

# Radio Station Maintenance Checklist

Every transmitter system should be checked periodically to ensure it is operating at an acceptable performance level. ISS' Bill Baker offers the following maintenance checklist to help you keep your station operating at an optimum. His suggestions are simple, requiring a minimal investment of time and resources.

## Every 3 months:

**Monitor the station's broadcast in your vehicle.** That is, determine that the range of your radio station continues to be what it was when installed.

- € Take care to monitor the station on the same radio in the same vehicle at the same physical locations to make this judgment, since radio sensitivity, signal coverage and vehicle interference levels vary widely.
- € Note locations on the road where the signal begins to get softer, then is no longer intelligible. If these areas shift closer to the station, continue with the checks listed below.

## Every 6 months:

**Visit the transmitter location . . .**

- € **Check your station's wattmeter to make certain that forward and reflected power readings remain constant at the original levels.** (If forward and reflected power should both fall, the transmitter's output may have been reduced, or the transmitter may have an output problem. If forward power falls and reflected power increases dramatically to a reading nearly the level of the forward power, the antenna system may be have become disconnected or damaged.)
- € **Make certain that the audio entering the transmitter is at an appropriate level.** If not, adjust the transmitter's MOD ADJUST control (AUDIO LEVEL control on the older TR.20 model transmitter) to yield a full, high quality broadcast sound.
- € **Make a visual inspection.** Look for . . .
  - **Insects and other pests** that may have entered the transmitter enclosure.
  - **Physical damage to the system:** Lightning damage to the antenna and other external components. (Look for dark marks or other obvious damage, cables or wires that may have become damaged, loose or corroded at connection points. Replace or reconnect and use silicone to prevent weathering.)
  - **Dust and dirt.** Clean it from the surfaces of panels and components with a damp cloth or spray cleaner.
- € **Check voltages on each battery in your system.** If the positive lead going to the battery or battery pack has an in-line fuse or breaker, first remove the fuse or turn off the breaker to isolate the batteries from the charger system that maintains them. If there is no fuse, just slide the positive lead from the positive terminal of the battery to accomplish this.

Test each battery individually with a volt-ohm meter set to measure DC voltage. Your batteries had standing voltages of about 12.8 volts when new. If healthy, they will show a charge greater than 12 volts, when tested as described above. Replace promptly batteries that do not meet this test, or system operation and message integrity may be compromised.

# ISS Source Newsletter

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## 5 Ways to Maintain Your Station TechTalk with Tom Coviak

### Listen

It is important to listen to your station frequently — especially on the edges of your coverage area. You want to know, as soon as possible, if your range has decreased or if you've gone off the air entirely, so you can take care of the situation.

If you travel through the desired coverage zone daily, try tuning in to be certain that your system can be heard. If you don't regularly pass through it, make a point of doing so (or have someone else do so) periodically, once a week, for example just to ensure your station is on the air and functioning. For an accurate assessment and because car radio receivers vary, use the same vehicle each time you listen. Also, listen at roughly the same location and be certain not to monitor in areas where interference may be present, such as, under power lines, bridges, inside parking garages or behind large structures. If you are hearing the system up close, let's say a ½ mile at best, but then the signal drops off; or if you do not hear anything at all, you'll need to look at your system's transmitter. Call ISS, and we will talk you through some troubleshooting steps.

While verifying the range of your system, pay attention to the messages themselves. How's the modulation (or level of the audio) in the broadcast? If your message is faint, soft and difficult to hear, the transmitters audio output may need some adjusting. If you have the Model TR.20 Transmitter, the modulation adjust is a blue disk oriented vertically near the top of the main circuit board. With the TR.6000, adjust the dial on the right side, labeled "Mod. Adjust."

If you're listening, and your reception is quiet, meaning there is not any static, there may be a problem with your recording device. Do you have messages recorded on the device? Has a playlist been set up? If the recording device has lost its memory, you'll need to reprogram it.

Many systems are affected by skywave. If yours is one of them, nighttime monitoring may be difficult.

### Measure

Most stations have a memory battery for the AP.55 Digital Message Programmer. Voltages, when not under charge, should be above 12 volts — or 24 volts, if you have 2 batteries connected in series. If you do not have a memory battery, and you are using the AP.55 Digital Message Programmer, you may find a small 9-volt battery located on the recorder itself. Consider replacing the 9-volt with the latest 12-volt memory battery, which includes an AC charger to maintain memory during power outages. Contact ISS for more information about memory batteries.

ALERT AM and ITS.6000 Transmitter Systems have operational batteries in addition to memory batteries. Voltages, when not under charge, should be above 12 volts each.

RoadRunnRs have operational backup batteries. Voltages, when not under charge, again, should be above 12 volts each. Check voltages on each battery in your system. If the positive lead going to the battery or battery pack has an in-line fuse or breaker, first remove the fuse or turn off the breaker to isolate the batteries from the charger system that maintains them. If there is no fuse, just slide the positive lead from the positive terminal of the battery to accomplish this.

Test each battery individually with a volt-ohm meter set to measure DC voltage. Your batteries had standing voltages of about 12.8 volts when new. If healthy, they will show a charge greater than 12 volts when tested, as described above. Replace promptly batteries that do not meet this test, or system operation and message integrity may be compromised.

### Look

Inspect the transmitter, recording device, power supply and batteries (if applicable).

Is there physical damage to the system or lightning damage to the antenna and other external components? Look for dark marks or other obvious damage, cables or wires that may have become damaged, loose or corroded at connection points. Replace or reconnect and use silicone to prevent weathering.

Does the site have power? Unless you're operating a RoadRunnR portable system, 110-volts of AC should be present to operate your system. Check any circuit breakers or surge arrestors, if power is not available. If power is present but the transmitter is not operating, check the transmitter's power fuse. With the TR.20 the fuse is located next to the slide switch. With the TR.6000, the fuse is located at the top of the unit. It is best to check the fuse with a volt-ohm meter to be certain the fuse is in good condition. The TR.20 has a large heat sink on the side of the unit. When operating properly, this heat sink should be hot. If it is cool, turn off the transmitter's power using the slide switch and check the fuse on the amplifier board located on the circuit board to your left. Using a wattmeter, determine the health of your transmitter and antenna.

### Clean

After shutting the system down, clean dust and dirt from the surfaces of panels and components with a damp cloth or spray cleaner. If insects or other pests have found their way into the cabinet, check for holes/entryways and seal them with silicone, or duct seal.

### Renew

Do you know when your FCC license expires? ISS can help you determine when and help you renew when the situation warrants.

Would you like to add an Emergency Alert System/National Weather Service receiver to your system? Ask ISS what would be involved, based on your current setup.