

Troubleshooting the Wurlitzer 200 Series Amplifiers

This text is directly taken from the Wurlitzer 200 Service Manual notes.

Electronic Piano Note #23

April 15th, 1971

200 Series Amplifiers

| | | |
|-----|---|--------------------------------|
| 1. | Dead Amplifier (Pilot light does not light) | A |
| 2. | Blows line fuse | B, C, D |
| 3. | Blows output transistors | J, L, M, N, O, P - See Note #1 |
| 4. | Distortion | D, E, S |
| 5. | Low Volume | E, S |
| 6. | Static | E, F, H, I, J, K, T |
| 7. | Hiss and noise (can control with volume control) | E, F, H, I, J, K, T |
| 8. | Hiss & noise (cannot control with volume control) | C, I, J, K, U |
| 9. | Hum | C, E, F |
| 10. | Tremelo dead | Q, R |

- A. AC line fuse open
- B. Shorted rectifiers D-2, D-3
- C. C-6
- D. Shorted output transistors
- E. Cracks or poor solder joints on PC board
- F. Poor ground on input cable
- G. TR-1 (use GE style 11-0778 or 651891 yellow or green)
- H. R-40, R-36, R-45, R-66 (replace with deposited carbon)
- I. R-14, R-7, R-8
- J. C-9
- K. C-18 too close to R-14
- L. R-14 (noisy)
- M. R-10 high in value
- N. D-4
- O. Burr on heat sink puncturing mica washer
- P. Use one mica under output and driver transistors with heat sink compound on both sides
- Q. TR-4
- R. C-53, C-46, D-5
- S. Open or shorted coupling capacitors
- T. Reed striking pickup
- U. TR-5, TR-6

Note #1. Inspect C, J, L and follow P prior to turning piano on after replacement of output TR'S.

ELECTRONIC PIANO 200A

Before ordering a new AC power cord for a model 200A, check to see which type of pins is used in the receptacle of your piano. Recently, a new connector has been introduced which features rectangular shaped pins rather than the traditional, round ones. Including the description "round pins" or "square pins" on your parts order will insure the proper type of cord to be sent.

Model: 200, 203, 206, 207

Subject: Failure Output Transistors

References: Schematic - Piano Amplifier (11-0783)

When called upon to change output transistors in the Electronic Piano, check the following items to ensure they are in good functioning order. Check for the following:

| | | | |
|------|-----------|-----------------|--------------|
| C-6 | 1000 mfd. | 50 VDC | Intermittent |
| C-9 | 500 mfd. | 50 VDC | Intermittent |
| R-14 | 200 mfd. | 5 watt resistor | Noise |
| R-8 | .68 ohms | 5 watt resistor | Noise |
| R-7 | 200 ohms | 5 watt resistor | Noise |
| R-10 | 2.7 ohms | 1 watt resistor | Open |

MODEL: 200 Series Electronic Pianos

Subject: Connecting external amplifiers

Reference: 200 Series amplifier Schematic No. 11-1305-S-1

The most satisfactory point to obtain a signal for driving an external amplifier is at the auxiliary output jack. As the piano is wired, this signal is taken from point 7 (signal) and point 1 (ground). It has been noted that in some cases this circuit does not supply sufficient drive signal to the external amplifier input. In other cases a hum is introduced into the external amplifier. The following circuit has been found to correct these conditions. Change the 100K resistor between points 6 and 7 to a 6.8K and the 15K resistor between points 1 and 7 to a 2.2K. The maximum signal is approximately .5 volts peak to peak. If there is no D.C. voltage at the external amplifier input, a cleaner drive signal can be obtained by removing the 5MFD capacitor between pins 5 and 6 and replacing it with a jumper wire.

Model: 203-203W, 214

Subject: Baffle Board Wiring

If you should encounter a piano which has apparent low volume, check speaker wiring to ensure they are all in phase. The orange wires should be connected to the speaker terminal with the color dot. The black wires to the unmarked speaker terminals.

The 200 series seems to be the most popular model amongst collectors and players alike. It's the latest of the reed-based pianos, the lightest in weight, and probably has the best action and sound amplification of all the models. I won't dwell on this aspect much, since it's merely opinion.

According to the schematic dates of the 200 series, they were being made in 1981 (200-B) and beyond. Below is an excerpt transcribed from the original manual.

MODEL 200, **200A** (PROFESSIONAL PORTABLE)

| | |
|---|--|
| | 64 Notes, A-13 thru C-76 |
| <i>(From Floor to Keys With Legs)</i> | 28 5/8" |
| <i>(Less Legs)</i> | 7 1/8" |
| <i>(From Floor to Top of Case, Not including Music Panel)</i> | 33" |
| | 40" |
| | 18 9/16" |
| <i>(Less Legs and Pedal)</i> | 56 lbs. |
| | Removable chrome plated steel legs, two of which have leveling glides. |

MODELS 203, 203W, **206**, 207, 207V, 214, 214V, 215V & 270

The Models 203 and 203W are home consoles. For Group Piano Instruction, the Model 206 is the student console and the Models 205V, 207 and 207V are teacher's consoles. The Models 214, 214V and 215V are classroom consoles. The Models 207V and 214V have the switches, wiring and plugs installed for use with the Model 208 Key/Note Visualizer. The Models 205V and 215V are similarly equipped to operate the V-500 key/Note Visualizer. The Model 270 is a Butterfly grand using similar internal assemblies as the model 200.

| | |
|---|--------------------------|
| | 64 Notes, A-13 thru C-76 |
| <i>(From Floor to Top of Keys)</i> | 28 5/8" |
| <i>(From Floor to Top of Keys) Model 270</i> | 27 1/4" |
| <i>(Not including Music Panel or Casters)</i> | 32 7/8" |
| <i>(Not including Music Panel) Model 270</i> | 34" |
| | 40" |
| Model 270 | 41" |
| | 18 9/16" |
| Model 270 | 37 1/2" |
| Model 270 | Approx. 150 lbs. |

| | |
|--|----------|
| <i>(With Legs and Lyre)</i> Model 270 | 160 lbs. |
|--|----------|

- **Wood Bench with removable chrome plated steel legs, two of which have leveling glides.**
- **Sugar Pine keyboard, naturals are covered with white implex plastic, sharp tops are black molded plastic.**
- **Wurlitzer manufactured action, employing conventional action parts such as whips, butts, flies (jacks), dampers, etc. Regulates Like a Conventional Piano Action.**
- **Three ply maple covered with mothproofed felt.**
- **Hammers strike steel tone producing elements, causing them to vibrate in a polarized electrostatic field.**

| | |
|---------------------------|---|
| | |
| 200 | Two 4"x8" Oval (16 ohm) |
| 203 | Two 4"x8" oval plus two 8" round <i>or</i> four 8" round |
| 203W | Four 8" round |
| 205V | Two 8" round (8 ohm) |
| 206 206A | Two 4"x8" oval (16 ohm) <i>or</i> two 8" round Two 8" (16 ohm) |
| 207 | One 6"x9" oval (8 ohm) <i>or</i> one 8" round (8 ohm) <i>or</i> two 8" round (8 ohm) |
| 207V | Two 8" round (8 ohm) |
| 214 214V | Four 8" round |

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| | |
|-------------|---------------------|
| 215V | |
| 270 | Two 8" round |

Frequently Asked Questions

Question: I just bought a 200A from a music store and I was wondering how long Wurlitzer made them. I'm guessing roughly 1961-1970; is that close?

I'm still trying to find out exact dates of manufacture pertaining to model years, but it appears to me (all I have to go on right now are schematic dates) that the 200 series came out around 1967-68, the updated 200-A came out around 1972-73, and the 200-B around 1979-80.

Question: I was wondering where I can get the manual for the Wurlitzer 200a and the cost of it. Thanks.

Morelocks Organ Service has the real-deal manuals for ALL the Wurlitzer Electric Pianos. The 200 series manuals cost me \$18.00 plus actual shipping, and it covers all the 200 series models.

Question: Is there a Wurlitzer 200 and 200-A, or is it normally referred to as the 200?

Yes, there is indeed a 200 AND a 200-A, as well as a 200-B! These models have IDENTICAL actions, cases, legs, sustain pedal, etc. The difference is in the Amplifier. The 200 series has a transistor amplifier, and the 200-A has an updated transistor amplifier. To my ears, I cannot tell the difference in tone between the 200 and the 200-A. I'm told the reason the amps were updated was because the price of NPN-type transistors were less than the PNP-types that were originally used in the original 200. The 200-B actually has an IC-based pre-amp designed to be used for external sound systems, leaving out the internal amplifier that drives the speakers.

Question: I am looking for someone who really knows how to work on this particular model. Over the years I've had more than a few people work on it and it never has sounded right. Any info that you could share with me would be extremely helpful.

Good keyboard techs are the hardest thing to find in the world! What I would recommend doing is buying the service manual for your particular model, then seek out a qualified piano tech in your area. The actions inside the Wurlitzer Electric Pianos are VERY much like the actions in an acoustic piano, therefore a piano tech should have no trouble setting up the action. As for the electronics, the amplifiers are pretty straight-forward, so a good electronics tech should be able to troubleshoot them with the proper schematics. Most music stores have a guy that can do all these things, and I'm going to put together a list of techs that work on these pianos as well. I would recommend looking [HERE](#) for places and numbers.

Question: I need a new power cord for my Wurlitzer electric piano, model 200, and I was hoping that maybe you could steer me to where I could get a replacement.

ALL parts are available at Morelocks Organ Service. I have their information, as well as other places to buy parts and manuals [HERE](#).

Question: I've tried to no avail to find info on Wurlitzer organs or the Wurlitzer Company. If you can point me to any relevant sites or provide any info it would be greatly appreciated.

I get LOTS of E-mail on this subject! No offense, but I DON'T do organs! But seriously folks, here's some links i've found on that subject.

- [Mitatechs](#) *This is a HUGE site. One could get lost here for a long time! Look here for every bit of info anyone could conceive pertaining to Organs.*
- [Baldwin](#) *This famous Piano manufacturer bought Wurlitzer back in 1988, and they have all the info for the acoustic pianos division of Wurlitzer.*

Question: I have a model 200 (I think) which buzzes quite loudly. I was informed that it was because the ground was not connected. I attached an entirely new power cable and yet the buzz persists. how do I make it quiet?

The first thing to check is all the grounds INSIDE the piano. Many times, these pianos are serviced, and an internal ground was left off or loosely attached. I'll be posting an entire [Troubleshooting](#) section very soon.

Question: The wurly sound that I really enjoy is the one used by supertramp. Do you know which model do they (supertramp) use?

I BELIEVE that supertramp used a 200A for all their recordings. They also doctored up the sound using compression, chorusing, reverb, etc. I'm currently researching this subject.

Question: I've seen some models selling on the ebay, for example: There is an EP200A in auction that has a broken middle C reed and has no sustain pedal. Is the broken reed a bad sign? Can the piano be in a bad shape, from an internal point of view, or a broken reed is somehow usual?

The reeds can be broken rather easily...this is a common problem. I wouldn't worry about it too much, since it happens fairly often, especially with players that like to hit hard to get that "barking" tone that rockers like so well!

Can it be easily replaced, is it expensive?

Yes, they can be replaced pretty easily, and the parts are available and fairly inexpensive. Once again, click [HERE](#) to gets parts information.