sams

AUTO RADIO SERVICE DATA

American Motors *3231847/48/49/50*

ARA *6703007/3107*

Audiovox *BLM-105031, C-575C, C-579A, 76-TO-MPXH*

Chrysler *4048362*

Clarion *PE-623A*

Craig *S682*

Realistic *12-1882*

REPRODUCED THROUGH THE COURTESY OF THE MANUFACTURER

HOWARD W. SAMS & CO., INC.
INDIANAPOLIS INDIANA

FIRST EDITION
FIRST PRINTING-DECEMBER,1979

Library of Congress Catalog Card Number: 49-11493

AUTO RADIO SERVICE DATA

TABLE OF CONTENTS

GENERAL SERVICING INFORMATION

The following information applies to all tape units in this volume, and should be followed before any adjustments are made or trouble diagnosis is attempted. Any exceptions or additions will be found in the detailed servicing procedures for each tape unit.

POWER SOURCES

Many tape units require full supply voltage for proper operation. Be sure the supply voltage is maintained at the rated value under load while making adjustments.

CLEANING

All head faces should be cleaned with head cleaner or methyl alcohol to remove dust and accumulated oxide. (An applicator may be fashioned from absorbent cotton.) Do not use a screwdriver or any metailic object near the head faces.

CAUTION: *Avoid getting head cleaner on any plastic surface.*

Clean capstans, pressure rollers, and tape guides with alcohol using a soft lint-free cloth. Also use alcohol to remove oil and grease from drive belts and other driving surfaces.

LUBRICATING

Clean all surfaces before lubricating. Apply a few drops of #20 machine oil to all bearings and rotating bushings. Apply a thin film of light, nonhardening grease to all cam surfaces and pawls, if they have been factory lubricated. Always wipe excess oil or grease from parts that have been lubricated.

CAUTION: *Oil and grease must be kept off all driving surfaces as well as any parts which may transfer oil or grease to them.*

DEMAGNETIZING

Heads require demagnetizing at regular intervals to maintain high-frequency response, dynamic range, and low distortion. (Follow instructions included with the demagnetizing unit.) After demagnetizing the heads, keep all screwdrivers and other metallic objects away from the head faces. Tape guides may also require occasional demagnetizing.

IMPORTANT: *Be sure to demagnetize the heads after making resistance measurements in the head circuits.*

CARTRIDGES

Many problems associated with tape units result from defective cartridges. Always try a cartridge known to be good before attempting repairs.

Pages 5-46 Courtesy of AMERICAN MOTORS CORP.

NOTE

Repair or adjustment of transmitter circuits must be under supervision of a person with first-or second-class radiotelephone license.
(Refer to FCC Rules and Regulations Part 95, Subpart C & D.)

The frequency of the transmitter should be checked periodically with a secondary frequency standard to insure proper and legal operation.

Best results will be obtained when adjusting the final RF output circuit if the antenna normally used is connected and the chassis is as nearly in the cabinet as possible.

Connect either 50-ohm dummy load or the normally used antenna system.

MODEL 3231850

MANUFACTURER'S SPECIFICATIONS

1. SPECIFICATIONS

General

ICs : 6
Transistors : 36
Diodes : 41
Power Supply Voltage : DC12V Negative Ground
Output Impedance : 3.2Ω
Dimensions : Width 130 mm
Height 50 mm
Depth 150 mm

CB Receiver

Channels : 40
Frequency Range : 26.965~27.405 MHz
Intermediate Frequency : 1st 10.695 MHz
2nd 455 KHz
Sensitivity : 0 dB/μV at 10 dB S/N 2.5W Output
Selectivity : More than 60 dB at ±10 KHz
AGC(F.O.M): −7 dB at 0 dB/μV Input
Squelch Sensitivity : Less than 6 dB (Threshold)

CB Transmitter

Channels : 40
Frequency Range : 26.965~27.405 MHz
Frequency Tolerance : ±0.005%
RF Output Power : 4W Max.
Modulation Capability : 80~100%
Antenna Impedance : 50Ω
Microphone Impedance : 500Ω Dynamic Type

AM Radio

Frequency Range : AM 515~1620 KHz
FM 88~ 108 MHz
Intermediate Frequency : AM 262.5 KHz
FM 10.7 MHz
Sensitivity : AM less than 23 dB/μV (for 1W output)
FM less than 20 dB/μV (for-1dB limitting Sensitivity)
Stereo Separation : More than 20 dB (1000 Hz)

ALIGNMENT INSTRUCTIONS

CAUTION: Use isolation transformer or observe polarity when connecting test equipment.
Maintain line voltage at 120V AC. Allow a 15-minute warm-up period.
Adjustments made with 13.8 volt DC input.
Connect low sides of test equipment to ground unless specified otherwise.
Connect 50-ohm dummy load or antenna before keying transmitter.
Connect microphone.

Suggested Alignment Tools:	GC ELECTRONICS:
T101, T102, L203, T201, FIL	9440
T103, T104, T105, T106	5000, 5009, 8276, 8728, 9089
L302, L304, L305, L306, T301	8728, 9089, 9304
VC301	5000, 8276, 9089

SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of frequency counter to TP1A (Q201 Emitter).	Ch. 19 Fine Tuning Midrange		Check for 10.240MHz.
Input of DC meter to TP2 (Junction of R216 and R215).	Ch. 19	L203	Adjust for 3.00 volts ±.5 volts.
Input of frequency counter to TP12 (IC201 Pin 4).	Ch. 19		Check for 36.190MHz.
Input of frequency counter to TP10 (IC202 Pin 4).	Ch. 1 Fine Tuning Midrange		Check for 1.470MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of oscilloscope to TP11 (T201 Secondary).	Ch. 19	T201	Adjust for maximum RF (15mV p-p typical). (See Figure 1.)
Input of frequency counter to TP11 (T201 Secondary).	Ch. 1 Fine Tuning Midrange		Check for 37.660MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of frequency counter to TP13 (Q304 Gate 1).	Ch. 19, XMT	VC301	Adjust for 10.695MHz.
Input of frequency counter to antenna input.	Ch. 1, XMT		Check for 26.965MHz. If necessary readjust VC301 for correct frequency. Check all channels. (See page 4 for correct frequencies.)

RECEIVER ALIGNMENT

Connect an AC VTVM or AF wattmeter across speaker voice coil.
Adjust volume control to obtain a suitable indication. Set generator output low enough to prevent AGC limiting. Preset controls as follows, unless otherwise noted:
Squelch MINIMUM, Fine Tuning Midrange.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator to TP14 (Q106 Base). 455kHz, 1000Hz @ 30% modulation.	Ch. 19	T106,T105	Adjust for maximum audio output.
Output of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation.	Ch. 19	T104,T103, T102,T101	Adjust for maximum audio output. Readjust T105 and T106 for maximum.

RECEIVER ADJUSTMENTS

Connect an AC VTVM or AF wattmeter across speaker voice coil.
Adjust volume control to obtain a suitable indication.
Preset controls as follows, unless otherwise noted:
Squelch MINIMUM, Fine Tuning Midrange.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation. Output 1000uV.	Ch. 19	VR102	SQUELCH RANGE Adjust so squelch just breaks.
Output of signal generator to antenna input. 27.185MHz, 1000Hz @ 30% modulation. Output 350uV.	Ch. 19	VR101	S METER Adjust for 9 on S scale of meter.

TRANSMITTER ALIGNMENT

Connect a 50-ohm, 25-watt dummy load to antenna connector.
NOTE: Be sure to check transmit frequency and power on all active channels after alignment of transmitter.
See page 4 for channel frequencies.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of RF wattmeter to antenna input.	Ch. 19	FIL, T301, L302, L304, L305, L306	Adjust for maximum RF output.
Input of RF wattmeter to antenna input.	Ch. 19	VR301	RF POWER Adjust for 4.0 watts RF output maximum.

TRANSMITTER ADJUSTMENTS

Connect a 50-ohm, 25-watt dummy load to antenna connector.
NOTE: Be sure to check transmit frequency and power on all active channels after adjustment of transmitter.
See page 4 for channel frequencies.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of oscilloscope or modulation meter to antenna input. Inject a 1000Hz, 50mV audio signal at mic input.	Ch. 19	VR303	AMC Adjust for 80% modulation. (See Figure 2.)
Input of RF wattmeter to antenna input.	Ch. 19	VR302	POWER METER At 4.0 watts RF output adjust so needle rests at leading edge of yellow area on Power scale of meter.

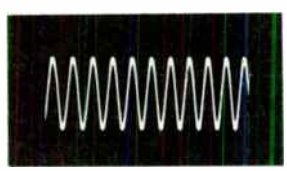


FIGURE 1

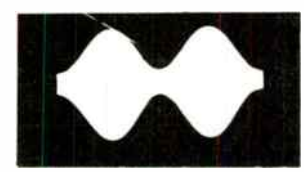
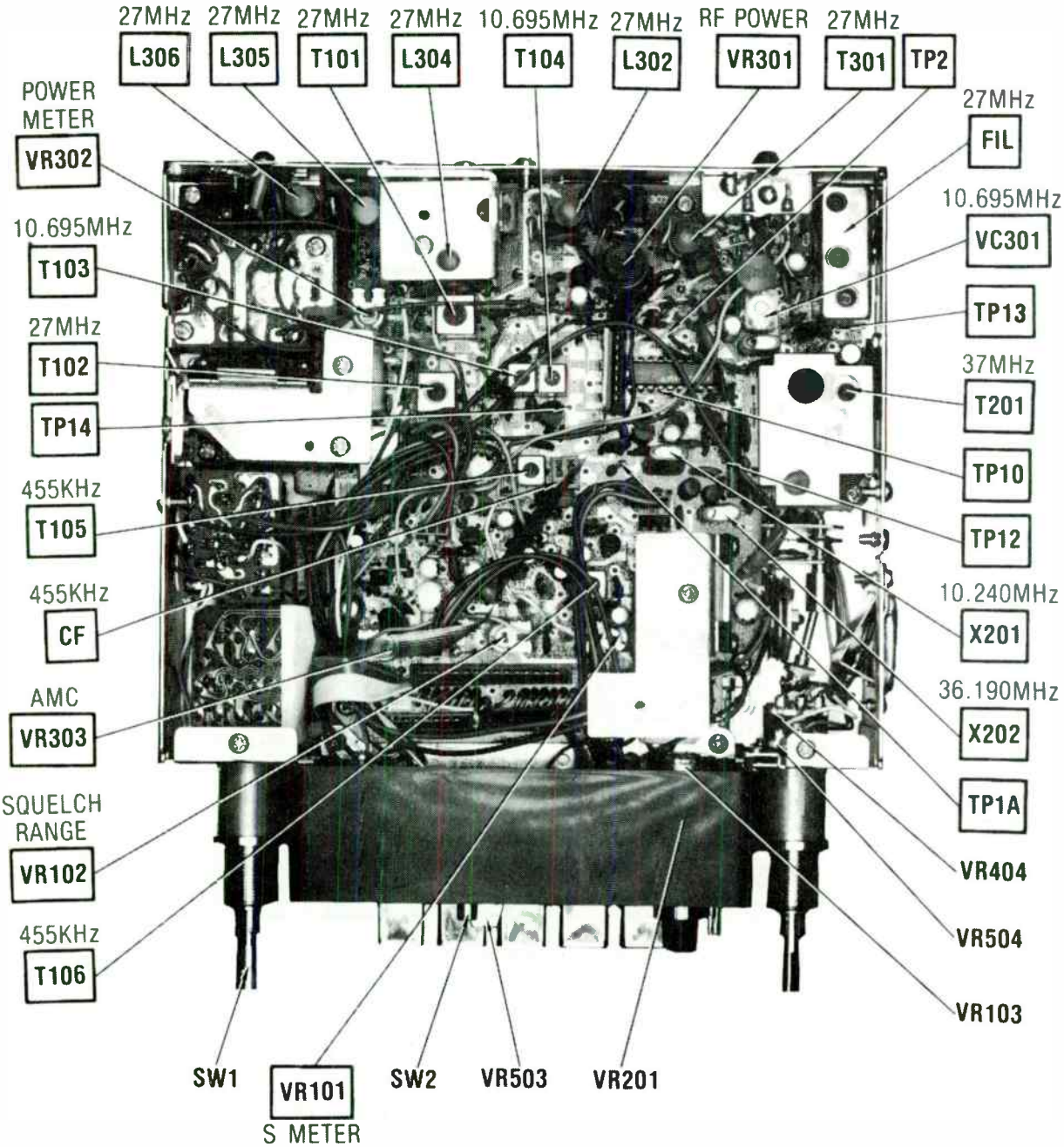


FIGURE 2

TRUTH CHART

CHANNEL	1 = 6.70 Volts 0 = 0 Volts CHANNEL INPUT CODES IC202 PINS								DIVIDER INPUT IN MHz AT TP10	REC & XMT VCO OUTPUT IN MHz AT TP11	
	3	2	1	17	16	15					
1	0	0	0	0	0	0			1.470	37.660	
2	0	0	0	0	0	1			1.480	37.670	
3	0	0	0	0	1	0			1.490	37.680	
4	0	0	0	1	0	0			1.510	37.700	
5	0	0	0	1	0	1			1.520	37.710	
6	0	0	0	1	1	0			1.530	37.720	
7	0	0	0	1	1	1			1.540	37.730	
8	0	0	1	0	0	1			1.560	37.750	
9	0	0	1	0	1	0			1.570	37.760	
10	0	0	1	0	1	1			1.580	37.770	
11	0	0	1	1	0	0			1.590	37.780	
12	0	0	1	1	1	0			1.610	37.800	
13	0	0	1	1	1	1			1.620	37.810	
14	0	1	0	0	0	0			1.630	37.820	
15	0	1	0	0	0	1			1.640	37.830	
16	0	1	0	0	1	1			1.660	37.850	
17	0	1	0	1	0	0			1.670	37.860	
18	0	1	0	1	0	1			1.680	37.870	
19	0	1	0	1	1	0			1.690	37.880	
20	0	1	1	0	0	0			1.710	37.900	
21	0	1	1	0	0	1			1.720	37.910	
22	0	1	1	0	1	0			1.730	37.920	
23	0	1	1	1	0	1			1.760	37.950	
24	0	1	1	0	1	1			1.740	37.930	
25	0	1	1	1	0	0			1.750	37.940	
26	0	1	1	1	1	0			1.770	37.960	
27	0	1	1	1	1	1			1.780	37.970	
28	1	0	0	0	0	0			1.790	37.980	
29	1	0	0	0	0	1			1.800	37.990	
30	1	0	0	0	1	0			1.810	38.000	
31	1	0	0	0	1	1			1.820	38.010	
32	1	0	0	1	0	0			1.830	38.020	
33	1	0	0	1	0	1			1.840	38.030	
34	1	0	0	1	1	0			1.850	38.040	
35	1	0	0	1	1	1			1.860	38.050	
36	1	0	1	0	0	0			1.870	38.060	
37	1	0	1	0	0	1			1.880	38.070	
38	1	0	1	0	1	0			1.890	38.080	
39	1	0	1	0	1	1			1.900	38.090	
40	1	0	1	1	0	0			1.910	38.100	



CHASSIS-TOP

ALIGNMENT INSTRUCTIONS

Check for specified source voltage
Connect low sides of generator and indicator to ground unless specified otherwise.
Use only enough generator output to provide a usable indication.

Suggested Alignment Tools: GC ELECTRONICS:
T601, T602, L607, T701 thru T705 .... 5000, 5009, 8276, 8728, 9089
L605 9440
VC601 thru VC603, VC701 thru VC703 .. 5000, 8276, 9089

PUSH-BUTTON ADJUSTMENT

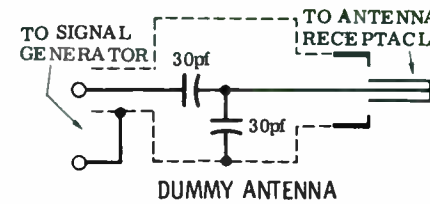
1. Pull button out.
2. Tune manually to desired station.
3. Press button in firmly.
4. Repeat for remaining buttons.

AM ALIGNMENT—SELECTOR IN AM POSITION

Connect output meter across speaker voice coil.

GENERATOR COUPLING	GENERATOR FREQUENCY	RADIO DIAL SETTING	ADJUST	REMARKS
High side thru .1uF to TP1 (Q702 Emitter).	262.5kHz 400Hz mod.	High freq end stop	T705,T704, T703,T702	Adjust for maximum audio output.
Thru dummy antenna to antenna input.	1600kHz 400Hz mod.	1600kHz	VC703	Adjust for maximum audio output.
Thru dummy antenna to antenna input.	550kHz 400Hz mod.	550kHz	T701	Adjust for maximum audio output.
Thru dummy antenna to antenna input.	1400kHz 400Hz mod.	1400kHz	VC702	Adjust for maximum. Repeat alignment until no further improvement is noted.

With radio installed in car and antenna extended 36" , tune in a weak station near 1400kHz and adjust VC701 for maximum output. Antenna adjustment is located beneath stereo indicator on front panel.



FM IF ALIGNMENT USING FM SIGNAL GENERATOR—SELECTOR IN FM POSITION

High side of generator thru .001uF to TP3 (Junction of L605 and R602).
Use 60-hertz, frequency-modulated signal, 450kHz sweep.
Use 60-hertz sawtooth voltage in scope for horizontal deflection.

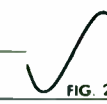


FIG. 2

GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
10.7MHz 450kHz Sweep	Point of non-interference	Vert input of scope to TP4 (IC601 Pin 5).	(1)T601,T602, L607	Adjust for maximum amplitude and straightness of line, similar to Fig. 2.

(1) Before adjusting, vary generator frequency slightly. Maximum output indicates exact IF.

FM RF ALIGNMENT—SELECTOR IN FM POSITION

Connect generator across antenna terminals with 120-ohm carbon resistor in series with each lead.
Adjustment of coils by bending should not be attempted unless the coil is deformed or replaced.

GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
88MHz Modulated	88MHz	AC probe of VTVM across speaker.	VC603	Adjust for maximum.
108MHz Modulated	108MHz	"	VC602,VC601	Adjust for maximum. Repeat FM RF steps until no further improvement is noted.

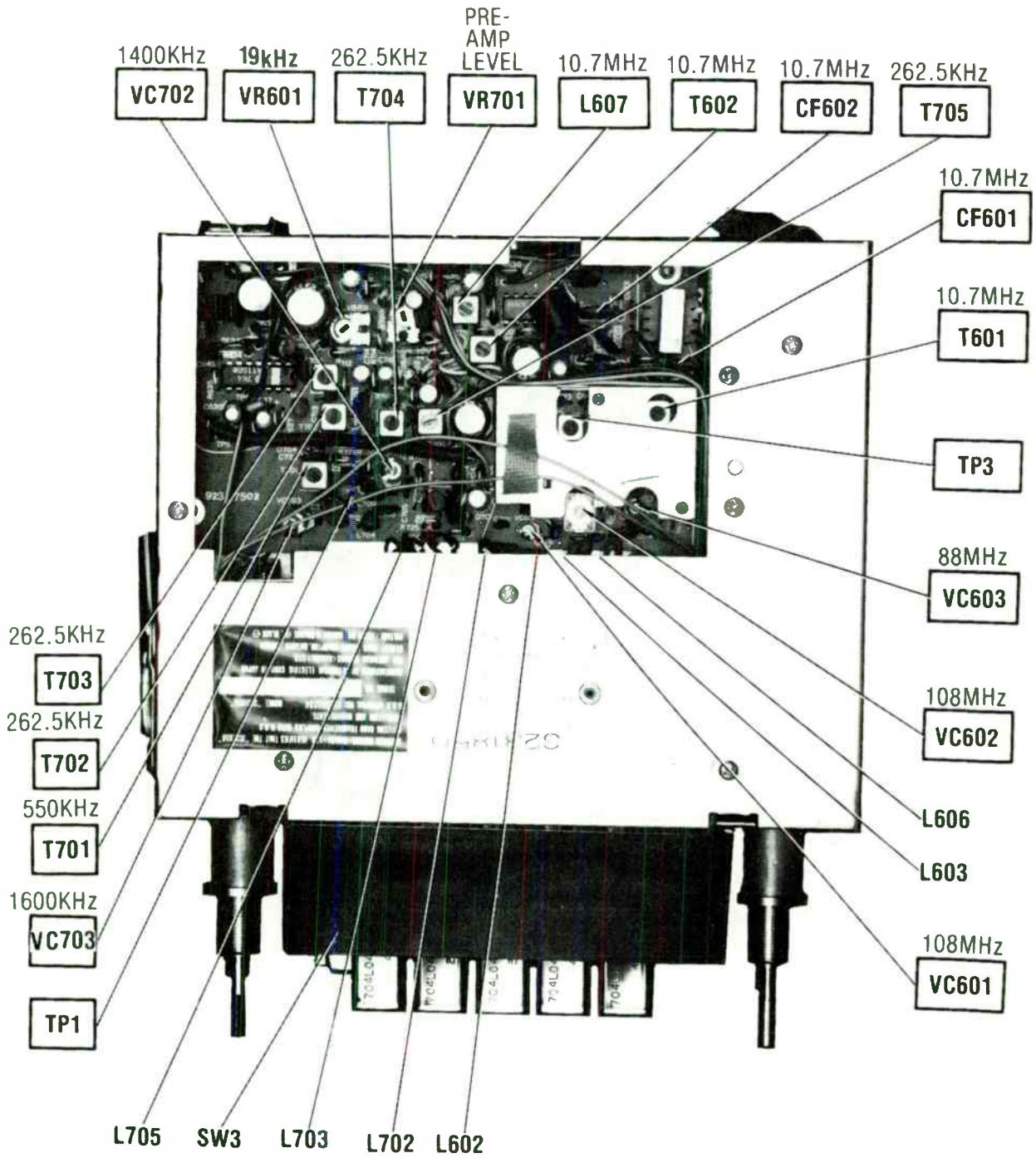
FM STEREO ALIGNMENT USING AUDIO GENERATOR

Connect a jumper from TP4 to ground.

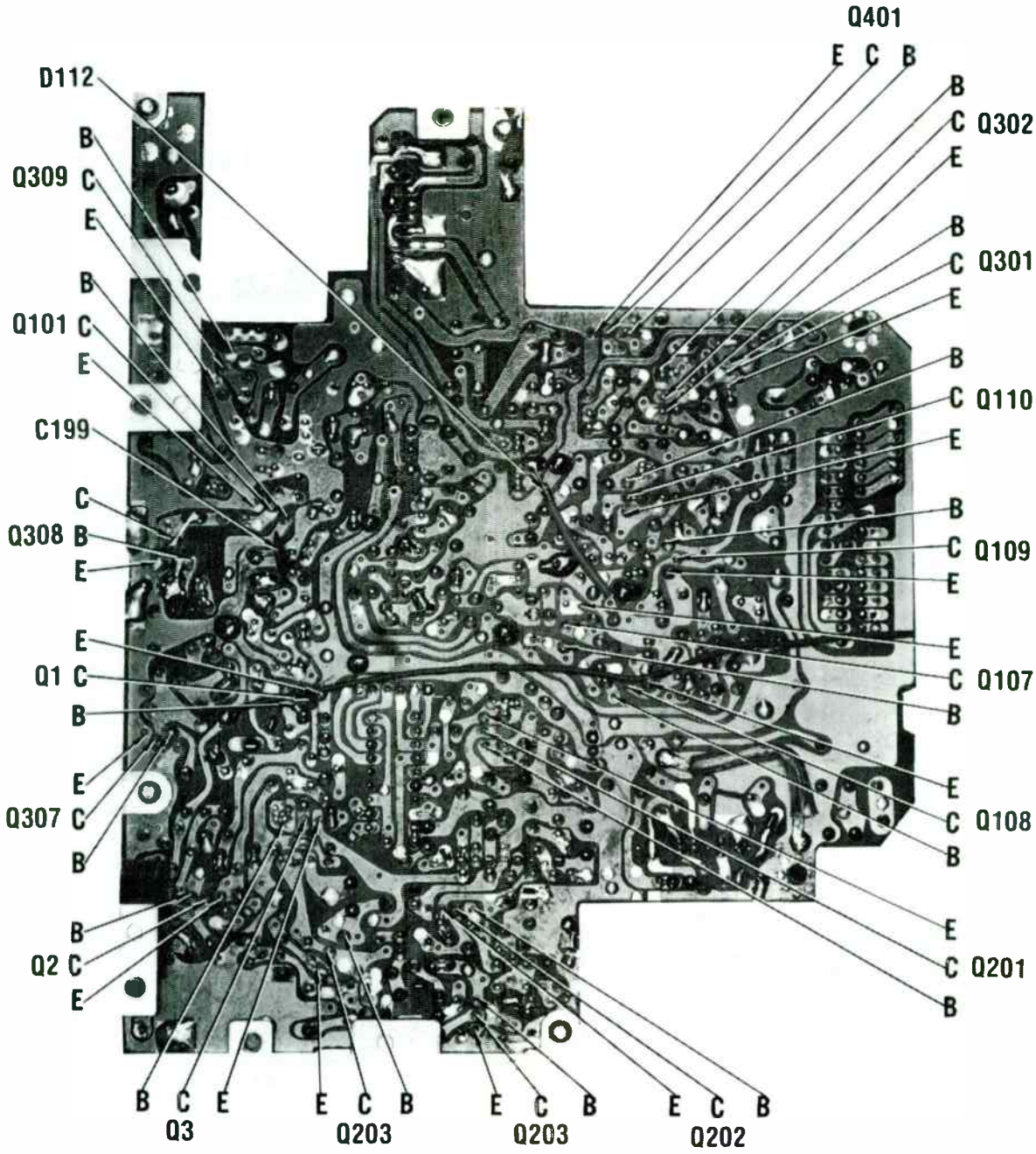
GENERATOR FREQUENCY	INDICATOR	ADJUST	REMARKS
No signal input.	Input of frequency counter to TP6 (IC602 Pin 10).	VR601	Adjust for 19kHz ±20Hz.

ADJUSTMENT

Tune to signal.	Input of AC VTVM or AF wattmeter across speaker.	VR701	Set volume to maximum. Adjust for equal audio output from CB and AM/FM detectors.



CHASSIS-BOTTOM



CB MAIN BOARD

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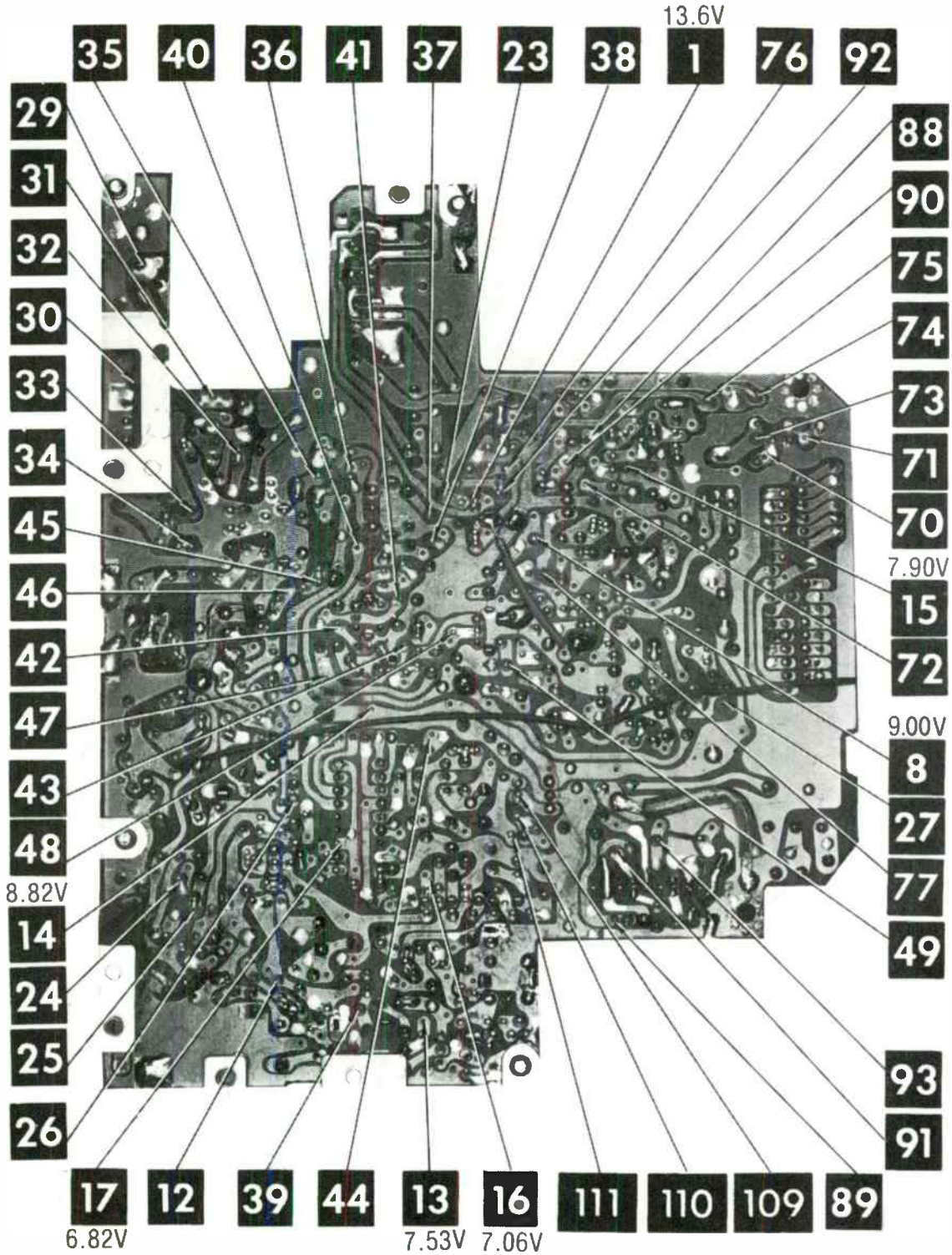

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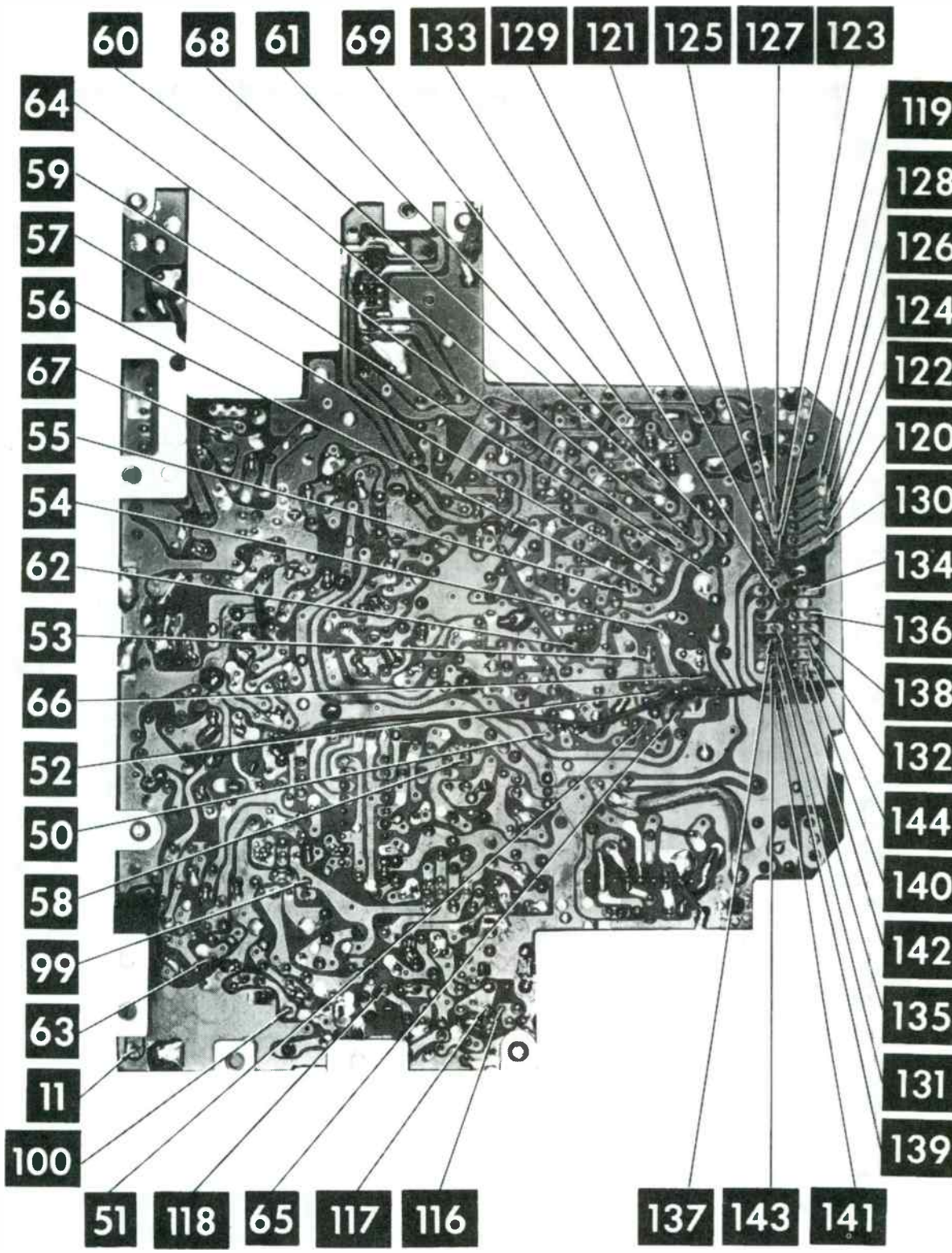

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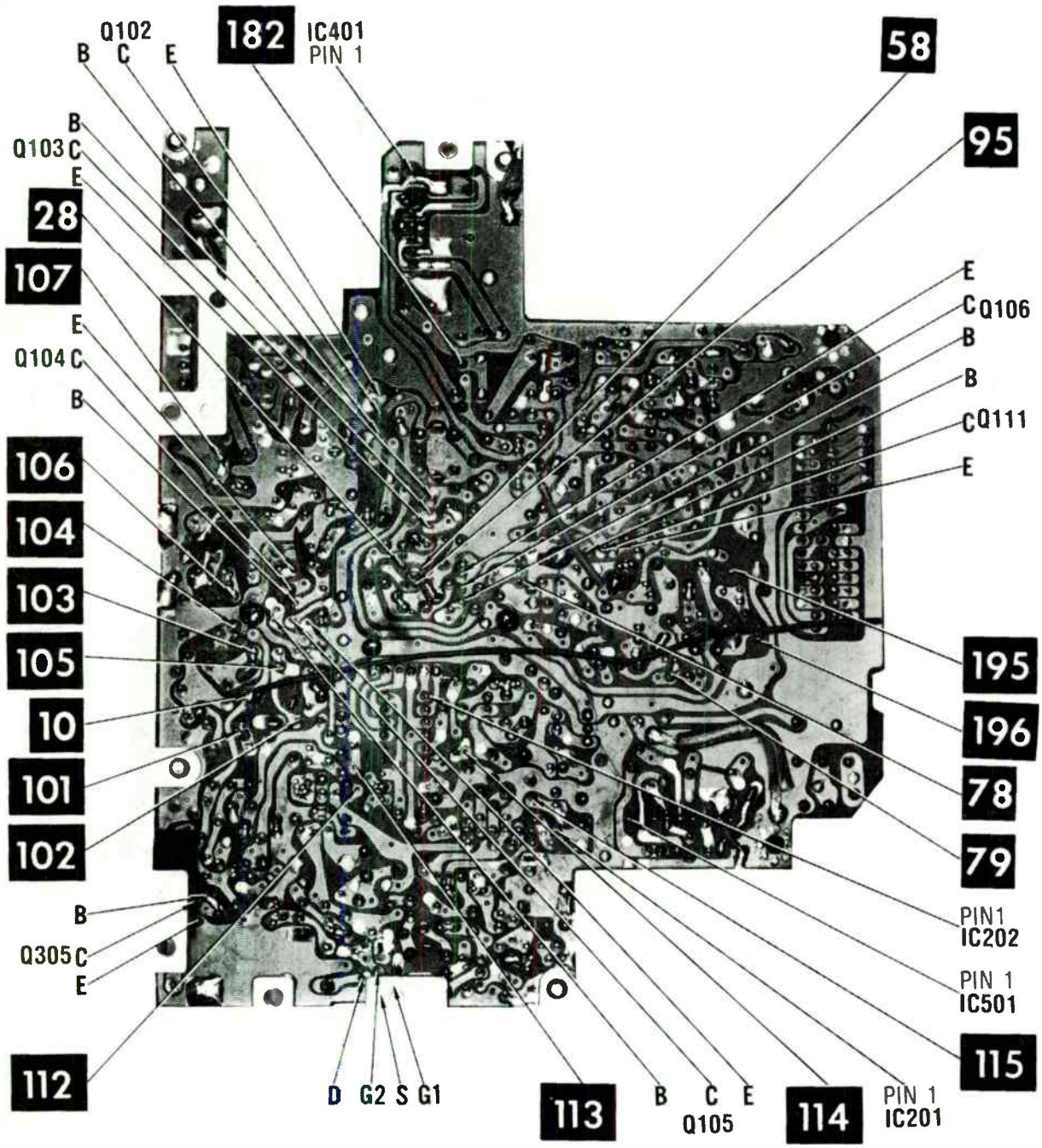

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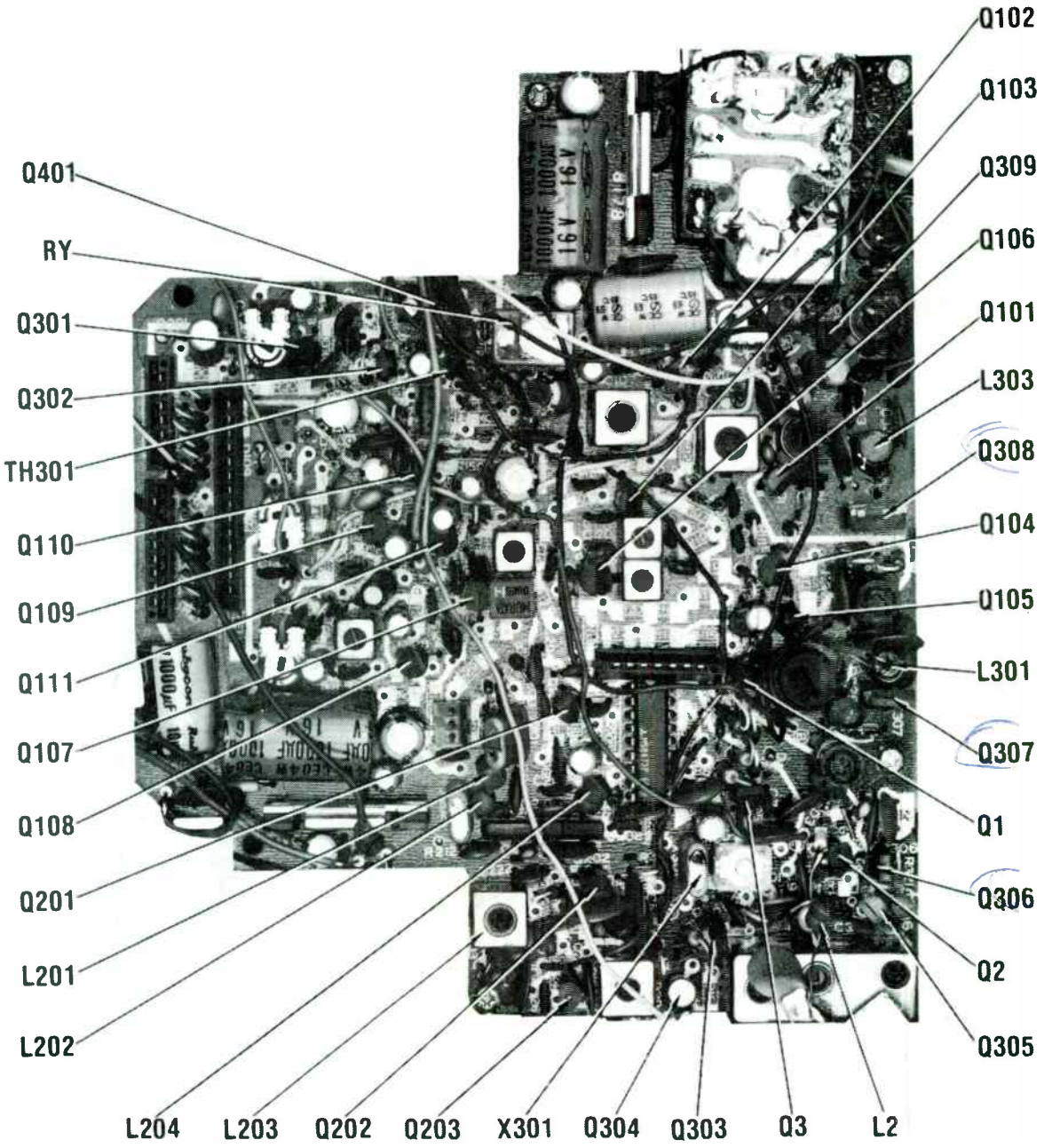

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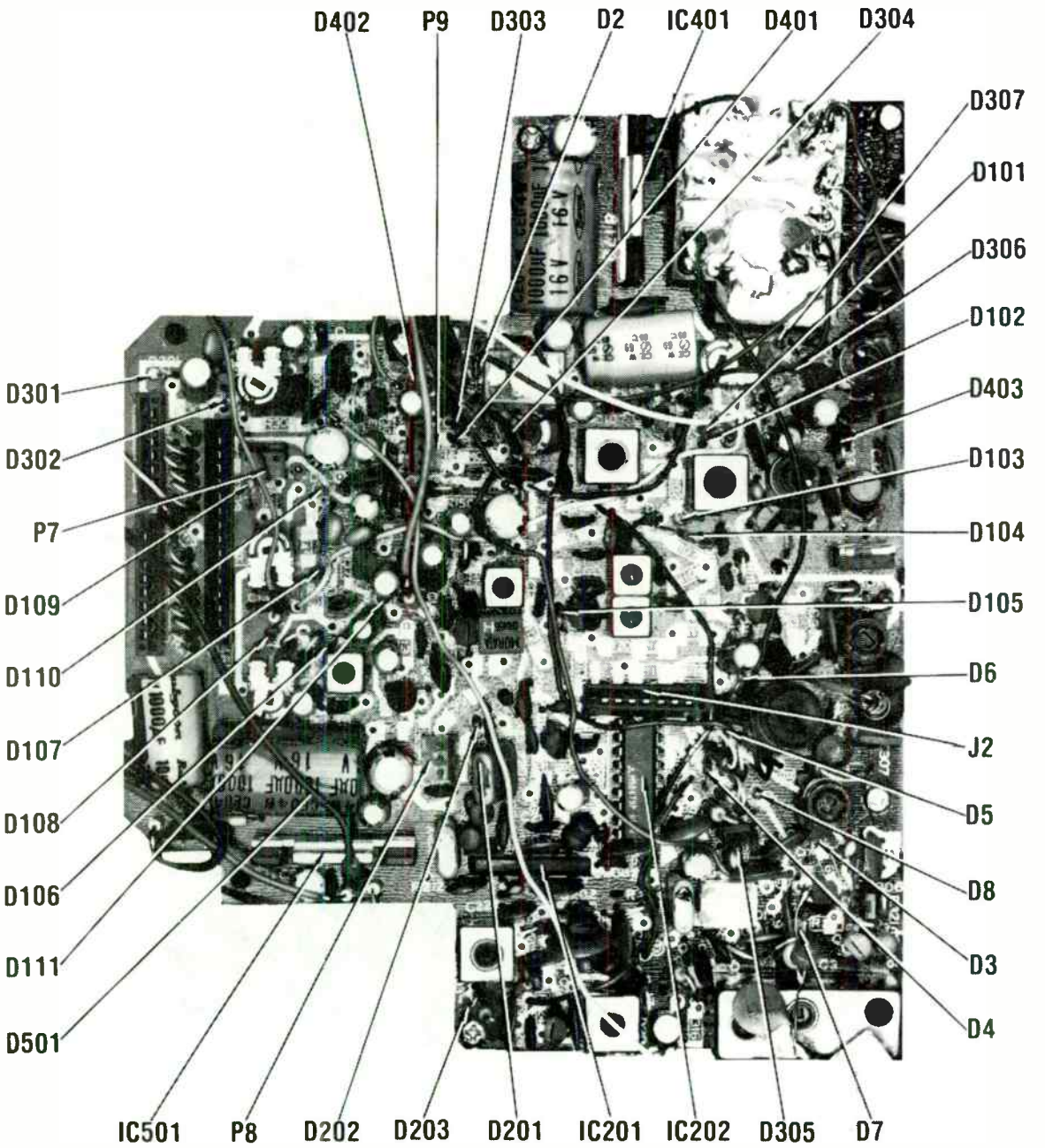

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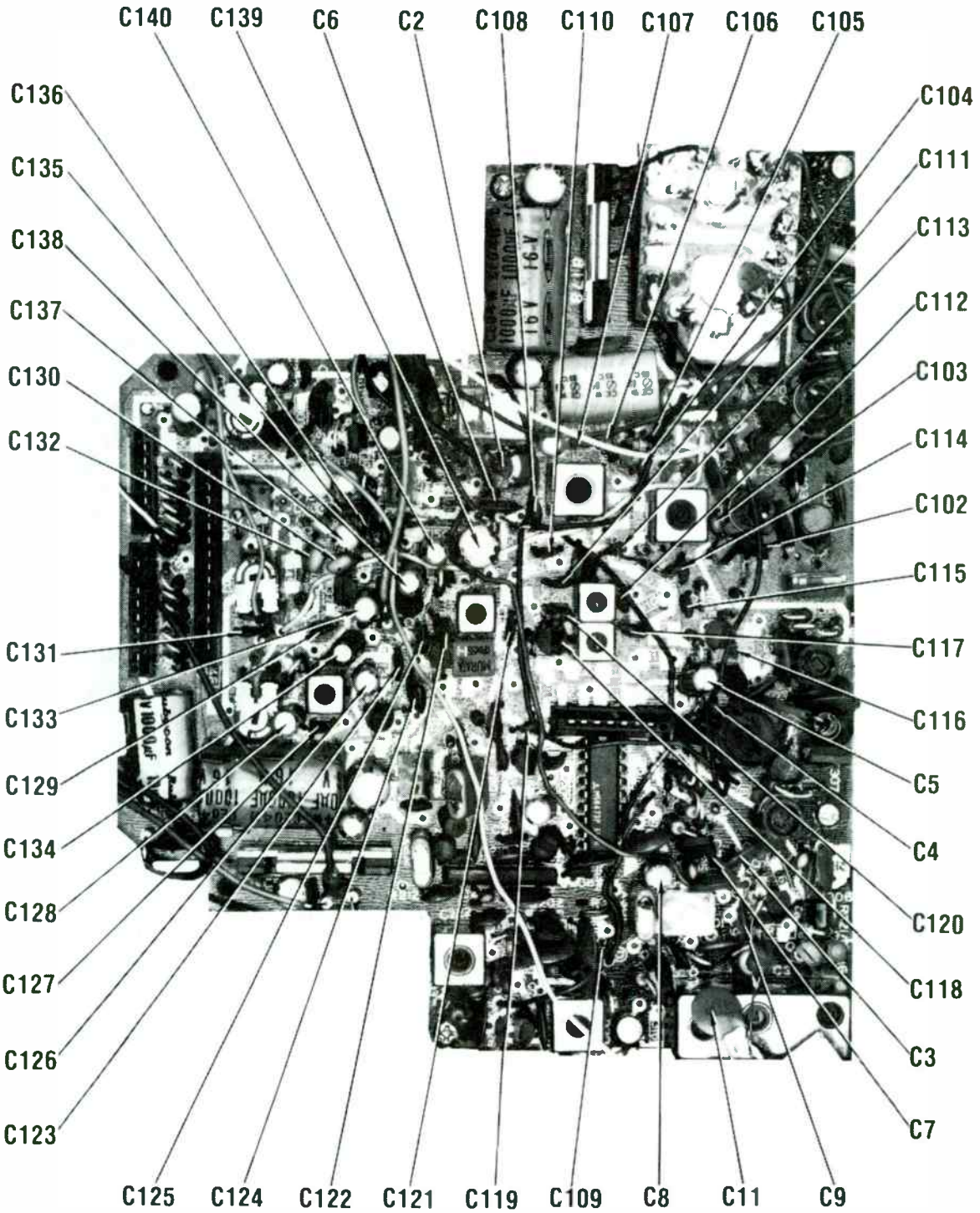

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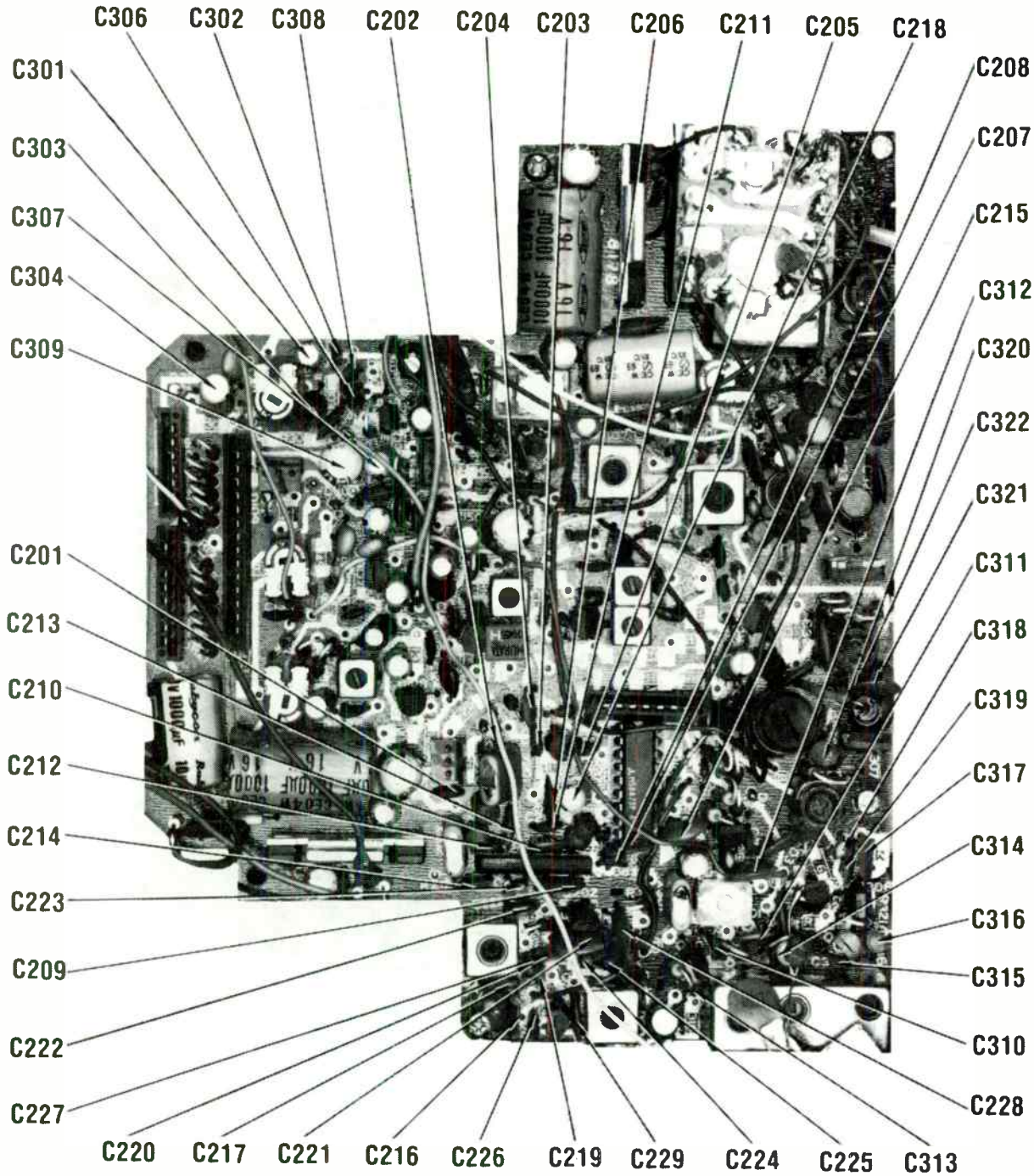

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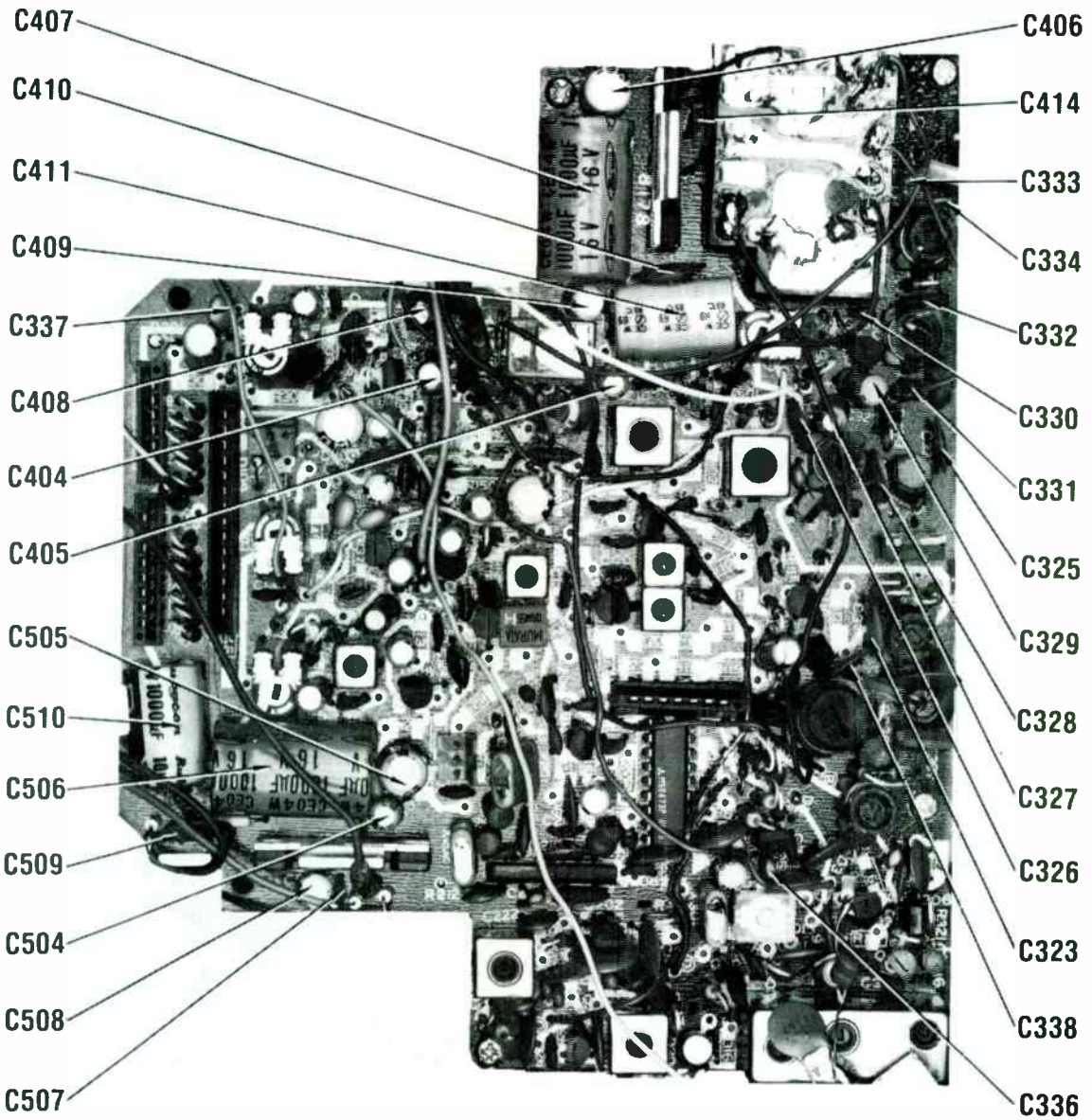

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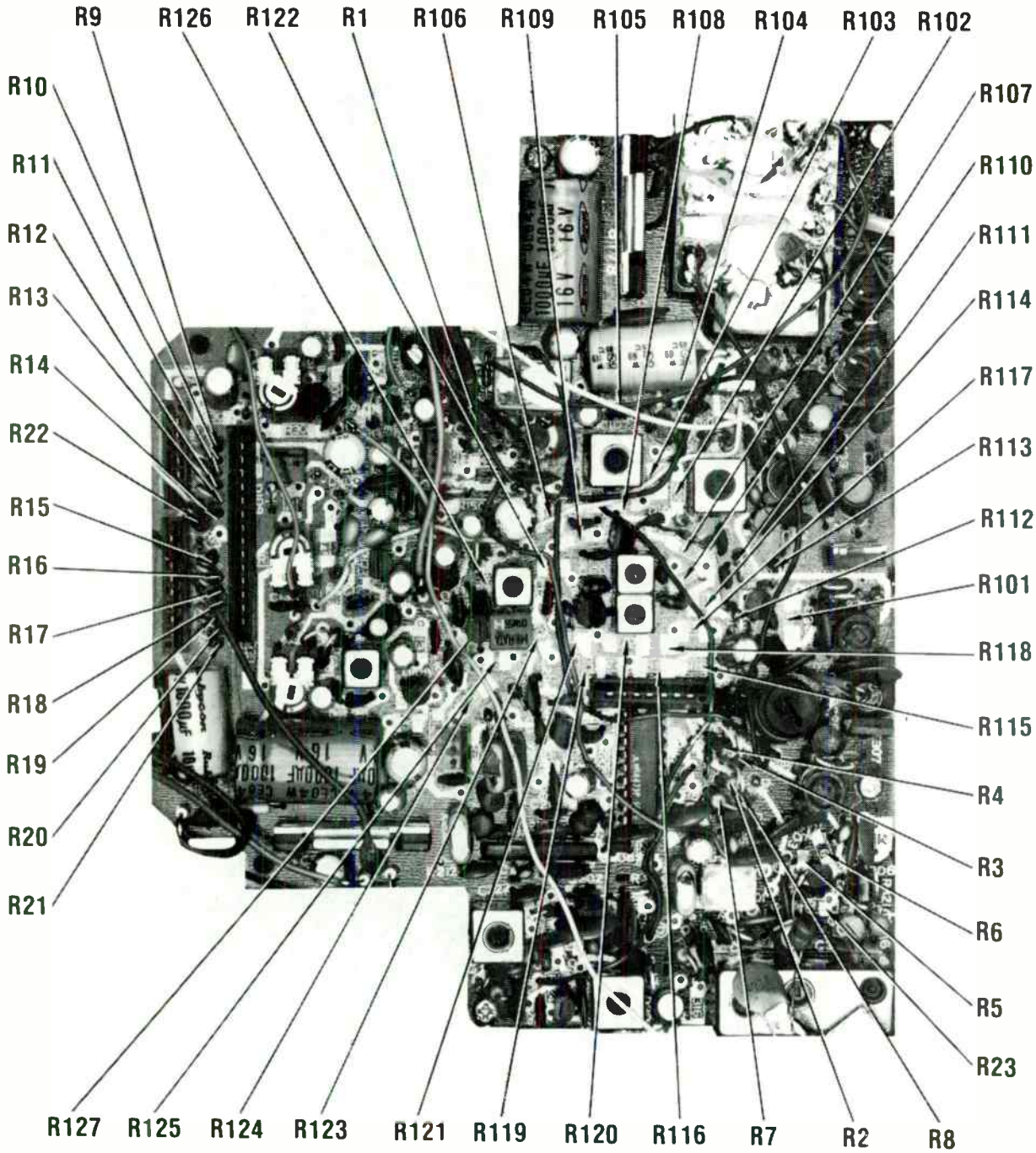

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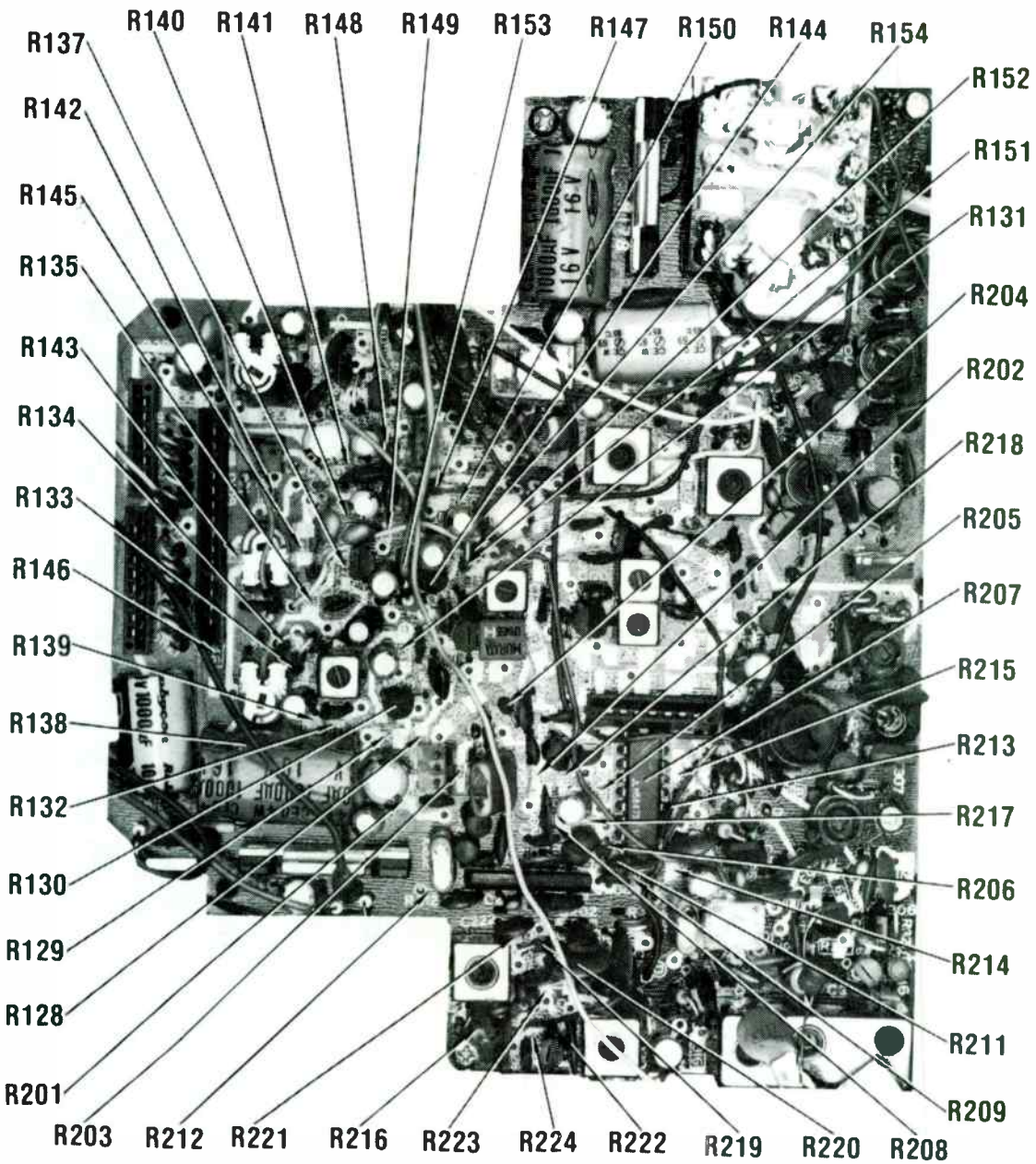

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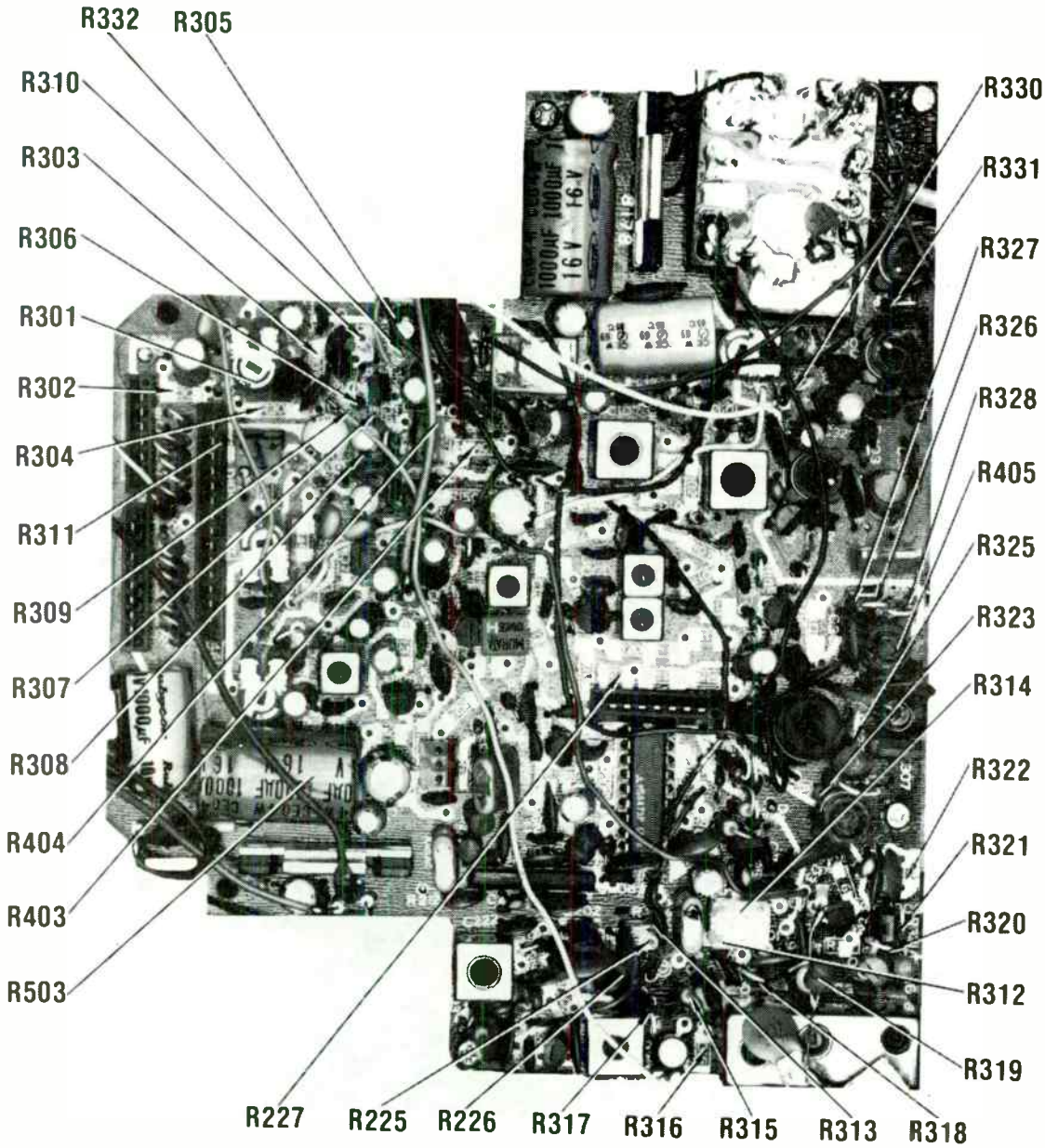

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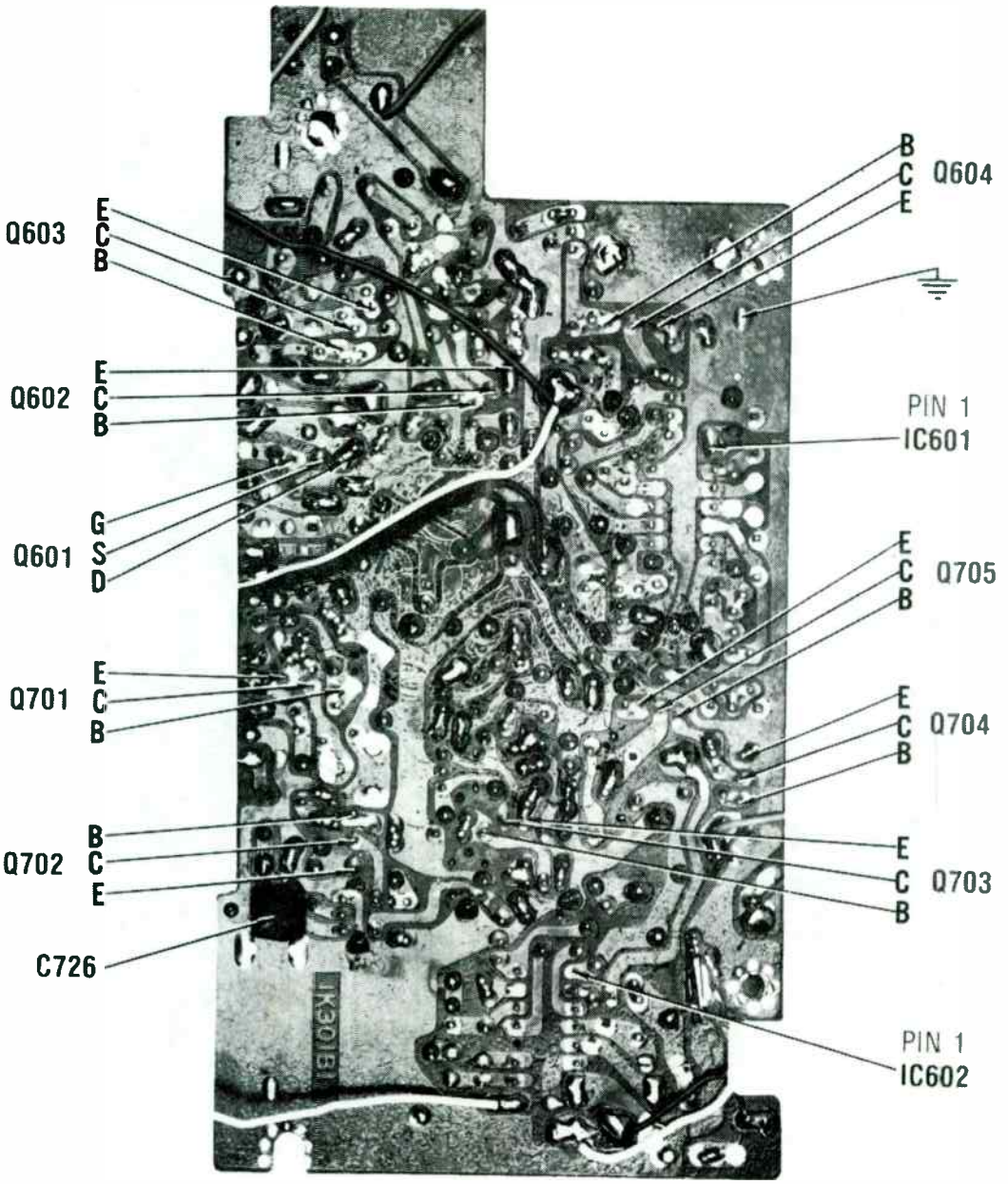
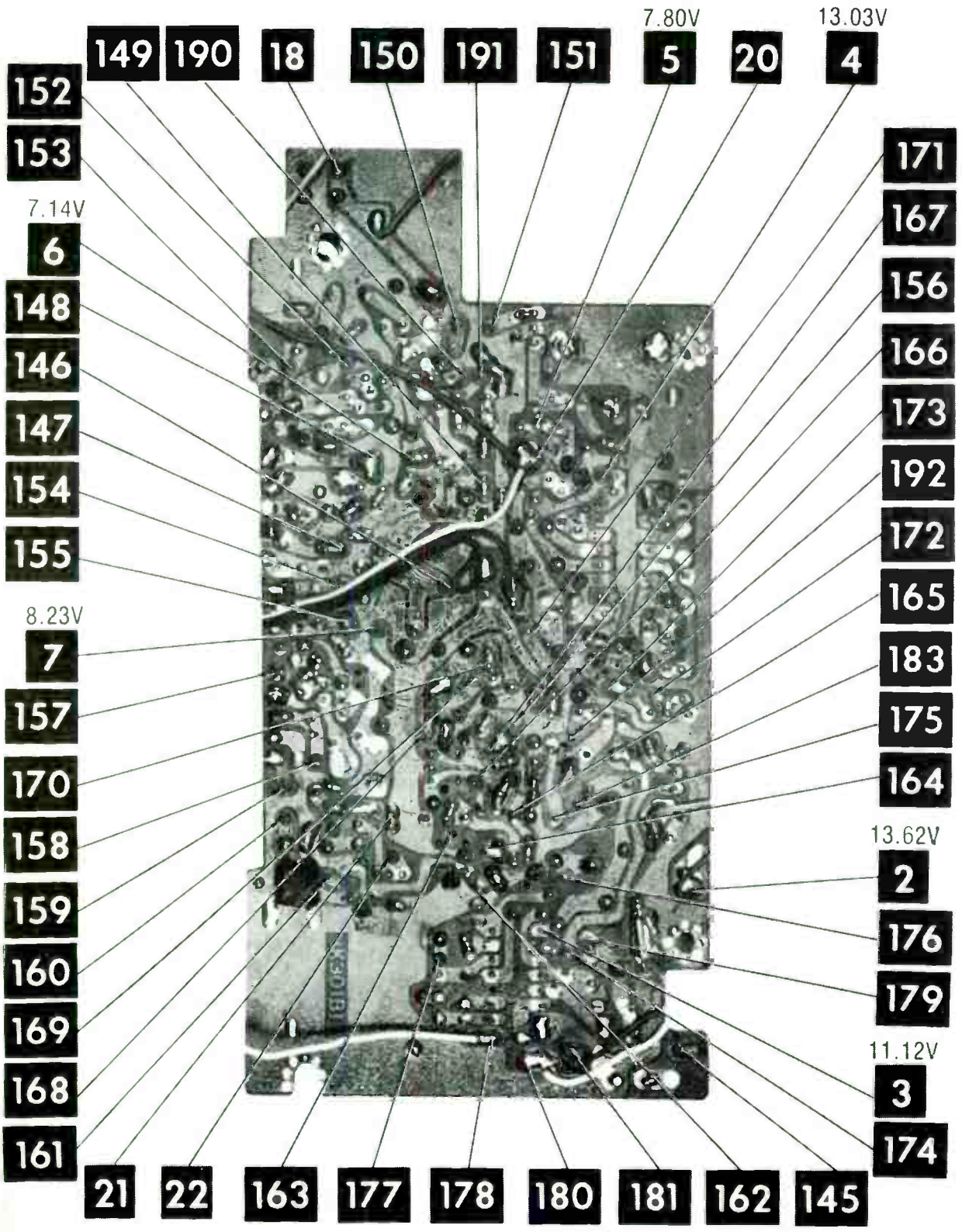


AM-FM MA IN BOARD



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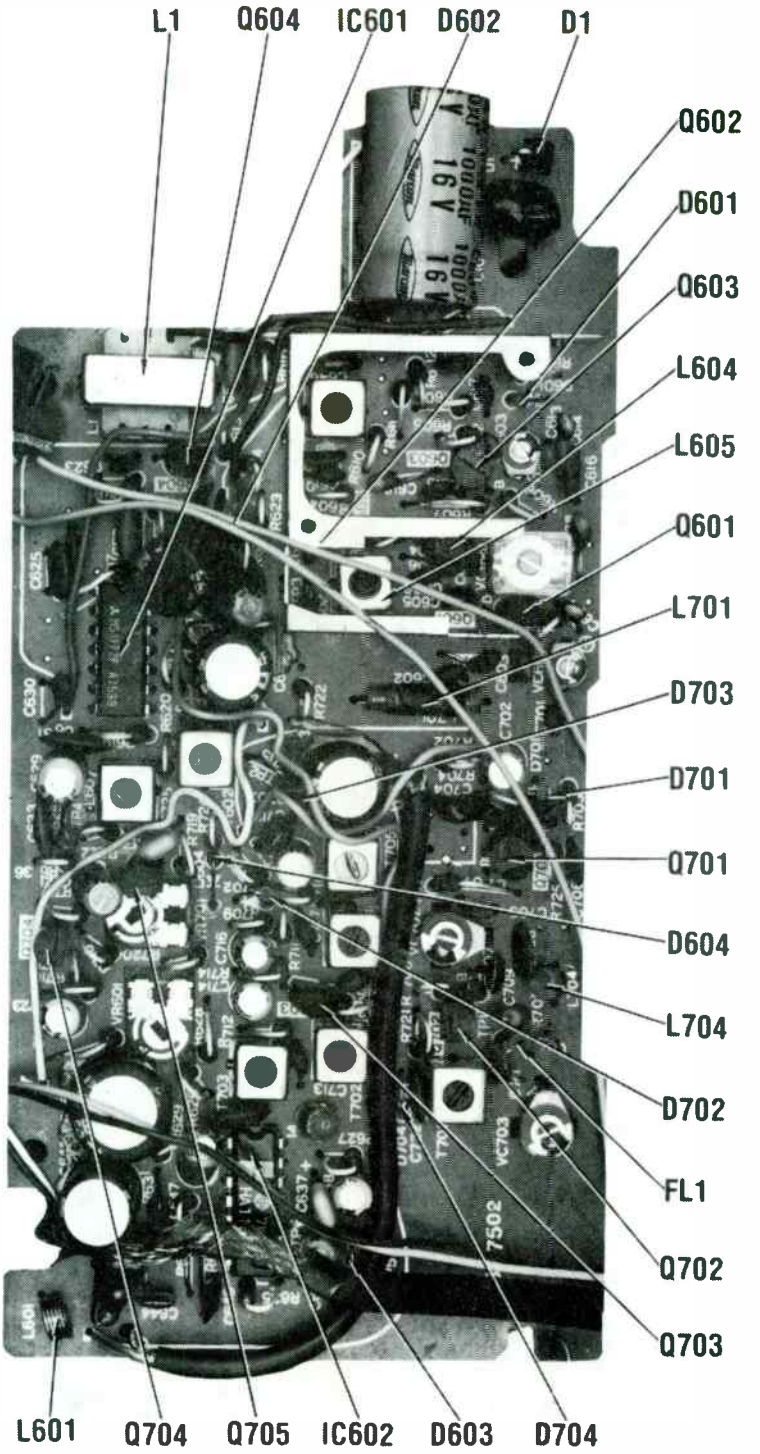

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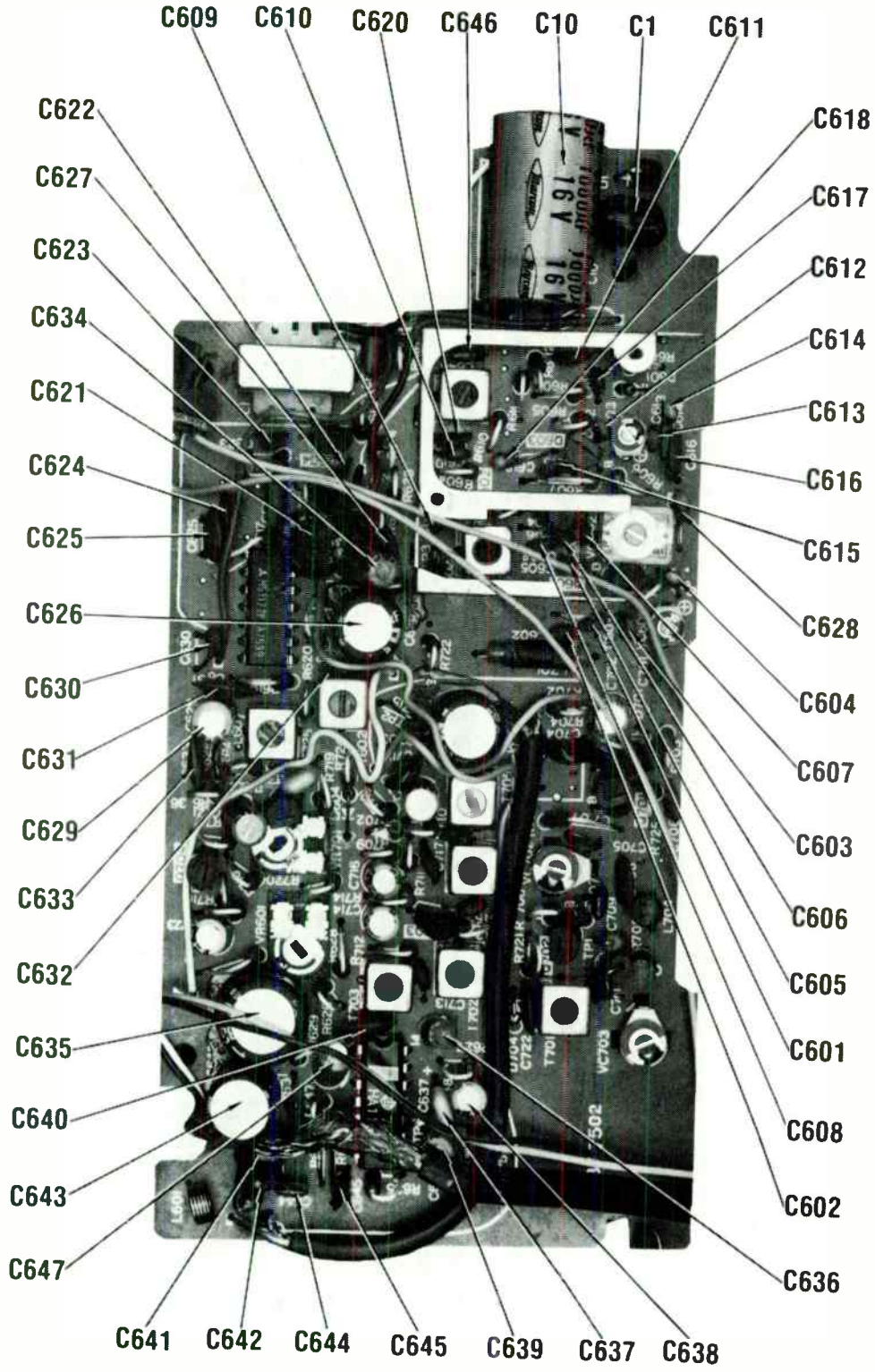

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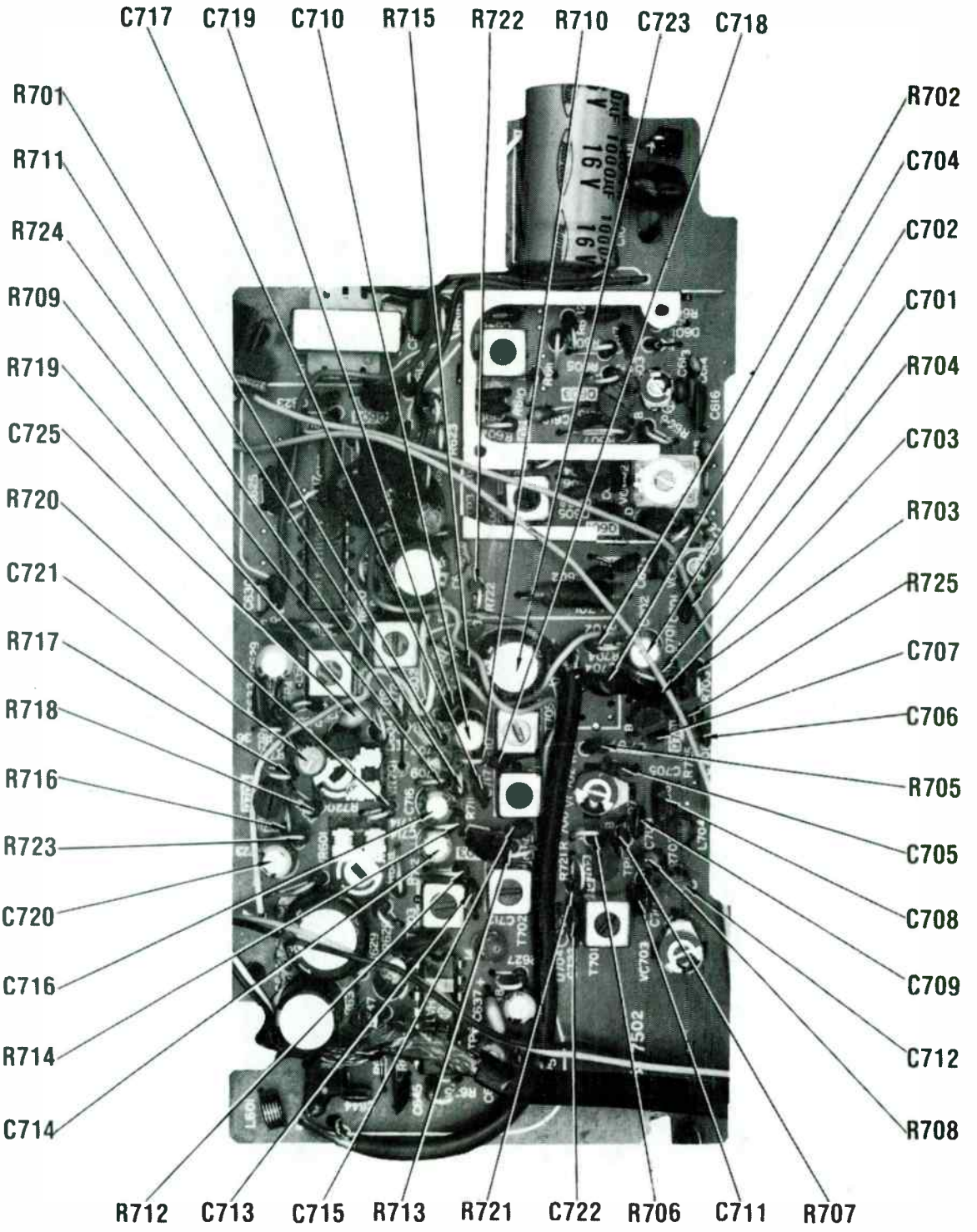

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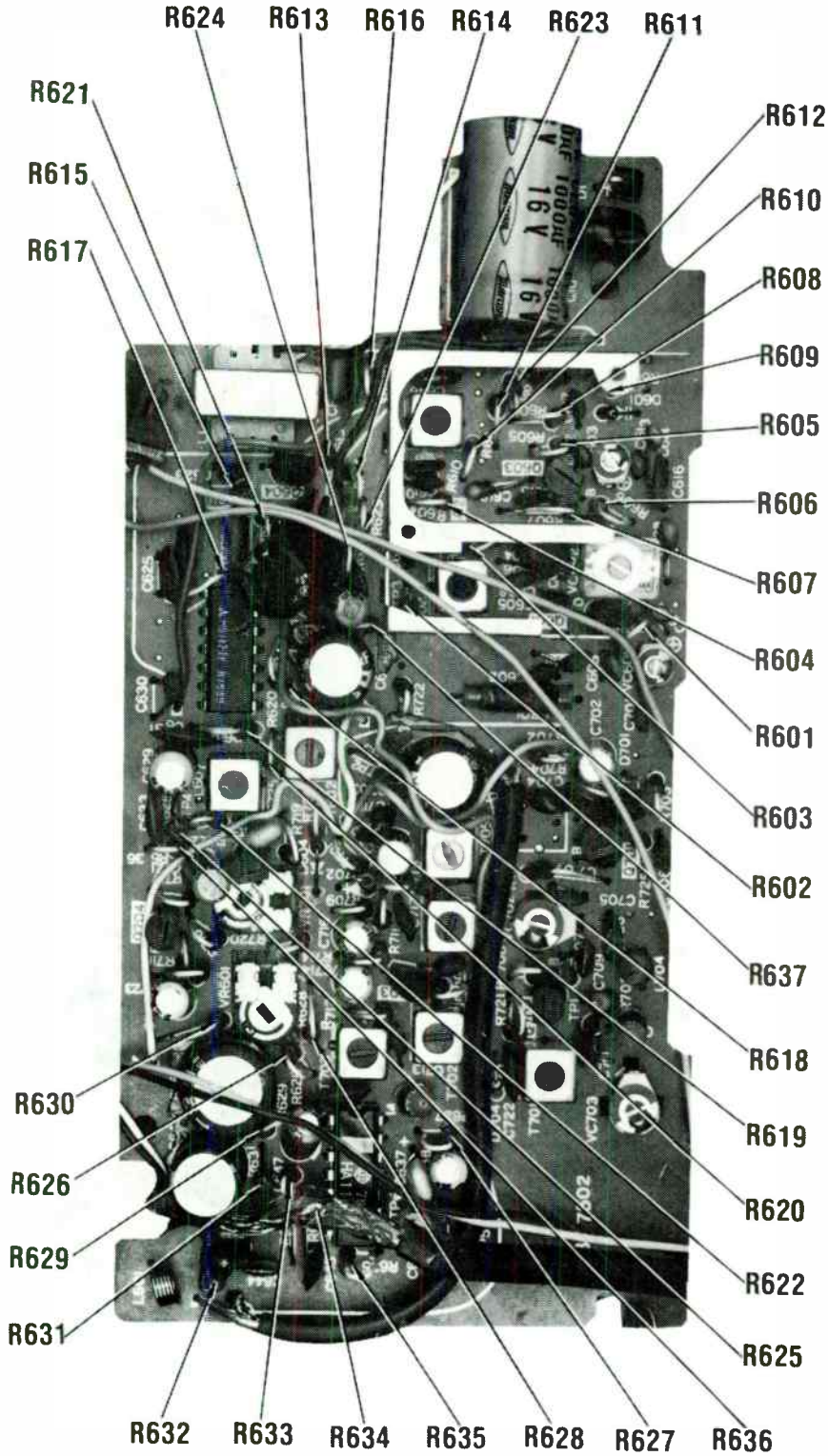

AM-FM MA IN BOARD

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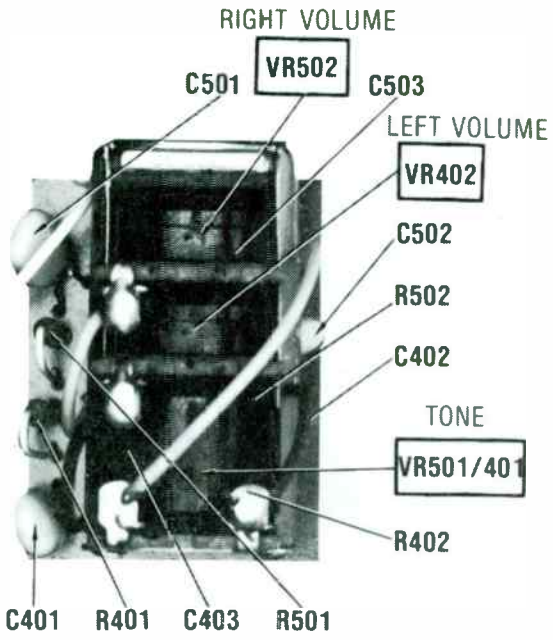

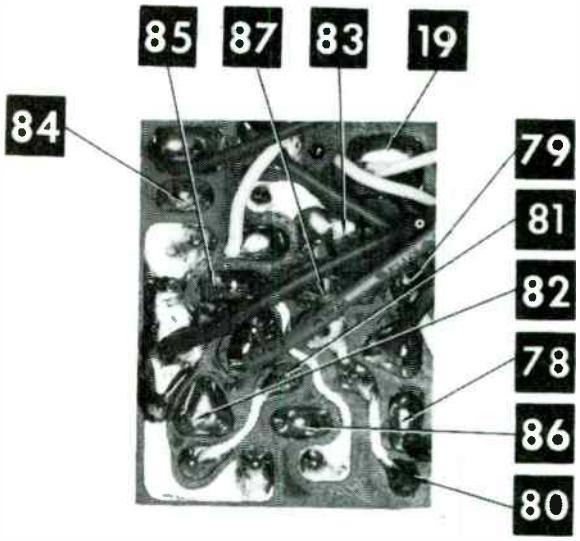

CONTROL BOARD

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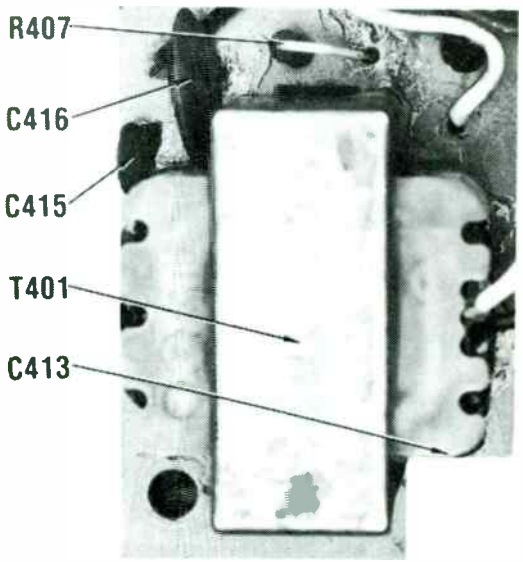
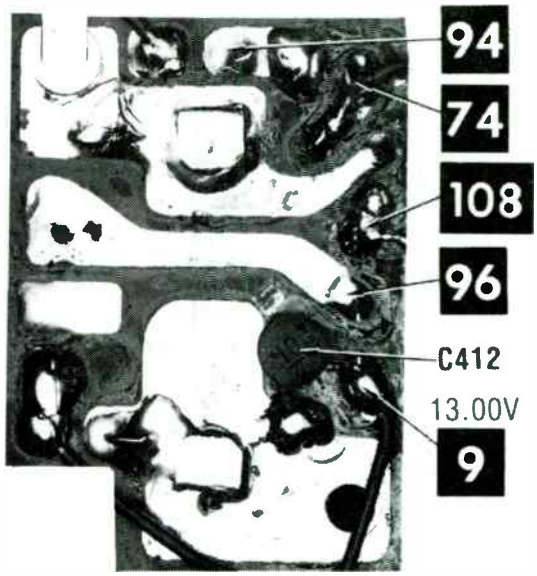
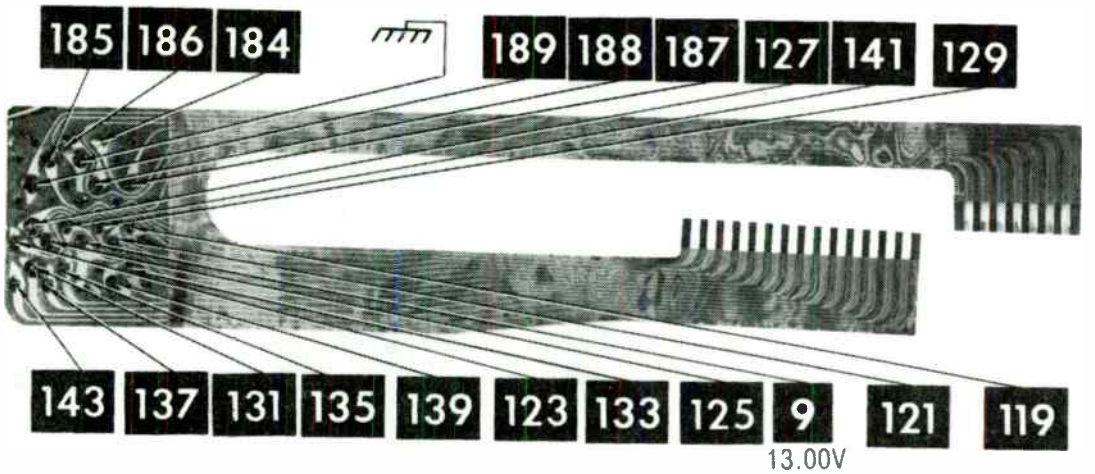




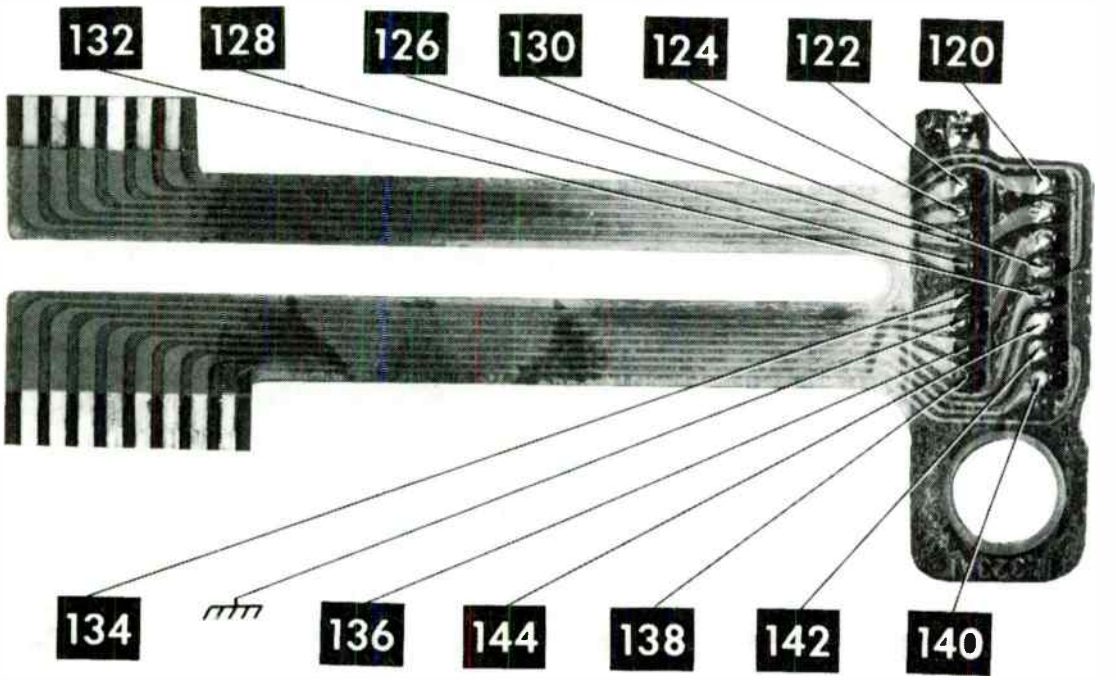
MODULATION BOARD

A Howard W. Sams CIRCUITRACE® Photo

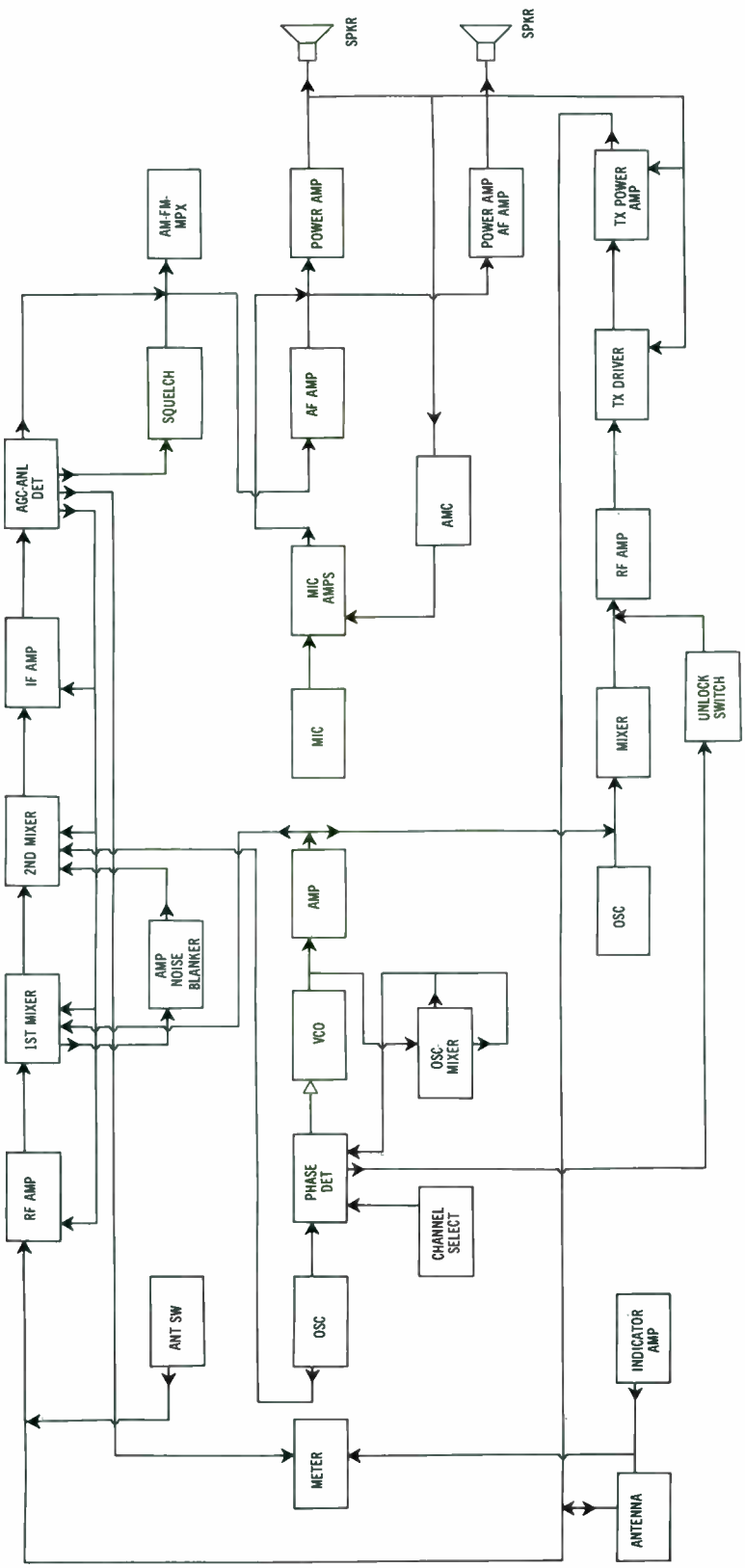


CH. SELECTOR BOARD

A Howard W. Sams CIRCUITRACE® Photo



LED BOARD



BLOCK DIAGRAM

PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)

SEMICONDUCTORS (Select replacement transistor for best results)

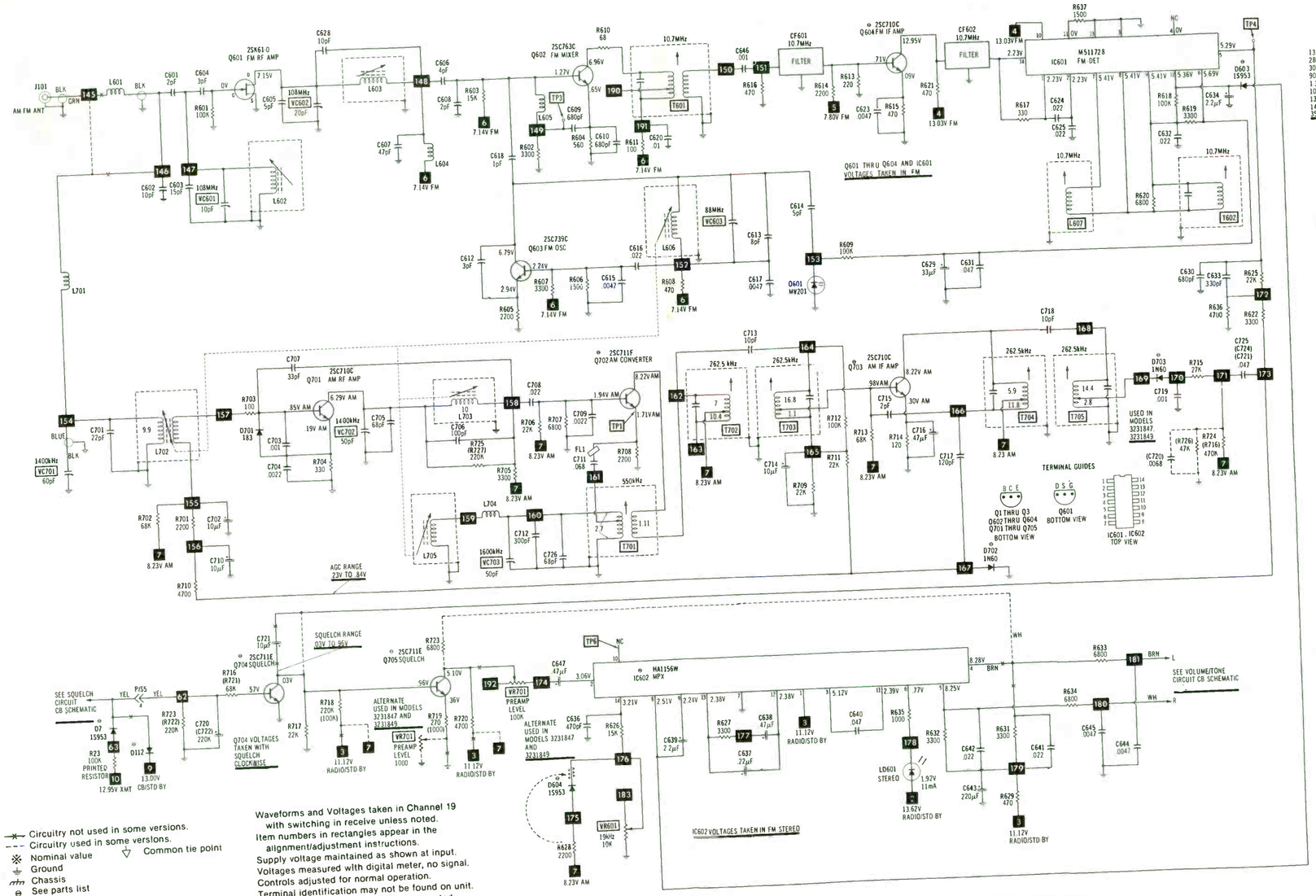
ITEM No.	TYPE No.	MFGR. PART No.	REPLACEMENT DATA							
			GENERAL ELECTRIC PART No.	MALLORY PART No.	RAYTHEON PART No.	RCA PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.
D1	RA1Z	264P10102	GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02
D2	1S953	269M01201	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062	103-131
	1S2076	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2072	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2473	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
D3	1S953	269M01201	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062	103-131
	1S2076	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2072	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2473	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
D4	1S953	269M01201	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062	103-131
	1S2076	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2072	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2473	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
D5	1S953	269M01201	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062	103-131
	1S2076	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2072	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2473	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
D6	MZ209	264P02503		ZM9.1A		SK3784/5018	ECG5018	TM5018	WEP1419	103-279-18
D7	1S953	269M01201	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062	103-131
	1S2076	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2072	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2473	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
D8	MZ208	264P02502		ZM8.2A		SK3782/5016	ECG5016	TM5016	WEP1417	
D101	1S953	269M01201	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062	103-131
	1S2076	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2072	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2474	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
D102	1N60		1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134	103-Z9001
	1N60P	264P01306	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134	103-Z9001
D103	1N60		1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134	103-Z9001
	1N60P	264P01306	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134	103-Z9001
D104	1N60		1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134	103-Z9001
	1N60P	264P01306	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134	103-Z9001
D105	1S953	269M01201	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062	103-131
	1S2076	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2072	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2474	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
D106	1N60		1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134	103-Z9001
	1N60P	264P01306	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134	103-Z9001
D107	1N60		1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134	103-Z9001
	1N60P	264P01306	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134	103-Z9001
D108	1N60		1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134	103-Z9001
	1N60P	264P01306	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134	103-Z9001
D109	MV-1	265P03301		PTC301	REN 601	SK3463/601	ECG601	TM601		
D110	1S953	269M01201	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062	103-131
	1S2076	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2072	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2473	269MC1201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
D111	1S953	269M01201	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062	103-131
	1S2076	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2072	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S953	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
D201	1S953	269M01201	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062	103-131
	1S2076	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2072	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2473	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
D202	MV201	264P05502		PTC301	REN 601	SK3463/601	ECG601	TM601		
D203	MV201	264P05502		PTC301	REN 601	SK3463/601	ECG601	TM601		
D301	MV1	265P03301		PTC301	REN 601	SK3463/601	ECG601	TM601		
D302	1S953	269M01201	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062	103-131
	1S2076	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2072	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2473	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
D303	1S953	269M01201	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062	103-131
	1S2076	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2072	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2473	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
D304	MZ208	264P02502		ZM8.2A		SK3782/5016	ECG5016	TM5016	WEP1417	
D305	MZ208	264P02502		ZM8.2A		SK3782/5016	ECG5016	TM5016	WEP1417	
D306	1S953	269M01201	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062	103-131
	1S2076	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2072	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2473	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
D307	1S953	269M01201	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062	103-131
	1S2076	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2072	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2473	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
D401	1S953	269M01201	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062	103-131
	1S2076	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2072	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2473	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
D402	1S953	269M01201	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062	103-131
	1S2076	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2072	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2473	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

SEMICONDUCTORS (Select replacement transistar for best results)(cont)

ITEM No.	TYPE No.	MFGR. PART No.	REPLACEMENT DATA							
			GENERAL ELECTRIC PART No.	MALLORY PART No.	RAYTHEON PART No.	RCA PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.
D403	RA1Z		GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-02
D501	1S953	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2072	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2473	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2076		GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
D601	MV201	264P05502		PTC301	REN 601	SK3463/601	ECG601	TM601		
D602	MZ208	264P02502		ZM8.2A		SK3782/5016	ECG5016	TM5016	WEP1417	
D603	1S953	269M01201	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062	103-131
	1S2076	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2072	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2473	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
D603	1S953	269M01201	GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062	103-131
	1S2076	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2072	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
	1S2473	269M01201	GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925	103-287
D701	MV5W			PTC302			ECG605	TM605		
D702	1N60		1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134	103-Z9001
	1N60P	264P01306	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134	103-Z9001
D703	1N60		1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134	103-Z9001
	1N60	264P01306	1N60	PTC206	REN 109	SK3088	ECG109	TM109/**	WEP134	103-Z9001
IC201	TA7310P	266P32501			REN 1192	SK3445/1192	ECG1192	TM1192	WEP2120	
IC202	M58473P									
	M58483P	266P82803								
IC401	HA1366WR						ECG1261	TM1261		
	HA1366R	266P32402					ECG1261	TM1261		
IC501	HA1366WR						ECG1261	TM1261		
	HA1366R	266P32402					ECG1261	TM1261		
IC601	M51172P	266P32601								
IC602	HA1156W		GEIC-35	PTC735	REN 801	SK3160/801	ECG801	TM801	WEP2075	221-Z9027
	HA1156	266P71001	GEIC-35	PTC735	REN 801	SK3160/801	ECG801	TM801	WEP2075	221-Z9027
Q1	2SC1210D	260P28003	GE-222	PTC136	REN 287	SK3842	ECG287	TM287	WEP68	121-Z9045
Q2	2SA696D	260P26003	GE-269	PTC103*	REN 290	SK3114/290	ECG290	TM290/**	WEP911	121-1019
Q3	2SC1210D	260P28003	GE-222	PTC136	REN 287	SK3842	ECG287	TM287	WEP68	121-Z9045
Q101	2SC711A	260P17705	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
Q102	2SC710C	260P17102	GE-211*	PTC132*	REN 123A*	SK3356	ECG123A*	TM123A*/**	WEP710	121-Z9000A
	2SC710D	260P17102	GE-211*	PTC132*	REN 123A*	SK3356	ECG123A*	TM123A*/**	WEP710	121-Z9000A
Q103	2SC710C	260P17102	GE-211*	PTC132*	REN 123A*	SK3356	ECG123A*	TM123A*/**	WEP710	121-Z9000A
	2SC710D	260P17102	GE-211*	PTC132*	REN 123A*	SK3356	ECG123A*	TM123A*/**	WEP710	121-Z9000A
Q104	2SC711F	260P17501	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
	2SC711E	260P17501	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
Q105	2SC711F	260P17501	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
	2SC711E	260P17501	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
Q106	2SC710C	260P17102	GE-211*	PTC132*	REN 123A*	SK3356	ECG123A*	TM123A*/**	WEP710	121-Z9000A
	2SC710D	260P17102	GE-211*	PTC132*	REN 123A*	SK3356	ECG123A*	TM123A*/**	WEP710	121-Z9000A
Q107	2SC711F	260P17501	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
	2SC711E	260P17501	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
Q108	2SC711F	260P17501	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
	2SC711E	260P17501	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
Q109	2SC711F	260P17501	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
	2SC711E	260P17501	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
Q110	2SC711F	260P17501	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
	2SC711E	260P17501	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
Q111	2SC711F	260P17501	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
	2SC711E	260P17501	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
Q201	2SC710C	260P17102	GE-211*	PTC132*	REN 123A*	SK3356	ECG123A*	TM123A*/**	WEP710	121-Z9000A
	2SC710D	260P17102	GE-211*	PTC132*	REN 123A*	SK3356	ECG123A*	TM123A*/**	WEP710	121-Z9000A
Q202	2SC710C	260P17102	GE-211*	PTC132*	REN 123A*	SK3356	ECG123A*	TM123A*/**	WEP710	121-Z9000A
	2SC710D	260P17102	GE-211*	PTC132*	REN 123A*	SK3356	ECG123A*	TM123A*/**	WEP710	121-Z9000A
Q203	2SC710C	260P17102	GE-211*	PTC132*	REN 123A*	SK3356	ECG123A*	TM123A*/**	WEP710	121-Z9000A
	2SC710D	260P17102	GE-211*	PTC132*	REN 123A*	SK3356	ECG123A*	TM123A*/**	WEP710	121-Z9000A
Q301	2SA695		GE-269	PTC103*	REN 290	SK3450/298	ECG290	TM290/**	WEP911	121-1019
	2SA695E	260P16805	GE-269	PTC103*	REN 290	SK3450/298	ECG290	TM290/**	WEP911	121-1019
Q302	2SC711F	260P17501	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
	2SC711E	260P17501	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
Q303	2SC710C	260P17102	GE-211*	PTC132*	REN 123A*	SK3356	ECG123A*	TM123A*/**	WEP710	121-Z9000A
	2SC710D	260P17102	GE-211*	PTC132*	REN 123A*	SK3356	ECG123A*	TM123A*/**	WEP710	121-Z9000A
Q304	3SK45A		GE-FET-4	PTC182*	REN 222	SK3065/222	ECG222	TM222	WEP905	121-826
	3SK45	260M00401	GE-FET-4	PTC182*	REN 222	SK3065/222	ECG222	TM222	WEP905	121-826
	3SK40	260M00401	GE-FET-4	PTC182*	REN 222	SK3065/222	ECG222	TM222	WEP905	121-826
	3SK59		GE-FET-4	PTC182*	REN 222	SK3050/221	ECG222	TM222	WEP905	121-826
Q305	2SC711F	260P17501	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
	2SC711E	260P17501	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
Q306	2SC461B	260P14501	GE-61*	PTC121*	REN 108*	SK3842	ECG108*	TM108*	WEP394	121-Z9000*
	2SC461C	260P14501	GE-61*	PTC121*	REN 108*	SK3122	ECG108*	TM108*	WEP394	121-Z9000*
Q307	2SC2028-2	260P36101	GE-270	PTC180	REN 295	SK3253/295	ECG295	TM295	WEP755*	121-880
Q308	2SC2029-3	260P36201	GE-333	PTC186	REN 235	SK3197/235	ECG235	TM235	WEP785	121-Z9039
Q309	2SC711F	260P17501	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
	2SC711E	260P17501	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
Q401	2SC711F	260P17501	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
	2SC711E	260P17501	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
Q601	2SK61-0	260P23702	GE-FET-2	PTC161	REN 132*	SK3834/132	ECG312*	TM312*	WEP920	121-756
Q602	2SC763C	260P17603	GE-61*	PTC115	REN 229*	SK3122	ECG229*	TM229*	WEP56	121-Z9021
Q603	2SC763C	260P17603	GE-61*	PTC115	REN 229*	SK3122	ECG229*	TM229*	WEP56	121-Z9021
Q604	2SC710C	260P17103	GE-211*	PTC132*	REN 123A*	SK3356	ECG123A*	TM123A*/**	WEP710	121-Z9000A
	2SC7100	260P17103	GE-211*	PTC132*	REN 123A*	SK3356	ECG123A*	TM123A*/**	WEP710	121-Z9000A
Q701	2SC710C	260P17103	GE-211*	PTC132*	REN 123A*	SK3356	ECG123A*	TM123A*/**	WEP710	121-Z9000A

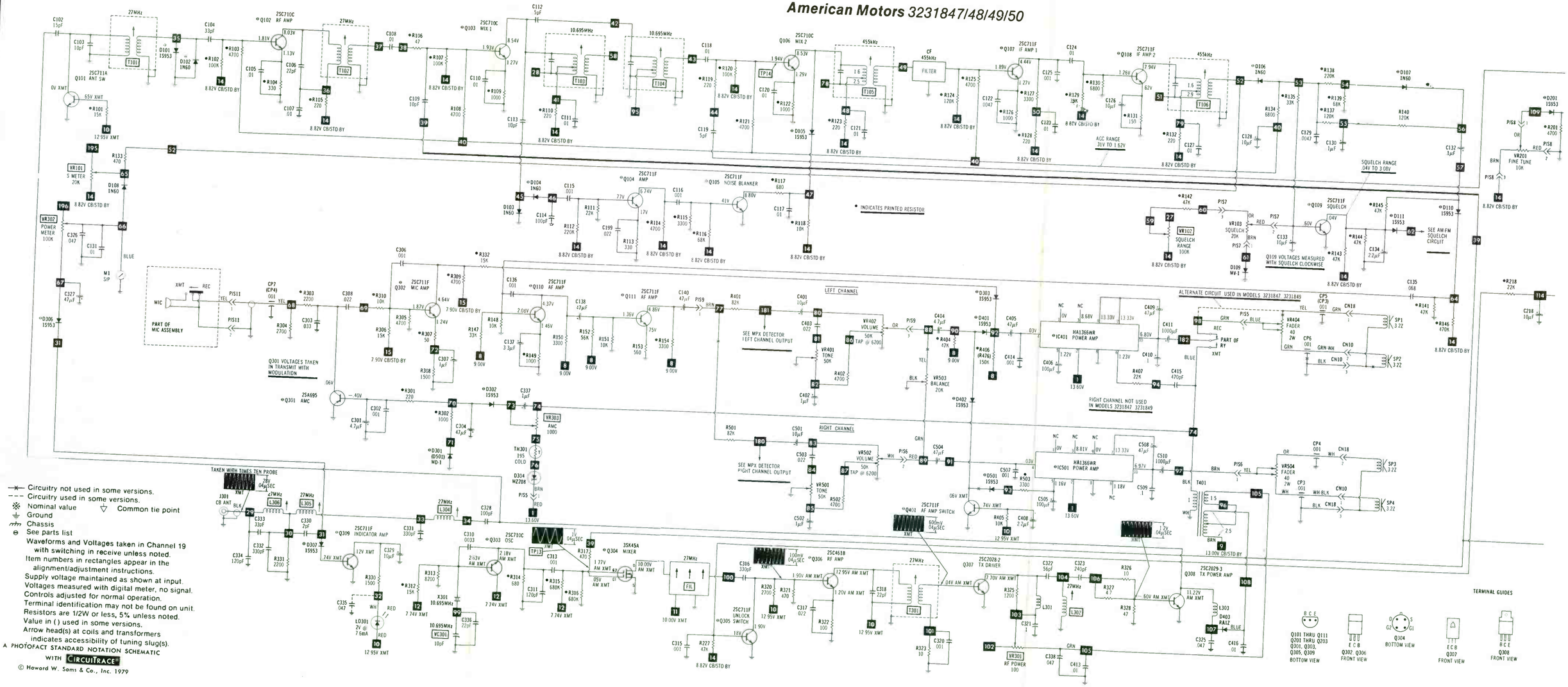


- Circuitry not used in some versions.
- Circuitry used in some versions.
- Nominal value
- Ground
- Chassis
- See parts list
- Common tie point

A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE®

Waveforms and Voltages taken in Channel 19 with switching in receive unless noted.
Item numbers in rectangles appear in the alignment/adjustment instructions.
Supply voltage maintained as shown at input.
Voltages measured with digital meter, no signal.
Controls adjusted for normal operation.
Terminal identification may not be found on unit.
Resistors are 1/2W or less, 5% unless noted.
Value in ( ) used in some versions.
Arrow head(s) at coils and transformers indicates accessibility of tuning slug(s).

AM-FM & POWER SUPPLY SCHEMATIC

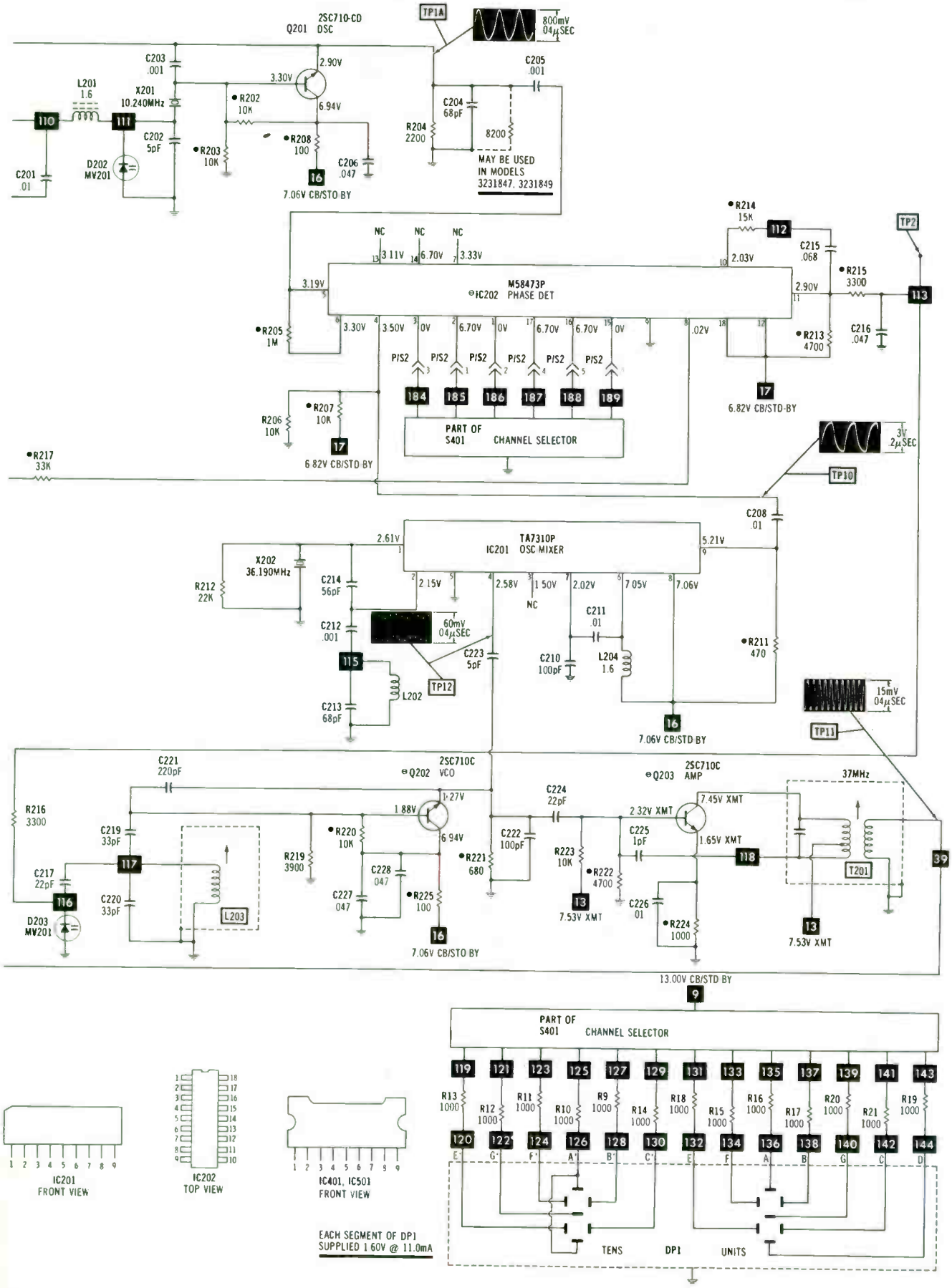


- Circuitry not used in some versions.
- Circuitry used in some versions.
- ※ Nominal value ▽ Common tie point
- Ground
- Chassis
- ⊖ See parts list

Waveforms and Voltages taken in Channel 19 with switching in receive unless noted.
Item numbers in rectangles appear in the alignment/adjustment instructions.
Supply voltage maintained as shown at input.
Voltages measured with digital meter, no signal.
Controls adjusted for normal operation.
Terminal identification may not be found on unit.
Resistors are 1/2W or less, 5% unless noted.
Value in ( ) used in some versions.
Arrow head(s) at coils and transformers indicates accessibility of tuning slug(s).

A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE®

CB SCHEMATIC



PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

SEMICONDUCTORS (Select replacement transistor for best results)(cont)

ITEM No.	TYPE No.	MFGR. PART No.	REPLACEMENT DATA							
			GENERAL ELECTRIC PART No.	MALLORY PART No.	RAYTHEON PART No.	RCA PART No.	SYLVANIA PART No.	THORDARSON PART No.	WORKMAN PART No.	ZENITH PART No.
	2SC7100	260P17103	GE-211*	PTC132*	REN 123A*	SK3356	ECG123A*	TM123A*/**	WEP710	121-Z9000A
Q702	2SC711F	260P17501	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
	2SC711E	260P17501	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
Q703	2SC71DC	260P17103	GE-211*	PTC132*	REN 123A*	SK3356	ECG123A*	TM123A*/**	WEP710	121-Z9000A
	2SC7100	260P17103	GE-211*	PTC132*	REN 123A*	SK3356	ECG123A*	TM123A*/**	WEP710	121-Z9000A
Q704	2SC711F	260P17501	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
	2SC711E		GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
Q705	2SC711E	260P17501	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972
	2SC711E	260P17501	GE-62*	PTC121	REN 199*	SK3245/199	ECG199*	TM199*/**	WEP372*	121-972

* Lead configuration may vary from original.
/** Also available as exact type replacement.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA				
		MFGR. PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C2	47 16V	181P06206	PC50-16	VTT47016	QV1-73	EV-1226
C5	10 16V	181P06709	PC10-25	VTT10B25	QV1-41	EV-1222
C8	10 16V	181P06709	PC10-25	VTT10B25	QV1-41	EV-1222
C10	1000 16V	181L02505	PC1000-16	VTT1000L16	QV1-183	EV-1261
C126	10 16V	181P06709	PC10-25	VTT10B25	QV1-41	EV-1222
C128	10 16V	181P06709	PC10-25	VTT10B25	QV1-41	EV-1222
C130	.1 10V	181P04003		TDC104M050EL	QDT1-2	S050-R109
C132	.1 10V	181P04003		TDC104M050EL	QDT1-2	S050-R109
C133	10 16V	181P06709	PC10-25	VTT10B25	QV1-41	EV-1222
C134	2.2 16V	181P06200	PC2-100	VTT2R2A50	QV1-21	EV-1617.1
C137	3.3 16V		PC5-50	VTT3R3A50	QV1-25	EV-1618.1
C138	.47 50V	181P06600	PC1-50	VTTR47A63	QV1-3	EV-1610
C139	47 16V	181P06206	PC50-16	VTT47016	QV1-73	EV-1226
C140	.47 50V	181P06600	PC1-50	VTTR47A63	QV1-3	EV-1610
C218	10 16V	181P06709	PC10-25	VTT10B25	QV1-41	EV-1222
C301	4.7 16V	181P06202	PC5-50	VTT4R7B50	QV1-31	EV-1619.1
C304	47 10V	181P06009	PC50-16	VTT47D16	QV1-73	EV-1226
C307	1 50V	181P06601	PC1-50	VTT1A5D	QV1-11	EV-1615
C309	47 16V	181P06206	PC50-16	VTT47D16	QV1-73	EV-1226
C314	10 16V	181P06709	PC10-25	VTT10B25	QV1-41	EV-1222
C327	.47 50\	181P06600	PC1-50	VTTR47A63	QV1-3	EV-1610
C329	10 16V	181P06709	PC10-25	VTT10B25	QV1-41	EV-1222
C337	.1 10V	181P04003		TDC104M050EL	QDT1-2	SD50-R109
C401	10 10V	181P06709	PC10-25	VTT10B25	QV1-41	EV-1222
C402	.1 10V	181P04003		TDC104M050EL	QDT1-2	S050-R109
C404	4.7 16V	181P06202	PC5-50	VTT4R7B50	QV1-31	EV-1619.1
C405	.47 50V	181P06600	PC1-50	VTTR47A63	QV1-3	EV-1610
C406	100 10V	181P06100	PC100-10	VTT100E10	QV1-93	EV-1131
C407	1000 16V	181L02505	PC1000-16	VTT1000L16	QV1-183	EV-1261
C408	2.2 16V	181P06200	PC2-100	VTT2R2A50	QV1-21	EV-1617.1
C409	47 10V	181P06009	PC50-16	VTT47016	QV1-73	EV-1226
C411	1000 10V	181L01105	PC1000-16	VTT1000L10	QV1-179	EV-1161
C501	10 10V	181P06709	PC10-25	VTT10B25	QV1-41	EV-1222
C502	.1 10V	181P04003		TDC104M050EL	QDT1-2	SD50-R109
C504	.47 50V	181P06600	PC1-50	VTTR47A63	QV1-3	EV-1610
C505	100 10V	181P06100	PC100-10	VTT100E10	QV1-93	EV-1131
C506	1000 16V	181L02505	PC1000-16	VTT1000L16	QV1-183	EV-1261
C508	47 10V	181P06009	PC50-16	VTT47D16	QV1-73	EV-1226
C510	1000 10V	181L01105	PC1000-16	VTT1000L10	QV1-179	EV-1161
C621	220 16V	181L01206	PC250-25	VTT220H16	QV1-117	EV-1240
C626	220 16V	181L01206	PC250-25	VTT220H16	QV1-117	EV-1240
C629	33 6.3V	181P06002	PC30-25	VTT33B10		EV-1225
C634	2.2 16V	181P06200	PC2-100	VTT2R2A50	QV1-21	EV-1617.1
C635	330 16V	181L01204	W8R300-35*	VTT330H16	QV1-133	EV-1245
C637	.22 16V			TDC224M050EL	QDT1-10	SD50-R229
	.022 10V	181P04001		TAS223K015P0A		
C638	.47 50V	181P06600	PC1-50	VTTR47A63	QV1-3	EV-1610
C639	2.2 16V	181P06200	PC2-100	VTT2R2A5D	QV1-21	EV-1617.1
C643	220 16V	181L01206	PC250-25	VTT220H16	QV1-117	EV-124D
C647	.47 50V	181P06600	PC1-50	VTTR47A63	QV1-3	EV-1610
C702	10 16V	181LP06709	PC10-25	VTT10B25	QV1-41	EV-1222
C710	10 16V	181LP06709	PC10-25	VTT10B25	QV1-41	EV-1222
C714	10 16V	181LP06709	PC10-25	VTT10B25	QV1-41	EV-1222
C716	.47 50V	181P06600	PC1-50	VTTR47A63	QV1-3	EV-1610
C720	10 16V	181LP06709	PC10-25	VTT10B25	QV1-41	EV-1222
	4.7 16V	181P06202	PC5-50	VTT4R7B50	QV1-31	EV-1619.1
C721	10 16V	181LP06709	PC10-25	VTT10B25	QV1-41	EV-1222
C723	220 16V	181P01206	PC250-25	VTT220H16	QV1-117	EV-1240

*Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CAPACITORS

ITEM No.	RATING	MFGR. PART No.	REPLACEMENT DATA			
			CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C1	.1 50V		WMF05P1	M192P1049R8	QFT2-215	1FT-P10
C3	.047 50V		DPMS2S47	EWF1A147 MAG5011	QF1-171	1P8-S47
C4	.01 50V					
C6	.047 50V		DPMS2S47	EWF1A147 MAG5011	QF1-171	1P8-S47
C7	.01 50V					
C9	.047 50V		DPMS2S47	EWF1A147	QF1-171	1P8-S47
C11	.047 50V		DPMS2S47	EWF1A147	QF1-171	1P8-S47
C102	15 50V 5%		NP015	CN0415		10TCC-Q15
C103	10 50V +.25	154P14009		CN0410		
C104	33 50V 5%		NP033	CN0433 MAG5011		10TCC-Q33
C105	.01 50V					
C106	22 50V 5%		NP022	CN0422 MAG5011		10TCC-Q22
C107	.01 50V			MAG5011		
C108	.01 50V					

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

CAPACITORS(cont)

ITEM No.	RATING	MFGR. PART No.	REPLACEMENT DATA			
			CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C109	10 50V +.25	154P14009		CN0410		
C110	.01 50V			MAG5011		
C111	.01 50V			MAG5011		
C112	.5 50V +.25	154D01009		CN0510		
C113	10 50V +.5	154P02102		*		10TCC-Q10
C114	100 50V 5%		NP0100	CN0310		10TCC-T10
C115	.001 50V			GP210		10TS-D10
C116	.001 50V			GP210		10TS-D10
C117	.01 50V 10%			MAG5011		
C118	.01 50V			MAG5011		
C119	5 50V +.5	154P14505		*		10TCC-V50
C120	.01 50V 10%			MAG5011		
C121	.01 50V			MAG5011		
C122	.0047 50V 10%		WMF1047	M192P4729R8	QFT2-63	1FT-D47
C123	.01 50V			MAG5011		
C124	.01 50V 10%			MAG5011		
C125	.001 50V		DPMS6D1	M192P10292	QFT2-1	1FT-D10
C127	.01 50V			MAG5011		
C129	.0047 50V 10%		WMF1047	M192P4729R8	QFT2-63	1FT-D47
C131	.01 50V			MAG5011		
C135	.068 50V			MAG50168		
C136	.001 50V		DPMS6D1	M192P10292	QFT2-1	1FT-D10
C201	.01 50V			MAG5011		
C202	5 50V +.5	154P14505		*		10TCC-V50
C203	.001 50V			GP210		10TS-D10
C204	68 50V 5%		NP068	CN0468		10TCC-Q68
C205	.001 50V			GP210		10TS-D10
C206	.047 50V		DPMS2S47	EWF1A147	QF1-171	1PB-S47
C207	.047 50V		DPMS2S47	EWF1A147	QF1-171	1PB-S47
C208	.01 50V			MAG5011		
C209	.047 50V		DPMS2S47	EWF1A147	QF1-171	1PB-S47
C210	100 50V 5%		NP0100	CN0310		10TCC-T10
C211	.01 50V			MAG5011		
C212	.001 50V			GP210		10TS-D10
C213	68 50V 5%		NP068	CN0468		10TCC-Q68
C214	56 50V 5%			CN0456		10TCC-Q56
C215	.068 50V			MAG50168		
C216	.047 50V		DPMS2S47	EWF1A147	QF1-171	1PB-S47
C217	22 50V 5%		NP022	CN0422		10TCC-Q22
C219	33 50V 5%		NP033	CN0433		10TCC-Q33
C220	33 50V 5%		NP033	CN0433		10TCC-Q33
C221	220 50V 5%					10TCC-T22
C222	100 50V 5%		NP0100	CN0310		10TCC-T10
C223	5 50V +.5	154P14505		*		10TCC-V50
C224	22 50V 5%		NP022	CN0422		10TCC-Q22
C225	1 50V +.5	154P02901		*		10TCC-V10
C226	.01 50V			MAG5011		
C227	.047 50V		DPMS2S47	EWF1A147	QF1-171	1PB-S47
C228	.047 50V		DPMS2S47	EWF1A147	QF1-171	1PB-S47
C229	.047 50V		DPMS2S47	EWF1A147	QF1-171	1PB-S47
C302	.001 50V			GP210		10TS-D10
C303	.033 50V 10%			M192P3339R8		192P3339R8
C306	.001 50V			GP210		10TS-D10
	.0015 50V 10%					
C308	.022 50V			M192P2239R8		192P2239R8
C310	.033 50V			M192P3339R8		192P3339R8
C311	120 50V			CN0312		10TCC-T12
C312	.047 50V		DPMS2S47	EWF1A147	QF1-171	1PB-S47
C313	.001 50V			GP210		10TS-D10
C315	.001 50V			GP210		10TS-D10
C316	330 50V 5%		GP330	GP333		10TS-T33
C317	.022 50V			M192P2239R8		192P2239R8
C318	22 50V 5%		NP022	CN0422		10TCC-Q22
C319	.022 50V			M192P2239R8		192P2239R8
C320	.001 50V 5%		CD19FD102J03	SX210		MWC-102
C321	.1 50V			MAG5001		
C322	56 50V 5%			CN0456		10TCC-Q56
C323	240 50V 5%					10TCC-T27
C325	.047 50V		DPMS2S47	EWF1A147	QF1-171	1PB-S47
C326	.047 50V		DPMS2S47	EWF1A147	QF1-171	1PB-S47
C328	100 50V 5%		NP0100	CN0310		10TCC-T10
C330	2 50V +.5	154P02004		*		10TCC-V22
C331	330 50V 5%		GP330	GP333		10TS-T33
C332	330 50V 5%		GP330	GP333		10TS-T33
C333	33 50V 5%		NP033	CN0433		10TCC-Q33
C334	120 50V			CN0312		10TCC-T12
C335	.047 50V		DPMS2S47	EWF1A147	QF1-171	1PB-S47
C336	22 50V 5%		NP022	CN0422		10TCC-Q22
C338	.047 50V		DPMS2S47	EWF1A147	QF1-171	1PB-S47
C403	.022 50V			M192P2239R8		192P2239R8
C410	.1 50V			MAG5001		
C412	.01 50V			MAG5011		
C413	.01 50V			MAG5011		
C414	.001 50V			GP210		10TS-D10
C415	470 50V		GP470	GP347		10TS-T47
C416	.01 50V			MAG5011		
C503	.022 50V			M192P2239R8		192P2239R8
C507	.001 50V			GP210		10TS-D10
C508	.1 50V			MAG5001		
C509	.1 50V			MAG5001		
C601	2 50V +.5	154P02004		*		10TCC-V22
C602	10 50V +.5	154P02102		*		10TCC-Q10
C603	15 50V 5%					
C604	3 50V +.5	154P14503		*		10TCC-V30
C605	5 50V +.5	154P02007		*		10TCC-V50
C606	4 50V +.5	154P02006		*		10TCC-V47
C607	47 50V 5%		NP047	CN0447		10TCC-Q47
C608	250V +.5	154P02004		*		10TCC-V22
C609	680 50V		GP680	GP368		10TS-T68
C610	680 50V		GP680	GP368		10TS-T68
C611	.01 50V			MAG5011		

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

CAPACITORS(cont)

ITEM No.	RATING	MFGR. PART No.	REPLACEMENT DATA			
			CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C612	3 50V +.25	154P13005		CN0533		
C613	8 50V +.5	154P13100		*		10TCC-V82
C614	5 50V +.25	154P13007		CN0568		
C615	.0047 50V		GP4700	GP247		5GA-D47
C616	.022 50V			M192P2239R8		192P2239R8
C617	.0047 50V		GP4700	GP247		5GA-D47
C618	1 50V +.25	154P14403		CN0510		
C620	.01 50V			MAG5011		
C622	.022 50V			M192P2239R8		192P2239R8
C623	.0047 50V		GP4700	GP247		5GA-D47
C624	.022 50V			M192P2239R8		192P2239R8
C625	.022 50V			M192P2239R8		192P2239R8
C627	.022 50V			M192P2239R8		192P2239R8
C628	10 50V +.25	154P14009		CN0410		
C630	680 50V		GP680	GP368		10TS-T68
C631	.047 50V		DPMS2S47	EWF1A147	QF1-171	1PB-S47
C632	.022 50V		DPMS2P22	EWF1A022	QF1-253	1PB-P22
C633	330 50V 5%		CD15FD331J03	SX333	QW1-39	MWA-331
C636	470 50V 5%		CD15FD471J03	SX347	QW1-42	MWA-471
C640	.047 50V		DPMS2S47	EWF1A147	QF1-171	1PB-S47
C641	.022 50V 10%		DPMS2P22	EWF1A022	QF1-253	1PB-P22
C642	.022 50V 10%		DPMS2P22	EWF1A022	QF1-253	1PB-P22
C644	.0047 50V 10%			M192P4729R8		192P4729R8
C645	.0047 50V 10%			M192P4729R8		192P4729R8
C646	.001 50V 10%			GP210		10TS-D10
C701	22 50V 5%		NP022	CN0422		10TCC-Q22
C703	.001 50V 10%			GP210		10TS-D10
C704	.0022 50V 10%		DPMS6D22	M192P2229R8	QFT2-27	1FT-D22
C705	68 50V 5%		NP068	CN0468		10TCC-Q68
C706	100 50V 5%		NP0100	CN0310		10TCC-T10
C707	33 50V 5%		NP033	CN0433		10TCC-Q33
C708	.022 50V		DPMS2P22	EWF1A022	QF1-253	1PB-P22
C709	.0022 50V 10%		DPMS6D22	M192P2229R8	QFT2-27	1FT-D22
C711	.0068 50V 10%		WMF1D68	EWF1A268	QF1-73	1PB-D68
C712	300 50V 5%		CD15FD3D1J03	SX330	QW1-38	MWA-301
C713	10 50V +.5	154P02102		*		10TCC-Q10
C715	2 50V +.5	154P02004		*		10TCC-V22
C717	120 50V 5%			CN0312		10TCC-T12
C718	10 50V +.5	154P02102		*		10TCC-Q10
C719	.001 50V 10%			GP210		10TS-D10
C722	.022 50V			M192P2239R8		192P2239R8
C725	.047 50V		DPMS2S47	EWF1A147	QF1-171	1PB-S47
C726	28 50V		NP033	CN0433		10TCC-Q33
CP1	.001	189P05401				
CP2	.001	189P05401				
CP3	.001	189P05401				
CP4	.001	189P05401				
CP5	.001	189P05401				
CP6	.001	189P05401				
CP7	.001	189P05401				
CP8	.001	189P05401				
VC301	10	202P10703				
VC601	10	202L00301				
VC602	10	202P10702				
VC603	10	202L00301				
VC701	60	202L00401				
VC702	50	202P10401				
VC703	50	202P10401				

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS (All wattages 1/2 watt, or less, unless listed)

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA		
			MFGR. PART No.	MALLORY PART No.	TRW PART No.
VR101	S Meter	20K	127M02102	RVA0911H253	U260R253B
VR102	Squelch Range	100K	127M02105	RVA0911H104	U260R104B
VR103	Squelch	20K	129L05702(18)		
VR201	Fine Tune	10K			
VR302	Power Meter	100K	127M02105	RVA0911H104	U260R104B
VR303	AMC	1000	127M02106	RVA0911H102	U260R102B
VR401	Tone-Left	50K	923L32702		
VR402	Volume-Left	50K Tap @ 6200	19P00304(5)(19)		
VR501	Tone-Right	50K			
VR502	Volume-Right	50K Tap @ 6200	923L34001(1)		
	Power Switch				
VR404	Fader-Left	40 2W	129L05901		
VR504	Fader-Right	40 2W			
VR503	Balance	20K	129L06101		
VR601	19kHz	10K	127M02101	RVA0911H103	U260R103B
VR701	Preamp Level	100K	127M02105	RVA0911H104	U260R104B

(1) Models 3231847/1849.
(5) Number on unit.
(18) Includes VR103 and VR201.
(19) Includes Channel Selector, VR401, VR402, VR501, VR502 and Switch.

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA	
		MFGR. PART No.	WORKMAN PART No.
TH301	195 Cold NTC	265P04201 (22D27)	

ITEM No.	RATING	REPLACEMENT DATA	
		MFGR. PART No.	WORKMAN PART No.

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L2	RF Choke (8.2uH)				
L201	RF Choke	321P00108			
L202	RF Choke	351M00601			
L203	VCO	409K02600			
L204	RF Choke	321P00108			
L301	RF Choke	351L00104			
L302	XMT Driver (27MHz)	409K01502			
L303	RF Choke	351M00201			
L304	Final (27MHz)	409K01500			
L305	XMT Antenna (27MHz)	409K01501			
L306	XMT Antenna (27MHz)	409K01501			
L601	FM Antenna	361M00101			
L602	FM Input				
L603	FM RF				
L604	RF Choke	321P00106			
L605	RF Choke	320D04601			
L606	FM Oscillator	321P00106			
L607	FM IF (10.7MHz)				
L701	RF Choke	351L00103			
L702	AM Antenna				
L703	AM RF				
L704	RF Choke	321P00105			
L705	Osc. Tuning				
T101	Rec Antenna (27MHz)	409K02300			
T102	Rec RF (27MHz)	409K02200			
T103	Rec Mixer (10.695MHz)	374L00201			
T104	Rec Mixer (10.695MHz)	374L00201			
T105	IF (455kHz)	374L00103			
T106	IF (455kHz)	374L00103			
T201	PLL Amp (37MHz)	409K02202			
T301	RF Amp (27MHz)	409K01001			
T601	FM Mixer (10.7MHz)	374L00201			
T602	FM IF (10.7MHz)	374M00301			
T701	AM Osc. (550kHz)	373M00201			
T702	AM IF (262.5kHz)	374L00501			
T703	AM IF (262.5kHz)	374L00504			
T704	AM IF (262.5kHz)	374L00502			
T705	AM IF (262.5kHz)	374L00503			

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
L1	1.3A	.4	3.5mH	351PD0105			

TRANSFORMER

ITEM No.	TURNS RATIO			REPLACEMENT DATA			NOTES
	PRI.	SEC. 1	SEC. 2	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T401	1	1.5	2.5CT	352L00301			

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA						
		PART No.		BUSS PART No.		LITTELFUSE PART No.		WORKMAN PART No.
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	HOLDER	DEVICE
F1	3A 250V Quick Acting			AGC3	HRK	312003	150145	FG3-2

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
CF	Ceramic Filter	296P01901	455kHz
CF601	Filter	296P01007	10.7MHz
CF602	Filter	296P01007	10.7MHz
DP1	LED		Channel Display
FIL	Filter	L004-1(1)	27MHz
FL1	Ferrite Core		
J101	Socket	449L00302	Radio Antenna
J301	Socket	449L02303	CB Antenna
LD601	LED		Stereo Indicator
M1	Meter	299L00301	S/P
MIC	Microphone	485L01001	Microphone Assembly
PL1	Lamp	253L00405	Dial
PL2	Lamp	253L00405	Dial
PL3	Lamp	253L00404	Meter
RY	Relay	287L01801	Transmit
S401	Switch	439P00304	Channel Select (Part of Volume and Tone Control)
SW1	Switch		On/Off (On Volume Control VR404)
SW2	Switch		Radio/Standby/CB
SW3	Switch		FM/AM
X201	Crystal	285L00101	10.240MHz
X202	Crystal	285L00103	36.190MHz
X301	Crystal	285L00104	10.695MHz
	P.C. Board	923K17502	Radio
	P.C. Board	923K17503	Connector
	P.C. Board	923K17602	CB
	P.C. Board	923L32702	Channel Selector
	P.C. Board	923L32901	LED
	P.C. Board	923L33801	Mod.
	P.C. Board	923L33901	Squelch

(1) Number on unit.

CABINETS & CABINET PARTS (When ordering specify model, chassis & color)

ITEM	PART No.
Cover, Bottom	590L52902
Panel, Front	93L10601(1)
	93L10602(2)
	963L10603(3)
	963L10604(4)
Nose Piece	702K07701(1)
	702K07902(2)
	702K08001(3)
	702K07801(4)

ITEM	PART No.
Knob, Balance	704M18401
Knob, Squelch	704M17301
Knob, Fine Tune	704M17002
Button, AM/FM Switch	704M18501
Dial	707M06201
(1) Model 3231850.	
(2) Model 3231848.	
(3) Model 3231849.	
(4) Model 3231847.	

WIRING DATA

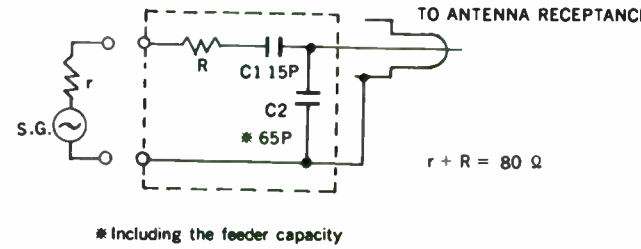
Cable (Speaker)(Unshielded).....	Use BELDEN No. 8782 (AWG24)(4 colors)
Shielding Strap.....	Use BELDEN No. 8660 (3/16" width)
Hook-up Wire (General Use).....	Use BELDEN No. 8524 (AWG22)(13 colors)
Hook-up Wire (Shielded).....	Use BELDEN No. 8401 (Braided Shield)(1 conductor)(AWG25)
	Use BELDEN No. 8421 (Spiral Shield)(1 conductor)(AWG25)
	Use BELDEN No. 8737 (Spiral Shield)(2 conductor)(AWG22)
Coax (Transmission Line).....	Use BELDEN No. 8259 (RG-58A/U, 50 ohms)
Coax (Transmission Line).....	Use BELDEN No. 8219 (RG-58A/U, 50 ohms)(Low Loss)
Microphone Cable (Coiled).....	Use BELDEN No. 8491 (4 conductor-2 shielded)(6 ft.)(AWG23)

ALIGNMENT PROCEDURES

AM ALIGNMENT

EQUIPMENT REQUIRED

1) AM signal generator: 450~1700 kHz
2) Dummy antenna: Refer to Fig. 2
3) Output meter: AC voltmeter
4) Power voltage: DC 13.2V



* Including the feeder capacity

Fig. 2 AM DUMMY ANTENNA

PROCEDURE

1) Connect output meter.
2) Set volume control to maximum, and tone control to treble.
3) Connect signal generator to antenna receptacle through dummy antenna.
4) Keep signal generator output low enough to prevent A.G.C. overload.
5) Move slide switch to right for AM band reception.
6) Refer to Fig. 1.

•AM IF & RF ALIGNMENT USING AM SIGNAL GENERATOR

STEP	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	ADJUST	REMARKS
1	455 kHz (400 Hz, 30% Mod.)	Point of non-interference	CF401 T402	Adjust for maximum output
2	520 kHz (400 Hz, 30% Mod.)	Tune for min.	T401	Adjust for maximum output
3	1650 kHz (400 Hz, 30% Mod.)	Tune for max.	TC402	Adjust for maximum output
4	1400 kHz (400 Hz, 30% Mod.)	Tune to signal	TC001 TC401	Adjust for maximum output
5	Repeat step 2, 3 and 4 until no further increase. Step 4 should be last step.			

When radio is installed in car adjust trimmer capacitor TC001 for maximum output while receiving a weak station near 1400 kHz.

•AM IF ALIGNMENT USING AM SWEEP GENERATOR

High side of sweep generator through 0.01 mfd to point Ⓐ (Antenna receptacle A.J.), low side to ground.

STEP	DIAL SETTING	INDICATOR CONNECTION	ADJUST	REMARKS
6	Point of non-interference	Vert amp. of scope to point Ⓒ (VR Terminal) low side to ground	CF401 T402	Adjust CF401, T402 for maximum gain as shown in Fig 3.

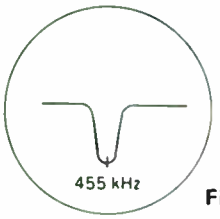


Fig. 3

FM ALIGNMENT

EQUIPMENT REQUIRED

1) FM signal generator: 80 ~130 MHz
2) Dummy antenna: Refer to Fig.4
3) Output meter: AC voltmeter
4) Power voltage: DC 13.2V

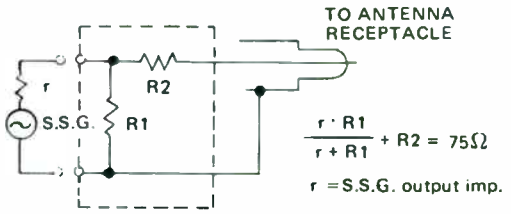


Fig. 4 FM DUMMY ANTENNA

PROCEDURE

1) Connect output meter across speaker terminals.
2) Set volume control to maximum and tone control to treble.
3) Connect signal generator to antenna receptacle through dummy antenna.
4) Slide the AM/FM switch marked "FM" to set the radio for FM reception
5) Refer to Fig. 1

•FM IF ALIGNMENT USING FM SWEEP GENERATOR

High side of sweep generator through 0.01 mfd to point Ⓑ (the lead of 10.7 MHz trap coil), low side to ground.

STEP	GENERATOR FREQUENCY	DIAL SETTING	INDICATOR CONNECTION	ADJUST	REMARKS
7	10.7 MHz	Point of non-interference	Vert. amp. of scope to point Ⓒ (VR terminal), low side to ground	T203	Detune T203 until waveform similar to Fig. 5 is obtained
8	10.7 MHz	Point of non-interference	Vert. amp. of scope to point Ⓒ (VR terminal), low side to ground.	T201 T202	Adjust T101, T201 and T203 for maximum
9	10.7 MHz	Point of non-interference	Vert. amp. of scope to point Ⓒ (VR terminal), low side to ground.	T203	Adjust T203 to place marker at center of crossover lines as shown in Fig. 6

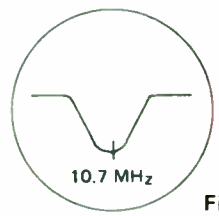


Fig. 5

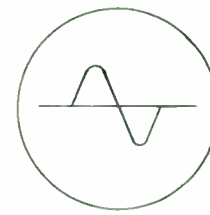


Fig. 6

•FM ALIGNMENT USING FM SIGNAL GENERATOR

STEP	GENERATOR FREQUENCY	DIAL SETTING	INDICATOR CONNECTION	ADJUST	REMARKS
10	87.0 MHz (400 Hz Mod 22.5 kHz dev.)	Tune for min.	Output meter across voice coil	TC103	Adjust TC103 for maximum output
11	98MHz (400 Hz Mod 22.5 kHz dev.)	Tune to signal	Output meter across voice coil	TC101 TC102	Adjust TC101, TC102 for maximum output
12	98 MHz (400 Hz Mod. 22.5 kHz dev.)	Tune to signal	Output meter across voice coil	VR201	Adjust VR201 for limiting sensitivity at 15 dB.

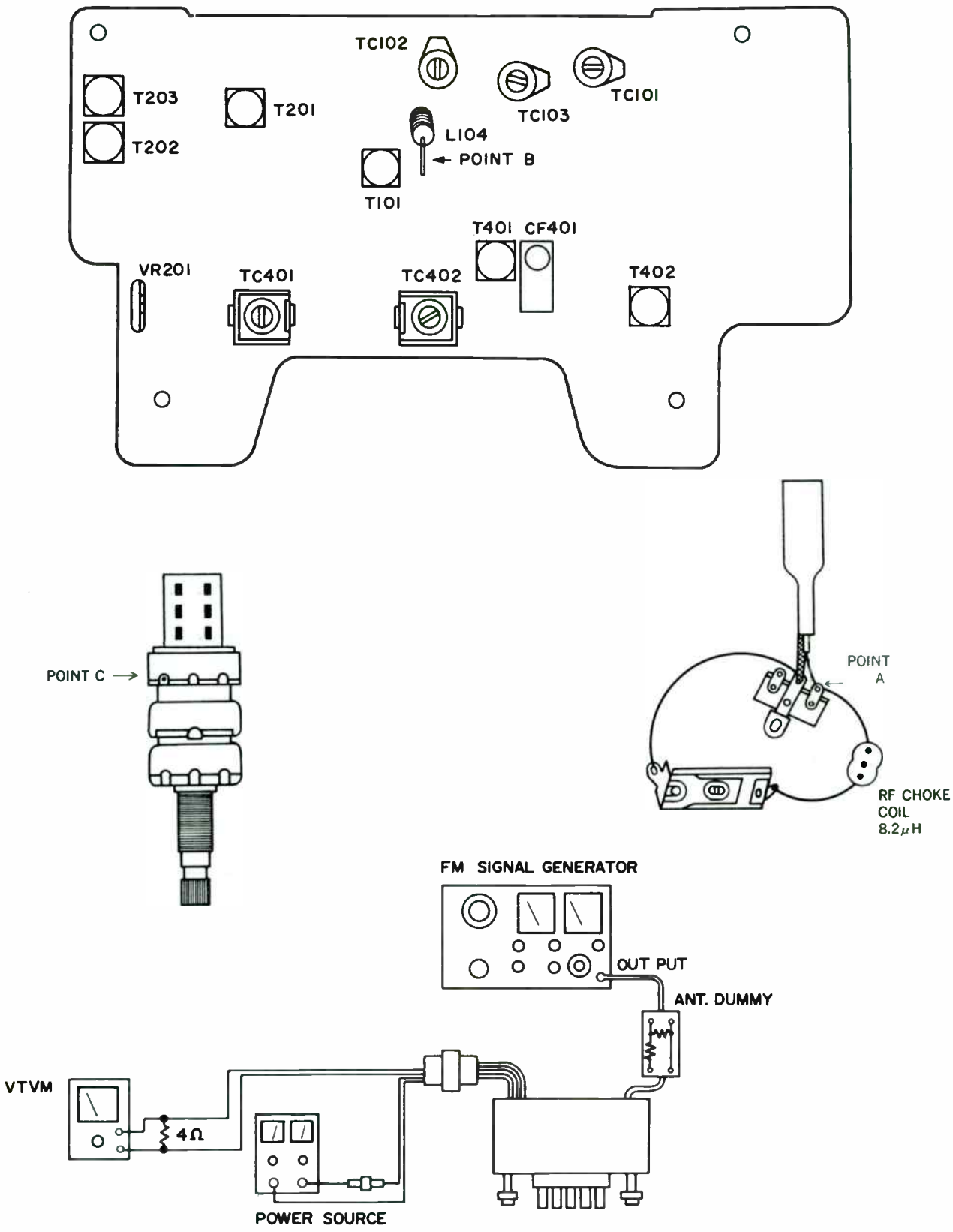
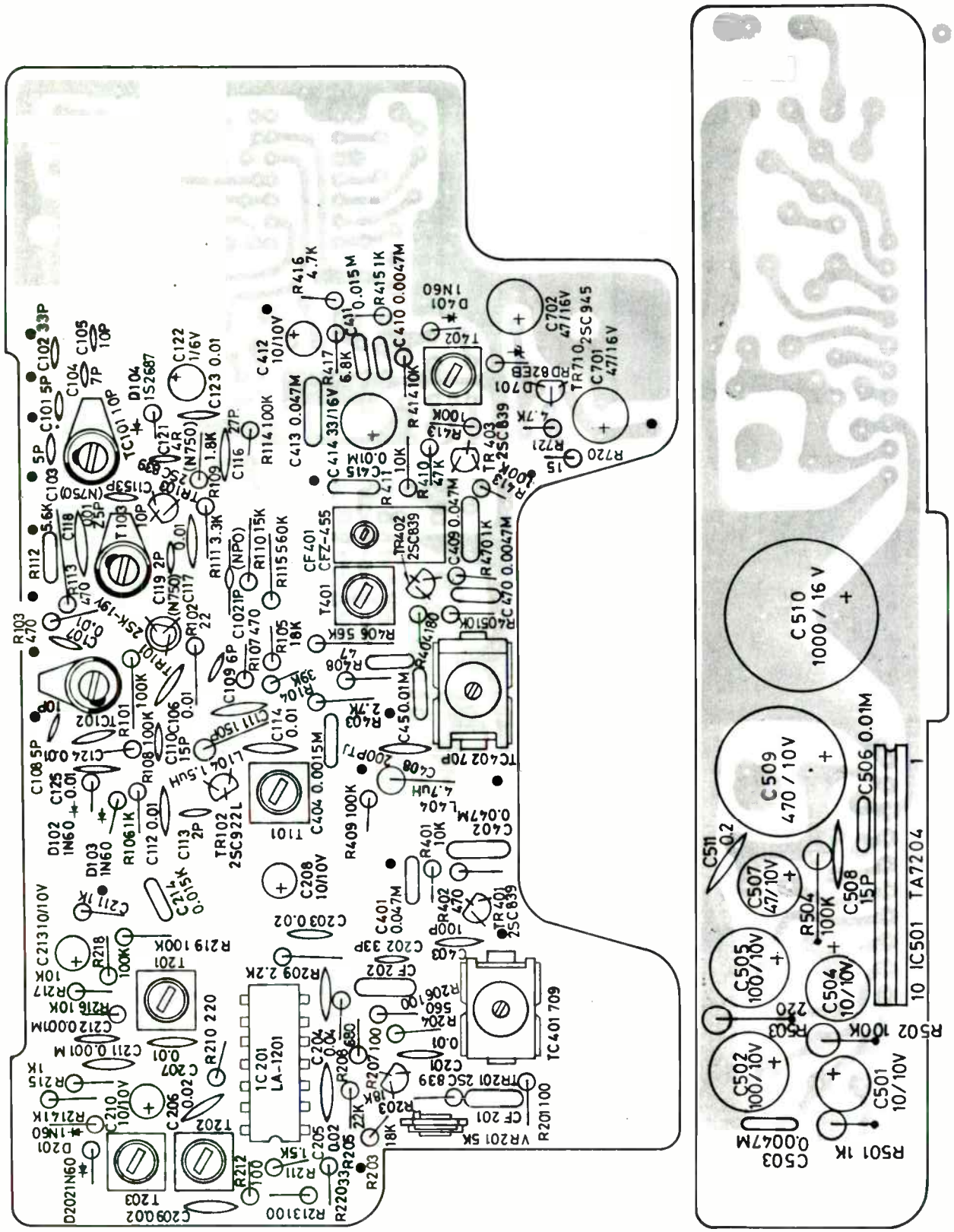
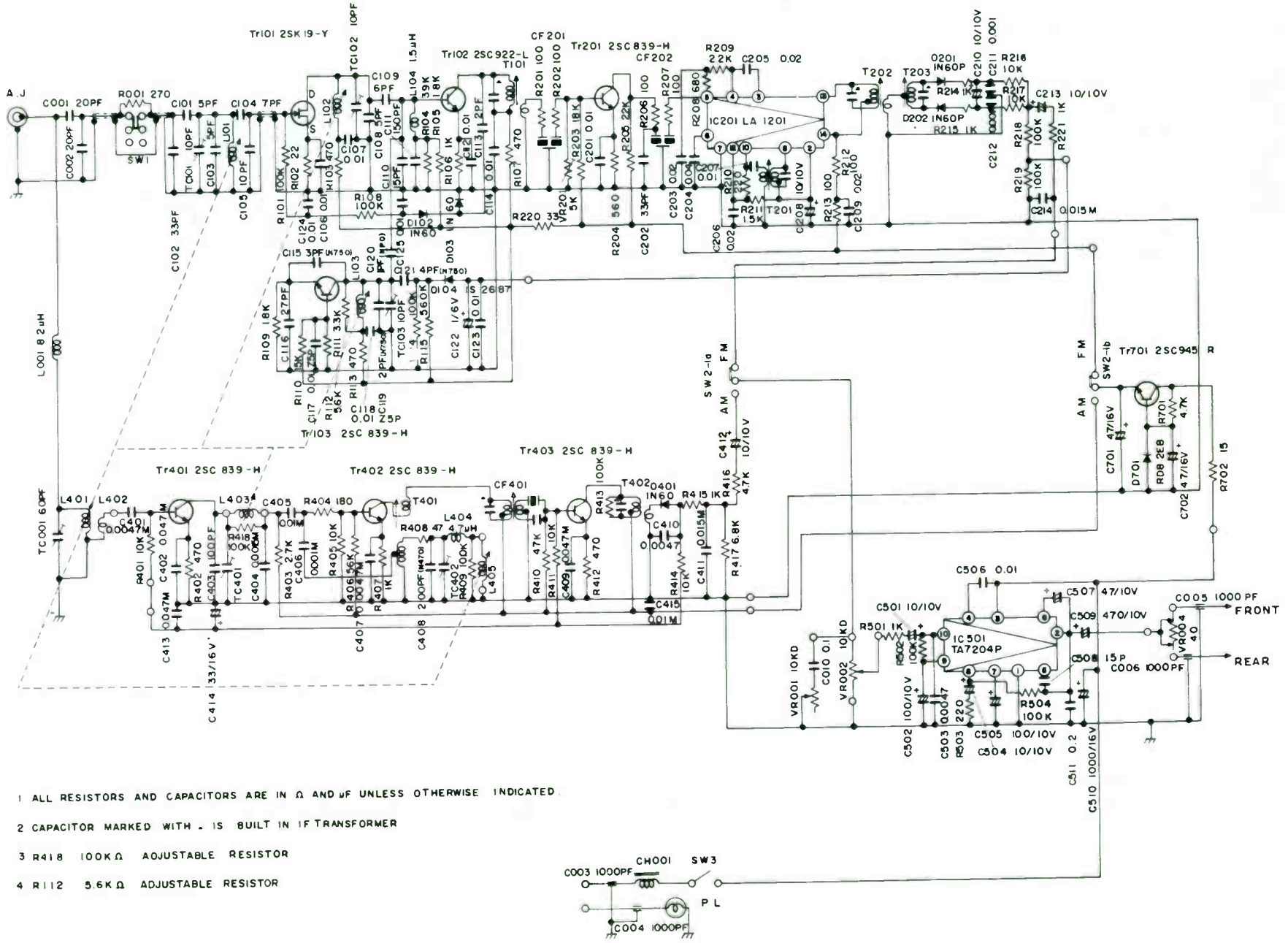


Fig. 1 Component View of Alignment Point



Main PCB Component Side — Top View — Audio Amp PCB (Component Side)



1 ALL RESISTORS AND CAPACITORS ARE IN Ω AND μF UNLESS OTHERWISE INDICATED.

2 CAPACITOR MARKED WITH ▲ IS BUILT IN IF TRANSFORMER

3 R418 100KΩ ADJUSTABLE RESISTOR

4 R112 5.6KΩ ADJUSTABLE RESISTOR

	F.E.T. TR101	TR102	TR103	TR201	* TR401	* TR402	* TR403	* TR701
BASE	G / 0.1	1.1	1.2	0.8	(0.8)	(1.0)	(1.8)	7.7
EMITTER	S / 0	0.5	0.6	0.2	(0)	(0.46)	(1.1)	7.0
COLLECTOR	D / 4.8	6.6	6.7	6.4	(7.0)	(7.0)	(7.0)	13.8

IC201 (LA 1201)

PIN	VOLTAGE	PIN	VOLTAGE
1	—	8	3.0
2	3.0	9	—
3	0.7	10	2.0
4	1.28	11	0
5	1.26	12	2.0
6	0.58	13	5.8
7	0	14	5.8

IC501 (TA-7204P)

PIN	VOLTAGE	PIN	VOLTAGE
1	0	6	12.0
2	6.7	7	13.2
3	14.0	8	6.5
4	8.0	9	6.7
5	1.3	10	6.5

All Voltages Measured With a VTVM With No Signal Input in FM Position
*( ) Voltages Taken in AM Position
14.0 Volt D.C. Power Supply

ELECTRICAL PARTS

SYMBOL	DESCRIPTION	PART NO.
CAPACITORS		
C101	Ceramic 5pf	6701087
C102	Ceramic 33pf	6701106
C103	Ceramic 5pf	6701087
C104	Ceramic 7pf	6701089
C105	Ceramic 10pf	6701091
C106	Ceramic 0.01uf	6701117
C107	Ceramic 0.01uf	6701117
C108	Ceramic 5pf	6701087
C109	Ceramic 6pf	6701088
C110	Ceramic 15pf	6701095
C111	Ceramic 150pf	6701096
C112	Ceramic 0.01uf	6701117
C113	Ceramic 2pf	6701084
C114	Ceramic 0.01uf	6701117
C115	Ceramic 3pf N-750	6701065
C116	Ceramic 27pf	6701100
C117	Ceramic 0.01uf +5p	6701112
C118	Ceramic 0.01 +5p	6701112
C119	Ceramic 2pf N-750	6701069
C120	Ceramic 1pf NP-0	6701108
C121	Ceramic 4pf N-750	6701071
C122	Electrolytic 1uf/6V	6701293
C123	Ceramic 0.01uf	6701117
C124	Ceramic 0.01uf	6701117
C125	Ceramic 0.01uf	6701117
C201	Ceramic 0.01uf	6701117
C202	Ceramic 33pf	6701106
C203	Ceramic 0.02uf	6701116
C204	Ceramic 0.04uf	6701663
C205	Ceramic 0.02uf	6701116
C206	Ceramic 0.02uf	6701116
C207	Ceramic 0.01uf	6701117
C208	Electrolytic 10uf/10V	6701627
C209	Ceramic 0.02uf	6701116
C210	Electrolytic 10uf/10V	6701627
C211	Mylar 0.001uf	6701154
C212	Mylar 0.001uf	6701154
C213	Electrolytic 10uf/10V	6701627
C214	Mylar 0.015uf	6701162
C401	Mylar 0.0047uf	6701156
C402	Mylar 0.047uf	6701179
C403	Ceramic 100pf	6701092
C404	Mylar 0.0015uf	6701171
C405	Mylar 0.01uf	6701170
C406	Mylar 0.001uf	6701154
C407	Mylar 0.0047uf	6701156
C408	Ceramic 200pf N-470	6701068
C409	Mylar 0.047uf	6701179
C410	Mylar 0.0047uf	6701156
C411	Mylar 0.015uf	6701162
C412	Electrolytic 10uf/10V	6701627
C413	Mylar 0.047uf	6701179
C414	Electrolytic 33uf/16V	6701304
C415	Mylar 0.01uf	6701170
C501	Electrolytic 10uf/10V	6701627
C502	Electrolytic 100uf/10V	6701299
C503	Mylar 0.0047uf	6701156
C504	Electrolytic 10uf/10V	
C505	Electrolytic 100uf/10V	
C506	Mylar 0.01uf	6701170
C507	Electrolytic 47uf/10V	6701625
C508	Ceramic 15pf	6701095
C509	Electrolytic 470uf/10V	6701303
C510	Electrolytic 1000uf/16V	6701306
C511	Ceramic 0.2uf	6701114
C701	Electrolytic 47uf/16V	6701633
C702	Electrolytic 47uf/16V	6701633
C001	Ceramic 20pf	6701097
C002	Ceramic 20pf	6701097
C003, 4, 5, 6	Feed Through Assy.	6701358
C010	Ceramic 0.1uf	6701113
TC001	Trimmer 60pf	6701368
TC101	Ceramic Trimmer 10pf	6701349
TC102	Ceramic Trimmer 10pf	6701349
TC103	Ceramic Trimmer 10pf	6701349
TC401	Trimmer 70 pf	6702214
TC402	Trimmer 70pf	6702214
RESISTORS, ALL ARE 1/4 W 10% UNLESS OTHERWISE SPECIFIED		
R001	2200 Ohm	6701033
R101	100K Ohm	6701019

ELECTRICAL PARTS

SYMBOL	DESCRIPTION	PART NO.	SYMBOL	DESCRIPTION	PART NO.
RESISTORS, ALL ARE 1/4 W 10% UNLESS OTHERWISE SPECIFIED					
R102	22 Ohm	6701029	R406	56K Ohm	6701048
R103	470 Ohm	6701043	R407	1K Ohm	6701017
R104	3.9K Ohm	6701040	R408	47 Ohm	6701042
R105	18K Ohm	6701028	R409	100K Ohm	6701019
R106	1K Ohm	6701017	R410	47K Ohm	6701595
R107	470 Ohm	6701043	R411	10K Ohm	6701018
R108	100K Ohm	6701019	R412	470 Ohm	6701043
R109	1.8K Ohm	6701027	R413	100K Ohm	6701019
R110	15K Ohm	6701024	R414	10K Ohm	6701018
R111	3.3K Ohm	6701037	R415	1K Ohm	6701017
R112	5.6K Ohm 1/8W	6701047	R416	4.7K Ohm	6701044
R113	470 Ohm	6701043	R417	6.8K Ohm	6701052
R114	100K Ohm	6701019	R418	100K Ohm	6701019
R115	560K Ohm	6701049	R501	1K Ohm	6701017
R201	100 Ohm	6701016	R502	100K Ohm	6701019
R202	100 Ohm	6701016	R503	220 Ohm	6701030
R203	18K Ohm	6701028	R504	100K Ohm	6701019
R204	560 Ohm	6701600	R601	1K Ohm	6701017
R205	2.2K Ohm	6701031	R701	4.7K Ohm	6701044
R206	100 Ohm	6701016	R702	15K Ohm	6701597
R207	100 Ohm	6701016	VR201	5K Ohm Semi-Variable	6701602
R208	680 Ohm	6701051	VR001,2	Volume/Tone Control 10K Ohm X 2	6702208
R209	2.2K Ohm	6701031	VR004	Fader Control 40 Ohm	6702209
R210	220 Ohm	6701030			
R211	1.5K Ohm	6701023			
R212	100 Ohm	6701016	SEMI-CONDUCTORS		
R213	100 Ohm	6701016			
R214	1K Ohm	6701017	TR101	FET 2SK19-Y	6701317
R215	1K Ohm	6701017	TR102	Transistor 2SC922	6701315
R216	10K Ohm	6701018	TR103	Transistor 2SC839	6701312
R217	10K Ohm	6701018	TR201	Transistor 2SC839	6701312
R218	100K Ohm	6701019	TR401	Transistor 2SC839	6701312
R219	100K Ohm	6701019	TR402	Transistor 2SC839	6701312
R220	33 Ohm	6701598	TR403	Transistor 2SC839	6701312
R221	1K Ohm	6701017	TR701	Transistor 2SC945	6701316
R401	10K Ohm	6701018	IC201	Integrated Circuit LA1201	6701311
R402	470 Ohm	6701043	D102	Diode IN600	6701322
R403	2.7K Ohm	6701034	D103	Diode IN60P	6701322
R404	18 Ohm	6701026	D104	Diode 1S2687 Varactor	6701327
R405	10K Ohm	6701018			

MODEL 6703007/3107
ELECTRICAL PARTS

SYMBOL	DESCRIPTION	PART NO.
SEMI-CONDUCTORS		
D201	Diode IN60P	6701322
D202	Diode IN60P	6701322
D401	Diode IN60P	6701322
D701	Diode RD8.2EB Zener	6701329
TRANSFORMERS, CHOKES & MISCELLANEOUS		
T101	FM IFT (orange core)	6701337
T201	FM IFT (violet core)	6701338
T202	FM IFT (pink core)	6701011
T203	FM IFT (blue core)	6701010
T401	AM OSC (red core)	6701318
T402	AM IFT (black core)	6701319
L001	Antenna Loading Coil 8.2uH	6701006
L104	Choke Coil 1.5uH	6701332
L404	Choke Coil 4.7uH	6701005
CF201	FM Ceramic Filter 10.7 MHz	6701343
CF202	FM Ceramic Filter 10.7 MHz	6701343
CF401	AM Ceramic Filter (yellow core) 455KHz	6701340

REF. NO.	DESCRIPTION	PART NO.
	Knob, AM/FM Switch	6702196
	Label, Nose Cone	6702205
	Nose Cone	6701564
	Dial Scale	6702204
	Outer Knob	6701571
	Inner Knob	6701570
	Back Plate	6702198
	Shaft Nut 9MM	6701417
	Shaft Washer 9MM	6701393
	Dog Washer (L)	6702192
	Switch Bracket	6702194
	AM/FM Switch	6702210
	Dog Washer (R)	6702193
	Rear Panel, Chassis	6702189
	Front Panel, Chassis	6702187
	Dial Pointer	6702199
	Special Washer	N/A
	Fader Control Assy.	6702209
	Volume Control Assy.	6702208
	Pushbutton Tuner	6702195
	6 Pin X 5 Connector Chassis Side	6701561
	Cord Clamp	6701136
	Feed Through Cap. Assy. 4 Pole	6701358
	PCB Bracket (R)	6702190
	PCB Bracket (L)	6702191
	Antenna Cord Clamp	6701272
	Antenna Jack w/ Coaxial Lead	6701290
	Trimmer Capacitor 60p	6701368
	Lug Terminal	6702211
	Nut 5MM	6701401
	Internal Tooth Washer 5MM	6701395
	Flat Washer 5MM	6701394
	Slotted Set Screw 5X16MM	6701386
	Chassis	6702186
	P.C. Board, Main	N/A
	Reflector, Pilot Lamp	N/A
	Pilot Lamp	6701123
	Lamp Holder	6702197
	Bracket, Power Choke	N/A
	Power Choke	6701371

SERVICE NOTES

1. Make certain the power lead is connected properly to power source, otherwise damage to radio may result. If a battery eliminator is used as a power source in place of a battery, it must be filtered and regulated. (current capacity should be more than 2 amps).
2. When replacing a power output IC remember to use the IC specified in the parts list; Coat the IC film with silicon grease and securely tighten the mounting screw.
3. Integrated Circuits (IC) are used in this radio. Because the ICs are direct-coupled devices, voltage readings at the element normally indicate stage performance. As in all-electronic equipments, readings within 10 % of the indicated valves are acceptable. Allowance must also be made for variations in supply voltage. It is expected that any breakdown within the IC results in drastic changes of the operating voltages at the terminals.

WARNING: In using meters, signal generators, and any tools in servicing ICs, extreme care is needed. DO NOT SHORT THE IC TERMINALS TO THE PC BOARD OR TO EACH OTHER. THE IC WILL BE INSTANTANEOUSLY DESTROYED.

ALIGNMENT PROCEDURE

Alignment is performed at factory with laboratory equipment. Therefore, before alignment is attempted the unit should be thoroughly checked for circuit troubles.

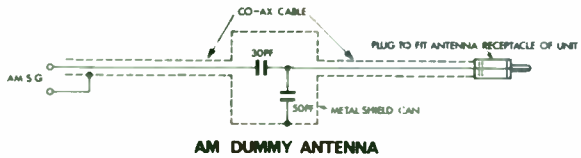
NOTES:

1. Check for specified source voltage—DC, 14.4 volts.
2. Connect an AC voltmeter (VTVM) across speaker or dummy load (8 ohms, 10W, wirewound resistor) See Fig. 2.
3. Signal input must be kept as low as possible to avoid overload and clipping (use highest possible sensitivity of output indicator)
4. Repeat adjustment to insure good results.
5. Non-metalic alignment tools must be used (espeically at FM alignment)
6. Alignment location details: See Fig. 7, 8.

AM IF & RF ALIGNMENT USING AM SIGNAL GENERATOR

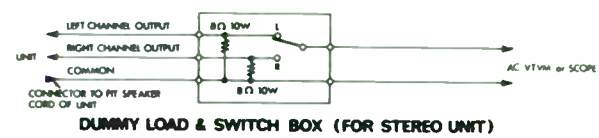
Set the radio for AM reception. AM signal generator should be coupled with antenna receptacle (J1) through dummy antenna. Set volume control to maximum and tone to treble.

STEP	GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1	262.5KHz 400Hz, 30% mod.	Around 1000KHz of non-interference	AC VTVM across voice coil or dummy load	T103 T104	Adjust for maximum
2	1630KHz 400Hz, 30% mod.	High frequency end stop	"	C143	"
3	1400Hz 400Hz, 30% mod.	Tune to signal	"	C2 C136	"



AM DUMMY ANTENNA

Fig. 1



DUMMY LOAD & SWITCH BOX (FOR STEREO UNIT)

Fig. 2

FM IF ALIGNMENT USING FM SWEEP GENERATOR

Set the radio for FM reception. High side of sweep generator through 0.01 mfd. to test point Ⓐ, low side to ground. Use only enough marker signal for indication. Set volume control to minimum and tone to treble.

STEP	RADIO DIAL SETTING	GENERATOR FREQUENCY	OUTPUT INDICATOR	ADJUST	REMARKS
1	10.7MHz (sweep)	Point of non-interference.	Vert. amp of scope to point B , low side to ground	T102	Adjust T102 to obtain symmetry of response similar to Fig. 3 according to the colour of Ceramic Filters used.
2	"	"	"	T101	Adjust T101 for maximum amplitude and straightness of line
3	Repeat above steps 1 and 2 twice or three times.				

NOTE:

1. FM SWEEP GENERATOR should be definitely required for FM IF alignment, because Ceramic Filters are used in IF circuit.
   Five kinds of Ceramic Filters are used and they are different in their center frequencies as shown below.
   RED; 10.7MHz, BLUE; 10.67MHz, ORANGE; 10.73MHz, BLACK; 10.64MHz, WHITE; 10.76MHz.
2. If the Ceramic Filters except RED are used, 10.7MHz marker will not appear at the center of "S" curve. (See Fig. 3)
3. The color of Ceramic Filters used is different according to the production lots, but the same color dotted Ceramic Filters should be replaced as one pair on the individual units.
4. Be careful of static coupling between output lead of sweep generator and input lead of scope. The leads must be as short as possible and carefully shielded.

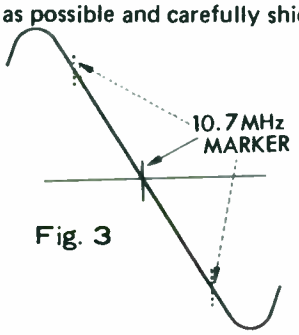
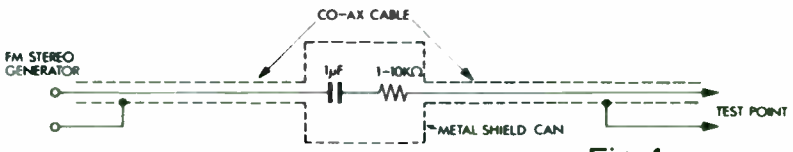


Fig. 3



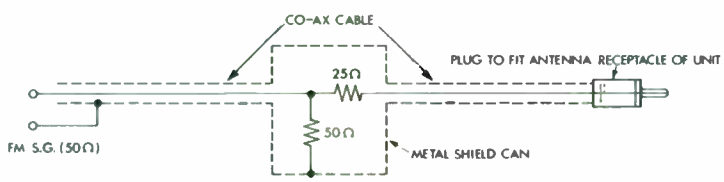
FM IF COUPLING CIRCUIT

Fig. 4

FM RF ALIGNMENT USING FM SIGNAL GENERATOR

Set the radio for FM reception. Connect FM signal generator with antenna receptacle (J1) through FM dummy antenna. FM S.G. output level; 5-10 microvolts. Set volume control to 0.5 watts output (2.0 volts at 8 ohms load) and tone to treble.

STEP	GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT INDICATOR	ADJUST	REMARKS
1	109 MHz (400Hz, 22.5KHz dev)	Low frequency end stop	Output meter across 8 ohms load.	C117 (OSC)	Adjust for maximum
2	108MHz (400Hz, 22.5KHz dev)	Tune for Signal	"	C103 (ANT) C107 (RF)	"



FM DUMMY ANTENNA

Fig. 5

FM MULTIPLEX ALIGNMENT USING FREQUENCY COUNTER

Set the radio for FM reception.

STEP	OUTPUT INDICATOR	ADJUST	REMARKS
1	Connect frequency counter to test point Ⓒ	R-204	Adjust to 19,000KHz (18,950--19,050KHz is permissible)

Note: Test point Ⓑ should be grounded while adjusting R-204.

FM MULTIPLEX ALIGNMENT WITHOUT USING FREQUENCY COUNTER

STEP	RADIO DIAL SETTING	ADJUST	REMARKS
1	Tune radio strong FM STEREO station (radio should be center tuned)	R-204	Rotate R-204 CW or CCW and mark the points where the STEREO INDICATOR LAMP is turned off. Then, fix R-204 at the center of the above marked point.

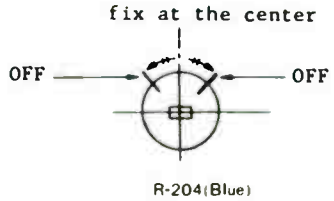


Fig. 6

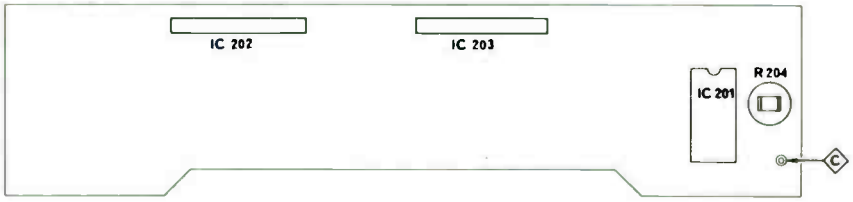


Fig. 7

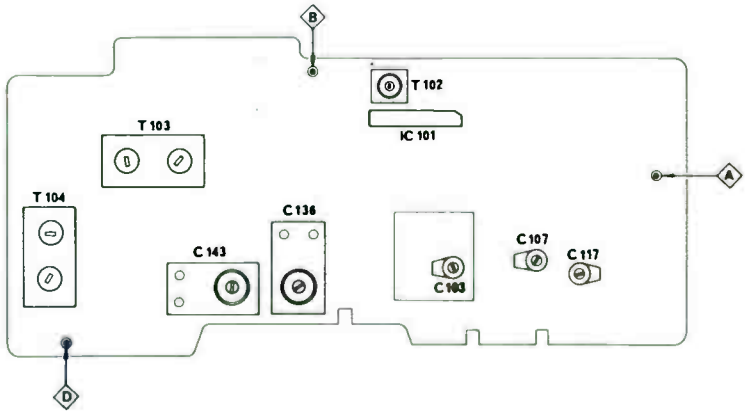
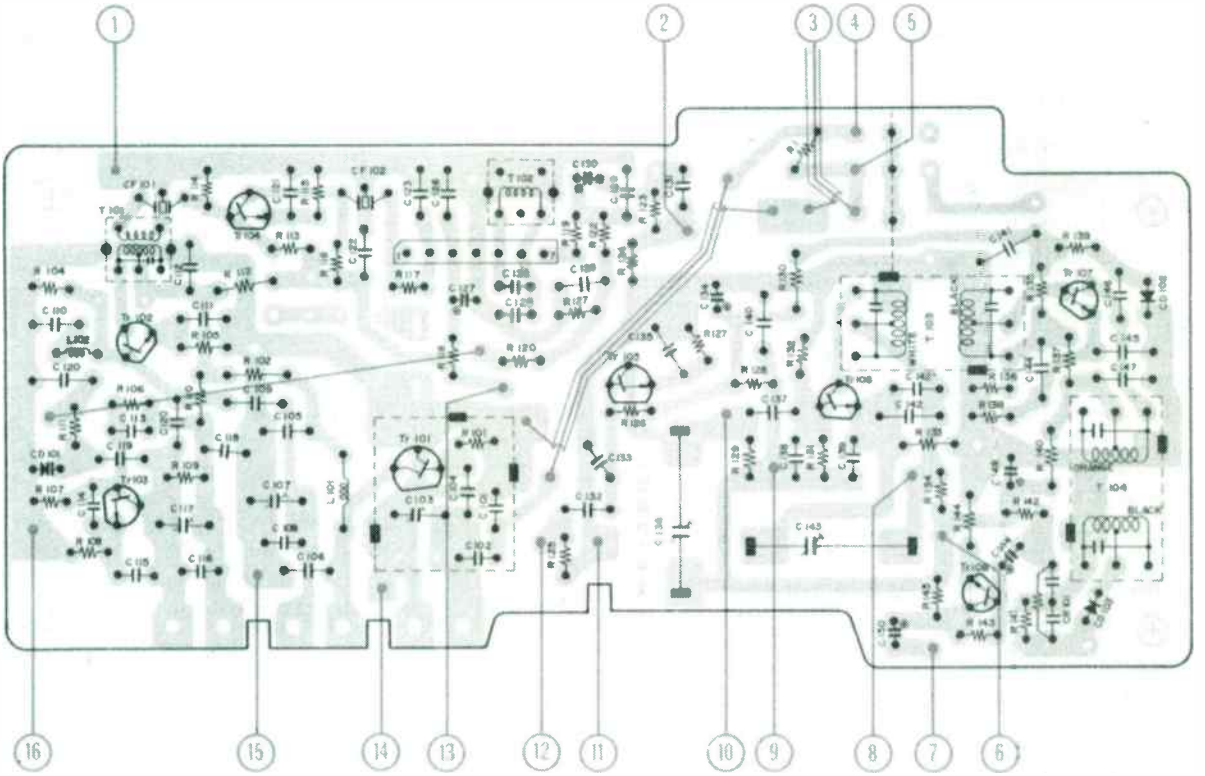
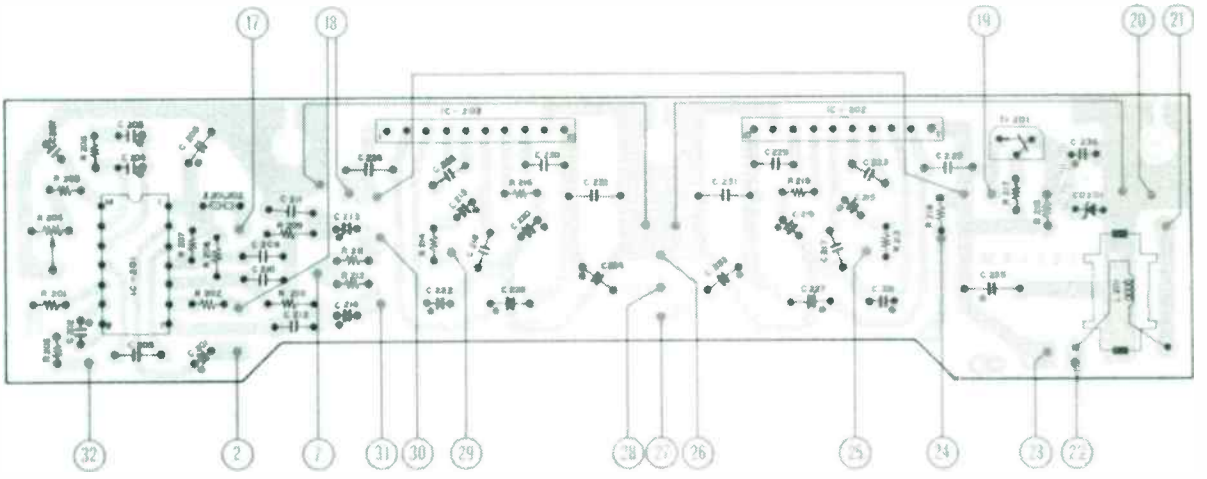


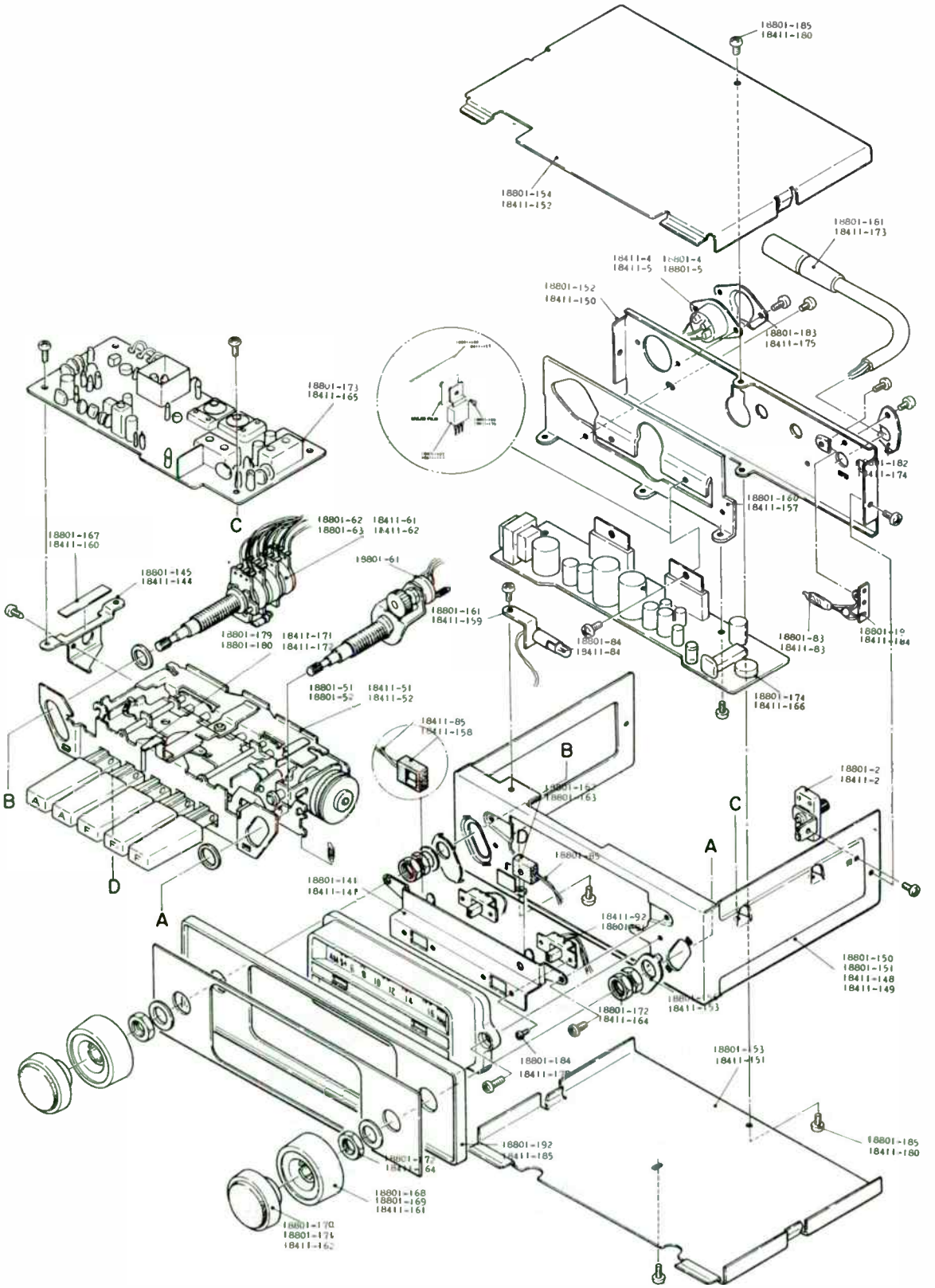
Fig. 8

ALIGNMENT LOCATION DETAIL

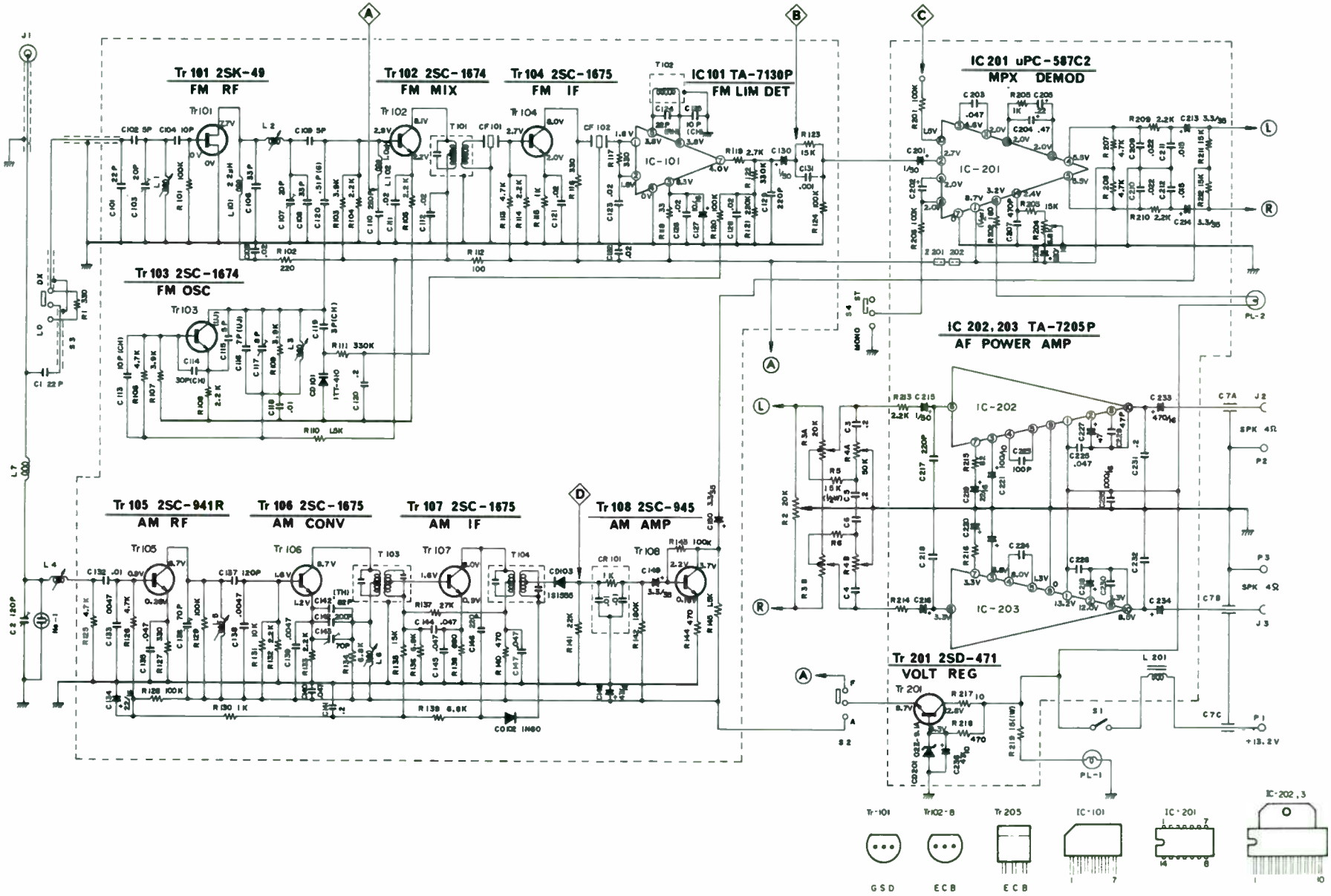




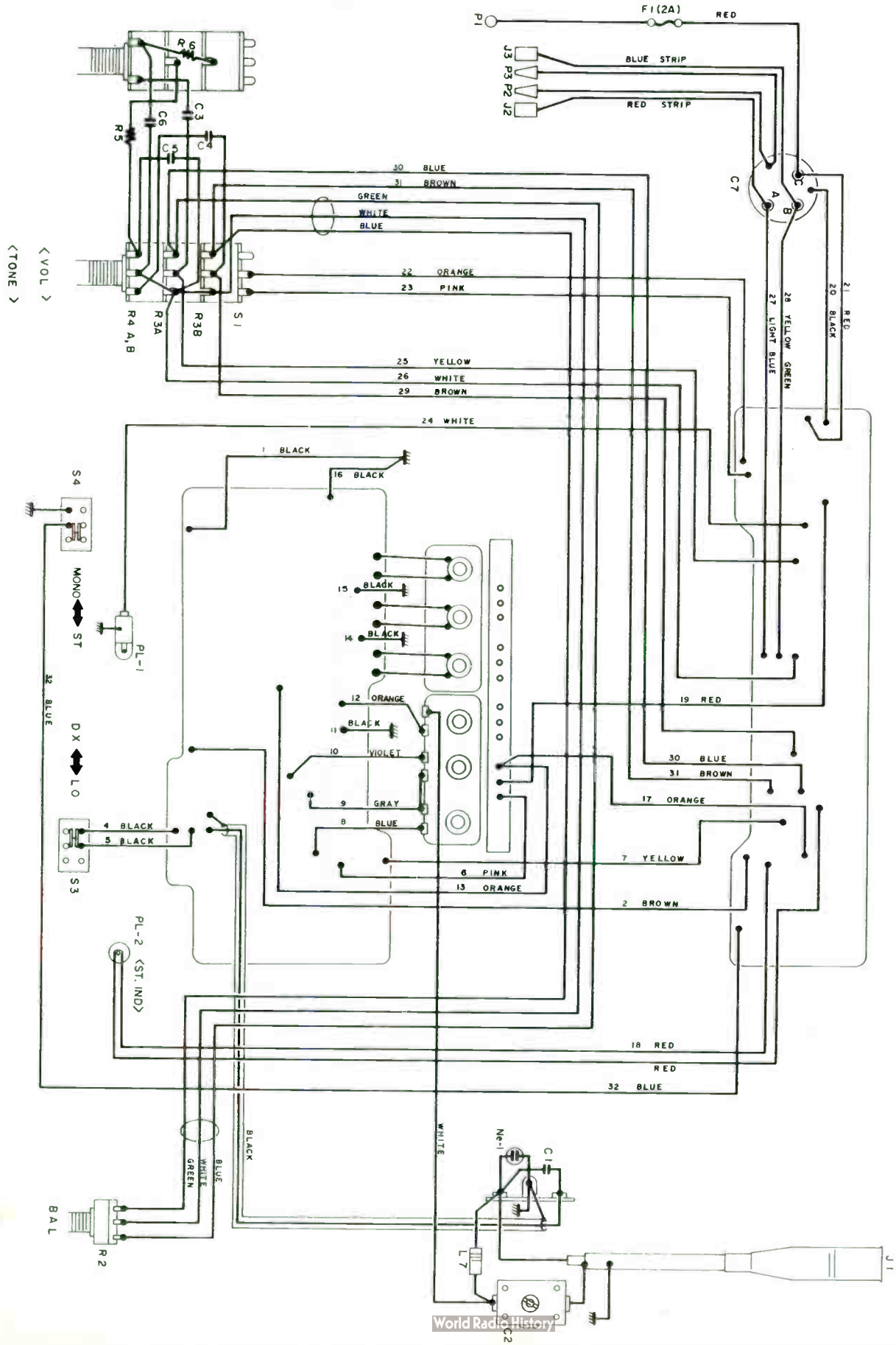
PARTS ASSEMBLY DIAGRAM



ASSEMBLY LAYOUT

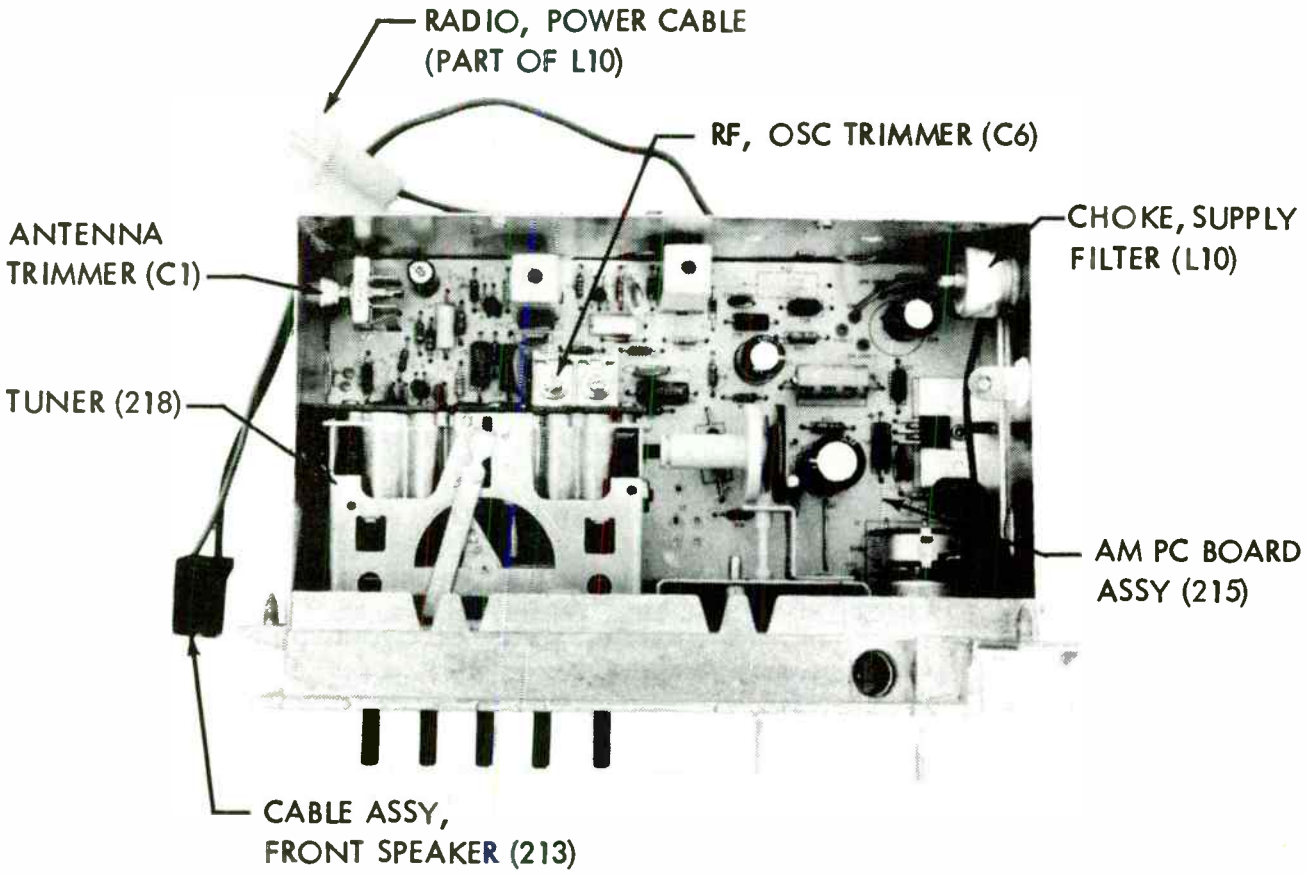


Audiovox BLM-105031,C-575C, C-579A,76-TO-MPXH



Reference No.	Part No.	Description	Quantity TO-76	575C	579A	BLM
CAPACITORS						
C-1, 101	18801- 1	22PF, 50V, ceramic	2	2	2	2
C-2	18801- 2	120PF, max., trimmer TC-68B	1	1	1	1
C-3, 4, 5, 6, 120, 140 231, 232	18801- 3	0.2uF, 12V, semi-conductor	8	8	8	8
C-7A, B, C	18801- 4	1,000PF x 3, feed-thru KC-3A	1	1	—	—
C-7A, B, C, D	18801- 5	1,000PF x 4, feed-thru KC-4	—	—	1	1
C-102, 109	18801- 6	5PF, 50V, ceramic	2	2	2	2
C-103, 107	18801- 7	20PF, max. trimmer, TC-33	2	2	2	2
C-104	18801- 8	10PF, 50V, ceramic	1	1	1	1
C-105, 111, 112, 121, 122, 123, 126, 128	18801- 9	0.02uF, 50V, ceramic	8	8	8	8
C-106, 108	18801-10	33PF, 50V, ceramic	2	2	2	2
C-110, 129, 146, 127 218	18801-11	220PF, 50V, ceramic	5	5	5	5
C-113, 125	18801-12	10PF, 50V, NPO, ceramic	2	2	2	2
C-114	18801-13	33PF, 50V, NPO, ceramic	1	1	1	1
C-115	18801-14	5PF, 50V, N750, ceramic	1	1	1	1
C-116	18801-15	7PF, 50V, N750, ceramic	1	1	1	1
C-117	18801-16	8PF, max., trimmer, TC-32	1	1	1	1
C-118, 132	18801-17	0.01uF, 50V, mylar	2	2	2	2
C-119	18801-18	3PF, 50V, NPO, ceramic	1	1	1	1
C-120	18801-19	0.5PF, 50V, fixed composition	1	1	1	1
C-124	18801-20	22PF, 50V, N220, ceramic	1	1	1	1
C-127	18801-21	10uF, 16V, electrolytic	1	1	1	1
C-130, 201, 215, 216	18801-22	1uF, 50V, electrolytic	4	4	4	4
C-131	18801-23	0.001uF, 50V, ceramic	1	1	1	1
C-133, 138, 139	18801-24	0.0047uF, 50V, mylar	3	3	3	3
C-134, 219, 220	18801-25	22uF, 16V, electrolytic	3	3	3	3
C-135, 144, 145, 147	18801-26	0.047uF, 25V, semi-conductor	4	4	4	4
C-136, 143	18801-27	70PF, max., trimmer, TC-1	2	2	2	2
C-137	18801-28	120PF, 50V, ceramic	1	1	1	1
C-140, 203, 225, 226	18801-29	0.047uF, 50V, mylar	4	4	4	4
C-142	18801-30	200PF, 50V, N470, ceramic	1	1	1	1
C-142'	18801-31	82PF, 50V, N470, ceramic	1	1	1	1
C-148, 236	18801-32	47uF, 10V, electrolytic	2	2	2	2
C-149, 150, 213, 214	18801-33	3.3uF, 35V, electrolytic	4	4	4	4
C-202	18801-34	2.2uF, 16V, tantalum	1	1	1	1
C-204	18801-35	0.47uF, 35V, tantalum	1	1	1	1
C-205	18801-36	0.22uF, 35V, tantalum	1	1	1	1
C-206	18801-37	220uF, 16V, electrolytic	1	1	1	1
C-207	18801-38	470PF, 50V, polystylene	1	1	1	1
C-209, 210	18801-39	0.022uF, 25V, semi-conductor	2	2	2	2
C-211, 212	18801-40	0.015uF, 25V, semi-conductor	2	2	2	2
C-221, 222	18801-41	100uF, 10V, electrolytic	2	2	2	2
C-223, 224	18801-42	100PF, 50V, electrolytic	2	2	2	2
C-227, 228	18801-43	47uF, 16V, electrolytic	2	2	2	2
C-229, 230	18801-44	47PF, 50V, ceramic	2	2	2	2
C-233, 234	18801-45	470uF, 16V, electrolytic	2	2	2	2
C-235	18801-46	1,000uF, 16V, electrolytic	1	1	1	1
COILS & CHOKES						
L-1, 2, 3, 4, 5, 6, S-2	18801-51	Tuner Ass'y, CT-8038	1	1	—	—
L-1, 2, 3, 4, 5, 6	18801-52	Tuner Ass'y, CT-8018	—	—	1	1
L-7	18801-53	Coil, ANT choke, SL-4.7	1	1	1	1
L-101	18801-54	Coil, RF choke, LH-2.2	1	1	1	1
L-102	18801-55	Coil, IF trap, FL-1.0	1	1	1	1
L-201	18801-56	Choke, DC, NL-6	1	1	1	1
CONTROLS						
R-2	18801-61	Balance, VR-211	1	1	1	1
R-3A, B, 4A, B, S-1	18801-62	Volume, tone & On-Off SW, VR-276	—	1	—	—
R-3A, B, 4A, B, S-1, 3	18801-63	Volume, tone & On-Off, L/O SW, VR-275	1	—	1	1
RESISTORS (Unlisted resistors are carbon insulated type, 1/4W. See schamatic diagram for specific values.)						
R-1	18801-71	330, 10%, 1/4W, R-25 type	1	1	1	1
R-5, 6	18801-72	1,500, 10%, 1/2W, fixed-composition	2	2	2	2
R-202	18801-73	180, 10%, 1/2W, fixed-composition	1	1	1	1
R-204	18801-74	6,800, semi-fixed, VR-134	1	1	1	1
R-219	18801-75	15, 10%, 1W, metal-film	1	1	—	—

Reference No.	Part No.	Description	Quantity TO-76	575C	579A	BLM
MISCELLANEOUS ELECTRICAL PARTS						
CF-101, 102	18801- 81	Ceramic Filter, SFE-10.7MA-5	2	2	2	2
CR-101	18801- 82	CR Component, SM-02	1	1	1	1
Ne-1	18801- 83	Neon Bulb, NE-2	1	1	1	1
PL-1	18801- 84	Lamp, pilot, PL-1B	1	1	1	1
PL-2	18801- 85	Lamp, stereo indicator, PL-4S	1	1	1	1
Z-201, 202	18801- 86	Ferrite Bead, FB-108	2	2	2	2
SWITCHES						
S-3, 4	18801- 91	Local/DX & Mono/Stereo, SW-5	—	2	—	—
S-2	18801- 92	AM/FM, SW-133	—	—	1	1
SEMICONDUCTORS						
CD-101	18801-101	Diode, AFC, ITT-410	1	1	1	1
CD-102	18801-102	Diode, AGC, IN-60P	1	1	1	1
CD-103	18801-103	Diode, DET, 1S-1555	1	1	1	1
CD-201	18801-104	Diode, VOLT REG, 02Z-9.1A	1	1	1	1
IC-101	18801-105	FM IF, LIM & DET, TA-7130P	1	1	1	1
IC-201	18801-106	MPX Demodulator, uPC-587C2	1	1	1	1
IC-202, 203	18801-107	AF & Power amp, TA-7205P	2	2	2	2
Tr-101	18801-108	FM RF amp, 2SK-49	1	1	1	1
Tr-102, 103	18801-109	FM MIX & OSC, 2SC-1674	2	2	2	2
Tr-104, 106, 107	18801-110	FM IF, AM Conv. & IF, 2SC-1675	3	3	3	3
Tr-105	18801-111	AM RF amp, 2SC-914R	1	1	1	1
Tr-108	18801-112	AM amp, 2SC-945L	1	1	1	1
Tr-201	18801-113	AVR, 2SD-471	1	1	1	1
TRANSFORMERS						
T-101	18801-121	FM IFT, IT-830B	1	1	1	1
T-102	18801-122	FM IFT, IT-7130	1	1	1	1
T-103	18801-123	AM IFT, IT-808	1	1	1	1
T-104	18801-124	AM IFT, IT-21BB-1	1	1	1	1
MECHANICAL PARTS						
	18801-141	Background, dial, KR-13275	—	1	—	—
	18801-142	Background, dial, KR-13503A	—	—	1	1
	18801-143	Background, dial, KR-14192	1	—	—	—
	18801-144	Bracket, background, KR-13513	—	—	1	1
	18801-145	Bracket, P.C. board, KR-14176	1	1	1	1
	18801-146	Cable Ass'y, battery & speaker, QS-710A	—	—	—	1
	18801-147	Cable Ass'y, battery & speaker, QS-772	1	—	—	—
	18801-148	Cable Ass'y, battery & speaker, QS-768	—	1	—	—
	18801-149	Cable Ass'y, battery & speaker, QS-770	—	—	1	—
	18801-150	Chassis, base, PR-14113 (with switch lever)	—	—	1	1
	18801-151	Chassis, base, PR-14113	1	1	—	—
	18801-152	Chassis, rear, MR-14116	1	1	1	1
	18801-153	Cover, bottom, MR-14115	1	1	1	1
	18801-154	Cover, top, MR-14114	1	1	1	1
	18801-155	Dial Plate, SR-1862	1	—	—	—
	18801-156	Dog-Washer, volume & tuning shaft, KR-14188	2	2	2	2
	18801-157	Escutcheon Ass'y, with dial plate, SR-1880	—	1	—	—
	18801-158	Escutcheon Ass'y, with dial plate, SR-1881	—	—	1	—
	18801-159	Escutcheon Ass'y, with dial plate, SR-1881Z30	—	—	—	1
	18801-160	Heatsink, power IC, MR-14117	1	1	1	1
	18801-161	Holder, pilot lamp, PLH-22	1	1	1	1
	18801-162	Holder, stereo indicator lamp, KR-30241	—	1	—	—
	18801-163	Holder, stereo indicator lamp, KR-30290	—	—	1	1
	18801-164	Holder, stereo indicator lamp, KR-30649	1	—	—	—
	18801-165	Indicator, stereo, KR-30304	—	—	1	1
	18801-166	Indicator, stereo, KR-30688	1	—	—	—
	18801-167	Insulator, fiber, KR-30646	1	1	1	1
	18801-168	Knob, tone & balance, MR-2485	2	—	—	—
	18801-169	Knob, tone & balance, KN-15T	—	2	2	2
	18801-170	Knob, volume & tuning, MR-2486	2	—	—	—
	18801-171	Knob, volume & tuning, KN-28V	—	2	2	2
	18801-172	Nut, hex, N9	2	6	6	6
	18801-173	P.C. Board, RF, MR-3801	1	1	1	1
	18801-174	P.C. Board, AF, MR-3802	1	1	1	1
	18801-175	Plate, shield (RF), KR-14226	1	1	1	1
	18801-176	Plate, shield (AF), KR-14272	—	1	—	—



PARTS LOCATIONS, BOTTOM VIEW, BOTTOM COVER REMOVED

A. AM ALIGNMENT PROCEDURE

A 3.2 ohm speaker of a 3.2 ohm, 10 watt resistive load must be connected across the receiver speaker leads during alignment. Connect an audio output meter across the output load. Connect a signal generator through a dummy antenna to the receiver antenna receptacle, see Figure 2. With the volume control adjusted to maximum volume, slowly increase the signal generator otuput from zero to a level to maintain 1.80 volts (1 watt) on the audio output meter to prevent overloading. The power source voltage should be 13.2 volts. With the top and bottom covers installed, perform the following steps for IF and AM alignment. The antenna trimmer, C1, is located at the right rear corner of the radio, see Figure 3 or 4.

Step	Test Signal Connection	Test Signal Freq. (400 Hz Mod.)	Tuner Set To	Adjust for Max. Output in Order Shown
IF ALIGNMENT				
1.	Antenna recept. through dummy antenna, see Figure 2.	262.5 KHz	600 KHz	L7(Top)L8(Bottom) L5(Top)L6(Bottom)
RF ALIGNMENT				
2.	Antenna recept. through dummy antenna, see Figure 2.	1620 KHz	Hi-end Stop	C6B, C1, C6A, see Figures 3 and 4
	NOTE DO NOT PERFORM STEPS 3, 4, 5, AND 6 UNLESS TUNER HAS BEEN TAMPERED WITH OR COMPONENTS HAVE BEEN REPLACED. BEFORE PROCEEDING WITH STEP 3, BACK TUNING CORES OUT OF TUNING COILS TO WHERE THEY JUST REMAIN IN COIL FORM, TO ELIMINATE THEIR EFFECT ON TRIMMER ADJUSTEMENT.			
3.	Antenna recept. through dummy antenna, see Figure 2.	1620 KHz	Hi-end Stop	C6B, C1, C6A, see Figures 3 and 4
4.	Antenna recept. through dummy antenna, see Figure 2.	1000 KHz	100 KHz	L4, L3, L2
5.	Antenna recept. through dummy antenna, see Figure 2.	1620 KHz	Hi-end Stop	C6B, C1, C6A, see Figures 3 and 4
6.	Repeat steps 4 and 5 until no further increase, then cement cores in place; last adjustment should be step 5.			
ANTENNA TRIMMER				
7.	With radio installed and antenna fully extended, tune receiver to a weak station at approximately 1600 KHz. Adjust the antenna trimmer C1 for maximum signal volume.			

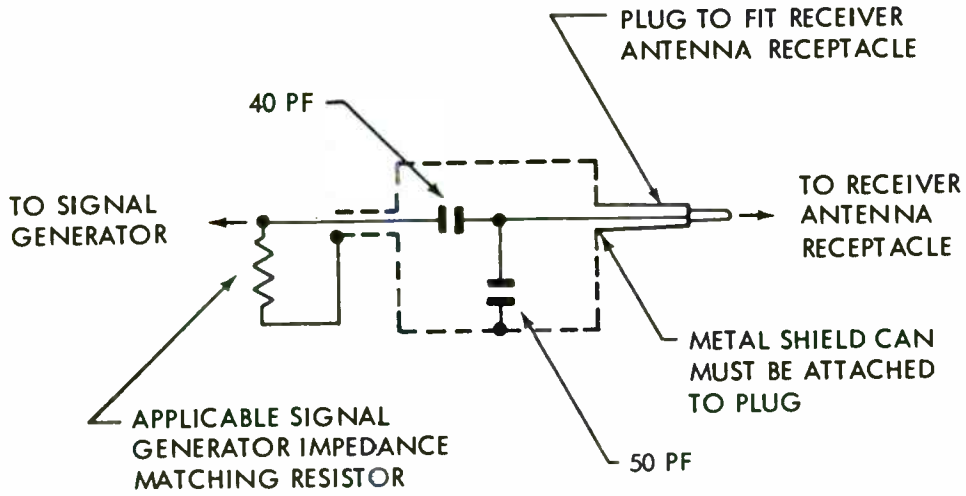


FIGURE 2. AM DUMMY ANTENNA DETAIL

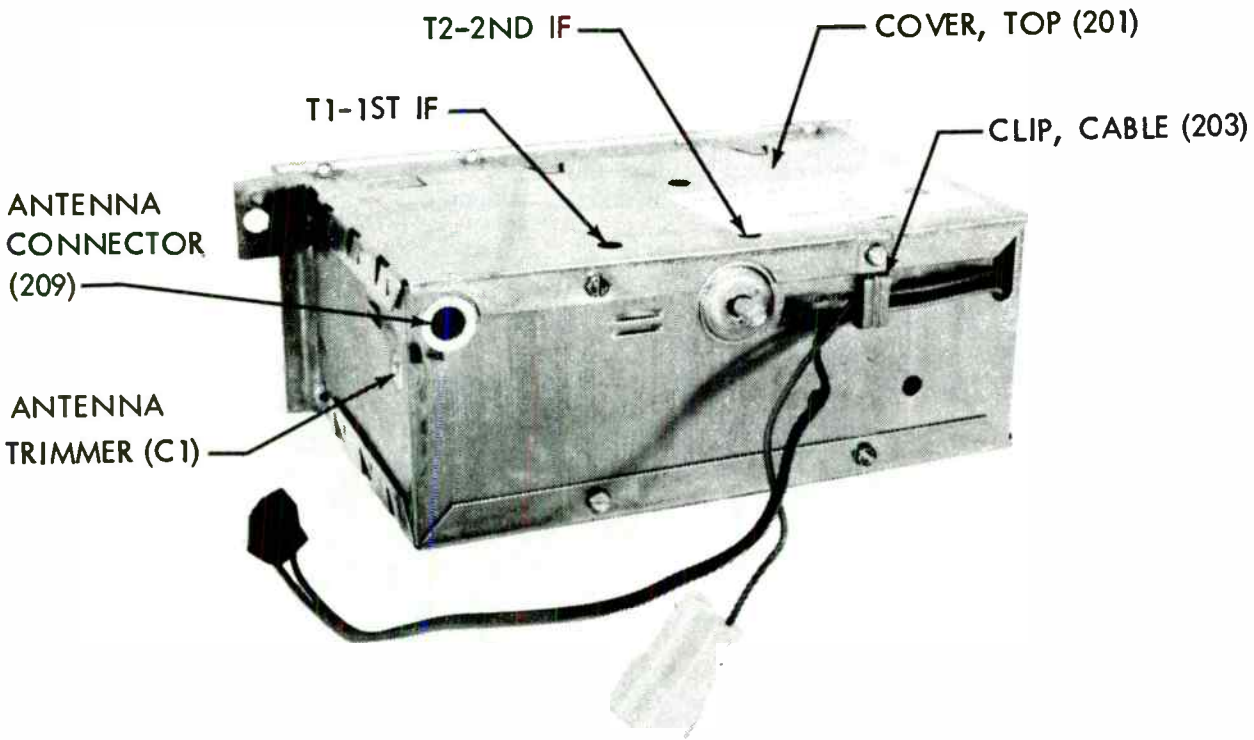


FIGURE 3. ALIGNMENT LOCATIONS, TOP VIEW

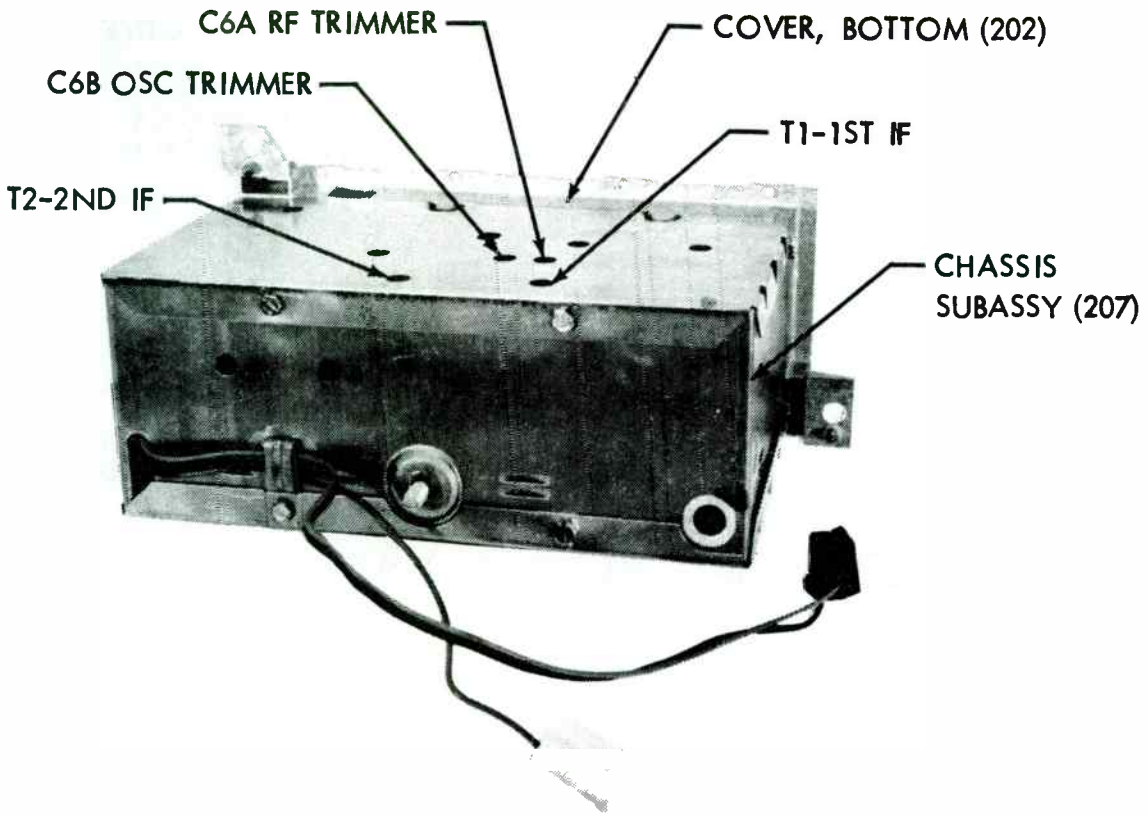
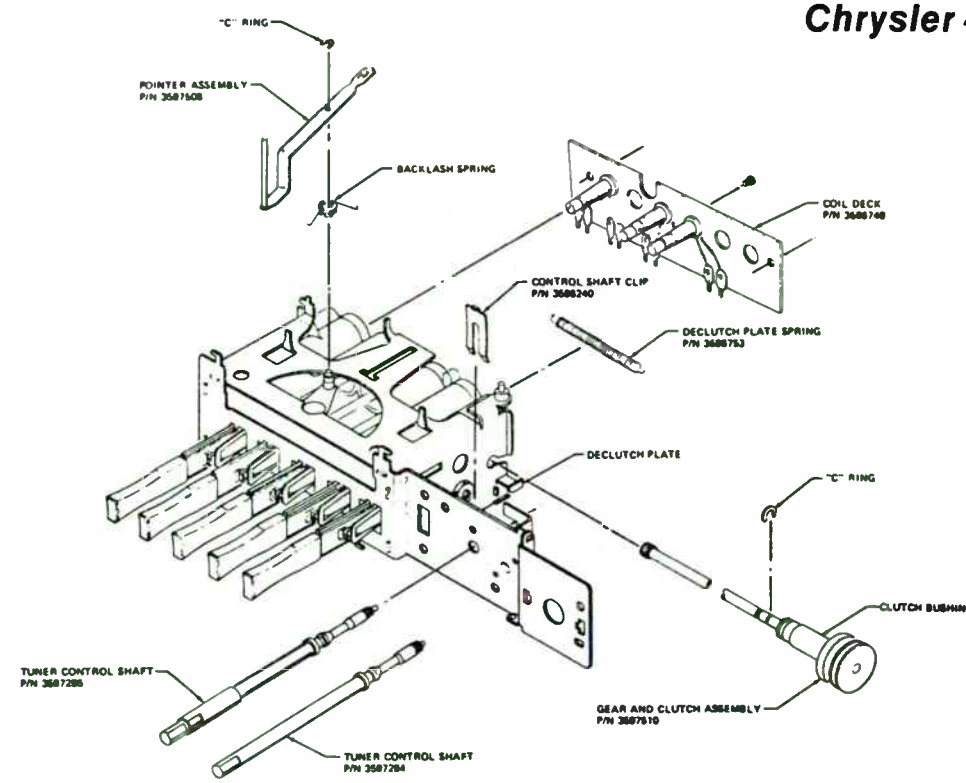
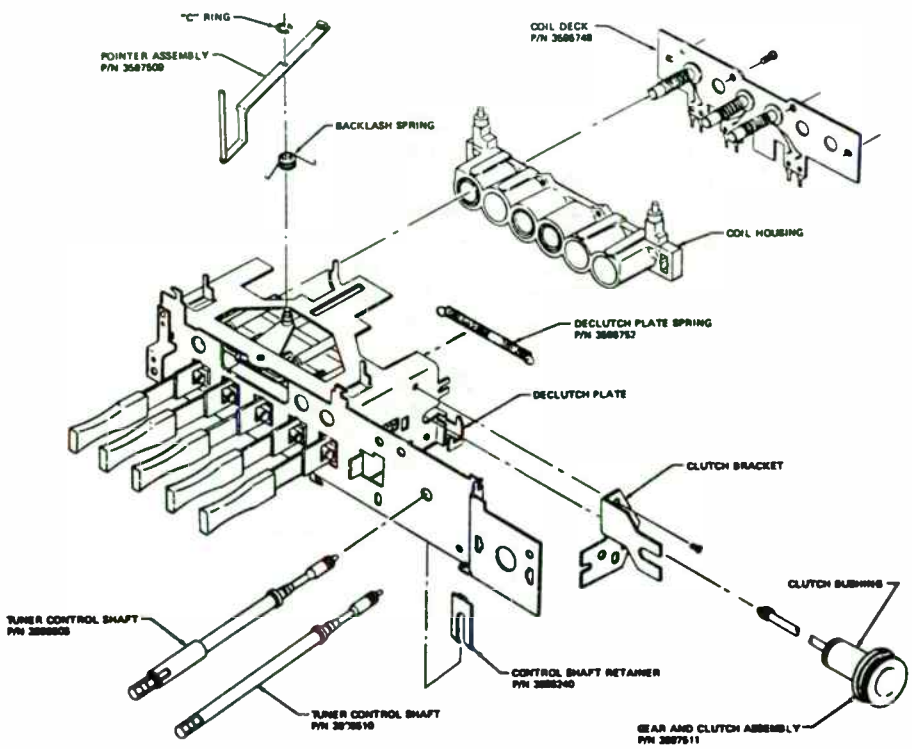


FIGURE 4. ALIGNMENT LOCATIONS, BOTTOM VIEW

PARTS LOCATIONS, FRONT VIEW



TUNER-EXPLODED VIEW (TRW)

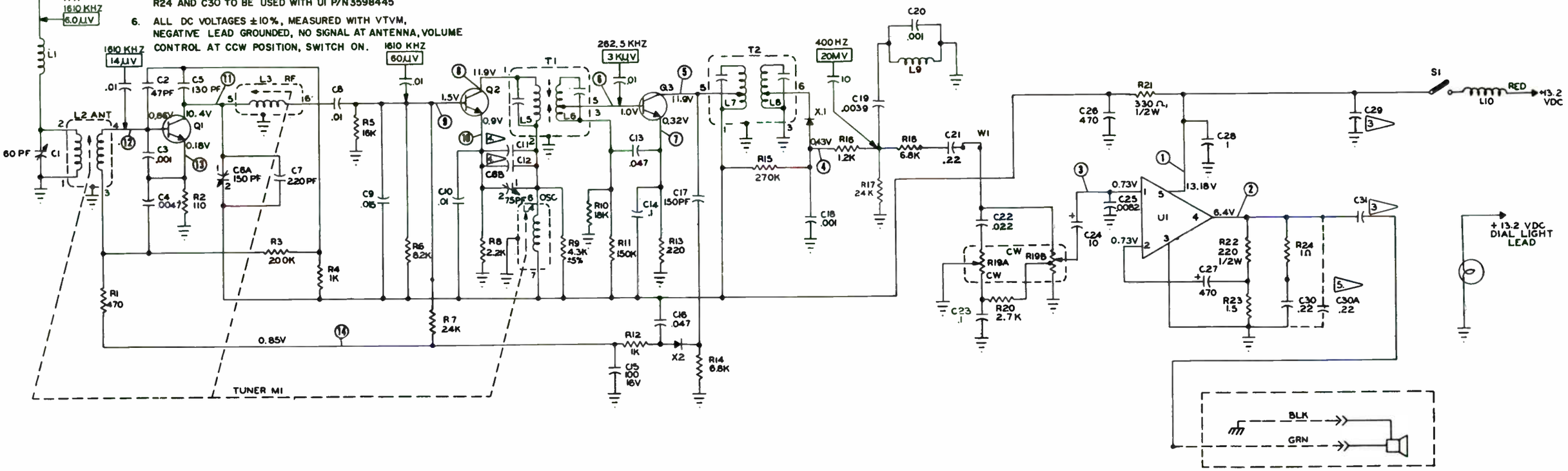


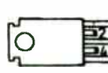
TUNER-EXPLODED VIEW (GI)

Ref. No.	Part Number	Description	Suggested Price
		DIODES, TRANSISTORS, IC's (AUDIO BOARD ASSEMBLY P/N 3598504)	
X1	3596061	Diode, Silicon	
X2	3596061	Diode, Silicon	
Q1	3596067	Transistor, NPN, Silicon, TO-98	
Q1	3596070	Transistor, NPN, Silicon, TO-92	
Q2	3596068	Transistor, NPN, Silicon, TO-98	
Q2	3596071	Transistor, NPN, Silicon, TO-92	
Q3	3596069	Transistor, NPN, Silicon, TO-98	
Q3	3596072	Transistor, NPN, Silicon, TO-92	
U1	3598445	Integrated Circuit, Audio Amplifier	
U1	3598520	Integrated Circuit, Audio Amplifier	
		COIL, FILTERS, TRANSFORMERS (AUDIO BOARD ASSEMBLY P/N 3598504)	
L1	3596331	Coil, RF	
L9	3596247	Inductor, Audio Filter	
L10	3599150	Choke, Supply Filter	
T1	3596047	Transformer, IF Input	
T1	3596804	Transformer, IF Input	
T2	3596048	Transformer, IF Output	
T2	3596805	Transformer, IF Output	
		CAPACITORS (AUDIO BOARD ASSEMBLY P/N 3598504)	
C1	3596332	Capacitor, Antenna Trimmer	
C2	3596137	Capacitor, Disc, 47 PF	
C3	3596138	Capacitor, Disc, .001 MF	
C4	3596112	Capacitor, Disc, .0047 MF	
C5	3597296	Capacitor, Disc, 130 PF, N220	
C6	3596333	Capacitor, RF Osc Trimmer	
C7	3596237	Capacitor, Disc, 220 PF, N470	
C8	3596421	Capacitor, Mylar, .01 MF	
C8	3599114	Capacitor, Tubular Ceramic .01	
C9	3596254	Capacitor, Mylar, .015 MF	
C9	3599129	Capacitor, Tubular Ceramic .015 MF	
C10	3596421	Capacitor, Mylar, .01 MF	
C11	3597507	Capacitor, Disc, 240 PF, N470 (Use with TRW and SHOJI Tuners)	
C12	3596439	Capacitor, Mica, 390 PF (Use with GI Tuner)	
C12	3597296	Capacitor, Disc, 130 PF, N220 (Use with TRW and SHOJI Tuners)	
C13	3596422	Capacitor, Mylar, .047 MF	
C13	3596089	Capacitor, Disc, .047 MF	
C14	3596084	Capacitor, Disc, .1 MF	

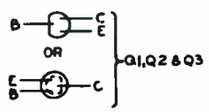
NOTES:

1. ALL RESISTORS 1/4W ±10%, EXCEPT AS NOTED.
2. CAPACITANCE IN MICROFARADS EXCEPT AS NOTED.
3. 2W RADIO–C29 680 MF
   C31 1000 MF
   4W RADIO– C29 1500 MF
   C31 1500 MF
4. C12–390 PF W/GI TUNER
   130 PF W/TRW TUNER
   C11–OPEN W/GI TUNER
   240PF W/TRW TUNER
5. C30A ONLY TO BE USED WITH UI P/N 3598520
   R24 AND C30 TO BE USED WITH UI P/N 3598445
6. ALL DC VOLTAGES ±10%, MEASURED WITH VTVM, NEGATIVE LEAD GROUNDED, NO SIGNAL AT ANTENNA, VOLUME CONTROL AT CCW POSITION, SWITCH ON.
7. ALL AC SIGNAL CONDITIONS:
   3.2 Ω LOAD, VOLUME & TONE CONTROLS MAX. CW, OUTPUT REF. 1.0 WATT. SIGNAL GENERATOR SHOULD BE PROPERLY TERMINATED.
8. ☐ INDICATES SIGNAL LEVEL REQUIRED FOR ONE WATT OUTPUT WITH MAX. VOLUME. CONDITIONS: 1610 KHZ, 400 HZ, 30% MODULATION UNLESS OTHERWISE SPECIFIED.

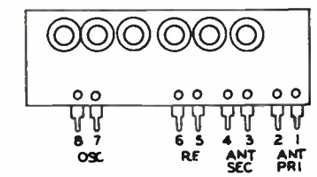




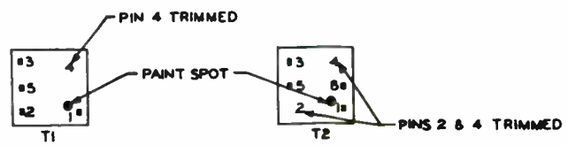
BOTTOM VIEW OF UI



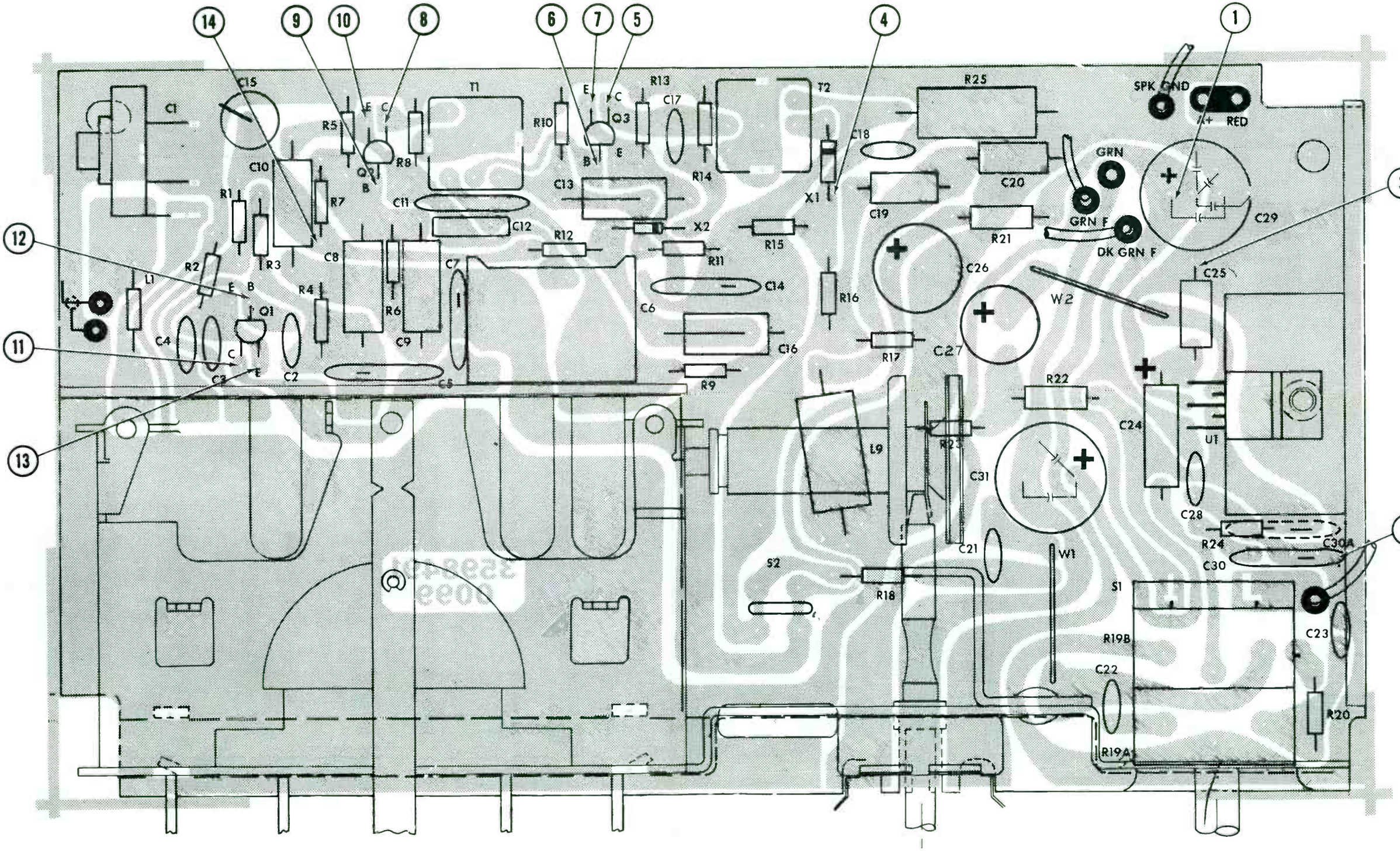
BOTTOM VIEW



REAR VIEW OF TUNER



BOTTOM VIEWS OF T1 & T2



AUDIO PRINTED CIRCUIT BOARD, PARTS LOCATION

Ref. No.	Part Number	Description	Suggested Price
		CAPACITORS (Continued) (AUDIO BOARD ASSEMBLY P/N 3598504)	
C15	3596854	Capacitor, Elect, 100 MF, 16V	
C15	3597043	Capacitor, Elect, 100 MF, 16V	
C16	3596422	Capacitor, Mylar, .047 MF	
C16	3596089	Capacitor, Disc, .047 MF	
C17	3596125	Capacitor, Disc, 150 PF	
C18	3596138	Capacitor, Disc, .001 MF	
C19	3596419	Capacitor, Mylar, .0039 MF	
C19	3598550	Capacitor, Disc, .0039 MF	
C19	3599131	Capacitor, Tubular Ceramic, .0039 MF	
C20	3596417	Capacitor, Mylar, .001 MF	
C20	3598549	Capacitor, Disc, .001 MF	
C20	3599133	Capacitor, Tubular Ceramic, .001 MF	
C21	3598532	Capacitor, Disc, .22 MF	
C21	3598536	Capacitor, Alum, .22 MF	
C22	3598537	Capacitor, Disc, .022 MF	
C23	3596889	Capacitor, Disc, .1 MF	
C23	3598535	Capacitor, Alum, .1 MF	
C24	3598539	Capacitor, Elect, 10 MF, 10V	
C25	3598540	Capacitor, Mylar, .0082 MF	
C25	3598548	Capacitor, Disc, .0082 MF	
C25	3599132	Capacitor, Tubular Ceramic, .0082 MF	
C26	3598541	Capacitor, Elect, 470 MF, 16V	
C27	3599147	Capacitor, Elect, 470 MF, 6.3V	
C28	3597752	Capacitor, Disc, .1 MF	
C29	3598542	Capacitor, Elect, 680 MF, 16V	
C30	3598546	Capacitor, Mylar, .22 MF (U1 3598445 Only)	
C30	3598546	Capacitor, Mylar, .22 MF (U1 3598520 Only)	
C31	3598543	Capacitor, Elect, 1000 MF	
		RESISTORS (AUDIO BOARD ASSEMBLY P/N 3598504)	
R1	3597092-471	Resistor, 1/4 Watt, 470 Ohms, ±10%	
R2	3597092-111	Resistor, 1/4 Watt, 110 Ohms, ±10%	
R3	3597092-204	Resistor, 1/4 Watt, 200K Ohms, ±10%	
R4	3597092-102	Resistor, 1/4 Watt, 1K Ohms, ±10%	
R5	3597092-163	Resistor, 1/4 Watt, 16K Ohms, ±10%	
R6	3597092-823	Resistor, 1/4 Watt, 82K Ohms, ±10%	
R7	3597092-243	Resistor, 1/4 Watt, 24K Ohms, ±10%	
R8	3597091-222	Resistor, 1/4 Watt, 2.2K Ohms, ±5%	
R9	3597091-432	Resistor, 1/4 Watt, 4.3K Ohms, ±5%	
R10	3597092-183	Resistor, 1/4 Watt, 18K Ohms, ±10%	
R11	3597092-154	Resistor, 1/4 Watt, 150K Ohms, ±10%	
R12	3597092-102	Resistor, 1/4 Watt, 1K Ohms, ±10%	
R13	3597092-221	Resistor, 1/4 Watt, 220 Ohms, ±10%	
R14	3597092-682	Resistor, 1/4 Watt, 6.8K Ohms, ±10%	
R15	3597092-274	Resistor, 1/4 Watt, 270K Ohms, ±10%	
R16	3597092-122	Resistor, 1/4 Watt, 1.2K Ohms, ±10%	
R17	3597092-243	Resistor, 1/4 Watt, 24K Ohms, ±10%	
R18	3597092-682	Resistor, 1/4 Watt, 6.8K Ohms, ±10%	
R19	3598526	Resistor, Volume Control (Switch and Tone)	

Ref. No.	Part Number	Description	Suggested Price
		RESISTORS (Continued)	
		(AUDIO BOARD ASSEMBLY P/N 3598504)	
R19A	3598527	Resistor, Volume Control (Switch and Tone)	
R20	3597091-272	Resistor, 1/4 Watt, 2.7K Ohms, ±5%	
R21	3597559-331	Resistor, 1/2 Watt, 330 Ohms, ±10%	
R22	3597559-221	Resistor, 1/2 Watt, 220 Ohms, ±10%	
R23	3597091-1R5	Resistor, 1/4 Watt, 1.5 Ohms, ±5%	
R24	3597091-1R0	Resistor, 1/4 Watt, 1 Ohm, ±5% (U1 3598445 Only)	
		TUNER PARTS	
101	3597511	Gear & Clutch Assembly (G. I.)	
102	3597510	Gear & Clutch Assembly (TRW)	
103	3597508	Pointer Assembly (TRW)	
104	3597509	Pointer Assembly (G.I.)	
105	3596240	Shaft Retainer	
106	3596748	Tuner Coil Deck (G.I.)	
107	3596749	Tuner Coil Deck (TRW)	
108	3596752	Declutch Plate Spring (G.I.)	
109	3596753	Declutch Plate Spring (TRW)	
110	3596508	Shaft (G.I.)	
111	3597284	Shaft (TRW)	
		MISCELLANEOUS PARTS	
200	3599140	Backdial	
201	3596280	Cover, Top	
202	3596281	Cover, Bottom	
203	3596015	Clip, Cable	
204	3596294	Clip, Lens	
205	3596860	Pushbutton	
206	3597424	Sub Escutcheon	
207	3598508	Chassis Subassembly	
208	3598545	Chassis	
209	3596031	Antenna Connector	
210	3597432	Light Diffuser	
211	3598530	Heatsink	
212	3598529	Hood	
213	3598598	Cable Assembly, Front Speaker	
214	3597420	Identification Label	
215	3598504	AM PC Board Assembly	
216	3597434	Escutcheon	
217	3597443	Lens (TRW)	
217	3597444	Lens (GI)	
218	3599073	Tuner Assembly (GI)	
218	3599076	Tuner Assembly (TRW)	
218	3598187	Tuner Assembly (SHOJI)	
219	3597415	Escutcheon Assembly (TRW)	
219	3597417	Escutcheon Assembly (GI)	

* ADJUSTMENT:

■ ADJUSTMENT OF FM TUNER

Instruments required for adjustment

1. Sweep generator
2. FM SG
3. Oscilloscope
4. Dummy load
5. Millivoltmeter

- **FM IF adjustment**
  1. Connect the sweep generator output to TP.1 and connect the VERTICAL cable of the oscilloscope to TP.2. Adjust set preferable to the high frequency side to a position where no interference is caused by broadcast signals.
  2. With the sweep generator frequency set to 10.7MHz when the output level of the sweep generator is gradually increased, waveform shown in Fig. 1, appears on the CRT screen. Now perform the following adjustment.
  3. Connect the oscilloscope VERTICAL input to TP.2 and adjust IFT1 to obtain a symmetrical and clear waveform as shown in Fig. 1.
  4. Now shift the connection at TP.2 to TP.3. A waveform shown in Fig. 1 will be obtained. Adjust IFT4 to obtain IF waveform with good upper/lower symmetry (by adjusting black core) and good linearity in the middle part (by adjusting blue core).

- **RF circuit adjustment**
  1. Adjustment of local oscillator
     Set the receiver to the minimum receiving frequency and the FM SG to 87.5 MHz and adjust the OSC trimmer (TC.3) for maximum deflection in the millivoltmeter.
  2. With the FM SG frequency and dial pointer position set to 98MHz.
     Next adjust the ANT trimmer (TC.1) and RF trimmer (TC.2) for maximum defection in the millivoltmeter.
     Quieting sensitivity : Less than 18dB
     (at 30dB S/N)

◉ Connections

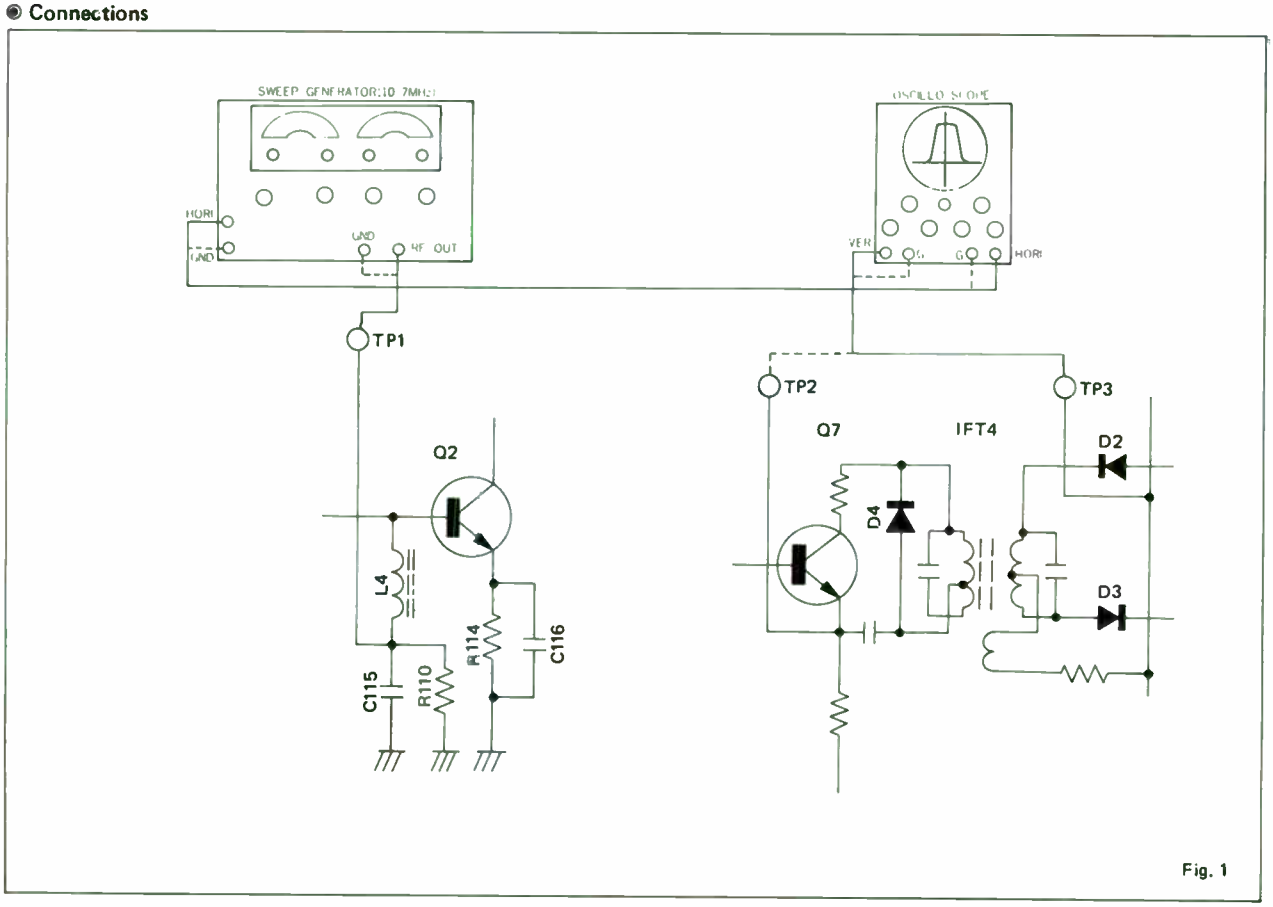


Fig. 1

● **Connection diagram**

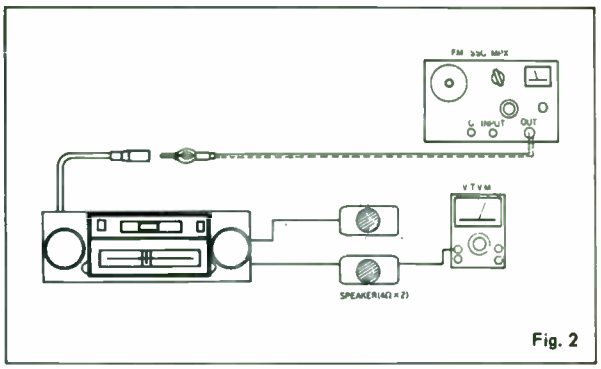


Fig. 2

● **Connections**

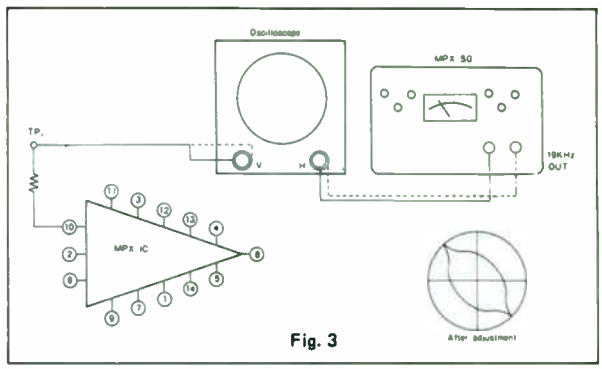


Fig. 3

- **FM MPX adjustment**

Instruments required for adjustment

1. Oscilloscope
2. Millivoltmeter
3. FM SG
4. FM stereo modulator

- **Multiplex section adjustment**

1. Adjustment of VCO (stereo separation adjustment) This is the adjustment of the frequency of the voltage controlled oscillator (V.C.O). Connect TP4 to the vertical input of oscillator and feed a calibrated 19KHz signal (calibration use signal of stereo modulator) to the horizontal input. Now adjust the semifixed VR2 so that the lissajuous figure becomes stationery. At this time, leakage from R channel or L channel of stereo modulator output to the other channel will become minimum.

■ ADJUSTMENT OF AM TUNER

Instruments required for AM adjustment

1. Sweep generator
2. Oscilloscope
3. AM signal generator (SG)
4. Dummy antenna
5. Dummy load
6. Millivoltmeter

- **AM IF adjustment**

1. Connect the output of sweep generator to the RF coil through a capacitor (for DC blocking) of about 0.01μ F.
2. Connect the VERTICAL terminal of oscilloscope to the "hot" side of the volume control.
3. When the sweep generator frequency is set to

● **Connections**

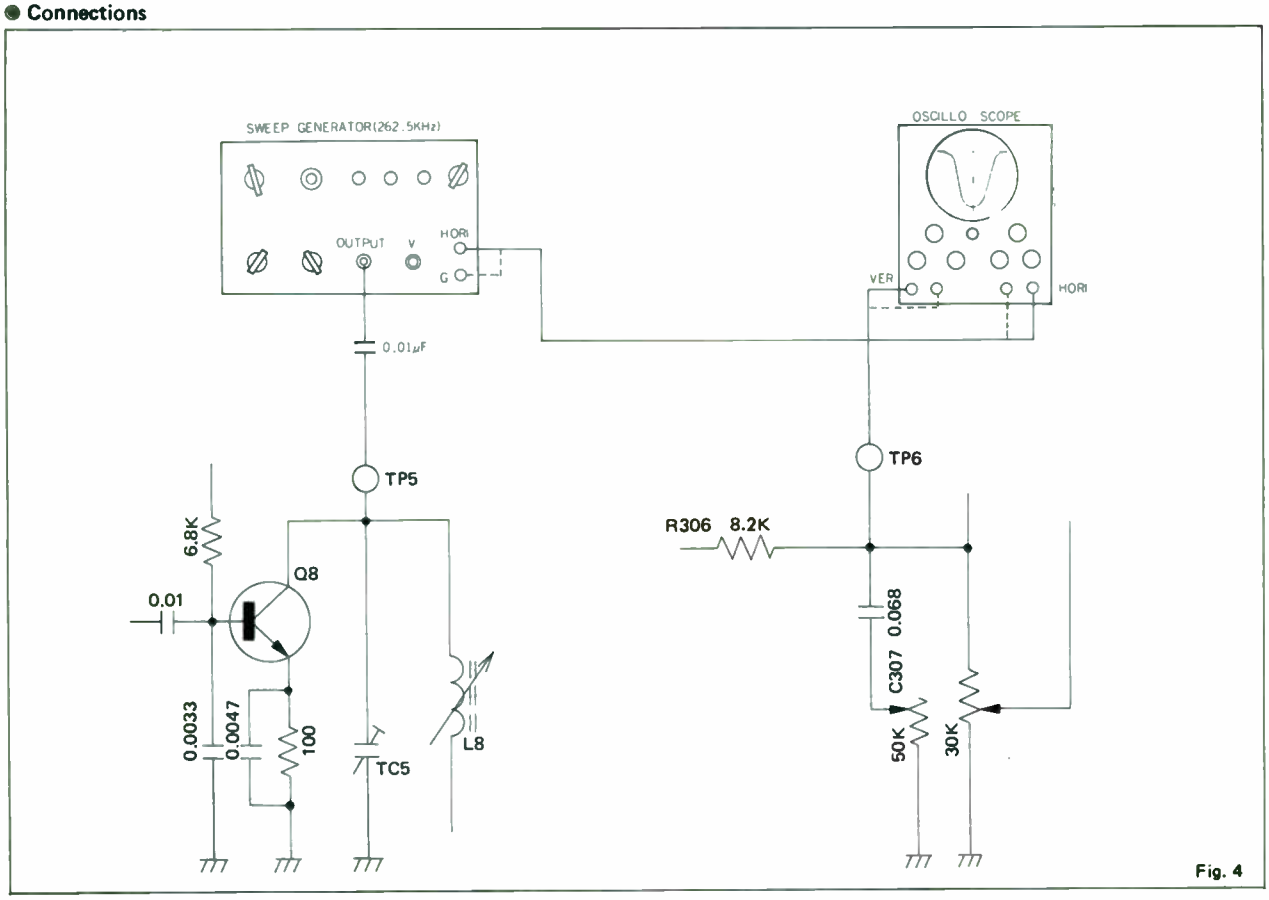


Fig. 4

262.5KHz and its output level is increased, a waveform as shown in Fig. 4 is obtained.

4. Now adjust the core of each IFT (IFT_5, IFT_6) so that that the peak of the waveform shown in Fig.4 becomes maximum. At this time, the marker signal must be 262.5KHz.

- **AM IF adjustment precautions**
  1. Set the VOL. control to minimum and the TONE control to maximum.
  2. With the VERTICAL gain control of the oscilloscope set to max., keep the output level of sweep generator as small as possible.
  3. Set the dial pointer of the radio set to the high end. Through the position of dial pointer affects the waveform but a good IF waveform is that which has no relation with the dial pointer setting and is stable. Therefore, when making the waveform adjustment, it is necessary to check if the waveform is stable or not by slightly moving the dial pointer.

- **Adjustment method using SG and millivoltmeter**
  1. Connect the millivoltmeter to the output cord.
  2. Set the SG to 262.5KHz and connect its output to Antenna.
     Now increase the output of SG so that the millivoltmeter shows some deflection.
  3. Adjust each IFT (IFT_5 , IFT_6) so that the audio output becomes maximum.
  4. In this adjustment, TONE control of the receiver should be set to maximum. And VOL control should be set to minimum.

- **RF circuit adjustment**
  1. Connect the resistor (dummy load) to the audio output terminals and connect the millivoltmeter across the resistor. Insert the dummy as shown in Fig.5 between the ANT connector and AM SG.
  2. Bring the set's dial pointer to the maximum frequency point on the dial and set the AM SG to 1620KHz. Now align by adjusting the OSC trimmer for maximum deflection in the millivoltmeter.
  3. Next adjust the RF trimmer TC5 and ANT trimmer TC4 for maximum deflection in the millivoltmeter.

     Quieting sensitivity : Less than 33dB (at 20dB S/N)

     Maximum sensitivity : Less than 24dB (at 0.5W output)

◉ Connections

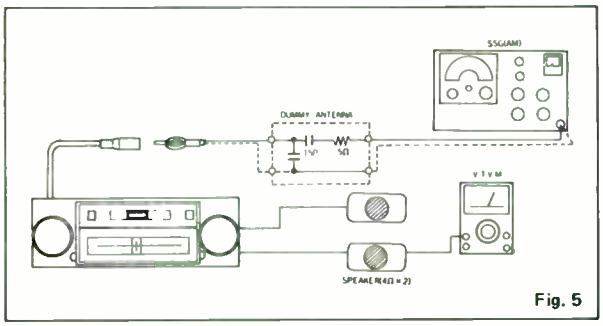


Fig. 5

■ ADJUSTMENT OF ANTENNA TRIMMER

Antenna trimmer must be adjusted in the following cases. It helps increasing the sensitivity.

- ○ After installing or after repairing the set.
- ○ When the antenna or the antenna cable is replaced.
- ○ When the radio sensitivity is poor and noise is prominent.

Method of adjustment

Set the receiver VOL. control to max., TONE control to max., and the dial pointer to around 1400KHz to receive white noise (hissing noise) and adjust the antenna trimmer (screw) so that the noise output becomes maximum.

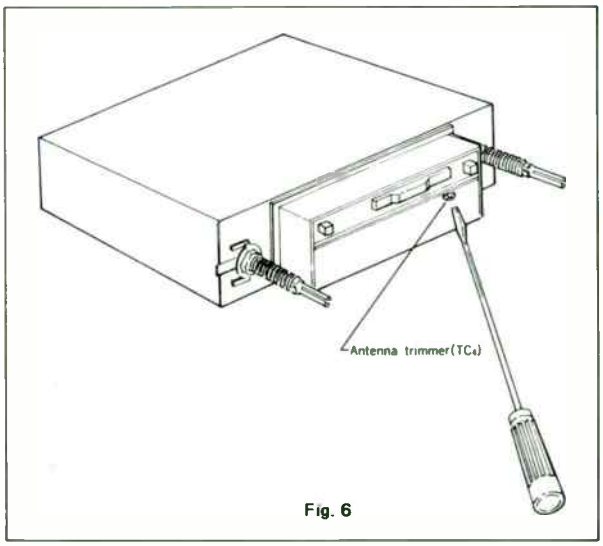
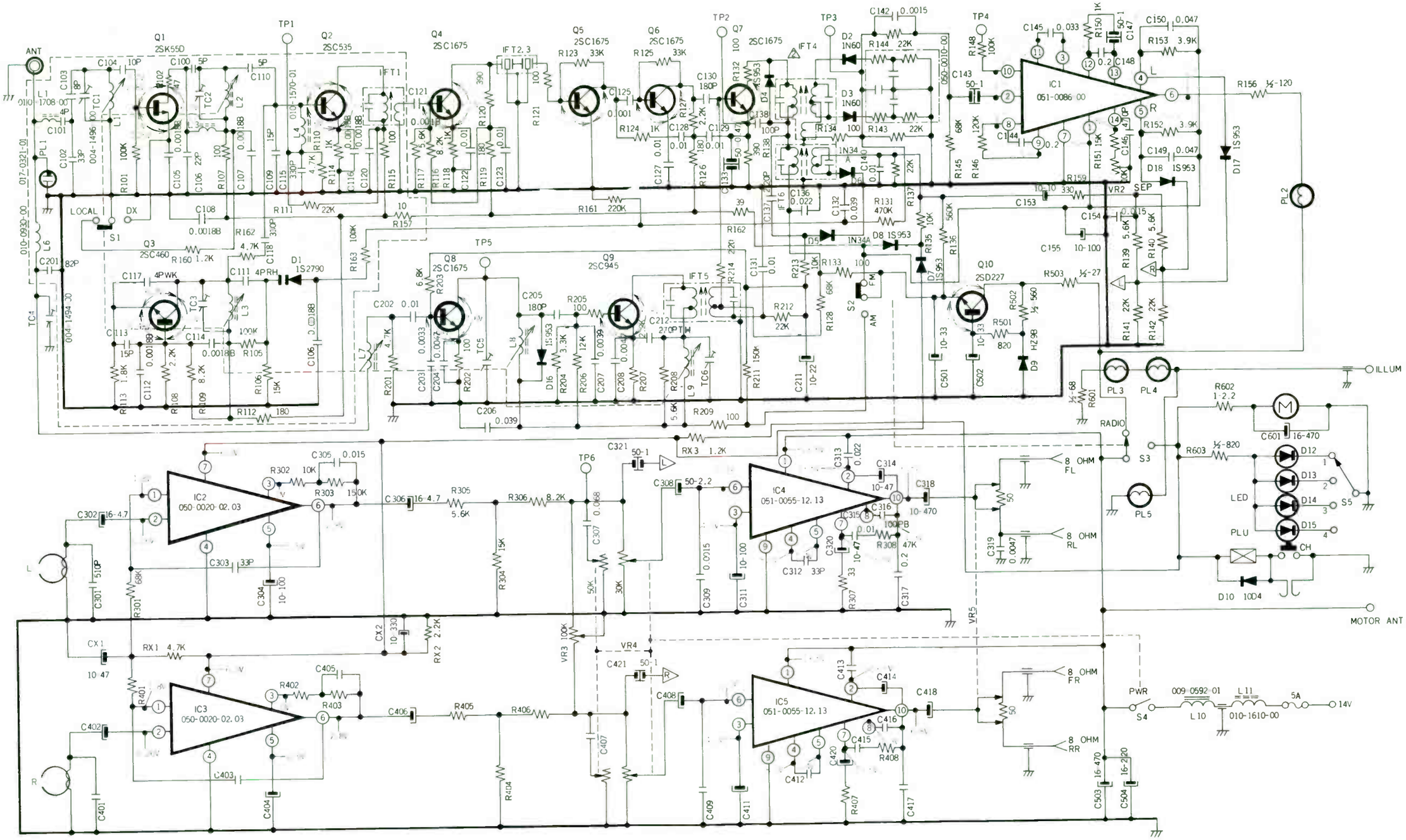


Fig. 6

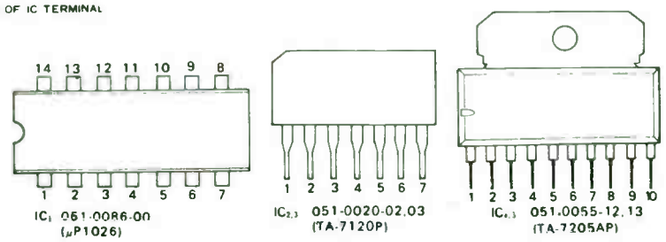
* TROUBLESHOOTING :

(Refer to the Circuit Diagram and the Actual Wiring Diagram)

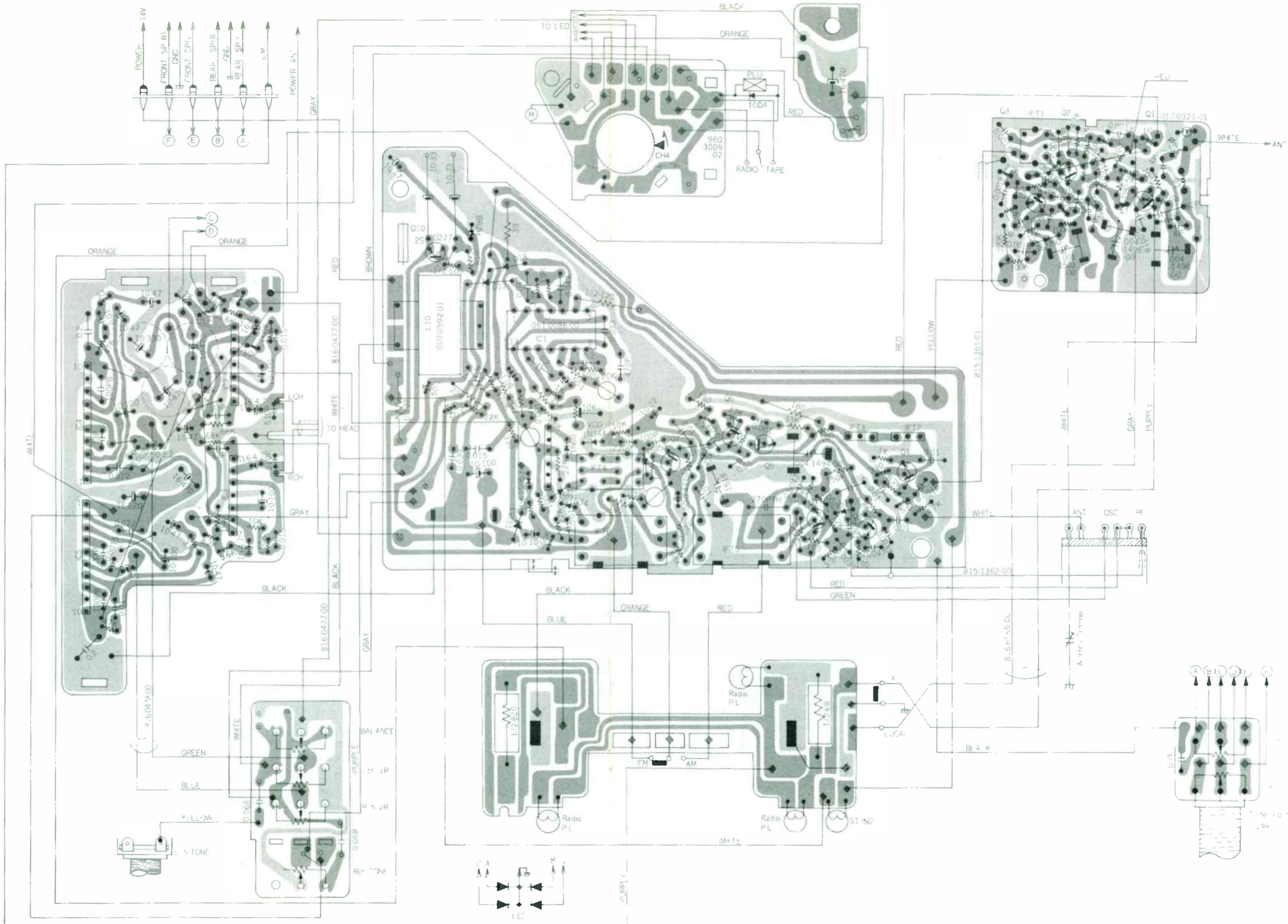
Trouble	Circuit	Faulty parts, cause	Corrective action
Does not operate (including the case when only one channel does not work)	Power supply circuit	○ Fuse blown ○ Connection to the car's power supply faulty ○ Choke transformer open (009-0592-01) ○ Coil open L_{11} (010-1610-00) ○ Radio Tape switch faulty ○ Radio SW faulty	○ Replace ○ Make secure connection ○ Replace ○ Replace ○ Replace ○ Replace
	Output circuit	○ Power IC (051-0055-12, 13) faulty ○ Output capacitor C_{318}, C_{418} faulty ○ Speaker voice coil open ○ Improper connection of speaker connecting cord	○ Replace ○ Replace ○ Replace ○ Make secure connection
	Preamp. circuit	○ Preamp. IC (051-0020-02,03) faulty ○ Head lead open ○ Radio tape SW faulty ○ Head dirty ○ Head faulty	○ Replace ○ Replace or resolder ○ Replace ○ Clean with head cleaner ○ Replace
	MPX circuit	○ MPX IC (051-0086-00) faulty ○ Semifixed resistor (012-3394-00) faulty	○ Replace ○ Replace
	Detector circuit, IF circuit, RF circuit	○ Antenna receptacle open ○ Series coil L_6 (010-0930-00) open ○ Transistor Q_1 ~ Q_9 faulty ○ μ tuner coil open ○ Transistor Q_{10} faulty ○ Coil (010-1180-00) open	○ Replace ○ Replace ○ Replace ○ Replace ○ Replace ○ Replace
Sound is distorted	Output circuit	○ Power IC (051-0055-12,13) faulty ○ Speaker faulty ○ C_{318}, C_{418} capacity abnormal	○ Replace ○ Replace ○ Replace
	Preamp. circuit	○ Preamp. IC (051-0020-02,03) faulty ○ Head faulty ○ Head dirty	○ Replace ○ Replace ○ Clean the head
	(F/A) Deterctor circuit, IF circuit, RF circuit	○ ANT, RF trimmer (TC_1, TC_2) misadjusted ○ IFT2 misadjusted ○ Transistors Q_1 ~ Q_9 deteriorated ○ FM μ tuner ground lead open ○ D_5, D_6, D_7 faulty	○ Readjust ○ Readjust ○ Replace ○ Solder properly ○ Replace
	Preamp. circuit, output circuit	○ SP faulty ○ Pre. or power IC faulty	○ Replace ○ Replace
Oscillates	Power supply circuit	○ C_{503}, C_{504} capacity down ○ Q_{10} faulty	○ Replace ○ Replace
	Preamp. circuit, output circuit	○ Externally connected capacitors to pre. IC and power IC capacity down or open	○ Replace
	IF circuit, RF circuit	○ Ground lead between FM μ tuner coil and PWB open	○ Replace, solder securely
Stereo effect is absent	MPX circuit	○ MPX circuit misadjusted ○ MPX IC (051-0086-00) faulty ○ Coil (010-1698-00) faulty	○ Readjust ○ Replace ○ Replace
AFC effect absent	AFC circuit	○ Diode D_1 faulty ○ Resistors R_{102}, R_{131} open ○ C_{111} faulty	○ Replace ○ Replace ○ Replace
Indicator does not light	Indicator circuit	○ Stereo indicator lamp open ○ R_{156} open ○ MPX IC faulty	○ Replace ○ Replace ○ Rapiace
Motor does not operate	Motor circuit	○ Motor faulty ○ Microswitch faulty ○ Tape mechanism faulty	○ Replace ○ Replace ○ Replace
Too much wow, fluttar	Tape mechanism	○ Motor faulty ○ Flywheel capstan faulty ○ Oil leakage to belt ○ Tape faulty	○ Replace ○ Replace ○ Replace ○ Replace



• DESCRIPTION OF IC TERMINAL

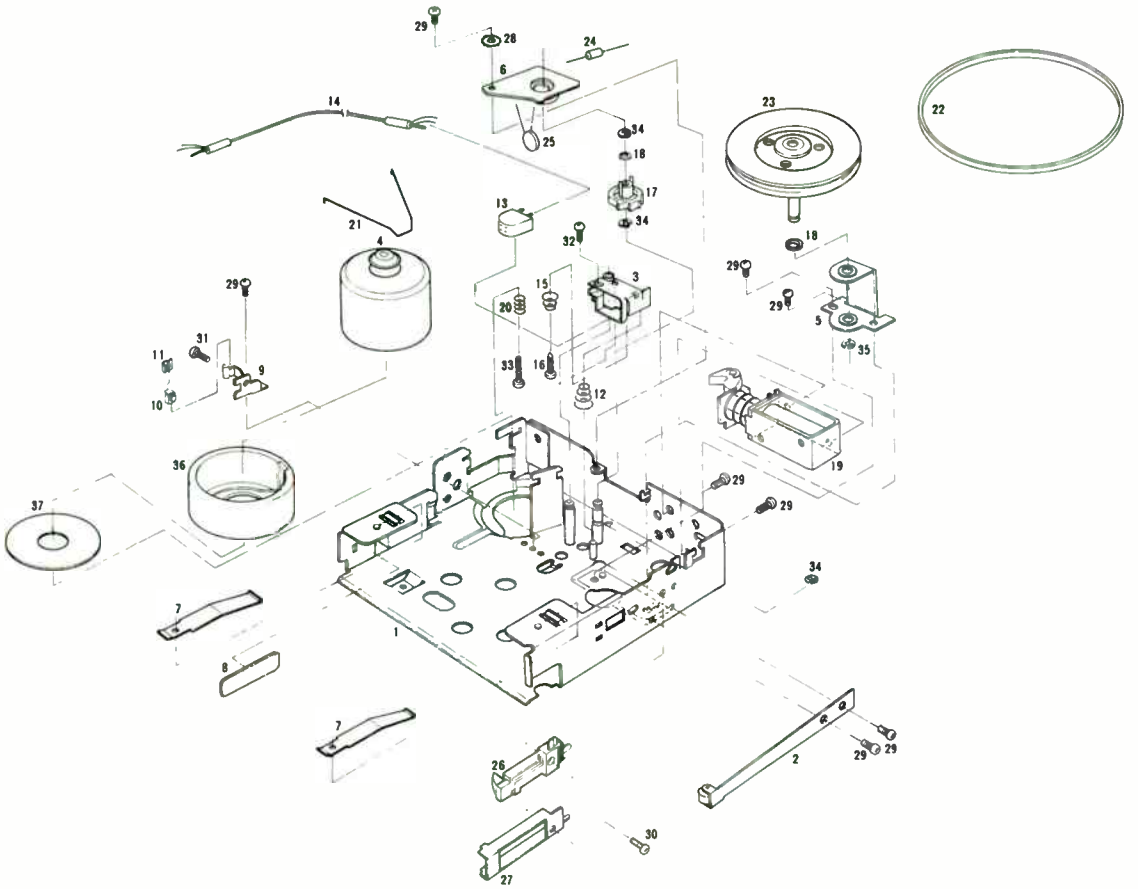


Clarion PE-623A



*EXPLODED VIEW:

Mechanism section



*PARTS LIST:

Mechanism section

REF NO	PART NO	DESCRIPTION	Rank
1	960-3005-00	Deck plate Ass'y	
2	960-3006-00	Roller Ass'y	
3	960-3007-01	Holder Ass'y	
4	960-3079-00	Motor Ass'y	1
5	960-3008-01	Housing Ass'y	
6	960-3009-02	Switch Ass'y	2
7	750 1764 00	Spring	3
8	631 0207-00	Molded part	
9	605 0037 00	Tape guide	3
10	631 0208-01	Molded part	3
11	630 0973 01	Contact	3
12	750 1651-00	Spring	
13	011 0243 00	Head	1
14	815 1355 01	Shielded wire	
15	750-1765 00	Spring	
16	716-0304 00	Special screw	
17	608 0041 00	Cam ratchet	
18	746 0626 00	Special washer	2
19	015-0215 00	Plunger	2

REF NO	PART NO	DESCRIPTION	Rank
20	750-1767-00	Spring	
21	750-1813-01	Spring	3
22	602-0042-01	Belt	2
23	611-0044-01	Flywheel	
24	001-0077-00	Diode	1
25	165-3934-02	Ceramic capacitor	
26	013-3284-00	Switch	2
27	630 0976-00	Case	
28	742-3000-20	Toothed washer	
29	731-3005-80	Taptight (M3x5)	
30	731 3010-80	Taptight (M3x10)	
31	702-2606-11	Tap screw (M2 6x6)	
32	714-2605-81	Machine screw (M2 6x5)	
33	715-2616-11	Machine screw (M2 6x16)	
34	743 2500-00	E-ring(M2 5)	
35	743-3000-00	E-ring(M3)	
36	345 2744-00	Rubber part	
37	630 1029-00	Shielded case	

*PARTS LIST:

Electrical section

REF.NO.	PART NO.	DESCRIPTION	RANK
$D_{5,6}$	001-0010-00	Diode (IN34A)	3
$D_{2,3}$	001-0020-00	Diode (IN60)	3
D_9	001-0101-01	Diode (HZ9B)	3
D_1	001-0130-00	Diode (IS2790WT)	3
$D^{12,13,}_{14,15}$	001-0140-00	Diode	3
$D^{4,7,8,16,}_{17,18}$	001-0151-00	Diode (IS953)	3
D_{10}	001-0077-00	Diode (10D4)	3
$TC_{4,5}$	004-1494-00	Trimmer	
$TC_{1,2}$	004-1496-00	Trimmer	
TC_3	004-1502-00	Trimmer	
TC_6	004-1518-00	Trimmer	
IFT_5	005-0550-01	IF-trans	
IFT_6	005-0560-01	IF-trans	
IFT_4	005-0684-00	IF-trans	
IFT_1	005-0698-00	IF-trans	
$IFT_{2,3}$	005-0765-00	IF-trans	
L_{10}	009-0592-01	Choke	3
L_6	010-0930-00	Coil	3
L_3	010-1180-00	Coil	3
L_4	010-1570-01	Coil	3
L_{11}	010-1610-00	Coil	3
L_1	010-1708-00	Coil	3
Cx2	042-0150-00	Special capacitor (10V330μF)	
$C_{503,601}$	042-0173-00	Special capacitor (16V470μF)	
$C^{148,144,}_{317,417}$	043-0020-00	Special capacitor (12V0.2μF)	
C_{146}	043-0094-00	Special capacitor (470PF)	
C_{125}	141-1023-11	Polyester capacitor (50V0.001μF)	
$C^{140,202,131,315,}_{415,122,123,127,}$ ^{138,129}	141-1033-11	Polyester capacitor (50V0.01μF)	
$C^{142,309,}_{409}$	141-1523-11	Polyester capacitor (50V0.0015μF)	
$C^{154,305,}_{405}$	141-1533-11	Polyester capacitor (50V0.015μF)	
$C^{136,313,}_{413}$	141-2233-12	Plyester capacitor (50V0.022μF)	
C_{203}	141-3323-11	Polyester capacitor (50V0.0033μF)	
C_{145}	141-3333-13	Polyester capacitor (50V0.033μF)	
C_{207}	141-3923-11	Polyester capacitor (50V0.0039μF)	
C_{206}	141-3933-13	Polyester capacitor (50V0.039μF)	
$C^{204,208,}_{319}$	141-4723-11	Polyester capacitor (50V0.0047μF)	
$C_{150,149}$	141-4733-13	Polyester capacitor (50V0.047μF)	
$C_{301,401}$	141-5112-11	Polyester capacitor (50V510PF)	
$C_{307,407}$	141-6833-14	Polyester capacitor (50V0.068μF)	
C_{104}	151-1001-13	Ceramic capacitor (10PFCH)	
$C_{109,113}$	151-1501-13	Ceramic capacitor (15PFCH)	
C_{106}	151-2201-13	Ceramic capacitor (22PFCH)	
$C^{102,303,}_{403,312,}$ ^{412}	151-3301-13	Ceramic capacitor (33PFCH)	
C_{111}	151-4096-37	Ceramic capacitor (4PFRH)	
C_{101}	151-4097-13	Ceramic capacitor (4PFCH)	
C_{103}	151-8097-13	Ceramic capacitor (8PFCH)	
C_{121}	160-1022-05	Ceramic capacitor (0.001μFB)	
$C_{100,110}$	151-5097-13	Ceramic capacitor (5PFCH)	
C_{201}	152-8202-56	Ceramic capacitor (82PFUH)	
C_{117}	153-4096-70	Ceramic capacitor (4PFWK)	
C_{212}	156-2711-50	Ceramic capacitor (270PFTH)	
$C^{138,316,}_{416}$	160-1012-05	Ceramic capacitor ((100PFB)	
$C_{130,205}$	160-1812-05	Ceramic capacitor (180PFB)	
$C^{106,116,120,}_{105,107,108,}$ ^{112,114}	160-1822-05	Ceramic capacitor (0.0018μFB)	
C_{137}	160-2212-05	Ceramic capacitor (220PFB)	
$C_{118,115}$	160-3312-05	Ceramic capacitor (330PFB)	
C_{132}	165-3931-01	Ceramic capacitor (0.0039μFYZ)	
$C^{143,147,}_{153}$	180-1054-62	Electrolytic capacitor (50V1μF)	
$C^{155,304,404,}_{311,411}$	180-1074-22	Electrolytic capacitor (10V100μF)	
$C_{308,408}$	180-2254-62	Electrolytic capacitor (50V2.2μF)	
C_{211}	180-2264-22	Electrolytic capacitor (10V22μF)	
C_{504}	180-2274-32	Electrolytic capacitor (16V220μF)	
$C_{501,502}$	180-3364-21	Electrolytic capacitor (10V33μF)	
C_{133}	180-4744-62	Electrolytic capacitor (50V0.47μF)	
$C^{302,402,}_{306,406}$	180-4754-32	Electrolytic capacitor (16V4.7μF)	
^{314,414} $Cx1,320,420$	180-4764-22	Electrolytic capacitor (10V47μF)	
$C_{318,418}$	180-4774-22	Electrolytic capacitor (10V470μF)	
$IC_{2,3}$	051-0020-02	IC (TA7120P)	1

REF.NO.	PART NO	DESCRIPTION	RANK
$IC_{4,5}$	051-0055-13	IC (TA7205P)	1
IC_1	051-0086-00	IC (μPC1026)	1
Q_3	102-0460-02	Transistor (2SC460B)	1
Q_2	102-0535-02	Transistor (2SC535B)	1
Q_9	102-0945-16	Transistor (2SC945P)	1
$Q_{7,8}^{4,5,6,}$	102-1675-12	Transistor (2SC1675L)	1
Q_{10}	103-0227-18	Transistor (2SD227R)	1
Q_1	108-0055-04	Transistor (2SK55D)	1
R_{156}	110-1212-41	Solid resistor (1/2W120Ω)	
R_{503}	110-2702-41	Solid resistor (1/2W27Ω)	
Rx1	110-4722-31	Solid resistor (1/4W4.7kΩ)	
R_{502}	110-5612-41	Solid resistor (1/2W560Ω)	
R_{601}	110-6802-41	Solid resistor (1/2W68Ω)	
R_{603}	110-8212-41	Solid resistor (1/2W820Ω)	
R_{157}	111-1001-22	Film resistor (1/8W10Ω)	
$R_{209,107,115,121,132,134}^{202,205,132,}$	111-1011-22	Film resistor (1/8W100Ω)	
$R_{124,150}^{110,118,}$	111-1021-22	Film resistor (1/8W1KΩ)	
$R_{302,402}^{135,213,}$	111-1031-22	Film resistor (1/8W10KΩ)	
$R_{148,163}^{101,105,}$	111-1041-22	Film resistor (1/8W100KΩ)	
$R_{160,x3}$	111-1221-22	Film resistor (1/8W1.2KΩ)	
R_{206}	111-1231-22	Film resistor (1/8W12KΩ)	
R_{146}	111-1241-22	Film resistor (1/8W120KΩ)	
$R_{304,404}^{106,151,}$	111-1531-22	Film resistor (1/8W15KΩ)	
$R_{403}^{211,303,}$	111-1541-22	Film resistor (1/8W150KΩ)	

REF.NO.	PART NO.	DESCRIPTION	RANK
R_{119}	111-1811-21	Film resistor (1/8W180Ω)	
$R_{112,126}$	111-1811-22	Film resistor (1/8W180Ω)	
R_{113}	111-1821-22	Film resistor (1/8W1.8KΩ)	
R_{214}	111-2211-22	Film resistor (1/8W220Ω)	
$R_{207,x2}^{108,127,}$	111-2221-22	Film resistor (1/8W2.2KΩ)	
$R_{111,137,143,144}^{212,141,142,}$	111-2231-22	Film resistor (1/8W22KΩ)	
R_{161}	111-2241-22	Film resistor (1/8W220KΩ)	
$R_{307,407}$	111-3301-22	Film resistor (1/8W33Ω)	
R_{204}	111-3321-22	Film resistor (1/8W3.3KΩ)	
$R_{123,125}$	111-3331-22	Film resistor (1/8W33KΩ)	
R_{162}	111-3901-21	Film resistor (1/8W39Ω)	
$R_{120,138}$	111-3911-22	Film resistor (1/8W390Ω)	
$R_{152,153}$	111-3921-22	Film resistor (1/8W3.9KΩ)	
R_{102}	111-4701-22	Film resistor (1/8W47Ω)	
$R_{201}^{110,162,}$	111-4721-22	Film resistor (1/8W4.7KΩ)	
$R_{308,408}$	111-4731-22	Film resistor (1/8W47KΩ)	
R_{131}	111-4741-22	Film resistor (1/8W470KΩ)	
$R_{208,305,405}^{117,139,140,}$	111-5621-22	Film resistor (1/8W5.6KΩ)	
R_{136}	111-5641-22	Film resistor (1/8W560KΩ)	
R_{203}	111-6821-22	Film resistor (1/8W6.8KΩ)	
$R_{301,401}^{145,128,}$	111-6831-22	Film resistor (1/8W68KΩ)	
R_{501}	111-8211-22	Film resistor (1/8W820Ω)	
$R_{306,406}^{109,116,}$	111-8221-22	Film resistor (1/8W8.2KΩ)	
R_{602}	114-2292-52	Film resistor (1W2.2Ω)	

*PARTS LIST:

Main section

REF. NO.	PART NO.	DESCRIPTION	RANK
	940-0126A	Escutcheon ass'y	
	382-0110-01	Button	
	099-5007-00	PWB	
	371-2658-01	Trim plate	
	330-6539-00	CF. cover	
	013-3364-00	Switch	2
	371-2657-00	Trim plate	
	320-0234-03	Dustproof cover	
	374-0701-01	Back plate	
	017-0313-01	Pilot lamp	1
	001-0140-00	Diode (LED)	3
	013-1120-02	Switch	2
	345-2731-01	Rubber part	
	345-2732-01	Rubber part	
	335-0842-01	Molded part	
	330-5955-02	Pressed part	
	310-0874-01	Upper case	
	013-3286-00	Switch	2
	376-0787-02	Dial pointer	
	330-5682-01	Pressed part	
	750-1826-00	Spring	
	341-1144-00	Machined part	
	743-1500-01	E-ring	
	830-0500-81	Dial cord	
	748-1502-04	Eyelet	
	750-1772-00	Spring	
	345-2692-01	Rubber part	
	017-0323-00	Pilot lamp	1
	070-0952-00	Pilot lamp socket	
	944-0468-03	Filter ass'y	
	099-4814-01	PWB	
	051-0055-13	IC (TA7205P)	1
	930-0441-06	Tape mechanism ass'y	
	722-0020-00	Special nut	
	745-0400-00	Special washer	
	330-5671-00	Pressed part	
	308-0871-02	Front cover	
	745-0320-00	Special washer	
	012-3511-01	Variable vesistor	2
	012-3523-01	Variable resistor	2

REF. NO.	PART NO.	DESCRIPTION	RANK
	335-0912-00	Joint A	
	335-0913-00	Joint B	
	933-0106-02	6 coil manual tuner	
	330-5935-00	Pressed part	
	004-1494-00	Trimmer	
	330-5954-00	Pressed part	
	311-0896-04	Lower case	
	286-4090-00	Set plate	
	285-0656-00	Guide label	
	330-6360-00	Lead cover	
	851-2173-00	SP-lead	
	851-2173-01	SP-lead	
	850-1865-02	A-lead	
	010-1610-00	Coil	3
	120-0050-03	Fuse (5A)	1
	850-1957-00	A-lead	
	347-0609-00	Paper part	
	285-0160-00	Guide label	
	285-0721-00	Guide label	
	330-5956-01	Pressed part	
	099-5006-00	PWB	
	099-4914-02	PWB	
	714-3004-81	Machine screw (M3x4)	
	714-2603-11	Machine screw(M2.6x3)	
	714-2004-11	Machine screw(M2x4)	
	741-2000-21	Spring washer	
	742-3000-21	Toothed washer	
	731-3006-80	Tap tight(M3x6)	
	731-3005-80	Tap tight(M3x5)	
	099-4909-01	PWB	
	714-3003-81	Machine screw(M3x3)	
	321-0811-00	Clamp	
	850-1580-01	A-lead	
	852-5322-00	Extension lead	
	285-0667-00	Guide label	
	382-0130-00	Button	
	750-1869-00	Spring	
	743-2000-01	E-ring	
	380-3531-00	Knob	3
	380-3532-00	Knob	3
	320-0010A	Dustproof cover ass'y	3

ALIGNMENT PROCEDURES

Alignment is performed at factory with laboratory test equipment. Therefore, before alignment is attempted the unit should be throughly checked for circuit trouble.

EQUIPMENT REQUIRED :

1- Power supply (14VDC)
2- VTVM
3- AM & FM Signal Generators
4- Sweep Generator
5- Oscilloscope
6- FM Stereo Modulator
7- Digital Frequency Counter

NOTES :

- Non-Metalic Tools should be used
- Keep Generator Signal Level as low as possible to Avoid Clipping.
- Volume Control should be set to Minimum.
- Tone Control should be set to Maximum Treble.
- Standard Modulation is 400Hz at 30% amplitude for AM. (1kHz at 22.5Hz deviation for FM).

AM

STEP	ADJ. CIRCUIT	CONNECTIONS INPUT	CONNECTIONS OUTPUT	GEN. FREQ'CY	DIAL SETTING	ADJUST	ADJUST FOR
1	IF	Connect Sweep Gen., AM Signal Generator thru dummy ANT to Antenna Receptacle.	Connect Scope VTVM to TP 1 and Ground.	510kHz	Lowest End	T302,T303 T304,T305	Maximum Output.
2	OSC					T301	
3				1650kHz (Mod.)	Highest End	CT303	
4	RF			1400kHz (Mod.)	1400kHz	CT302 CT301	
5	Repeat Adjustments until no further Improvement is noticed.						

FM

1	IF	Connect FM Sweep Marker Generator to Antenna receptacle.	Connect Scope, VTVM to TP201 and Ground.	10.7MHz (Mod.)		T201 (IFT)	Maximum Amplitude
2						T401 T201	Maximum Symmetrical Response.
3	OSC			87.25MHz (Mod.)	Lowest End	OT	Maximum Output
4	RF			98MHz (Mod.)	98MHz	RT AT	
5	Confirm Tuning Range to be from 87.25MHz to 109.5±0.5 MHz						

MPX

NOTES: - ST/MONO Select Switch should be in STEREO position.
- Apply 60dB FM Signal Modulated by Specified Signals Indicated below.

1	19kHz PILOT	No Signal	Connect a Freq'cy Counter to TP251 (pin#12 IC251) and Ground.			R252	A Reading of 19kHz
2	SEPARATION	Connect Stereo Sign. Modulator (SSM) thru dummy Ant. to ANT. Receptacle. (Modulated only by Pilot Signal at 10% Mod. & ST Signal at 30% Mod.)	Connect VTVM to Speaker Output of either Channel	98MHz (Mod.)	98MHz	R257	Minimum Output

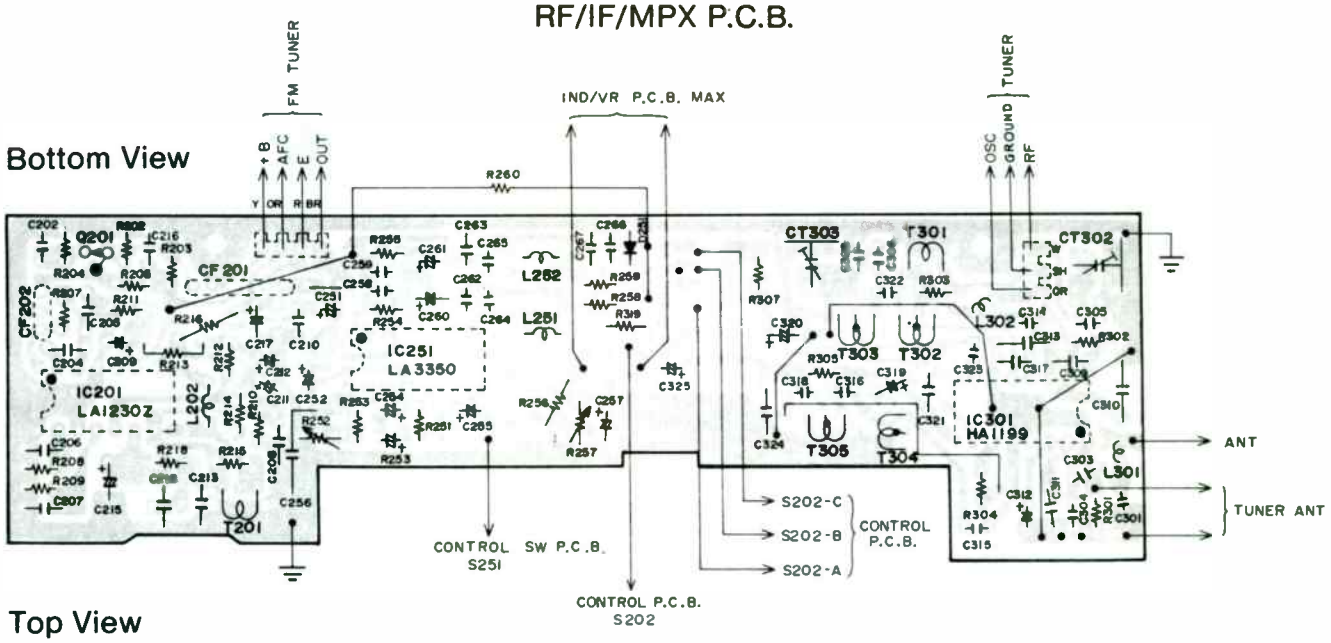
ADJUSTMENTS

HEAD AZIMUTH : Insert a Standard Azimuth Test Cartridge. Adjust the Azimuth Adjust Cam (Ref#11 on Mechanism Exploded View) for Maximum Output.

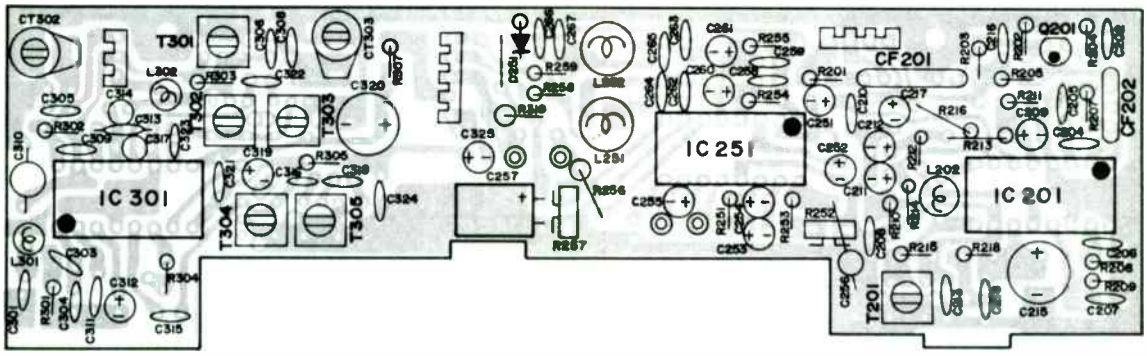
ANTENNA TRIMMER: With the Unit installed in Car and Antenna fully Extended. Tune-in a Weak Station near 1400kHz and Adjust CT301 (Antenna Trimmer) for Maximum Output.

RF/IF/MPX P.C.B.

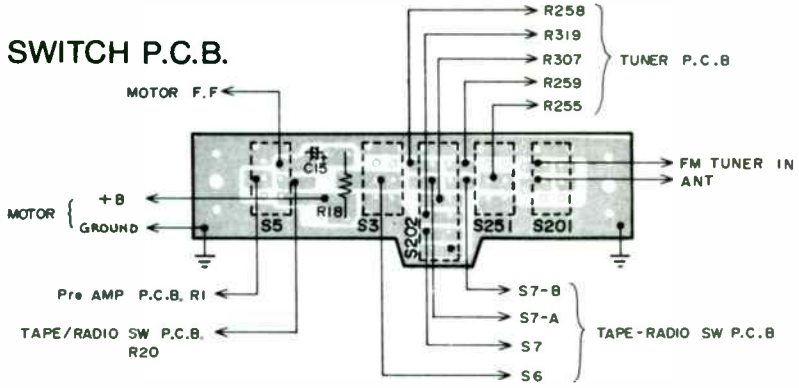
Bottom View



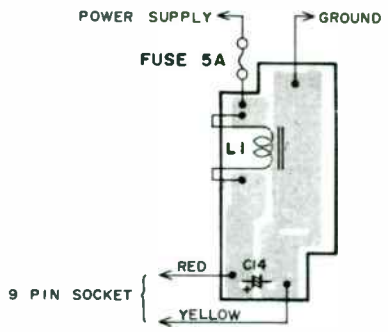
Top View



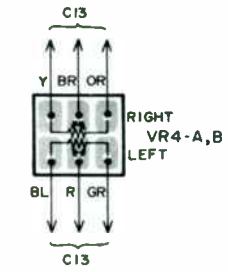
SWITCH P.C.B.



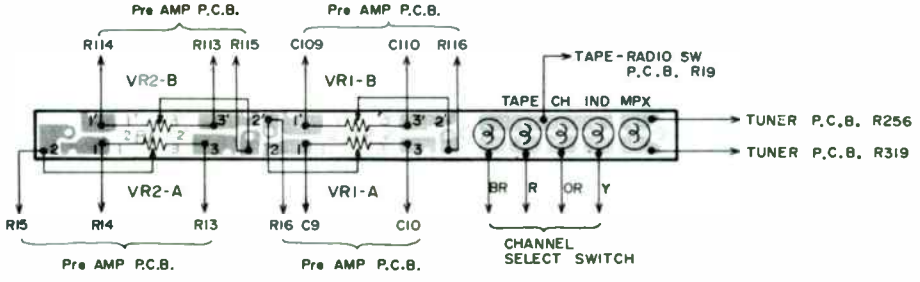
FILTER P.C.B.



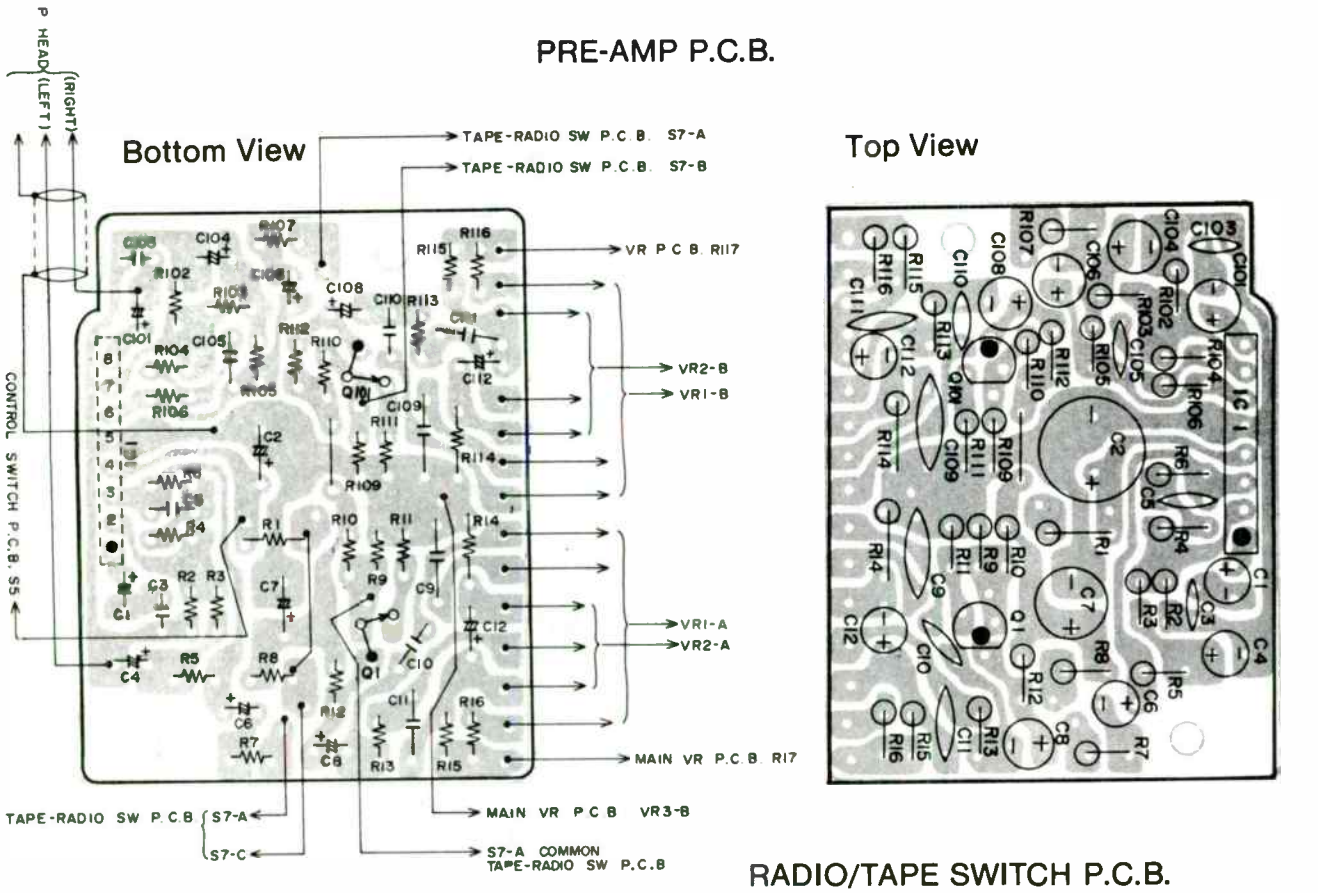
FADER P.C.B.



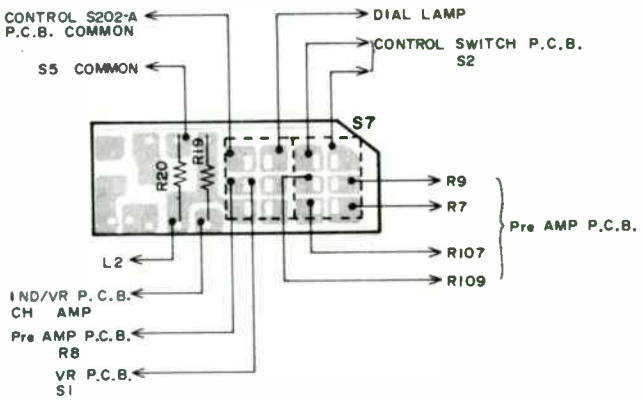
VR/IND. P.C.B.



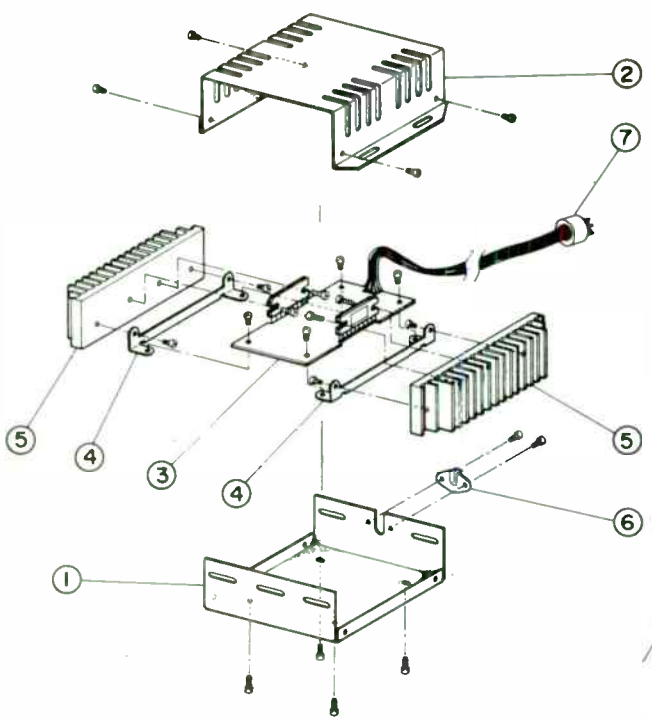
PRE-AMP P.C.B.



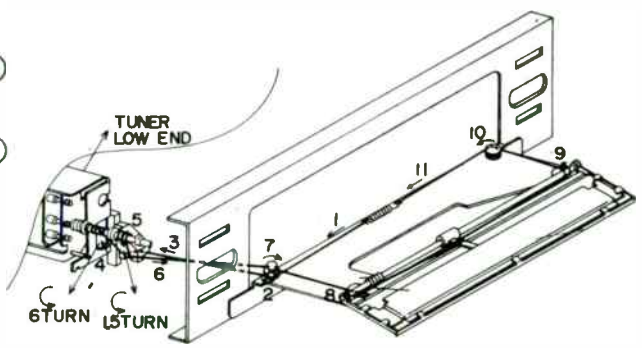
RADIO/TAPE SWITCH P.C.B.



AMP CABINET

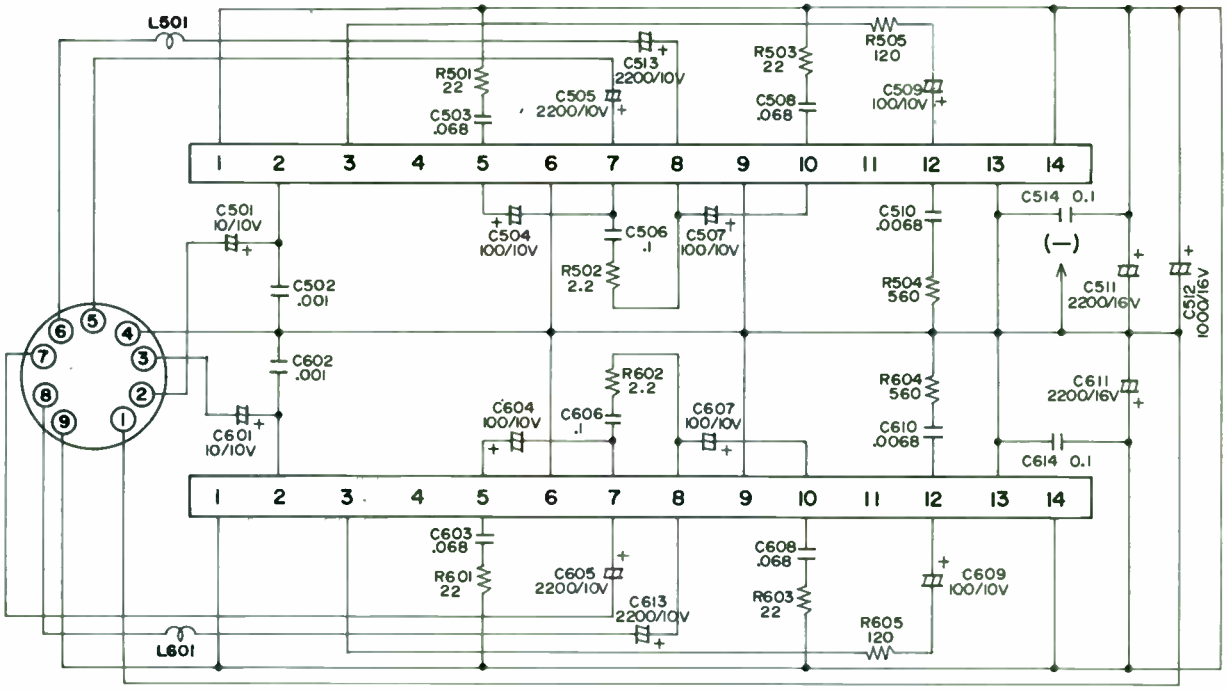


DIAL STRING DIAGRAM



AMP SCHEMATIC DIAGRAM

IC 501,601 M51515L x 2



NOTES
1. RESISTOR VALUES IN OHMS. (K=1000)
2. CAPACITOR VALUES IN MICRO FARADS. (P=MICRO MICRO FARADS)
3. MODIFICATION MAY BE DONE WITHOUT ANY NOTICE.
4. VOLTAGE (IC501, 601)

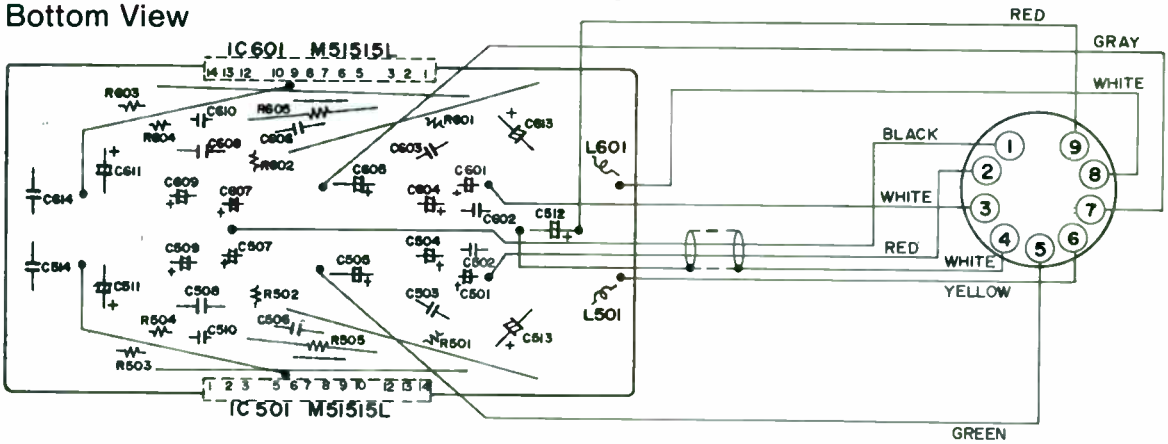
PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14
(V)	13.8	0	1.2		13.6	0	7.4	7.2	0	13.6		1.2	0	13.8

PIN CONNECTION

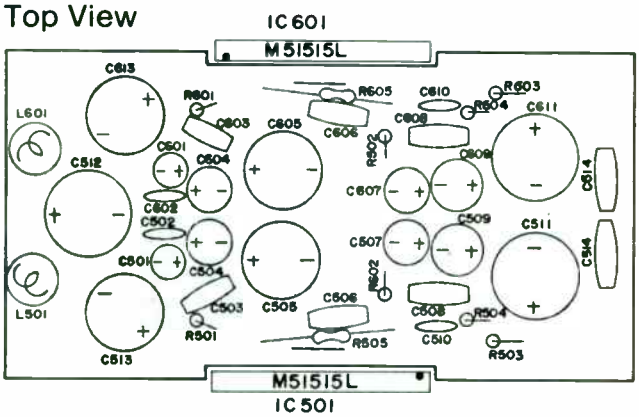
1. GROUND (BLACK)
2. LEFT IN (RED)
3. RIGHT IN (WHITE)
4. GROUND IN
5. LEFT OUT 1 (GREEN)
6. LEFT OUT 2 (YELLOW)
7. RIGHT OUT 1 (GRAY)
8. RIGHT OUT 2 (WHITE)
9. +14V (RED)

AMP P.C.B. LAY-OUT

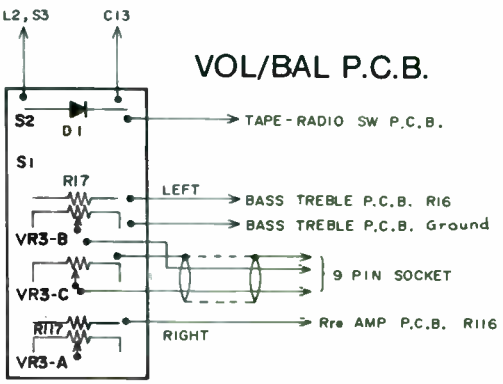
Bottom View



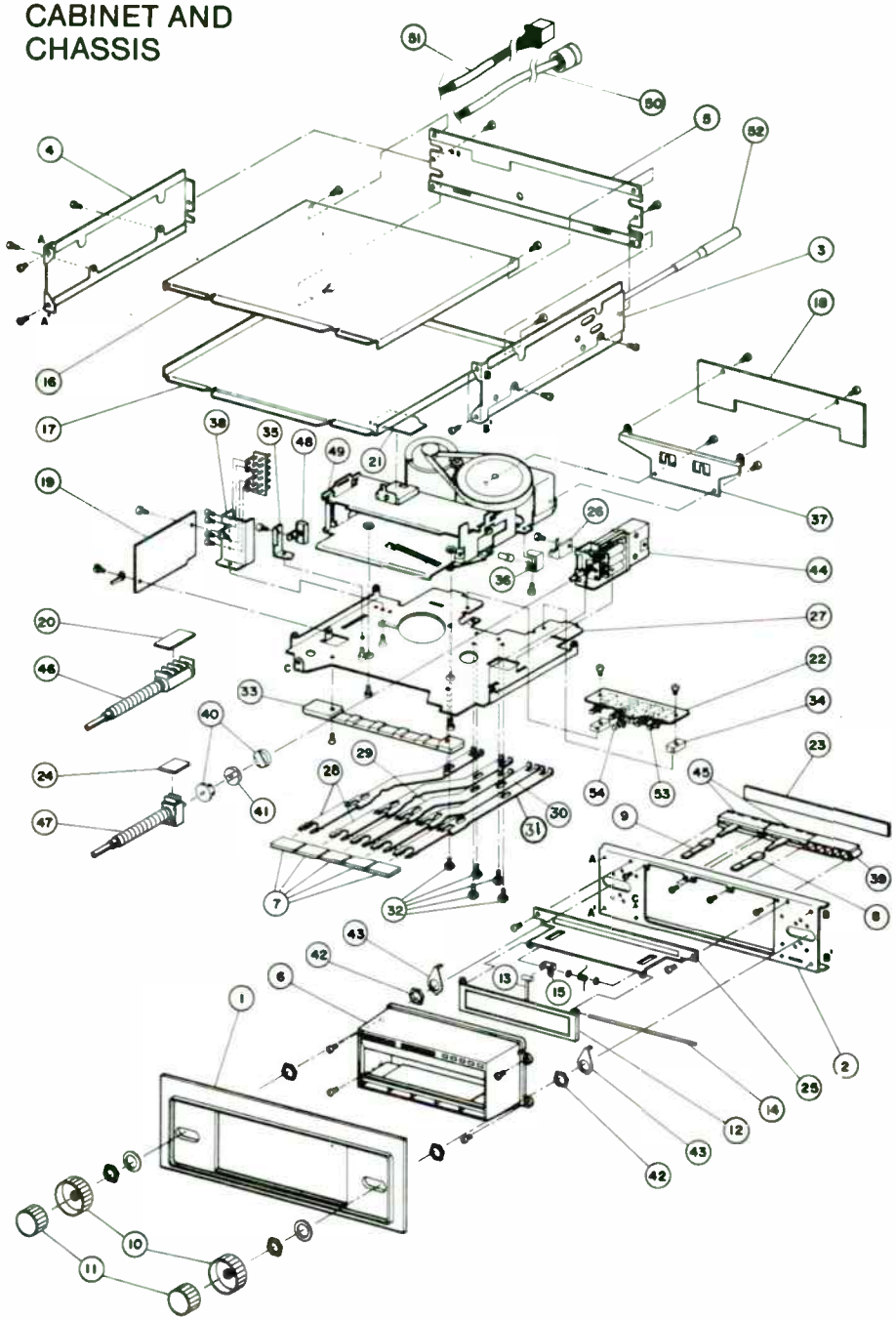
Top View



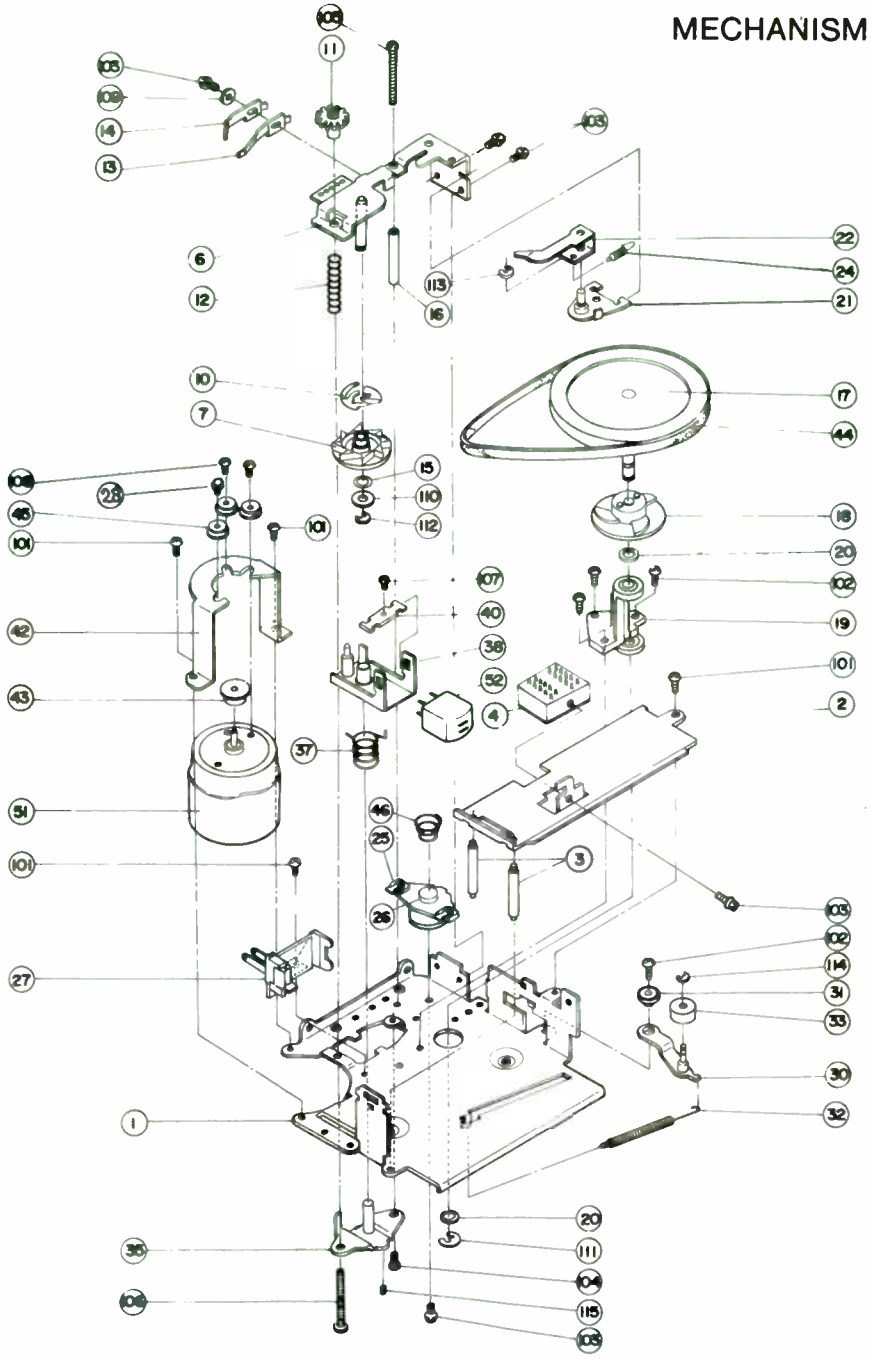
VOL/BAL P.C.B.



CABINET AND CHASSIS

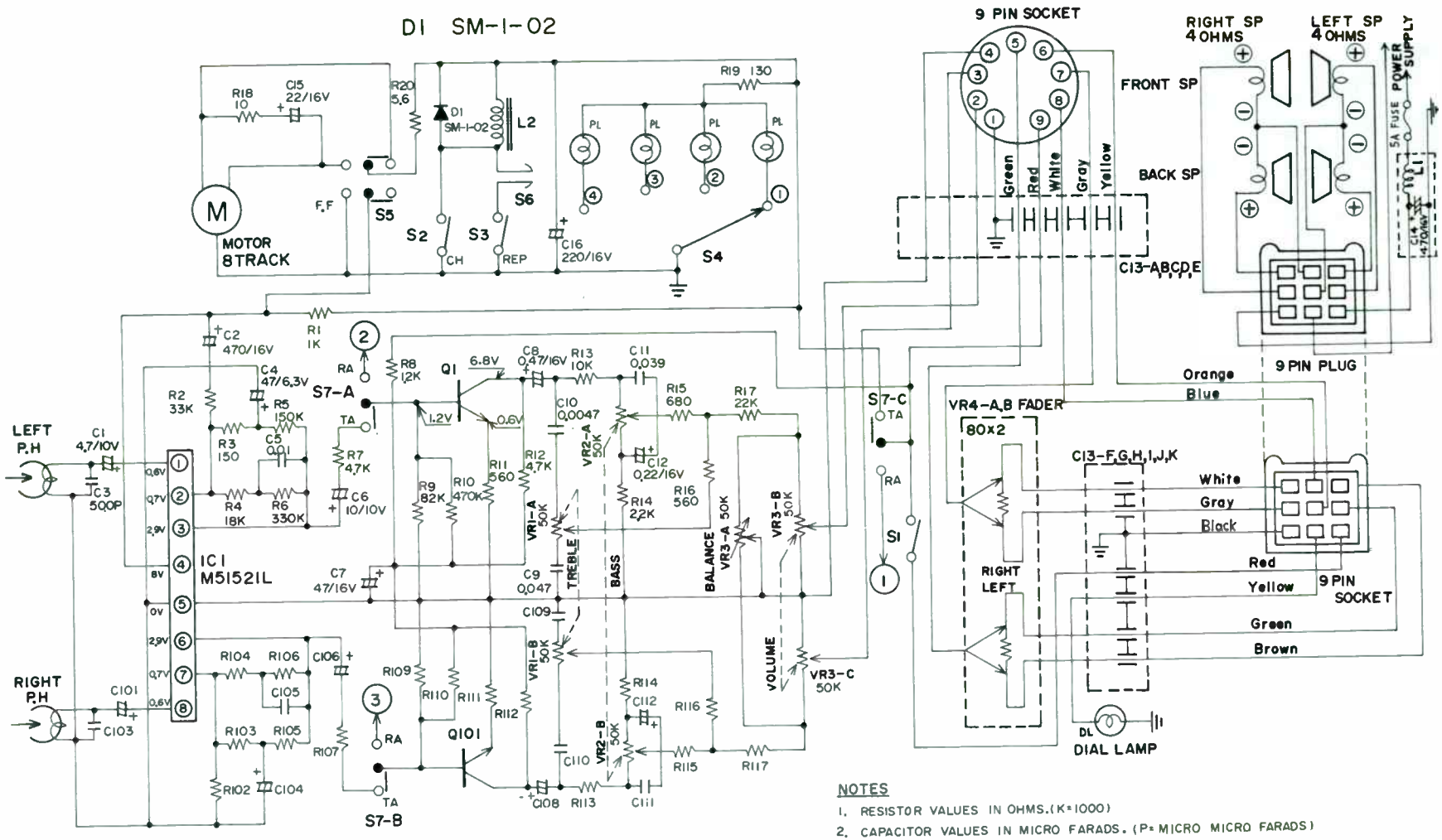


MECHANISM



Craig S682

PRE-AMP SCHEMATIC DIAGRAM



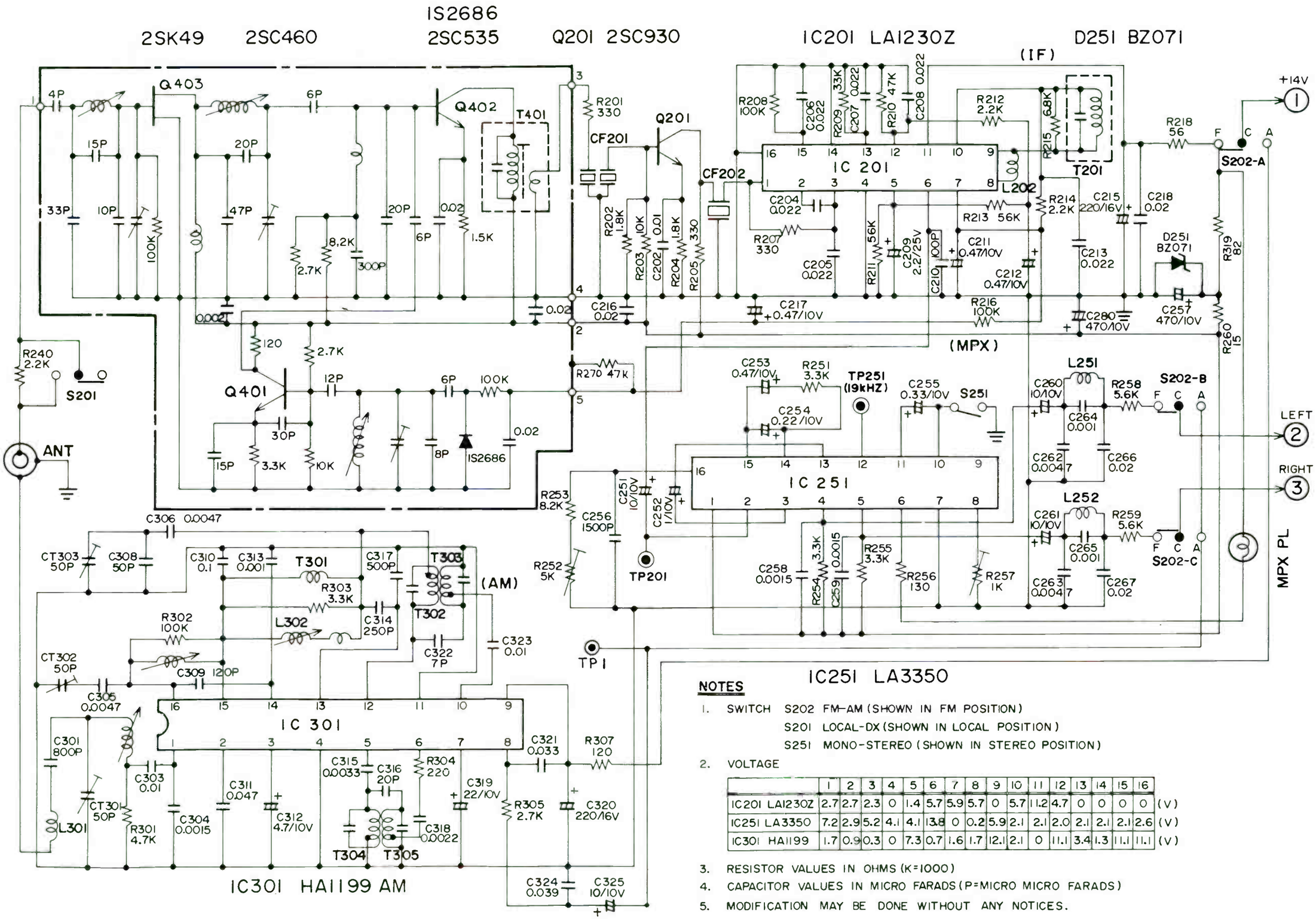
IC1 M51521L

Q1, 101 2SC536E

NOTES

1. RESISTOR VALUES IN OHMS.(K=1000)
2. CAPACITOR VALUES IN MICRO FARADS. (P= MICRO MICRO FARADS)
3. MODIFICATION MAY BE DONE WITHOUT ANY NOTICE.
4. SWITCH
   - S1 : POWER SUPPLY.
   - S2 : PROGRAM SELECTOR.
   - S3 : REPEAT SWITCH.
   - S4 : PROGRAM INDICATOR.
   - S5 : FAST FORWARD
   - S6 : AUTOMATIC PROGRAM SELECTOR.
   - S7 : TAPE-RADIO. (SHOWN IN TAPE POSITION)

TUNER SCHEMATIC DIAGRAM



NOTES

1. SWITCH S202 FM-AM (SHOWN IN FM POSITION)
   S201 LOCAL-DX (SHOWN IN LOCAL POSITION)
   S251 MONO-STEREO (SHOWN IN STEREO POSITION)
2. VOLTAGE

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
IC201 LA1230Z	2.7	2.7	2.3	0	1.4	5.7	5.9	5.7	0	5.7	11.2	4.7	0	0	0	0	(V)
IC251 LA3350	7.2	2.9	5.2	4.1	4.1	13.8	0	0.2	5.9	2.1	2.1	2.0	2.1	2.1	2.1	2.6	(V)
IC301 HA1199	1.7	0.9	0.3	0	7.3	0.7	1.6	1.7	12.1	2.1	0	11.1	3.4	1.3	11.1	11.1	(V)

3. RESISTOR VALUES IN OHMS (K=1000)
4. CAPACITOR VALUES IN MICRO FARADS (P=MICRO MICRO FARADS)
5. MODIFICATION MAY BE DONE WITHOUT ANY NOTICES.

CABINET & CHASSIS

REF NO.	CRAIG KEY NO.	DESCRIPTION	MFR'S SUGG RET. PRICE
RADIO & TAPE			
1	S680007	Ass'y, Trim Panel	
2	S682050	Casing, Front Panel	
3	S604062	Casing, Right Panel	
4	S604063	Casing, Left Panel	
5	S682051	Casing, Rear Panel	
6	S682010	Ass'y, Front Escutcheon	
┌	S682086	Lense, Stereo Indicator(Yellow)	
├	S682087	Lense, Prog Indicator(Red)	
├	S682088	Lense, Prog Indicator(Orange)	
├	S682089	Lense, Prog Indicator(Green)	
├	S682090	Lense, Prog Indicator(Blue)	
└	S682091	Light Refractor, Ind. Lense	
7	S631550	Pilot Lamp, Indicator 5V,60mA	
8	S682026	Button, AM/FM LO/DX F.F/REP.	
9	S682027	Slide Knob, TREBLE	
10	S682028	Slide Knob, BASS	
11	3148020	Knob, OFF/VOL/BAL	
12	3148021	Knob, TUNING/FADER	
┌	S682041	Ass'y, Dial Cartridge Door	
├	NSP	Bkt, Dial Scale Mtg	
├	S682077	Dial Scale	
├	S604088	Refractor, Green	
├	S682042	8 Track Door	
└	S631802	Veil Sheet, Door Side	
13	S631081	Dial Pointer	
14	S604212	Shaft, Dial Cartridge Door	
15	S631370	Coupler, Pointer Slide	
16	S682052	Casing, Upper	
17	S682053	Casing, Lower	
└	NSP	Special Label	
18	S682516	Ass'y, TUNER PCB w/comp	
19	S682517	Ass'y, PRE AMP PCB w/comp	
20	S682518	PCB, VOL/BAL Cont Mtg	
21	S682519	Ass'y, TAPE/RADIO Sw PCB (S7)	
22	S682520	Ass'y, Cont Sw PCB (S201,202 251)	
23	S682521	PCB, IND/TREBLE/BASS Cont Mtg	
24	S682522	PCB, FADER Cont Mtg	
25	S604395	Ass'y, Bkt Cart Door Mtg	
└	S604270	Spr, Dial String	
26	S604421	Plastic Guide, Dial String	
27	NSP	Ass'y, Mechanism Chassis	
28	S682341	Lever, F.FWD/REPEAT	
29	S682344	Lever, AM/FM	
30	S682342	Lever, MONO/STEREO	
31	S682343	Lever, LOC/DX	
32	3510151	Special Scr, Lever	
33	S682420	Plastic Guide, Lever	
34	S682430	Plastic Cushion, PCB Sw	
35	S682395	Bkt, Ant Trimmer Mtg	
36	NSP	Bkt, Dial Lamp	
└	S682550	Dial Lamp only, 14V, 2W	
37	NSP	Bkt, Tuner PCB Mtg	
38	NSP	Bkt, Feed Thru Capacitor Mtg	
39	S682380	Holder, Lamp Indicator	
40	T602015	Plastic Coupler(B), Tuning	
41	T602016	Plastic Coupler(A), Tuning	
42	3148117	Hex Nut M3/8x12.5x2.5	
43	3128042	Wsh, Cont Shaft Locator	
44	S604415	Ass'y, FM/RF&TUNER Mechanism	
45	S682570	Slide VR 50k, TREBLE/BASS	
46	S682571	VR 50k, ON/OFF VOL/BAL	
47	S682572	VR 80k, FADER/TUNING	
48	3145028	Trimmer 60pF (CT301)	
49	NSP	Ass'y, Mechanism	
└	NSP	Ass'y, 12P Feed Thru Capacitor	
50	S682607	Ass'y, 9P Conn (Unit Side)	
51	S682608	Ass'y, 9P Conn, Pwr/Spk(Unit)	
52	3510076	Socket, Ant Receptacle	
53	S682530	Push Sw,REP/F.F/LO-DX/ST-MO (S3,5,201,251)	
54	S682531	Push Sw, AM/FM	
AMP			
	S682524	Ass'y, POWER AMP w/comp	
1	NSP	Chassis, Power Amp	
2	S682054	Top Cabinet, Amp	
3	S682525	Ass'y, PCB AMP w/comp	
4	S682396	Bkt, PCB/Heat Sink	
5	NSP	Heat Sink	
6	S682381	Clamp, Power Hardness Mtg	
7	S682620	Ass'y, 9P Conn (Amp Side)	

NSP : None Serviceable Parts

MECHANISM

REF NO.	CRAIG KEY NO.	DESCRIPTION	MFR'S SUGG RET. PRICE
1	NSP	Chassis	
2	NSP	Top Chassis	
3	S604260	Roller, Cartridge Guide	
4	3128197	Slide Sw, RADIO/TAPE (S7)	
6	S604381	Ass'y, Bkt Cam Mtg	
└	S604521	PCB, Prog Indicator Contact	
7	S604251	Cam, Prog Change	
10	S604252	Prog Indicator Contact (S4)	
11	S604253	Cam, Crosstalk Adj	
12	S604271	Spr, Crosstalk Adj	
13	S604291	Ratchet A	
14	S604292	Ratchet B	
15	S604231	Wsh, Crosstalk Adj	
16	S604213	Shaft, Top Plate Mtg	
17	S604205	FLYWHEEL	
18	S604254	Kick Cam, Prog Change	
19	S604203	Bearing, Flywheel Capstan	
20	S604232	Nylon Wsh, Flywheel Capstan	
21	S604382	Switching Plate, Solenoid	
22	S604341	Kick Arm, Prog Change	
24	S604272	Spr, Kick Plate Return	
25	S604598	SOLENOID	
26	S604599	Shaft, Solenoid	
27	S604522	Ass'y, End of Tape Sensor (S6)	
28	S604214	Special Scr, Motor Mtg	
30	S604342	Ass'y, Pressure Roller Arm	
31	S604233	Collar, Pressure Arm	
32	S604273	Spr, Pressure Arm	
33	S604261	Roller, Pressure Arm	
35	S604383	Ass'y, Base Plate	
37	S604274	Spr, Head Support	
38	S604266	Ass'y, Head Base	
40	S604384	Clamp, Head Base	
42	NSP	Bkt, Motor Mtg	
43	S604311	Pulley, Motor	
44	S604208	BELT	
45	S604706	Insulator, Motor Mtg	
46	S604275	Spr, Switching Plate Return	
51	S682500	MOTOR	
52	3221007	HEAD	

MISCELLANEOUS ELECTRICAL

VR1,2	S682570	Slide VR 50k, TREBLE/BASS	
VR4	S682572	VR 80k, FADER/TUNING	
VR3	S682571	VR 50k, VOL/BAL	
S1		Sw, Power ON/OFF	
S2		Prog Selector (Push)	
S3,5		Push Sw, REPEAT/F.FWD	
201	S682530	Push Sw, LOC/DX	
251		Push Sw, MONO/ST	
S202	S682531	Push Sw, AM/FM	
S4	S604252	Sw, Prog Indicator	
S6	S604522	Sensor, Auto Prog Select	
S7	3128197	Slide Sw, RADIO/TAPE	
DL	S682550	Pilot Lamp, 14V, 2W, Dial	
PL	S631550	Pilot Lamp, 5V, 60mA, Ind.	
	T631609	3P Socket, PCB Tuner	
	T631610	4P Socket, PCB Tuner	
	T631621	3P Plug, PCB Tuner	
	T631622	4P Plug, PCB Tuner	
	S682621	Ass'y, 9P Pwr/Spk Conn (Car)	
	S682673	Ass'y, Choke Coil Filter	
	S682670	Choke Coil Only	
	S682607	Ass'y, 9P Conn (Unit Side)	
	S682620	Ass'y, 9P Conn (Pwr Amp Side)	
	S682608	Ass'y, 9P Pwr/Spk Conn(Unit)	

SEMICONDUCTORS

Q1,101	2SC536	Transistor	
Q201	2SC930	Transistor	
Q401	2SC460	Transistor FM/RF	
Q402	2SC535	Transistor FM/RF	
Q403	2SK49	FET	
IC1	M51521L	IC, PRE-AMP	
IC201	LA1230Z	IC, IF	
IC251	LA3350	IC, MPX	
IC301	HA1199	IC, AM	
IC501			
601	M51515L	IC, AMP	
D251	BZ071	Zener Diode	
D1	SM102	Diode	
D2	IS2686	Diode	

CAPACITORS

REF NO.	CRAIG KEY NO.	DESCRIPTION	MFR'S SUGG RET. PRICE
TUNER			
C322		Ceramic, 7pF ±10%, 50V	
C316		" 20pF ±10%, 50V	
C308		" 50pF ±10%, 50V	
C210		" 100pF ±10%, 50V	
C309		" 120pF ±10%, 50V	
C254		Electrolytic .22mF/16V	
C255		" .33mF/16V	
C211,212,217, 253.		" .47mF/16V	
C252		" 1. mF/16V	
C209		" 2.2 mF/25V	
C312		" 4.7 mF/25V	
C251,260,261, 325.		" 10. mF/16V	
C319		" 22. mF/16V	
C215,320		" 220 mF/16V	
C257		" 470 mF/10V	
C305,306		Mylar .0047mF ±20%, 50V	
C310		" .1 mF ±20%, 50V	
C264,265,313, 304		Semiconductor .001mF ±10%, 25V	
C258,259		" .0015mF ±10%, 25V	
C318		" .0022mF ±10%, 25V	
C315		" .0033mF ±10%, 25V	
C262,263		" .0047mF ±10%, 25V	
C202,303,323		" .01 mF ±10%, 25V	
C204~208,213, 216,218,266, 267		" .02 mF ±10%, 25V	
C321		" .033 mF ±10%, 25V	
C324		" .039 mF ±10%, 25V	
C311		" .047 mF ±10%, 25V	
C314		Styrol 250pF ±10%, 50V	
C317		" 500pF ±10%, 50V	
C301		" 800pF ±10%, 50V	
C256		" 1500pF ±10%, 50V	

COILS, TRIMMERS & TRANSF

L1	S682670	Choke Coil, Noise Filter	
L2	S604598	Solenoid	
L202	T604671	Choke Coil 18uH	
L251, 252	3510052	Choke Coil 40uH	
L301	T604673	Choke Coil 6.8uH	
L302	3128058	Choke Coil 5uH	
L501, 601	S682671	Choke Coil 10uH	
CF201	3145026	Ceramic Filter	
CF202	3137087	Ceramic Filter	
CT301	3145028	Trimmer 60pF	
CT302, 303	3128072	Trimmer 50pF	
T201	T631641	IFT	
T301	S682641	OSC Coil	
T302	T631643	IFT	
T303, 304, 305.	T631642	IFT	
T401	S682672	IFT	
R257	T631672	SVR 1k	
R252	T631671	SVR 5k	

HARDWARE

CABINET & CHASSIS		
Chassis/Mech	Tap Scr, PH M3x5	
Mech/Mech	"	
Bkt/Chassis	"	
Mech/Bkt	"	
Chassis/Guide	Scr, PH M2x5	
Chassis/VR	"	
Chassis/Chassis	Scr, PH M3x5	
Chassis/Tuner	"	
Treble PCB/Chas	"	
Capacitor/Bkt	Tap Scr, PH M2.6x4	
ANT Trimmer	Scr, PH M3.4	
PCB/Chassis	Scr, BH M2.6x6	
Escutcheon/Chas	Scr, PH M3x6	
Sw PCB/Board	Tap Scr, PH M3x5	
Lever/Mechanism	"	
AMP		
Lid/Chassis	Tap Scr, PH M3x6	
PCB/Chassis	"	
Bkt/Chassis	"	
Heat Sink/Bkt	Scr, PH M3x6	
Bkt/Chassis	Scr, PH M3x5	

REF NO.	CRAIG KEY NO.	DESCRIPTION	MFR'S SUGG RET. PRICE
PRE AMP			
C12,112		Electrolytic .22mF/16V	
C8,108		" .47mF/16V	
C1,101		" 4.7 mF/25V	
C6,106		" 10 mF/16V	
C4,104		" 47 mF/6.3V	
C7		" 47 mF/16V	
C2		" 470 mF/16V	
C10,110		Semiconductor .0047mF ±20%, 50V	
C5,105		" .01 mF ±20%, 50V	
C11,111		" .039 mF ±20%, 50V	
C9,109		" .047 mF ±20%, 50V	
C3,103		Styrol 500pF ±10%, 50V	
AMP			
C501,601		Electrolytic 10mF/16V	
C504,507,604, 607,509,609		" 100mF/10V	
C512		" 1000mF/16V	
C505,513,605, 613		" 2200mF/10V	
C511,611		" 2200mF/16V	
C502,602		Mylar .001 mF ±20%, 50V	
C510,610		" .0068mF ±20%, 50V	
C503,508,603, 608		" .068 mF ±20%, 50V	
C514,614,506, 606		" .1 mF ±20%, 50V	
CONTROL SW			
C15		Electrolytic 22mF/16V	
C16		" 220mF/16V	
NOISE FILTER			
C14		Electrolytic 470mF/16V	

RESISTORS

R502,602	2.2	ohms	R215	6.8k	ohms
R260	15	"	R253	8.2k	"
R501,503, 601,603	22	"	R203,13, 113,17, 117	10k	"
R218	56	"	R4,104	18k	"
R307,505, 605	120	"	R2,102, 209	33k	"
R3,103	150	"	R210,241	47k	"
R304	220	"	R211,213	56k	"
R205,207	330	"	R9,109	82k	"
R11,16,111, 116,504, 604	560	"	R208,216, 302	100k	"
R15,115	680	"	R5,105	150k	"
R8	1.2k	"	R6,106	330k	"
R202,204	1.8k	"	R10,110	470k	"
R212,214, 14,114	2.2k	"	R20	5.6 ohms, ½W	
R305	2.7k	"	R18	10 " , ½W	
R251,254, 255,303, 259	3.3k	"	R1	1k " , ½W	
R7,12,107, 112,301	4.7k	"	R319	Met. Oxide 82 ohms,1W	
R258	5.6k	"	R256, 19	Met. Oxide 130 " ,1W	
			R270	47k ohms	

MECHANISM

101	Tap Scr M3x5	
102	Tap Scr M3x6	
103	Scr M2.6x5	
104	Scr M3x5	
105	Scr M3x28	
106	Scr M3x32	
107	Scr M2.6x4	
108	Scr, BH M2.6x5	
109	Wsh M2.6	
110	Wsh 4.6x10x0.3	
111	E-Ring 4	
112	E-Ring 3.2	
113	E-Ring 2.3	
114	E-Ring 1.5	
115	Scr M2x2.5	

Pages 99-118 Courtesy of RADIO SHACK

ADJUSTMENT PROCEDURES

Before starting alignment, thoroughly check the unit to be sure it is functioning properly.

NOTES:

1. Adjust the regulated DC power supply to 13.8V.
2. Connect an AC voltmeter (VTVM) across speaker or dummy load (4 ohm, 10W wirewound resistor). See Figure 7.
3. Signal input must be kept as low as possible to avoid overload and clipping (use highest possible sensitivity of output indicator).
4. Repeat adjustment to insure good results.
5. Non-metallic alignment tools must be used (especially necessary for FM alignment)
6. Alignment and test point location details: See Figures 14 and 15.

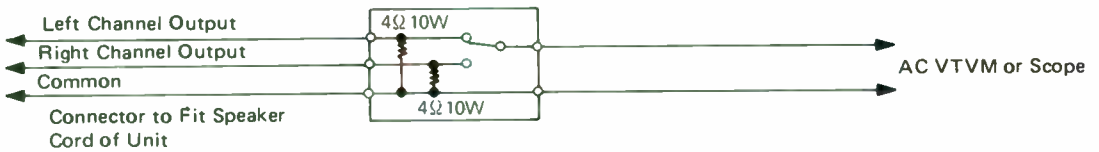


Figure 7

AM IF & RF ALIGNMENT

1. Push the Radio Selector Button (S304) to turn power on and set the AM/FM selector button (S302) to AM position.
2. AM signal generator should be connected to dummy antenna, which in turn should be connected to the antenna terminal. (See Figures 8 and 9)
3. Set volume control to maximum and tone control to treble.

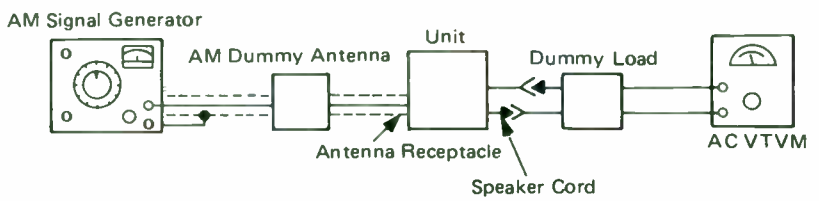
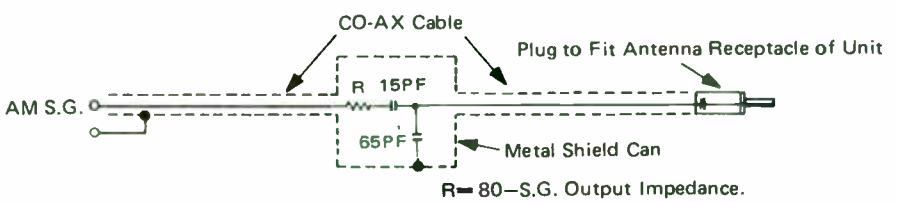


Figure 8



AM DUMMY ANTENNA

Figure 9

STEP	GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1	455 kHz 400 Hz, 30% mod.	Around 1000 kHz, to point of non-interference	AC VTVM across voice coil or dummy load (See Figure 7)	CFT1 IFT2	Adjut for maximum
2	1650 kHz 400 Hz, 30% mod.	High frequency end stop	"	TC102	"
3	525 kHz 400 Hz, 30% mod.	Tune to signal	"	T101	"
4	1400 kHz 400 Hz, 30% mod.	Tune to signal	"	TC301 TC101	"
5	Repeat steps 2,3 and 4 until no further increase. Step 4 should be last step.				

Note:
With antenna extended to desired height (use 32" [81cm] for optimum FM reception), tune in a weak station between 1200 and 1400 kHz. Adjust antenna trimmer TC301 for maximum output.

FM IF ALIGNMENT

1. Push the Radio Selector Button (S304) to turn power on and set the AM/FM Selector Button (S302) to FM position.
2. Connect high side of Sweep Generator output through 0.01μF capacitor to TP1; low side to ground. (Figures 10 & 11)
3. Set volume control to minimum and tone control to high.

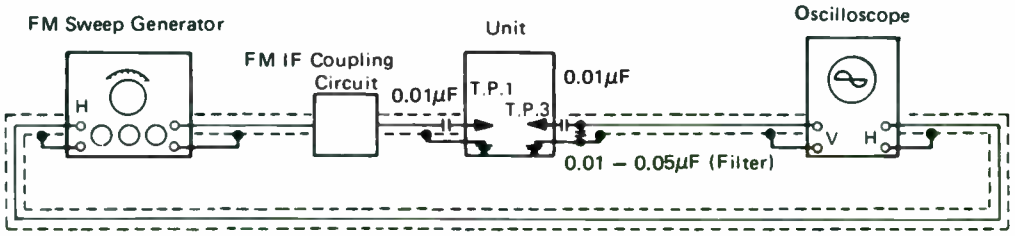
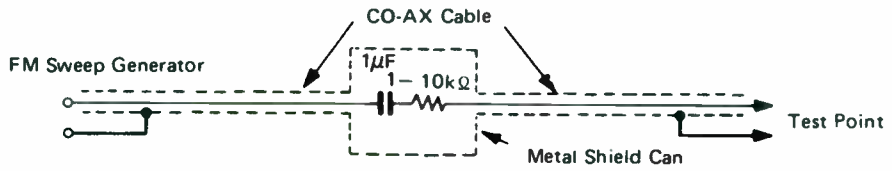


Figure 10



FM IF COUPLING CIRCUIT

Figure 11

STEP	GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1	10.7 MHz (Sweep)	Point of non-interference	Vert. input. of Scope to T.P.3; low side to ground	T1 IFT1	Adjust IFT1 & T1 to obtain symmetrical response curve similar to Figure 12.

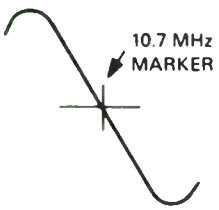


Figure 12

Note: FM Tuner Unit is factory aligned and requires no alignment. Should you find Tuner Unit is defective, replace entire unit.

MULTIPLEX ALIGNMENT

1. FM signal generator should be modulated by FM STEREO signal generator as follows:
   19 kHz .....10%(7.5 kHz dev.)
   400 Hz ..... 90%(67.5 kHz dev.)
2. FM Signal Generator output level 1mV. Frequency, 98 MHz.
3. Set the AM/FM Selector Button (S302) to FM position and tune to signal. Adjust Volume control to provide 1 watt (2 volts across 4 ohms load) on AC VTVM and Tone control to treble.
4. Set Balance control for equal output on each channel.
5. Set MONO/Stereo Selector to stereo position (Out). (See Figure 13).

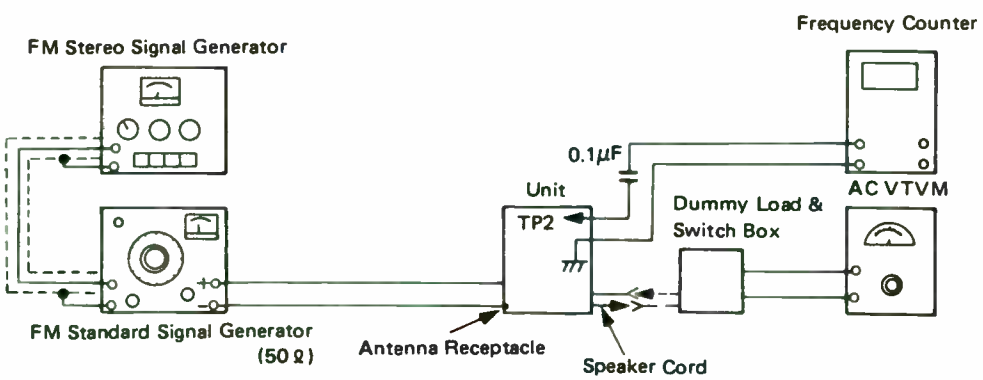


Figure 13

STEP	MODULATION FREQUENCY	OUTPUT INDICATOR	ADJUST	REMARKS
1	No signal	Frequency counter to TP2.	VR101	Adjust for 19 kHz
2	19 kHz (Pilot signal)			Check that STEREO Indicator (LED 301) glows.

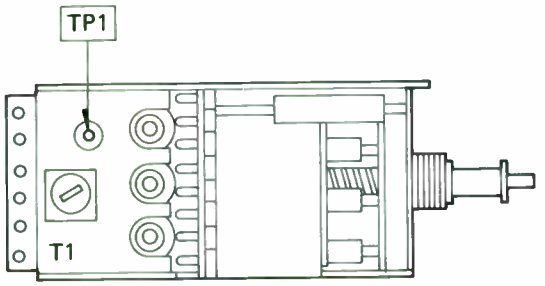


Figure 14

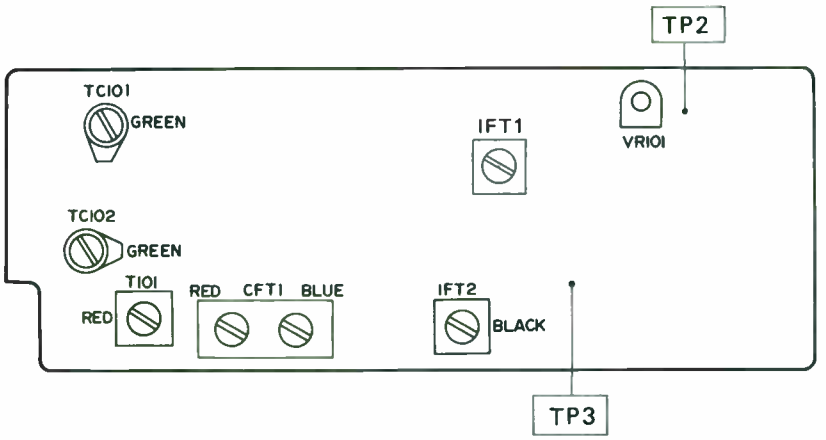
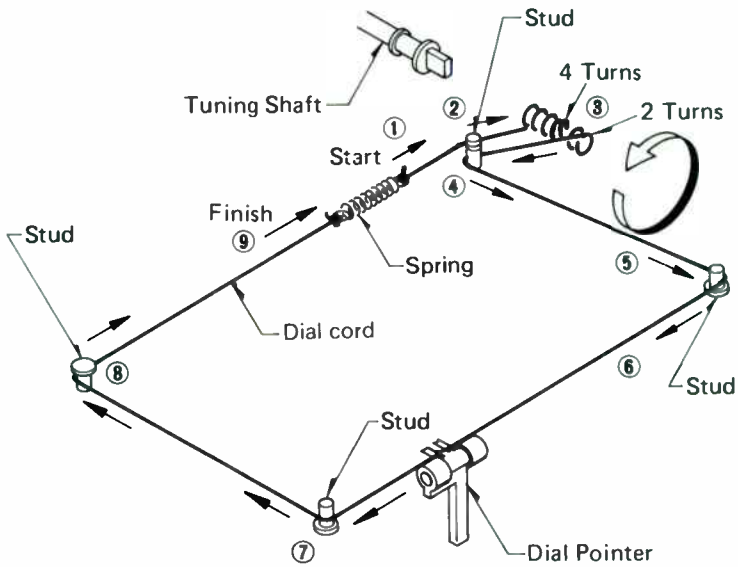


Figure15

DIAL CORD STRINGING

1) Set the tuning capacitor to the maximum capacitance (fully counterclockwise position).
2) Wind the dial cord in the numerical sequence as shown in direction of the arrows.



HEAD ADJUSTMENT

Head adjustments are accessible from the top of unit with cover removed.
Note: DO NOT operate tape player upside down with a loaded tape cartridge as cartridge may jam.

1. HEAD HEIGHT ADJUSTMENT

Improper adjustment of Head Height will result in cross-talk and/or poor separation.

A. Player should be right side up.
B. Connect proper output loads across each channel.
C. Set controls as follows:
   1. Radio:OFF
   2. Stereo/Mono: Any position (no effect)
D. Insert test cartridge (such as RCA = 321) into tape slot & set "Program" switch to track 2 & 6 (Program No. 2).
E. Set Balance control for maximum left channel output and Tone to high.
F. Connect scope (or AC-VTVM) across left channel output (track 2 information will be presented).
G. Adjust Height Adjustment Screw for a **null**; make sure there is a peak on either side of the null. The reason for the null is that 1kHz information is recorded on the **guard bands** adjacent to track 2 on the test tape.

2. AZIMUTH ADJUSTMENT

The adjustment can be made from the top of the set, with cover removed.

A. Set Balance control for maximum right channel output.
B. Connect scope (or AC-VTVM) across the output of the right channel (track 6 information-8 kHz will be presented).
C. Adjust the Azimuth Adjust Screw (located to the left of the head bracket), for maximum output. (See Figure 5 for the adjustment screw).

3. Repeat Steps 1 & 2 to optimize these adjustments. Then recheck a 3rd time.
   Lock Height & Azimuth screws with non-hardening cement.
   (See Figure 5 for location of adjustment screws.)

REF. NO.	DESCRIPTION	RS PART NO.	MFR'S PART NO.
1	Wrap Around Lug	HB–4974	29A737272
2	Sub Chassis Assembly		1V40500T86
3	Spring Washer		4S40071G01
4	Head Cable	HB–7895	30C43811P04
5	Ratchet Cam	RT–1407	45C43289J01
6	Lock Spring	RB–5677	41A41943J01-40
7	Indicator P.C.B.	X–7818	84C44839P01
8	Plunger & Ratchets Assembly	S–9094	1V43700J07
9	Coil Spring	RA–5680	41B40889J06
10	Washer	HB–8207	4A44152J01
11	Washer "C" (E3)		4C42091G04
12	Solenoid Spring	RB–6209	41A41452G01
13	Clip Assembly	RT–1408	1V42900J25
14	F-Lock Screw	HD–1314	3S40019G72
15	Tap Tite Screw (M3 x 6)	HB–3028	3S44205G01
16	Coil Spring	RB–5681	41B40889J07
17	Washer "C" (E2.3)	HD–8209	4C42091G01
18	Flat Metal Washer		4S40070G06
19	Head Bracket	HB–7896	7B43207P01
20	Machine Screw		3S40011G98
21	Hexagon Nut (M2.3 x 0.4)		2S40000G26
22	Machine Screw (M2.6 x 0.45 x 4)	HD–2042	3C40014G12
23	Machine Screw (Round Point)	HD–2219	3A43253J02
24	Machine Screw (M3 x 0.5 x 12)	HD–2063	3S40011G22
25	Spring (Azimuth)	RB–6210	41B40889J08
26	Spring (Head Height)	RB–5679	41B40889J05
27	Lock Clip	HB–4970	42A44324J01
28	Transfer Bracket	HB–4971	7B43803J01
29	Guide Sleeve	HB–4972	43A43807J01
30	Hold Down Assembly	Z–4179	1C43169P01
31	Machine Screw (M2 x 0.4 x 2)	HD–2007	3S40011G97
32	LED Bushing	HB–7897	43B40974T01
33	Machine Screw (M3 x 8)	HD–2057	3S40014G22
34	Slide Spacer	HB–7898	43B43054P01
35	Wrap Around Lug		29C41045P02
36	Switch P.C.B.	X–7819	84C40754T01
37	LED P.C.B.	X–7820	84A40687T01
38	Tape Player Chassis Assembly		1C43088P01
39	Motor Spacer	RT–1409	43A42465P01
40	Capstan Housing	RA–7152	15C42850P01
41	Flywheel Assembly	RA–7153	49B40824T01
42	Drive Belt	B–6376	42B42308P02
43	Washer "C" (E3.2)		4C42091G02
44	Machine Screw (M3 x 6)	HD–2055	3A43995P01
45	Push Knob (MONO)	K–3038	36B40681T02
46	Tap Tite Screw (M3 x 8)	HD–3028	3S44205G03
47	Bottom Chassis Assembly		1V40500T61
48	Push Knob (FM)	K–3039	36B40681T03
49	Push Knob (RADIO)	K–3040	36B40681T04

TROUBLE SHOOTING GUIDE

TAPE AND RADIO DO NOT WORK

SYMPTOM	CAUSE	REMEDY
Tape and Radio do not work.	Fuse is blown.	Replace the fuse. Check for shorts. Check diodes D 1, D2, D 101, D 102.
	Defective S301.	Replace.

TAPE PLAYER DOES NOT WORK

Tape does not work, but Radio works.	Improper S304 TAPE/RADIO Switch function.	Adjust or replace.
Slow speed and wow.	Flywheel and/or capstan is faulty.	Replace the Flywheel assembly and/or Capstan Block assembly.
	Belt is faulty.	Replace. When installed, the rough surface side of the belt must be inside.
	Flywheel and/or motor pulley is dirty or contaminated with oil.	Clean with isopropyl alcohol.
	Capstan shaft is dirty or scratched.	Clean or replace the Flywheel assembly.
	Cassette holding spring is weak.	Replace.
	Bearing is worn or burnt.	Replace the Capstan Block assembly.
	Motor is faulty.	Replace.
Power supply is on, but no sound.	Belt slipped off.	Put belt back on.
		The rough surface of the belt must be inside, also, do not use excessive force on the motor pulley.
	Flywheel, capstan shaft or motor pulley improperly positioned.	Reposition or replace the Flywheel assembly or motor assembly.
	Motor is faulty.	Replace.
	Motor lead wire is disconnected.	Check motor wiring.
	Head lead wire is open.	Re-wire or resolder.
	Poor contact in speaker connector.	Repair or replace.
Tape is caught in capstan shaft.	Tape Guide assembly is faulty.	Adjust it or replace.
When Program selector is pushed, program does not change. Also automatic program selector is inoperative.	Program selector switch S301 is faulty.	Replace.
	Solenoid Coil assembly is faulty.	Replace.
	Defective Tape.	Try another tape.
Cross talk.	Head height improperly adjusted.	Adjust per Head Height Adjustment Instructions.
	Ratchet Spring assembly or Capstan Block assembly is faulty.	If crosstalk occurs periodically, replace the Ratchet Spring assembly or Capstan Block.
	Poor performance of movable plate.	Strengthen the Push-up Spring of the moving plate. If the moving plate wobbles, replace the moving plate assembly.
Right and left channel outputs are not balanced.	Head mount is faulty.	If the tilt of the head is too much to the front or rear, adjust the Head Mounting so that Head is perpendicular; then perform Head Azimuth adjustment.
Shrill noise is emitted from speaker.	Head face is dirty.	Clean per Tape Head and Capstan Cleaning Instructions.

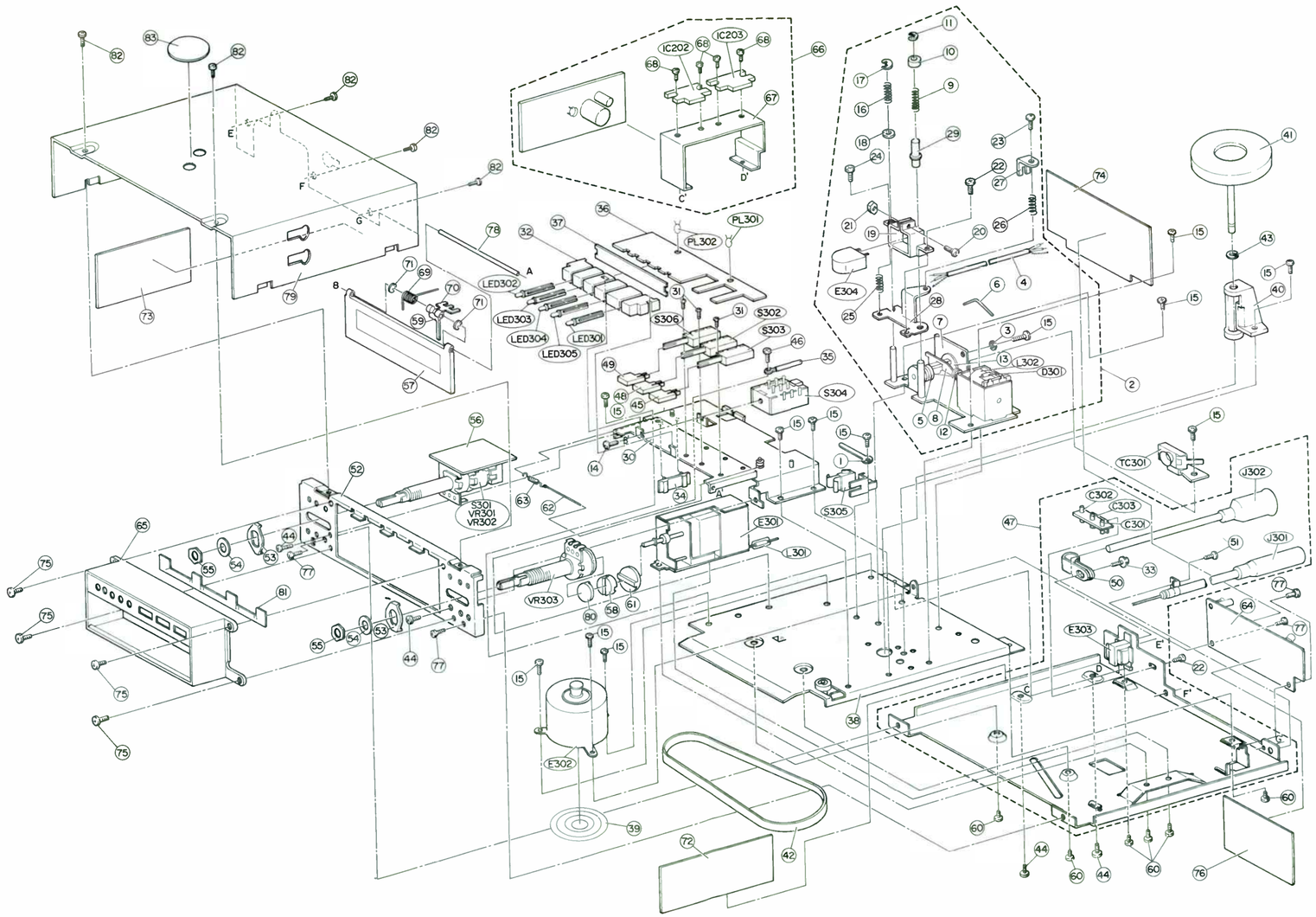
RADIO DOES NOT WORK (but tape player works)

SYMPTOM		CAUSE	REMEDY
Radio switch is on but no sound.	Both AM and FM:	Defective switch S302.	Check or replace it.
		Zener Diode D201 is faulty.	Replace it.
		Defect in the MPX circuit.	Check voltage and/or replace defective component.
	FM only:	Defect in the FM Front End and/or FM IF stage circuit.	Realign, repair or replace.
	AM only:	Defect in the AM Tuner and/or AM IF stage circuit.	Realign, repair or replace.
The tape is ejected but Radio is not on.		Defective switch S304.	Check or replace it.
AM plays poorly.		Antenna is mismatched.	Readjust antenna trimmer TC301.
FM works, but not MPX (stereo indicator lamp is on).		Defect in the MPX circuit.	Check voltages, adjust per Multiplex Alignment Instructions.
FM MPX works, but stereo indicator does not light.		Defective LED301.	Replace.

PARTS LIST

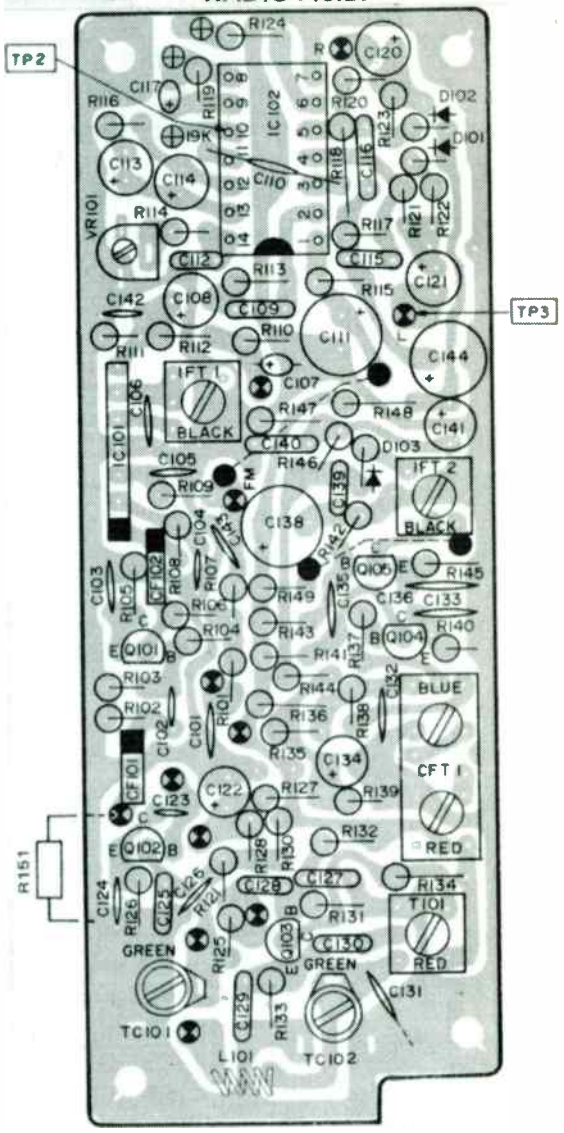
REF. NO.	DESCRIPTION	RS PART NO.	MFR'S PART NO.
	CAPACITORS		
C101	Ceramic 0.022 μF +80-20%50V		21C45322G32
C102	Ceramic 0.01 μF +80-20%50V		21C45322G31
C103	Ceramic 0.01 μF +80-20%50V		21C45322G31
C104	Ceramic 0.01 μF +80-20%50V		21C45322G31
C105	Ceramic 0.01 μF +80-20%50V		21C45322G31
C106	Ceramic 7 pF ±0.5 pF 50V		21C45322G07
C107	Tantalum 0.22μF ±20% 35V		23S41059P03
C108	Electrolytic 10 μF +50-10%16V		23D44333G08
C109	Mylar 0.0022 μF ±10%50V		8C44833J05
	or Mylar 0.001 μF ±10%50V		8C44833J01
C110	Ceramic 0.05 μF ±20%12V		21B41870J01
	or Ceramic 0.047 μF ±10%25V		8C40277P19
C111	Electrolytic 100 μF +50-10%10V		23D44333G30
C112	Polystyrene 470 pF ±5% 125V		8C42195G07
C113	Electrolytic 0.47 μF ±20%50V		23C42909J02
C114	Electrolytic 0.22 μF ±20%50V		23C42909J01
C115	Mylar 0.018 μF ±10%50V		8C44833J16
C116	Mylar 0.018 μF ±10%50V		8C44833J16
C117	Tantalum 0.68 μF ±20% 35V		23S41059P06
C118	NOT USED		
C119	NOT USED		
C120	Electrolytic 1 μF +50-10%50V		23D44333G01
C121	Electrolytic 1 μF +50-10%50V		23D44333G01
C122	Electrolytic 4.7 μF +50-10%25V		23D44333G05
C123	Ceramic 470 pF ±10% 50V		21C45322G27
C124	Ceramic 0.022 μF +80-20%50V		21C45322G32
C125	Polystyrene 120 pF ±5% 125V		8C42195G13
C126	Ceramic 0.1 μF ±20%12V		21B41870J02
C127	Mylar 0.0033 μF ±10%50V		8C44833J07
C128	Mylar 0.0 1 μF ±10%50V		8C44833J13
C129	Mylar 0.001 μF ±10%50V		8C44833J01
C130	Mylar 0.0068 μF ±10%50V		8C44833J11
C131	Ceramic 220 pF ±5%50V		21C41701J50
C132	Ceramic 0.1 μF ±20%12V		21B41870J02
C133	Ceramic 0.1 μF ±20%12V		21B41870J02
C134	Electrolytic 10 μF +50-10%16V		23D44333G08
C135	Ceramic 0.01 μF +80-20%50V		21C45322G31
C136	Ceramic 0.1 μF +20%12V		21B41870J02
C137	NOT USED		
C138	Electrolytic 100 μF +50-10%10V		23D44333G30
C139	Mylar 0.022 μF ±10%50V		8C44833J17
C140	Mylar 0.01 μF +10%50V		8C44833J13
C141	Electrolytic 10 μF +50-10%16V		23D44333G08
C142	Ceramic 220 pF ±10%50V		21C45322G25
C143	Ceramic 0.01 μF +80-20%50V		21C45322G31
C144	Electrolytic 47 μF ±50-10%10V		23D44333G24

REF. NO.	DESCRIPTION	RS PART NO.	MFR'S PART NO.
50	Clamp Cord	HB–6469	42B41424G14
51	Tap Tite Screw (M3 x 5)	HD–3025	3S44205G05
52	Front Chassis		27C43141P01
53	Washer		4A41341P01
54	Flat Washer	HD–3249	4S40070G10
55	Hexagon Nut (M9 x 0.75)	HD–7088	2S40000G15
56	Volume P.C.B.	X–7821	84A40755T01
57	Door Assembly	DA–0245	IC40682T01
58	Arm Joint	RT–1410	45A43033P02
59	Pointer	D–1248	52B43146P02
60	Machine Screw (M3 x 0.5 x 4)	HD–2059	3S40011G21
61	Arm Joint	RT–1411	45A40430P02
62	Dial Cord	D–1249	30A43803G01-600
63	Dial Spring	RB–6211	41A43445J02
64	Radio P.C.B. Assembly	X–7822	1V40500T66
65	Nose Piece	Z–4180	15C40686T01
66	Pre-Main Amp P.C.B. Assembly	X–7823	1V40500T65
67	Main Amp Bracket	HB–7899	7B43143P01
68	Machine Screw (M3 x 0.5 x 8)	HD–2054	3S40011G26
69	Door Spring	RB–6212	41A43193P01
70	Pointer Holder	D–1250	7A43149P01
71	Washer "C" (E1.5)		4C42091G06
72	Insulator Fiber	HB–7900	14B43531P01
73	Insulator Fiber	HB–7901	14B43531P03
74	Insulator Fiber	HB–7902	14B43531P02
75	Machine Screw (M3 x 4)	HD–2053	3C40014G05
76	Insulator Fiber	HB–7903	14A42199P02
77	Tap Tite Screw (M3 x 4)	HD–3024	3S44205G12
78	Door Shaft	HB–7904	46A43194P01
79	Top Cover	Z–4181	15D40685T01
80	Arm Orudam (B)	RT–1412	45A43352P01
81	Cover Sheet		15A40688T01
82	Tap Tite Screw (M3 x 5)	HD–3025	3S44205G04
83	ADJ. Label	HB–4987	54A40999P01
102	Knob Kit Assembly	K–3041	1V40500T70
102-1	Control Knob (A) Assembly		36C42882J01
102-2	Pendant Knob		36C41054D03
103	Kit Installation Assembly		1V40500T71
105	Front Escutcheon	Z–4182	64C42246P11
106	Front Trim	Z–4183	64C40689T01
107	Speaker Cable Assembly	W–2159	30C41137P01
108	Nose Gasket	HB–6431	32B42183P01
109	Receiver Mounting Strap	MB–0135	42B40994G05
110	Mounting Bracket	MB–0207	7B40690T01

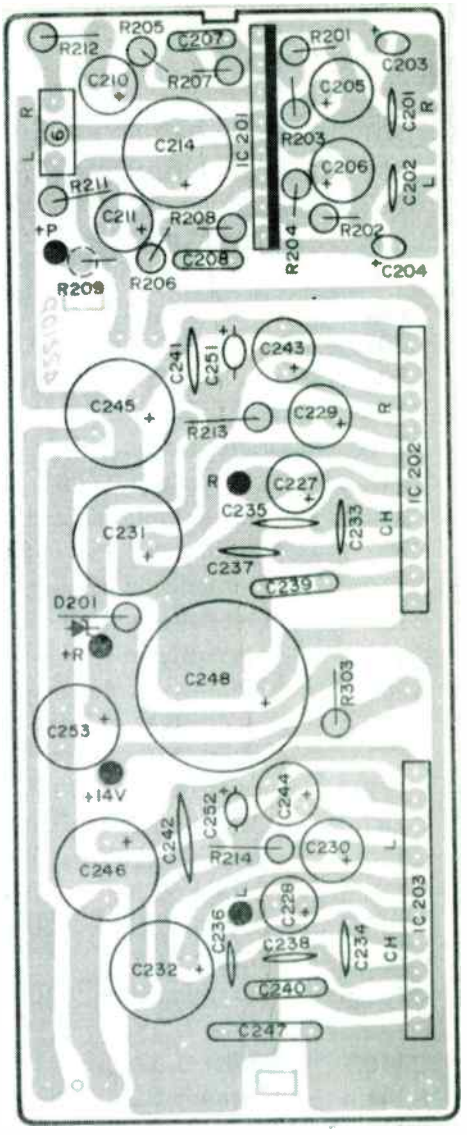


REF. NO.	DESCRIPTION	RS PART NO.	MFR'S PART NO.
C201	Ceramic 680 pF ±10% 50V		21C45322G39
C202	Ceramic 680pF ±10% 50V		21C45322G39
C203	Tantalum 1 μF ±20% 25V		23S41059P07
C204	Tantalum 1 μF ±20% 25V		23S41059P07
C205	Electrolytic 47 μF +50-10%10V		23D44333G24
C206	Electrolytic 47 μF +50-10%10V		23D44333G24
C207	Mylar 0.01 μF ±10%50V		8C44833J13
C208	Mylar 0.01 μF ±10%50V		8C44833J13
C209	NOT USED		
C210	Electrolytic 4.7 μF +50-10%25V		23D44333G05
C211	Electrolytic 4.7 μF +50-10%25V		23D44333G05
C212	Tantalum 0.15 μF ±20% 35V		23S41059P02
C213	Tantalum 0.15 μF ±20% 35V		23S41059P02
C214	Electrolytic 220 μF +50-10%16V		23D44333G37
C227	Electrolytic 1 μF +50-10%50V		23D44333G01
C228	Electrolytic 1 μF +50-10%50V		23D44333G01
C229	Electrolytic 47 μF +50-10%10V		23D44333G24
C230	Electrolytic 47 μF +50-10%10V		23D44333G24
C231	Electrolytic 220 μF +50-10%6.3V		23D44333G35
C232	Electrolytic 220 μF +50-10%6.3V		23D44333G35
C233	Ceramic 220 pF ±10%50V		21C45322G25
C234	Ceramic 220 pF ±10%50V		21C45322G25
C235	Ceramic 56 pF ±10%50V		21C45322G19
C236	Ceramic 56 pF ±10%50V		21C45322G19
C237	Ceramic 68 pF ±10%50V		21C45322G20
C238	Ceramic 68 pF ±10%50V		21C45322G20
C239	Mylar 0.039 μF ±10%50V		8C44833J20
C240	Mylar 0.039 μF ±10%50V		8C44833J20
C241	Ceramic 0.2 μF ±20%12V		21B41870J03
C242	Ceramic 0.2 μF ±20%12V		21B41870J03
C243	Electrolytic 47 μF +50-10%10V		23D44333G24
C244	Electrolytic 47 μF +50-10%10V		23D44333G24
C245	Electrolytic 470 μF +50-10%16V		23B44780P05
C246	Electrolytic 470 μF +50-10%16V		23B44780P05
C247	Mylar 0.15 μF ±10%50V		8C44833J27
C248	Electrolytic 1000 μF +75-10%16V		23C42170G22-052
C249	NOT USED		
C250	NOT USED		
C251	Tantalum 1 μF ±20% 25V		23S41059P07
C252	Tantalum 1 μF ±20% 25V		23S41059P07
C253	Electrolytic 470 μF +50-10%16V		23B44780P05
C301 C302 C303	Feed Through Capacitor	C–0871	21B41880J03
TC101	Variable Capacitor (AM)	C–4624	20C43248J01
TC102	Variable Capacitor (AM)	C–4624	20C43248J01
TC301	Antenna Trimmer	C–0932	20B43084P02

RADIO P.C.B.

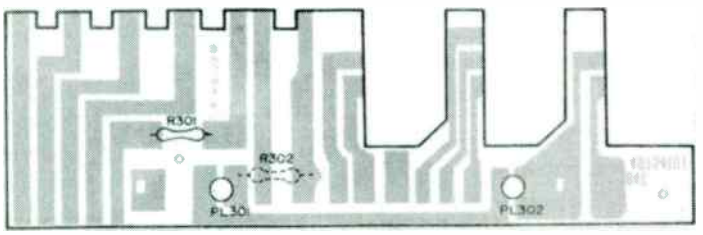


PRE MAIN AMP P.C.B.

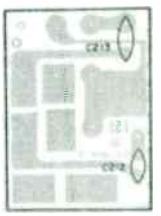


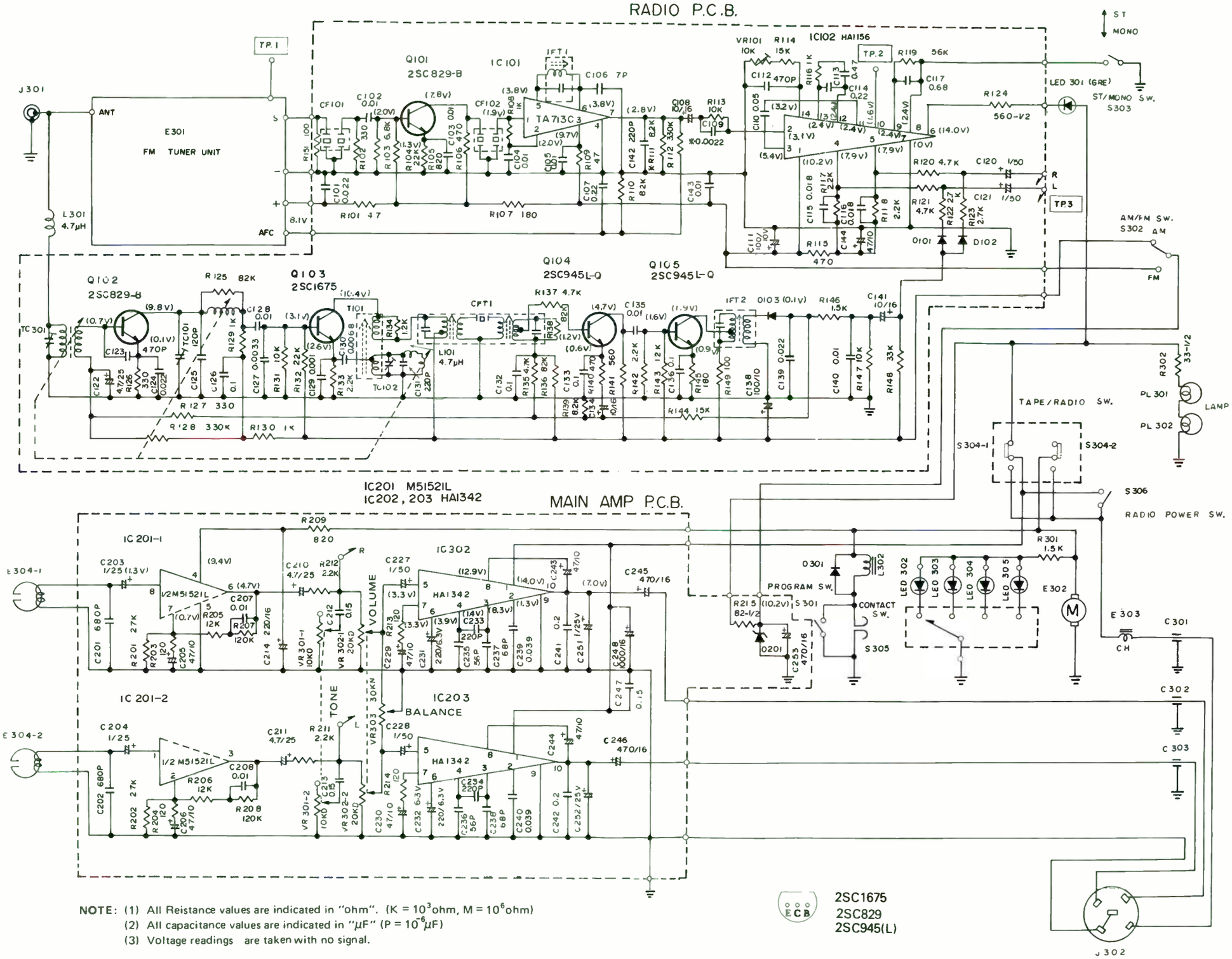
LED P.C.B.

SWITCH P.C.B. (TOP & BOTTOM VIEW)

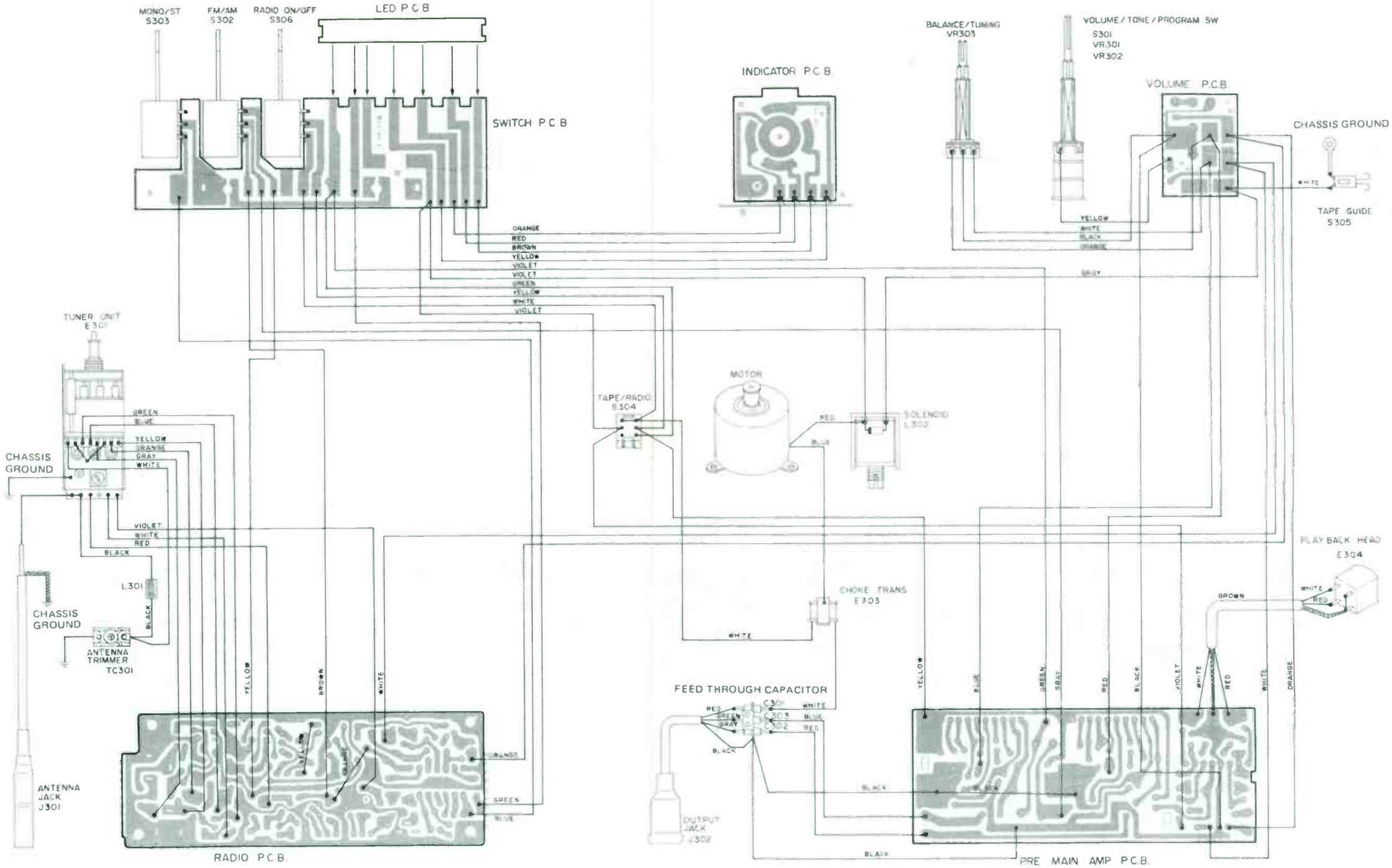


VOLUME P.C.B.





NOTE: (1) All Reistance values are indicated in "ohm". (K = 10^3ohm, M = 10^6ohm)
(2) All capacitance values are indicated in "μF" (P = 10^{-6}μF)
(3) Voltage readings are taken with no signal.



REF. NO.	DESCRIPTION	RS PART NO.	MFR'S PART NO.
	COILS		
CFT1	CFT AM Coil	CA–3954	24C44577J01
CF101	Ceramic Filter (10.7MHz)	C–0931	91T40309T01
CF102	Ceramic Filter (10.7MHz)	C–0931	91T40309T01
T101	AM OSC Coil	CA–4962	24C42189G04
IFT1	Coil IFT FM	CA–7903	24B44795J01
IFT2	Coil IFT AM	CA–7904	24B43107J03
L101	Coil AM (4.7μH)	CA–3955	24B44179J01
	DIODES		
D101	Diode 1S1555	DX–0270	48S134816
D102	Diode 1S1555	DX–0270	48S134816
D103	Diode IN60	DX–0161	48S41768G01
D201	Zener Diode	DX–1128	48S42098J22
	INTEGRATED CIRCUITS		
IC101	IC TA7130 IF/OSC	MX–3624	51S44789J01
	or IC TA7130 IF/OSC	MX–3624	51S44789J02
IC102	IC HA1156 MPX	MX–3625	51S40464P01
IC201	IC M5152IL	MX–3635	51S42211P01
IC202	IC HA1342	MX–3623	51S44837J03 or 51S44837J04
IC203	IC HA1342	MX–3623	51S44837J03 or 51S44837J04
	LIGHT EMITTING DIODES		
LED301	LED (Green)	L–0928	48T43688P01
LED302	LED (Red)	L–0929	48T43818P01
LED303	LED (Red)	L–0929	48T43818P01
LED304	LED (Red)	L–0929	48T43818P01
LED305	LED (Red)	L–0929	48T43818P01
	LAMPS		
PL301	Pilot Lamp (60mA)	L–0707	65B43447J01
PL302	Pilot Lamp (60mA)	L–0707	65B43447J01
	TRANSISTORS		
Q101	Transistor 2SC829-B		48S41815J02
Q102	Transistor 2SC829-B		48S41815J02
Q103	Transistor 2SC1675-M		48S44580J01
or	Transistor 2SC1675		48S44580J02
Q104	Transistor 2SC945L-Q		48S44578J02
Q105	Transistor 2SC945L-Q		48S44578J02

REF. NO.	DESCRIPTION	RS. PART NO.	MFR. PART NO.
R148	Carbon 33 K ohm ±5%1/4W		6S41801P50
R149	Carbon 100 ohm ±5%1/4W		6S41801P20
R151	Carbon 100 ohm ±5%1/4W		6S44593P41
R201	Carbon 27 k ohm ±5%1/4W		6S41801P49
R202	Carbon 27 k ohm ±5%1/4W		6S41801P49
R203	Carbon 120 ohm ±5%1/4W		6S41801P21
R204	Carbon 120 ohm ±5%1/4W		6S41801P21
R205	Carbon 12 k ohm ±5%1/4W		6S41801P45
R206	Carbon 12 k ohm ±5%1/4W		6S41801P45
R207	Carbon 120 k ohm ±5%1/4W		6S41801P57
R208	Carbon 120 k ohm ±5%1/4W		6S41801P57
R209	Carbon 820 ohm ±5%1/4W		6S41801P31
R210	NOT USED		
R211	Carbon 2.2 k ohm ±5%1/4W		6S41801P36
R212	Carbon 2.2 k ohm ±5%1/4W		6S41801P36
R213	Carbon 120 ohm ±5%1/4W		6S41801P21
R214	Carbon 120 ohm ±5%1/4W		6S41801P21
R215	Carbon 82 ohm ±5%1/2W		6D44744G19
R301	Carbon Resistor 1.5 K ohm ±5% 1/4W		6S40150T69
R302	Film Resistor 33 ohm ±5%1/2W	NEE–0087	6B43205J05
VR101	Variable Resistor 10 K ohm	P–1897	18C42061J04
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VR303	Tuning Shaft & BALANCE Control	D–3254	18T40980T01
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E301	Tuner Unit	C–4654	77T43117P01
E302	Motor Assembly	M–4435	59C42326P02
E303	Choke Transformer	CB–2352	25C40894G07
E304	Play Back Stereo Head	H–4348	88C40887P01
J301	Receptacle Antenna Jack	J–0980	9C40957T06
J302	Output Wire Assembly	W–1891	30C41138P01
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L302	Solenoid Bracket Assembly	S–9093	1V43400J99
S302	Push Switch (FM/AM)		40B42262P02
S303	Push Switch (MONO/ST)	S–7386	40B42262P02
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S305	Tape Guide Assembly	S–0764	1D40285J07
S306	Push Switch (Radio ON/OFF)	S–7386	40B42262P02

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Listing all models in Auto Radio Series volumes from 1970 (AR-70).

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