



**WYETECH
LABS**

Owner's Manual

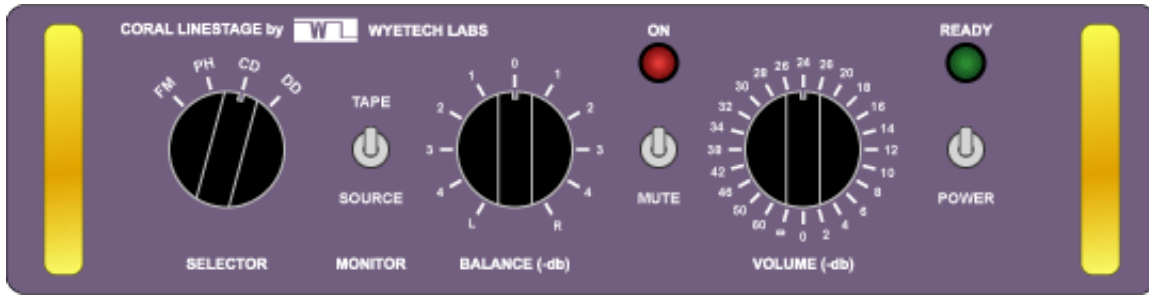
Coral Line Stage Preamplifier



ALL TRIODE VACUUM TUBE STAGES

Coral Line Stage Illustration

Front Panel



Rear Panel

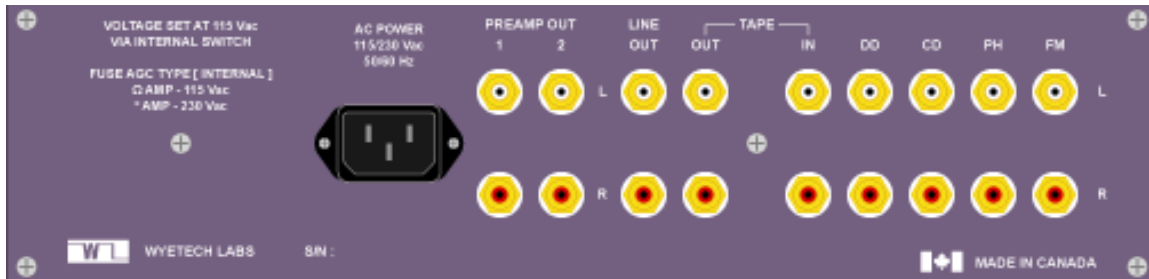


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Introduction

Thank you for purchasing the Wyetech Labs Coral preamplifier. You are in possession of one of the best sounding, most ruggedly constructed preamplifiers on the consumer market. This unit has been completely hand crafted using precision quality components.

Our goal was to come as close as possible to the sound of the Jade while reducing the cost to almost half it's price, while still maintaining our high standards of construction. Some of the parts we have chosen to use in this preamp are indeed expensive and will not be found in other tube or solid state amplifiers being sold at this price level. The Balance and Volume controls are the same ones used in our more expensive Jade preamp. The chassis construction is totally non-magnetic including all fastening hardware. We also use gold plated sockets for the tubes and the 555 DIP integrated circuits.

We would like you, the owner, to be proud of possessing this superbly crafted control amplifier. We want your enjoyment of this product to actually increase with age, as you would expect from a fine wine. We desire to re-establish that "pride of ownership" that dominated North American products of bygone era's.

Several important steps were taken to ensure long term stability and reliable operation. Filtered DC on the filaments are turned on for 30 seconds before applying high voltage DC to extend the life of the Jan Military specification Tubes used in the Coral. We also use a total of 27 WECO screw terminal connections to fasten most wires to the PCB to facilitate easier replacement of parts for future repairs and long service life. All 18 RCA connectors are gold plated with Teflon insulating sleeves and are the same quality as that found in our more expensive Jade preamplifier.

Design Implementation

Audio Circuits

After having been on the market less than a year the Opal preamp has been accepted as the leading edge in sound reproduction. Four years later it still held that title. Less than two years later we followed up with the development of the JADE to mimic the Opal as close as possible, while making it more affordable to a wider audience. After having obtained a lifetime supply of quality military new old stock [NOS] tubes we began the research and development to use these tubes that resulted in the Coral. The fact that we have secured these exceptional military quality tubes at a very reasonable price made it possible to implement a pure triode topology in a attractively priced package.

This together with other innovative manufacturing methods have allowed us to offer a world class linestage at a most affordable price. At 40% less costly than the Jade and 70% less than the Opal, the Coral undeniably offers the best price/performance in the industry while maintaining the accuracy and musicality consistent with any Wyetech product!

We've retained the grounded grid configuration which we deem to be the best possible circuit topology for line level amplification This circuit, like the Opal and Jade, maintains an exceptional bandwidth that extends well beyond 250,000Hz. Our primary design philosophy that **less is better than more** has been our objective in designing the coral preamp linestage.

Power Supply

The 250 Volt DC power supply uses a Pi RC filter network, that eliminates all noise and ripple to below what our test instruments can detect. This was accomplished by the use of larger electrolytic reservoir capacitors than would normally be used. A 12 Volt DC power supply, that consist of a double Pi RC filter , is used to power the tube filaments thus reducing hum levels even further.

We have again avoided using active feedback [Regulation] in order to maintain the speed of the power supply in relation to the extremely fast analog circuitry. An AC power line filter is also used to prevent unwanted noise and hash from entering into the unit.

Parts

The Coral's double sided printed circuit board [PCB] has been manufactured with the same high standards as that found in the Onyx amplifier. It has full solder masking on both sides of it's premium glass epoxy board with white silk screening that identifies parts and there placement for fast efficient hand soldering and assembling. These boards are held elevated from the surrounding metal chassis to avoid any capacitive coupling between components.

We import from Denmark our stepped ELMA volume controls that use 0.1% precision metal film surface mount resistors that is second best in life expectancy only to the Shallco military switches used in the Opal. It is the same quality volume and balance controls as that found in the Jade linestage.

The black knobs have a white dot indicator to match the precision markings on the face plate that allow easy visual settings for all functions. This is especially useful for resetting previous levels of desired loudness control on the volume attenuator.

We also use WECO screw terminal connections to fasten most wires to the PCB to facilitate easier replacement of parts for future reparability and long service life. All 18 RCA connectors are gold plated with Teflon insulating sleeves and are bolted to the chassis and not the PCB board to facilitate individual replacement if or when necessary.

A Toroid power transformer with dual primary windings, allow for 115/230 Volt universal usage that is switch selectable on the PCB board. The best quality NKK [Japan] toggle switches adorn the front panel using decorative knurled nuts differentiate the Coral as being a premium product. Large 8 mm LED's, the same as in found in all our other equipment, adds to that elegant rugged retro appearance.

Since perfection is our goal, we don't think parts should impart a signature sound but rather allow the sound to flow through unaltered. The type of parts used therefore must have a synergistic relationship to the circuit they are placed in. It is this relationship of which type of part to use where, that ranks our products apart from the crowd!

Installation

Unpacking the Preamplifier

- Remove Owner's manual.
- Remove top foam [10"x14½"x2"]
- Remove front & rear foam strips [21"x3½"x2"]
- Remove side foam strips [9"x7"x2"
- Remove flannel cloth covering preamp. [keep for cleaning purpose]
- Remove preamp from box by holding on to the underside of each end.

NOTE: When repackaging make sure bottom foam strip [10"x14½"x2"] is centered in the box so the legs of preamp fit around it allowing the bottom of preamp to lay flat on the foam surface. Save all materials and box for future use. (Mandatory for warranty shipping)

Removing or Installing Tubes

- 9-Pin tubes Remove [6] screws & washers [use Phillips #2 screwdriver] holding top cover to access tubes. To install tube align guide pin with the tube socket until it falls into the socket then press down until seated.
- NOTE: All tubes are factory installed. You should wait 5 minutes after removing the AC power cord from the unit before attempting to remove cover to access tubes. This is to insure that the large reservoir capacitors in the 250 Volt supply have completely discharged.

Input Power Selector Switch

There is an internal AC input selector switch that can be set for 115/230 Volt 50/60 Hz operation. It will normally be set for 115 Volt 60 Hz at the factory. So if you are running on 230 Volt make sure you select the 230 V. Damage caused by incorrect setting will VOID THE WARRANTY. The switch is labeled in RED and will display the voltage it is set for in the window. To change setting use small flat screwdriver to operate slide.

Installing the AC Power Cable

Place Power Switch in the "OFF" position. Next plug power cord into the preamp before inserting the AC plug in to the wall socket.

Fuse Rating

Replace fuse with 1 amp AGC for 115 V operation or 0.5 Amp AGC for 230 Volt operation. Spare fuses are included with unit. If you have not received the correct values consult your dealer for replacement.

Operation of the Controls

Gain Control Jumper Set

There is an internal plug-in jumper for each channel located on the printed circuit board. This jumper is installed at the factory and is the high gain setting [12.5 db]. To lower the overall gain to 4.5 db's remove the two pin jumper and insert into one pin only of the female socket to retain it for future use. Be sure to pull by the plug and not the wires. The wire plugs in to the socket of the plug which then plug into the socket.

Use of the Muting Switch

The muting switch is used to completely mute the sound which can be used for many purposes. [example: telephone call, powering off/on amplifier...] When de-activated it is completely removed from the circuit. The muting is done using a 2-pole relay which shorts out both channel outputs to ground.

Indicator Lamps

There is a large wide angle red and green LED status indicator. The red LED indicates muting is in effect either because the muting switch is engaged or the 90 seconds power up cycle is not yet complete. The green LED shows ready status and is on from power up unless the muting switch is engaged.

WARNING

Do not remove cover with AC line cord attached and do not operate with cover removed. Remember HIGH VOLTAGE IS DANGEROUS!

Power off unit and **wait for at least 5 minutes** for power supply high voltage to drain before attempting to change tubes or gain settings with cover removed.

Power-up

To power up place power switch in up position and wait for automatic sequence to complete. The green and red LED's should immediately turn on. After 90 seconds the red LED [mute] will turn off allowing the music to play. Remember if you left the muting switch in the on position the green LED will not come on even though the power up sequence completes.

CAUTION

You can connect or disconnect the interconnect cables (except for the preamp output) while the preamplifier is on , providing the muting switch is engaged. Otherwise you may cause loud noises or speaker damage.

Automatic Muting

Muting of the output on powering up prevents any noises or thumps from reaching the speakers and it is disengaged after a 90 second time-out. The preamp remains quiet at all times.

Master Volume Control & Channel Balance

The Volume control is a dual ganged stepped 24 position switch that allows level control in 2 dB increments over most of it's range. It uses gold-plated contacts and SMD resistors that give it a channel balance accuracy of +/- 0.05 dB's. Another rotary switch allows for fine balance control in 1 dB steps. [+ 0 - 5db range]

Periodic Maintenance

NOTE: A piece of cotton flannel is supplied with unit for cleaning and dusting.

Cleaning the Surfaces

A soft lint free 100% cotton flannel should only be used to wipe off surfaces. For finger prints or grease use only a soft cloth with a mild liquid hand soap and water. Rinse with water soaked cloth followed by a soft cloth to dry.

Tubes

(9-pin) To remove tubes pull straight up while wiggling somewhat. Contact enhancers can be used on tube pins if necessary but should not be applied to tube sockets. To replace tubes line up and wiggle somewhat while applying pressure in a downward manner until tube is fully seated and touching socket.

Diagnosing Problems With Signal Tubes

Your unit is supplied with military grade tubes of exceptional quality. A life span of up to about 10,000 hours is expected from these tubes. Normally a faulty tube will cause problems in only one channel but it is possible that it could affect both channels. It is wise to have a spare set of tubes to trouble-shoot a problem with. Any problem will most likely be a tube, so replacing the tubes one at a time should allow you to find the faulty tube. If you replaced all three tubes but still have a problem. You will have to get it serviced by calling your dealer whom you purchased it from.

Circuit Description

This line amp uses a grounded grid configuration which is isolated by a cathode follower stage before and after it. All three stages are non-inverting thereby maintaining absolute phase. The grounded grid configuration is known for its extremely wide bandwidth and high speed! The cathode follower output has a very low output impedance capable of driving two pairs of RCA output jacks to accommodate bi-wiring or bi-amping. All stages are DC coupled and only one capacitor is used in the output stage for DC blocking. No feedback is used and mirror image circuitry is implemented on the printed circuit board for the audio section. Overall amplifier gain is selectable via internal jumpers for 4.5db or 12.5 dB.

Power Supplies

The power supply uses a Toroid power transformer for low noise and reduced magnetic field radiation to surrounding areas. A Pi RC filter is used for the 250 Volt plate supply and a dual Pi RC filter is used for the 12 Volt filament supply. These filters, like the OPAL & JADE, are designed using only passive components that allow the speed of the power supply to keep up with the analog circuitry.

Mechanical Construction

- ◆ Machined aluminum plates [1/4" & 1/8" thick] bolted together with stainless steel machine screws is used to construct the preamp chassis. This provides excellent shielding from external radio frequency fields.
- ◆ Black molded knobs with white indentations allow for precise settings. These knobs have dual hex set screws to secure to shaft that insure accurate calibration and smooth operation of switches
- ◆ The stepped DACT dual Volume control has 24 gold plated contacts with surface mounted 0.1% precision resistors to maintain channel balance to within +/- 0.05db
- ◆ Selector switch engages relays located near RCA jacks to switch all inputs
- ◆ Balance control uses a sealed Electros witch with silver plated contacts and 1% precision resistor networks
- ◆ NKK toggle switches for Tape monitor, Muting & Power on functions
- ◆ Noiseless TOROIDAL power transformer
- ◆ Non magnetic stainless steel and brass hardware is used throughout.
- ◆ Automotive high gloss paint finish.
- ◆ Polished Brass Handles accentuate the aesthetics of the front panel

Circuit Boards

The components are soldered by hand on a dual layer Printed Circuit board that is masked on both sides to protect & insulate the circuit paths as well as a silk screened layer on top to label the components and their position on the board. High quality Teflon coated Silver plated OFHC copper wiring is used in all analog wiring to and from the circuit board.

Automatic Power Sequencing & Muting

To allow for extended tube life a 30 second delay is applied before the high voltage plate supply is engaged. To allow circuit stabilization and quiet operation a 90 second automatic muting is activated during power up. Muting is accomplished using a 2-pole relay that shorts the preamp outputs. When disengaged the muting circuit is not in the signal path.

Technical Specifications

Tube Complement	[2] 5814A [1] 5687WB NOS JAN military dual triodes
Frequency Response (reference to a sine wave at 3.5 VRMS output)	+/- 0 dB FLAT 20 Hz to 120 KHz + 0 dB/ -1 dB 9 Hz to 425 KHz + 0 dB/ -3 dB 4 Hz to 825 KHz
Input Impedance	50K ohms minimum
Absolute Phase	non-inverting
Channel Balance Control	11 position for +/- 5 dB adjustment in 1 dB steps
Attenuation	24 position stepped volume control [-60 dB to 0 dB]
Output Impedance	150 Ohms
Rated Output	3.5 VRMS [maximum = 7.5 VRMS]
Selectable Gain	High = 12.5 dB (default setting) Low = 4.5 dB via internal jumper
Outputs	2 pre-amp outputs 1 tape output 1 line level output.
Inputs	4 line level inputs, 1 tape input.
Power Requirements	Switch selectable 115/230 Volt 50/60 Hz 42 Watts
Weight (Net)	12 lbs (5.5 kg)
Weight (Shipping)	16 lbs (7 kg)
Dimensions	15" W x 10.875" D x 3 3/4" H

Limited Warranty

Tubes: 1 Year Parts

Components: 5 Years Parts and Labor

To the original purchaser of this product for home use, Wyetech Labs warrants to repair or replace any part which proves to be defective through normal use, (except external finishes), for a period of 5 years [1 year on tubes] from the date of purchase. This warranty does not extend to any defect, malfunction or failure caused by misuse, abuse, or negligence on the part of the purchaser.

This is the only warranty expressed or implied and there are no other valid warranties and no one is authorized to assume any liability on behalf of Wyetech Labs or impose any obligation on it in connection with the sale of any equipment other than as stated in this warranty and outlined above.

In no event will Wyetech Labs be responsible or liable for other than is stated herein, such as incidental or consequential damage, interrupted operation or other causes.