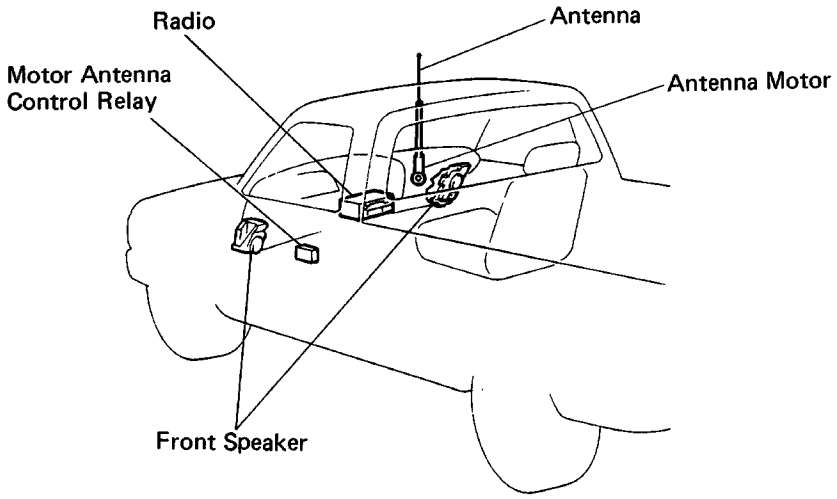
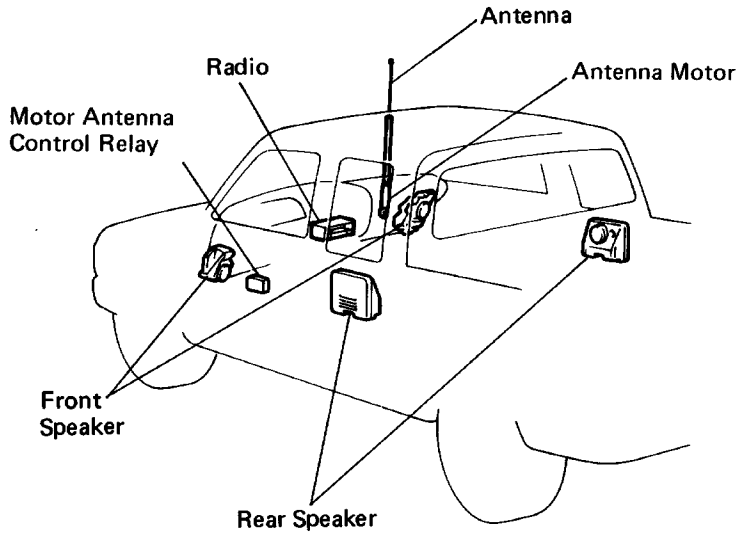
AUDIO SYSTEM

Parts Location

2-Speaker Type



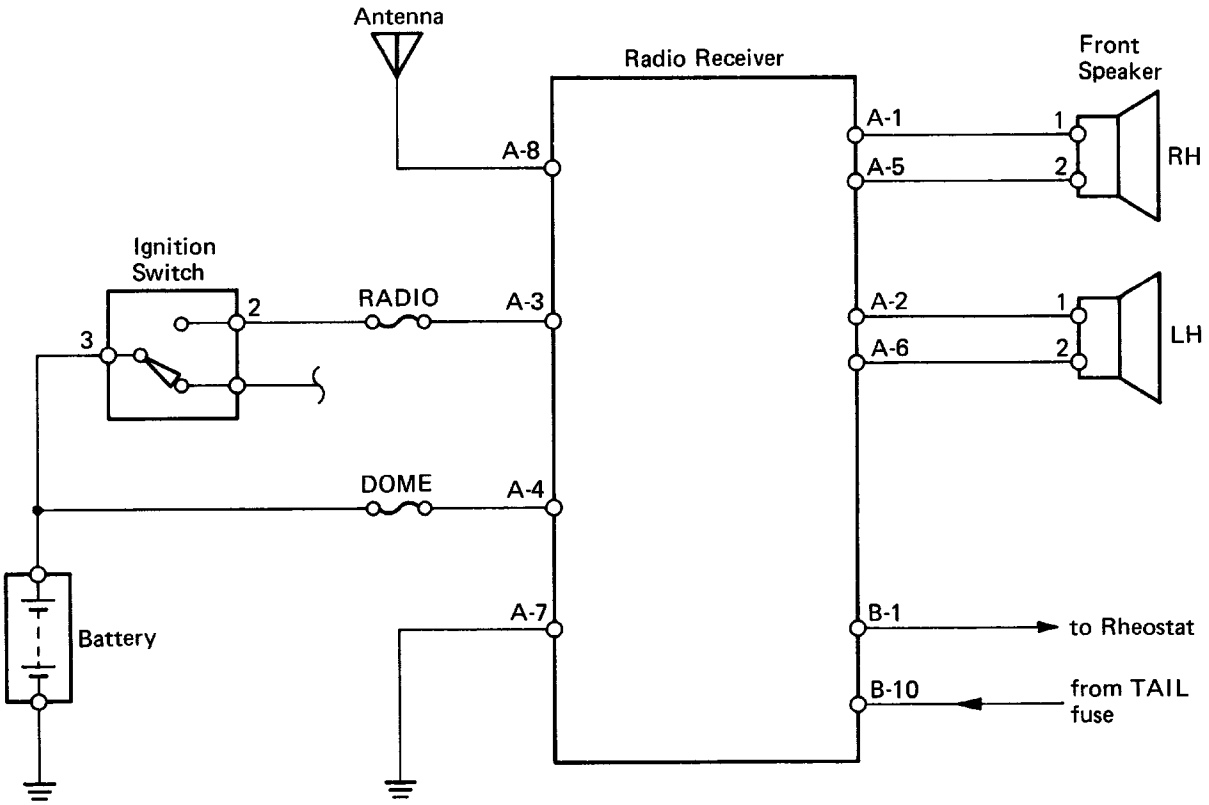
4-Speaker Type



N03063
BE2942

Wiring and Connector Diagrams

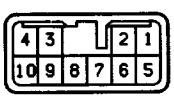
Radio: Simbol R



The POWER SOURCE CIRCUIT has been simplified. For full details, see page BE-8.

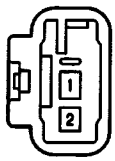
Radio Receiver

Connector "A"



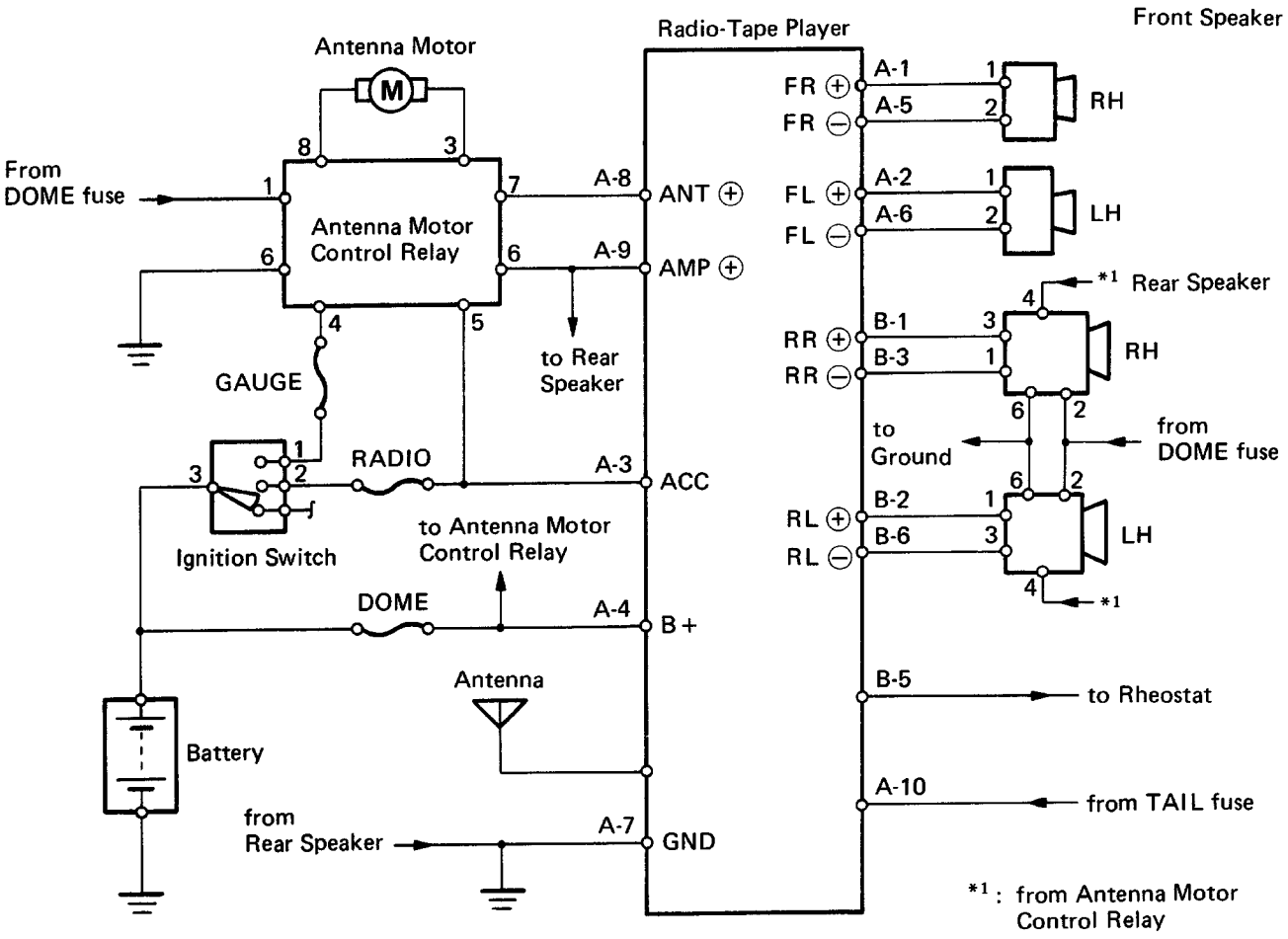
Connector "B"

Front Speaker



N02964
S-10-2-A e-1-2 e-2-2-E

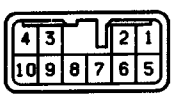
Radio-Tape Player Unit: Simbol U



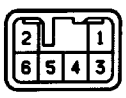
The POWER SOURCE CIRCUIT has been simplified. For full datils, see page BE-8.

Radio-Tape Player

Connector "A"

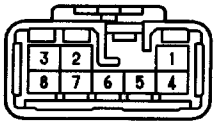


Connector "B"

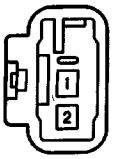


Antenna Motor Control Relay

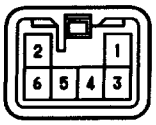
Ignition Switch



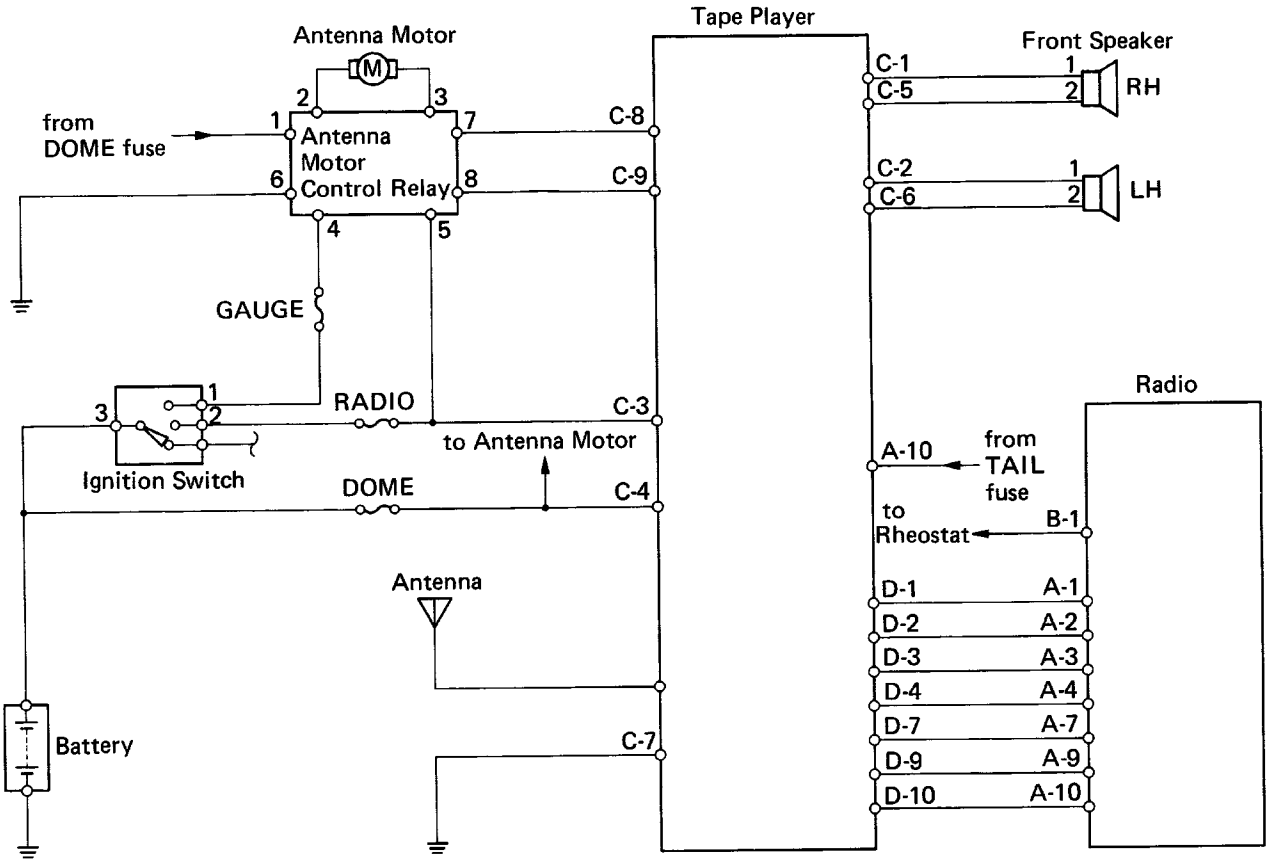
Front Speaker



Rear Speaker



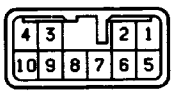
Radio-Tape Player (Separate): Simbol S



The POWER SOURCE CIRCUIT has been simplified. For full details, see page BE-8.

Radio

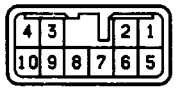
Connector "A"



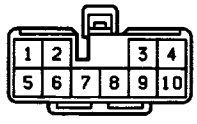
Connector "B"

Tape Player

Connector "C"

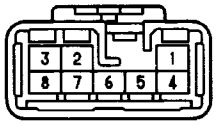


Connector "D"

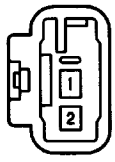


Antenna Motor Control Relay

Ignition Switch

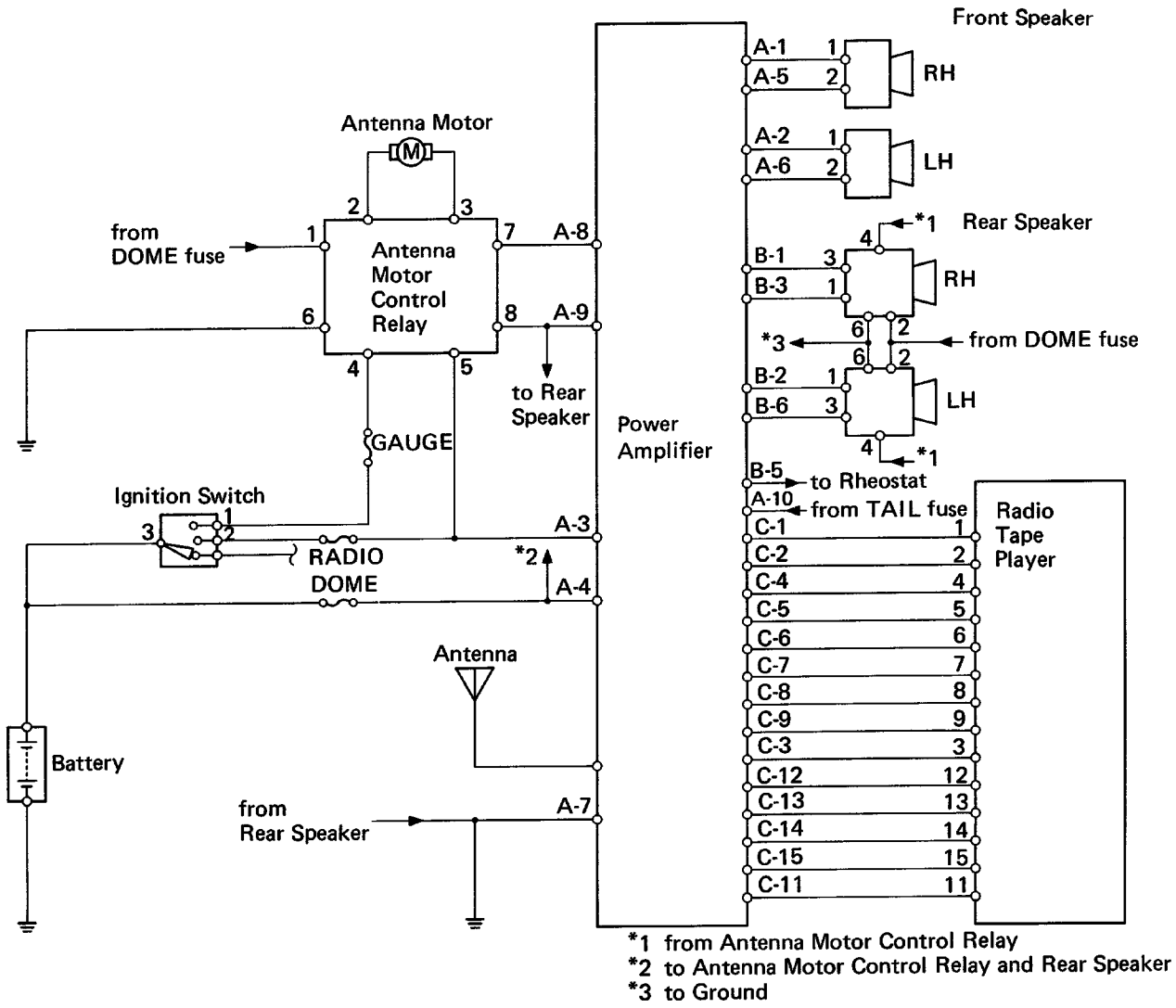


Front Speaker



N02968
S-10-2-A e-1-2 S-10-2-A S-10-1-A
G-9-2 e-8-2 g-8-2 e-2-2-E

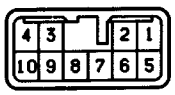
Radio-Tape Player Unit (Separate Power Amplifier): Simbol P



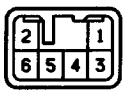
The POWER SOURCE CIRCUIT has been simplified. For full details, see page BE-8.

Power Amplifier

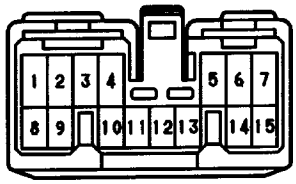
Connector "A"



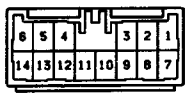
Connector "B"



Connector "C"

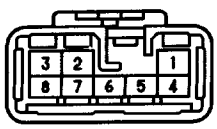


Radio-Tape Player

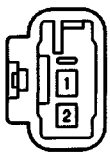


Antenna Motor Control Relay

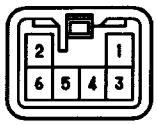
Ignition Switch



Front Speaker



Rear Speaker



N03036
S-10-2-A S-6-2-E h-15-1-A Y-14-2
e-8-2 g-8-2 e-2-2-E le-6-2-A

System Description

RADIO WAVE BAND

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

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

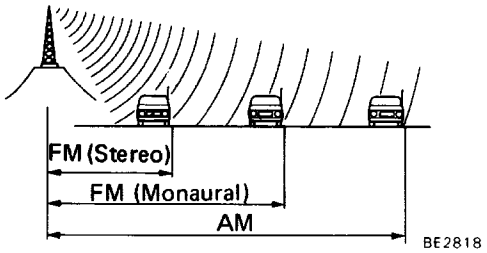
LF: Low Frequency MF: Medium Frequency HF: High Frequency VHF: Very High Frequency

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.

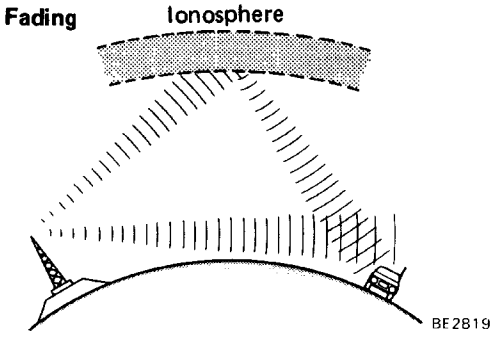


RECEPTION PROBLEMS

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 na–ture of the radio waves themselves.

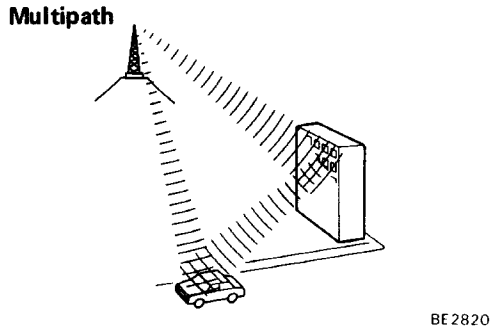
Fading

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".



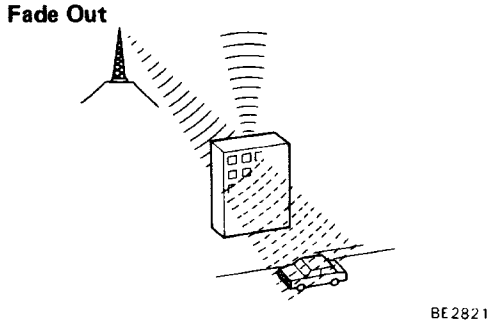
Multipath

One type of interference caused by the bouncing of radio waves off of obstructions is called "multipath". Mul–tipath occurs when a signal from the broadcast transmit–ter 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 of buildings, moun–tains, 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".



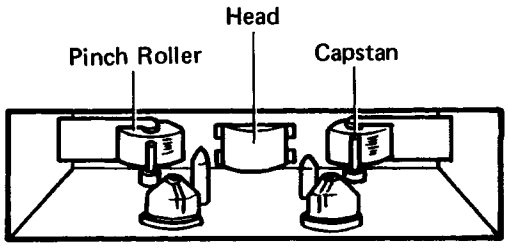
MAINTENANCE OF TAPE PLAYER

Head Cleaning

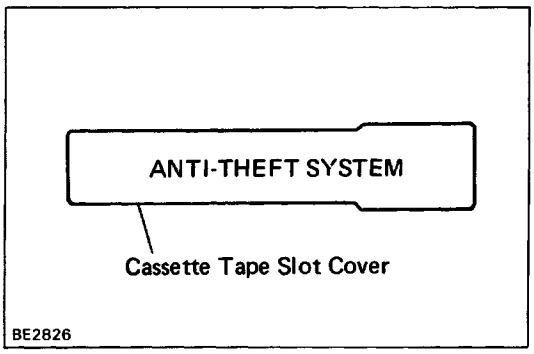
(a) Raise the cassette door with your finger. Next using a pencil or like object, push in the guide.

(b) Using a cleaning pen or cotton applicator soaked in cleaner, clean the head surface, pinch rollers and capstans.

Example:



C0192



Anti–Theft System

The anti–theft system is only provided for audio systems equipped with an Acoustic Flavor function.

HINT: The words ”ANTI–THEFT SYSTEM” are dis–played on the cassette tape slot cover.
For operation instructions for the anti–theft system, please consult the audio system section in the Owner’s Manual (hereafter called O/M).

1. SETTING SYSTEM

The system is in operation once the customer has pushed the required buttons and entered the customer–selected 3–digit ID number.
(Refer to the O/M section, ”SETTING THE ANTI–THEFT SYSTEM”).

HINT:

- When the audio system is shipped the ID number has not been input, so the anti–theft system is not in operation.
- If the ID number has not been input, the audio system remains the same as a normal audio system.

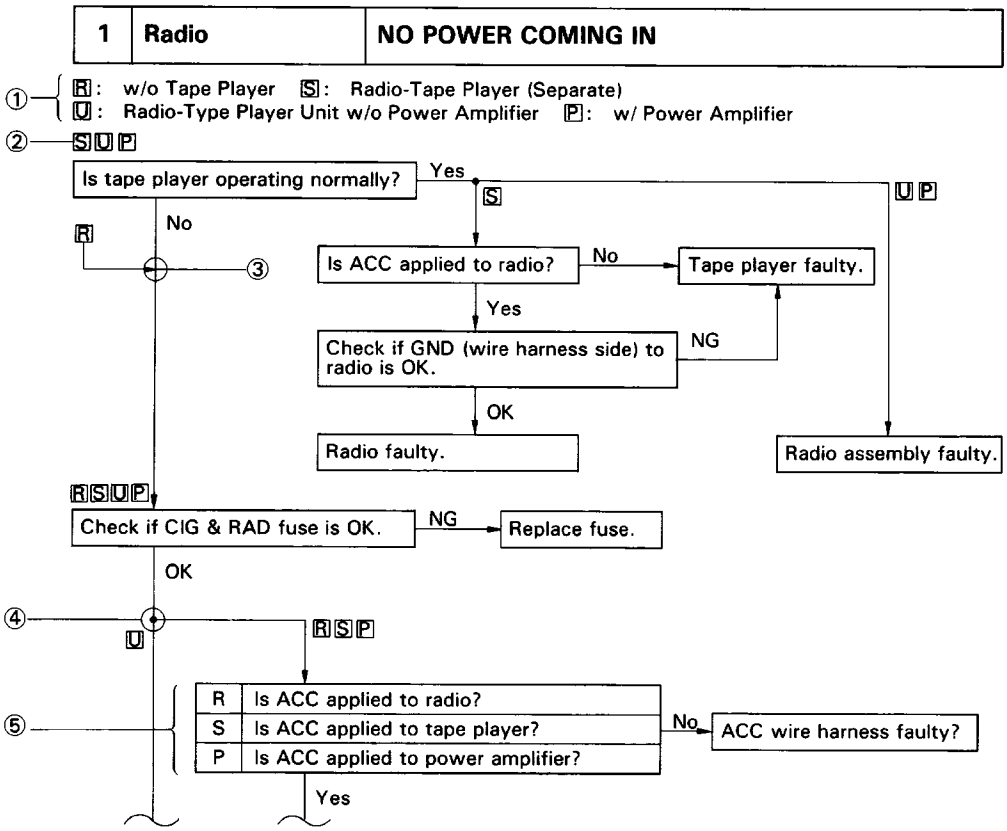
2. ANTI–THEFT SYSTEM OPERATION

If the normal electrical power source (connector or battery terminal) is cut off, the audio system be–comes inoperable, even if the power supply resumes.

3. CANCELLING SYSTEM

The ID number chosen by the customer is input to cancel the anti–theft system.
(Refer to the O/M section, ”IF THE SYSTEM IS ACTIVATED”)
HINT: To change or cancel the ID number, please refer to the O/M section, ”CANCELLING THE SYSTEM”.

HOW TO USE DIAGNOSTIC CHART



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 (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 re–placement 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 (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
- For audio systems with anti–theft system, troubleshooting items marked (*) indicate that ”Trouble–shooting 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
Antenna	Antenna–related.	16
Noise	Noise produced by vibration or shock while driving.	17
	Noise produced when engine starts.	18

Troubleshooting for ANTI–THEFT SYSTEM

Turn Ignition key from LOCK position to ACC position.

Display A:
ID Number is set.

"SEC" display disappears after 1 second.

No

Yes

Display E:
ANTI–THEFT SYSTEM operation condition.
(ID number input error 10 times or more.

Take to designated radio service station.

Display B.

Radio switch ON.

Display B

Refer to each malfunction item.

Display D

Normal operation.

Radio switch ON.

OK

Normal operation.

NG

Cancel ID number, refer to each malfunction item.

ANT–THEFT SYSTEM operation condition.
(ID number input error 9 times or less.)
Input ID number to cancel ANTI–THEFT SYSTEM, and check display.

Display A–B

Radio switch ON.

Display D

ANTI–THEFT SYSTEM cancelled.
Check audio system again.

OK

Normal operation.

NG

Cancel ID number, refer to each malfunction item.

Display B

Refer to each mal–function item.

Display E

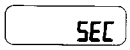
Take to designated radio service station.

Display C → A

ANT–THEFT SYSTEM not cancelled.
OD number input error 9 times or less.)

(Liquid Crystal Display (LCD) or VFD for Audio System)

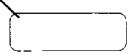
Display "A"



BE2814

Display "B"

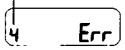
Blank,
No Illumination



BE2815

Display "C"

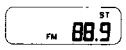
Error Times



BE2816

Display "D" Example:

Radio Display



BE2817

Display "E"

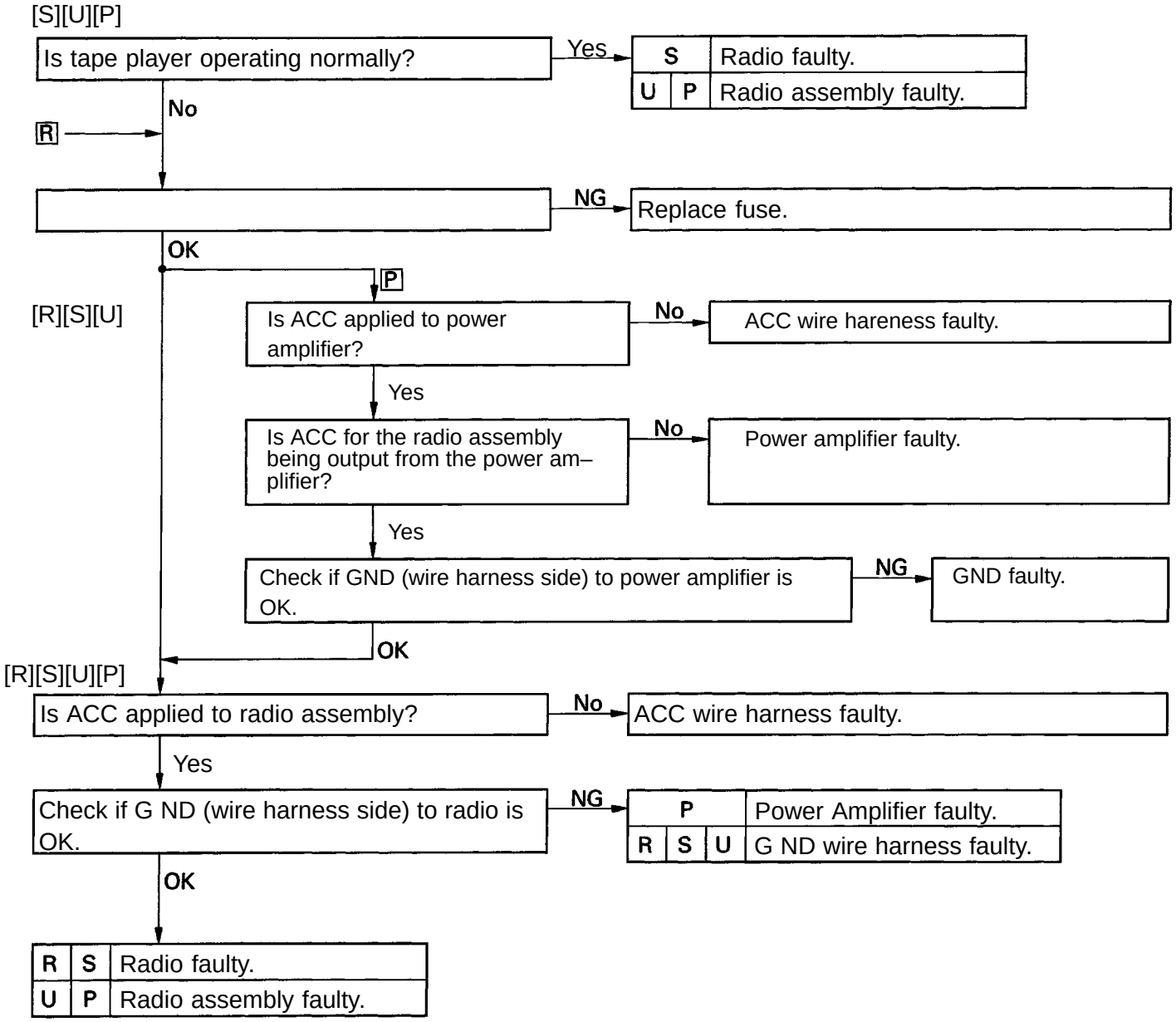
BE5521

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 in–form the customer that it has been cancelled.

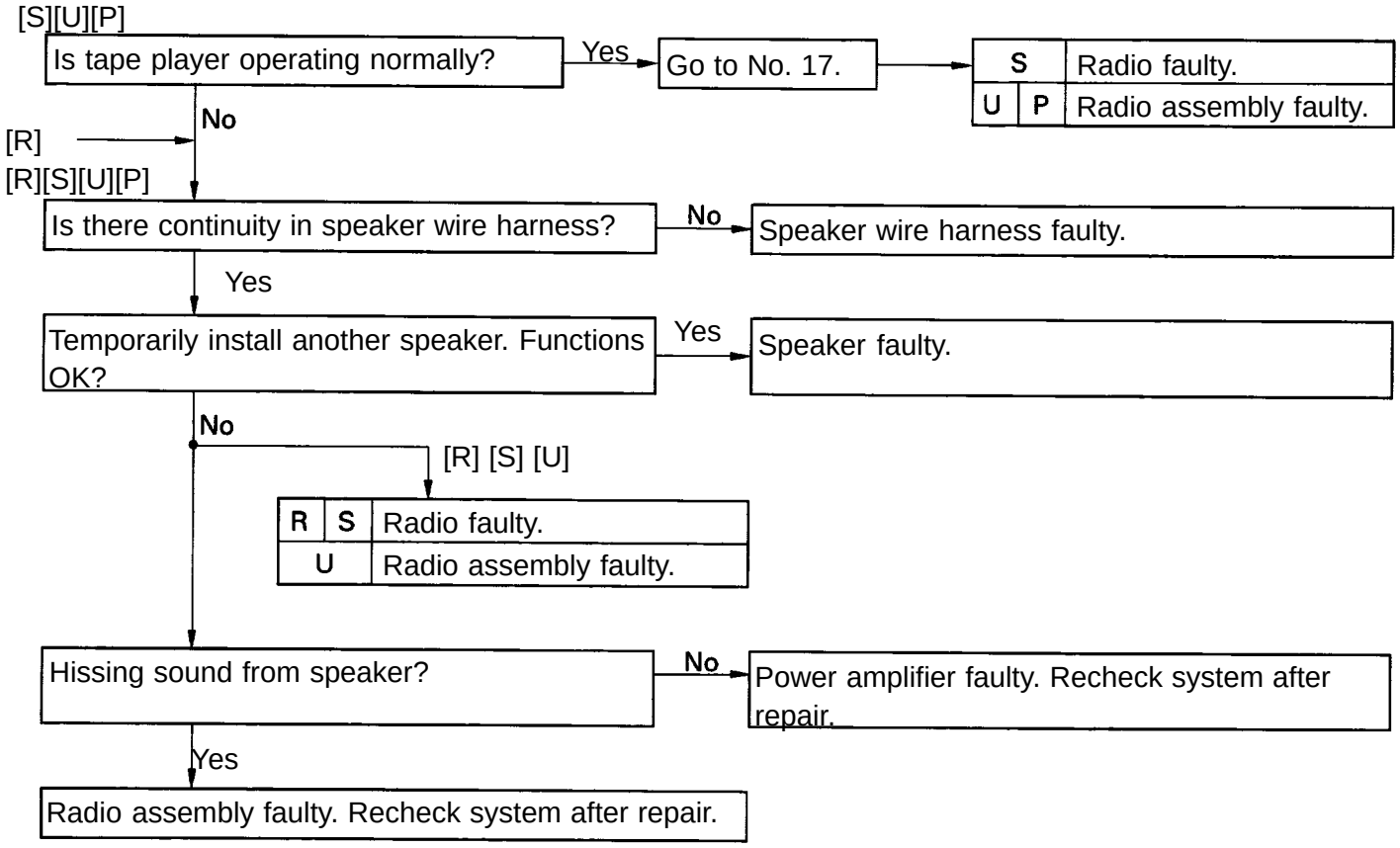
1	Radio	NO POWER COMING IN

[R] Radio [S]: Radio + Tape Player [U]: Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)



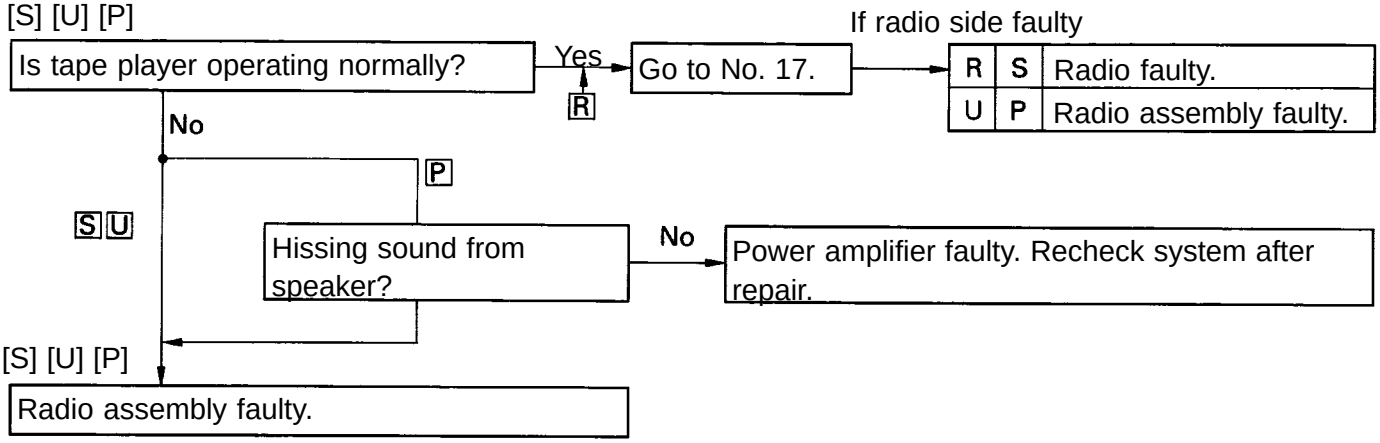
2 Radio — POWER COMING IN, BUT RADIO NOT OPERATING

[R] Radio [S] Radio + Tape Player [U] Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)



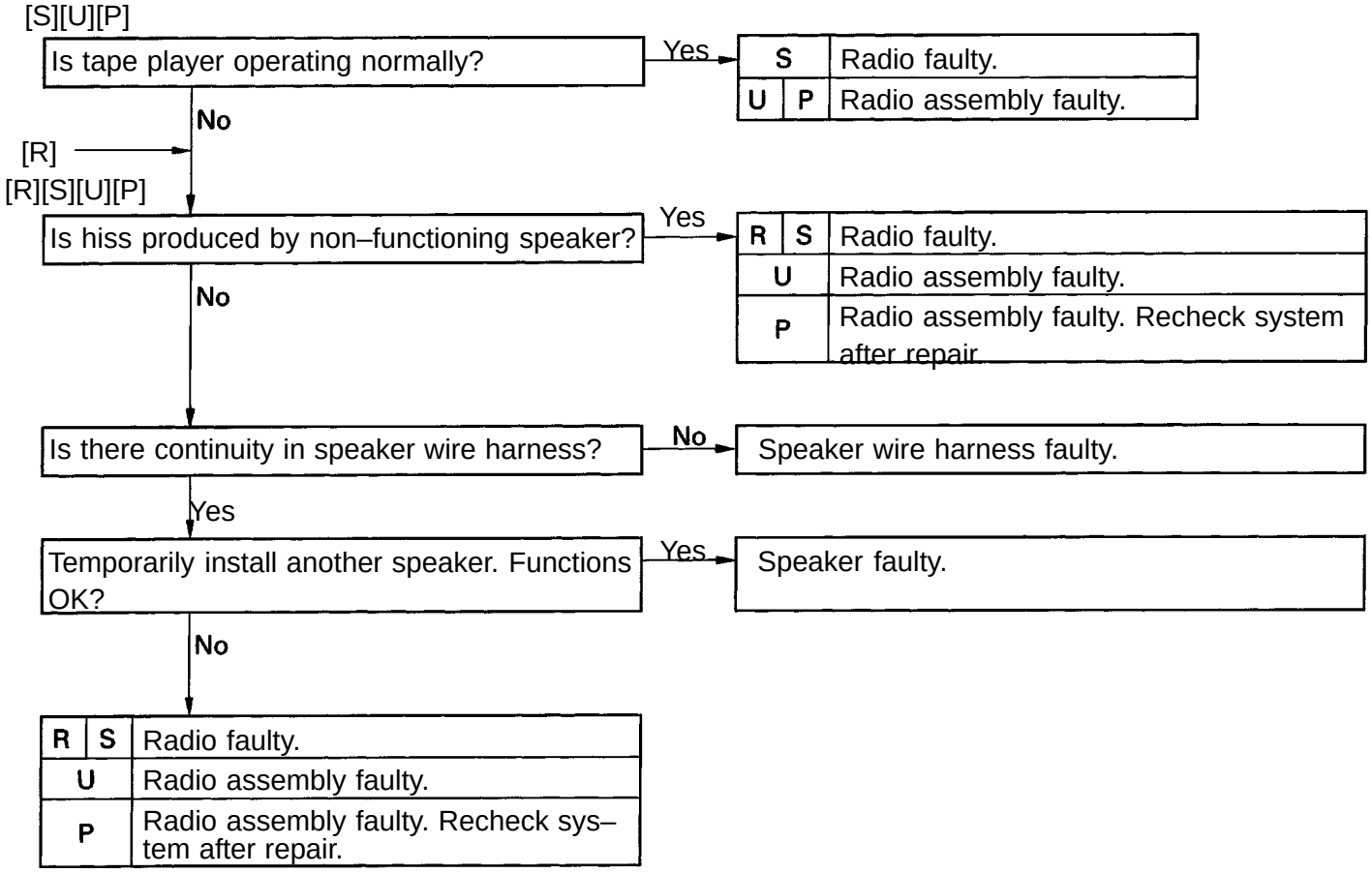
3 Radio — NOISE PRESENT, BUT AM–FM NOT OPERATING

[R] Radio [S]: Radio + Tape Player [U]: Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Type Player (Separate Power Amplifier)



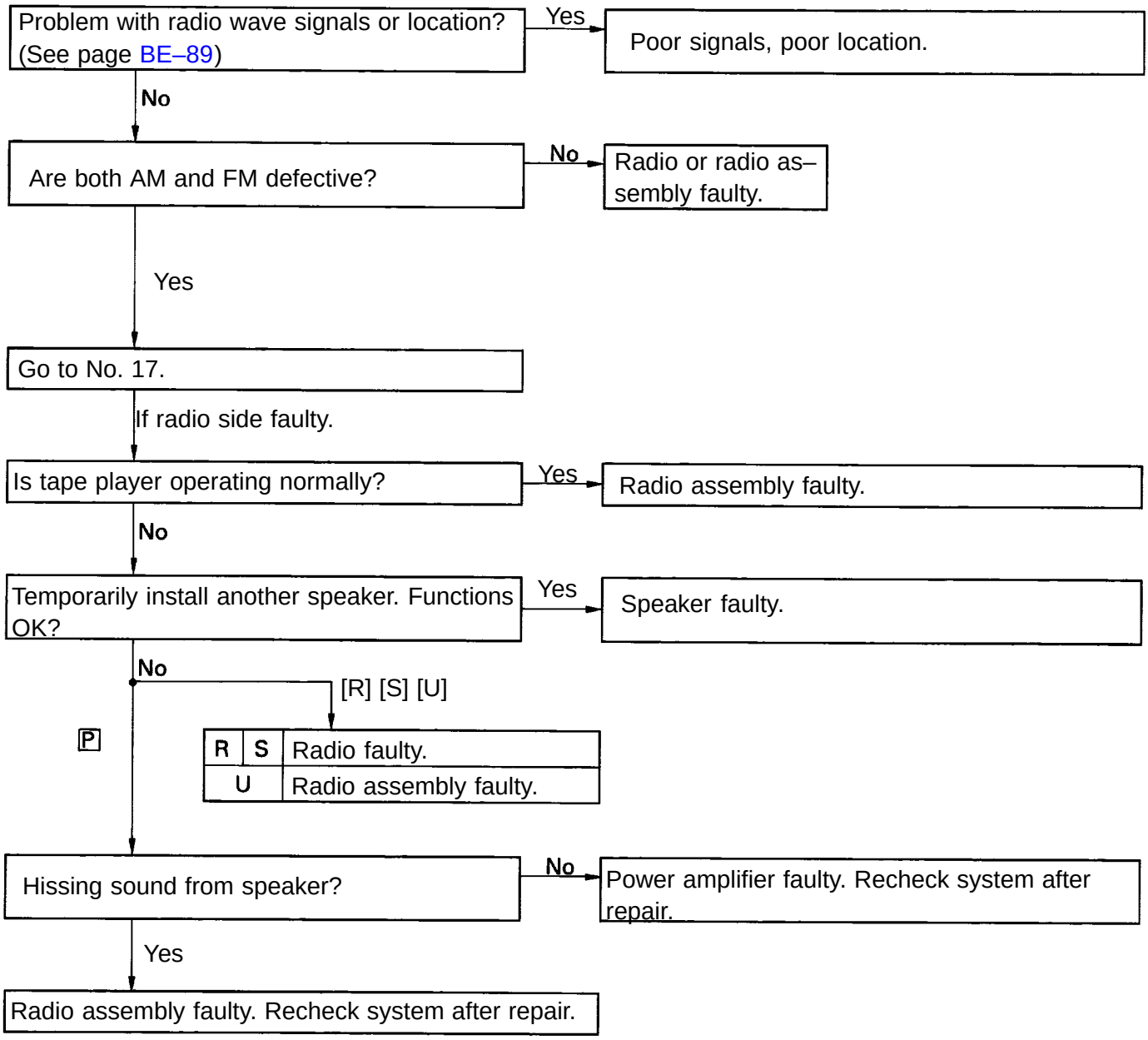
4	Radio	EITHER SPEAKER DOES NOT WORK

[R] Radio [S] Radio + Tape Player [U] Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)



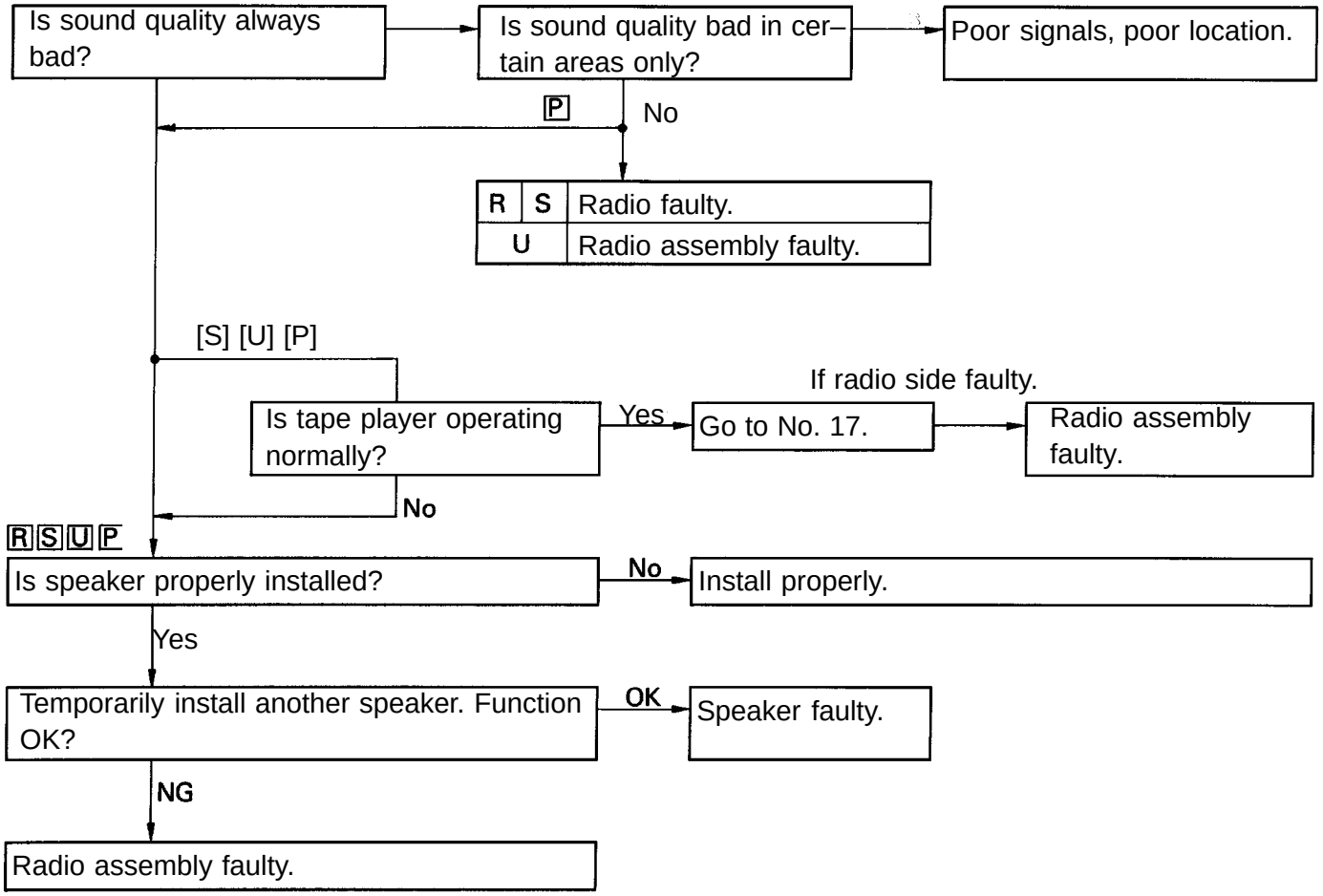
5	Radio	EITHER AM OR FM DOES NOT WORK, RECEPTION POOR (VOLUME FAINT), FEW PRESET TUNING BANDS

[R] Radio [S] Radio + Tape Player [U] Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)



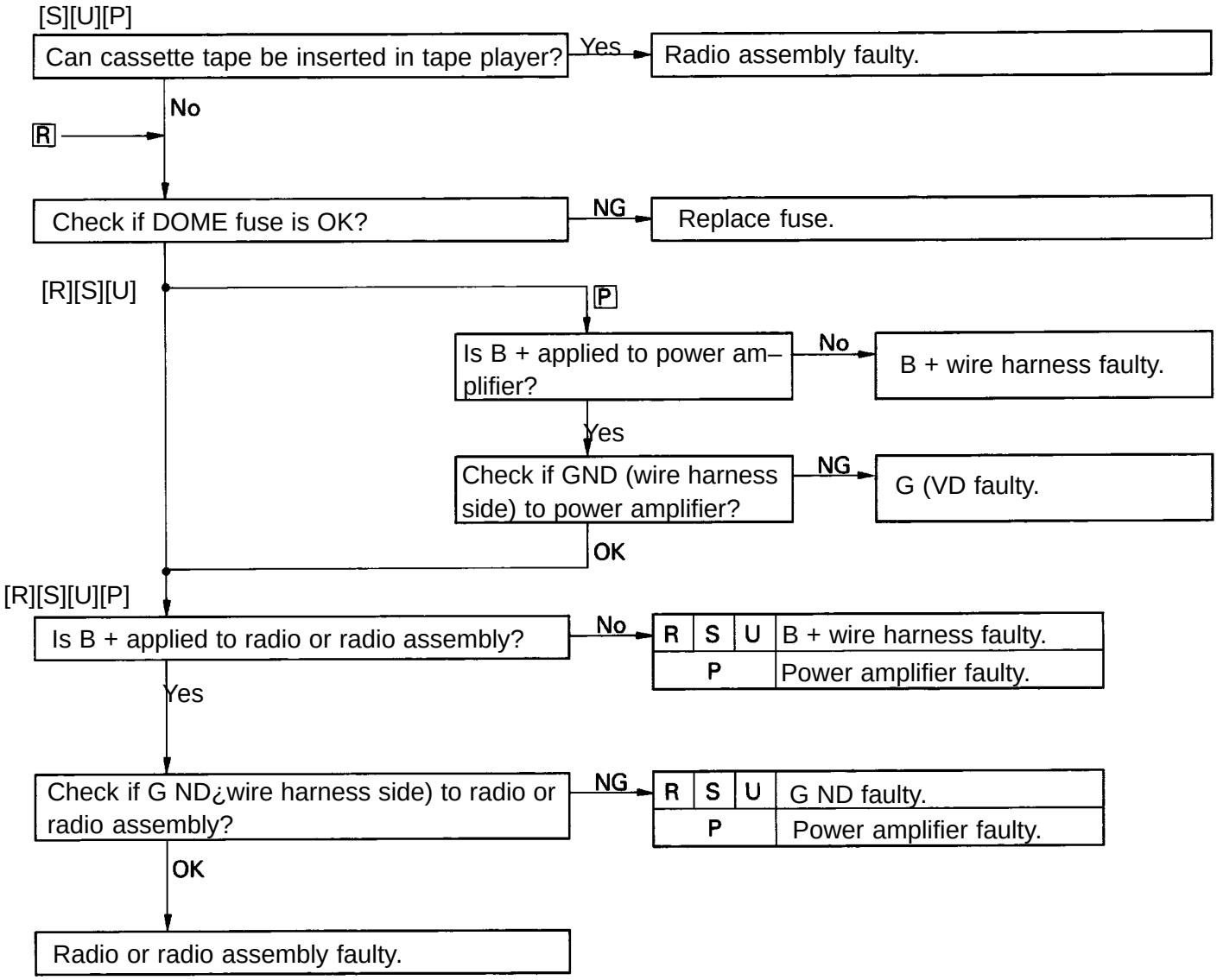
6 Radio — SOUND QUALITY POOR

[E] Radio [S] Radio + Tape Player [U] Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)



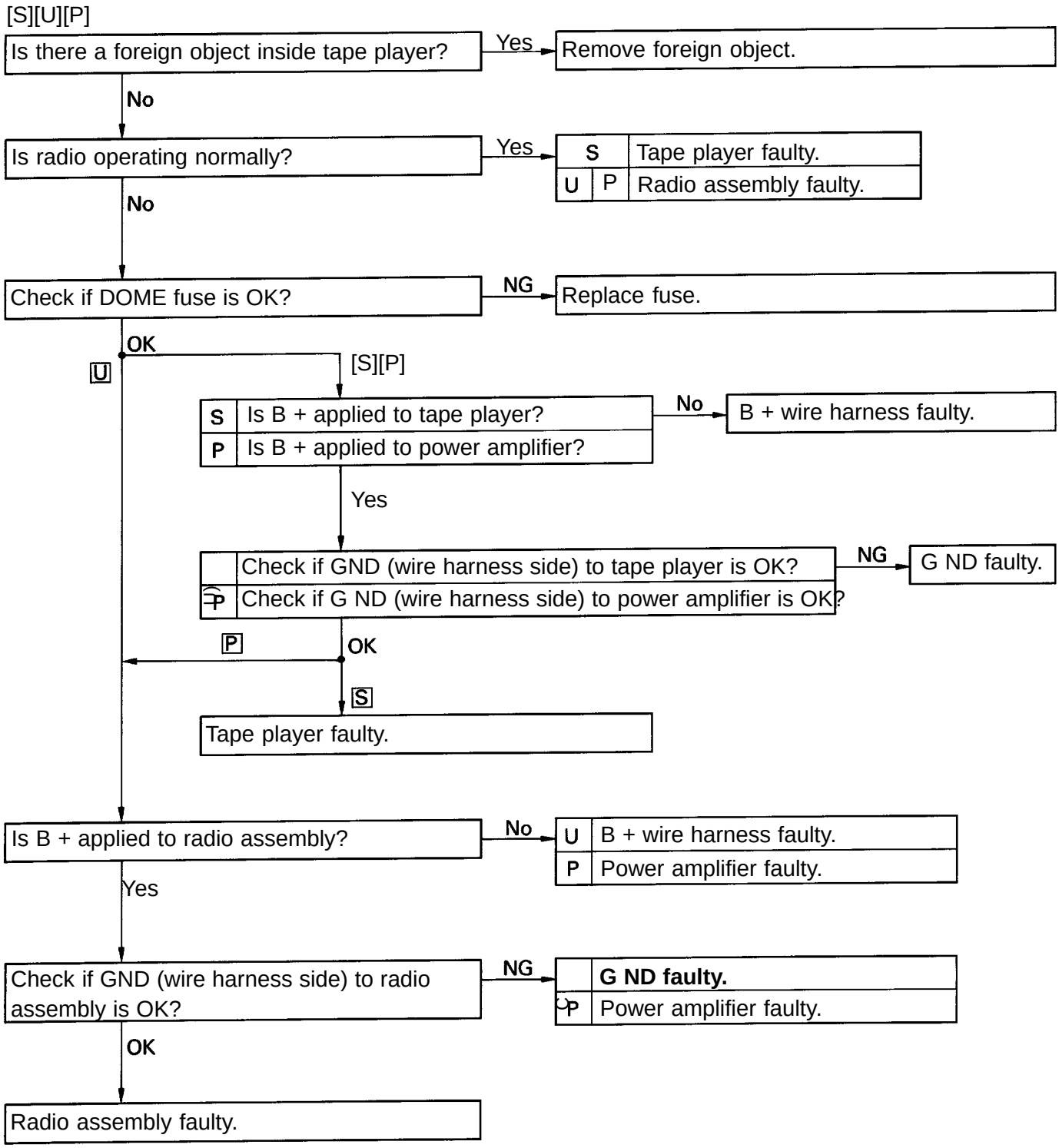
7	Radio	CANNOT SET STATION SELECT BUTTON, PRESET MEMORY DISAPPEARS

[R] Radio [S] Radio + Tape Player [U] Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)



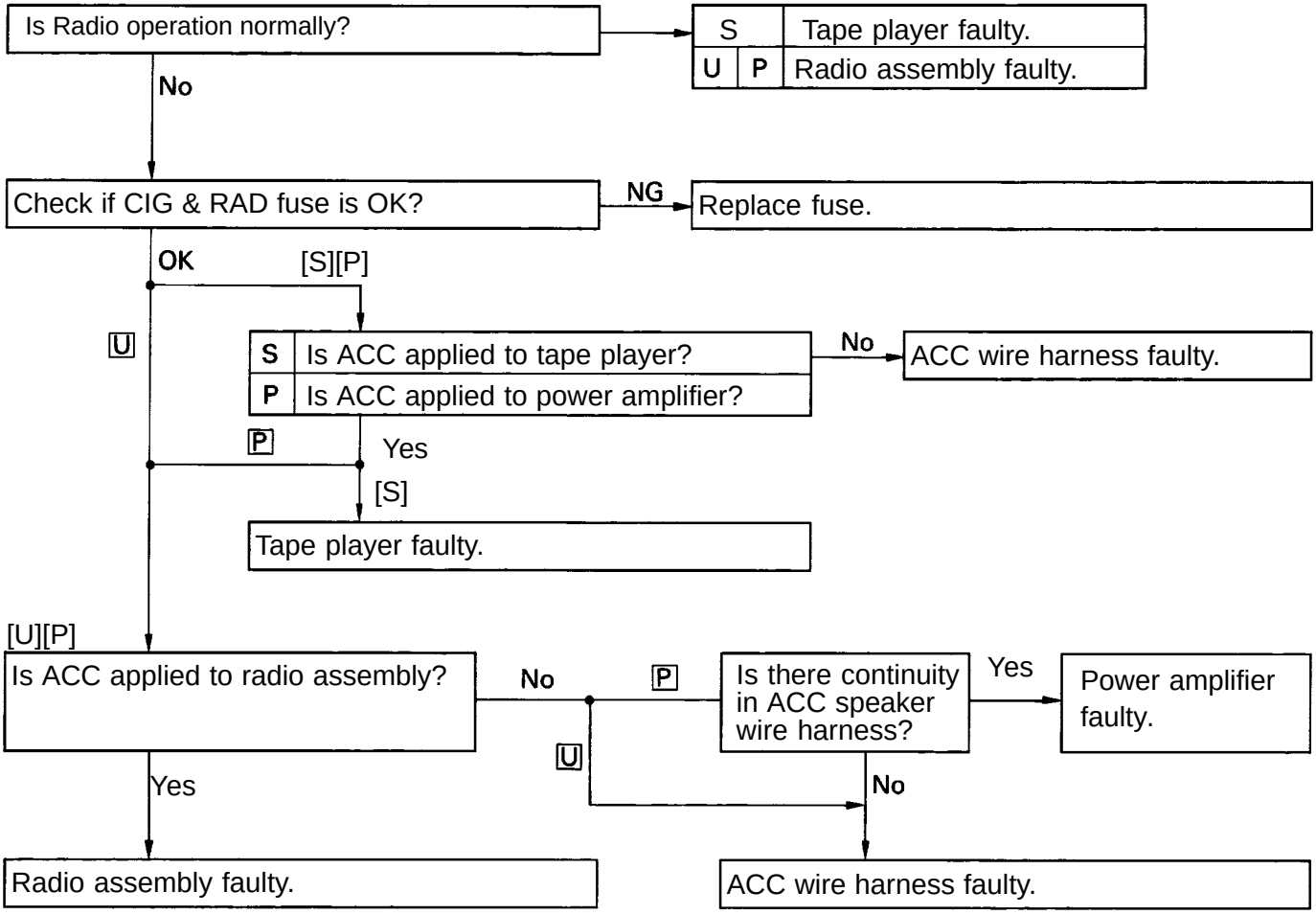
8 Tape Player — CASSETTE TAPE CANNOT BE INSERTED

[S] Radio + Tape Player [U] Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)



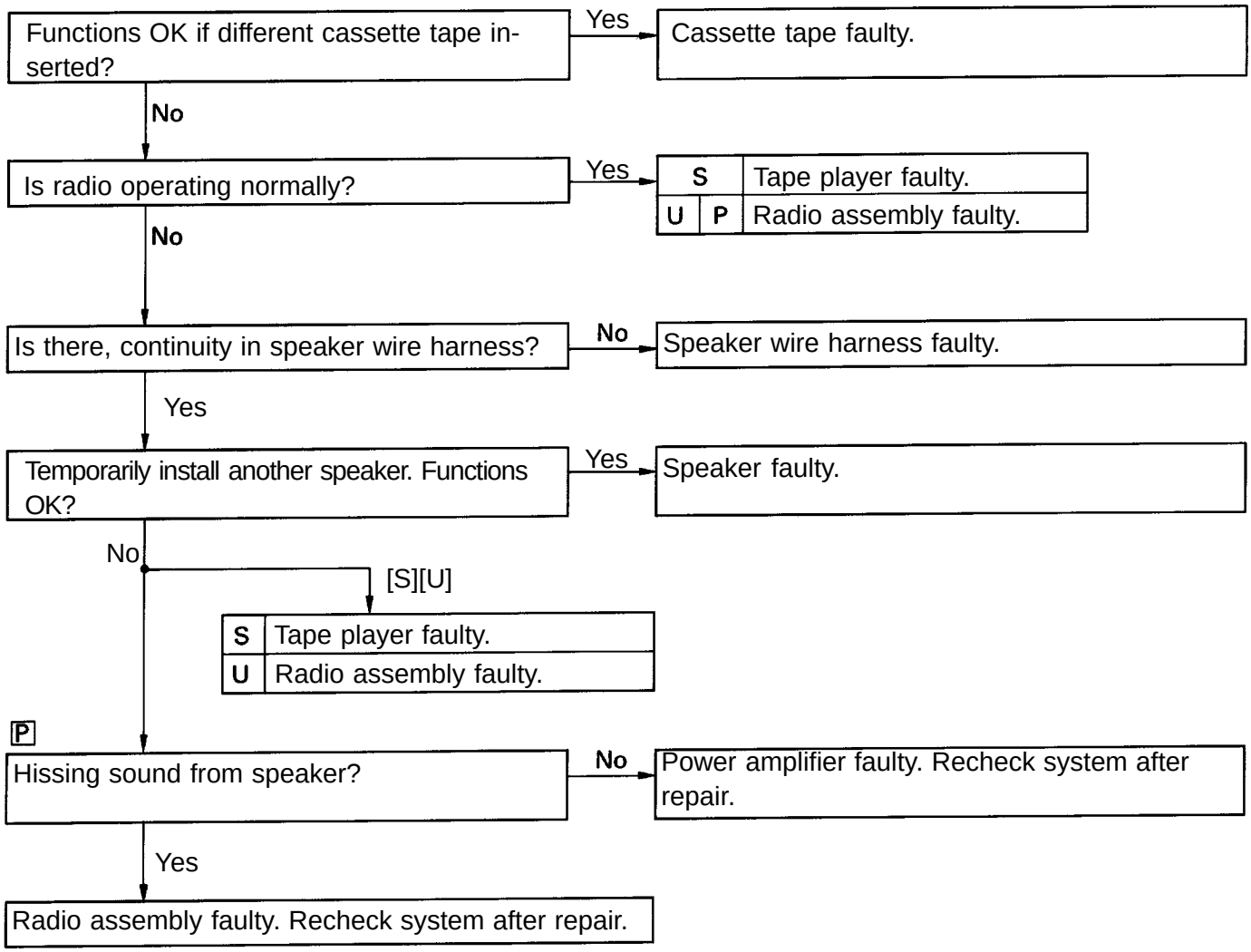
9	Tape Player	CASSETTE TAPE INSERTS, BUT NO POWER

[S] Radio + Tape Player [U] Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)



10	Tape Player	POWER COMING IN, BUT TAPE PLAYER NOT OPERATING

[S] Radio + Tape Player [U] Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)



11	Tape Player	EITHER SPEAKER DOES NOT WORK

[S] Radio + Tape Player [U] Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)

Is radio operating normally?

Yes →

S		Tape player faulty.
U	P	Radio assembly faulty.

No ↓

Is hiss produced by non–functioning speaker?

Yes →

S	Tape player faulty.
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 ↓

S	Tape player faulty.
U	Radio assembly faulty.
P	Radio assembly faulty. Recheck system after repair.

12 Tape Player — SOUND QUALITY POOR (VOLUME FAINT)

[S] Radio + Tape Player [U] Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)

- Functions OK if different cassette tape inserted? — Yes → Cassette tape faulty.
- No → Operates normally after cleaning the heads? (See page BE–90) — 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 →

S	Tape player faulty.
U	Radio assembly faulty.
P	Radio assembly faulty. Recheck system after repair.

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

[S] Radio + Tape Player [U] Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)

- Functions OK if different tape (less than 120 mins.) 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–90) — Yes → Head dirty.
- No →

S		Tape player faulty.
U	P	Radio assembly faulty.

14	Tape Player	APS, SKIP, RPT BUTTONS NOT OPERATING

[S] Radio + Tape Player [U] Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)

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. of silence (SKIP).)

15	Tape Player	CASSETTE TAPE WILL NOT EJECT

[S] Radio + Tape Player [U] Radio–Tape Player (Built–in Power Amplifier)
[P] Radio–Tape Player (Separate Power Amplifier)

Is tape player operating normally? — No → Cassette tape jammed.

Yes →

Is radio operating normally? — Yes →

S		Tape player faulty.
U	P	Radio assembly faulty.

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

OK →

Is B + applied to power amplifier? — No → B + wire harness faulty.

Yes →

S		Is B + applied to tape player?
U	P	Is B + applied to radio assembly?

No → Is there continuity in B + wire harness between power amplifier and radio assembly? — Yes → Power amplifier faulty.

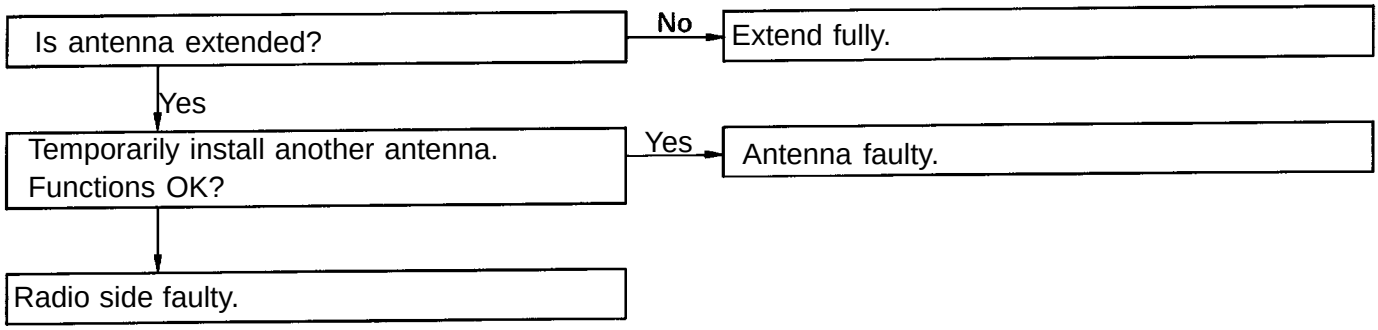
No → B + wire harness faulty.

Yes →

S		Tape player faulty.
U	P	Radio assembly faulty.

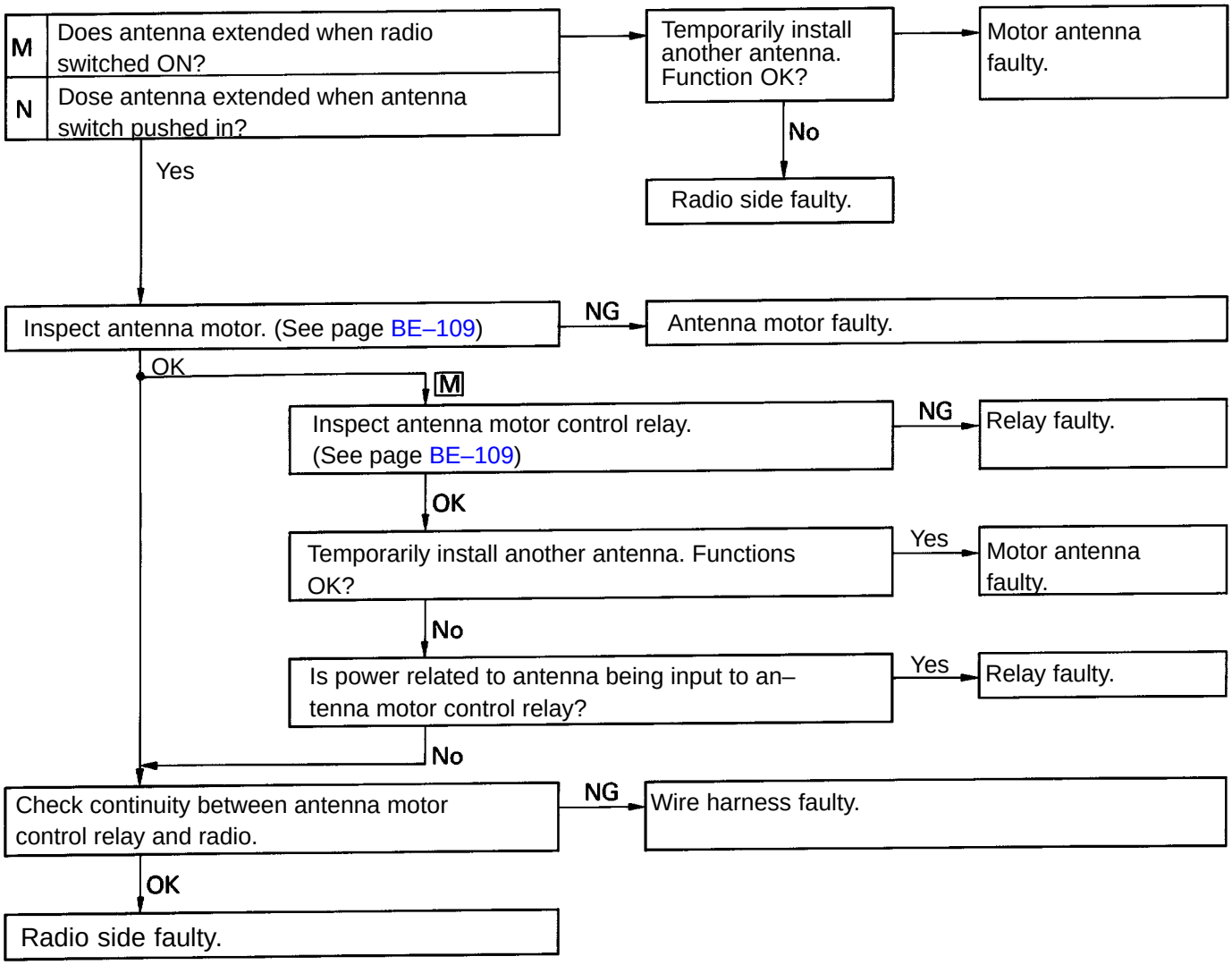
16	Antenna	ANTENNA–RELATED

24–a: Pole Antenna

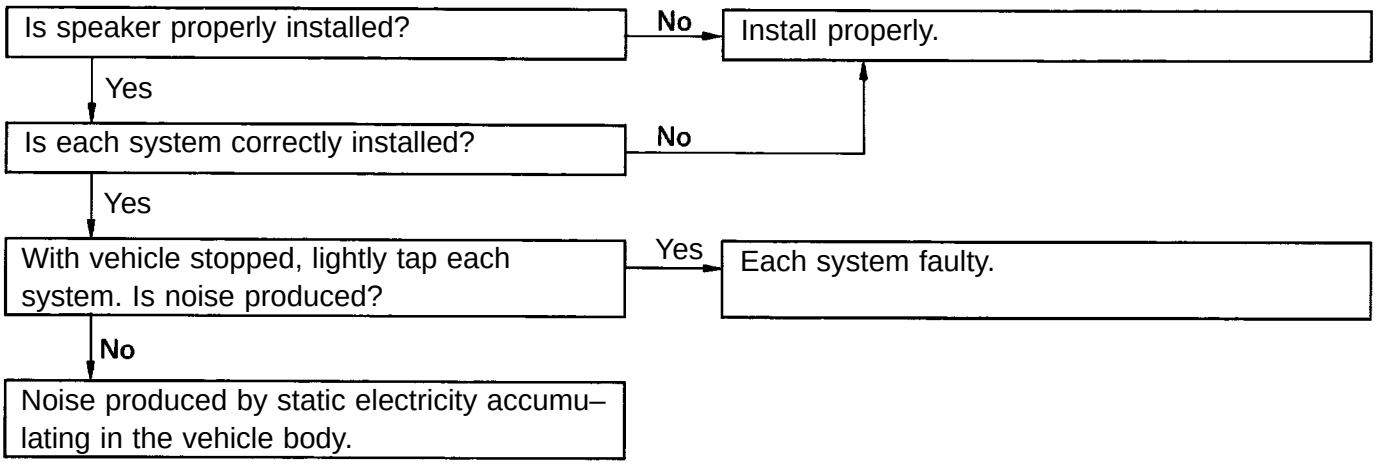


24–b: Motor Antenna

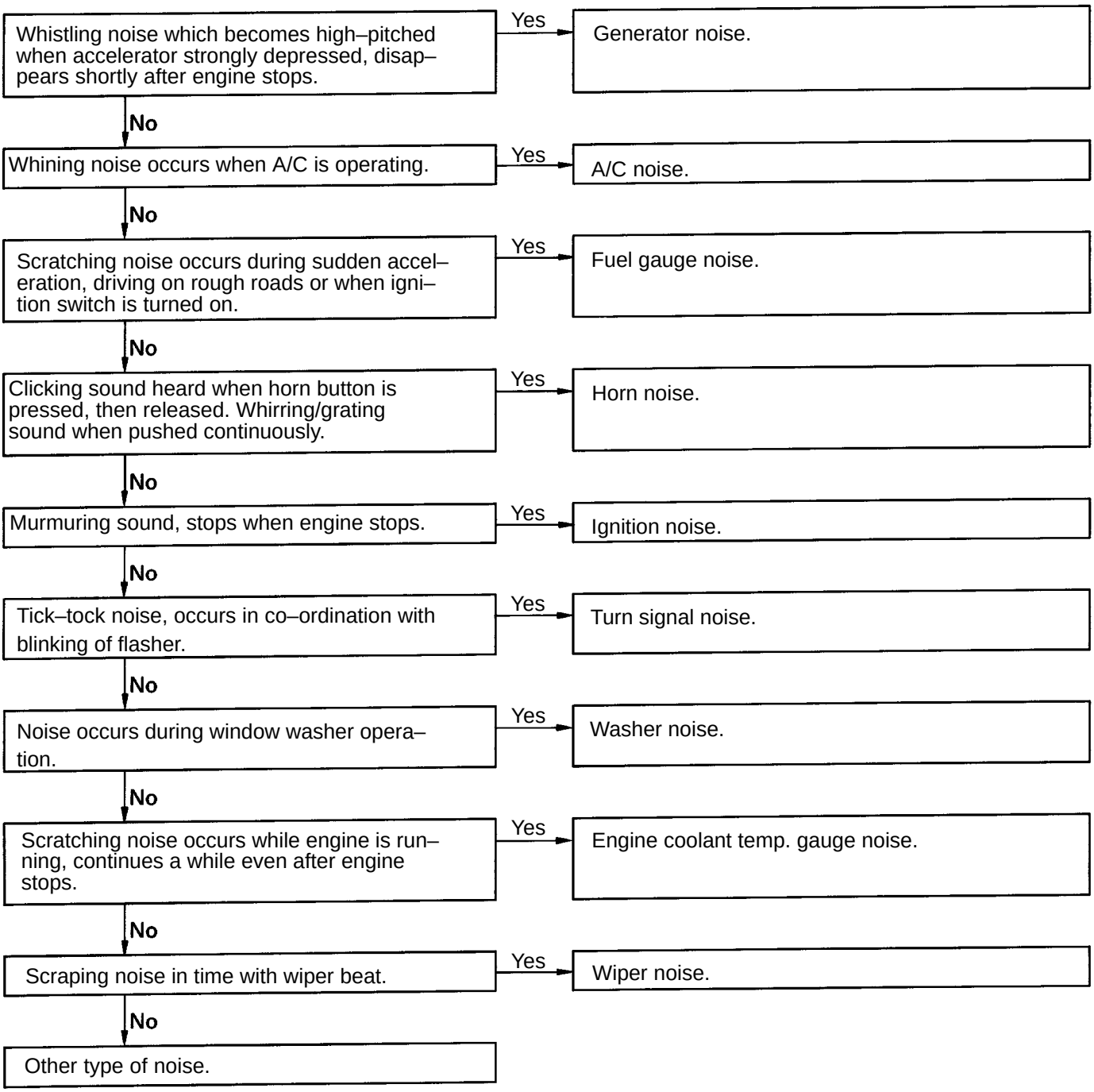
[M] : Motor Antenna (Radio Linked Type) 0 : Motor Antenna (Except Radio–Linked Type)

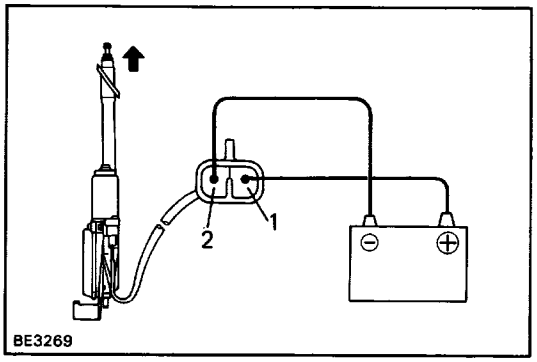


17	Noise	NOISE PRODUCED BY VIBRATION OR SHOCK WHILE DRIVING



18	Noise	NOISE PRODUCED WHEN ENGINE STARTS





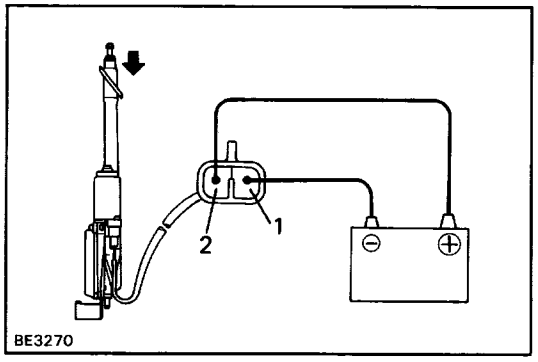
Parts Inspection

1. INSPECT ANTENNA MOTOR

(a) Connect the positive (+) lead from the battery to terminal 1 and the negative (–) lead to terminal 2.

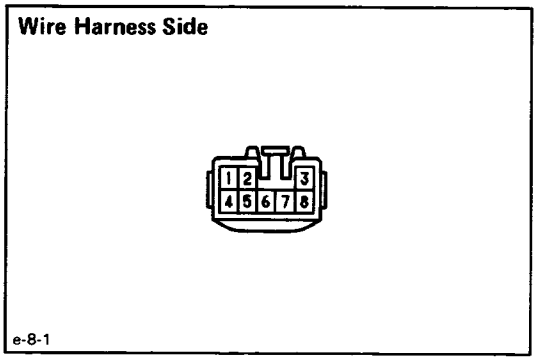
(b) Check that the motor turns (moves upward).

NOTICE: These tests must be performed quickly (within 3–5 seconds) to prevent the coil from burning out.



(c) Then, reverse the polarity, check that the motor turns the opposite way (moves downward).

NOTICE: These tests must be performed quickly (within 3–5 seconds) to prevent the coil from burning out.



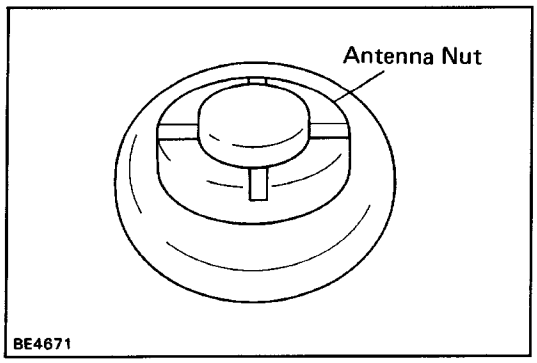
2. INSPECT ANTENNA MOTOR CONTROL RELAY

(Relay Circuit)

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

Check for	Tester connection	Condition			Specified value
Continuity	1 – 4	Constant			Continuity
	2 – Ground	Constant			Continuity
Voltage	3 – Ground	Constant			Battery positive voltage
	5 – Ground	Ignition switch position	LOCK		No voltage
			ACC or ON		Battery positive voltage
	6 – Ground	Ignition swtich position	LOCK		No voltage
			ACC or ON	Radio switch and cassette OFF	No voltage
				Radio switch or cassette ON	Battery positive voltage
	8 – Ground	Ignition switch position	LOCK		No voltage
			ACC or ON	Radio switch OFF or cassette ON	No voltage
				Radio switch ON and cassette OFF	Battery positive voltage
	9 – Ground	Ignition switch position	LOCK or ACC		No voltage
			ON		Battery positive voltage

If circuit is as specified, replace the relay.



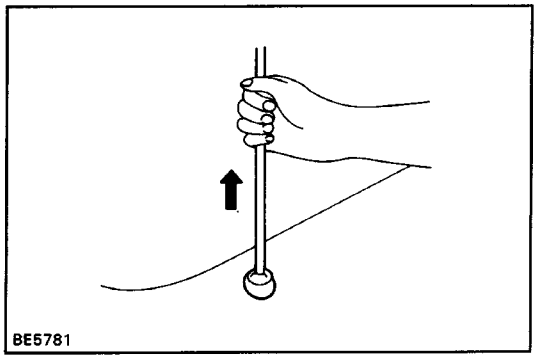
REMOVAL AND INSTALLATION OF ANTENNA ROD

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.



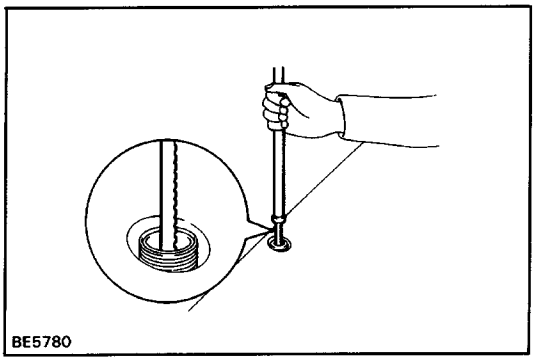
(c) Press the ”AM” button on the radio receiver, and si–multaneously turn the ignition switch to ”ACC” po–sition.

HINT:

- The rod will extend fully and be released from the mo–tor antenna.
- After removing the antenna rod, leave the ignition switch at ”ACC”.

2. INSTALL ANTENNA ROD

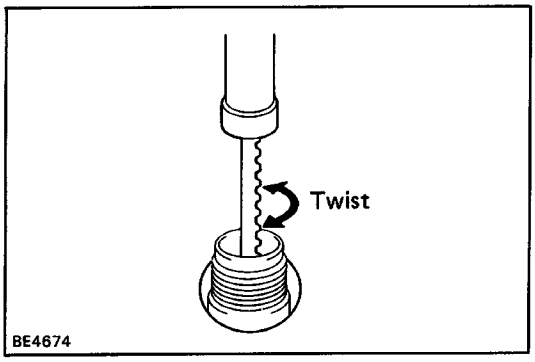
(a) Insert the cable of the rod until it reaches the bot–tom.



HINT:

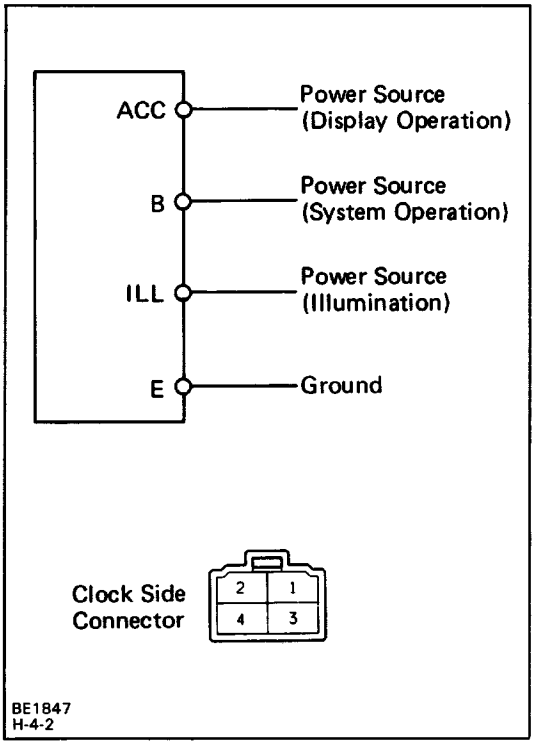
- When inserting the cable, the teeth on the cable must face toward the rear of the vehicle.
- Insert the antenna approx. 300 mm (11.8 in.)

(b) Wind the cable to retract the rod by turning the igni–tion 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 an–tenna 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.



CLOCK

Troubleshooting

As shown in the illustration, those are clock circuit and connector diagrams. Inspect each terminal for applicable trouble.

Terminals		Condition	Specified value
1	E	Constant	Continuity
2	ILL	Turn light control switch ON	Battery positive voltage
3	B	Constant	
4	ACC	Turn ignition switch ACC	

Allowable error: ± 1.5 seconds/day