last setup, install it. As the controls age they corrode and make a poor ground connection resulting in hum, buzz, double tones, or other performance problems. A Trainwreck trick is to take a new control "star washer" and solder a wire to it. Replace the star washer on one of the volume controls with the new one and solder the free end of the wire to the ground buss. The amp will still look factory stock but have a solid ground connection.

Also, check that the AC power ground runs from your plug to the chassis. A weak point is the old round style power connector that runs to the chassis on many older Marshalls. The pins often become loose or missing altogether on both the plugs and sockets on these amps. Once the grounds are checked we move on to...

### Cleaning the Controls and Tube Sockets

Buy a good brand of control and contact cleaner at your electronic supply house. Make sure every electrolytic is completely discharged. Spray a short burst in each control while you rotate its knob end to end. Spray the tube sockets and tighten any loose pin gripping socket terminals. If you spot any cracks or burning on a socket, replace it. On early Marshalls the presence control will always make a scratching noise when turning it with the amp on. This is normal. Any control or socket which does not function well after cleaning needs replacement.

### Screen Resistors

All hundred watt Marshalls and later 50 watt units contained 5 watt 1000 ohm screen resistors. If your JTM-45 or 50 watt Marshall lacks these resistors install them. This is a *factory* Marshall service update. Some early metal face 100 watt units used 2 watt 1000 ohm resistors on the screens. If these haven't yet burned open replace them with 5 watt ratings.

### Grid resistors

On early 100 watt Marshalls I put a 5.6K 1/2 watt resistor on every output tube control grid terminal and feed the signal in through these resistors. It makes the amp more stable, and "browns" up the sound. This can also be done to a 50 watt unit. Try both 1.5K and 5.6K on these units. Be sure to use the same value on each output tube.

### 50 watt bias fix

On some early Seventies 50 watt Marshalls the bias feed was connected to the cold side of the standby switch. When the main power is turned on no bias voltage builds up as the amp warms up. When you put the standby switch in the play position the tubes get plate voltage for several seconds before the bias builds up. This kills tubes and fuses. If your early Seventies 50 doesn't have bias voltage on pin 5 of the output tubes with the main power on and the standby switch in the standby position, move the bias feed wire to the hot AC terminal — that is the terminal above (or sometimes below) the terminal it was connected to.

### Biasing the Amp

Here's where I always get flack! My friends at Marshall and Groove Tubes don't agree my method is the only correct biasing method. Mitch at Korg, and Aspen at Groove Tubes *are my friends*, and we help each other out whenever we can. Listen to what they say — *respect it* — and do it my way!

A True Story: Several years back Marshall held a "Best British Blues Contest" — any one could send in a tape of their best British blues playing as long as it was done with a Marshall amplifier. First prize was a reissue Blues Breaker combo and a Les Paul Standard. The winner, based on his playing and getting the best Marshall British Blues tone, was my friend and very hot guitarist Ken Dubman. I set up the amp he won with. I installed *Groove Tubes* and biased it *my way*. Groove Tubes and the guys at Marshall didn't know I had set up the winning amp, but the guys at Marshall picked it as the best. Any questions?!! I wrote about biasing an amp in the August, 1994 issue of *Vintage Guitar* on page 92. Gerald Weber's amp book gives exact details. For now let's just say 30 to 40 mA per tube for EL-34's and 30 to 50 mA per tube for 6550's. Treat 6L6 and 5881 tubes like EL-34's for bias specs. Always adjust your vintage Marshall by current for best tone and consistent performance.

Steve at Angela Instruments has a vast inventory of new old stock Siemans and Mullard EL-34's (301-725-0451). He does charge a bunch, but he has them and they're real, not relabeled junk. A Trainwreck trick: To use the German Siemans brand in a Marshall with a plate voltage supply of more than 450 volts, but less than 520 volts, reduce the output tube control grid return resistors (also called bias feed resistors) from 220K to 100K each. In most old hundreds this keeps the Siemans brand from meltdown.

### Output and voltage selectors

Most old Marshalls used two pin plug-in selectors for both voltage and to select 4, 8, or 16 ohms output. These corrode, burn and loosen big time. These should be cleaned and tightened. Burnt ones should be replaced. The correct voltage selection for the USA is 120 volts, *not* 110 volts. Running on the 110 volt tap is like running your amp at 135 volts on a Variac and can cause major damage. I know it sounds hot on many amps, but it's looking for trouble.

### Lead Dress

In an old hand-wired Marshall the heater leads should be against the chassis. The green grid leads should be up in the air. The purple feedback wires should be kept away from the controls and their leads, except of course the presence control to which it's connected. You may move the control and input leads around to obtain minimum noise. Time for another Trainwreck tip. Try doubling the value of feedback resistor in your Marshall. Some amps really open up while others may get sloppy on the bottom. It's worth a try.

### Other Stuff

The reader feedback I've gotten on the Centaur Overdrive I reviewed in the last issue of *VG* has been very positive. The folks at Klon informed me that they've been working night and day and have units in stock again. Klon, P.O. Box 1025, Brookline, MA 02146. Fax (617) 738-8531.

People keep calling and writing asking where they can buy amplifier parts for repairs or mods. In this magazine are many sources including, Kendrick Amplifiers, Thunderfunk Labs, Dan Torres, who also sells excellent mod kits, and Angela Instruments to name just a few.

### What Trainwreck Owners Are Saying

"I know Samantha has the face of a mule but they won't let her into the local bars anyway." — Fred Zadick, Fred's Guitar, Anza, California.

"I don't care what Clinton wants, I won't drive a Dodge." — Hidehito Takeuchi, Iwata Japan.

"Ken, you've got to get out of Colonia" — Phil Lipman, Cambridge, Massachusetts.

"Did I just eat a mushroom, or was it a cactus?" — Bill Holter, Vintage Sound, Alexandria, Virginia.

"Leave those squirrels alone!!" — Fred Fry, Lacks A Nickel, New Jersey

*Ken builds his highly-regarded Trainwreck amplifiers in Colonia, New Jersey.*

*This article was created, researched and written by the author. The ideas and/or opinions contained therein are solely those of the author, and have not been verified or tested in any manner by* Vintage Guitar. *Caution is advised when dealing with electronic and electric materials or valuable musical instruments.* VG


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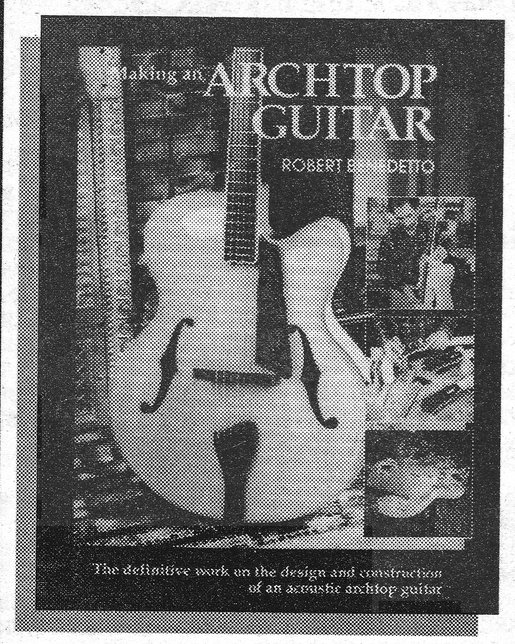


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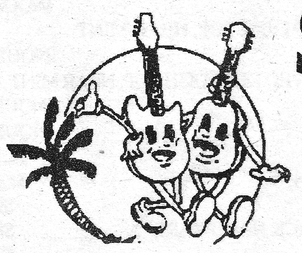

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