

Published for all users of Howard W. Sams PHOTOFACT Folders ----

TRADE NAME AND MODEL SET AND FOLDER NO. TRADE NAME AND MODEL SET AND FOLDER NO.

TELEVISION RECEIVERS

MAGNAVOX

CORONADO TV21-9367A..... 892-1

Chassis A508-01-AA..... 892-5

PENNGREST 2895A-48, 2896A-46..... 892-2

PENNGREST

7503A-46, 7504A-46, 7513A-48, 7534A-48..... 892-6

TOSHIBA

719C1 (Ch. TAC-1001)..... 892-3

SYLVANIA

Exponent 4/40-2 Series (Ch. P06-5)..... 892-7

OTHER EQUIPMENT

AIRLINE

GHJ-2316A/16B/46A/46B/56A/56B..... 892-4

WEBCOR

EP-1758-1 (Ch. 14X508)..... 892-8

Special Equipment Data on models or special equipment not covered in standard PHOTOFACT Folders. Schematic and supplementary data included here will be of valuable help to you in servicing this equipment.

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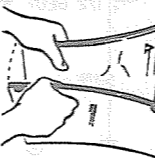
BOGEN

F.M. STEREO RECEIVER
MODEL RF35

OPEN WIRE-SEALED FOLDER LIKE THIS:



1 Take hold of the Set with both hands. Place your thumbs directly under the wire-seal; then, divide the contents equally by putting your thumbs midway through the thickness of the set. Now, pull the two sections apart firmly.



2 Remove the wire-seals remaining in the one section; this can easily be done with your fingernail or any sharp instrument.

MULTIPLEX ALIGNMENT CHART

Before starting alignment set TRAP "A", "B" and T6 (top and bottom) tuning slugs all the way out. Place SELECTOR switch in FM position.

STEP	ALIGNMENT	GENERATOR	SIGNAL INPUT POINT	INDICATOR & TEST POINT	ADJUSTMENT
1	TRAP "A"	67KC-Audio Oscillator	V7-12AU7 Pin 7 Approx. 0.5V Level	AC VTVM at T. P. "C"	Trap "A" L8 for minimum.
2	TRAP "B"	72KC-Audio Oscillator	Same as Step 1	Same as Step 1	Trap "B" L9 for minimum.
3	TRAP "A" TRAP "B"	67KC-Audio Oscillator 72KC-Audio Oscillator	Same as Step 1 Same as Step 2	Same as Step 1 Same as Step 2	Repeat Steps 1 and 2 until the best null is obtained.
4	19KC AMP	98MC FM Signal modulated 10% by Stereo Gen. with Pilot Signal	ANT. Terminals 1000 μv Level	AC VTVM at T. P. "D"	Tune L10 for maximum. Tune top of T6 for maximum. Use 2nd mode for T6.
5	38KC Doubler	Same as Step 4	Same as Step 4	AC VTVM at T. P. "E"	Set SELECTOR switch in FM STEREO position. Tune bottom of T6 for maximum. Use 2nd mode. Tune T5 for maximum.
6	19KC Oscillator Phase	98MC FM Signal modulated 45% with 1KC "LEFT ONLY" signal and 10% Pilot	Same as Step 4	Scope at left TAPE OUTPUT, AC VTVM at right TAPE OUTPUT	Set SEPARATION control (R35) fully clockwise (see figure 5, top view). Retune bottom of T6 slightly for maximum undistorted 1KC left output signal. Adjust SEPARATION control so that signal at right TAPE OUTPUT will be down 30db, minimum.

VOLTAGE CHART

NO.	TYPE	PIN NUMBERS								
		1	2	3	4	5	6	7	8	9
V1	6BA4	195	0	6.3AC	0	0	0	.73	-	-
V2	12AT7	130	-1.6	0	0	0	130	0	1.45	6.3AC
V3	6BA6	-.68	0	6.3AC	0	85	86	0	-	-
V4	6AU6	.01	0	6.3AC	0	122	122	1.4	-	-
V5	6AU6	-.77	0	6.3AC	0	74	74	0	-	-
V6	EM84	-.9	-	0	0	6.3AC	225	33	-	33
V7	12AU7	82	11.8	17	0	0	130	27	45	6.3AC
V8	6BL8	71	-1.75	62	0	6.3AC	62	0	1.05	-.1
V9	12AT7	124	.03	3.1	6.3AC	6.3AC	41	-.51	0	0
V10	12AX7	110	0	.6	20	10	110	0	.6	-
V11	12AX7	80	-.2	0	0	10	80	-.25	0	-
V12	6EU7	3.2AC	3.2AC	-	1.2	0	170	170	0	1.2
V13	6EU7	3.2AC	3.2AC	-	1.8	0	205	205	0	1.8
V14	12AU7	225	45	68	3.2AC	3.2AC	225	42	66	3.2AC
V15	7048	0	3.2AC	325	305	0	0	3.2AC	20	-
V16	7048	0	3.2AC	325	305	0	0	3.2AC	20	-
V17	7048	0	3.2AC	325	305	0	0	3.2AC	20	-
V18	7048	0	3.2AC	325	305	0	0	3.2AC	20	-

MODEL RF35

ent Procedure below, it is rements Model 78 FM or t signal generators be em- abelled in figure 5 as RF se an insulated screwdriver

STATEMENT

for symmetry.

trimmers for maximum control to (on).

adjust as if

for balance x amplitude.

Multiplex transmission and transmission it is due to trouble- antenna system (reflections,

ly that a complete alignment could be attempted only by a man possessing good equipment equivalent is recommended: x Generator Signal Generator 02C Audio Oscillator Complete alignment procedure, be ghtly understand the multiplex terconnect equipment as des- tor is properly calibrated and ard to levels and impedances ortion.) Be sure that align- ce. See Multiplex Alignment

MODEL RF35

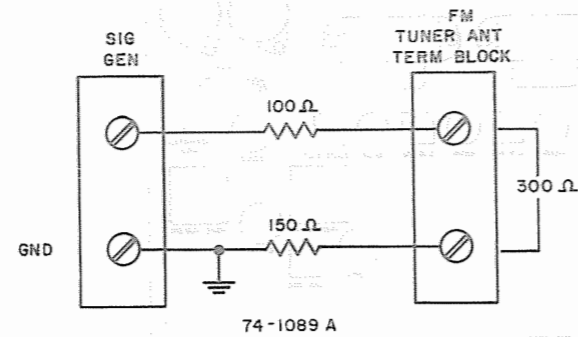


FIGURE 4 - FM ALIGNMENT GENERATOR CONNECTIONS

FM ALIGNMENT PROCEDURE

When using the FM Alignment Procedure below, it is recommended that either Measurements Model 78 FM or Boonton Type 202 or equivalent signal generators be employed. Adjustment points are labelled in figure 5 as RF TRIMM, FM OSC TRIMM, etc. Use an insulated screwdriver for all adjustments.

FM ALIGNMENT CHART

STEP	BAND & DIAL SETTING	GENERATOR FREQUENCY	SIGNAL INPUT POINT	INDICATOR & CONNECTION POINT	ADJUSTMENT
1	FM	10.7MC ±300KC deviation	12AT7 pin #2 thru .01mf	Oscilloscope Point "B" (see schem)	FM IF transformers for maximum gain and symmetry.
2	FM 104MC	104MC ±300KC deviation	FM ant term (See fig. 4)	Same	FM osc and RF amp trimmers for max output (set AFC Control to "AFC OUT" position).
3	FM 90MC	90MC ±300KC deviation	Same	Oscilloscope Point "B" (see schem)	Check tracking and adjust FM osc and RF coils if necessary.
4	FM 90MC	90MC ±300KC deviation	Same	Oscilloscope Point "A" (see schem)	Check discriminator for balance "S" pattern and max amplitude.

MULTIPLEX SECTION ADJUSTMENT

Your tuner was precisely aligned at the factory with the best available test equipment (most service shops cannot attain the same exacting standards). Bogen, therefore, does not recommend alignment by anyone other than a factory authorized service station. However, in some instances it may be necessary to "touch-up" the multiplex section to meet differences between stations or slight misadjustment due to extreme shock incurred in shipment.

If a whistling or tweet type interference occurs, perform the adjustments given in steps 1 and 2 below to eliminate the disturbance. The disturbance is due to station transmitting background music over second multiplex sub-carrier. If this adjustment does not eliminate the interference, check that the station is precisely tuned in; that the FM antenna is correctly oriented (try re-positioning), that a mismatch does not exist between antenna and receiver (try reversing leads), or if a better and more directional antenna is required.

If distortion occurs during FM multiplex transmission and is not present during monaural transmission it is due to trouble at the transmitter or in the antenna system (reflections, etc.)

It is considered very unlikely that a complete alignment will ever be required. This should be attempted only by a thoroughly experienced serviceman possessing good equipment. The following equipment, or equivalent is recommended:

- Scott Model 830 Multiplex Generator
- Boonton Model 202E RF Signal Generator
- Hewlett-Packard Model 202C Audio Oscillator

Before attempting the complete alignment procedure, be sure to carefully read and thoroughly understand the multiplex generator instruction manual. Interconnect equipment as described in manual. Be sure generator is properly calibrated and all equipment is matched in regard to levels and impedances (and that signals are free from distortion.) Be sure that alignment area is free from interference. See Multiplex Alignment Chart below.

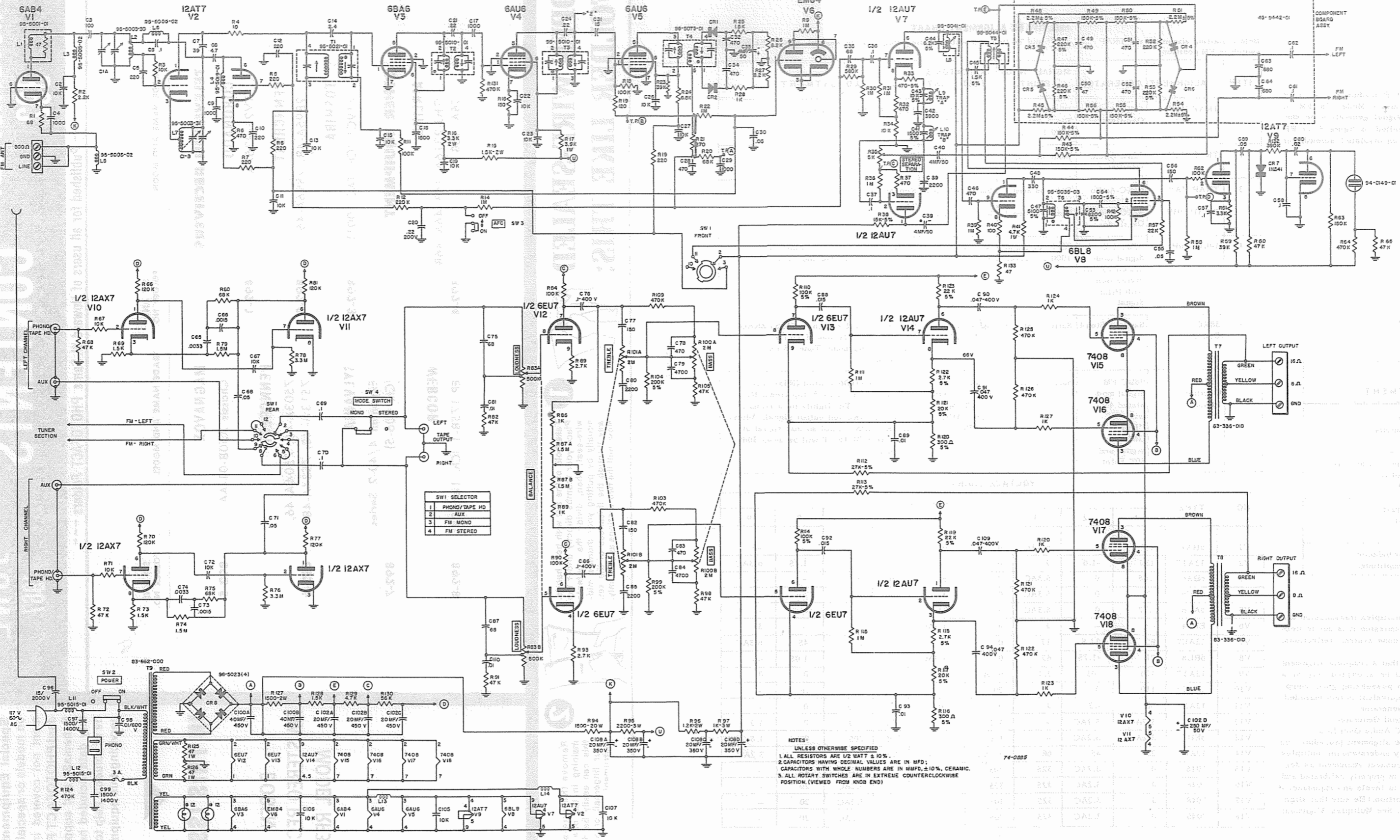
MULTIPLEX ALIGNMENT CHART

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2	TRAP "B"	72KC-Audio Oscillator	Same as Step 1	Same as Step 1	Trap "B" L9 for minimum.
3	TRAP "A" TRAP "B"	67KC-Audio Oscillator 72KC-Audio Oscillator	Same as Step 1 Same as Step 2	Same as Step 1 Same as Step 2	Repeat Steps 1 and 2 until the best null is obtained.
4	19KC AMP	98MC FM Signal modulated 10% by Stereo Gen. with Pilot Signal	ANT. Terminals 1000 μv Level	AC VTVM at T. P. "D"	Tune L10 for maximum. Tune top of T6 for maximum. Use 2nd mode for T6.
5	38KC Doubler	Same as Step 4	Same as Step 4	AC VTVM at T. P. "E"	Set SELECTOR switch in FM STEREO position. Tune bottom of T6 for maximum. Use 2nd mode. Tune T5 for maximum.
6	19KC Oscillator Phase	98MC FM Signal modulated 45% with 1KC "LEFT ONLY" signal and 10% Pilot	Same as Step 4	Scope at left TAPE OUTPUT, AC VTVM at right TAPE OUTPUT	Set SEPARATION control (R35) fully clockwise (see figure 5, top view). Re-tune bottom of T6 slightly for maximum undistorted 1KC left output signal. Adjust SEPARATION control so that signal at right TAPE OUTPUT will be down 30db, minimum.

VOLTAGE CHART

NO.	TYPE	PIN NUMBERS								
		1	2	3	4	5	6	7	8	9
V1	6BA4	195	0	6.3AC	0	0	0	.73	-	-
V2	12AT7	130	-1.6	0	0	0	130	0	1.45	6.3AC
V3	6BA6	-.68	0	6.3AC	0	86	86	0	-	-
V4	6AU6	.01	0	6.3AC	0	122	122	1.4	-	-
V5	6AU6	-.77	0	6.3AC	0	74	74	0	-	-
V6	EMS4	-.9	-	0	0	6.3AC	225	33	-	33
V7	12AU7	82	11.8	17	0	0	130	27	45	6.3AC
V8	6BL8	71	-1.75	62	0	6.3AC	62	0	1.05	-.1
V9	12AT7	124	.03	3.1	6.3AC	6.3AC	41	-.51	0	0
V10	12AX7	110	0	.6	20	10	110	0	.6	-
V11	12AX7	80	-.2	0	0	10	80	-.25	0	-
V12	6EU7	3.2AC	3.2AC	-	1.2	0	170	170	0	1.2
V13	6EU7	3.2AC	3.2AC	-	1.8	0	205	205	0	1.8
V14	12AU7	225	45	68	3.2AC	3.2AC	225	42	66	3.2AC
V15	7048	0	3.2AC	325	305	0	0	3.2AC	20	-
V16	7048	0	3.2AC	325	305	0	0	3.2AC	20	-
V17	7048	0	3.2AC	325	305	0	0	3.2AC	20	-
V18	7048	0	3.2AC	325	305	0	0	3.2AC	20	-



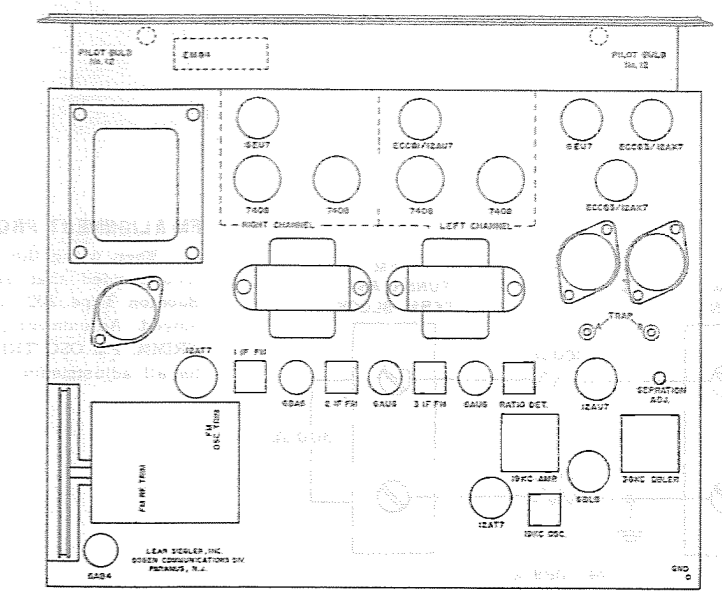
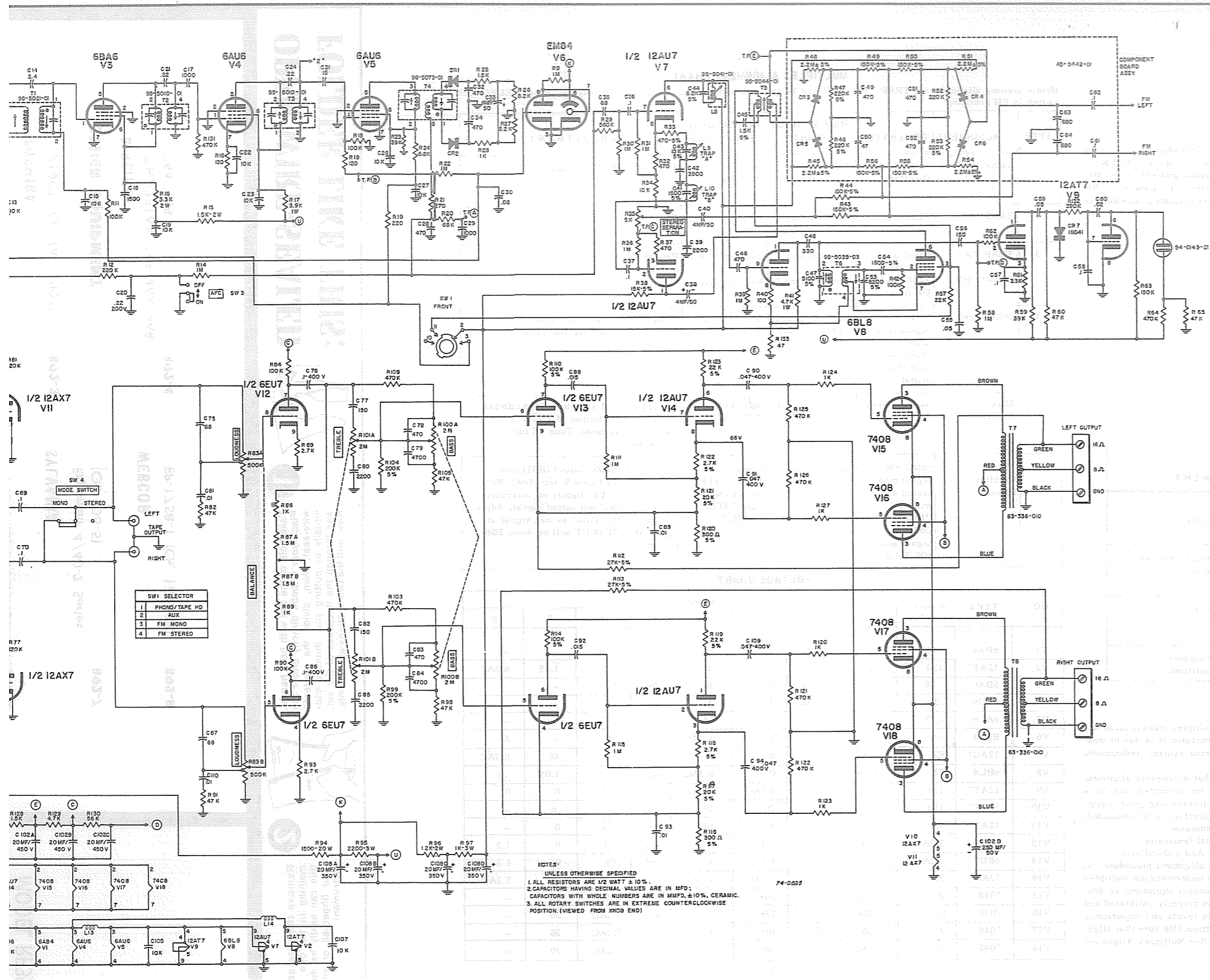
Ref. No.	Part No.
C1	79-003-01
C33	79-003-01
C38	79-001-01
C40	79-003-01
C100	79-010-01
C102	79-010-01
C108	79-010-01
CR1-CR2	96-5093-1
CR3-CR4	96-5093-1
CR5-CR6	96-5093-1
CR7	96-5093-1
CR8	96-5083-1
L1	95-5001-1
L2	95-0003-1
L3	95-5005-1
L4	95-5019-1

NOTES:
 1. ALL RESISTORS ARE 1/2 WATT ± 10%.
 2. CAPACITORS HAVING DECIMAL VALUES ARE IN MFD; CAPACITORS WITH WHOLE NUMBERS ARE IN MMFD, ± 10%. CERAMIC.
 3. ALL ROTARY SWITCHES ARE IN EXTREME COUNTERCLOCKWISE POSITION. (VIEWED FROM K10B END)

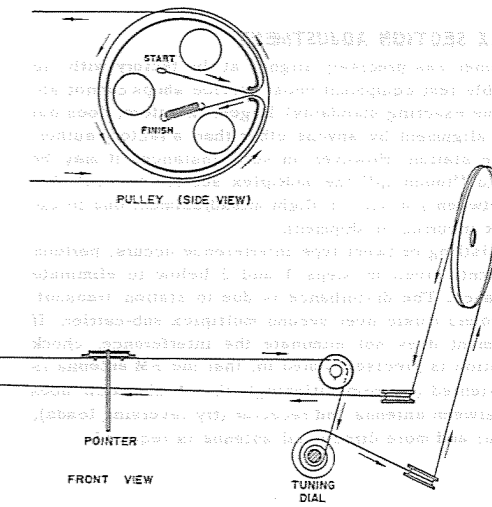
COURTESY OF BOGEN COMMUNICATIONS

MODEL RF35

COURT



Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
	70-9171-01	Carriage and Pointer Assy.	L5	95-5005-02	Choke, RF
	94-0149-01	Pilot Light Assy., Stereo	L6	95-5005-02	Choke, RF
	94-0175-01	Pilot Light, #12	L7	95-0003-31	Coil, Oscillator
	12-4082-11	Dial Window, Screened	L8	95-5043-01	Coil, RF Bypass, Trap A
	03-0588-01	Knob	L9	95-5042-01	Coil, RF Bypass, Trap B
	45-9442-01	Component Board Assy.	L10	95-5044-01	Coil, 19 KC
	94-1144-01	Printed Circuit Board	L11, L12	95-5015-01	Choke, RF
C1	80-0139-01	Capacitor, FM Variable	L13, L14	95-5015-01	Choke, RF
C33	79-003-055	Capacitor, Electrolytic, 4 mfd, 50V	R35	77-001-576	Control, Separation
C38	79-001-079	Capacitor, Electrolytic, 4 mfd, 150 V	R83	77-001-585	Control, Loudness
C40	79-003-005	Capacitor, Electrolytic, 4 mfd, 50 V	R87	77-001-586	Control, Balance
C100	79-010-059	Capacitor, Electrolytic, 2 x 40 mfd, 450 V	R94	76-124-003	Resistor, 1.5 K ohm, 20 w
C102	79-010-060	Capacitor, Electrolytic, 3 x 20 mfd, 450 V; 250 mfd, 50 V	R95	75-842-222	Resistor, 2.2 K ohm, 3 w
C108	79-010-018	Capacitor, Electrolytic, 4 x 20 mfd, 350 V	R100	77-001-483	Control, Bass
CR1-CR2	96-5093-01	Diodes (2), Matched Pair, IN542	R101	77-001-483	Control, Treble
CR3-CR4	96-5093-01	Diodes (2), Matched Pair, IN542	SW1	81-001-594	Switch, Selector
CR5-CR6	96-5093-01	Diodes (2), Matched Pair, IN542	SW2	81-003-021	Switch, Power
CR7	96-5093-02	Diode, IN542	SW3	81-003-024	Switch, AFC
CR8	96-5083-01	Diode, F.W. Bridge	SW4	81-003-020	Switch, Mode
L1	95-5001-01	Choke Assy., RF	T1	95-5021-01	Transformer, FM IF
L2	95-0003-30	Coil, RF	T2, T3	95-5010-01	Transformer, FM IF
L3	95-5005-02	Choke, RF	T4	95-5073-01	Transformer, FM Detector
L4	95-5019-01	Choke, RF	T5	95-5041-01	Transformer, 38 kc Doubler
			T6	95-5035-03	Transformer, Multiplex Oac.
			T7, T8	83-336-010	Transformer, Output
			T9	83-693-000	Transformer, Power



NOTES:
 1. ALL RESISTORS ARE 1/2 WATT ± 10%.
 2. CAPACITORS HAVING DECIMAL VALUES ARE IN MFD; CAPACITORS WITH WHOLE NUMBERS ARE IN MMFD, ± 10% CERAMIC.
 3. ALL ROTARY SWITCHES ARE IN EXTREME COUNTERCLOCKWISE POSITION. (VIEWED FROM 100Ω END)

IONS

MODEL RF35

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