

United States Patent [19]

Ramaswamy et al.

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[54] **MAPLESS GPS NAVIGATION SYSTEM IN VEHICLE ENTERTAINMENT SYSTEM**

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[51] **Int. Cl.⁶** **H04B 7/185; G01S 5/02**

[52] **U.S. Cl.** **342/357; 364/449.1**

[58] **Field of Search** **342/357; 364/449**

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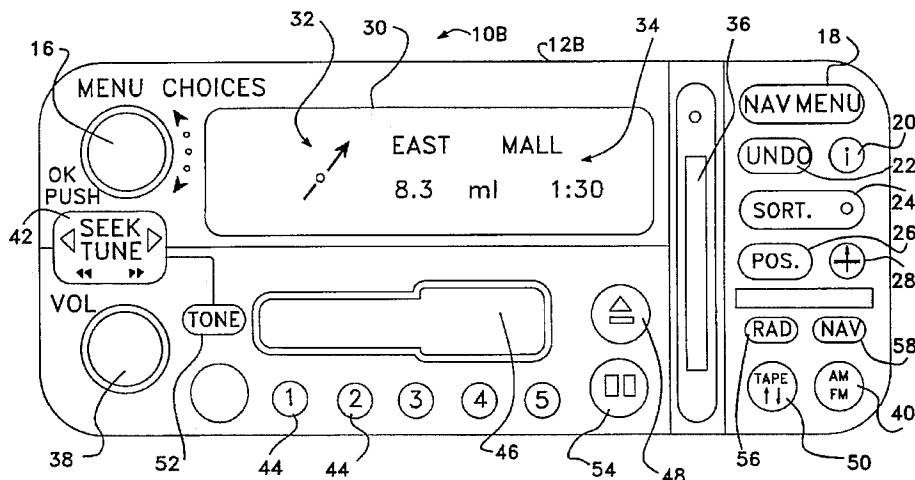
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Attorney, Agent, or Firm—Jimmy L. Funke

[57] **ABSTRACT**

A navigation system is provided for offering navigational assistance to a mobile user. The navigation system receives GPS position information signals which are processed to determine current position latitude and longitude coordinates and direction of travel. A destination database includes a plurality of categorized destinations and corresponding destination position coordinates pertaining to the destinations. The destination database is stored on an interfacable memory card and contains menu categories and subcategories for classifying the destinations and additional text information pertaining to the destinations. User selectable menu controls enable the user to sequence through the menu of categories and destinations and select a desired destination. This is easily accomplished by rotating a rotary pushbutton to view category and destination selections and depressing the rotary pushbutton to select the selection shown. A processor compares the current position coordinates with the position coordinates of the selected destination and determines a distance and a straight-line direction from the current position to the selected destination. A display displays the distance and a direction pointing indicator for showing the direction from the current position to the selected destination. In one embodiment, the navigation system is integrated with an audio entertainment system and shares a common display and housing.

16 Claims, 20 Drawing Sheets



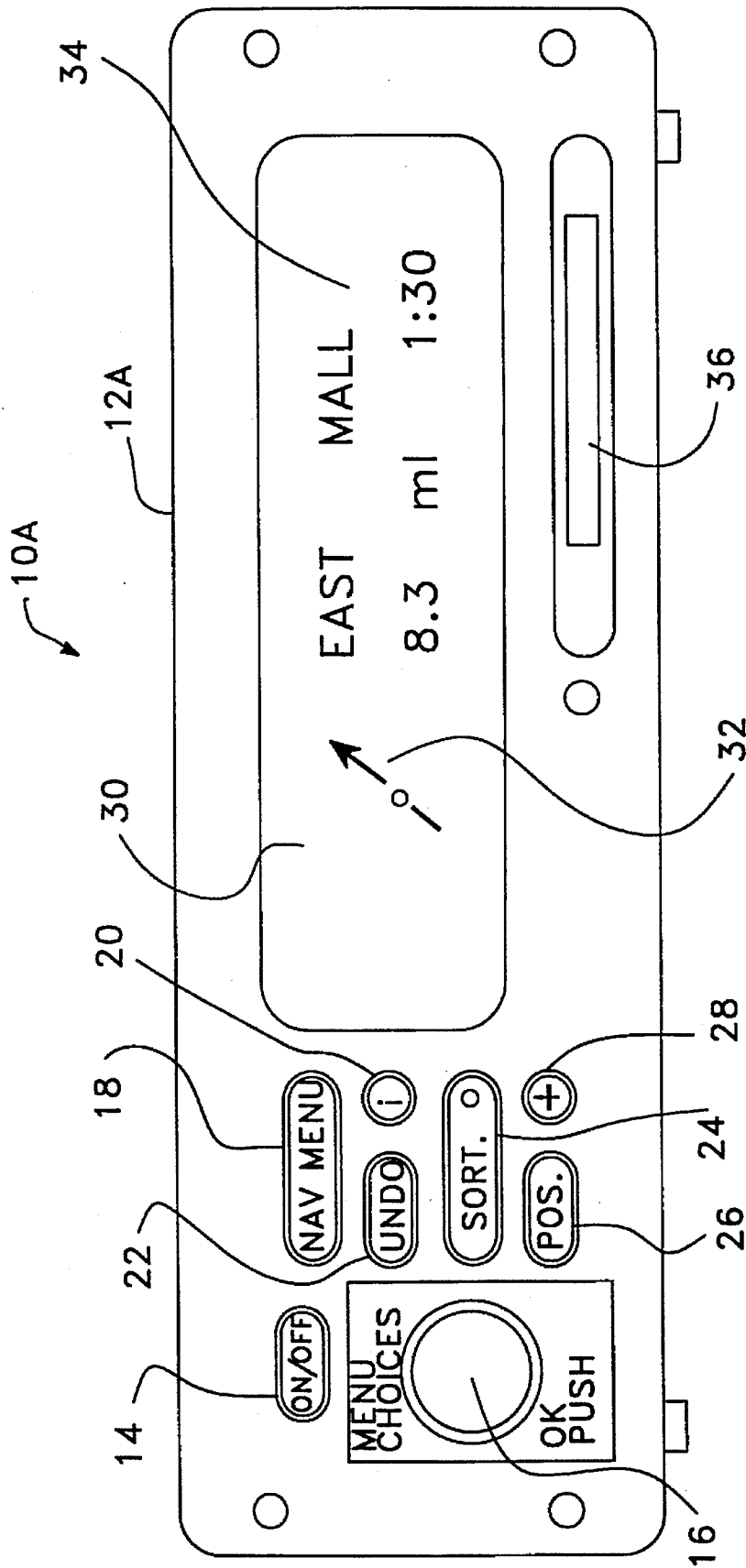


Fig-1

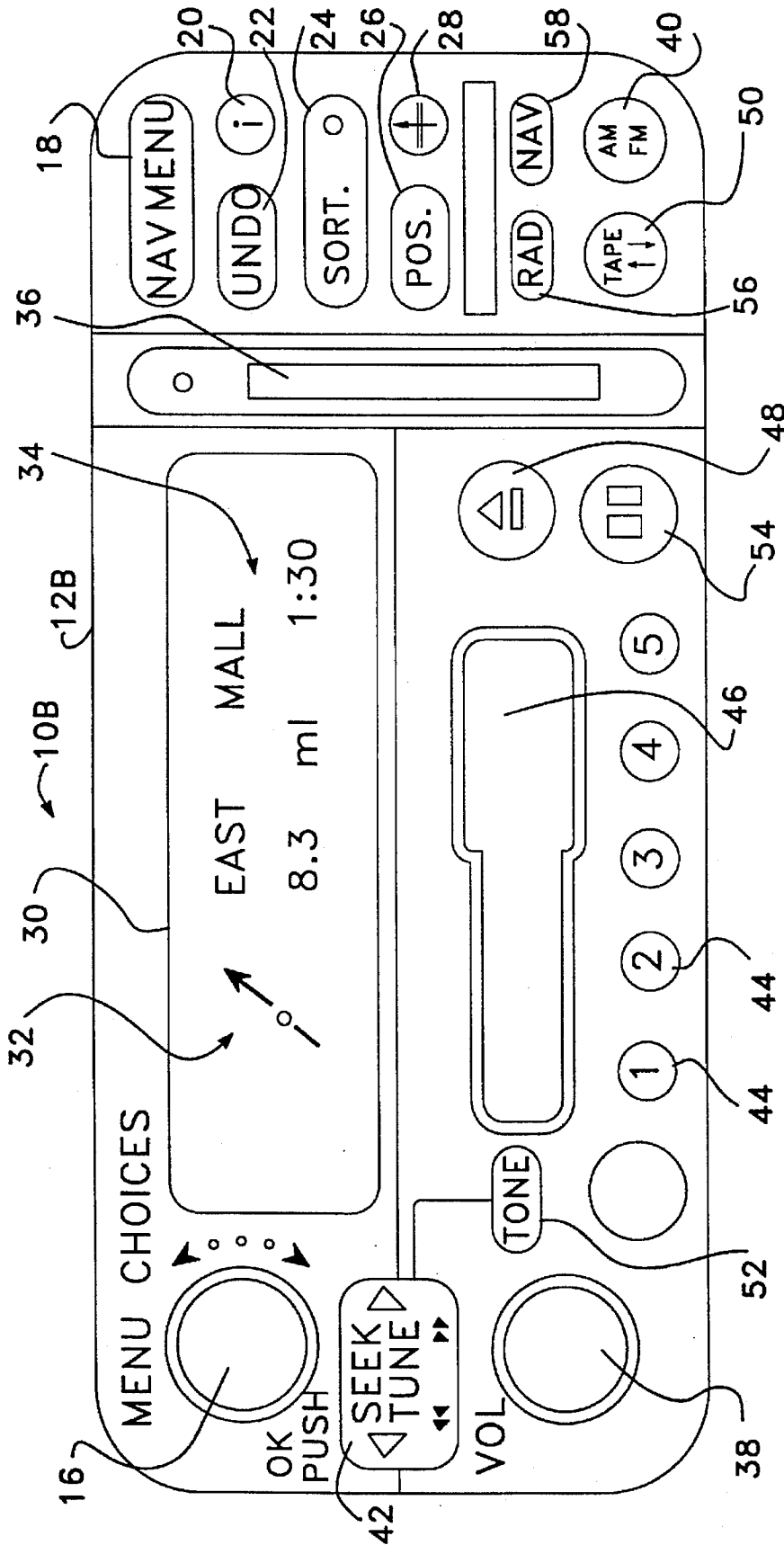


Fig-2

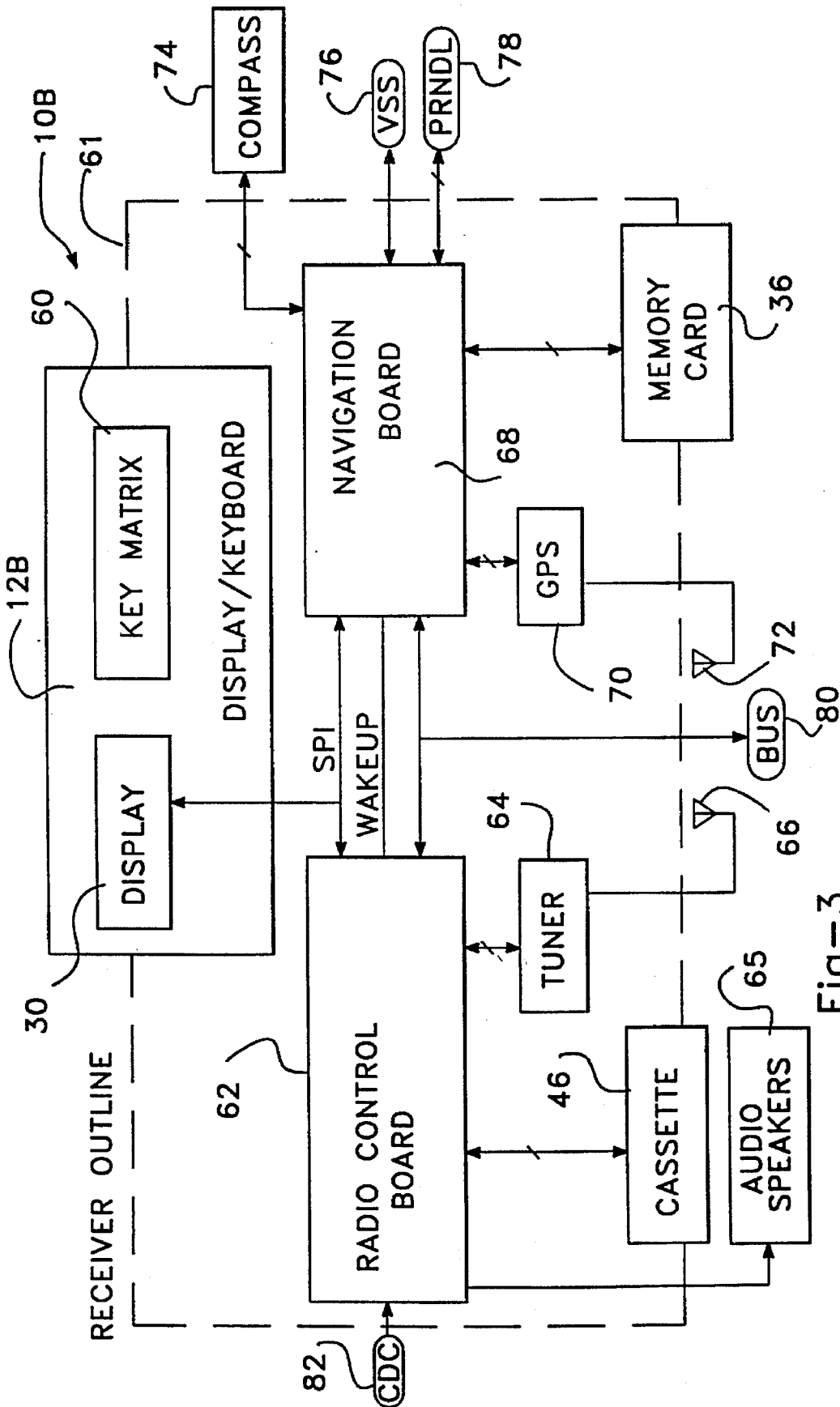
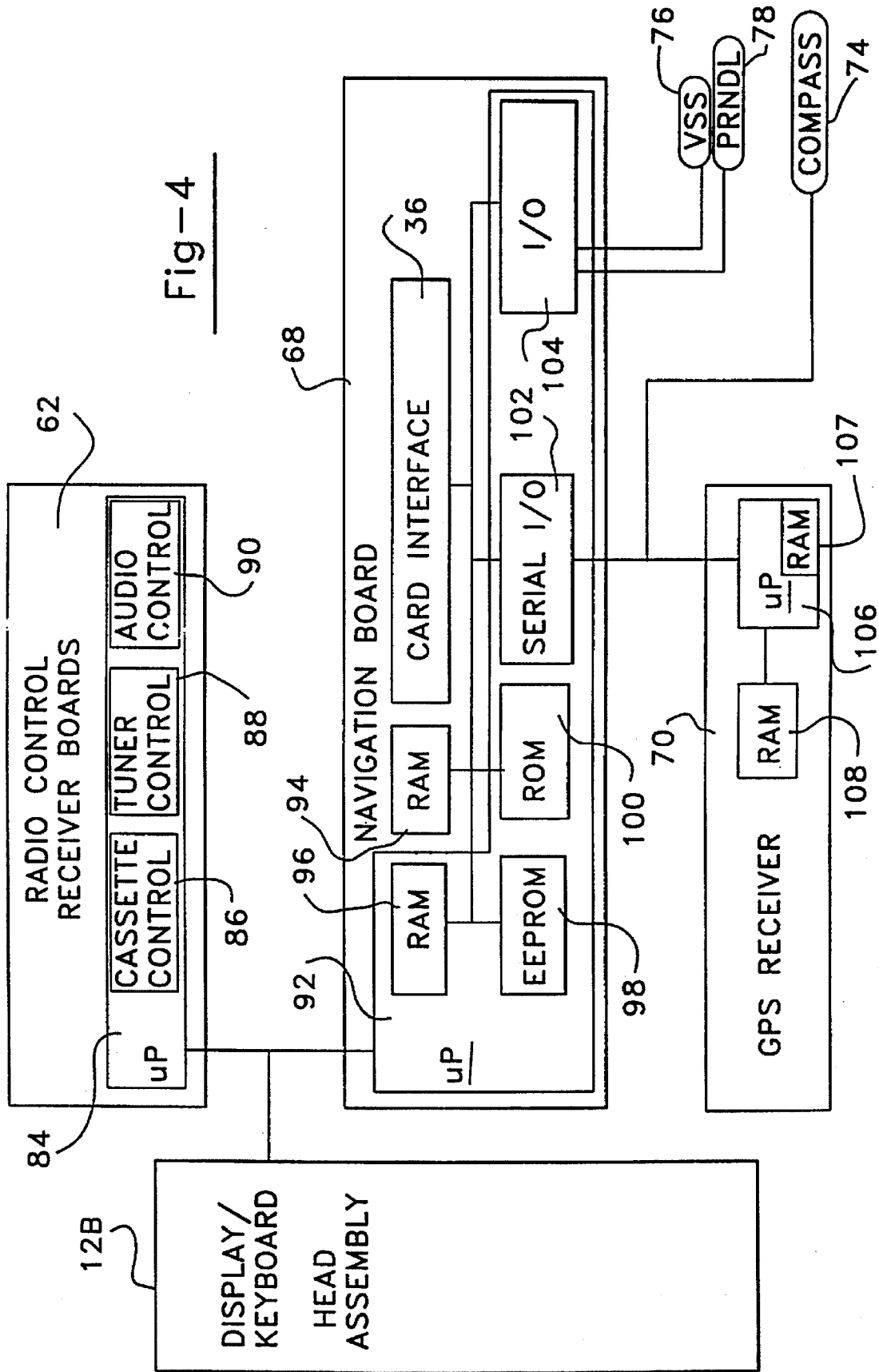


Fig-3



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