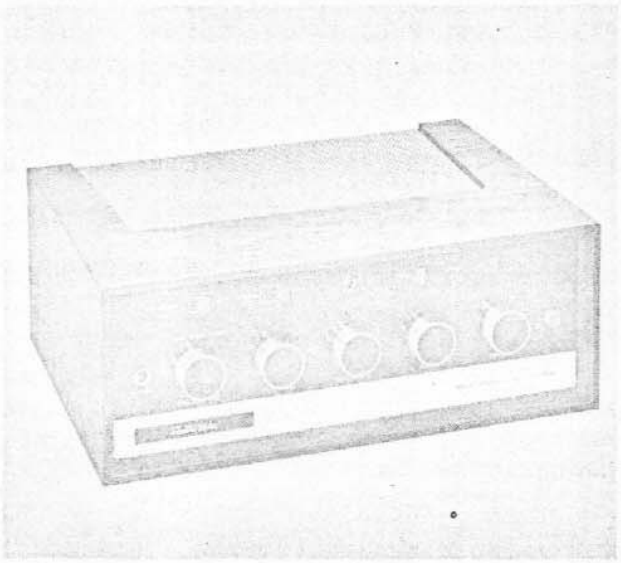
E-V 66 STEREO CONTROL AMPLIFIER



FEATURES

- All-transistor, solid state circuitry - military type etched circuit wiring
- Cool operation provides maximum component life and greatly reduces ventilation requirements
- Extremely flat, wide-range frequency response

DESCRIPTION

Representing an entirely new and unique approach to the design of stereo high fidelity components, the Electro-Voice E-V 66 stereo control amplifier incorporates the latest "state of the art" electronic devices and circuitry. To ensure proper operation of the E-V 66, it is urged that the installation procedure be followed exactly.

The E-V 66 incorporates twenty-six transistors, of which fourteen are silicon, and four silicon diodes in the power supply. Extremely cool operation is assured by direct conduction of the small amount of heat from the output transistors to the unit's heavy base plate. All components operate well within their rated temperature range, insuring long life and exceptional stability.

The use of highest quality transistors and careful chassis layout results in the virtual absence of hum, hiss, and noise. Wide frequency response, unusually low distortion, exceptional square wave response, and other performance characteristics exhibit little or no deterioration throughout the entire power output range--up to, and including, full power.

The E-V 66 incorporates Automatic Contour Regulation, a unique tone control circuit (patent pending) linked to the volume control circuit in a manner which provides an infinitely-variable loudness compensation. Any amount of boost selected on the bass and/or treble control is regulated by the volume control to reduce the amount of boost automatically as the volume is increased, and raise the amount of boost as the volume is lowered. Flat or attenuated settings of the tone controls remain unaffected by changes in the volume control setting. The boost characteristic of the bass control is exceptionally useful in compensating for deficiencies in loudspeaker and room acoustics--even at the maximum setting where conventional tone controls tend to sound unpleasantly "boomy".

SPECIFICATIONS

Power Output:	80 watts IHF music power (40 watts per channel); 160 watts instantaneous peak power.
Frequency Response:	±1.5 db; 8 to 50,000 cps at rated power.
Channel Separation:	40 db minimum at 1000 cps
Harmonic Distortion:	Less than 0.5% at rated output
IM Distortion:	Less than 0.5% at rated output
Hum and Noise:	High level inputs--better than 80 db down at rated output. Magnetic phono input---better than 70 db down (reference, 10 mv input)
Input Sensitivity:	Magnetic phono -- 3 mv Ceramic phono, tuner, aux, and tape monitor--100 mv
Controls:	Selector (Phono, Tuner, Aux); Volume: Balance: Base (+20 db, -20 db at 50 cps)*: Treble (+15 db, -15 db at 10 kc)*; Speaker (On-Mute)
Output Damping Factor:	50 at 8 ohms
Outputs:	Speaker (4-8-16 ohms each channel); stereo tape recorder; stereo headphone.
Auxiliary AC Outlets:	2 - one switched, one unswitched.
Power Requirements:	110 - 120 volts, 50 - 60 cycle AC.
Dimensions:	4-3/32" x 12-3/16" x 9-3/4"
Weight:	9-1/2 lbs.

*Figures represent maximum boost at low volume settings. (See text for explanation of Automatic Contour Regulation circuit.)

E-V 66 STEREO CONTROL AMPLIFIER

CONNECTIONS

Note: The AC power cord should not be plugged in until all connections and initial control settings have been made.

1. Connect the right- and left-channel speakers to the right- and left-channel amplifier terminals, respectively. Ordinary #18 lamp- or "zip" cord is satisfactory. In order to ensure proper stereo effect, make certain that the speakers are phased correctly. Most speakers and speaker systems have one terminal coded red, T1, +, or otherwise marked for proper phasing. This terminal should be connected to the amplifier output terminal marked "4-8-16 ohms". The amplifier common terminal, marked "COM", should be connected to the black, T2, -, or unmarked speaker terminal. Care should be taken to keep the speaker wires from touching each other either at the amplifier or the speaker terminals. Although no harm will be done to the amplifier, a short circuit in the amplifier output will require the unnecessary and bothersome replacing of fuses.

2. Connect program source (tuner, phono, etc.) to the appropriate pair of input jacks on the rear panel. The left jack of each pair is the input for the left channel; the right jack of each pair feeds the right channel. If a monophonic source such as a mono tuner is employed, it may be connected to either channel input.

3. The phono cartridge selector switch (above the phono input jacks) should be placed in either the ceramic (CER) or magnetic (MAG) position, depending upon the type of cartridge employed in the record player.

4. Normally a separate ground wire is required between an amplifier and a record player to reduce hum. This wire should be connected to the SYSTEM GROUND screw on the amplifier rear panel.

5. If a tape machine capable of recording is to be used in the system, the recorder's high level inputs should be connected to the amplifier jacks labeled OUTPUT TO TAPE RECORDER. High level output from the recorder should be connected to the amplifier input jacks labeled TAPE. The gain of this input is designed for tape recorders with built-in playback electronics; it will not operate directly from a tape head.

6. For convenience, two AC outlets are provided on the rear panel. Auxiliary equipment such as a tuner, record player, or tape deck may be connected to these outlets as long as the total power consumption of the additional units does not exceed 300 watts. The switched outlet is controlled by the amplifier on-off switch; the unswitched outlet is on at all times. Normally a mechanical device such as a record player or tape machine should be connected to the unswitched outlet so that it cannot be turned off at the amplifier with the mechanism engaged.

Before plugging in the amplifier, read through the following section to become familiar with front panel controls, in addition to the initial settings.

CONTROL FUNCTIONS

POWER ON/OFF

Controls the main AC power to the amplifier in addition to any equipment connected to the switched AC convenience outlet on the rear panel. This switch should be in the OFF position before connecting the line cord to AC power, and should be in the OFF position whenever any connection changes to the amplifier or associated equipment are made.

MONO/STEREO SWITCH

In the STEREO position, the left- and right-channel input signals are fed through the left- and right-channel amplifiers to their respective speakers. In the MONO position, the left- and right-channel inputs are combined and fed through both amplifiers, with the resulting signal routed to both the left and right speakers. Similarly, a mono source connected to either a left- or right-channel input will be fed to both amplifier channels and then to both speakers. Either position may be used initially, depending upon the program source available.

SOURCE/TAPE SWITCH

In the SOURCE position, the signal being fed to the speakers (phono, tuner, auxiliary) is selected by the SELECTOR switch. The TAPE position selects the tape input (regardless of the position of the SELECTOR switch) for playback from a tape recorder. NOTE: This switch may also be used to compare tape quality to material being recorded when used with a tape machine providing off-the-tape monitoring while recording. The tape recorder instruction book will provide additional details.

SPEAKER ON/MUTE SWITCH

In the MUTE position, the switch silences both speakers so that headphones may be used for private listening. Although no harm will be done to the amplifier if this switch is left in the MUTE position, it is suggested that the speakers be turned on after listening with headphones, so that a person unfamiliar with the equipment will have no difficulty operating this system.

PHONES JACK

Provides output for high-quality stereo headphones. Output is available at all times, regardless of the setting of the SPEAKER ON/MUTE switch.

tuner input jacks and are dressed neatly along the rear panels of the two chassis. Normally this connection will never be changed--however, if it should ever become desirable to attach the tuner output to another amplifier or connect another tuner to the tuner input jacks on the amplifier, this interchassis connection may be removed by simply unplugging the cables at either or both ends.

Before plugging in the E-V 1177 stereo FM receiver, read through the following section to become familiar with the front panel controls and their initial settings.

CONTROL FUNCTIONS

AMPLIFIER SECTION

MONO/STEREO SWITCH

In the STEREO position, the left- and right-channel input signals are fed through the left- and right-amplifiers to their respective speakers. In the MONO position, the left- and right-channel inputs are combined and fed through both amplifiers, with the resulting signal routed to both the right and left speakers. Similarly, a mono source connected to either a left- or right-channel input will be fed to both amplifier channels and then to both speakers. Either position may be used initially, depending upon the program source available.

SOURCE/TAPE SWITCH

In the SOURCE position, the signal being fed to the speakers (phono, tuner, auxiliary) is selected by the SELECTOR switch. The TAPE position selects the tape input (regardless of the position of the SELECTOR switch) for playback from a tape recorder. NOTE: This switch may also be used to compare tape quality to material being recorded when used with a tape machine providing off-the-tape monitoring while recording. The tape recorder instruction book will provide additional details.

SPEAKER ON/MUTE SWITCH

In the MUTE position, the switch silences both speakers so that headphones may be used for private listening. Although no harm will be done to the amplifier if this switch is left in the MUTE position, it is suggested that the speakers be turned on after listening with headphones, so that a person unfamiliar with the equipment will have no difficulty operating the system.

LOUDNESS ON/OFF

To obtain normal or "flat" response at normal listening volume, this control should be in the OFF position. However, at reduced volume settings, the ear is less sensitive to low-frequency sounds. Placing this switch in the ON position will provide a compensating boost in the bass range to correct this condition without disturbing the regular tone control settings.

PHONES JACK

Provides output for high-quality stereo headphones. Output is available at all times, regardless of the setting of the SPEAKER ON/MUTE switch.

SELECTOR SWITCH

Selects desired input signal in conjunction with the SOURCE/TAPE switch described above. Initially, this control should be set to select the program source to be used for system testing. The program source selected by the SELECTOR switch also is fed to the OUTPUT TO TAPE RECORDER jacks which are not affected by any other operating control. If it is desired to record a stereo source on a monophonic recorder, a "Y" connector (obtained locally) should be inserted between the amplifier output jacks and the recorder input jack.

NOTE: When the SELECTOR SWITCH is placed in the TUNER position, the audio from the receiver's built-in tuner section will be fed through the music system and the illuminated "pointer" behind the tuner dial will be turned on.

VOLUME/POWER OFF

Adjusts the gain of both stereo channels and controls the main AC power to the amplifier in addition to any equipment connected to the switched AC outlet on the rear panel. Initially, the volume control should be set fully-counter-clockwise (minimum volume). After the system has been turned on, the volume control may be advanced until the desired listening level is reached. This control should be in the POWER OFF position before connecting the line cord to AC power, and should be in the OFF position whenever any connection change to the amplifier or associated equipment is made.

BALANCE

Adjusts the relative volume of the left and right stereo channels. The center, or "12 o'clock", position of the control will provide normal balance in most instances. As the control is rotated to the left (counter-clockwise), the output of the right channel speaker is reduced, until at the maximum counter-clockwise position, only the left channel is playing. The opposite effect occurs as the balance control is rotated to the right from the center position. When the MONO/STEREO switch is in the MONO position, the balance control may be used to direct the monophonic signal through the left, right, or both speakers. It may also be used to compensate for different speaker efficiencies if dissimilar speaker systems are employed in the two channels.

BASS AND TREBLE CONTROLS

Provide adjustment of low-frequency and high-frequency response, respectively. Normal or flat response is obtained with both controls in the center, or "12 o'clock", position. Counter clockwise rotation increases the response. Each of these controls varies the response of both channels simultaneously.

TUNER SECTION

AFC OFF/ON

This switch provides a means of "locking in" a station to which the tuner has been tuned, thereby completely eliminating any chance of "drift" and annoyance of having to readjust the tuning. For maximum accuracy in tuning in stations, switch the AFC OFF/ON switch to the OFF position when tuning. Tune in the desired station according to the instructions under TUNING AND TUNING METER. Switch the AFC OFF/ON switch to the ON position after the station has been tuned in and it will remain positively locked in place.

TUNING AND TUNING METER

Highly accurate tuning of FM stations from 88 to 108 megacycles is permitted through the use of the TUNING control in conjunction with the TUNING METER. For greater tuning accuracy, tuning should be accomplished with the AFC OFF/ON switch in the OFF position as described above. Tune across the dial until the desired station is reached and, note that as the signal is first heard the TUNING METER will deflect to the left or the right. As the dial is then gradually adjusted toward the center of the signal the TUNING METER moves toward center. Continued tuning in the same direction (away from the center of the signal in the opposite direction from which it was first approached) will cause the TUNING METER to correspondingly deflect in the opposite direction. Precise "on center" tuning occurs when the TUNING METER returns to the center of its tuning scale. "On center" tuning assures minimum distortion and noise.

MOVABLE STATION MARKERS

As a convenience, the dial locations of your favorite FM stations can be marked for quick reference by the three red MOVABLE STATION MARKERS located just above the tuning dial. These markers may be positioned at any location by simply sliding them back and forth.

FULL-TIME STERO INDICATOR LIGHT

Located at the extreme right-hand end of the dial, the FULL TIME STEREO INDICATOR LIGHT tells you immediately whether or not a station is broadcasting in stereo. This light is triggered by the 19 kc sub-carrier which is present in stereo multiplex signals and winks on the instant a stereo signal is received. It operates regardless of the setting of the MONO/STEREO SWITCH.

NOTE: Since the random or "white" noise between stations contains all frequencies, including 19 kc, an occasional flickering of the FTS INDICATOR LIGHT may be noticed when tuning between stations. This condition is perfectly normal and should not be construed as a malfunction of the unit.

LOCAL/DISTANT SWITCH

(Located on the sloping panel at the rear of chassis) Normally, for best performance this switch should be left in the DISTANT position. However, in extremely strong signal areas (locations which are very close to one or more FM transmitters), a condition of "overloading" may occur. This phenomena usually takes the form of distorted sound when listening to these strong signals and/or the presence of "images" (the same station appearing at more than one spot on the dial, sometimes in combination with signals from other stations). If this condition is noticed, moving the LOCAL/DISTANT SWITCH to the LOCAL position should correct it.

STEREO/MONO SWITCHING

Switching from monophonic to stereo operation on FM is accomplished automatically and electronically by means of a special circuit incorporated in the tuner. Normally, when operating the tuner, the STEREO/MONO switch located on the amplifier section should be placed in the STEREO position. With this control setting, stations broadcasting in stereo will be heard stereophonically while monophonic signals will be heard monophonically through both speakers.

In cases where an extremely weak stereo signal is tuned in, the normal amount of background noise or "hiss" which is present under these conditions may make it undesirable to listen to the signal in stereo. In such instances the STEREO/MONO SWITCH may be switched to the MONO position. In this position the circuit which automatically switches the tuner into the stereo mode is defeated and the signal may be listened to monophonically.

NOTE: If "hiss" is present on other than extremely distant stations broadcasting in stereo, it is usually an indication that a better antenna is required. Refer to CONNECTIONS--TUNER SECTION.

SPECIAL PERFORMANCE FEATURE

The FULL TIME STEREO INDICATOR LIGHT operates at all times when the tuner is tuned to a stereo signal--even when the SELECTOR SWITCH

SELECTOR SWITCH

Selects desired input signal in conjunction with the SOURCE/TAPE switch described above. Initially, this control should be set to select the program source to be used for system testing. The program source selected by the SELECTOR switch also is fed to the OUTPUT TO TAPE RECORDER jacks which are not affected by any other operating control. If it is desired to record a stereo source on a monophonic recorder, a "Y" connector (obtained locally) should be inserted between the amplifier output jacks and the recorder input jack.

VOLUME

Adjusts the gain of both stereo channels. Initially, the volume control should be set fully-counter-clockwise (minimum volume). After the system has been turned on, the volume control may be advanced until the desired listening level is reached. After the normal range of listening volume has been determined, it is not necessary to reduce the volume each time the unit is turned on. Because the amplifier employs an independent ON/OFF switch, all controls, including VOLUME, may be preset for use by members of the household unfamiliar with the various control functions.

BALANCE

Adjusts the relative volume of the left and right stereo channels. The center, or "12 o'clock", position of the control will provide normal balance in most instances. As the control is rotated to the left (counter-clockwise), the output of the right channel speaker is reduced, until at the maximum counter-clockwise position, only the left channel speaker is playing. The opposite effect occurs as the balance control is rotated to the right from the center position. When the MONO/STEREO switch is in the MONO position, the balance control may be used to direct the monophonic signal through the left, right, or both speakers. It may also be used to compensate for different speaker efficiencies if dissimilar speaker systems are employed in the two channels.

BASS AND TREBLE CONTROLS

Provide adjustment of low-frequency and high-frequency response, respectively. Normal or flat response is obtained with both controls in the center, or "12 o'clock", position. Counter-clockwise rotation increases the response. Each of these controls varies the response of both channels simultaneously.

OPERATION

After double-checking the initial settings of the controls, the system may be connected to a convenient AC power source. The position of the controls may be varied to compensate for room acoustics, speaker characteristics, and personal listening preferences.

Occasionally a "thump" or "pop" will be heard when the amplifier power switch is turned on. This is a natural result of the time constants employed in the power-supply filters, and will not harm either the amplifier or speakers.

CAUTION NOTES

If the amplifier connections have been made correctly, the E-V 66 amplifier should now be reproducing sound with the utmost fidelity---and will continue to do so for years to come. Protective circuitry such as output-stage peak current limiting and inherently stable design combine with completely reliable fusing to provide the most rugged and foolproof equipment available.

An MDL-2 (2-amp) fuse is located in the output circuit of each channel amplifier to protect the speaker and output transistor stage from continued overload. The MDL-2 fuse provides maximum protection with a safety margin for any program material played through a speaker with 4-ohm or greater impedance. If additional speakers are desired, make certain that the combined impedance of all speakers connected to a channel is not less than 4 ohms. Effective output impedance lower than 4 ohms will cause excessive current flow and continual blowing of fuses.

If the amplifier is to be checked for sine wave power output, it is recommended that the output fuses be changed temporarily to MDL-3 (3-amp). At the conclusion of testing, MDL-2 fuses should be reinstalled to maintain maximum protection with program material. The AC primary circuit is protected by an AGC-2 fuse. This fuse should never blow unless component failure has occurred and the amplifier requires servicing. Neither of the convenience AC outlets is protected by the primary fuse.

METHOD OF INSTALLATION

The E-V 66 has been tested for proper operation for extended periods in high temperature environments. However, the advantages inherent in a transistor unit's cool operation will be partially negated if the E-V 66 is tightly enclosed or installed directly above a heat generating device such as a radiator or conventional tube-type equipment. Only a normal circulation of air is required; the oiled walnut case, (model CW1), which is available as an accessory item incorporates these ventilation considerations.

WARRANTY

The Electro-Voice E-V 66 stereo control amplifier is unconditionally warranted against defects in materials or workmanship for two full years from date of purchase. If difficulty should be encountered during or after this period, please write the E-V Service Department for return authorization and shipping instructions.

CUSTOMER SERVICE

In order to validate the warranty, the enclosed Warranty Registration Card should be returned to Electro-Voice within ten days of purchase. Returning this card also assures that a complete instruction manual for the E-V 66 will be sent as soon as it is available.

The E-V 66 stereo control amplifier is packed to provide maximum protection---well in excess of shipping requirements of the Interstate Commerce Commission. If shipping damage does occur, contact the carrier immediately, requesting inspection and instructions, or contact the dealer from whom the unit was purchased.

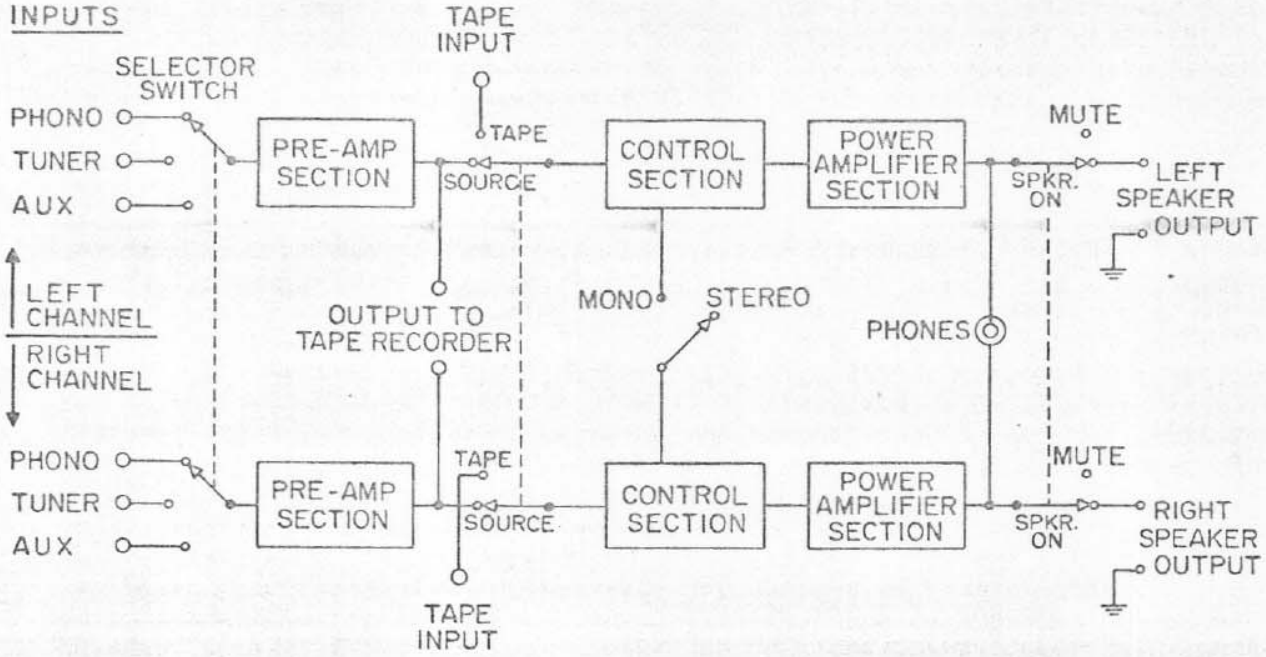


Figure 1 - Simplified Block Diagram

Switches set for playing stereo records with speakers on.