle speed signal
	Power Back Door ECU*	• Receives vehicle speed signal
CAN	THS ECU	• Transmits a shift position signal (P,R,N,D,B). (for shift position indicator light) • Transmits a READY indicator light illumination or blinking signal • Transmits a buzzer sounding request signal • Transmits a CHARGE warning light (for auxiliary battery) illumination signal • Transmits a MAIN BATTERY warning light illumination signal • Transmits a multi-information display warning message indication request signal • Transmits a HV energy flow information (for multi-information display) • Transmits a SOC data signal (for multi-information display) • Transmits an engine speed signal • Transmits a fuel injection volume signal • Transmits an engine coolant Temp. signal (for calculating engine coolant Temp. meter) • Transmits a cruise indicator light illumination or blinking signal • Receives fuel tank volume signal
	Skid Control ECU	• Transmits a brake aystem warning light illumination signal • Transmits a warning light (ABS, ECB) illumination or blinking signal • Transmits a slip indicator light illumination or blinking signal
	EPS ECU	Transmits a P/S warning light illumination request signal
AVC-LAN	Multi Display*	• Transmits a trip information operation signal • Receives trip information display signal

*: Optional Equipment

3. Construction

- The indicator of the speedometer, the fuel gauge, the engine coolant temperature gauge and the power meter use a step-motor type, actuator for movement.
- In the case of the step-motor type, when the power to the combination meter is turned ON through the reconnection of the battery terminal, the step-motor initializes once to recognize the zero point of the indicator in relation to the step-motor. However, if the ignition switch is turned ON after 60 seconds or more have elapsed after the initialization, the step-motor initializes again.

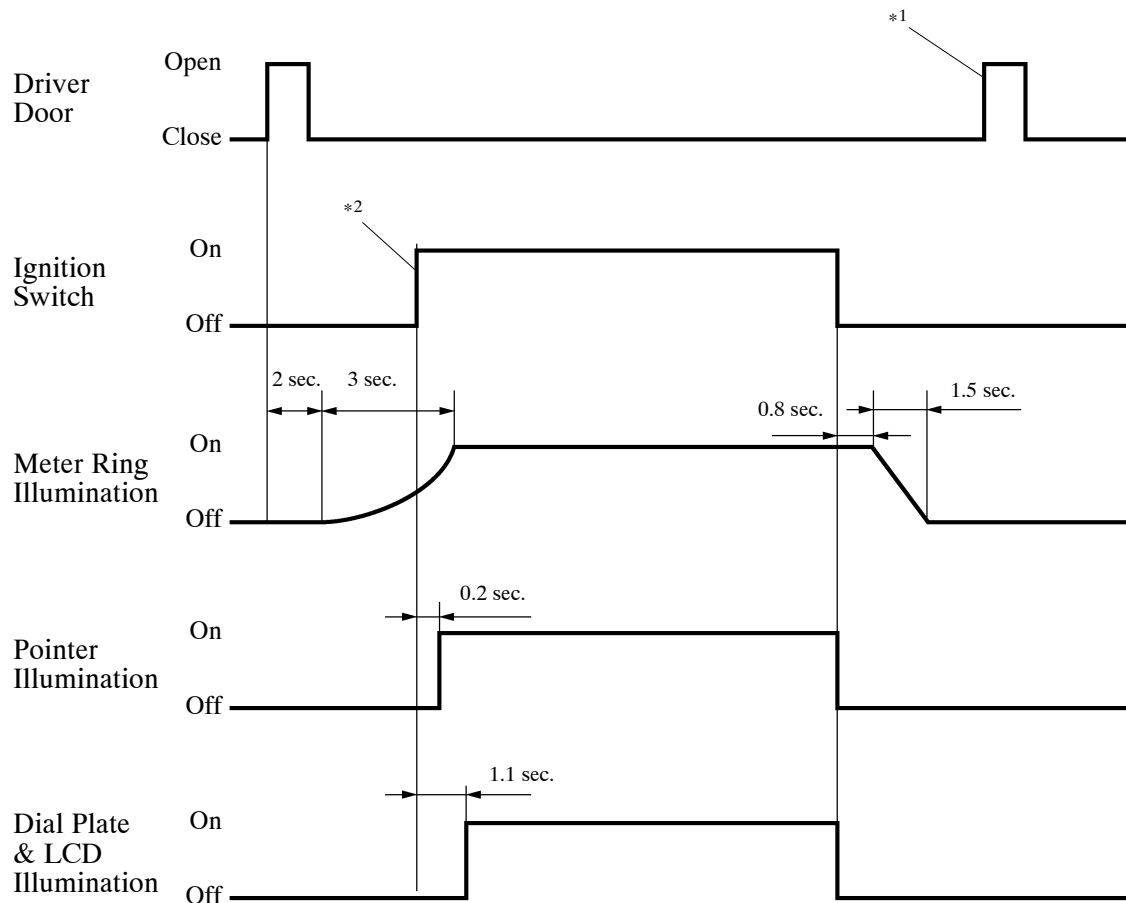


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4. Combination Meter Illumination Control

- The meter ECU controls the lighting of the combination meter illumination (combination meter ring illumination, and illumination of meter pointers, dial plates and odometer/trip meter) in accordance with the driver door open/close condition, ignition switch condition, starter condition and engine running condition. The combination meter ring illumination has fade-in/fade-out control.
- The combination meter illumination is controlled based on the timing chart below.

► Timing Chart ◀



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- *1: Illumination control of the meter ring illumination by input of the driver door courtesy switch signal does not occur the first time after the ignition switch is turned off.
- *2: If the ignition switch signal is not input to the meter ECU within 15 seconds after the meter ring illumination comes on, the meter ECU fades out the meter ring illumination until it is off.

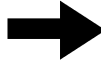
5. Indicator and Warning Light

Ready Light

When the shift position is P, turning the ignition switch to START causes the “READY” light to flash and enables the vehicle to be driven. Then, this indicator illuminates and the buzzer sounds simultaneously.



Flashes when the ignition switch is turned to START.



Illuminates when the vehicle is ready to driven.

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Service Tip

If the indicator does not illuminate, the vehicle cannot be driven because one of the driving prohibition conditions listed below applies.

- Service plug discontinued.
- Hybrid system abnormality.
- Driving prohibition condition due to overload on MG1, MG2, MGR or inverter.
- Inverter unit cover is left open.
- THS ECU has detected a collision.

Master Warning Light

The meter ECU illuminates or blinks the master warning light, and sounds the buzzer in accordance with the circumstances, as shown in the table below. At the same time, a warning message appears on the multi-information display on the speedometer.

Master Warning Light	Buzzer	Warning Message	Outline
Blink	○	Shows the door that is open	When the vehicle is driven (5 km/h [3.1 mile/h] minimum) with any of the doors open.
Blink	○	“PARK BRAKE”	When the vehicle is driven (5 km/h [3.1 mile/h] minimum) without the parking brake being released.
Illuminates	○	“LOW ENGINE OIL LEVEL”	When the level switch detects a low engine oil level continuously for 40 seconds with the ignition switch ON.
Illuminates	○	“LOW WASHER FLUID”	When the level switch detects a low washer fluid level with the ignition switch turned ON.
Illuminates	○	“HEAD LIGHT LEVELING”	When the headlight beam level control ECU detects a system failure with the ignition switch turned ON.
Blink	—	“CHECK VSC SYSTEM”	When the skid control ECU detects a failure in the VSC function with the ignition switch turned ON.
Illuminates	○		
Blink	○	“LOW ENGINE OIL PRESSURE”	When the oil pressure switch detects a low engine oil pressure with the ignition switch turned ON.
Blink	○	“WATER TEMP”	When a water temperature failure is detected with the ignition switch turned ON.
Illuminates	○	“CHECK HYBRID SYSTEM”	When the THS ECU detects a system failure with the ignition switch turned ON.
Illuminates	○	“CHECK AWD SYSTEM”	When the skid control ECU detects a 4WD system failure with the ignition switch turned ON.
Blink	○	“MOON ROOF OPEN”*	When the driver’s door is open with the ignition switch turned OFF and the sliding roof is open or tilted up.
Blink	○	“SHIFT TO P RANGE”	Shift position warning

*: Only on Models with Sliding Roof System

6. Multi-information Display (Combination Meter)

General

- The multi-information display has been located in the center of the combination meter.
- This display shows a message and animation for each of the functions described in the table below.

Item	Outline
Door Warning	When a door (D, P, RL, RR, or Back) of the vehicle is opened or closed, this item displays a warning message and animation to inform the driver of the condition of the door.
Odo/Trip Display	This display switches between odometer, trip meter A, and trip meter B in accordance with the operation of the odo/trip switch.
Energy monitor Display	• Energy monitor indicates the energy transmission direction for checking the current drive method (engine, motor or both), the power generation status by the engine and status of regenerative energy use. • The SOC (State of Charge) of the battery can be checked on the meter with an 8-stage display, which is provided in the battery illustration.
Outside Temp. Display	Displays the outside temperature in accordance with the ambient temperature signal from the A/C ECU.
Instant Fuel Consumption	• Displays the value that has been calculated by the meter ECU, which is based on the driven distance and the fuel consumption volume (fuel injection signal from No. 1 injector), provided that the ignition switch is turned ON. • The display updates every 0.5 seconds.
Average Fuel Consumption	• Displays the value that has been calculated by the meter ECU, which is based on the driven distance and the fuel consumption volume after the INFO button has been pressed 0.8 seconds or longer. • The display updates every 10 seconds.
Warning message	Illuminates or blinks the master warning light and displays a warning message for each type of system failure. For details, see the master warning light on page BE-58 .
DTC (Diagnostic Trouble Codes) Display	Displays the DTCs pertaining to the VSC system.

Door Warning Display

This display functions when a door courtesy light signal is received from the Body ECU as a result of a door being opened or closed. The meter ECU displays the location of the door that has been opened or closed and its state on the multi-information display using animation in four stages, and a message.

► Display Example (Driver's Door) ◀

