

Fender[®]

**THE TWIN
OWNER'S MANUAL**

P/N 026654

THE TWIN OWNER'S MANUAL:

The Fender TWIN AMPLIFIER is the next step up in the evolution of *High Performance* instrument amplification. The TWIN is a direct descendent of such classic tube amps as the Fender Twin Reverb, and 410 Bassman which have shaped today's world of guitar amps.

The features of the Fender TWIN AMP provide flexibility rarely found in a tube amp. Channel One is the traditional Fender design and offers the vintage sounds as well as contemporary sounds with the use of the TREBLE BOOST & MID CUT switches. Channel Two is like owning a second, fully loaded, custom amplifier which is unmatched in sonic flexibility. The *CLASSIC* Fender tube reverb sound is there too and is switch assignable to Channel One, Channel Two, or both.

"The Mods are Built In". All the latest sounds, and then some, are there at your fingertips. MORE GAIN for singing sustain, a triple threat of Boost Functions stacked onto the three band EQ. section. A New PRESENCE control that tailors the sound in much the same way as a recording console, and can also operate as a NOTCH filter that will take you from a deep in the heart of Texas *HONK* to U.K. *CRUNCH* with just a flick of the wrist. These two channels are tied together by four inputs which provide standard independent *Dual-Channel* operation, *Switching-Channel* operation with a remote footswitch, or *Parallel-Channel* operation.

Special effects will interface to the TWIN Effects Loop easily and with no guesswork on levels. Simply set the three position LEVEL SELECT switch to match up to the latest digital delay or your old favorite battery powered effect pedals. The unique POWER AMP THRU jack can be used as a preamp line output or in conjunction with the POWER AMP IN jack of another TWIN allowing you to instantly chain to other TWIN amps to be used as slaves for additional power.

The power amplifier section of the TWIN is a 100 Watt Fender design which has become the industry standard as a result of its time worn reputation for reliability and good sound. This amplifier goes further than its clones. In addition to a HIGH/LOW POWER switch, that you can hear, the TWIN also features external bias and balance adjustment capability. The four 6L6-GC output tubes can be set up by anyone with a digital voltmeter without removing the chassis. This means that you can re-bias every time you re-tube and can check bias and balance over the life of the tubes. With the price of tubes today you can't afford not to have them set up right every time. In addition to being able to drive a wide range of speaker combinations from the three speaker output jacks, switch selectable to 4, 8, or 16 ohms, the BALANCED LINE OUTPUT will drive any 600 ohm line input. This is a transformer coupled, truly balanced, floating ground output which is particularly useful for driving slave power amps or can be used with the proper equalization as a send to a mixing console for recording or sound reinforcement.

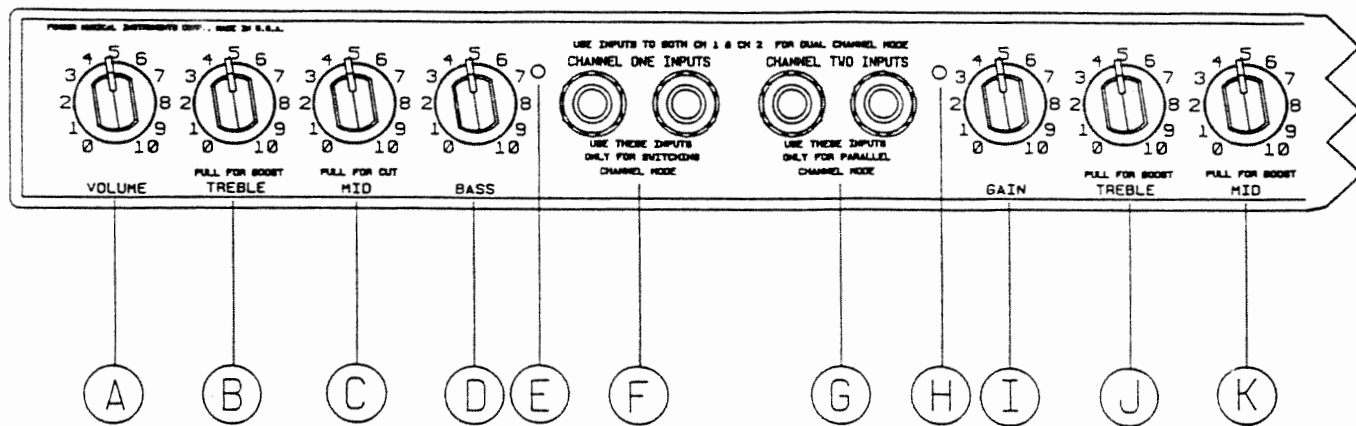
The Fender TWIN AMPLIFIER features two Fender Special Design 12 inch speakers which have been specifically tailored to reliably produce the legendary Twin Reverb sound.

The selection of a Fender amplifier will reward you with years of quality music in a wide range of controlled sounds. This manual is designed to familiarize you with the equipment and to acquaint you with its many fine features. Read it carefully so that you will benefit from all the features as soon as you start using the amplifier.

The built-in quality of a Fender amplifier is the result of over three and a half decades of dedication in the combined skills of research and development by our engineers and musicians.

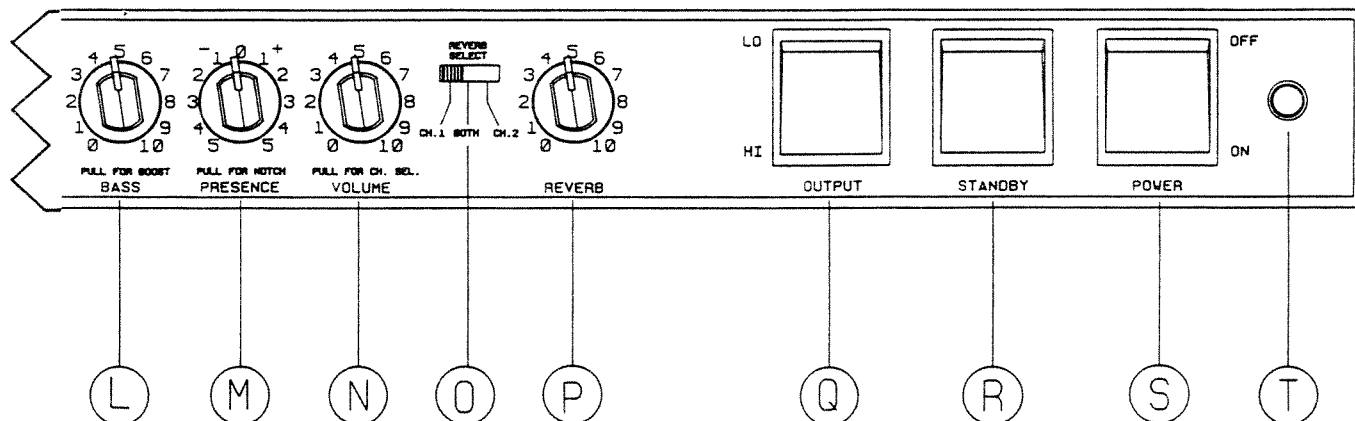
That is why we say, proudly...FENDER, The Sound That Creates Legends.

WARNING: TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE AMPLIFIER TO RAIN OR MOISTURE.

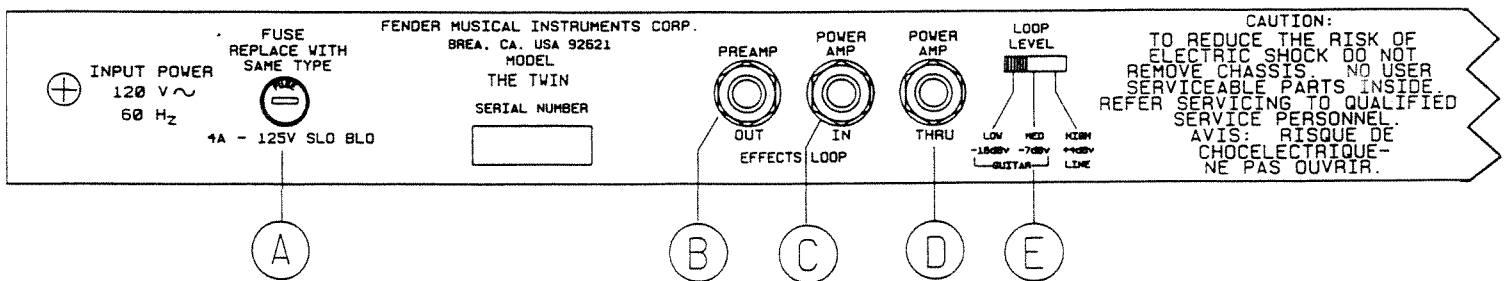


TWIN FRONT PANEL FUNCTIONS:

- A. **VOLUME**—Adjusts the overall loudness of Channel One.
- B. **TREBLE**—Adjusts the amount of boost (accentuation) or cut (attenuation) in the high frequency range of Channel One. This knob can be pulled out for additional treble boost.
- C. **MID**—Adjusts the amount of boost or cut in the mid frequency range of Channel One. This knob can be pulled out to reduce midrange boost.
- D. **BASS**—Adjusts the amount of boost or cut in the low frequency range of Channel One.
- E. **CH. 1 INDICATOR**—This LED is illuminated when Channel One is on.
- F. **CH. 1 INPUTS**—Plug-in connection for instruments. Both jacks have the same sensitivity. When these inputs are used **alone with nothing plugged into the Ch. 2 inputs**, the amplifier is in the *Channel-Switching* mode. The remote footswitch or PULL FOR SELECT switch will route the input signals to either Ch. 1 or Ch. 2 as indicated by the two channel indicator LEDs on either side of the input jacks. When these inputs are used **in addition to instruments plugged into the Ch. 2 inputs**, the amplifier is in the *Dual-Channel* mode, i.e. Ch. 1 inputs go through Ch. 1 and Ch. 2 inputs go through Ch. 2.
- G. **CH. 2 INPUTS**—Plug-in connection for instruments. Both jacks have the same sensitivity. When these inputs are used **alone with nothing plugged into the Ch. 1 inputs**, the amplifier is in the *Parallel-Channel* mode. The input signals are routed to both Ch. 1 and Ch. 2 simultaneously, allowing a mix of the two channels to be achieved. When these inputs are used **in addition to instruments plugged into the Ch. 1 inputs**, the amplifier is in the *Dual-Channel* mode, i.e. Ch. 1 inputs go through Ch. 1 and Ch. 2 inputs go through Ch. 2.
(NOTE: The channel select footswitch and PULL FOR SELECT switch are disabled when in the *Parallel-Channel* or *Dual-Channel* modes.)
- H. **CH. 2 INDICATOR**—This LED is illuminated when Ch. 2 is on.
- I. **GAIN**—Adjusts the amount of amplification in the Ch. 2 preamp. Cleaner sound is achieved at lower gain settings, high gain settings will produce more sustain and distortion. This control works in conjunction with the Ch. 2 VOLUME control to set the overall loudness at the output.
- J. **TREBLE**—Adjusts the amount of boost or cut in the high frequency range of Channel Two. This knob can be pulled out for additional treble boost.
- K. **MID**—Adjusts the amount of boost or cut in the middle frequency range of Channel Two. This knob can be pulled out for additional midrange boost.

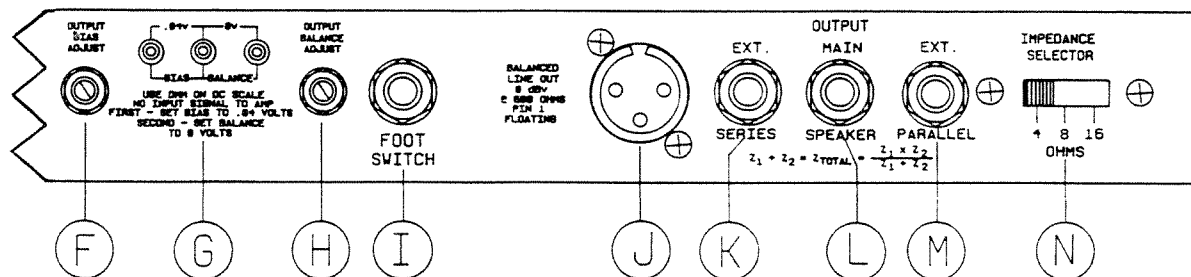


- L. BASS**—Adjusts the amount of boost or cut in the low frequency range of Channel Two. This knob can be pulled out for additional bass boost.
- M. PRESENCE**—Adjusts the amount of boost or cut in the upper high frequency range. This control occurs post preamp distortion and is useful in adjusting the distortion characteristic from brash, to smooth. This knob can be pulled out to activate the *NOTCH* mode which transforms the Presence control from a shelving type filter to a bandpass type, further adding to the sonic possibilities.
- N. VOLUME**—Adjusts the overall loudness of Channel Two. This knob can be pulled out to select Ch. 2 when in the *Channel-Switching* mode. **This pull switch disables the remote footswitch.**
- O. REVERB SELECT SWITCH**—This three position switch determines whether Channel One, Channel Two, or both channels have reverb. This control is used in conjunction with the Reverb control and the Reverb On/Off footswitch.
- P. REVERB**—Adjusts the overall amount of reverberated signal mixed with the original dry signal. This control is disabled by the Reverb On/Off footswitch.
- Q. OUTPUT SWITCH**—Sets the maximum output of the amplifier to either HI — 100 Watts R.M.S., or LO — 25 Watts R.M.S. The HI setting is normally used for most applications and the LO position is useful in simulating a smaller amp especially with overdrive playing.
- R. STANDBY SWITCH**—Turns the amplifier on and off, however while in the off position power is applied to the tube filaments so as to eliminate warm-up time when switched on. Use of this feature during periodic breaks vs. using the POWER ON/OFF SWITCH will increase tube life.
- S. POWER SWITCH**—Turns AC power ON and OFF. When the switch is OFF the amplifier is completely shut down.
- T. POWER INDICATOR**—When this indicator is illuminated the TWIN is receiving power.



TWIN REAR PANEL FUNCTIONS:

- A. FUSE**—This fuse is in the AC supply of the amplifier and will help to protect the amplifier and operator in the event of an electrical fault. If a fuse blows, it should only be replaced with a fuse in accordance with the listing at the fuse holder. If the amplifier repeatedly blows fuses, it should be checked out by a qualified technician. **Under no circumstances** should a fuse with a higher current rating or a fuse bypass be used as this could cause equipment damage and present a serious safety hazard.
- B. PREAMP OUT**—This jack provides an unbalanced output signal from the preamp. Its nominal level is set by the LOOP LEVEL SWITCH. (See E). This output can be used in conjunction with the POWER AMP IN jack as a patch point for effect units.
- C. POWER AMP IN**—This jack inputs signal directly to the power amp. It automatically disconnects the preamp signal when used. This is useful when using the effects loop option or using the TWIN as a slave amp. Its nominal sensitivity is set by the LOOP LEVEL SWITCH. (See E).
- D. POWER AMP THRU**—This jack provides an unbalanced output signal from the preamp and is post EFFECTS LOOP (POWER AMP IN). This signal can be used to feed recording and sound reinforcement mixers or more often to drive other TWIN amplifiers as slaves. This is done by connecting a standard guitar cord from the POWER AMP THRU jack of the master amplifier to the POWER AMP IN jack of the slave, then from the POWER AMP THRU jack of the slave to the POWER AMP IN jack of the next slave, etc. Its nominal level is set by the LOOP LEVEL SWITCH and **this switch should be set to the same level on all the amplifiers in the chain.** (See E). (NOTE: This output works best with tube type slave amps, see J. BALANCED LINE OUT for slaving solid-state slave amps.)
- E. LOOP LEVEL SWITCH**—Selects the nominal operating level of the PREAMP OUT, POWER AMP IN, and POWER AMP THRU jacks. When using the effects loop option this switch should be set to the highest possible level for best low noise performance. This is done by first setting the switch to LOW/16dBv, second set the front panel amplifier operating controls for normal playing levels, then patch in the desired effect units. (If the effect units have gain and/or output controls, set these for "unity gain" through the effect unit, this is verified by alternately plugging in and unplugging the effect unit output from the POWER AMP IN jack and listening for any change in volume. When the effect unit is set for "unity gain" there will be no noticeable change in level. With some effects it may be necessary to do this in the bypass mode of the effect.) Next set the LOOP LEVEL SWITCH to the highest setting that will allow clean, distortion free operation of the effect unit. Now with the effect in the bypass mode once again check for "unity gain" with the procedure outlined above. If the effect unit is clipping on loud passages the switch should be set to the next lower setting. **NOTE: When slaving amps the LOOP LEVEL SWITCH on all amplifiers should be set to the same position.**
- F. OUTPUT BIAS ADJUST**—This trim adjustment is used to set the bias on the output tubes in conjunction with the two bias test points. This adjustment is made by connecting a digital volt-meter to the two test points labeled BIAS. Use the most sensitive DC Volts scale and adjust the voltage between the two test points to .04 VDC. This calibration should be made after the amplifier has been allowed to warm up for at least two minutes and prior to the balance calibration. (NOTE: If tubes won't bias, replace 6L6-GC's.)
- G. TEST POINTS**—Used to measure tube bias and balance with a digital voltmeter. (See F & H).
- H. OUTPUT BALANCE ADJUST**—This trim adjustment is used to set the balance between the push/pull sections of the amplifier in conjunction with the two BALANCE test points. This adjustment is made by connecting a digital voltmeter to the two test points labeled BALANCE. Use the most sensitive DC Volts scale and adjust the voltage between the BALANCE test points to 0 VDC. This calibration should be made after the amplifier has been allowed to warm up for at least two minutes and after the BIAS calibration is performed. (NOTE: If tubes won't balance, check bias and/or replace 6L6-GC's.) Only make adjustments to bias and balance when necessary. If you are not sure about using this feature...leave it alone!!!
- I. FOOTSWITCH JACK**—Plug-in connection for remote footswitch to activate Channel Two when in the *Channel-Switching* mode and to switch the Reverb on and off.



J. BALANCED LINE OUT—This jack provides a transformer coupled, balanced, floating ground output, (on pins 2 & 3), which can be used to drive slave power amps, or with proper equalization as a send to a mixing console for recording or sound reinforcement. The optimum setup for driving slave amps from this output is to use speaker systems identical to those connected to the TWIN output and drive them with high power solid-state amplifiers (300 Watts Min.). Set the gain of the slave amps so that they do not clip at full output from the TWIN. The reason for this is as follows: One of the distinguishing characteristics between solid-state amps and tube amps is that most solid-state amps are effectively *constant-voltage output* for varying load impedance. Tube amps are a mixture of *constant-voltage* and *constant-current* and actually approximate *constant-power output* into a varying load impedance. This is important since speakers present a load impedance that varies with frequency. A tube amp actually puts more power into a speaker at low end resonance and more noticeably at high frequencies than a solid-state amp. This can be compensated for by equalizing the solid-state amp but in order to really duplicate the tube amp, the solid state amp must have much more headroom available; i.e. a 20 Watt tube amplifier driven into **heavy clipping** can actually put out signal levels equivalent to a 180 Watt solid-state amp. This nine to one ratio can get excessive when comparing to a 100 Watt tube amp and therefore compromises must be made in selecting a solid-state equivalent. The signal at the BALANCED LINE OUTPUT is a replica of the voltage present on the TWIN speakers. This signal can then be run through a solid-state (*constant-voltage*) amp connected to speakers identical to those on the TWIN and provided that the solid-state amp has enough headroom to never clip, the slave systems will produce an exact replica of the master sound. This can be a cost effective and reliable way to achieve large amounts of on stage power while maintaining the "Tube Sound". We recommend using a Fender 2235 Power Amplifier with additional Fender "Wedge" speaker enclosures.

If the BALANCED LINE OUT is used as a send to a mixing console it should normally be pre-equalized before going to the console input. What works well is to run it through a low-pass filter set at 5 to 6 kHz. The slope of this filter needs to be steep, i.e. third-order at 18dB per octave. A handy way to do this is to use the lowpass output of an active crossover, or a parametric equalizer. By tweaking the equalization some very useful sounds can be obtained.

- K. EXT. SERIES JACK**—Plug-in connection for extension speakers. This should be used in conjunction with the MAIN SPEAKER jack. It will connect in series with the main speaker therefore adding the (EXT. SERIES) speaker impedance to the (MAIN SPEAKER) speaker impedance; i.e. by connecting a 4 ohm speaker to each jack the total load is 4+4=8 ohms. The IMPEDANCE SELECTOR switch (N) would then be set to 8 ohms. (NOTE: An additional 8 ohm speaker can be connected to the EXT. PARALLEL jack for a total load of 4 ohms, set the IMP. SEL. switch accordingly.)
- L. MAIN SPEAKER JACK**—Plug-in connection for speakers. For proper operation this jack should **always be used first** as connection to the primary speaker. (If this jack is used alone set the IMPEDANCE SELECTOR switch (N) to equal the total load impedance connected to it.)
- M. EXT. PARALLEL JACK**—Plug-in connection for extension speakers. This jack should be used in conjunction with the MAIN SPEAKER jack. It will connect in parallel with the main speaker therefore reducing the total load impedance, i.e. by connecting a 16 ohm speaker to each jack the total load is $(16 \times 16) / (16 + 16) = 256 / 32 = 8$ ohms. The IMPEDANCE SELECTOR switch (N) would then be set to 8 ohms. (NOTE: An additional 8 ohm speaker can be connected to the EXT. SERIES jack for a total load of 16 ohms, set the IMP. SEL. switch accordingly.)
- N. IMPEDANCE SELECTOR**—Sets the output impedance of the amplifier. The setting should equal the total load impedance as determined above using the three output jacks. (The Fender TWIN is supplied with two 8 ohm speakers connected in series therefore the total load impedance is 16 ohms, set the IMP. SEL. switch accordingly.)

(Low Power Option: The Fender TWIN amplifier can be run with only two output tubes instead of four. This is done by removing the two inner 6L6-GC tubes, (the 2nd and 3rd large tubes, counting left to right), and setting the IMPEDANCE SELECTOR switch to **one-half** of the total speaker load impedance; i.e. with one 8 ohm speaker connected the IMP. SEL. switch should be set to 4 ohms. (Remember—half the tubes, half the impedance.) This will produce 60 Watts R.M.S. in the HI power setting and 15 Watts R.M.S. in the LO power setting.)

LINE CORD

This amplifier is equipped with a grounding type supply cord to reduce the possibility of leakage current. Be sure to connect it to a grounded receptacle. Operation from an ungrounded (two pronged) AC receptacle requires a three to two contact grounding type adaptor. Be sure to connect the adaptor's grounding lead to a good earth ground. **DO NOT ALTER THE AC PLUG.**

TUBES

The TWIN tube complement consists of four Fender Special Design 6L6-GC's (PN 023556), five Fender Special Design 7025's (PN 013341), and two Fender Special Design 12AT7's (PN 023531). Fender's Special Design electronic tubes provide optimum performance in this amplifier. For best results, replace with Fender original equipment tubes only.

VINYL CARE

The exclusive Fender vinyl covering on your cabinet has been especially designed for years of lasting beauty. A very light soapy solution on a sponge may be used to remove dirt and residue that may accumulate in the grain. Be careful not to let any liquid come in contact with operating surfaces. **DO NOT** have the amplifier plugged into the power outlet when cleaning.

Troubleshooter's Checklist:

If the amp is set up but does not function, check the following items:

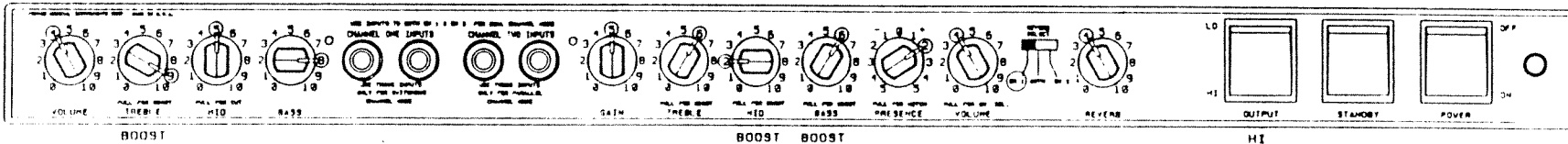
- Is the amp power cord properly plugged into an electrical outlet?
- Is there power at the outlet?
- Is the primary fuse blown?
- Is the speaker properly connected to the amplifier?
- Is the amp on standby?
- Are all the control knobs turned up above four?
- Is the volume control on the instrument turned up?
- Is your instrument properly plugged into the amplifier?
(Eliminate any effect pedals and try another guitar cord.)

If, after checking all of the above, the system is still not performing correctly, consult your Fender Service Dealer.

THE TWIN - SAMPLE SETTINGS

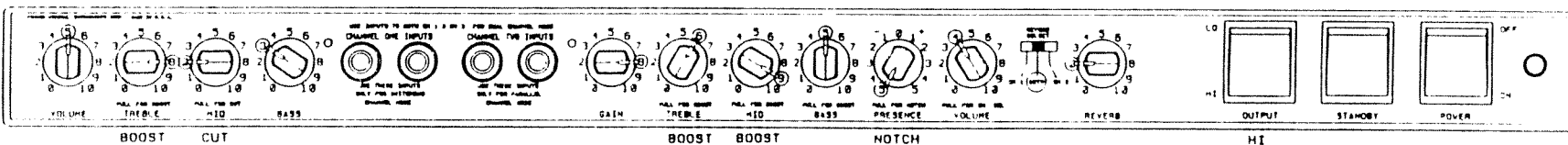
CLASSIC TWIN REVERB

CLEAN LEAD



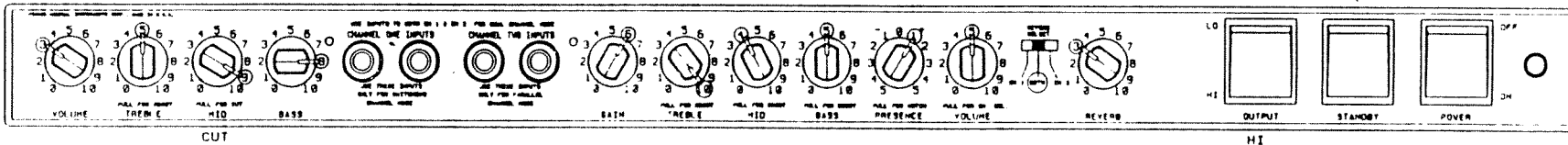
VINTAGE BASSMAN 4-10

NOTCH DISTORTION



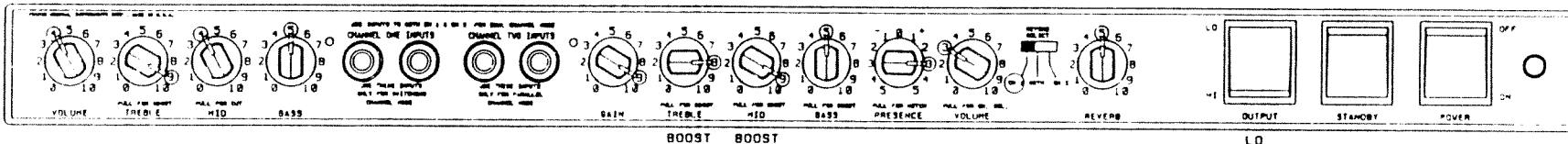
JAZZ TWIN

POWER CHORDS



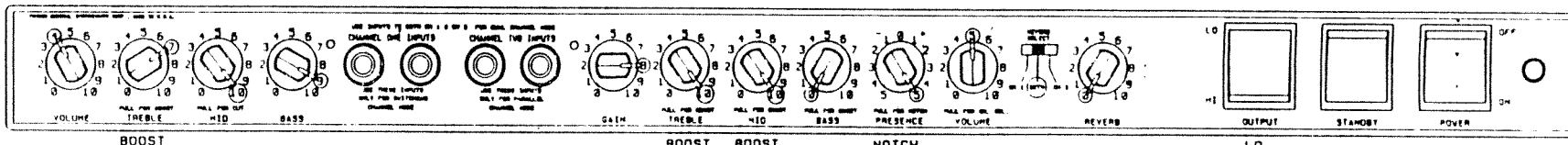
TWANG

SCREAMING LEAD



MID BOOST RHYTHM

HONK



TWIN SPECIFICATIONS:

PART NUMBER: 21-6200

DIMENSIONS: Height: 20-3/4" (52.7 cm)
Width: 26-3/8" (67 cm)
Depth: 11-1/2" (29.2 cm)

Weight: 75 lbs. (34 kg)

POWER OUTPUT: HI SETTING — 100 Watts R.M.S.
into 4, 8, or 16 ohms. LO SETTING — 25 Watts R.M.S.

INPUT IMPEDANCE: CH. 1 and CH. 2 Inputs — greater than 1 megohm.
Nominal level — 100 mv.

OUTPUT IMPEDANCE: Switch selectable to 4, 8, or 16 ohms.

EFFECTS LOOP: Nominal Level — Switch selectable to -16dBv, -7dBv, and +4dBv.
Output Impedance less than 12k ohm.
Input Impedance greater than 180k ohm.

BALANCED LINE OUTPUT: Nominal Level — 0dBv into 600 ohms or greater.

POWER REQUIREMENTS: 120 Volts AC 60 Hz., 3.75 Amps Max., 450 Watts Max.

FUSE TYPE: 4 Amp 125 Volt minimum, SLO-BLO.

SPEAKER COMPLEMENT: Two Fender Special Design 12 inch (PN 026428), 8 ohm
speakers wired in series.

SOUND: Really Loud.