

## **WARNING! - Please Read this Information Carefully:**

The project described in these pages utilizes **POTENTIALLY FATAL HIGH VOLTAGES**. If you are in any way unfamiliar with high voltage circuits or are uncomfortable working around high voltages, **PLEASE DO NOT RISK YOUR LIFE BY BUILDING THEM**. Seek help from a competent technician before building any unfamiliar electronics circuit. While efforts are made to ensure accuracy of these circuits, no guarantee is provided, of any kind!

**USE AT YOUR OWN RISK:** THE WEBMASTER, PROJECT COORDINATOR, PROJECT CONTRIBUTORS AND WEB SPACE PROVIDER EXPRESSLY DISCLAIM ALL LIABILITY FOR INJURY OR PROPERTY DAMAGE RESULTING FROM THIS INFORMATION! ALL INFORMATION IS PROVIDED 'AS-IS' AND WITHOUT WARRANTY OF ANY KIND.

## **COPYRIGHT AND INTELLECTUAL PROPERTY NOTICE:**

The content of this document is protected by the copyright laws of the United States of America and the international copyright laws and agreements.

Except where specifically noted, Cliff Chappell or Chris Hurley owns (or has permission to use) all intellectual property rights in relation to this document and its content (including, but not limited to, all trademarks and copyright).

Except as permitted below, no part of the document may be reproduced, displayed, copied, translated, adapted, downloaded, broadcast, used or republished in any form including (without limitation) distribution, or storage in a system for retrieval.

Permission is granted to electronically copy and to print in hard copy portions of the document for the sole purpose of using the document, and the information contained therein, as a private non-commercial information resource, provided that all copyright notices are included and no alterations or additions are made to the content.

Any other use of material in the document, including reproduction for purposes other than those noted above, modification, distribution or republication without the prior written consent of Cliff Chappell or Chris Hurley is strictly prohibited. No part of the document may be distributed or copied for any commercial or public use without the prior written consent of Cliff Chappell or Chris Hurley.

## **GENERAL NOTES:**

This project is in the **PRELIMINARY STAGES** and is not intended to be built except by **very experienced builders**. These documents have not been extensively debugged, and as such may contain serious errors. Once this project has been officially prototyped and debugged a general release of these documents will be made.

## **CORE CHASSIS DRILL PLAN:**

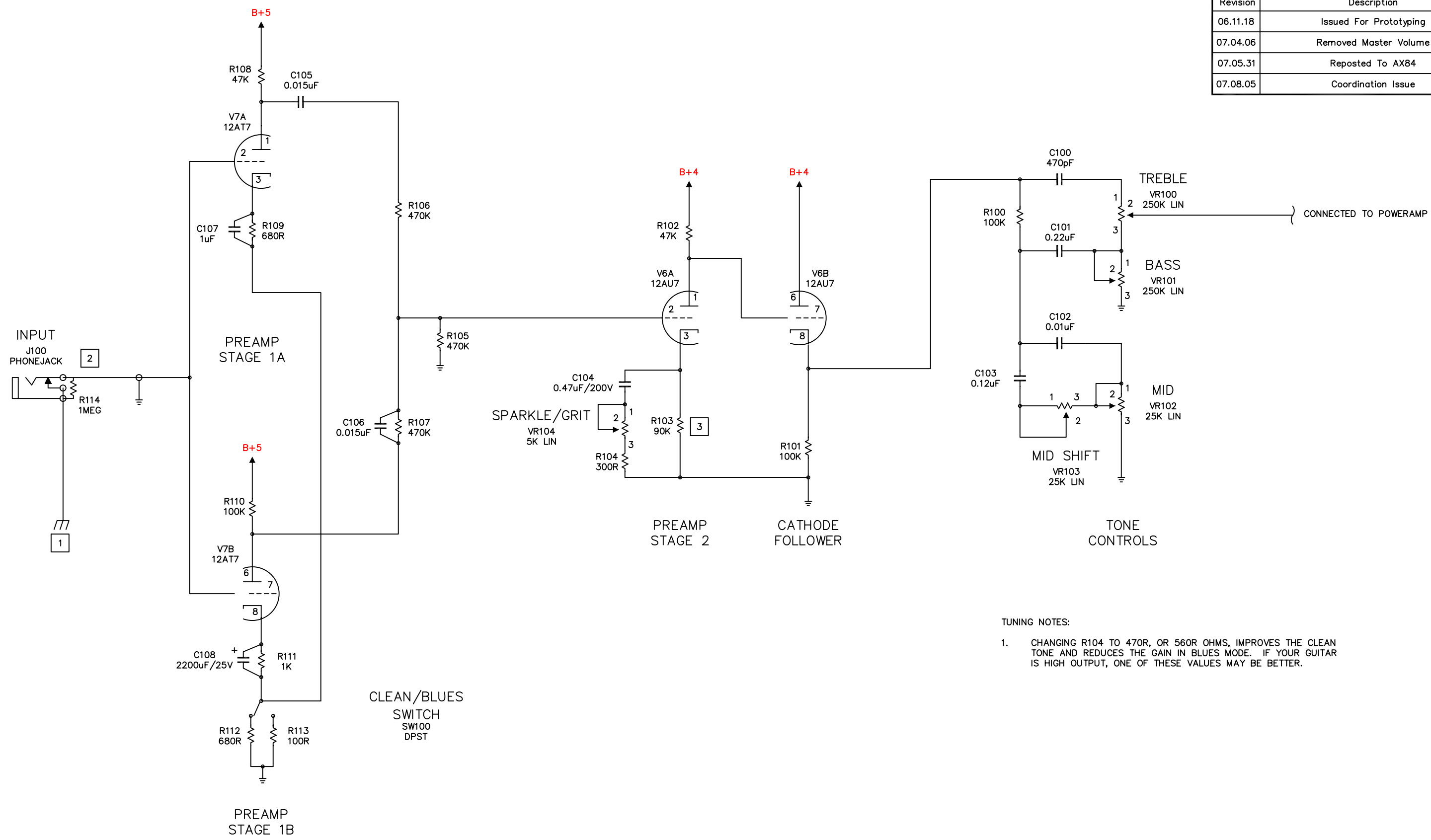
**The chassis drill plan is common to all of the AX84 core series amps. Not all holes are used in all amps. You may want to drill all of them if you plan on upgrading, or modifying the amp in the future.**

**The chassis hole sizes and locations on these plans are correct for the components used in the construction of the prototype amp. At the current time, not all of the amps have been prototyped, so the size, number, and location are subject to change.**

**It is the builder's responsibility to insure that the hole sizes, numbers, and locations are correct for the parts used in their own build.**

**Do not assume that the parts you ordered individually, or bought as a kit, have the same dimensions as those used in the construction of the prototype amp.**

Revision	Description
06.11.18	Issued For Prototyping
07.04.06	Removed Master Volume
07.05.31	Reposted To AX84
07.08.05	Coordination Issue



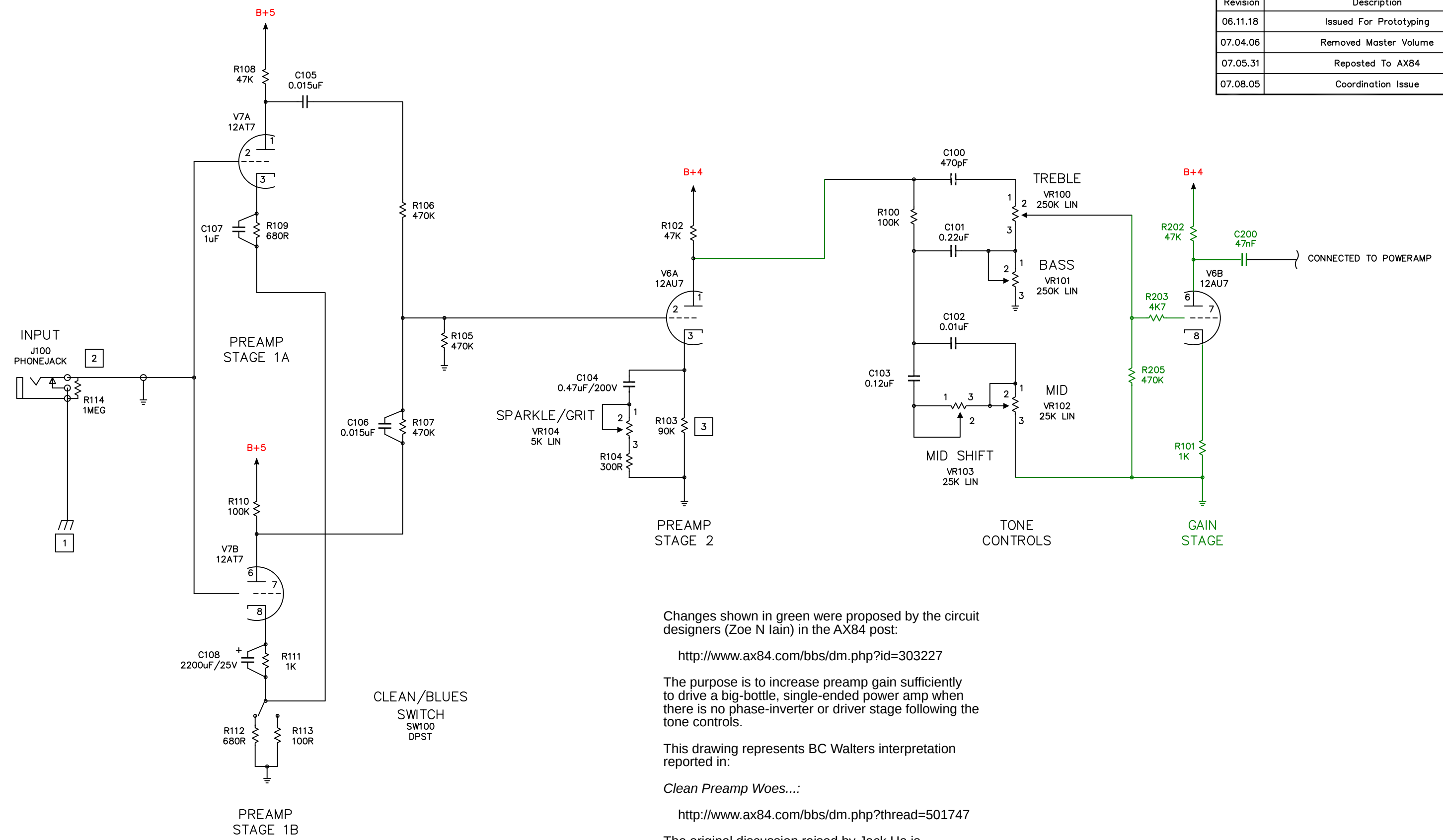
**TUNING NOTES:**

1. CHANGING R104 TO 470R, OR 560R OHMS, IMPROVES THE CLEAN TONE AND REDUCES THE GAIN IN BLUES MODE. IF YOUR GUITAR IS HIGH OUTPUT, ONE OF THESE VALUES MAY BE BETTER.

AS-BUILT VOLTAGE READINGS										
Ref	Desc.	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V5					Filament	Filament				Filament
V6					Filament	Filament				Filament
Mains =		B+4 =		B+5 =						

**AX84** <http://www.ax84.com>  
**The Cooperative Tube Guitar Amp Project**  
 Title: **Clean Preamp Schematic**  
 Sheet 1 Of 2      Revision: 07.08.05

Revision	Description
06.11.18	Issued For Prototyping
07.04.06	Removed Master Volume
07.05.31	Reposted To AX84
07.08.05	Coordination Issue



Changes shown in green were proposed by the circuit designers (Zoe N Iain) in the AX84 post:

<http://www.ax84.com/bbs/dm.php?id=303227>

The purpose is to increase preamp gain sufficiently to drive a big-bottle, single-ended power amp when there is no phase-inverter or driver stage following the tone controls.

This drawing represents BC Walters interpretation reported in:

*Clean Preamp Woes...*

<http://www.ax84.com/bbs/dm.php?thread=501747>

The original discussion raised by Jack Ha is

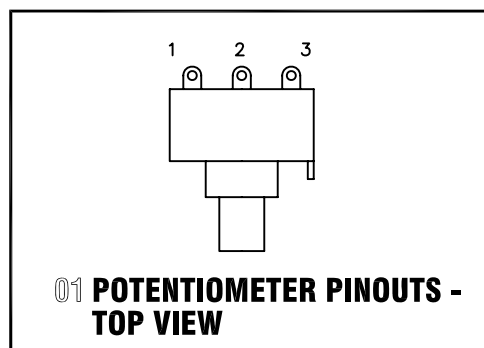
*Low volume from Clean preamp?*

<http://www.ax84.com/bbs/dm.php?thread=303125>


AS-BUILT VOLTAGE READINGS										
Ref	Desc.	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V5					Filament	Filament				Filament
V6					Filament	Filament				Filament
Mains =		B+4 =		B+5 =						

**AX84** <http://www.ax84.com>  
**The Cooperative Tube Guitar Amp Project**  
 Title: **Clean Preamp Added Gain**  
 Sheet 1 Of 2      Revision: 07.08.05

Revision	Description
06.11.18	Issued For Prototyping
07.04.06	Removed Master Volume
07.05.31	Reposted To AX84
07.08.05	Coordination Issue



GENERAL NOTES:

1. ALL RESISTORS 1/2W MINIMUM UNLESS OTHERWISE NOTED.
2. ALL COUPLING CAPACITORS 400V OR GREATER.
3. THE  SYMBOL REPRESENTS SHIELDED CABLE.
4. NOT ALL COMPONENTS ARE USED WITH ALL AMPS. THIS RESULTS IN COMPONENT NUMBERING GAPS AND IS NORMAL.

VOLTAGE READING NOTES:

2. DIFFERENT TUBES DRAW DIFFERENT AMOUNTS OF CURRENT, NO TWO ARE ALIKE UNLESS THEY ARE MATCHED. THE AMOUNT OF CURRENT DRAWN BY ALL THE TUBES IN THE AMP WILL AFFECT VOLTAGE READINGS THROUGHOUT THE AMP.
3. PREAMP VOLTAGE READINGS ARE THOSE THAT CAN BE EXPECTED WHEN USING THE DEFAULT POWER TUBE SHOWN ON THE POWER-AMP SCHEMATICS. USE OF OTHER TUBES WILL AFFECT YOUR READINGS.

CONSTRUCTION NOTES:

- 1 THIS IS A GROUND CONNECTION TO THE CHASSIS. THE MAINS SAFETY CONNECTION SHOULD BE MADE AS CLOSE AS POSSIBLE TO THE POINT WHERE AC ENTERS THE CHASSIS. THE CIRCUIT CONNECTION SHOULD BE MADE AS CLOSE AS POSSIBLE TO THE INPUT JACK. IDEALLY, THE JACK ITSELF SHOULD BE USED AS THE CONNECTION POINT BY NOT ISOLATING IT FROM THE CHASSIS.
- 2 THE USE OF A FERRITE BEAD ON THE LEADS FROM THE SOCKET TO THE GRID REFERENCE RESISTOR MAY BE REQUIRED.
- 3 THE IDEAL VALUE FOR R103 IS 90K, ALTHOUGH 91K SHOULD WORK.