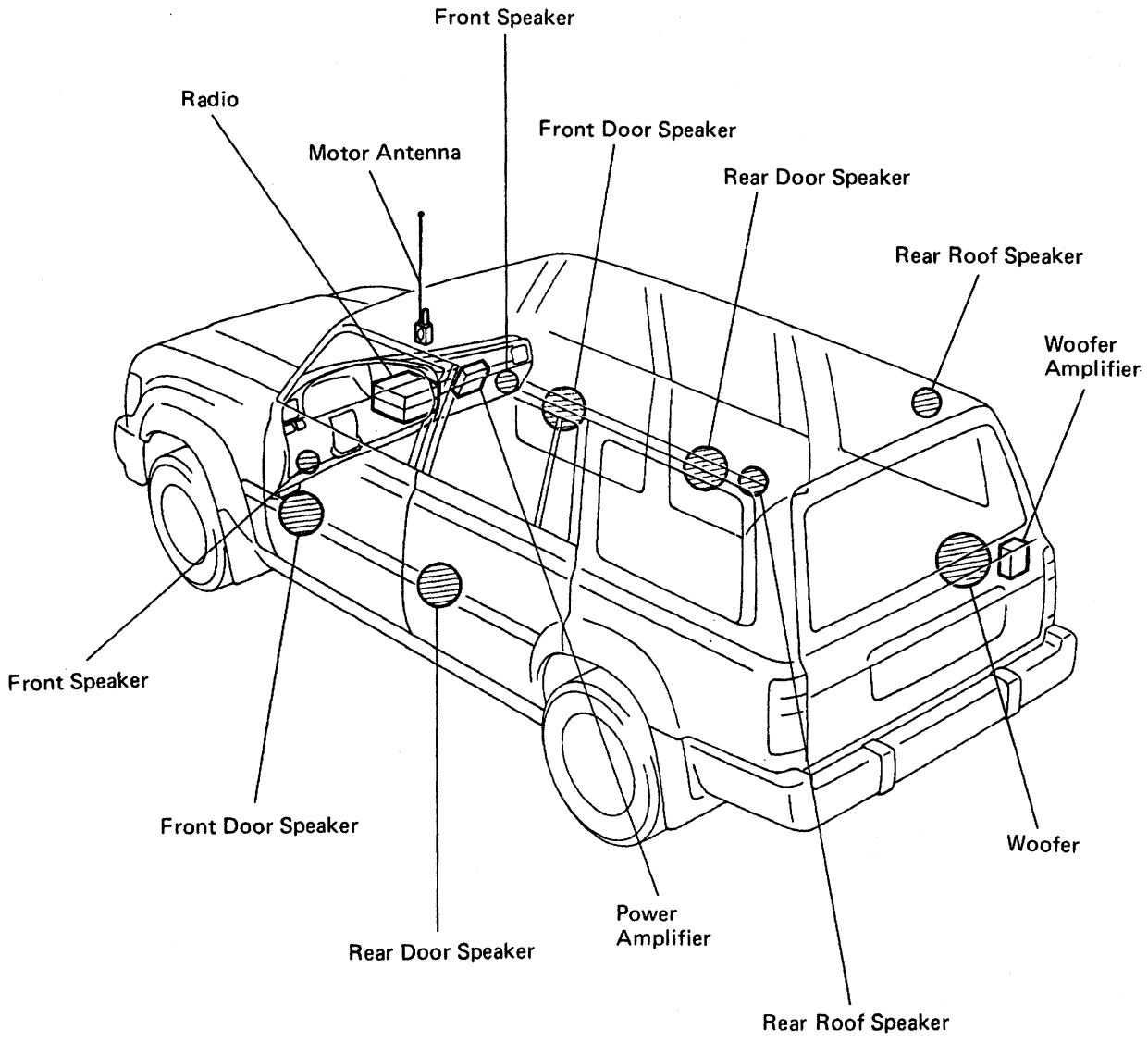
# AUDIO SYSTEM

## PARTS LOCATION

BE0L5–01




BE5048

BE1E2–01

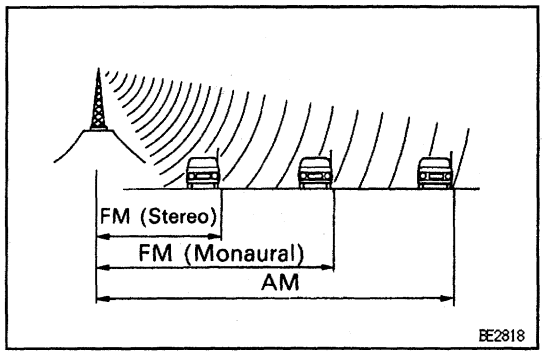
# SYSTEM DESCRIPTION

## 1. RADIO WAVE BAND

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

| Frequency | 30 kHz | 300kHz | 3 MHz | 30 MHz | 300 MHz |
|---|---|---|---|---|---|
| Designation | LF | MF | HF | VHF | |
| Radio wave | | AM ← → | | FM ← → | |
| Modulation method | Amplitude modulation | | | Frequency modulation | |

LF: low Frequency MF: Medium Frequency HF: High Frequency VHF: Very High Frequency V0394



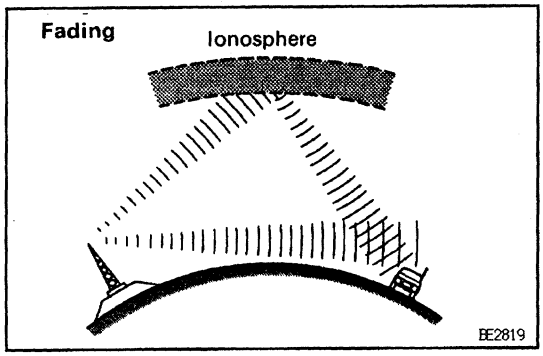

## 2. SERVICE AREA

There are great differences in the size of the service area for AM, FM monaural, and FM stereo broadcasts 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”) easily.

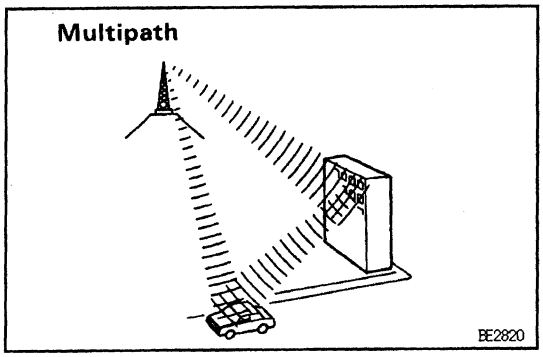
## 3. RECEPTION PROBLEMS

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.



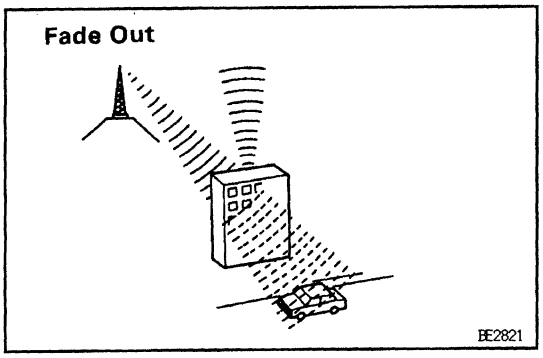

### Fading

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 of obstructions is called "multipath'. Multipath occurs when a signal from the broadcast transmitter antenna bounces off buildings and mountains and interferes with the signal that is received directly

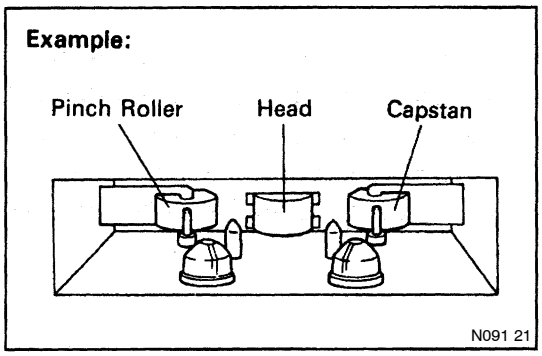


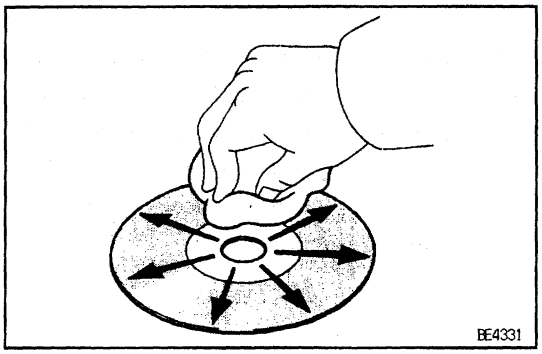

### Fade Out

Because FM radio waves are of higher frequencies than AM radio waves, they bounce off 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".

### 4. COMPACT DISC PLAYER

Compact Disc (hereafter called ”CD”) Players use a laser beam pick–up to read the digital signals recor–ded on the CD and reproduce analog signals of the music, etc. There are
4..7 in. (112 cm) and 3.2 in. (8 cm)
discs in the CD player.
HINT: Never attempt to disassemble or oil any part of the player unit. Do not insert any object other than a disc into the magazine.
**NOTICE: CD players use an invisible laser beam which could cause hazardous radiation exposure. Be sure to operate the player correctly as instructed.**




BE1E9–01

## MAINTENANCE

**Tape Player/Head Cleaning**

(a) Raise the cassette door with your finger.
Next using a pencil or like object, push in the guide.
(b) Using a cleaning pen or cotton applicator soaked in cleaner, clean the head surface, punch rollers and capstans.

**CD Player/Disc Cleaning**

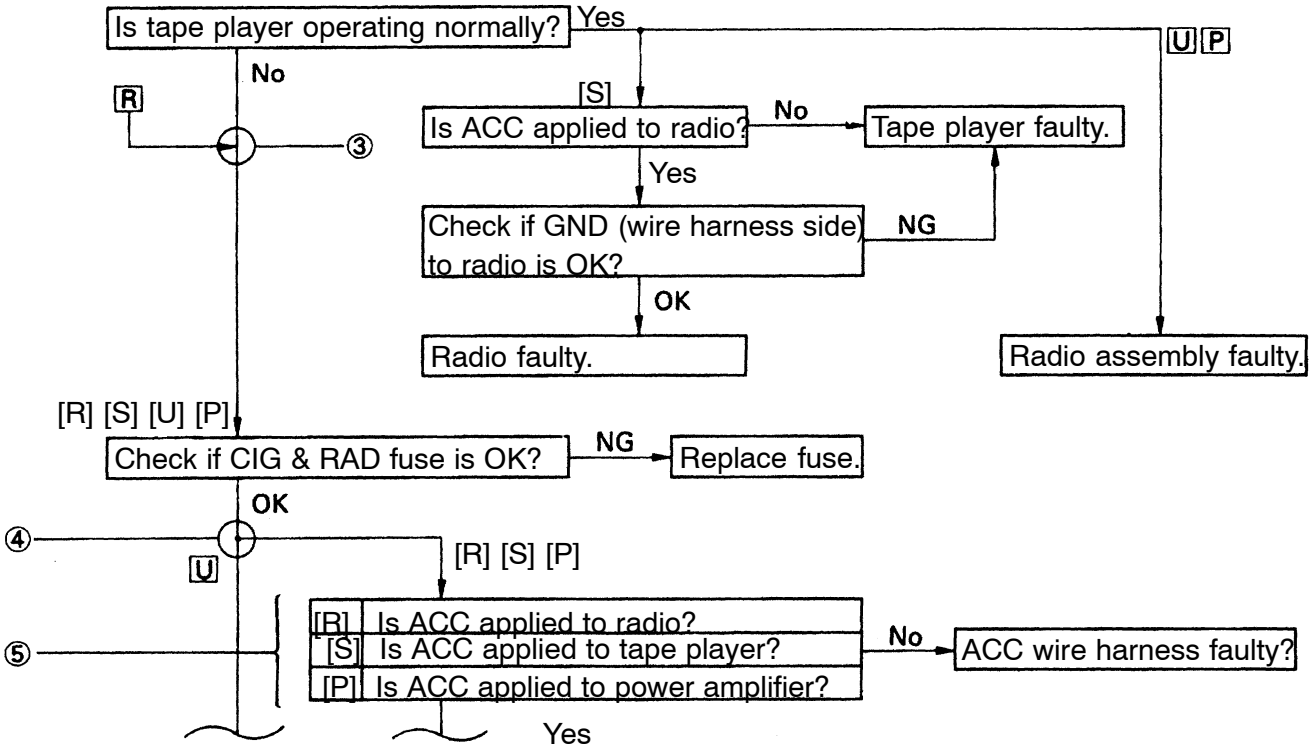
If the disc gets dirty, clean the disc by wiping the surfaces from the center to outside in the radial direc–tions with a soft cloth.
**NOTICE: Do not use a conventional record cleaner or antistatic preservative.**

BE1LJ–01

# HOW TO USE DIAGNOSTIC CHART

| 1 | Radio | NO POWER COMING IN |
|---|---|---|

(1) = [ R]: w/o Tape Player [S]: Radio–Tape Player (Separate)
[U ] Radio–Tape Player Unit w/o Power Amplifier [P]: w/ Power Amplifier
(2) = [S] [U] [P]




(1)Audio system type and symbol used.
HINT: Confirm the applicable type of audio system.
(2) Symbol for type of audio system the question applies to.
HINT: If the audio system type is not applicable, proceed to next question below.
(3) Junction without black circle.
HINT: Proceed to next question below.
(4)Junction with black circle.
HINT: Proceed to question for applicable audio system type.
(5)HINT: Select question for applicable audio system type.

# TROUBLESHOOTING

**NOTICE; When replacing the internal mechanism (ECU 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).**

HINT: 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 (execpt for the wires and connectors, etc.).

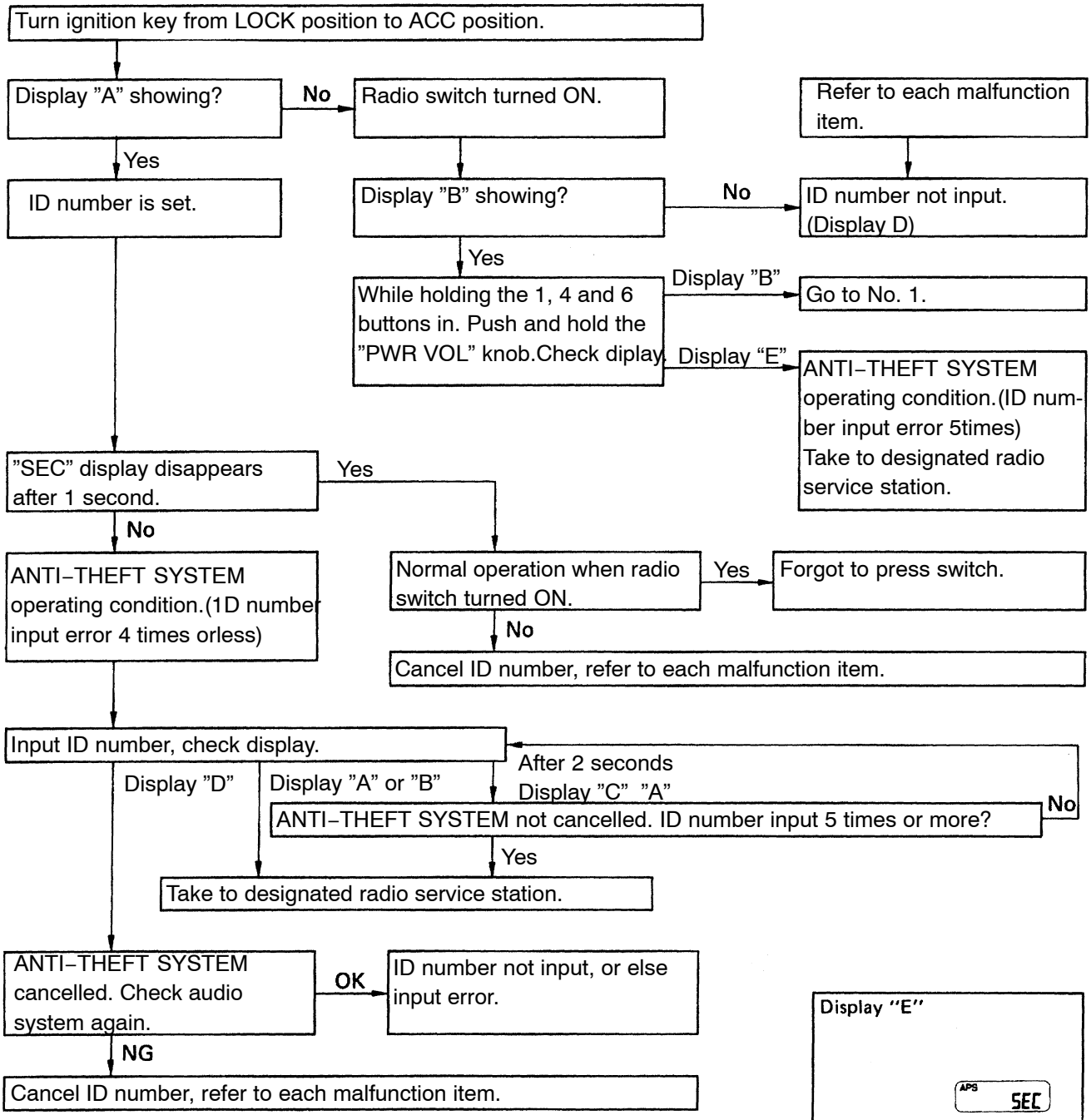
Always inspect the trouble taking the following items into consideration.

- Open or short circuit of the wire harness
- Connector or terminal connection fault
- For audio systems with anti–theft system, troubleshooting items marked (*) indicate that "Troubleshooting for ANTI–THEFT SYSTEM" should be carried out first.

| Problem | | 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 |
| | Cannot set station select button. | 7 |
| | Preset memory disappears. | 7 |
| Tape Player | Cassette tape cannot be inserted. | 8 |
| | Cassette tape inserts, but no power. | *9 |
| | Power coming in, but tape player not operating. | 10 |
| | Either speaker does not work. | 11 |
| | Sound quality poor (Volume faint). | 12 |
| | Tape jammed, malfunction with tape speed or auto–reverse. | 13 |
| | APS, SKIP, RPT buttons not operating. | 14 |
| | Cassette tape will not eject. | *15 |
| CD Player | CD cannot be inserted. | 16 |
| | CD inserts but no power. | 17 |
| | Power coming in, but CD player not operating. | 18 |
| | Sound jumps. | 19 |
| | Sound quality poor (Volume faint). | 20 |
| | Either speaker does not work. | 21 |
| | CD will not eject. | 22 |
| Antenna | Antenna –related. | 23 |
| Noise | Noise produced by vibration or shock while driving. | 24 |
| | Noise produced when engine starts. | 25 |

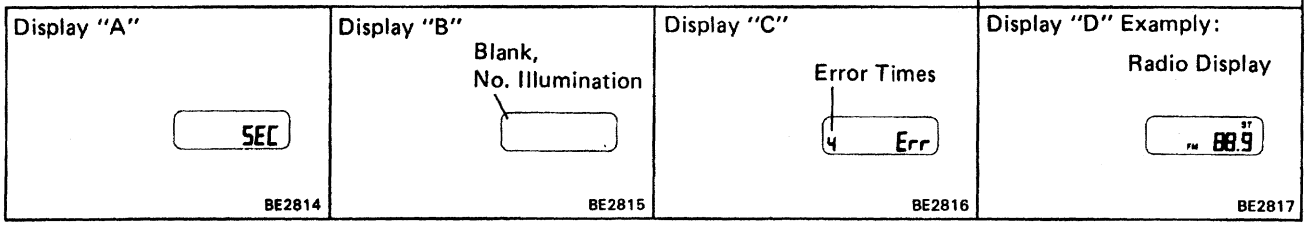
V04327

# Troubleshooting for ANTI–THEFT SYSTEM




(Liquid Crystal Display (LCD) for Audio System)



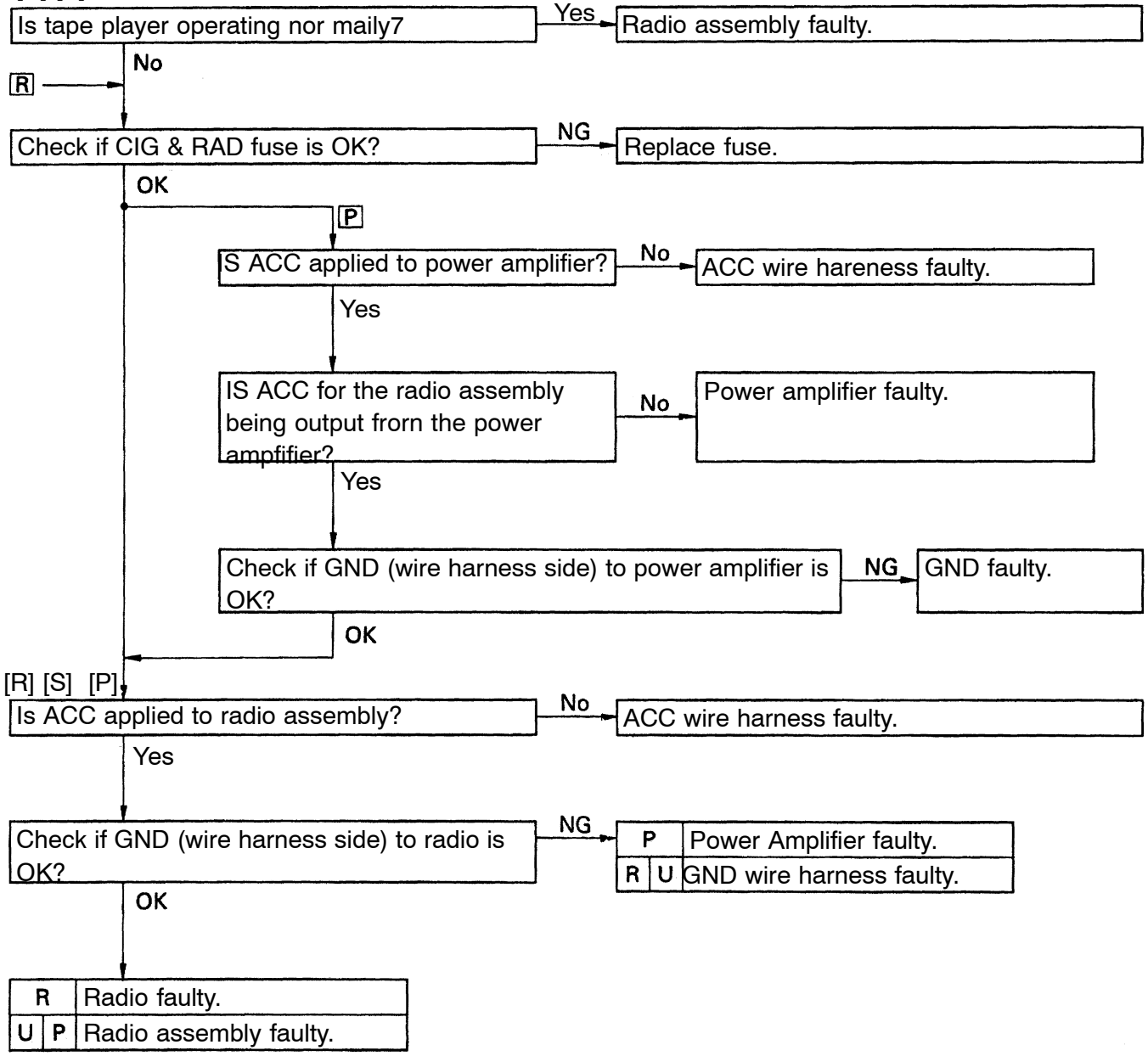

HINT:

- Refer to Owner's Manual for operation details of ANTI–THEFT SYSTEM.
- When the ID number has been cancelled, reset the same number after completing the operation, or
  inform the customer that it has been cancelled.

V04328

| 1 | Radio | NO POWER COMING IN |
|---|---|---|

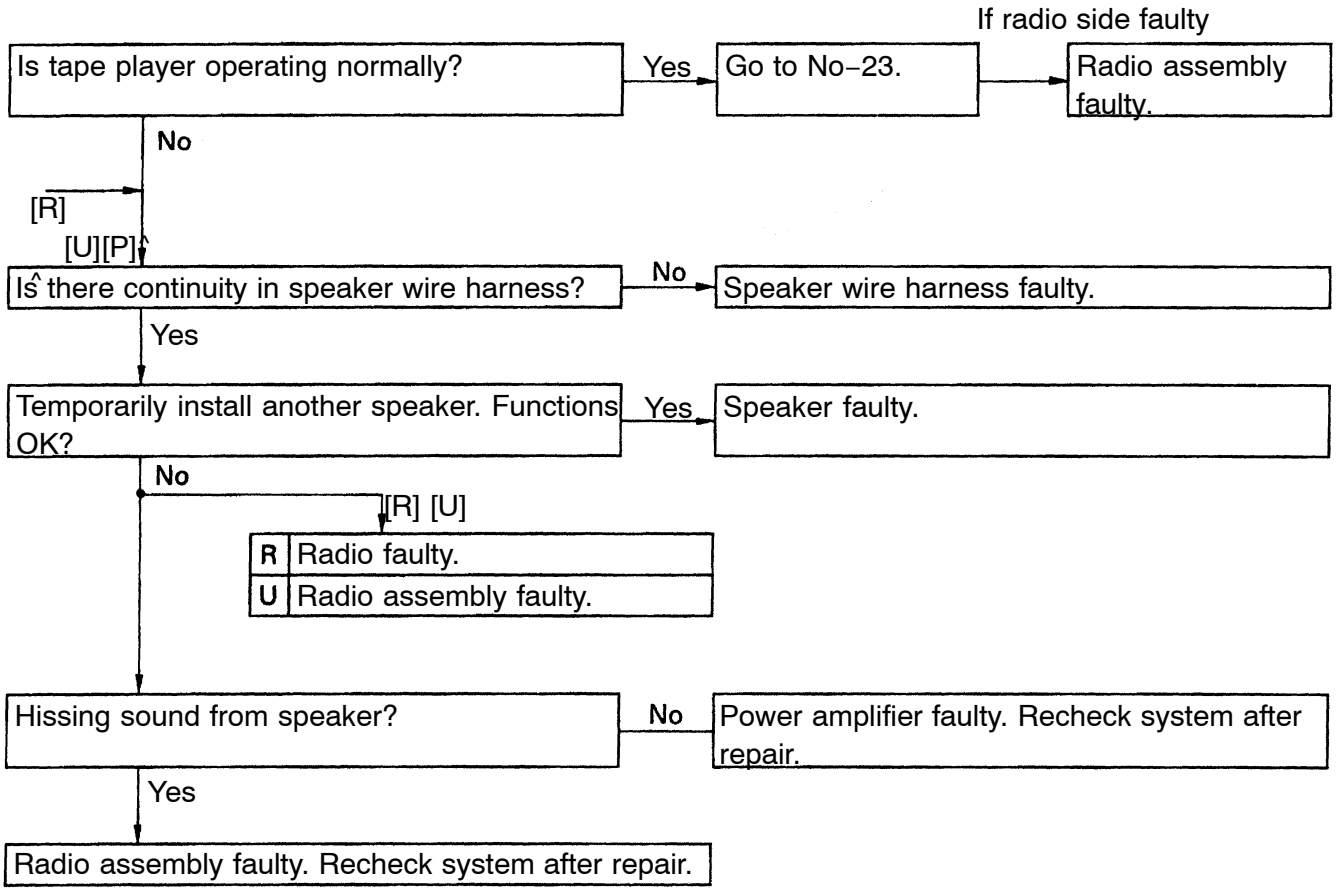
[R] : Radio, 5 Speaker [U] : Radio–Tape Player, 5 Speaker
[P] : Radio–Tape Player, 9 Speaker




V04329

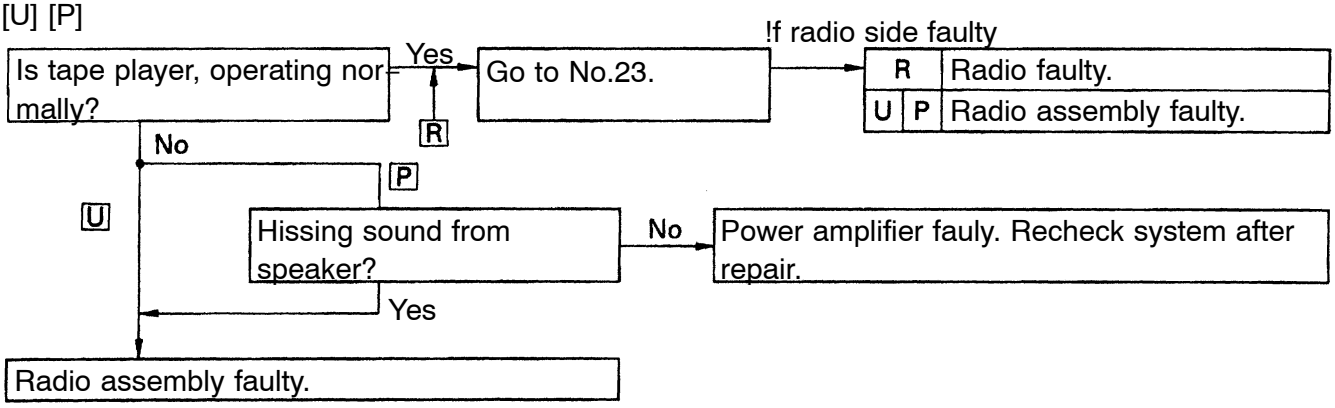
## 2 Radio — POWER COMING IN,BUT RADIO NOT OPERATING

[R] : Radio, 5 Speaker [U] : Radio–Tape Player, 5 Speaker
[P] : Radio–Tape Player, 9 Speaker




## 3 Radio — NOISE PRESENT, BUT AM–FM NOT OPERATING

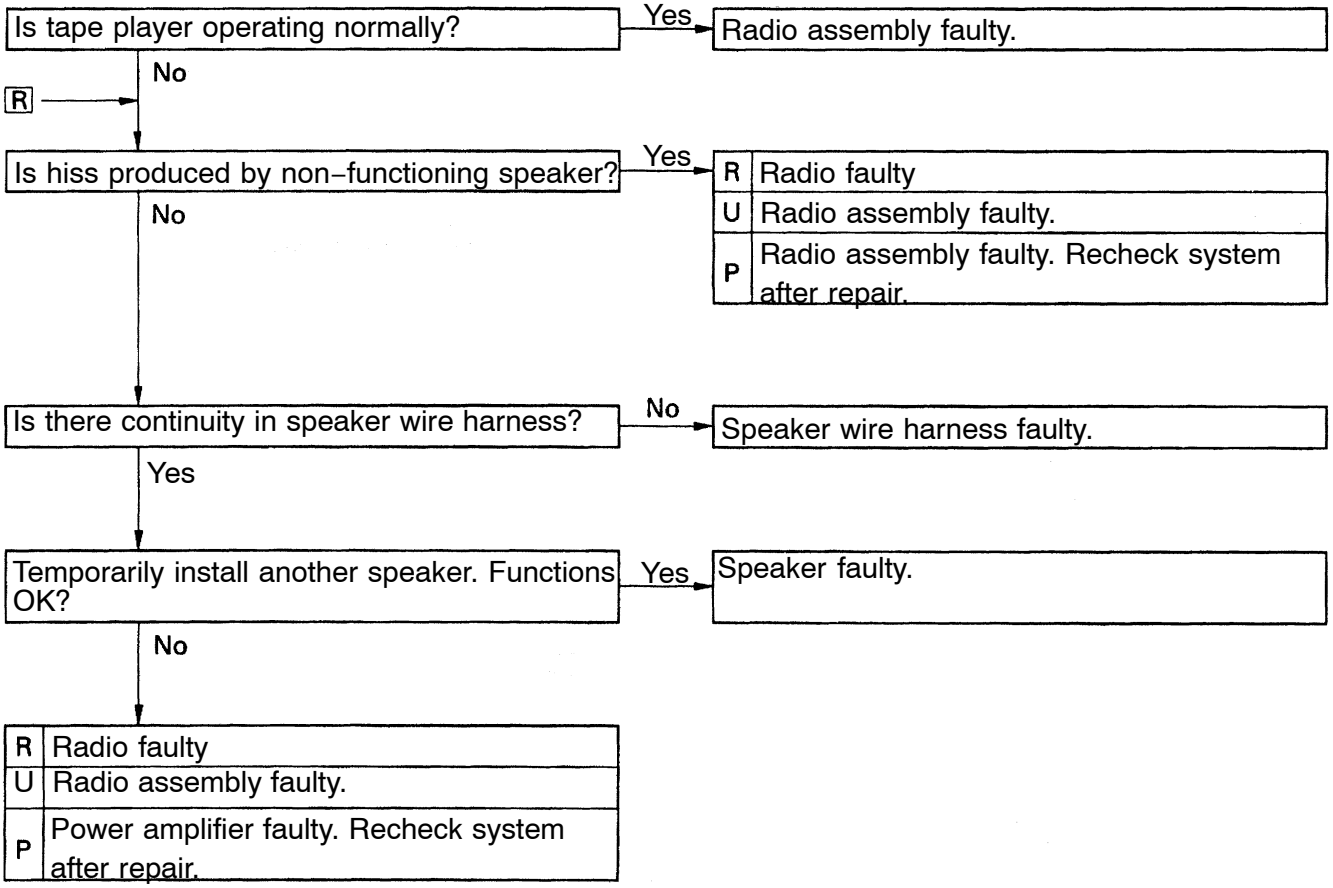
[R]: Radio, 5 Speaker [U] Radio –Tape Player, 5 Speaker
[P]: Radio–Tape Player, 9 Speaker
[U] [P]




V04330

| 4 | Radio | EITHER SPEAKER DOES NOT WORK |
|---|---|---|

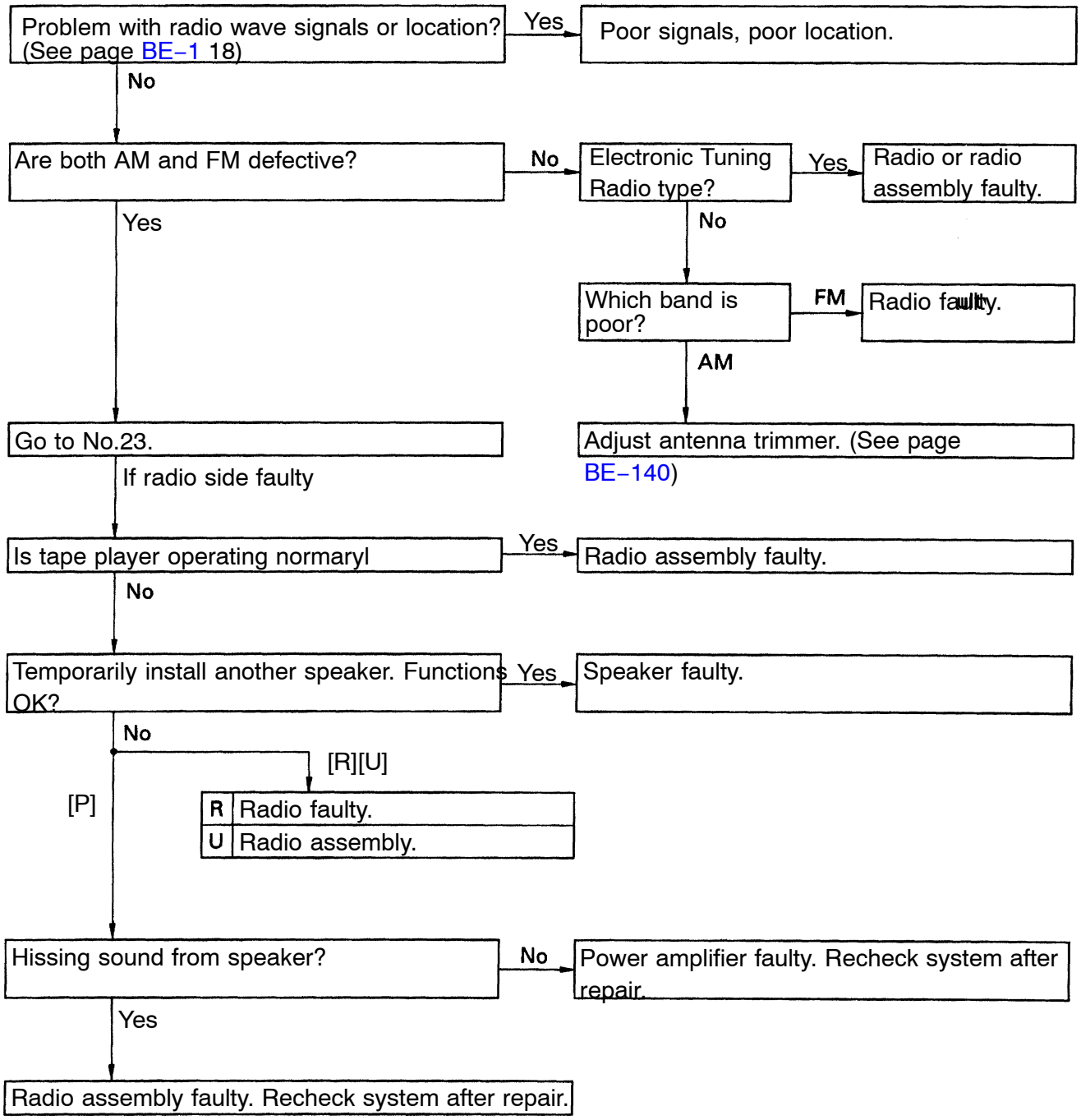
[R]: Radio, 5 Speaker [U] : Radio–Tape Player, 5 Speaker
[P]: Radio–Tape Player, 9 Speaker
[U][P]




V04331

| 5 | Radio | EITHER AM OR FM DOES NOT WORK, RECEPTION POOR (VOLUME FAINT),FEW PRESET TUNING BANDS |
|---|---|---|

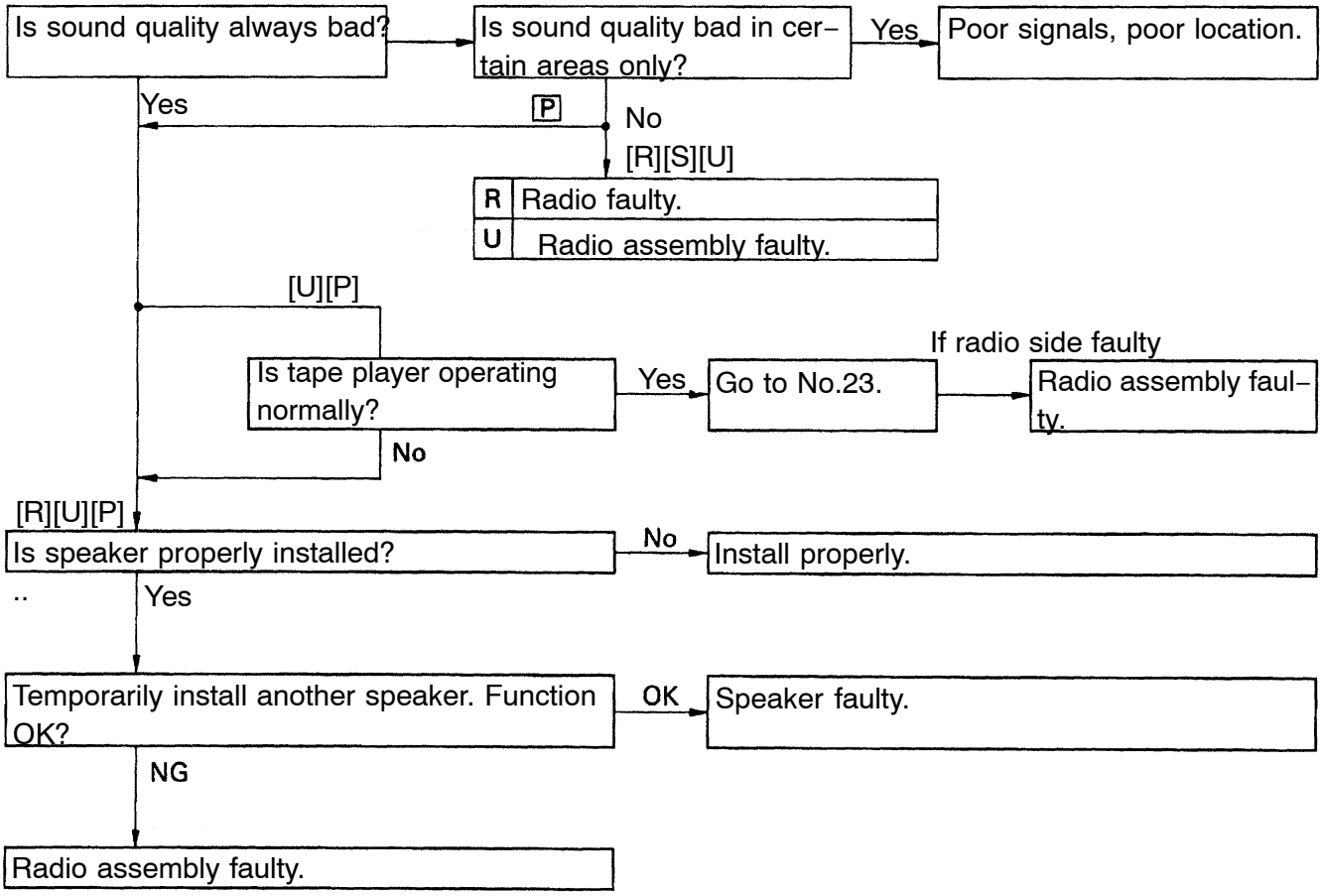
[R] : Radio, 5 Speaker [U] : Radio–Tape Player, 5 Speaker
[P] : Radio–Tape Player, 9 Speaker




V04332

# 6 Radio SOUND QUALITY POOR

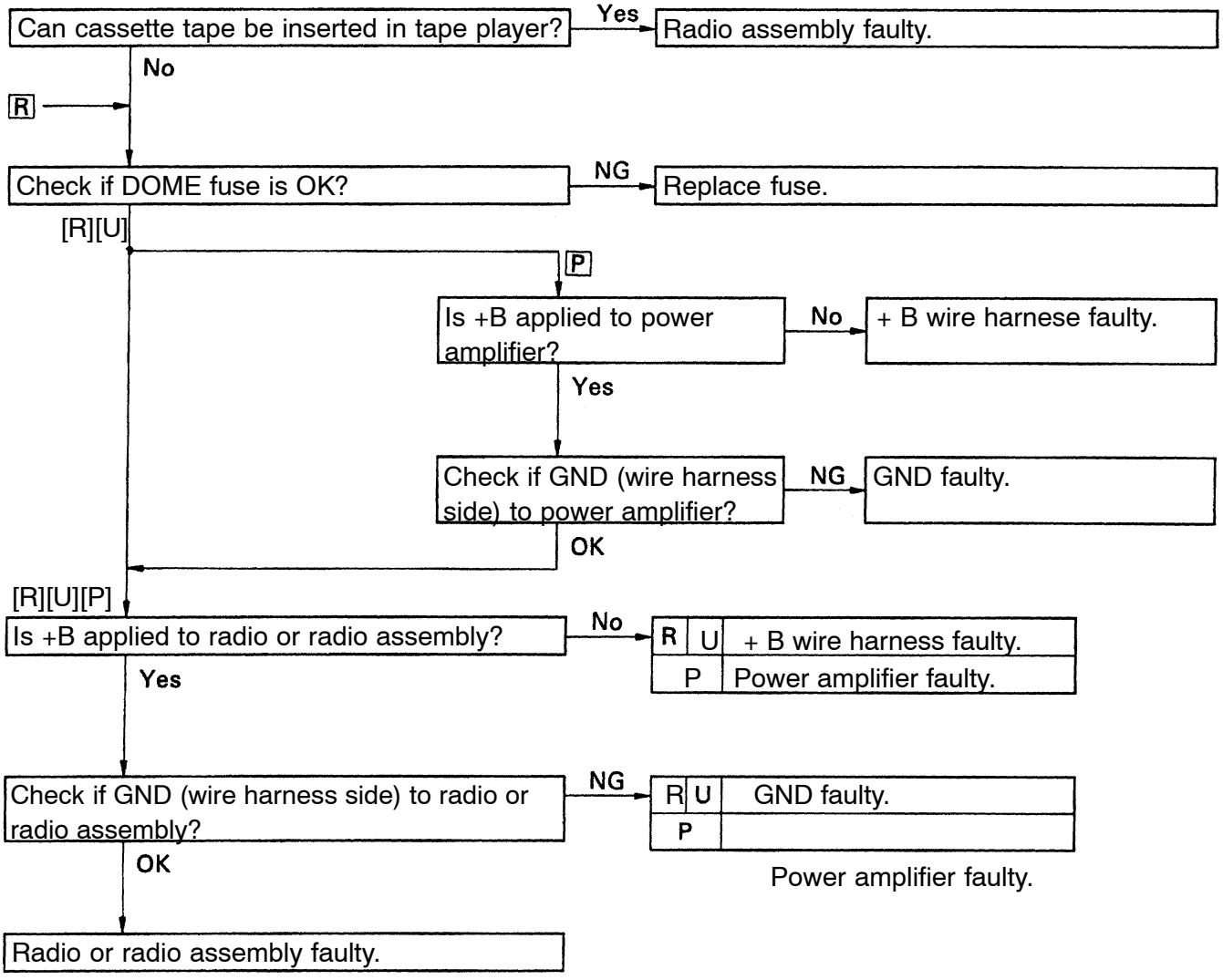
[R]: Radio, 5 Speaker [U] : Radio–Tape Player, 5 Speaker
[P]: Radio–Tape Player, 9 Speaker




V04333

# Radio — CANNOT SET STATION SELECT BUTTON, PRESET MEMORY DISAPPEARS

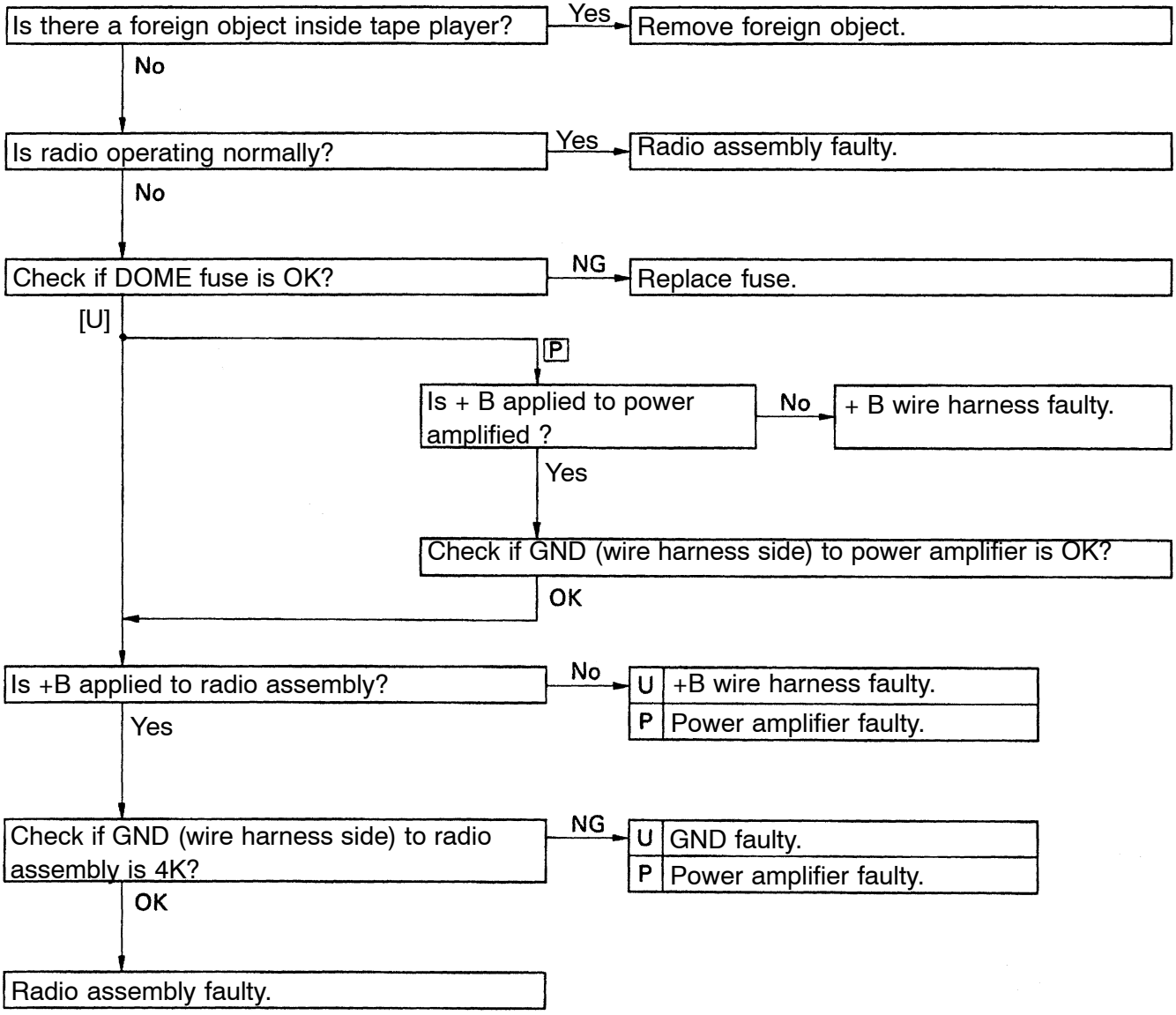
[R] : Radio, 5 Speaker [U] : Radio–Tape Player, 5 Speaker
[P] : Radio–Tape Player, 9 Speaker
[U][P]




V04334

# 8 Tape Player CASSETTE TAPE CANNOT BE INSERTED

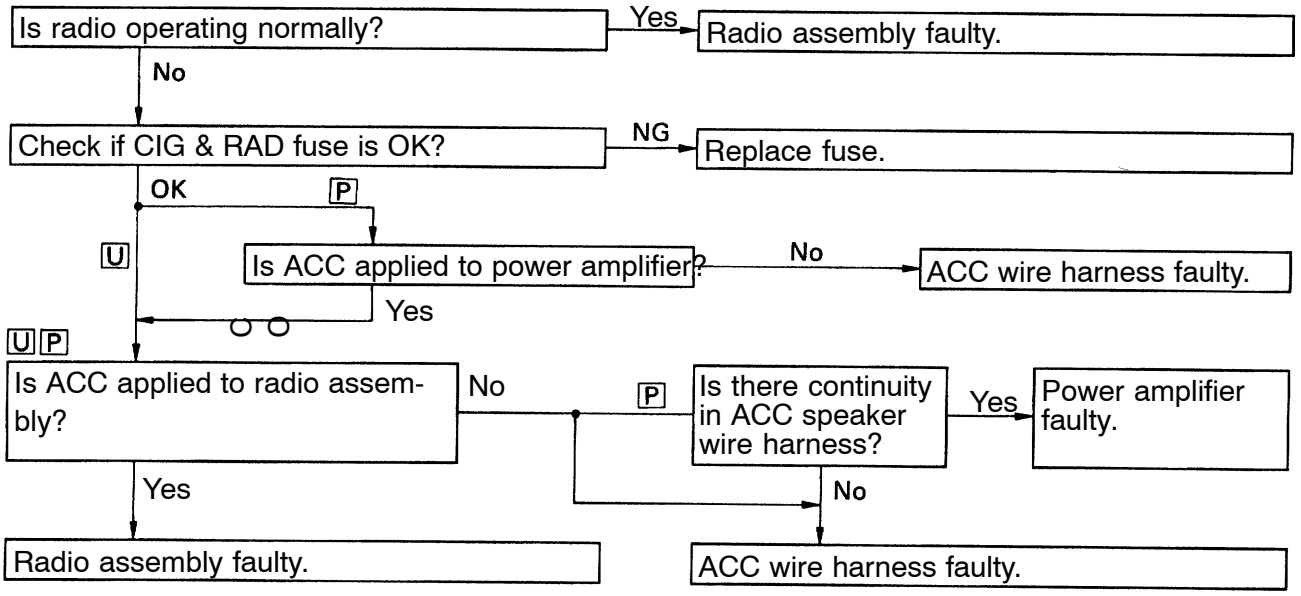
[U] : Radio –Tape Player, 5 Speaker
[P] : Radio –Tape Player, 9 Speaker




V04335

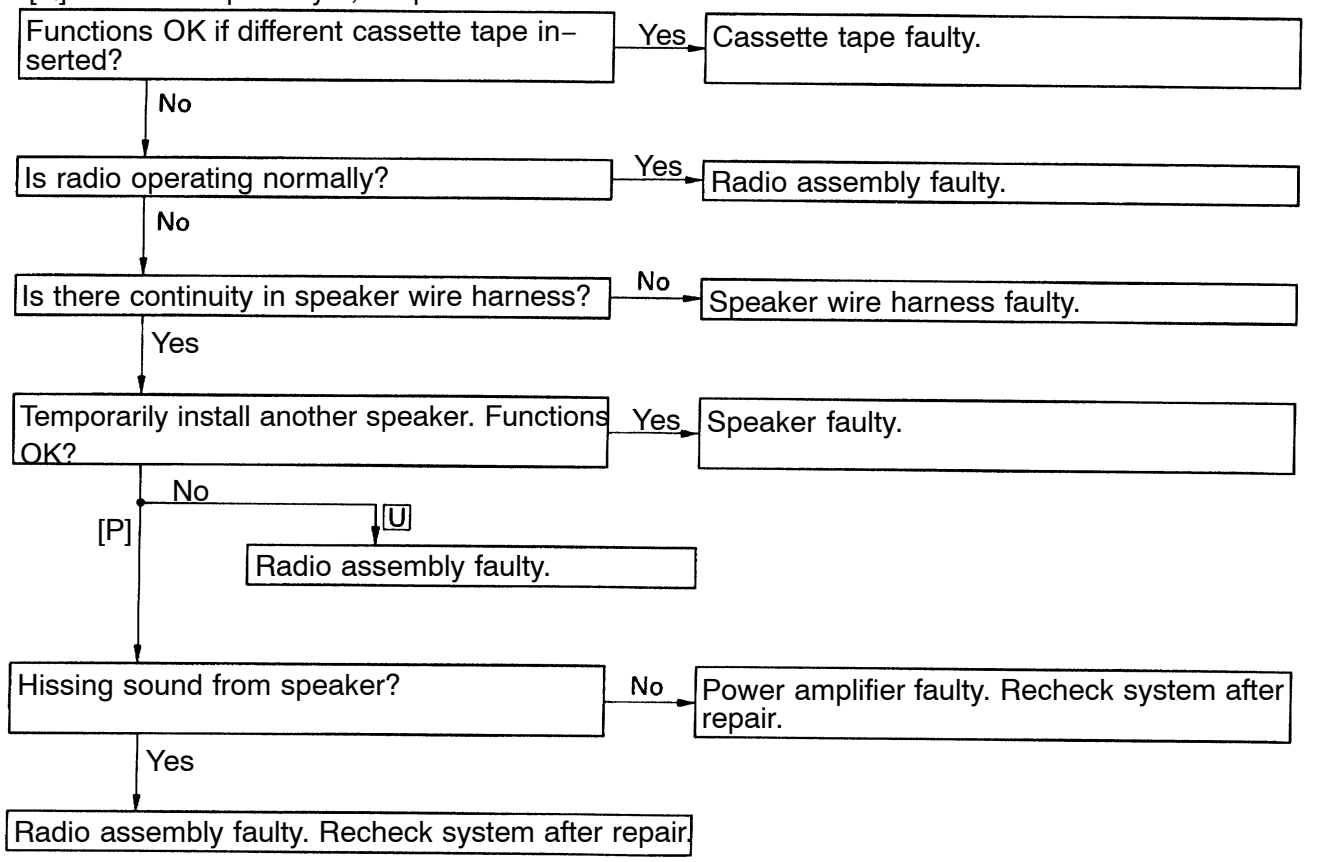
## 9 Tape Player CASSETTE TAPE INSERTS, BUT NO POWER

[U]: Radio–Tape Player, 5 Speaker
[P]: Radio–Tape Player, 9 Speaker




## 10 TapePlayer POWER COMING IN, BUT TAPE PLAYER NOT OPERATING

[U] : Radio –Tape Player, 5 Speaker
[Q] : Radio –Tape Player, 9 Speaker




V04336

## 11 Tape Player EITHER SPEAKER DOES NOT WORK

[U] : Radio–Tape Player, 5 Speaker
[P]: Radio–Tape Player, 9 Speaker

Is radio operating normally?
- Yes → Radio assembly faulty.
- No →

Is hiss produced by non–functioning Speaker?
- Yes →
  - U: Radio assembly faulty.
  - P: Radio assembly faulty. Recheck system after repair.
- No →

Is there continuity in speaker wire harness?
- No → Speaker wire harness faulty.
- Yes →

Temporarily install another speaker. Functions OK?
- OK → Speaker faulty.
- NG →
  - U: Radio assembly faulty.
  - P: Radio assembly faulty. Recheck system after repair.

## 12 Tape Player SOUND QUALITY POOR (VOLUME FAINT)

[U] : Radio–Tape Player, 5 Speaker
[P] : Radio–Tape Player, 9 Speaker

Functions OK if different cassette tape inserted?
- Yes → Cassette tape faulty.
- No →

Operates normally after cleaning the heads? (See page BE–94)
- Yes → Head dirty.
- No →

Is radio operating normally?
- Yes → Radio assembly faulty.
- No →

Is speaker properly installed?
- No → Install properly.
- Yes →

Temporarily install another speaker. Functions OK?
- Yes → Speaker faulty.
- No →
  - U: Radio assembly faulty.
  - P: Radio assembly faulty. Recheck system after repair.

V04337

## 13 Tape Player — TAPE JAMMED, MALFUNCTION WITH TAPE SPEED OR AUTO–REVERSE

Functions OK if different tape (less than 120 miens. ) is inserted?
- Yes → Cassette tape faulty.
- No →

Is there a foreign object, inside tape player?
- Yes → Remove foreign object.
- No →

Operates normally after cleaning the heads?(See page BE–120)
- Yes → Head dirty.
- No →

Radio assembly faulty.

## 14 Tape Player — AS, SKIP, RPT. BUTTONS NOT OPERATING

Functions OK if different cassette tape inserted?
- No → Radio assembly faulty.
- Yes →

Cassette tape faulty. (Less than 3 secs. of silence between songs (APS, RPT). Less than 15 secs. ofsilence (SKIP)

## 15 Tape Player — CASSETTE TAPE WILL NOT EJECT

[R] : Radio, 5 Speaker [U] : Radio –Tape Player, 5 Speaker
[P] : Radio–Tape Player, 9 Speaker

Is tape player operating normally?
- → Cassette tape jammed.
- Yes →

Is radio operating normally?
- Yes → Radio assembly faulty.
- No →

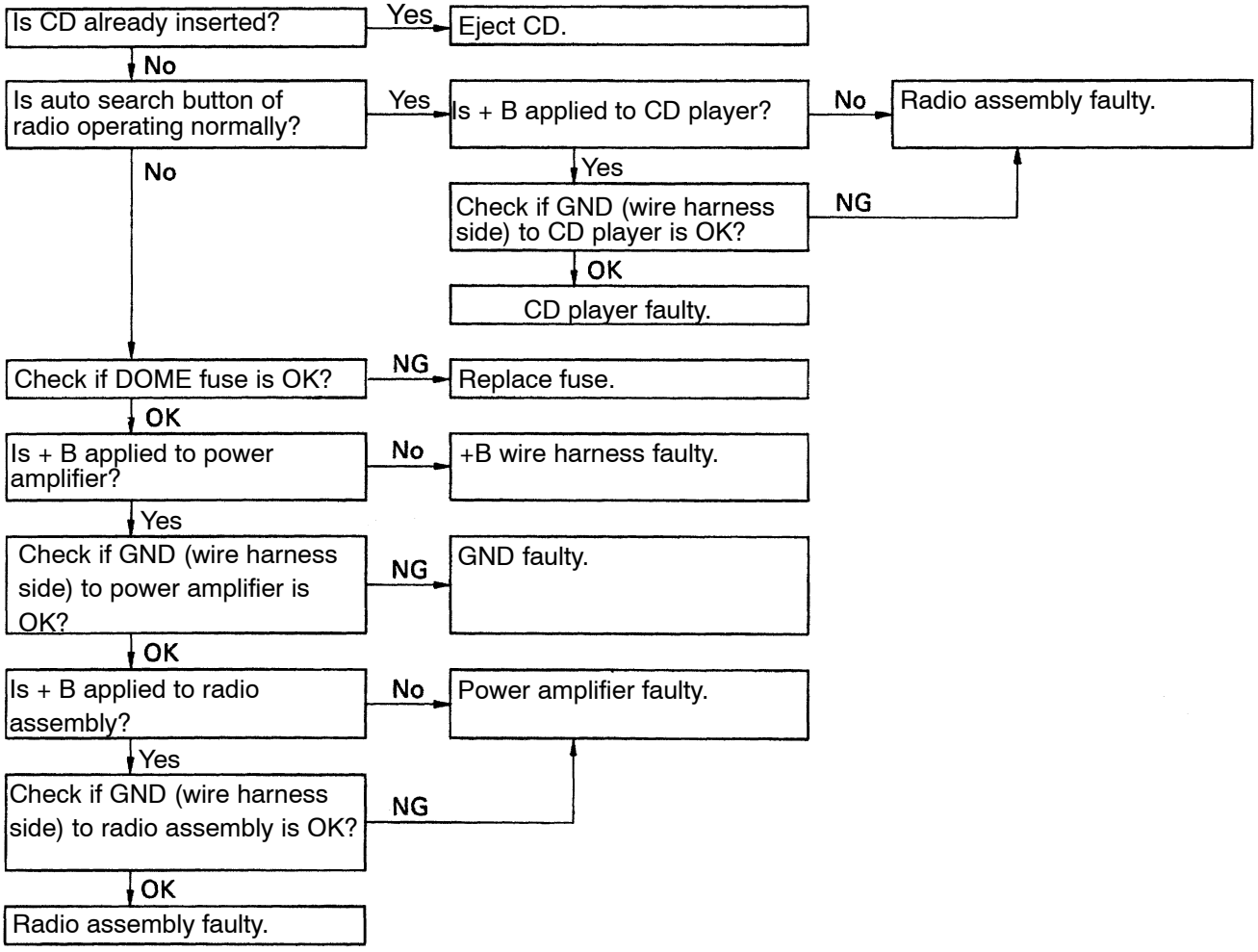
Check if DOME fuse is OK?
- NG → Replace fuse.
- OK →

[U] / [P] Is + B applied to power amplifier?
- No → + B wire harness faulty.
- Yes →

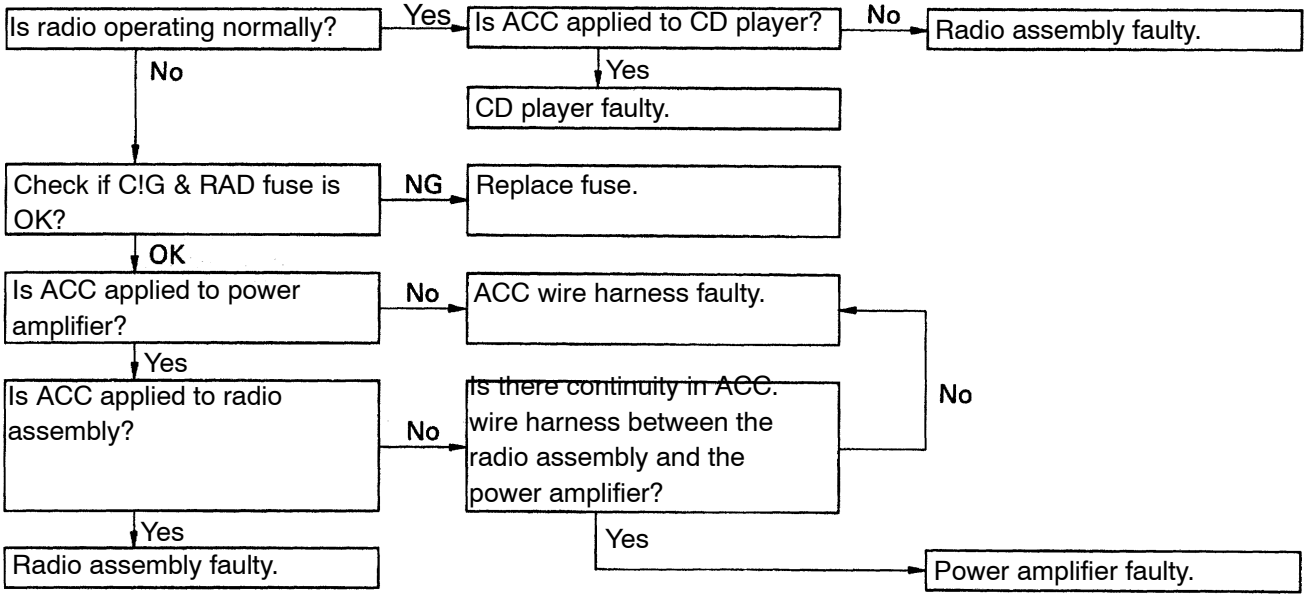
Is + B applied to radio assembly?
- Yes → Radio assembly faulty.
- No [P] → Is there continuity in ACC wire harness between power amplifier and radio assembly?
  - Yes → Power amplifier faulty.
  - No → +13 wire harness faulty.
- [U] → +13 wire harness faulty.

V04338

## 16 CD Player CD CANNOT BE INSERTED

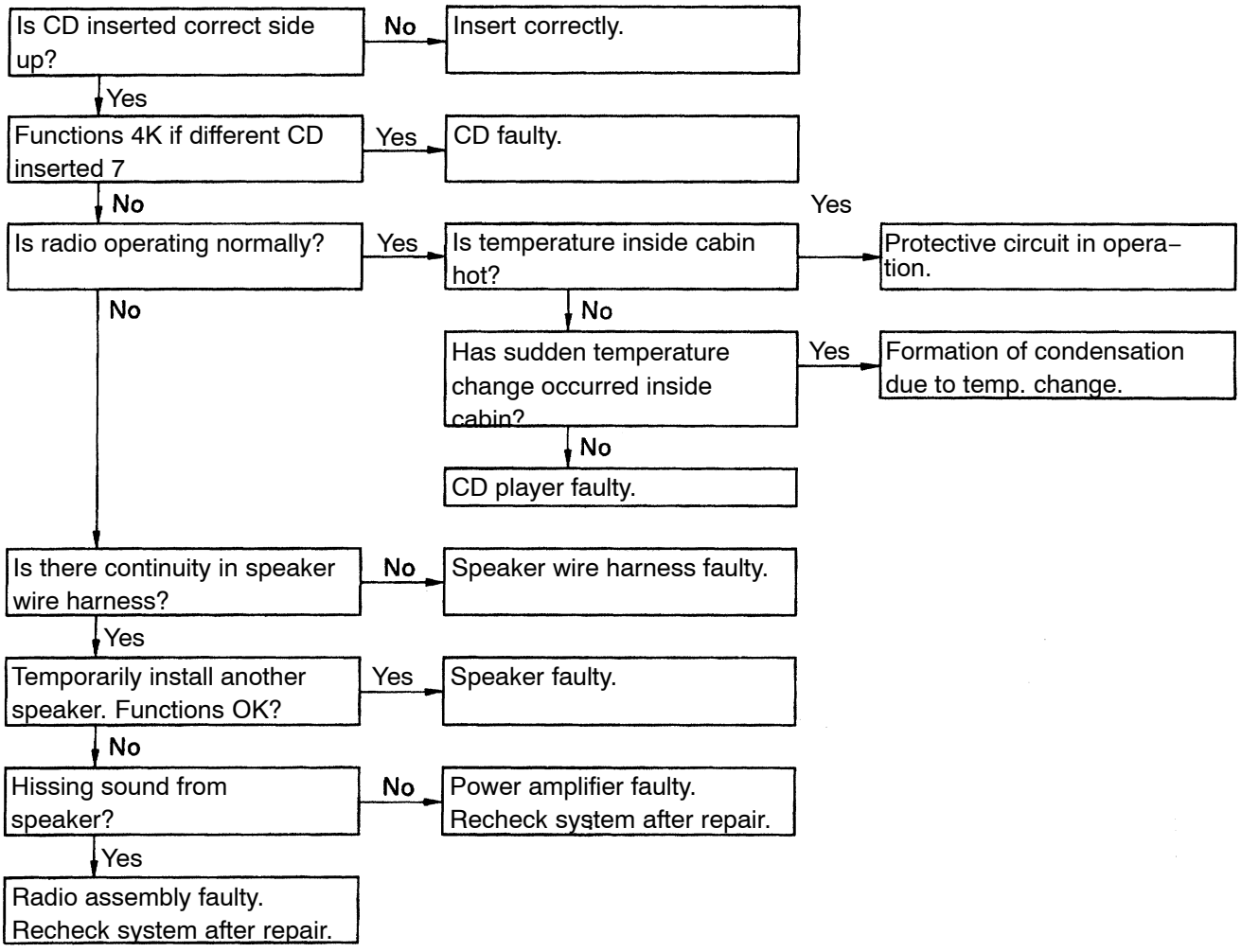



## 17 CD Player CD INSERTS, BUT NO POWER

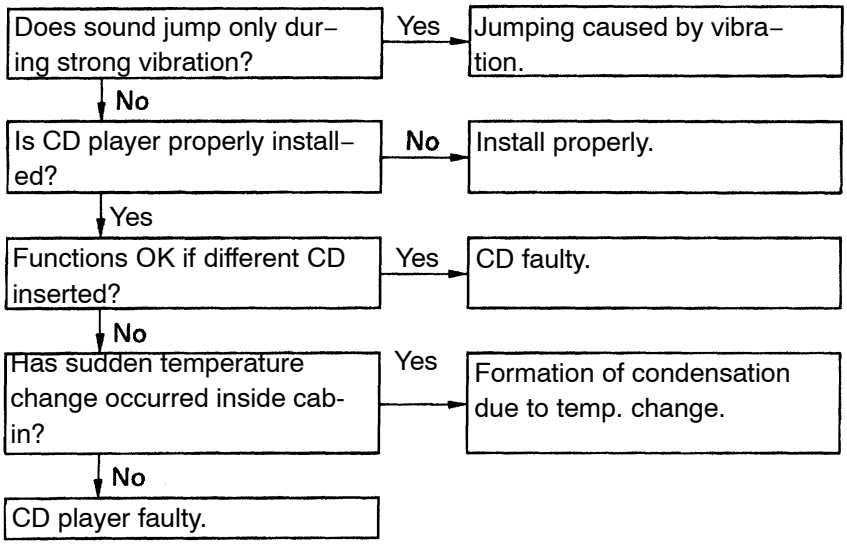



V04339

## 18 CD Player — POWER COMING IN, BUT CD PLAYER NOT OPERATING




## 19 CD Player — SOUND JUMPS




V04340

## 20 CD Player SOUND QUALITY POOR (VOLUME FAINT)

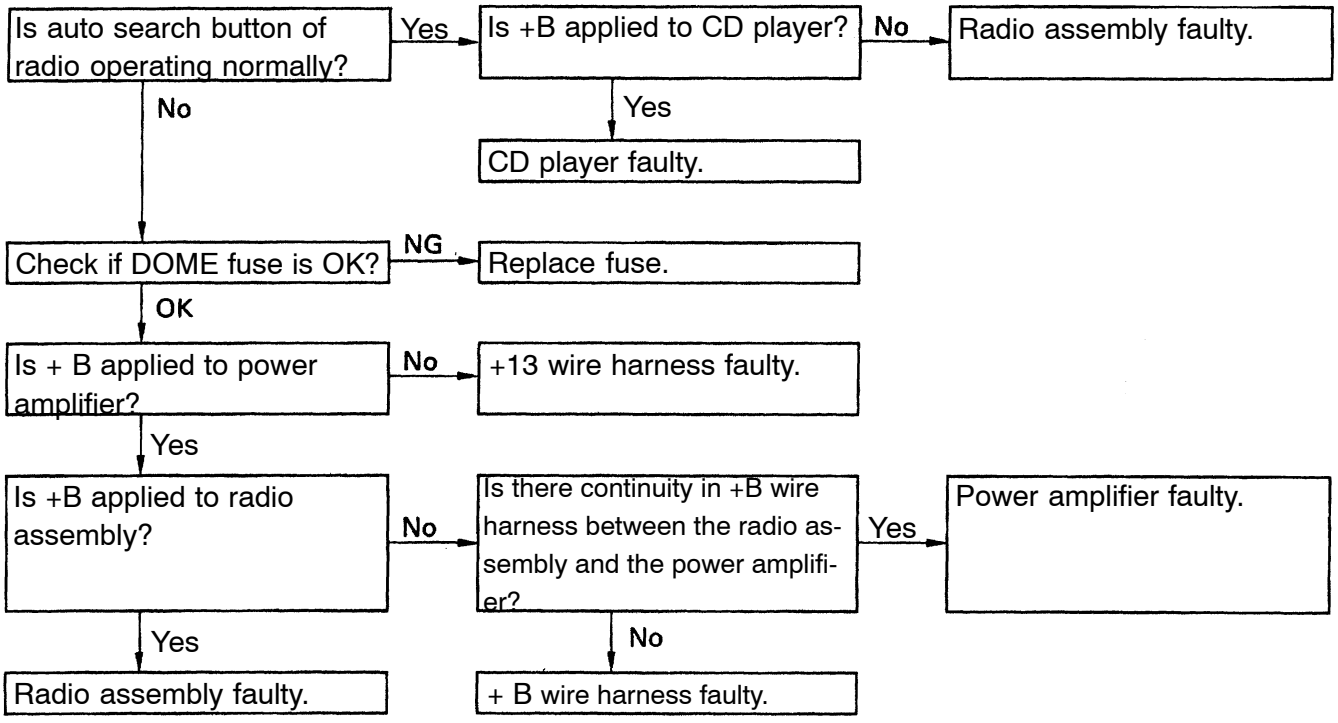
Functions 4K it different CD inserted? — Yes → CD faulty.
↓ No
Is radio operating normally? — Yes → CD player faulty.
↓ No
Is speaker properly install–ed? — No → Install properly.
↓ Yes
Temporarily install another speaker. Functions OK? — Yes → Speaker faulty.
↓ No
Radio assembly faulty. Recheck system after repair.

## 21 CD Player EITHER SPEAKER DOES NOT WORK

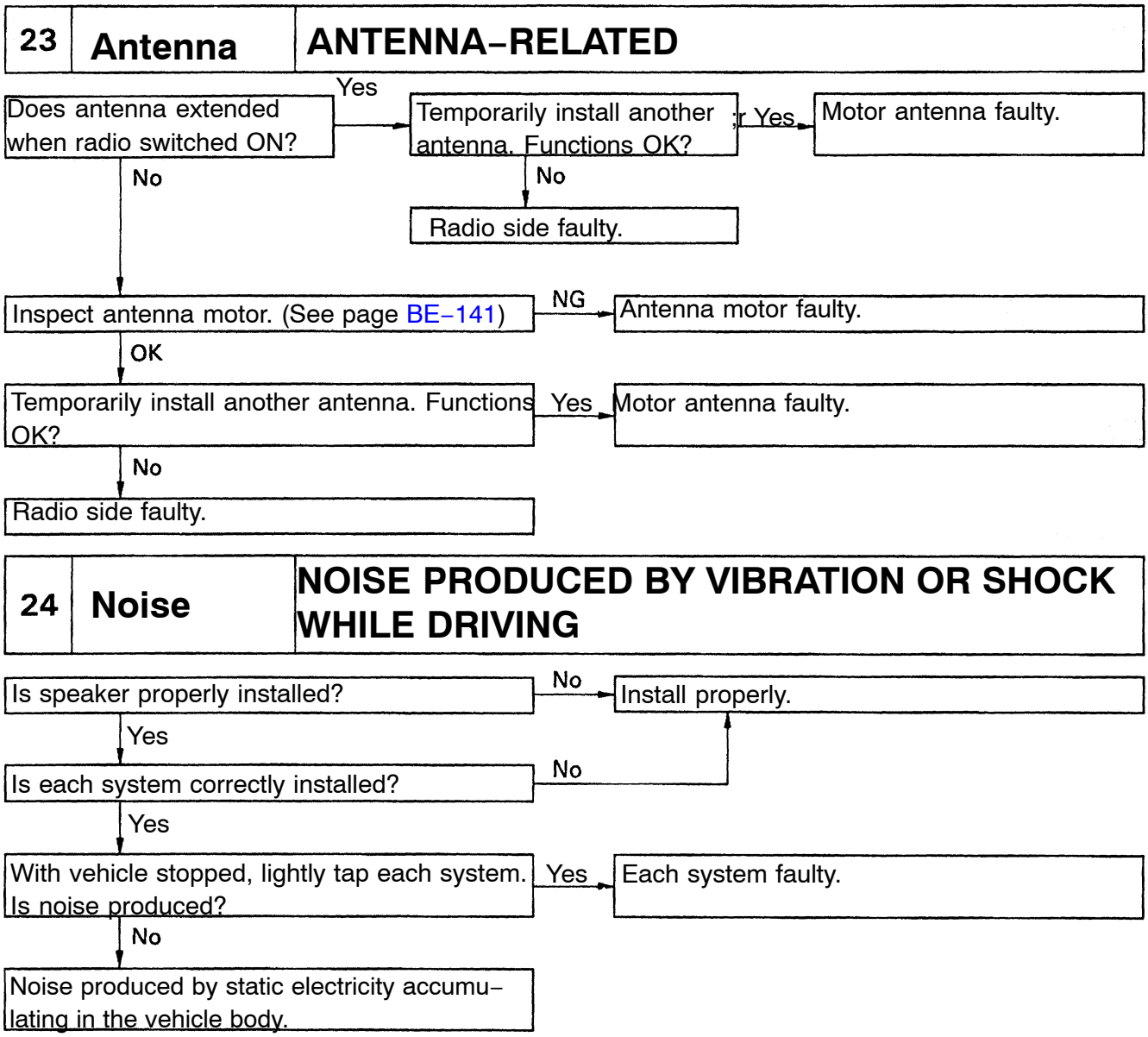
Is radio operating normally? — Yes → CD player faulty.
↓ No
Is hiss produced by non–functioning speaker? — Yes → Radio assembly faulty. Recheck system after repair.
↓ No
!s there continuity in speaker wire harness? — No → Speaker wire harness faulty.
↓ Yes
Temporarily install another speaker. Functions OK. — Yes → Speaker faulty.
↓ No
Power amplifier faulty. Recheck system after repair.

V04341

## 22 CD Player — CD WILL NOT EJECT

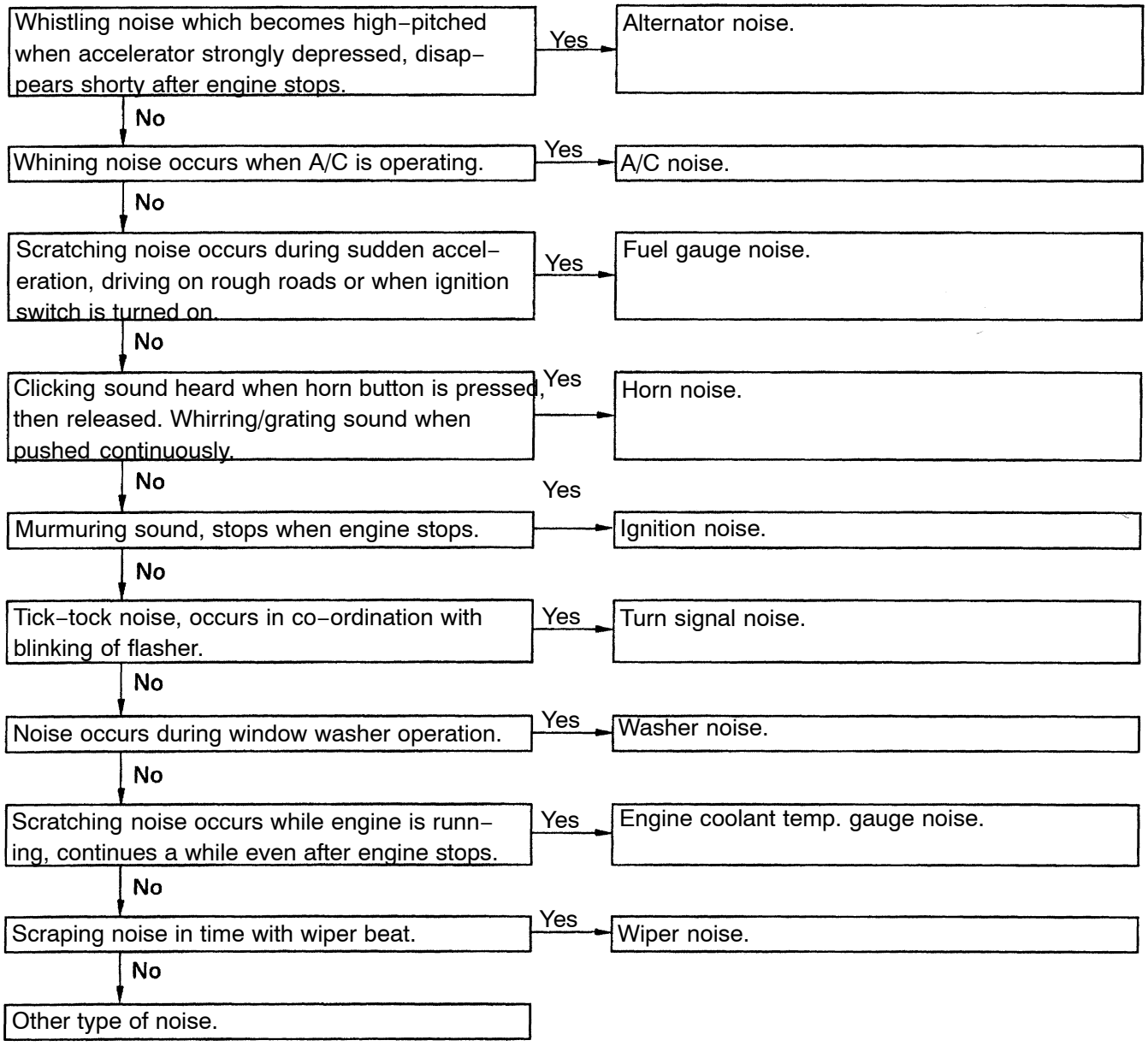



V04342

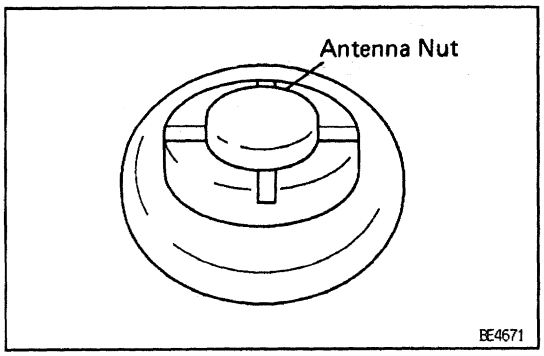

23
Antenna
ANTENNA–RELATED
Does antenna extended when radio switched ON?
Yes
Temporarily install another antenna. Functions OK?
Yes
Motor antenna faulty.
No
No
Radio side faulty.
Inspect antenna motor. (See page BE–141)
NG
Antenna motor faulty.
OK
Temporarily install another antenna. Functions OK?
Yes
Motor antenna faulty.
No
Radio side faulty.
24
Noise
NOISE PRODUCED BY VIBRATION OR SHOCK WHILE DRIVING
Is speaker properly installed?
No
Install properly.
Yes
Is each system correctly installed?
No
Yes
With vehicle stopped, lightly tap each system. Is noise produced?
Yes
Each system faulty.
No
Noise produced by static electricity accumulating in the vehicle body.

V04343

| 25 | Noise | NOISE PRODUCED WHEN ENGINE STARTS |
|---|---|---|




V04344




BE0L9–02

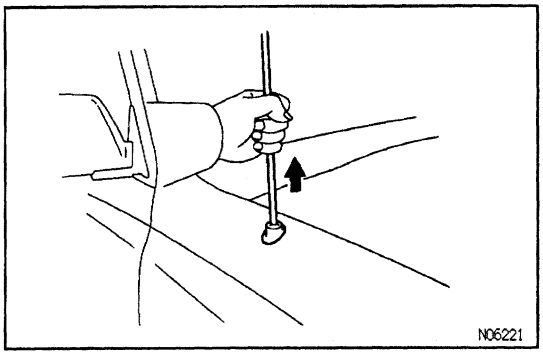
# ANTENNA ROD REMOVAL AND INSTALLATION

### 1. REMOVE ANTENNA ROD

HINT: Perform this operation with the battery negative (–) cable connected to the battery terminal.

(a) Turn the ignition switch to "LOCK" position

(b) Remove the antenna nut.




(c) Press the "AM" or "FM" button on the radio receiver, and simultaneously turn the ignition switch to "ACC" position.

HINT:

- The rod will extend fully and be released from the motor antenna.
- After removing the antenna rod, leave the ignition switch at "ACC".

**NOTICE: To prevent body damage when the antenna rod is released, hole the rod while it comes out.**

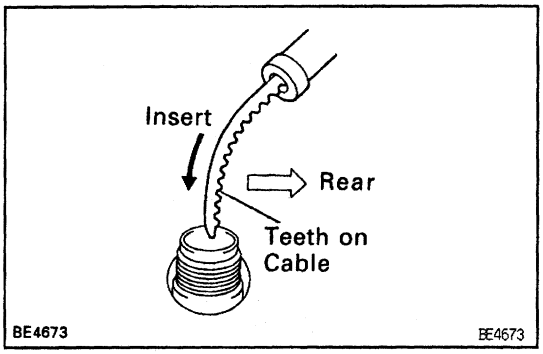
### 2. INSTALL ANTENNA ROD

(a) Insert the cable of the rod until it reaches the bottom.

HINT:

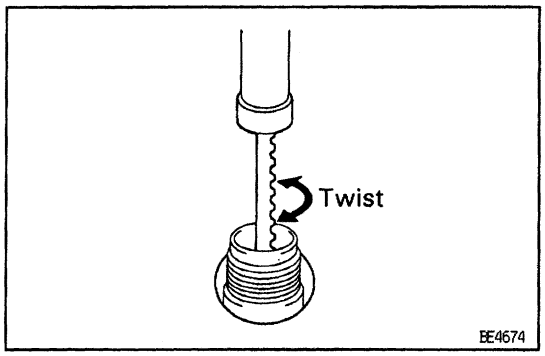
- When inserting the cable, the teeth on the cable must face toward the rear of the vehicle.
- Insert the cable approx. 400 mm

(b) Wind the cable to retract the rod by turning the ignition switch to "LOCK" position.

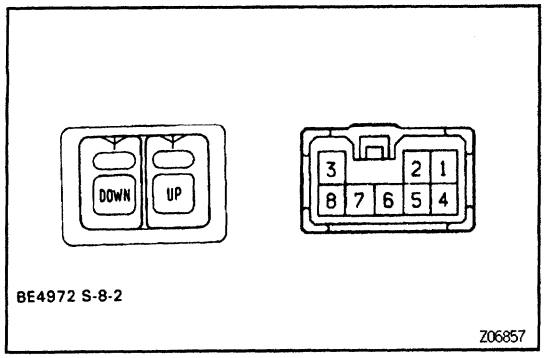



**HINT:**

- If the ignition switch is already in "LOCK" position, perform step 1 (c) first, then turn the ignition switch to "ACC" position.
- In case the cable is not wound, twist it, as shown in the illustration.
- Even if the rod has not retracted fully, install the antenna nut and inspect the antenna rod operation. It will finally retract fully.




(c) Inspect the antenna rod operation by pushing the radio wave band select buttons.



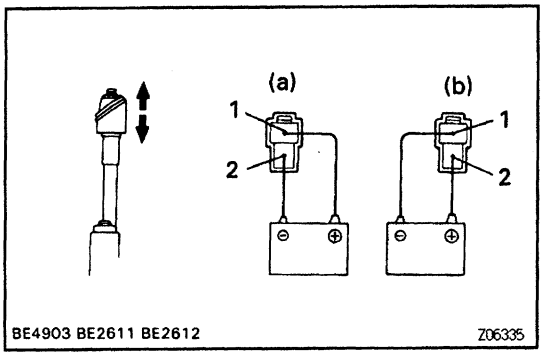

BE0L7–02

# ANTENNA SWITCH INSPECTION

**INSPECT ANTENNA SWITCH**
**W/ MOTOR ANTENNA:**
**Except RADIO–LINKED TYPE**
**Continuity**

| Condition | Tester connection to terminal number | Specified value |
|---|---|---|
| UP Button Position Free | 4–5 | Continuity |
| UP Button Position Pushed in | 5–7 | Continuity |
| DOWN Button Position Free | 4–8 | Continuity |
| DOWN Button Position Pushed in | 7–8 | Continuity, |
| Illumination circuit | 1–2 | Continuity |

If continuity is not as specified, replace the switch.




BE0L8–01

# ANTENNA MOTOR INSPECTION

**INSPECT ANTENNA MOTOR**

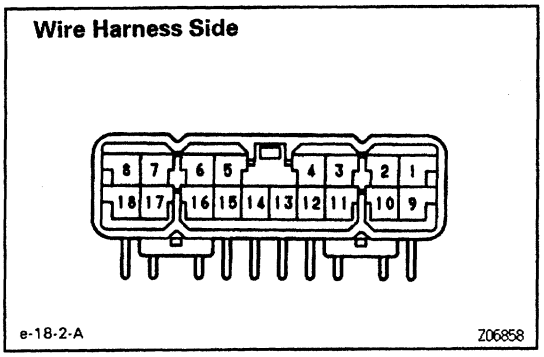
(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 2, check that the motor turns (moves upward.)
(b) Then, reverse the polarity, check that the motor turns the opposite way (moves downward.)
If operation is not as specified, replace the motor.

# ANTENNA MOTOR CONTROL RELAY INSPECTION

BE0LD–02

**INSPECT ANTENNA MOTOR CONTROL RELAY**
**Continuity**

Disconnect the connector from the relay and inspect the connector on wire harness side, as shown in the chart.




| Tester connection to terminal number | Condition | Specified value (Continuity) |
|---|---|---|
| 3–6 | Constant | Continuity |
| 5 – Ground | Constant | Continuity |

| Tester connection to terminal number | Condition | Specified value (Voltage) |
|---|---|---|
| 4 – Ground | Constant | Battery positive voltage |
| 7 – Ground | Ignition switch position LOCK or ACC | No voltage |
| 7 – Ground | Ignition switch position ON | Battery positive voltage |
| 17 – Ground | Ignition switch position LOCK | No voltage |
| 17 – Ground | Ignition switch position ACC or ON | Battery positive voltage |

| Check for | Tester connection | Condition | | | | Specified value |
|---|---|---|---|---|---|---|
| | | Ignition SW | Radio SW | Radio band | Cassette | |
| Voltage | 13 – Ground | LOCK | – | – | – | No voltage |
| | | ACC or ON | OFF | – | OFF | No voltage |
| | | ACC or ON | ON | – | – | Battery positive voltage |
| | | ACC or ON | – | – | ON | Battery positive voltage |
| | 14 – Ground | LOCK | – | – | – | No voltage |
| | | ACC or ON | OFF | – | – | No voltage |
| | | ACC or ON | ON | – | OFF | Battery positive voltage |
| | | ACC or ON | ON | – | ON | No voltage |
| | 15 – Ground | LOCK | – | – | – | No voltage |
| | | ACC or ON | OFF | – | – | No voltage |
| | | ACC or ON | ON | AM | OFF | Battery positive voltage |
| | | ACC or ON | ON | AM | ON | No voltage |
| | | ACC or ON | ON | FM | OFF | No voltage |
| | 16 – Ground | LOCK | – | – | – | No voltage |
| | | ACC or ON | OFF | – | – | No voltage |
| | | ACC or ON | ON | – | OFF | Battery positive voltage |
| | | ACC or ON | ON | – | ON | No voltage |

V02758

If continuity is not as specified, replace the relay.