

# Holmes Harp Commander III

## Owner's Manual

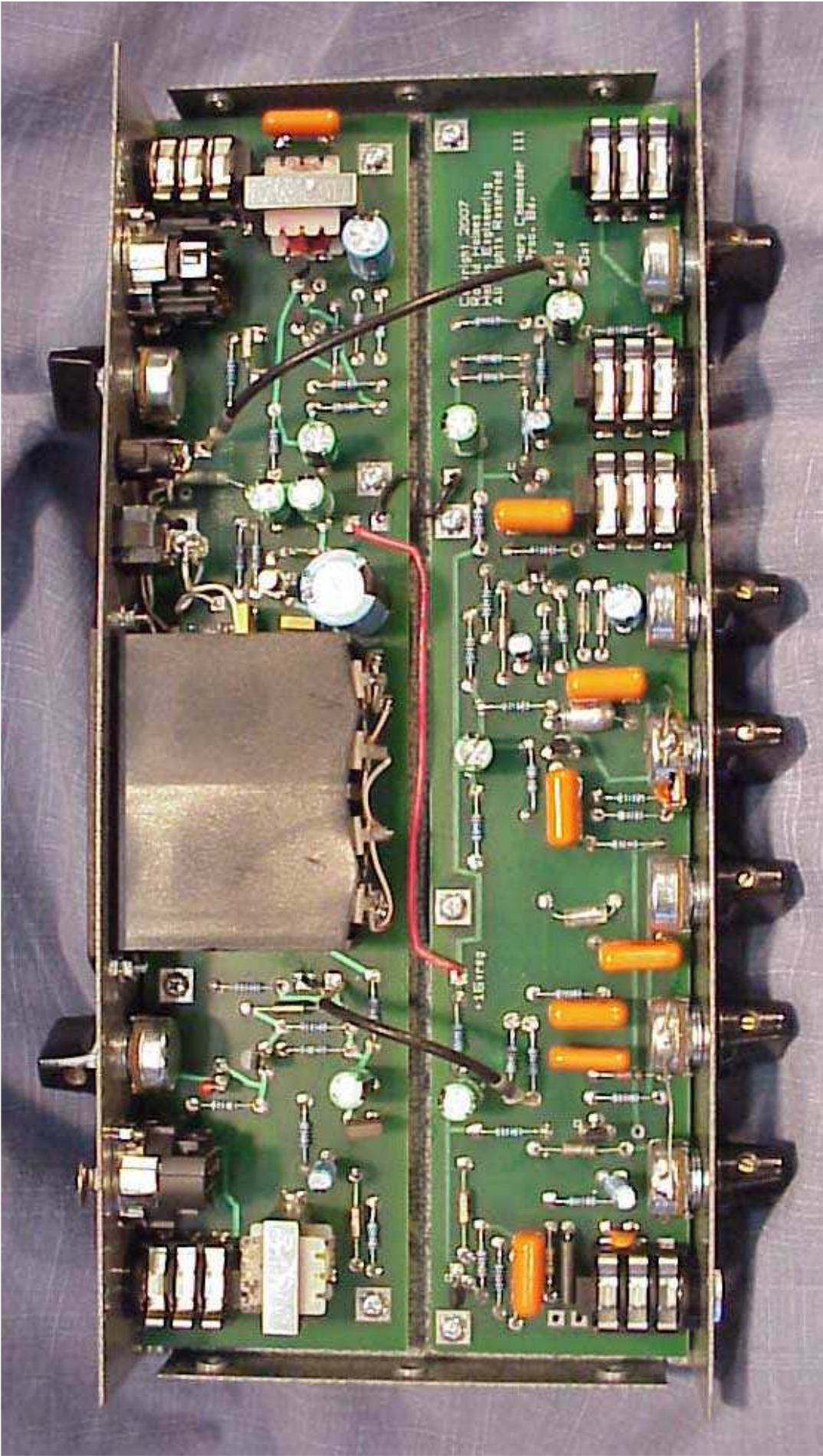


Holmes Engineering  
PO Box 20879  
Bakersfield, CA 93390-0879  
<http://www.holmeseng.com>  
[Sales@holmeseng.com](mailto:Sales@holmeseng.com)

Copyright 2007  
Ron Holmes,  
Holmes Engineering  
All Rights Reserved

## Contents

|  |                   |
|--|-------------------|
| <b>Photo of Inside of Harp Commander III (“Commander”)</b>   | <b>Page 1</b>     |
| <b>The Commander is a Dual Direct Box, Preamplifier and Works with These Instruments and Microphones</b>         | <b>Page 2</b>     |
| <b>What the Commander Can Do</b>   | <b>Page 3</b>     |
| <b>Back view showing the two battery drawers. How to Install the Batteries, Power Information</b>                | <b>Page 4</b>     |
| <b>Front view showing identifying all the jacks and knobs</b>  | <b>Page 5</b>     |
| <b>Unbalanced Mic In Hi-Imp</b>  | <b>Page 5</b>     |
| <b>Try these Settings First</b>  | <b>Page 6</b>     |
| <b>Mic Gain, Bass, Treble, Phase, Compression</b>  | <b>Page 6</b>     |
| <b>Effects Loops, Instrument Out Adjust</b>  | <b>Page 7</b>     |
| <b>The Far Left Jack, Feeding Your Record Card, Line Level Adjust, Recommendation for using PA and small amp</b> | <b>Page 8</b>     |
| <b>The XLR and TRS jacks, The Power Jack</b>   | <b>Page 9</b>     |
| <b>The Red Indicator, Warnings and Safety Issues</b>   | <b>Page 10</b>    |
| <b>View of the screw-mounted rubber feet</b>   | <b>Page 11</b>    |
| <b>Specifications</b>  | <b>Page 11</b>    |
| <b>Warranty</b>  | <b>Page 11</b>    |
| <b>Optional Power Supplies (Wall Warts)</b>  | <b>Page 12</b>    |
| <b>Standard Connectors and Plugs</b>   | <b>Page 13-14</b> |



## The Holmes Harp Commander III (“Commander”)

### Your Studio in a Box

**The Commander is a Dual Direct Box:** A direct box allows the signal from a musical instrument or a microphone to go directly into an audio mixer or a computer soundcard. It is called a “dual” direct box because there are two separate outputs that allow the players to go to two different destinations at the same time. For example, a combo amp and a PA.

**The Commander is a Preamplifier (“pre-amp”).** A pre-amp is necessary when you want to use certain types of equipment with other equipment. Without a pre-amp, the signals don’t match and the two pieces of gear can’t be used together. For example,

A pre-amp finds and beefs up a weak signal to make it compatible with a higher input level. Generally it should be converted to low-impedance as well.

### **The Commander works with the following instruments & microphones:**

You can use the front input (unbalanced input) for:

Harmonica  
Guitar  
Bass Guitar  
Voice  
Violin with Pick-up  
Brass instrument with pick-up  
Mandolin with a pick-up  
Any traditional vintage high impedance microphone  
Actually, any instrument with a pick-up

You can also use a **low impedance, balanced pro microphone**: plug it into either the rear XLR or rear TRS connector. The control next to those two connector jacks is a preamp gain adjust only. It is NOT a level control. Gain available for a pro microphone is an additional 30dB to 40dB. This is summed with the unbalanced front input and is adjusted by the gain and tone controls.

## **What the Commander can do:**

The unbalanced input of the Commander is approximately 5 megohms. It will accept virtually any sort of unbalanced signal.

You can use the following with the Commander:

- crystal mics
- ceramic mics
- piezo pickups
- magnetic mics
- dynamic mics
- controlled magnetic mics
- guitar pickups
- bass pickups
- any instrument pick-up or sensor

The unbalanced input has an RFI filter that will eliminate most induced noise so common on high impedance cables and shields.

The Commander functionally is a combination of mic preamp, tone control, compressor, out/in loop and dual direct box output.

The instrument out jack and level control follow the effects loop return at just the right level for an instrument out. The line out jacks have an additional 20dB gain to bring the loop return level/instrument out level back up to line level. The line out level is separately adjustable from the instrument level. The output signal can be used balanced or unbalanced and is fed by a transformer capable of a floating balanced line out feed at low impedance.

The Commander allows you to go easily into the PA system. The PA system is good for harp players because the PA speakers are typically in front of, overhead and to the side of the harp player. The harmonica is difficult to distribute acoustically within a room. The lower register harmonica tones get masked easily by the guitar(s) and keyboard. The traditional setup for harp players of using a single loud amplifier sitting on the floor behind them is not an efficient way to distribute harp sound. It is very prone to feedback and does not fill an acoustic space evenly. The PA system can do that much more efficiently.

By using a combination of the line feed to PA system and a small amplifier fed by the instrument out operated at the same time, the player gets heard throughout the room and s/he can hear themselves well to get the right intonation and pitch. This means a single amplifier doesn't have to blast the room creating endless feedback problems. In many cases, using only the PA system is a really easy, fast, simple way to get your harp sound heard. And no need to lug around a heavy amplifier. And no worries about finding a place to plug in your amp!



**View of the two battery drawers. Each drawer holds one 9-volt battery. To open the battery drawer; press in and up. The catch will release and the drawer will spring backwards to open. Slide the drawer out. Insert battery following the polarity marks. Slide the drawer back in until it clicks. This locks the drawer closed. USE ONLY ALKALINE BATTERIES.**

**Battery life is estimated at six hours of continual use. We recommend that you use the optional wall supply and keep the batteries in so that if the wall supply cord gets kicked out, the batteries will automatically and silently operate the unit with no pops or interruptions.**

**Power Information:** The HCIII gives you reverse polarity protection. The power input connector will accept AC or DC power-any polarity from 12 volts to 24 volts. Its internal steering diodes will fully protect the unit. You can leave the batteries in when you use a wall wart power supply. But always remove the batteries when you plan to store the unit and not use it for a while.



**1=Unbal Mic In Hi-Imp.**

**2=Mic Gain**

**3=Bass: Less/More**

**4=Treble: Less/More**

**5=Phase: Out/In**

**6=Compression: Clean/Crunch**

**7=Effects Loop: Send**

**8=Effects Loop: Return**

**9=Instrument Out Level Adjust**

**10=Instrument Out, T-S unbalanced**

**1**

**Unbalanced Mic In Hi-Imp: Use this jack to plug in your:**

Harmonica

Guitar

Bass Guitar

Voice

Violin with Pick-up

Brass instrument with pick-up

Mandolin with a pick-up

Any traditional vintage high impedance microphone

Actually, any instrument with a pick-up

**5**



## Try the settings shown above first.

**Mic Gain:** This knob sets the signal level through the preamp. This is the last knob to be adjusted.

**Bass:** This is a shelving control. Counter-clockwise reduces bass. 12:00 position is approximately flat. Clockwise is more bass.

**Treble:** This is another shelving control. Counter-clockwise reduces treble (high frequencies). 12:00 position is approximately flat. Clockwise is more treble. A brown tone is counter-clockwise. A bright tone is clockwise.

**Phase:** Fully counterclockwise is 180 degree out of phase. (Out of phase means that the output is shifted 180 degrees relative to input.) The 12:00 position is a null which is the minimum or mid-balance. This is effectively a dead position. Fully clockwise puts the preamp in phase with the input signal. Usually, this control is just left fully clockwise. This knob can be used to control feedback problems or add a sonic effect. Just play around with it!

**Compression:** This is a powerful and very useful control. Fully counter-clockwise, there is no signal compression. As the knob is turned clockwise, the waveform tops and bottoms are cleanly squeezed so that the signal level becomes smaller. At full clockwise, you will hear noticeable distortion similar to “old mic overload”. This knob can be used to maintain a more constant level which is extremely helpful with PA systems. As the knob is turned clockwise, the output is reduced limiting dynamics. This can be used to tighten a sound wave form package to control feedback. Only at 3:00 and higher does the distortion become noticeable. You may need to increase the output level control to compensate for the preamp level reduction.



**Effects Loop:** The effects loop can be used in several ways. This is called a half-normal loop which means the **Send** side does not break when the plug is inserted. The loop **Return** does break the circuit when the plug is inserted. The loop out is a very low impedance at instrument level. The loop return is high impedance.

Use this feature with an effects pedal. The loop send goes to the pedal input and the pedal output goes into the loop return.

This feature can be used with any effects rack equipment as well as a pedal. The return circuit break is necessary to insert the altered sound into the signal chain. The effects send can be used as an amp feed or record feed that doesn't break the circuit. This means you can feed an amp or feed the signal out to another device without breaking the circuit if you're not using a pedal.

You could feed a monitor amp with this signal if you were not going to use an effects pedal.

**Instrument Out Adjust:** This works with the instrument out jack to set the outgoing level to an instrument amp. The level shown in the photo is a typical starting point: around 2:00. It's the right level for any combo amp and follows the signal path after the effects loop.



**The far left jack** is line-out, TRS (tip ring sleeve). The next jack is **XLR jack**. Both are line out and parallel to each other. The line-out is nominal  $-10\text{dBu}$  balanced signal. This is driven from an output transformer and can be used to isolate the Commander electrically while transferring the line-out signal.

This can feed a PA line-in, a computer record card or any device needed a line-level signal. The T (tip of the quarter inch jack) and pin 2 of the XLR are plus phase. The R (ring of the jack) and Pin 3 of the XLR is minus phase. S or sleeve of the jack and Pin 1 Of the XLR is ground.

The line-out can be used balanced or unbalanced. If a mono quarter inch plug (T-S) is inserted into the TRS jack, the balanced signal will be unbalanced and mono signal fed unbalanced, low impedance. This would be typical for a computer record card.

**Feeding your record card:** Use an audio cable with quarter inch mono (T-S) plug on one end and the other end terminating with a one-eighth inch (3.5 mm.) mono plug. Use the line-in jack on the computer card which is typically a one-eighth inch (3.5mm) jack. Most record cards have a headphone out jack, a mic in jack and a line-in jack. Plug the Commander line-out into the line-in ONLY. The signal level the record card wants to see is  $-10\text{dBV}$  which is approximately one quarter of one volt audio.

**Line Level Adjust:** This sets the signal level on the line-out channel. Start with this knob at 1:00. This control can be set from 0 to the maximum level available. The line-out can be used for a second instrument out if you want by adjusting it to 10:00 to 11:00. Sometimes you may want to feed two amps and no PA.

When you use the balanced line-out to the PA, simply use an XLR to XLR (mic cord) between the Commander and the PA. In balanced mode, you can use up to 1000 feet of cable cord and is good for low loss and low hum pickup.

**Recommendation:** I recommend using both a PA system and a small amp as a monitor whenever possible. You can take advantage of the numerous PA speakers to fill the room and use your amp as a near monitor. This way you can hear yourself and get good tone without trying to fill a whole room with it. This is a good strategy to combat feedback.



**The XLR and TRS jacks on the right** are for a pro mic in. This allows you to use a dynamic pro mic such as a Shure SM58, etc. It is for a low-level, balanced mic input. The mic plugs into either the XLR or the TRS jack. Different mics have different connectors on them so both of these jacks are hot and feed an input transformer.

The control next to the XLR jack is not a level control, but is a **gain tweak control**. This will allow you to add a variable amount of mic gain from this mic input channel. The range is from 30dB to approximately 45dB. This allows you to use the many different mics available. The output of this channel directly feeds the preamp input so the signal adds with the unbalanced mic in: both can be used at the same time.

To prevent excessive hum and noise, keep the gain tweak control fully counter-clockwise when not in use. Use the minimum of gain needed to get a good level from your pro mic. If it is set high, it will add noise. I created this feature to allow you to use a wide range of mics.

**The power jack** is for an external supply. It is for a 2.5 mm.X 5.5 mm. round power connector. The build-in power control circuit is sophisticated and will allow you to use any external power from 12 to 24 volts, AC or DC at low current.

The internal regulator uses all diode steering and will automatically adjust polarity correctly. There is also an internal regulator that accepts this wide range of voltage and provides the current voltage for the Commander. The Commander runs on approximately 10 mA of current.

I suggest using an external supply and keeping new alkaline batteries in the Commander. The batteries will have shelf life and give you a back-up power source if your power cord gets kicked loose. The switch over is silent and unnoticeable and fully automatic. You don't have to do anything.

If you plug in the wall supply while the unit is running on batteries, the wall supply will automatically power the Commander and the batteries will switch completely out of the circuit. The batteries will not blow up. **Do not use rechargeable batteries** in the Harp Commander because there is no charging provision from the Commander.

**The red indicator** is on anytime the Commander is powered up and operating. The power switch is a master switch and disconnects both power sources from the Commander.

## **WARNINGS! SAFETY FIRST!**

When you are using the Commander with **vintage amplifiers** that are ungrounded safety issues must be considered.

I strongly recommend replacing any two wire cord on a vintage amplifier with a three wire grounded cord and plug. Have a professional do it. If you plug a metal microphone into the Commander, the mic frame is at the same potential as the metal case of the Commander. If you plug an ungrounded amplifier into the instrument-out of the Commander, the Commander's case is at the same potential as the amplifier chassis. In ungrounded amplifiers, one side of the power cord is connected directly to the chassis. This was an old scheme for lowering hum in tube amplifiers in the days before grounded electrical wiring. If the position of the plug or grounding switch happens to be in the wrong position, a 120 volts AC is on the chassis! And on the shield of the cord coming in and on the Commander's frame and on the mic case. If you hold the mic and touch any grounded metal around you, you will be injured.

Replace the power cord in your vintage amplifier with a safely grounded cord. Have a professional do it!

This is also a **safety issue** for **users of wireless microphones** as both the instrument out connector and the mic in connector are connected to the Commander case. Wireless systems are typically used with a receiver at the amplifier. The wireless receiver will be hard grounded to electrical ground and that would connect to the Commander ground. If you feed a vintage ungrounded amplifier with the instrument out, you are connecting the Commander case to the chassis of the amplifier.

By doing this, you will have connected the input ground of the Commander to hard ground and the instrument out connector to a floating ground, you have put the Commander across 120 volts AC! This can **damage the Commander** and pose a **safety hazard** to the user. Have a professional rewire all two wire cords to three wire safety cords with a grounded plug. This is especially important when you are using the Commander with other **commercial sound equipment** as that equipment will be hard grounded.

**To avoid electrical shock**, do not use the Commander in or near water or other liquids. Remember, the Commander will be plugged into things that are plugged into the wall!

Always remove the batteries **when you store the unit**. Otherwise the batteries can leak and damage the Commander.



### **View of the screw-mounted rubber feet.**

**Specifications:** Dimensions: 11.5 inches by 6 inches (with the knobs) and 2 inches high including the feet. Weight: approximately 3 pounds. The enclosure is sturdy 18 gauge steel case with a durable powder coat finish. Silk-screen graphics are readable from the top and are baked into the enclosure. The unit is designed for low profile to sit on an amp without tipping.

The unbalanced input level is approximately  $-23$  dBV or 50 mV. Terminating impedance is 5 megohm DC resistance. Gain structure is low through preamp. There is just enough additional gain added for low output mics and loss through tone network. The loop level is the instrument level, approximately 50 mV. This is the correct level for any footpedal. The loop out source impedance is approximately 150 ohms. Loading on the loop return is approximately 25 K ohms.

**Warranty:** The Commander is warranted for six months from the date of purchase. If a problem develops, contact Ron at [Ronald@holmeseng.com](mailto:Ronald@holmeseng.com)

## The optional power supplies (wall warts)

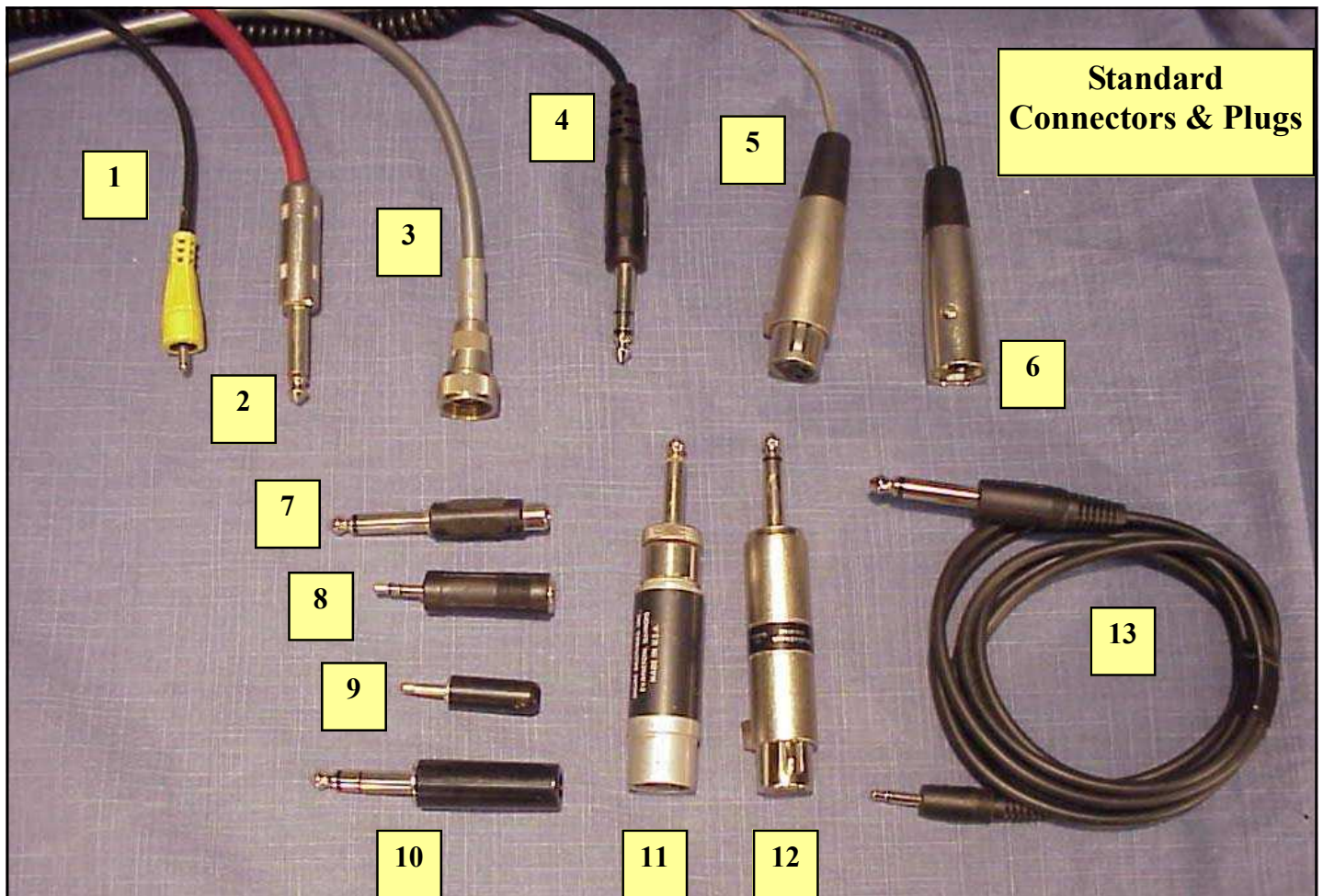


Available for:

Australia/New Zealand  
Euro Plug  
United Kingdom

Not shown

120 volts 60 cycle for USA/Canada/Mexico  
This supply also works fine for the Japanese areas with 100 volts, 50 Hz



1= RCA male plug on cable.

2= TS (Tip-Sleeve) or 1/4" (6mm) mono male plug on cable.

3= Older "Amphenol" microphone jack. Stell ring screws onto chassis mount threaded male assembly. Used on many vintage microphones.

4= TRS (Tip-Ring-Sleeve) or 1/4" (6mm) stereo male plug on cable.

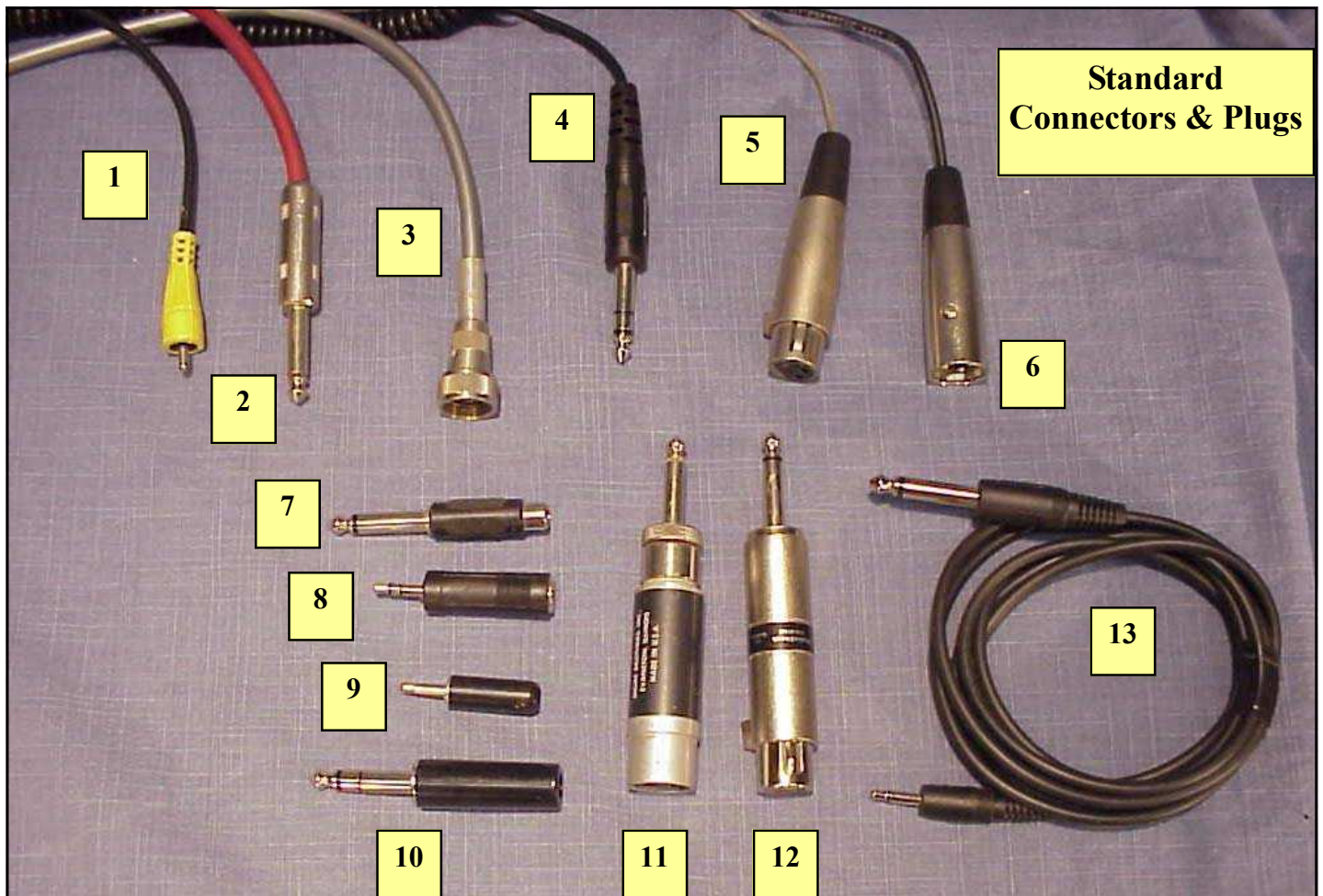
5= XLR-3 female cable connector.

6= XLR=3 male cable connector.

7= Adapter: TS (Tip-Sleeve) or 1/4" (6mm) mono male plug to RCA female jack.

8= Adapter: mini TRS (Tip-Ring-Sleeve) or 1/8" (3.5mm) male plug to TRS (Tip-Ring-Sleeve) 1/4" (6mm) stereo female jack.

9= Mini TS (Tip-Sleeve) or 1/8" (3.5mm) mono male plug.



**10**= TRS (Tip-Ring-Sleeve) or 1/4" (6mm) stereo male plug.

**11**= Converter/Adapter for microphones. XLR-3 male plug to TS (Tip-Sleeve) or 1/4" (6mm) mono plug. It contains an internal set-up transformer for balanced mic to high-impedance, unbalanced output.

**12**= Converter/Adapter for microphones. XLR-3 female connector to TS (Tip-Sleeve) or 1/4" (6mm) mono male plug. It contains an internal set-up transformer for balanced mic, low impedance, to unbalanced, high-impedance output.

**13**=Adapter cable with a TS (Tip-Sleeve) or 1/4" (6mm) mono male plug on one end to a mini, TS (Tip-Sleeve), 1/8" (3.5mm) mono male plug on the other end. This cable can be used to connect the Commander Line-Out to a computer sound card input-Line-In connector only.