ACCESSORIES

■LEXUS NAVIGATION SYSTEM

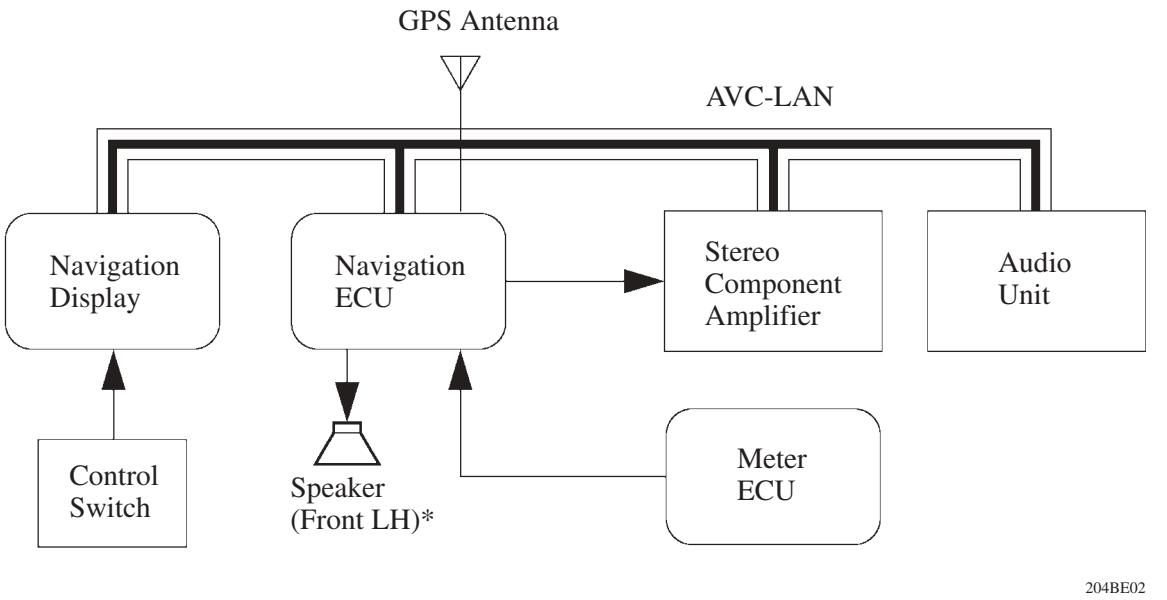
1. General

- This system provides voice instructions guide the driver through the route to reach the destination that has been selected.
- The control switches of the LEXUS navigation system have been located on the floor console to improve their ease of use.
- The Lexus Navigation System is available as an option on all models.

▶ Specifications ◀

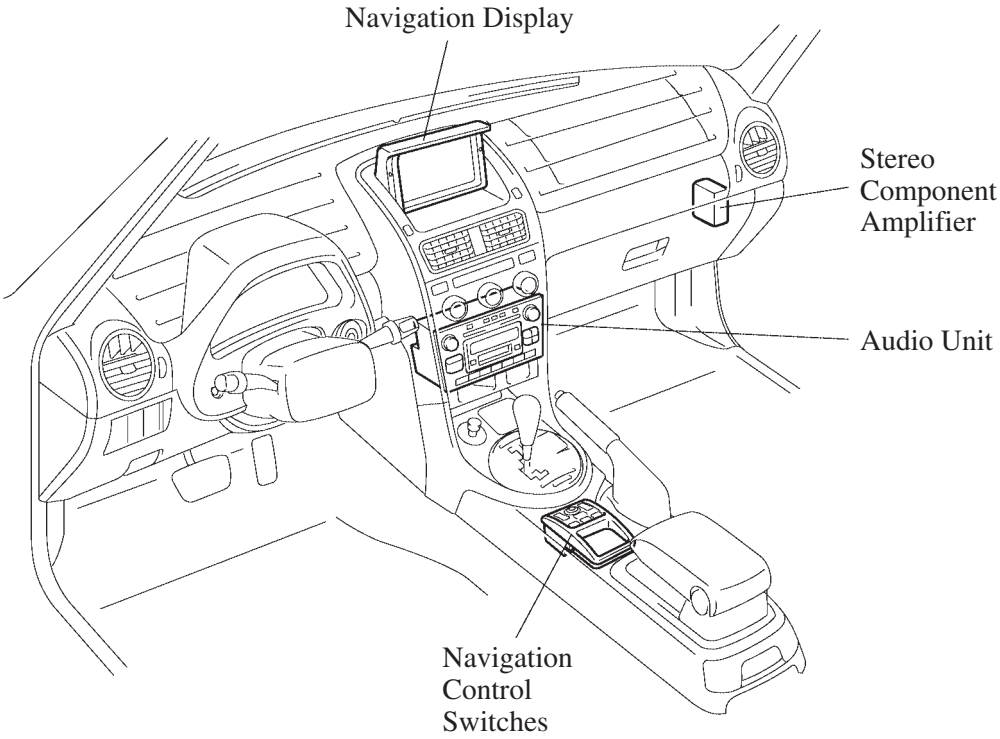
Display	7.0-Inch Wide LCD (Liquid Crystal Display)
Map Data Media	DVD (Digital Versatile Disc)
Navigation System	GPS (Global Positioning System)

2. System Diagram



*: LHD Model

3. Layout of Component



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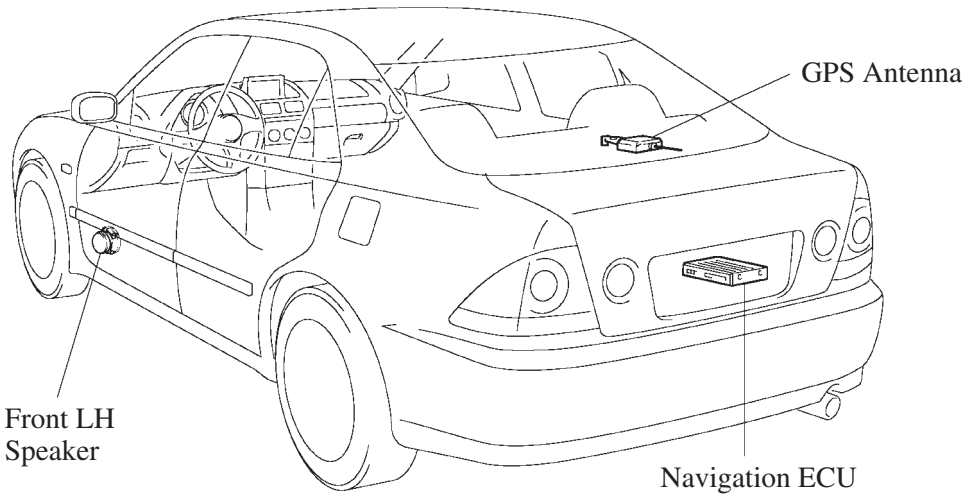

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LHD Model

4. Function

- Based on the map data on the DVD, signals from the GPS satellites, signals from the built-in gyro sensor, and signals from the vehicle's speed sensor, the vehicle's present position, direction of travel, and driven distance are calculated and displayed on the navigation display.
- IS300/200, IS300 SportCross has the GPS voice navigation system functions listed below:

Item		Function
Map Display	On-route Scroll	Scrolls the center of the cursor forward and reverse constantly along the route.
	Heading Up	Displays the map so that the direction of the route progression head up during route guidance.
	Map Color Change	Automatically changes the map display color by season.
	Front Wide	Display a map in the direction of travel of the vehicle in an en a larged form. (Heading up only)
	Stepless Scale Display	Changes the scale of the map from the basic 13 steps to an even finer display.
	Multi-step Scale Display	Change and display the map scale in 13 stages.
	Split-view Display	Displays different modes on a screen that is split into two views.
	Points-of-Interest Display	Display selected types of marks on the map.
	Taillight-interlocked Map Color Change	Changes the displayed color on the map screen when the taillights are turned ON.
	Road Number Sign Board Display	Displays the road numbers on the map.
Destination Search	Previous Destination	Stores 20 locations of coordinates, names, and times that have been set as destinations in the past.
	Building Information Search	Displays the information of the facility on a building-by-building basis when a desired polygon containing information is selected while a city map is shown on the panel.
	Hybrid Points-of-interest Search	Narrows the search by names of the points-of-interest, category, and areas.
	Points-of-interest Pinpoint Display	Pinpoints and displays the position of the point-of-interest.
	House Number Search	Searches for a house number.
	Preset Destination	Sets a pre-registered point as a destination point while driving.
	Nearest Point-of-interest Search List Display	Searches nearest points-of-interest and displays a list.
	Intersection Search	By specifying two streets, the point at which they inter sect is set as the destination point.
	Emergency Search	Performs a specific search for hospitals, police stations, and dealers.
	Motorway Entrance/ Exit Search	Searches for the destination bay the name of the street that connects to a freeway entrance/exit.
Route Search	Multiple Destination Setting	Sets multiple destinations. It can also rearrange the sequence of the destinations.
	Route Search	Searches for multiple routes.
	Search Condition Designation	Searches for the recommended, shortest, and other routes.
	Regulated Road Consideration	Performs search while considering regulated roads.
	Avoidance Area	Avoids a designated area and searches a route.

(Continued)

Item		Function
Guidance	Destination Direction Arrow Display	Uses arrows along the road to display the direction of the destination during route guidance.
	Off-Route Arrow Display	Uses arrows along the road to display the direction of the destination during off-route.
	Rotary Guidance	Guidance that renders the entry and exit into a rotary as a single branching point.
	Right or Left Turn Guidance	Voice guidance to instruct the direction of travel to be taken.
	Motorway Direction of Travel Guidance	Voice guidance to instruct the direction of travel to take on the freeway.
	Distance Display Destination	Displays the distance from the present location to the destination.
	Motorway Branch Type Specimen Guidance	Type specimen for guidance to a freeway branch.
	Intersection Zoom-in Display	Zoom-in display when approaching an intersection.
	Turn List Display	Displays a turn list on the right side of the two-screen display when approaching an intersection.

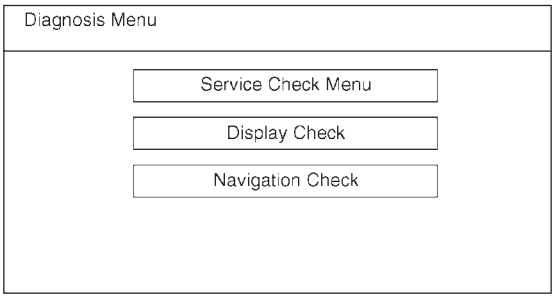
5. Construction and Operation

Navigation Display

1) Screen

Function	Outline
Adjustment Screen Display	Image quality adjustment screen indication.
Navigation Screen Display	● Enlargement/reduction, rotation and movement of map. ● Indication of current position and direction of travel. ● Correction of current position. ● Setting change and indication of route. ● Voice guidance. There are many additional functions. For details, refer to page 120.
Diagnosis Screen Display	● Service Check Menu. ● Display Check. ● Navigation Check.

- The navigation display is equipped with a self-diagnosis system and can display the diagnosis menus shown on the right.
  The diagnosis menu contains the following three items:
  a) Service Check Menu
  b) Display Check
  c) Navigation Check



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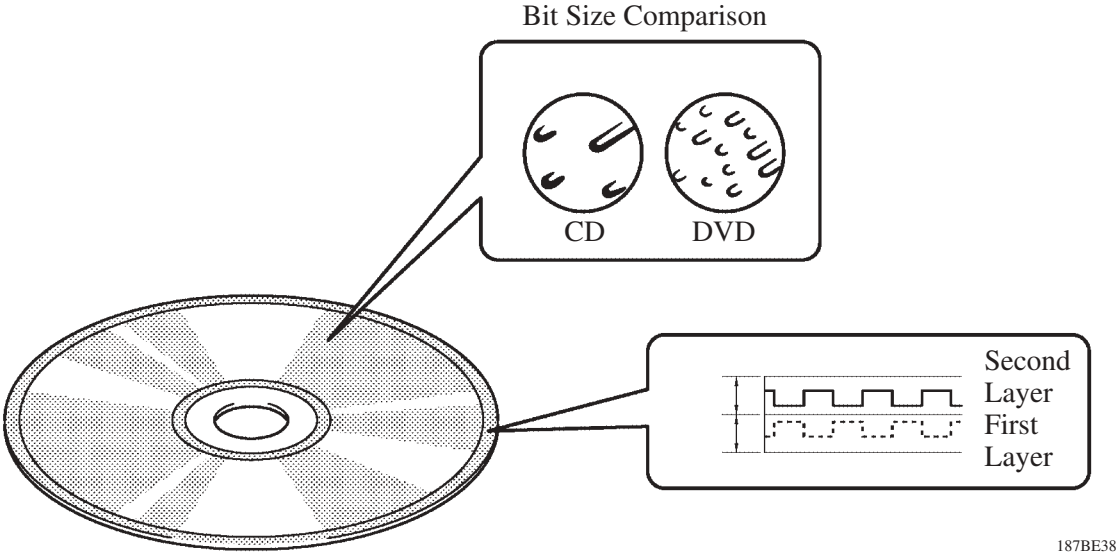
Service Tip

The diagnosis menu screen can be displayed according to the procedure given below.
1) Vehicle speed should be 0 km/h (0 mph).
2) Apply the parking brake.
3) Turn the ignition switch to ACC or ON.
4) While pressing the "INFO" switch on the control switches, turn the Light Control switch from OFF → TAIL → OFF → TAIL → OFF → TAIL → OFF.

For details, refer to LEXUS IS300/200 Repair Manual Supplement (Pub. No. RM870E).

DVD (Digital Versatile Disc)

The DVD, which uses a smaller laser beam diameter than the CD (Compact Disc), is able to record and play back a greater amount of data because it can handle pits, or signal grooves, at a higher density. The volume of data that a 12 cm (0.47 in.) diameter DVD can store is equivalent to approximately 7.5 times that of a CD-ROM, totaling 4.7 gigabytes. The navigation system has adopted a dual-layer DVD, which has two layers per side to store a large capacity of signal data, totaling 8.5 gigabytes.



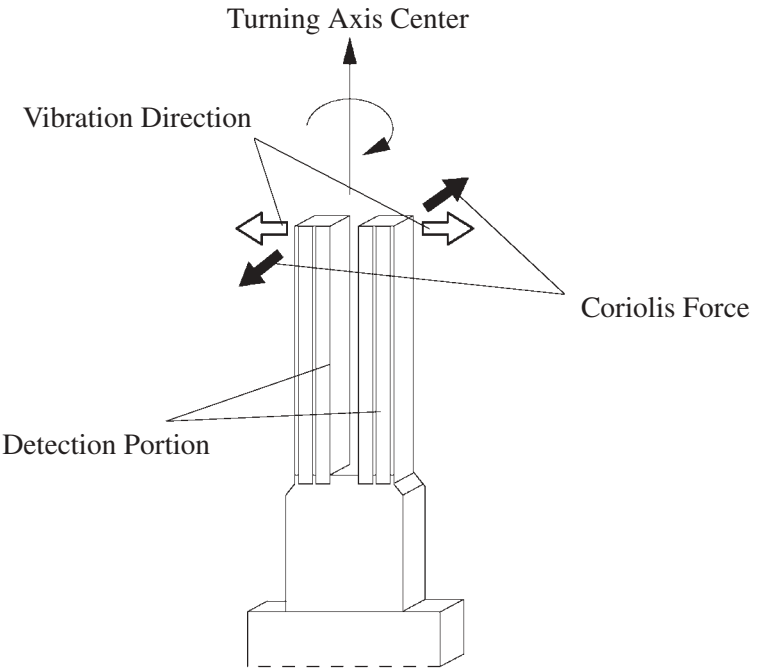
Gyro Sensor

The gyro sensor is designed to detect the yaw rate of vertical axis turn of the vehicle and installed in the Navigation ECU.

The gyro sensor has a turning-fork shape type piezoelectric ceramic piece inside. This piezoelectric ceramic piece deforms by charging voltage and generates voltage by deforming with force.

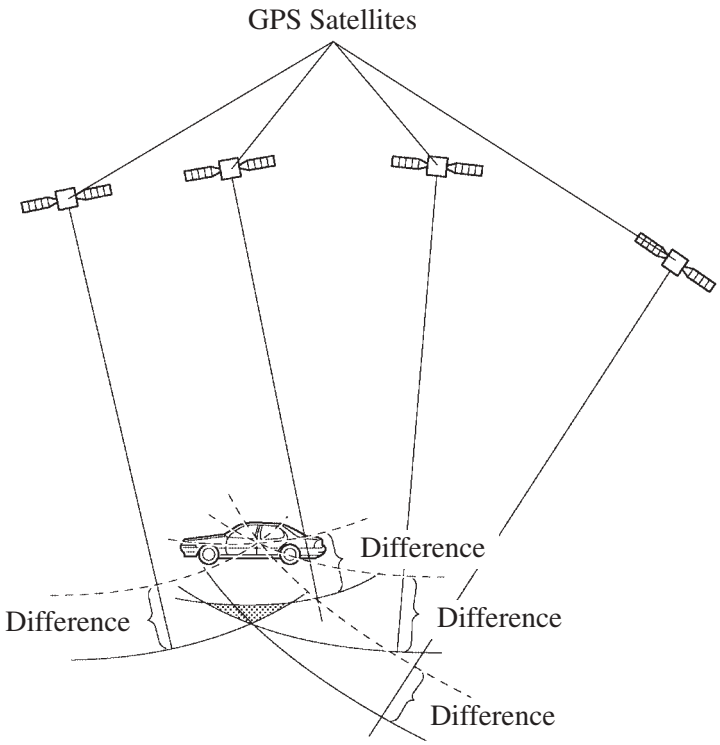
The piezoelectric ceramic piece inside the gyro sensor is vibrated by the driving circuit and when the vehicle turns (when the detection portion turns to the axis direction), coriolis force is added to the detection portion. With this force, the detection portion is twisted. The voltage generated by this twisting is signal-processed inside the gyro sensor and outputted.

Navigation ECU receives this signal and judges the yaw rate of the vehicle.



Detection the Vehicle Position

The navigation ECU calculates the position based on the principle of a 3-point measurement.
The GPS satellites are equipped with high-precision clocks. Thus, the satellites are able to transmit continuous orbit signals and radiowave transmission time signals.
The navigation ECU also contains a clock, which can understand the radiowave time signals that are received from the satellites.
As a result, the length of time that is taken by the radiowaves to arrive from the satellites to the antenna can be determined. Thus, the lengths of time that elapse for the radiowaves of the 4 satellites to reach the antenna are measured. Each of these lengths of time are multiplied by the luminous flux (the rate of transmission of luminous energy: approximately 300,000 km per second), the results of which are the distances from the satellites to the antenna. Because the positions of the GPS satellites are known by their signals, the receiving point (vehicle position) can be rendered as the point in which the 4 spheres (of which the centers are the respective satellites) converge.
However, due to the differences that exist between the clocks of the satellite and the ECU, the 4 spheres do not converge at a single point. Therefore, the ECU uses another satellite to calculate the point at which the 4 spheres converge at a single point and corrects its internal clock. As a result, the ECU determines the vehicle position and adjusts its internal clock to the clocks of the satellites.



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