



SERVICE MANUAL
FOR
MODEL 388
AM-FM-MX TUNER AMPLIFIER

SPECIFICATIONS

TUNER (FM-MPX)

Table with 2 columns: Specification and Value. Includes Usable Sensitivity (1.7 uv), Signal to Noise Ratio (65 db), Total Harmonic Distortion (0.8%), Frequency Deviation (.02%), \*Frequency Response (50 to 15,000 Hz's + 1db), Capture Ratio (2.5db), Selectivity (45db), Spurious Response Rejection (90db), 19 kc Pilot Suppression (40db), 38 kc Sub-carrier Suppression (60db), AM Suppression (55db), Tuning Range (87 to 109 mc), Accuracy of Calibration (0.5%), Separation (40db).

\*This is limit of FCC stereo broadcast specifications. All H. H. Scott tuners have far wider frequency response.

TUNER (AM)

Table with 2 columns: Specification and Value. Includes Usable Sensitivity (20uv), Volume Sensitivity (4uv), Audio Hum and Noise (52db), Tuning Range (530 to 1630 kc), Bandwidth (-6 db) (3.5kc).

AMPLIFIER

Tape Output

Table with 2 columns: Specification and Value. Includes Rated voltage output (0.5 v), Recommended load resistance (200 k ohms), Recommended cable capacitance (200 pF), Mag. Low - Input Impedance (47 k ohms), Signal for rated output (3, 5, 9 mv), S/N Ratio (65 db), Tape Head - Input impedance (47 k ohms), Signal for rated output (3.0 mv), S/N Ratio (-52 dB), High Level Inputs - Input impedance (47 k ohms), Signal for rated outputs (0.5 v), S/N Ratio (-80 dB), Frequency Response (20 to 20,000 Hz's + 1db), Treble controls (+10 dB - 10 dB), Bass controls (+10 dB - 14 dB), Loudness Compensation (+8 dB at 50 Hz's, +3 dB at 10,000 Hz's), Scratch Filter (6 dB @ 10 kc), Rumble filter (8 dB @ 50 Hz's), Music Power Rating (60/60 watts @ 4 ohm, 50/50 watts @ 8 ohm), Continuous Output (40 watts), Total Harmonic Distortion (0.8%), Frequency Response (20 to 20,000 Hz + 1 dB), Power Bandwidth (20 to 20,000 Hz), Hum and Noise (-80 dB), Damping Factor (20), Line Voltage and Frequency (105-125 v. 50-60 Hz), Power Consumption (35-175 w).

388 TEST PROCEDURE, AUDIOEQUIPMENT NEEDED

Audio Oscillator  
 VTVM  
 Oscilloscope  
 Triplet VOM Model 630 or 630A  
 Load Box  
 Attenuator  
 Distortion Analyzer  
 Variable Transformer or 117v Regulated Line  
 FM Generator  
 Multiplex Generator  
 15 kc Low Pass Filter

SET CONTROLS TO THE FOLLOWING:

## Front Panel

Input Selector	EXTRA
Stereo Selector	STEREO
Tone Controls (Bass & Treble)	FLAT "0"
Loudness - Power	AC-Off
Balance Control	"0"
Rumble Filter	OUT
Scratch Filter	OUT
Tape Monitor	OUT
Compensator	LOUDNESS
Speaker	MAIN
Speaker	ON

## Rear Panel

Phono Sensitivity	C
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## Internal

Potentiometers A2-R31 & A102 - R31 (balance Pot)	Max CW
Potentiometers A2 -R32 & A102 - R32 (Bias Pot)	Max CCW

PRELIMINARY VISUAL INSPECTION AND RESISTANCE MEASUREMENTS

Inspect unit for defects such as broken wafer, cracked terminals and jacks, loose transformer bolts, broken components, unsoldered or cold solder joints, TO-5 heat sink alignment, short circuits, lead dress, scrap in units and other such defects. Shake unit to free all scrap. Check to see that all transistors (where applicable) have been installed properly and in correct sockets. Check diodes for proper polarity.

Measure resistance to chassis in the following locations (negative side of VOM Battery to chassis):

OUTPUT Transistor Collector (supply side) (Q10 & Q110)	- 500 ea. channel
OUTPUT Transistor Collector (mid-point) (Q11 & Q111)	- 1.5k ea. channel
Main Speaker, "H" Terminal	- 470
+25v source for amplifier section	- 1.4k
+20v source for amplifier section	- 8k
+25v source for tuner section	- 250
+12v source for tuner section	- 140

Measure resistance across each SR1-5 diode on heat sink (4 total) on Rx1 scale  
 - 4.5 to 8 ohms

AUDIO SECTION TEST PROCEDURE1. BIAS AND BALANCE ADJUSTMENT AND VOLTAGE CHECKS

With no signal input and 8 ohm loads connected to Main Speaker taps, turn power on keeping loudness pot at minimum setting. Watch carefully for any signs of voltage shorts or overheating.

388 TEST PROCEDURE, AUDIO (Continued)

Measure voltage at collector of Q10 - should measure between 68 and 72 volts. Set voltage at collector of lower OUTPUT transistors, Q11 left channel and Q111 right channel, for one-half supply voltage, approximately 35 volts, using A2-R31 (left channel) and A102-R31 (right channel) balance pots.

Using Triplett VOM set to 12 ma scale, adjust bias pots for 0.8 ma current at each test point, in rear of the unit to ground by adjusting A2-R32 (left channel) and A102-R32 (right channel).

Recheck balance adjustment and reset balance pots if necessary.

Check the following voltages on Z-PC-PS-2 with respect to chassis:

Zener Diodes	+27v $\pm$ 10%
	+12v $\pm$ 10%

Audio voltages - nominal

+70v
+25v
+20v

Tuner voltages - nominal	+25v
	+12v

## 2. SENSITIVITY CHECK

Connect audio oscillator through attenuator into EXTRA input jack. Set attenuator for an output from attenuator of 0 db on .3v scale of VTVM, 400 cps. Turn loudness control to maximum. Observe OUTPUT at speaker terminals of 0 db on 10 volt scale  $\pm$  1 db. Turn loudness to minimum. At this point recheck and readjust bias if necessary.

## 3. DISTORTION CHECK

Using a 400 Hz distortion analyzer, distortion must be no greater than 0.6% at 16 volts into 8 ohms, 40 watts.

## 4. LEVEL CONTROL CHECK

Check tracking of Left and Right channels in 10 db steps to -40db, maximum deviation 2 db.

Check loudness response in electrical flat position:

<u>L/V in Loudness</u>	<u>L/V in Volume</u>
1 kc = 0 db	Flat Response
10 kc; +3 db $\pm$ 2 db	
50 cps; +8 db $\pm$ 2 db	

With level control at minimum, OUTPUT should be -75 db with respect to 16 volts or 32 watt level.

## 5. TONE CONTROL CHECK +2 db

With loudness at maximum, adjust attenuator to obtain 0 db on 3 volt scale at 1 kc. Use attenuator to obtain OUTPUT on 3 volt scale for Bass and Treble Boost measurements.

<u>Bass 50 Hz</u>	<u>Treble 10 KHz</u>
Boost 12 db	10 db
Cut 14 db	10 db

## 6. FREQUENCY RESPONSE CHECK

Set Tone controls and Balance control flat ("0" Position).

Attenuate oscillator to obtain 0 db on 3 volt scale at 1 kc when measured at speaker terminals with 8 ohm load. Sweep oscillator frequency and monitor OUTPUT. Maximum variation  $\pm$  1 db from 40 Hz to 15 KHz. 3 db down points should be between 10-17 Hz low end, 25-40 KHz high end. Return to 1 KHz.

## 7. CROSSTALK CHECK

Feed input into Right channel. Record left channel with Stereo Selector switch in Mono position, 1 kc signal. Switch Stereo Selector switch to Stereo. Measure 45 db loss minimum. Return oscillator to Left Channel Input.

388 TEST PROCEDURE, AUDIO (Continued)

8. STEREO SELECTOR SWITCH CHECK

<u>For Left Channel Input</u>		<u>For Right Channel Input</u>
Left Output	Stereo Switch Position	Right Output
Signal (-.6 db)	Bal. Left	No Signal
No Signal	Bal. Right	Signal (.6 db)
Signal (-2 db)	Monaural	Signal (-2 db)
Signal (0 db)	Stereo	Signal (0 db)
No Signal	Rev. Stereo	No Signal
Signal (-1.5 db)	Left Input	No Signal
No Signal	Right Input	Signal (-1.5 db)

9. RUMBLE-SCRATCH FILTER: Normal output level 0 db on 3v scale, loudness pot max.

<u>Rumble In</u>	<u>Scratch In</u>
50 Hz -9 +2 db	10 KHz -7 +2 db

10. BALANCE CONTROL CHECK

With oscillator in Left channel input, monitor channel output. Turn Balance pot to Balance Left. Note no loss of signal. Turn Balance pot to Balance Right. Note complete loss of signal.

Repeat for opposite effect when feeding and monitoring Right channel.

11. SPEAKER SWITCH CHECKS

Feed signal to left input, monitor left channel main speaker outputs. Switch Main-Remote speaker switch to remote. Note complete loss of signal. Switch monitor to left channel remote speaker output and observe signal restored. Switch speaker on-off switch to off and note complete loss of signal. Switch monitor back to Main speaker terminals, speaker on-off to on and Speaker Main-Remote to Main. Signal should be restored only after all switches are in their proper positions.

12. REGULATION CHECK, 1 kc

With signal output of 1 kc, 0 db on 3 volt scale, remove 8 ohm load. Note .5db max. rise in output.

13. PHONE JACK (FRONT PANEL) CHECK - Input 1 channel, selector-stereo

With signal output of 1 KHz, 0 db on 3 volt scale at speaker terminals, remove VTVM from 8 load and connect output from phone jack to VTVM. Tip of phone jack is right channel. Phone jack output should be -5 db with respect to speaker terminal output.

14. DERIVED CENTER CHANNEL OUTPUT CHECK

Remove phone jack output from VTVM. Switch stereo selector switch to stereo. Connect VTVM to derived center channel output. Derived center channel output level should be -25.5 db with respect to speaker terminal output. Remove VTVM from derived center channel output and reconnect to 8 ohm load. Return Stereo Selector switch to stereo position.

15. TAPE MONITOR SWITCH CHECK

Before removing or inserting inputs turn loudness control to minimum; with signal output of 1 KHz, on 3 volt scale at speaker terminals, Extra Input, switch Tape Monitor switch to IN position. Note complete loss of signal. Remove signal input from EXTRA input jack and plug signal into TAPE IN jack. Note signal restored as before. Switch tape monitor to OUT position; again note signal lost. Remove signal from TAPE IN jack and insert in TAPE OUT jack. Note signal restored.

16. PREAMP GAIN CHECK

Return signal input to Extra input and adjust level for output of 1 KHz, 0 db on 3 volt scale with loudness control at maximum. Turn input selector to Phono. Attenuate input signal 45 db and plug input into Phono input. Output should be 0 on the 3 volt scale +1 db.

388 TEST PROCEDURE, AUDIO (Continued)

Switch phono sensitivity from "C" position to other positions and observe the following gain changes with respect to the "C" position:

<u>Position</u>	<u>Output</u>
"B"	-4 db +1 db
"A"	-8 db +1 db

Return Phono sensitivity switch to "C" position. Turn loudness control to minimum.

Remove input from Phono Input and place in Tape Head input. Turn loudness control to maximum. Output should be in the same +0 -2 db as it was in the "C" phono position.

17. PHONO AND TAPE HEAD FREQUENCY RESPONSE CHECK +2 db

<u>Frequency</u>	<u>Tape</u>	<u>Phono</u>
1 KHz	0 db	0 db (REF.)
10 KHz	-10db	-14 db
100 Hz	+19db	+13 db

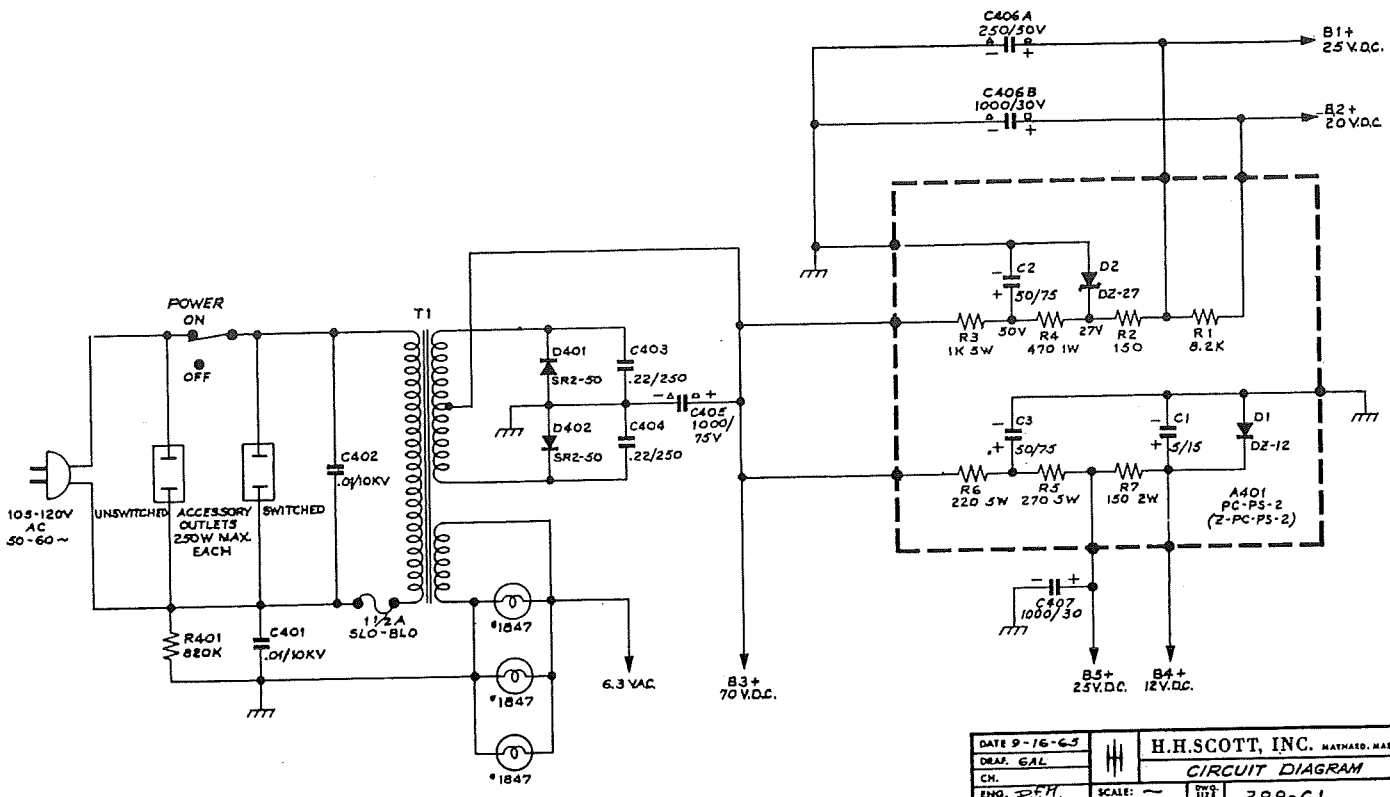
18. HUM AND NOISE CHECKS

<u>Selector Switch Position</u>	<u>Loudness Max</u>	<u>Loudness Min</u>
Extra	4 mv	3 mv
Phono (shorted inputs)	30 mv	3 mv
Tape Head (shorted inputs)	45 mv	3 mv

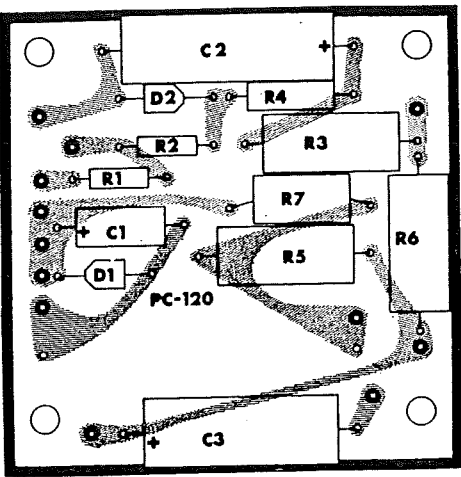
Check for absence of high-frequency osc. with treble control at max. and loudness control at 2 o'clock.

19. REPEAT STEPS 2 THROUGH 18 FOR RIGHT CHANNEL

# POWER SUPPLY



DATE 9-16-63	H.H. SCOTT, INC., MATHEW, MASS.	
DRAW. G.A.L.	CIRCUIT DIAGRAM	
CH.	SCALE: —	REV. 1
ENG. J.F.H.	SHEET 3 OF 3	388-C1
PROD.		



POWER SUPPLY N-PC-120-11 REV. 1

### TROUBLE

1. No B1 + 25V
2. B+ low approximately 7v.

### POSSIBLE CAUSE

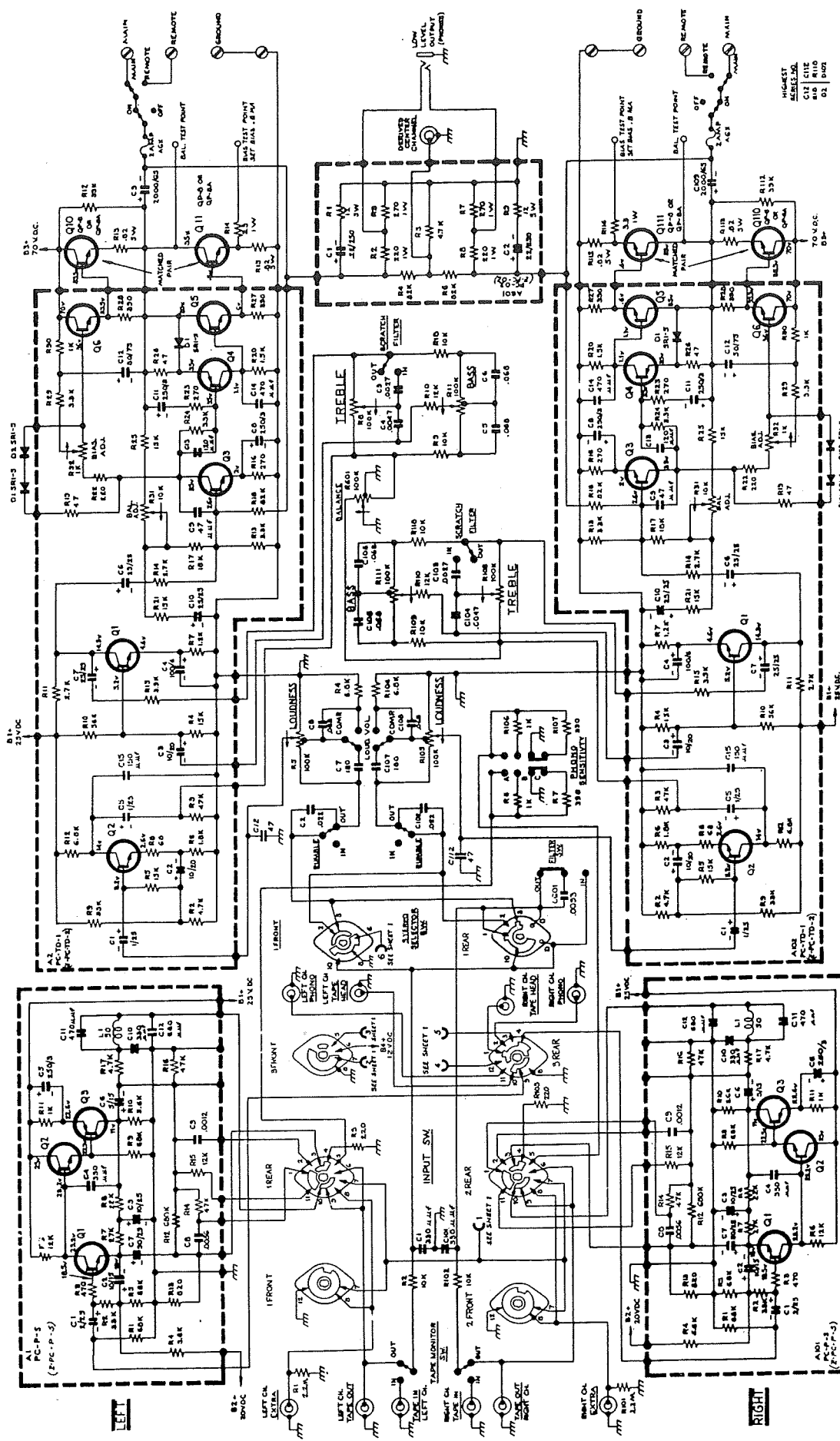
1. C2 shorted, should be dressed away from power resistors.
2. C1 or C2 installed backwards, observe polarity.

TROUBLESHOOTING GUIDE FOR OUTPUT SECTION

Note; On schematic where reference is made to Sheet 1, refer to Multiplex Section.

<u>Trouble</u>	<u>Probable Cause</u>
1. Blows line fuses	1. Shorted QP-8; shorted SR2/50, (D401 or D402), shorted CEC 1000/30 (C407).
2. Speaker fuse blown	2. Check speakers & speaker cables
3. Blown output transistors (no output) also cause bias and balance problems	3. Shorted QP-8, shorted Q3, Q5, Q6, open resistor (R13, R14, R113, R114). If this occurs, replace all components listed in particular channel (R13, R14, R114, R113), also 390 ohm resistor on TD2 board (R27). Defective (D1 or D2) could also cause this problem, but does not need replacing unless defective.
4. Intermittent output	4. Check all solder connections on TD2, P5; or intermittent capacitors.
5. No output phono AM & FM, excessive hum.	5. Defective Q1, Q2, or Q3 on PC-P5.
6. Noisy output phono only	6. Defective C1 (2/25) : C3 (10/25).
7. Low Output	7. Defective CEC 2000/65 (C9), (C109).
8. Noisy controls or intermittent switches	8. Use cleaning solvent without an oil base and spray liberally in affected area.
9. Earphones do not correspond to speakers.	9. Miswire on phono jack or leads coming from PC-02.

# AUDIO OUTPUT



DATE	2-2-52
DESIGNER	H. H. SCOTT, INC.
CHECKED	H. H. SCOTT, INC.
BY	H. H. SCOTT, INC.
NO.	368-C1
REV.	1

NOTE: THE FOLLOWING CONTROLS IN LEFT CHANNEL ARE MECHANICALLY GANGED WITH IDENTICAL CONTROLS IN THE RIGHT CHANNEL.

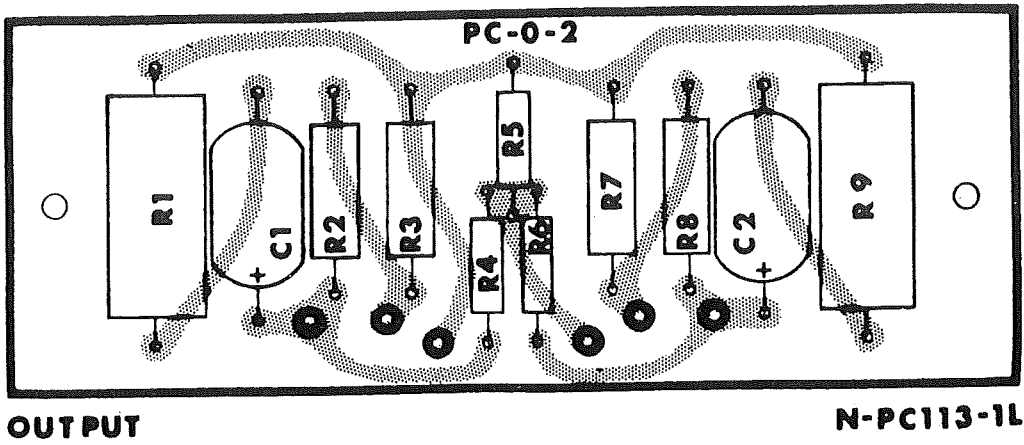
UNLESS OTHERWISE SPECIFIED  
 1. CAPACITORS IN MICRO  
 2. CAPACITORS IN PICO  
 3. RESISTORS IN OHMS  
 4. LOUDNESS  
 5. PHONO SENSITIVITY  
 6. COMPENSATOR

AL-1A01	HEBET TUBE NO. 65, 1A2, 6.01
PC-TD-1	PC-TD-1
Q1 Q-4	(6X4) (6X5) (6X6) (6X8) (6X9)
Q2 Q-5	(6X4) (6X5) (6X6) (6X8) (6X9)
Q3 Q-6	(6X4) (6X5) (6X6) (6X8) (6X9)

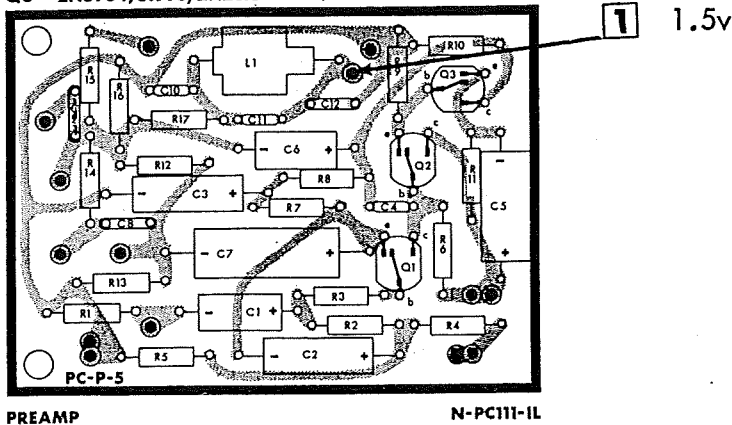


# CENTER CHANNEL OUTPUT; PRE AMP; TONE CONTROL & DRIVER

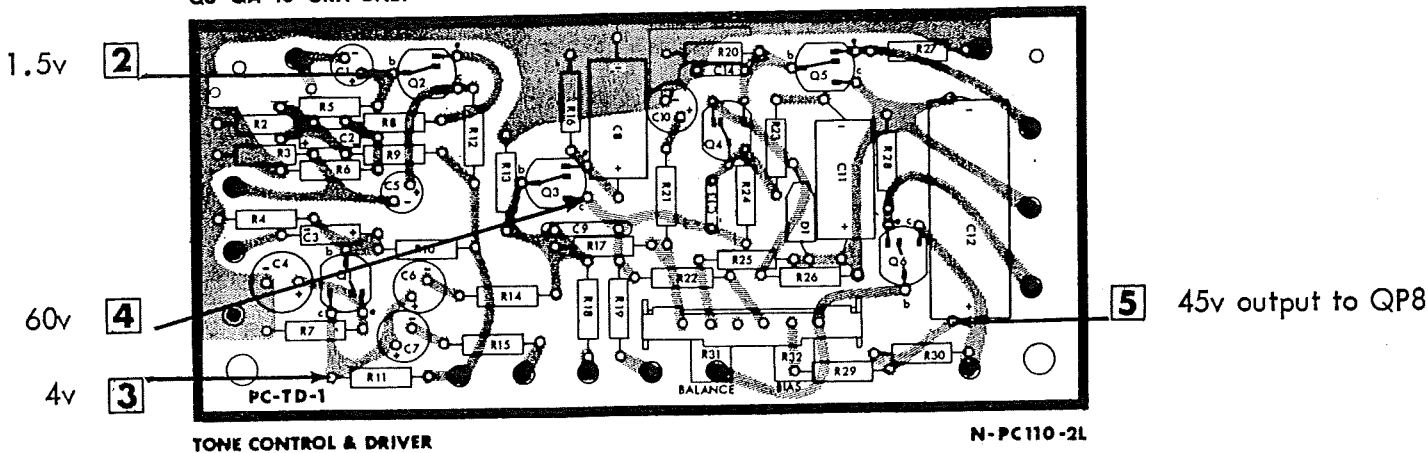
All Peak to Peak measurements taken with 15 volts RMS output in Phono pos. with 8 ohm load; also 4 millivolt input.



- Q1 - Q-2N3391A (QA-12)
- Q2 - Q-2N2926 or Q-2N3708 (QA-13)
- Q3 - 2N3964, 51990, 2N2613



- Q1 - Q-2N2925 or Q-2N3711 (QA-15)
- Q4 - QA-9
- Q2 - Q-2N2924 or Q-2N3710 (QA-14)
- Q5 - QA-10 RED, BLUE or GRN
- Q3 - QA-10 GRN ONLY
- Q6 - QA-10 BLUE or GRN



There is no appreciable gain through the output section.

388 TEST PROCEDURE, FMFM TUNER SECTION TEST PROCEDURESET CONTROLS TO THE FOLLOWING:

## Front Panel

Input Selector	-FM
Stereo Selector	-Mono
Tone Controls	-Flat "0"
Loudness-Power	-AC On
Balance	-"0"
Rumble & Scratch Filters	-OUT
Tape Monitor	-OUT
Compensator	-Loudness
Speaker	-Main
Speaker	-On

## Internal

Stereo Threshold Adj. -Max. CW

Connect 15 kc low pass filter to Tape Out jacks of receiver.

1. MONO ALIGNMENT AND SENSITIVITY CHECKS

## Front End and IF Alignment

- With about 10 uv Generator output, align and peak front end for max. output (balance output within  $\pm 1$  db at 92 and 106 mc).
- With 3 uv input, align IF's for max. audio.
- With 2K uv input, align detector for min. distortion.

## Sensitivity and Distortion

- Measure sensitivity of tuner with 2 uv RF input. Must obtain 30 db useable sensitivity at 92, 98, and 106 mc.
- Recheck distortion, 2K uv input 400 cps max. distortion 0.8%.

## FM Hum Check

- Tune to 91.5 mHz measure min. of 60 db drop from reference (plug may be reversed if necessary).
- Tune to 90 mHz change modulation from 400 cHz to 8 Hz. Note decrease of  $12 \pm 2$  db in output from 400 Hz reference.

## Calibration Check

- Check calibration against stations - max. tolerance  $\pm 0.2$  mc.

## Filter Check

- With output meter and scope connected to Left channel Tape Out jack, check for less than 1 db change in output when switching in sub-channel Filter (located on Balance control).

## Audio Hum Check

- Short base of Q305 to GND. - max. hum 1.5 mv each channel (Tape Output jack).

2. MULTIPLEX ALIGNMENT

Switch stereo selector switch to STEREO.

## Pilot Adjustment

- Attach scope probe - low capacity probe - to test point at junction of L501, C509, D504, Q503-C and R507. Peak T501 and L501 for max. pilot. With VOM measure 4-6 volt drop across 47K resistor R526.

## Oscillator Sync. Adjustment

- Attach scope probe to Tape Output jack of Left channel. Switch scope input to horizontal input. Feed horizontal input from Right channel output of master generator. Adjust tuner frequency to Left signal frequency. Pull Transistors Q501 and Q505. Adjust T502 for zero beat as seen on scope. Replace both Transistors Q501 and Q505 and return scope sync. to internal.

388 TEST PROCEDURE, FM (Continued)

## Separation Adjustment

- c) Attach scope probe to Tape Output jack of Left channel. Adjust scope to obtain proper pattern and adjust L501 for min. output observed on scope. Adjust Left channel separation adjust (R514) for min. output. Attach scope probe to Tape Output jack of Right channel. Adjust Right channel separation adjust (R535) for min. output. Repeat Left and Right channel separation adjustments until no further improvements are observed.
- d) Using Tripplet V.O.M. measure voltage across #49 bulb. If necessary adjust resistor R504 for 0.9 to 1.2v.
- e) Final separation measurements are to be made in each channel:
  - 400 cps modulation
  - 30 db min. separation

If separation specs are not met, recheck IF's for proper alignment. Also recheck oscillator sync. adjustment and separation adjustment described above. Seal separation pots.

## Stereo Switchover Adjustment

- f) Adjust threshold pot, so indicator is just extinguished off stations. Check switchover point to between 7-15 uv from generator.

3. AUDIO OUTPUT LEVELS

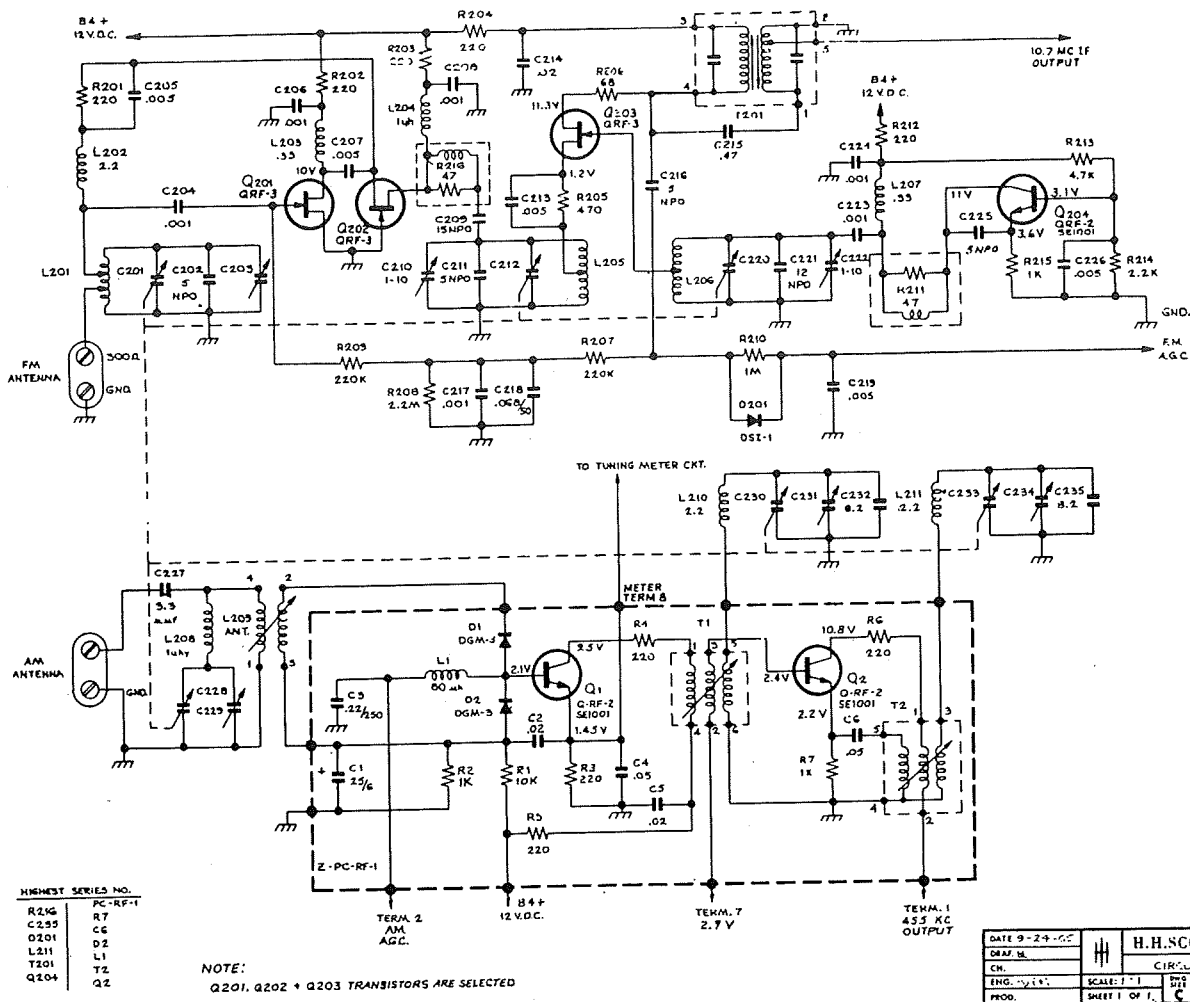
RF input to 100 uv. Stereo Selector switch to Mono. Note and record output voltage at Tape Out jacks. (Should be 2v  $\pm$ 2 db and within 2 db of each other.) Switch stereo selector to STEREO. Output must remain within 2 db of mono level.

- 4. Check and if necessary re-adjust meter to read zero OFF station.

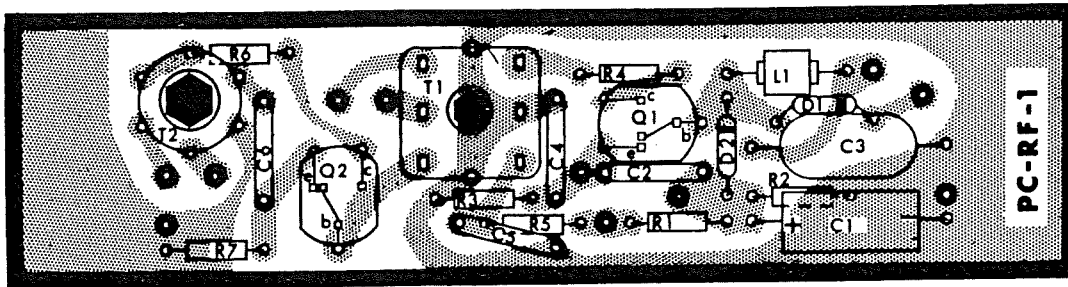
388 TUNER - AM SECTION

1. Switch tuner to AM position, output from tape output jack.
2. Connect signal generator at 455 KHz through .05 capacitor to green lead from IF board to feedthrough terminal in front end. Clip ground lead to chassis. Remove RF transistor.
3. Peak IF's and detector for maximum A.G.C. (tuning meter indication) of audio noise output, using no modulation. Final peaking should be done with 20 uv from generator with output level of 100 mv  $\pm$ 2 db.
4. Remove signal generator coupling to IF's, connect generator to external antenna terminals. Install RF transistor.
5. Tune oscillator and mixer coil to 600 KHz and oscillator and mixer trimmer to 1600 KHz. Tune RF trimmer at 1400 KHz, and antenna slug at 600 KHz.
6. Repeat Step 5 until unit is aligned and maximum output at given frequencies has been achieved. Check calibration.
 

590 KHz $\pm$ 10 KHz	850 KHz	1030	1510 (tol. $\pm$ 20 KHz)
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7. Check signal-to-noise at 600 KHz. 100 uv for 10 db, at 1400 KHz, 10uv for 10 db.
8. Remove generator connection from external antenna terminals, loop around low end of loop antenna using 47 ohm resistor, and at 1400 KHz peak antenna trimmer.
9. Check output level left and right tape jacks, at 1000 uv output should be 250 mv  $\pm$ 2DB.
10. With phones, check for AM calibration, oscillation, harmonic pickup, etc.
11. With AM tuned to low end of band, set meter adjust control so meter reads "0". Switch to FM and note little or no change, max. difference between AM and FM across band, 2 meter divisions.



Q1, Q2 - Q-SE1001

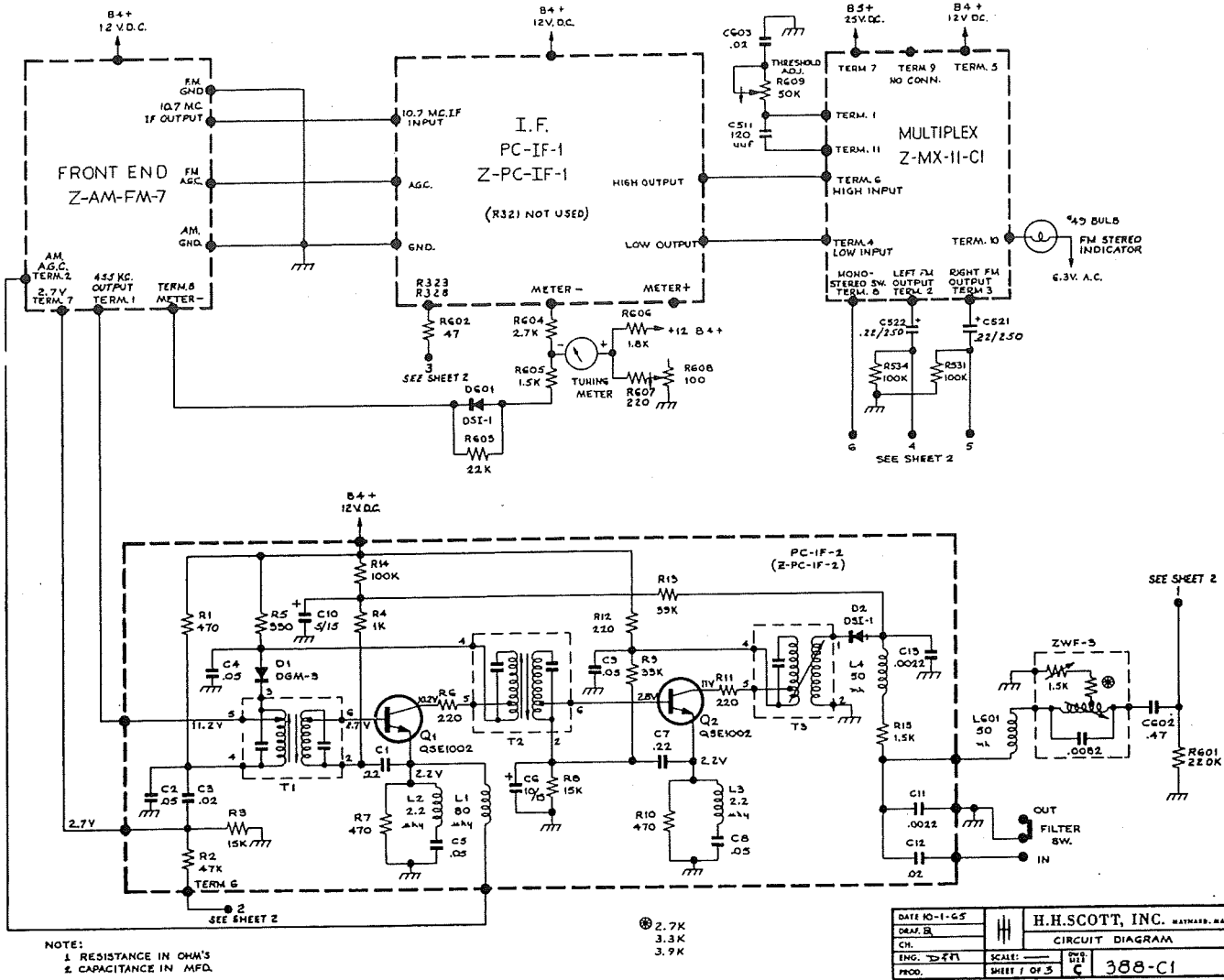


AM-RF

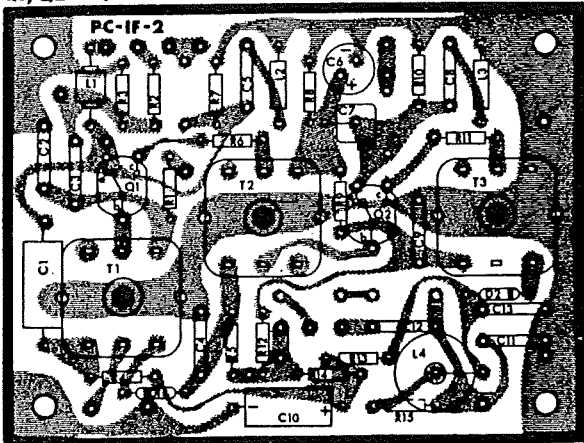
N-PC119-1L

TROUBLE SHOOTING GUIDE FOR 388 FRONT END & RF - 1

TROUBLE	POSSIBLE CAUSE
1. No Signal FM & AM	1. T201 Shorted to ground LRFC .33 open (L204, L207, L203)
2. No Signal FM	2. Q204
3. No Signal or low	3. Q203, Q202, Q201
4. Dead spots & oscillation F.M.	4. L202 Open
5. No AM Signal	5. T2, Q1, Q2, L210, L211



Q1, Q2 - Q-SE1002



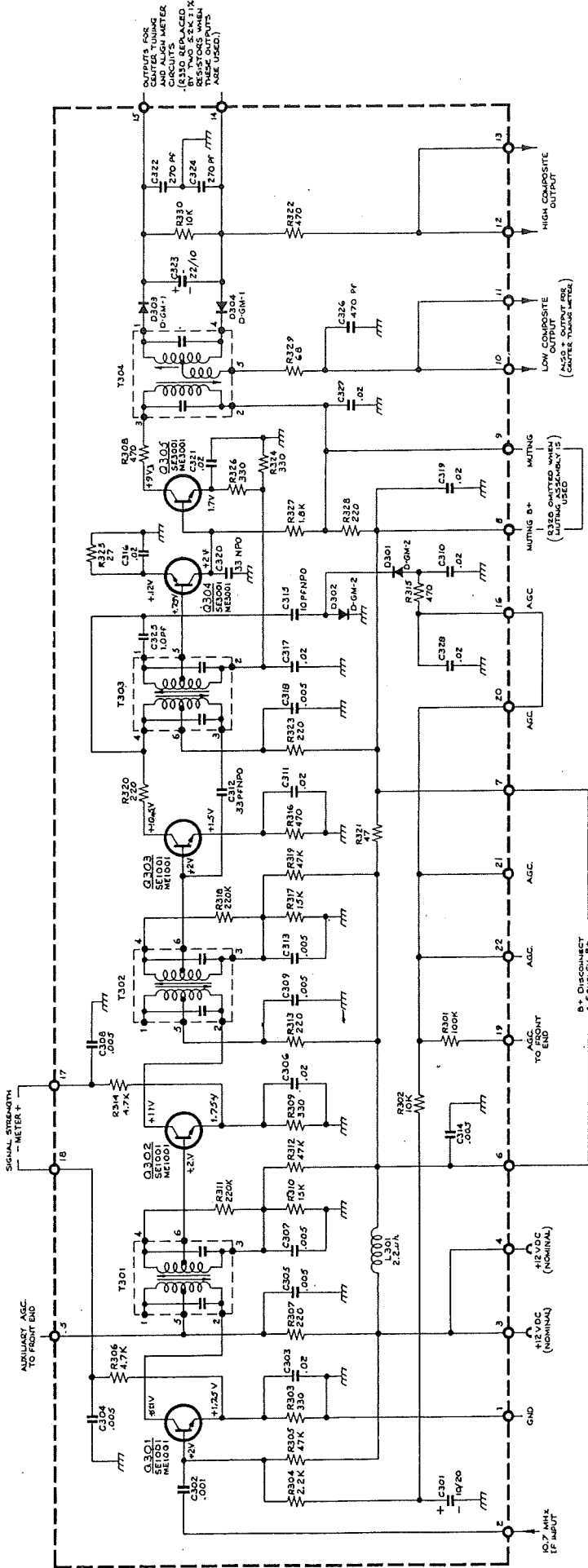
IF-2 N-PC118-1L REV. 1

TROUBLESHOOTING GUIDE FOR AM - IF'S

TROUBLE

POSSIBLE CAUSE

- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li>1. No output</li> <li>2. Good sens, but noisy</li> <li>3. Meter pegging output<br/>OK</li> <li>4. Low meter indication</li> </ol> | <ol style="list-style-type: none"> <li>1. Be sure all screws are tight-<br/>ened on 4 corners of the board.<br/>L4 open, Q1 &amp; Q2, D2</li> <li>2. DGM3 (D1) open or off value</li> <li>3. L1 open</li> <li>4. DGM-1 in meter ckt open</li> </ol> |
|--|---|



FM IF AMPLIFIER

HURLEY SERIES NUMBER SERIES

- 1. UNLESS OTHERWISE SPECIFIED: RESISTANCE IN OHMS ±10% RESISTORS ½ WATT, CAPACITANCE IN MPF.
- 2. D.C. VOLTAGES ±15% MEASURED WITH 20 KΩ/V V.O.M.
- 3. INDICATED SUPPLY VOLTAGES MAY VARY ABOVE OR BELOW NOMINAL VOLTAGE SHOWN FROM MODEL TO MODEL.
- 4. ARROW-HEADS INDICATE MAIN SIGNAL PATH.

Z-PC-IF-1 02

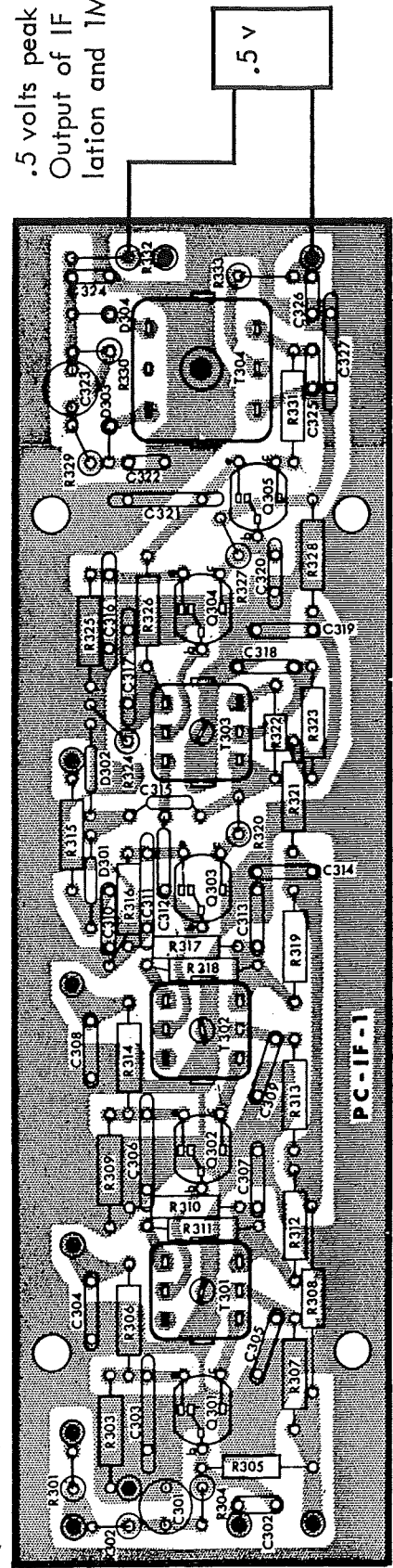
**TROUBLE**

Low output; no output  
Erratic meter movement

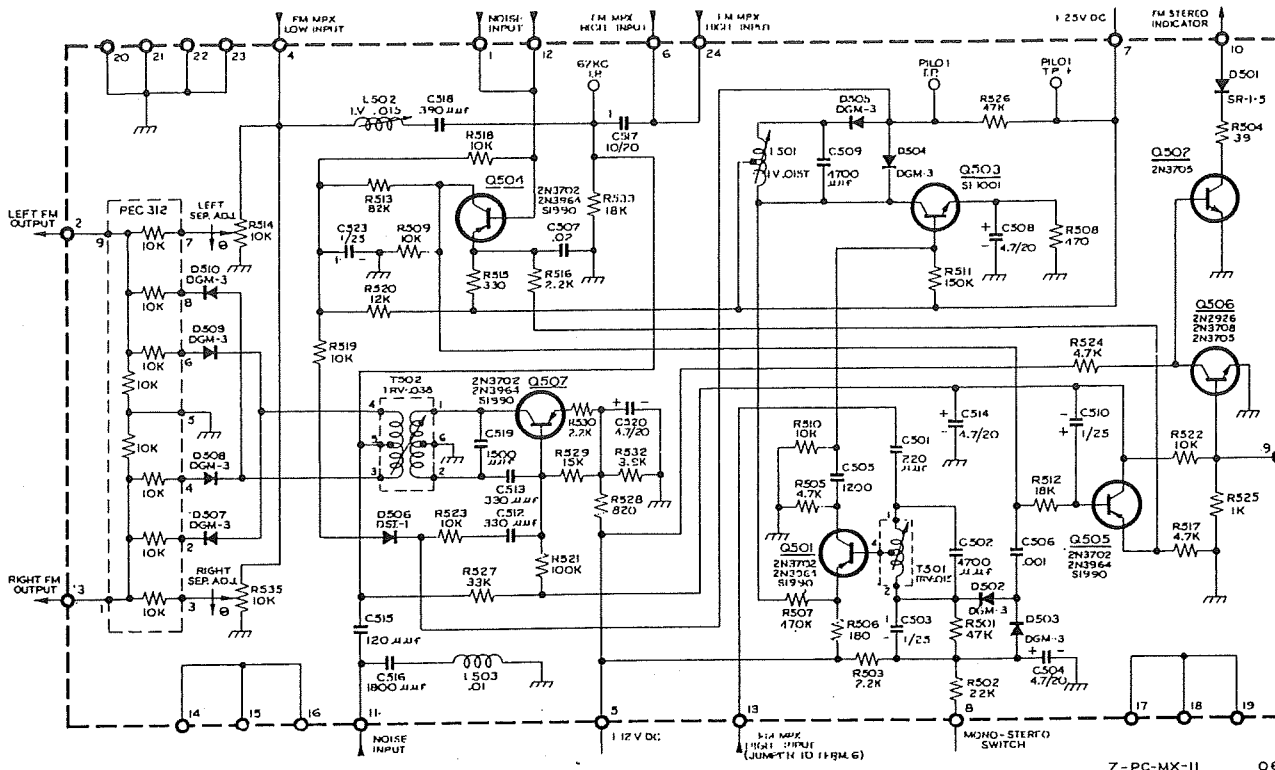
**POSSIBLE CAUSE**

Defective Q301, Q302, Q303

Q301-303-SE1001 304-305-SE3001



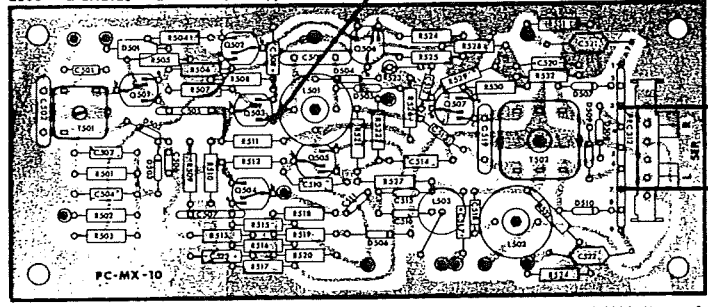
.5 volts peak to peak  
Output of IF with 100% modulation and 1MV input.



INCLUDES INSTRUCTIONS  
 INSTRUCTIONS  
 1. RESISTORS IN OHMS, CAPACITORS IN MFDS, RESISTORS 1/4 WATTS.  
 2. PLOTTING ADJ. - USING 2000 OHM/V METER, MEASURE 5V MIN. D.C.  
 3. SEE INSTRUCTIONS.

**1** 22v Peak to Peak.  
 Pilot signal taken at Step A in Test Procedure

Q 501, Q504, Q505, Q507 - S1990, 2N3964, 2N3702  
 Q 502 - Q-2N3705  
 Q503 - 5E 1001  
 Q506 - Q-2N2926 or Q-2N3708 (A-13) or 2N3705



**2** .15v Peak to Peak } Output of multiplex (Left & Right channels)  
**3** .15v Peak to Peak }

**Z-PC-MX-11	e	b	c
Q501	11v	10v	1.5v to 7v
Q502	0v	.7v	1.1v
Q503	.2v	.35v	26v
Q504	23v	22v	8v
Q505	15.5v	13v	13.8v
Q506	0v	.1v	.7v
Q507	7.6v	8.3v	0v
▲ Q501	11v	11v	5v
Q502	0v	0v	2.7v
Q503	.8v	1.4v	23.5v
Q504	23v	23v	24v
Q505	16.5v	23v	6v
Q506	0v	.5v	0v
Q507	9v	9v	0v

TROUBLE	POSSIBLE CAUSE
Low Pilot	C508, Q503
Poor Separation in one channel	Defective D507, D508, D509 or D510.
Not Switching to stereo except on very strong signal	Check pilot signal, if OK then check C523
Intermittent low output both channels	Cold Solder or defective L502
No output 1 channel	C522 or C521 open
Stereo light frequently burning out	Change R504 to limit voltage across light to .9-1.2v

\*\*VOLTAGES MEASURED WITH 300 OHM LOAD ON EXTERNAL FM ANTENNA TERMINALS, INPUT SWITCH IN "FM" POSITION, MODE SWITCH IN "MONO" POSITION, TUNER OFF-STATION.  
 ▲ VOLTAGES MEASURED UNDER SAME CONDITIONS AS ABOVE EXCEPT MODE SWITCH IN "AUTOMATIC STEREO" POSITION WITH STEREO SIGNAL FED INTO TUNER.

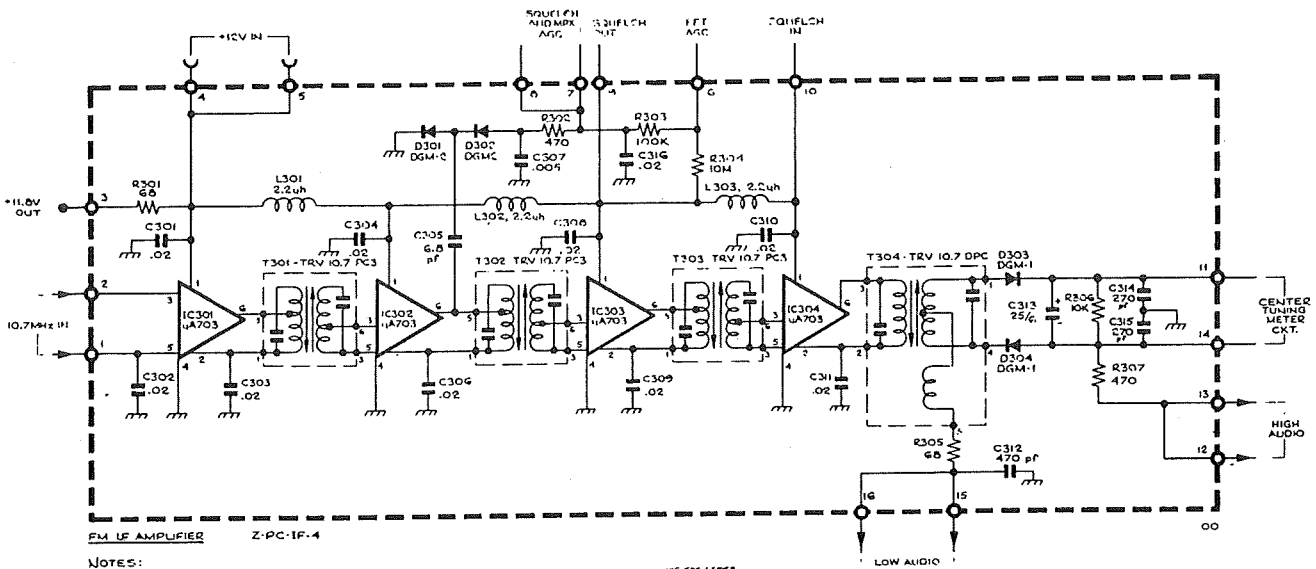
## 388 PARTS PRICE LIST

(Subject to Change Without Notice)

<u>Part #</u>	<u>Description</u>	<u>Customer List</u>
A-DC-14	Dial Cord	\$ 1.75
A-FW-A	Flywheel Assembly	4.80
CEC-250/50-1000/30	Electrolytic Capacitor	3.90
CEC-1000/75	Electrolytic Capacitor	4.32
CEC-2000/65	Electrolytic Capacitor	4.74
CETM-5/15	Electrolytic Capacitor	.84
D-SI-I	Silicon Diode	.40
F-AGX-2	Speaker Fuse	.24
F-SB-1½	Power Fuse	.45
J-3ST-5	Phone Jack	.65
KN-P-6LTT (4)	Plastic Knobs	.65
KN-P-6CTT (2)	Plastic Knobs	.65
KN-P-8CTT (2)	Plastic Knobs	.65
KN-P-12PTT (1)	Plastic Knob	.75
M-SS-6	Meter	9.00
N-388-1	Panel	14.40
N-D-AM/FM-6	Dial Glass	2.94
QP-8	Power Transistor	6.00
RCV-50K-PH	Potentiometer	.96
RCV-50KT-SW-PP	Potentiometer	1.89
RCVCC-100K-T	Potentiometer	1.75
RCVD-100K-SW-38	Potentiometer	2.45
RW-5-.82	Wire Wound Resistor	.20
RWV-100G	Wire Wound Resistor	1.20
SR-1-5	Silicon Rectifier	.64
SR-2-50	Silicon Rectifier	.80
SRW-37-2-1	Stereo Selector Switch	2.59
SRW-125	Input Selector Switch	6.12
SS-22-3/3A	Slide Switch	.30
SS-43	Slide Switch	.36
TR-12-18	Power Transformer	23.60
V-PL-49	Neon Light Bulb	.30
V-PL-1847	Pilot Light Bulb	.40
Z-PC-O-2	Output PC Board	5.62
Z-PC-IF-1	IF (FM) Board	40.00
Z-PC-IF-2	IF (AM) Board	26.24
Z-PC-P-5	Preamp PC Board	14.75
Z-PC-PS-2	Power Supply Board	11.60
Z-PC-TD-2	Tone/Driver Board	26.96
Z-PC-MX-11	Multiplex Board	36.60
Z-AM/FM-7	Front End	41.10
Z-ANT-AM-5	AM Antenna	3.25



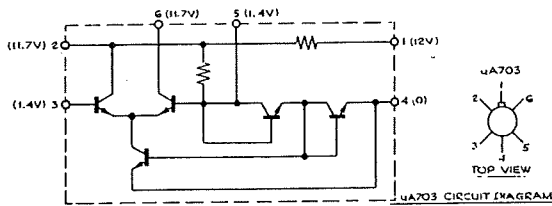
TROUBLESHOOTING PROCEDURE FOR IC-IF-4



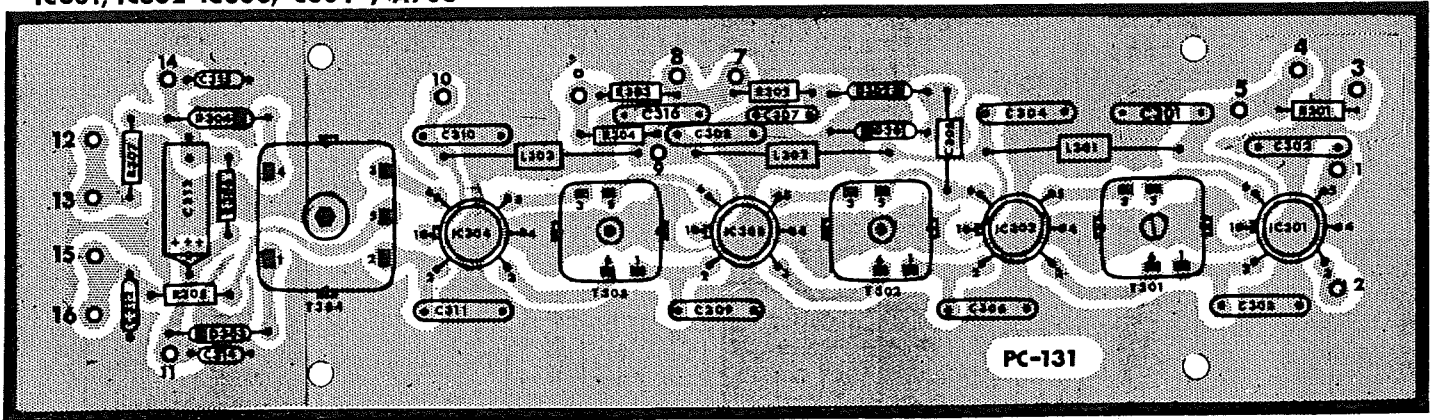
- NOTES:
1. UNLESS OTHERWISE SPECIFIED:  
RESISTANCE IN OHMS  $\times 10^3$ .  
CAPACITANCE IN MFDS.  
RESISTORS 1/4 WATT.  
VOLTS DC  $\pm 15$ , MEASURED WITH 20K $\Omega$ , V.V.O.M.
  2. ARROW - HEADS INDICATE MAIN SIGNAL PATH.

RESISTOR VALUES

R301	R302	R303
10K	100K	100K
R304	R305	R306
10K	100K	100K
R307	R308	R309
10K	100K	100K



IC301, IC302 IC303, C304 -UA703



FM I.F. AMPLIFIER

Z-PC-IF-4

VOLTAGE CHECKS (UA703)

Pin 1 B+ 12 Volts

Set VOM on 3 volt scale: positive lead of meter on pin 1, negative lead on pin 2 and/or pin 6. If voltage is apparent, then that particular stage of IC is operating normally

No output or distortion  
Meter operates okay check diodes D303 and D304 for defect

Meter pegging either direction defective D301 or D302

NOTES:  
 1. UNLESS OTHERWISE SPECIFIED: RESISTANCE IN OHMS, 10K. RESISTORS 1/4 WATT.  
 2. S1 - SELECTOR SW. (SRW 37-2-1)

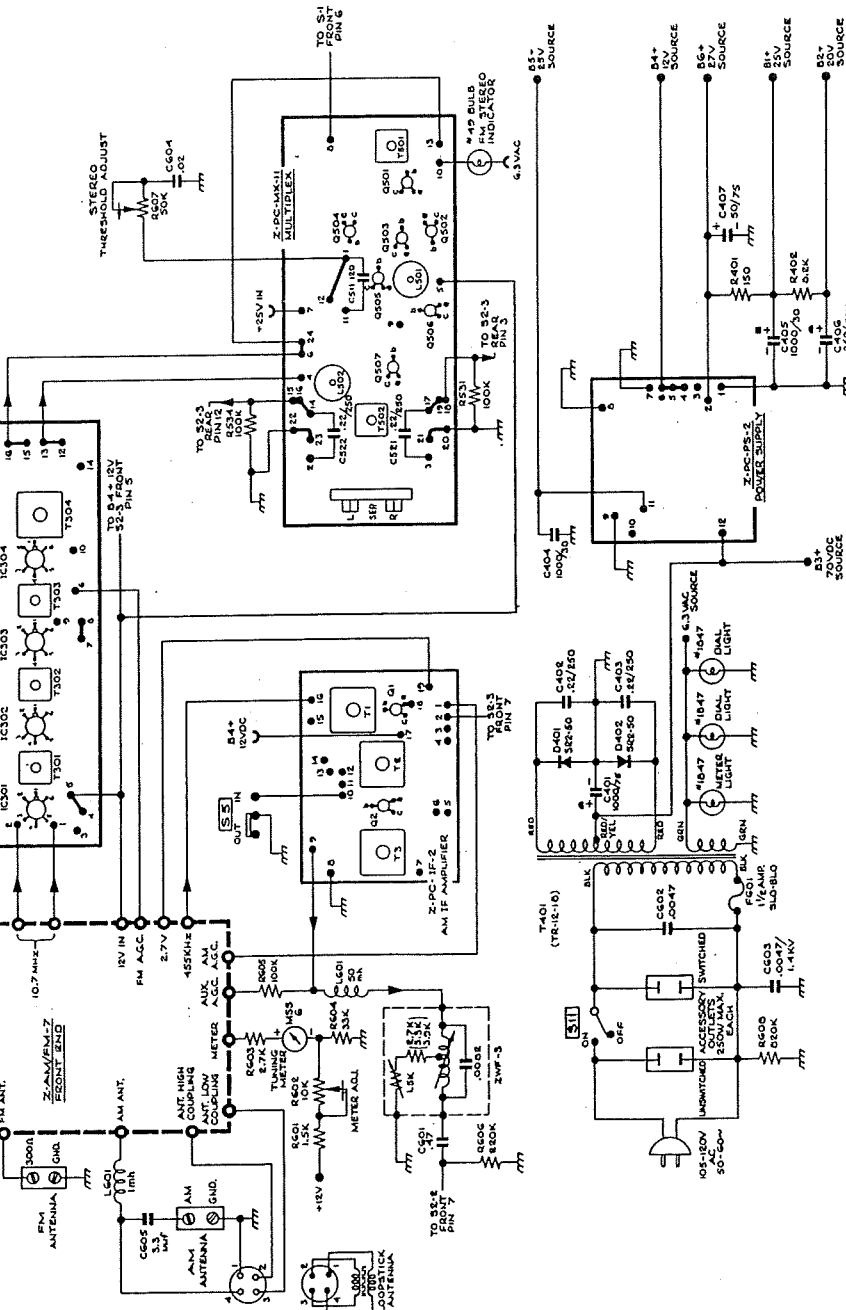
POSITION FUNCTION

1	FM ANT.
2	FM ANT.
3	MONO
4	REVERSE
5	FM ANT.
6	INPUT
7	MONO
8	PHONO
9	PHONO
10	PHONO
11	FM ANT.

3. ROTARY SWITCH DOWN IN POSITION 1 (MAX. C.C.W. POSITION AS VIEWED FROM THE FRONT).
4. SWITCH FUNCTION
- S1 - MOTOR
  - S2 - SCRATCH FILTER
  - S3 - MONITOR
  - S4 - SPEAKERS
  - S5 - SPEAKERS
  - S6 - AM/FM NOISE FILTER
  - S7 - POWER
  - S8 - TUNING
5. THE FOLLOWING CONTROLS IN THE LEFT CHANNEL ARE MECHANICALLY CHANGED WITH IDENTICAL CONTROLS IN THE RIGHT CHANNEL: INPUT, SCRATCH FILTER, PHONO SENSITIVITY, COMP. TAPE MONITOR LOUDNESS, BASS FILTER, MONO, LOUDNESS, BASS FILTER.
6. ARROW-HEADS INDICATE MAIN SIGNAL PATH.
7. ARROWS ON POTENTIOMETERS INDICATES C.W. ROTATION.

VOLTAGES:  
 ALL TEST POINTS POSITIVE UNLESS INDICATED OTHERWISE. VOLTAGES MEASURED WITH 20KΩ/V. V.O.M. AND 17 V.A.C. LINE.

TEST POINT	VOLTAGE	DRAIN	SOURCE
Q201	0V	10V	0V
Q202	0V	1.2V	10V
Q203	0V	1.2V	11.3V
Q204	3.5V	0V	11V
Q1	1.2V	0V	1.8V
Q2	2.2V	0V	2.4V
Q3	2.2V	0V	10.2V
Q4	2.2V	0V	11V
Q5	0V	0V	0V
Q6	0V	0V	0V
Q7	0V	0V	0V
Q8	0V	0V	0V
Q9	0V	0V	0V
Q10	0V	0V	0V
Q11	0V	0V	0V
Q12	0V	0V	0V
Q13	0V	0V	0V
Q14	0V	0V	0V
Q15	0V	0V	0V
Q16	0V	0V	0V
Q17	0V	0V	0V
Q18	0V	0V	0V
Q19	0V	0V	0V
Q20	0V	0V	0V
Q21	0V	0V	0V
Q22	0V	0V	0V
Q23	0V	0V	0V
Q24	0V	0V	0V
Q25	0V	0V	0V
Q26	0V	0V	0V
Q27	0V	0V	0V
Q28	0V	0V	0V
Q29	0V	0V	0V
Q30	0V	0V	0V
Q31	0V	0V	0V
Q32	0V	0V	0V
Q33	0V	0V	0V
Q34	0V	0V	0V
Q35	0V	0V	0V
Q36	0V	0V	0V
Q37	0V	0V	0V
Q38	0V	0V	0V
Q39	0V	0V	0V
Q40	0V	0V	0V



\* FM VOLTAGES MEASURED WITH 300Ω LOAD ON EXTERNAL ANTENNA. VOLTAGES MEASURED WITH INPUT SWITCH IN FM POSITION. VOLTAGES MEASURED WITH LOOP ANTENNA, TUNER OFF-STATION, INPUT SWITCH IN 'FM' POSITION.

\* VOLTAGES MEASURED UNDER SAME CONDITIONS AS ABOVE EXCEPT INPUT SWITCH IN 'STEREO' POSITION WITH STEREO SIGNAL FED INTO TUNER.

ACC VOLTAGE MEASURED WITH INPUT SWITCH IN 'FM' POSITION. TEST POINTS AND INPUT SWITCH IN 'FM' POSITION.

Serial Numbers 375915 - and above

H.H. SCOTT, INC. 300 IC-CI

DATE	11-1-68
REV	0
SCALE	1:1
FIG	3
CIRCUIT DIAGRAM	300 IC-CI
PART 1 OF 3	B

MASTER PARTS LIST

CAPACITORS

C13, C113-----CC-.005  
 C603-----CC-.02  
 C3, C103-----CC-.0027  
 C4, C104-----CC-.0047  
 C401, C402-----CC-.01/1KV  
 C511-----CC-120  
 C7, C107-----CC-180  
 C1, C101-----CC-330  
 C601-----CC-3300  
 C12, C112-----CC-47-NPO  
 C109-----CEC-2000/65  
 C406-----CEC-250/50 1000/30  
 C405-----~~CEC~~-1000/75  
 C9, C109-----CEC-2000/65  
 C2-----CET-50/75  
 C407-----CETM-1000/30  
 C2, C102-----CMM-.022/250V  
 C522, C521, C403, C404-----CMM-.22/250V  
 C602-----CMM-.47/250  
 C5,C6,C8,C105,C108-----CMM-.068/250

Ceramic Capacitor

" "  
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 " "  
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 " "

Electrolytic Capacitor

" "  
 " "

Electronic Capacitor

" "

Dipped Mylar Capacitor

" " "  
 " " "  
 " " "

TRANSISTORS

Q10, Q11, Q110, Q111-----QP-8

Transistor

RESISTORS

R7, R107-----RC11-390  
 R6, R106-----RC11-1K  
 R1, R101-----RC11-2.2M  
 R602-----RC21-47  
 R3, R103, R607-----RC21-220  
 R605-----RC21-1.5  
 R606-----RC21-1.8  
 R604-----RC21-2.7  
 R4, R104-----RC21-6.8  
 R2, R102, R9, R109, R18, R118---RC21-10K  
 R10, R110-----RC21-12K  
 R603-----RC21-22K  
 R12, R112-----RC21-39K  
 R531, R534-----RC21-100K  
 R601-----RC21-220K  
 R401-----RC21-820  
 R14, R114-----RC31-3.3  
 R13, R15, R113, R115-----RW5-.82  
 R608-----RWV-100G

1/4 Watt Resistor

" " "  
 " " "

1/2 Watt Resistor

1/2 Watt Resistor

" " "  
 " " "

" " "  
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 " " "

1 Watt Resistor

Wire Wound Resistor  
 " " "

KNOBS

KN-P-8CT  
 KN-P-6CTT  
 KN-P-6LTT  
 KN-P-12PTT

Plastic Knob

" "  
 " "  
 " "

CHOKES

L601-----L-RFC-.05

Choke

DIODES

D1, D2, D101, D102-----SR-1-5  
 D401, D402-----SR-2-50  
 D601-----D-SI-1

Silicon Rectifier  
 " "  
 Silicon Diode

POTENTIOMETERS

R609-----RCV-50K-PH  
 R601-----RCV-50KT-SW-PP  
 R8, R108, R11, R111-----RCVCC-100KT  
 R5, R105-----RCVD-100KT-SW-3B

Stereo Threshold  
 Balance  
 Bass, Treble  
 Loudness

TRANSFORMERS

T1-----TR-12-18  
 T1-----TR-12-19

Power Transformer  
 Power Transformer Overseas

SWITCHES

SRW-37-2-1  
 SRW-125  
 SS-22-3/3A

Rotary Switch Stereo  
 Rotary Switch Input  
 Loudness compensator, Speaker  
 Rumble filter, Scratch filter,  
 Tape  
 Phono Sensitivity

SS-43

MISCELLANEOUS

A-F-1  
 A-FW-A  
 A-PSR-1  
 A-PL-3/8  
 F-AGX-2  
 F-SB-1½A  
 J-3-ST-5  
 MSS-6

Plastic Feet  
 Flywheel ASS'y  
 Pointer  
 Nylon Pulley  
 Fuse  
 "  
 Jack Triple  
 Meter

SUB ASSEMBLIES

Z-AM-FM-7  
 Z-PC-MX-11

AM-FM Front End  
 Mult plex (printed Circuit  
 board complete)

Z-PC-IF-2

IF-AM (printed circuit board  
 complete)

Z-PC-PS-2

Power Supply (printed board  
 complete)

Z-PC-O-2

Output (Printed circuit board  
 complete)

Z-PC-IF-1

FM IF (printed circuit board  
 complete)

Z-PC-P-5

Pre-amp (printed circuit board  
 complete)

Z-PC-TD-2

Tone Driver (circuit board  
 complete)

Z-WF-3

Whistle Filter

Z-PC-MX-11  
MASTER PARTS LIST

CAPACITORS

C501-----	CM19-220	Capacitor Mica
C502, C509-----	CM20-4700	" "
C503, C510-----	CTT-1/25	Capacitor Tantalum Tubular
C504, C508, C514, C520-----	CTT-4.7/20	" " "
C505-----	CC-1200	Ceramic Capacitor
C506-----	CC-.001	" "
C507-----	CC-.0?	" "
C512, C513-----	CM19-330	Capacitor Mica
C515-----	CC-120	Ceramic Capacitor
C516-----	CC-1800	" "
C517-----	CTT-10/20	Capacitor Tantalum Tubular
C518-----	CM20/390	Capacitor Mica
C519-----	CM20/150	" "
C523-----	CTT-1/25	Capacitor Tantalum Tubular

TRANSISTORS

Q501, Q505, Q507-----	-2N3702	Transistor
Q502-----	-2N2926 or 2N3705	"
Q503-----	-SE1001 or ME1001	"
Q504-----	-2N3702	"
Q506-----	-2N2926	"

RESISTORS

R501, R526-----	-RC21-47K	1/2 Watt Carbon Resistor
R502-----	-RC21-22K	1/2 " " "
R503-----	-RC21-3.3K	1/2 " " "
R504-----	-RC11-39	1/4 " " "
R505, R517, R524-----	-RC21-4.7K	1/2 " " "
R506-----	-RC21-180	1/2 " " "
R507-----	-RC21-470K	1/2 " " "
R508-----	-RC21-470	1/2 " " "
R509, R510, R519,		
R518-----	-RC21-10K	1/2 " " "
R511-----	-RC21-150K	1/2 " " "
R512, R533-----	-RC21-18K	1/2 " " "
R513-----	-RC21-82K	1/2 " " "
R515-----	-RC21-330	1/2 " " "
R516, R530-----	-RC21-2.2K	1/2 " " "
R520-----	-RC21-12K	1/2 " " "
R521-----	-RC21-100K	1/2 " " "
R522, R523-----	-RC21-10K	1/2 " " "
R525-----	-RC21-1K	1/2 " " "
R528-----	-RC21-820	1/2 " " "
R527-----	-RC21-33K	1/2 " " "
R529-----	-RC21-15K	1/2 " " "
R532-----	-RC21-3.9K	1/2 " " "

DIODE

D501-----	-SR-1-5	Silicon Rectifier
D502, D503, D504, D505,		
D507, D508, D509,		
D510-----	-D-GM-3	Diode
D506-----	-D-SI-1	"

MISCELLANEOUS

L501-----	LV-.015T-PC	Variable Coil
L502-----	LV-.015-PC	Variable Coil
L503-----	L-RFC-.01	RF Choke
T501-----	TRV-.015T-PC	Variable Transformer (Can Type)
T502-----	TRV-.038TT-PC	" " " "
	RCV=2 x 10K-PC	Variable Carbon Resistor
	PEC-312	Packaged Electrical Circuits

Z-PC-0-2  
MASTER PARTS LIST

CAPACITORS

C1, C2 -----CMM-.22/250

RESISTORS

R1, R9-----RW5-12  
R2, R8-----RC31-220  
R3, R7-----RC31-270  
R5-----RC21-4.7K  
R4, R6-----RC21-82K

5 Watt Wire Wound Resistor

1 Watt Carbon Resistor

1 " " "

$\frac{1}{2}$  " " "

$\frac{1}{2}$  " " "

Z-PC-IF-1  
MASTER PARTS LIST

CAPACITORS

C301-----CTT-10/20  
 C302, C326-----CC-.001  
 C303, C306, C311, C317,  
 C316, C321, C327-----CC-.02  
 C304, C305, C307, C309,  
 C308, C310, C313  
 C314, C318, C319-----CC-.005  
 C312, C320-----CC-33 NPO  
 C315-----CC-10 NPO  
 C323-----CTT-22/10  
 C322, C324-----CC-270K  
 C325-----CC-1.0

Capacitor Tantalum Tubular  
 Ceramic Capacitor

" "

" "

" "

" "

Capacitor Tantalum Tubular  
 Ceramic Capacitor

" "

TRANSISTORS

Q301, Q302-----See Transistor Chart  
 Q303-----QRF-2  
 Q304, Q305-----SE3001 or ME3001

RF Transistors  
 Transistor

RESISTORS

R301-----RC21-100K  
 R302, R330-----RC21-10K  
 R303, R309, R326-----RC21-330  
 R304-----RC21-2.2K  
 R305, R312, R319-----RC21-47K  
 R306, R314-----RC21-4.7K  
 R307, R313, R320, R323,  
 R328-----RC21-220  
 R310, R317-----RC21-15K  
 R311, R318-----RC21-220K  
 R315, R316, R322, R308--RC21-470  
 R321-----RC21-47  
 R324-----RC21-330  
 R325-----RC21-27  
 R327-----RC21-1.8K  
 R329-----RC21-68

1/2 Watt Carbon Resistor

1/2 " " "

1/2 " " "

1/2 " " "

1/2 " " "

1/2 " " "

1/2 " " "

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1/2 " " "

DIODE

D301, D302-----DGM-2  
 D303, D304-----DGM-1

Diode

"

MISCELLANEOUS

T301, T302, T303-----TR7-10.7 PC  
 T304-----TRV-10.7D-PC  
 L301-----L-RFC-2.2

Variable Transformer (Can Type)

" " " "

RF Choke



Z-PC-IF-2  
MASTER PARTS LIST

CAPACITORS

C1, C7-----	CMM-.22/250	Capacitor Mylar Molded
C2, C5-----	CC-.05	Ceramic Capacitor
C3, C13-----	CC-.02	" "
C6-----	CEPC-10/15	Electrolytic Printed Circuit Type
C7, C8, C9-----	CC-.05	Ceramic Capacitor
C10-----	CETM-5/15	Miniature Tubular Electrolytic
C11, C14-----	CC-.0022	Ceramic Capacitor

TRANSISTORS

Q1, Q2-----	SE1002 or ME1002	Transistors
-------------	------------------	-------------

RESISTORS

R1, R7, R12-----	RC11-470	1/4 Watt Carbon Resistor
R2-----	RC11-47K	1/4 " " "
R3-----	RC11-15K	1/4 " " "
R4-----	RC11-1K	1/4 " " "
R5-----	RC11-330	1/4 " " "
R6, R13, R14-----	RC11-220	1/4 " " "
R9-----	RC11-15K	1/4 " " "
R10-----	RC11-33K	1/4 " " "
R15-----	RC11-39K	1/4 " " "
R16-----	RC11-68K	1/4 " " "
R17-----	RC11-1.5K	1/4 " " "

DIODE

D1-----	D-CM-3	Diode
D2-----	D-SI-1	"

MISCELLANEOUS

T1, T2-----	TRV-.455-IF-T-PC	Variable Transformer (Can Type)
T3-----	TRV-.455-DT-PC	Variable Transformer (Can Type)
L1-----	L-RFC-80	RF Choke
L2, L3-----	L-RFC-2.2	" "
L4-----	L-RFC-.05	" "

Z-PC-PS-2  
MASTER PARTS LIST

CAPACITORS

C1-----CETM-5/15  
C2, C3-----CET-50/75  
C4-----CETM-250/30

Miniature Tubular Electrolytic  
Capacitor Electrolytic Tubular  
Miniature Tubular Electrolytic

RESISTORS

R1-----RC21-8.2K  
R2-----RC21-150  
R3-----RW5-1K  
R4-----RC31-470  
R5-----RW5-270  
R6-----RW5-220  
R7-----RC41-150

1/2 Watt Carbon Resistor  
1/2 " " "  
Wire Wound Resistor  
1 Watt Carbon Resistor  
Wire Wound Resistor  
" " "  
2 Watt Carbon Resistor

DIODE

D1-----DZ-12  
D2-----DZ-27

Zener Diode  
" "

Z-PC-TD-2  
MASTER PARTS LIST

CAPACITORS

C1, C5-----	CEPC-1/25	Electrolytic Printed Circuit Type
C2, C3-----	CTT-10/20	Capacitor Tantalum Tubular
C4-----	CEPC-100/6	Electrolytic Printed Circuit Type
C6, C7-----	CEPC-25/25	" " " "
C8, C11-----	CETM-250/3	Miniature Tubular Electrolytic
C9-----	CC-47 NPO	Ceramic Capacitor
C10-----	CEPC-25/25	Electrolytic Printed Circuit Type
C12-----	CET-50/75	Capacitor Electrolytic Tubular
C15-----	CC-150	Ceramic Capacitor

TRANSISTORS

Q1-----	2N2925 or 2N3711	Transistor
Q2-----	2N2924 or 2N3710	"
Q3-----	QA-10 (Green Dot)	"
Q4-----	QA-9	"
Q5-----	QA-10 (Red/Blue/Green)	"
Q6-----	QA-10 (Blue/Green)	"

RESISTORS

R2-----	RC21-4.7K	1/2 Watt Carbon Resistor
R3-----	RC21-47K	1/2 " " "
R4, R5, R21, R25-----	RC21-15K	1/2 " " "
R6-----	RC21-1.8K	1/2 " " "
R7-----	RC21-1.2K	1/2 " " "
R8-----	RC21-68	1/2 " " "
R9-----	RC21-33K	1/2 " " "
R10-----	RC21-56K	1/2 " " "
R11, R14-----	RC21-2.7K	1/2 " " "
R12-----	RC21-6.8K	1/2 " " "
R13, R29-----	RC21-3.3K	1/2 " " "
R15-----	RC21-3.9K	1/2 " " "
R16, R23-----	RC21-270	1/2 " " "
R17-----	RC21-18K	1/2 " " "
R18-----	RC21-82K	1/2 " " "
R19, R26-----	RC21-47	1/2 " " "
R20-----	RC21-3.3K w/CC120	1/2 " " "
R22-----	RC21-220	1/2 " " "
R24-----	RC21-1.5K w/CC470	1/2 " " "
R27, R28-----	RC21-390	1/2 " " "
R30-----	RC21-1K	1/2 " " "
	RCV-10K/1K-PC	Variable Carbon Resistor

DIODE

D1-----	SR-1-5	Silicon Rectifier
---------	--------	-------------------

Z-PC-P5  
MASTER PARTS LIST

CAPACITORS

C1-----CETM-2/25  
 C2, C3-----CETM-10/25  
 C4, C10-----CC-330K  
 C5-----CETM-250/3  
 C6-----CETM-5/15  
 C7-----CETM-50/25  
 C8-----CC-.0056 10%  
 C9-----CC-.0012 10%  
 C11-----CC-470K  
 C12-----CC-680/10%

Miniature Tubular Electrolytic  
 " " "  
 Ceramic Capacitor  
 Miniature Tubular Electrolytic  
 " " "  
 " " "  
 Ceramic Capacitor  
 " " "  
 " " "  
 " " "

TRANSISTORS

Q1-----See Transistor Chart  
 Q2-----2N2926 or 2N3708  
 Q3-----2N2613

Transistor  
 "

RESISTORS

R1, R5, R9-----RC21-68K  
 R2, R8-----RC21-33K  
 R3-----RC21-470  
 R4, R10-----RC21-5.6K  
 R6, R15-----RC21-12K  
 R7-----RC21-27K  
 R11-----RC21-1K  
 R12-----RC21-680K  
 R13-----RC21-820  
 R14, R16-----RC21-47K  
 R17-----RC21-4.7K

1/2 Watt Carbon Resistor  
 1/2 " " "  
 1/2 " " "  
 1/2 " " "  
 1/2 " " "  
 1/2 " " "  
 1/2 " " "  
 1/2 " " "  
 1/2 " " "  
 1/2 " " "  
 1/2 " " "

CHOKE

L1-----L-RFC-.05

RF Choke

## MASTER PARTS LIST

CAPACITORS

C214-----	CC-.02	Ceramic Capacitor
C223, C217, C204, C206-----	CC-.001	" "
C219, C226, C213, C207, C205-----	CC-.005	" "
C215-----	CC-.47	" "
C202, C211, C225, C216-----	CC-5 NPO	" "
C232, C235-----	CC-8.2 NI500	" "
C221-----	CC-12NPO	" "
C209-----	CC-15 NPO	" "
C208, C224-----	CCF-.001	Capacitor Feed Thru
C210, C222-----	CTV-10	Trimmer Capacitor
C218-----	CMM-.068/50 20%	Mylar Capacitor

TRANSISTORS

Q204-----	Q-RF-2	Transistors
Q201, Q202, Q203-----	Q-RF-3	"

RESISTORS

R206-----	RC11-68	½ Watt Resistor
R201, R202, R203, R204, R212-----	RC11-220	" " "
R205-----	RC11-470	" " "
R215-----	RC11-1K	" " "
R214-----	RC11-2.2K	" " "
R213-----	RC11-4.7K	" " "
R207, R209-----	RC11-220K	" " "
R210-----	RC11-1M	" " "
R208-----	RC11-2.2M	" " "
R211, R216-----	RC21-47	½ Watt Resistor

DIODE

D201-----	D-SI-1	Silicone Diode
-----------	--------	----------------

COIL

L203, L207-----	L-RFC-.33	RF Choke
L204, L208-----	L-RFC-1	" "
L202, L210, L211-----	L-RFC-2.2	" "
L201-----	L-RF-31	Antenna Coil FM
L205, L206-----	L-RF-29	OSC & Mixer Coil FM

TRANSFORMER

T-201-----	TRV-10.7 PC	IF Transformer
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SUB ASSEMBLY

Z-PC-RF-1	RF PC Board Assembly
-----------	----------------------

MISCELLANEOUS

XQ-4GR-w/mounting rings	Transistor Socket
XQ-4R-w/mounting rings	" "



# H. H. SCOTT, INC.

TO: All Reps & Warranty Service Stations

SUBJECT: P.C. boards used in the 388

The following information on the 388 supplements the list of P.C. board changes already sent to you.

Use this information when ordering P.C. boards from the factory.

<u>UNIT</u>	<u>PC BOARD</u>	<u>LABEL</u>	<u>USE</u>	<u>CHANGE REQUIRED</u>
388	Z-PC-0-2	N-PC-113-1L	Output	None
	Z-PC-IF-1	N-PC-107-1L	FM/IF strip	Remove R321 (RC21-47)
	Z-PC-IF-2	N-PC-118-1L	AM/IF strip	None
	Z-PC-MX-11	N-PC-109-6L	Mpx.	Add C521, C522 (CETM-5/15) Add R531, R534, (RC21-100K) Add C511 (CC-120)
	Z-PC-P-5	N-PC-111-1L	Preamp	None
	Z-PC-PS-2	N-PC-120-1L	Power Supply	None
	Z-PC-TD-2	N-PC-110-2L	Tone/Driver	None

Best regards,

Fred Holmes  
Service Manager

FH:kc



# H. H. SCOTT, INC.

DATE: February 2, 1966  
 TO: Reps & All Warranty Service Stations  
 FROM: F. Holmes  
 SUBJECT: Usage of QRF-3 in Z-AM/FM-7 and Z-FM-16

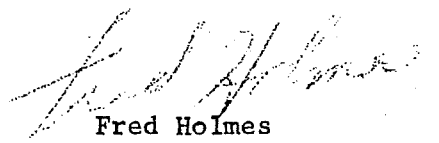
Our present vendor, Texas Instruments, has established the following color code:

IDSS in ma	Color Code
0.5 - 1	Red
1 - 2	Orange
2 - 4	Yellow
4 - 8	Green
8 -15	Blue

These field-effect transistors shall be used in the following manner:

Choice	Q201	Q202	Q203
1	Green	Yellow	Orange
2	Blue	Green	Yellow
3	Yellow	Orange	Red

Within any front end the above choices must be used as indicated above, i.e., no other mixing of colors.

  
 Fred Holmes  
 Service Manager

FH: kc



# H. H. SCOTT, INC.

111 POWDER MILL RD., MAYNARD, MASS., 01754

## SERVICE BULLETIN FOR MODEL 388 AM-FM-MX TUNER-AMPLIFIER

### SPECIFICATIONS

#### TUNER (FM-MPX)

Usable Sensitivity (IHF) - 3% THD, Noise and Hum	1.6 uv
Signal to Noise Ratio	75 dB
Total Harmonic Distortion, Mono	0.8%
Frequency Deviation (Drift) less than	.02%
* Frequency Response	50 to 15,000 cps $\pm$ 1 dB
Capture Ratio	4.0 dB
Selectivity (400 kc off channel)	45 dB
Spurious Response Rejection (Cross modulation rejection)	90 dB
19 kc Pilot Suppression	40 dB
35 kc Sub-carrier Suppression	60 dB
AM Suppression	55 dB
Tuning Range	87 to 109 mc
Accuracy of Calibration	0.5%
Separation	greater than 35 dB

\* This is limit of FCC Stereo Broadcast specifications. All H. H. Scott tuners have far wider frequency response.

#### TUNER (AM)

Usable Sensitivity (External terminals)	20 uv
Volume Sensitivity	4 uv
Audio Hum and Noise (Ref. 1 v Output)	52 dB
Tuning Range	530 to 1630 kc
Bandwidth ( -6 dB)	3.5 kc

#### AMPLIFIER

##### Tape Output

Rated voltage output to tape recorder	0.5 v
Recommended load resistance: greater than	200 k ohms
Recommended cable capacitance - less than	200 pF

##### Mag. Low - Input Impedance

Signal for rated output (switch selected)	47 k ohms
S/N Ratio	3, 5, 9 mv
	-55 dB

##### Tape Head - Input impedance

Signal for rated output	47 k ohms
S/N Ratio	3.0 mv
	-52 dB

##### High Level Inputs - Input impedance

Signal for rated output	47 k ohms
S/N Ratio	0.5 v
	-80 dB

##### Frequency Response in flat position

Treble controls: boost and cut at 10,000 cps	20 to 20,000 cps $\pm$ 1 dB
Bass controls: boost and cut at 50 cps	+ 10 dB - 10 dB
Loudness Compensation, maximum	+ 10 dB - 14 dB
	+ 8 dB at 50 cps
	+ 3 dB at 10,000 cps

##### Scratch filter

##### Rumble filter

Music Power Rating (watts/channel) @ 0.8% harmonic distortion	6 dB @ 10 kc
@ 4 ohm	8 dB @ 50 cps
@ 8 ohm	60/60 watts
	50/50 watts

##### Continuous Output - Single Channel @ 8 ohms

0.8 % Harmonic Distortion	40 watts
---------------------------	----------

##### Continuous Output - Both Channels @ 8 ohms

0.8 % Harmonic Distortion	30/30 watts
---------------------------	-------------

##### Total Harmonic Distortion at rated output

Frequency Response - Power Amplifier @ 1 w	0.8 %
Power Bandwidth at rated distortion (IHF method)	20 to 20,000 cps $\pm$ 1 dB
Hum and Noise	20 to 20,000 cps
Damping Factor	-80 dB
Line Voltage and Frequency	20
Power Consumption @ 117 volts, 60 cps	105-125 v, 50 - 60 cps
	35-175 w

#### Balance Adjust

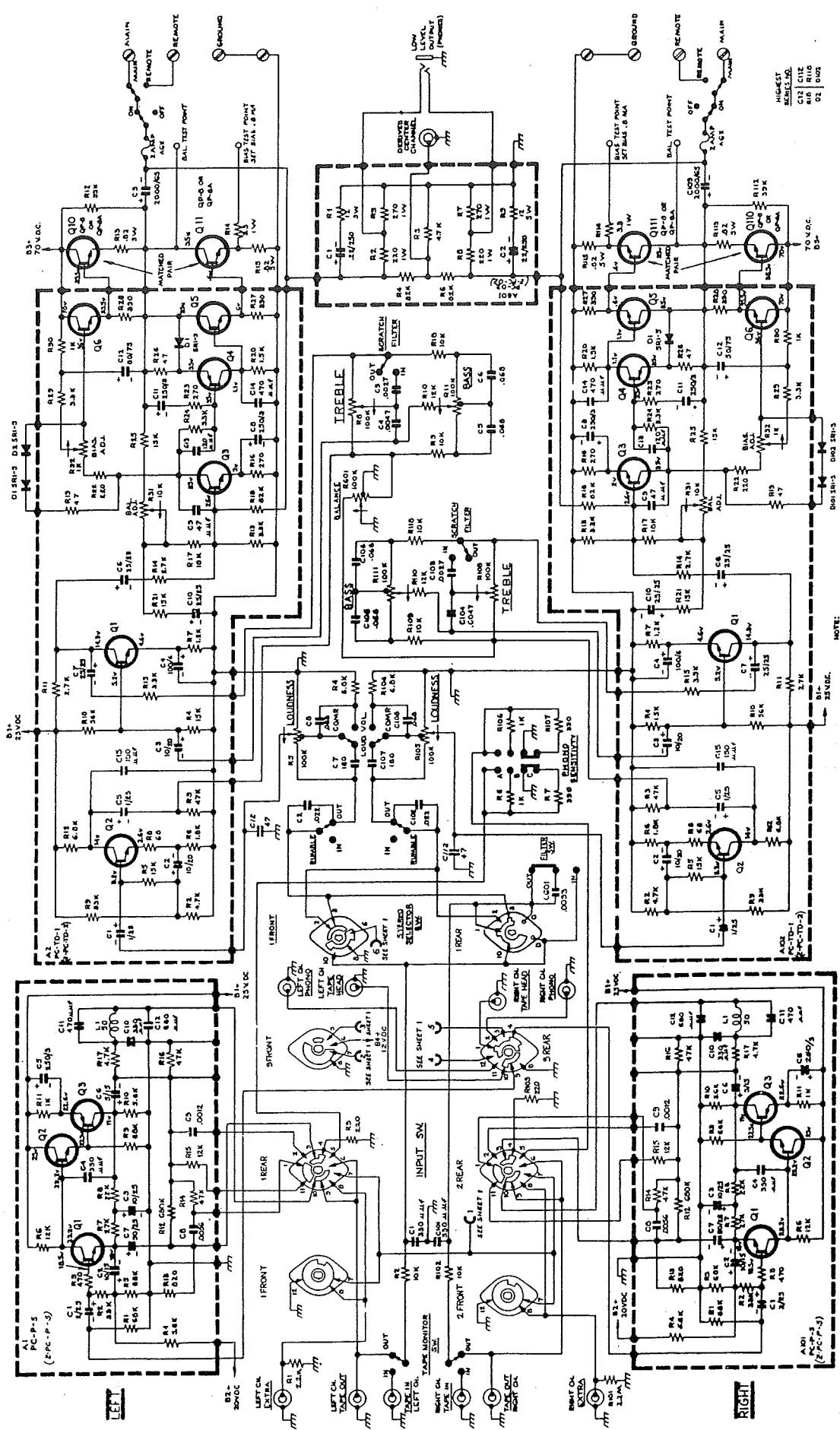
Set balance controls on each channel for 35 volts at balance test point. (see schematic)

#### Bias Adjust

NOTE: Bias adjustment should be made only after the unit has been run for 2 minutes at the clipping point into an 8 ohm load.

Set the bias controls on each channel for .8 ma using a Triplet model 630 V.O.M. set on the 12 ma scale. If the Triplet model 630 V.O.M. is not available, use a DC VTVM and adjust bias for 17 mv.





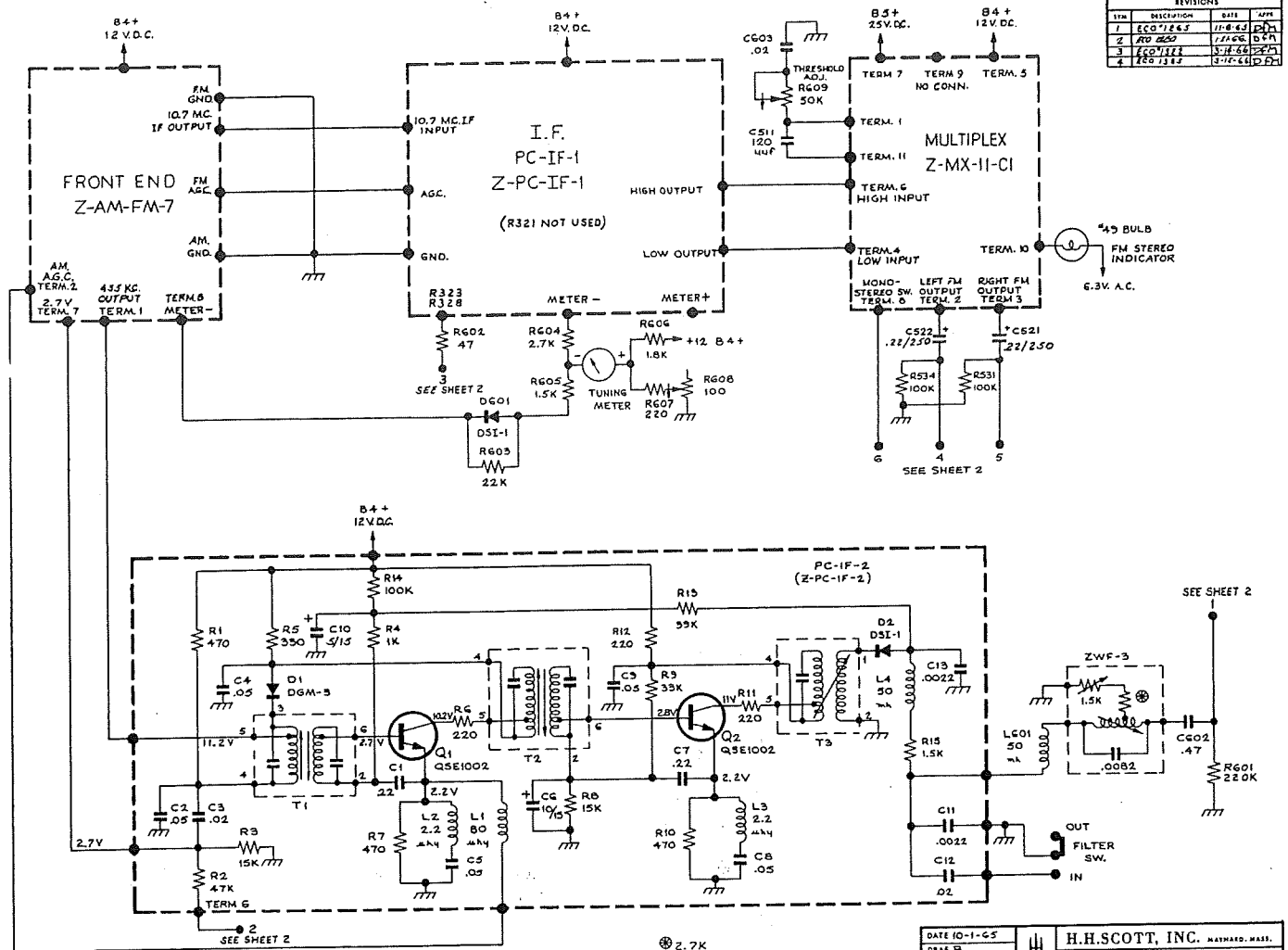
H.R. SCOTT, INC. 1000 W. 10th St. Phoenix, Arizona  
 SCALE: 1:1  
 SHEET 2 OF 3  
 CIRCUIT DIAGRAM  
 300-C1

NOTE: ALL COMPONENTS IN THIS CIRCUIT ARE MECHANICALLY ENGAGED WITH IDENTICAL CONTROLS IN THE FRONT CHANNEL. 1. PHONO 2. TAPE 3. TUNING FILTER 4. PHONO SENSITIVITY 5. EQUALIZER

UNLESS OTHERWISE SPECIFIED, RESISTORS IN OHMS, 1/2 WATT. CAPACITORS IN MFD. ALL CAPACITORS ARE POLARIZED UNLESS OTHERWISE INDICATED. RESISTORS ARE 5% TOLERANCE UNLESS OTHERWISE INDICATED.

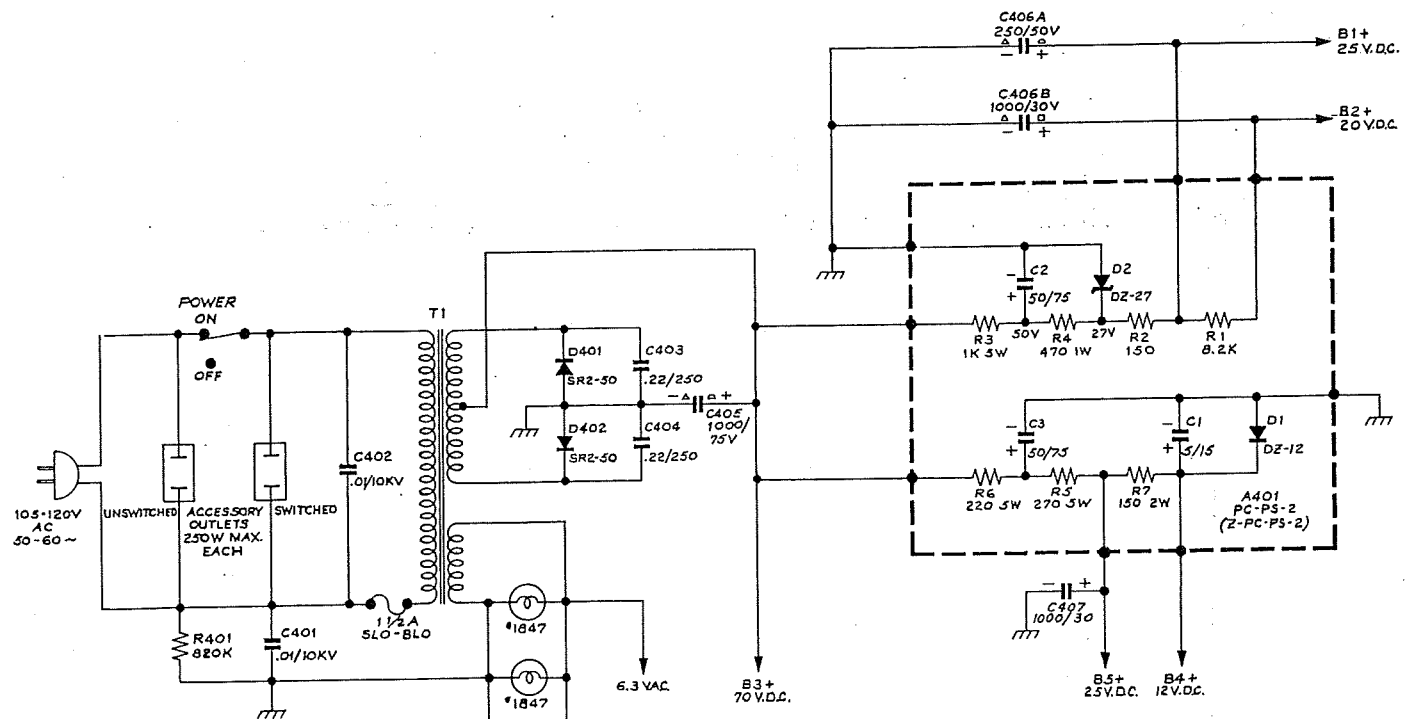
HIGHEST SENSITIVE NO. CIR. INT. LI  
 AL-A101 HIGHEST SENSITIVE NO. CIR. INT. LI  
 PC-TD-1 HIGHEST SENSITIVE NO. CIR. INT. LI  
 Q1 Q1-12 (2N3550A) (1N5700)  
 Q2 Q2-12 (2N3550A) (1N5700)  
 Q3 Q3-12 (2N3550A) (1N5700)  
 Q4 Q4-3 (2N3550A) (1N5700)  
 Q5 Q5-3 (2N3550A) (1N5700)  
 Q6 Q6-3 (2N3550A) (1N5700)

REVISIONS			
ITEM	DESCRIPTION	DATE	APP
1	ECO 1/26/65	11-8-65	PH
2	AD 2/20	2/16/66	PH
3	TC 1/11	1/11/67	PH
4	AS 1/11	3-12-68	PH



NOTE:  
 1 RESISTANCE IN OHM'S  
 2 CAPACITANCE IN MFD.

DATE 10-1-65	H.H. SCOTT, INC. MAYNARD, MASS.
DRAF. PH	CIRCUIT DIAGRAM
ENG. DPH	SCALE: ---
PROD. ---	SHEET 1 OF 3
	388-C1
	REV 4

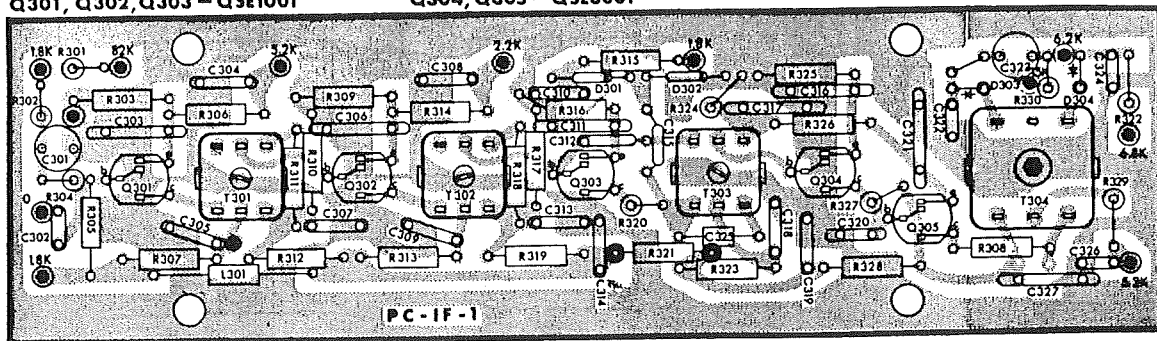


DATE 9-16-65	H.H. SCOTT, INC. MAYNARD, MASS.
DRAF. GAL	CIRCUIT DIAGRAM
ENG. DPH	SCALE: ---
PROD. ---	SHEET 3 OF 3
	388-C1
	REV 4

35

Q301, Q302, Q303 - QSE1001

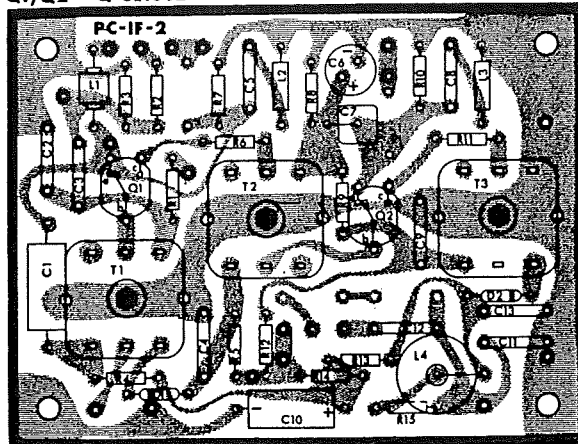
Q304, Q305 - QSE3001



I.F. STRIP

N-PC107-1L

Q1, Q2 - Q-SE1002

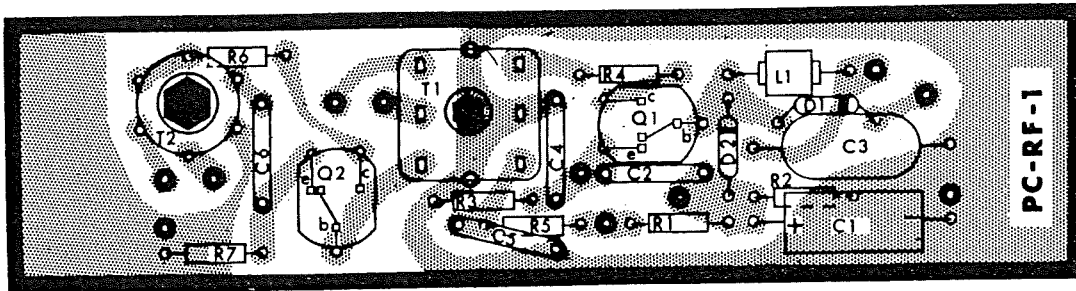


IF-2

N-PC118-1L

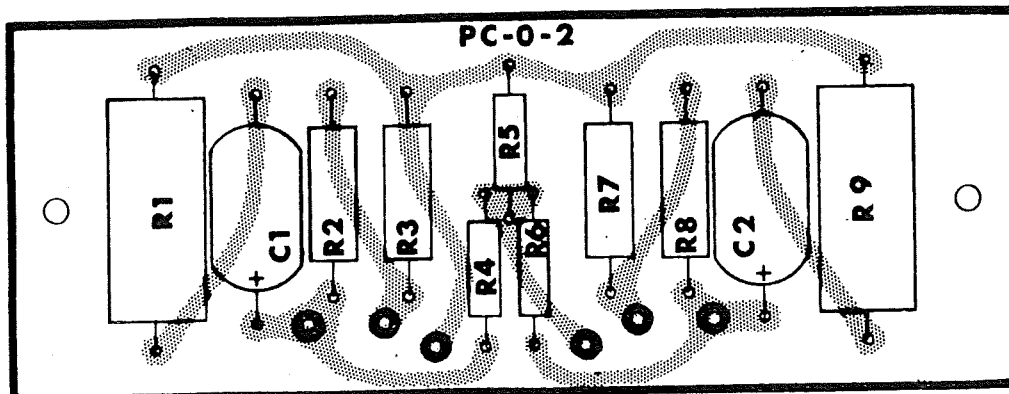
REV. 1

Q1, Q2 - Q-SE1001



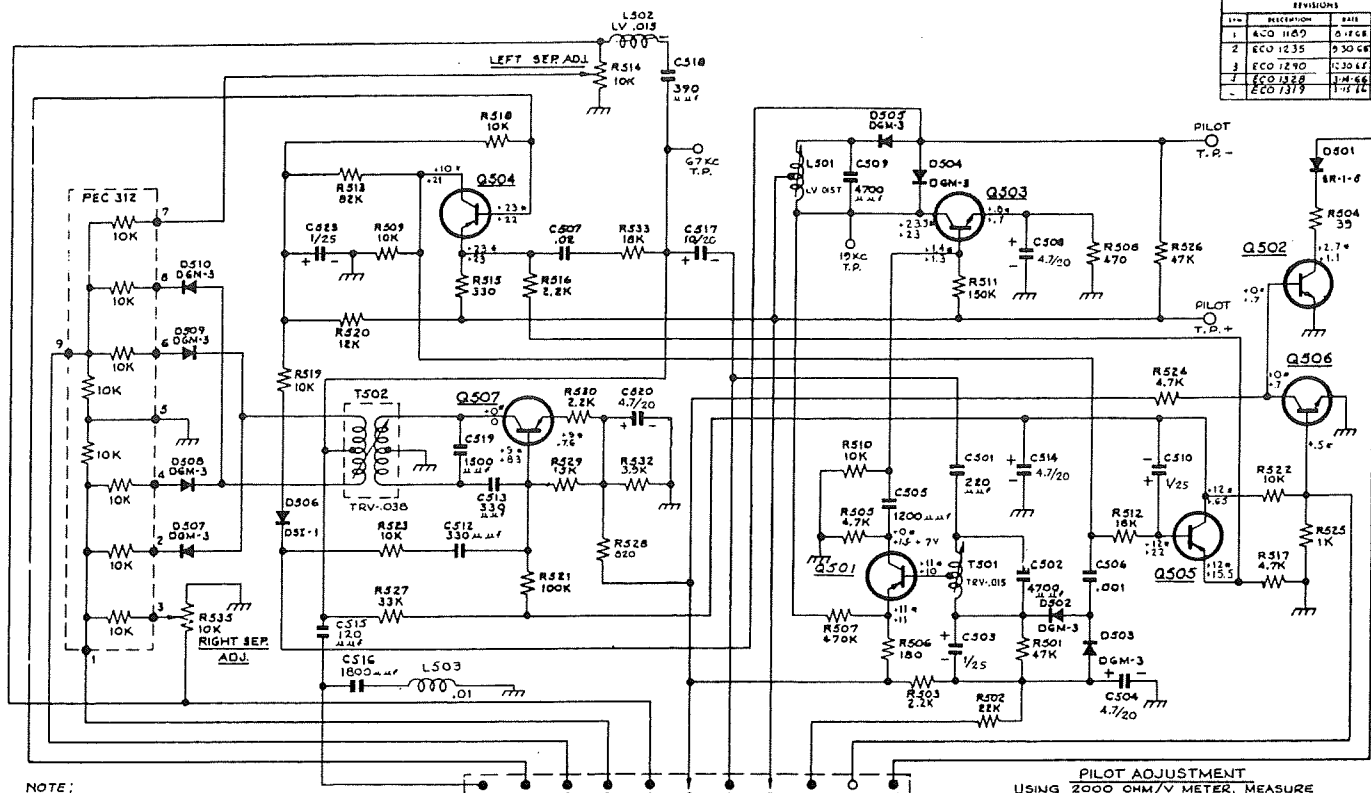
AM-RF

N-PC119-1L



OUTPUT

N-PC113-1L



REV.	DESCRIPTION	DATE	APP.
1	ECO 12.35	8-17-65	JK
2	ECO 12.90	10-30-65	JK
3	ECO 13.38	11-26-65	JK
4	ECO 13.79	1-14-66	JK

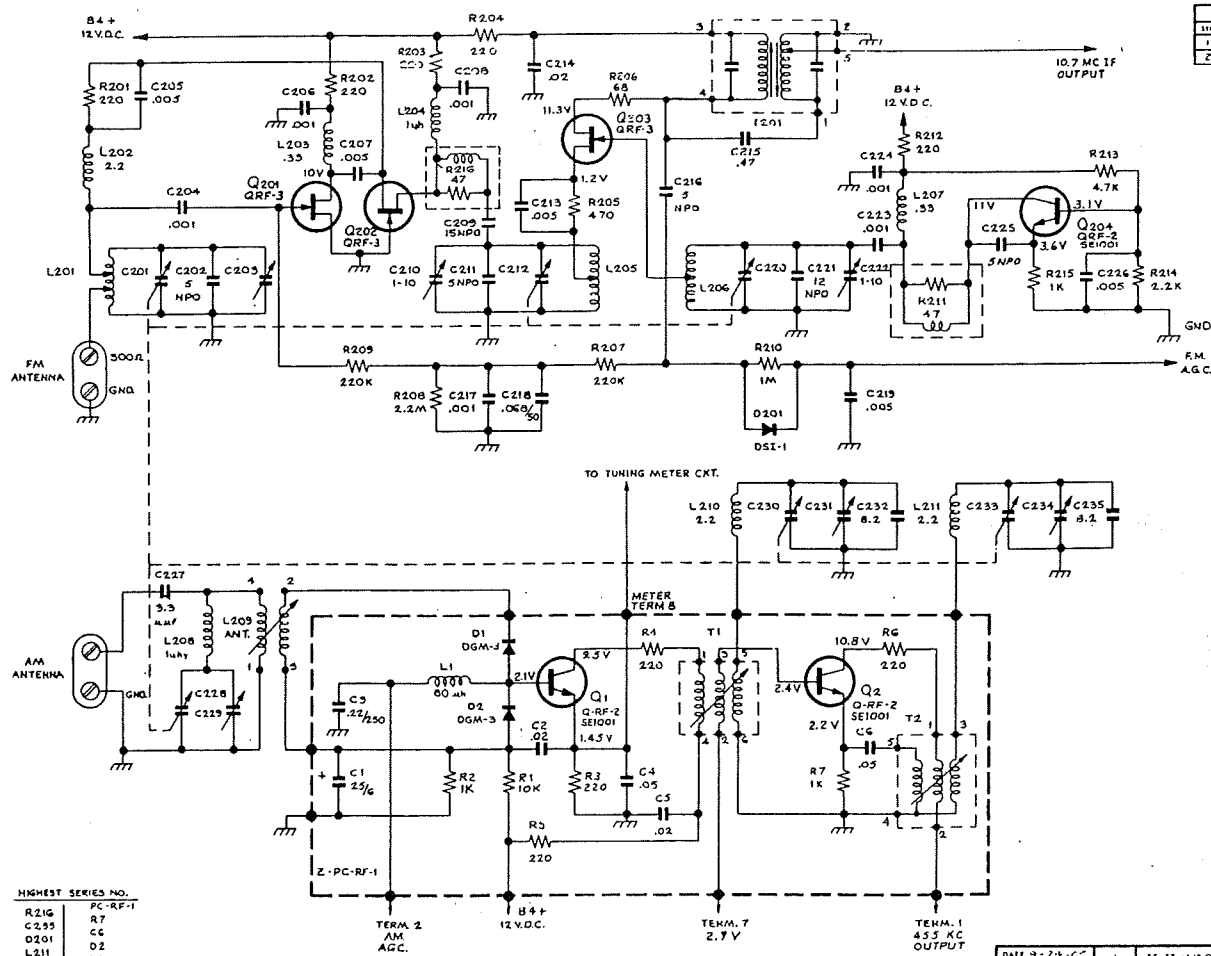
NOTE:  
\* VOLTAGES IN "MONO" POSITION

TRANSISTOR DESIGNATIONS	
Q501, Q504, Q505, Q507	- 2N3702, 2N3964, 51990
Q502	- 2N3705
Q503	- SE1001
Q506	- 2N2926, 2N3708, 2N3705

PILOT ADJUSTMENT  
USING 2000 OHM/V METER, MEASURE  
4V MIN. D.C. SEE INSTRUCTIONS.

MULTIPLEX

H.H. SCOTT, INC. WATKINS, MASS.	
DATE 5-21-65	CH. C
SCALE 1/1	REV. 5
CIRCUIT DIAGRAM	
Z-MX-11-C1	
SHEET 1 OF 1	

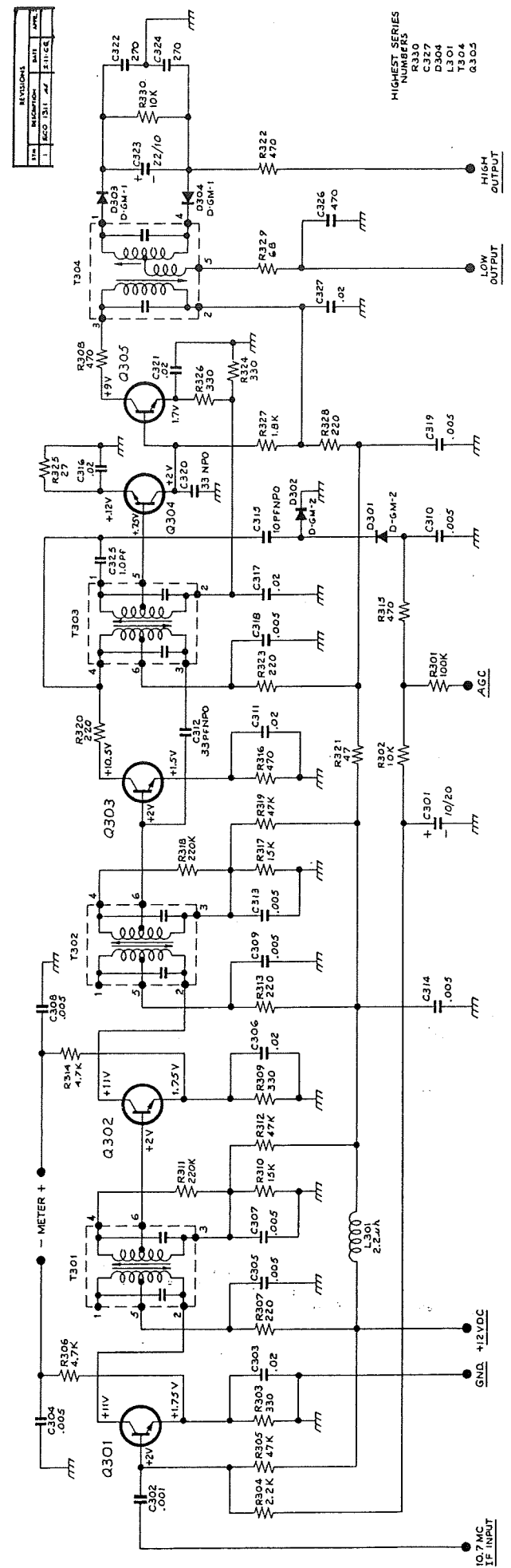


REVISIONS			
1	ECO 12.50	12-20-65	JK
2	ECO 13.34	2-16-66	JK

HIGHEST SERIES NO.	PC-RF-1
R216	R7
C235	C6
D201	D2
L211	L1
T201	T2
Q204	Q2

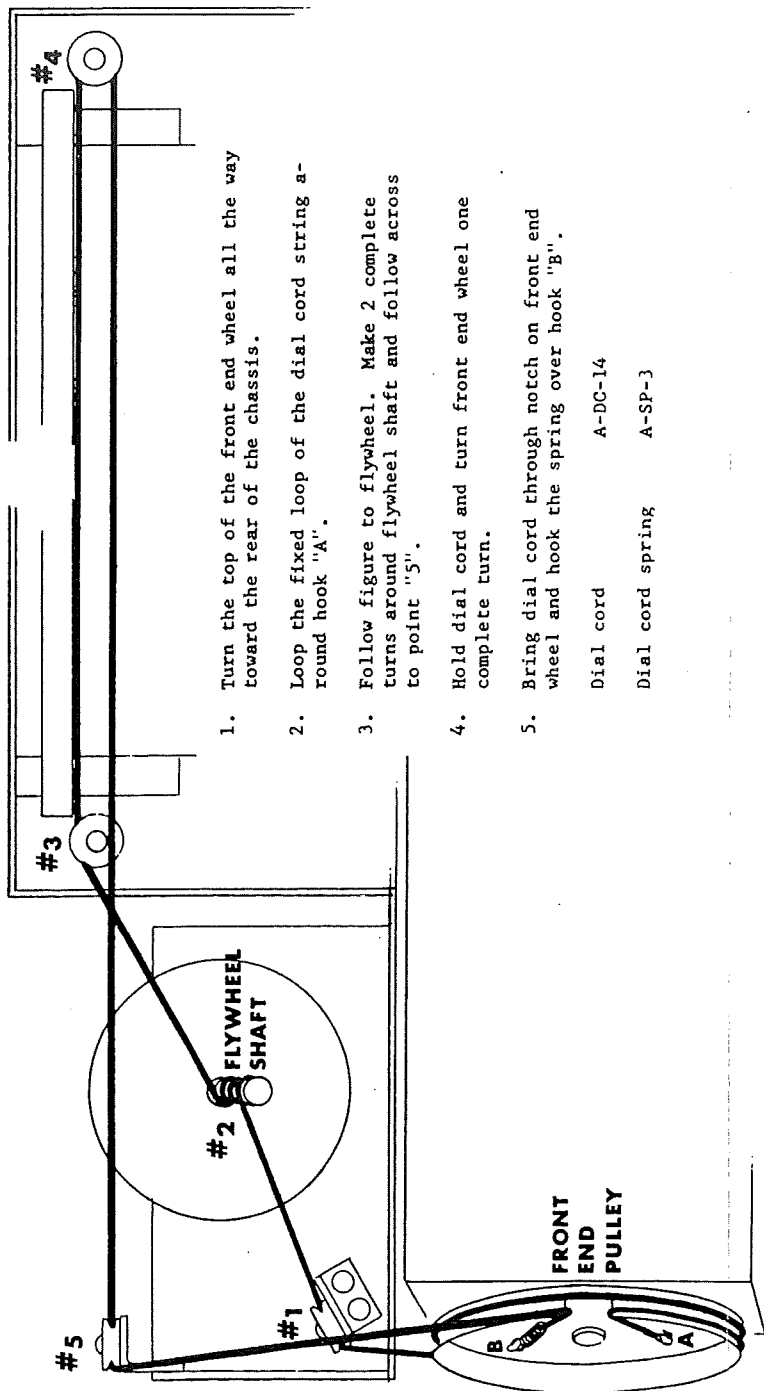
NOTE:  
Q201, Q202 + Q203 TRANSISTORS ARE SELECTED

H.H. SCOTT, INC. WATKINS, MASS.	
DATE 9-24-65	CH. C
SCALE 1/1	REV. 7
CIRCUIT DIAGRAM	
Z-AM-FAA-7	
SHEET 1 OF 1	



HIGHEST SERIES NUMBERS  
R330  
C327  
D304  
L301  
T304  
Q305

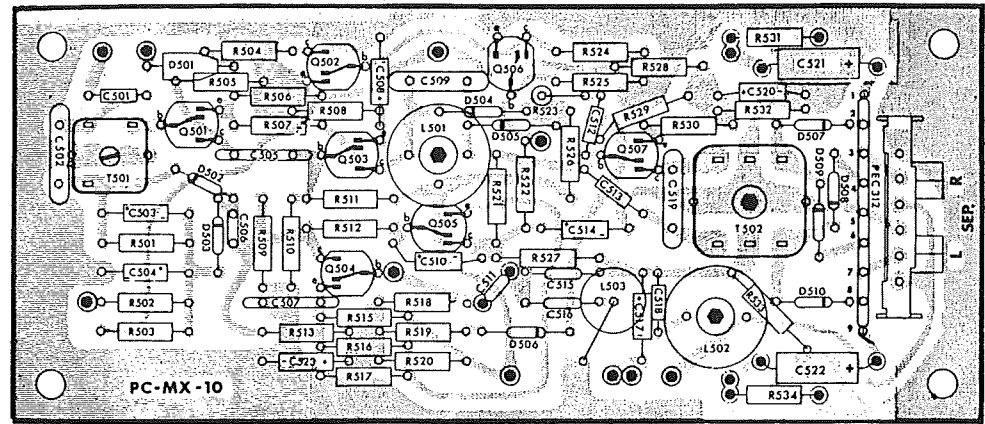
H.H. SCOTT, INC. WATKINS, MASS.	
DATE 9-22-65	CH. C
SCALE 1/1	REV. 1
CIRCUIT DIAGRAM	
Z-IF-1-C1	
SHEET 1 OF 1	



1. Turn the top of the front end wheel all the way toward the rear of the chassis.
2. Loop the fixed loop of the dial cord string around hook "A".
3. Follow figure to flywheel. Make 2 complete turns around flywheel shaft and follow across to point "5".
4. Hold dial cord and turn front end wheel one complete turn.
5. Bring dial cord through notch on front end wheel and hook the spring over hook "B".

Dial cord           A-DC-14  
 Dial cord spring   A-SP-3

Q501, Q504, Q505, Q507 - 51990, 2N3964, 2N3702  
 Q502 - Q-2N3705  
 Q503 - 5E1001  
 Q506 - Q-2N2926 or Q-2N3708 (QA-13), or 2N3705

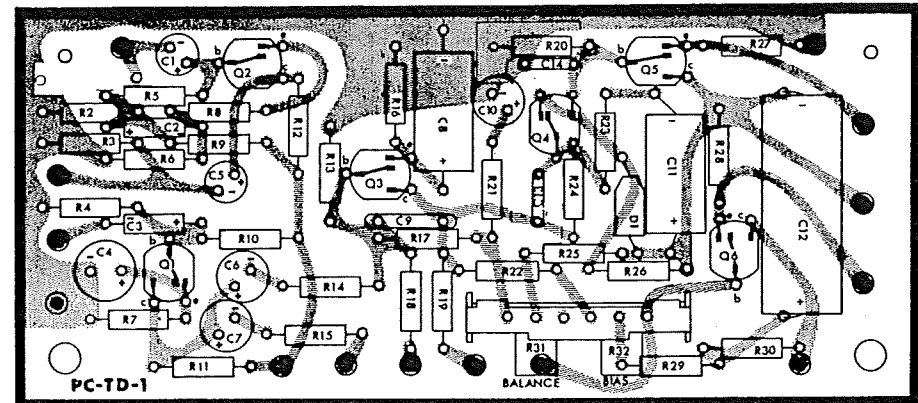


MULTIPLEX

N-PC109-6L REV. 2

Q1 - Q-2N2925 or Q-2N3711 (QA-15)  
 Q2 - Q-2N2924 or Q-2N3710 (QA-14)  
 Q3 - QA-10 GRN ONLY

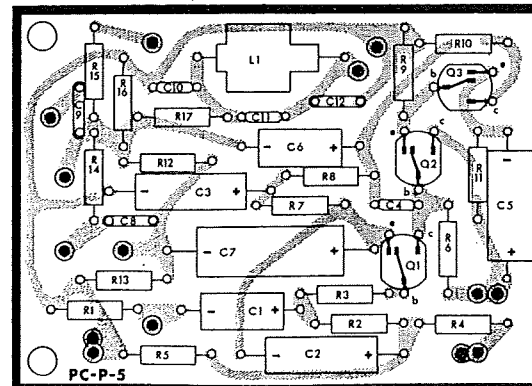
Q4 - QA-9  
 Q5 - QA-10 RED, BLUE or GRN  
 Q6 - QA-10 BLUE or GRN



TONE CONTROL & DRIVER

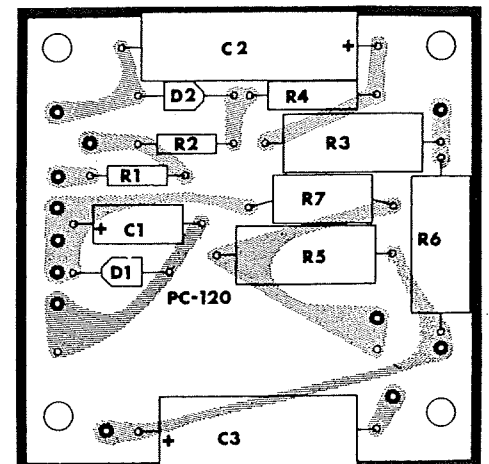
N-PC110-2L

Q1 - Q-2N3391A (QA-12)  
 Q2 - Q-2N2926 or Q-2N3708 (QA-13)  
 Q3 - 2N3964, 51990, 2N2613



PREAMP

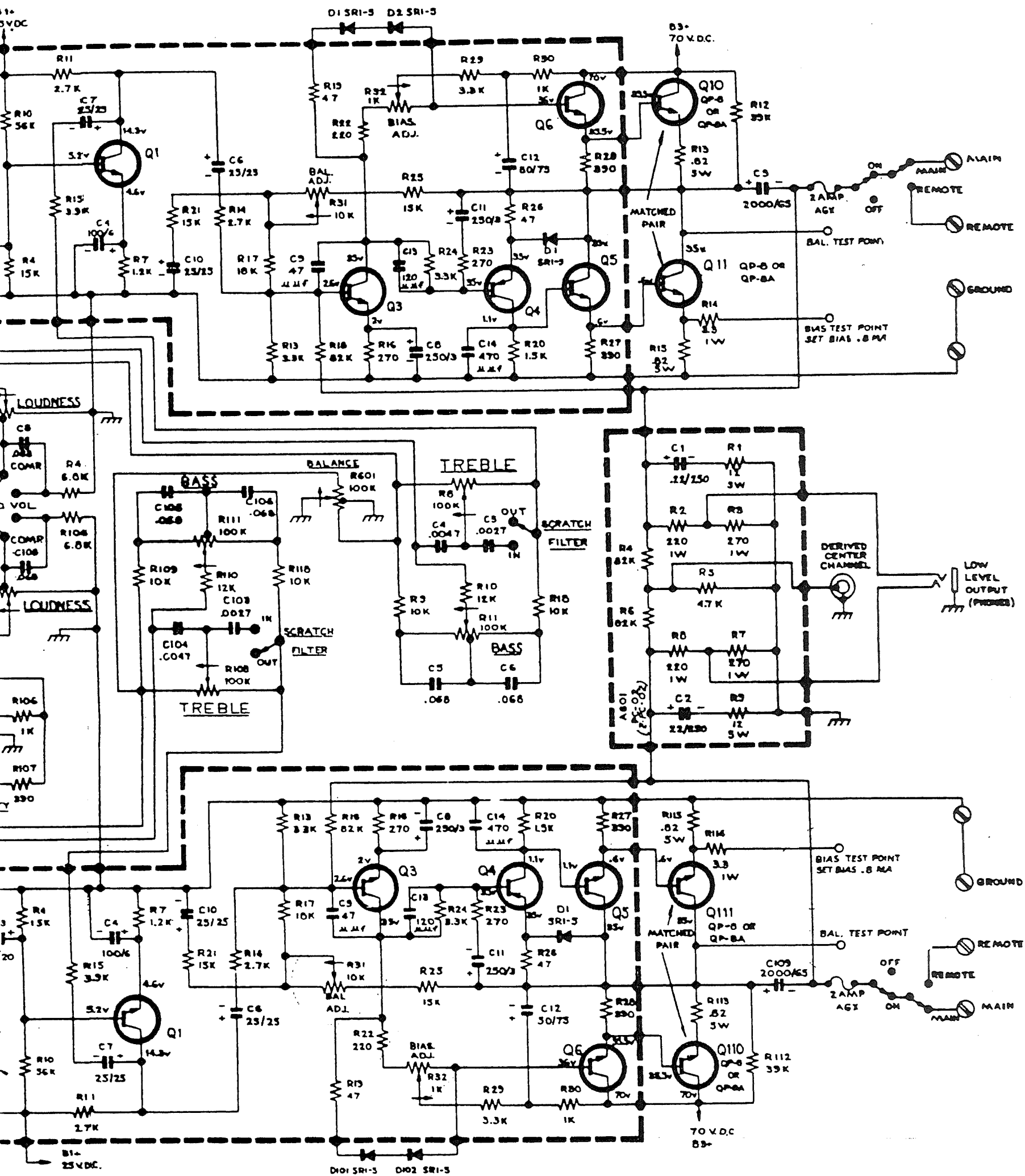
N-PC111-1L



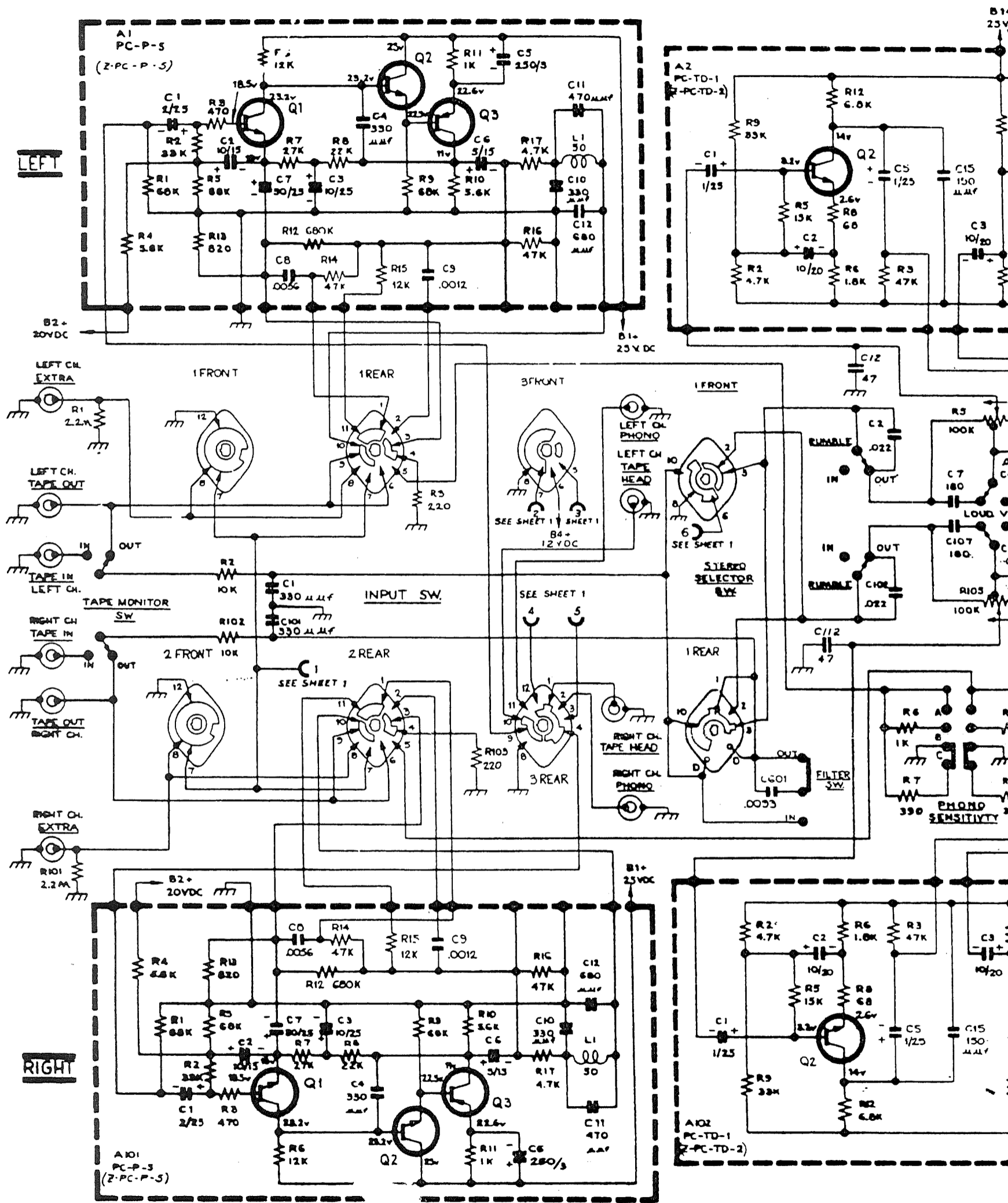
POWER SUPPLY

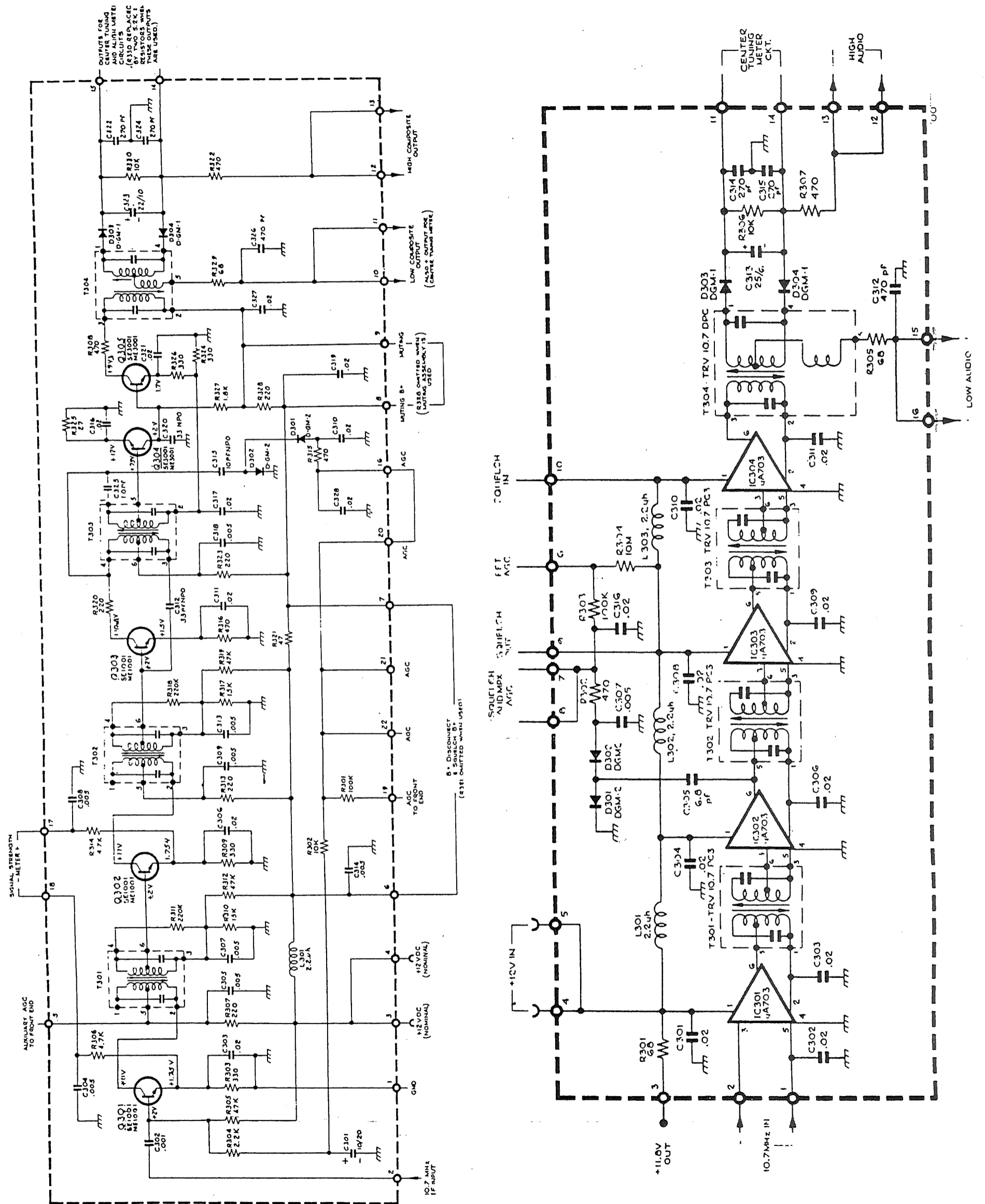
N-PC-120-1L

REV. 1



SCOTT MODEL 388 AM-FM-FM STEREO RECEIVER



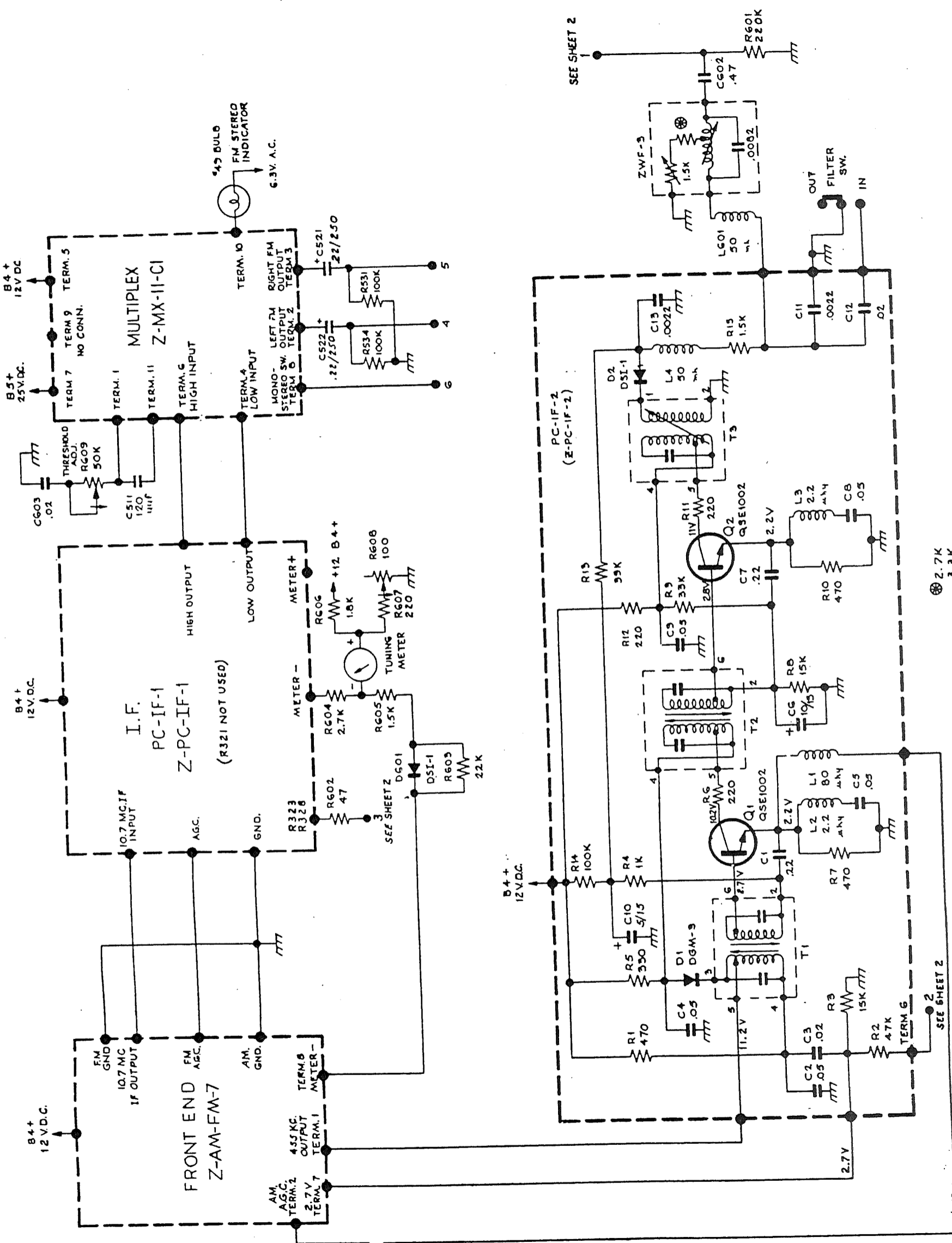


COURTESY OF H. H. SCOTT, INC.



AJ7802 209372

SCOTT MODEL 388 AM-FM-FM STEREO RECEIVER

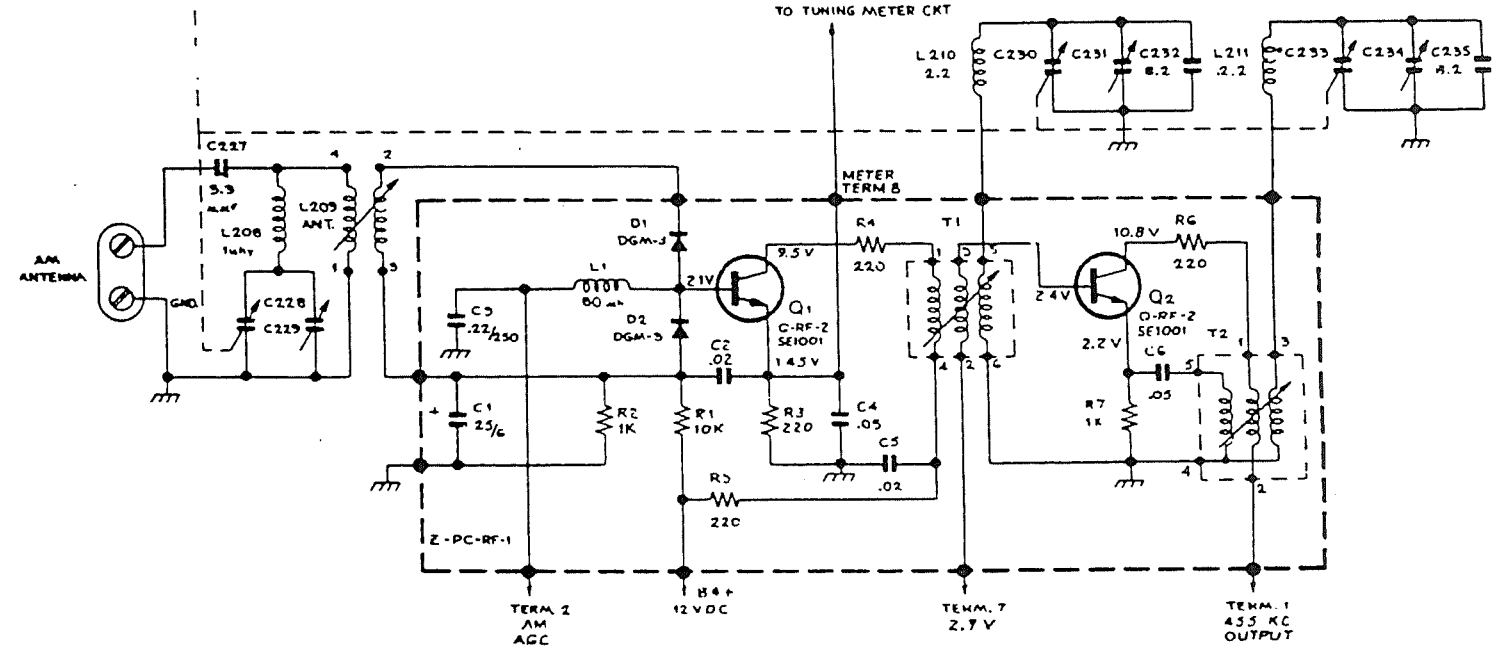
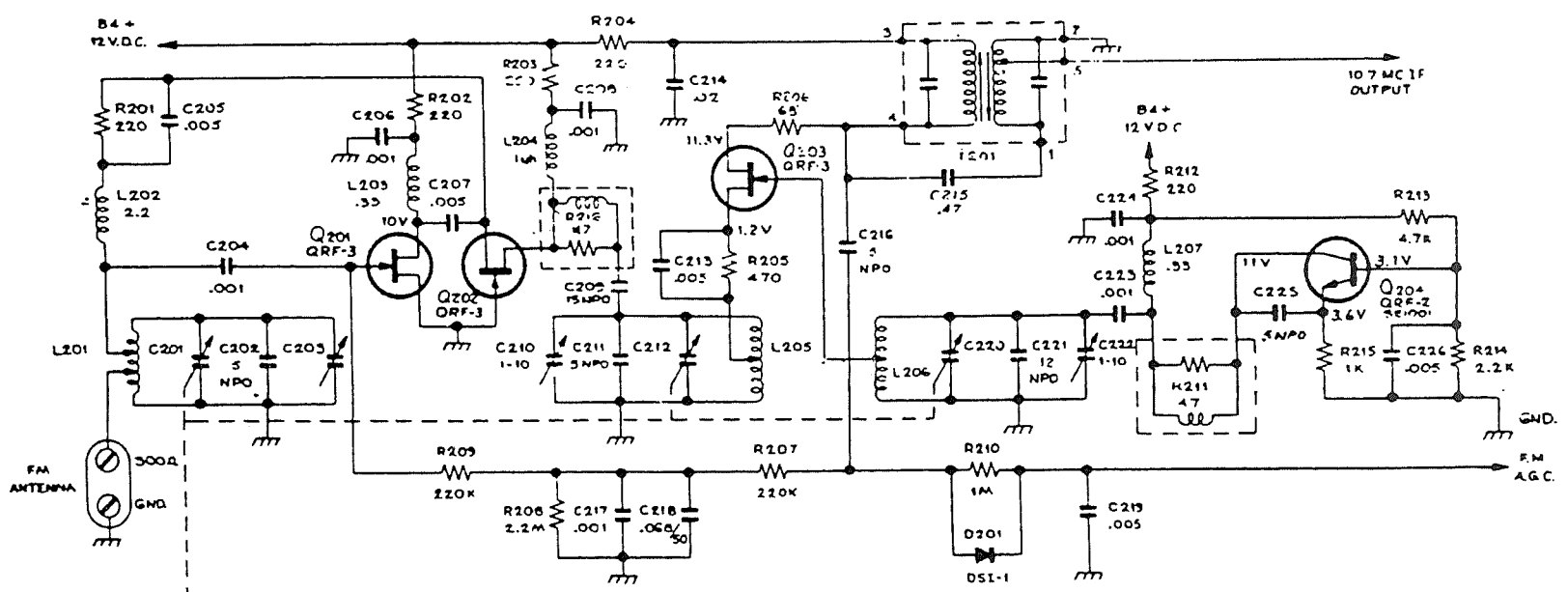
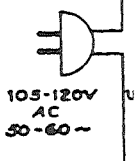
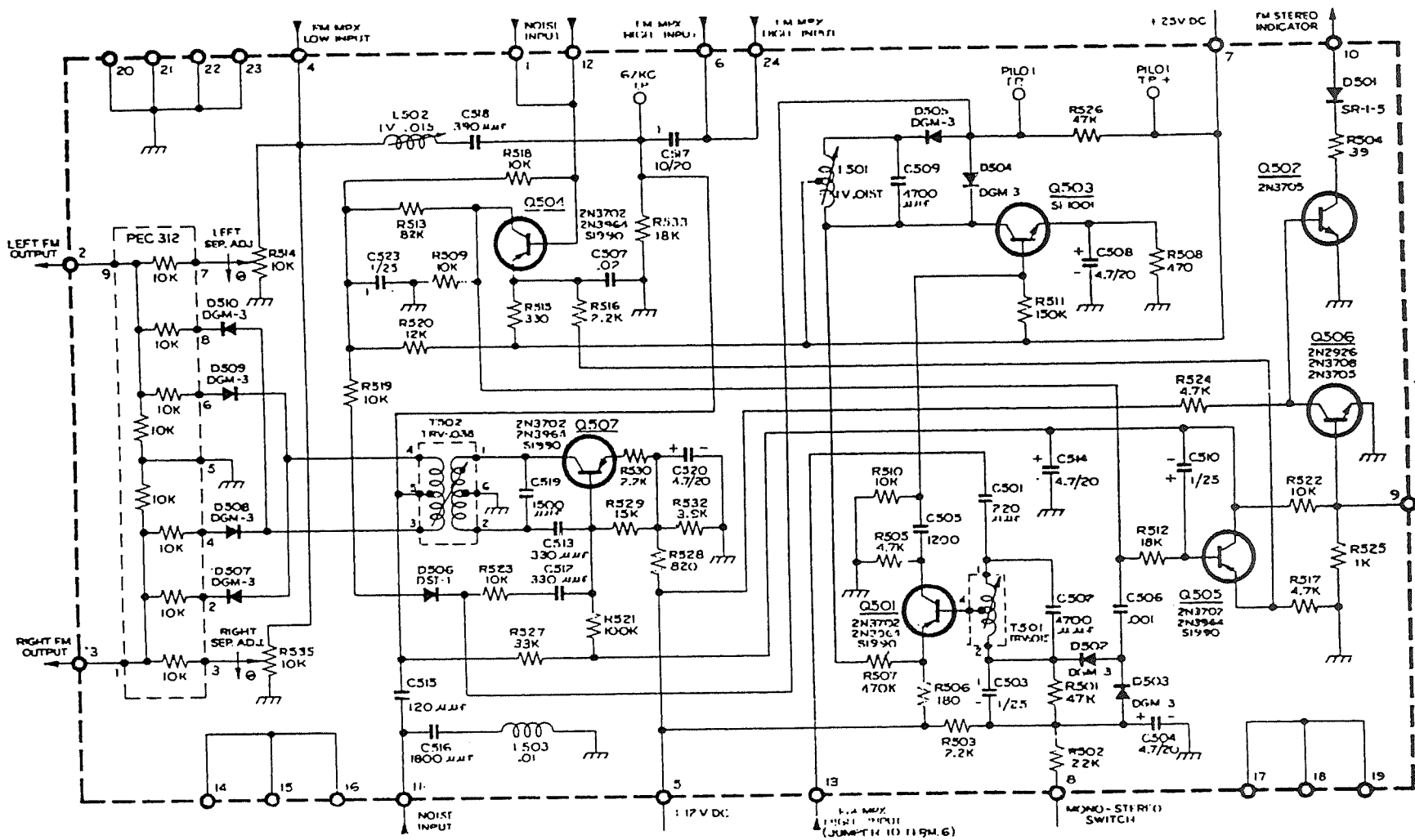


2.7K  
3.3K  
3.9K

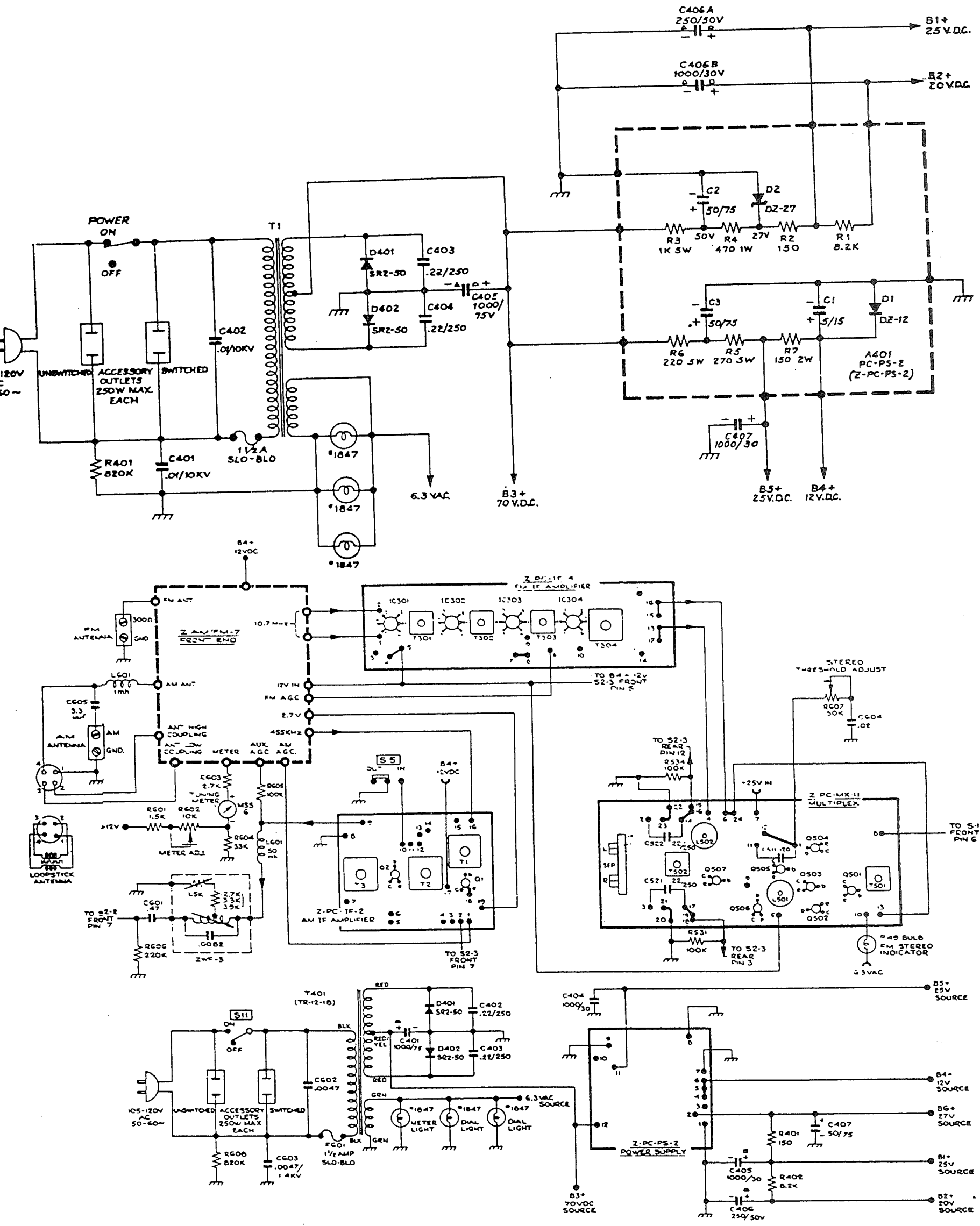
LOW ALDIC

SEE SHEET 2

SEE SHEET 2



COURTESY OF H. H. SCOTT, INC.



SCOTT MODEL 388 AM-FM-FM STEREO RECEIVER