AUDIO SYSTEM

TROUBLESHOOTING

BE2E9–02

1. DIAGNOSIS FUNCTION (Main AVC –LAN)

(a) Diagnosis start –up

For shifting to diagnosis mode, turn the ignition switch ON and push the ”DISC” switch 3 times while pressing ”ch 1” and ”ch6” switches.

HINT:

To exit the diagnosis mode, push the ”DISC” switch for 1.7 sec. or turn the ignition switch to ACC or OFF.

(b) Element check mode

After the diagnosis start –up, the system enters the element check mode. Check that the all elements light up.

HINT:

By pressing the ”TUNE UP” switch, the system enters the ”Service Check Mode”.

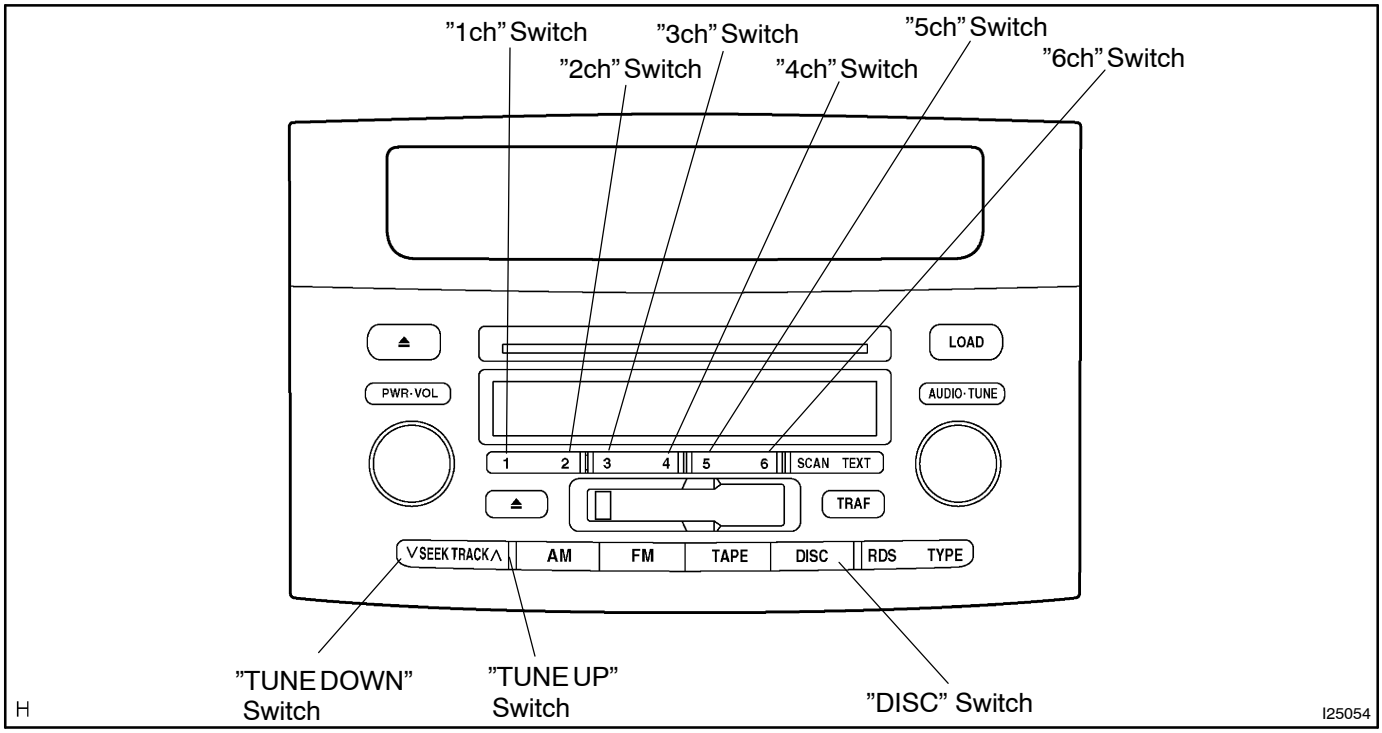
(c) Switch check mode

(1) Element check mode is started at the same time with the switch check mode.

(2) Check that there is a beep sound when any switch is pressed.

HINT:

By pressing ”TUNE UP” switch, the system enters the ”Service Check Mode”.



(d) Service check mode

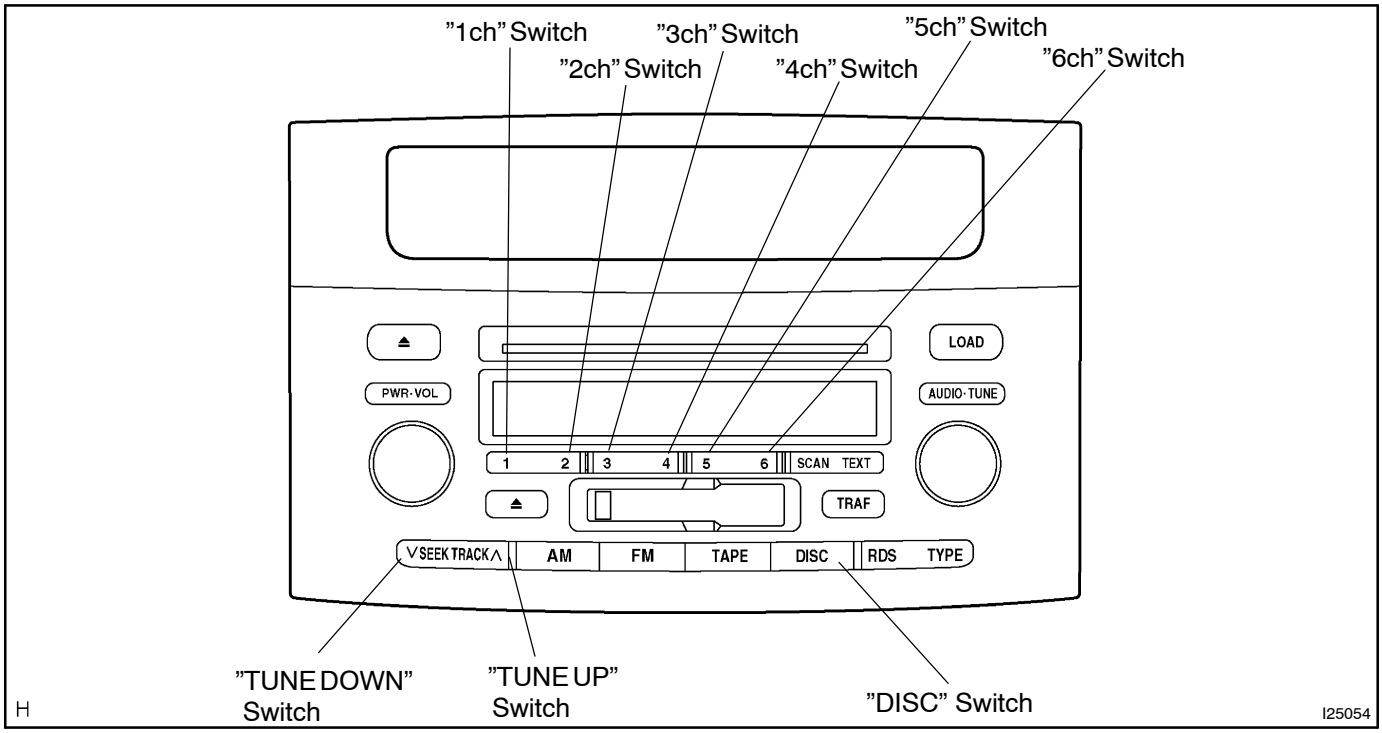
(1) After the element check and switch check is completed, the system enters service check mode when "TUNE UP" switch is pressed.

(2) Error codes over the tuner and connected equipments are displayed on the screen of the tuner. Results for each check are displayed as follows:

- good:
  No DTC is detected for both "System Check Confirmation" and "Diagnosis Memory Response".
- nCon:
  The component does not respond to the "Diagnosis On Instruction" command.
  Applicable to only the system where connected components are limited to be used.
- ECHn:
  Application of new version has been confirmed by the "Diagnosis On Check", and there is one or more DTC which indicates "Replacement" in the "System Check Result Response" or "Diagnosis Memory Response".
- CHEC:
  Application of new version has been confirmed by the "Diagnosis On Check", and there is no DTC which indicates "Replacement" in the "System Check Result Response" or "Diagnosis Memory Response", but one or more DTC which indicates "Check" is identified.
- Old:
  Application of old version is confirmed by the "Diagnosis On Check", and DTC is identified in the "System Check Result Response" or "Diagnosis Memory Response".
- nrES:
  No response is identified to the "System Check Start Instruction" and "Request for System Check Result" commands.

HINT:

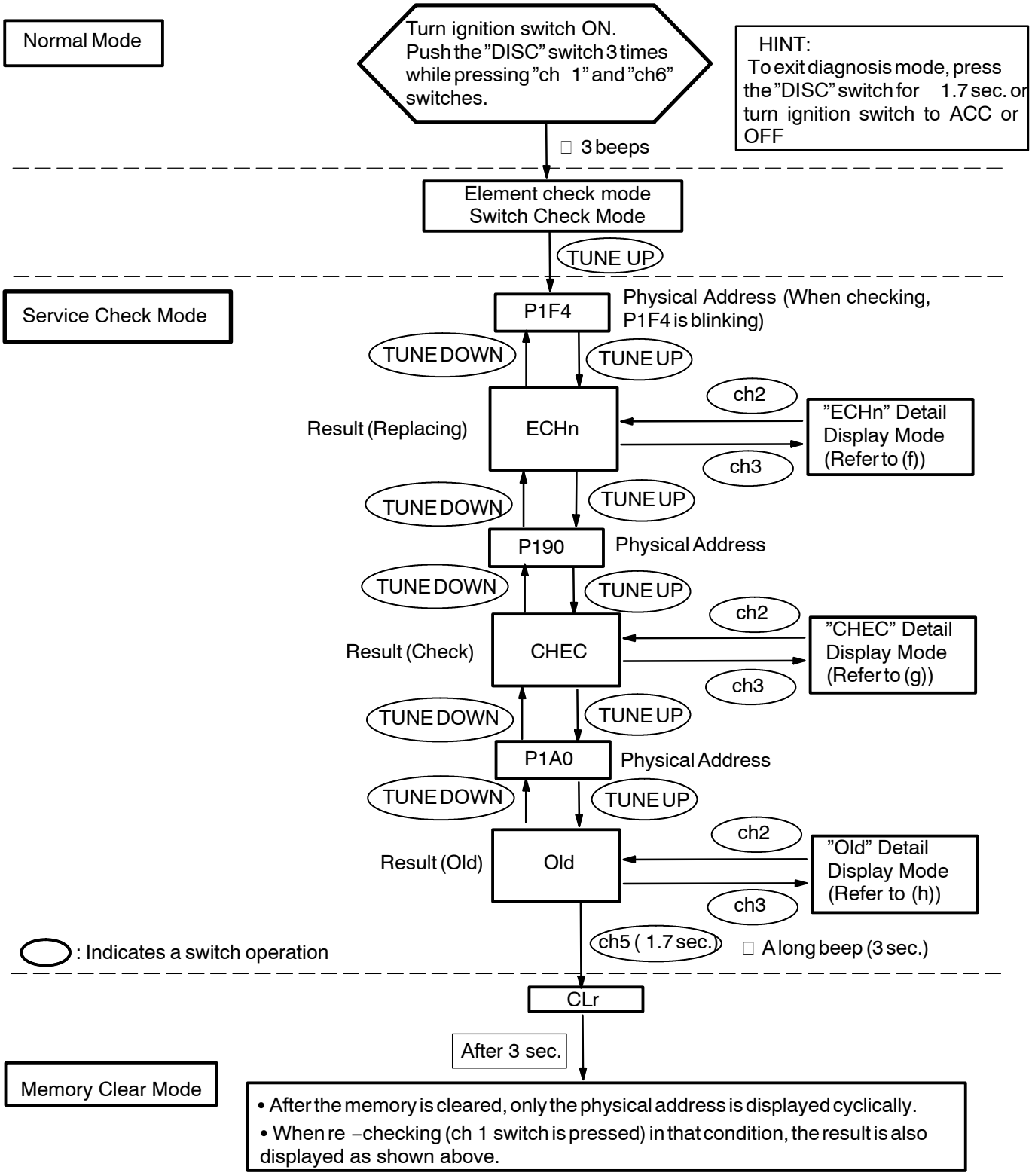
- Check the present and past condition of components by performing the System Check and collecting stored DTC memories.
- Check results are displayed as one of the following six indications: "good", "ECHn", "CHEC","nCon", "Old" or "nrES".



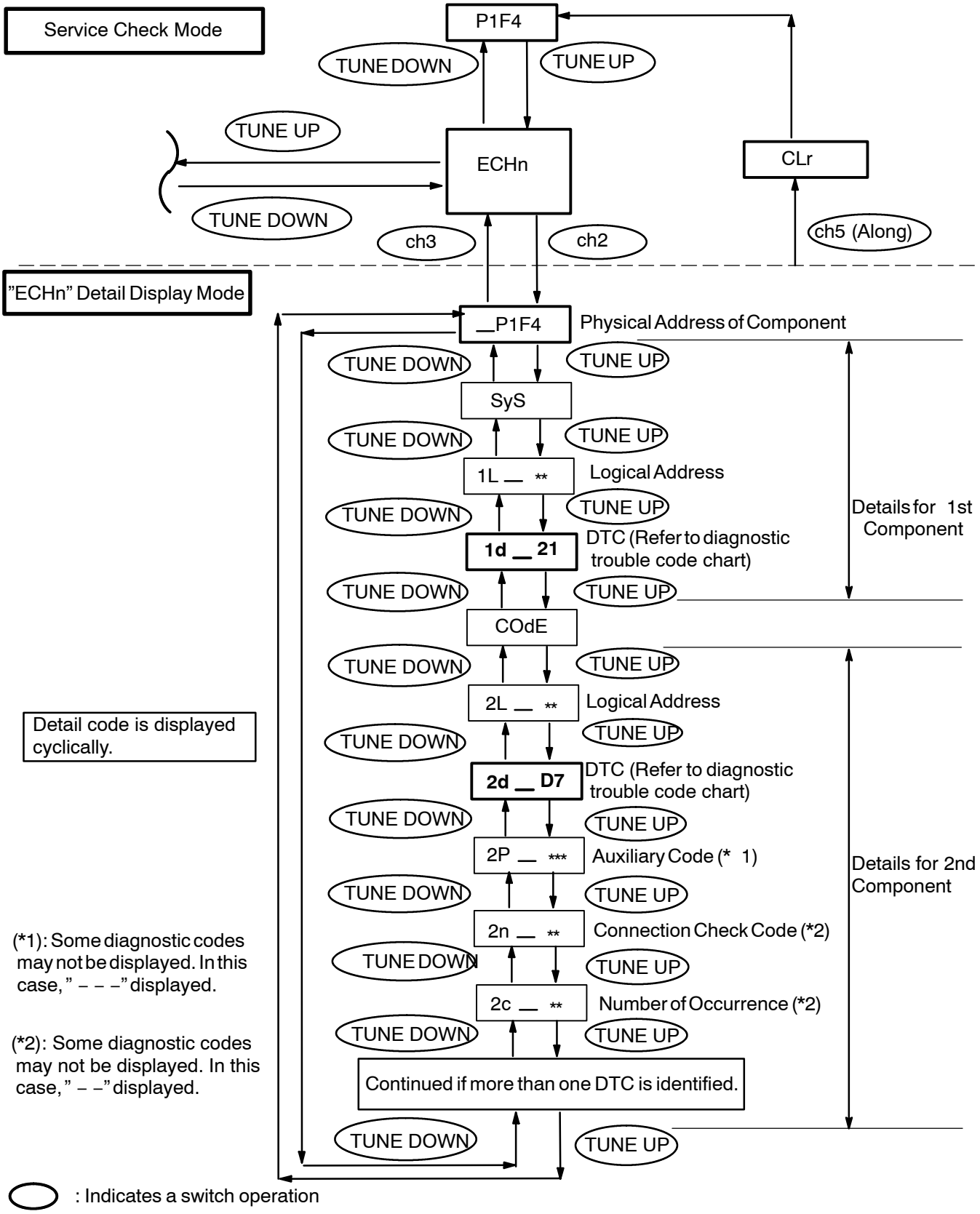
(e) Display Screen for Service Check.

Example:

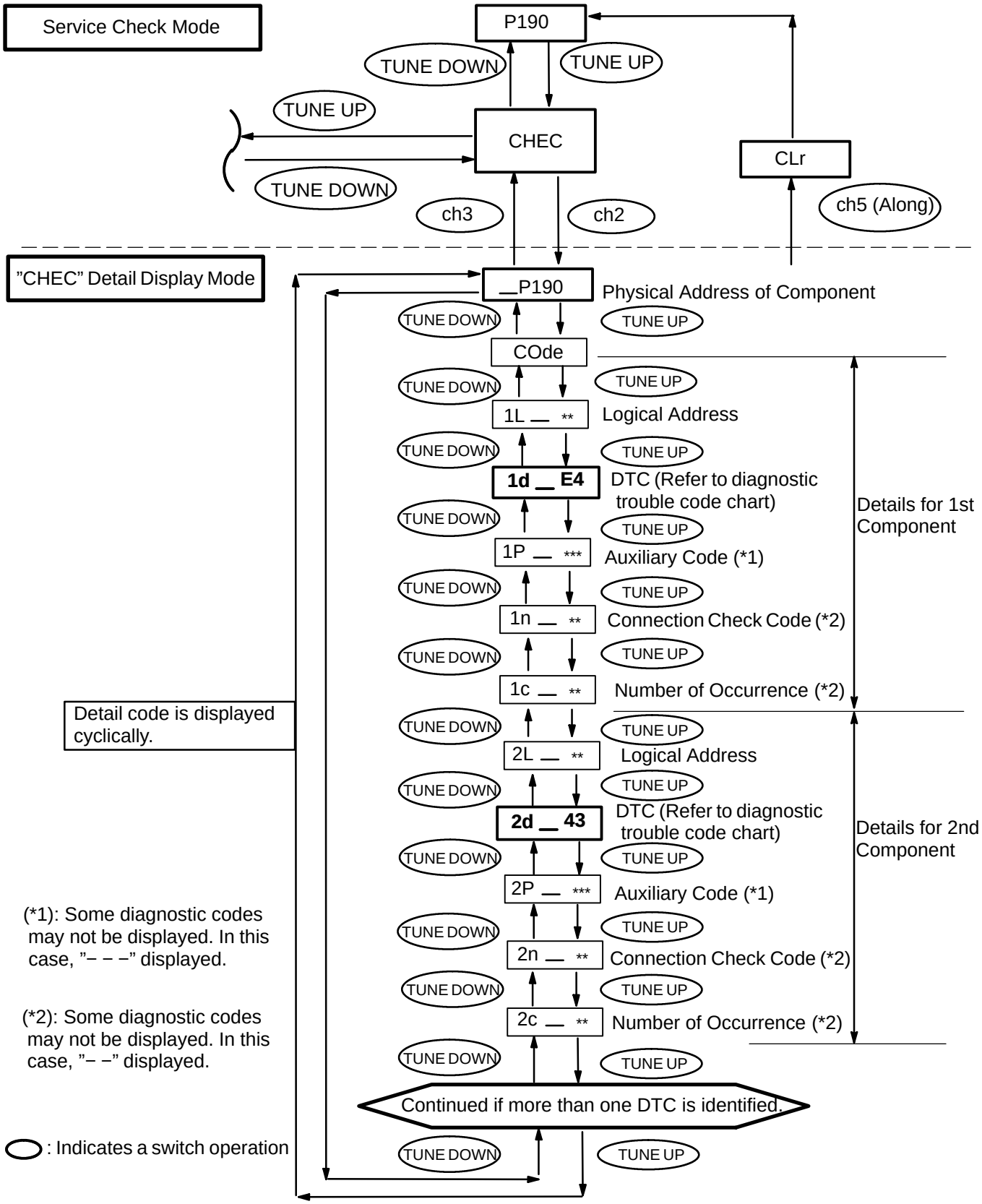
Connection parts (physical address): Radio receiver (P 190), RSA ECU (P 1F4), DVD player (P 1A0)



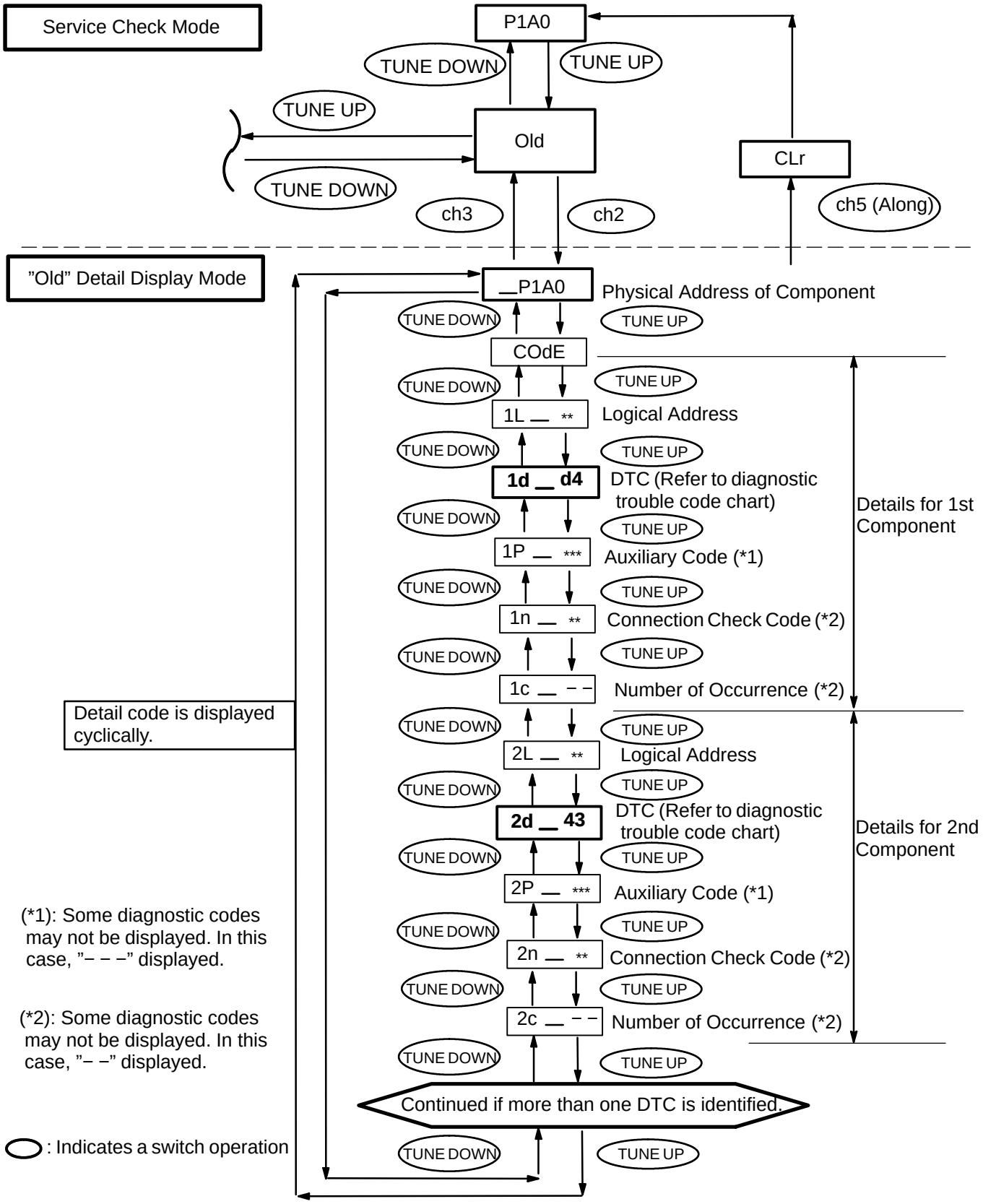
(f) ”ECHn” Detail Display Mode Screen



(g) ”CHEC” Detail Display Mode Screen



(h) ”Old” Detail Display Mode Screen



2. DIAGNOSIS FUNCTION (Sub AVC−LAN)

HINT:

As starting Main AVC−LAN to operate the diagnosis mode, Sub AVC−LAN is automatically to the mode. Perform the diagnosis mode operation on the RSA panel.

(a) Element check mode

After the diagnosis start−up, the system enters the element check mode. Check that the all elements light up.

HINT:

By pressing the ”TUNE UP” switch, the system enters the ”Service Check Mode”.

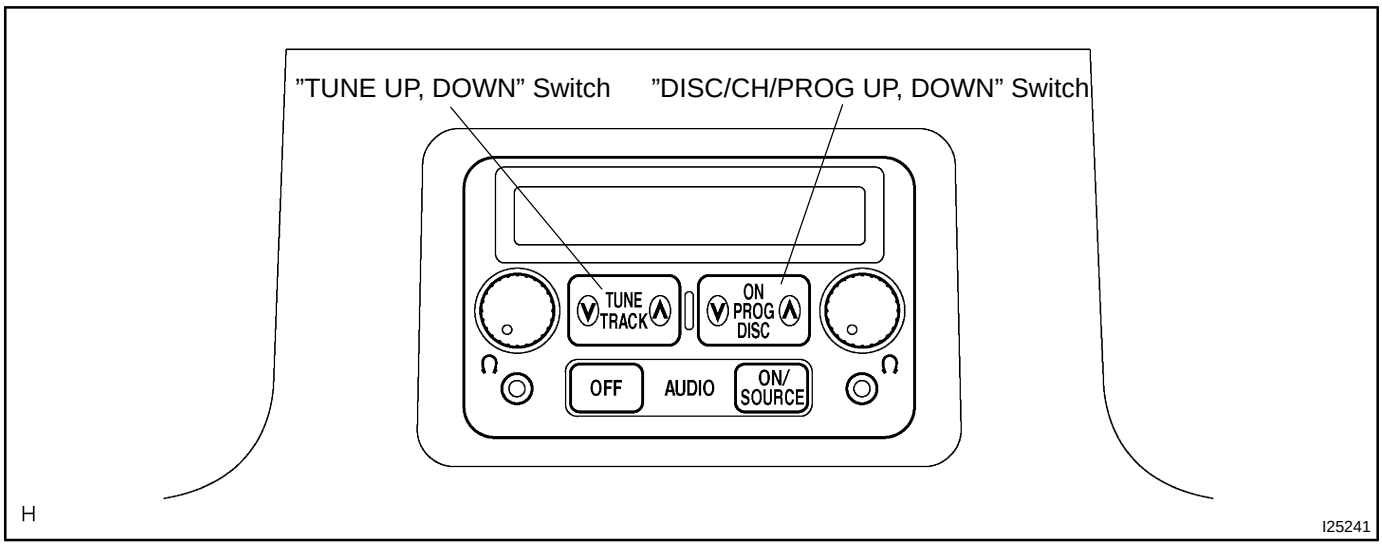
(b) Switch check mode

(1) Element check mode is started at the same time with the switch check mode.

(2) Check that there is a beep sound when any switch is pressed.

HINT:

By pressing ”TUNE UP” switch, the system enters the ”Service Check Mode”.



(c) Service check mode

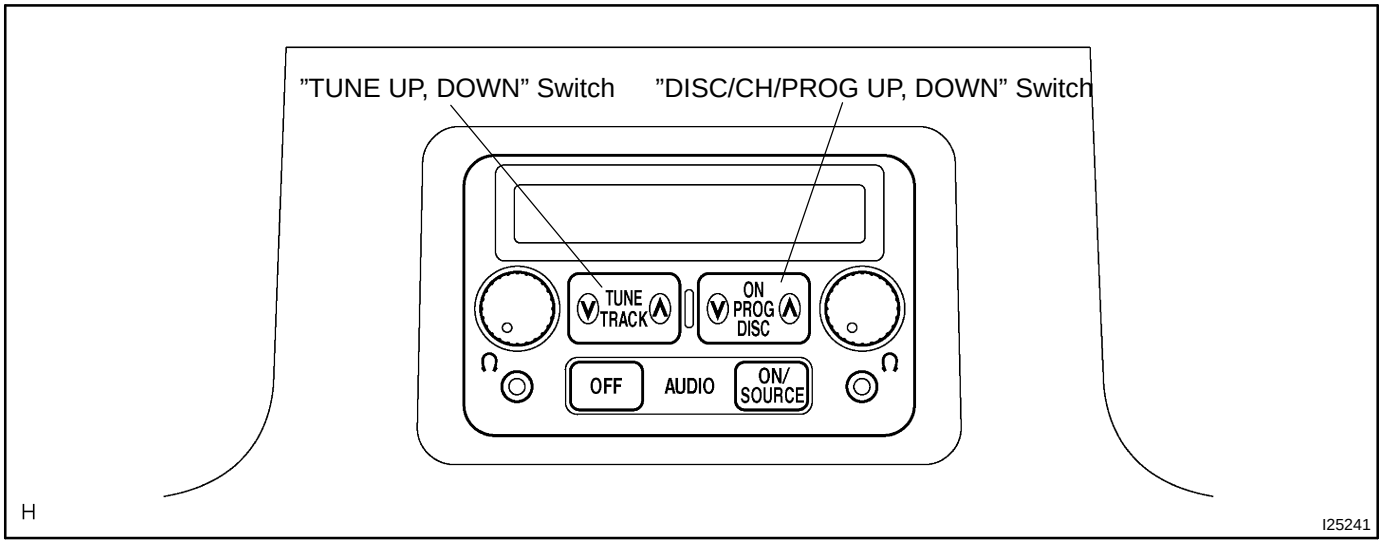
(1) After the element check and switch check is completed, the system enters service check mode when ”TUNE UP” switch is pressed.

(2) Error codes over the tuner and connected equipments are displayed on the screen of the tuner. Results for each check are displayed as follows:

- good:
  No DTC is detected for both ”System Check Confirmation” and ”Diagnosis Memory Response”.
- nCon:
  The component does not respond to the ”Diagnosis On Instruction” command.
  Applicable to only the system where connected components are limited to be used.
- ECHn:
  Application of new version has been confirmed by the ”Diagnosis On Check”, and there is one or more DTC which indicates ”Replacement” in the ”System Check Result Response” or ”Diagnosis Memory Response”.
- CHEC:
  Application of new version has been confirmed by the ”Diagnosis On Check”, and there is no DTC which indicates ”Replacement” in the ”System Check Result Response” or ”Diagnosis Memory Response”, but one or more DTC which indicates ”Check” is identified.
- Old:
  Application of old version is confirmed by the ”Diagnosis On Check”, and DTC is identified in the ”System Check Result Response” or ”Diagnosis Memory Response”.
- nrES:
  No response is identified to the ”System Check Start Instruction” and ”Request for System Check Result” commands.

HINT:

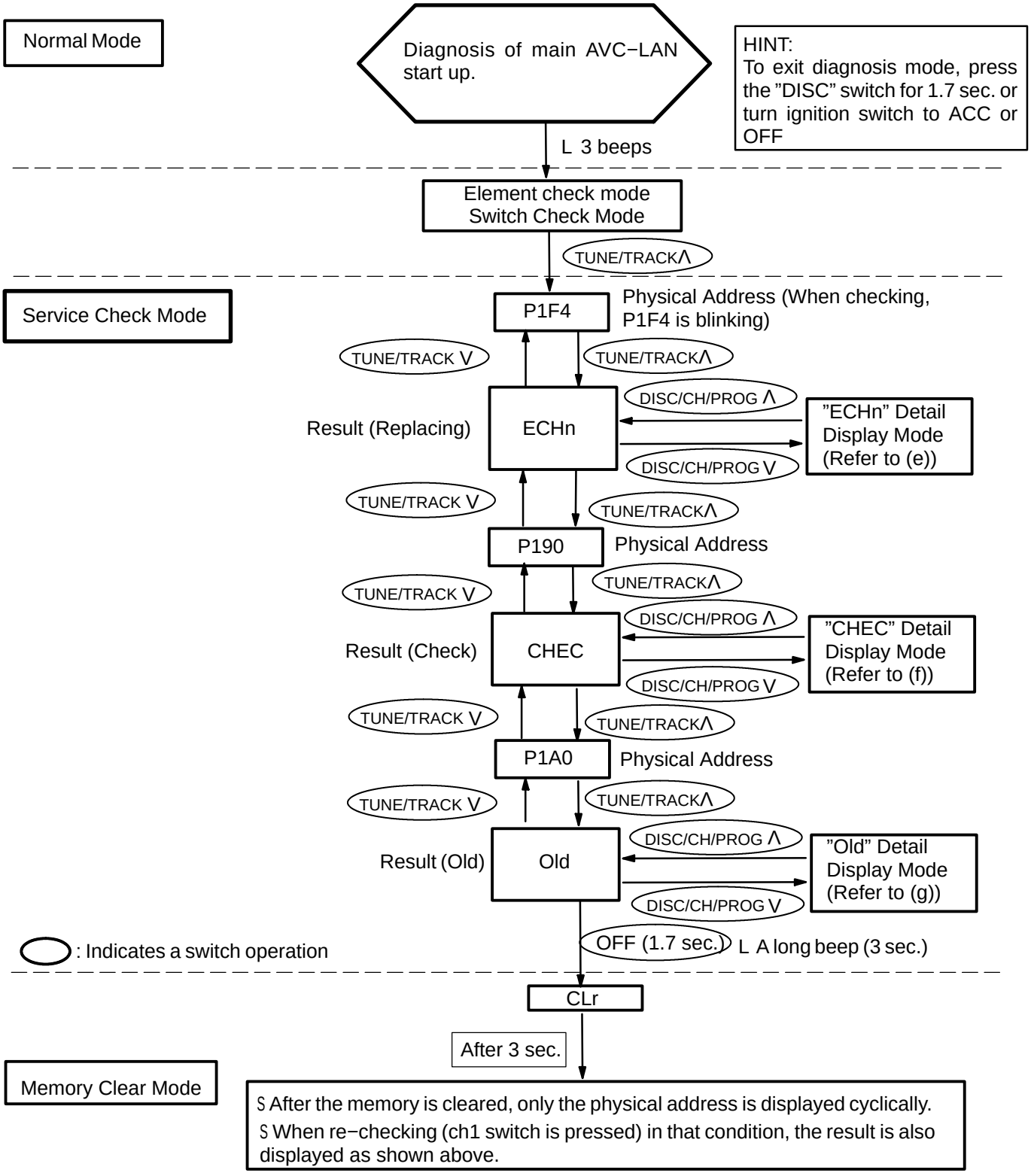
- Check the present and past condition of components by performing the System Check and collecting stored DTC memories.
- Check results are displayed as one of the following six indications: ”good”, ”ECHn”, ”CHEC”,”nCon”, ”Old” or ”nrES”.



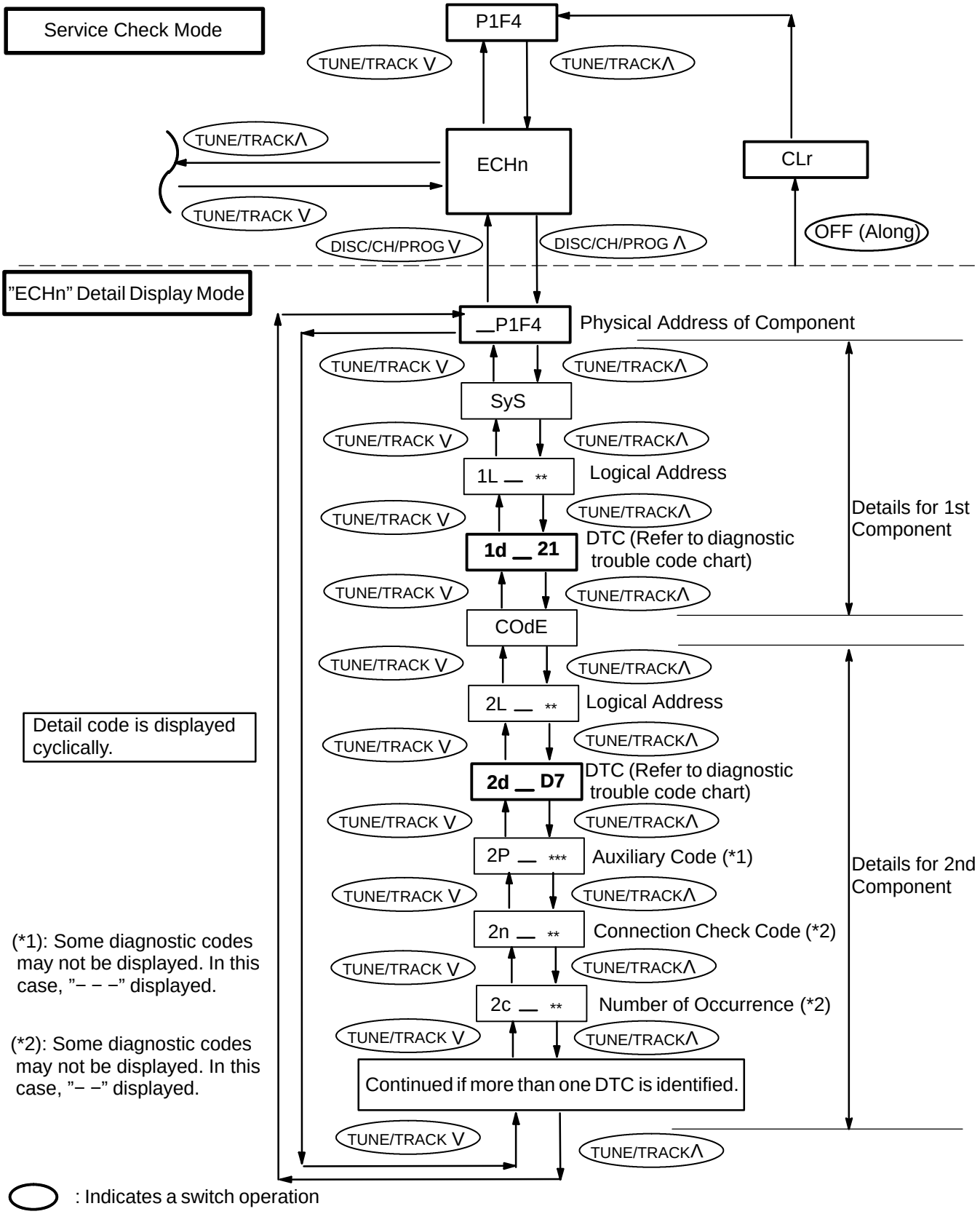
(d) Display Screen for Service Check.

Example:

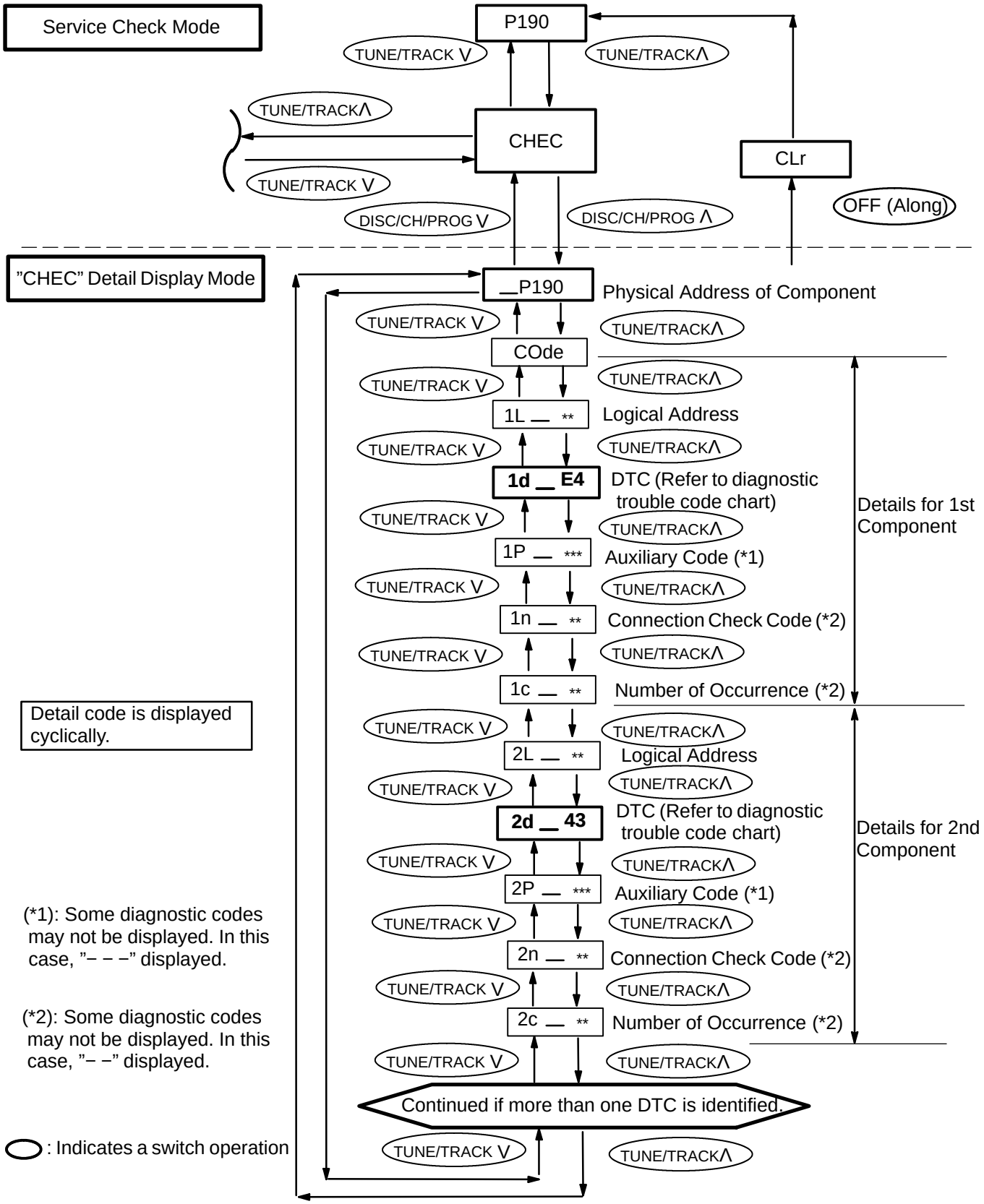
Connection parts (physical address): Radio receiver (P190), RSA ECU (P1F4), DVD player (P1A0)



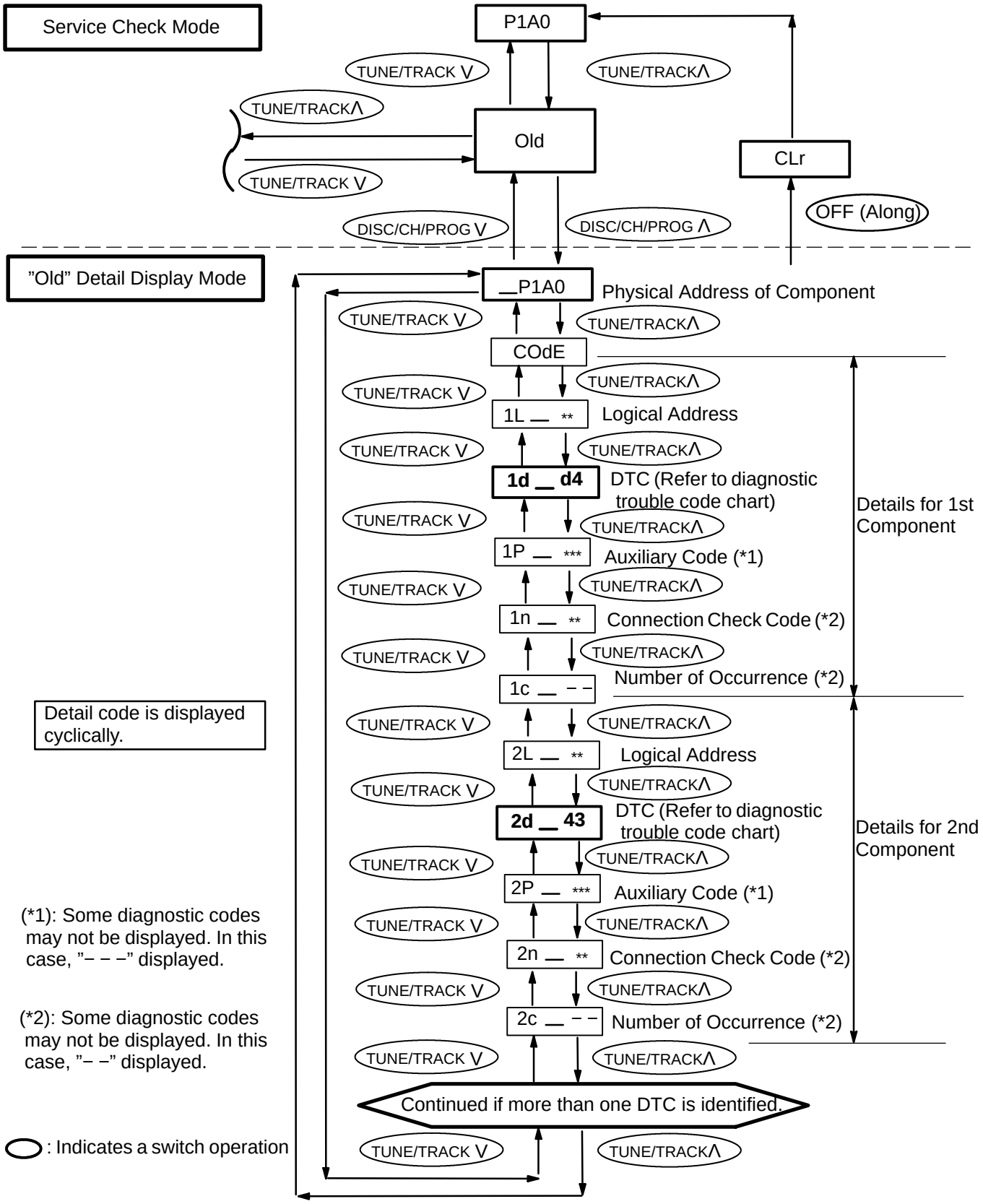
(e) ”ECHn” Detail Display Mode Screen



(f) ”CHEC” Detail Display Mode Screen



(g) ”Old” Detail Display Mode Screen



3. DIAGNOSIS CODE LIST

w/ Navigation system (See page)

Physical address: 190 Radio receiver assembly

HINT:

*1: Even if no failure is detected, it may be stored depending on the battery condition or voltage for starting an engine.
*2: It may be stored when the engine key is turned 1 min. angain after engine start.
*3: It may be stored when the engine key is turned again after engine start.
*4: When 210 sec. has passed after pulling out the power supply connector of the master component with the ignition switch in ACC or ON, this code is stored.

Logical address	DTC	Diagnosis item	Diagnosis content	Countermeasure and inspected parts
01 (Communication Control)	21	ROM Error	Error is detected in internal ROM.	Replace radio receiver assembly.
01 (Communication Control)	22	RAM Error	Error is detected in internal RAM.	Replace radio receiver assembly.
01 *2 (Communication Control)	D6	Absence of Master	Component in which this code is recorded has been disconnected from system with ignition in ACC or ON. Or, when this code was recorded, radio receiver assembly was disconnected.	D Check harness for power supply system of radio receiver assembly. D Check harness for communication system of radio receiver assembly.
01 *3 (Communication Control)	D8	No Response to Connection Check	Component shown by auxiliary code is or had been disconnected from system after engine start. D9	D Check harness for power supply system of component shown by auxiliary code. D Check harness for communication system of component shown by auxiliary code.
01 *2 (Communication Control)	D9	Last Mode Error	Component operated (sounds and/or images were provided) before engine stop is or has been disconnected with ignition switch in ACC or ON.	D Check harness for power supply system of component shown by auxiliary code. D Check harness for communication system of component shown by auxiliary code.
01 (Communication Control)	DA	No Response to ON/OFF Instruction	No response is identified when changing mode (audio and visual mode change). Detected when sound and picture does not change by button operation.	D Check harness for power supply of component shown by auxiliary code. D Check harness for communication system of component shown by auxiliary code. D If error occurs again, replace component shown by auxiliary code.
01 *2 (Communication Control)	DB	Mode Status Error	Dual alarm is detected.	D Check harness for power supply of component shown by auxiliary code. D Check harness for communication system of component shown by auxiliary code.

01 *4 (Communication Control)	DC	Transmission Error	Transmission to component shown by auxiliary code has been failed. (Detecting this DTC does not necessary mean actual failure.)	D If same auxiliary code is recorded in other component, check harness for power supply and communication system of components shown sub code.
01 *3 (Communication Control)	DD	Master Reset (Momentary Interruption)	After engine is started, radio receiver assembly assembly was disconnected from system.	D If this error occurs frequently, replace radio receiver assembly.
01 *3 (Communication Control)	DE	Slave Reset (Momentary Interruption)	After engine is started, slave component was disconnected from system.	D Check harness for power supply of component shown by auxiliary code. D Check harness for communication system of component shown by auxiliary code.
01 *4 (Communication Control)	DF	Master Error	Due to defective condition of radio receiver assembly, master function is switched to audio equipment. Error occurs in communication between sub−master (audio) and radio receiver assembly.	D Check harness for power supply of radio receiver assembly. D Check harness for communication system of radio receiver assembly . D Check harness for communication system between radio receiver assembly and sub−master component.
01 (Communication Control)	E0	Registration Completion Instruction Error	”Registration Completion Instruction” command from radio receiver assembly cannot be received.	D Since this DTC is provided for engineering purpose, it may be detected when no actual failure exists.
01 *2 (Communication Control)	E1	Audio processor ON error	While source equipment is operating, AMP output is stopped.	D Check harness for power supply of radio receiver assembly. D Check harness for communication system of radio receiver assembly.
01 (Communication Control)	E2	ON/OFF Instruction Parameter Error	Error occurs in ON/OFF controlling command from radio receiver assembly assembly.	D Replace radio receiver assembly .
01 (Communication Control)	E3	Registration Request Transmission	Registration Request command is output from slave component. Receiving Connection Check Instruction, Registration Request command is output from sub−master component.	D Since this DTC is provided for engineering purpose, it may be detected when no actual failure exists.
01 (Communication Control)	E4	Plural Frame Abort	Plural frame transmission is aborted.	D Since this DTC is provided for engineering purpose, it may be detected when no actual failure exists.
60 (Radio receiver assembly)	43	AM Tuner Error	Abnormal condition is detected in AM tuner. Inspect radio receiver assembly.	Replace radio receiver assembly.
60 (Radio receiver assembly)	44	FM Tuner Error	Abnormal condition is detected in FM tuner.	Replace radio receiver assembly.

61 (Cassette switch)	40	Mechanical or Media Error	Malfunction due to mechanical failure is identified. Or, cassette tape is cut or entangled.	Inspect cassette tape.
61 (Cassette switch)	41	EJECT Malfunction	Malfunction due to mechanical failure.	Replace radio receiver assembly.
63 (In−dash CD auto changer)	42	No Disc Readout	Disc cannot be read.	Inspect CD.
63 (In−dash CD auto changer)	44	CD Error	Error is detected in CD auto changer.	Replace radio receiver assembly.
63 (In−dash CD auto Changer)	45	EJECT Error	CD cannot be ejected.	Replace radio receiver assembly.
63 (In−dash CD auto Changer)	47	CD High Temp.	High temperature is detected in CD auto changer.	Replace radio receiver assembly.
63 (In−dash CD auto Changer)	48	CD Excess Current	Excess current is applied to CD auto changer.	Replace radio receiver assembly.

Physical address: 440 Strereo component amplifier

HINT:
*1: Even if no failure is detected, it may be stored depending on the battery condition or voltage for starting an engine.
*2: It may be stored when the engine key is turned 1 min. angain after engine start.
*3: It may be stored when the engine key is turned again after engine start.
*4: When 210 sec. has passed after pulling out the power supply connector of the master component with the ignition switch in ACC or ON, this code is stored.

Logical address	DTC	Diagnosis item	Diagnosis content	Countermeasure and inspeced parts
01 (Communication Control)	21	ROM Error	Abnormal condition of ROM is detected.	Replace stereo component amplifier.
01 (Communication Control)	22	RAM Error	Abnormal condition of RAM is detected.	Replace stereo component amplifier.
01 (Communication Control)	D6 *1	Absence of Master	Component in which this code is recorded has been disconnected from system with ignition in ACC or ON. Or, when this code was recorded, radio receiver assembly was disconnected.	D Check harness for power supply of radio receiver assembly. D Check harness for communication system of radio receiver assembly. D Check harness for power supply of stereo component amplifier. D Check harness for communication system of stereo component amplifier.

01*6 (Communication Control)	D7	Connection Check Error	Component in which this code is recorded has been disconnected from system after engine start. Or, when this code was recorded, radio receiver assembly was disconnected.	D Check harness for power supply of radio receiver assembly. D Check harness for communication system of radio receiver assembly. D Check harness for power supply of stereo component amplifier. D Check harness for communication system of stereo component amplifier.
01 (Communication Control)	DC *2	Transmission Error	Transmission to component shown by auxiliary code has bee failed. (This code does not necessarily mean actual failure.)	If same auxiliary code is recorded in other component(s), check harness for power supply and communication system of components shown sub code.
01 (Communication Control)	DD *3	Master Reset (Momentary Interruption)	After engine is started, radio receiver assembly assembly was disconnected from system.	D Check harness for power supply of radio receiver assembly. D Check harness for communication system of radio receiver assembly. D If error occurs frequently, replace radio receiver assembly.
01 (Communication Control)	DF *4	Master Error	Due to defective condition of component with a display, master function is switched to audio equipment . Error occurs in communication between sub−master (audio) and master component.	D Check harness for power supply of radio receiver assembly. D Check harness for communication system of radio receiver assembly. D Check harness for communication system between radio receiver assembly and sub−master component.
01 (Communication Control)	E0 *1	Registration Completion Instruction Error	”Registration Completion Instruction” command fromradio receiver assembly cannot be received.	Since this DTC is provided for engineering, it may be detected when no actual failure exists.
01 (Communication Control)	E1 *1	Audio processor ON error	While source equipment is operating, AMP output is stopped.	D Check harness for power supply of radio receiver assembly D Check harness for communication system of radio receiver assembly.
01 (Communication Control)	E2	ON/OFF Instruction Parameter Error	Error is detected in ON/OFF control command from radio receiver assembly.	Replace radio receiver assembly.
01 (Communication Control)	E3	Registration Request Transmission	D Registration Request command is output from slave component. D By reception of connection check Instruction, Registration Request command is output from sub−master component.	Since this DTC is provided for engineering, it may be detected when no actual failure exists.
01 (Communication Control)	E4	Plural Frame Abort	Plural frame transmission is aborted.	Since this DTC is provided for engineering purpose, it may be detected when no actual failure exists.

Physical address: 1F4 RSA Panel (Main AVC−LAN)

HINT:
*1: Even if no failure is detected, it may be stored depending on the battery condition or voltage for starting an engine.
*2: It may be stored when the engine key is turned 1 min. angain after engine start.
*3: It may be stored when the engine key is turned again after engine start.
*4: When 210 sec. has passed after pulling out the power supply connector of the master component with the ignition switch in ACC or ON, this code is stored.

Logical address	DTC	Diagnosis item	Diagnosis content	Countermeasure and inspeced parts
01 (Communication Control)	D6 *1	Absence of Master	Component in which this code is recorded has been disconnected from system with ignition in ACC or ON. Or, when this code was recorded, radio receiver assembly was disconnected.	D Check harness for power supply of radio receiver assembly. D Check harness for communication system of radio receiver assembly. D Check harness for power supply of RSA panel. D Check harness for communication system of RSA panel.
01*6 (Communication Control)	D7	Connection Check Error	Component in which this code is recorded has been disconnected from system after engine start. Or, when this code was recorded, radio receiver assembly was disconnected.	D Check harness for power supply of radio receiver assembly. D Check harness for communication system of radio receiver assembly. D Check harness for power supply of RSA panel. D Check harness for communication system of RSA panel.
01 (Communication Control)	DC *2	Transmission Error	Transmission to component shown by auxiliary code has bee failed. (This code does not necessarily mean actual failure.)	If same auxiliary code is recorded in other component(s), check harness for power supply and communication system of components shown sub code.
01 (Communication Control)	DD *3	Master Reset (Momentary Interruption)	After engine is started, radio receiver assembly was disconnected from system.	D Check harness for power supply of radio receiver assembly. D Check harness for communication system of radio receiver assembly. D If error occurs frequently, replace radio receiver assembly.
01 (Communication Control)	DF *4	Master Error	Due to defective condition of component with a display, master function is switched to audio equipment . Error occurs in communication between sub−master (audio) and master component.	D Check harness for power supply of radio receiver assembly. D Check harness for communication system of radio receiver assembly. D Check harness for communication system between radio receiver assembly and sub−master component.
01 (Communication Control)	E0 *1	Registration Completion Instruction Error	”Registration Completion Instruction” command fromradio receiver assembly cannot be received.	Since this DTC is provided for engineering, it may be detected when no actual failure exists.
01 (Communication Control)	E3	Registration Request Transmission	D Registration Request command is output from slave component. D By reception of connection check Instruction, Registration Request command is output from sub−master component.	Since this DTC is provided for engineering, it may be detected when no actual failure exists.

01 (Communication Control)	E4	Plural Frame Abort	Plural frame transmission is aborted.	Since this DTC is provided for engineering purpose, it may be detected when no actual failure exists.

Physical address: 16A, 16C RSA Panel (Sub AVC−LAN)
HINT:
*1: Even if no failure is detected, it may be stored depending on the battery condition or voltage for starting an engine.
*2: It may be stored when the engine key is turned 1 min. angain after engine start.
*3: It may be stored when the engine key is turned again after engine start.
*4: When 210 sec. has passed after pulling out the power supply connector of the master component with the ignition switch in ACC or ON, this code is stored.

Logical address	DTC	Diagnosis item	Diagnosis content	Countermeasure and inspeced parts
01 *3 (Communication Control)	D8	No Response to Connection Check	Component shown by auxiliary code is or had been disconnected from system after engine start. D9	D Check harness for power supply system of component shown by auxiliary code. D Check harness for communication system of component shown by auxiliary code.
01 *2 (Communication Control)	D9	Last Mode Error	Component operated (sounds and/or images were provided) before engine stop is or has been disconnected with ignition switch in ACC or ON.	D Check harness for power supply system of component shown by auxiliary code. D Check harness for communication system of component shown by auxiliary code.
01 (Communication Control)	DA	No Response to ON/OFF Instruction	No response is identified when changing mode (audio and visual mode change). Detected when sound and picture does not change by button operation.	D Check harness for power supply of component shown by auxiliary code. D Check harness for communication system of component shown by auxiliary code. D If error occurs again, replace component shown by auxiliary code.
01 *2 (Communication Control)	DB	Mode Status Error	Dual alarm is detected.	D Check harness for power supply of component shown by auxiliary code. D Check harness for communication system of component shown by auxiliary code.
01 *4 (Communication Control)	DC	Transmission Error	Transmission to component shown by auxiliary code has been failed. (Detecting this DTC does not necessary mean actual failure.)	D If same auxiliary code is recorded in other component, check harness for power supply and communication system of components shown sub code.
01 *3 (Communication Control)	DE	Slave Reset (Momentary Interruption)	After engine is started, slave component was disconnected from system.	D Check harness for power supply of component shown by auxiliary code. D Check harness for communication system of component shown by auxiliary code.
01 (Communication Control)	E4	Plural Frame Abort	Plural frame transmission is aborted.	Since this DTC is provided for engineering purpose, it may be detected when no actual failure exists.

4. PROBLEM SYSMPTOMS TABLE

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).

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.).

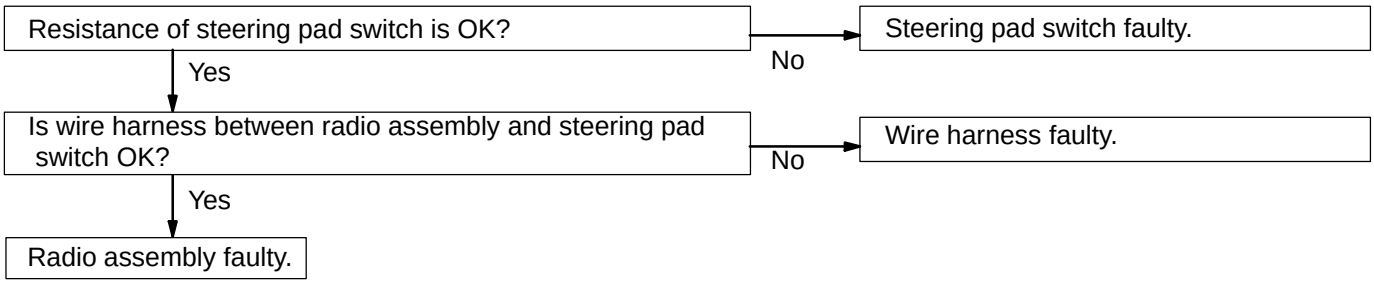
Always inspect the trouble taking the following items into consideration.

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

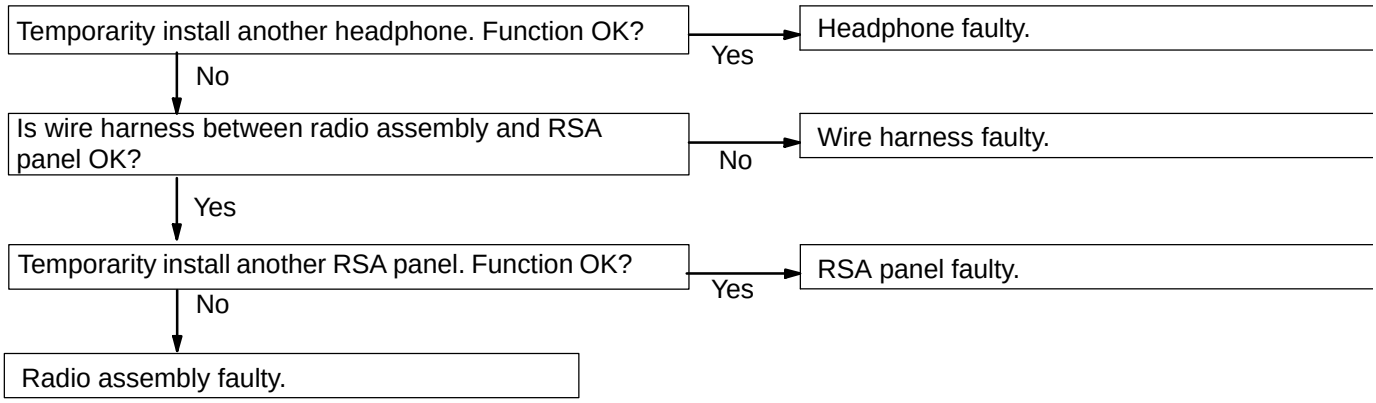
	Problem	Flow chart No.
Steering Pad Switch	A audio system cannot be operated with steering pad switch.	1
Rear Seat Audio	Quality of sound from headphone connected to headphone terminal is poor or no sound can be heard.	2

The term ”AM” includes LW,MW and SW, and the term ”FW” includes UKW.

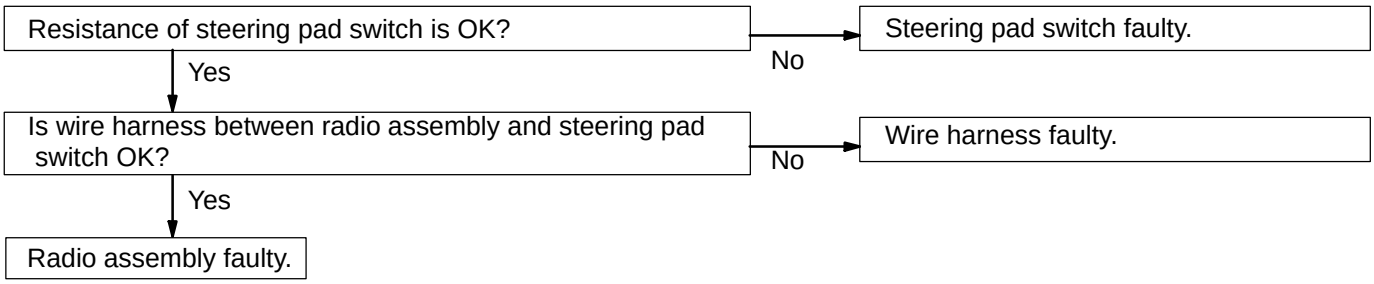
1 Steering Pad Switch — A AUDIO SYSTEM CANNOT BE OPERATED WITH STEERING PAD SWITCH



2 Rear Seat Audio — QUALITY OF SOUND FROM HEADPHONE TERMINAL IS POOR OR NO SOUND CAN BE HEARD



3	Steering Pad Switch	A AUDIO SYSTEM CANNOT BE OPERATED WITH STEERING PAD SWITCH



4	Rear Seat Audio	QUALITY OF SOUND FROM HEADPHONE TERMINAL IS POOR OR NO SOUND CAN BE HEARD