
AM / FM STEREO RECEIVER

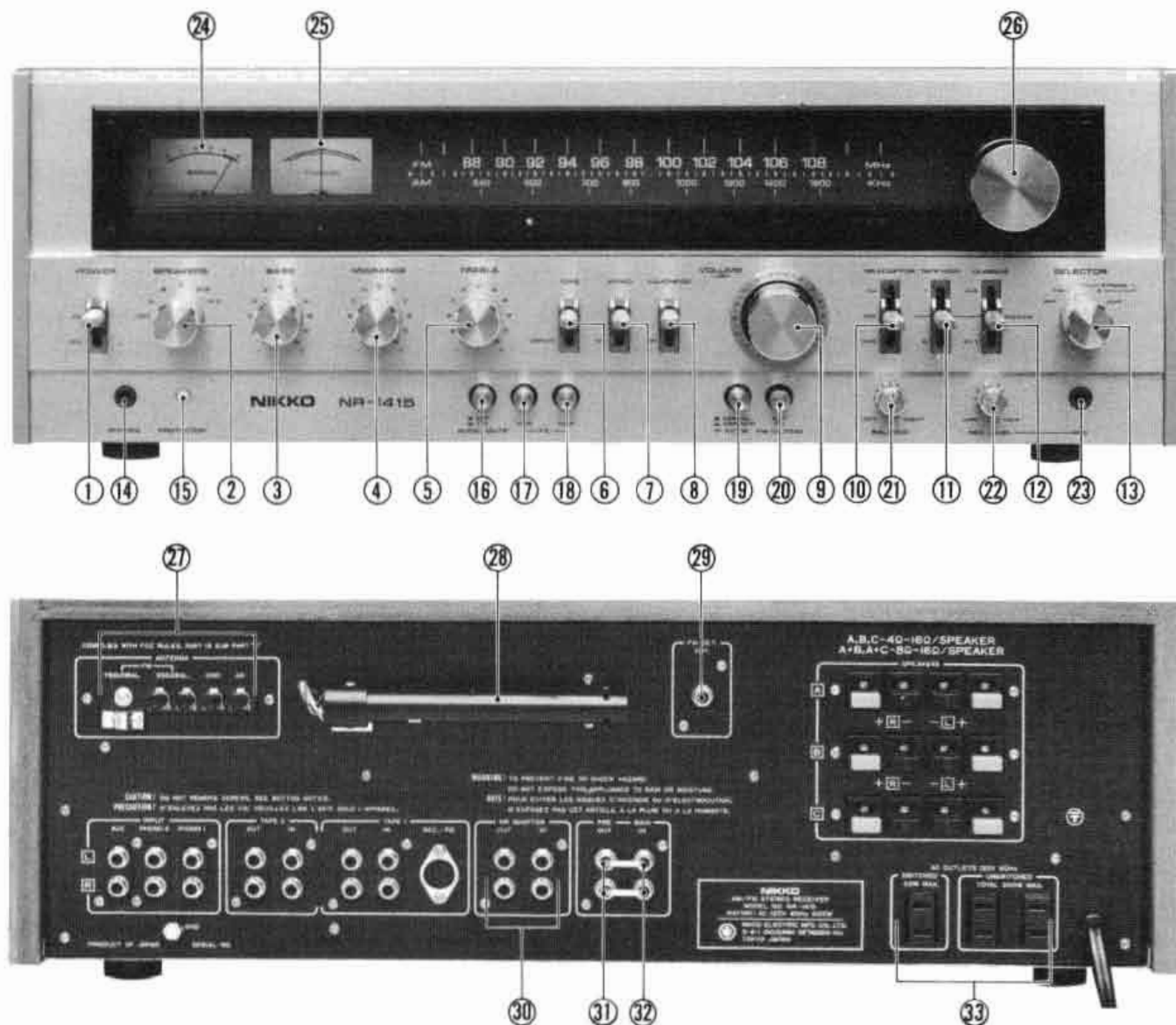
NR-1415



SERVICE MANUAL

W - TYPE UL and CSA type	120V AC
E - TYPE DEMKO and SEMKO type	220/240V AC

NIKKO



(W-TYPE)

- | | |
|-------------------------------|------------------------------------|
| 1. POWER SWITCH | 18. HIGH CUT FILTER |
| 2. SPEAKER SELECTOR SWITCH | 19. IF MODE SWITCH |
| 3. BASS CONTROL | 20. FM MUTING SWITCH |
| 4. MIDDLE RANGE CONTROL | 21. BALANCE CONTROL |
| 5. TREBLE CONTROL | 22. MIC LEVEL CONTROL |
| 6. TONE CONTROL DEFEAT SWITCH | 23. MIC JACK |
| 7. MONO SWITCH | 24. SIGNAL-STRENGTH METER |
| 8. LOUDNESS SWITCH | 25. TUNING METER |
| 9. VOLUME CONTROL | 26. TUNING KNOB |
| 10. NR ADAPTOR SWITCH | 27. ANTENNA TERMINALS |
| 11. TAPE MONITOR SWITCH | 28. AM LOOPSTICK ANTENNA |
| 12. DUBBING SWITCH | 29. FM DET OUT TERMINALS |
| 13. INPUT SELECTOR | 30. NR ADAPTOR TERMINALS |
| 14. STEREO HEADPHONE JACK | 31. PREAMPLIFIER OUTPUT TERMINALS |
| 15. PROTECTOR LAMP | 32. MAIN AMPLIFIER INPUT TERMINALS |
| 16. AUDIO MUTING SWITCH | 33. AC OUTLETS |
| 17. LOW CUT FILTER | |

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SPECIFICATIONS

FM TUNER SECTION		UNIT	NOMINAL (NORMAL)	LIMIT (NORMAL)	NOMINAL (NARROW)	LIMIT (NARROW)
Usable Sensitivity		dBf (μ V)	9.84 (1.7)	14.2 (2.8)	11.2 (2.0)	15.3 (3.2)
50 dB Quieting Sensitivity		dBf (μ V)	11.2 (2.0)	19.2 (5.0)	11.2 (2.0)	20.2 (5.6)
Hum and Noise	MONO	dB @ 65 dBf	.73	65	73	65
	STEREO	dB @ 65 dBf	.70	62	70	62
T. H. Distortion	MONO	%	0.07	0.2	0.1	0.4
	STEREO (L=R)	%	0.15	0.3	0.2	0.5
Capture Ratio		dB	1.8	3	1.5	5
Alternate Channel Selectivity		dB	60	40	85	55
Spurious Response Ratio		dB	100	90	100	90
Image Response Ratio (98 MHz)		dB	110	90	110	90
IF Response Ratio (98 MHz)		dB	110	90	110	90
AM Suppression Ratio		dB	60	40	60	40
Separation	(100 Hz) STEREO	dB	45	35	35	25
	(1 kHz) STEREO	dB	53	40	45	30
	(10 kHz) STEREO	dB	40	30	30	20
Subcarrier Product Ratio STEREO		dB	65	55	65	55
Meter Sensitivity @ 65 dBf			4.0	4.0 $\pm$ 0.5	4.0	4.0 $\pm$ 0.5
Output Level		Volts	0.6	0.6 $\pm$ 2 dB	0.6	0.6 $\pm$ 2 dB
FM Receiving Frequency		MHz	87.4-109	87.9-108.5	87.4-109	87.9-108.5
Antenna Impedance			300 ohms balanced & 75 ohms coaxial			

AM TUNER SECTION		UNIT	NOMINAL	LIMIT
Usable Sensitivity, Loopstick antenna		μ V/m	300	1000
Signal-to-Noise Ratio		dB	45	35
Image Rejection (1000 KHz)		dB	70	60
IF Rejection (1000 KHz)		dB	65	40
IHF Selectivity ($\pm$ 10 KHz)		dB	50	30
AM Receiving Frequency		KHz-KHz	520-1650	525-1635
Output Level		mV	100	100 $\pm$ 3 dB

POWER AMPLIFIER SECTION	UNIT	NOMINAL	LIMIT
Continuous Power Output per channel, 8 ohm loads:			
15 Hz – 20 KHz @ 0.045 % THD	.watts		> 175 (N-TYPE: 150)
1 KHz @ 0.045 % THD	.watts		> 185 (N-TYPE: 165)
TH Distortion, 8 ohm loads, 15 Hz – 20 KHz:			
@Continuous Power Output	%		< 0.045
@1 watt Power Output	%		< 0.015
IM Distortion, 8 ohm loads:			
@Continuous Power Output	%		< 0.045
@1 watt Power Output	%		< 0.02
IHF Power Bandwidth, 8 ohm loads	.Hz–KHz	.5–60	10–40
Input Sensitivity for 175 watt Power Output/Input Impedance:			
@1 KHz	.mV/Kohms	1000/50	1000 ± 2 dB/50 ± 10
Hum and Noise, IHF "A" Network	.dB	.115	.105
Frequency Response, 8 ohm loads:			
@1 watt Power Output	.dB @ Hz–KHz		+0, –1.5 @ 5–100
Idling Current	mA	40	40 ± 20
Midpoint Voltage	mV	0	0 ± 50
Power Switch Muting Delay Time	second		> 2

PREAMPLIFIER SECTION

Input Sensitivity for 1 volt Output (PRE OUT)/Impedance:			
PHONO 1, 2	.mV/Kohms	2.2/50	2.2 ± 2 dB/50 ± 10
AUX, TAPE IN 1, 2	.mV/Kohms	170/50	170 ± 2 dB/50 ± 10
Maximum Input Signal @ 0.1 % THD:			
PHONO 1, 2	mV	350	300
AUX, TAPE IN 1, 2, NR ADAPTOR IN	mV	500	400
Output Level for 2.2 mV Input Signal/Impedance:			
PHONE 1, 2 → TAPE OUT 1, 2, NR ADAPTOR OUT	.mV/Kohm	160/2.2	160 ± 2 dB/2.2
PHONE 1, 2 → TAPE OUT (DIN)	.mV/Kohm	40/80	40 ± 2 dB/80
PHONE 1, 2 → PRE OUT	.mV/Kohm	1000/1	1000 ± 2 dB/1
TH Distortion @ 4 volt Output, 20 Hz–20 KHz:			
PHONE 1, 2 → TAPE OUT 1, 2	%		< 0.008
TH Distortion @ 1 volt Output, 1 KHz (Tone Defeat):			
AUX, TAPE 1, 2 → PRE OUT	%		< 0.008
Frequency Response (Tone Defeat):			
PHONO 1, 2 → TAPE OUT 1, 2 (RIAA)	.dB@30Hz–15KHz	±0.2	±0.5
AUX, TAPE IN 1, 2 → PRE OUT	.dB@10Hz–40KHz	+0, –1.5	+0, –2.0
Hum and Noise, IHF "A" Network:			
PHONO 1, 2 → PRE OUT	.dB	75	65
AUX, TAPE IN 1, 2, NR ADAPTOR IN → PRE OUT	.dB	100	90
Tone Control:			
BASS @ 70 Hz	.dB	±10	±10 ± 2 dB
MIDRANGE @ 1 KHz	.dB	±7	±7 ± 2 dB
TREBLE @ 10 KHz	.dB	±10	±10 ± 2 dB
Filter:			
LOW CUT	.dB	–3 @ 35 Hz	–3 ± 2 @ 35 Hz
HIGH CUT	.dB	–3 @ 9 KHz	–3 ± 2 @ 9 KHz
Loudness Control (VOLUME: –30 dB):			
70 Hz	.dB	+6	+6 ± 2 dB
10 KHz	.dB	+3	+3 ± 2 dB
Audio Muting	.dB	–20	–20 ± 2 dB

GENERAL

Dimensions	22-3/32"W x 7-11/16"H x 20"D (561 mm.W x 195 mm.H x 507 mm.D)
Weight	57.9 lbs (26.3 kg)

Specifications subject to change without notice.

DISASSEMBLY

NOTE: Three digit numbers circled (○) in this chapter are represented by a (★) in the parts listing.

WARNING: When service is required, DO NOT alter or change any wiring or circuitry in this unit.

Any modification other than the manufacturer's original may alter the specifications, such as distortion, stability, etc.

CABINET COVER REMOVAL

Remove four screws from both sides of the wooden cover.

BOTTOM PLATE REMOVAL

Remove ten tapping screws from the bottom of the unit.

FRONT PANEL REMOVAL

1. Using hexagonal wrench, remove one knob (TUNING) from the front of the unit.
2. Remove eight knobs (SPEAKERS, BASS, MIDRANGE, TREBLE, VOLUME, BALANCE, MIC LEVEL) and seven tab type knobs (POWER, TONE, MONO, LOUDNESS, NR ADAPTOR, TAPE MON., DUBBING) from the front of the unit by pulling them forward.
3. Remove three nuts (1-3: Photo 1). Remove four tapping screws (1, 2: Photo 2; 1, 2: Photo 3).
4. Lift front panel away from the unit.

* To reassemble, reverse the procedure.

POWER TRANSFORMER REMOVAL

1. Disconnect all the power transformer cables.
2. Remove four nuts (3-6: Photo 3).
3. Lift power transformer up and out of chassis.

* To reassemble, reverse the procedure.

REFLEX PLATE REMOVAL

Remove two tapping screws (3, 4: Photo 2). Lift reflex plate up and out of the unit.

METERS REMOVAL

1. Remove reflex plate.
2. Disconnect cables to meters.
3. Remove four tapping screws (1-4: Photo 4) and remove meter holders.
4. Lift the meters up and out of the unit.

* To reassemble, reverse the procedure.

INDICATOR CIRCUIT BOARD REMOVAL

1. Remove reflex plate.
2. Remove two tapping screws (1, 2: Photo 5) and lift dial scale angle away from the unit.
3. Remove three push rivets (5-7: Photo 4). For this procedure, use small screwdriver as shown in Figure 1.
4. Remove indicator circuit board from the unit. If necessary, disconnect cables to the circuit board.

* To reassemble, reverse the procedure.



Photo 1

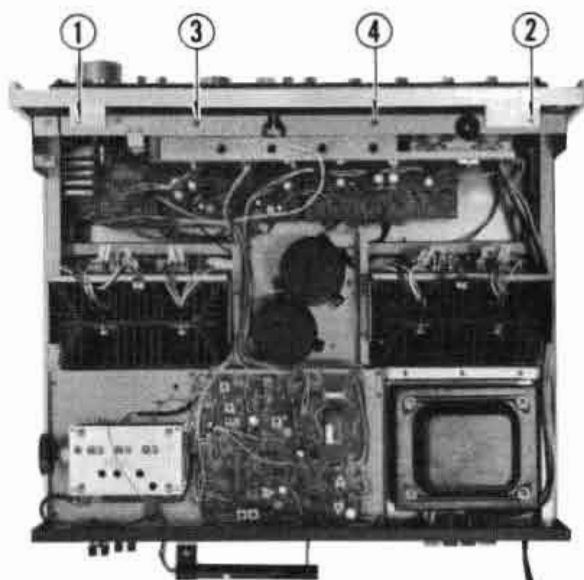


Photo 2

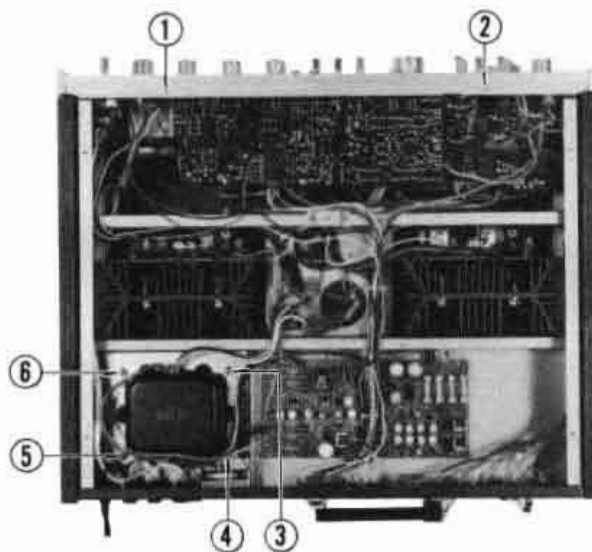


Photo 3



Figure 1. Push rivet

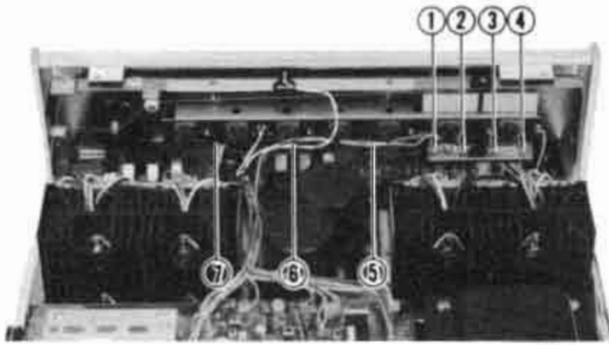


Photo 4



Photo 5

ALIGNMENT

TEST EQUIPMENT

Allow a minimum of 10 minutes warm-up for test equipment and the receiver to be tested.

Maintain rated line voltage.

FM Signal Generator (FM SG)

Oscilloscope

AC Voltmeter

Distortion Meter

MPX Signal Generator (MPX SG)

Frequency Counter

AM Sweep Generator (AM SG)

DC Voltmeter

GENERAL ALIGNMENT INSTRUCTION

Always observe response curve on oscilloscope during alignment procedure:

1. Do not apply signal from FM or AM stations. Apply signals only.
2. Use of excessive signal from FM SG or AM SG can cause overloading of the receiver circuits. To properly align the receiver, adjust FM SG or AM SG output level control so that response curve on oscilloscope is not distorted.

FM SECTION

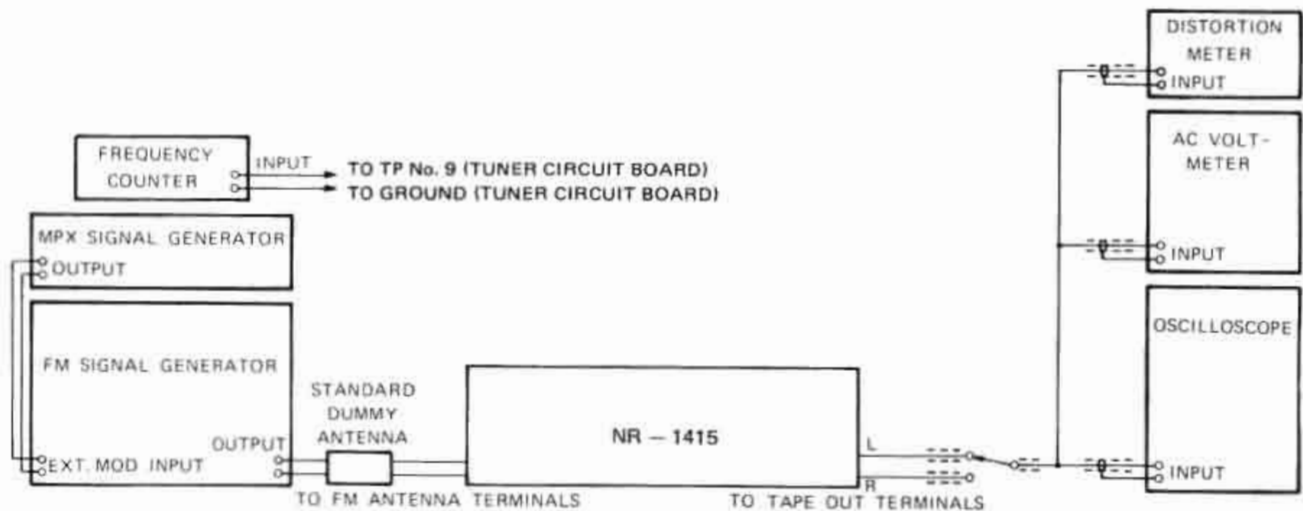


Figure 2. Test Equipment Hook-up

STEP	FM SG FREQUENCY/ CALIBRATION	MODULATING FREQUENCY/ DEVIATION	SWITCHES OF THE RECEIVER	DIAL POINTER POSITION	ADJUST- MENT POINT	PROCEDURE	REMARKS
1			A. POWER to "ON"	Where no signal is tuned.	T101 (Figure 3)	Adjust until tuning meter indicates mid-scale.	
2	98 MHz/60 dB μ	1000 Hz/mono [± 75 kHz]	B. SELECTOR to "FM"	98 MHz	T102 (Figure 3)	Adjust for minimum distortion.	
3			C. FM MUTING to "OFF"	Where no signal is tuned.		If tuning meter does not indicate mid-scale, repeat steps 1 and 2.	
			D. IF BAND to "NOR- MAL".				
4	98 MHz/ Attenuate for "1" signal meter reading.	1000 Hz/mono [± 75 kHz]	A-C. The same position as the steps 1-5. D. IF BAND to "NAR- ROW".	98 MHz	If trans- former located in front end. (Figure 4)	Adjust for maximum output.	
5	98 MHz/60 dB μ				R135 (Figure 3)	Adjust for "4.5" signal meter reading.	
6	98 MHz/Turn R119 (Figure 3) fully counter- clockwise, then attenuate for "1" signal meter reading.				R119 (Figure 3)	Adjust for "1" signal meter reading.	

Table 1 - 1

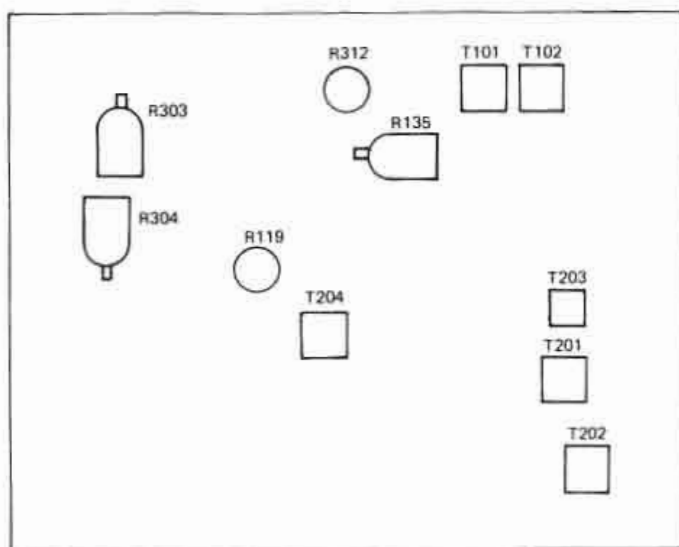


Figure 3. TUNER CIRCUIT BOARD (TOP VIEW)

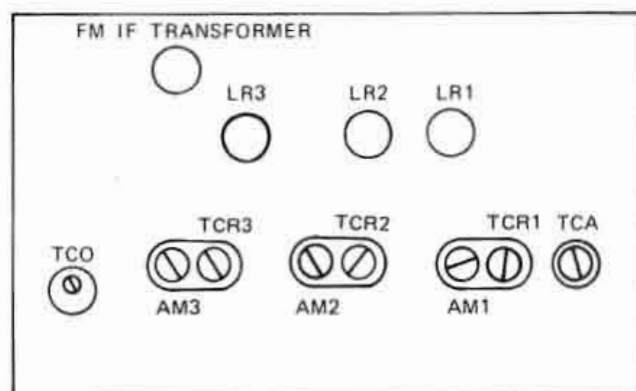


Figure 4. FRONT END (TOP VIEW)

FM Frequency Coverage and FM Tracking Alignments

These adjustments are factory preset and normally need no further adjustment. However, if necessary proceed as follows:

STEP	FM SG FREQUENCY/ CALIBLATION	MODULATING FREQUENCY/ DEVIATION	SWITCHES OF THE RECEIVER	DIAL POINTER POSITION	ADJUST- MENT POINT	PROCEDURE	REMARKS
1	88 MHz/10 dBμ	1000 Hz/mono [±75 kHz]	A. POWER to "ON" B. SELECTOR to "FM" C. FM MUTING to "OFF" D. IF BAND to "NOR- MAL".	88 MHz		Check dial pointer for maximum signal meter deflection and for mid-scale tuning meter indi- cation .	All the output should be equal. Repeat steps 3 and 4 on once or twice.
2	108 MHz/10 dBμ			108 MHz	TCO (Figure 4)	Adjust for maximum signal meter deflec- tion and for mid- scale tuning meter indication.	
3	88 MHz/ Attenuate for response with 3% distortion.			88 MHz	LR ₁ LR ₂ LR ₃ (Figure 4)	Adjust for maximum output.	
4	108 MHz/ Attenuate for response with 3% distortion.			108 MHz	TCA TCR ₁ TCR ₂ TCR ₃ (Figure 4)		

Table 1 – 2

FM MPX Alignment

STEP	FM SG FREQUENCY/ CALIBRATION	MODULATING FREQUENCY/ DEVIATION	SWITCHES OF THE RECEIVER	DIAL POINTER POSITION	ADJUST- MENT POINT	PROCEDURE	REMARKS
1	98 MHz/60 dB μ	(Unmodulated carrier)	A. POWER to "ON" B. SELECTOR to "FM" C. FM TUNING to "OFF" D. IF BAND to "NOR- MAL".	98 MHz (Set so that tuning meter indicates mid-scale.)	R312 (Figure 3)	Adjust for 76 $\pm$ 0.2 kHz.	Both the separations (or both the outputs of right and left channels) should be equal.
2		1000 Hz/stereo [main (L) & sub (L): ± 67.5 kHz/ pilot signal: ± 7.5 kHz]			R304 (Figure 3)	Adjust for maxi- mum separation (or minimum output of right channel).	
3		1000 Hz/stereo [main (R) & sub (-R): ± 67.5 kHz/ pilot signal: ± 7.5 kHz]				Adjust for maxi- mum separation (or minimum output of left channel).	

4	1000 Hz/stereo [main (L) & sub (L): ± 67.5 kHz/ pilot signal: ± 7.5 kHz]	A-C. The same position as the steps 1-3.	R303 (Figure 3)	Adjust for maxi- mum separation (or minimum output of left channel).	Both the separations (or both the outputs of right and left channels) should be equal.
5	1000 Hz/stereo [main (R) & sub (-R): ± 67.5 kHz/ pilot signal: ± 7.5 kHz]	D. IF BAND to "NAR- ROW".		Adjust for maxi- mum separation (or minimum output of right channel).	

Table 1 – 3

AM SECTION

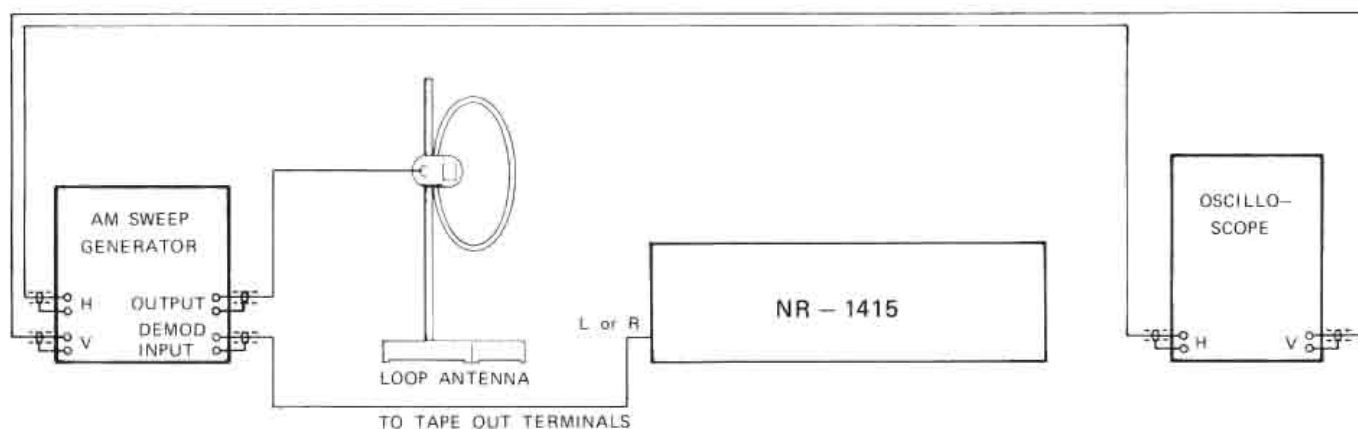


Figure 5. Test Equipment Hook-up

AM IF Alignment

STEP	AM SG FREQUENCY/ CALIBRATION	MODULATING FREQUENCY/ DEVIATION	SWITCHES OF THE RECEIVER	DIAL POINTER POSITION	ADJUST FOR MAX. SCOPE INDICATION	REMARKS
1	445 kHz/ 50 dB μ	(Unmodulated carrier)	A. POWER to "ON" B. SELECTOR to "FM"	1650 kHz	T203 (Figure 3)	Repeat steps 1 and 2 until response curve on oscillo- scope indicates maximum waveform.
2					T204 (Figure 3)	

Table 2 – 1

AM Frequency Coverage and AM Tracking Alignment

STEP	AM SG FREQUENCY/ CALIBRATION	MODULATING FREQUENCY/ DEVIATION	SWITCHES OF THE RECEIVER	DIAL POINTER POSITION	ADJUST FOR MAX. SCOPE INDICATION	REMARKS
1	520 kHz/ 50 dB μ	400 Hz/30%		520 kHz	T201 (Figure 3)	Repeat steps 1 and 2 several times.

2	1650kHz/ 50 dB μ	Set AM SG IF/ RF switch to RF position.	A. POWER to "ON" B. SELECTOR to "AM"	1650 kHz	AM3 (Figure 4)	To check tracking errors, use an apparatus made of ferrite rod and copper wire (Figure 8). Move it toward the AM loopstick antenna gradually, while checking for the response curve on oscilloscope becoming smaller. If the response curve becomes larger, re- peat steps 3 and 4. (Figure 9).
3	600 kHz/ 50 dB μ			600 kHz	AM loopstick antenna core (See Page III)	
4	1400kHz/ 50 dB μ			1400 kHz	AM1 AM2 (Figure 4)	

Table 2 - 2

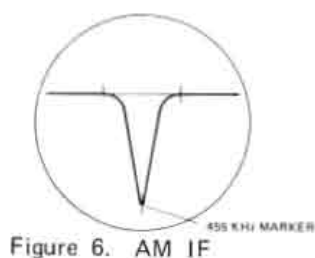


Figure 6. AM IF

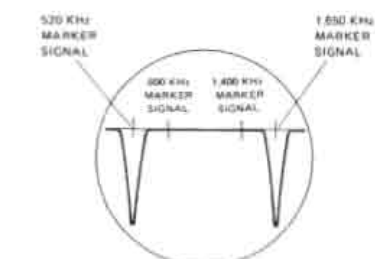


Figure 7. AM Frequency Coverage

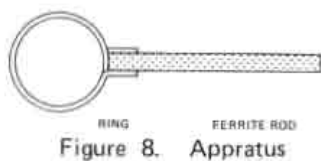


Figure 8. Apparatus

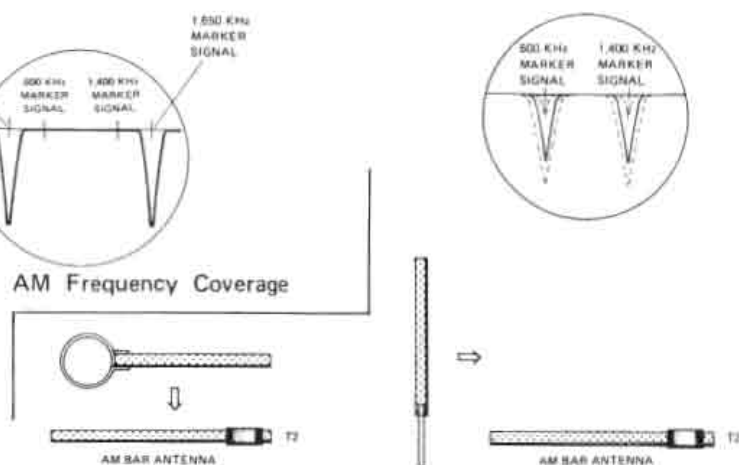


Figure 9. Tracking Errors Check

POWER AMP SECTION

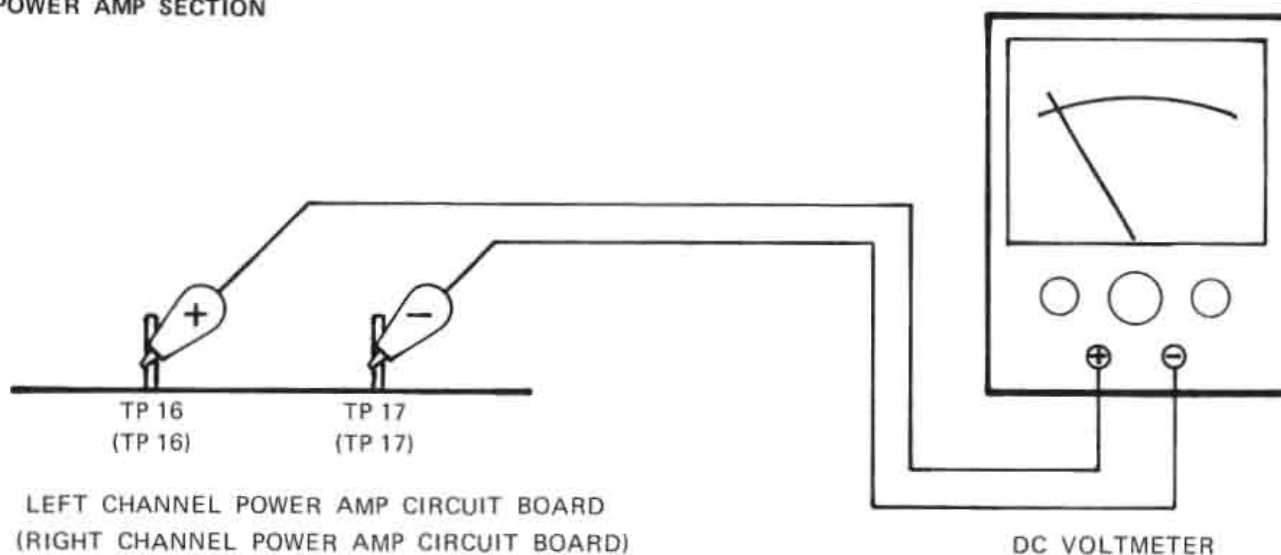


Figure 10. Test Equipment Hook-up

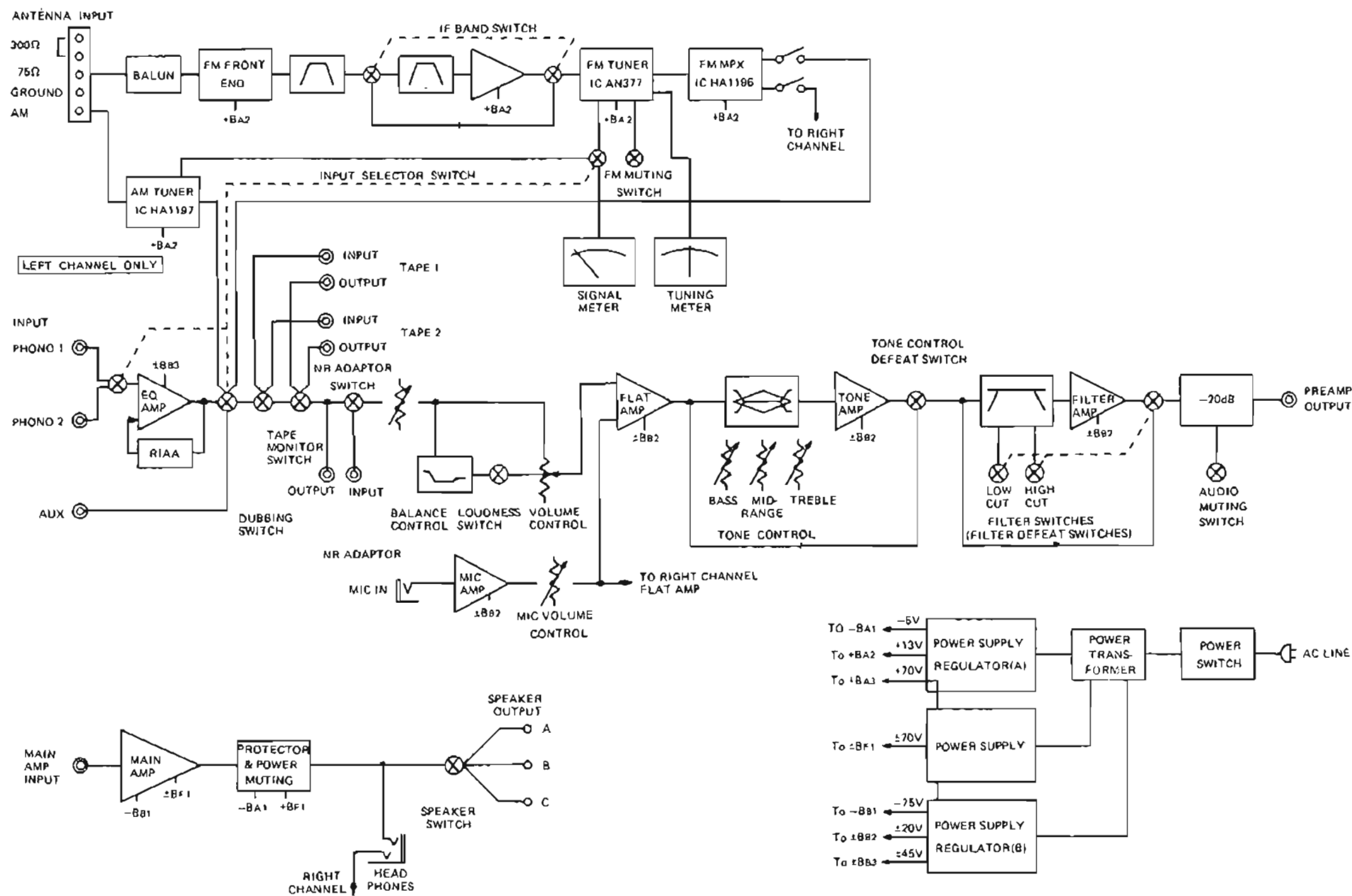
Idling Current Adjustment

Connect 8 ohm dummy loads to both (L and R channels) speaker terminals.

Left Channel: Apply no signal to the power amplifier input. Using DC voltmeter, adjust potentiometer R724 so that the voltage drop at TP(16) to TP(17) is 18.8 (or 9.4 to 28.2) millivolts. (Figure 15)

Right Channel: The same procedure as the left channel.

BLOCK DIAGRAM



CIRCUIT BOARDS (W-TYPE-u)

NOTE: ALL VOLTAGES SHOWN ON TABLES ARE MEASURED TO CHASSIS GROUND WITH NO SIGNAL APPLIED.

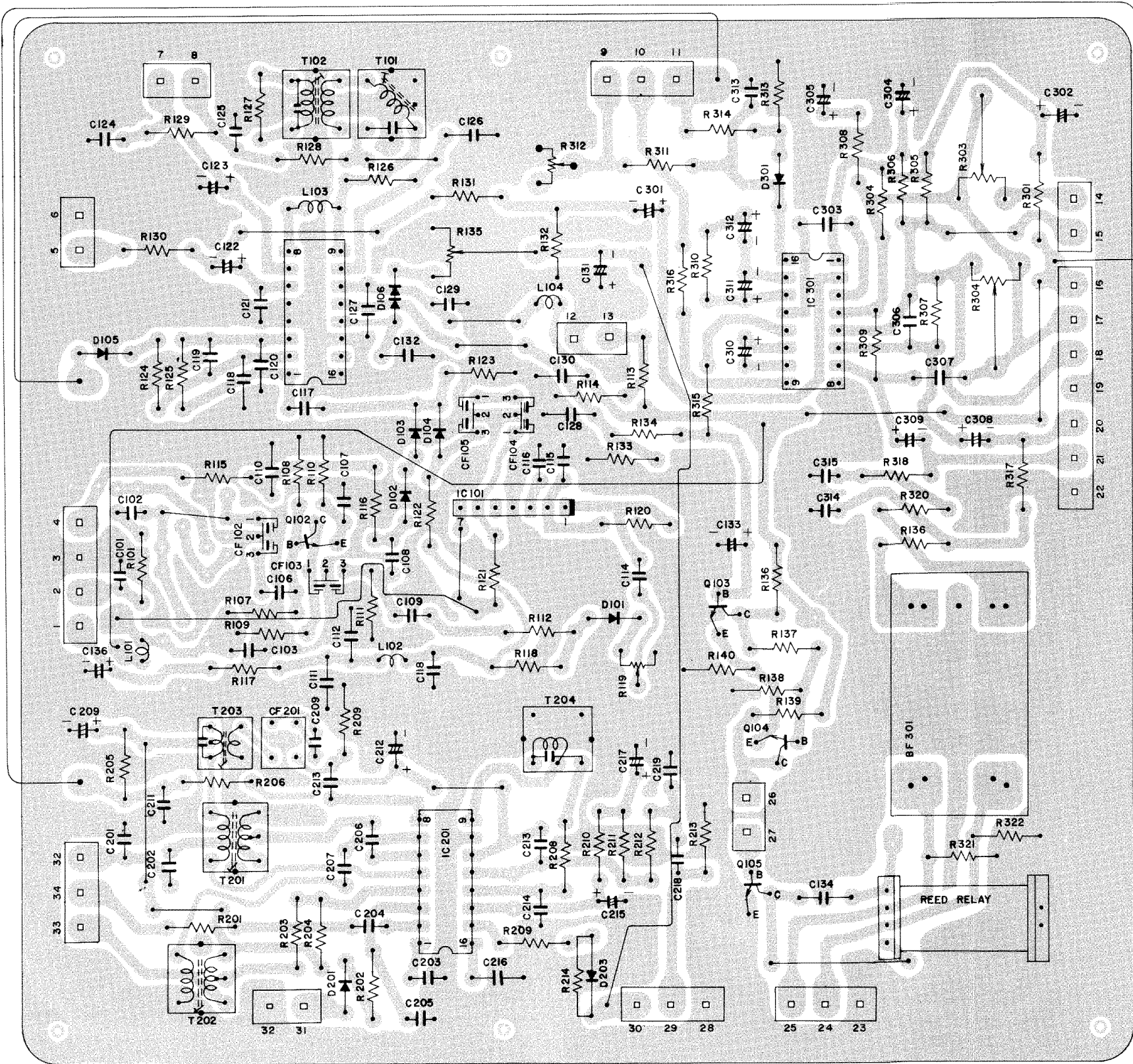


Figure 11. TUNER CIRCUIT BOARD (BOTTOM VIEW)

TUNER CIRCUIT BOARD – Voltages

TERMI- NAL No.	(V)	TERMI- NAL No.	(V)	TERMI- NAL No.	(V)	TERMI- NAL No.	(V)
IC101 (TA7302P)		IC102 (AN377)		IC201 (HA1197)		IC301 (HA1196)	
1	2.6	1	2.1	1	5.2	1	12.3
2	2.6	2	2.1	2	2.2	2	3.1
3	3.6	3	2.1	3	—	3	8.1
4	0	4	0	4	9.7	4	10.4
5	—	5	0.1	5	11.8	5	10.4
6	11.2	6	5.8	6	3.7	6	6.6
7	12.3	7	5.8	7	1.3	7	6.5
		8	5.8	8	2.9	8	0
		9	5.8	9	9.3	9	11.9
		10	5.8	10	0	10	0.07
		11	12.3	11	12.3	11	2.4
		12	4.4	12	1.6	12	0.68
		13	0.5	13	0.7	13	2.3
		14	0	14	1.5	14	2.4
		15	5.2	15	0	15	2.4
		16	0	16	1.0	16	3.2

TUNING CIRCUIT BOARD INTERCONNECTING WIRING GUIDE

- No. 1 To EQ AMP C. BOARD (A)
- No. 2 To FM FRONT END "IF"
- No. 3 To FM FRONT END "GND"
- No. 4 To EQ AMP C. BOARD (C)
- No. 5 To FM DET OUT (BACK PLATE)
- No. 6 To FM DET OUT GND (BACK PLATE)
- No. 7 To SELECTOR AMP C. BOARD No. 40
- No. 8 To TUNING METER (+)
- No. 9 TP VCO (76 KHz)
- No. 10 INDICATOR C. BOARD LED901 (—)
- No. 11 To SELECTOR AMP C. BOARD No. 45
- No. 12 GROUND
- No. 13 To EQ AMP C. BOARD (B)
- No. 14/15 To EQ AMP C. BOARD (D), (E)
- No. 16 To SELECTOR AMP C. BOARD No. 44
- No. 17/18/19 To SELECTOR AMP C. BOARD No. 18/19
- No. 20/21/22 To SELECTOR AMP C. BOARD No. 21/20
- No. 23/24/25 To SELECTOR AMP C. BOARD No. 48/49
- No. 26/27 To EQ AMP C. BOARD (F), (G)
- No. 28 To SIGNAL METER (—)
- No. 29 To SELECTOR AMP C. BOARD No. 50
- No. 30 To SIGNAL METER (+)
- No. 31 To SELECTOR AMP C. BOARD No. 47
- No. 32 GROUND
- No. 33 To FM FRONT END "AM2"
- No. 34 To AM LOOPSTICK ANTENNA (YEL)
- No. 35 To FM FRONT END "AM3"

SYMBOL No.	V _B (V)	V _C (V)	V _E (V)
Q102	1.8	1.2	11.6
Q103	0	0.7	0.7
Q104	0.3	11.9	0.7
Q105	—	—	—

TONE AMP CIRCUIT BOARD – Voltages

SYMBOL No.	V _B (V)	V _C (V)	V _E (V)
Q505	—8.4	—0.9	—9.0
Q506	—8.4	—0.9	—9.0

TONE AMP CIRCUIT BOARD INTERCONNECTING WIRING GUIDE

- No. 1/(2) To SELECTOR AMP C. BOARD No. 2/(1)
- No. 3/(4) To SELECTOR AMP C. BOARD No. 10/(11)
- No. 5/(6) To EQ AMP C. BOARD No. 9/(10)
- No. 7/(8) To EQ AMP C. BOARD No. 11/(12)
- No. 9 To REGURATOR (B) C. BOARD No. 11
- No. 10 To SELECTOR AMP C. BOARD No. 13
- No. 11/12 To EQ AMP C. BOARD No. 16/12
- No. 13/14 To SELECTOR AMP C. BOARD No. 6/9

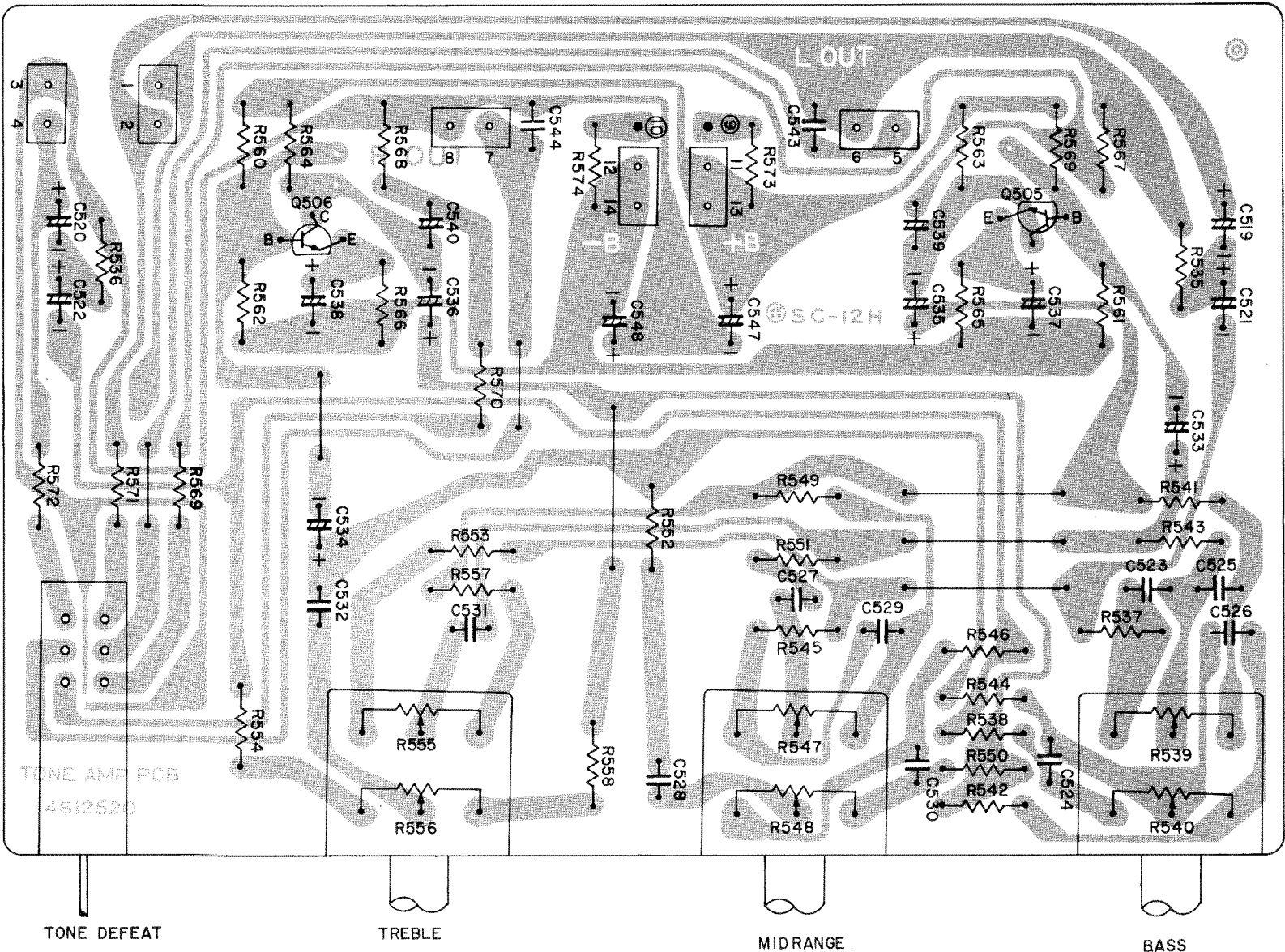


Figure 12. TONE CIRCUIT BOARD (BOTTOM VIEW)

EQ AMP CIRCUIT BOARD - Voltages

SYMBOL No.	V _B (V)	V _C (V)	V _E (V)
Q401	0	-43.8	0.6
Q402	0	-43.8	0.6
Q403	-43.8	0.7	-44.4
Q404	-43.8	0.7	-44.4
Q405	1.9	45.0	1.3
Q406	1.9	45.0	1.3
Q407	0.7	-45.0	1.3
Q408	0.7	-45.0	1.3

EQ AMP CIRCUIT BOARD INTERCONNECTING WIRING GUIDE

No. 1/2/3	To SELECTOR AMP C. BOARD No. 63/65/64
No. 4/5/6	To SELECTOR AMP C. BOARD No. 66/68/67
No. 7	To REGURATOR (B) C. BOARD No. 10
No. 8	To REGURATOR (B) C. BOARD No. 14
No. 9/(10)	To TONE AMP C. BOARD No. 5/(6)
No. 13	To PRE OUT (L) (BACK PLATE)
No. 14	To PRE OUT (GND) (BACK PLATE)
No. 15	To PRE OUT (R) (BACK PLATE)
No. 16	To TONE AMP C. BOARD No. 11

No. 17	To TONE AMP C. BOARD No. 12
No. 18	To LED 1 (PROTECTOR) RED
No. 19	To REGURATOR (A) C. BOARD No. 16
No. 20	To LED 1 (PROTECTOR) GND
No. 21	To CHASSIS GROUND
No. 22	To LED 1 (PROTECTOR) GRN
No. 23	To REGURATOR (A) C. BOARD No. 15
(A) / (B) / (C) / (D) / (E) / (F) / (G)	
To TUNER C. BOARD No. 1/13/4/14,15/ 26/27	

MAIN AMP CIRCUIT BOARD - Voltages

SYMBOL No.	V _B (V)	V _C (V)	V _E (V)
Q701L	0	-36.9	0.6
Q701R	0	-36.9	0.6
Q702L	0	-36.9	0.6
Q702R	0	-36.9	0.6
Q704L	-37.5	-72.8	-36.9
Q704R	-37.5	-72.8	-36.9
Q705L	-37.5	-72.8	-36.9
Q705R	-37.5	-72.8	-36.9
Q706L	-72.8	-72.8	-73.4
Q706R	-72.8	-72.8	-73.4
Q707L	-72.8	-72.8	-73.4
Q707R	-72.8	-72.8	-73.4
Q708L	67.7	29.4	68.3
Q708R	67.7	29.4	68.3
Q709L	67.0	-66.6	-67.6
Q709R	67.0	-66.6	-67.6
Q710L	66.0	-1.2	-66.6
Q710R	66.0	-1.2	-66.6

SYMBOL No.	V _B (V)	V _C (V)	V _E (V)
Q711L	-0.6	1.2	-1.2
Q711R	-0.6	1.2	-1.2
Q712L	-	-	-
Q712R	-	-	-
Q713L	-	-	-
Q713R	-	-	-
Q714L	1.2	69.0	0.6
Q714R	1.2	69.0	0.6
Q715L	-1.2	-69.0	-0.6
Q715R	-1.2	-69.0	-0.6
Q1L	1.2	69.0	0
Q1R	1.2	69.0	0
Q2L	-1.2	-69.0	0
Q2R	-1.2	-69.0	0
Q3L	1.2	69.0	0
Q3R	1.2	69.0	0
Q4L	-1.2	-69.0	0
Q4R	-1.2	-69.0	0

LEFT CHANNEL MAIN AMP CIRCUIT BOARD
INTERCONNECTING WIRING GUIDE

No. 1	To MAIN IN (L) (BACK PLATE)
No. 2	To MAIN IN GND (BACK PLATE)
No. 3	To REGURATOR (13) C. BOARD No. 8
No. 4	To Q3L (2SD555) BASE
No. 5	To Q1L (2SD555) BASE
No. 6	To Q4L (2SB600) BASE
No. 7	To Q2L (2SB600) BASE
No. 8	To Q1L (2SD555) COLLECTOR
No. 9	To Q3L (2SD555) EMITTER
No. 10	To Q1L (2SD555) EMITTER
No. 11	To Q2L (2SB600) COLLECTOR
No. 12	To Q4L (2SB600) EMITTER
No. 13	To Q2L (2SB600) EMITTER
No. 14	To CHASSIS GROUND
No. 15	To REGURATOR (A) C. BOARD No. 5
No. 16	TP
No. 17	TP

RIGHT CHANNEL MAIN AMP CIRCUIT BOARD
INTERCONNECTING WIRING GUIDE

No. 1	To MAIN IN (R) (BACK PLATE)
No. 2	To MAIN IN GND (BACK PLATE)
No. 3	To REGURATOR (B) C. BOARD No. 9
No. 4	To Q3R (2SD555) BASE
No. 5	To Q1R (2SD555) BASE
No. 6	To Q4R (2SB600) BASE
No. 7	To Q2R (2SB600) BASE
No. 8	To Q1R (2SD555) COLLECTOR
No. 9	To Q3R (2SD555) EMITTER
No. 10	To Q1R (2SD555) EMITTER
No. 11	To Q2R (2SB600) COLLECTOR
No. 12	To Q4R (2SB600) EMITTER
No. 13	To Q2R (2SB600) EMITTER
No. 14	To CHASSIS GROUND
No. 15	To REGURATOR (A) C. BOARD
No. 16	TP
No. 17	TP

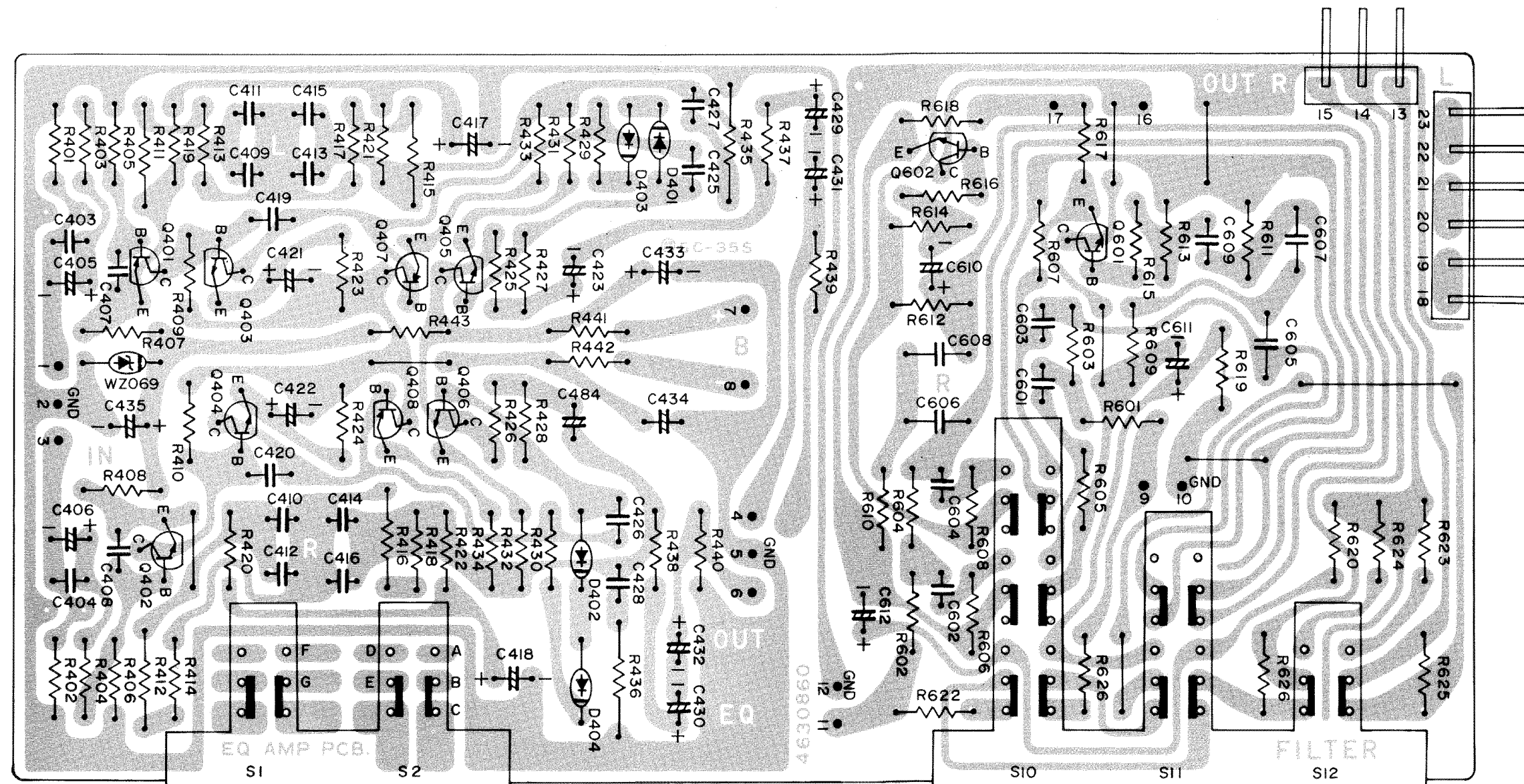


Figure 13. EQ AMP CIRCUIT BOARD (BOTTOM VIEW)

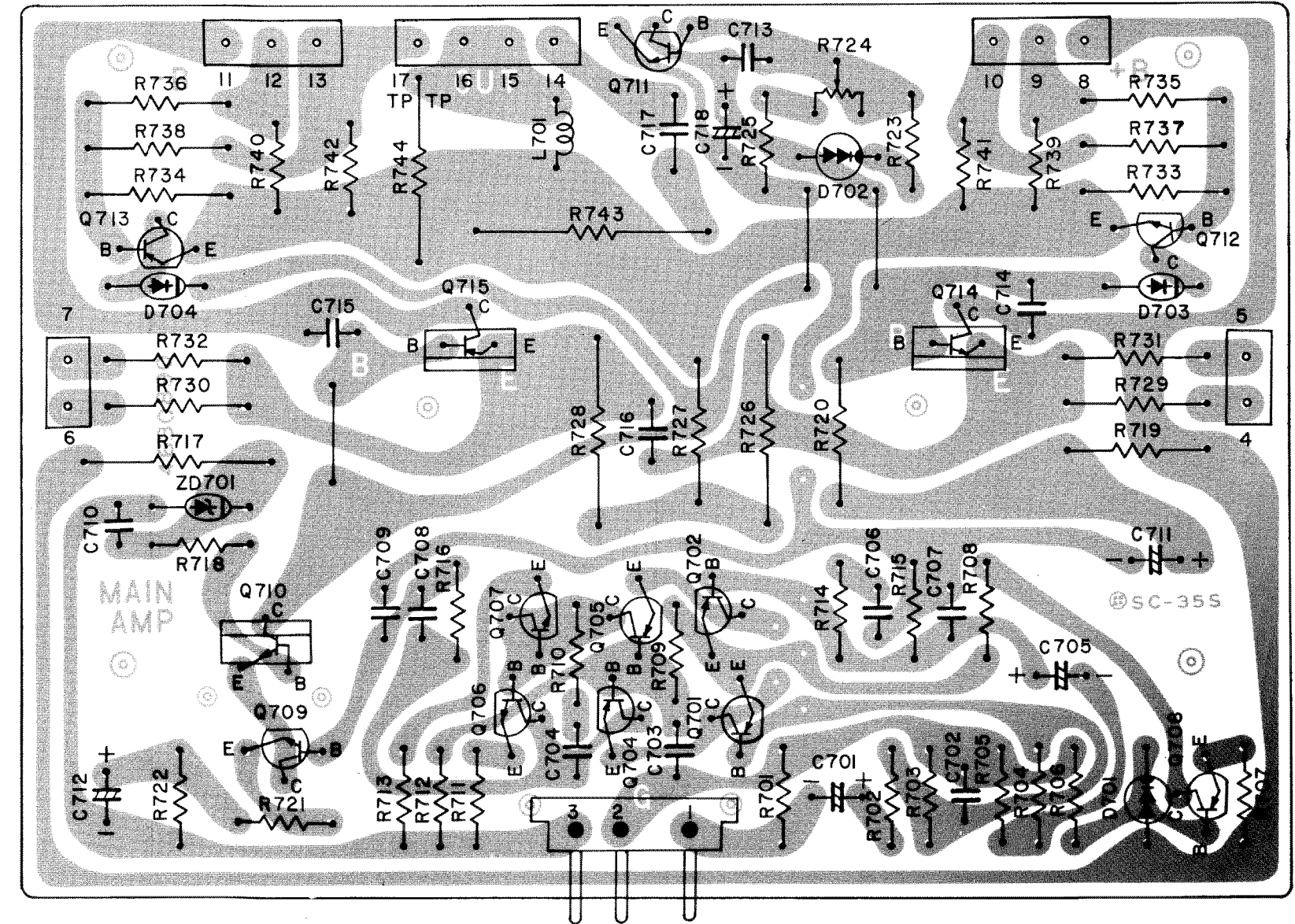


Figure 14. MAIN AMP CIRCUIT BOARD (LEFT CHANNEL) (BOTTOM VIEW)

SELECTOR AMP CIRCUIT BOARD INTERCONNECTING WIRING GUIDE

SYMBOL No.	V _B (V)	V _C (V)	V _E (V)	SYMBOL No.	V _B (V)	V _C (V)	V _E (V)
Q501	0	0.6	-8.0	Q901	0	-8.5	0.6
Q502	0	0.6	-8.0	Q902	-8.5	0.5	-9.1
Q503	-8.0	0.6	-8.6	Q903	-0.9	-18.0	-0.3
Q504	-8.0	0.6	-8.6				

No. 1/2	To TONE AMP C. BOARD No. 2/1	No. 41	To TUNING METER (+)
No. 3/4/5	To MIC VR (R6)	No. 42	To REGULATOR (A) C. BOARD No. 12
No. 6	To TONE AMP C. BOARD No. 13	No. 43	To INDICATOR C. BOARD LED 901 (+)
No. 7/8	To MIC JACK	No. 44	To TUNER C. BOARD No. 16
No. 9	To TONE AMP C. BOARD No. 14	No. 45	To TUNER C. BOARD No. 11
No. 10, 11	To TONE AMP C. BOARD No. 3/4	No. 46	To FM FRONT END "+B"
No. 12/13/14	To NR ADAPTOR IN (BACK PLATE) L/GND/R	No. 47	To FM FRONT END No. 31
No. 15/16/17	To NR ADAPTOR OUT (BACK PLATE) L/GND/R	No. 48/49	To FM FRONT END No. 24/25/(23)
No. 18/19	To TUNER C. BOARD No. 17/18/(19)	No. 50	To FM FRONT END No. 29
No. 20/21	To TUNER C. BOARD No. 21/20/(22)	No. 51	To REGULATOR (A) C. BOARD No. 6
No. 22/23/24	To BALANCE VR (L) (R11)	No. 52/53/54/55/56	To INDICATOR C. BOARD LED 906 (+) / LED 905 (+) /LED 904 (+) /LED 903 (+) / LED 902 (+)
No. 25/26/27	To BALANCE VR (R) (R12)	No. 57/58/59	To PHONO 1 (BACK PLATE) L/GND/R
No. 28/29/30	To TAPE 1 IN (BACK PLATE) L/GND/R	No. 60/61/62	To PHONO 2 (BACK PLATE) L/GND/R
No. 31/32/33	To TAPE 2 IN (BACK PLATE) L/GND/R	No. 63/64/65	To EQ AMP C. BOARD No. 1/2/3
No. 34/35/36	To TAPE 1 OUT (BACK PLATE) L/GND/R	No. 66/67/68	To EQ AMP C. BOARD No. 4/5/6
No. 37/38/39	To TAPE 2 OUT (BACK PLATE) L/GND/R	No. 69/70/71	To AUX (BACK PLATE) L/GND/R
No. 40	To TUNER C. BOARD No. 8		

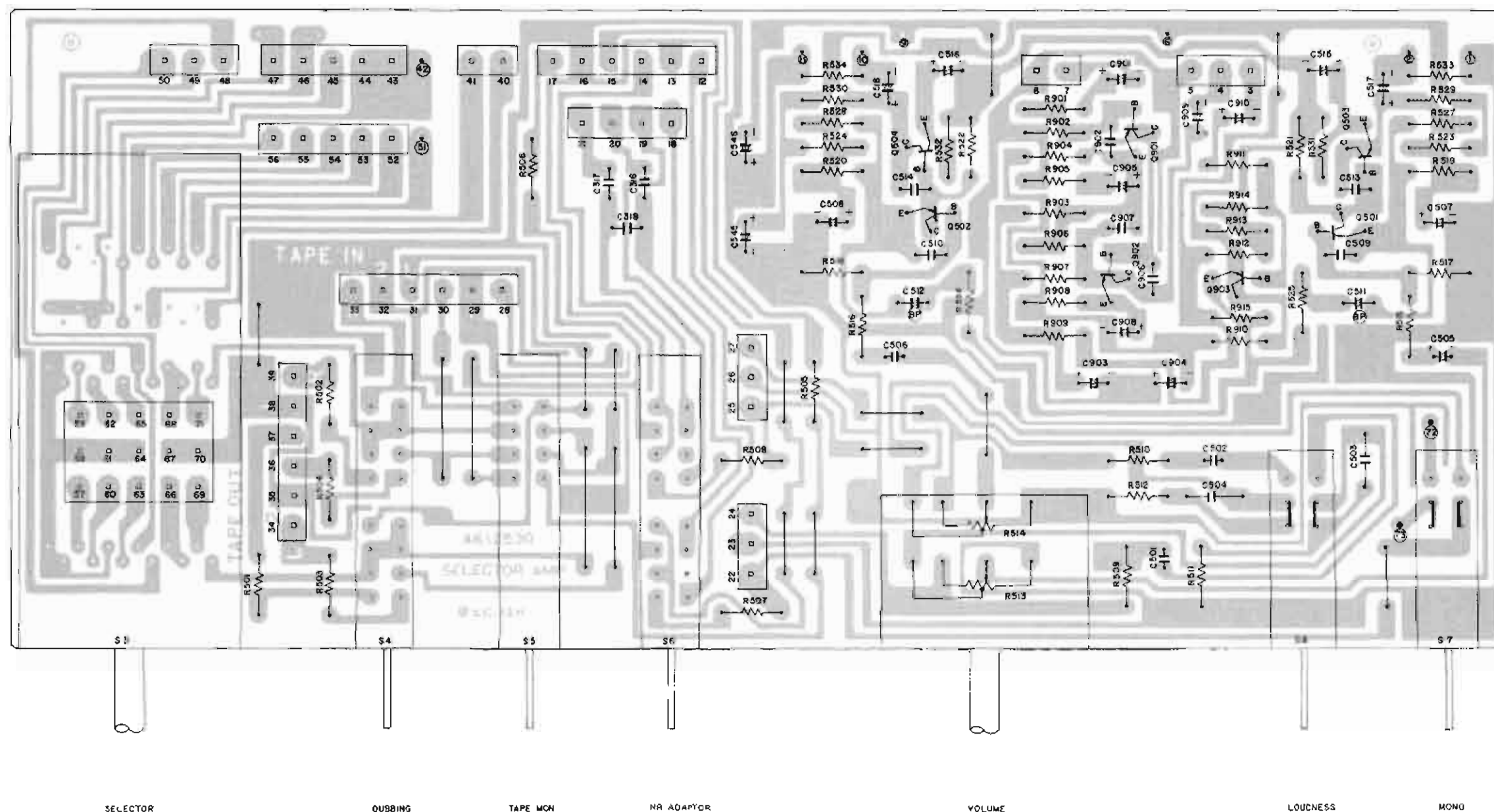


Figure 15. SELECTOR CIRCUIT BOARD (BOTTOM VIEW)

REGURATOR (A) CIRCUIT BOARD - Voltages

SYMBOL No.	V _B (V)	V _C (V)	V _E (V)
Q801	0	-4.0	0
Q802	0	36.2	0
Q803	36.2	35.6	35.6
Q804	12.9	20.0	12.3
Q805	13.5	20.0	12.9
Q806	7.3	13.5	6.7

REGURATOR (A) CIRCUIT BOARD INTERCONNECTING WIRING GUIDE

No. 1	To SPEAKER SW (L)
No. 2	To CHASSIS GROUND
No. 3	To SPEAKER SW (R)
No. 4	To RIGHT CHANNEL MAIN AMP C. BOARD No. 15
No. 5	To LEFT CHANNEL MAIN AMP C. BOARD No. 15
No. 6	To SELECTOR AMP C. BOARD No. 51
No. 7/8	To P. TRANSFORMER (BLU)
No. 9	To LAMP C. BOARD
No. 10	To P. TRANSFORMER (YEL)
No. 11	To CHASSIS GROUND
No. 12	To SELECTOR AMP C. BOARD No. 42
No. 13	To REGURATOR (B) C. BOARD No. 4
No. 14	To CHASSIS GROUND
No. 15/16	To EQ AMP C. BOARD No. 23/19

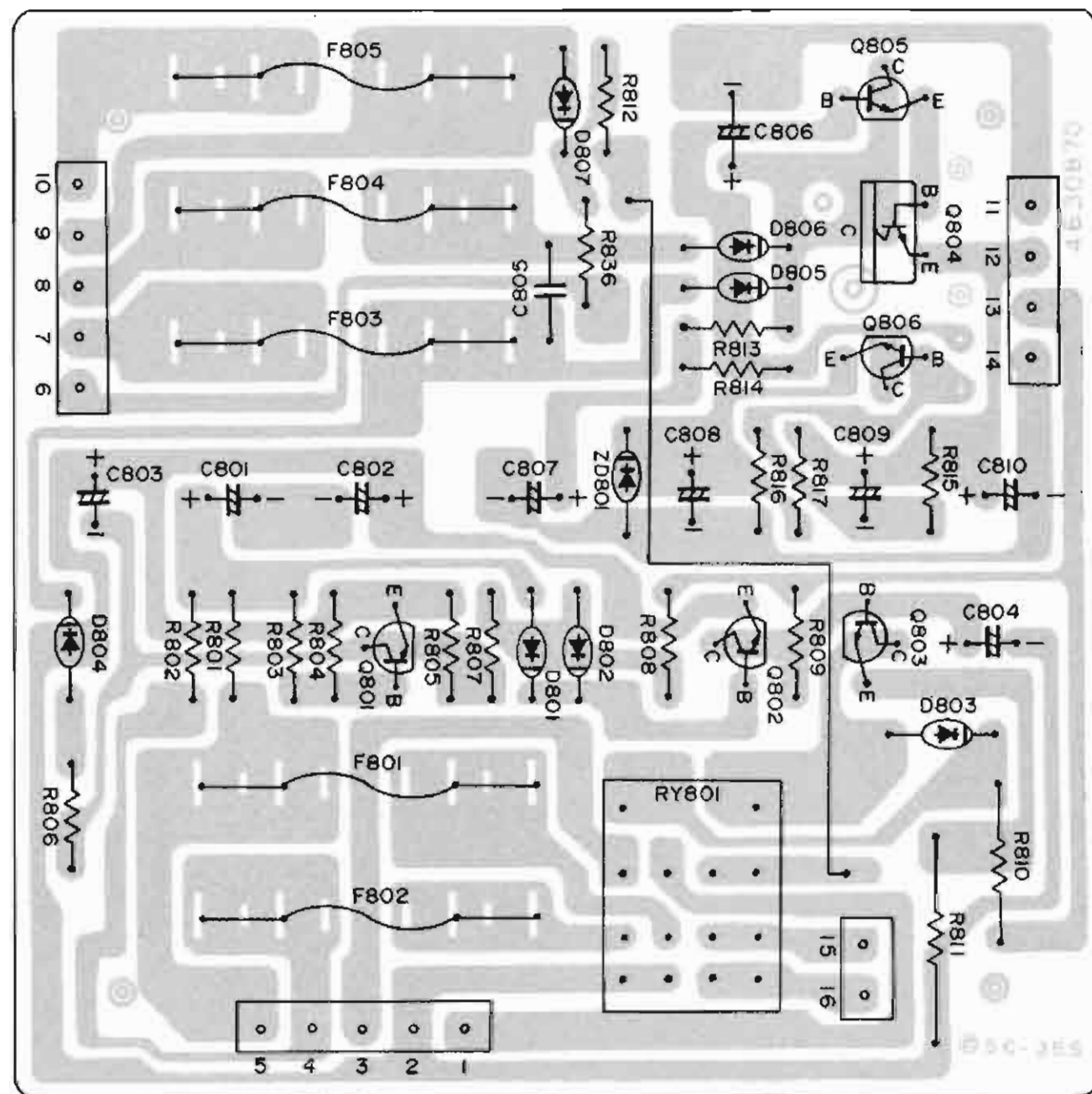


Figure 16. REGURATOR (A) CIRCUIT BOARD (BOTTOM VIEW)

Voltages

SYMBOL No.	V _B (V)	V _C (V)	V _E (V)
Q807	45.6	66.0	45.0
Q808	23.1	45.6	-22.5
Q809	45.6	-66.0	-45.0
Q810	-23.1	-45.6	-22.5
Q811	-75.6	-79.8	-75.0
Q812	-76.2	-79.6	-75.6

REGURATOR (B) CIRCUIT BOARD INTERCONNECTING WIRING GUIDE

No. 1	To E-CAP 22,000uF 80V -B
No. 3	To E-CAP 22,000uF 80V +B
No. 4	To REGURATOR (A) C. BOARD No. 13
No. 5/6	To P. TRANSFORMER (VIO)
No. 7	To CHASSIS GROUND
No. 8	To LEFT CHANNEL MAIN AMP C. BOARD No. 13
No. 9	To RIGHT CHANNEL MAIN AMP C. BOARD No. 13
No. 10	To EQ AMP C. BOARD No. 7
No. 11	To TONE AMP C. BOARD No. 9
No. 12	To CHASSIS GROUND
No. 13	To TONE AMP C. BOARD No. 10
No. 14	To EQ AMP C. BOARD No. 8

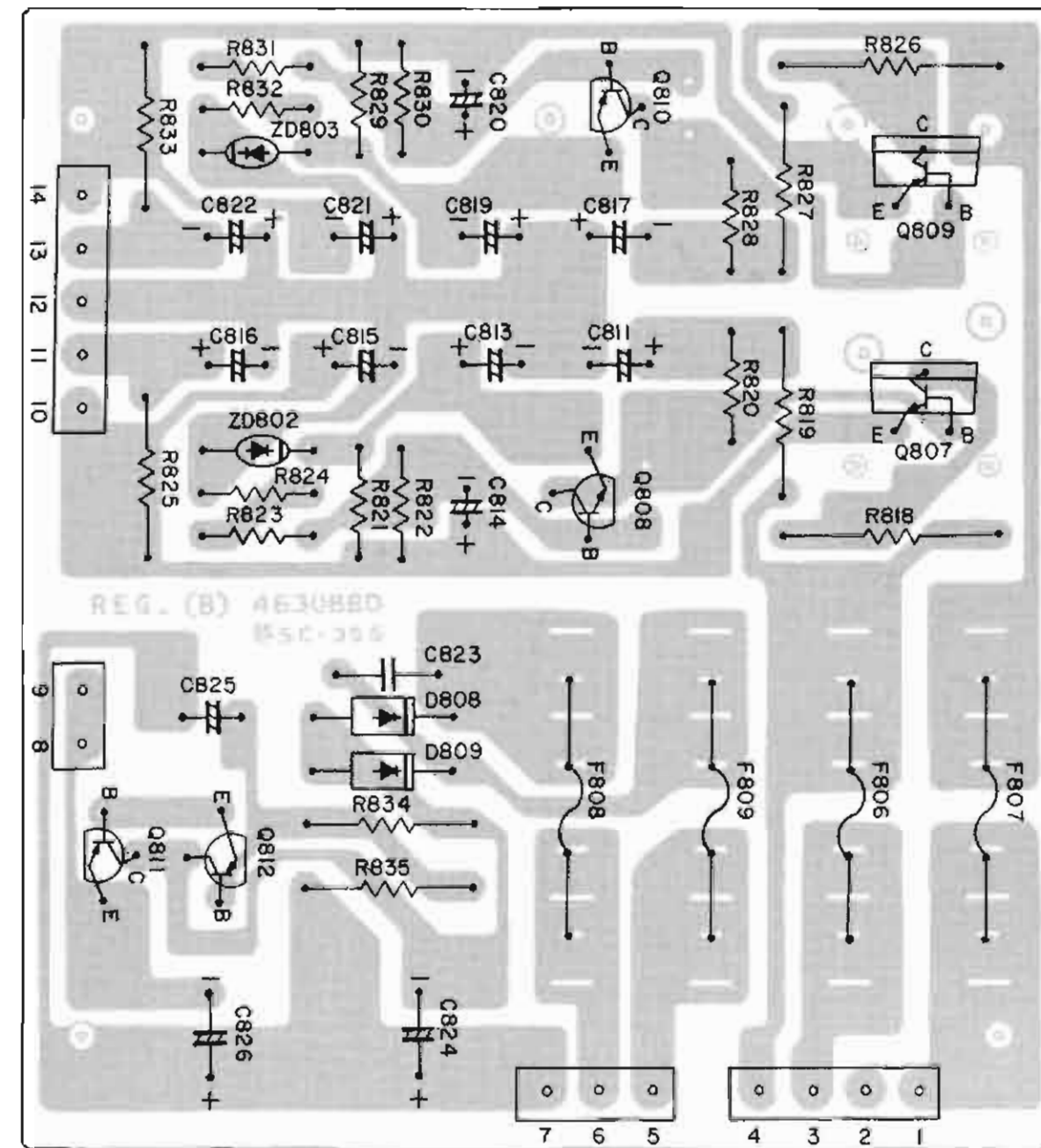


Figure 17. REGURATOR (B) CIRCUIT BOARD (BOTTOM VIEW)

PARTS LOCATION

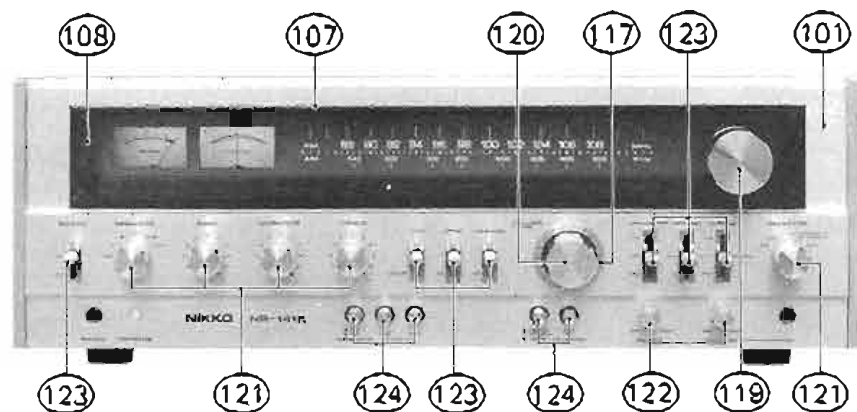


Photo 6

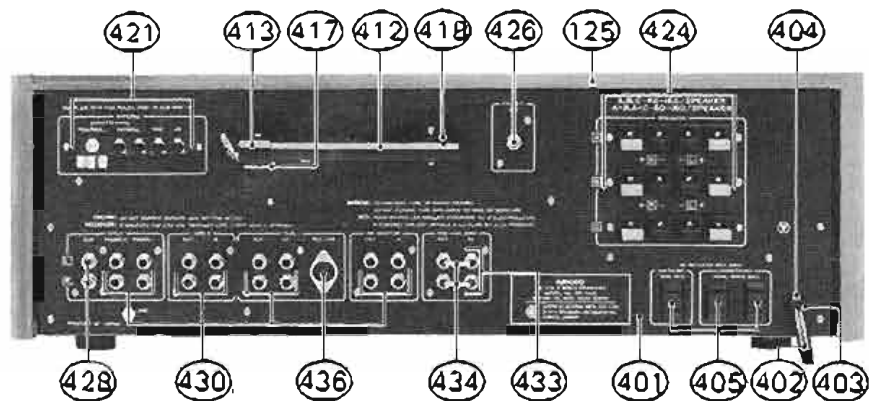


Photo 7

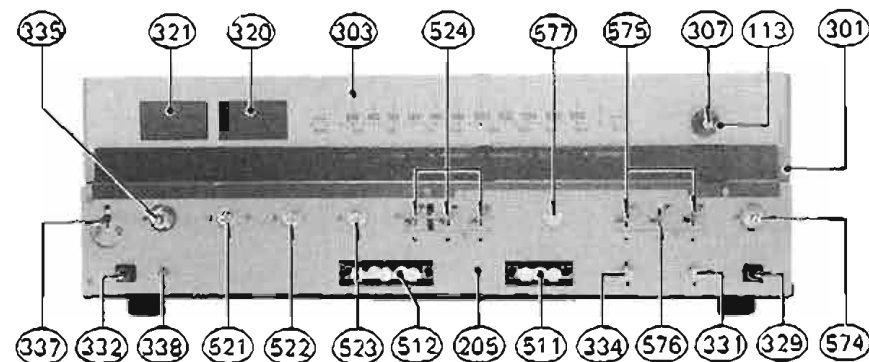


Photo 8

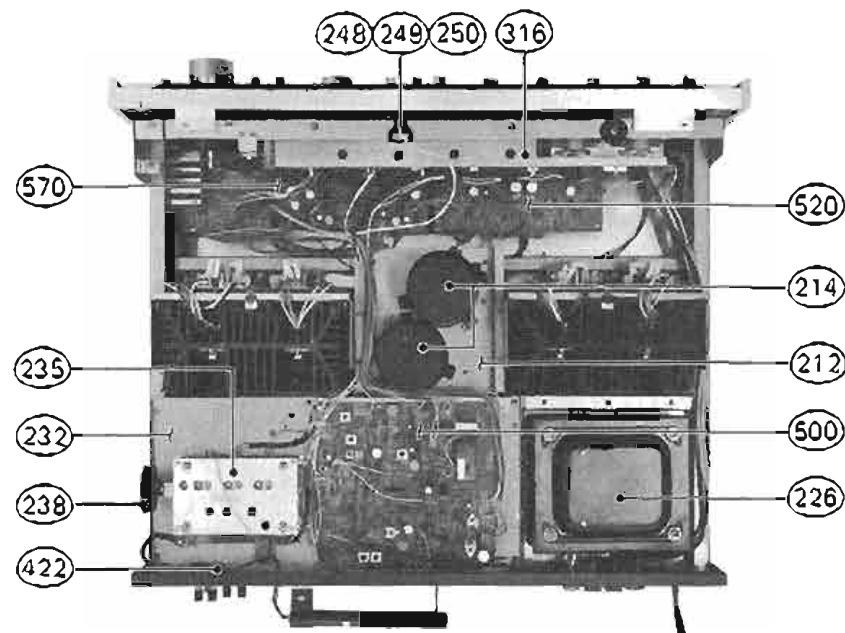


Photo 9

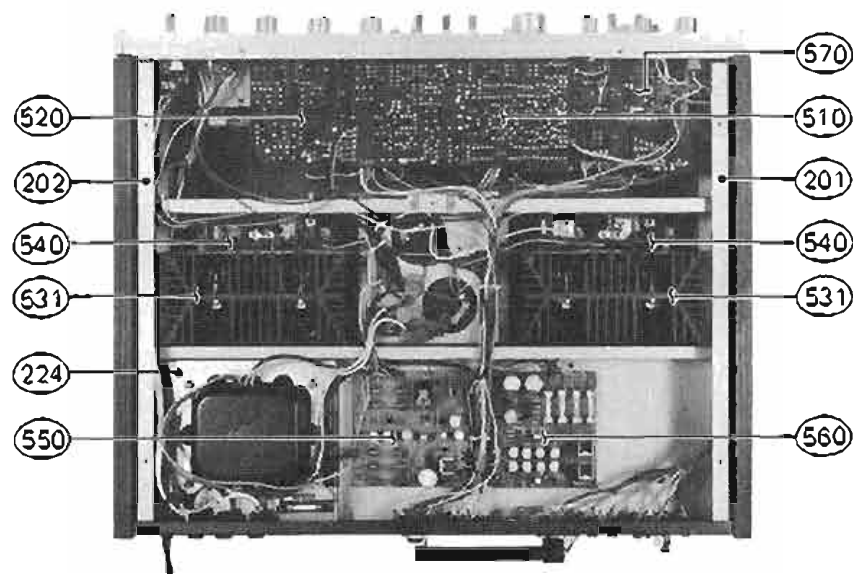


Photo 10

PARTS LIST

NOTES:

1. * The KEY NUMBER (#) marked with a (*) on parts list relate to numbers of three digits with a () (Photo 1 - 10).
- Complete assembly not eligible for warranty exchange or replacement.
- Early production.
- Late production.
2. + Numerals in file indicate the quantity of a parts used in one type.
3. ++ TR : Transistor
FET : Field effect transistor
IC : Integrated circuit
VR : Volume control (Variable resistor)
RES : Carbon film fixed resistor
MO-RES : Metal oxide film fixed resistor
CEM-RES : Cemented wirewound fixed resistor
NF : Nonflamable
C-CAP : Ceramic capacitor
E-CAP : Aluminium electrolytic capacitor

M-CAP : Polyester film capacitor
S-CAP : Polystyrene film capacitor
T-CAP : Tantalum electrolytic capacitor
BP-CAP : Bipolar electrolytic capacitor
E-CAP, T-CAP and BP-CAP values (1 x 10 uF) are in (1) uF, (10) V.

4. Assemblies and parts are subject to change without notice.

Parts ordering procedure:

Include in any order

- a. Part number.
- b. Part description.
- c. Model number.

(Any of the above lacking from an order may delay shipment of that order.)

KEY NO.	SYMBOL NO.	TYPE ⁺ W type u type v type z	DESCRIPTION ⁺⁺	PART NO.
PACKING MATERIALS & ACCESSORIES				
001		111	CTN BOX - carton	9825320
002		111	PAD (L)	9840680
003		111	PAD (R)	9840690
004		111	PAD (U)	9840700
005		111	POLY SACK - (polyethylene cloth)	9640670
006		111	POLY SACK #13 - (polyethylene cloth)	9640320
007		1--	INSTRUCTION MANUAL E	960185E
008		- 1-	INSTRUCTION MANUAL F	960208F
009		- - 1	INSTRUCTION MANUAL K	960208F
010		1--	WARRANTY CARD (N)	967003A
011		- 1-	WARRANTY CARD (C)	967014E
012		111	POLISHING CLOTH	9690040
013		111	SILICA GEL - drier	9690010
014		111	Q-MATCH ANT (EX) - FM antenna	4581360

KEY NO.	SYMBOL NO.	TYPE ⁺ W type u type v type z	DESCRIPTION ⁺⁺	PART NO.
124		555	PUSH BUTTON OL 4 - (fm muting, if mode, high fil, low fil, audio mute)	7851160
* 125		111	WOOD COV - wooden cover	7831390
126	†	222	RADIATION GRILLE	7225920
127	†	444	TFTS 4φ x 16 - tapping screw	887416W
128	†	444	W 5φ - washer	
129		111	BTM PLT - bottom plate	7324450
130	†	555	BLTS 3φ x 8 - screw	874308S
131	†	555	BLTS 3φ x 8 - screw	874308S
132		111	INSULATING SPACER	7401410
133		222	PUSH RIVET	7401190
134		444	FOOT	7400710
135	†	444	PMS 5φ x 20 - screw	810520S

CABINET ASSEMBLY				
*101		111	PNL S. ASSY - front panel	7883560
102	†	555	BUTTON GUIDE 125B	7401260
103	†	333	LEVER GUIDE (D)	7401150
104	†	333	DUST COV 1415	7001810
105	†	444	LEVER GUIDE (S)	7401180
106	†	444	DUST COV 1415	7001810
*107		111	DIAL FRAME ABS	7870230
*108		111	PNL GLASS	7802180
109	†	444	GLASS WASHER ABS	7401250
110	†	444	CAP SCREW 4φ x 16	7121040
111	†	444	1N 4φ - nut	892014S
112	†	444	TW (I) 4φ - washer	893404U
*113		111	DUST RING (G) - sponge rubber	7001820
114		222	SN 9φ - nut	892249S
115		222	W 9φ - washer	893109S
116		222	PTS 3φ x 12 - screw	814312S
*117		111	VR RING 47D8	7883660
118	†	111	SN 9φ - nut	892249S
*119		111	KNOB R15GL-42 - (tuning)	7841060
*120		111	KNOB R15GL-33D - (volume)	7851640
*121		555	KNOB R15GL-22D - (selector, bass, midrange, treble, speakers)	7851610
122		222	KNOB R15GL-12D - (mic level, balance)	7851620
*123		777	KNOB 15GL-4LS - (dubbing, tape man, nr adaptor, mono, loudness, tone, power)	7841070

CHASSIS ASSEMBLY				
*201		111	SIDE ANGLE (L)	7225980
*202		111	SIDE ANGLE (R)	7225990
203		222	SIDE BRKT	7031310
204		444	PUSH RIVET 3 x 3.5	7401190
*205		111	FRONT ANGLE	7225960
206	†	666	PTS 3φ x 8 - screw	814308S
207		111	CHASSIS STUD (16)	7031270
208	†	222	PTS 3φ x 6 - screw	814306S
209		222	WIRE CLIP 43	7401340
210		111	CENTER ANGLE	7225970
211	†	444	PTS 3φ x 8 - screw	814308S
*212		111	E-CAP HOLD - E-CAP chassis	7225820
213	†	444	PTS 3φ x 8 - tapping screw	814308S
*214		222	E-CAP 80L22000uF	212753B
215	†	666	BLTS 4φ x 8 - screw	874408S
216		111	DIODE S15VB20	560046S
217	†	111	PTS 4φ x 16 - tapping screw	814416S
218		222	WIRE CLIP 162	7401270
219		222	EARTH LUG 4P WP	4400100
220	†	222	PTS 3φ x 8 - tapping screw	814308S
221	†	222	TW (I) 3φ - starlock washer	893403U
222		444	C-CAP 0.01 uF 100, -0% 500V	238103P
223		444	C-CAP COVER (S)	7400960
224		222	MO-RES 4.7 kohm 5% 3W	363472L
*224		111	PT HOLD - P.T. chassis	7226010
225	†	888	PTS 3φ x 8 - tapping screw	814308S

PART ORDERING PROCEDURE ----- Include in any order: A. Part number, B. Part description, C. Model number. (any of the above lacking from an order may delay shipment of that order.)

TYPE ⁺				TYPE ⁺					
KEY	SYMBOL		DESCRIPTION ⁺⁺	PART	KEY	SYMBOL		DESCRIPTION ⁺⁺	PART
NO.	NO.	W type E type N type		NO.	NO.	W type E type N type			NO.
*226a		11-	PT T-1-269 120V — power transformer	1102690	320	111	METER — tuning		4581850
226b		-- 1	PT T-1-305 220/240V — power transformer	1103050	321	111	METER — signal		4581860
227		444	1N 5φ — nut	892015S	322	111	METER BRACKET		7031050
228		444	TW (I) 5φ — starlock washer	893405U	323	222	METER HOLDER		7031040
229a	F1	11-	FUSE 10A 250V (UL)	4700350	324	666	PTS 3φ x 6 — tapping screw		814306S
230a		11-	FUSE HOLDER 1P	4581840					
231a	†	11-	PTS 3φ x 10 — tapping screw	814310S	325	(111)	(INDICATOR PCB ASSY)		(9492400)
229b	F1	-- 1	MIDGET FUSE (S) EAK 4AT — time-lag	4720400	326	111	INDICATOR PCB		461249A
230b		-- 1	MIDGET FUSE HOLDER 1P	4581430	327	666	LED GD-4-207		5060060
231b	†	-- 1	PTS 3φ x 8 — tapping screw	814308S	328	333	PUSH RIVET		7401240
*232		111	TUNER CHASSIS	7324520	329	111	EAR JACK LJ 253-1-3 — (mic)		4550200
233	†	555	PTS 3φ x 8 — screw	814308S	330	R5	RES 100 kohm 5% 1/4W		328104J
234		111	EARTH LUG	4400000	*331	R6	11-	VR V16L4 (7φ x 6.5) G3-1N20KC, B100 kohm x 2 — (mic level)	4320690
*235		111	FM FRONT END FB821U	4910090	*331	R6	-- 1	VR V16L4 (7φ x 6.5) N20KC, B100 kohm — (mic level)	4310520
236	†	444	PTS 3φ x 6 — screw	814306S	332	111	EAR JACK HLJ 0279-01-020 — (headphones)		4550210
237		111	E-CAP 16R220 uF	211232Q	333	R7, R8	222	MO-RES 220 ohm 5% 2W	362221B
*238		111	DIAL DRUM 40φ	7401160	334	R11, R12	111	VR V16L4G3-1N20KC-1Z, 250 kohm x 2 (C,C) — (balance)	4320700
239	†	111	SPRING (J)	7440290	335	S13	111	ROTARY SWITCH SR321FN 1-2-6 25KC — — (speakers)	4051050
240		111	DIAL CORD SUPER404 (111) (TUNER PCB ASSY)	4581870	*336	111	SPACER 9φ		7152110
241	†	666	PTS 3φ x 8 — screw (111) (REG (A) PCB ASSY)	814308S	337a	S14	11-	LV SW SY02 U745M-UC TV-5 — (power switch)	4025090
242	†	444	PCB SUPPORT (111) (REG (B) PCB ASSY)	7401130	337b	S14	-- 1	LV SW SY02 V80DV VDE — (power switch)	4025150
243	†	444	PCB SUPPORT	7401130	338	111	LED BU188RG — (protector)		5060040
244		111	WIRE CLIP 162	7401270	339	111	SPACER 4H		7121050
		(111)	(FRONT PLATE ASSEMBLY)				BACK PLATE ASSEMBLY		
245	†	888	PTS 3φ x 6 — screw	814306S	*401a	11-	BACK PLATE W		7324510
246		111	EARTH LUG	4400000	401b	-- 1	BACK PLATE N		7324920
247	†	111	PTS 3φ x 6 — screw	814306S	*402a	11-	STP-2 PLUG CORD — AC line		606005A
*248		111	NEEDLE S. ASSY — dial pointer	7860510	402b	-- 1	CEE-2T PLUG CORD — AC line		600508A
*249		111	PL-5 5V 75mA — lamp	5805050	*403	111	CORD STP SR-4N-4 — stopping bushing		7400690
*250		111	BLIND LABEL	7001780	*404	111	CORD BRKT (EH) — plate		7029800
		(111)	(BACK PLATE ASSEMBLY)		*405	33-	AC SKT — AC outlet		4500150
251	†	444	PTS 3φ x 6 — screw	814306S	406	R10	11-	RES 2.2M ohm 10% 1/4W	325225K
		(111)	(MAIN AMP ASSEMBLY)		407	11-	EARTH LUG — solder lug		4400000
252	†	888	PTS 3φ x 6 — screw	814306S	408	†	11-	PTS 3φ x 6 — tapping screw	814306S
253		111	MINI CONCT ASSY (MAIN L)	4570140	409	†	11-	TW (I) 3φ — starlock washer	893403U
254		111	MINI CONCT ASST (MAIN R)	4570150	410	-- 1	BLIND PLATE		4460480
			FRONT PLATE ASSEMBLY		411	†	-- 2	PTS 3φ x 6 — tapping screw	814306S
*301		111	FRONT PLATE	7324500	*412	111	AM ANT — am loopstick antenna		1200320
302		222	PNL SPACER ABS	7400850	*413	111	ANT SUPPORT — attachment plastics		7400870
*303		111	DIAL SCALE	7802130	414	†	111	PMS 4φ x 20 — screw	810420S
304	†	333	PUSH RIVET	7400840	415	†	111	1N 4φ — nut	892014S
305		111	SCALE ANGLE	7802170	416	†	111	TW (I) 4φ — starlock washer	893404U
306	†	333	PTS 3φ x 6 — tapping screw	814306S	*417	111	ANT BRKT (L) — bracket		7080940
*307		111	DIAL SHAFT & FLYWHEEL	7152310	*418	111	ANT STP — stopping plastics		7400880
308	†	111	SN 9φ — nut	892249S	419	†	444	PTS 3φ x 8 — tapping screw	814308S
309	†	111	TW (I) 9φ — starlock washer	893409U	420	111	CORD STP SR-3P-4 — stopping bushing		7400620
310	†	111	W 9φ — nut	893109S	*421	111	ANTENNA TERMINAL		4450520
311		111	PULLEY BRACKET	7030130	*422	111	BALUN COIL		1210420
312	†	222	PTS 3φ x 6 — tapping screw	814306S	423	†	222	PMS 3φ x 6 — screw	810306S
313		444	PULLEY 9φ	7400790	*424	333	4P PUSH TER — one touch speaker terminal		4460480
314		111	PULLEY 20φ	7400830	425	†	666	PTS 3φ x 10 — tapping screw	814310S
315		555	PULLEY SHAFT 4L	7120980	*426	111	WP PIN TERMINAL 1P — (fm det, out)		
*316		111	REFLEX PLATE	7226150	427	†	222	PTS 3φ x 10 — tapping screw	814310S
317		111	LAMP PCB	4630840	*428	111	WP PIN TERMINAL 2P (E) — (aux)		
318	Z1 ~ Z7	777	PL-12 12V 0.21A — lamp	5801080	429	†	222	PTS 3φ x 10 — tapping screw	814310S
319	†	222	PTS 3φ x 6 — screw	814306S	*430	444	WP PIN TERMINAL 2P x 2 (SE) — (input (phono 1, phono 2), tape 1, tape 2, nr adaptor)		4444020
					431	†	222	SHORT PIN PLUG	4440180
					432	†	888	PTS 3φ x 10 — tapping screw	814310S

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TYPE ⁺					TYPE ⁺				
KEY NO.	SYMBOL NO.	W type u C type g N type d	DESCRIPTION ⁺⁺	PART NO.	KEY NO.	SYMBOL NO.	W type u C type g N type d	DESCRIPTION ⁺⁺	PART NO.
*433		111	WP PIN TERMINAL 2P x 2 (SE) — (pri out, main in)	4444020	IC101	111		IC TA7302P	518051S
*434	†	222	CONNECTIVE PIN	4581660	IC102	111		IC AN377	518046S
435	†	222	PTS 3φ x 10 — tapping screw	814310S	L101	111		INDUCTOR FL4H 2R2M 2.2 uH ±20%	1210860
*436		111	DIN CONNECTOR 5P — tape in/out	4530220	L102	111		INDUCTOR FL4H 2R2M 2.2 uH ±20%	1210860
437	†	222	PTS 3φ x 8 — tapping screw	814310S	L103	111		INDUCTOR 180J 18 uH	1210850
438		111	GND TERMINAL SHAFT MK3	7152060	L104	111		INDUCTOR FL4H 2R2M 2.2 uH ±20%	1210860
439	†	111	W 3φ — washer	893203D	Q102	111		TR 25C1675 (L, M)	515082S
440	†	111	GND TERMINAL NUT MK2	7152060	R101	111		RES 100 ohm 5% ¼W	328101J
441	†	111	EARTH LUG — solder lug	440000D	R107	111		RES 3.3 Kohm 5% ¼W	328332J
442	†	111	TW (I) 3φ — starlock washer	893403U	R108	111		RES 680 ohm 5% ¼W	328681J
443		111	EARTH LUG — solder lug	440000D	R109	111		RES 330 ohm 5% ¼W	328331J
444	†	11	PMS 3φ x 8 — screw	810308S	R110	111		RES 1 Kohm 5% ¼W	328102J
445	†	111	TW (I) 3φ — starlock washer	893404U	R111	111		RES 560 ohm 5% ¼W	328561J
446	†	111	1N 3φ — nut	892013S	R112	111		RES 100 ohm 5% ¼W	328101J
447	C1 ~ C5	555	C-CAP 0.01 uF 80, —20% 50V YG	231103Z	R113	111		RES 10 Kohm 5% ¼W	328103J
448	R, R2	222	RES 330 Kohm 5% ¼W	328334Z	R114	111		RES 22 Kohm 5% ¼W	328223J
449	R3, R4	222	RES 100 Kohm 5% ¼W	328334Z	R115	111		RES 100 ohm 5% ¼W	328101J
450		111	EARTH LUG — solder lug	440000D	R116	111		RES 5.6 Kohm 5% ¼W	328562J
451	†	111	PMS 3φ x 6 — screw	810306S	R117	111		RES 47 ohm 5% ¼W	328470J
452	†	111	TW (I) 3φ — starlock washer	893404U	R118	111		RES 5.6 Kohm 5% ¼W	328562J
453	†	111	1N 3φ — nut	892013S	R119	111		SR19R B4.7 Kohm — potentiometer	4300630
TUNER CIRCUIT BOARD					R120	111		RES 330 ohm 5% ¼W	328331J
500		111	TUNER PCB ASSY — complete circuit board	9492320	R121	111		RES 330 ohm 5% ¼W	328331J
(FM I-F SECTION)					R122	111		RES 5.6 Kohm 5% ¼W	328562J
C101	111		C-CAP 10 pF 10% 50V SL	232100K	R123	111		RES 5.6 Kohm 5% ¼W	328562J
C102	111		C-CAP 0.001 uF 80, —20% 50V YG	231102Z	R124	111		RES 470 Kohm 5% ¼W	328474J
C103	111		C-CAP 0.022 uF 80, —20% 50V YG	231223Z	R125	111		RES 470 ohm 5% ¼W	328471J
C106					R126	111		RES 5.6 Kohm 5% ¼W	328562J
~C109	444		C-CAP 0.01 uF 80, —20% 50V YG	231103Z	R127	111		RES 1.8 Kohm 5% ¼W	328182J
~C112	333		C-CAP 0.047 uF 80, —20% 50V YG	231473Z	R128	111		RES 4.7 Kohm 5% ¼W	328472J
C113	111		C-CAP 0.022 uF 80, —20% 50V YG	231223Z	R129	111		RES 220 ohm 5% ¼W	328221J
C114					R120	111		RES 100 Kohm 5% ¼W	328104J
~C116	333		C-CAP 0.01 uF 80, —20% 50V YG	231103Z	R131	111		RES 10 Kohm 5% ¼W	328103J
C117	111		C-CAP 0.001 uF 80, —20% 50V YG	231103Z	R132	111		RES 68 Kohm 5% ¼W	328683J
C118	111		C-CAP 0.047 uF 80, —20% 50V YG	231473Z	R133	111		RES 47 Kohm 5% ¼W	328473J
C119	111		C-CAP 0.022 uF 80, —20% 50V YG	231223Z	R134	111		RES 2.2 Kohm 5% ¼W	328222J
C120	111		C-CAP 0.047 uF 80, —20% 50V YG	231473Z	R135	111		EVL-S6A A00 B54 B50 Kohm — potentiometer	4300660
C121	111		C-CAP 330 pF 10% 50V SL	232331K	T101	111		FM DET (1) SNY1710 S-10G — FM — FM discriminator transformer	1240280
C122	111		E-CAP 16R10 uF	211220Q	T102	111		FM DET (2) SNY1720 S-10G — FM discriminator transformer	1240290
C123	111		E-CAP 50R 0.47 uF	211505Q	(MUTING SECTION)				
C124	111		C-CAP 0.022 uF 80, —20% 50V YG	231223Z	C134	111		C-CAP 0.047 uF 80, —20% 50V YG	231473Z
C125	111		C-CAP 0.022 uF 80, —20% 50V YG	231223Z	Q103	111		TR 25C1815 (O, Y)	511018S
C126	111				Q104	111		TR 25C1815 (O, Y)	511018S
~C128	333		C-CAP 0.047 uF 80, —20% 50V YG	231473Z	Q105	111		TR 25C945 (L) (P, Q)	515077S
C129	111		C-CAP 0.022 uF 80, —20% 50V YG	231223Z	R134	111		RES 2.2 Kohm 5% ¼W	328222J
C130	111		C-CAP 0.047 uF 80, —20% 50V YG	231473Z	R136				
C131	111		E-CAP 16R 100uF	211230Q	~R138	333		RES 22 Kohm 5% ¼W	328223J
C132	111		C-CAP 0.047 uF 80, —20% 50V YG	231473Z	R139	111		RES 33 Kohm 5% ¼W	328333J
C133	111		E-CAP 50R 10 uF	211520Q	R140	111		RES 330 ohm 5% ¼W	328331J
C136	111		E-CAP 35R 4.7 uF	211415Q	(I AM SECTION)				
CF102					C201	111		C-CAP 15 pF 10% 50V SL	232150K
~CF105	111		CERAMIC FILTER KMFC80-M (CF102, CF103: ML; CF104, CF105: MM)	128039A	C202	111		S-CAP 360 pF 5% 50V	223361V
D101									
~D105	555		DIODE 1S2076	501019S					
D106	111		DIODE VD-1212	505016S					

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KEY NO.	SYMBOL NO.	TYPE ⁺	DESCRIPTION ⁺⁺	PART NO.
		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		
	C203	111	C-CAP 0.001 uF 80, -20% 50V YG	231102Z
	C204			
	~C208	555	C-CAP 0.01 uF 80, -20% 50V YG	231103Z
	C209	111	C-CAP 68 pF 10% 50V SL	232680K
	C210	111	E-CAP 16R 10 uF	211220Q
	C211	111	C-CAP 0.01 uF 80, -20% 50V YG	231103Z
	C212	111	E-CAP 16R 100 uF	211230Q
	C213	111	C-CAP 0.01 uF 80, -20% 50V YG	231103Z
	C214	111	C-CAP 0.001 uF 80, -20% 50V YG	231102Z
	C215	111	E-CAP 35R4.7 uF	211415Q
	C216	111	C-CAP 0.047 uF 80, -20% 50V YG	231473Z
	C217	111	E-CAP 50R 3.3 uF	211513Q
	C218	111	M-CAP 0.022 uF 10% 50V	222223K
	C219	111	M-CAP 0.033 uF 10% 50V	222333K
	CF201	111	CERAMIC FILTER SFZ455A	1280310
	D201	111	DIODE 1S2076	501019S
	D203	111	DIODE 1N34A	500010G
	IC201	111	IC HA 1197	518044S
	R201	111	RES 220 ohm 5% 1/4W	328221J
	R202	111	RES 150 ohm 5% 1/4W	328151J
	R203	111	RES 680 ohm 5% 1/4W	328681J
	R204	111	RES 1.8 Kohm 5% 1/4W	328182J
	R205	111	RES 150 ohm 5% 1/4W	328151J
	R206	111	RES 47 ohm 5% 1/4W	328470J
	R207	111	RES 5.6 Kohm 5% 1/4W	328562J
	R208	111	RES 220 ohm 5% 1/4W	328221J
	R209	111	RES 220 ohm 5% 1/4W	328221J
	R210	111	RES 10 Kohm 5% 1/4W	328103J
	R211	111	RES 10 Kohm 5% 1/4W	328103J
	R212	111	RES 1 Kohm 5% 1/4W	328102J
	R213	111	RES 47 Kohm 5% 1/4W	328473J
	R214	111	RES 1 Kohm 5% 1/4W	328102J
	T201	111	AM OSC COIL	1220060
	T202	111	AM RF COIL	1210140
	T203	111	AM IFT P-7L	1230160
	T204	111	AM IFT	1230110
			(MPX SECTION)	
	BF301	111	L.P.F. FB-3603	1280260
	C301	111	E-CAP 16R 10 uF	211220Q
	C302	111	E-CAP 16R 330 uF	211233Q
	C303	111	M-CAP 0.047 uF	222473J
	C304	111	E-CAP 16R 10	211220Q
	C305	111	E-CAP 16R 10	211220Q
	C306	111	C-CAP 510 pF 5% 50V SL	232511J
	C307	111	C-CAP 510 pF 5% 50V SL	232511J
	C308	111	E-CAP 50R 0.47 uF	211505Q
	C309	111	E-CAP 50R 0.47 uF	211505Q
	C310	111	T-CAP 350 0.22 uF	252402M
	C311	111	T-CAP 350 1 uF	252410M
	C312	111	T-CAP 100 3.3 uF	252113M
	C313	111	S-CAP 470 pF 5% 50V	233471V
	C314	111	M-CAP 0.015 uF 5% 50V	222153J
	C315	111	M-CAP 0.015 uF 5% 50V	222153J
	D301	111	DIODE 1S1076	501019S
	IC301	111	IC HA1196	518043S
	R301	111	NF-RES 47 ohm 1/4W	329470N
	R302	111	EVL-S6A ADO BC5 B150 kohm — potentiometer	4300670

KEY NO.	SYMBOL NO.	TYPE ⁺	DESCRIPTION ⁺⁺	PART NO.
		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		
	R303	111	EVL-33A ADO B504 B500 Kohm — potentiometer	4300610
	R304	111	RES 33 Kohm 5% 1/4W	328333J
	R305	111	RES 33 Kohm 5% 1/4W	328333J
	R306	111	RES 8.2 Kohm 5% 1/4W	328822J
	R307	111	RES 47 Kohm 5% 1/4W	328473J
	R308	111	RES 8.2 Kohm 5% 1/4W	328822J
	R309	111	RES 47 Kohm 5% 1/4W	328473J
	R310	111	RES 1 Kohm 5% 1/4W	328102J
	R311	111	RES 15 Kohm 5% 1/4W	328153J
	R312	111	SR19R 810 Kohm — potentiometer	4300510
	R313	111	RES 10 Kohm 5% 1/4W	328103J
	R314	111	RES 10 Kohm 5% 1/4W	328103J
	R315	111	RES 100 Kohm 5% 1/4W	328104J
	R316	111	RES 680 ohm 5% 1/4W	328681J
	R317	111	RES 330 ohm 5% 1/4W	328331J
	R318	111	RES 330 ohm 5% 1/4W	328331J
	R319			
	~R322	444	RES 3.3 Kohm 5% 1/4W	328332J
			EQ AMP CIRCUIT BOARD	
	*510	111	EQ AMP PCB ASSY — complete circuit board	9441130
	*511	S1, S2	TWIN PUSH SW 2F-0004FF2020 — 2-section pushbutton switch (fm muting, if mode)	4040970
	*512	S10,11,12	TRI PUSH SW 3FT-0014FF1320 — 3-section pushbutton switch (high-fil, low-fil, audio mute)	4040840
		111	INSULATING SPACER (C)	7401420
			(EQ AMP SECTION)	
	C401		Not used	
	C402		Not used	
	C403	111	M-CAP 0.01 uF 10% 50V	222103K
	C404	111	M-CAP 0.01 uF 10% 50V	222103K
	C405	111	E-CAP 50R 1 uF	211510V
	C406	111	E-CAP 50R 1 uF	211510V
	C407	111	C-CAP 47 pF 10% 50V SL	232470K
	C408	111	C-CAP 47 pF 10% 50V SL	232470K
	C409	111	S-CAP 1500 pF 2%	223152G
	C410	111	S-CAP 1500 pF 2%	223152G
	C411	111	S-CAP 220 pF 5%	223221V
	C412	111	S-CAP 220 pF 5%	223221V
	C413	111	S-CAP 5600 pF 2%	223562G
	C414	111	S-CAP 5600 pF 2%	223562G
	C415	111	S-CAP 470 pF 5%	223471V
	C416	111	S-CAP 470 pF 5%	223471V
	C417	111	E-CAP 6.3R 470 uF	211035V
	C418	111	E-CAP 6.3R 470 uF	211035V
	C419	111	C-CAP 5 pF ±0.5 pF 50V SL	232509D
	C420	111	C-CAP 5 pF ±0.5 pF 50V SL	232509D
	C421	111	E-CAP 10R 100 uF	211130V
	C422	111	E-CAP 10R 100 uF	211130V
	C423	111	E-CAP 50R 10 uF	211520V
	C424	111	E-CAP 50R 10 uF	211520V
	C425	111	C-CAP 100 pF 10% 50V SL	232101K
	C426	111	C-CAP 100 pF 10% 50V SL	232101K
	C427	111	M-CAP 0.0082 uF 5% 50V	222822J
	C428	111	M-CAP 0.0082 uF 5% 50V	222822J

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	C429			
	~C432	444	E-CAP 35R 10 uF	211420V
	C433	111	E-CAP 50R 100 uF	211530V
	C434	111	E-CAP 50R 100 uF	211530V
	C435	111	E-CAP 10R 100 uF	211130V
	D401			
	~D404	444	DIODE 1S2076	501019S
	Q401	111	TR 2SA750 (1) (E)	514088S
	Q402	111	TR 2SA750 (1) (E)	514088S
	Q403			
	~Q406	444	TR 2SC1775A (E, F)	511016S
	Q407	111	TR 2SA872A (E, F)	510044S
	Q408	111	TR 2SA872A (E, F)	510044S
	R401	111	RES 100 Kohm 5% 1/4W	328104J
	R402	111	RES 100 Kohm 5% 1/4W	328104J
	R403	111	RES 2.7 Kohm 5% 1/4W	328272J
	R404	111	RES 2.7 Kohm 5% 1/4W	328272J
	R405	111	RES 100 Kohm 5% 1/4W	328104J
	R406	111	RES 100 Kohm 5% 1/4W	328104J
	R407	111	RES 56 Kohm 5% 1/4W	328563J
	R408	111	RES 56 Kohm 5% 1/4W	328563J
	R409	111	RES 22 Kohm 5% 1/4W	328223J
	R410	111	RES 22 Kohm 5% 1/4W	328223J
	R411	111	RES 39 Kohm 2% 1/4W	304393G
	R412	111	RES 39 Kohm 2% 1/4W	304393G
	R413	111	RES 4.7 Kohm 5% 1/4W	328472J
	R414	111	RES 4.7 Kohm 5% 1/4W	328472J
	R415	111	RES 470 Kohm 2% 1/4W	305474G
	R416	111	RES 470 Kohm 2% 1/4W	305474G
	R417	111	RES 22 Kohm 5% 1/4W	328223J
	R418	111	RES 22 Kohm 5% 1/4W	328223J
	R419	111	RES 680 ohm 5% 1/4W	328681J
	R420	111	RES 680 ohm 5% 1/4W	328681J
	R421	111	RES 39 Kohm 5% 1/4W	328393J
	R422	111	RES 39 Kohm 5% 1/4W	328393J
	R423	111	RES 4.7 Kohm 5% 1/4W	328472J
	R424	111	RES 4.7 Kohm 5% 1/4W	328472J
	R425	111	RES 56 Kohm 5% 1/4W	328563J
	R426	111	RES 56 Kohm 5% 1/4W	328563J
	R427	111	RES 33 Kohm 5% 1/4W	328333J
	R428	111	RES 33 Kohm 5% 1/4W	328333J
	R429	111	RES 390 ohm 5% 1/4W	328391J
	R430	111	RES 390 ohm 5% 1/4W	328391J
	R431			
	~R434	444	RES 47 ohm 5% 1/4W	328470J
	R435	111	MO-RES 1.5 Kohm 5% 1W	361152B
	R436	111	MO-RES 1.5 Kohm 5% 1W	361152B
	R437	111	RES 1 Kohm 5% 1/4W	328102J
	R438	111	RES 1 Kohm 5% 1/4W	328102J
	R439	111	RES 220 Kohm 5% 1/4W	328224J
	R440	111	RES 220 Kohm 5% 1/4W	328224J
	R441	111	RES 27 ohm 5% 1/4W	328270J
	R442	111	RES 27 ohm 5% 1/4W	328270J
	R443	111	RES 12 Kohm 5% 1/4W	328123J
	ZD401	111	ZENER DIODE WZ-069	502035S
			(FILTER AMP SECTION)	
	C601	111	M-CAP 0.0056 uF 10% 50V	222562K
	C602	111	M-CAP 0.0056 uF 10% 50V	222562K
	C603	111	M-CAP 0.0027 uF 10% 50V	222272K
	C604	111	M-CAP 0.0027 uF 10% 50V	222272K
	C605			
	~C608	444	M-CAP 0.068 uF 10% 50V	222683K
	C609	111	E-CAP 25R 4.7 uF	211315V

KEY NO.	SYMBOL NO.	TYPE ⁺	DESCRIPTION ⁺⁺	PART NO.
	C610	111	E-CAP 25R 4.7 uF	211315V
	C611	111	E-CAP 25R 10 uF	211320V
	C612	111	E-CAP 25R 10 uF	211320V
	Q601	111	TR 2SC945 (L) (P, Q)	515077S
	Q602	111	TR 2SC945 (L) (P, Q)	515077S
	R601			
	~R604	444	RES 3.9 Kohm 5% 1/4W	328392J
	R605			
	~R608	444	RES 1 Mohm 5% 1/4W	328105J
	R609	111	RES 47 Kohm 5% 1/4W	328473J
	R610	111	RES 47 Kohm 5% 1/4W	328473J
	R611	111	RES 470 Kohm 5% 1/4W	328474J
	R612	111	RES 470 Kohm 5% 1/4W	328474J
	R613	111	RES 150 Kohm 5% 1/4W	328154J
	R614	111	RES 150 Kohm 5% 1/4W	328154J
	R615	111	RES 1 Kohm 5% 1/4W	328102J
	R616	111	RES 1 Kohm 5% 1/4W	328102J
	R617	111	RES 6.8 Kohm 5% 1/4W	328682J
	R618	111	RES 6.8 Kohm 5% 1/4W	328682J
	R619	111	RES 220 Kohm 5% 1/4W	328224J
	R620	111	RES 220 Kohm 5% 1/4W	328224J
	R621	111	RES 2.2 Kohm 5% 1/4W	328222J
	R622	111	RES 2.2 Kohm 5% 1/4W	328222J
	R623	111	RES 4.7 Kohm 5% 1/4W	328472J
	R624	111	RES 4.7 Kohm 5% 1/4W	328472J
	R625	111	RES 39 Kohm 5% 1/4W	328393J
	R626	111	RES 39 Kohm 5% 1/4W	328393J
	C613	111	C-CAP 100pF 10% 50V SL	232101K
	C614	111	C-CAP 100pF 10% 50V SL	232101K
			TONE AMP CIRCUIT BOARD	
	• 520		TONE AMP PCB ASSY — complete circuit board	9441150
	C519			
	~C522	444	E-CAP 16R 10 uF	211220V
	C523			
	~C526	444	M-CAP 0.033 uF 10% 50V	222333K
	C527	111	M-CAP 0.0082 uF 10% 50V	222822K
	C528	111	M-CAP 0.0082 uF 10% 50V	222822K
	C529	111	M-CAP 0.0015 uF 10% 50V	222152K
	C530	111	M-CAP 0.0015 uF 10% 50V	222152K
	C531	111	M-CAP 0.0012 uF 10% 50V	222122K
	C532	111	M-CAP 0.0012 uF 10% 50V	222122K
	C533	111	E-CAP 50R 3.3 uF	211513V
	C534	111	E-CAP 50R 3.3 uF	211513V
	C535	111	E-CAP 25R 4.7 uF	211315V
	C536	111	E-CAP 25R 4.7 uF	211315V
	C537	111	E-CAP 16R 100 uF	211230V
	C538	111	E-CAP 16R 100 uF	211230V
	C539	111	BP-CAP 50R 3.3 uF	215513N
	C540	111	BP-CAP 50R 3.3 uF	215513N
	C543	111	C-CAP 220 pF 10% 50V SL	232221K
	C544	111	C-CAP 220 pF 10% 50V SL	232221K
	C547	111	E-CAP 25R 330 uF	211333V
	C548	111	E-CAP 25R 330 uF	211333V
	Q505	111	TR 2SC1400	511013S
	Q506	111	TR 2SC1400	511013S
	R535	111	RES 220 Kohm 5% 1/4W	328224J
	R536	111	RES 220 Kohm 5% 1/4W	328224J

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KEY NO.	SYMBOL NO.	TYPE*	DESCRIPTION**	PART NO.
*521	R537	111	RES 15 Kohm 5% 1/4W	328153J
	R538	111	RES 15 Kohm 5% 1/4W	328153J
	R539			
	+R540	111	VR V24L5G4PHN (11C) B100 Kohm x 2 - volume control (bass)	4320680
	R541	111	RES 15 Kohm 5% 1/4W	328153J
	R542	111	RES 15 Kohm 5% 1/4W	328153J
	R543	111	RES 27 Kohm 5% 1/4W	328273J
	R544	111	RES 27 Kohm 5% 1/4W	328273J
*522	R545	111	RES 10 Kohm 5% 1/4W	328103J
	R546	111	RES 10 Kohm 5% 1/4W	328103J
	R547			
	+R548	111	VR V24L5G4PHN (11C) B100 Kohm x 2 - volume control (mid range)	4320680
	R549	111	RES 10 Kohm 5% 1/4W	328103J
	R550	111	RES 10 Kohm 5% 1/4W	328103J
	R551	111	RES 15 Kohm 5% 1/4W	328153J
	R552	111	RES 15 Kohm 5% 1/4W	328153J
*523	R553	111	RES 4.7 Kohm 5% 1/4W	328472J
	R554	111	RES 4.7 Kohm 5% 1/4W	328472J
	R555			
	+R556	111	VR V24L5G4PHN (11C) B100 Kohm x 2 - volume control (treble)	4320680
	R557	111	RES 4.7 Kohm 5% 1/4W	328472J
	R558	111	RES 4.7 Kohm 5% 1/4W	328472J
	R559	111	RES 560 Kohm 5% 1/4W	328564J
	R560	111	RES 560 Kohm 5% 1/4W	328564J
	R561	111	RES 220 Kohm 5% 1/4W	328224J
	R562	111	RES 220 Kohm 5% 1/4W	328224J
	R563	111	RES 5.6 Kohm 5% 1/4W	328562J
	R564	111	RES 5.6 Kohm 5% 1/4W	328562J
	R565	111	RES 2.7 Kohm 5% 1/4W	328272J
	R566	111	RES 2.7 Kohm 5% 1/4W	328272J
	R567	111	RES 220 Kohm 5% 1/4W	328224J
	R568	111	RES 220 Kohm 5% 1/4W	328224J
	R569			
	~R572	444	RES 1 Kohm 5% 1/4W	328102J
	R573	111	RES 100 ohm 5% 1/4W	328101J
	R574	111	RES 100 ohm 5% 1/4W	328101J
*524	S9	111	LV SW S x 15-1 - double pole double position lever switch (tone)	4025300
			TONE BRKT - bracket	7226020
	†	222	PMS 3φ x 5 - screw	810305S
MAIN AMP ASSEMBLY (LEFT CHANNEL ONLY)				
*531		(111)	(MAIN AMP PCB ASSY)	
	1	111	HEAT SINK	7480260
	532	444	HEAT SINK HOLD - plate	7226040
	533	†	PTS 3φ x 8 - tapping screw	814308S
534		444	P-TR SKT - socket	4510080
535	†	888	PMS 3φ x 16 - screw	810316S
536		888	TW (I) 3φ - starlock washer	893403U
	Q716	111	TR 2SD555 (Q, R)	513068S
	Q717	111	TR 2SB600 (Q, R)	513067S
	Q718	111	TR 2SB555 (Q, R)	513068S
	Q719	111	TR 2SB600 (Q, R)	513067S
537		111	TR HOLD - heat sink, attachment clip	7081890
538	†	111	PTS 3φ x 6 - tapping screw	814306S
539		444	PCB SUPPORT LCBS-4	7401130

KEY NO.	SYMBOL NO.	TYPE*	DESCRIPTION**	PART NO.
MAIN AMP CIRCUIT BOARD (LEFT CHANNEL ONLY)				
*540	111		MAIN AMP PCB ASSY - complete circuit board	9430590
*	C701	111	E-CAP 6.3R 47 uF	211025V
	C702	111	C-CAP 100 pF 10% 50V SL	232101K
	C703	111	M-CAP 0.01 uF 10% 50V	222103K
	C704	111	C-CAP 470 pF 10% 500V SL	234471K
	C705	111	E-CAP 6.3R 470 uF	211035V
	C706	111	C-CAP 5 pF ±0.5 pF 500V SL	234509D
	C707	111	C-CAP 22 pF 10% 500V SL	234220K
	C708	111	C-CAP 100 pF 10% 500V SL	234101K
	C709	111	C-CAP 33 pF 10% 500V SL	234330K
	C710	111	M-CAP 0.01 uF 10% 50V	222103K
	C711	111	E-CAP 6.3R 47 uF	211625V
	C712	111	E-CAP 16R 100 uF	211230V
	C713	111	M-CAP 0.01 uF 10% 50V	222103K
	C714	111	C-CAP 100 pF 10% 500V SL	234101K
	C715	111	C-CAP 100 pF 10% 500V SL	234101K
	C716	111	M-CAP 0.01 uF 10% 50V	222103K
	C717	111	M-CAP 0.047 uF 10% 200V	272473K
	C718	111	E-CAP 50R 3.3 uF	211513V
	D701	111	DIODE VD1212	505016S
	D702	111	DIODE VD1212	505016S
	D703	111	DIODE 1S2076	501019S
	D704	111	DIODE 1S2076	501019S
	L701	111	CH. COIL	1210830
	Q701	111	TR 2SA941 (BL)	510048S
	Q702	111	TR 2SA941 (BL)	510048S
	Q703		Not used	
	Q704	111	TR 2SA941 (BL)	510048S
	Q705	111	TR 2SA941 (BL)	510048S
	Q706	111	TR 2SC2088 (BL)	511023S
	Q707	111	TR 2SC2088 (BL)	511023S
	Q708	111	TR 2SA817 (O, Y)	510047S
	Q709	111	TR 2SC1627 (O, Y)	511017S
	Q710	111	TR 2SD381(2) (M, N)	513073S
	Q711	111	TR 2SC1627 (O, Y)	511017S
	Q712	111	TR 2SC945 (L) (P, Q)	515077S
	Q713	111	TR 2SA733 (Q, R)	514074S
	Q714	111	TR 2SD381(2) (M, N)	513073S
	Q715	111	TR 2SD536(2) (M, N)	512051S
		222	HEAT SINK 1625MT - (Q715, Q716)	7480270
	†	444	PMS 3φ x 6 - screw	810306S
*	†	444	TW (I) 3φ - starlock washer	893403U
	R701	111	RES 100 Kohm 5% 1/4W	328104J
	R702	111	RES 22 Kohm 5% 1/4W	328222J
	R703	111	RES 100 Kohm 5% 1/4W	328104J
	R704	111	RES 12 Kohm 5% 1/4W	328123J
	R705	111	RES 330 ohm 5% 1/4W	328331J
	R706	111	RES 68 Kohm 5% 1/4W	328683J
	R707	111	RES 180 ohm 5% 1/4W	328181J
	R708	111	RES 8.2 Kohm 5% 1/4W	328822J
	R709	111	RES 68 Kohm 5% 1/4W	328683J
	R710	111	RES 680 ohm 5% 1/4W	328681J
	R711	111	RES 1.2 Kohm 5% 1/4W	328122J
*	R712	111	RES 68 Kohm 5% 1/4W	328683J
	R713	111	RES 1.2 Kohm 5% 1/4W	328122J
	R714	111	RES 39 ohm 5% 1/4W	328390J

PART ORDERING PROCEDURE Include in any order: A. Part number, B. Part description, C. Model number. (any of the above lacking from an order may delay shipment of that order.)

KEY NO.	SYMBOL NO.	TYPE ⁺ W-Type-u E-Type-d N-Type-d	DESCRIPTION ⁺⁺	PART NO.
	R715	111	RES 12 Kohm 5% 1/4W	328123J
	R716	111	RES 1 Kohm 5% 1/4W	328102J
	R717	111	MO-RES 33 Kohm 5% 2W	362333L
	R718	111	RES 100 ohm 5% 1/4W	328101J
	R719	111	MO-RES 5.6 Kohm 5% 1W	361562L
	R720	111	MO-RES 6.8 Kohm 5% 1W	361682L
	R721	111	RES 68 ohm 5% 1/4W	328680J
	R722	111	RES 680 ohm 5% 1/4W	328681J
	R723	111	RES 470 ohm 5% 1/4W	328471J
	R724	111	HVR 5R29R207 B1 Kohm — potentiometer	4300620
	R725	111	RES 390 ohm 5% 1/4W	328391J
	R726	111	MO-RES 56 ohm 5% 2W	362560L
	R727	111	MO-RES 6.8 Kohm 5% 1W	361682L
	R728	111	MO-RES 56 ohm 5% 2W	362560L
	R729			
	~R732	444	MO-RES 4.7 ohm 5% 1/4W	360478L
	R733	111	MO-RES 82 ohm 5% 1/4W	360820L
	R734	111	MO-RES 82 ohm 5% 1/4W	360820L
	R735			
	~R738	444	MO-RES 470 ohm 5% 1/4W	360471L
	R739			
	~R742	444	CEM-RES 0.47 ohm 10% 5W	384479W
	R743	111	CEM-RES 10 ohm 10% 3W	383100K
	R744	111	MO-RES 10 ohm 5% 2W	362100L
	ZD701	111	ZENER DIODE WZ-081	502023S
		111	MINI CONCT PLUG 3P(L)	4570110
			REGULATOR (A) CIRCUIT BOARD	
•550a	1--		REG (A) PCB ASSY W-Type-u — complete circuit board	9450640
•550b	-1-		REG (A) PCB ASSY W-Type-c — complete circuit board	—
•550c	--1		REG (A) PCB ASSY N-Type-d — complete circuit board	9450730
	C801	111	E-CAP 16R 220 uF	211232V
	C802	111	E-CAP 16R 220 uF	211232V
	C803	111	E-CAP 50R 1 uF	211510V
	C804	111	E-CAP 50R 100 uF	211530V
	C805	1-1	C-CAP 0.01 uF 80, -20% 50V YG	231103Z
	C806	111	E-CAP 25R 2200 uF	211342Q
	C807	111	E-CAP 25R 100 uF	211330V
	C808	111	E-CAP 16R 3.3 uF	211223V
	C809	111	E-CAP 16R 3.3 uF	211223V
	C810	111	E-CAP 16R 100 uF	211230V
	D801	111	DIODE 1S2076	501019S
	D802	111	DIODE 1S2076	501019S
	D803	111	DIODE 1S2076A	501020S
	D804	111	DIODE 1S2076A	501020S
	D805	111	DIODE 1S1885	560032S
	D806	1-1	DIODE 1S1885	560032S
	D807	111	DIODE 1S2076	501019S
	F801	11-	FUSE 8A 125V — normal blow	4700340
	F801	--1	HS-MIDGET FUSE SGA 7A — fast acting	4710130
	F802	11-	FUSE 8A 125V — normal blow	4700340
	F802	--1	HS-MIDGET FUSE SGA 7A — fast acting	4710130
	F803	11-	FUSE 1A 125V — normal blow	4700020
	F803	--1	MIDGET FUSE(S) EAK 1AT — time-lag	4720330
	F804	1--	FUSE 1A 125V — normal blow	4700020
	F804	--1	MIDGET FUSE(S) EAK 1AT — time-lag	4720330

KEY NO.	SYMBOL NO.	TYPE ⁺ W-Type-u E-Type-d N-Type-d	DESCRIPTION ⁺⁺	PART NO.
	F805	11-	FUSE 3A 125V	4700010
	F805	--1	MIDGET FUSE(S) EAK 3.15A — time-lag	4720390
		88-	FUSE HOLD — clip	7050420
		2--	FUSE HOLD — clip	7050420
		--8	MIDGET FUSE HOLD — clip	7050430
		--2	MIDGET FUSE HOLD — clip	7050430
	Q801	111	TR 2SA733 (Q, R)	514074S
	Q802	111	TR 2SC945 (L) (P, Q)	515077S
	Q803	111	TR 2SC1627 (Q, Y)	511017S
	Q804	111	TR 2SD381 (M, N)	510038S
		111	HEAT SINK (S10) — (Q804)	7081820
	†	111	PMS 3φ x 6 — screw	810306S
	†	111	TW (I) 3φ — starlock washer	893403U
	Q805	111	TR 2SC945 (L) (P, Q)	515077S
	Q806	111	TR 2SC945 (L) (P, Q)	515077S
	R801	111	RES 22 Kohm 5% 1/4W	328223J
	R802	111	RES 22 Kohm 5% 1/4W	328223J
	R803	111	RES 12 Kohm 5% 1/4W	328123J
	R804	111	RES 15 Kohm 5% 1/4W	328153J
	R805	111	RES 15 Kohm 5% 1/4W	328153J
	R806	111	RES 8.2 Kohm 5% 1/4W	328822J
	R807	111	RES 4.7 Kohm 5% 1/4W	328472J
	R808	111	RES 220 Kohm 5% 1/4W	328224J
	R809	111	RES 68 Kohm 5% 1/4W	328683J
	R810	111	MO-RES 220 ohm 1W	361221L
	R811	111	MO-RES 1 Kohm 2W	362102L
	R812	111	RES 180 ohm 5% 1/4W	328181J
	R813	111	RES 2.2 Kohm 5% 1/4W	328222J
	R814	111	RES 2.2 Kohm 5% 1/4W	328222J
	R815	111	RES 3.9 Kohm 5% 1/4W	328392J
	R816	111	RES 5.6 Kohm 5% 1/4W	328562J
	R817	111	RES 2.2 Kohm 5% 1/4W	328222J
	R836	111	RES 220 ohm 5% 1/4W	328221J
	RY801	111	RELAY MAT 48-CH (DC24V)	1700190
	ZD801	111	ZENER DIODE WZ069	502035S
			REGULATOR (B) CIRCUIT BOARD	
•560a	1--		REG (B) PCB ASSY — complete circuit board	9450650
•560b	-1-		REG (B) PCB ASSY — complete circuit board	—
•560c	--1		REG (B) PCB ASSY — complete circuit board	9450740
	C811	111	E-CAP 63R 47 uF	211625V
	C813	111	E-CAP 25R 47 uF	211325V
	C814	111	E-CAP 35R 10 uF	211420V
	C815	111	E-CAP 50R 47 uF	211525V
	C816	111	E-CAP 25R 47 uF	211325V
	C817	111	E-CAP 63R 47 uF	211625V
	C819	111	E-CAP 25R 47 uF	211325V
	C820	111	E-CAP 35R 10 uF	211420V
	C821	111	E-CAP 50R 47 uF	211525V
	C822	111	E-CAP 25R 47 uF	211325V
	C823	1-1	C-CAP 0.01 uF 100, -0% 500V	238103P
	C824	111	E-CAP 100R 100 uF	211830V
	C825	111	E-CAP 100R 47 uF	211825V

PART ORDERING PROCEDURE ----- Include in any order: A. Part number, B. Part description, C. Model number. (any of the above lacking from an order may delay shipment of that order.)

KEY NO.	SYMBOL NO.	TYPE ⁺ W-type E-type N-type	DESCRIPTION ⁺⁺	PART NO.
	C826	111	E-CAP 100R 100 uF	211830V
	D808	111	DIODE 1S1886	560033S
	D809	111	DIODE 1S1886	560033S
	F806	11-	FUSE 0.1A 125V - normal blow	4700310
	F806	--1	MIDGET FUSE(S) EAK 100 mA T - time-lag	4720430
	F807	11-	FUSE 0.1A 125V - normal blow	4700310
	F807	--1	MIDGET FUSE(S) EAK 100 mA T - time-lag	4720430
	F808	11-	FUSE 1A 125V	4700020
	F808	--1	MIDGET FUSE(S) EAK 500 mA T - time-lag	4720310
	F809	1--	FUSE 1A 125V	4700020
	F809	--1	MIDGET FUSE(S) EAK 500 mA T - fast acting	4720310
		86-	FUSE HOLD - clip	7050420
		--8	MIDGET FUSE HOLD - clip	7050430
	Q807	111	TR 2SD381 (M, N)	510038S
		111	HEAT SINK (S10) - (Q807)	7081820
	†	111	PMS 3φ x 6 - screw	810306S
	†	111	TW (I) 3φ - starlock washer	893403U
	Q808	111	TR 2SC945(L) (P, Q)	515077S
	Q809	111	TR 2SB536 (M, N)	510039S
		111	HEAT SINK (S10) - (Q809)	7081820
	†	111	PMS 3φ x 6 - screw	810306S
	†	111	TW (I) 3φ - starlock washer	893403U
	Q810	111	TR 2SA733 (Q, R)	514074S
	Q811	111	TR 2SA941 (BL)	510048S
	Q812	111	TR 2SA941 (BL)	510048S
	R818	111	MO-RES 100 ohm 5% 2W	362101L
	R819	111	MO-RES 3.3 Kohm 5% 1/2W	360332L
	R820	111	RES 3.3 Kohm 5% 1/4W	328332J
	R821	111	RES 10 Kohm 5% 1/4W	328103J
	R822	111	RES 10 Kohm 5% 1/4W	328103J
	R823	111	RES 820 ohm 5% 1/4W	328821J
	R824	111	RES 10 Kohm 5% 1/4W	328103J
	R825	111	MO-RES 1 Kohm 5% 1W	361102L
	R826	111	MO-RES 120 ohm 5% 2W	362121L
	R827	111	MO-RES 3.3 Kohm 5% 1/4W	360332L
	R828	111	RES 3.3 Kohm 5% 1/4W	328332J
	R829	111	RES 10 Kohm 5% 1/4W	328103J
	R830	111	RES 10 Kohm 5% 1/4W	328103J
	R831	111	RES 820 ohm 5% 1/4W	328821J
	R832	111	RES 10 Kohm 5% 1/4W	328103J
	R833	111	MO-RES 1 Kohm 5% 1W	361102L
	R834	111	MO-RES 1 Kohm 5% 1/4W	360102L
	R835	111	MO-RES 22 Kohm 5% 1W	361223B
	ZD802	111	ZENER DIODE XZ225	502036S
	ZD803	111	ZENER DIODE XZ225	502036S
MIC AMP/SELECTOR CIRCUIT BOARD				
570	111		SELECTOR AMP PCB ASSY - complete circuit board	9441140
571	111		SELECTOR BRKT - plate	7226030
572	555		PMS 3φ x 5 - screw	810305S
573	555		PMS 3φ x 5 - screw	810305S
*574	S3	111	ROTRY SW SRA-4085 - 8-pole 5-position rotary switch (selector)	4051120

KEY NO.	SYMBOL NO.	TYPE ⁺ W-type E-type N-type	DESCRIPTION ⁺⁺	PART NO.
*575	S4, S6	222	LV SW SX153-4 - 4 pole 3-position lever switch (dubbing, hr adaptor)	4025200
*576	S5	111	LV SW SX153-2 - double pole 3-position lever switch (tape monitor)	4025190
*524	S7, S8	222	LV SW SX15-1 - double pole double position lever switch (mono, loudness)	4025300
(FLAT AMP SECTION)				
	C316	11-	M-CAP 0.0012 uF 5% 50V	222122J
	C316	--1	S-CAP 560 pF	
	C317	11-	M-CAP 0.0012 uF 5% 50V	222122J
	C317	--1	S-CAP 560 pF	
	C318	111	C-CAP 150 pF 5% 50V	232151J
	C501		S-CAP 150 pF 5%	223151V
	C502	111	S-CAP 150 pF 5%	223151V
	C503	111	M-CAP 0.22 uF 10% 50V	222224K
	C504	111	M-CAP 0.22 uF 10% 50V	222224K
	C505	111	T-CAP 10D 3.3 uF	252113M
	C506	111	T-CAP 10D 3.3 uF	252113M
	C507	111	E-CAP 6.3R 220 uF	211032V
	C508	111	E-CAP 6.3R 220 uF	211032V
	C509	111	C-CAP 47 pF 10% 50V SL	232470K
	C510	111	C-CAP 47 pF 10% 50V SL	232470K
	C511	111	BP-CAP 50R 3.3 uF	215513N
	C512	111	BP-CAP 50R 3.3 uF	215513N
	C513	111	C-CAP 50 pF ±0.5 pF 50V SL	232509D
	C514	111	C-CAP 5 pF ±0.5 pF 50V SL	232509D
	C515	111	E-CAP 16R 100 uF	211230V
	C516	111	E-CAP 16R 100 uF	211230V
	C517	111	E-CAP 25R 10 uF	211320V
	C518	111	E-CAP 25R 10 uF	211320V
	C545	111	E-CAP 25R 330 uF	211333V
	C546	111	E-CAP 25R 330 uF	211333V
	Q501	111	TR 2SA750 (I) (E)	514088S
	Q502	111	TR 2SA750 (I) (E)	514088S
	Q503	111	TR 2SC1400	511013S
	Q504	111	TR 2SC1400	511013S
	R501			
	~R506	666	RES 2.2 Kohm 5% 1/2W	328222J
	R507	111	RES 6.8 Kohm 5% 1/2W	328682J
	R508	111	RES 6.8 Kohm 5% 1/2W	328682J
	R509	111	RES 82 Kohm 5% 1/2W	328823J
	R510	111	RES 82 Kohm 5% 1/2W	328823J
	R511	111	RES 4.7 Kohm 5% 1/2W	328472J
	R512	111	RES 4.7 Kohm 5% 1/2W	328472J
57	R513			
	+R514	111	VR AP35S (9φ x 10) GPHN (TAP) 192Y 100 Kohm x 2 AC - 2 section volume control (volume)	4390130
	R515	111	RES 100 ohm 5% 1/2W	328101J
	R516	111	RES 100 ohm 5% 1/2W	328101J
	R517	111	RES 220 Kohm 5% 1/2W	328224J
	R518	111	RES 220 Kohm 5% 1/2W	328224J
	R519	111	RES 560 ohm 5% 1/2W	328561J
	R520	111	RES 560 ohm 5% 1/2W	328561J
	R521	111	RES 120 Kohm 5% 1/2W	328124J
	R522	111	RES 120 Kohm 5% 1/2W	328124J
	R523	111	RES 180 Kohm 5% 1/2W	328184J
	R524	111	RES 180 Kohm 5% 1/2W	328184J
	R525	111	RES 4.7 Kohm 5% 1/2W	328472J
	R526	111	RES 4.7 Kohm 5% 1/2W	328472J
	R527	111	RES 3.3 Kohm 5% 1/2W	328332J
	R528	111	RES 3.3 Kohm 5% 1/2W	328332J

PART ORDERING PROCEDURE ----- Including in any order: A. Part number, B. Part description, C. Model number. (any of the above lacking from an order may delay shipment of that order.)

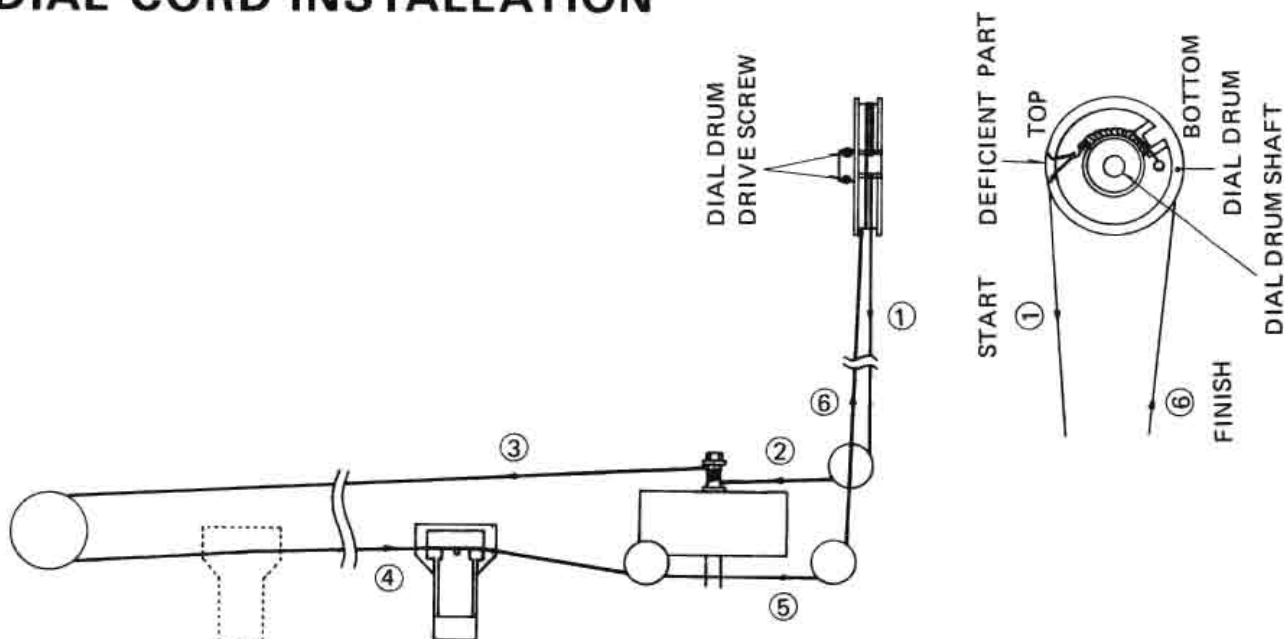
KEY NO.	SYMBOL NO.	TYPE ⁺	DESCRIPTION ⁺⁺	PART NO.
		Resistor		
R529	111	RES	6.8 Kohm 5% 1/4W	328682J
R530	111	RES	6.8 Kohm 5% 1/4W	328682J
R531	111	RES	3.9 Kohm 5% 1/4W	328392J
R532	111	RES	3.9 Kohm 5% 1/4W	328392J
R533	111	RES	220 Kohm 5% 1/4W	328224J
R534	111	RES	220 Kohm 5% 1/4W	328224J

(MIC AMP SECTION)

C901	111	E-CAP	50R 1 uF	211510V
C902	111	C-CAP	100 pF 10% 50V SL	232101K
C903	111	E-CAP	25R 100 uF	211330V
C904	111	E-CAP	25R 100 uF	211330V
C905	111	E-CAP	16R 10 uF	211220V
C906	111	C-CAP	22 pF 10% 50V SL	232220K
C907	111	S-CAP	680 pF 5% 50V	223681V
C908	111	E-CAP	16R 10 uF	211220V
C909	111	E-CAP	50R 0.47 uF	211505V
C910	111	E-CAP	50R 0.47 uF	211505V
Q901	111	TR	2SA750 (1) (E)	514088S
Q902	111	TR	2SC1400	511013S
Q903	111	TR	2SA750 (1) (E)	514088S

KEY NO.	SYMBOL NO.	TYPE ⁺	DESCRIPTION ⁺⁺	PART NO.
		Resistor		
R901	111	RES	2.2 Kohm 5% 1/4W	328222J
R902	111	RES	100 Kohm 5% 1/4W	328104J
R903	111	RES	180 Kohm 5% 1/4W	328184J
R904	111	RES	120 Kohm 5% 1/4W	328124J
R905	111	RES	120 ohm 5% 1/4W	328121J
R906	111	RES	39 Kohm 5% 1/4W	328303J
R907	111	RES	6.8 Kohm 5% 1/4W	328682J
R908	111	RES	3.9 Kohm 5% 1/4W	328392J
R909	111	RES	100 ohm 5% 1/4W	328101J
R910	111	RES	100 ohm 5% 1/4W	328101J
R911	111	RES	2.2 Kohm 5% 1/4W	328222J
R912	111	RES	180 Kohm 5% 1/4W	328184J
R913	111	RES	150 Kohm 5% 1/4W	328154J
R914	111	RES	330 Kohm 5% 1/4W	328334J
R915	111	RES	5.6 Kohm 5% 1/4W	328562J

DIAL CORD INSTALLATION



1. Remove an old dial cord.
2. Turn the dial drum shaft to the left until the rotor of the variable capacitor is completely out of the stator. If the deficient part of the dial drum is not in a straight line with the dial drum shaft (vertically), loosen the dial drum drive screws and adjust the dial drum to be placed on the top portion. Then re-tighten the dial drum screws.
3. String the dial drum and pulleys with a new dial cord in the direction of arrows (in circled numbered order).
4. Fix the dial pointer to the string and adjust to 87 MHz position when the rotor of the variable capacitor is completely rotated into the stator.

SEMICONDUCTOR DATA

TRANSISTORS

NOTES

Ge Germanium
Si Silicon

A Alloy
B Base
D Diffused
Dd Double-diffused

Dr Drift field
E Epitaxial
G Grown
J Junction

M Mesa
P Planar
Pc Point-contact
Td Triple-diffused

DEVICE TYPE	APPLICATIONS	STRUCTURE	MAXIMUM RATINGS Absolute Maximum Values (T _A = 25°C unless otherwise specified)					ELECTRICAL CHARACTERISTICS Typical Values (T _A = 25°C unless otherwise specified)														MANUFACTURER
			Collector-to-Base Voltage V _{CB0} (V)	Emitter-to-Base Voltage V _{EB0} (V)	Collector Current I _C (mA)	Collector Dissipation P _C (mW)	Junction Temperature T _J (°C)	Collector Current I _{C0} (μA)	V _{CE} (V)	R _{FE}	Basic Forward Current Transfer Ratio	Collector-Emitter Saturation Voltage V _{CE(sat)} (V)	I _C (mA)	I _h (mA)	h _{FE} (min)	h _{FE} (typ)	V _{CE} (V)	I _C (mA)	Output Capacitance C _{ob} (pF)	Others		
2SA733 (Q,R)	AF	PNP Si-E	-50	-5	-100	250	125	-0.1	-40	50 ~ 600	-8	-1	-0.1	-30	-3	100	-8	10	12		NEC	
2SA750 (S)	AF: Low noise amp.	PNP Si-E	-50	-5	-80	250	125	-0.05	-60	225 ~ 1000	-3	-0.5	-0.02	-30	-3	100	-3	1	10		NEC	
2SA817 (Q,V)	AF: Voltage amp., Driver	PNP Si-E	-95	-5	-300	600	150	-0.1	-50	70 ~ 240	-2	-10	-0.4	-200	-20	100	-10	10	14		TOSHIBA	
2SA872A (Q,E)	AF: Low noise amp.	PNP Si-E	-120	-5	-90	300	125	-0.5	-100	250 ~ 800	-12	-2	-0.5	-10	-1				1.8		HITACHI	
2SA941 (SL)	AF: Low noise amp.	PNP Si-E	-120	-5	-80	300	125	-0.1	-120	250 ~ 700	-8	-2	-0.4	-10	-1	40	-5	100	5.0ms		TOSHIBA	
2SB638 (M,N)	AF: power amp.; Low speed switching	PNP Si-E	-120	-5	-1.5A	20W (T _C =25°C)	150	-1	-120	80 ~ 160	-8	-0.3A	-1	-1A	-0.1A	40	-5	0.1A	30		NEC	
2SB6362 (M,N)	AF: power amp.; Low speed switching	PNP Si-E	-150	-5	-1.5A	20W (T _C =25°C)	150	-1	-150	80 ~ 180	-5	-0.3A	-1	-1A	-0.1A	40	-5	0.1A	30		NEC	
2SB8001 (L,R)	AF: Power amp.	PNP Si-TdM	-200	-5	-1.5A	200W (T _C =25°C)	150	-100	-200	60 ~ 300	-5	-2A	-3	-10A	-1A	8	-10	1A	400		NEC	
2SC845 (D, P,Q)	AF: Low noise general amp.	NPN Si-E	80	5	100	250	125	100	80	125 ~ 600	8	1	0.15	100	10	250	8	-10	2.5		NEC	
2SC1400 (E)	AF: Low noise amp.	NPN Si-E	100	5	80	250	125	0.5	100	150 ~ 250	3	0.5	0.05	50	5	100	8	-1	0.2		NEC	
2SC1627 (D,V)	AF: Voltage amp., Driver	NPN Si-E	80	5	200	600	150	0.1	50	30 ~ 240	12	50	0.5	200	10	100	10	-1	10		TOSHIBA	
2SC1675 (L,K)	FM/AM radio: RF, Mix., Com., Osc., IF	NPN Si-E	50	5	20	250	125	0.1	50	60 ~ 180	8	1	0.05	10	1	250	8	-1	1.8		NEC	
2SC175A (Q,E)	AF: Low noise amp.	NPN Si-E	90	5	50	300	125	0.5	75	150 ~ 300	12	2	0.5	10	1			1.8		HITACHI		
2SC100B (L)	AF: Low noise amp.	NPN Si-E	125	5	50	300	125	0.1	120	150 ~ 200	8	2	0.3	10	1	150	8	-1	3.0ms		TOSHIBA	
2SD3811 (Z, LM)	AF: Driver	NPN Si-E	150	-5	1.5A	20W (T _C =25°C)	150	1	120	80 ~ 180	5	5A	2	4A	0.1A	40	5	-0.1A	25		NEC	
2SD555 (Q,R)	AF: Power amp.	NPN Si-TdM	250	-5	10A	200W (T _C =25°C)	150	100	200	60 ~ 200	8	5A	3	10A	1A	8	10	-1A	300		NEC	

FIELD EFFECT TRANSISTORS

DEVICE TYPE	APPLICATIONS	STRUCTURE	MAXIMUM RATINGS Absolute Maximum Values (T _A = 25°C unless otherwise specified)						ELECTRICAL CHARACTERISTICS Typical Values (T _A = 25°C unless otherwise specified)												MANUFACTURER
			Gate-to-Source Voltage	Gate-to-Drain Voltage	Drain Current	Drain-to-Source Current	Channel Temperature	Gate Leakage Current	Gate-to-Drain Leakage Current	Drain Current	Gate-to-Source Cutoff Voltage	Forward Transfer Admittance	Feed Back Capacitance	Power Gain	Noise Figure						
			V _{GS0} (V)	V _{GD0} (V)	I _D (mA)	I _{DS} (mA)	T _{ch} (°C)	Test Conditions	Test Conditions	Test Conditions	Test Conditions	Test Conditions	Test Conditions	Test Conditions	Test Conditions						
3SK38	FM/VHF tuner	Si, N-channel dual gate MOS	V _{GS18} = 18V V _{GS0} = 0V V _{GS25} = 0.2V		34	250	150	V _{GS18} = 18V V _{GS0} = 0V V _{GS25} = 0.2V V _{GS15} = 0V V _{GS15} = 0V	K155 = 20 K255 = 20	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 4V	1 ~ 24	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 4V	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 4V	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 4V	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 4V	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 4V	18 min	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 4V	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 4V	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 4V	MATSUSHITA
3SK45	FM/VHF tuner	Si, N-channel dual gate MOS	V _{GS18} = 18V V _{GS25} = 0.2V		35	150	175	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 0V V _{GS15} = 0V	K155 = 20 K255 = 20	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 4V	1 ~ 32	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 4V	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 4V	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 4V	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 4V	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 4V	13 min	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 4V	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 4V	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 4V	HITACHI
3SK58	FM/VHF tuner	Si, N-channel dual gate MOS	V _{GS18} = 18V V _{GS25} = 0.2V		35	200	150	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 0V V _{GS15} = 0V	K155 = 20 K255 = 20	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 4V	1 ~ 24	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 4V	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 4V	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 4V	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 4V	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 4V	18 min	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 4V	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 4V	V _{GS18} = 18V V _{GS15} = 0V V _{GS25} = 4V	TOSHIBA

DIODES, LEDS

DEVICE TYPE	APPLICATIONS	STRUCTURE ¹	MAXIMUM RATINGS Absolute Maximum Values (T _A = 25°C unless otherwise specified)								ELECTRICAL CHARACTERISTICS Typical Values (T _A = 25°C unless otherwise specified)										MANUFACTURER
			Reverse Surge Voltage V _{RS} (V)	Peak Reverse Voltage V _{RR} (V)	Reverse Voltage V _R (V)	Peak Forward Voltage V _{FR} (V)	Peak Forward Current I _{FM} (mA)	Average Rectified Current I _{AR} (mA)	Forward Surge Current I _{FS} (A)	Junction Temperature T _J (°C)	Total Power Dissipation P _D (mW)	Forward Current I _F (mA)	Test Conditions V _R (V)	Forward Voltage V _{FR} (V)	Test Conditions I _{FM} (mA)	Reverse Current I _R (μA)	Test Conditions V _R (V)	Others			
1N34A	Logical circuit	Ge-Pc		75	60		150	50	0.5	70		5	1		20	10		HITACHI			
1N60P	FM detector	Ge-Pc		25	25		150	50	0.5	70				1	4	75	10	C=0.8pF (V _B =1V), C=0.55pF (1-40MHz, Z _L =50Ω/20pF, V _B =2V)	HITACHI		
1S1895	Rectifier	Si-A		100				1A (T _A =25°C)	60	150				1.2	1.5A	400	100		TOSHIBA		
1S1898	Rectifier	Si-A		200				1A (T _A =25°C)	60	150				1.2	1.5A	400	200		TOSHIBA		
1S1076	Variable detector	Si-DJ		35	30		450	150	1	175	250			0.8	10	1	30		HITACHI		
1S2075R	Variable detector	Si-DJ		70	60		450	150	1	175	200			0.8	10	1	30		HITACHI		
1S1076D	Rectifier	Si-D		200				1.5A (T _A =25°C)	250	150				1.05	1.5A	10	200		SKINDENGEN		
BU188AC	LED	GaP, J						IF=30mA		100	75			2.4 (RED) (IF=10mA)	10		10	4	500μm (RED) (IF=10mA) 1000μm (GRN) (IF=20mA)	STANLEY	
GD-4 207C	LED	GaP, J			3			IF=50mA		100	100			2.8 (GRN) (IF=20mA)	20		30	100	3	100 L (10-20mA)	STANLEY

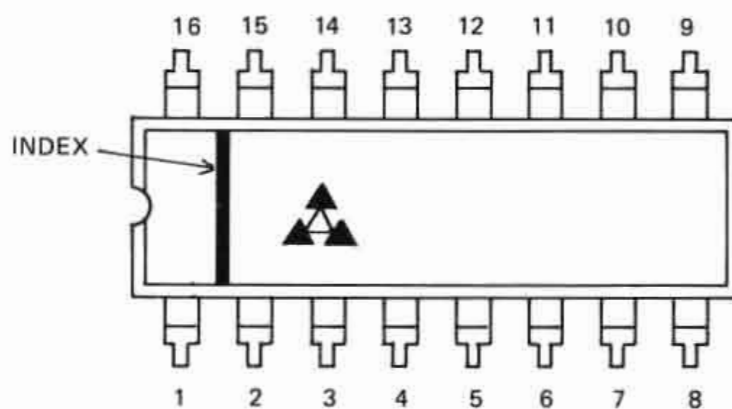
ZENER DIODES

DEVICE TYPE	APPLICATIONS	STRUCTURE	MAXIMUM RATINGS Absolute Maximum Values (T _A = 25°C unless otherwise specified)			ELECTRICAL CHARACTERISTICS Typical Values (T _A = 25°C unless otherwise specified)														MANU FACTURER		
			Total Power Dissipation	Zener Current	Junction Temperature	Zener Voltage				Differential Resistance				Temperature Coefficient				Reverse Current			Others	
						V _Z			Test Conditions	r _Z			Test Conditions	T _Z			Test Conditions	I _Z	Test Conditions			
						P _D mW	I _Z mA	T _J °C	MIN (V)	TYP (V)	MAX (V)	I _Z mA	TYP (Ω)	MAX (Ω)	I _Z mA	TYP mV/°C	MAX mV/°C	I _Z mA	MAX μA			V _R (V)
						WZ-085	Stabilized power supply	Si-DJ	500			6.5	6.5	7.2	10		10	10	0.041			
WZ-081	Stabilized power supply	Si-DJ	500			7.5	8.1	8.5	10		10	10	0.006			1	4		JRC			
WZ-225	Stabilized power supply	Si-DJ	500			15.8	22.5	23.2	5		30	5	0.084			1	10		JRC			

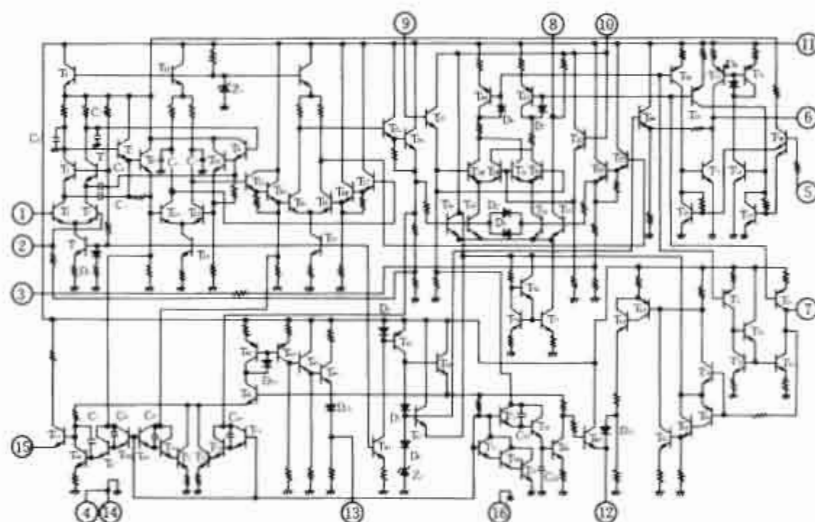
INTEGRATED CIRCUITS AN377

Type No.	Application	Maximum Ratings			Electrical Characteristics					
		Item	Rating	Unit	Item	Condition	min.	typ.	max.	Unit
AN377	FM IF Amp.	V _{cc}	14	V	I _n	Input = 0dB, Mute: OFF	16	22	27.5	mA
		I _n	37	mA	V ₆₋₁₀		-200		500	mV
		P _n	520	mW	V ₇₋₁₀		-650		250	mV
		T _{opr}	-20 ~ +60	°C	V _{i(lim)}	Classified to A and B	26	29	35	dB μ
		T _{stg}	-55 ~ +125	°C	V _{o(AF)}		95	133	145	mV _{rms}
					S+N/N		57	60		dB
					V _{i(Mute)}		27.5	33	34.5	dB μ

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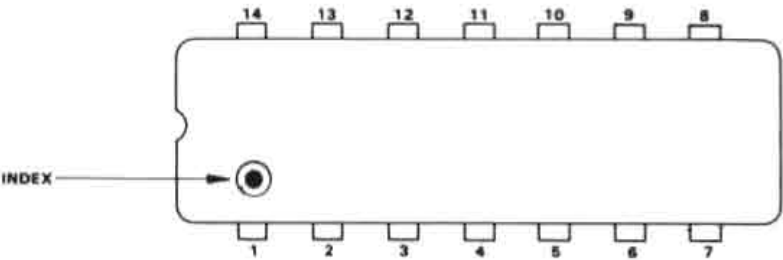
SCHEMATIC DIAGRAM



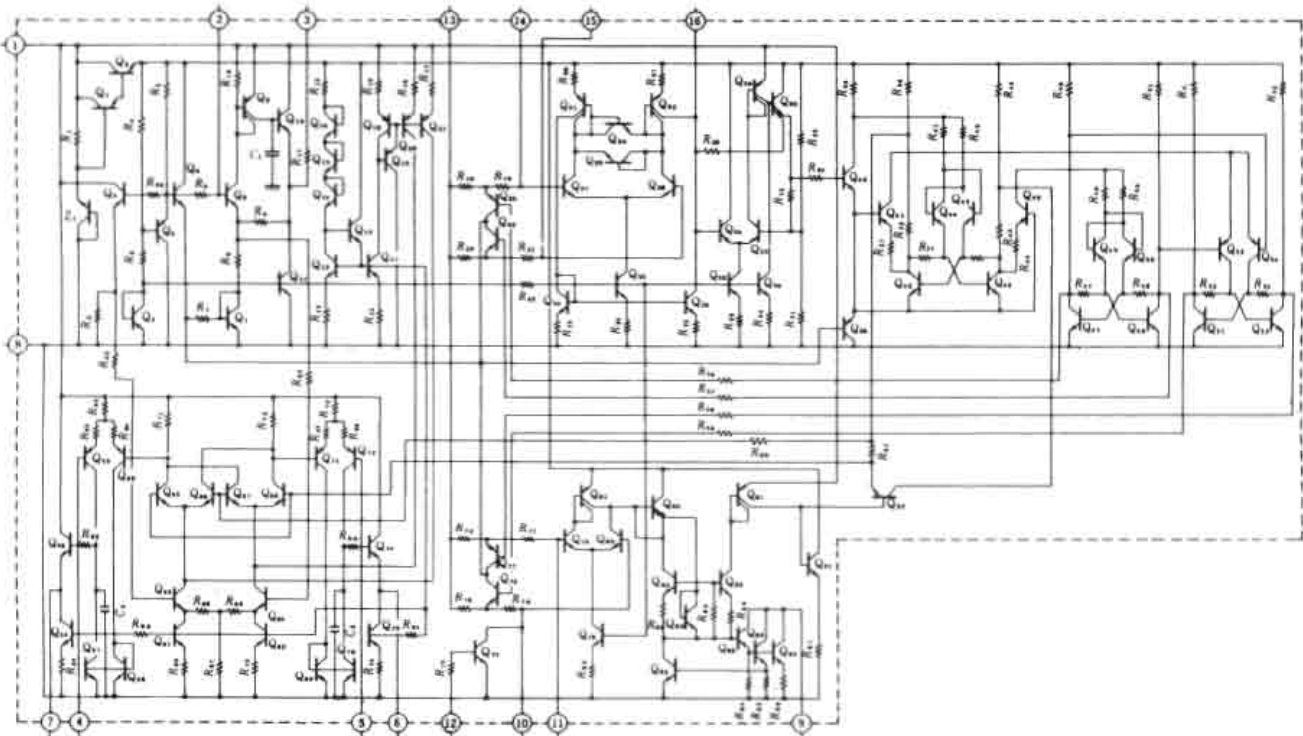
INTEGRATED CIRCUITS HA1196

DEVICE TYPE	APPLICATION	ABSOLUTE MAXIMUM RATINGS (T _A =25°C)					ELECTRICAL CHARACTERISTICS (T _A =15°C) Typical Values						MANUFACTURER
		Supply Voltage (V)	Power Dissipation (mW)	Operating Temperature Range (°C)	Storage Temperature Range (°C)	Lamp Current (mA)	Input Impedance (KΩ)	Stereo Separation (dB)	Stereo Total Harmonic Distortion (%)	Output Voltage (V)	SCA Rejection (dB)	Signal to Noise ratio (dB)	
HA1196	FM Stereo Demodulator	15	490	-20~+70	-55~+70	75	75	55	0.1 (f=1kHz)	1.2	75 (f _{SCA} =67kHz)	80	HITACHI

TERMINAL GUIDE (TOP VIEW)



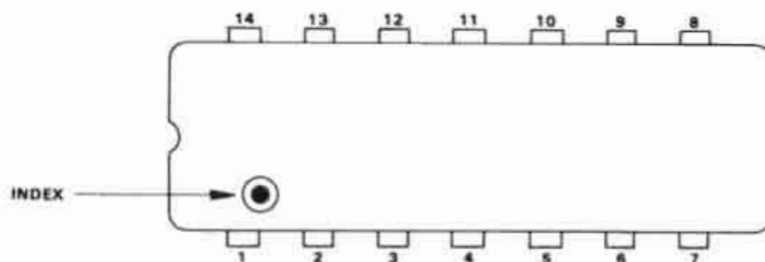
SCHEMATIC DIAGRAM



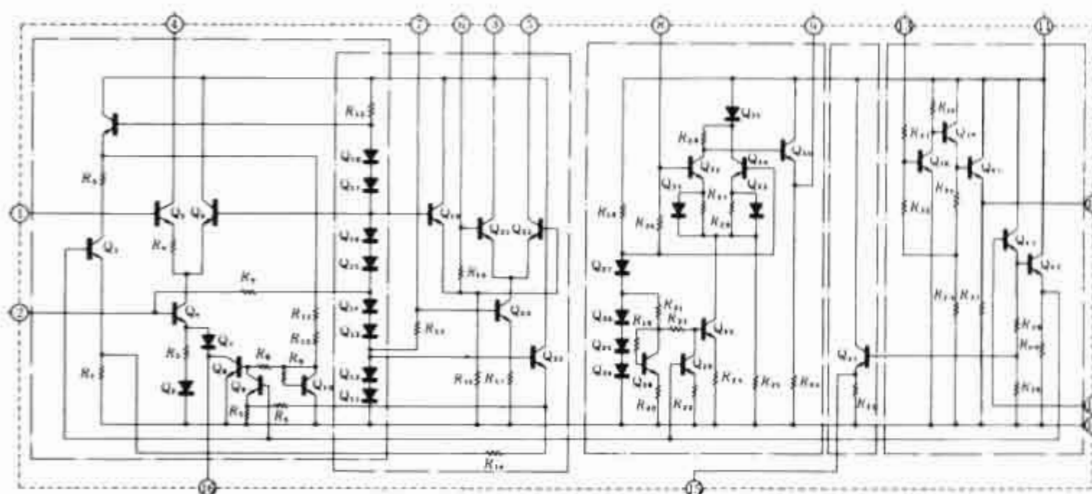
INTEGRATED CIRCUITS HA1197

DEVICE TYPE	APPLICATION	ABSOLUTE MAXIMUM RATING (T _A =25°C)				ELECTRICAL CHARACTERISTICS (TYPICAL VALUES) (T _A =25°C)				MANUFACTURER
		Voltage Supply V _{CC} (V)	Power Dissipation P _d (mW)	Operating Temp Range T _{opt} (°C)	Storage Temp Range T _{stg} (°C)	Signal to Noise Ratio Input=74dBμ Mod.=30% (dB)	Distortion Input=100dBμ Mod.=30% (%)	Output Voltage Input=74dBμ Mod.=30% (mV)	Quiescent Current (mA)	
HA1197	AM Radio	15	450	-20 ~ +70	-55 ~ +125	53	0.4	212	14.5	HITACHI

TERMINAL GUIDE (TOP VIEW)



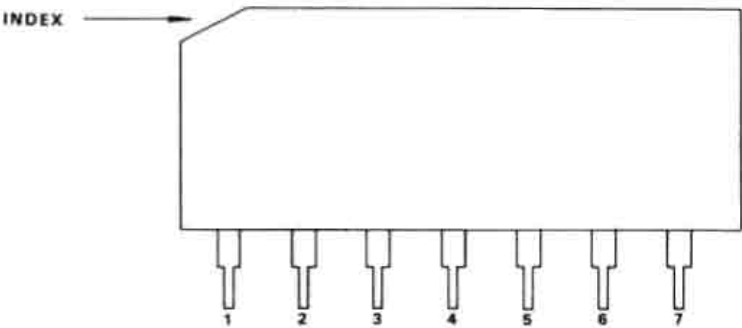
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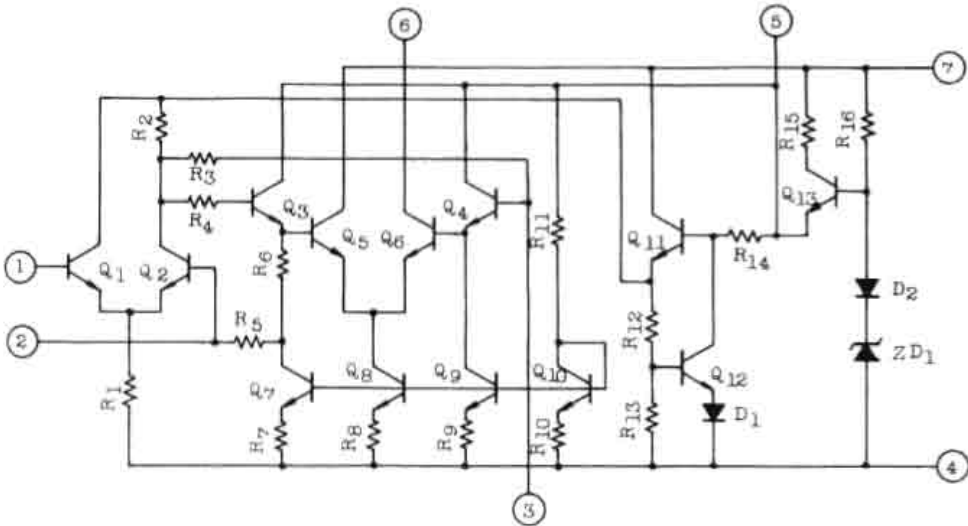
INTEGRATED CIRCUITS TA7302P

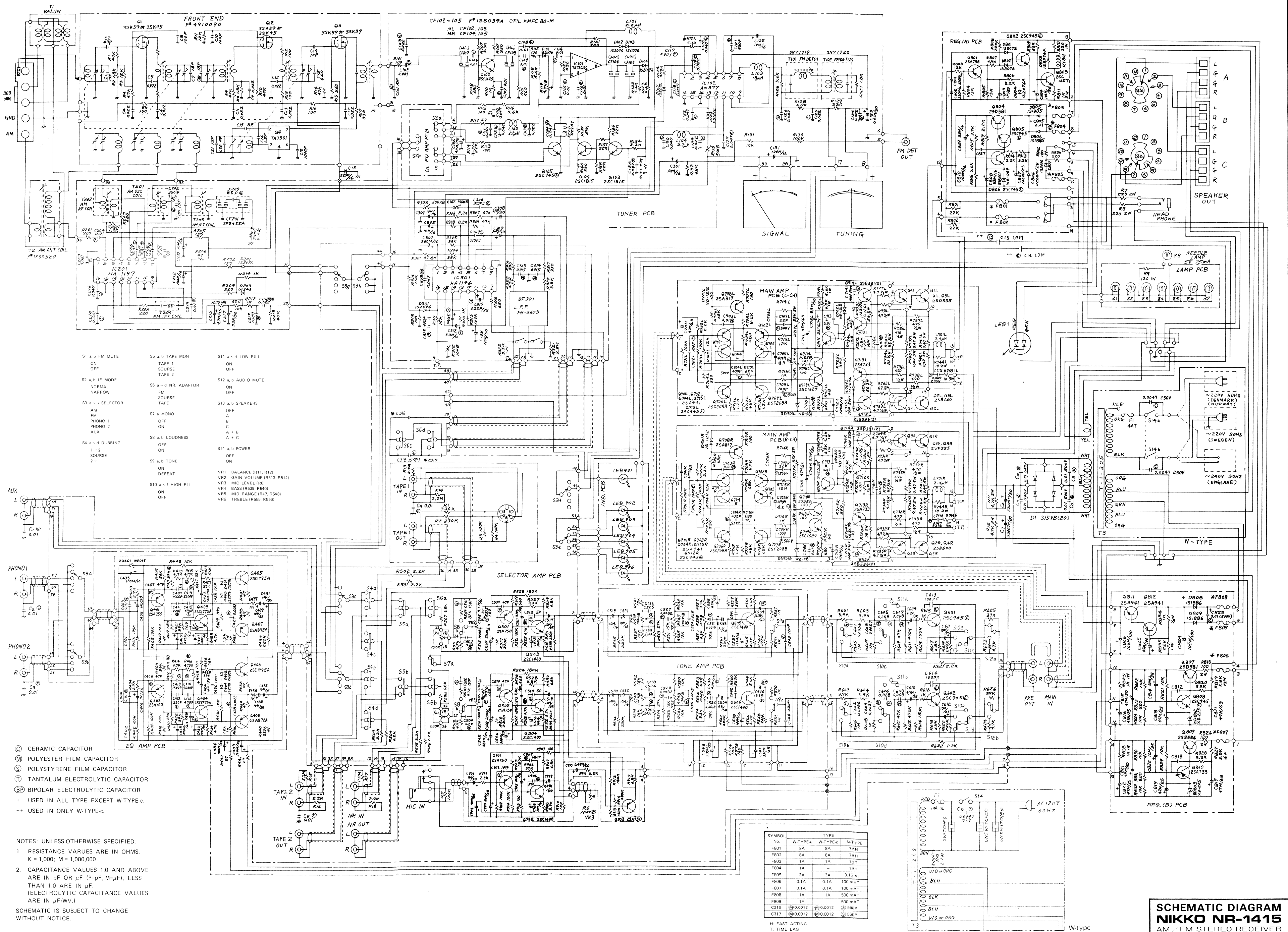
DEVICE TYPE	APPLICATION	ABSOLUTE MAXIMAM RATINGS (T _A = 25°C)				ELECTRICAL CHARACTERISTICS (T _A = 25°C, V _{CC} = 12V) Typical Values						MANU-FACTURER
		Supply Voltage (V)	5 Pin Output Current (mA)	Power Dissipation (mW)	Operating Temperature Range (°C)	Supply Current (mA)	6 Pin Current (mA)	5 Pin Voltage (V)	Voltage Gain (dB)	Input Limiting Voltage (dBμV)	Others (f = 10.7 MHz)	
TA7302P	FM IF Amplifier	16	13	400	-25 ~ 75	9.5	2.0	5.7 min. 6.9 max.	34 (f = 10.7 MHz, V _{in} = 60dBμV)	78 (f = 10.7 MHz, V _o = 3dBdown)	r _p = 8 kohm, C _p = 5 pF, r _{op} = 200 kohm, C _{op} = 2.5 pF	TOSHIBA

TERMINAL GUIDE



SCHEMATIC DIAGRAM





SCHEMATIC DIAGRAM
NIKKO NR-1415
 AM-FM STEREO RECEIVER

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