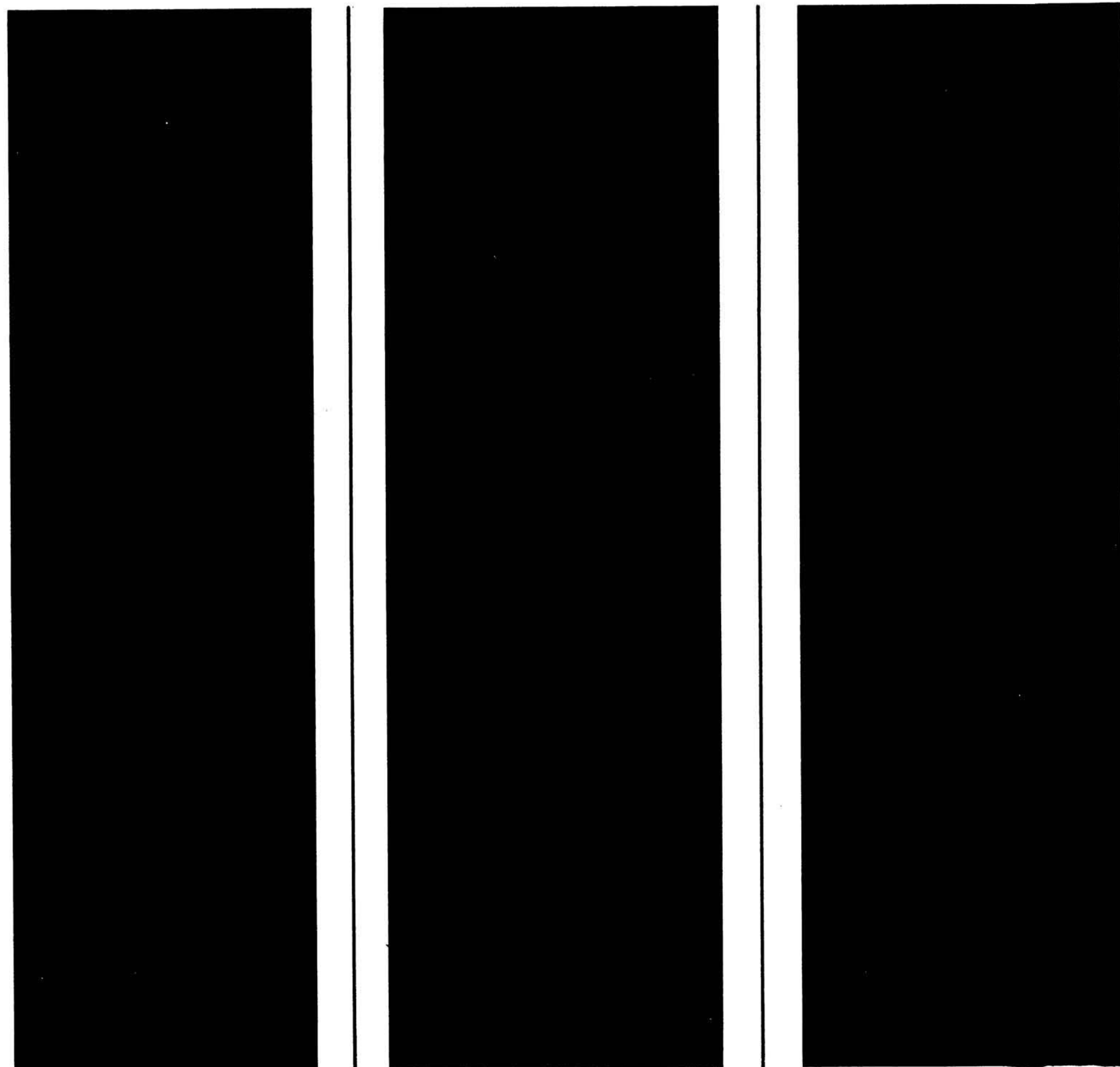


price \$6.00

SERVICE MANUAL

SCOTT 2550 SCOTTIE



W SCOTT® ...where innovation is a tradition

H. H. SCOTT, INC., 111 Powder Mill Road, Maynard, Massachusetts 01754, Tel. 617 897-8801

SCOTT

SERVICE MANUAL FOR MODEL 2550 SCOTTIE

AUDIO SECTION

EQUIPMENT NEEDED

Audio Oscillator
VTVM
Oscilloscope
Triplett VOM
Load
Attenuator
Distortion Meter
Variac
AC Supply Fixture
12 Volt Supply DC

Set Controls to the Following:

Balance Pot	Flat "0"
Input Selector	Phono
Tone Controls	Flat "0"
Loudness	Min.
Speaker Switch	ON
Power Switch	OFF
Tape Switch	Normal

Preliminary Visual Inspection and Continuity Checks

Inspect unit for defects such as broken wafers, loose stand-up resistors, cracked terminals and jacks, loose transformer bolts, and other such defects. See transistor precaution list. Check production tag for necessary inspectors' stamps. Shake unit to free all scrap wire pieces.

1. Voltage Checks

Check power supply +17 to 19 volts.

2. Sensitivity Check

Audio osc. to TAPE IN, tape switch to MONITOR at 0.25 (+2 dB) input. Connect 8 ohm load to main speaker taps. Turn loudness pot to max., observe output of 2 watts (5 V). Check tape output jack with troubleshooting lead for same output as signal.

3. Distortion Check

Distortion at 3V output, 1.5% max.

4. Speaker Switch and Phone Jack Check

Speaker switch to OFF pos. Note complete loss of signal. Loudness to min. Insert phone plug into phone jack, remove speaker leads and connect to phone plug. Loudness to max. Note drop of 26 $\pm$ 2 dB.

5. Loudness Volume

Adjust attenuator for 0 dB on 1 volt range.

Osc. to 1000 Hz, vol. pot to 4 flat. Switch osc. to 100 Hz; note rise of 7 $\pm$ 2 dB. Switch osc. to 10 kHz; note reading of 0 $\pm$ 2 dB.

6. Tracking

In TEN dB steps check tracking of volume pot in L & R channels. Output may be no more than 3 dB between channels down to -40 dB.

7. Crosstalk

Left channel at 1 kHz, full output 4 V. Turn Bal. pot to "L", note no drop in output. Bal. pot to "R", note 45 dB drop in output. With input and output in Right channel, no drop in "R" pos. and 45 dB drop in "L" pos. of pot.

Attenuate to obtain 0 dB on 1 volt scale.

8. Tone Controls

100 Hz		10 kHz	
<u>Bass</u>		<u>Treble</u>	
Boost	- 10 dB +2 dB	Boost	- 10 +2 dB
Cut	- 10 dB +2 dB	Cut	- 14 +2 dB

9. Frequency Response Check

With output 0 dB on 1 volt range, sweep osc. from 100 Hz to 10 kHz. Note no more than 2 dB variation in output.

Low	3 dB pt. 100 Hz or lower
High	3 dB pt. 10 kHz or higher

10. Regulation Check

At 1 kHz 0 dB 1 V range remove 8 ohm load. Output rise of 1 dB max.

11. Preamp Gain Check @ 1 kHz

Attenuate input 36 dB, input leads to phono. Output 0 dB 1 V range +2 dB.

12. Preamp Frequency Response Check

1 kHz	0 dB (ref)
10 kHz	-13 +2 dB
100 Hz	+13 +2 dB

13. Hum Checks

<u>Position</u>	<u>Loudness Pot</u>	<u>Max Hum</u>
Tape In	10	5 mV
Tape In	0	5 mV
Phono (Inputs shorted)	10	30 mV

14. Repeat Steps 2 through 13 for Right Channel.

AM SECTIONPre-Test

1. Switch tuner to AM position, output from tape output jack.
2. Couple signal generator at 455 kHz to AM section of IF. Clip ground lead to chassis.
3. Peak IF's and detector for max. audio noise output, using no modulation. Final peaking should be done with 20 uV from generator with output level of 100 mV ± 2 dB.

Final Test

4. Remove signal generator coupling to IF's, connect generator to loop antenna cold side. The cold side of loop is closest to input jacks.

Calibration

5. Tune oscillator coil to 600 kHz and oscillator trimmer to 1600 kHz.

Sensitivity

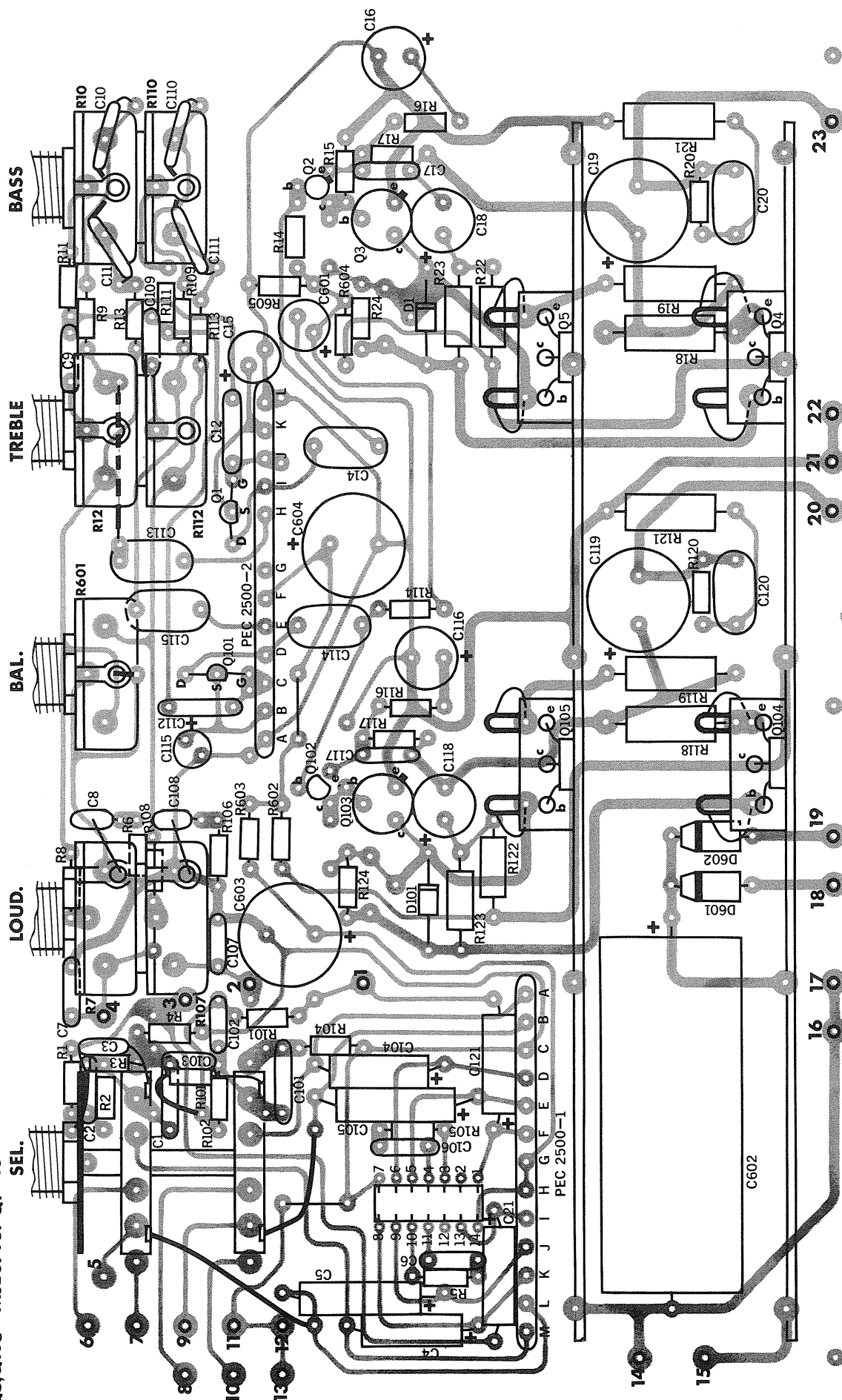
6. Tune RF trimmer at 1400 kHz with a very weak signal for a peak. Be sure antenna leads are dressed properly.
7. Repeat Step 5 until unit is aligned and max. output at given frequencies has been achieved. Final calibration tracking check:

WEEI	WHDH	WBZ	WMEX
590 kHz ± 10 kHz	850 kHz ± 20 kHz	1030 ± 20 kHz	1510 (tol. ± 20 kHz)

8. With 10 uV minus 2 dB input attenuation, output should be .25 to .40 @ 600 kHz and 1400 kHz.
9. With phones, check for AM calibration, oscillation, harmonic pickup, etc.

All output measurements are taken at 60% modulation.

Q1,Q101-QA-18 or QRF-3
 Q2,Q102-SE1990
 Q3,Q103-MM3004,QA-10 or QA-22
 Q4,Q104-MJE521 or QP-14
 Q5,Q105-MJE371 or QP-13



FM SECTION

EQUIPMENT NEEDED

VTM
Oscilloscope
VOM
Distortion Meter
FM Generator (or source)
MX Generator (or source)
Audio Generator (or source)

Set Controls to the Following:

Input Select. Switch FM

PRELIMINARY CHECKS

Inspect unit for defects such as broken wafers, cracked terminals, and jacks, loose transformers, binding tuning condenser, broken components, lead dress, scrap in unit, etc. Make certain all transistors are firmly seated in correct sockets. Take output from tape-out jacks. Turn unit on, check voltage at Regulator; should measure $+10 \pm 1$ V, and $17 \text{ V} \pm 2$ V for stereo light supply.

1. Mono Alignment and Sensitivity CheckFront End and IF Alignment

With about 10 uV generator output, align and peak front end for max. output. With 3 uV input, align IF's for max. audio. With 1 or 2 K uV input, align detector bottom slug for max. audio and top slug for min. distortion.

2. Sensitivity and Distortion

For sensitivity check, an electronic 19 kHz and 38 kHz filter may be used. Measure sensitivity of tuner with 7 uV RF input. Must obtain 30 dB usable sensitivity at 92 and 106 MHz. Recheck distortion, 1K uV input. 400 Hz - max. distortion of 0.8%. Audio output spec. at 1K, 0.5 to 1.0 volts.

De-Emphasis Check

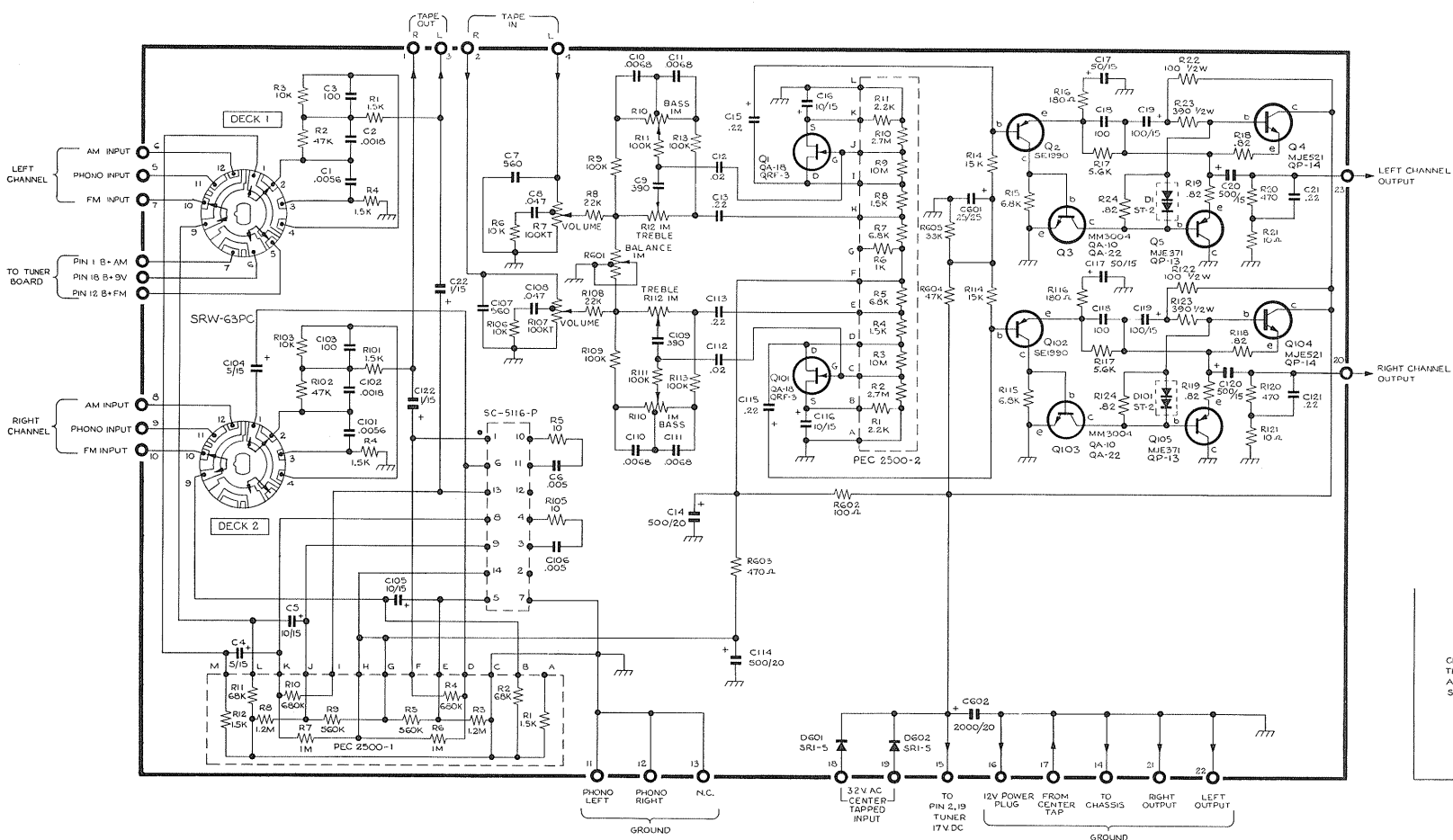
Tune to 90 MHz (modulation of 8.2 kHz), note decrease of 12 ± 2 dB in output.

Calibration Check

Check calibration against stations - max. tolerance 200 kHz.

3. FM Multiplex Alignment

With a composite stereo signal from generator or source connected to the unit, the multiplex alignment will be as follows:



CIRCUIT OF SC-5116 TO BE PRINTED IN THIS AREA WHEN AMPLIFIER CIRCUIT APPEARS IN THE INSTRUCTION MANUAL. SEE SC-5116-C1

NOTES:
1. UNLESS OTHERWISE SPECIFIED: ALL RESISTANCE IN OHMS $\pm 10\%$, CAPACITANCE IN PFD'S, RESISTORS $\frac{1}{4}$ WATT, AND VOLTS ARE D.C. $\pm 15\%$, MEASURED WITH 20K Ω /V.O.M.
2. ARROWS - HEADS INDICATE MAIN SIGNAL PATH.

HIGHEST SERIES NO.'S.
R24 R24 C28 C122
Q5 Q105 D1 D101
R605 C602

4. 67 kHz Alignment

Using an RF signal modulated with 67 kHz, note output taken directly from the multiplex (either pin located adjacent to the PEC 312). With signal applied, adjust the LV015 (67 kHz trap) for lowest possible reading on VTVM.

5. 19 kHz and 38 kHz Alignment

With a low capacity scope probe connected to the base of Q2 (first QA15), adjust first pilot can (next to AM det. can) for max. output. After the first pilot can has been adjusted, move scope probe to the base of Q1 (SE1990) and adjust the second pilot can (directly behind AM section of front end) for max. output. The 38 kHz alignment can be done with the scope probe at any one of the four demodulator diodes surrounding the TRV.038tt can. Peak the 38 kHz can for max. output as was done to the others.

Separation has been preset by a resistor divider; therefore, the spec. is:

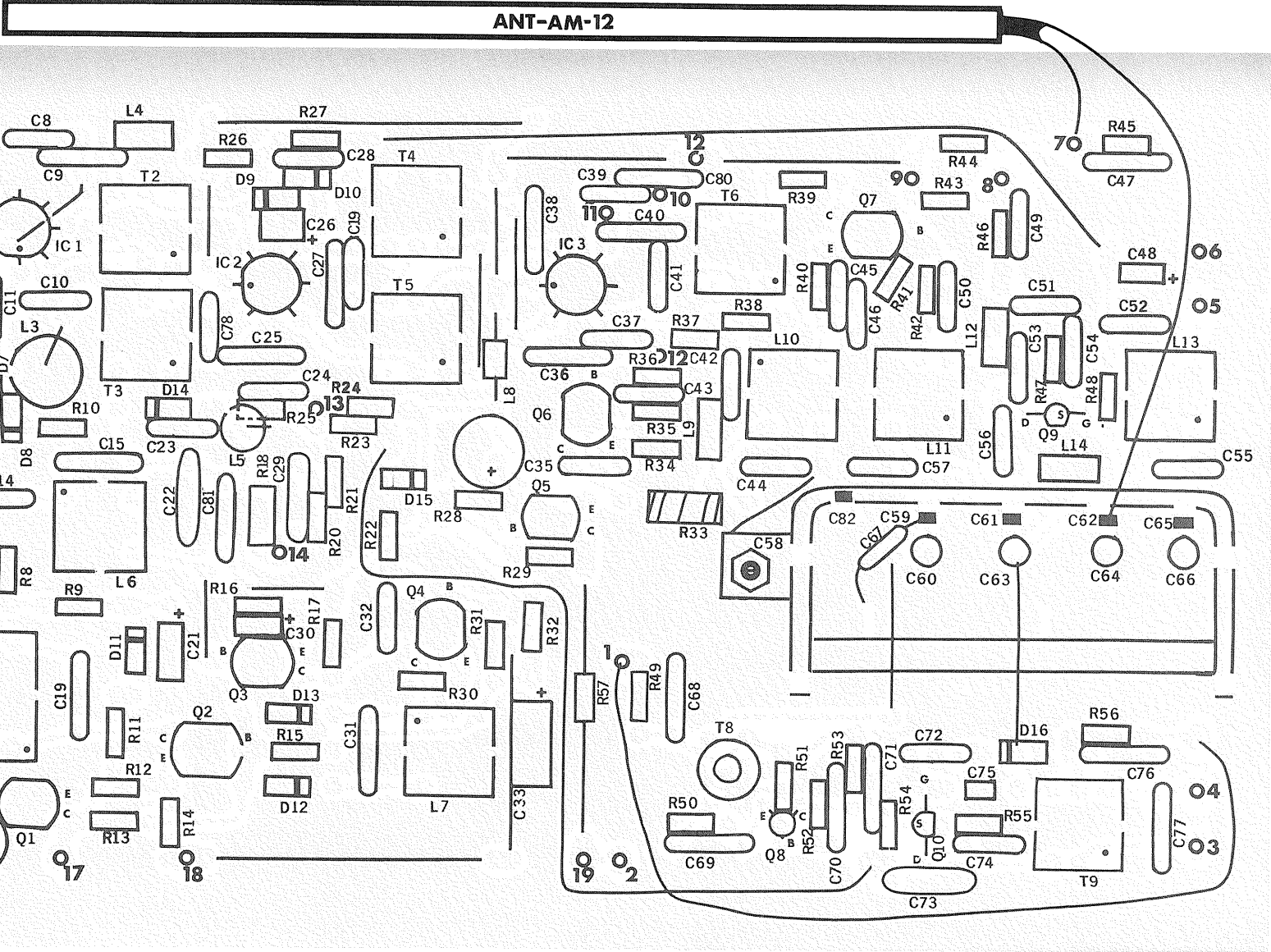
Separation	400 Hz	20 dB min. without filter
		25 dB min. with filter

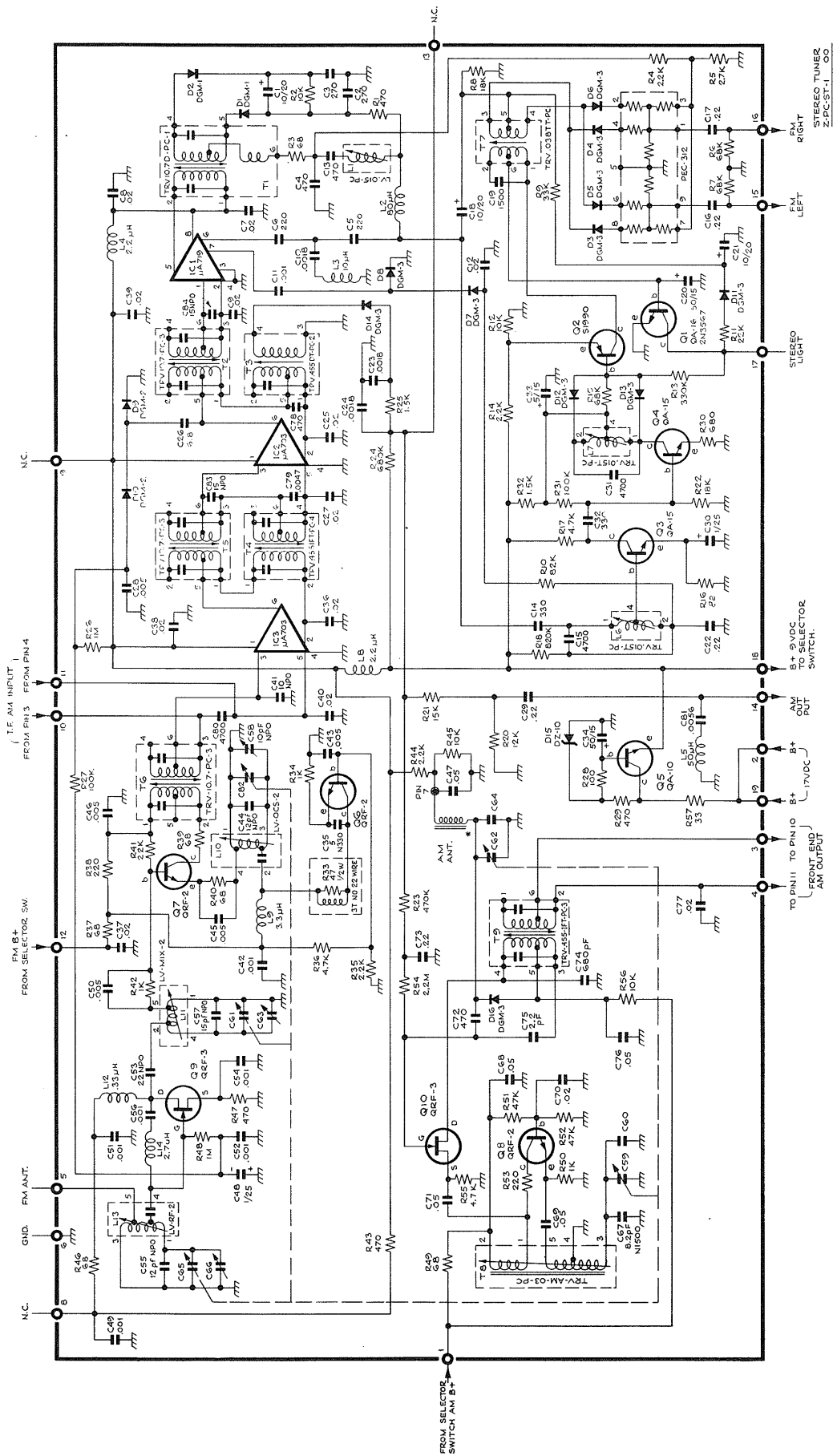
Any difference in channels greater than 3 dB can be brought within spec. by detuning one of the pilot cans slightly, thereby equalizing the separation.

6. Listening Check

Check unit for ac short, calibration, oscillations and hum. Connect a 12 volt dc source to the blue connector plug on the rear and switch Power Switch to OFF. Listen to the unit and observe that it operates well on 12 volts, as well as 117 ac.

- Q1-QA-16
Q2-S1990-2N2964-2N4249
Q3,Q4-QA-15
Q5-QA-10
Q6,Q7,Q9-QRF-2
Q8,Q10-QRF-3
- IC1-QMA719
IC2,IC3-QMA703





NOTES:

1. UNLESS OTHERWISE SPECIFIED: ALL RESISTANCE IN OHMS FOR CAPACITANCE IN P.F. UNLESS OTHERWISE SPECIFIED: ALL RESISTANCE IN OHMS FOR CAPACITANCE IN P.F. UNLESS OTHERWISE SPECIFIED: ALL RESISTANCE IN OHMS FOR CAPACITANCE IN P.F.
2. ARROWS—HEADS INDICATE MAIN SIGNAL PATH.

CIRCUIT OF JA703 TO BE PRINTED IN THIS AREA WHEN TUNER CIRCUIT APPEARS IN THE INSTRUCTION MANUAL. SEE JA703-C1.

CIRCUIT OF JA703 TO BE PRINTED IN THIS AREA WHEN TUNER CIRCUIT APPEARS IN THE INSTRUCTION MANUAL. SEE JA703-C1.

VOLTAGES

UNLESS OTHERWISE SPECIFIED:

ALL VOLTAGES POSITIVE DC - 15% MEASURED WITH 20K Ω /VOLT VOM - 117VAC LINE 300 OHM LOAD ON EXTERNAL ANTENNA TERMINALS TUNER OFF STATION
 * VOLTAGES MEASURED UNDER SAME CONDITIONS AS ABOVE ONLY MODE SWITCH IN "STEREO" POSITION
 ** WITH STEREO SIGNAL FED INTO TUNER
 *** WITH STEREO SIGNAL AND INPUT SWITCH IN "AM" POSITION AND NO SIGNAL

Z-PC-ST-1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8	6.9	7.0	7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.8	7.9	8.0	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	10.0

NOTES:

1. UNLESS OTHERWISE SPECIFIED: RESISTANCE IN OHMS $\pm 10\%$
2. ARROW HEADS INDICATE MAIN SIGNAL PATH
3. THE FOLLOWING CONTROLS IN LEFT CHANNEL ARE MECHANICALLY CLUTCHED WITH IDENTICAL CONTROLS IN RIGHT CHANNEL: BASS, TREBLE, LOUDNESS, AND INPUT SWITCH.
4. S1 - INPUT SWITCH (1025-1137-039)
5. SWITCH FUNCTION
 1 - PHONO
 2 - FM
 3 - AM
6. FUSE
 F401 - 5AMP FUSE
 S1 - INPUT
 S2 - TAPE
 S3 - PHONO
 S4 - SPEAKERS
7. $\bigcirc$ INDICATES FRONT PANEL LOCATION.
 $\bigcirc$ INDICATES REAR PANEL LOCATION.

ASC VOLTAGE

-5V TO -12V WITH 1000JIV SIGNAL FED TO EXTERNAL ANTENNA TERMINALS AND INPUT SWITCH IN "FM" POSITION.

HIGHEST	SERIES	NUMBERS
R3	R103	R401 R601
L1	L101	C402 C601

