NOISE FROM RADIO (AM ONLY) [RADIO]

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Possible DTC	**Noise from radio (AM only)**	
	Using the M-MDS	**U3000:04**
	Without using M-MDS (On-board diagnostic test mode)	**09:Er22**
Possible cause	• Jamming from aftermarket electronic equipment (two-way radio, navigation system, mobile phone, etc.) • Battery malfunction • Noise from electrical system on vehicle (e.g. fuel pump) • Charging system malfunction • Electronic jamming from outside, or inferior condition of broadcasting station radio wave • Antenna plug poor connection • Antenna feeder malfunction • Antenna installation loosened • Audio unit malfunction	

Diagnostic procedure

STEP	INSPECTION		ACTION
1	• Can the location where the noise occurs be specified?	Yes	The system is normal. (Explain to the customer that the noise is caused by radio wave disturbances or broadcast wave conditions from the outside.)
		No	Go to the next step.
2	• Tune to local broadcasting station and check reception condition. • Is reception okay?	Yes	Tune to correct frequency of broadcasting station. If not preset, preset it.
		No	Go to the next step.
3	• Is aftermarket electronic equipment (two-way radio, navigation system, mobile phone, etc.) installed? **Note** • TV antenna located closely to audio antenna can be cause of noise. Relocate TV antenna.	Yes	Go to the next step.
		No	Go to Step 5.
4	• Remove aftermarket electronic equipment. • Turn audio unit ON and check reception condition. • Is reception improved?	Yes	The system is normal. (Explain to customers that aftermarket electronic equipment is cause of noise)
		No	Go to the next step.
5	• Measure battery voltage. • Is battery voltage okay? **Specification:** **With ignition switch ON: 11.5 V or more** **At idling: 12.5 V or more** **Note** • Inspect that battery cables are connected to terminals securely.	Yes	Go to the next step.
		No	Charge battery. Inspect charging system, and repair or replace if necessary.
6	• Is noise occurring only when vehicle electrical system (e.g. fuel pump) operates? **Note** • Identify subject electrical component by disconnecting fuse, turning switch ON & OFF, or disconnecting & connecting connector. • It will be easy when simulation function on M-MDS is used.	Yes	Go to the next step.
		No	Go to Step 8.

STEP	INSPECTION		ACTION
7	• Inspect power supply, ground condition, and noise prevention capacitor for electrical component. • Is noise present after inspection? **Note** • Inspect following: — Power supply to electrical component for voltage drop (compare with battery voltage) — Resistance between ground of electrical component and body. (Should be close to 0 ohm) — Installation condition of noise prevention capacitor for fuel pump etc.	Yes	Go to the next step.
		No	Troubleshooting completed. **Note** • The audio unit supplies 12 V battery power to the antenna amplifier for the AM radio reception in the radio mode. The audio unit cannot receive the AM signals without the 12 V battery power to the antenna amplifier. If the AM signals become strong, the audio/unit car-navigation unit may receive the signal with noises.
8	• Inspect antenna plug connection condition. • Is connection okay?	Yes	Go to the next step.
		No	Insert antenna plug securely.
9	• Switch the ignition off (LOCK). • Measure continuity between antenna feeder axis and ground. • Is there any continuity?	Yes	Replace antenna feeder.
		No	Go to the next step.
10	• Compare reception with other audio unit on same model (model/unit) under same problem conditions. • Is reception equivalent between customer's unit and compared unit? **Note** • Due to following differences, you may feel difference in reception efficiency. **(Vehicle side factor)** — Antenna installation location, height, feeder wiring routing, optional electrical equipment **(Audio unit factor)** — Volume concern type: It decreases change of volume when signals become weak. (Noise is easily noticed) — Noise decrease type: It decreases volume when signals become weak, so that noise is not noticeable.	Yes	The system is normal (It is caused by electronic jamming from outside, or inferior broadcasting station signal condition).
		No	Replace audio unit. (See AUDIO UNIT REMOVAL/INSTALLATION.)