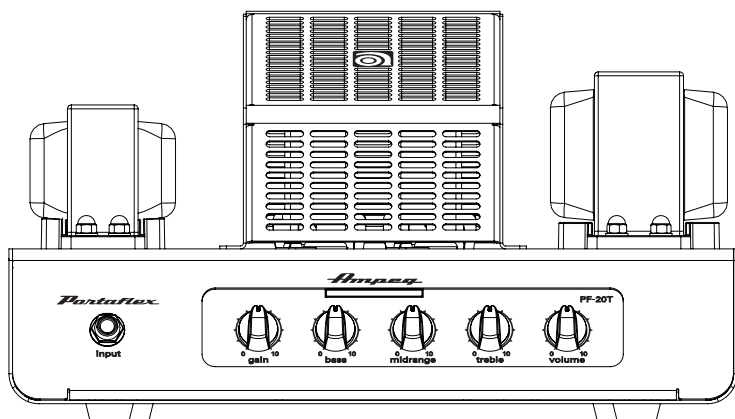
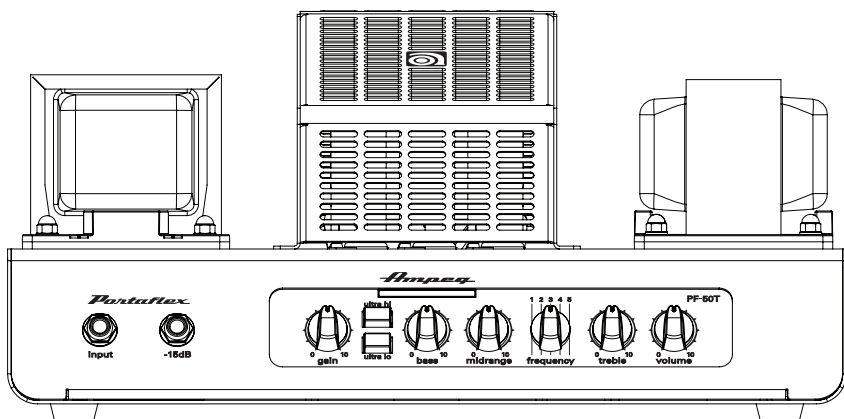




## PF-20T and PF-50T

### Bass Guitar Amplifiers



## Owner's Manual

**TABLE OF CONTENTS**

|                                                      |    |
|------------------------------------------------------|----|
| What's in the Box .....                              | 2  |
| Introduction.....                                    | 2  |
| PF-20T / PF-50T Features.....                        | 3  |
| Front Panel Features.....                            | 4  |
| Rear Panel Features .....                            | 5  |
| Suggested Settings.....                              | 7  |
| Favorite Settings.....                               | 8  |
| Changing the Tubes .....                             | 9  |
| Setting Tube Bias .....                              | 10 |
| PF-20T Technical Specifications & Block Diagram..... | 12 |
| PF-50T Technical Specifications & Block Diagram..... | 13 |
| Warranty and Support.....                            | 14 |

**What's in the Box**

Ampeg PF-20T or PF-50T Amplifier, Power Cable, Quick Start Guide.

**Introduction**

The Ampeg Portaflex® series bass amplifiers brought legendary Ampeg tone in a powerful, lightweight design that bass players around the world, from beginners to professionals, have made the most popular bass amplifiers in history. The PF-20T and PF-50T amplifiers deliver legendary Ampeg all-tube tone and warmth, in the same portable, powerful, and affordable design.

Designed to be compact and match perfectly with existing Portaflex cabinets, the PF-20T and PF-50T are perfect for small to medium sized shows, studio recording, or even a rehearsal studio.

Like all Ampeg products, your Portaflex series bass amplifier is designed by musicians and built using only the best of components. Each amp is tested to confirm that it meets our specifications, and we believe that this amp is the absolute best that it can be.

In order to get the most out of your new amp, we recommend fully reading and understanding this *Owner's Manual*, as well as the *Important Safety Instructions* included with your Portaflex amplifier, before you begin playing. Best of luck in all of your musical endeavors!

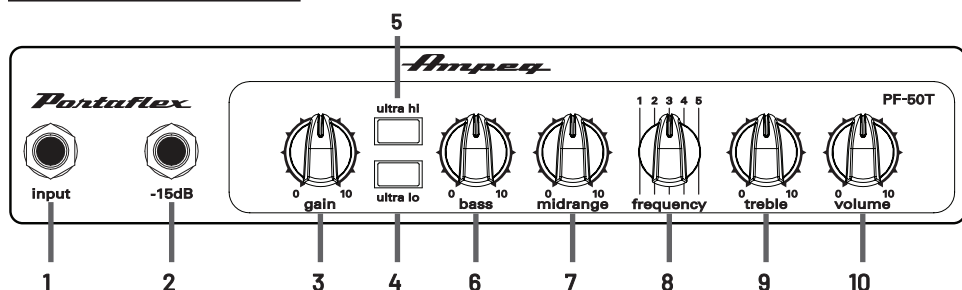
And **thank you** for choosing Ampeg.



## PF-20T / PF-50T Features

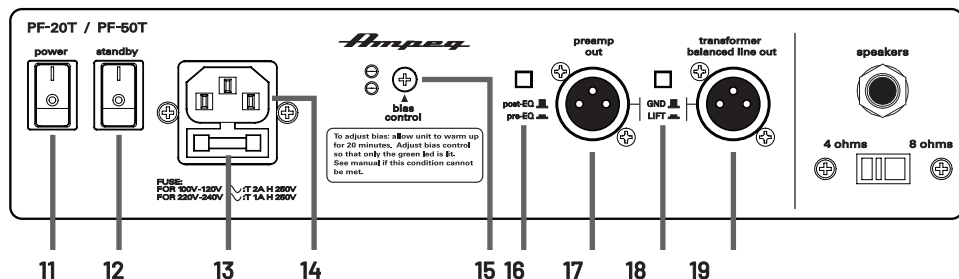
- RMS Power Output:
  - 20W @ 4 or 8  $\Omega$  (PF-20T)
  - 50W @ 4 or 8  $\Omega$  (PF-50T)
- Preamp: All-tube 2 x 12AX7
- Power Amp:
  - All-tube 2 x 6V6 (PF-20T)
  - All-tube 1 x 12AU7, 2 x 6L6 (PF-50T)
- 0 dB and -15 dB Inputs (PF-50T)
- Tone Controls: Bass, Mid, Treble
- Mid-tone Control: 5-position (PF-50T)
- Ultra Hi/Lo Boosts (PF-50T)
- Input Gain Control
- Preamp Balanced Line Out
  - Pre/Post EQ
  - Ground Lift
- Transformer Balanced Line Out
  - Ground Lift
- No Speaker Load Required
- User-adjustable Bias Control
- Dimensions:
  - 7.3 x 13.0 x 10.4 in / 185 x 330 x 264 mm (PF-20T)
  - 7.3 x 13.9 x 10.4 in / 185 x 353 x 264 mm (PF-50T)
- Weight:
  - 15.2 lb / 6.9 kg (PF-20T)
  - 19.4 lb / 8.8 kg (PF-50T)

## Front Panel Features



1. **PF-20T INPUT:** The signal output from an instrument (active or passive) may be connected to this 1/4" Input by means of a shielded instrument cable. **PF-50T INPUT:** The signal output from a passive instrument may be connected to this 1/4" Input by means of a shielded instrument cable.
2. **-15 dB INPUT:** The signal output from an active instrument may be connected to this 1/4" Input by means of a shielded instrument cable. (PF-50T)
3. **GAIN:** This control adjusts the input level of the signal reaching the preamp.
4. **ULTRA LO:** This switch, when engaged, emphasizes the lows by +2 dB at 50 Hz and -10 dB at 500Hz. (PF-50T)
5. **ULTRA HI:** This switch, when engaged, enhances the amount of high frequency output by +5 dB @ 8 kHz. (PF-50T)
6. **BASS:** Use to adjust the low frequency level of the amplifier. The low frequency output is flat at the center position. See [page 12](#) and [page 13](#) for technical specifications.
7. **MIDRANGE:** Use to adjust the midrange frequency level of the amplifier. The midrange frequency output is flat at the center position. Rotate the control counter-clockwise for a "contoured" sound (more distant, less midrange output), or clockwise for a sound that really cuts through. See [page 12](#) and [page 13](#) for technical specifications.
8. **FREQUENCY:** This control allows you to select the center frequency for the Midrange control, giving you a choice of five frequencies for the midrange. The numbers correspond to the following center frequencies: 1=200 Hz, 2=400 Hz, 3=800 Hz, 4=1.6 kHz, 5=3 kHz (PF-50T).
9. **TREBLE:** Use to adjust the high frequency level of the amplifier. The high frequency output is flat at the center position. See [page 12](#) and [page 13](#) for technical specifications.
10. **VOLUME:** Use to control the overall output level. It affects the Speaker Outputs and the Preamp Output. Use it wisely and turn it down when making connections or trying something new.

## Rear Panel Features



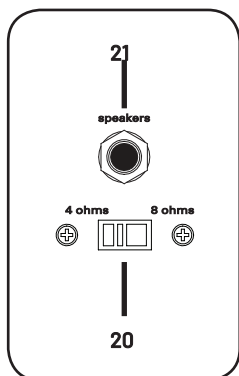
- 11. POWER SWITCH:** Use this switch to turn the overall System Power on or off. Press the top of the switch to turn on the power. The power switch should be engaged prior to the Standby switch (as mentioned below, #12).
- 12. STANDBY SWITCH:** Use this switch to turn the Standby Power on or off. Press the top of the switch to disengage the Standby circuit [ON position]. The Standby mode allows the tubes to warm, or remain warm, without high voltage being applied to them, helping to extend tube life. This switch should be OFF when first turning the amplifier on. Allow the unit to warm up for at least 20 seconds before switching to the ON position. During short periods of non-use, the amp should be put into Standby mode.
- 13. FUSE:** This protects the unit from damage due to overload conditions or power line surges. If the fuse blows, replace it only with the same size and type.
- 14. IEC POWER INPUT CONNECTOR:** This is where you connect the supplied AC power cord. Plug the male end of the cord into a grounded AC outlet.
- 15. BIAS SECTION:** This control and set of LEDs allow the user to properly bias the power amp. See ["Setting Tube Bias" on page 10](#) for a complete description of how to use this section.
- 16. POST-EQ / PRE-EQ:** The signal at the Preamp Out can be set to either Pre-EQ or Post-EQ with this switch. With the switch in the IN position, the signal at the preamp out is Pre-EQ. This is a direct output not affected by any EQ or Boost settings. With the switch in the OUT position, the signal is Post-EQ and is controlled and modified by the tone controls.
- 17. PREAMP OUT:** This signal may be used to feed an external power amplifier, mixing console, interface, or house PA system. The Lift / Gnd switch [18] is available to reduce any noise that may occur.
- 18. LIFT / GND:** When this switch is engaged, it connects the ground connection to help reduce residual hum and buzz sometimes picked up in the signal cables.
- 19. TRANSFORMER BAL OUT:** This signal may be used to feed an external power amplifier, mixing console, interface, or house PA system. The Lift / Gnd switch [18] is available to reduce any noise that may occur.



**DO NOT DEFEAT THE GROUND PRONG OF THE AC PLUG!**



### Rear Panel Features - Continued



**NOTE:** Unlike many tube heads, which require a load (speaker) be attached for operation, the PF-50T / PF-20T may be operated with or without a speaker load attached.

This is extremely useful for direct recording, or for bypassing a speaker entirely in a live setting. This is also useful should the speaker become disconnected during performance, as the amplifier will not be harmed.

- 20. IMPEDANCE SELECTOR:** Use this switch to match the output impedance of the amp to the speaker(s) being used (4 or 8  $\Omega$ ).

For help in deciding the total impedance of your system, consult the following table.

| Cabinet Impedance | Number of Cabinets | Total Impedance |
|-------------------|--------------------|-----------------|
| 2 $\Omega$        | 1                  | 2 $\Omega$      |
| 4 $\Omega$        | 1                  | 4 $\Omega$      |
| 4 $\Omega$        | 2                  | 2 $\Omega$      |
| 8 $\Omega$        | 2                  | 4 $\Omega$      |
| 8 $\Omega$        | 4                  | 2 $\Omega$      |

- 21. SPEAKER OUTPUT:** This mono, 1/4" TS Output jack supplies speaker-level power to the speaker cabinet. The rated power output is 20 Watts RMS (PF-20T) or 50 Watts RMS (PF-50T) into 4 or 8  $\Omega$ . Make sure the total speaker impedance load is 4  $\Omega$  or greater. For example, you could connect:
- Two 16  $\Omega$  speakers in parallel = 8  $\Omega$
  - Two 8  $\Omega$  speakers in parallel = 4  $\Omega$

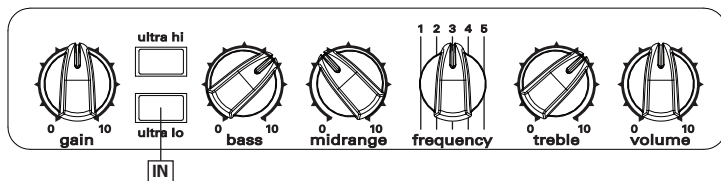


Use (non-shielded) speaker cables with 1/4" TS ends to make the connections. Do not use (shielded) instrument cables as they may overheat.



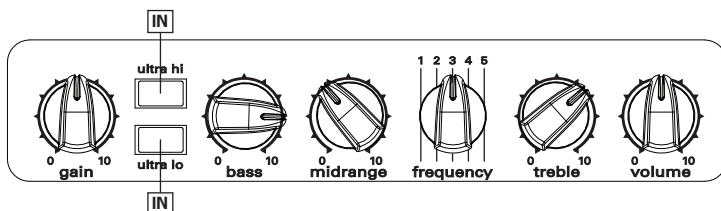
### Suggested Settings

#### JAZZ

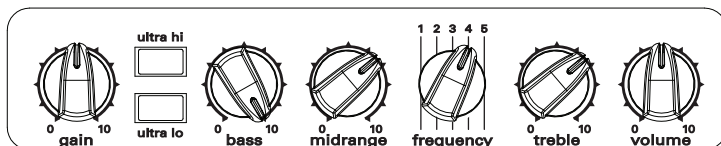


The setting of the Gain control depends on your particular instrument.  
The Volume should be set to produce the appropriate output.

#### FUNK

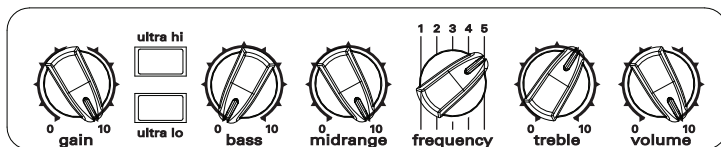


#### ROCK



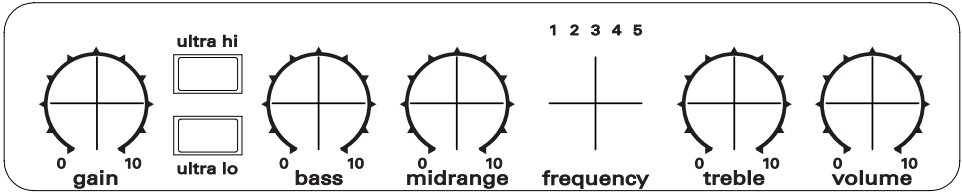
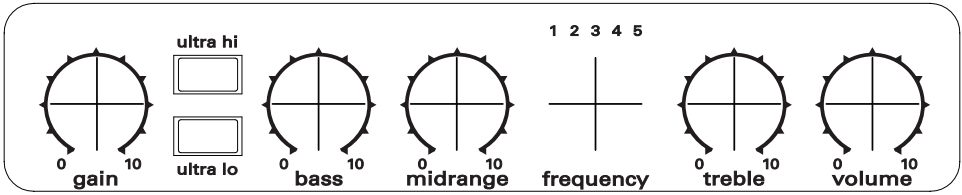
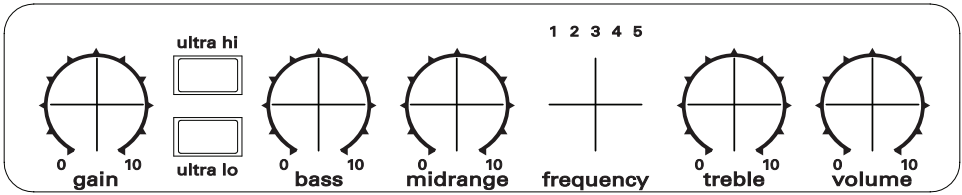
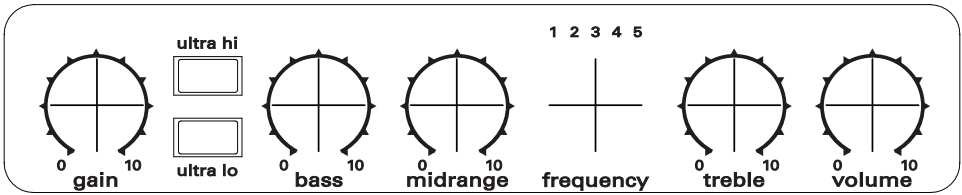
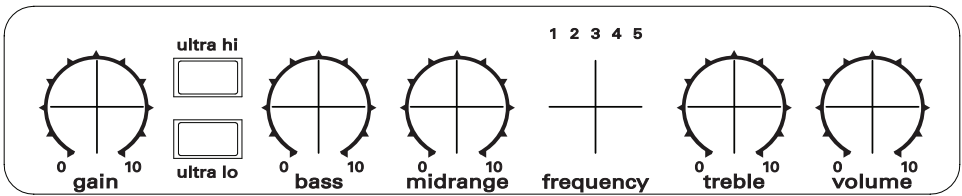
The setting of the Gain control depends on your particular instrument.  
The Volume should be set to produce the appropriate output.

#### FACE MELTER





**Favorite Settings**





### Changing the Tubes

Tube life is directly affected by how often and how hard you play the amplifier. Power tubes should be checked at least once a year—more frequently if you use the amplifier nearly every day. When power tubes wear out, the amplifier will begin to grow weak, lack punch, fade up and down, or lose highs and lows. Power tubes work together in a “push/pull” configuration and should all be replaced at the same time with a matched or balanced tube set. Your dealer can recommend the best replacement tubes for your amplifier.

Preamp tubes aren’t worked as hard as power tubes and typically last longer. When a preamp tube wears out, the amplifier may squeal, get noisy, lose gain and sensitivity, or just quit working. A service center can determine which tube(s) may need replacing.

To access the tubes in the PF-20T / PF-50T, the rear screen must be removed. **Qualified service persons** may use the following steps to change the tubes.

#### Changing Power Tubes

- Turn the amp off, unplug it, and let it cool for at least 5 minutes.
- Remove the screws that hold the perforated metal screen to the rear of the cabinet (Figure A).
- Set the perforated metal screen aside.
- Remove the tube retainer(s) by lifting them off the tube(s) and moving them to one side.
- Using a soft cloth, grasp the power tube as closely to the base as possible and gently work it out of its socket by rocking it slightly back and forth as you lift up on it (Figure B). NOTE: The retainers at the base may be spread apart to help remove the tube. NOTE: The PF-50T has a 12AU7 power tube, but it is removed / attached similarly to the preamp tubes (see “Changing Preamp Tubes” on page 10).
- Using a soft cloth, carefully replace the power tubes by handling them as closely to the base as possible and firmly pressing down into the tube sockets.

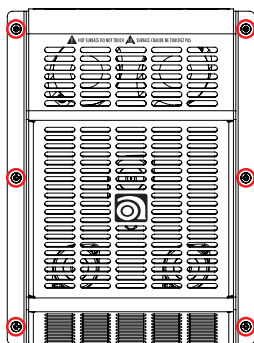


Figure A

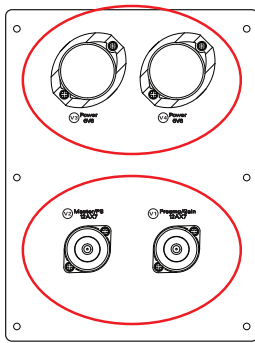


Figure B (PF-20T)

Power Tubes

Preamp Tubes

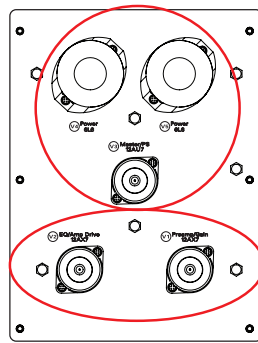


Figure B (PF-50T)



### **Changing Preamp Tubes**

- Grasp the preamp tube retainer at its top, push down and twist left (counter-clockwise) until the tabs line up with the notches and lift up on it to remove (Figure B).
- Using a soft cloth, grasp the preamp tube as closely to the base as possible and gently work it out of its socket by rocking it slightly back and forth as you lift up on it.
- Using a soft cloth, carefully replace the preamp tube by handling it as closely to the base as possible. Carefully line up the connector pins with the socket, then press down into the tube socket to lock the tube into place.
- Replace the perforated metal screen and screws.
- Power up the amplifier and let it sit for at least 20 minutes. Bias the amplifier as directed in the following section.

### **Setting Tube Bias**

Turn the power on and allow the unit to sit in 'Standby' for 3-5 minutes (after following all normal setup requirements). Next, take the unit out of 'Standby' and do a quick check of the Bias LEDs. One LED should be lit green and the other LED off. If not, turn the Bias control until the LED is lit green. If this seems impossible, please refer to the chart at the end of this section for possible fault conditions. Now is a good time to check for any unusual sounds and possible glowing from the Power Tubes (see "Changing Power Tubes" on page 9).

At this time, play your bass for at least 20 minutes to allow the unit to warm up at proper AC line voltage. You may notice that the other Bias LED illuminates red while playing. This is normal.

Next, turn down all controls on your bass and set it aside, leaving all amp controls alone. With no input signal present, adjust the Bias control so that only the green LED is illuminated.

So where does one set the Bias? If neither LED is lit, the amp is over-biased. Over-biasing will result in some distortion in the power amp and a generally thin sound. If the green and red LEDs are lit, the amp is under-biased and too much current is flowing to the power tubes. Under-biasing will result in a big, full sound, but will also reduce the life of the power tubes. For the longest tube life, but poorer tone, set the Bias to JUST AS the green LED illuminates. For shorter tube life, but better tone, set the Bias to JUST BEFORE the red LED illuminates.

Once set, the controls should not have to be changed except as needed for tube replacement, or to compensate for tube aging. Note that the AC line voltage may vary from place to place and the LEDs will vary slightly. This is normal.

By observing the LEDs as the Bias control is slowly rotated clockwise, a number of tube problems may be diagnosed by the user, as seen in the following table.

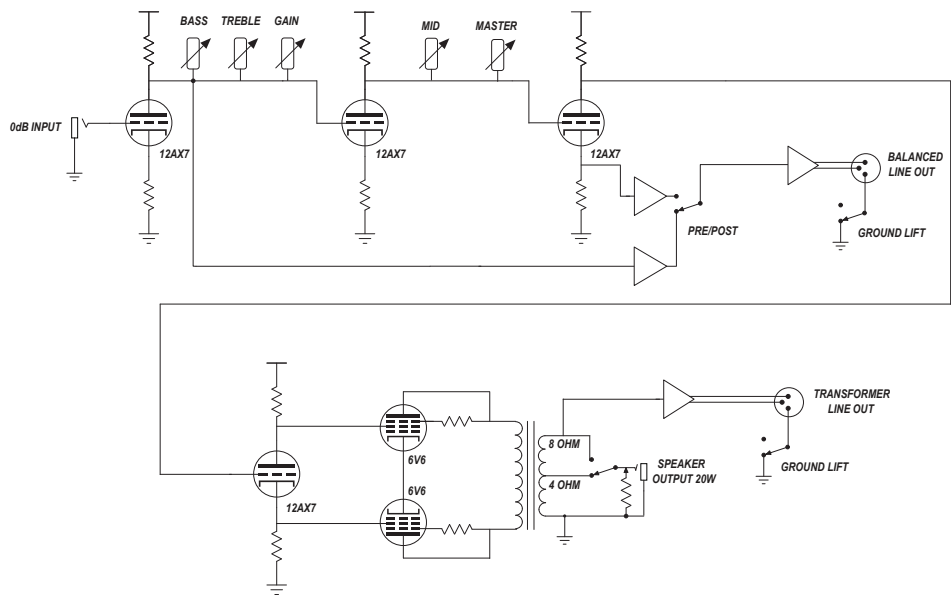
**NOTE:** Depending on the bias setting, the red Bias LED may light or flicker when signal is applied to the amp input; this is a normal condition.

**TUBE BIAS DIAGNOSIS**

| Condition                | Problem                                                    | Solution                                                                                               |
|--------------------------|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Green comes on, then red | No problem                                                 | The longer the green LED is lit prior to the red LED illuminating, the better matched the set of tubes |
| Red comes on, then green | Tubes not properly matched                                 | Set slightly prior to when the green LED illuminates. Obtain a matched tube set when possible          |
| Red comes on, no green   | One or more tubes are non-functional                       | Check to make sure tubes are all seated properly; if so, find and replace bad tube(s)                  |
| None on                  | Possibly no high voltage, bad Bias control, or bad tube(s) | Have unit checked by a service technician                                                              |
| Both on all the time     | Possible bad Bias control or bad tube(s)                   | Have unit checked by a service technician                                                              |

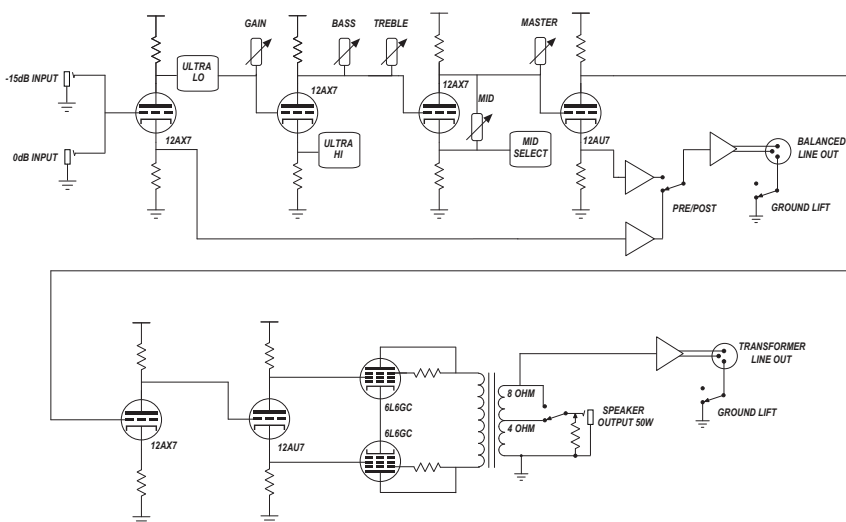
PF-20T Technical Specifications & Block Diagram

|                       |                                                                                       |
|-----------------------|---------------------------------------------------------------------------------------|
| Preamp                | All-tube 2 x 12AX7                                                                    |
| Power Amp             | All-tube 2 x 6V6                                                                      |
| Output Power Rating   | 20 Watts @ 8 Ω, 10% THD<br>20 Watts @ 4 Ω, 10% THD                                    |
| Signal to Noise Ratio | 60 dB (20 Hz–20 kHz, unweighted)                                                      |
| Maximum Gain          | Input: 54 dB                                                                          |
| Tone Controls         | Bass: +8/–12 dB @ 50 Hz<br>Midrange: +5/–15 dB @ 550 Hz<br>Treble: +13/–20 dB @ 4 kHz |
| Power Requirements    | 120VAC, 60 Hz, 50W 100VAC,<br>50–60 Hz, 50W 220–240VAC,<br>50–60 Hz, 50W              |
| Size (H x W x D)      | 7.3 in x 13.0 in x 10.4 in 185<br>mm x 330 mm x 264 mm                                |
| Weight                | 15.2 lb / 6.9 kg (approximately)                                                      |



## PF-50T Technical Specifications & Block Diagram

|                       |                                                                                                                                                                                                             |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Preamp                | All-tube 2 x 12AX7                                                                                                                                                                                          |
| Power Amp             | All-tube 1 x 12AU7, 2 x 6L6                                                                                                                                                                                 |
| Output Power Rating   | 50 Watts @ 8 Ω, 10% THD<br>50 Watts @ 4 Ω, 10% THD                                                                                                                                                          |
| Signal to Noise Ratio | 60 dB (20 Hz-20 kHz, unweighted)                                                                                                                                                                            |
| Maximum Gain          | Input: 66 dB                                                                                                                                                                                                |
| Tone Controls         | Bass: +10/-10 dB @ 60 Hz<br>Midrange: +5/-20 dB @ 200 Hz, 400 Hz, 800 Hz<br>+5/-15 dB @ 1.6 kHz, 3 kHz<br>Treble: +13/-23 dB @ 4 kHz<br>Ultra Lo: +2 dB @ 50 Hz, -10 dB @ 500 Hz<br>Ultra Hi: +5 dB @ 8 kHz |
| Power Requirements    | 120VAC, 60 Hz, 90W 100VAC,<br>50-60 Hz, 90W 220-240VAC,<br>50-60 Hz, 90W                                                                                                                                    |
| Size (H x W x D)      | 7.3 in x 13.9 in x 10.4 in 185<br>mm x 353 mm x 264 mm                                                                                                                                                      |
| Weight                | 19.4 lb / 8.8 kg (approximately)                                                                                                                                                                            |





PF-20T & 50T amps are covered with sheet metal, so be sure to clean it with a dry, lint-free cloth. Never spray cleaning agents on the amplifier. Avoid abrasive cleansers which would damage the finish.

Ampeg continually develops new products and improves upon existing ones. For this reason, the specifications and information in this manual are subject to change without notice.

## Warranty and Support

Visit [WWW.AMPEG.COM](http://WWW.AMPEG.COM) to...

- (1) ...identify **WARRANTY** coverage provided in your local market. Please keep your sales receipt in a safe place.
- (2) ...**REGISTER** your product.
- (3) ...**CONTACT** Technical Support, or call 818-575-3600.

[www.ameg.com](http://www.ameg.com)

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