ment is not subjected to any destructive forces, and its life is tremendously lengthened. As against 1,000 hours for other tubes, Erla Triple Life tubes will render 3,000 hours of unimpaired service when operated at rated voltage. This longer life tube is easily the greatest advance in vacuum tube development, for by a single stroke tube expense is cut two -thirds.

Besides longer life, this superior accuracy in controlling the evacuation assures a tube with operating characteristics which are uniform, therefore rendering at all times a better reception.

Erla Triple Life tubes are made in two types, 3,000 X 1-A, a detector amplifier, for use in radio frequency or detector stages, and type 3,000 X 12-A, a power tube for operation on 135 volts "B" Battery, for use in the last audio or output stage. These tubes used in combination in a receiver assures maximum quietness and efficiency in operation over long periods with tone quality that is a revelation.

Guarantee

Erla tubes are guaranteed to give absolute satisfaction when operated in accordance with instructions packed with each tube. Any tube that does not give satisfaction will be replaced.

PRICES

Number	Description	Price
3000 X 1-A	5-Volt Hard Detector-Amplifier	$2.00
3000 X 12-A	5-Volt Hard Power Tube	4.50
190 X 9-A	3-Volt Hard Detector-Amplifier	2.25
100 X 20-A	3-Volt Hard Power Tube	2.50

Electrical Research Laboratories

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CHICAGO, ILL.

F-6150-50M 9-26

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ERLA TUBE CHARACTERISTICS

Type	Use	Base	Grid Condenser	Grid Leak	Detector Grid Return	"A" Battery Voltage (Supply)	Voltage Filament Terminal	"A" Battery Current Amperes	"B" Battery Volts Det.	"B" Battery Volts Amplifier	"C" Battery Volts	Plate Current Milli-amperes (Normal)	Output Resistance Ohms	Mutual Conductance (Micromnos)	Voltage Amplification Factor
3000X1-A	Detector and Amplifier	UX	.00025 mfd.	2 to 9 meg.	Pos. Filament	6	5	.25	45	90	4.5	3	12,000	800	9
190X9-A	"	"	"	"	"	4.5	3	.06	45	90	4.5	2.5	15,000	400	6.25
*3000X12-A	"	"	"	3 to 5 meg.	"	6	5	.5	22.5 to 45	90 to 135	4.5 to 9	3 to 6	8,800 to 5,500	890 to 1,435	8
*100X20-A	Amp. last stage only	"	——		——	4.5	3	.125	—	135	22.5	6	6,500	550	4

*Power Tube.

Note:—Indicated values of plate current, amplification constant, mutual conductance and resistance not taken at zero grid potential, but at normal operating value.

ERLA TRIPLE LIFE Tubes

ELECTRICAL RESEARCH LABORATORIES
CHICAGO

NEW ERLA TRIPLE LIFE TUBES

THE vacuum tube is the heart of the radio receiver. This mysterious little bulb-like contrivance is entirely responsible for the present day success of radio reception.

The work of the radio tube is to take the weak incoming signals which are collected by the antenna and convert them into sound for the loud speaker. To appreciate the magnitude of this task and to realize the importance of selecting your tubes with greatest care, you must have some conception of the strength of the incoming signal.

Type 3000X 1-A

It has recently been said that the actual amount of energy picked up by an antenna from a broadcasting station 2,000 miles away operating continuously for thirty years will be about equal the energy expended by a house-fly climbing up a wall a distance of one inch.

To state this differently, the total amount of energy impressed upon the first vacuum tube of the average receiving set is some million-millionths part of that at the broadcasting station. This energy is so inconceivably small that the mind cannot grasp the significance of it.

What Constitutes a Good Radio Tube

It is obvious that the radio tube has a herculean task and that it must be selected with discrimination. This cannot be over-emphasized for it is the tube that must take this unbelievably small amount of energy and amplify it to the point where it will operate a loud speaker with the desired volume.

The vacuum tube must be extremely sensitive to the weakest signals from distant stations. It must be economical to operate. It must have long-life. It must give clear tone values, amplify in the audio frequency stages with positive performance. It must give thorough, dependable service over a long period of time.

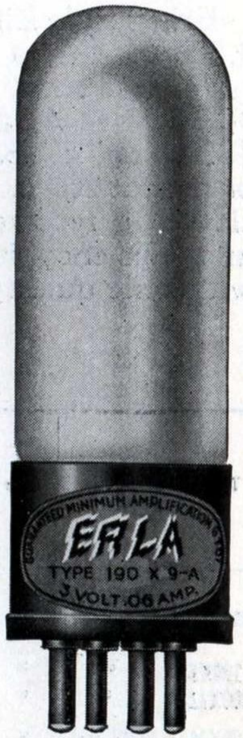
New Erla Tube Outlasts any Other Tube

Now the Electrical Research Laboratories, pioneers in the development of radio improvements, have perfected a new tube which will last three times as long as any tube on the market. These new tubes operate with a minimum of battery current, reproduce every sound perfectly without a trace of distortion.

These vastly superior features of the Erla Triple Life tube have been made possible by a new evacuation process which is patented and exclusive in Erla tube manufacture. No other tube can have these features.

New Evacuation Process Assures Longer Life

By this new and patented process, Erla tubes are evacuated at 1,000 degrees centigrade, as against 500 degrees, the highest known temperature formerly employed. Because of this higher temperature, gases formerly occluded in the metallic elements of the tubes are now driven off and removed, protecting the tube filament from subsequent deterioration. Ordinarily, gases remaining in the tube combine with the filament resulting in a decrease in its electronic emission and a shorter life.



Type 190X 9-A

In the Erla Triple Life Tube, from which occluded gases have been removed, the fila-

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