

Western Electric[®]

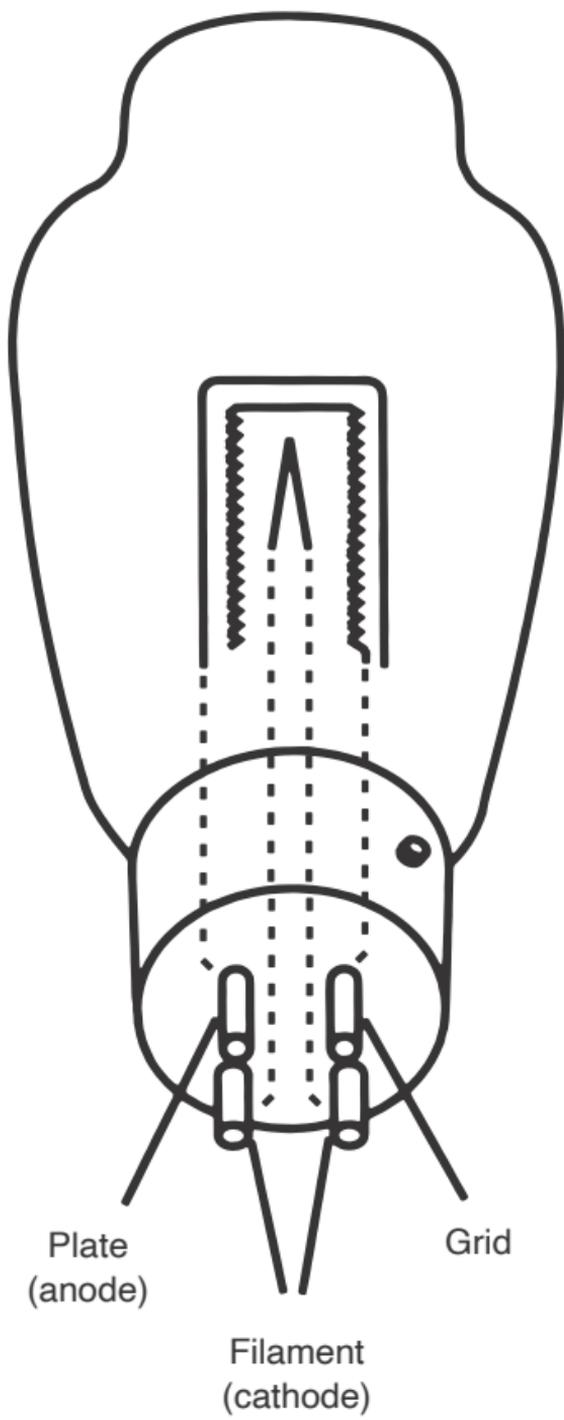
MAKER OF ELECTRON TUBES AND HIGH FIDELITY

TRADEMARK REG. US PAT. OFF.

NO. 300-B VACUUM TUBE

MADE IN U.S.A.





IMPORTANT - READ CAREFULLY

English

Classification

The Western Electric 300B vacuum tube is an audio-frequency power triode intended for applications where outputs of 30 watts or less are required and where it is desirable to operate with relatively low plate voltages.

Base, Socket, and Mounting

This tube employs a standard, four-pin thrust type base suitable for use in a Western Electric 143B or similar socket. The base is equipped with a bayonet pin so that the tube may also be used in a Western Electric 100M or similar socket.

The tube may be mounted in a vertical or horizontal position, although the vertical position is preferable. If mounted in the horizontal position the arrangement should be such that the plane through the legs of the filament is vertical.

Filament Rating

Filament voltage.....5.0 volts, A.C. or D.C.

Nominal filament current.....1.2 amperes

The filament of this tube is designed to operate on a voltage basis and should be operated as near the rated voltage as possible.

Operating Conditions

The Western Electric 300B tube should be operated at such plate and grid voltages that the plate current does not exceed 100 milliamperes. Recommended and maximum operating conditions are given in the table below.

	Plate Voltage	Grid Voltage*	Nominal Plate Current Milliamperes
Recommended Conditions	200	-33	77
		-45	20
	250	-46	74
		-57	22
	300	-60	68
		-70	23
	400	-86	68
		-98	19
Maximum Conditions	450	-100	60

*These voltages apply for operation with A.C. on the filament. With D.C. voltage applied to the filament equivalent operating conditions will be obtained with approximately 3.5 volts less grid bias measured from the negative end of the filament.

A.C. operation of the Western Electric 300B is optimal as the possibility of electrolysis is eliminated and metal migration is reduced. Although it is constructed with an equipotential filamentary cathode (center-tapped) that reduces these two effects, A.C. operation further eliminates potential voltage gradients problematic in D.C. operation of filamentary cathodes that can affect transconductance performance.

For a more detailed look at the characteristics of the 300B visit Western Electric's technical library at westernelectric.com.

OPERATING INSTRUCTIONS AND SAFETY INFORMATION

Please read the following information carefully. It is provided to help you and anyone else who may come in contact with your electron tube safely operate and handle your electron tube.

WARNING **ELECTRON TUBES CAN BE HEALTH HAZARDS IF IMPROPERLY HANDLED**

Operate this electron tube ONLY in accordance with the information included under TUBE DATA and any additional information and precautions contained in this document. Western Electric assumes no responsibility for injury or for damage resulting from operating or handling this electron tube.

Operating and/or handling this electron tube may involve one or more of the following hazards:

HOT SURFACES

The glass and base surfaces of electron tubes reach high temperatures during operation and may remain hot for some time after power is shut off. To prevent possible serious burns, avoid bare skin contact with electron tube surfaces during operation and for thirty minutes after the equipment is shut off. Gloves should be worn for the best protection.

HIGH VOLTAGE

Normal operating voltages for electron tubes can range from several hundred to several thousand volts. Since these voltages can be fatal, you must ensure that there are no exposed circuits in the equipment that uses this tube. Before attempting to insert or remove this electron tube from your equipment, it is recommended that you unplug your equipment, ground all circuits, and ensure that all power switches are shut off.

BROKEN GLASS

Glass is a brittle material and accidental breakage can occur at any time when handling electron tubes. Breakage will result in flying glass fragments. Gloves and safety glasses should be worn for the best protection.

STANDBY MODE WARNING

Some electron tube amplifiers include a feature that engages the tube while in "standby." This feature, by switching off the high voltage to the anode (plate) combined with continuous excitation of the cathode (filament voltage), reportedly increases tube life. Unfortunately, the opposite is true for oxide-coated filament devices such as the 300B. Reducing or eliminating the plate load with continuous excitation of the cathode so that the minimum instantaneous plate voltage drops to values near that of the cathode potential can return a destructive amount of electrons to the cathode. Operation of the 300B in this manner will eliminate the warranty.

LIQUID NITROGEN IMMERSION OF ELECTRON TUBES

Immersion of oxide coated electron tubes such as the 300B in liquid nitrogen involves the possible consequence of cathode coating delamination or separation. This practice will eliminate the warranty of the 300B.

WE 300B

END USER WARRANTY

This electron tube was built to the highest standards of Western Electric products and carries a Limited Warranty against manufacturing defects for a period of 90 days to the End User. The Limited Warranty period begins on the day this electron tube is purchased by the End User as an individual item or on the day a manufacturer's product that includes this electron tube (for example, a stereo amplifier) is purchased from an authorized Western Electric dealer or manufacturer.

THIS WARRANTY IS NON-TRANSFERABLE. YOU MUST KEEP YOUR ORIGINAL PURCHASE RECEIPT FOR VERIFICATION SHOULD YOU REQUIRE WARRANTY SERVICE.

Western Electric will extend the time period of the Limited Warranty up to five (5) years from date of purchase.

IN ORDER TO RECEIVE AN EXTENSION TO THE TIME PERIOD OF THE LIMITED WARRANTY, THE ENCLOSED WARRANTY REGISTRATION CARD MUST BE COMPLETELY FILLED OUT AND MAILED WITHIN TEN (10) DAYS OF PURCHASE TO THE ADDRESS BELOW.

For Warranty card mail-ins:

Western Electric
PO Box 10
Rossville, GA 30741
United States

NOTE: This Warranty does NOT cover:

- a) An electron tube that has been damaged by negligence, misuse, accident, modification, or failure to follow instructions. This Warranty does not include tubes that are dropped and broken in shipment.
- b) Damage to an electron tube that has been improperly connected to the equipment of other manufacturers.
- c) Costs incurred in the shipping of electron tubes to Western Electric for evaluation and repair. Any return shipments must be prepaid.

For evaluation and repair, ship to:

Western Electric Rossville Works
201 W Gordon Ave
Rossville, GA 30741
United States

This Warranty does not extend to owners of the product subsequent to the original purchaser. This Warranty is expressly made in lieu of all other warranties, expressed or implied, including without limitation warranties of merchantability and fitness for a particular use or purpose and are limited in duration to a period of 90 days from the date of original purchase. Determination of applicability of the Warranty will be made by Western Electric and such determination shall be final.

WESTERN ELECTRIC'S LIABILITY IS LIMITED TO THE REPLACEMENT OF THE ELECTRON TUBE DETERMINED TO HAVE A MANUFACTURING DEFECT AND SHALL IN NO EVENT INCLUDE INCIDENTAL OR CONSEQUENTIAL COMMERCIAL OR PROPERTY DAMAGES OF ANY KIND.

END USER WARRANTY CONTINUED

WE 300B

ALL WARRANTIES ARE NULL AND VOID IF THIS ELECTRON TUBE WAS PURCHASED THROUGH A DEALER WHO IS NOT AN AUTHORIZED WESTERN ELECTRIC PRODUCT DEALER OR A MANUFACTURER OF AUDIO EQUIPMENT WHO IS NOT AN AUTHORIZED WESTERN ELECTRIC PRODUCT DEALER. All authorized dealers and audio equipment manufacturers are registered with Western Electric and have a certificate of authorization that will be made available to you upon request. (NOTE: Authorized Western Electric dealers can be identified by a Western Electric Authorized Dealer decal displayed in the store or dealership.)

Should this product fail and the reason for failure is determined to be a manufacturing defect, Western Electric will replace this product at no cost to the consumer, PROVIDED the product is returned in its original Western Electric carton along with a copy of your purchase receipt to our headquarters.

Visit westernelectric.com for up-to-date information on returning tubes.

Reasonable care must be taken to protect the product by returning it within its original carton AND placing the carton within a protective container appropriately marked with the warnings, "FRAGILE" and "GLASS."

In returning an electron tube for test and inspection, you are giving Western Electric the right to break the glass bulb and dissect the electron tube, if such a procedure is deemed necessary, for a complete examination to determine whether failure was caused by a manufacturing defect. Moreover, you agree that in the event such a procedure is necessary you will NOT hold Western Electric liable for the return of the tube so dissected.

Upon returning this carton for the first time, please examine the product for any sign of damage that may be attributed to shipment. MECHANICAL DEFECTS SUCH AS LOOSE, SHORTED, OR OPEN ELEMENTS, OPEN FILAMENTS, CRACKED OR BROKEN GLASS, ETC., ARE INDICATIVE OF MISHANDLING IN SHIPMENT. Any sign of damage, visible or otherwise, to the carton and/or its contents must be reported immediately to your dealer or audio product manufacturer and you must file a damage claim immediately with the transportation company. The electron tube and its shipping container should be held in exactly the condition received pending instructions from the transportation company.

IMPORTANT **FOR YOUR PROTECTION:**

Under US shipping regulations, damage claims must be collected by the consignee. In case of damage, please notify the transportation company at once to call and examine the electron tube, regardless of the external condition of the box.

In case of concealed damage, the transportation company must be notified within 15 days after delivery. DO NOT DISPOSE OF OR PART WITH THE PACKING MATERIAL OR BOX UNTIL THE TRANSPORTATION COMPANY'S AGENT HAS EXAMINED THEM.

Test Certificate

Inside each Western Electric 300B carton is a test certificate with a matching serial number. These certificates are printed at the time of manufacture and include characteristics unique to its associated tube. The results shown are generated during a computer-programmed testing stage, which includes limits specific to the 300B. After passing each level of the test, results are stored in a database and the tube is accepted for shipment or warehousing. In the event that a pair, quad, or larger set is needed, the same test results are referenced by Western Electric staff to match and track tubes as they complete the testing stage.

The test set checks for proper electrode capacitances, filament current (I_f), plate current (I_b), grid current (I_c) (which determines gas content), plate resistance (R_p), transconductance (G_m), and amplification factor (M_μ). Both plate resistance and amplification factor are critical characteristics not commonly provided by commercial tube test units.

Western Electric performs another unique test denoted as Delta $G_m @ E_f=4.5V$. During this phase, the filament voltage is dropped by 11% and a subsequent G_m test is executed to convey transconductance performance and confirm emission stability.

The test certificate represents in-the-box, direct-from-manufacturer proof of performance quality and adds a layer of authenticity and transparency expected by the End User.

Manufacturing Process

All Western Electric electron tubes are manufactured to the highest vacuum technology standards available today. The notes below represent just a few practices Western Electric observes in the manufacture of the 300B:

- Assembly is performed in clean room conditions with Class 10 HEPA air filtration.
- Ultra-high vacuum (UHV) is accomplished with turbomolecular pumps backed with dry scroll pumps.
- The ultra-pure cathode filament material is derived from a 1963 melt from the former Western Electric Hawthorne Works in Chicago. The filament's oxide coating is applied with a state-of-the-art, proprietary process originally developed for undersea cable transmission, wherein long life and stable emission are essential.
- The anode is coated with a proprietary, high-emissivity material to ensure cool tube operation.
- Reduction of metals (extraction of impurities) is achieved with "five-nines" (99.999%) pure hydrogen and nitrogen.
- Tubes are activated and aged using strictly adhered procedures developed at Bell Laboratories.
- All glass components are processed with 18-megohm, semiconductor-grade deionized water.

The 300B is produced at Western Electric's Rossville Works using original tooling, materials, engineering specifications, and manufacturing techniques.



WESTERN ELECTRIC ROSSVILLE WORKS

ESTABLISHED IN 2018 FOR THE
MANUFACTURE OF ELECTRON TUBES

The type 300B electron tube was introduced in 1938.
Its manufacture continues at the Rossville Works, bringing
the Western Electric tradition of quality and sound to new
listeners worldwide.