

INSTRUCTION LEAFLET & SERVICE INFORMATION

—FOR THE—

Electrohome Custom Built "VA-100 MKI"

Hi - Fi

4-TUBE PREAMPLIFIER-EQUALIZER

— FEATURING —

- Seven-position Input and Roll-over Selector Switch
- Six-position Roll-off Selector Switch
- Amplifier and Tape Record, Output Jacks
- Four Separate Input Jacks
- Separate Bass and Treble Tone Controls
- Separate Level and Contour Controls
- Audio High Pass Filter Switch
- Audio Low Pass Filter Switch
- Switched AC Receptacles
- Hum Balance Control
- Magnetic Input Resistance Control
- Jewel Type Indicator

Specifications as follows:

Frequency Response	— 20 cps to 20,000 cps.
Hum and Noise Level	— 80 db below two volts rated output
Intermodulation Distortion	— Less than .5% at five volts output
Harmonic Distortion	— 0.5% at five volts output
Voltage Gain	— Five
Contour Control	— Designed to provide 20 db lift at 20 cps
Bass Tone Control	— Designed to provide 15 db cut or lift at 50 cps Designed to provide 15 db cut or lift at 10,000 cps.
Audio High Pass Filter Switch	— Bass cut position — 20 db at 30 cps
Audio Low Pass Filter Switch	— Treble cut position — 14 db at 5,000 cps 25 db at 10,000 cps
Equalization	— Twenty-four different equalization curves are available using roll-over and roll-off switches.

Power Supply — 110 - 120 Volts. 25/60 cycle 20 watts

MANUFACTURED BY

**Dominion Electrohome Industries
LIMITED**

KITCHENER — ONTARIO — CANADA

Manufacturers of

Custom Built Cabinets and Hi-Fi Custom Equipment, Radio and Television Receivers,
Car, Radios, Air Conditioners, Fans, Deilcraft Fine Furniture.

CONTROL PANEL	CHASSIS
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CHASSIS INSTALLATION

Since the preamp-equalizer is the control centre of the high-fidelity system, it should be placed in a spot easily accessible and convenient for operation.

The output and AC power cable of the preamp-equalizer permits a distance of about four feet between the unit and power amplifier. For greater distances, extension cables may be used. If the extension cable from the preamp-equalizer is of a very low capacitance it may be up to 25 feet in additional length without seriously affecting performance.

This unit has been designed with a removable control panel to permit its installation in custom cabinets, book-cases, wall panels, etc., and still retain the usefulness of the control panel. The drawing showing the mounting of the preamp-equalizer will assist in the proper location of the chassis in relationship to the panel being used to provide adequate shaft protrusion for the knobs. It is important that the preamp-equalizer be located to insure proper ventilation as the tubes and transformer give off considerable heat which must be dissipated if normal life of the components is to be expected.

THE CHASSIS MUST BE MOUNTED ON THE METAL BASE PLATE SUPPLIED TO MEET CSA REQUIREMENTS.

NOTE—If the chassis is to be installed in a totally enclosed compartment, the compartment MUST BE AT LEAST 1.5 CU. FT. to meet CSA requirements.

DESCRIPTION AND OPERATION

The VA-100 MK I Preamp-Equalizer has been designed as a companion piece for the Electrohome CH51-515 AM Custom Tuner, the CHF142-515 AM-FM Custom Tuner, and the PA-100 Williamson Type or PA-400 Ten Watt Class AB1 Power Amplifiers. The unit may however be used with any good hi-fi equipment which has been engineered for the use of a Preamp-Equalizer control center.

The VA-100 MK I Preamp-Equalizer performs five main functions:

1. Amplification and equalization for magnetic and reluctance type pickups.
2. Allows selection of four pre-connected input channels.
3. Controls volume level of high-fidelity audio system.
4. Permits continuously variable control of bass and treble spectra.
5. Provision for feeding any one of the four pre-connected input channels to a tape recorder while monitoring the sound through the high-fidelity amplifier and speaker system.

OFF-ON A.C. SWITCH

This switch is located on the rear of the treble tone control. The "Power-on Indicator" jewel in the front panel lights up when the unit is turned on.

INPUT JACKS

MAG. INPUT — Plug magnetic and dynamic pickups into this jack. The load or termination is adjustable by means of the calibrated MAGNETIC INPUT RESISTANCE control on the rear skirt.

The following settings are suggested, subject to recommendations of the pickup manufacturers:

G.E. Variable Reluctance	— 47K	G.E. Professional	— 27K
Pickering	— 27K	Electrosonic & Transformer	— 50K
Audak	— 50K	Ferranti & Transformer	— 100K
Fairchild	— 27K		

NOTE—Screwdriver slot on control is used to indicate resistance setting. Increase is (→) clockwise.

***RADIO** — Plug radio sound channel into this jack. This can be used with an AM, AM-FM or FM tuner.

***TAPE** — Plug TV sound channel into this jack.

***TV** — Plug output from tape playback unit into this jack.

*These jacks may also be used for connection of a changer using a crystal pickup or to connect a high output crystal microphone.

NOTE — Phono Connections carelessly made can completely overcome the low hum level designed into the VA-100 MK I Preamp-Equalizer. With manual single play units the turntable frame and pickup arm must be grounded to the amplifier chassis by connecting a wire from the turntable frame to the pickup arm base and there soldering it to the shield of the lead from the arm to the amplifier. With record changers, grounding the shield at the changer is usually satisfactory.

If the shielded pickup lead is not insulated, it must not touch the turntable frame, pickup arm base, tuner or amplifier or any parts thereto attached other than those at which connections have been made.

OUTPUT JACKS

There are two output jacks, TAPE RECORD. and AMPLIFIER, located on the rear skirt.

TAPE RECORD.

This jack permits the operation of a tape recorder while monitoring from a loud speaker at any desired volume since the level fed to the recorder is unaffected by the settings of the contour control. The bass and treble tone controls are effective on this output. The connecting cable to the tape recorder should not be longer than 10 feet if ordinary microphone cable is used. The input to the tape recorder should be high impedance (100,000 ohms or greater).

AMPLIFIER

This jack is for the connection to any good power amplifier having a high impedance input of 250,000 ohms or greater for best results.

MAGNETIC PHONO INPUT RECORD EQUALIZATION ADJUSTMENTS

The input and roll-over selector switch has four different positions for playing phonograph records. These positions, FLAT, LP, RIAA and 800, provide different turnover characteristics. This adjustment is necessary to provide the best balance in reproducing records. In order to avoid distortion in recording and playback all records are made with reduced bass. All recording companies however do not record with the same amount of bass reduction nor do they all use the same recording curves. To compensate for this, bass boost is built into the preamplifier and can be selected to correspond to the characteristic used in a particular recording. See table for suggested settings.

NOTE — The roll-over frequency is the frequency at which the bass begins to increase.

ROLL-OFF

In the manufacture of recordings the high frequencies are emphasized so that the records may be played back with the amplifier rolled off in the treble range to reduce surface noise. The amount of emphasis given to the treble frequencies varies with the manufacturer and is compensated with the roll-off control providing clean treble response minus harshness or shrillness. The VA-100 MK I provides six degrees of roll-off as required for Early 78, Col. LP, RIAA, Lon. LP, FFRR and FLAT. See table for suggested settings.

NOTE — The roll-over and roll-off selector circuits have been so designed as to increase bass and treble response respectively when they are turned clockwise (→).

SUGGESTED EQUALIZER, ROLL-OVER AND ROLL-OFF SETTINGS FOR A VARIETY OF RECORD LABELS

NOTE — All settings shown are for use with the treble and bass tone controls set in their mid (flat) position, i.e., with the indicator mark on knobs set at the 12 o'clock position.

Make	Roll-over	Roll-off	Make	Roll-over	Roll-off
Angel	R.I.A.A.	R.I.A.A.	London	L.P.	Lon. L.P.
Capitol	R.I.A.A.	R.I.A.A.	London ffrr	Flat	F.F.R.R.
Capitol FDS	R.I.A.A.	R.I.A.A.	M G M	R.I.A.A.	R.I.A.A.
Columbia	L.P.	Col. L.P.	Mercury	R.I.A.A.	R.I.A.A.
English Columbia	Flat	Flat	RCA (early releases)	800	R.I.A.A.
Decca	R.I.A.A.	R.I.A.A.	RCA Victor	R.I.A.A.	R.I.A.A.
Decca ffrr	Flat	F.F.R.R.	Urania	R.I.A.A.	R.I.A.A.
EMS	R.I.A.A.	R.I.A.A.	Westminster	R.I.A.A.	R.I.A.A.
HMV 33-1/3	800	R.I.A.A.	Most European 78	Flat	Flat
HMV 78	Flat	Flat	Older records having high surface noise	800	Early 78

Suggested settings for various types of records are shown, but in all cases the proper settings are those that sound best.

TONE CONTROLS

It may be that the suggested settings of record equalization do not give you a pleasing tonal balance of the relative loudness of bass and treble frequencies. Since high-fidelity units are installed in various types of rooms with individual acoustical characteristics, and each person has his or her own idea of tonal balance, the separate bass and treble tone controls may be adjusted to provide personalized listening pleasure.

To bring out the full richness of the bass instruments, the full brilliance of the cymbals and for overtones of all instruments (to hear the whole score), turn the bass and treble tone controls clockwise (→), from the "O" flat position towards the + 1 to 5 positions.

If on the other hand the bass or treble frequencies are too accentuated with the controls set at the "O" flat position or towards the + 1 to 5 positions, they can be reduced by turning the controls counterclockwise (←) toward the —1 to 5 positions. The + and —1 to 5 positions are for varying degrees of boost (+) or cut (—).

CAUTION — Do not adjust tone controls to give excessive bass or treble boost at high volume levels. Excessive bass boost will over-drive the amplifier resulting in severely distorted reproduction and excessive treble boost gives thin reproduction. It will also be noted that the lows are more pronounced than the highs when an AM tuner is used and it may be necessary to turn the bass tone control counterclockwise (←) to prevent bass overloading.

LEVEL AND CONTOUR CONTROL

The VA-100 MK I Preamp-Equalizer provides a dual level and Contour control to make separate adjustments of level and boost. The boost provided by the contour control is separate and in addition to that provided by the tone controls. The contour control's boost compensates for the human ear's insensitivity to extremes of treble and bass at low listening levels. This is done by progressively boosting the treble and bass response as the contour control is turned down to maintain a satisfactory tonal balance. Treble loudness compensation is necessary as well as compensation for bass tones if a boomy effect is to be avoided at low listening levels.

With the level and contour controls an infinite variety of balance is available to suit your personal preferences for various types of recordings or broadcast programs.

LEVEL AND CONTOUR CONTROL OPERATION

*Turn the contour control (rear knob) to its extreme right hand position, set the level control (front knob) for maximum anticipated loudness on crescendo passages, adjust bass and treble tone controls and record equalization switches as outlined previously, and reset the contour control for desired listening level.

When the setting has been found which suits your individual preference, tonal balance can be maintained without varying tone controls as the listening level is varied.

*This procedure is important to prevent overloading input stages.

NOTE — Do not adjust the contour control or bass tone controls to give excessive bass or treble boost at high volume levels.

When an AM tuner is used the contour control should be set almost fully clockwise and the level set control used as a volume control. Excessive bass can be reduced further by switching the audio high pass filter switch to the bass cut position. Annoying heterodyne whistles may be reduced by switching the audio low pass filter switch to the treble cut position.

AUDIO HIGH PASS FILTER SWITCH ** (rumble filter switch)

All record changers or record players are not designed or built to eliminate inherent rumble and, as a result, when these units are used in conjunction with an amplifier and speaker system with extended low frequency response, this rumble becomes apparent. Its presence is recognized by a low frequency hum or distorted output emanating from the speakers and caused by inaudible cone flutter. This (**) switch when set in the bass cut position attenuates the very low frequencies, including the rumble frequencies which occur around 30 cycles per second. If your changer or player has high rumble content set the switch on the BASS CUT position.

This switch may also, as has been noted, be used to reduce excessive bass response. Full range frequency response of the units however can only be achieved when this switch (**) is in the flat position.

AUDIO LOW PASS FILTER SWITCH (scratch filter)

This switch has been built into the unit to provide a means of removing the annoying scratch inherent in old recordings and in some new recordings. It may also be used to reduce in some measure the annoying heterodyne whistles on AM reception. Set the switch on treble cut position for reduction of this condition. For full frequency response, set in the flat position.

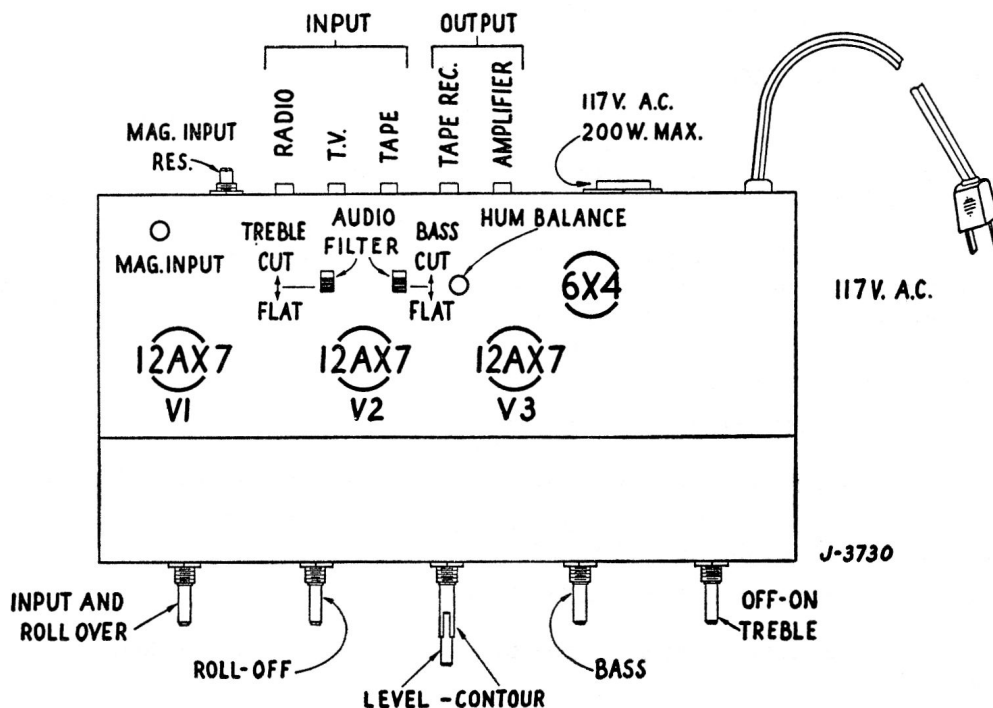
OTHER FEATURES

Included in this amplifier are:

- (a) An AC receptacle (rear of chassis) switched on or off by the AC switch on the treble tone control. This provides a switched source of 117 volt AC voltage for use with a tuner, changer, amplifier, etc., which does not require more than 200 watts maximum power.
- (b) Hum Balance Control. It may be found necessary to adjust the hum balancer control for minimum hum reproduction when the two 12AX7 tubes, V2 and V3, are replaced. Set the bass tone control to its extreme right hand position, the input selector switch to radio, the level and contour controls to their extreme clockwise position, the audio high pass filter switch to flat position and adjust the control for minimum hum level.

A WORD OF CAUTION

The components in the VA-100 MK I have been carefully chosen as regards value, tolerances and types to give the maximum in the way of ultimate wide frequency response. When servicing is required due consideration must be given to the values specified and exact replacements made if at all possible.



SERVICE REPLACEMENT PARTS LIST

When writing for Service Information quote model and Serial Number.

C-992.....Dressup Panel	K-1547.....Selenium Rectifier
G-528-1.....Electrolytic — Tubular	K-1602.....Jewel
25 ufd x 25 DC WV	K-771A.....Pilot Lamp 6-8V .25A #44
G-643.....Electrolytic — Can — Dual	LK-587-1.....Power Transformer 25 - 60 Cycle
20 & 40 ufd x 350 DC WV	N-428-2.....Knob (4)
G-644.....Electrolytic — Can — Dual	N-429-1.....Knob (1) rear)
200 ufd x 15 DC WV, 1000 ufd x 10	N-430-1.....Knob (1) Front) Dual
DC WV	Q-228.....Slider Switch — Audio Filter Roll-over
G-629-5......05 ufd \pm 10% 200V Tub. Condenser	Q-331-1.....Selector Switch — Input
G-613......5 ufd 200V Tub. Condenser—Metal-	Q-332-1.....Selector Switch — Roll-off
lized	R-391-1.....Control — Hum Balance
G-629-4......02 ufd \pm 10% 400V Tub. Condenser	R-418-1.....Control — Dual — Level — Contour
H-537-1.....33K ohm \pm 10% 1/2W Res. Low	R-419-1.....Control — Bass Tone
Noise Coefficient	R-420-1.....Control — Off-On Treble Tone
H-537-2.....68K ohm \pm 10% 1/2W Res. Low	R-421-1.....Control — Load Adjustment
Noise Coefficient	
H-536-10.....22 ohm \pm 10% 5W Resistor	

