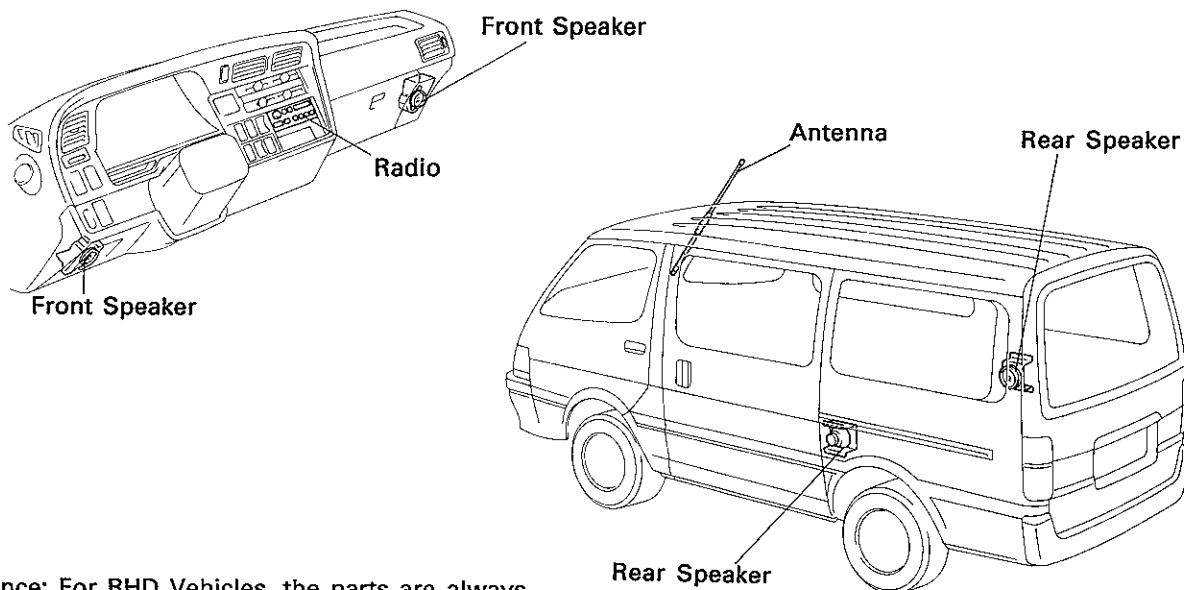


## AUDIO SYSTEM

### Parts Location

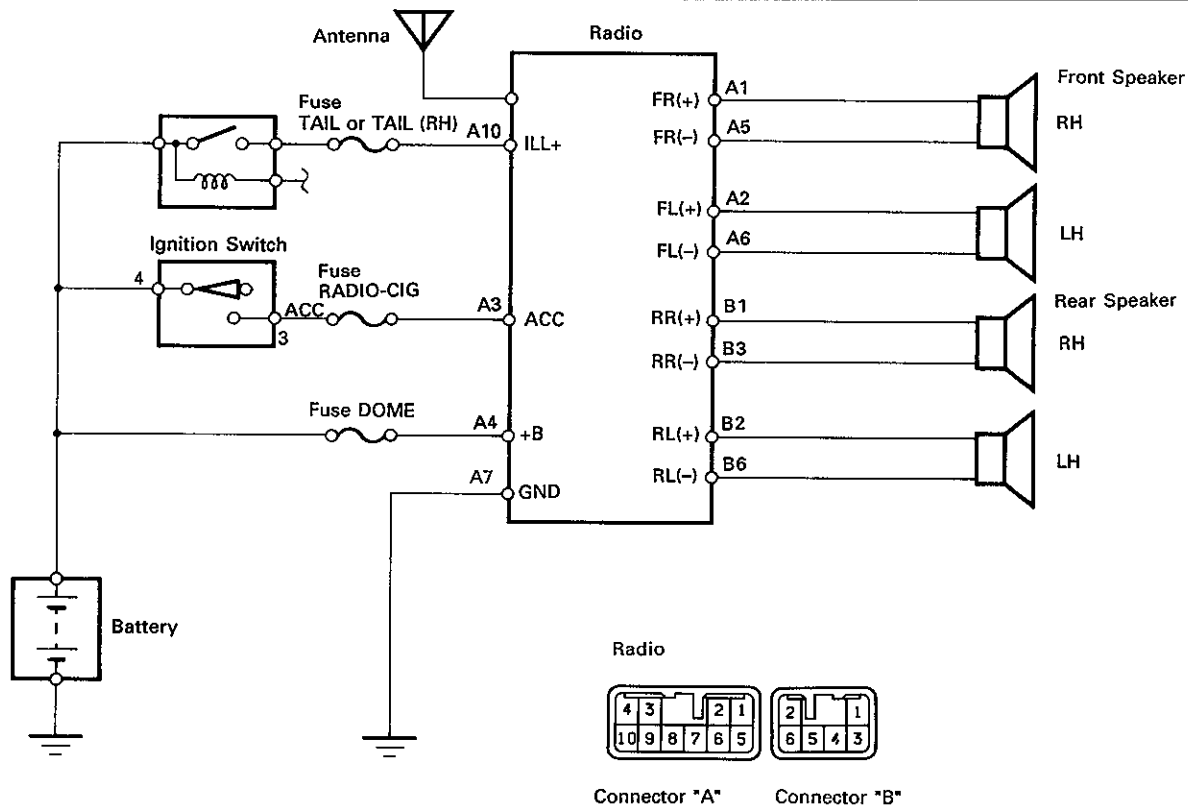
#### LHD Vehicles



Reference: For RHD Vehicles, the parts are always symmetrically opposite to LHD vehicles.

BE4257 BE4258

## Wiring and Connector Diagrams



The POWER SOURCE CIRCUIT has been simplified. For full details, see page BE-10.

BE4259  
S-10-2-A S-6-2-E

## System Description

### RADIO WAVE BAND

The radio wave bands used in radio broadcasting are as follows:

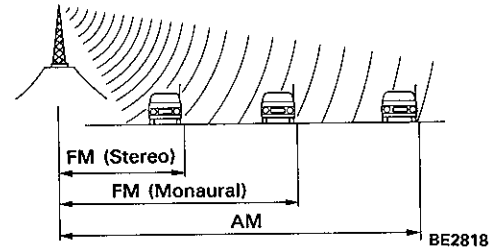
Frequency	30 kHz	300 kHz	3 MHz	30 MHz	300 MHz
Designation	LF	MF	HF	VHF	
Radio wave	LW ←→	AM (MW) ←→	SW ←→	FM (UKW) ←→	
Modulation method	Amplitude modulation			Frequency modulation	

LF: Low Frequency    MF: Medium Frequency    HF: High Frequency    VHF: Very High Frequency

HINT: In this section, the term "AM" includes LW, MW and SW, and the term "FM" includes UKW.

### SERVICE AREA

There is great difference in the size of the service area for AM, FM monaural, and FM stereo broadcasting. Thus it may happen that FM broadcast cannot be received even though AM comes in very clearly. Not only does FM stereo have the smallest service area, but it also picks up static and other types of interference ("noise") the most easily.



### RECEPTION PROBLEMS

Besides the problem of static, there are also the problems called "fading", "multipath", and "fade out". These problems are caused not by electrical noise but by the nature of the radio waves themselves.

#### Fading

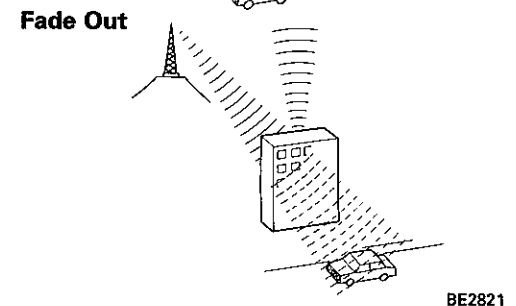
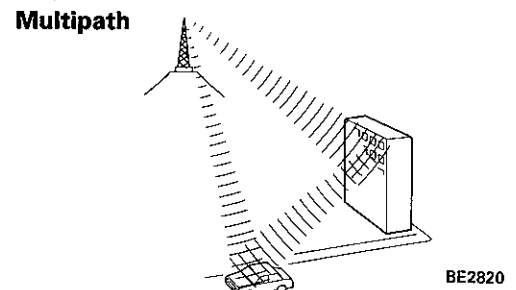
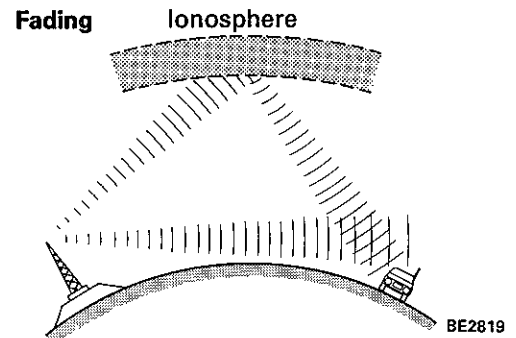
Besides electrical interference, AM broadcasts are also susceptible to other types of interference, especially at night. This is because AM radio waves bounce off the ionosphere at night. These radio waves then interfere with the signals from the same transmitter that reach the vehicle's antenna directly. This type of interference is called "fading".

#### Multipath

One type of interference caused by the bouncing of radio waves off the obstructions is called "multipath". Multipath occurs when a signal from the broadcast transmitter antenna bounces off of buildings and mountains and interferes with the signal that is received directly.

#### Fade Out

Because FM radio waves are of higher frequencies than AM radio waves, they bounce off the buildings, mountains, and other obstructions. For this reason, FM signals often seem to gradually disappear or fade away as the vehicle goes behind a building or other obstruction. This is called "fade out".

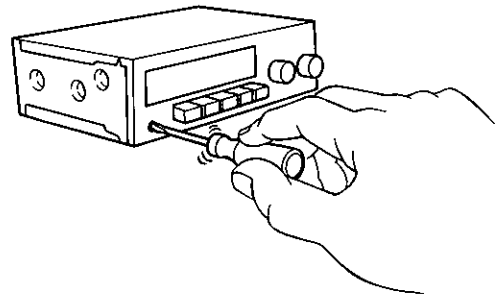


### ADJUST ANTENNA TRIMMER (Ex. Electronic Tuning Radio)

- (a) Fully lengthen antenna.
- (b) With volume and tone at maximum, turn the dial to around 1,400 kHz where there is no reception.
- (c) Adjust the trimmer to where static is loudest.

**HINT:** The position of the antenna trimmer may vary according to the type of radio, but is always on the front side.

**Example:**



BE0183

## Troubleshooting

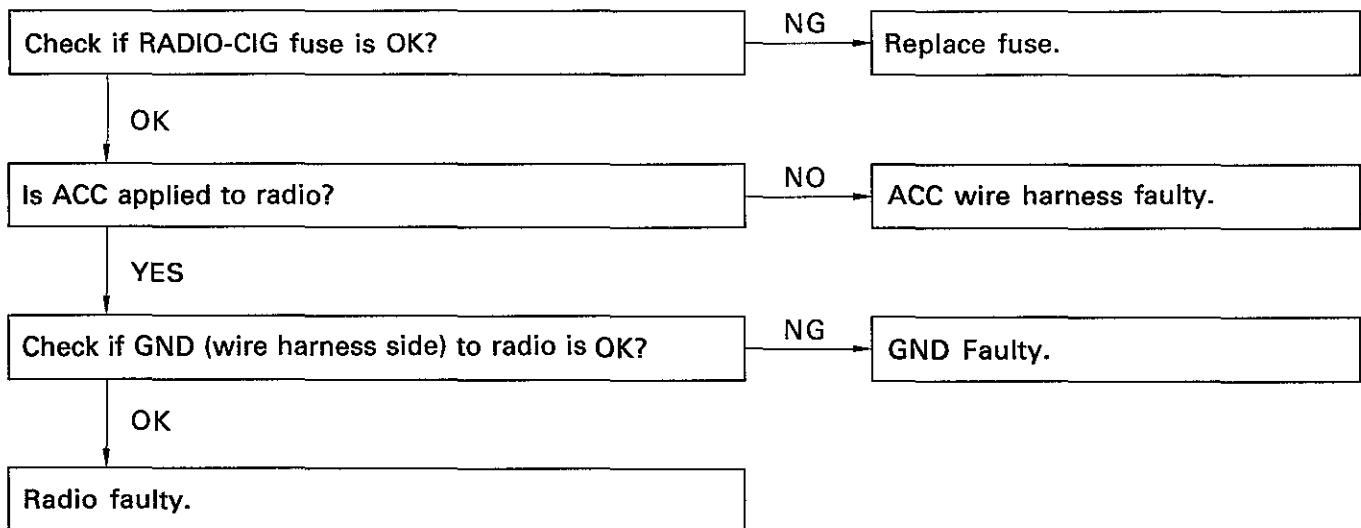
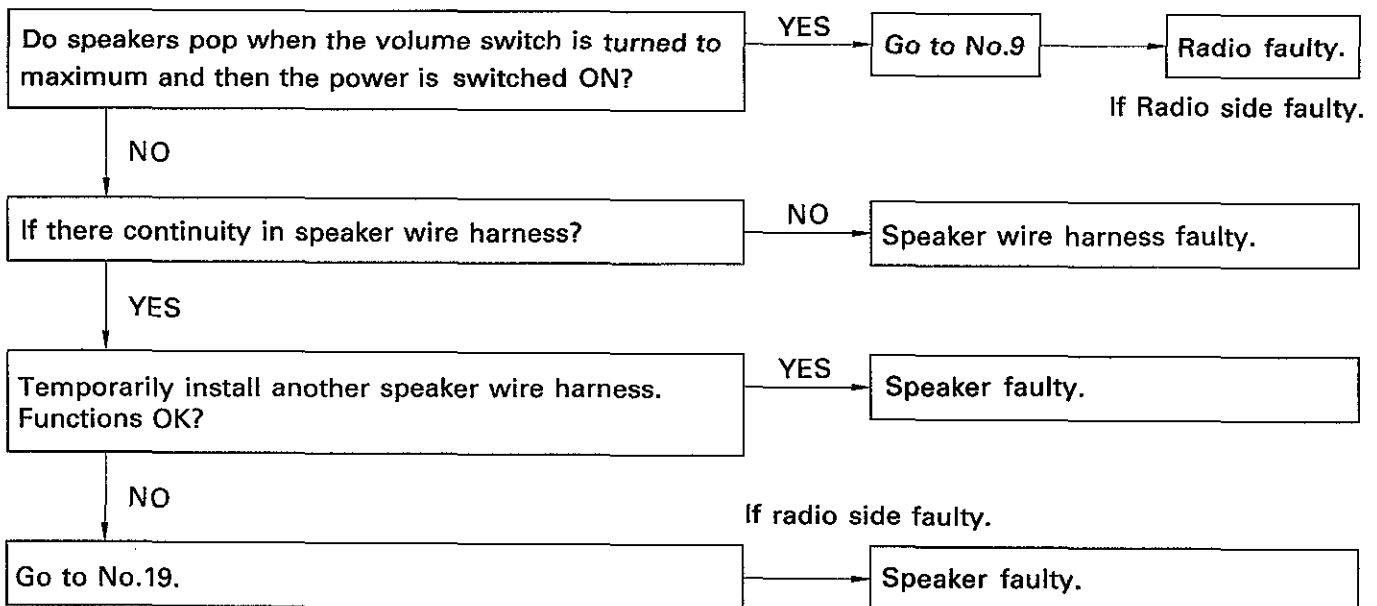
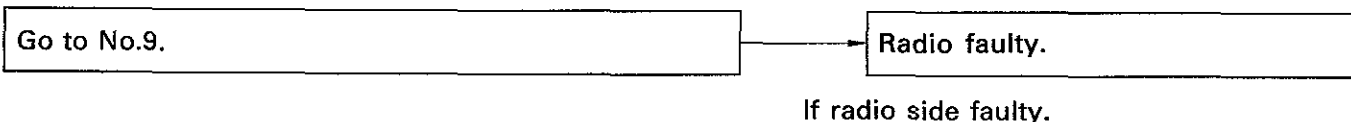
**NOTICE:** When replacing the internal mechanism (computer part) of the audio system, be careful that no part of your body or clothing comes in contact with the terminals of the leads from the IC, etc. of the replacement part (spare part).

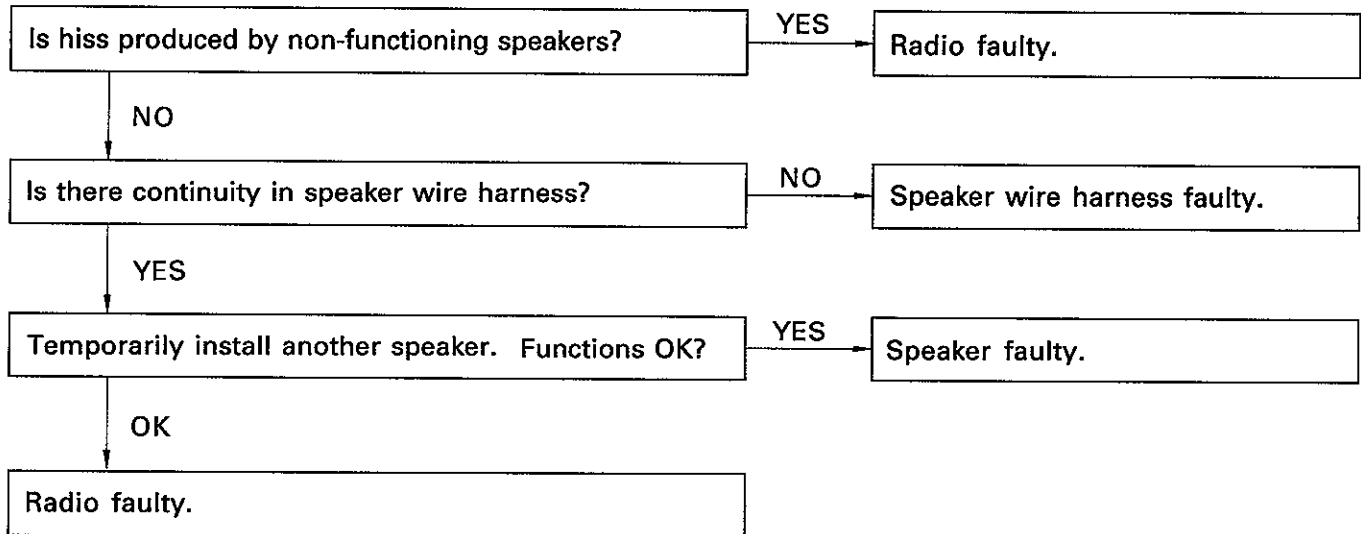
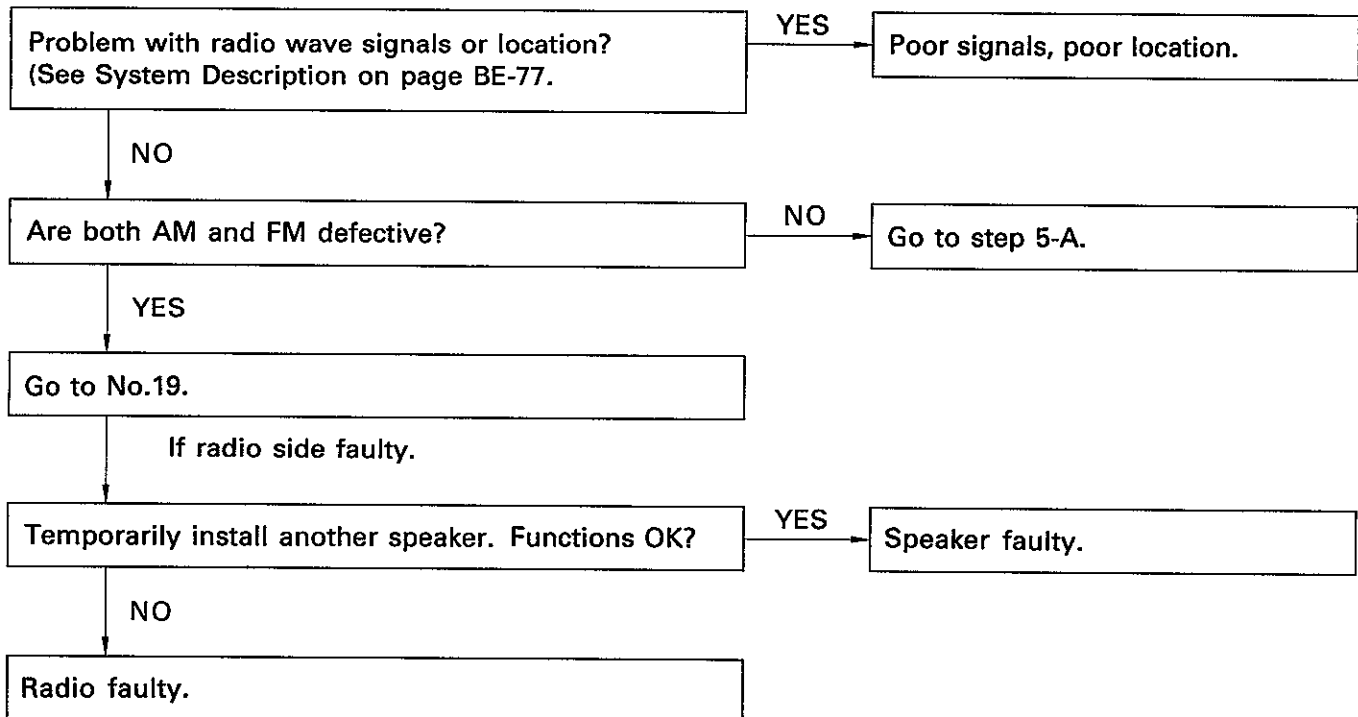
**HINTS:** This inspection procedure is a simple troubleshooting which should be carried out on the vehicle during system operation and was prepared on the assumption of system component troubles (except for the wires and connectors, etc.).

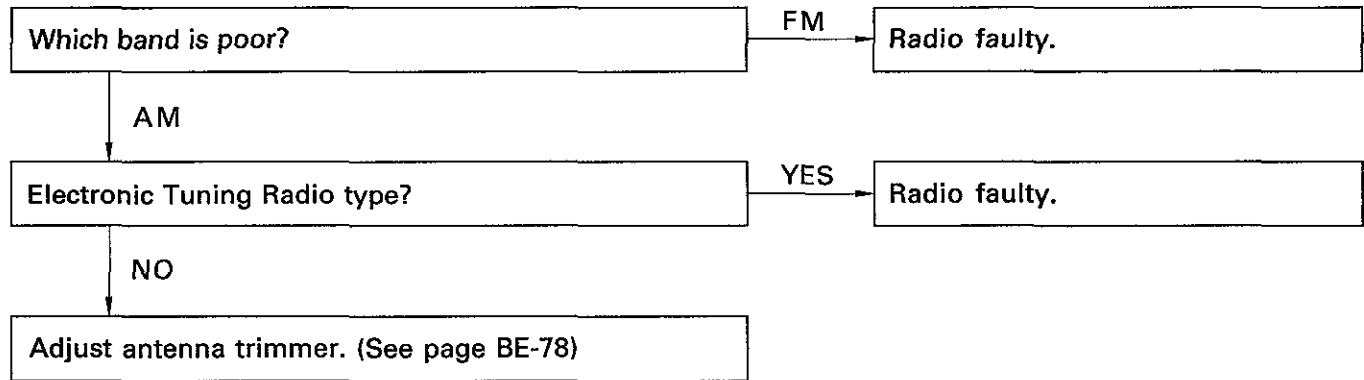
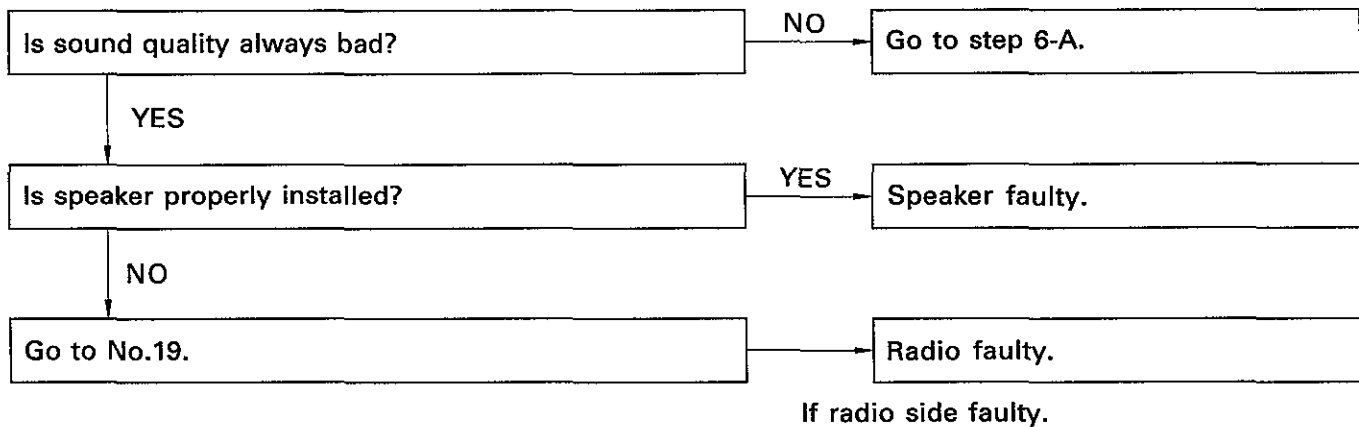
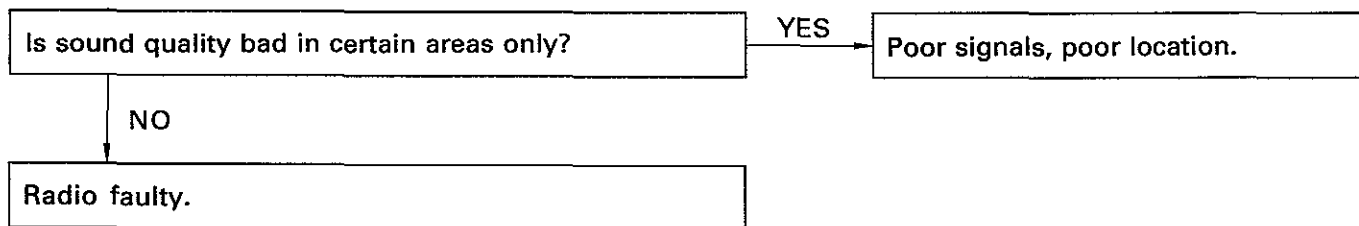
Always inspect the trouble taking the following items into consideration.

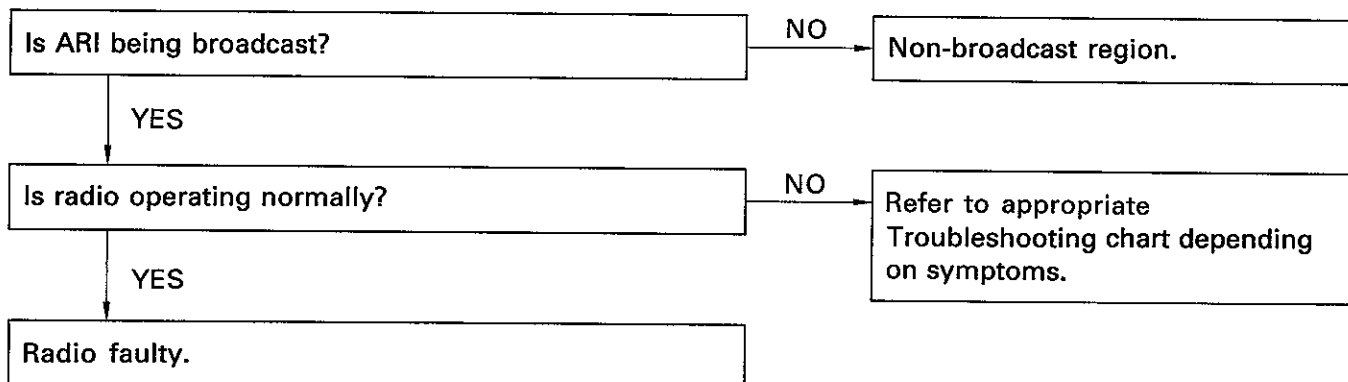
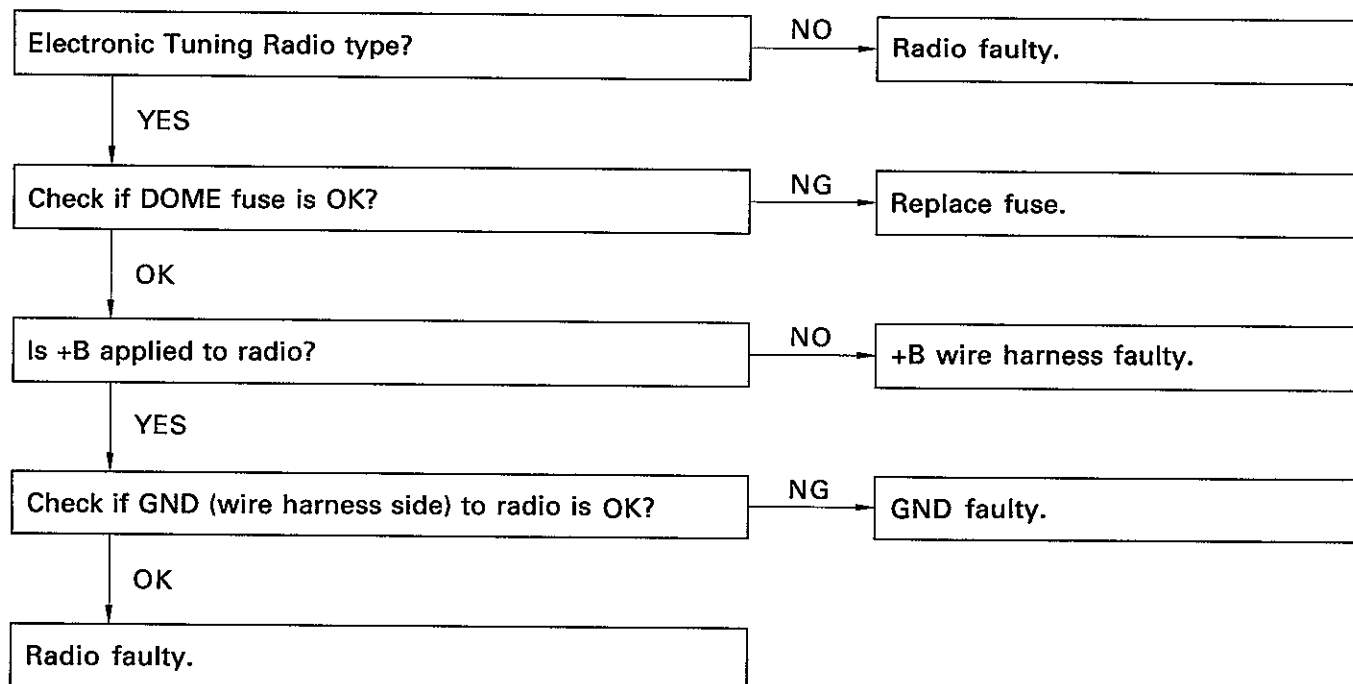
- Open or short circuit of the wire harness
- Connector or terminal connection fault

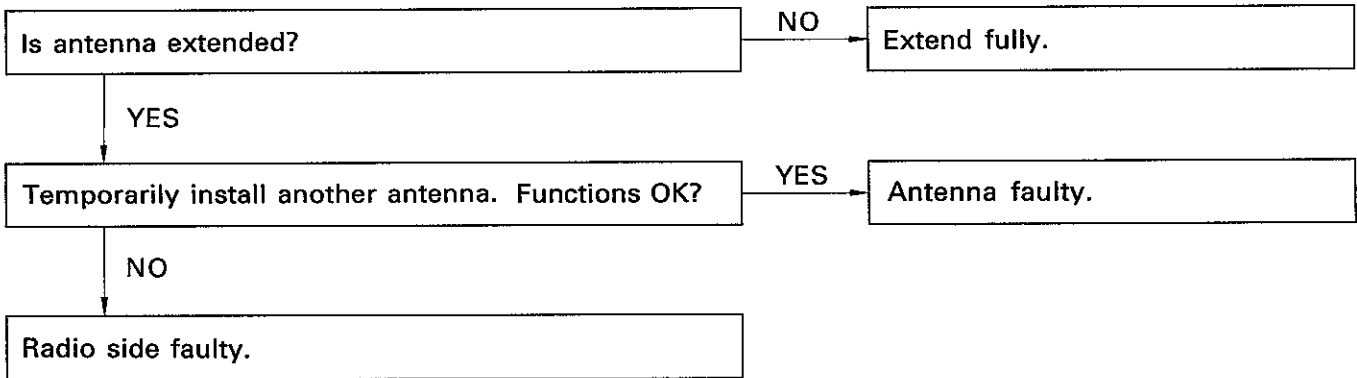
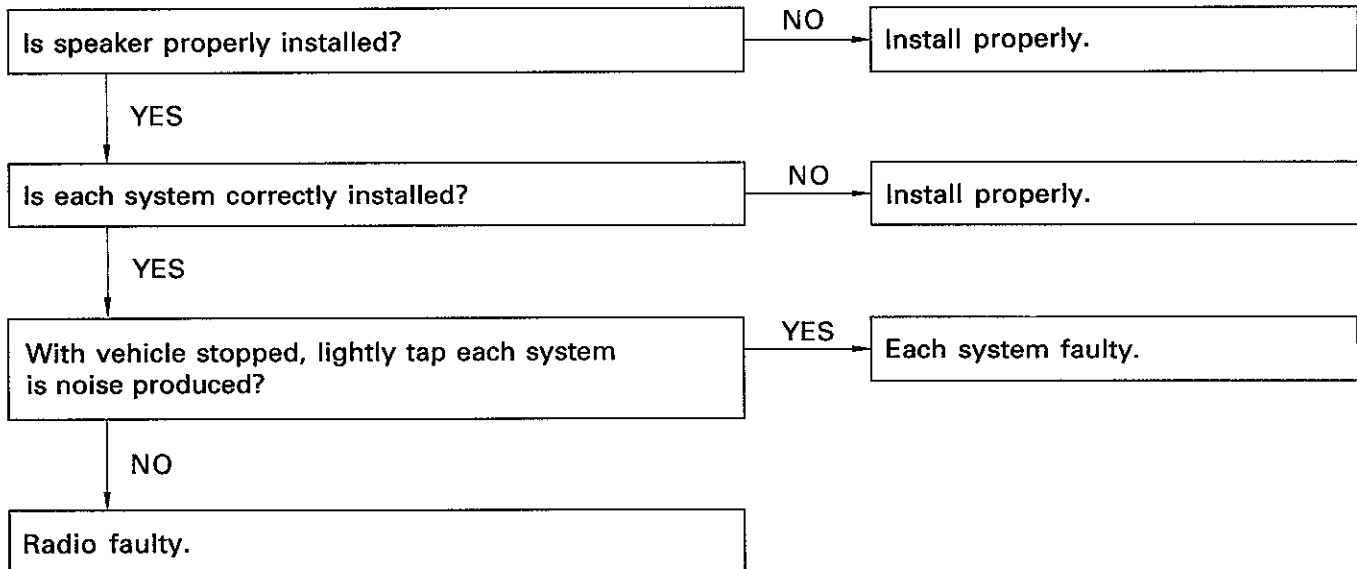
Problem		Troubleshooting Chart No.
Radio	No power coming in.	1
	Power coming in, but radio not operating.	2
	Noise present, but AM-FM not operating.	3
	Either speaker does not work.	4
	Either AM or FM does not work.	5
	Reception poor (Volume faint).	5
	Few preset tuning bands.	5
	Sound quality poor.	6
	Auto-Radio information (ARI) not received.	7
	Cannot set station select button.	8
	Preset memory disappears.	8
Antenna	Antenna-related.	9
Noise	Noise produced by vibration or shock while driving.	10
	Noise produced when engine starts.	11

**1 RADIO NO POWER COMING IN****2 RADIO POWER COMING IN, BUT RADIO NOT OPERATING****3 RADIO NOISE PRESENT, BUT AM-FM NOT OPERATING**

**4 RADIO EITHER SPEAKER DOES NOT WORK****5 RADIO EITHER AM OR FM DOES NOT WORK, RECEPTION POOR (VOLUME FAINT), FEW PRESET TURNING BANDS**

5-A**6 RADIO SOUND QUALITY POOR**6-A

**7 RADIO AUTO-RADIO INFORMATION (ARI) NOT RECEIVED****8 RADIO PRESET MEMORY DISAPPEARS**

**9 ANTENNA ANTENNA-RELATED****10 NOISE NOISE PRODUCED BY VIBRATION OR SHOCK WHILE DRIVING**



# 11 NOISE NOISE PRODUCED WHEN ENGINE STARTS

