

# FILM-TECH

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General

The A-435A switching amplifier is a single channel device containing passive networks for the suppression of 12 KC signals, and in addition, having inserted in the transmission circuit relay contacts with which to render the channel inoperative, when desired.

A supplementary circuit containing a vacuum tube and rectifier and associated components, accept a 12 KC control signal, amplifying and rectifying it to operate the relay in such a manner as to keep the channel open only when the control signal is present.

Installation

1. Connect switching amplifier into circuit following equalized preamplifier. This may be the A-150C or any preamplifier having a 500/600 ohm output.
2. The A-435A is equipped with an output transformer which is required when working into 500/600 ohm loads. If the following amplifier is a 1520T or 1530T amplifier having an ungrounded 10,000 ohm input connection, the output transformer should be omitted.
3. Obtain power from plate and 6.3 V. terminals on 1520T or 1530T used in stereo channel. When using 1530T, insert 3 straps to connect resistors R21, R22, R23 as shown on schematic.
4. Note the interconnection of B- and the Lo input terminal by means of C5 in the A-435A. Direct connection of these two circuits is not feasible when using the A-150C since transformer isolation is not provided and a ground loop would probably result between the amplifier supplying power to the A-435A and the 150C preamplifier. Should extreme ground potential differences between these two ground returns, however, cause chattering of the relay at the 60 cycle rate, C5 must be either adjusted in size or shorted out to eliminate the trouble. Should adjustment be necessary, the effect upon hum level in the A-150C should be checked. It must also be borne in mind that essentially a short circuit between these two circuits at 12 KC is required in order to operate the amplifier tube V1.

Installation Adjustments

**Note:** The factory tuning adjustments should be sufficiently accurate to make it unnecessary to retune. The following steps, however, should be checked to insure optimum operation.

1. Thread the test film loop with 12 KC signal in the machine and adjust effects track gain control for a meter reading -30 dbm at the input to the A-435A.
2. Remove control tube V1 and connect meter to output of A-435A. If monitor system is adequate, listen also to the output of the channel. If necessary, adjust C1, P1 and P2 for minimum 12 KC output. If meter reading is obtained but no 12 KC output heard, check to see that meter is reading signal rather than noise before readjusting tuned circuits.

3. Thread test loop on second projector and check for similar 12 KC attenuation. If attenuation is inadequate on one machine, indicating a speed difference, proceed as follows:
  - a. Determine which machine is running the slower. With the 12 KC loop in this machine, adjust C1 for minimum 12 KC output.
  - b. With the 12 KC loop in the other machine, adjust P1 and P2 for minimum output. This requires several steps, alternating between P1 and P2 until the optimum adjustment is obtained.
4. Thread the mixed 1 KC and 12 KC test film loop in either machine, insert V1 in socket and adjust "effects" channel fader for normal gain setting. Turn P3 fully clockwise.
5. Run film loop and listen for 1 KC signal alternating with periods of silence. Limited threshold adjustment may be obtained with P3. If system noise, poor splices, etc., tend to cause relay chatter or operation, turn P3 counter-clockwise until condition is cleared.
6. Reduce fader gain setting 6 db and check operation of relay. If switching is not positive, readjust P3 and recheck step 6.
7. Thread loop in second machine and repeat step 6 and 7.

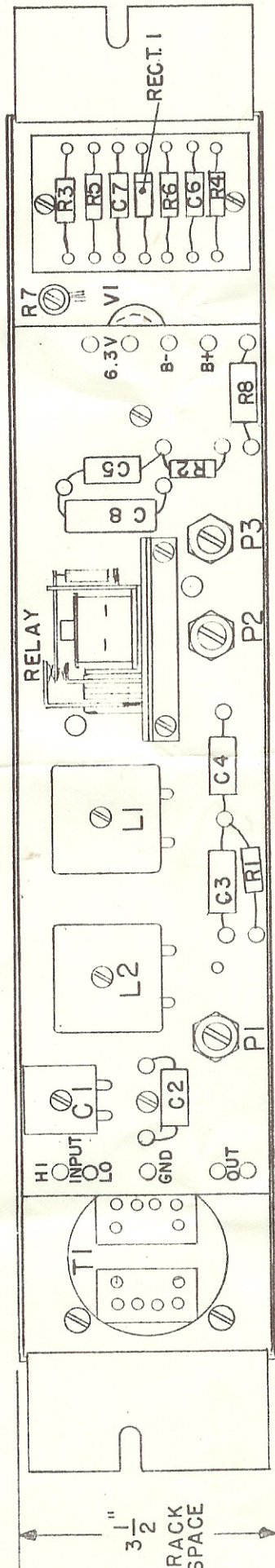
#### Factory Adjustments

1. Remove V1, send 12 KC  $\pm$  1% signal at -30 dbm from 600 ohm source into input, with output terminated in 600 ohms.
2. With sensitive voltmeter on output, turn P1 to end of rotation giving least 12 KC attenuation and adjust C1 for maximum 12 KC attenuation.
3. Adjust P1 and P2 for maximum attenuation, turning P1 and P2 alternately until best adjustment is obtained.
4. Attenuation of 12 KC signal relative to 1 KC shall be not less than 60 db. Attenuation 200 cycles each side of 12 KC shall be not less than 40 db relative to 1 KC. If necessary, C1, L2 may be tuned below 12 KC (to approximately 11,950 cycles) and P1, P2, L1 tuned above 12 KC (to approximately 12,050 cycles) to obtain the necessary band width at 40 db attenuation.

NOTE: Care must be taken in making these measurements not to mistake noise and distortion for the desired signal, since an attenuation of 60 db represents a harmonic content of the original signal of only .1%.

5. Insert V1, and with power supply of 275 V. (P-511) and P3 turned maximum clockwise, check for satisfactory operation of relay with input of -34 dbm between frequencies of 11 KC and 13 KC. Lock all controls.

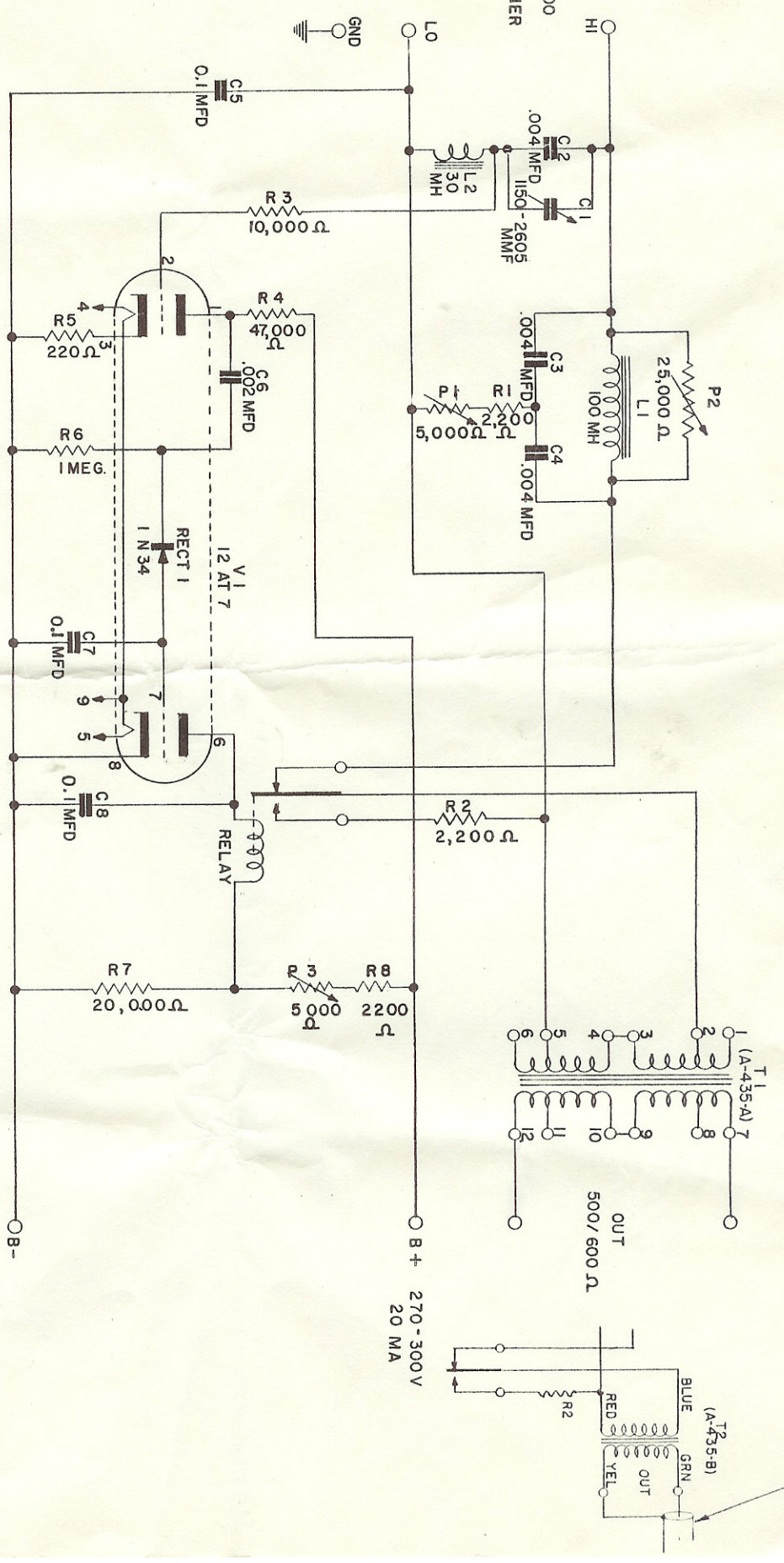
With 15KC amp, set C1 P1 P2 for minimum 10KC output  
 If different input set C1 for minimum 2 output, also machine  
 and P1 P2 for



A 435 A AMPLIFIER

NOTE: WHEN FOLLOWING AMPLIFIER HAS UNGROUNDED 10,000 INPUT, SUCH AS 1530T OR 1520T, TRANSFORMER MAY BE OMITTED

CONNECT TO FOLLOWING AMPLIFIER WITH LOW CAPACITY COAX. CABLE. TERMINATE IN 60,000 OHMS



ALTEC LANSING  
A435 TYPE AMPLIFIER

11761-3

PARTS LIST

C1	1150-2605 MMFD	ARCO NO. 313	L1	100 MH ±2%	TOROIDAL INDUCTOR PER DWG 5478
C2,3,4	.004 MFD, 500V ±5%	CD TYPE 105D4	L2	30 MH "	" " 5479
C5	.1 MFD, 200V	ASTRON ML 2-1	P2	25,000 OHM	OHMITE CLU 2531
C6	.002 MFD, 500V ±10%	ERIE GP2-332-2000 1200	P1,3	5,000 "	OHMITE CLU 5021
C7,8	.1 MFD, 400 V,	ASTRON ML 4-1	T2	4651 (A435B ONLY)	
R1,2	2200 OHMS, 1/2 WATT ±10%		T1	S-448 Q (A435A ONLY)	
R3	10,000 "		V1	12 AT 7	
R4	47,000 "		RECT1	1N 34 CRYSTAL RECTIFIER	
R5	220 "	1/2 "	RELAY	10,000 OHM SPDT PLATE CIRCUIT RELAY	
R6	1 MEG.	" "		POTTER BRUMFIELD LSS	
R7	20,000 "	10 " OHMITE B.D.			
R8	2200 "	1 " ±10%			

