



AUTO RADIO SERVICE DATA



+AR-288+



Audiovox C986C, ID-500C

Clarion PE-676B

Craig S608

Delco 90BCB1, 90BFTC1, 90ECB1

**Ford D9AF18806BA, D9EF18806AA,
D9HF1806BA/CA/DA, D9TF18806AA,
D90F18806AA**

Mazda 2MM3515 5MM3406

**Volvo 2VV3514(11281003-1), 2VV3609
(11281992-5), 5VV3404**



AUTO RADIO SERVICE DATA

AR-288

REPRODUCED THROUGH THE COURTESY OF THE MANUFACTURER



HOWARD W. SAMS & CO., INC.

INDIANAPOLIS INDIANA

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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 metallic 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.

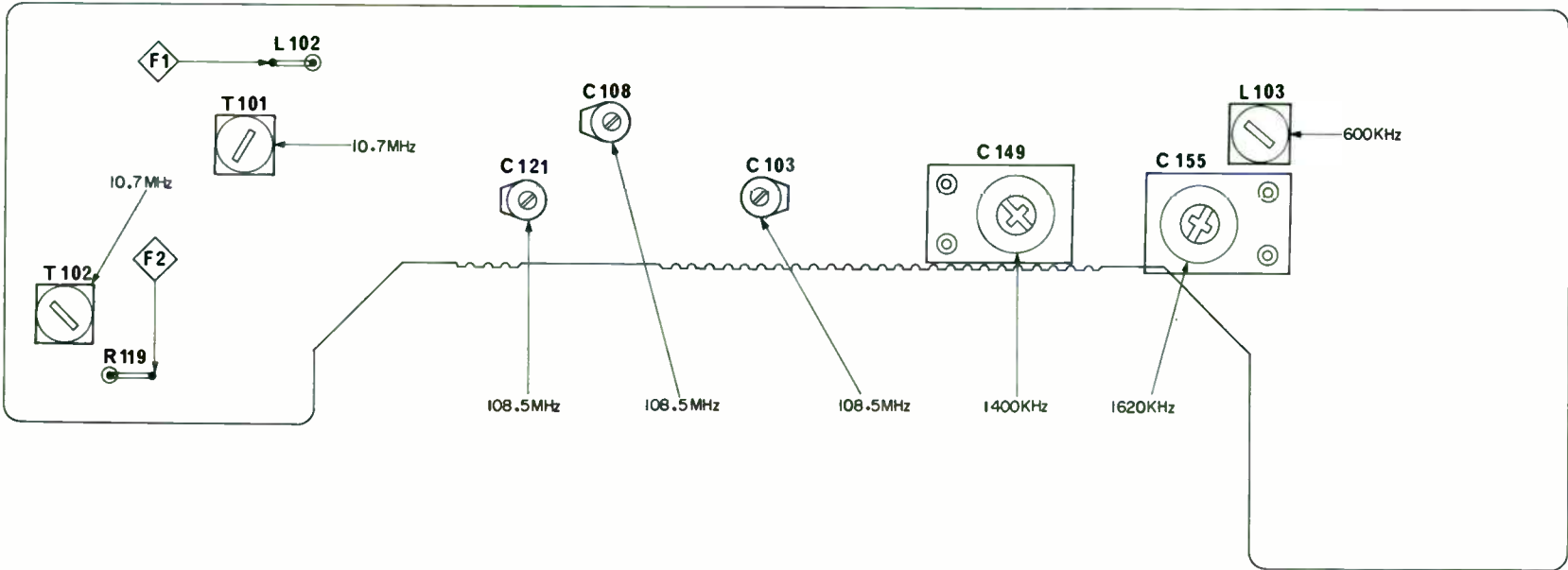
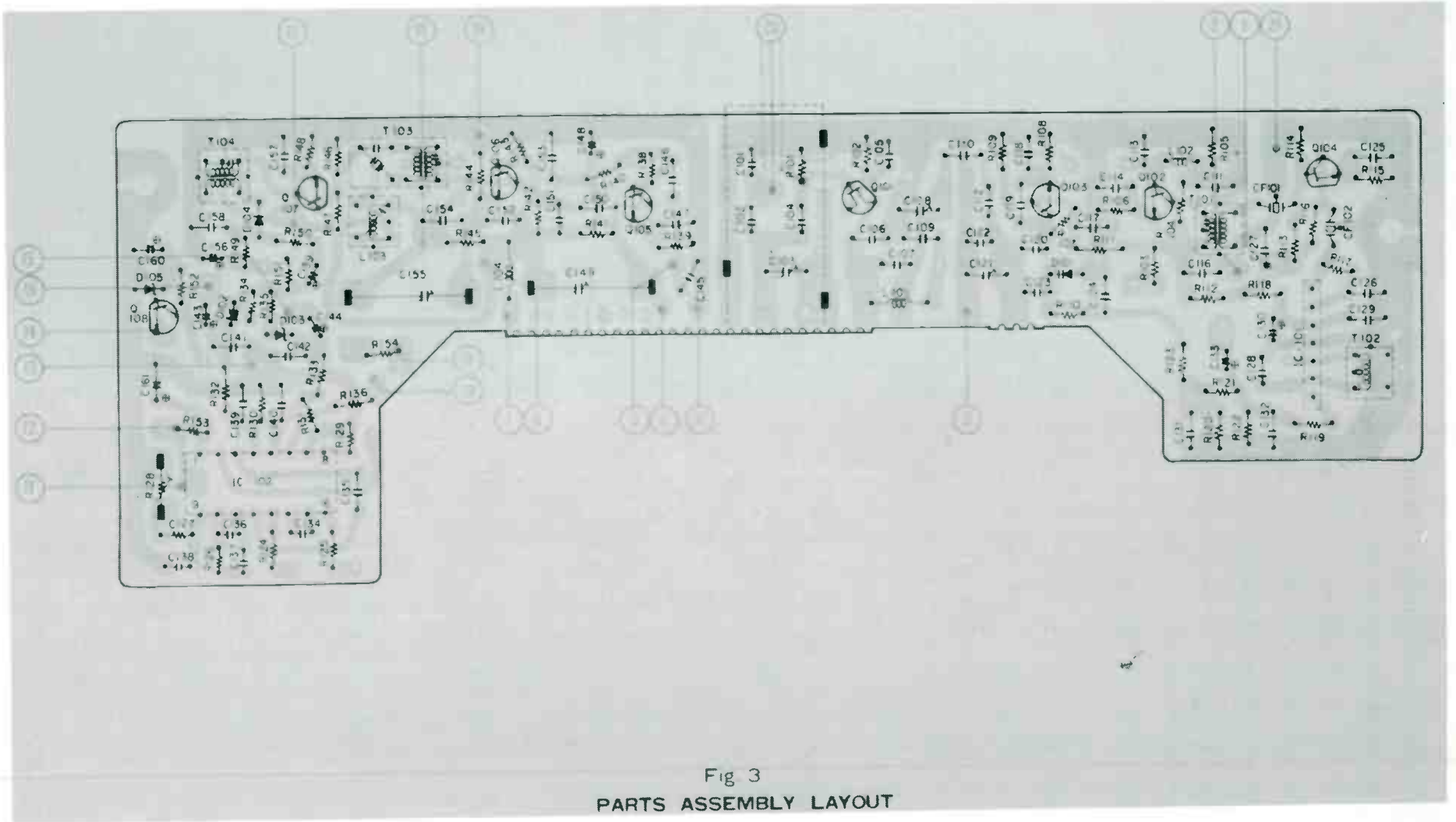


Fig. 2
ALIGNMENT LOCATION DETAIL



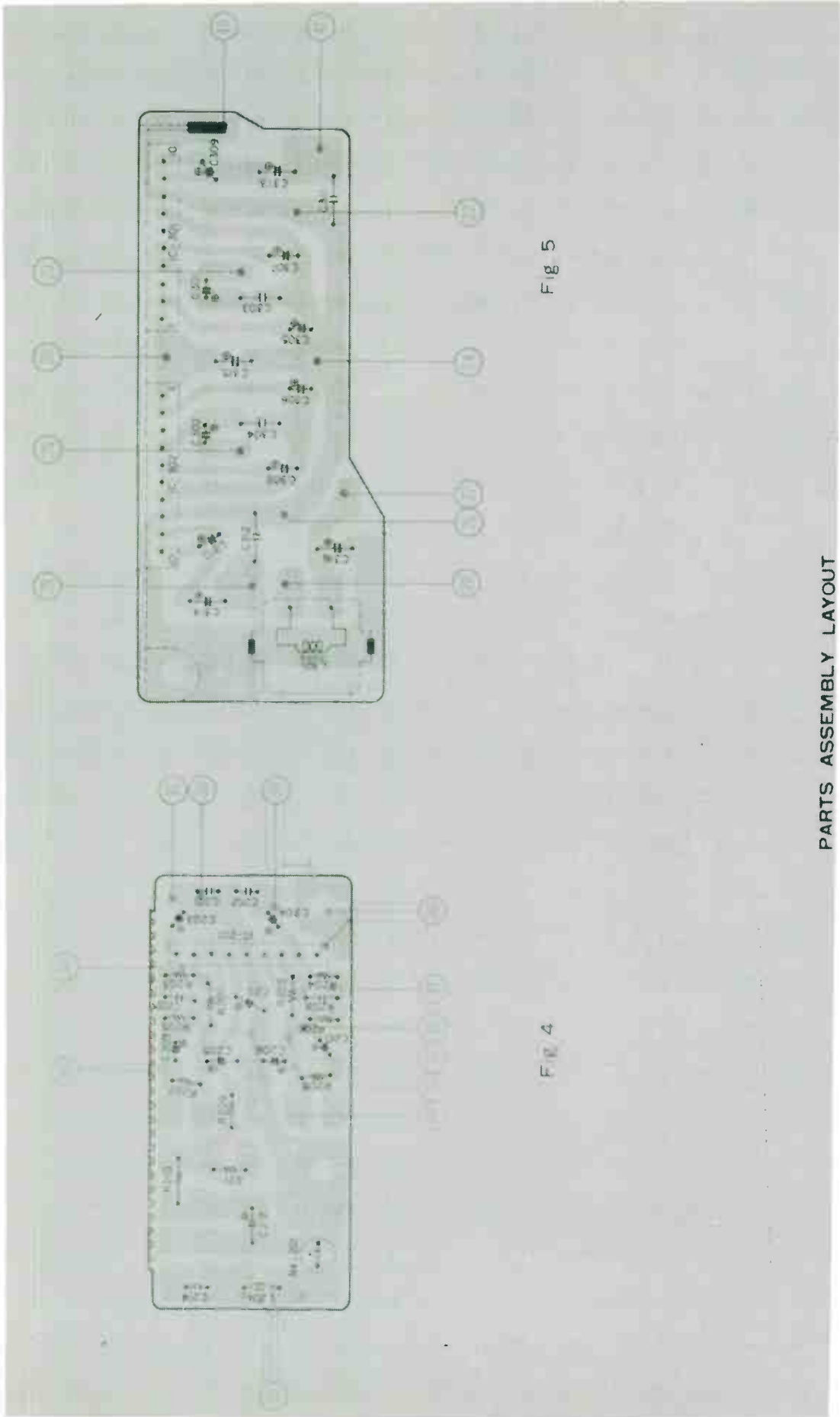


Fig 5

Fig 4

PARTS ASSEMBLY LAYOUT

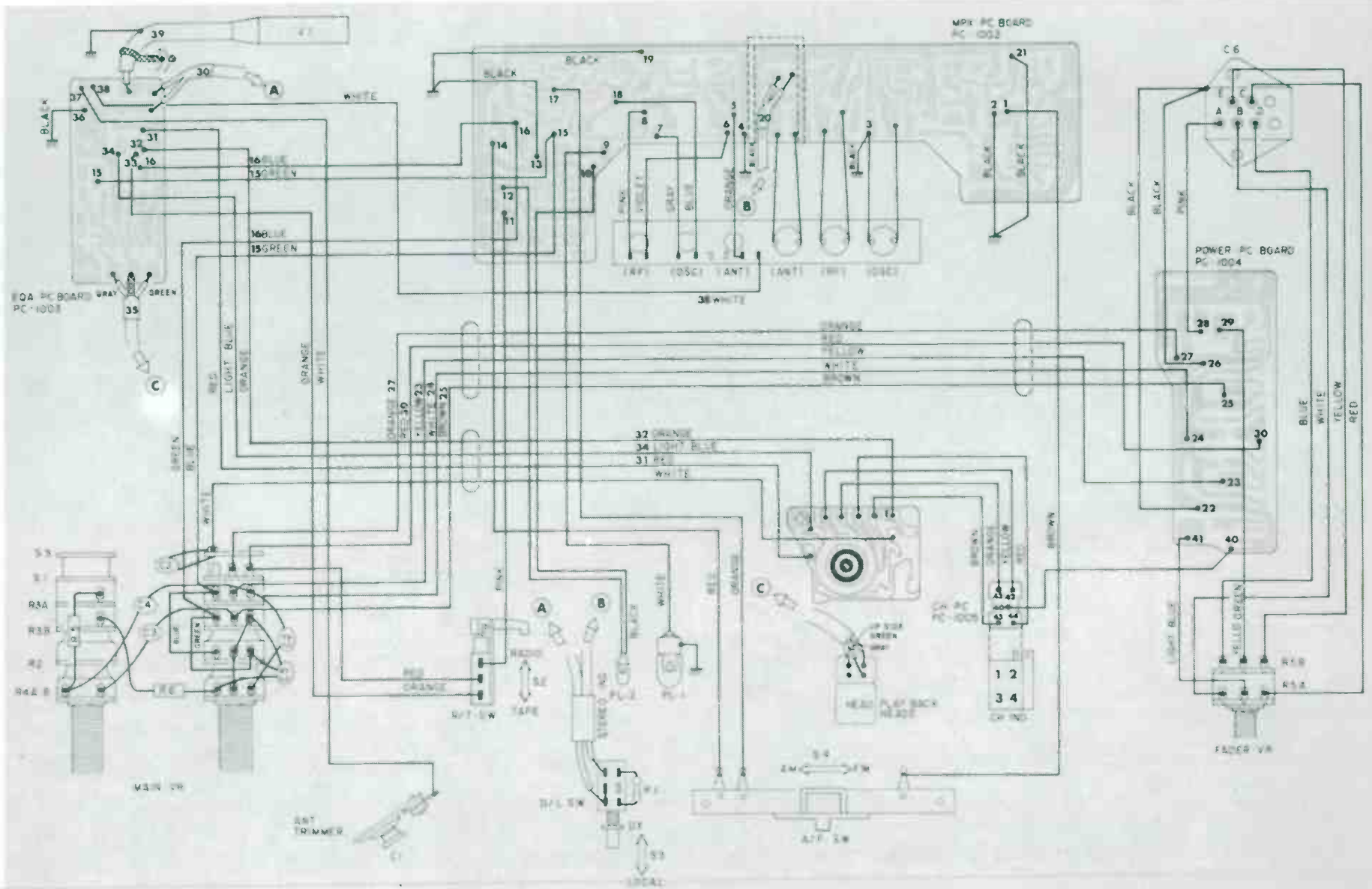


Fig 6
WIRING DIAGRAM

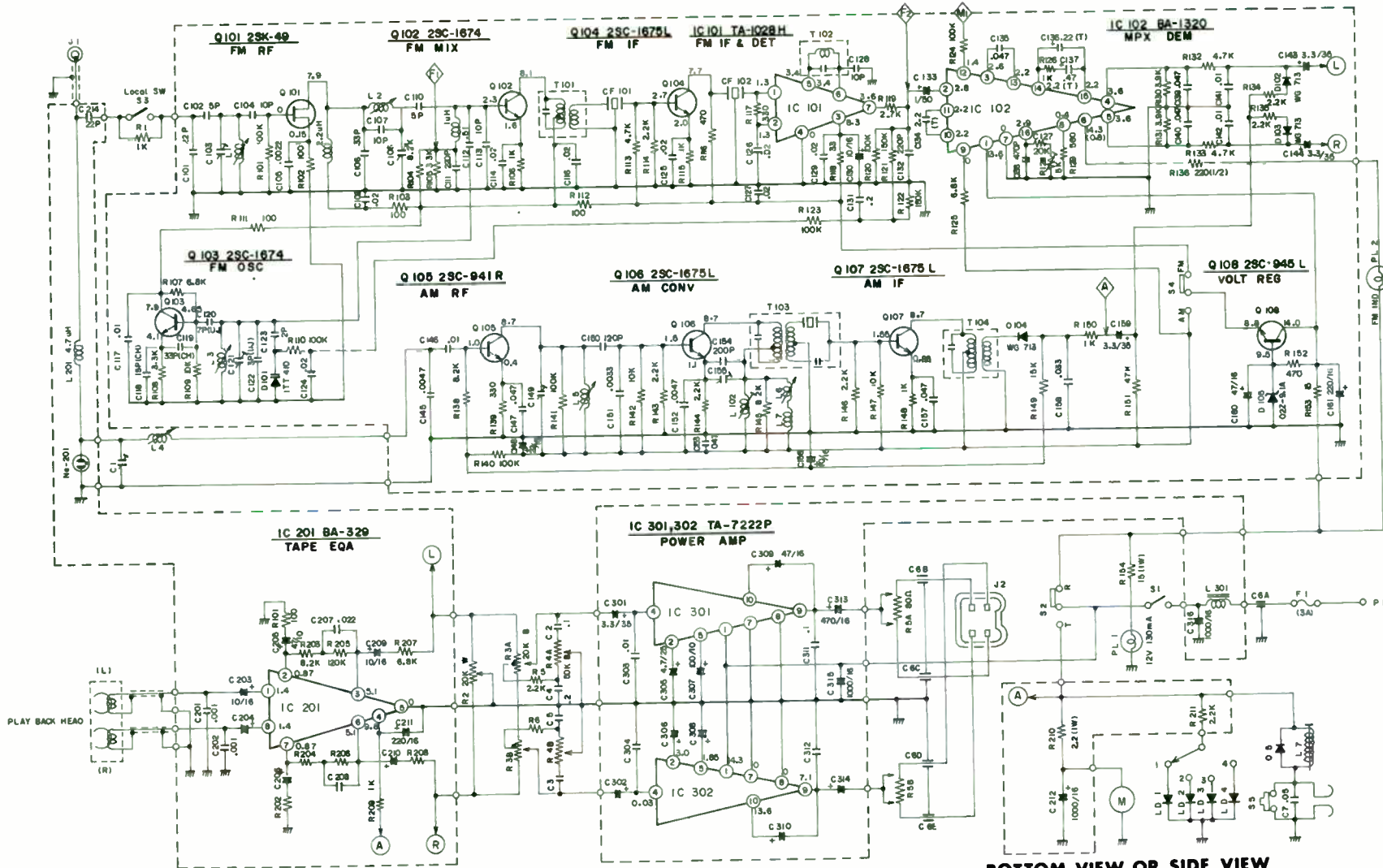
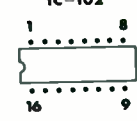
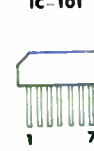
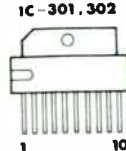
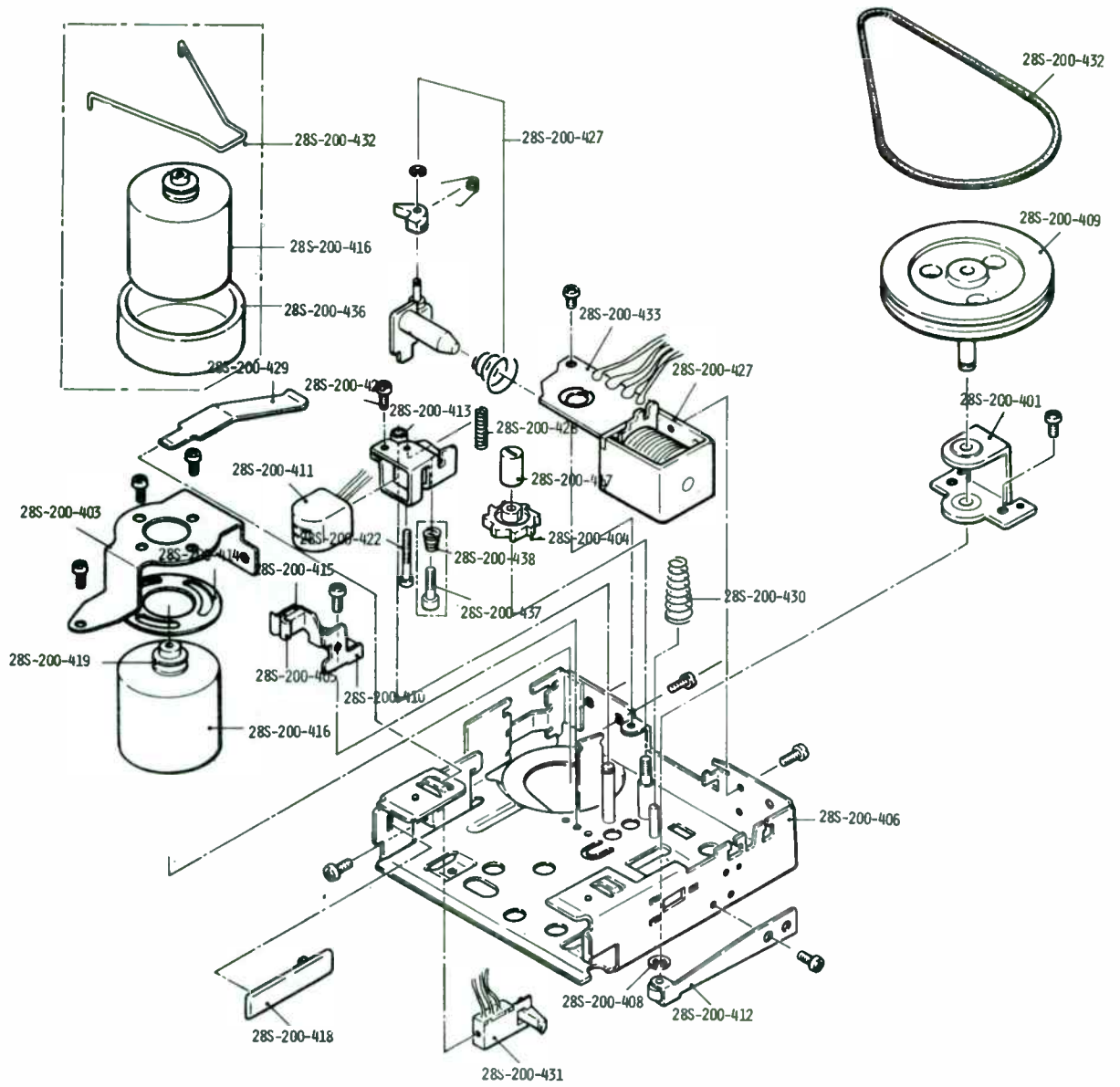


Fig. 7
SCHEMATIC DIAGRAM



BOTTOM VIEW OR SIDE VIEW

Audiovox C986C, ID-500C



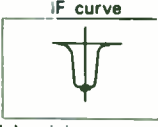
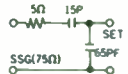
Audiovox C986C, ID-500C

Reference No.	Part No.	Description	Qty	Reference No.	Part No.	Description	Qty
ELECTRICAL PARTS				D-101	28S-200-91	Diode, vari-cap. ITT-410	1
				D-102, 103, 104	28S-200-92	Diode, WG-713	3
				D-105	28S-200-93	Diode, zener: 02z-9.1A	1
CAPACITORS				IC-101	28S-200-94	IC, FM IF: PC-1028H	1
C-1	28S-200-1	70PF, max., trimmer: TC-87	1	IC-102	28S-200-95	IC, MPX: BA-1320	1
C-2, 3	28S-200-2	0.1uF, 12V, semi-conductor:	2	IC-201	28S-200-96	IC, EQA: BA-329	1
C-4, 5, 132, 311, 312	28S-200-3	0.2uF, 12V, semi-conductor:	5	IC-301, 302	28S-200-97	IC, power: TA-7222P	2
C-6A, B, C, D, E	28S-200-4	1,000PF x 5, feed-thru: KC-2005	1	Q-101	28S-200-98	Transistor: 2SK-49	1
C-102, 110	28S-200-5	5PF, 50V, NPO, ceramic:	2	Q-102, 103	28S-200-99	Transistor: 2SC-1674L	2
C-103, 108	28S-200-6	20PF, max., trimmer: TC-33	2	Q-104, 106, 107	28S-200-100	Transistor: 2SC-1675L	3
C-104, 107, 113, 128	28S-200-7	10PF, 50V, NPO, ceramic:	4	Q-105	28S-200-101	Transistor: 2SC-941R	1
C-106, 119	28S-200-8	33PF, 50V, NPO, ceramic:	2	Q-108	28S-200-102	Transistor: 2SC-945(L)	1
C-112	28S-200-9	0.51PF, 50V, fixed-composition:	1	SWITCHES			
C-117	28S-200-10	0.01uF, 50V, mylar:	1	S-3	28S-200-111	Local / Dx: SW-145	1
C-118	28S-200-11	15PF, 50V, NPO, ceramic:	1	S-4	28S-200-112	AM / FM: SW-154	1
C-120	28S-200-12	7PF, 50V, N750, ceramic:	1	TRANSFORMERS			
C-121	28S-200-13	8PF, max., trimmer: TC-32	1	T-101	28S-200-121	FM IFT: JT-831B	1
C-122	28S-200-14	3PF, 50V, N750, ceramic:	1	T-102	28S-200-122	FM IFT: IT-1030	1
C-123	28S-200-15	2PF, 50V, NPO, ceramic:	1	T-103	28S-200-123	AM IFT: JT-2201A	1
C-130, 156, 203, 204, 209, 210	28S-200-16	10uF, 16V, electrolytic:	6	T-104	28S-200-124	AM IFT: JT-2201B	1
C-133	28S-200-17	1uF, 50V, electrolytic:	1	MECHANICAL PARTS			
C-134	28S-200-18	2.2uF, 10V, tantalum:	1	28S-200-301		Background, dial: MR-15406A	1
C-135, 139, 140, 147, 157	28S-200-19	0.047uF, 16V, semi-conductor:	5	28S-200-302		Bracket, tuner: KR-15562	1
C-136	28S-200-20	0.22uF, 16V, tantalum:	1	28S-200-303		Cable Ass'y, battery & speaker cord: QS-1033B	1
C-137	28S-200-21	0.47uF, 16V, tantalum:	1	28S-200-304		Chassis, base: PR-15368C	1
C-138	28S-200-22	470PF, 50V, polyethylene:	1	28S-200-305		Chassis, front: MR-15370	1
C-141, 142, 146, 303, 304	28S-200-23	0.01uF, 16V, semi-conductor:	5	28S-200-306		Clump, wiring: KR-15436	1
C-143, 144, 159, 301, 302	28S-200-24	3.3uF, 50V, electrolytic:	5	28S-200-307		Cover, top & bottom: MR-15400	2
C-148	28S-200-25	22uF, 16V, electrolytic:	1	28S-200-308		Cushion, dial pointer: KR-31377	2
C-149, 155	28S-200-26	70PF, max., trimmer: TC-1	2	28S-200-309		Dog-Washer, volume & tuning shaft: KR-12549	2
C-151	28S-200-27	0.0033uF, 50V, mylar:	1	28S-200-310		Escutcheon Ass'y with dust cover & band selector knob: 28S-200C	1
C-152	28S-200-28	0.0047uF, 50V, mylar:	1	28S-200-311		Gear, fader volume: KR-13530A	1
C-153	28S-200-29	0.047uF, 50V, mylar:	1	28S-200-312		Heatsink, power IC: KR-15369	1
C-154	28S-200-30	220PF, 50V, N470, ceramic:	1	28S-200-313		Holder, channel indicator lamp: MR-31297B	1
C-158	28S-200-31	0.22uF, 16V, semi-conductor:	1	28S-200-314		Holder, pilot lamp: PLH-29	1
C-160	28S-200-32	47uF, 16V, electrolytic:	1	28S-200-315		Holder, stereo indicator lamp: KR-31298	1
C-161, 211	28S-200-33	220uF, 16V, electrolytic:	2	28S-200-316		Joint, tuning shaft: No.11	1
C-205, 206, 309, 310	28S-200-34	47uF, 10V, electrolytic:	4	28S-200-317		Knob, local / dx: KN-3227	1
C-207, 208	28S-200-35	0.022uF, 50V, mylar:	2	28S-200-318		Nut, hex: N3 / 8", 3l	2
C-212, 315, 316	28S-200-36	1,000uF, 16V, electrolytic:	3	28S-200-319		P. C. Board, ch. indicator: PC-1005	1
C-305, 306	28S-200-37	4.7uF, 25V, electrolytic:	2	28S-200-320		P. C. Board, EQA: PC-1003	1
C-307, 308	28S-200-38	100uF, 10V, electrolytic:	2	28S-200-321		P. C. Board, MPX: PC-1002	1
C-313, 314	28S-200-39	470uF, 16V, electrolytic:	2	28S-200-322		P. C. Board, power: PC-1004	1
COILS & CHOKES				28S-200-323		Plate, shield: KR-15367	1
L-1, 2, 3, 4, 5, 6	28S-200-51	Tuner Ass'y: PT-3198	1	28S-200-324		Pointer, dial: KR-14408	1
L-101	28S-200-52	RF Choke: LH-2.2	1	28S-200-325		Reflector, pilot lamp: KR-13697	1
L-102	28S-200-53	FM IF Trap: FL-1.0	1	28S-200-326		Retainer, antenna receptacle: KR-12285	1
L-103	28S-200-54	Coil, AM OSC: OL-2202-1	1	28S-200-327		Retainer, battery & speaker cord: KR-13446A	1
L-104	28S-200-55	RF Choke: LH-4.7	1	28S-200-328		Screw, machine: P. B. 2 x 3	2
L-201	28S-200-56	Choke, ANT: SL-4.7P	1	28S-200-329		Screw, machine: P. B. 2.6 x 4	3
L-301	28S-200-57	Choke, DC: NL-7	1	28S-200-330		Screw, machine: P. B. 3 x 3	2
CONTROLS				28S-200-331		Screw, machine: P. B. 3 x 6 (BS)	1
R-2, 3A, B, 4A, B, S-1, 5	28S-200-61	Vol., Tone, Bal., On-Off & Ch. Select SW: VR-407	1	28S-200-332		Screw, tapping: hex. 3 x 6	24
R-5A, B	28S-200-62	Fader: VR-254A	1	28S-200-333		Screw, tapping: P. B. 3 x 5	3
MISCELLANEOUS				28S-200-334		Screw, tapping: P. B. 3 x 6	8
CF-101, 102	28S-200-71	Ceramic Filter: SFE-10.7MA-5	2	28S-200-335		Screw, tapping: P. B. 3 x 8	4
LD-1, 2, 3, 4	28S-200-72	Channel Ind.: LN-210RP	4	28S-200-336		Screw, tapping: P. P. 2.6 x 4 (No.2)	2
Ne-201	28S-200-73	Neon Bulb: NE-2	1	28S-200-337		Shaft Ass'y, tuning & fader: TSA-28	1
RESISTORS (Unlisted resistors are carbon insulated type. 1/4W. See schematic diagram for specific values.)				28S-200-338		Sticker, model no.: 28S-200C (model C-986C)	1
R-1	28S-200-81	1,000, 10%, R-25 type, carbon:	1	28S-200-339		Sticker, model no.: 28S-200C2 (model ID-500C)	1
R-5, 6	28S-200-82	2,200, 10%, 1/2W, fixed-composition:	2	28S-200-340		Washer, lock: LW9	2
R-128	28S-200-83	5,000, semi-fixed: VR-158	1	MECHANICAL PARTS (DECK)			
R-136	28S-200-84	220, 10%, 1/2W, fixed-composition:	1	27S-200-401		Bearing, capstan: 960-3008-01	1
R-154	28S-200-85	15, 10%, 1W, metal-film:	1	27S-200-402		Belt: 602-0042-01	1
R-210	28S-200-86	2.2, 10%, 1W, metal-film:	1	27S-200-403		Bracket, motor: 630-1108-00	1
SEMI-CONDUCTORS				27S-200-404		Cam, channel change: 608-0043-00	1

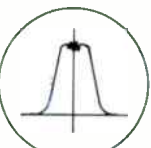
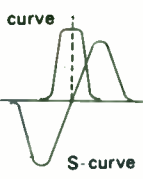
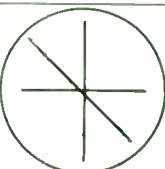
Reference No.	Part No.	Description	Qty
	27S-200-405	Contact, tape guide:630-1080-00	1
	27S-200-406	Chassis Ass'y, main:960-3005-03	1
	27S-200-407	Diode:001-0153-00	1
	27S-200-408	E Ring:743-3000-00	1
	27S-200-409	Flywheel:611-0044-01	1
	27S-200-410	Guide, tape:605-0039-00	1
	27S-200-411	Head, playback:011-0243-00	1
	27S-200-412	Holder Ass'y, cartridge hold:960-3006-00	1
	27S-200-413	Holder Ass'y, head:960-3122-00	1
	27S-200-414	Insulator, fiber:347-0764-00	1
	27S-200-415	Insulator, tape guide:631-0263-01	1
	27S-200-416	Motor:020-0334-01	1
	27S-200-417	Nut, area adjust:631-0279-00	1
	27S-200-418	Plate, cartridge slide:631-0207-00	1
	27S-200-419	Pulley, motor:603-0049-00	1
	27S-200-420	Screw, machine:714-2605-81	2
	27S-200-421	Screw, machine:714-3004-81	4
	27S-200-422	Screw, machine:715-2616-11	1
	27S-200-423	Screw, machine:732-2604-11	2
	27S-200-424	Screw, tapping:702-2606-11	1
	27S-200-425	Screw, tapping:731-3005-80	5
	27S-200-426	Screw, tapping:731-3008-80	1
	27S-200-427	Solenoid Ass'y, channel change:015-0215-01	1
	27S-200-428	Spring, azimuth:750, 1767, 00	1
	27S-200-429	Spring, cartridge retaining:750-1764-00	2
	27S-200-430	Spring, head height:750-1853-00	1
	27S-200-431	Switch:013-3285-00	1
	27S-200-432	Spring, motor retaining:750-1814-00	1
	27S-200-433	Switch Ass'y:960-3121-00	1
	27S-200-434	Washer, flywheel:746-0626-00	1
	27S-200-435	Washer, lock:746-0030-00	1
INSTALLATION & ACCESSORY MODEL C-986C			
	28S-200-501	Back up Plate:MR-12200A	1
	28S-200-502	Fuse:3A	1
	28S-200-503	Insert:KR-13109	2
	28S-200-504	Knob, balance & tone:KN-61TCR	2
	28S-200-505	Knob, tuning & volume:KN-54VCR	2
	28S-200-506	Owner's Guide:28S-200C (01)	1
	28S-200-507	Rear Support Strap:KR-1011	1
	28S-200-508	Screw Bag:28S-200C (01)	1
	28S-200-509	Speaker Cord:QS-672	1
	28S-200-510	Trimplate:MR-13110	1
INSTALLATION & ACCESSORY MODEL ID-500C			
	28S-200-521	"A" Lead Adaptor Bag:QS-579	1
	28S-200-522	Back up Plate:MR-13267	1
	28S-200-523	Fuse:3A	2
	28S-200-524	Knob Bag (No.1):KN-73TCR (shallow)	1
	28S-200-525	Knob Bag (No.2):KN-61TCR (deep)	1
	28S-200-526	Knob Bag (No.3):KN-54V (front)	1
	28S-200-527	Owner's Guide:28S-200C (02)	1
	28S-200-528	Rear Support Strap:KR-1011	1
	28S-200-529	Rubber Collar:KR-30083	1
	28S-200-530	Screw Bag:28S-200C (02)	1
	28S-200-531	Spacer Bag:S-099	1
	28S-200-532	Speaker Cord:QS-672	1
	28S-200-533	Trimplate:FP-49	1
	28S-200-534	Wire Nut Bag:S-100	1

ADJUSTMENT:

*** AM section**

Adjustment item	Signal input section	Signal frequency	Signal output section	Adjustment section	Adjustment	Instruments required	Note
IFT	TP ₆	262.5KHz	TP ₇	IFT ₆₋₈	Adjust the core of IFT maximum waveform height with good symmetry	<ul style="list-style-type: none"> ● Sweep generator ● Oscilloscope ● V.T.V.M. 	 <p>IF curve</p> <p>Vol: minimum Tone: maximum Balance: center Dial pointer: right end</p>
Tracking	Antenna receptacle	1620KHz	Speaker lead	①TC _{5b} ②TC ₁ ③TC _{2a}	Adjust the trimmers for maximum indication of V.T.V.M.	<ul style="list-style-type: none"> ● SG ● Speaker ● V.T.V.M. 	 <p>Use dummy antenna between antenna and set.</p>

*** FM section**

Adjustment item	Signal input section	Signal frequency	Signal output section	Adjustment section	Adjustment	Instruments required	Note
IFT	TP ₁	10.7MHz	TP ₂	IFT _{1a}	Adjust the cores of IFT maximum waveform height with good symmetry	<ul style="list-style-type: none"> ● Sweep generator ● Oscilloscope ● V.T.V.M. 	
<p>(Note) At this time, adjust the center frequency to the resonance frequency of the ceramic filter.</p>							
S-curve	TP ₁	10.7MHz	TP ₃	IFT _{3a}	Adjust the core of the secondary side of the DISC. transformer so that the peak point of the IF curve comes exactly under the point where the S curve intersects the X axis.	<ul style="list-style-type: none"> ● Sweep generator ● Oscilloscope ● V.T.V.M. 	 <p>S-curve</p>
Tracking	Antenna receptacle	87.5MHz	Speaker lead	87.5MHz	TC ₁	Adjust the trimmers for maximum indication of V.T.V.M.	<ul style="list-style-type: none"> ● SG ● Speaker ● V.T.V.M.
				98.0MHz	①TC ₁ ②TC ₂		
<MPX> 19KHz Pilot signal (V.C.O)	Antenna receptacle	19KHz Pilot signal	TP ₄	VR ₁	Adjust the Lissajous figure does not move	●MPX stereo SG	 <p>after adjust</p>

■ TROUBLESHOOTING:

● AM Tuner Section:

Symptom	Defective point and cause	Corrective action
No sound	<ul style="list-style-type: none"> ○ Transistor Q9, Q10 faulty ○ IFT5~8 open ○ Tuning coil (RF·OSC) open ○ R204, 209 open 	Replace Replace Replace Replace
Volume is low Distortion Sensitivity is poor	<ul style="list-style-type: none"> ○ Adjustment faulty ○ Tuning ANT coil open ○ Transistor Q8~10 deterioration ○ TC4 short ○ D5, 6 deterioration ○ R221 faulty ○ Coil L202 open 	Readjust Replace Replace Replace Replace Replace Replace
Oscillates	<ul style="list-style-type: none"> ○ C207, 208 faulty ○ R207, 209 faulty 	Replace Replace

● FM Tuner Section:

Symptom	Defective point and cause	Corrective action
No sound	<ul style="list-style-type: none"> ○ Transistor Q1~7 faulty ○ IC101 faulty ○ Tuning coil open ○ IFT1~3 open 	Replace Replace Replace Replace
Volume is low Distortion Sensitivity is poor	<ul style="list-style-type: none"> ○ Trimmer TC1~TC3 faulty ○ Transistor Q1~7 deterioration ○ Adjustment faulty ○ Diode D2,3 deterioration ○ IC101 faulty 	Replace Replace Readjust Replace Replace
Oscillates	<ul style="list-style-type: none"> ○ C111, 112, 113, 114, 115, 116 faulty ○ C103, 104, 109, 119 faulty 	Replace Replace
Separation is bad	<ul style="list-style-type: none"> ○ IC101 deterioration ○ C135 faulty ○ R138, 140 faulty 	Replace Replace Replace
Indicator does not light	<ul style="list-style-type: none"> ○ C136 capacity down ○ IND, lamp open ○ R145 open ○ IC101 faulty 	Replace Replace Replace Replace

● Tape Section:

Symptom	Defective point and cause	Corrective action
One channel (or both channels) does not work	<ul style="list-style-type: none"> ○ Head lead open ○ IC (IC301, 401) faulty 	Replace Replace
Volume is low	<ul style="list-style-type: none"> ○ IC (IC301, 401) faulty ○ C301, 401, 305, 405 faulty 	Replace Replace
Oscillates	<ul style="list-style-type: none"> ○ Head lead shield covering came off ○ C302, 402 capacity down 	Replace Replace

●Common Section:

Symptom	Defective point and cause	Corrective action
No sound	<ul style="list-style-type: none"> ○ Blown Fuse ○ Variable resistor switch section faulty ○ Coil L3 faulty ○ Choke coil 009-0592-01 faulty ○ Zener diode D10 short ○ C140,502 short 	<p>Replace</p> <p>Replace</p> <p>Replace</p> <p>Replace</p> <p>Replace</p> <p>Replace</p>
One channel does not work	<ul style="list-style-type: none"> ○ Power IC (IC302,402) faulty ○ C317,417 faulty ○ C316,416 faulty ○ Speaker open 	<p>Replace</p> <p>Replace</p> <p>Replace</p> <p>Replace</p>
Volume is low or distortion	<ul style="list-style-type: none"> ○ Power IC302, 402 faulty ○ C316, 416 faulty ○ C318, 418 faulty ○ Speaker faulty 	<p>Replace</p> <p>Replace</p> <p>Replace</p> <p>Replace</p>
Abnormal sound is produced	<ul style="list-style-type: none"> ○ C505,506 capacity down ○ Power IC (IC302,402) faulty ○ C312,412,313,413,315,415,316,416 faulty 	<p>Replace</p> <p>Replace</p> <p>Replace</p>

●Mechanism Section:

Symptom	Place and cause of fault	Corrective action
Trouble point and cause	<ol style="list-style-type: none"> 1) Head azimuth adjustment faulty 2) Head acrated 3) Head dirty 	<ol style="list-style-type: none"> 1) Readjust 2) Clean head 3) Replace head
No sound	<ol style="list-style-type: none"> 1) Power switch faulty 2) Motor faulty 3) Belt disconnected 	<ol style="list-style-type: none"> 1) Replace power switch 2) Replace motor 3) Replace belt
Tape not wound	<ol style="list-style-type: none"> 1) Reel base faulty 2) Idler pressure faulty 3) Cassette tape faulty (Hub rotation impossible due to warping and tight winding). 	<ol style="list-style-type: none"> 1) Measure the reel base winding torque and replace when 40g-cm or less. 2) Confirm the idler switching mechanism. <ul style="list-style-type: none"> ●Correct when the idler plate catches. ●Clean when there is oil on the rubber surface. ●Correct when the spring is disconnected 3) In the case of tight winding turn with a lead pencil, etc. So that it is smooth.
Speed abnormally slow	Belt disconnected	Hook at normal position
Speed faulty	Motor faulty	Replace motor assembly
Wow faulty	<ol style="list-style-type: none"> 1) Capstan dirty 2) Pinch roller faulty 3) Reel base faulty (When torque variation is large) 4) Belt faulty(dirty, twisted) 5) Motor faulty 	<ol style="list-style-type: none"> 1) Clean 2) Clean or replace 3) Replace 4) Clean, correct twisting, replace 5) Replace motor assembly
	<ol style="list-style-type: none"> 1) Spring permanent strain 2) FF. idler dirty 	<ol style="list-style-type: none"> 1) Replace 2) Clean

■ PARTS LIST:

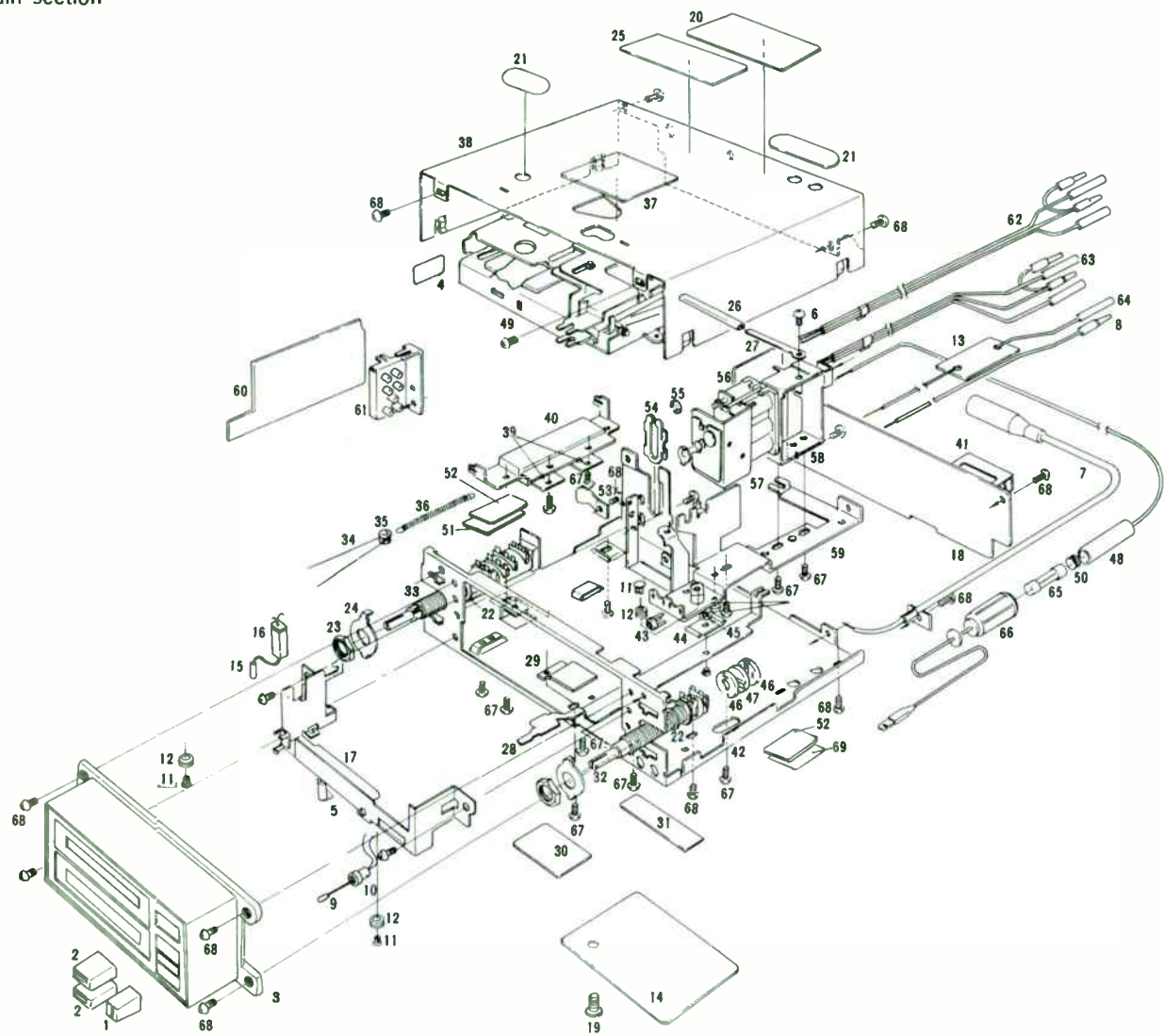
⊙ Electrical section

REF.NO.	PART NO.	DESCRIPTION	P.C.S	REF.NO.	PART NO.	DESCRIPTION	P.C.S
D ₁	001-0010-00	Diode(1N34A)	1	R ₅₀₂	110-1022-42	Solid resistor (1/2W1KΩ)	1
D _{2,3}	001-0020-00	Diode(1N60)	2	R ₁₄₀	110-1041-31	Solid resistor (1/4W100KΩ)	1
D ₄	001-0130-00	Diode(1S2790WT)	1	R ₁₃₆	110-2231-31	Solid resistor (1/4W22KΩ)	1
D _{4,6,7,8}	001-0151-00	Diode(1S953)	4	R ₁₄₅	110-2712-41	Solid resistor (1/2W270Ω)	1
D ₁₀	001-0163-13	Diode(RD-8.2EC)	1	R ₁₁₄	110-2221-31	Solid resistor (1/4W2.2KΩ)	1
TC ₁	004-1494-00	Trimmer	1	R ₅₀₁	110-5602-41	Solid resistor (1/2W56Ω)	1
TC _{1,2}	004-1496-00	Trimmer	2	R ₁₁₈	111-1001-22	Film resistor (1/4W10Ω)	1
TC ₃	004-1502-00	Trimmer	1	R _{103-137,204}	111-1011-22	Film resistor (1/4W100Ω)	3
TC _{3a,5b}	004-1505-01	Trimmer	2	R _{116,122,128 129,142}	111-1021-22	Film resistor (1/4W1KΩ)	6
IFT ₁	005-0698-00	IFT	1	R ₂₁₈	111-1031-22	Film resistor (1/4W10KΩ)	1
IFT ₅	005-0742-00	IFT	1	R ₁₀₁₋₁₁₀	111-1041-22	Film resistor (1/4W100KΩ)	2
IFT ₆	005-0743-00	IFT	1	R ₁₀₆	111-1221-22	Film resistor (1/4W1.2KΩ)	1
IFT ₇	005-0744-00	IFT	1	R ₂₀₈	111-1231-22	Film resistor (1/4W12KΩ)	1
IFT ₈	005-0745-00	IFT	1	R ₁₃₈₋₁₄₃	111-1531-22	Film resistor (1/4W15KΩ)	2
IFT ₉	005-0754-01	IFT	1	R ₁₂₅₋₁₃₄	111-1811-22	Film resistor (1/4W180Ω)	2
IFT ₁₀	005-0755-01	IFT	1	R ₂₁₁	111-1841-22	Film resistor (1/4W180KΩ)	1
IFT _{2,9}	005-0757-00	IFT	2	R _{111-117,121 130,135,212}	111-2211-22	Film resistor (1/4W220Ω)	6
CH ₁	009-0592-01	Choke	1	R _{107-114,209 304-404,507}	111-2221-22	Film resistor (1/4W2.2KΩ)	6
L ₁	010-0930-00	Coil	1	R _{139-213,219}	111-2231-22	Film resistor (1/4W22KΩ)	3
L ₃	010-1180-00	Coil	1	R _{112,126,149 203,217}	111-2241-22	Film resistor (1/4W220KΩ)	5
L ₄	010-1570-01	Coil	1	R ₃₀₇₋₄₀₇	111-3301-22	Film resistor (1/4W33Ω)	2
L ₅	010-1610-00	Coil	1	R ₂₀₇	111-3321-22	Film resistor (1/4W3.3KΩ)	1
L ₆	010-1654-00	Coil	1	R ₃₀₅₋₄₀₅	111-3331-22	Film resistor (1/4W33KΩ)	2
L ₂	010-1708-00	Coil	1	R ₁₂₃	111-3911-22	Film resistor (1/4W390Ω)	1
VR ₁	012-3394-00	Variable resistor (10K)	1	R _{144-146-147,148}	111-3921-22	Film resistor (1/4W3.9KΩ)	4
VR _{201,302 401,402}	012-3523-01	Variable resistor	4	R _{302,402}	111-3931-22	Film resistor (1/4W39KΩ)	2
VR ₃₀₃₋₄₀₃	012-3511-01	Variable resistor	2	R ₁₀₂	111-4701-22	Film resistor (1/4W47Ω)	1
NE	017-0320-09	Pilotlamp	1	R _{108-202,508}	111-4721-22	Film resistor (1/4W4.7KΩ)	3
PL ₁	017-0313-02	Pilotlamp	1	R ₃₀₈₋₄₀₈	111-4731-22	Film resistor (1/4W47KΩ)	2
PL ₂	017-0324-01	Pilotlamp	1	R ₁₀₉₋₃₀₃₋₄₀₃	111-4741-22	Film resistor (1/4W470KΩ)	3
C ₅₀₃	042-0173-00	Special capacitor (16V470μF)	1	R ₂₁₆	111-5111-22	Film resistor (1/4W510Ω)	1
C ₅₀₅	042-0178-00	Special capacitor (16V1000μF)	1	R _{132-210,220 221,306-406}	111-5621-22	Film resistor (1/4W5.6KΩ)	6
C ₃₁₁₋₄₁₁	042-0219-00	Special capacitor (10V220μF)	2	R ₁₂₄₋₁₂₇	111-5631-22	Film resistor (1/4W56KΩ)	2
C _{126-136-138 140-216-416}	043-0020-00	Special capacitor (12V0.2μF)	6	R _{120-131,203}	111-6821-22	Film resistor (1/4W6.8KΩ)	3
CCT	050-0010-00	Component circuit	1	R ₂₁₄₋₃₀₁₋₄₀₁	111-6831-22	Film resistor (1/4W68KΩ)	3
IC ₃₀₁₋₄₀₁	051-0020-02	IC(TA7120P)	2	R ₅₀₃	111-8211-22	Film resistor (1/4W820Ω)	1
IC ₁₀₁	051-0086-00	IC(μPC1026C)	1	R ₁₀₈₋₁₁₅₋₁₁₉₋₂₁₅	111-8222-22	Film resistor (1/4W8.2KΩ)	4
IC ₁₀₂₋₄₀₂	051-0055-13	IC(TA7205AP)	2	R ₂₀₆	111-8231-22	Film resistor (1/4W82KΩ)	1
Q ₂	102-0460-02	Transistor (2SC480B)	1	R ₁₁₃	111-8241-22	Film resistor (1/4W820KΩ)	1
Q ₃	102-0535-02	Transistor (2SC535B)	1	R ₅₀₄	114-2292-51	Film resistor (1W2.2Ω)	1
Q ₆	102-0941-15	Transistor (2SC941-O)	1	C ₁₁₉₋₁₂₀₋₁₂₈₋₁₃₁	141-1023-11	Polyester capacitor (50V0.001μF)	4
Q ₉₋₁₀	102-0945-16	Transistor (2SC945P)	2	C _{123-125-127-129 130-132-134-202 211-215-310-410}	141-1033-11	Polyester capacitor (50V0.01μF)	12
Q _{4-5a,6-7}	102-1675-12	Transistor (2SC1675L)	4	C ₁₃₄₋₃₀₈₋₄₀₈	141-1523-11	Polyester capacitor (50V0.0015μF)	3
Q ₁₁	103-0227-18	Transistor (2SD227R)	1	C ₂₁₈₋₃₁₂₋₄₁₂	141-2233-12	Polyester capacitor (50V0.022μF)	3
Q ₁	108-0055-04	FET (2SK55D)	1	C ₁₃₇	141-3333-12	Polyester capacitor (50V0.033μF)	1
R ₁₃₃	110-1021-31	Solid resistor (1/4W1KΩ)	1	C ₂₀₇	141-3923-11	Polyester capacitor (50V0.0039μF)	1

REF.NO.	PART NO.	DESCRIPTION	P.C.S	REF.NO.	PART NO.	DESCRIPTION	P.C.S
C _{202,204,208}	141-4723-11	Polyester capacitor (50V0.0047 μ F)	3	C _{306,115+115}	156-1512-13	Ceramic capacitor (150PFCH)	3
C _{142b,143}	141-4733-12	Polyester capacitor (50V0.047 μ F)	2	C ₂₀₉	156-2711-43	Ceramic capacitor (270PSTH)	1
C ₃₀₄₊₄₀₄	141-5623-11	Polyester capacitor (50V0.0056 μ F)	2	C ₁₂₂	160-1012-05	Ceramic capacitor (100PFB)	1
C ₂₀₅	141-6833-14	Polyester capacitor (50V0.068 μ F)	1	C _{105,106,114,115,117,119}	160-1822-05	Ceramic capacitor (0.0C18 μ FB)	6
C ₃₀₅₊₄₀₅	141-8233-14	Polyester capacitor (50V0.082 μ F)	2	C ₂₁₄	160-2212-05	Ceramic capacitor (220PFB)	1
C ₁₂₆	144-5112-17	Mica capacitor (50V510PF)	1	C _{111b,118}	160-3312-05	Ceramic capacitor (330PFB)	2
C ₁₀₂	151-1001-13	Ceramic capacitor (10PFCH)	1	C _{130,131,131+320,207,210,405+407,418}	180-1054-62	Electrolytic capacitor (VL50V1 μ F)	9
C _{110b,113}	151-1501-13	Ceramic capacitor (15PFCH)	2	C ₂₁₃	180-1064-22	Electrolytic capacitor (VL10V10 μ F)	1
C ₂₁₀	151-2097-13	Ceramic capacitor (2PFCH)	1	C ₂₁₂	180-2264-22	Electrolytic capacitor (VL10V22 μ F)	1
C _{109,107,302+402}	151-3301-13	Ceramic capacitor (33PFCH)	4	C ₅₀₈	180-2274-22	Electrolytic capacitor (VL10V220 μ F)	1
C ₁₁₂	151-4091-70	Ceramic capacitor (4PFWK)	1	C ₅₀₇	180-3364-22	Electrolytic capacitor (VL10V33 μ F)	1
C _{104,106+309}	151-5097-13	Ceramic capacitor (5PFCH)	3	C ₁₄₄₊₁₄₅	180-4744-62	Electrolytic capacitor (VL50V0.47 μ F)	2
C ₂₀₁	152-1011-13	Ceramic capacitor (100PFCH)	1	C ₃₀₁₊₄₀₁	180-4754-32	Electrolytic capacitor (VL16V4.7 μ F)	2
C ₂₁₅₊₄₁₃	152-5601-13	Ceramic capacitor (56PFCH)	2	C _{124,216,308,309,314+403+409+414,501+502}	180-4764-22	Electrolytic capacitor (VL10V47 μ F)	10
C ₁₁₆	151-4097-43	Ceramic capacitor (4PSTH)	1	C ₂₁₁₊₄₁₇	180-4774-62	Electrolytic capacitor (VL10V470 μ F)	2
C ₁₀₁	151-4097-13	Ceramic capacitor (4PFCH)	1				

EXPLODED VIEW:

◎Main section

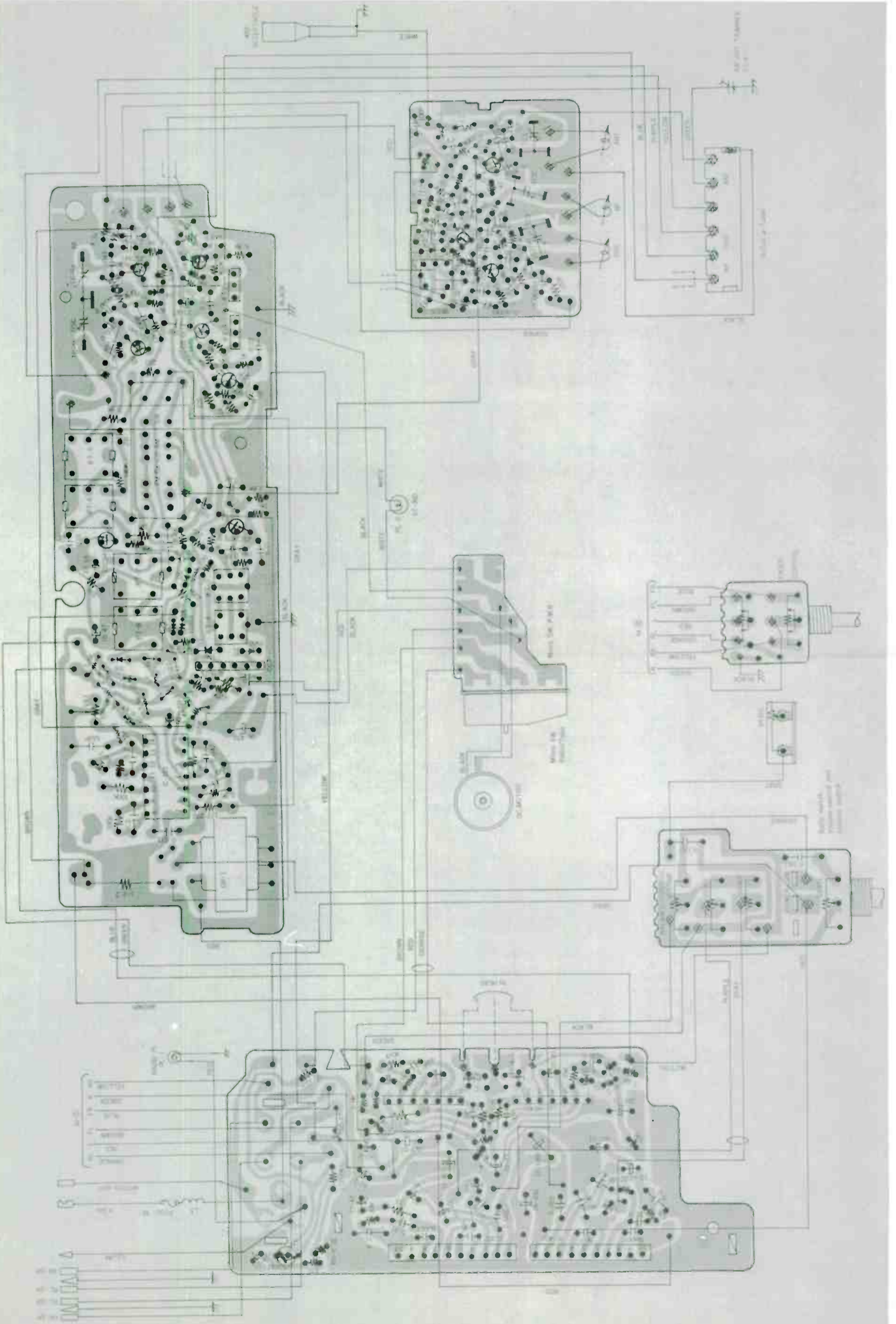


■ PARTS LIST:

◎ Main section

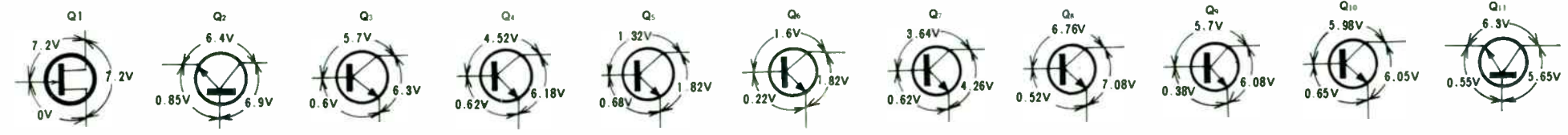
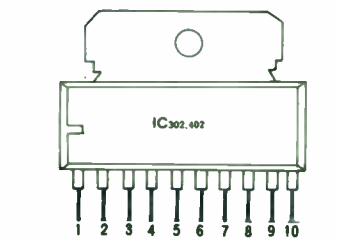
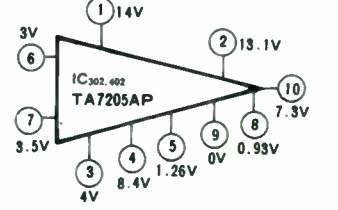
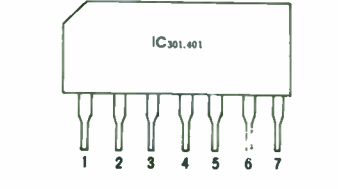
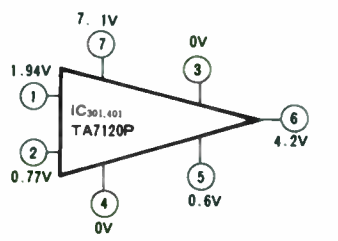
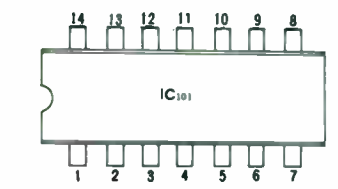
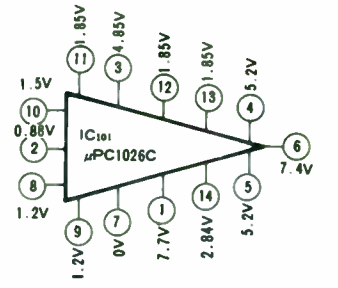
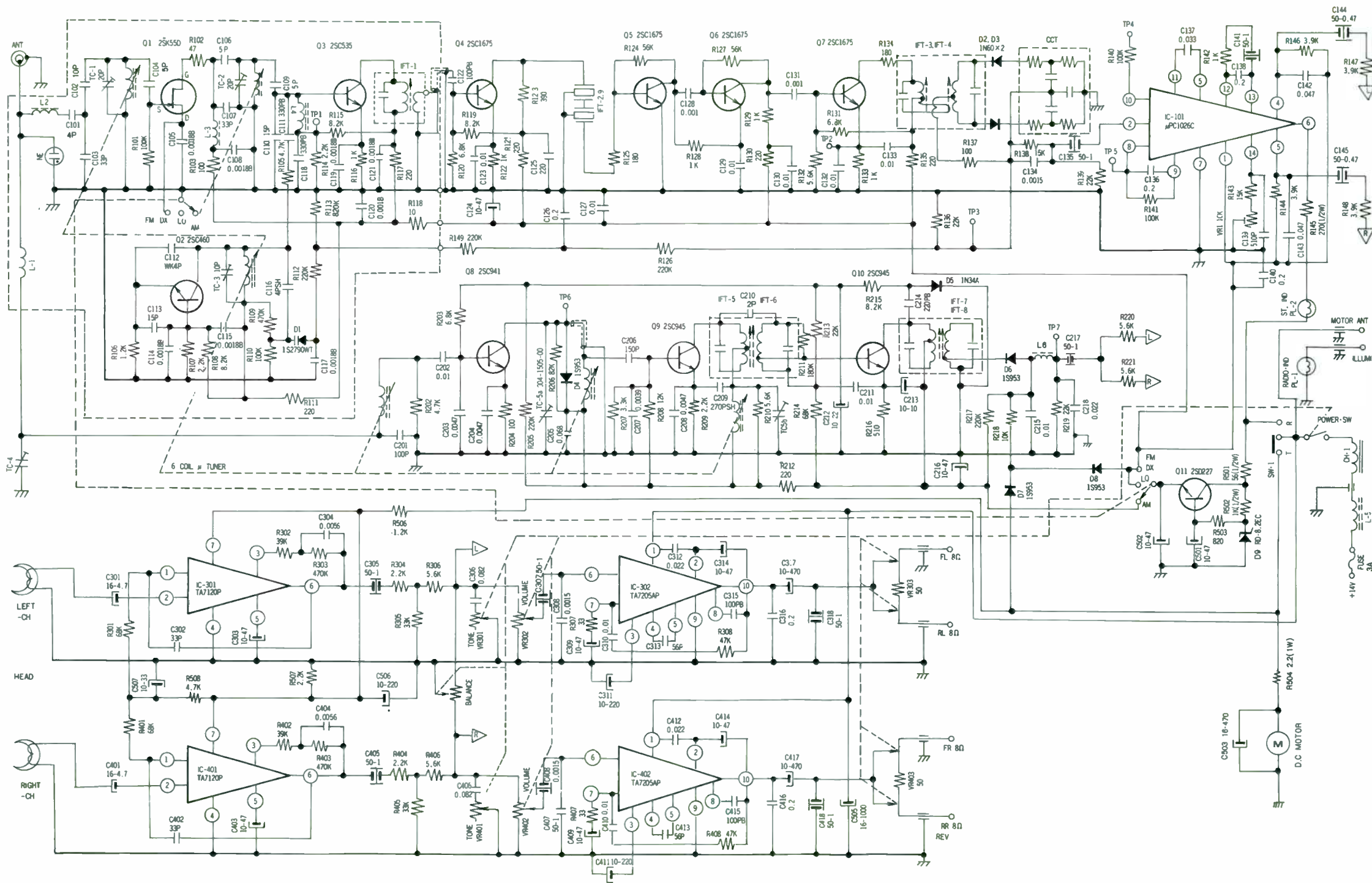
REF.NO.	PART NO.	DESCRIPTION	P.C.S	REF.NO.	PART NO.	DESCRIPTION	P.C.S
1	380-3622-00	Knob	1	36	750-1676-00	Dial cord spring	1
2	382-0121-00	Button	2	37	290-2602-01	Label	1
3	940-0142A	Escutcheon assembly	1	38	310-0887-03	Upper case	1
4	290-2871-00	Label	1	39	051-0055-13	IC (TA7205AP)	2
5	376-0814-00	Dial pointer	1	40	313-0978-00	Heat sink	1
6	714-3003-11	Machine screw	1	41	013-3336-00	Band select switch	1
7	092-0522-00	Antenna receptacle	1	42	311-0908-03	Lower case	1
8	850-1580-01	A-lead	1	43	004-1494-00	Antenna trimmer	1
9	017-0324-01	Pilotlamp	1	44	330-5785-00	Spring plate	1
10	345-2775-00	Pilotlamp holder	1	45	745-0563-00	Lock washer	1
11	335-0879-01	Pulley holder	3	46	335-0912-00	Universal joint A	2
12	335-0460-00	Dial cord pulley	3	47	335-0913-00	Universal joint B	1
13	285-0667-00	Guide label	1	48	850-1865-02	A-lead	1
14	285-0674-02	Guide label	1	49	930-0442-01	Tape mechanism	1
15	017-0320-09	Pilotlamp	1	50	010-1610-00	Coil	1
16	345-2431-01	Pilotlamp holder	1	51	347-0577-00	Insulator paper	1
17	374-0714-00	Back plate	1	52	099-4814-01	P.W.B	1
18	099-5096-01	P.W.B	1	53	321-0773-00	Clamp	1
19	716-0308-00	Lock screw	1	54	335-0818-00	Lead holder	1
20	285-0160-00	Guide label	1	55	746-0668-01	Stopper	1
21	290-2567-01	Label	2	56	099-5049-01	P.W.B	1
22	745-0465-01	Flat washer	2	57	933-0109-01	6-coil μ -tuner	1
23	722-0020-00	Hexagon nut	2	58	330-6041-01	Shield case	1
24	330-6033-00	Adjustable plate	2	59	330-6044-01	Tuner bracket	1
25	285-0721-00	Guide label	1	60	099-4715-01	P.W.B	1
26	820-4050-04	Vinyl tube	1	61	944-0461-01	Filter assembly	1
27	321-0785-00	Lead clamp	1	62	851-2173-00	Sp-lead	1
28	330-6145-00	Band switch arm	1	63	851-2173-01	Sp-lead	1
29	330-6100-00	Arm holder	1	64	852-5322-00	Extension lead	1
30	286-4117-00	Setplate	1	65	120-0030-03	Fuse(3A)	1
31	290-2768-00	Label	1	66	850-1957-00	A-lead	1
32	012-3511-01	Variable resistor	1	67	714-3004-81	Machine screw (M3x4)	14
33	012-3523-01	Variable resistor	1	68	731-3005-80	Taptight(M3x5)	17
34	830-0500-81	Dial cord	1	69	347-0631-00	Insulator	1
35	335-0894-00	Dial cord pulley	1				

PRINTED WIRING BOARD:



Clarion PE-676B

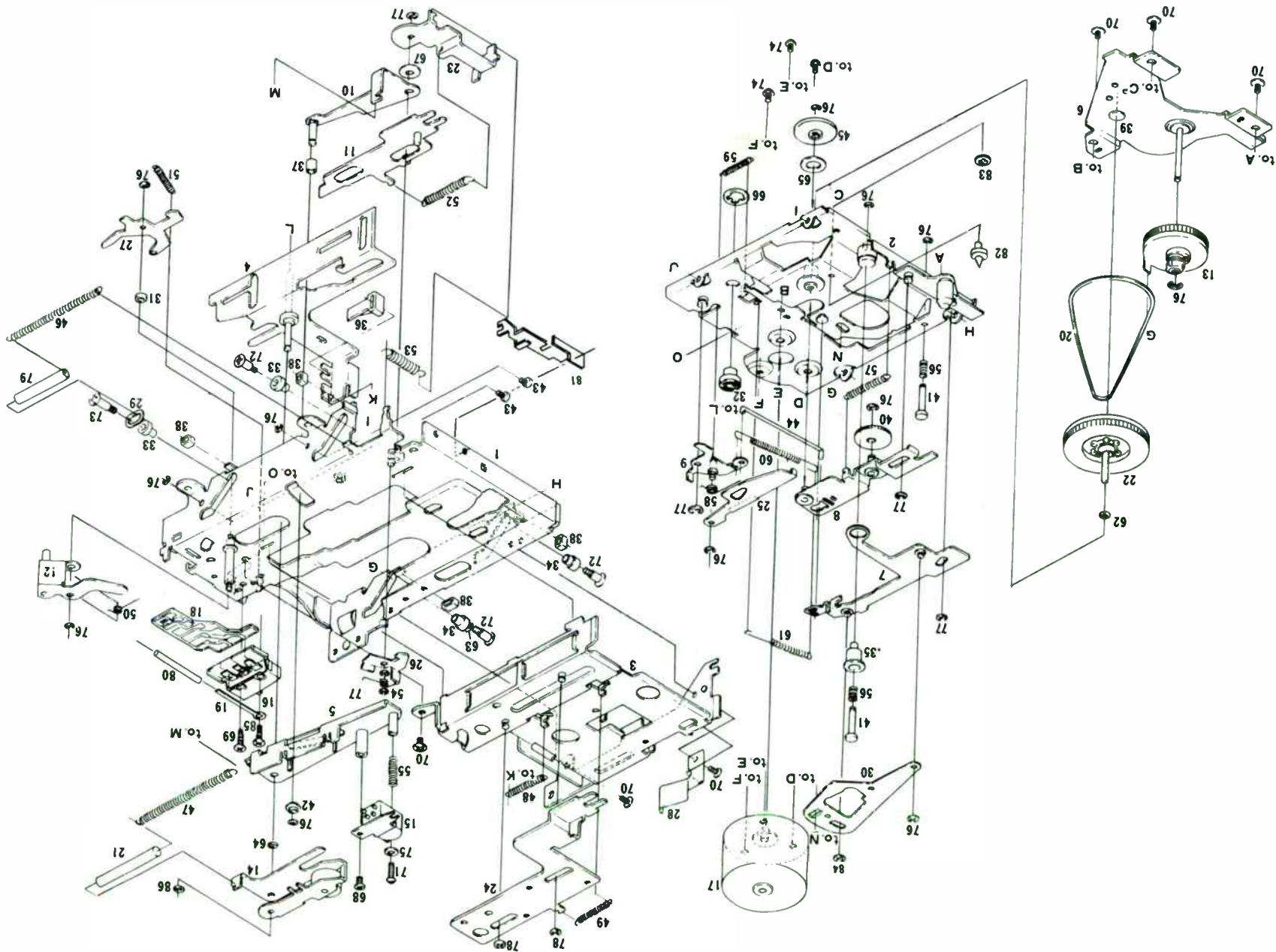
SCHEMATIC DIAGRAM:



Clarion PE-676B

EXPLODED VIEW:

©Mechanism section



■ PARTS LIST:

◎Tape mechanism section

REF.NO.	PART NO.	DESCRIPTION	P.C.S	REF.NO.	PART NO.	DESCRIPTION	P.C.S
1	960-3013-00	Deck plate assembly	1	44	632-0689-00	Push arm joint rod	1
2	960-3014-00	Sub-Deck assembly	1	45	632-0690-00	Idler	1
3	960-3015-00	Guide assembly	1	46	750-1774-00	Main spring	1
4	960-3016-00	Slide plate assembly	1	47	750-1775-01	Pinch roller spring	1
5	960-3017-00	Head plate assembly	1	48	750-1776-00	Center sub spring	1
6	960-3018-00	Bottom plate assembly	1	49	750-1777-00	Eject return spring	1
7	960-3019-00	Detect arm assembly	1	50	750-1778-00	Eject link spring	1
8	960-3020-00	Idler plate assembly	1	51	750-1779-00	Lock plate spring	1
9	960-3021-00	Push arm assembly	1	52	750-1780-00	F.F spring	1
10	960-3022-00	Slide arm assembly	1	53	750-1781-00	F.F return spring	1
11	960-3023-00	F.F plate assembly	1	54	750-1782-00	F.F lock spring	1
12	960-3024-00	Eject link assembly	1	55	750-1783-00	Head azimuth spring	1
13	960-3025-00	Reel base assembly	1	56	750-1784-00	Push pin spring	2
14	960-3026-00	Roller assembly	1	57	750-1787-00	Idler spring	1
15	011-0244-00	Head	1	58	750-1790-00	Push plate spring	1
16	013-3290-00	Micro switch	1	59	750-1791-00	Power spring	1
17	960-3063-00	D.C motor assembly	1	60	750-1821-00	Rod spring	1
18	099-4638-00	P.W.B	1	61	750-1822-00	Detect spring	1
19	330-4896-00	Clamp	1	62	746-0617-00	Flat washer	1
20	602-0040-00	Belt	1	63	746-0664-00	Flat washer	1
21	860-4025-45	Vinyl tube	1	64	746-0626-00	Flat washer	1
22	611-0045-00	Flywheel	1	65	746-0666-00	Flat washer	1
23	630-0993-00	F.F arm	1	66	746-0667-00	Lock washer	1
24	630-0994-00	Eject plate	1	67	746-0672-00	Flat washer	1
25	630-0995-00	Push plate	1	68	714-2004-81	Machine screw (M.2x4)	1
26	630-0996-00	F.F lock plate	1	69	714-2308-81	Machine screw (M2.3x8)	1
27	630-0997-00	Lock plate	1	70	714-2603-81	Machine screw (M2.6x3)	7
28	630-0998-00	Guide spring	1	71	716-0286-00	Screw	1
29	630-0999-00	Pull plate	1	72	716-0305-00	Screw	3
30	630-1039-00	Check plate	1	73	716-0306-00	Screw	1
31	631-0212-00	Ring	1	74	732-2604-11	Sems screw	3
32	631-0215-00	Main bush	1	75	740-2000-11	Flat washer	1
33	631-0216-00	Guide bush-R	2	76	743-1500-10	E-ring(M1.5)	12
34	631-0217-00	Guide bush-L	2	77	743-2000-10	E-ring(M2.0)	7
35	631-0218-00	Bush	1	78	743-2500-10	E-ring(M2.5)	2
36	631-0219-00	Switch arm	1	79	820-3035-06	Vinyl tube	1
37	631-0220-00	F.F roller	1	80	820-4020-02	Vinyl tube	1
38	631-0221-00	Rubber pad	4	81	330-6142-00	Lead holder	1
39	631-0222-00	Thrust plate	1	82	631-0272-00	Pack guide pin	1
40	631-0241-00	F.F gear	1	83	746-0680-00	Lock washer	1
41	632-0686-00	Push pin	2	84	744-0017-01	E-ring	1
42	632-0687-00	Roller	1	85	714-2310-81	Machine screw (M2.3x10)	1
43	632-0688-00	Slide guide pin	2	86	746-0609-00	Flat washer	1

ALIGNMENT PROCEDURES

★ ★ ★

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

EQUIPMENT REQUIRED :

- Power supply (14V DC)
- VTVM
- AM & FM SIGNAL GENERATOR
- SWEEP GENERATOR (455kHz-10.7MHz)
- OSCILLOSCOPE
- FM STEREO MODULATOR
- DIGITAL FREQUENCY COUNTER

NOTES :

- None-Metalic tools should be used.
- Keep Generator signal level as low as possible to avoid clipping.
- Volume Control should be set to minimum unless otherwise specified.
- Set Tone Control to maximum treble.
- Standard Modulation is 400 Hz at 30% amplitude for AM (1kHz at 22.5kHz deviation for FM)
- Connect low side of signal source and output indicator to chassis ground unless otherwise specified.

STEP	ADJUSTING CIRCUIT	CONNECTIONS		FREQ'CY	DIAL SETTING	ADJUST	ADJUST FOR
		INPUT	OUTPUT				

AM

1	IF	Connect SWEEP & MARKER GEN. to Ant receptacle.	Connect OSCILLOSCOPE to AM Detector output See point "12" on AM PCB.	455kHz	High-End	T601 T602 AIFT	Maximum Symmetrical response.
2	BAND	Connect AM SIGNAL GEN. thru Dummy Ant to Ant Receptacle.	Connect VTVM to spkr terminals of either channel.	510kHz	Low-End	AOSC	Maximum Output
3	RF			1400kHz	1400kHz	C620	

FM

1	IF	Connect SWEEP & MARKER GEN. to TP	Connect OSCILLOSCOPE to TP 1.	10.7MHz	High-End Off-Station	T402 FIFT	Symmetrical "S" curve.
Due to the ceramic filter, the 10.7MHz marker need not to be in the centered position. Tune to Maximum symmetrical response.							
2	BAND	Connect FM SIGNAL GEN. thru FM Dummy Ant to Ant receptacle.	Connect VTVM to spkr terminals of either channel.	105MHz (Mod.)	High-End	FOT	Maximum output
3	19kHz PILOT	/	Connect FREQUENCY COUNTER to TP 2. (Pin# 10 of IC501)	/	/	R502	A reading of 19kHz
4	SEPARATION	Connect FM SIGNAL GEN. with STEREO GEN. thru Dummy Ant to Ant receptacle.	VTVM & SCOPES to spkr terminals of either channels.	98MHz	98MHz	R414	Best separation

After R502 is adjusted for 19kHz, step 4 may not be necessary.

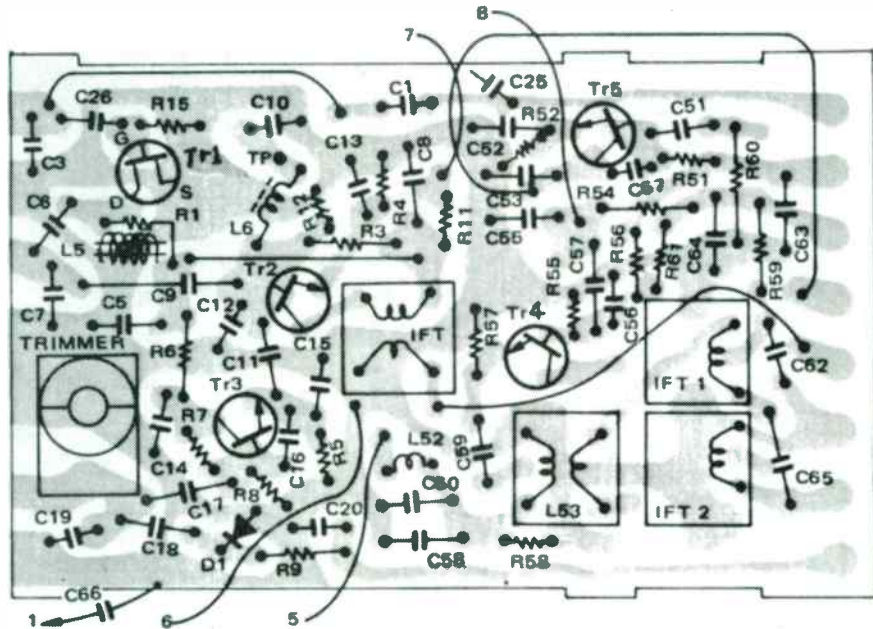
ADJUSTMENTS

HEAD HEIGHT: Insert a standard Azimuth Test Tape with unit in PLAY mode, adjust the azimuth adjust screw (Ref # 61 on the CABINET & MECHANISM exploded view) for maximum output.

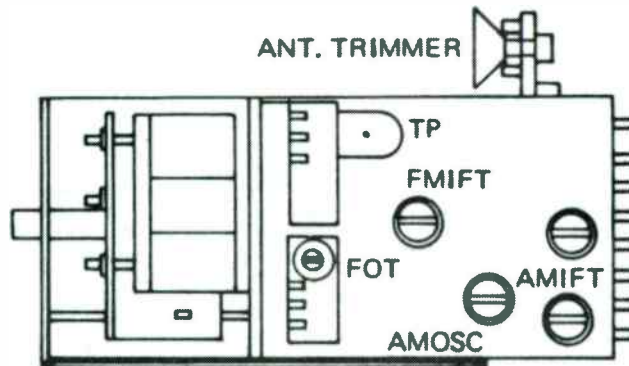
CROSSTALK: Insert a standard RCA (No. 316) Test Cartridge. Set to Program #3 and adjust the Head Height Adjust Nut (Ref # 60 on the CABINET & MECHANISM exploded view) for maximum output.

ANTENNA TRIMMER: With the unit installed in car and antenna fully extended. Tune-in a weak station near 1400kHz and adjust C620 (Antenna Trimmer) for maximum output.

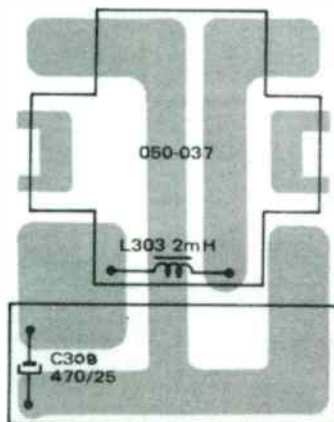
AM/FM RF P.C.B.



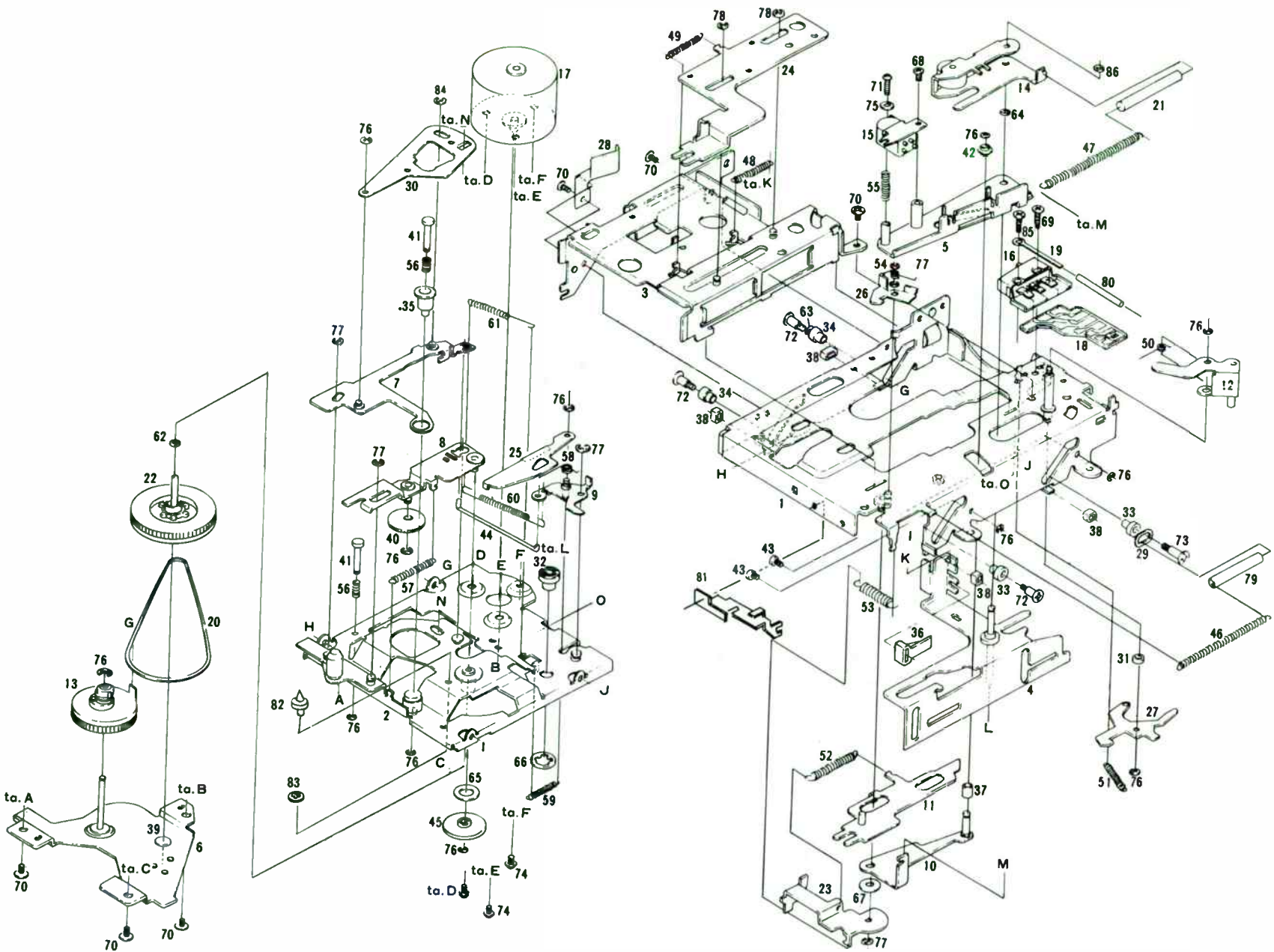
ADJUSTMENT POINTS



FILTER P.C.B.



■ EXPLODED VIEW:
© Mechanism section



■ PARTS LIST:

◎Tape mechanism section

REF.NO.	PART NO.	DESCRIPTION	P.C.S	REF.NO.	PART NO.	DESCRIPTION	P.C.S
1	960-3013-00	Deck plate assembly	1	44	632-0689-00	Push arm joint rod	1
2	960-3014-00	Sub-Deck assembly	1	45	632-0690-00	Idler	1
3	960-3015-00	Guide assembly	1	46	750-1774-00	Main spring	1
4	960-3016-00	Slide plate assembly	1	47	750-1775-01	Pinch roller spring	1
5	960-3017-00	Head plate assembly	1	48	750-1776-00	Center sub spring	1
6	960-3018-00	Bottom plate assembly	1	49	750-1777-00	Eject return spring	1
7	960-3019-00	Detect arm assembly	1	50	750-1778-00	Eject link spring	1
8	960-3020-00	Idler plate assembly	1	51	750-1779-00	Lock plate spring	1
9	960-3021-00	Push arm assembly	1	52	750-1780-00	F.F spring	1
10	960-3022-00	Slide arm assembly	1	53	750-1781-00	F.F return spring	1
11	960-3023-00	F.F plate assembly	1	54	750-1782-00	F.F lock spring	1
12	960-3024-00	Eject link assembly	1	55	750-1783-00	Head azimuth spring	1
13	960-3025-00	Reel base assembly	1	56	750-1784-00	Push pin spring	2
14	960-3026-00	Roller assembly	1	57	750-1787-00	Idler spring	1
15	011-0244-00	Head	1	58	750-1790-00	Push plate spring	1
16	013-3290-00	Micro switch	1	59	750-1791-00	Power spring	1
17	960-3063-00	D.C motor assembly	1	60	750-1821-00	Rod spring	1
18	099-4638-00	P.W.B	1	61	750-1822-00	Detect spring	1
19	330-4896-00	Clamp	1	62	746-0617-00	Flat washer	1
20	602-0040-00	Belt	1	63	746-0664-00	Flat washer	1
21	860-4025-45	Vinyl tube	1	64	746-0626-00	Flat washer	1
22	611-0045-00	Flywheel	1	65	746-0666-00	Flat washer	1
23	630-0993-00	F.F arm	1	66	746-0667-00	Lock washer	1
24	630-0994-00	Eject plate	1	67	746-0672-00	Flat washer	1
25	630-0995-00	Push plate	1	68	714-2004-81	Machine screw (φ.2x4)	1
26	630-0996-00	F.F lock plate	1	69	714-2308-81	Machine screw (M2.3x8)	1
27	630-0997-00	Lock plate	1	70	714-2603-81	Machine screw (φ.12.6x3)	7
28	630-0998-00	Guide spring	1	71	716-0286-00	Screw	1
29	630-0999-00	Pull plate	1	72	716-0305-00	Screw	3
30	630-1039-00	Check plate	1	73	716-0306-00	Screw	1
31	631-0212-00	Ring	1	74	732-2604-11	Sems screw	3
32	631-0215-00	Main bush	1	75	740-2000-11	Flat washer	1
33	631-0216-00	Guide bush-R	2	76	743-1500-10	E-ring(M1.5)	12
34	631-0217-00	Guide bush-L	2	77	743-2000-10	E-ring(M2.0)	7
35	631-0218-00	Bush	1	78	743-2500-10	E-ring(M2.5)	2
36	631-0219-00	Switch arm	1	79	820-3035-06	Vinyl tube	1
37	631-0220-00	F.F roller	1	80	820-4020-02	Vinyl tube	1
38	631-0221-00	Rubber pad	4	81	330-6142-00	Lead holder	1
39	631-0222-00	Thrust plate	1	82	631-0272-00	Pack guide pin	1
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43	632-0688-00	Slide guide pin	2	86	746-0609-00	Flat washer	1

ALIGNMENT PROCEDURES

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

EQUIPMENT REQUIRED :

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- VTVM
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- SWEEP GENERATOR (455kHz-10.7MHz)
- OSCILLOSCOPE
- FM STEREO MODULATOR
- DIGITAL FREQUENCY COUNTER

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- Volume Control should be set to minimum unless otherwise specified.
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3	RF			1400kHz	1400kHz	C620	

FM

1	IF	Connect SWEEP & MARKER GEN. to TP	Connect OSCILLOSCOPE to TP 1.	10.7MHz	High-End Off-Station	T402 FIFT	Symmetrical "S" curve.
Due to the ceramic filter, the 10.7MHz marker need not to be in the centered position. Tune to Maximum symmetrical response.							
2	BAND	Connect FM SIGNAL GEN. thru FM Dummy Ant to Ant receptacle.	Connect VTVM to spkr terminals of either channel.	105MHz (Mod.)	High-End	FOT	Maximum output
3	19kHz PILOT	/		/		R502	A reading of 19kHz
4	SEPARATION	Connect FM SIGNAL GEN. with STEREO GEN. thru Dummy Ant to Ant receptacle.	VTVM & SCOPES to spkr terminals of either channels.	98MHz	98MHz	R414	Best separation
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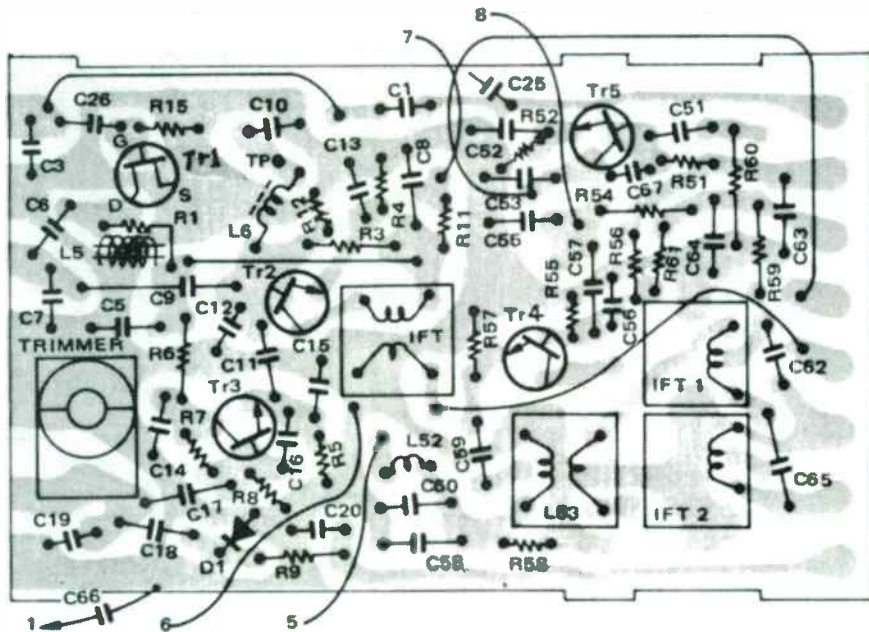
ADJUSTMENTS

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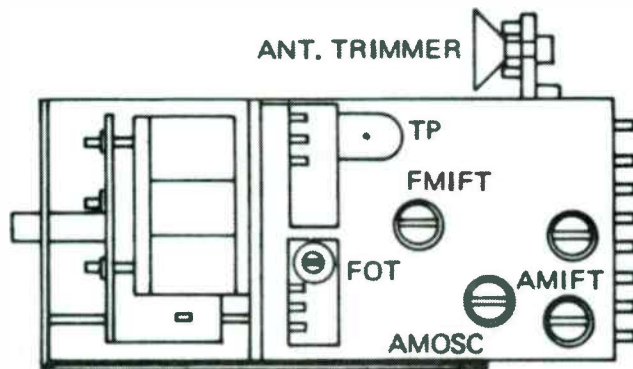
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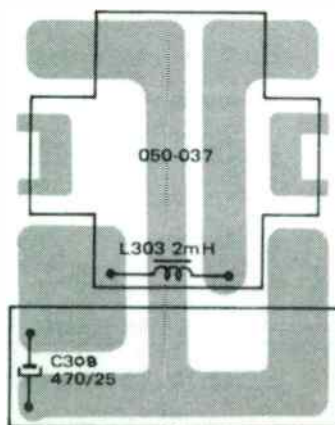
AM/FM RF P.C.B.



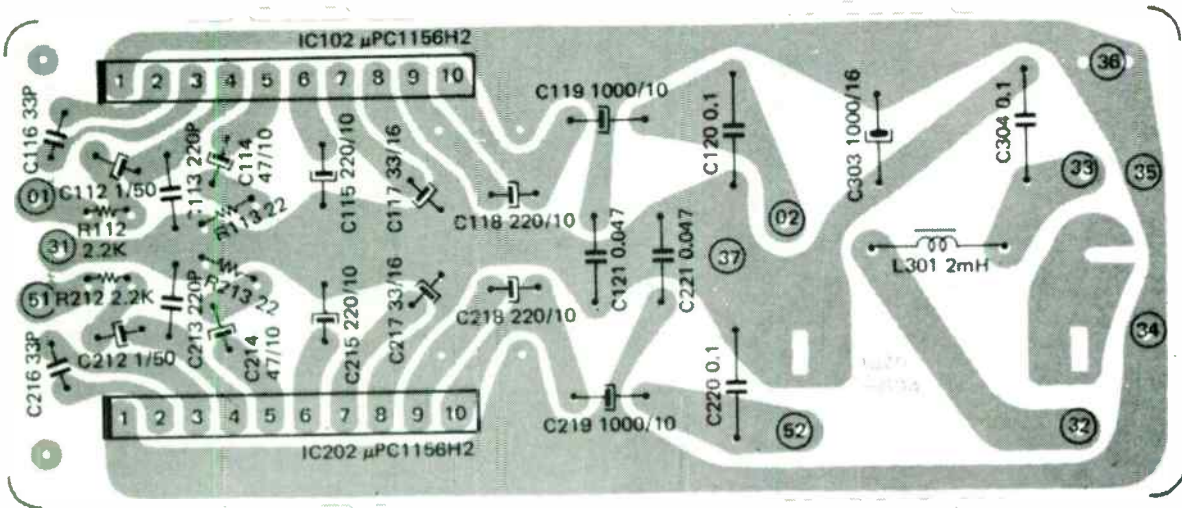
ADJUSTMENT POINTS



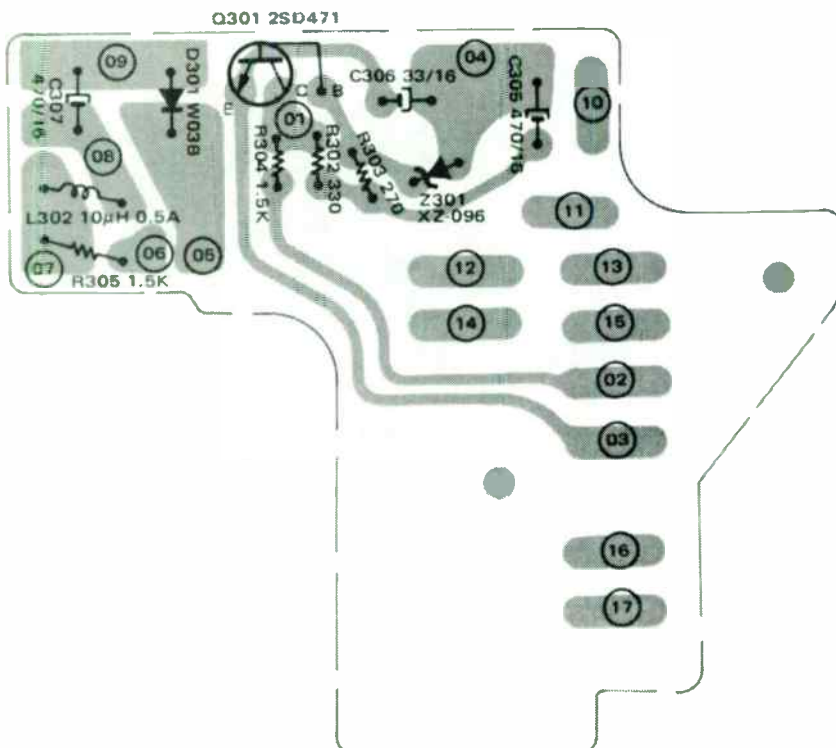
FILTER P.C.B.



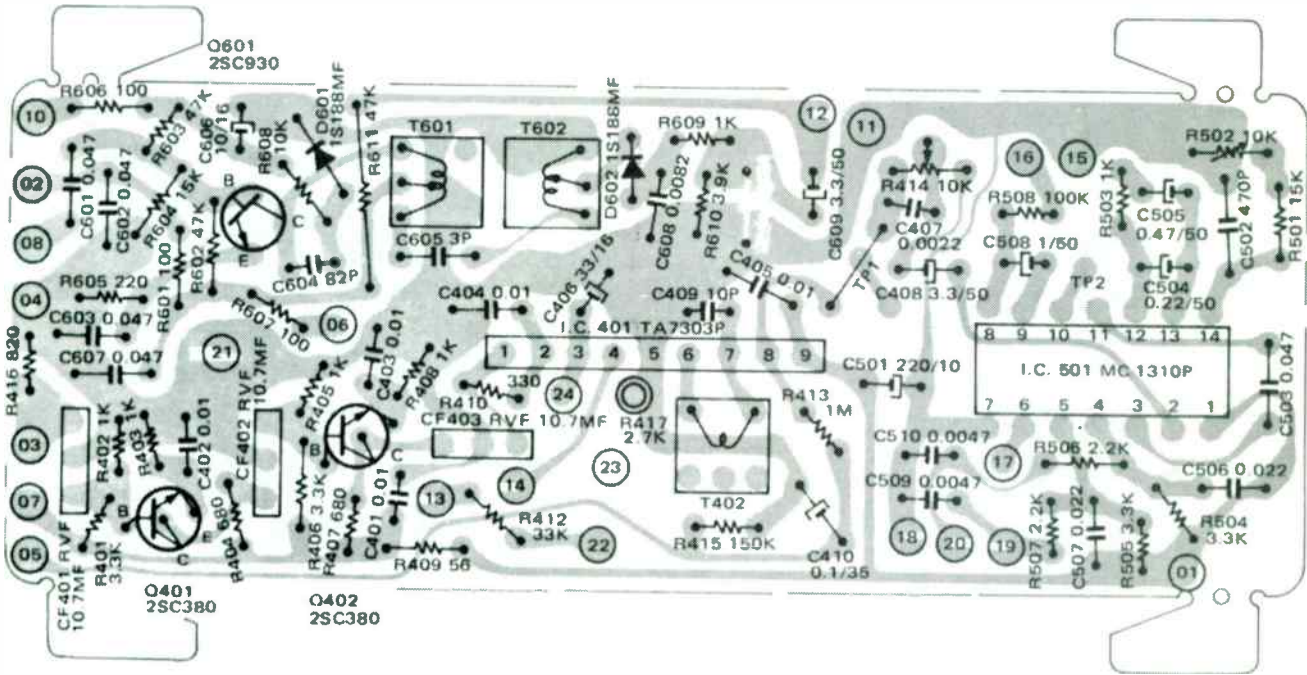
AMP P.C.B.



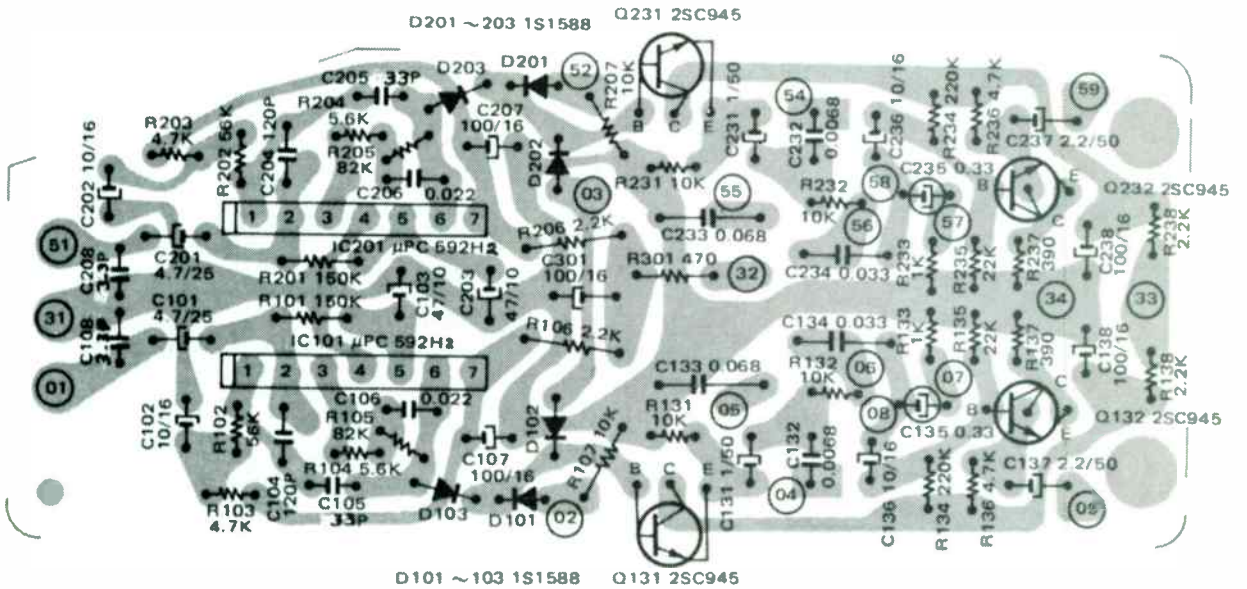
POWER SUPPLY P.C.B.



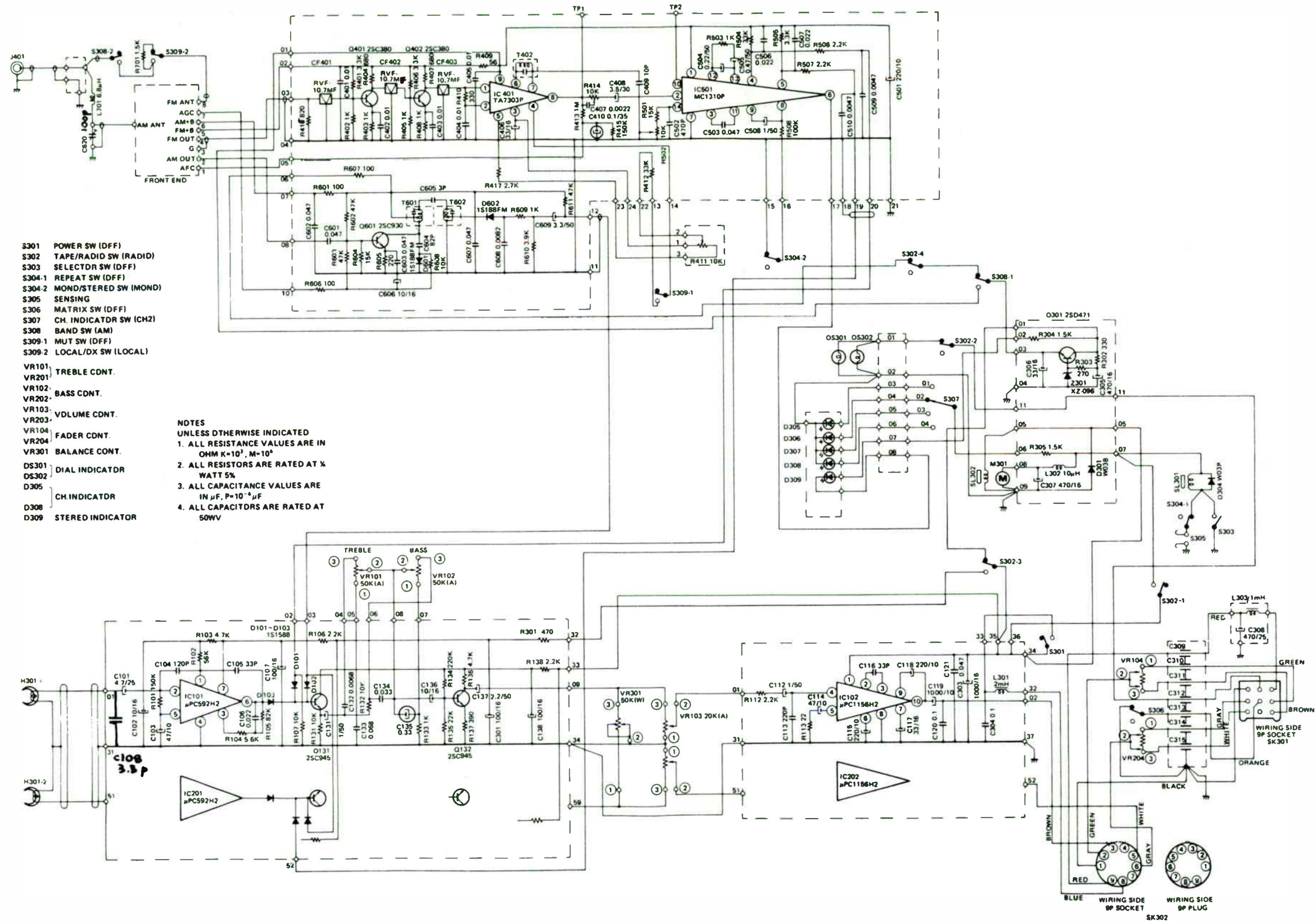
AM/IF-FM/IF-MPX P.C.B.



PRE-AMP P.C.B.



SCHEMATIC DIAGRAM



- S301 POWER SW (DFF)
- S302 TAPE/RADID SW (RADID)
- S303 SELECTDR SW (DFF)
- S304-1 REPEAT SW (DFF)
- S304-2 MOND/STERED SW (MOND)
- S305 SENSING
- S306 MATRIX SW (DFF)
- S307 CH. INDICATOR SW (CH2)
- S308 BAND SW (AM)
- S309-1 MUT SW (DFF)
- S309-2 LOCAL/DX SW (LOCAL)
- VR101 TREBLE CDNT.
- VR201 BASS CDNT.
- VR202 VDLUME CDNT.
- VR103 FADER CDNT.
- VR204 BALANCE CONT.
- VR301 DIAL INDICATR
- DS302 CH.INDICATR
- D305 STERED INDICATOR

NOTES
 UNLESS DOTHERWISE INDICATED
 1. ALL RESISTANCE VALUES ARE IN OHM K=10³, M=10⁶
 2. ALL RESISTORS ARE RATED AT % WATT 5%
 3. ALL CAPACITANCE VALUES ARE IN μF, P=10⁻⁶ μF
 4. ALL CAPACITORS ARE RATED AT 50WV

REF NO.	CRAIG KEY NO.	DESCRIPTION	REF NO.	CRAIG KEY NO.	DESCRIPTION
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CABINET & MECHANISM

1	S608010	Front Escutcheon	68	S601057	Gear, Tuning
2	3135036	Head Change Cam	69	S680007	Trim Plate (Stripped)
3	W120295	Bkt, Cam Stopper	70	9744100	Gasket
4	NSP	Mechanism Chassis	71	S601050	Button, EJT/MATRIX/S1/FM/DX
5	S601010	Arm, Pressure Roller	72	S601051	Knob, BALANCE
6	S601011	Slide Plate(1)	73	S601052	Cam, Pressure Arm
7	S601012	Slide Plate(2)	74	S100038	Ass'y, Head Carrier
8	S601013	Slide Plate(3)	75	S601053	Bearing Plate, Tuning Shaft
9	S601014	Lock Arm, Slide Plate	76	S601054	Plastic Guide, Cartridge
10	S601015	Lever, Eject	77	W120208	BELT
11	S601016	Ass'y, Cartridge Guide	78	T607241	Stud, Amp PCB mtg
12	S601017	Bkt, Tuning Gear	79	NSP	Label, Model
13	S601018	Bkt, Spool Mtg	80	NSP	Label, Muting
14	W120800	Spool, Dial String	81	NSP	Seal
15	3135037	Bearing, Flywheel	82	NSP	Label, Ant Trimmer
16	W120205	FLYWHEEL	83	NSP	Label, Head Hgt Adj
17	NSP	Heat Sink	84	NSP	Seal
18	S608395	Bkt, Amp PCB	85	NSP	Tape, Black
19	S608420	Guide, Dial Pointer	86	3513051	Spr, Dial Pointer
20	3137014	Cord Clamp w/Tube	87	3135052	Spr, Head Hgt Adj
21	3135040	Guide, Plunger	88	3135053	Spr, Plunger
22	3135045	Sensor, End Tape	89	3135054	Spr, Head Change
23	3152013	Sensor, Tape Guide	90	S608291	Leaf Spr, Cam
24	S200027	Wshr, Solenoid Shaft	91	3135058	Retainer Spr, Head Adj Nut
25	S601038	Adjust Wshr, Cont Shaft	92	S601058	Spr, Pressure Arm
26	S608396	Bkt, Pre-Amp PCB	93	S601059	Spr, Eject
27	S601039	Holder, Lamp	94	W120270	Spr, Tuning Gear
28	S100023	Tape Guide	95	S601060	Spr, Cam
29	S100024	Head Housing	96	S601061	Spr, Eject Lever
30	S601022	Retainer, Slide Plate(1)	97	S601062	Spr, Cart Door
31	S601023	Bkt, Switch Mtg	98	S601068	Spr, Lock Arm
32	S601025	Guide, Plunger	99	3137049	Thrust Wshr, Flywheel Base
33	S601026	Bkt, Pwr Switch Mtg	100	S200055	Wshr M7.4, Head Carrier
34	S608397	Bkt, Tuner	101	S601063	Thrust Wshr, Flywheel
35	S601029	Cartridge Door Frame	102	S601064	Veil, Light Interceptor
36	S601030	Dial Scale Escutcheon	103	S601066	Radio Shield
37	S601032	Front Panel	104	S601067	Fiber Sheet, Insulator
38	S601036	Light Shield	105	S608800	Dust Cover
39	S601037	Guide, Pressure Arm	201	S102503	HEAD
40	S608380	Clamp, Antenna Cable	202	S601069	MOTOR
41	W120396	Bkt, Flywheel	203	3136074	Slide Sw, RADIO/TAPE
42	S608381	Shield Plate	204	S601070	Push Sw, MATRIX/ST/FM/DX
43	S608051	Rear Panel	205	S608615	Antenna Receptacle
44	S608052	Cabinet, Bottom	206	W110608	9P Conn Power Booster
45	S608053	Cabinet, Top	207	3149005	9P Pwr/Spkrs Conn Only('nit)
46	S608398	Bkt, Tuner/Chassis	208	S601072	Lamp, Dial Lighting
47	S608399	Bkt, Mech/Rear Panel	209	S685516	PCB, Head Terminal
48	S608400	Power Harness	210	3135060	SOLENOID, Head Change
49	S601041	Shaft, Roller Guide	211	S601073	SOLENOID, Eject
50	S601042	Shaft, Cartridge Door	212	S608415	Ass'y, RF TUNER w/PCB
51	S601043	Guide Roller, Cartridge	213	S608570	VR-50k/20k, VOL/BASS/TREBLE
52	S601046	Pressure Roller	214	S608571	VR-50k, FADER/TUNING Cont
53	S601047	Spacer, Slide Plate	215	S100047	Slide VR-50k, BALANCE Cont
54	S601044	Top Spacer, Slide Plate(1)	216	S608601	Ass'y, Feed Thru Caps
55	S601045	Spacer, Slide Lever	217	W130670	Mica Trimmer 100pF, Antenna
56	T685029	Knob, VOL/TUNING	218	T607522	Ass'y, AMP PCB w/comp
57	T685030	Knob, BASS/TREBLE/FADER	219	T607523	Ass'y, AM/IF-FM/IF/MPX PCB
58	S601048	Stud, Shield Plate Mtg	220	S608516	Ass'y, PRE-AMP PCB w/comp
59	S606311	Pulley, Motor	221	S608517	Ass'y, MUTING PCB w/comp
60	W130800	Round Nut, Head Height Adjust	222	S608518	Ass'y, LED PCB w/comp
61	S100029	Screw, Head Azimuth Adj	223	S608519	PCB, Program Change
62	T633385	Housing, Noise Filter	224	S608520	PCB, BAL Cont
63	S685291	Protector, Tape Eating	225	S608521	Terminal Board, Antenna
64	S608077	Dial Scale	226	S200059	Terminal Board, LED/Sw
65	S608081	Dial Pointer	227	T633521	Ass'y, FILTER PCB w/comp
66	S100039	Insulator, Tape Guide	228	S608522	Ass'y, PWR SUPPLY PCB w/comp
67	3144047	Insulator, Sensor		3516044	9P Dummy Plug (Booster Conn)

MISCELLANEOUS ELECTRICAL

VR101- VR201- VR102- VR202- VR103- VR203- S301- S303- VR104- VR204- VR301- S302- S304-1- S304-2- S306- S308- S309-1- S309-2-	S608570	<ul style="list-style-type: none"> TREBLE Cont VR-50k/20k- BASS Cont (Push) VOLUME Cont Sw, Power ON-OFF Sw, Program Select (Push) 	S305- S307- SL301- SL302- C309- C315- VR414- VR502- VR411-	S608519 3135060 S601073	Sw, TAPE SENSOR(See MECH) Program Lamp Sw PCB SOLENOID, Head Change SOLENOID, Eject
	S608571 S100047 S136074	<ul style="list-style-type: none"> VR-50k, FADER/TUNING Cont Slide VR-50k, BALANCE Cont Slide Sw, RADIO/TAPE 		S608601	Ass'y, Feed Thru Caps
	S601070	<ul style="list-style-type: none"> Sw, REPEAT Sw, MONO/STEREO Sw, MATRIX Sw, AM/FM Sw, MUTING Sw, LOC/DX 	DS301- DS302- D305- D309-	T607590 S608590 3149005 3149052 S608615 W110608	Semi-Var-Res 10k Semi-Var-Res 10k 9P Pwr/Spkrs Conn(Unit Side) 9P Pwr/Spkrs Conn(Car Side) Antenna Receptacle 9P Conn, PwrPlay Adaptor
				S601072	Pilot Lamp
				TLR102	LED, STEREO/PROGRAM Ind

NSP denotes None-Serviceable Part.

REF NO.	CRAIG KEY NO.	DESCRIPTION	REF NO.	CRAIG KEY NO.	DESCRIPTION
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SEMICONDUCTORS

IC101,201	UPC592H2	IC PRE-AMP	TR3	2SC1675	Transistor
IC102,202	UPC1156H2	IC AMP	TR4,5	2SC941	"
IC401	TA7303P	IC FM/IF			
IC501	SN76115N	IC FM/MPX (or MC1310P)			
Q131,132, 231,232	2SC536	Transistor (or 2SC945)	Z301	XZ096	Zener Diode
Q301	2SD471	Transistor	D101,102, 103,201, 202,203	1S1588	Diode(or 1S2473)
Q401,402	2SC380	"	D301	1N4003	Diode(or W03B)
Q601	2SC930	"	D304	DS135D	Diode(or W03B)
TR1	2SK49	FET	D601,602	1S188	Diode
TR2	2SC1674	Transistor	D305~309	TLR102	LED, STEREO/PROG Ind

CHOKES, COILS, TRIMMERS

L301	W120671	Choke Coil 2mH	SL301	3135060	SOLENOID, Head Change
L302	S608670	Peaking Coil 10uH	SL302	S601073	SOLENOID, Eject
L303	S606671	Choke Coil 1mH	C620	W130670	Antenna Trimmer 100pF
L701	S601090	Peaking Coil 6.8uH	IFT	T607645	FM IFT
CF401~403	W120674	Ceramic Filter RVF10.7MF	IFT1	T607644	AM IFT
T601	W120641	AM IFT (Yellow)	IFT2	T607643	AM IFT
T602	W120642	AM IFT (Green)	L53	T607671	AM OSC Coil
T402	S608641	FM IFT Coil (Brown)			

CAPACITORS

C605	Ceramic	3pF	50V	C501,115,118,215, 218	Electrolytic	220uF	10V
C108,208	"	3.3pF	50V	C305,307	"	470uF	16V
C409	"	10pF	50V	C308	"	470uF	25V
C116,216,105,205	"	33pF	50V	C119,219	"	1000uF	10V
C604	"	82pF	50V	C303	"	1000uF	16V
C104,204	"	120pF	50V	C407	Polyester	0.0022uF	50V
C113,213	"	220pF	50V	C509,510	"	0.0047uF	50V
C402,403	"	0.01uF	25V	C132,232	"	0.0068uF	50V
C601,602,603,607	"	0.047uF	16V	C608	"	0.0082uF	50V
C504	Electrolytic	0.22uF	50V	C401,404,405	"	0.01uF	50V
C505	"	0.47uF	50V	C106,206,506,507	"	0.022uF	50V
C131,231,112,212, 508	"	1uF	50V	C134,234	"	0.033uF	50V
C137,237	"	2.2uF	50V	C121,221,503	"	0.047uF	50V
C408,609	"	3.3uF	50V	C133,233	"	0.068uF	50V
C101,201	"	4.7uF	50V	C120,220,304	"	0.1uF	50V
C102,202,136,236, 606	"	10uF	16V	C502	Styrol	470pF	125V
C117,217,306,406	"	33uF	16V	C410	Tantalum	0.1uF	35V
C103,203,114,214	"	47uF	10V	C135,235	"	0.33uF	35V
C138,238,301,107 207	"	100uF	16V	C309~315	Feed Thru Caps		
				C620 *	Antenna Trimmer 100pF		

* See CHOKES, COILS & TRIMMERS.

RESISTORS

(25¢ each or noted)

R113,213	22 ohms	1/8W	R304,305,501, 604	1.5k ohms	1/4W	R608	10k ohms	1/4W
R409	56 "	1/4W	R106,206,138, 112,212	2.2k "	1/8W	R135,235	22k "	1/8W
R601,606,607	100 "	"	R506,507	2.2k "	1/4W	R412	33k "	1/4W
R605	220 "	"	R417	2.7k "	"	R602,603,611	47k "	"
R303	270 "	"	R401,406,504, 505	3.3k "	"	R102,202	56k "	"
R302,410	330 "	"	R610	3.9k "	"	R105,205	82k "	1/8W
R137,237	390 "	1/8W	R103,203,136, 236	4.7k "	1/8W	R508	100k "	1/4W
R301	470 "	"	R104,204	5.6k "	"	R101,201	150k "	1/8W
R404,407	680 "	1/4W	R107,207,131, 132,231,232	10k "	"	R415	150k "	1/4W
R416	820 "	"				R134,234	220k "	1/8W
R133,233	1k "	1/8W				R413	1M "	1/4W
R402,403,405, 408,503,609	1k "	1/4W				R414,502 **	Semi-Var-Res	10k
R701	1.5k "	1/8W				R411 **	Semi-Var-Res	10k

** See MISC ELECTRICAL.

HARDWARE

See CABINET & MECHANISM Exploded View.

	E	B	C
Q131	4.75	5.40	11.6
Q231	4.75	5.40	11.6
Q132	0.35	0.95	7.60
Q232	0.35	0.95	7.60
Q301	8.95	9.60	14.6
Q401	1.20	1.90	7.40
Q402	1.20	1.90	7.40
Q601	0.65	1.40	8.50

PIN#	1	2	3	4	5	6	7	8	9	10	11	12	13	14
IC101	1.95	0.60	0.02	0	0.65	5.90	9.80							
IC201	1.95	0.60	0.02	0	0.65	5.90	9.80							
IC102	14.6	7.80	1.40	5.40	5.45	7.90	14.5	0	13.4	7.20				
IC202	14.6	7.80	1.40	5.40	5.45	7.90	14.5	0	13.4	7.20				
IC401	1.95	1.95	2.00	0.80	0.01	3.75	7.75	4.70	8.00					
IC501	8.95	3.05	4.75	6.65	6.65	0.85	0	2.35	2.30	1.70	2.35	2.35	2.35	3.30

All voltage values are in volt.

VOLTAGE CHARTS

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 90BFTC1 & 90BCB1

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:
 CT1, CT2 8276, 5000, 9089
 T1, T5, T6 9440
 L4, L8, L9 9304, 9300, 9302
 T2, T3, T4, T7, T8 5009, 8276, 8728, 5000, 9089

SYNTHESIZER ALIGNMENT

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Input of frequency counter to TP1 (IC1 Pin 2).	Ch. 19	CT1	Adjust for 10.240MHz \pm 50Hz.
Input of DC meter to TP8.	Ch. 1	T1	Adjust for 2.0V \pm 0.1 volt. Check for approximately 4.2 volts on Channel 40.
	Ch. 1, XMT	CT2	Adjust for 2.0V \pm 0.1 volt. Check for approximately 3.9 volts on Channel 40.
Input of frequency counter to TP2 (IC3 Pin 3).	Ch. 1		Check for 16.270MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of oscilloscope to TP3 (T2 Secondary).	Ch. 19, XMT	T2	Adjust for maximum RF (600mV p-p typical). (See Figure 1.)
Input of frequency counter to TP3 (T2 Secondary).	Ch. 1, XMT		Check for 26.965MHz. Check all channels. (See Truth Chart for correct frequencies.)
Input of frequency counter to TP4 (IC1 Pin 8).	Ch. 1		Check for 6.030MHz. Check all channels. (See Truth Chart for correct frequencies.)
	Ch. 1, XMT		Check for 3.2425MHz. Check all channels. (See Truth Chart 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. Squelch MINIMUM.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to TP5 (Q11 Base). 455kHz, 1000Hz @ 30% modulation.	Ch. 19	T8	Adjust for maximum output.
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation.	Ch. 19	T7, T6, T5, T4	Adjust for maximum output. Readjust T8.

RECEIVER ADJUSTMENTS

Connect an AC VTVM or AF wattmeter across speaker voice coil.
Adjust volume control to obtain a suitable indication.

TEST EQUIPMENT	TRANSCEIVER	ADJUST	REMARKS
Output of signal generator thru .01uF to antenna jack. 27.185MHz, 1000Hz @ 30% modulation. Output 1000uV.	Ch. 19 Squelch Maximum	RV1	SQUELCH RANGE Adjust so squelch just breaks.

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	T3,L4,L8,L9	Adjust for maximum.
	Ch. 19	L4	Turn clockwise for 4.4 watts.
	Ch. 19	L9	Turn counterclockwise for 3.8 watts.

TRANSMITTER ADJUSTMENTS

Connect a RF wattmeter and 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, 20mV signal at Mic input.	Ch. 19	RV2	AMC Adjust for 90% modulation. (See Figure 2.)

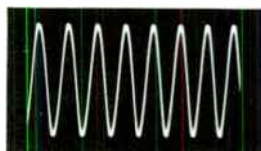
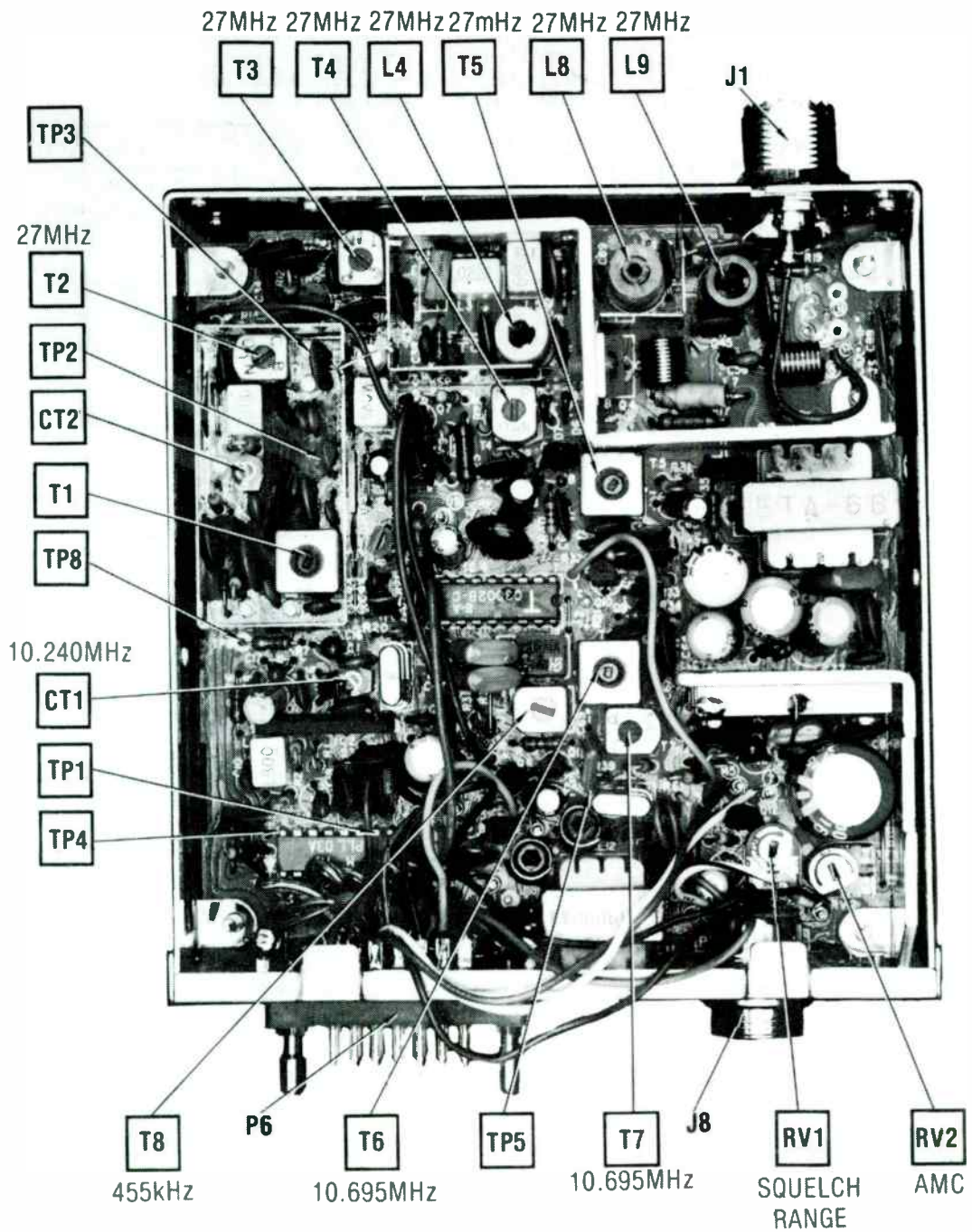


FIGURE 1



FIGURE 2



CHASSIS-BOTTOM (CB)

TRUTH CHART

C H A N N E L	1 = 5.95 Volts 0 = 0 Volts							REC VCO OUTPUT IN MHz AT TP2 (IC3, Pin 3)	XMT SYNTHESIZER OUTPUT IN MHz AT TP3 (T2, Secondary)	REC DIVIDER INPUT IN MHz AT TP4 (IC1, Pin 8)	XMT DIVIDER INPUT IN MHz AT TP4 (IC1, Pin 8)
	IC1 PROGRAM DIVIDER										
	PINS										
	9	10	11	12	13	14	15				
1	1	0	0	1	0	1	0	16.270	26.965	6.030	3.2425
2	1	0	0	1	0	0	1	16.280	26.975	6.040	3.2475
3	1	0	0	1	0	0	0	16.290	26.985	6.050	3.2525
4	1	0	0	0	1	1	0	16.310	27.005	6.070	3.2625
5	1	0	0	0	1	0	1	16.320	27.015	6.080	3.2675
6	1	0	0	0	1	0	0	16.330	27.025	6.090	3.2725
7	1	0	0	0	0	1	1	16.340	27.035	6.100	3.2775
8	1	0	0	0	0	0	1	16.360	27.055	6.120	3.2875
9	1	0	0	0	0	0	0	16.370	27.065	6.130	3.2925
10	0	1	1	1	1	1	1	16.380	27.075	6.140	3.2975
11	0	1	1	1	1	1	0	16.390	27.085	6.150	3.3025
12	0	1	1	1	1	0	0	16.410	27.105	6.170	3.3125
13	0	1	1	1	0	1	1	16.420	27.115	6.180	3.3175
14	0	1	1	1	0	1	0	16.430	27.125	6.190	3.3225
15	0	1	1	1	0	0	1	16.440	27.135	6.200	3.3275
16	0	1	1	0	1	1	1	16.460	27.155	6.220	3.3375
17	0	1	1	0	1	1	0	16.470	27.165	6.230	3.3425
18	0	1	1	0	1	0	1	16.480	27.175	6.240	3.3475
19	0	1	1	0	1	0	0	16.490	27.185	6.250	3.3525
20	0	1	1	0	0	1	0	16.510	27.205	6.270	3.3625
21	0	1	1	0	0	0	1	16.520	27.215	6.280	3.3675
22	0	1	1	0	0	0	0	16.530	27.225	6.290	3.3725
23	0	1	0	1	1	0	1	16.560	27.255	6.320	3.3875
24	0	1	0	1	1	1	1	16.540	27.235	6.300	3.3775
25	0	1	0	1	1	1	0	16.550	27.245	6.310	3.3825
26	0	1	0	1	1	0	0	16.570	27.265	6.330	3.3925
27	0	1	0	1	0	1	1	16.580	27.275	6.340	3.3975
28	0	1	0	1	0	1	0	16.590	27.285	6.350	3.4025
29	0	1	0	1	0	0	1	16.600	27.295	6.360	3.4075
30	0	1	0	1	0	0	0	16.610	27.305	6.370	3.4125
31	0	1	0	0	1	1	1	16.620	27.315	6.380	3.4175
32	0	1	0	0	1	1	0	16.630	27.325	6.390	3.4225
33	0	1	0	0	1	0	1	16.640	27.335	6.400	3.4275
34	0	1	0	0	1	0	0	16.650	27.345	6.410	3.4325
35	0	1	0	0	0	1	1	16.660	27.355	6.420	3.4375
36	0	1	0	0	0	1	0	16.670	27.365	6.430	3.4425
37	0	1	0	0	0	0	1	16.680	27.375	6.440	3.4475
38	0	1	0	0	0	0	0	16.690	27.385	6.450	3.4525
39	0	0	1	1	1	1	1	16.700	27.395	6.460	3.4575
40	0	0	1	1	1	1	0	16.710	27.405	6.470	3.4625

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:

C4, C3, C2	5000, 8276, 9089
C5, C6	8271
L1A, L1B, L1C	8728
T1, T4, L4, L5	9440
T5, T6	9304, 9302, 9300

PUSH-BUTTON ADJUSTMENT

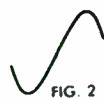


FIG. 2

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

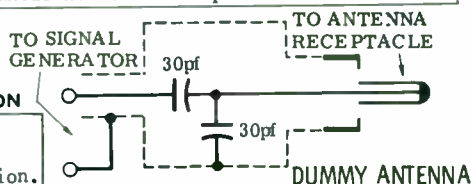
Connect output meter across speaker voice coil.

GENERATOR COUPLING	GENERATOR FREQUENCY	RADIO DIAL SETTING	ADJUST	REMARKS
High side thru .1uF to antenna input.	262kHz 400Hz mod.	High freq end stop	T6,T5	Adjust for maximum.
Check setting of oscillator coil core, L1C. Rear of core should be 1 3/8" from mounting end of coil form.				
Thru dummy antenna to antenna input.	1600kHz 400Hz mod.	1600kHz	C6,C5	Adjust for maximum.
Thru dummy antenna to antenna input.	600kHz 400Hz mod.	600kHz	L1B,L1A	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 C4 for maximum output. Antenna adjustment is located above tuning shaft.

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

High side of generator thru .001uF to TP7 (U2, Pin 10).
 Use 60-hertz, frequency-modulated signal, 450kHz sweep.
 Use 60-hertz sawtooth voltage in scope for horizontal deflection.



GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
Make certain AM is operating properly; AM oscillator controls FM tuning.				
No signal input.	High frequency end stop.	Input of DC meter to TP9 (U8, Pin 9).	R80	Adjust for 7.30 volts.
10.7MHz 450kHz Sweep	Point of non-interference.	Vert input of scope to TP8 (Junction of C118 and R120).	(1)T1,T4	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
108MHz Modulated	108MHz	Input of AC meter across speaker.	C3,C2	Adjust for maximum.
88MHz Modulated	88MHz	"	L6,L5,L4	Adjust for maximum. Repeat FM RF steps until no further improvement is noted.

FM STEREO ALIGNMENT

GENERATOR FREQUENCY	INDICATOR	ADJUST	REMARKS
No signal input.	Input of frequency counter to TP10 (U4, Pin 11).	R127	Connect a jumper from TP8 to ground. Adjust for 19kHz \pm 20Hz. Remove jumper.
Stereo signal to antenna input. Modulate left channel only.	Input of AC VTVM or RF wattmeter across right channel output.	R120	Tune radio to stereo signal and adjust R120 for MINIMUM right channel output.
Stereo signal to antenna input. Output 1000uV. Modulate right channel only.	"	R90	Tune radio to stereo signal and set volume of right channel to 0db on output meter. Decrease stereo signal to 25uV and adjust R90 until audio drops 1db.

ADJUSTMENTS

ADJUST	REMARKS
Head Azimuth	Play a test cartridge and adjust screw 62A for maximum on meter across output.
Head Height	Play a test cartridge, follow instructions with cartridge, and adjust Gear 67 for proper response.

TROUBLE CHART

SYMPTOM	REMARKS
Capstan does not rotate.	Belt 54 dirty, worn, or broken. Assembly 55 binding. Motor defective or not supplied with power.
Track-shift mechanism inoperative	Switch S6 dirty. Cam 58 binding or worn. Pawl 69 worn. Assembly 62 binding. Solenoid K1 defective or not supplied with power. Cartridge defective.
Wow or flutter	Belt 54 dirty or worn. Capstan dirty or binding. Cartridge defective. Motor defective.
Sound weak or distorted	Head dirty, misaligned, or defective. Cartridge defective. Amplifiers defective.
Tape is pulled from cartridge.	Cartridge defective. Capstan dirty or scored.

MECHANICAL PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
50	16001098	Eject Plate	62A	(2)	Azimuth Adjust Screw
52	16000586	Detent Assembly	62B	(2)	Azimuth Spring
52A	(1)	Detent Arm	67	7896659	Height Adjust Gear
52B	(1)	Eject Rod	69	16001578	Pawl Assembly
52C	(1)	Eject Rod Spring	75	9347892	Head Lifting Spring
54	1223664	Flywheel Drive Belt	76	7898373	Detent Spring
55	1224233	Capstan Bearing Assembly	77	16001576	Solenoid Spring
58	9347899	Track Changing Cam	79	16004797	Tape Stripper
59	16002836	Flywheel	82	9347900	Height Adjust Wheel
62	16003726	Head Shifting Assembly			

* Flywheel Drive Belt: E-V/GAME Replacement Number 1407-27.
WALSCO Replacement Number 1425-24

- (1) Part of Assembly #52.
- (2) Part of Assembly #62.

CLEANING

Clean all tape contact surfaces with a soft, lint-free material and head cleaner or methyl alcohol. Use alcohol to remove oil and grease from all driving surfaces.

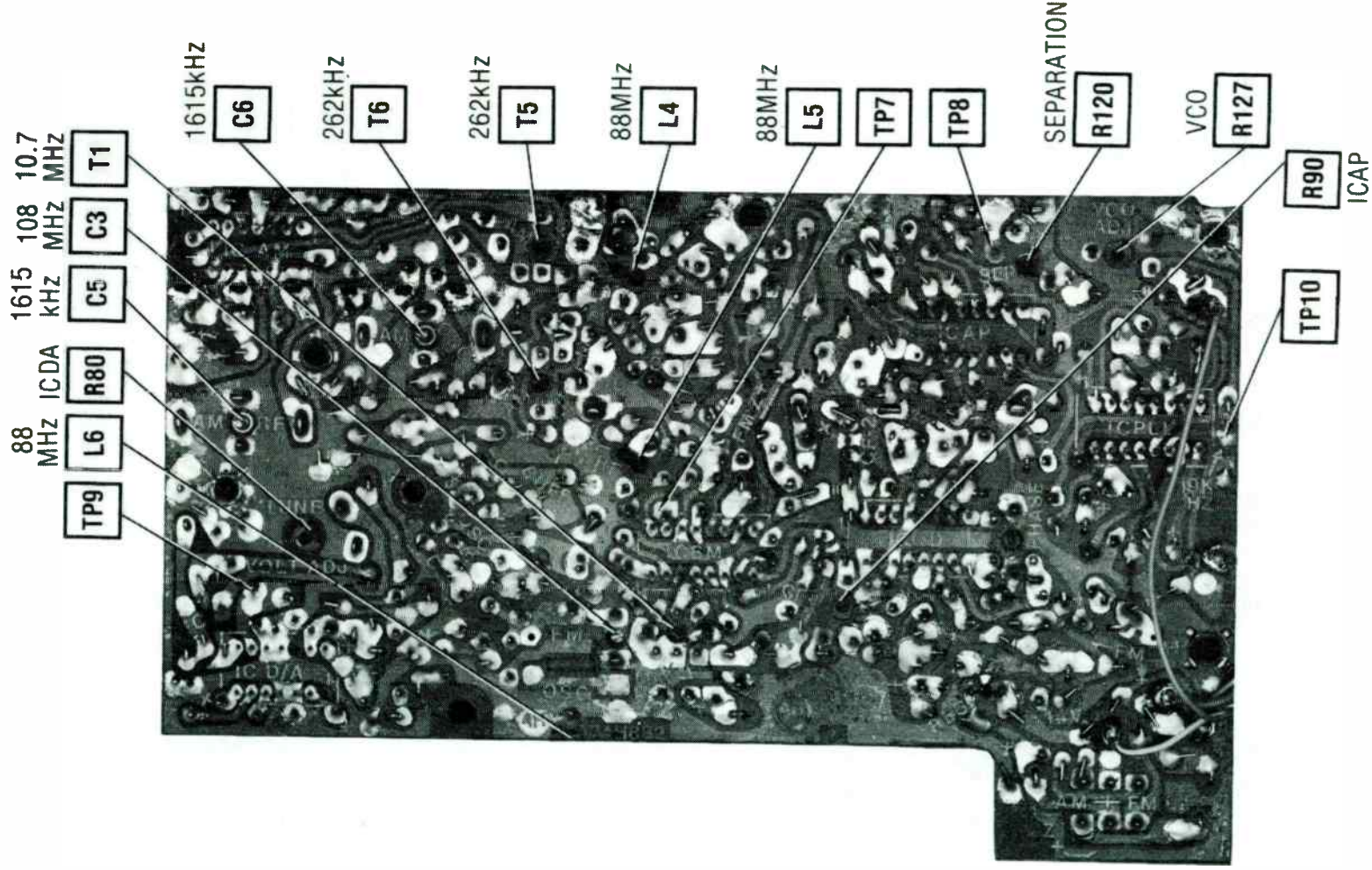
CAUTION: Avoid getting head cleaner on any plastic surface.

LUBRICATING

Bearings are oil-less type and do not need lubrication. Lubricate bushings lightly with #20 machine oil. Use a light film of nonhardening grease on cam surfaces.

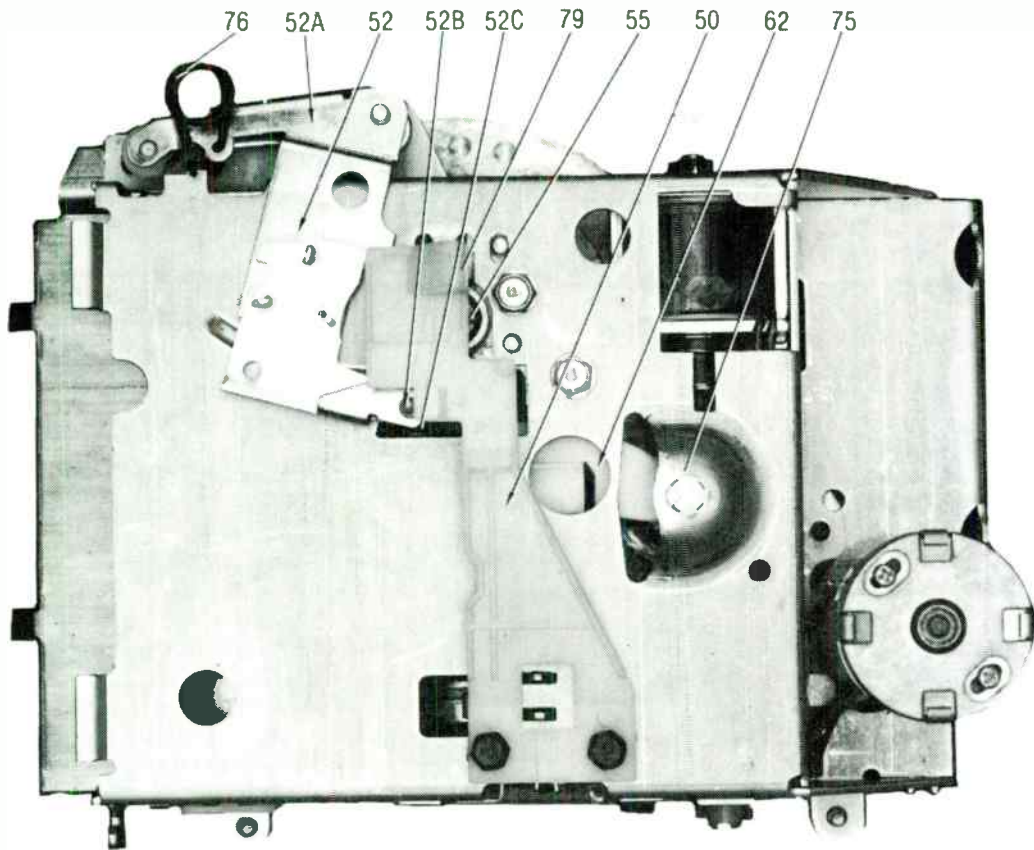
HEAD DEMAGNETIZING

Demagnetize head when unit is serviced. Avoid using magnetic materials near head.

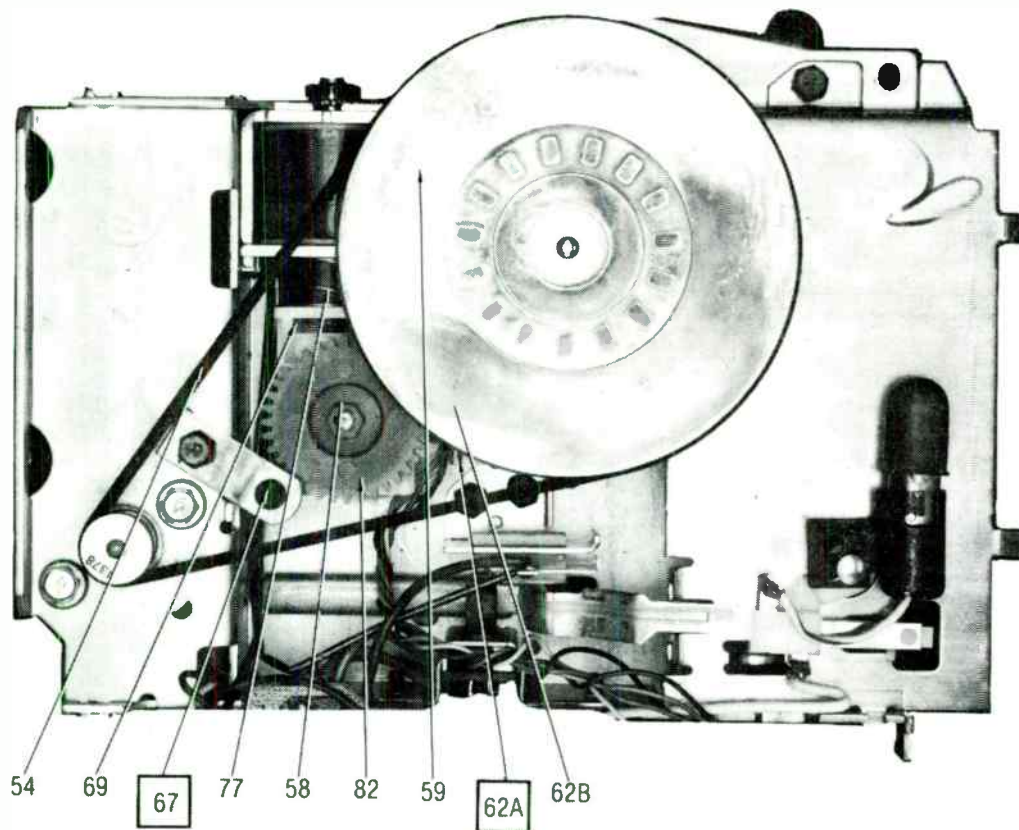


RADIO MAIN BOARD

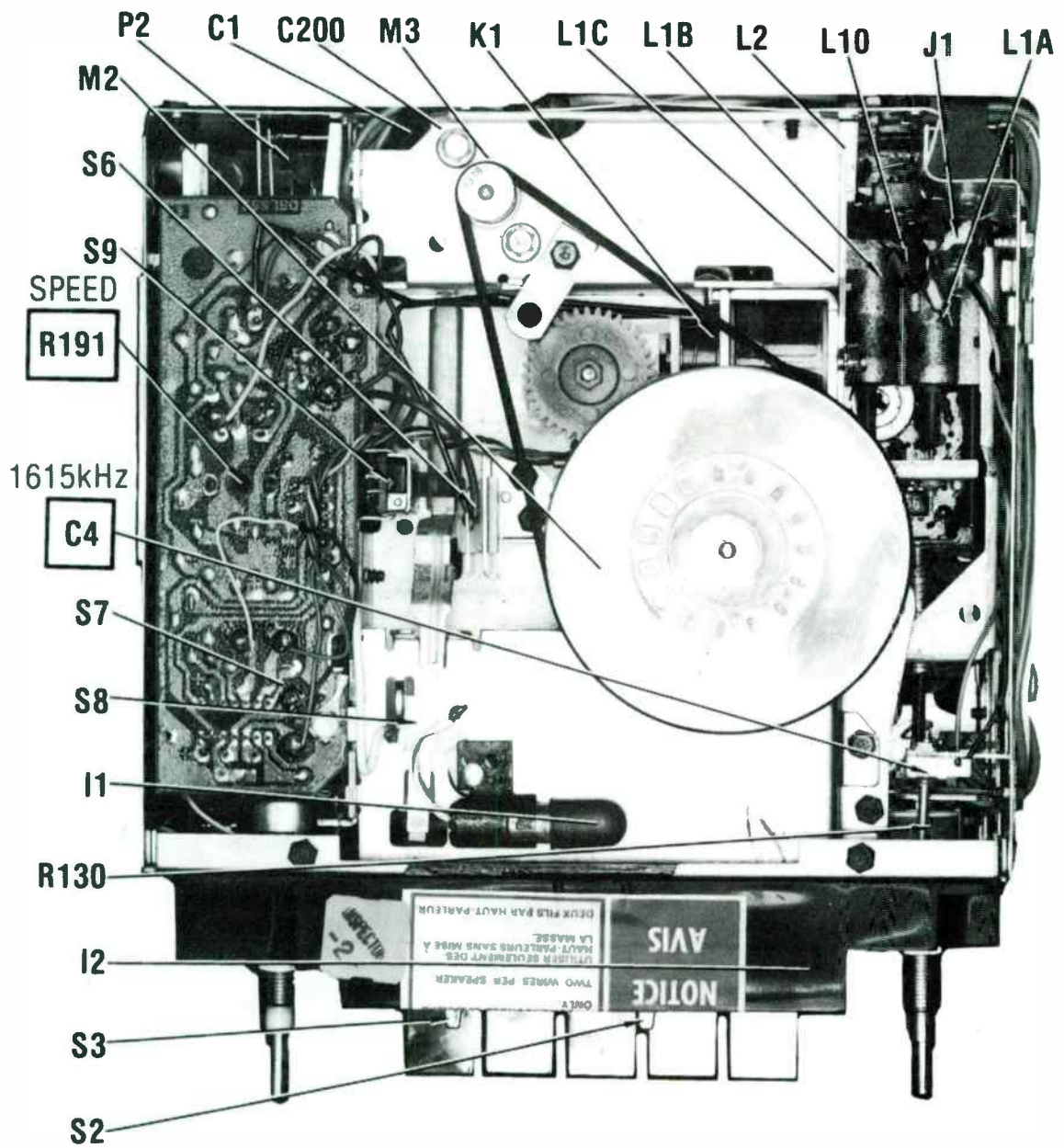
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TAPE DECK-BOTTOM



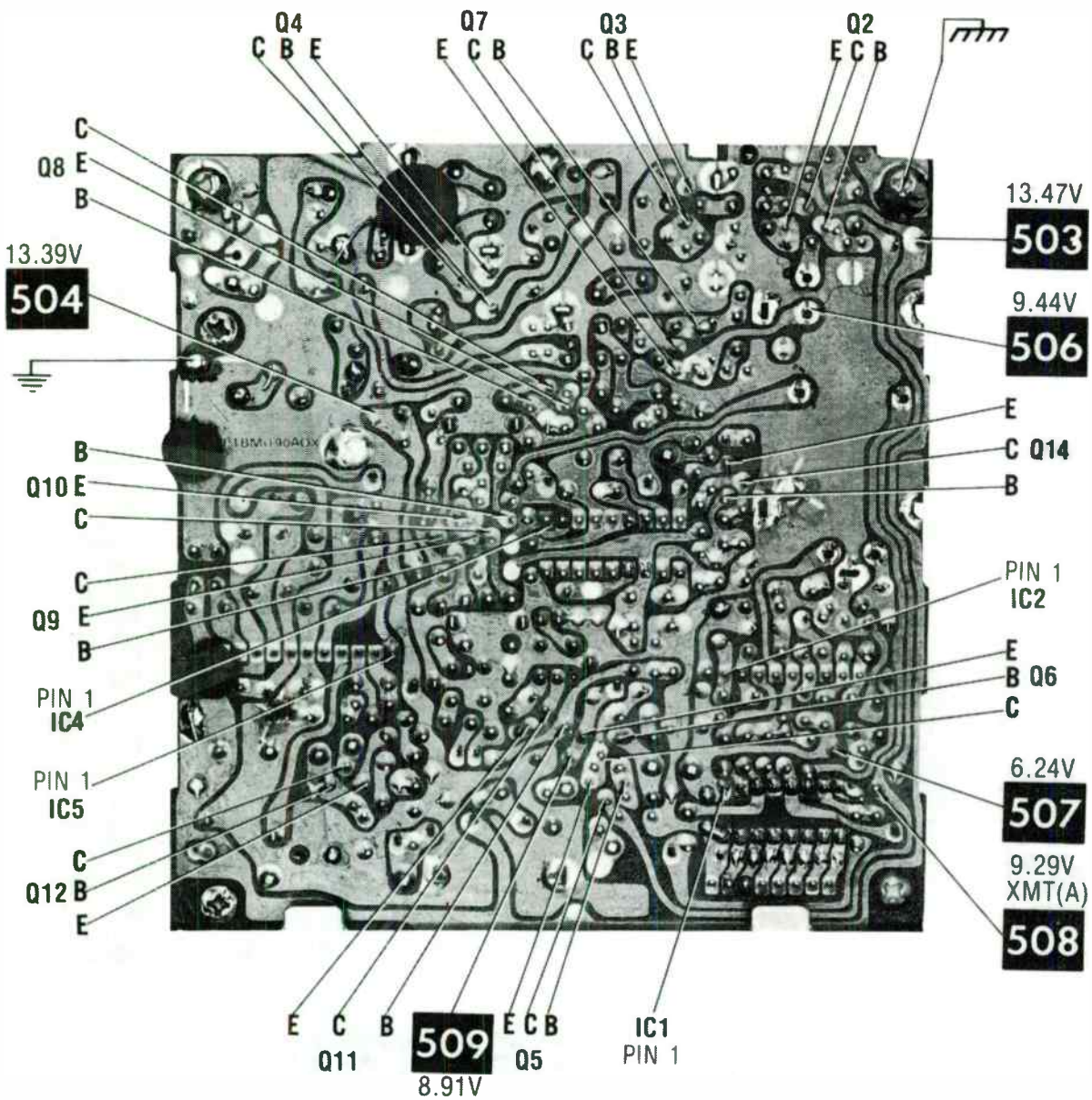
TAPE DECK-TOP

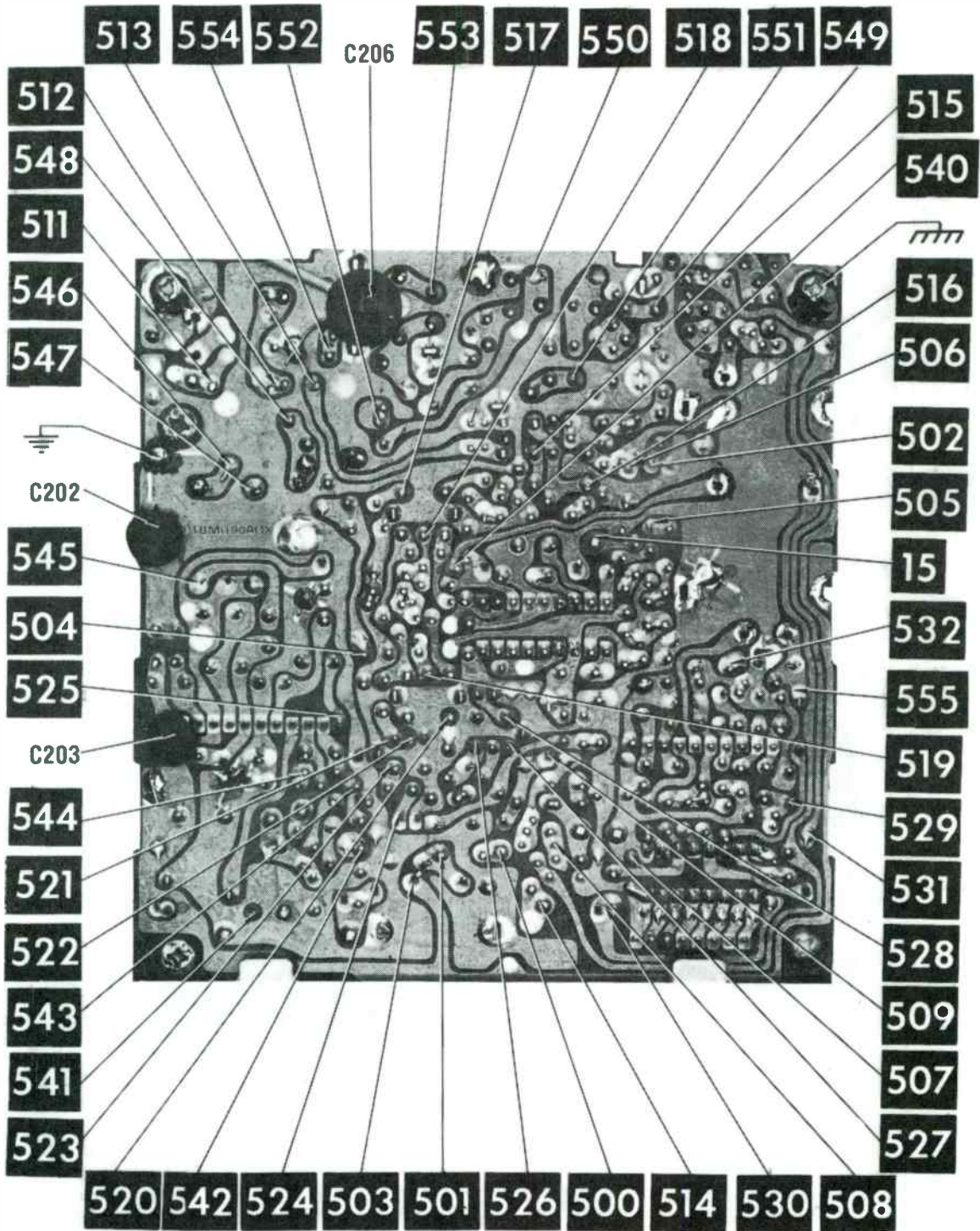


CHASSIS-TOP (RADIO)

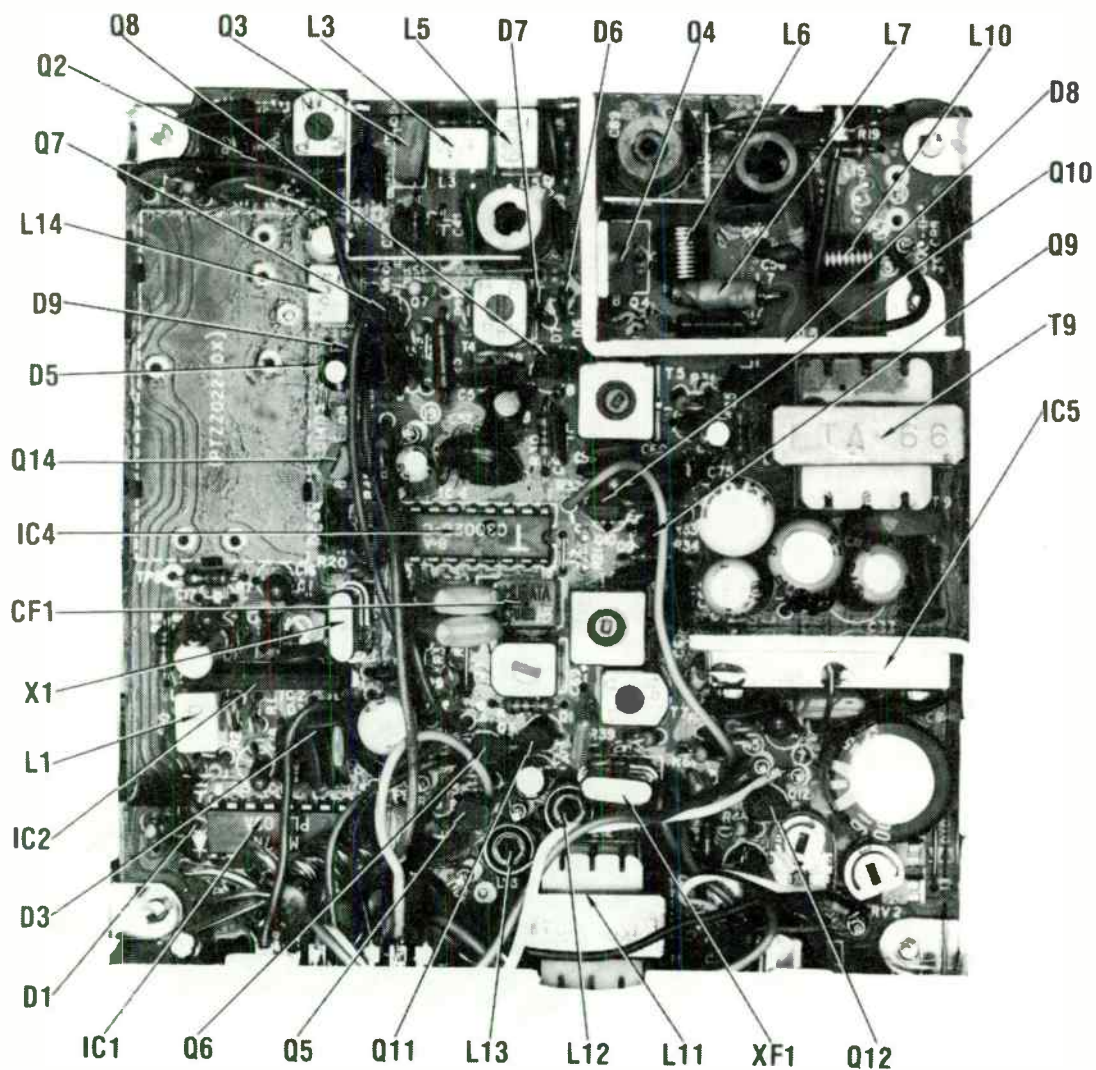
Delco 90BCB1,90BFTC1,90ECB1

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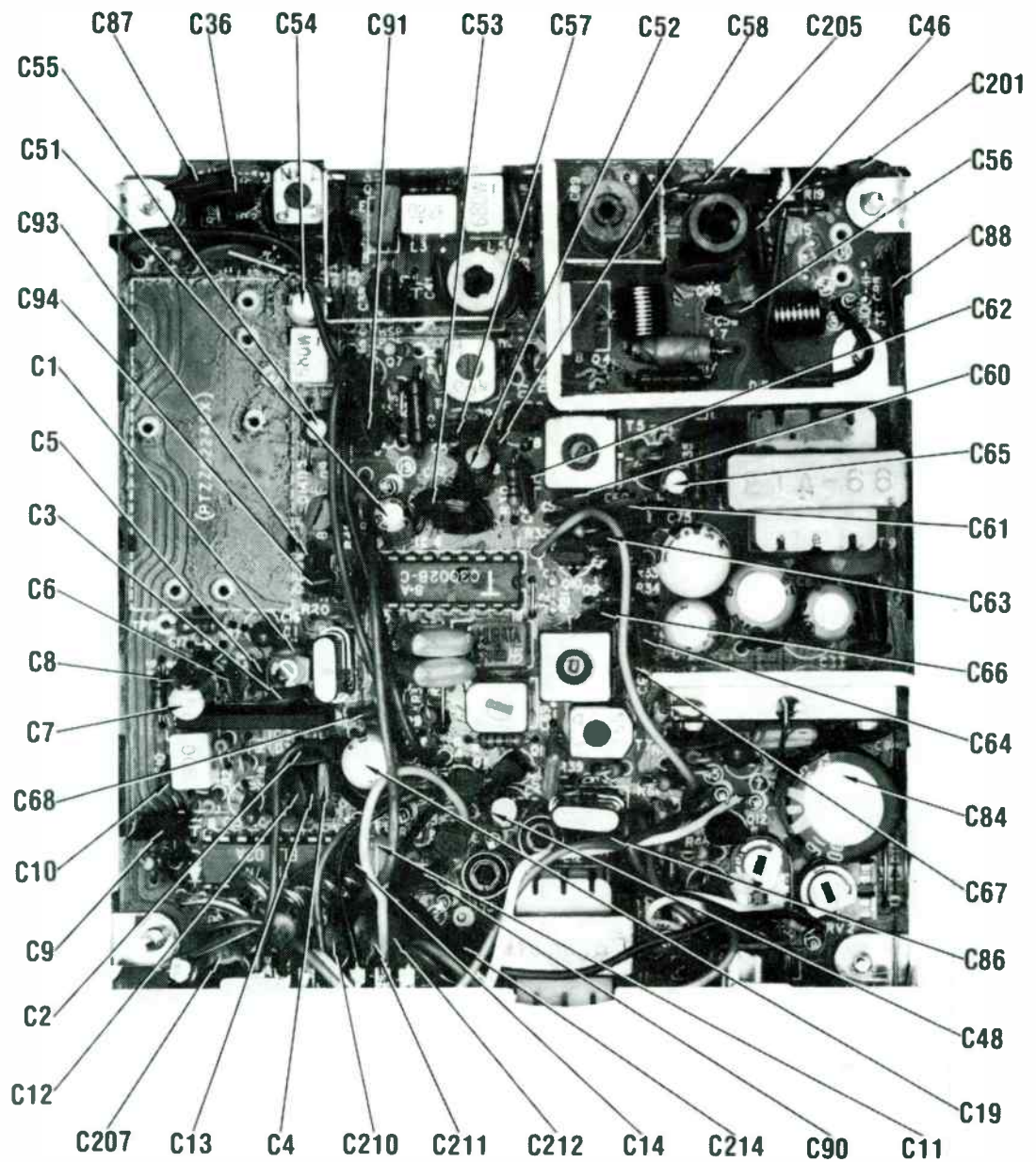




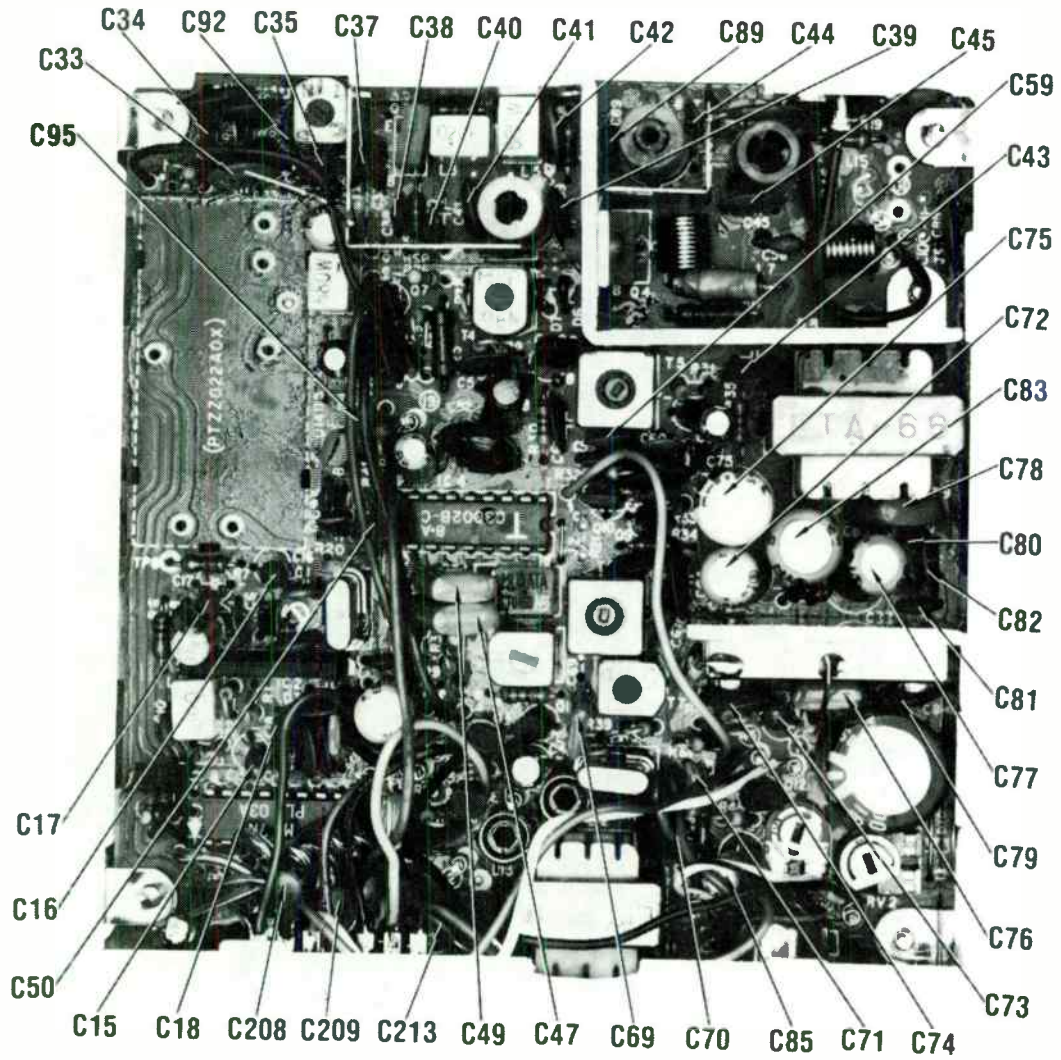
MAIN CB BOARD



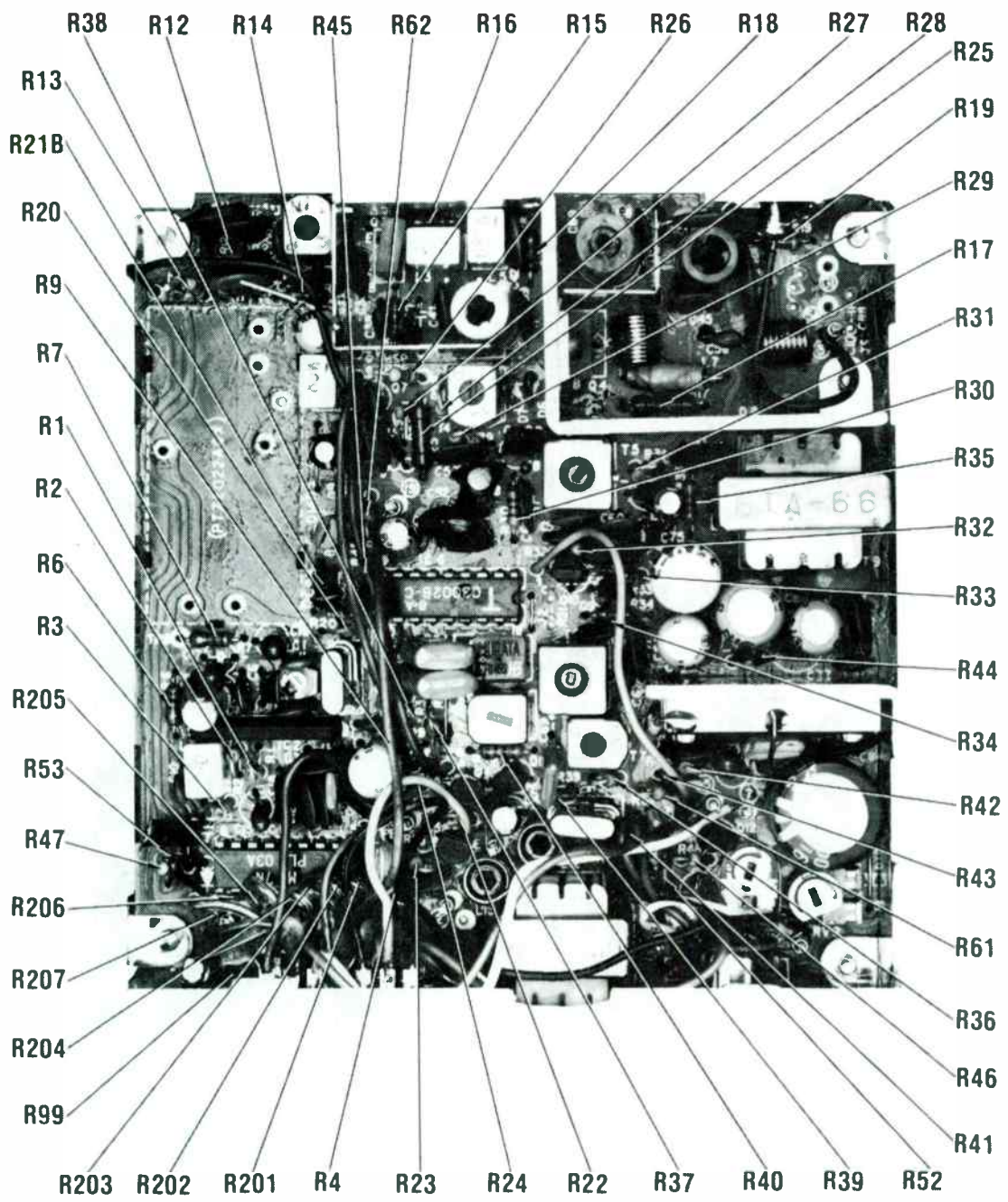
MAIN CB BOARD



MAIN CB BOARD



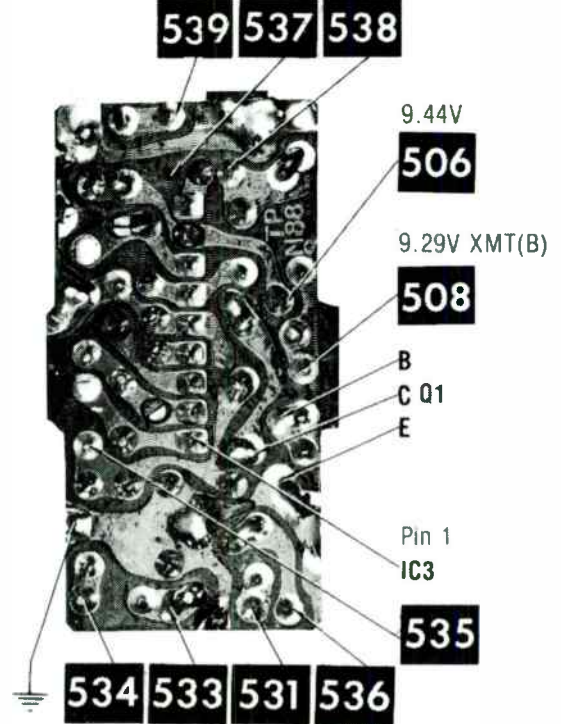
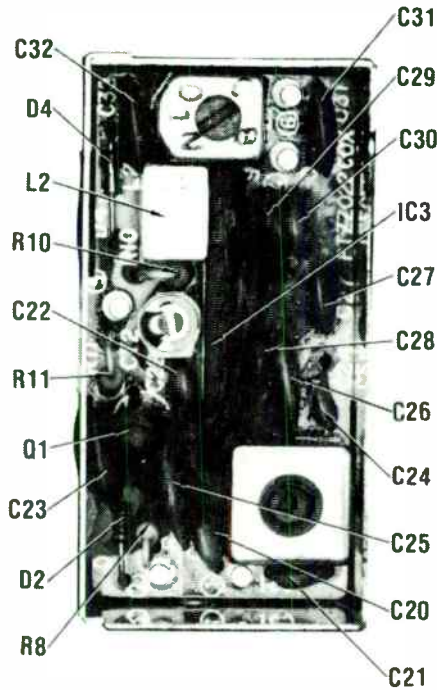
MAIN CB BOARD



MAIN CB BOARD

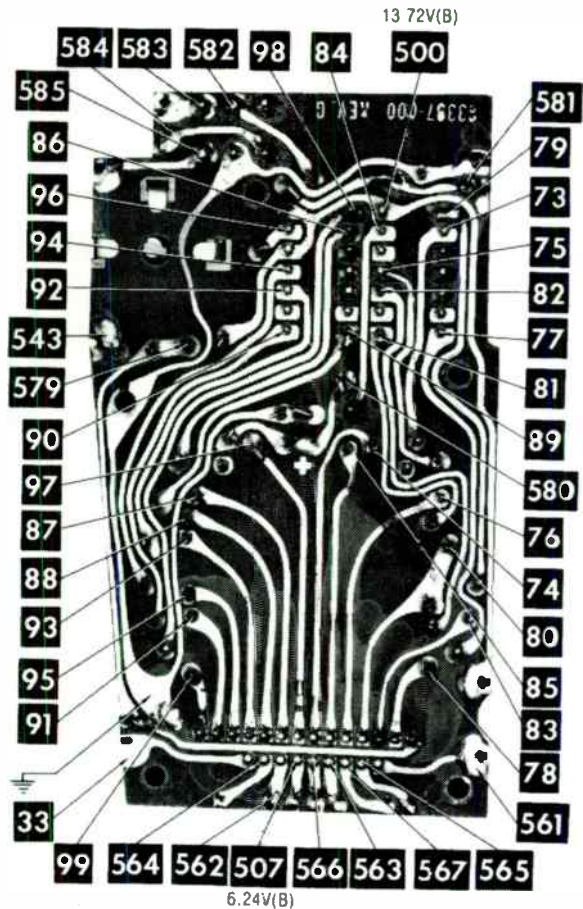
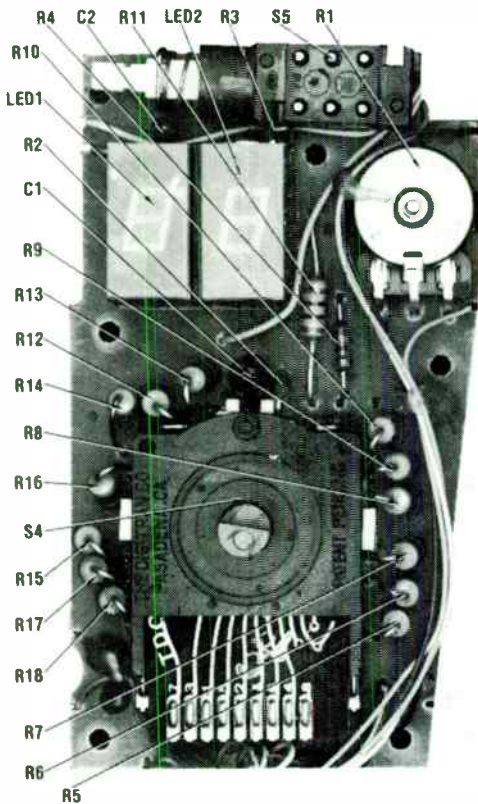
Delco 90BCB1,90BFTC1,90ECB1

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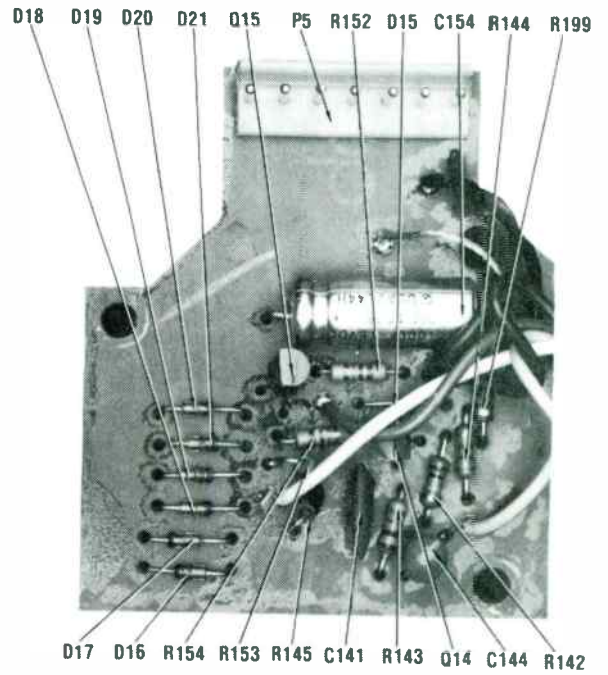
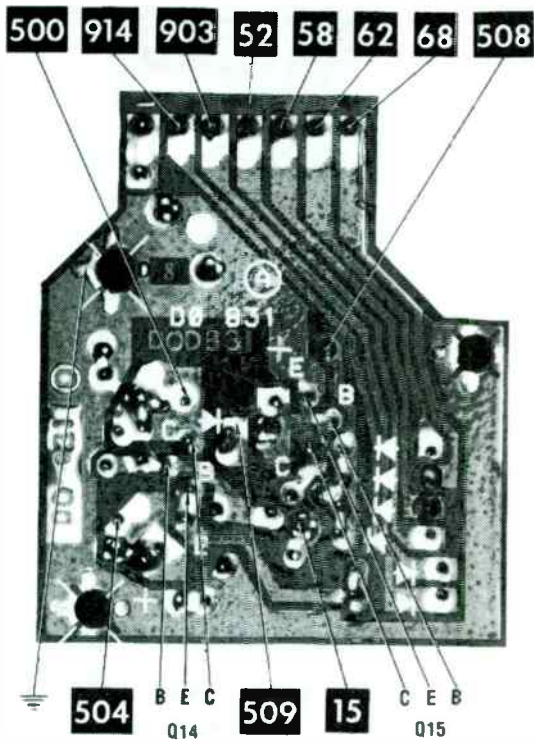
VCO BOARD

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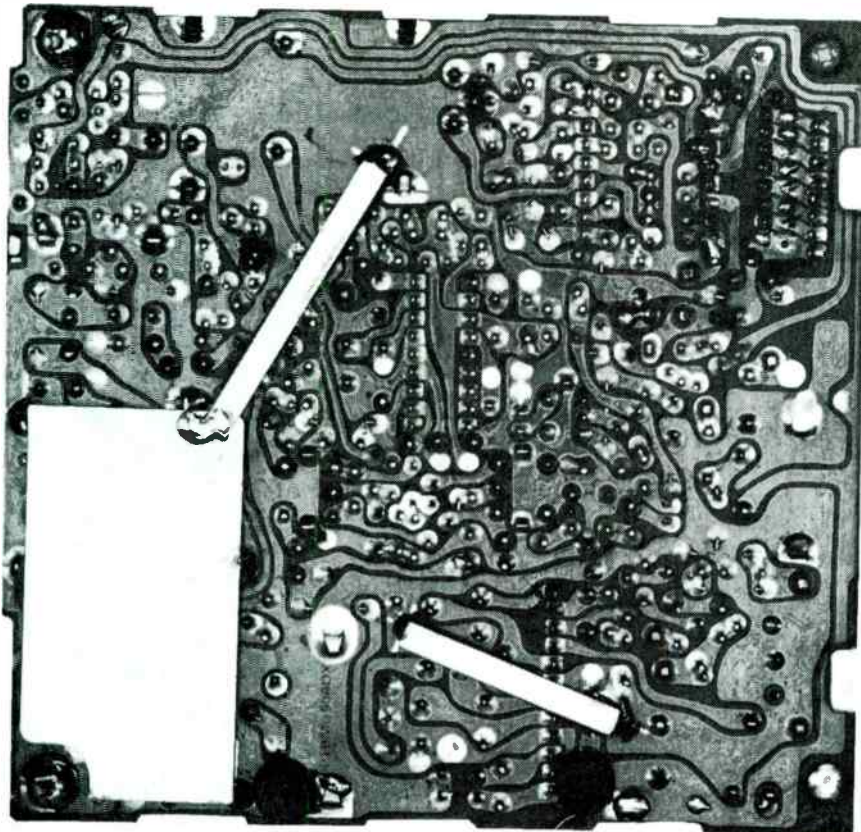


MIC ASSEMBLY

13.72V(A)



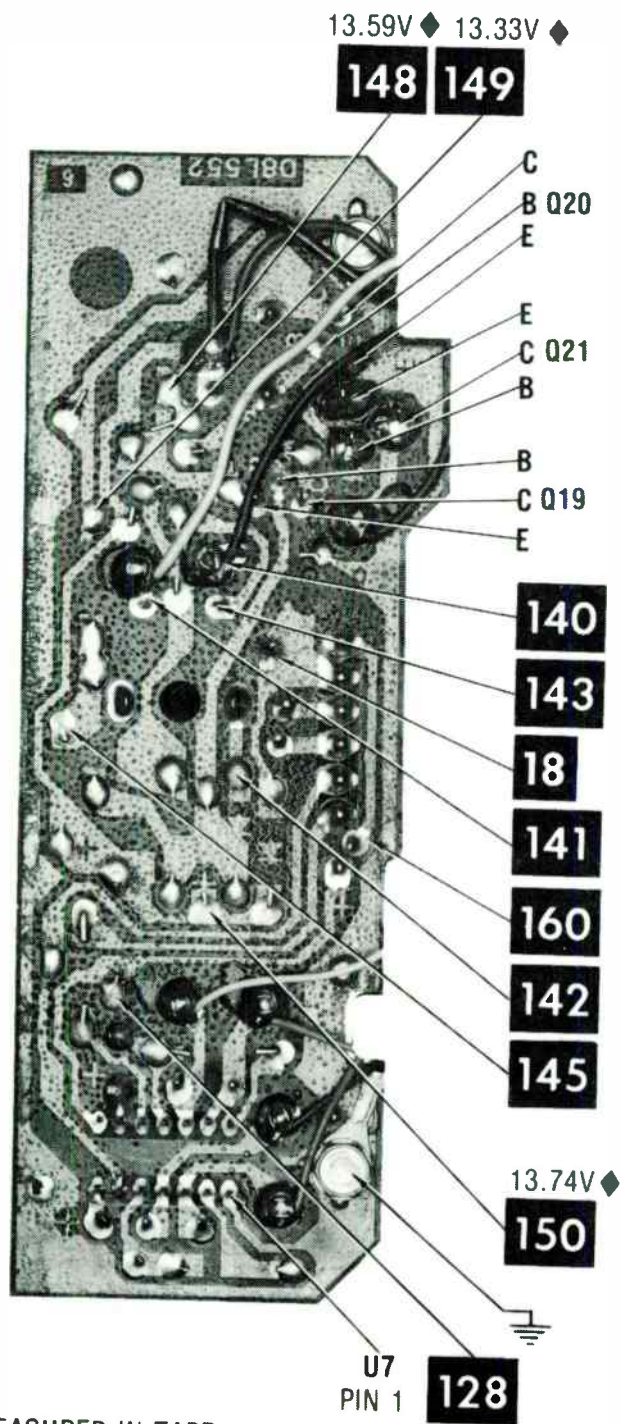
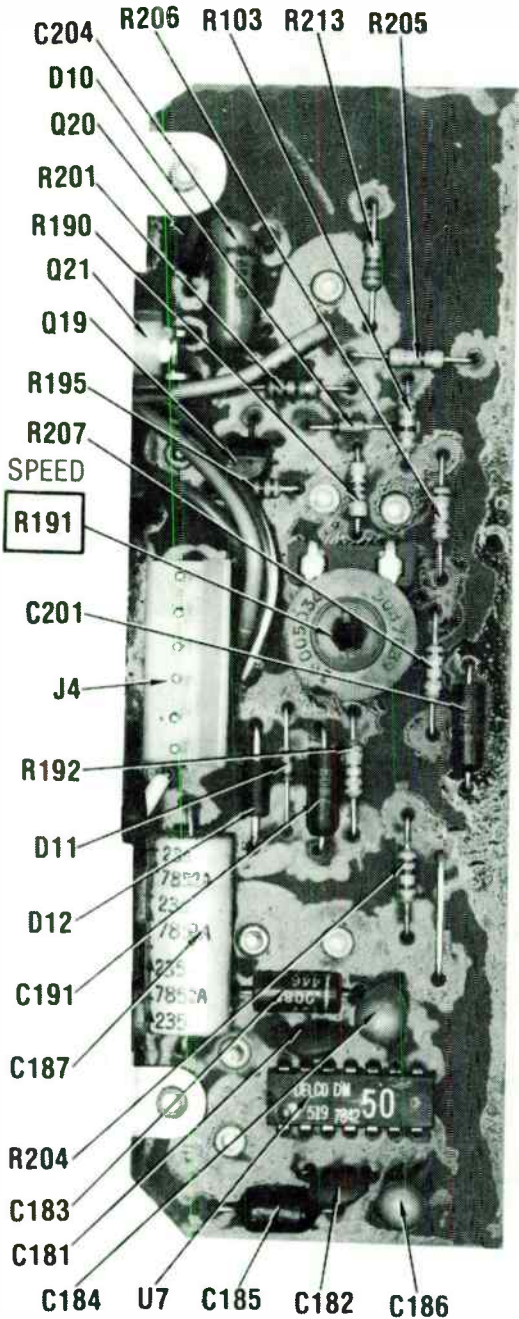
INTERCONNECTING BOARD



CB SHIELD LOCATION

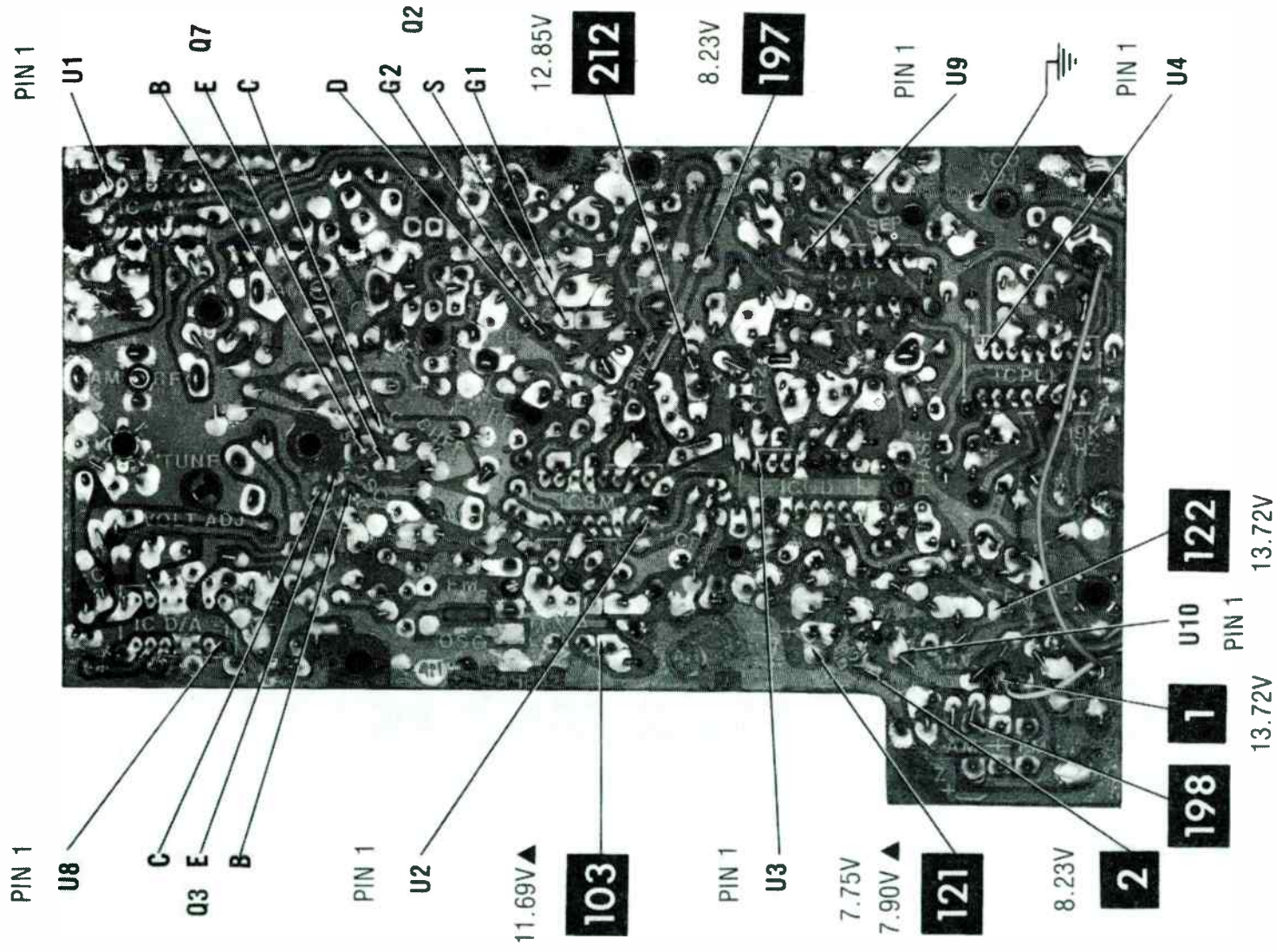
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◆ MEASURED IN TAPE

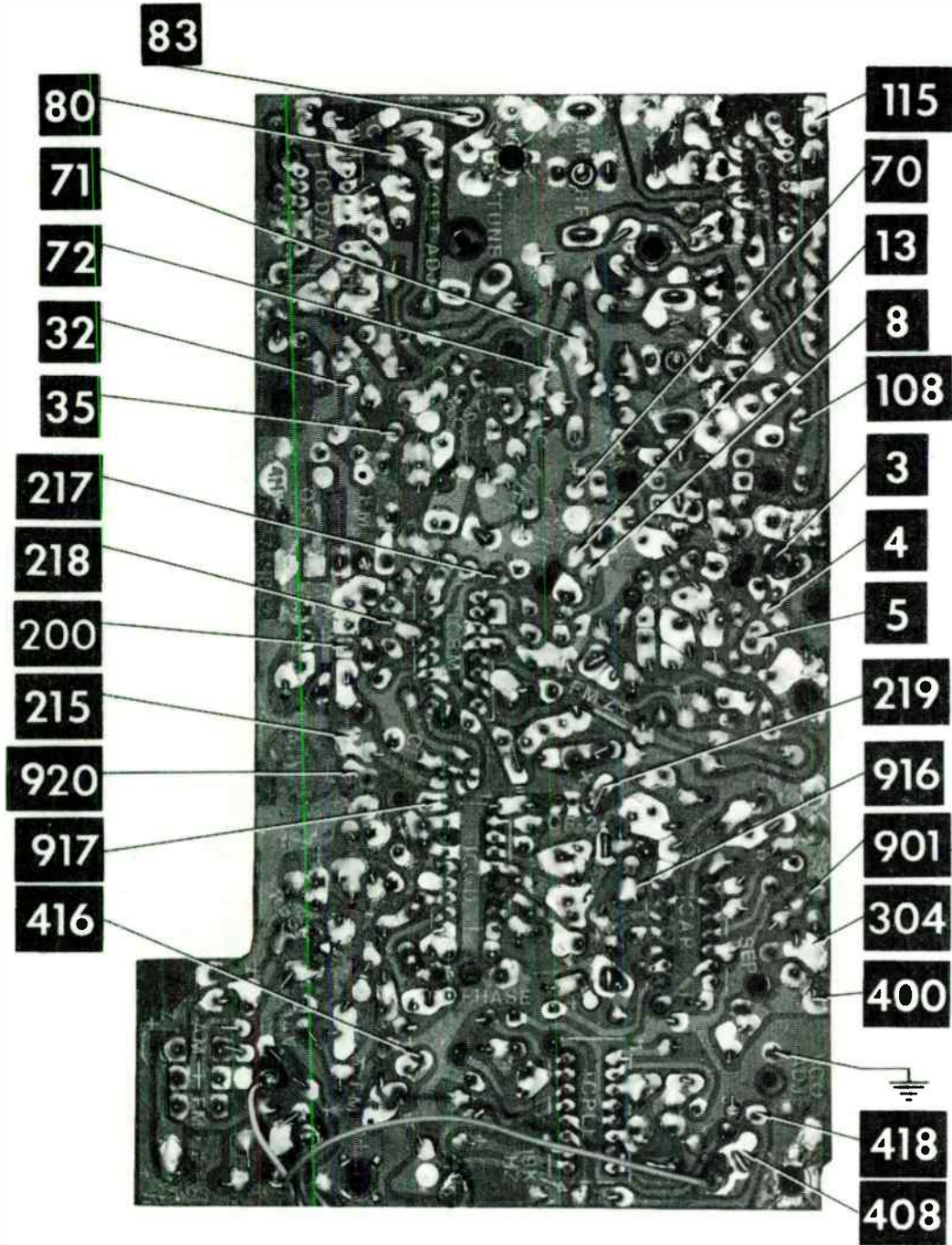
TAPE BOARD



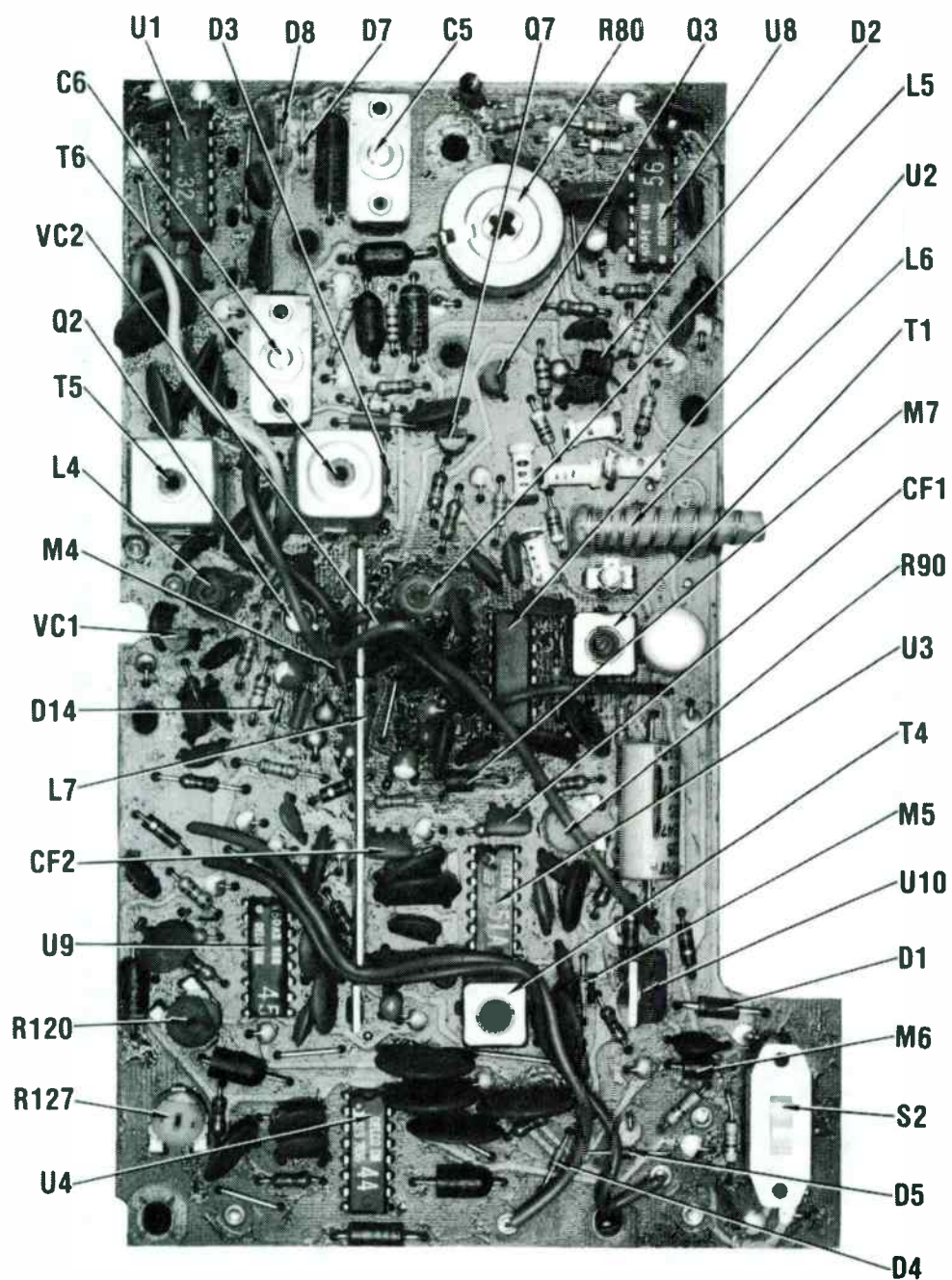
MAIN RADIO BOARD

Delco 90BCB1,90BFTC1,90ECB1

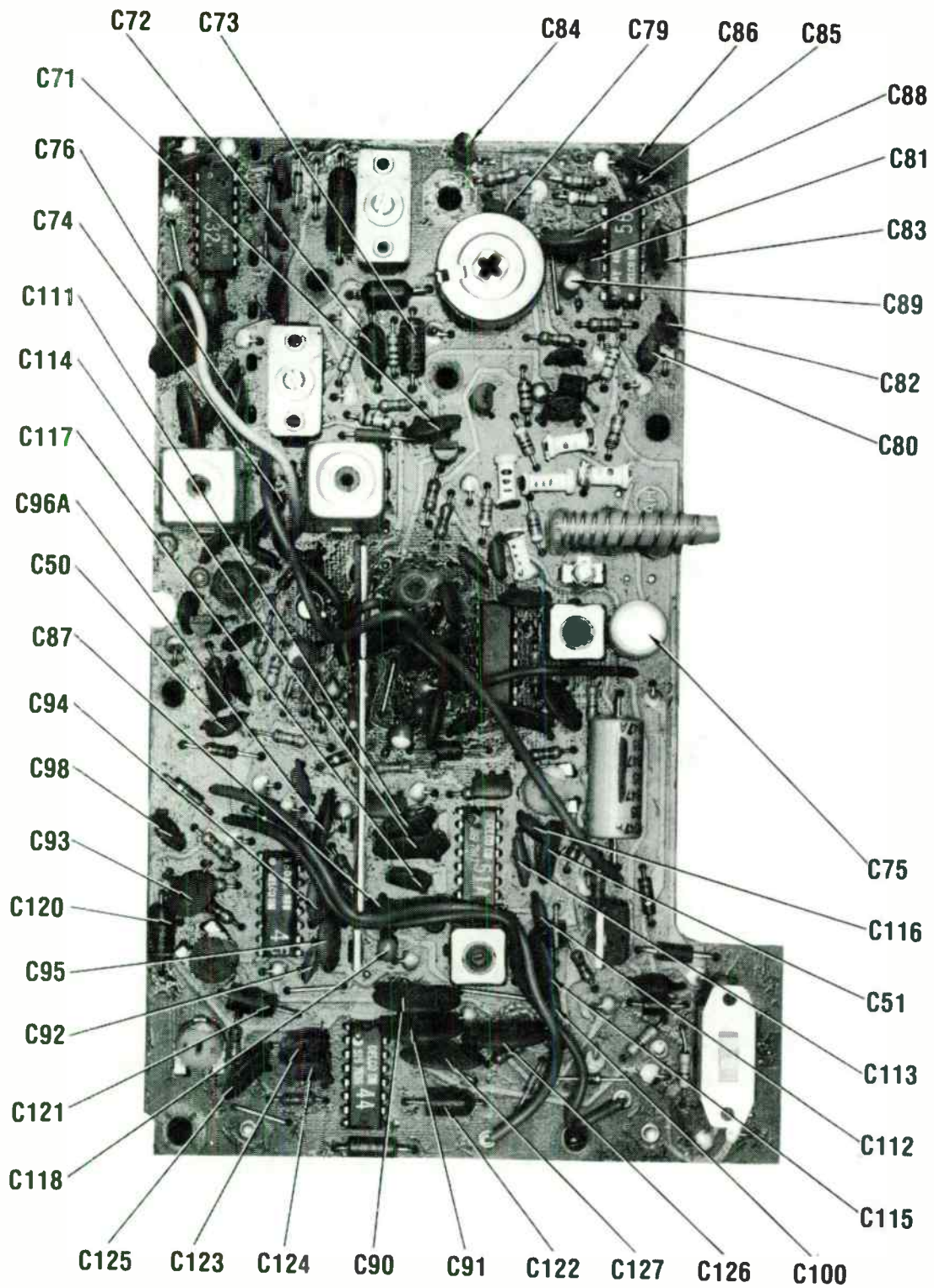
A Howard W. Sams **CIRCUITRACE** Photo



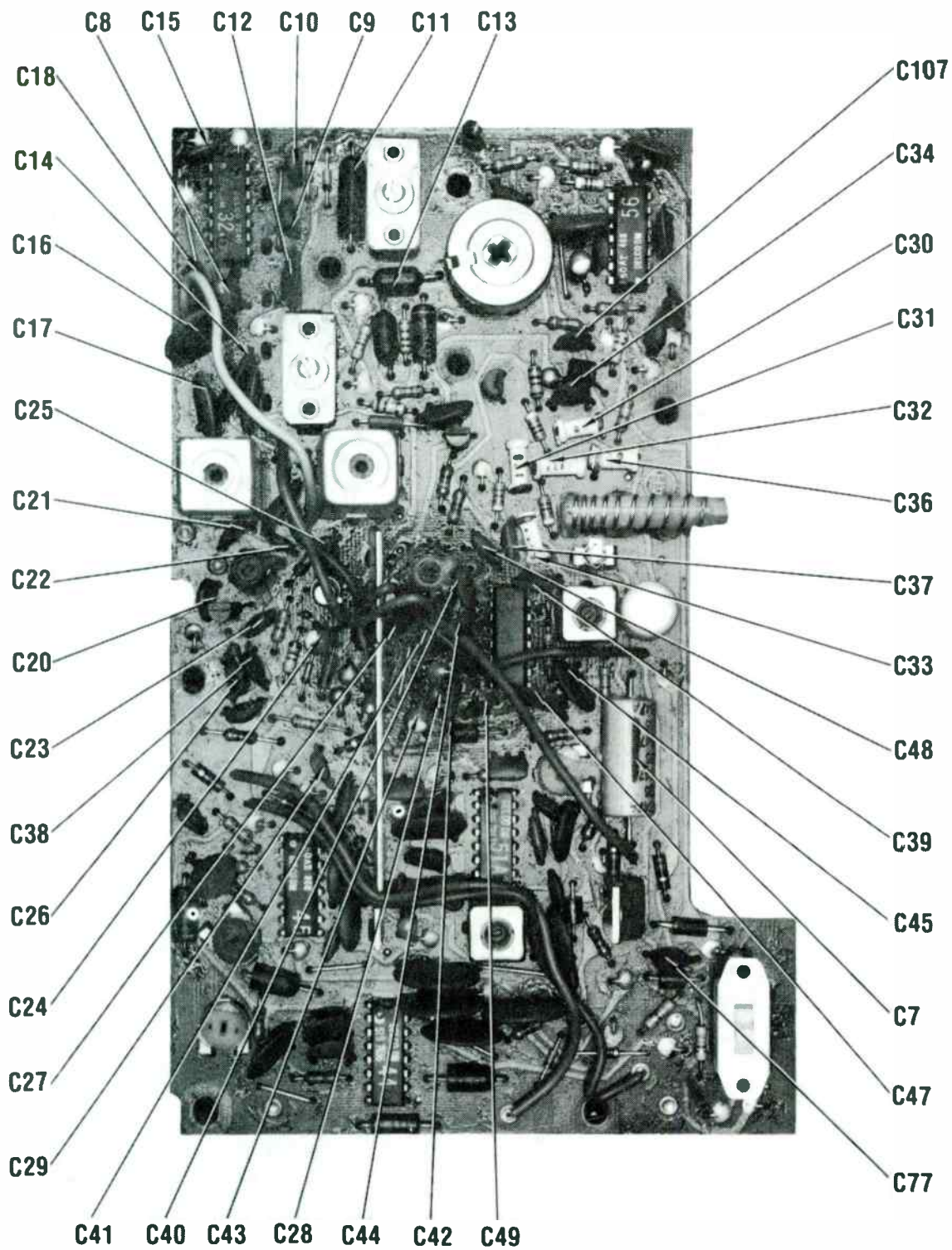
MAIN RADIO BOARD



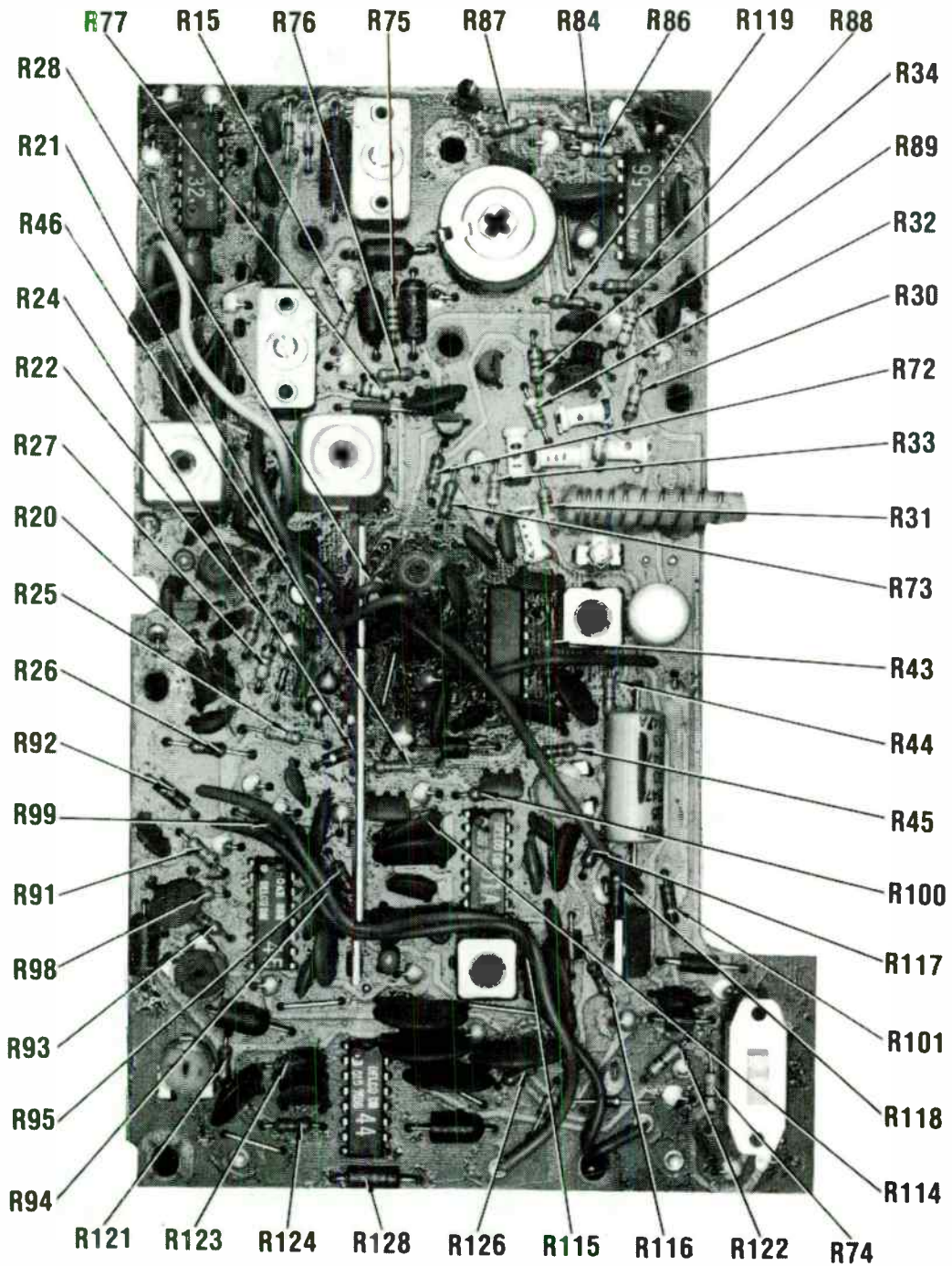
MAIN RADIO BOARD



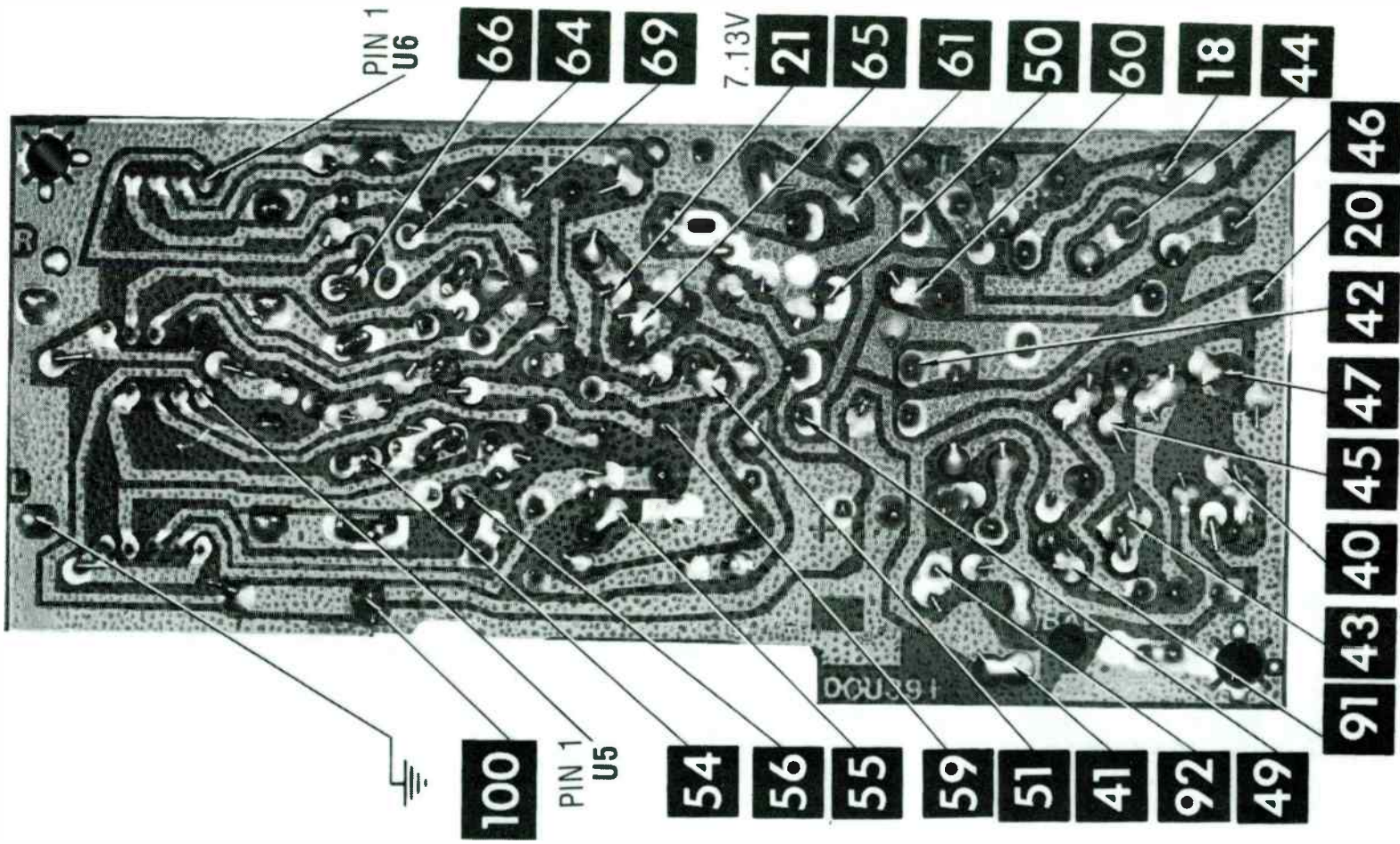
MAIN RADIO BOARD



MAIN RADIO BOARD

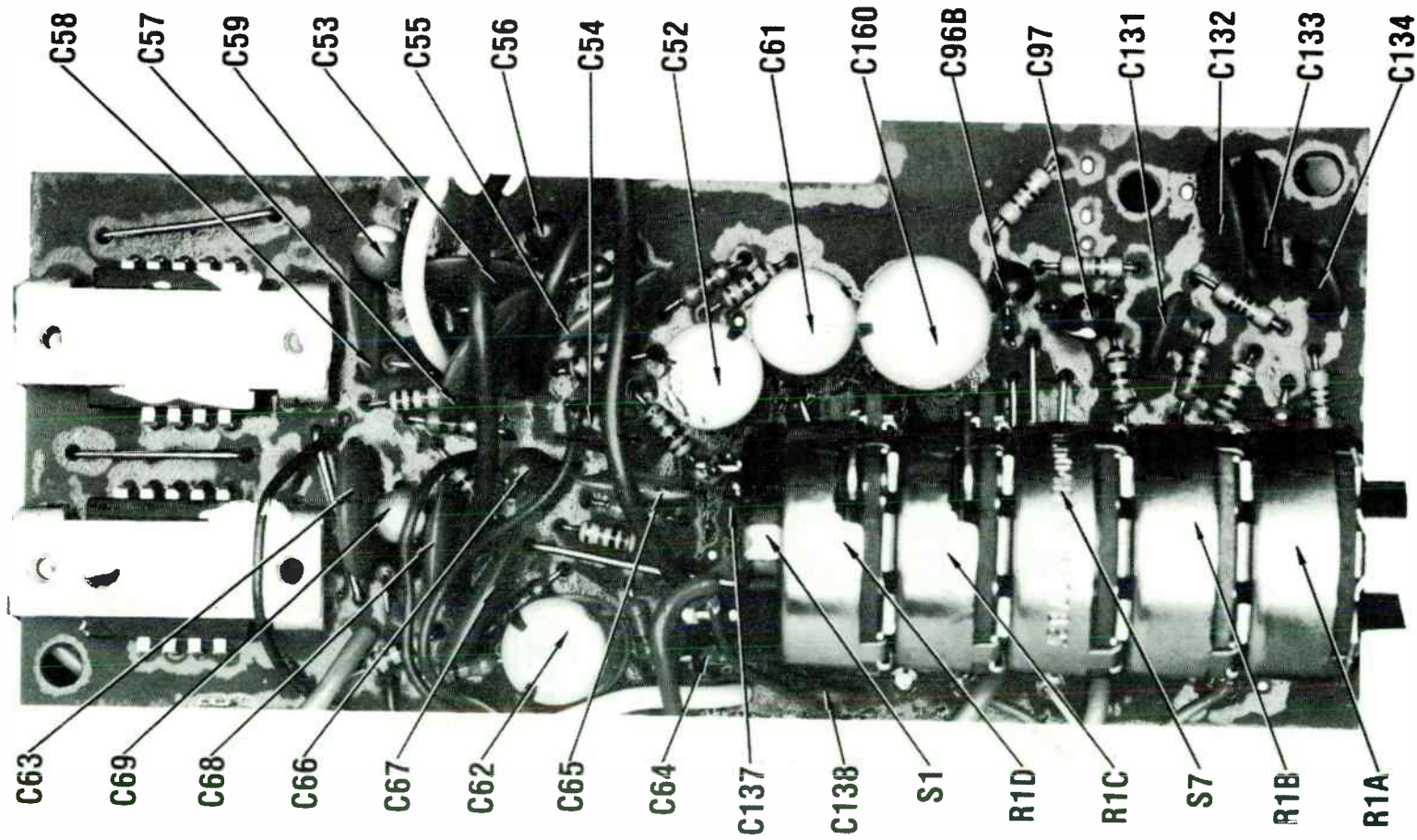


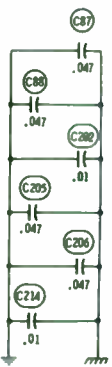
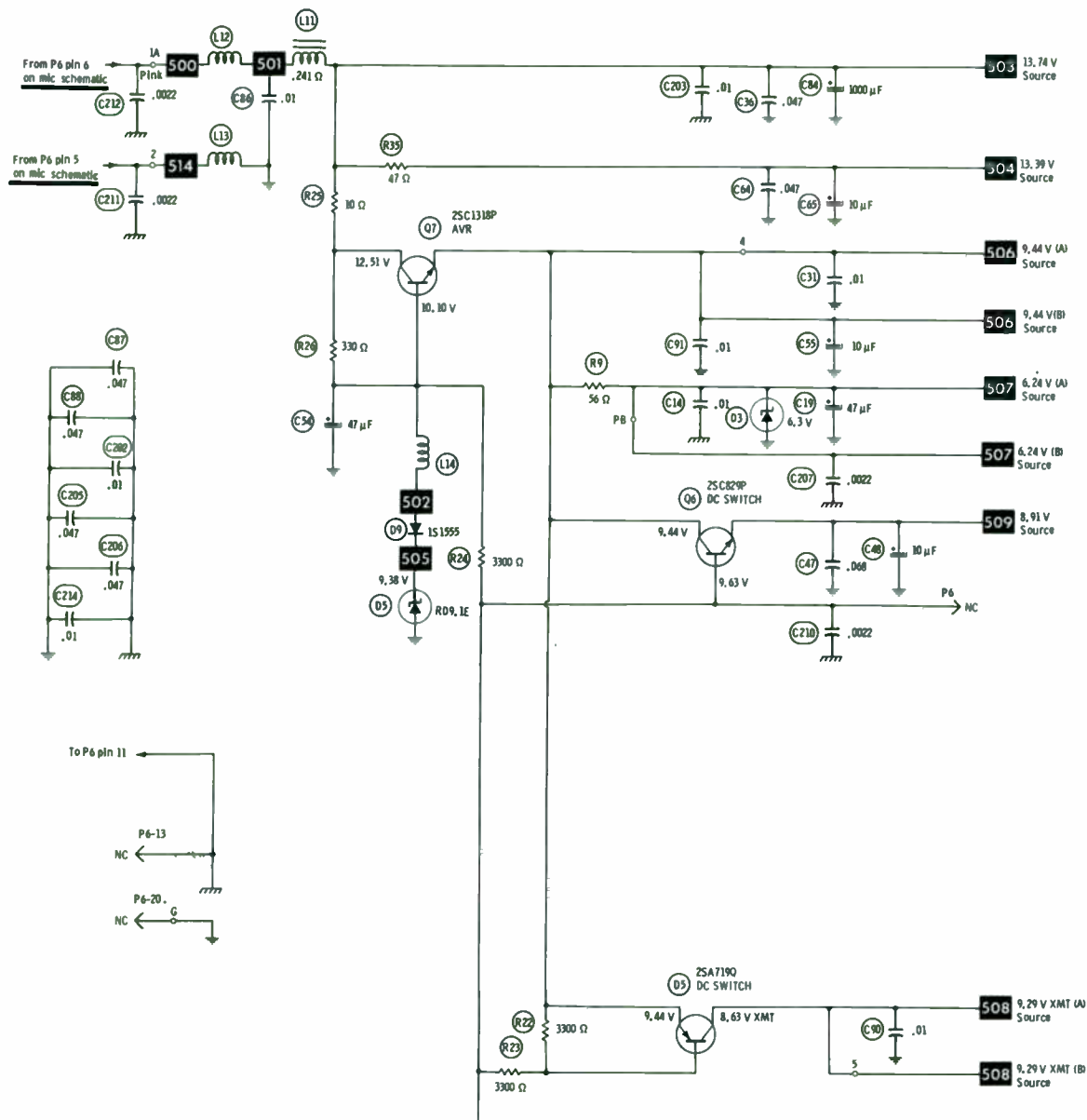
MAIN RADIO BOARD



AUDIO BOARD

Delco 90BCB1,90BFTC1,90ECB1

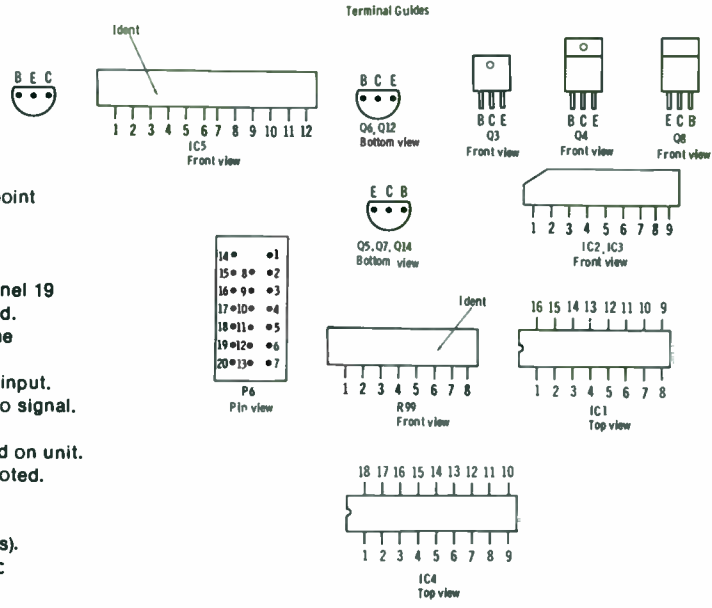




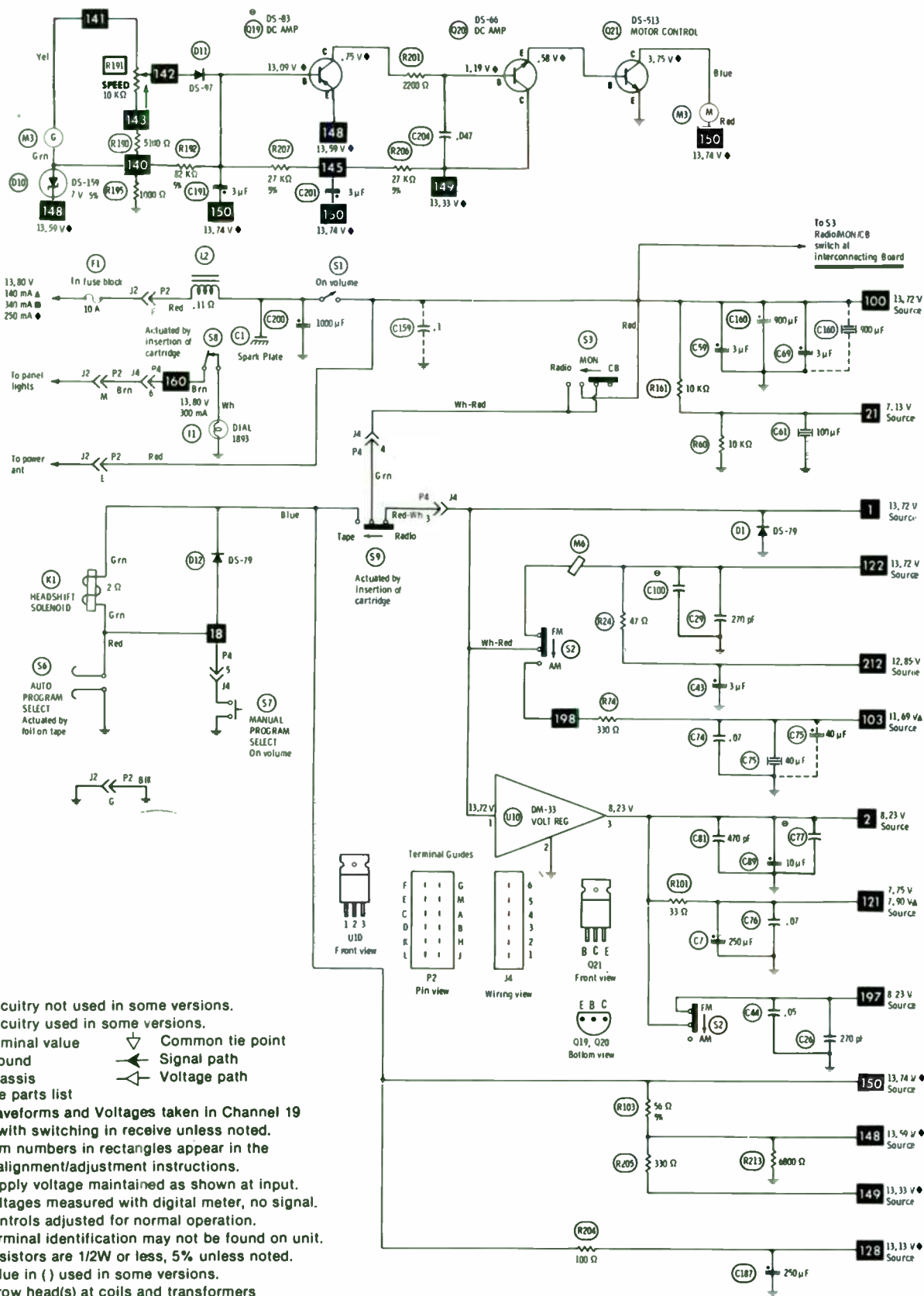
-x Circuitry not used in some versions.
 - - - Circuitry used in some versions.
 * Nominal value ▽ Common tie point
 ⊕ Ground ← Signal path
 ⏏ Chassis ↗ Voltage path
 e See parts list

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 PHOTOFAC STANDARD NOTATION SCHEMATIC
 WITH **CIRCUITRACE®**
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Delco 90BCB1,90BFTC1,90ECB1



- ✗ Circuitry not used in some versions.
- Circuitry used in some versions.
- ⊛ Nominal value
- ⊥ Ground
- ⊞ Chassis
- ⊙ See parts list
- ∇ Common tie point
- Signal path
- ↗ Voltage path

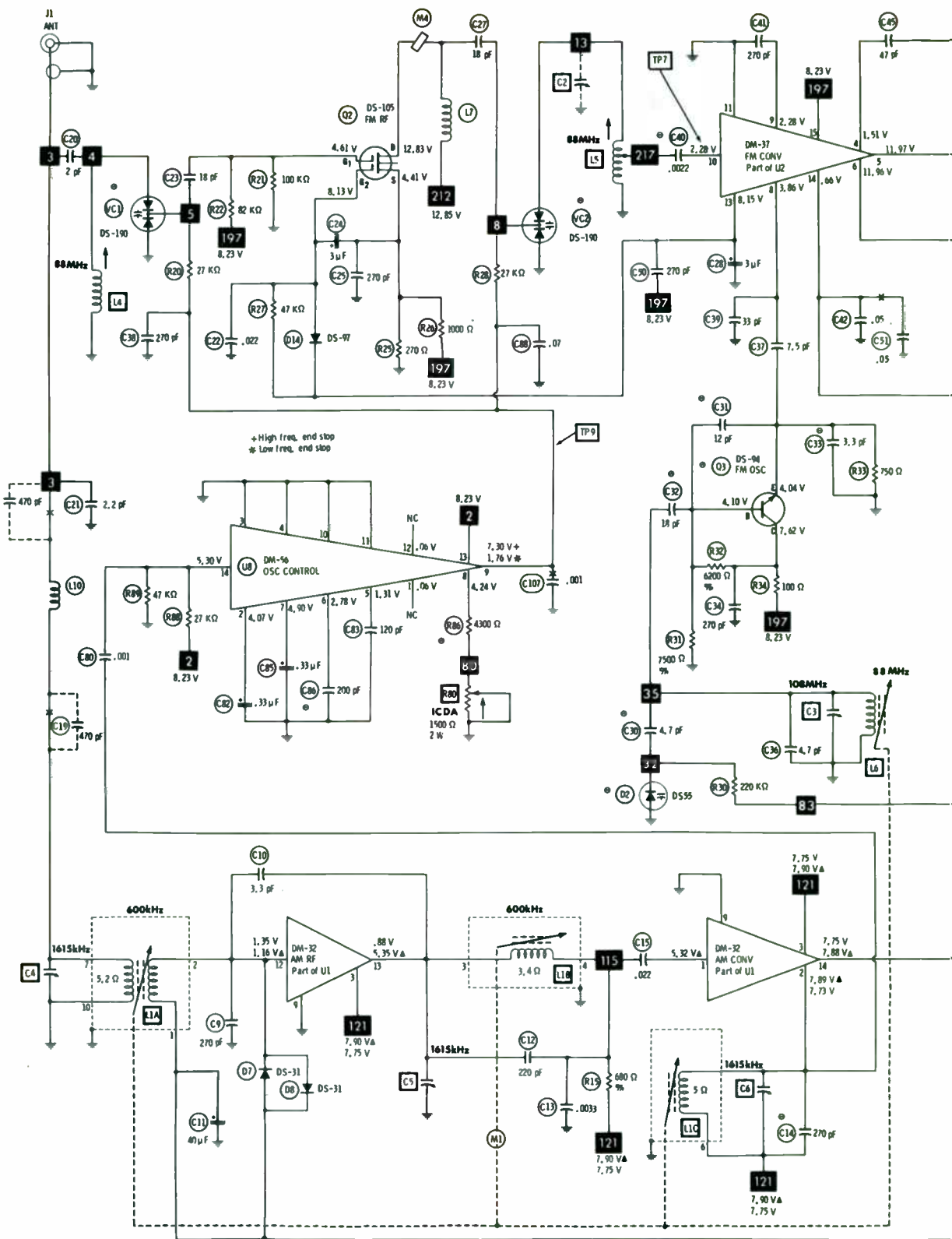
Waveforms and Voltages taken in Channel 19 with switching in receive unless noted. Item numbers in rectangles appear in the alignment/adjustment instructions. Supply voltage maintained as shown at input. Voltages measured with digital meter, no signal. Controls adjusted for normal operation. Terminal 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 PHOTOFACIT STANDARD NOTATION SCHEMATIC

WITH **CIRCUITRACE**

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RADIO POWER SUPPLY & MOTOR CONTROL SCHEMATIC

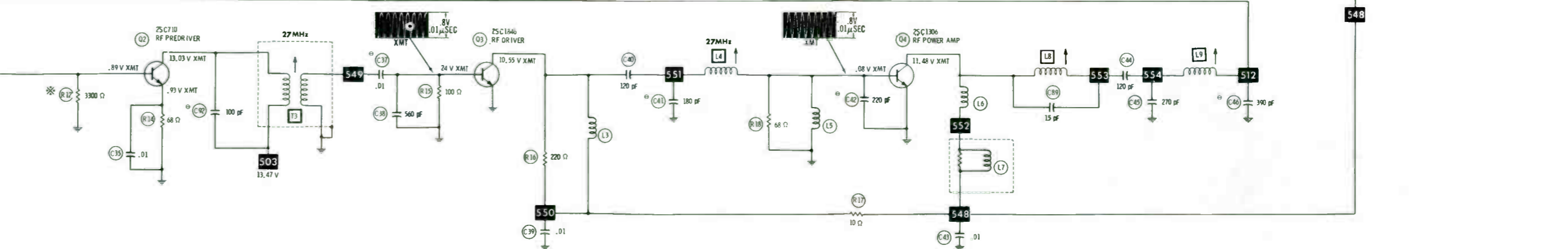
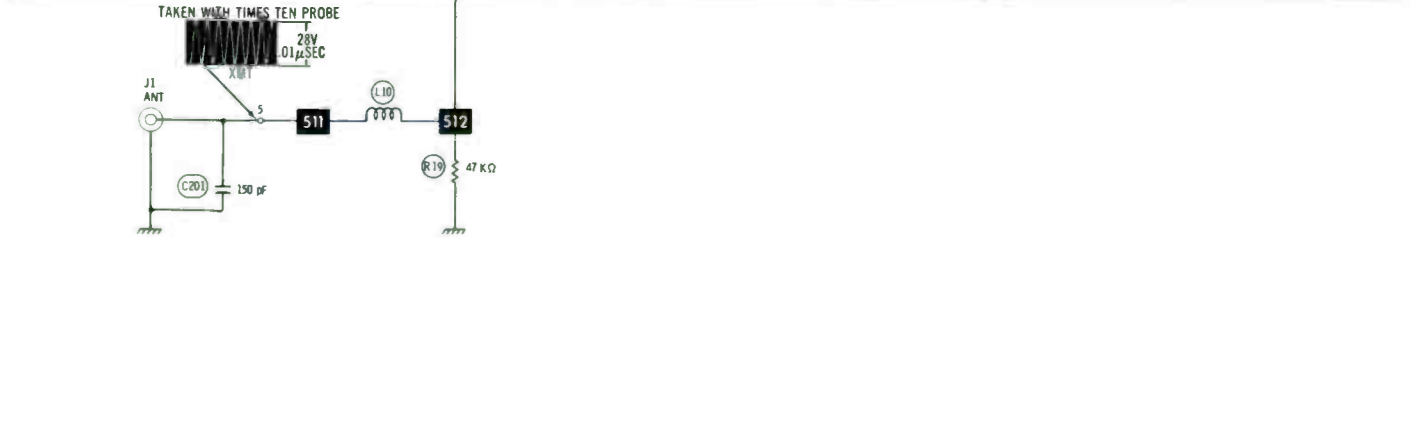
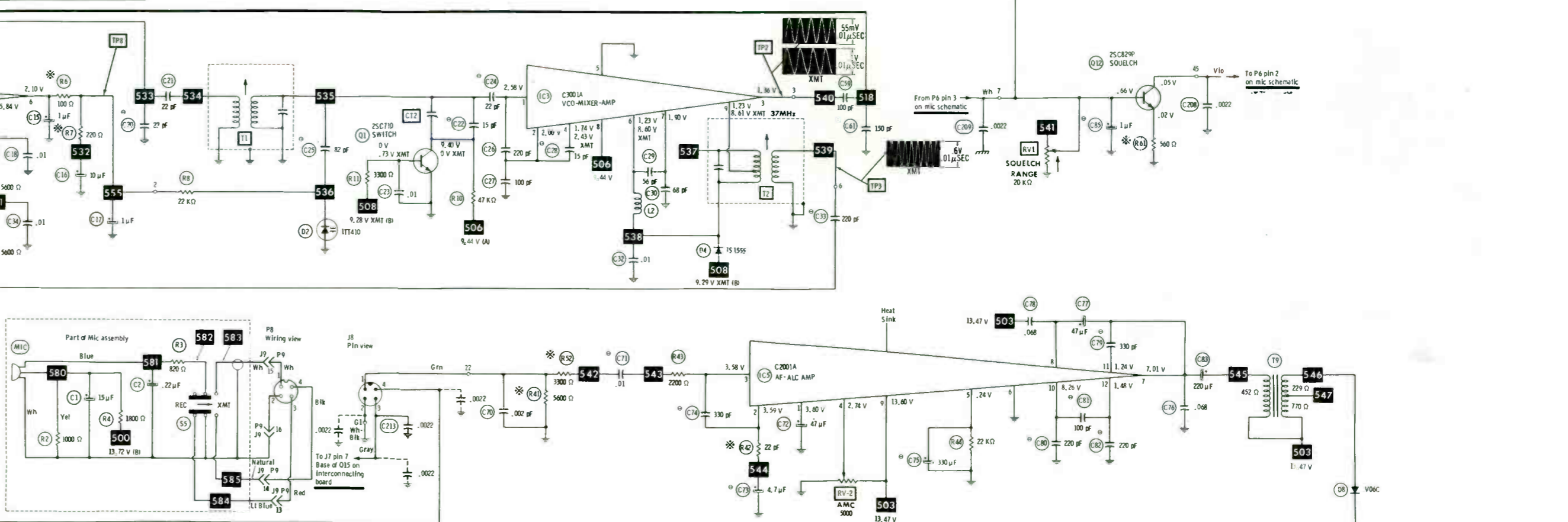
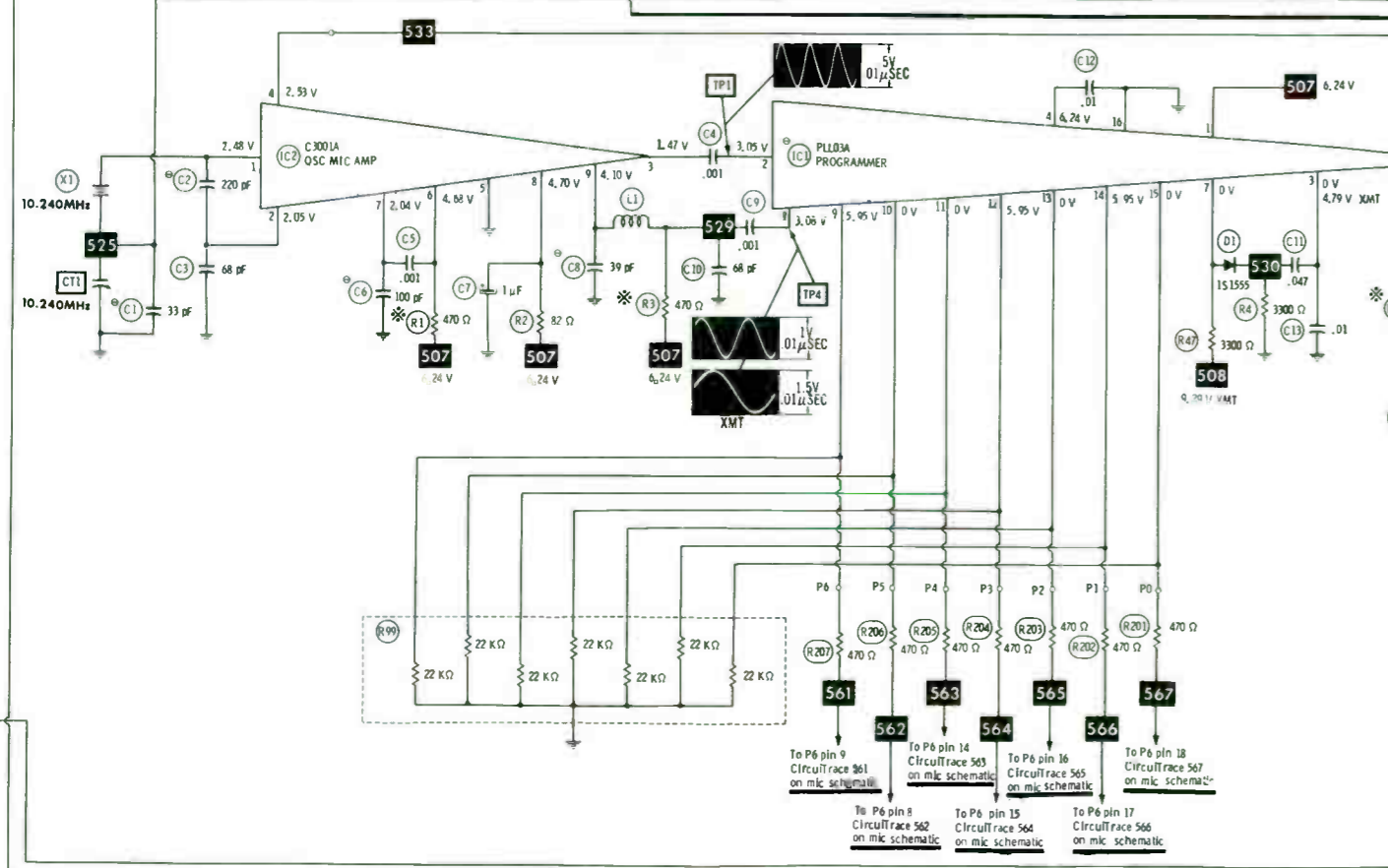
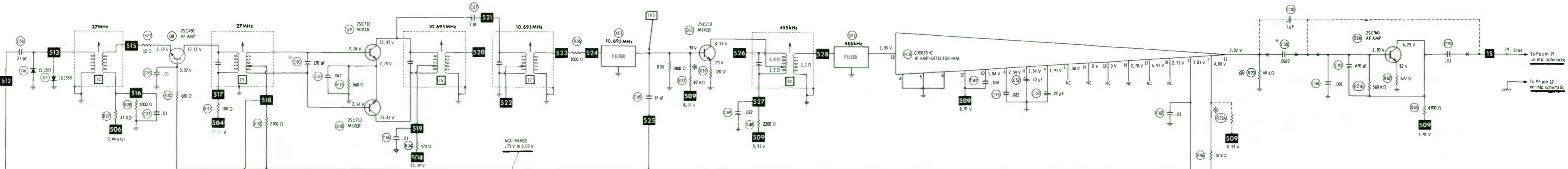


- Circuitry not used in some versions
- - - Circuitry used in some versions
- ⊙ See parts list
- ⊛ Nominal value
- ⊕ Ground
- ⊞ Chassis
- ▽ Common tie point

Measurements made in Channel 1 with switching as shown 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. Arrow at control indicates direction of advance. Terminal identification may not be found on unit. Resistors are 1/2W or less, 5% unless noted. Value in () used in some versions.

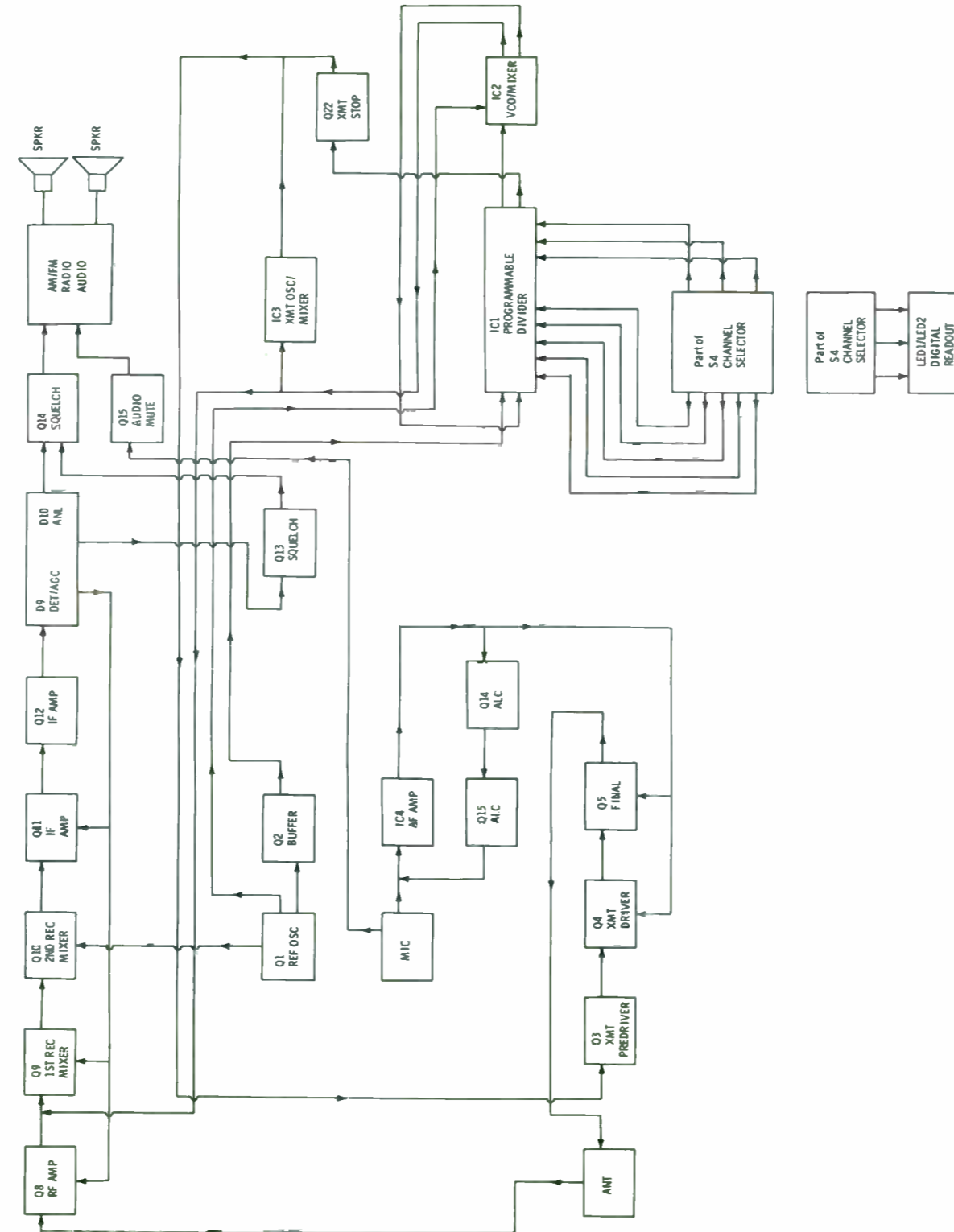
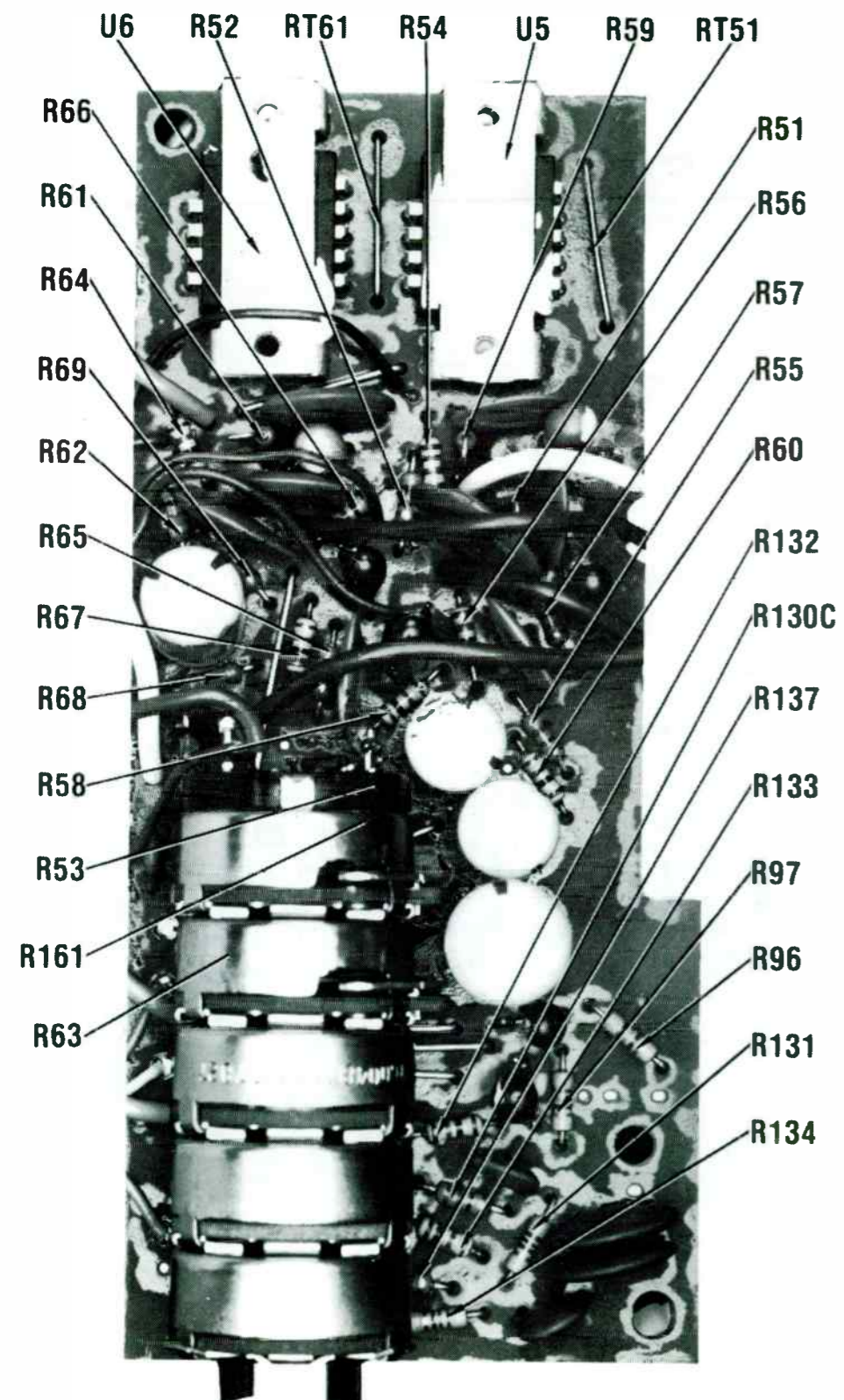
A PHOTOFACIT STANDARD NOTATION SCHEMATIC WITH **CIRCUITRACE**

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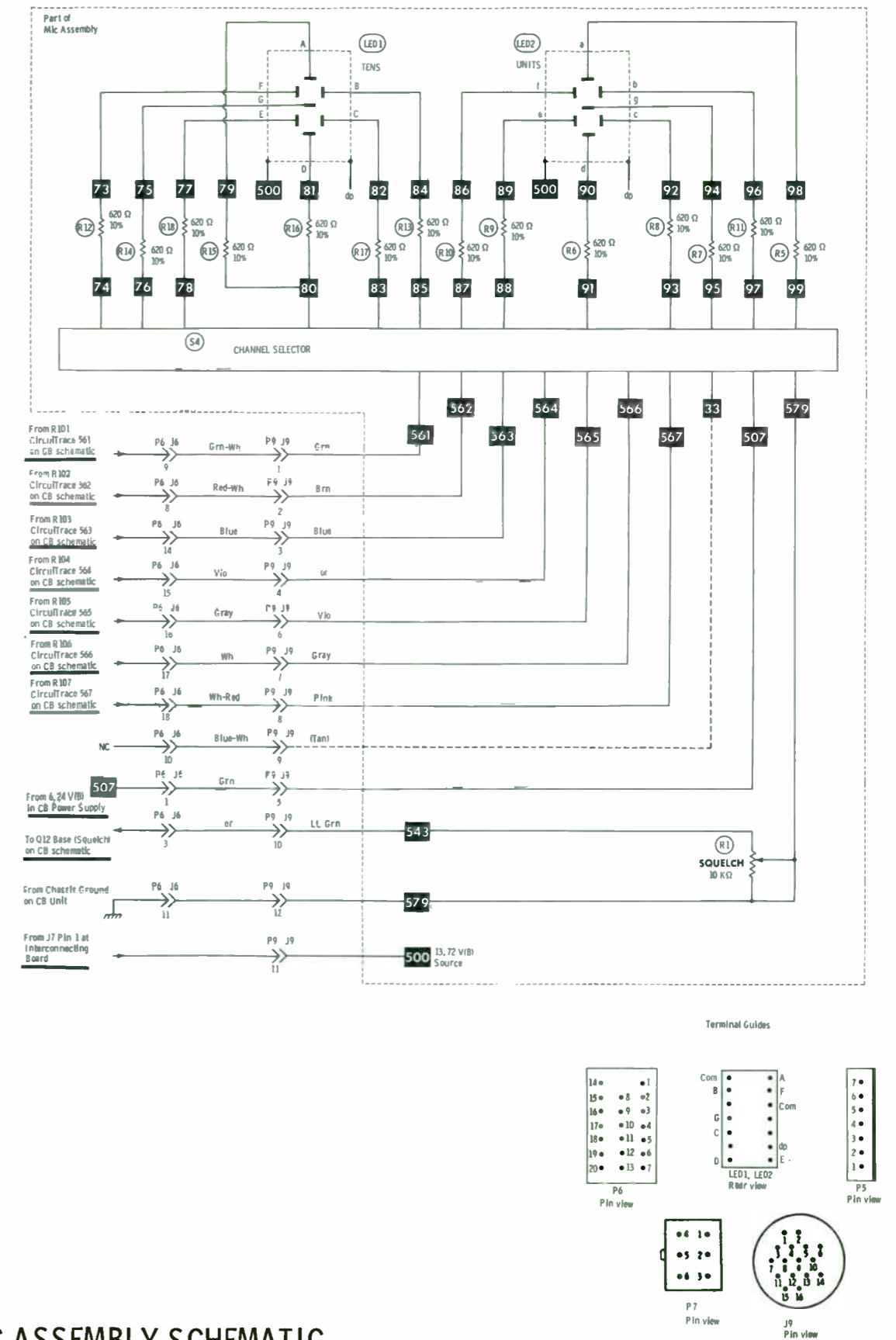


CB POWER SUPPLY SCHEMATIC

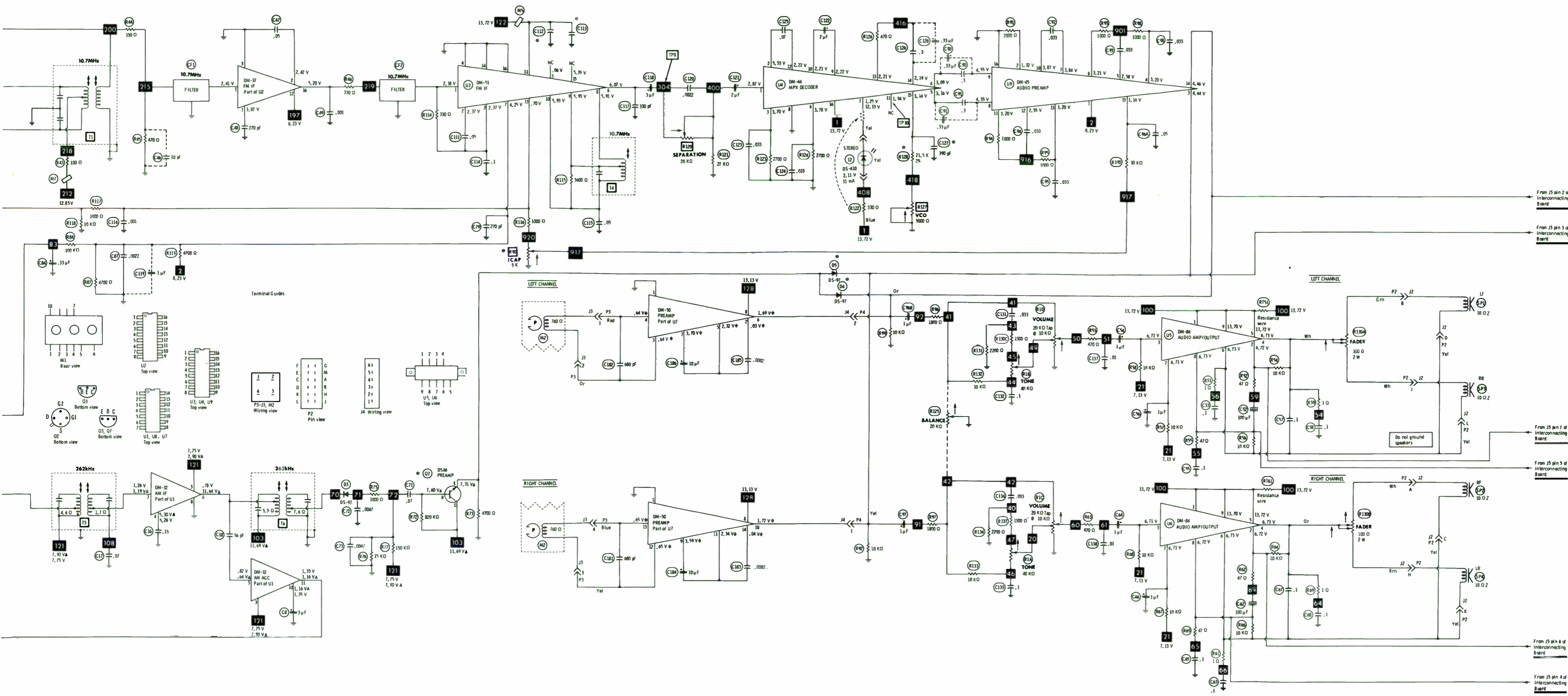
CB MAIN SCHEMATIC



BLOCK DIAGRAM



MIC ASSEMBLY SCHEMATIC



RADIO MAIN SCHEMATIC

CB PARTS LIST AND DESCRIPTION (CONTINUED) *Delco 90BCB1,90BFTC1,90ECB1*

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

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

ITEM No.	FUNCTION	RESIST- ANCE	REPLACEMENT DATA			
			MFGR. PART No.	CENTRALAB PART No.	MALLORY PART No.	TRW PART No.
R1	Squelch	10K	1224179 57143-000(5)			
RV1 RV2	Squelch Range AMC	20K 5000	1223948 1224075			U260R253B U260R502B

(5) Number on unit.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		MFGR. PART No.	WORKMAN PART No.			MFGR. PART No.	WORKMAN PART No.
R99	Resistor Network	1224098(1)					

(1) Consists of seven 22K resistors.

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L1	RF Choke (18uH)	1224280	1800		
L2	RF Choke (1uH)	1224302			
L3	RF Choke (2.2uH)	1223937	022F		
L4	RF Driver (27MHz)	1223938			
L5	RF Choke (68uH)	1223939	680W		
L6	RF Choke (.55uH)	1223945			
L7	RF Choke (1uH)	1223940			
L8	RF Pwr Amp (27MHz)	1223941			
L9	Final (27MHz)	1224281			
L10	RF Choke (.40uH)	1224092			
L12	RF Choke (1.15uH)	1224282			
L13	RF Choke (1.15uH)	1224282			
L14	RF Choke		680W		
T1	VCO	1224300	10DB003U		
T2	Mixer (37MHz)	1224301	01NCB		
T3	RF Predriver (27MHz)	1224283	11NCP		
T4	RF (27MHz)	1224284	08NMP		
T5	RF Amp (27MHz)	1224285			
T6	Mixer (10.695MHz)	1224286	10MA018M		
T7	Mixer (10.695MHz)	1224287	06NMA		
T8	IF (455kHz)	1223956			

TRANSFORMER

ITEM No.	IMPEDANCE		REPLACEMENT DATA			NOTES
	PRI.	SEC.	MFGR. PART No.	THORDARSON PART No.	TRIAD PART No.	
T9	32	1 2 8 128	1223932 ETA-66(1)	TR723	MCB-16	(1) Number on unit.

MICROPHONE

ITEM No.	REPLACEMENT DATA				CONNECTION DATA						
	MFGR. PART No.	GC PART No.	GC NOISE CANCEL	GC POWER	GC CONNECTOR	GC Red	GC Shield	GC Yellow	GC Blue	GC White	GC Black
MIC					18-092						

MIC includes channel selector, LEU channel display and squelch control.

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
CF1	Filter	1223924	455kHz
J1	Connector	1223885	Antenna
J4	Connector	16001697	Microphone
J5	Connector	16001182	7 Pin
J9	Cable Assembly	1224183	16 Pin
LED1	LED	7895044	Channel Readout
LED2	LED	7895044	Channel Readout
MIC	Transducer	1224180	
S4	Switch	1224175	Channel Selector
S5	Switch	1224178	XMT/REC
X1	Crystal	1224073	10.240MHz
XF1	Filter	1224269	10.695MHz
	P.C. Board	6-3397-000	Main CB

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

ITEM	PART No.	ITEM	PART No.
Actuator, PTT	1224181	Knob, Channel Selector	1224177
Case, Microphone	1224174	Knob, Squelch	1224176

RADIO PARTS LIST AND DESCRIPTION (CONTINUED)

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

SEMICONDUCTORS (Select replacement transistor for best results)

ITEM No.	TYPE No.	MFR. 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	DS-97		GE-3DD	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D2	DS-55		GE-90		REN 614		ECG614	TM614	WEP200/614	103-219
D3	DS-97		GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D4	DS-97		GE-30D	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D5	DS-97		GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D6	DS-97		GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D7	DS-31		GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-287
D8	DS-31		GE-514	PTC214	REN 177	SK3100/519	ECG519	TM519	WEP925/519	103-287
D10	DS-159		GEZD-6.8	Z86.8A	REN 5071	SK3334/5071A	ECG5071A	TM5071/**	WEP1106/5071	
D11	DS-97		GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D12	DS-79		GE-504A	PTC201	REN 116	SK3311	ECG116	TM116	WEP156	212-76-D2
D13	DS-97		GE-30D	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D14	DS-97		GE-30D	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D15	DS-97		GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D16	DS-97		GE-30D	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D17	DS-97		GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D18	DS-97		GE-30D	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D19	DS-97		GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D20	DS-97		GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
D21	DS-97		GE-300	PTC214	REN 177	SK3175/177	ECG177	TM177	WEP1062/177	103-131
Q1	DS-105		GE-FET-4	PTC182	REN 222	SK3065/222	ECG222	TM222	WEP905/222	121-826
Q2	DS-94		GE-210*	PTC115*	REN 123A*	SK3124/289	ECG123A*	TM123A*	WEP736	
Q7	DS-66		GE-20*	PTC121*	REN 123A*	SK3122	ECG123A*	TM123A*	WEP736/123A*	121-2900DA*
Q14	DS-66		GE-2D*	PTC121*	REN 123A*	SK3122	ECG123A*	TM123A*	WEP736/123A*	121-2900DA*
Q15	DS-66		GE-20*	PTC121*	REN 123A*	SK3122	ECG123A*	TM123A*	WEP736/123A*	121-2900DA*
Q19	DS-832		GE-82*	PTC1D3*	REN 159*	SK3114/290	ECG159*	TM159**/**	WEP62/159	121-29003
Q20	DS-66		GE-82*	PTC1D3*	REN 159*	SK3114/290	ECG159*	TM159**/**	WEP62/159	121-29003
Q21	DS-513		GE-2D*	PTC121*	REN 123A*	SK3122	ECG123A*	TM123A*	WEP736/123A*	121-29000A*
U1	DM-32		GE-66	PTC154	REN 152	SK3054/196	ECG152	TM152	WEP745/152	121-987-D2
U2	DM-37		GEIC-24	PTC734	REN 744	SK3171/744	ECG744	TM744	WEP2D22/744	
U3	DM-51A		GEIC-229	PTC767	REN 788	SK3147/788	ECG788	TM788	WEP2D40/788	
U4	DM-51		GEIC-229	PTC767	REN 788	SK3147/788	ECG788	TM788	WEP2D40/788	
U5	DM-44		GEIC-214	PTC728	REN 743	SK3174/743	ECG743	TM743	WEP2D21/743	221-29011
U6	DM-98									
U7	DM-5D						ECG983	TM983		
U8	DM-5E									
U9	DM-45									
U10	DM-33									
VC-1	DS-190									
VC-2	DS-190									

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

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA				
		MFR. PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C7	250 16V	7936628	WBR250-16	TT15X260A	QE1-495	TVA-1161
C8	3 10V	7296348		TDC335M015FL	QDT1-41	SD15-3R39
C11	40 6V	7298555		TAC396K006P04	QDT1-92	SD6-399
C24	3 35V	7936359		TDC335M035FL		SD35-3R39
C28	3 10V	7296348		TDC335M015FL	QDT1-41	SD15-3R39
C43	3 35V	7936359		TDC335M035FL		SD35-3R39
C52	100 16V NP	9349947		TCN425A		TVAN-1207.1
C54	1 10V	7936365		TDC105M035EL		SD35-19
C56	1 10V	7936365		TDC105M035EL		SD35-19
C59	3 35V	7936359		TDC335M035FL		SD35-3R39
C61	100 16V HP	9349947		TCN425A		TVAN-1207.1
C62	100 16V NP	9349947		TCN425A		TVAN-1207.1
C64	1 10V	7930782		TDC105M035EL		SD35-19
C66	1 10V	7936365		TDC105M035EL		SD35-19
C69	3 35V	7936359		TDC335M035FL		SD35-3R39
C75	40 16V NP	9340269		TCN154D		TVAN-1413.1
C82	.33 35V	7936748		TDC334M050EL	QDT1-14	SD50-R339
C84	.33 35V	7936748		TDC334M050EL	QDT1-14	SD5-D-R339
C85	.33 35V	7936748		TDC334M050EL	QDT1-14	SD50-R339
C89	10 16V	7936360		TDC106M025FL	QDT1-64	SD25-109
C9D	.33 35V	16003529		TDC334M050EL	QDT1-14	SD50-R339
C91	.33 35V	16003529		TDC334M050EL	QDT1-14	SD50-R339
C96B	1 10V	7936365		TDC105M035EL		SD35-19
C97	1 10V	936365		TDC105M035EL		SD35-19
C110	3 10V	7296348		TDC335M015FL	QDT1-41	SD15-3R39
C119	1 10V	7936365		TDC105M035EL		SD35-19
C121	2 10V	7313127		TDC225M035FL		SD35-2R29
C122	2 10V	7313127		TDC225M035FL		SD35-2R29
C126	.33 35V	7936748		TDC334M050EL	QDT1-14	SD50-R339
C144	3 35V	9346359		TDC335M035FL		SD35-3R39
C154	100 16V	9349D25		TT15X100A	QE1-423	TVA-1160
C160	900 16V NP	7898283	WBR100-16	TCN415		TVAN-1163.1
C184	1D 10V	7895005		TDC106M025FL	QDT1-64	SD25-109
C186	10 10V	7895005		TDC106M025FL	QDT1-64	SC25-109
C187	250 16V	9345021	WBR250-16	TT15X260A	QE1-495	TVA-1161

RADIO PARTS LIST AND DESCRIPTION (CONTINUED)

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

ELECTROLYTIC CAPACITORS (cont)

ITEM No.	RATING	REPLACEMENT DATA				
		MFR. PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
					Q-LINE	GENERAL LINE
C191	3 10V	7296348		TDC335M015FL	QDT1-41	SD15-3R39
C200	1000 16V	9341040	HBR1000-16	TT15X1000B	QE1-591	TVA-1163
C201	3 10V	7296348		TDC335M015FL	QDT1-41	S015-3R39

CAPACITORS

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA				
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
						Q-LINE	GENERAL LINE
C3	Trimmer	9348419					
C4	Trimmer	16001446					
C5	Trimmer	7936524					
C6	Trimmer	7311368					
C9	270 10% 50V		0D-271	GP270	GP327		10TS-T27
C10	3.3 50V		0TZ-3R3	NPO3P3	CN0533		10TCC-V33
C12	220 N750 10% 100V					QC2-107	56A-D33
C13	.0033 75V		DD-332	GP3300	GP233		10TCR-T27
C14	270 N220 5% 100V				*		HY-725
C15	.022 25V		UK25-223				HY-665
C16	.15 16V		UK16-154		MAG16015		HY-640
C17	.07 16V		UK16-683		MAG1618		10TCC-Q56
C18	56 NPO 5% 100V				CN0456		10TS-T47
C19	470 50V		DD-471	GP470	GP347		
C20	2 ±.25 NPO	9341239(1)			CN0522		
C21	22 NPO 5%		DTZ-22	NPO22	CN0422		10TCC-Q22
C23	18 NPO 5%				CN0418		10TCC-Q18
C25	270 10% 100V		DD-271	GP270	GP327		10TS-T27
C26	270 10% 100V		DD-271	GP270	GP327		10TS-T27
C27	18 NPO 5%				CN0418		10TCC-Q18
C29	270 10% 100V		DD-271	GP270	GP327		10TS-T27
C30	4.7 N330 50V	9341540(1)			*		10TCS-V47
C31	12 N330 5% 50V	7897756(1)			*		10TCS-Q12
C32	18 NPO 10% 50V	(1)			CN0418		10TCC-Q18
C33	3.3 N330 50V	9341429			*		10TCS-V33
C34	270 10% 100V		0D-271	GP270	GP327		10TS-T27
C36	4.7 N150	7897765			*		10TCP-V47
C37	7.5 ±.5 NPO	7300236					
C38	270 10% 100V		0D-271	GP270	GP327		10TS-T27
C39	33 NPO 5% 100V		DTZ-33	NPO33	CN0433		10TCC-Q33
C40	.0022 10% 100V	(1)			GP222		10TS-U22
	.001 50V		DD-102		GP210		10TS-U10
C41	270 10% 100V		0D-271	GP270	GP327		10TS-T27
C42	.05 16V		UK50-503		MAG5015		
C44	.05 16V		UK50-503		MAG5015		
C45	47 NPO 5% 100V		NP047	NP047	CN0447		10TCC-Q47
C46	10 ±.5 NPO 100V		DTZ-10	NP010	CN0410		10TCC-Q10
C47	.05 16V		UK50-503		MAG5015		
C48	270 50V		DD-271	GP270	GP327		10TS-T27
C49	.001 10% 50V		DD-102		GP210		10TS-U10
C50	270 50V		DTZ-270				10TCC-T27
C51	.05 50V			DPMS2S5	EWFTA150		2PS-S50
C53	.1 16V		UK16-104		MAG1601		HY-650
C55	.1 16V		UK16-104		MAG1601		HY-650
C57	.1 16V		UK16-104		MAG1601		HY-650
C58	.1 16V		UK16-104		MAG1601		HY-650
C63	.1 16V		UK16-104		MAG1601		HY-650
C65	.1 16V		UK16-104		MAG1601		HY-650
C67	.1 16V		UK16-104		MAG1601		HY-650
C68	.1 16V		UK16-104		MAG1601		HY-650
C71	.05 16V		UK50-503		MAG5015		
C72	.0047 50V		DD-472	GP4700	GP247		56A-D47
C73	.0047 50V		DD-472	GP4700	GP247		56A-D47
C74	.07 16V		UK16-683		MAG1618		HY-640
C76	.07 16V		UK16-683		MAG1618		HY-640
C77	.07 16V		UK16-683		MAG1618		HY-640
C79	270 10% 100V		DD-271	GP270	GP327		10TS-T27
C80	.001 10% 50V		DD-102		GP210		10TS-U10
C81	470 50V		DD-471	GP470	GP347		10TS-T47
C83	120 NPO 5% 100V		DTZ-120		CN0312		10TCC-T12
C86	200 N750 10% 100V		DTN-200				10TCU-T20
C87	.0022 10% 100V				GP222		10TS-D22
C88	.07 16V		UK16-683		MAG1618		HY-640
C90	.3 50V						
C91	.3 50V						
C92	.033 16V		UK16-333		MAG16133		HY-630
C93	.033 16V		UK16-333		MAG16133		HY-630
C94	.033 16V		UK16-333		MAG16133		HY-630
C95	.033 16V		UK16-333		MAG16133		HY-630
C96A	.05 16V		UK50-503		MAG5015		

RADIO PARTS LIST AND DESCRIPTION (CONTINUED)

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

CAPACITORS (cont)

ITEM No.	RATING	MFR. PART No.	REPLACEMENT DATA				
			CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
						Q-LINE	GENERAL LINE
C98	.033 16V		UK16-333		MAG16133		HY-630
C100		7895980(1)					
C107	.001 10% 50V		0D-102		GP210		10TS-D10
C110	.0022 50V				GP222		10TS-022
C111	.05 16V		UK50-503		MAG5015		
C112	.01 50V	(1)	UK50-103		MAG5011		
C113	.01 50V		UK50-103		MAG5011		
C114	.1 16V		UK16-104		MAG1601		HY-650
C115	.05 16V		UK50-503		MAG5015		
C116	.001 50V	(1)	0D-102		GP210		10TS-D10
C117	330 N220 5% 100V	7314193			*		10TCY-T33
C120	.0022 75V				GP222		10TS-D22
C123	.033 16V		UK16-333		MAG16133		HY-630
C124	.033 16V		UK16-333		MAG16133		HY-630
C125	.07 16V		UK16-683		MAG1618		HY-640
C126	.3 50V						
C127	390 N220 2% 100V	9341036					
C131	.033 16V		UK16-333		MAG16133		HY-630
C132	.1 16V		UK16-104		MAG1601		HY-650
C133	.1 16V		UK16-104		MAG1601		HY-650
C134	.033 16V		UK16-333		MAG16133		HY-630
C135	.15 10V				MAG12015		HY-365
C136	.15 10V				MAG12015		HY-365
C137	.01 16V		UK16-103		MAG1611		HY-420
C138	.01 16V		UK16-103		MAG1611		HY-420
C141	.05 16V		UK50-503		MAG5015		
C159	.1 50V		CK-104		MAG5001		
C181	680 10%		0D-681	GP680	GP368		10TS-T68
C182	680 10%			GP680	GP368		10TS-T68
C183	.0082 50V			WMF1D82	EWFTA282		1PB-D82
C185	.0082 50V			WMF1D82	EWFTA282		1PB-D82
C204	.033 50V			DPMS6S33	H192P3339R8	QFT2-149	1FT-S33
	INTERCONNECTING BOARD						
C141	.0022 10% 100V				GP222		10TS-D22

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

(1) Value may vary; replace with original value.

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

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA			
			MFR. PART No.	CENTRALAB PART No.	MALLORY PART No.	TRW PART No.
R1A	Tone-Right	40K	9349079			
R1B	Tone-Left	40K				
R1C	Volume-Right	20K Tap @ 10K				
R1D	Volume-Right Switch/Switch	20K Tap @ 10K				
R80	ICDA	1500 2W	7899466			
R90	ICAP	5000	9349445			U260R502B
R120	Separation	20K	9349922			U260R253B
R127	VCO	5000	9349445			U260R502B
R130A	Fader-Left	100 2W	7899383			
R130B	Fader-Right	100 2W				
R191	Speed	10K	16005034	T-10K(3)	MTC14L4	U201R104B

(3) For horizontal mounting, bend the two outside terminals to fit P.C. board. Use jumper to connect center terminal to P.C. board.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		MFR. PART No.	WORKMAN PART No.			MFR. PART No.	WORKMAN PART No.
R86	4.3K 2% 1/4W	7897739		R128	21.5K 2% 1/2W	9341039	

RADIO PARTS LIST AND DESCRIPTION (CONTINUED)

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

COILS (RF-IF)

ITEM No.	FUNCTION	REPLACEMENT DATA			REMARKS
		PART No.	OTHER IDENTIFICATION	MILLER PART No.	
L1A	AM Antenna	7898352(1)			
L1B	AM RF	(1)			
L1C	AM Oscillator	(1)			
L4	FM Antenna (88MHz)	9348413			
L5	FM RF (88MHz)	9348414			
L6	FM Oscillator (88MHz)	7897878			
L7	RF Choke	7934553		4610	
L10	RF Choke	7255738		4610	
L11	RF Choke	7934553		4610	
T1	FM Conv. (10.7MHz)	9346544			
T4	FM IF (10.7MHz)	9346543			
T5	AM IF (262kHz)	9349015			
T6	AM IF (262kHz)	9349372			

(1) Part of Tuner (H1).

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	MFG. PART No.	THORDARSON PART No.	TRIAD PART No.	
L2	1.4A	.11	.35mH	7302543			

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFG. PART No.	QUAM PART No.	
				FRONT
	4" X 6" PH, 10 Ohms	1222940		Steel Tilt Cab-Truck
	6" X 9" PH, 10 Ohms (Shallow Basket)	7285671		Steel Tilt Cab-Truck
	3 1/2" PH Round, 10 Ohms	7895000		Grand Prix, LeMans-Passenger Cars-Station Wagons
	4" X 6" PH, 10 Ohms	7895010		"G" Van-Truck
	4" X 10" PH, 10 Ohms	7896870		Chevrolet, LeMans, Grand Prix, El Camino
	4" X 6" PH, 10 Ohms	7897421		Chevrolet
	4" X 10" PH, 10 Ohms	7898980		Step Van
	4" X 10" PH, 10 Ohms	7933921		Camaro
	4" X 10" PH, 10 Ohms	7933931		Phoenix-Passenger Car-Hatchback
	4" X 10" PH, 10 Ohms	7938401		Chevy Pick-up, Blazer, Suburban-Truck
	4" X 10" PH, 10 Ohms	9349690		Nova, Skylark, Omega-Passenger Car-Hatchback, Aluminum Tilt Cab, Med. Duty-Trucks
	6" X 9" PH, 10 Ohms (Deep Basket)	9349921		Chevette
	3 1/2" PH, 10 Ohms (Round)	16000680		Century, Regal, Cutlass, Cutlass Supreme-Passenger Cars-Station Wagons
	3 1/2" PH, 10 Ohms (Round)	16001981		Malibu, Monte Carlo-Passenger Cars-Station Wagons, El Camino-Truck
	4" X 10" PH, 10 Ohms	16002011		Honza, Sunbird, Skyhawk, Starfire-Hatchbacks-Passenger Cars-Station Wagons
	3 1/2" PH, 10 Ohms (Round)	16002296		Seville
	3 1/2" PH, 10 Ohms (Round)	16003523		Olds 88 and 98-Passenger Cars-Station Wagons
	4" X 10" PH, 10 Ohms	16004162		Firebird
	4" X 6" PH, 10 Ohms	16005880		LeSabre, Electra-Passenger Cars-Station Wagons, Riviera, DeVille, Fleetwood, Eldorado, Corvette, Catalina & Bonneville-Passenger Cars-Station Wagons
	4" X 6" PH, 10 Ohms	16005880		Toronado
				REAR
	4" X 10" PH, 10 Ohms	1224050		LeSabre, Electra, Chevrolet, Catalina, Bonneville, Olds 88 and 98-Station Wagons
	4" X 10" PH, 10 Ohms	7898980		Monte Carlo, Grand Prix, Toronado, Regal, Riviera, Eldorado, Seville-Passenger Cars, Century, Malibu, Monte Carlo, LeMans, Cutlass Supreme-Station Wagons
	4" X 10" PH, 10 Ohms	7938401		Blazer, Suburban, "G" Van, Med. Duty-Trucks
	6" X 9" PH, 10 Ohms (Deep Basket)	9348870		Century, LeSabre, Electra, DeVille, Fleetwood, Malibu, Monte Carlo, Chevrolet, Camaro, Honza, Sunbird, Skyhawk, Starfire, Nova, Skylark, Omega, LeMans, Catalina, Bonneville, Firebird, Phoenix, Olds 88 and 98, Cutlass, "G" Van-

RADIO PARTS LIST AND DESCRIPTION (CONTINUED)

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

SPEAKER (cont)

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFR. PART No.	QUAM PART No.	
	4" X 10" PM, 10 Ohms 4" X 10" PM, 10 Ohms	9349090 9349690		Trucks Chevette-Passenger Car Monza, Sunbird, Skyhawk, Starfire-Passenger Cars-Station Wagons, Nova, Skylark, Omega, Phoenix-Hatchback, Aluminum Tilt Cab-Trucks LeSabre, Electra-Passenger Cars
	6" X 9" PM, 10 Ohms (Extended Range)	16004150		Corvette
	6" X 9" PM, 10 Ohms (Deep Basket)	16005641		

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	10A Quick Acting		In Fuse Block	AGC10		312010		

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
CF1	Filter	1223695	10.7MHz
CF2	Filter	1223695	10.7MHz
I1	Lamp		Dial (13.80V @ 300mA)
I2	LED	DS-410	Stereo Indicator (2.11V @ 31mA)
J1	Connector	1223885	Antenna
J2	Connector	1224150	12 Pin
J3	Cable Assembly	9348496	Tape Head
J4	Connector	16001697	6 Pin
J5	Connector	16001182	7 Pin
J6	Cable Assembly	16000870	Includes J6, P9, J7, P8 and Inter. Cables
K1	Solenoid	9347908	Head Shift
M1	Tuner	7898352	AM
	Core	7288147	AM Tuning
	Core	7897881	FM Oscillator
M2	Head	16003726	8 Track Stereo Playback
M3	Motor	16002826	Tape Transport
P2	Connector	12004451	12 Pin
P4	Connector	16001347	6 Pin
P5	Connector	16001182	7 Pin
P7	Connector	16001112	6 Pin
S2	Switch	7898278	AM/FM
S3	Switch	16001228	Radio/Mon/CB
S6	Switch	16001958	
S8	Switch	16000668	
S9	Switch	7899348	
XL2	Socket	16000202	LED Stereo Indicator
	P.C. Board	DOH391	Audio
	P.C. Board	D7U882	Radio
	P.C. Board	D2E552	Tape
	P.C. Board	DOA831	Interconnect

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

ITEM	PART No.	ITEM	PART No.
Escutcheon, Dial Face	16001225	Pushbutton, Eject	7898372
Pushbutton, Chrome	9349753	Slide Bar, AM/FM	16000643

**AM ALIGNMENT INFORMATION
 79 1/2 IC AM MODELS D9AF, D9EF, D9HF, D90F & D9TF**

PRELIMINARY INFORMATION

1. Connect a VTVM or oscilloscope across the speaker or dummy load resistor (3.2 ohms). (An 8 ohm speaker can be used with a 5.6 ohm resistor across its terminals.)
2. Connect a signal generator to the receiver as indicated in the Alignment Procedures
3. Keep the generator output as low as possible during the alignment to prevent AGC overloading. (use 30% modulation 400Hz.)
4. Set the receiver volume control to maximum.

NOTE: Antenna trimmer VC1 is preset using dummy antenna of total series and shunt capacitance as specified in Diagram D.

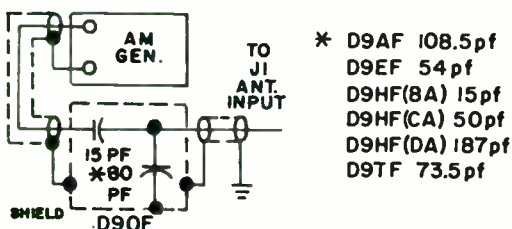


DIAGRAM D DUMMY ANTENNA

ALIGNMENT PROCEDURES

SIGNAL GENERATOR			RECEIVER		
STEP	CONNECTION TO RECEIVER	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	Through dummy antennas (see diagram D)	262.5KHz	1000KHz	Disassemble radio, refer top cover and housing removal on page 2-1. Ground antenna deck to tuner.	T2B for max.
2	same as step 1	262.5KHz	1000KHz	-----	T2A max.
3	same as step 1	262.5KHz	1000KHz		T1B for max.
4	same as step 1	262.5KHz	1000KHz	-----	T1A max.
5	Reassemble radio with exception of cover thru dummy antenna to antenna input. (Refer to schematic for dummy antenna, above.)	1610KHz	1610KHz	Adjust for max. in order given. Repeat.	VC3 OSC. VC2 RF VC1 ANT.
6	Install completely assembled radio in car with antenna fully extended. Tune in a weak station above 1400 KHz and readjust antenna trimmer VC1 for maximum volume.				

ALIGNMENT PROCEDURES (Cont'd)

PERFORM THE FOLLOWING ALIGNMENT PROCEDURE ONLY IF TUNING COIL OR CORES HAVE BEEN REPLACED. NEW TUNER ASSEMBLIES ARE FACTORY INSTALLED.

SIGNAL GENERATOR			RECEIVER		
STEP	CONNECTION TO RECEIVER	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
1,2,3,4	same as above alignment procedures steps 1,2,3 & 4				
5	Thru dummy antenna to antenna input. (Refer to schematic for dummy antenna.)	1610KHz	1610KHz	Adjust for max. in order given. Repeat.	VC3 OSC. VC2 RF VC1 ANT.
6	same as step 5	1000KHz	1000KHz	Adjust for max. in order given. Repeat.	L1B OSC. L1C RF L1A ANT.
7	Repeat steps 5 and 6 if necessary to improve dial tracking.				
8	After dial tracking is completed, remove bezel and subdial. Cement brass screw part of each core to its grommet on carriage housing. Reassemble subdial, bezel, and cover.				
9	Install completely assembled radio in car with antenna fully extended, tune in a weak station above 1400 KHz and readjust antenna trimmer VC1 for maximum volume.				

NOTES

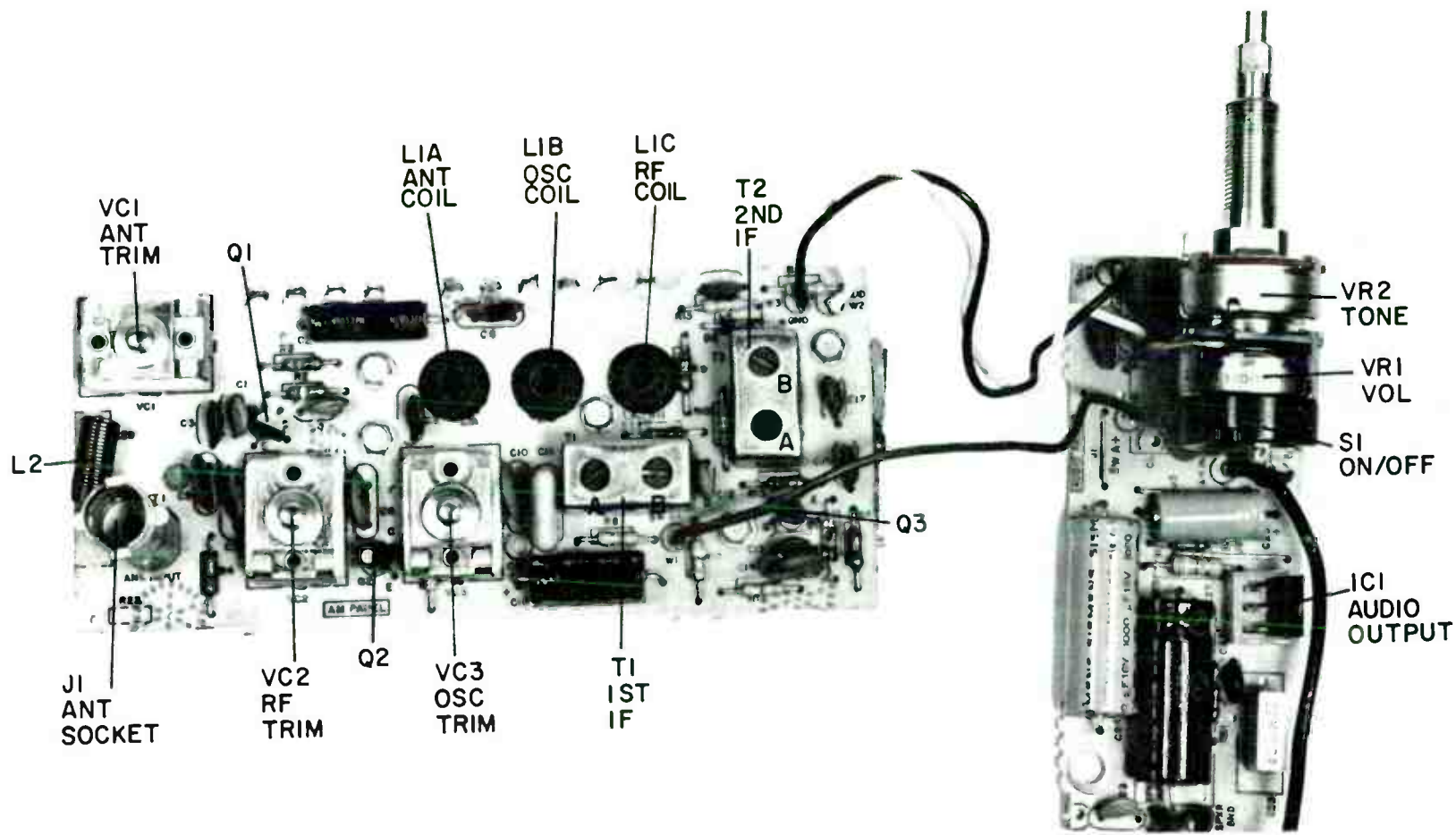


FIGURE 2-14. AM TUNER AND AUDIO PANEL - AM ALIGNMENT POINTS
 IC AM MODELS D9AF(BA), D9EF, D9HF, D9OF AND D9TF

Ford D9AF18806BA, D9EF18806AA,
 D9HF1806BA/CA/DA, D9TF18806AA,
 D9OF18806AA

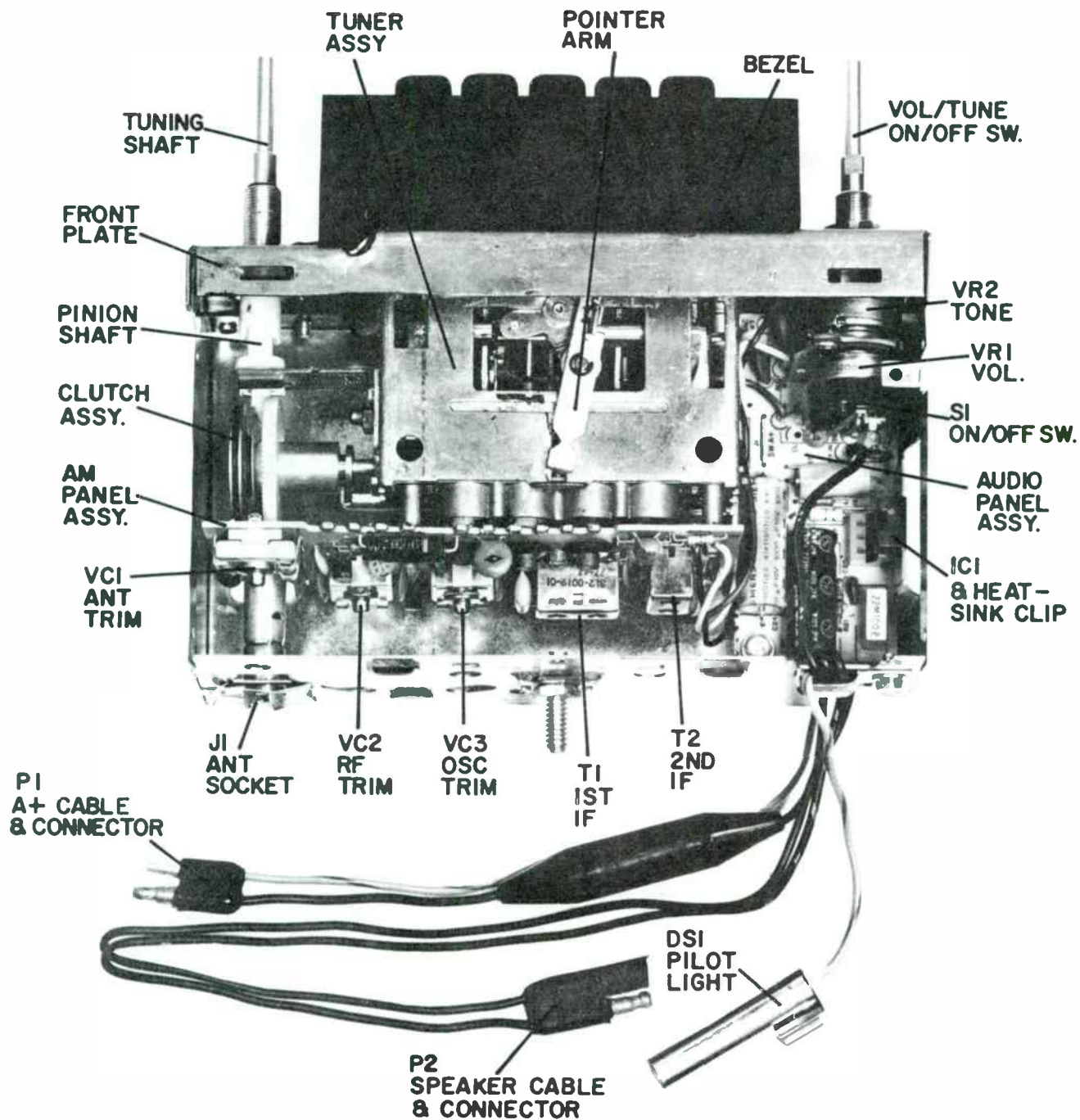
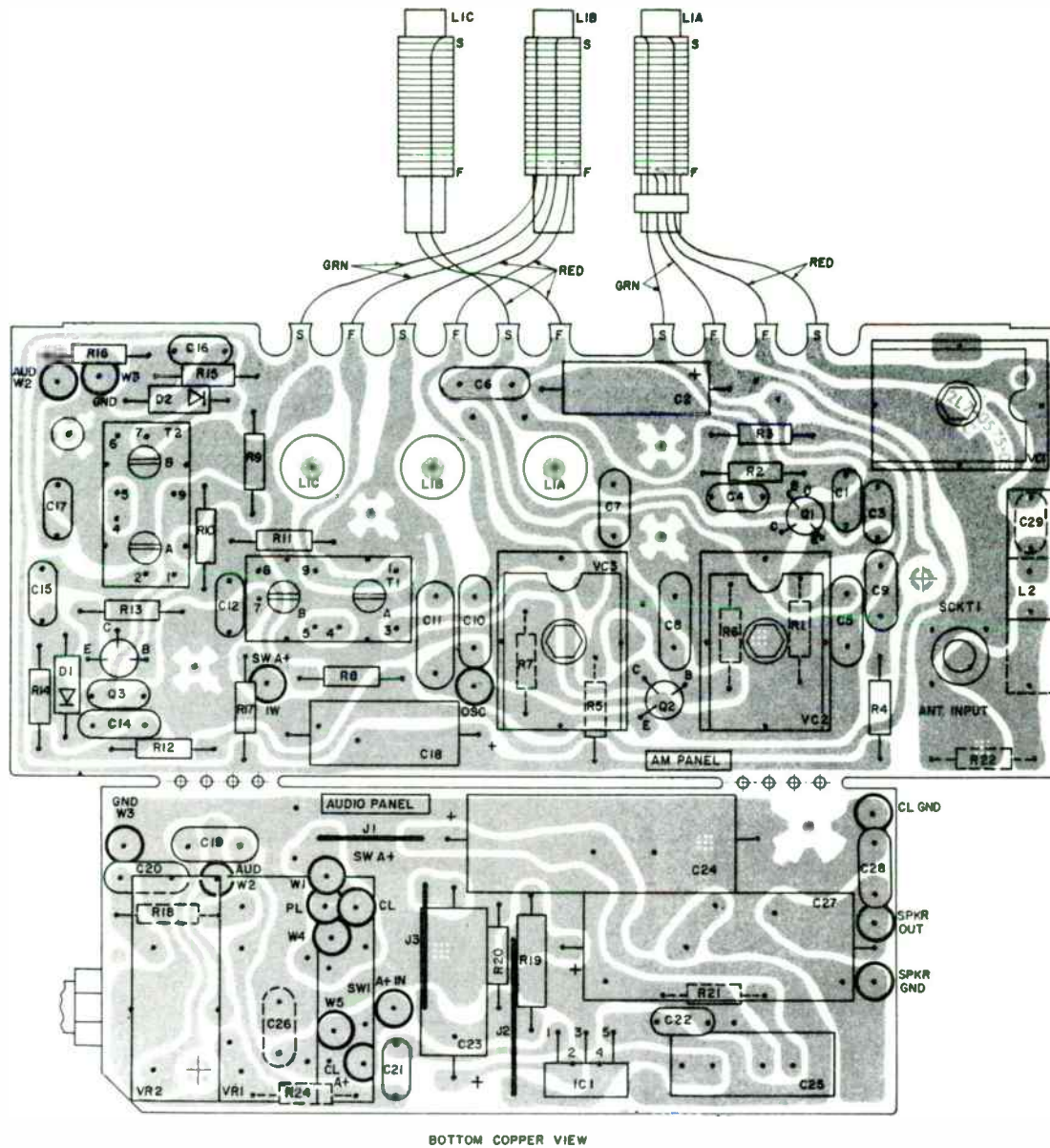


FIGURE 2-10. TOP CHASSIS VIEW
ALIGNMENT AND COMPONENT LOCATIONS
IC AM MODELS D9AF (BA), D9EF, D9HF, D9OF AND D9TF



**FIGURE 2-16. BOTTOM VIEW-AM TUNER AND AUDIO PANEL-COMPONENT LAYOUT
IC AM MODELS D9AF(BA), D9EF, D9HF, D9OF AND D9TF**

**Ford D9AF18806BA, D9EF18806AA,
D9HF1806BA/CA/DA, D9TF18806AA,
D9OF18806AA**

**AM TUNER PANEL TRANSISTOR
D-C RESISTANCE CHART**

TRANSISTOR	*RESISTANCE (OHMS)		
	E	B	C
Q1	330	1K	3.5K
Q2	1.5K	2K	2.2K
Q3	5.6	750	4K

*All readings RX100 scale unless otherwise noted

**AUDIO PANEL IC
D-C RESISTANCE CHART**

IC (Pin No.)	*RESISTANCE (IN OHMS)				
	1	2	3	4	5
IC1	1.5K	2.4K	0	160	820

*All readings RX100 scale

AUDIO PANEL TROUBLESHOOTING

When trouble appears to be in the Audio section, the most vulnerable component is the output IC. The most serious fault would be a short to ground of the output emitter point of IC1 (Pin 4). When this happens, it is possible for IC1 to be destroyed. Refer

to troubleshooting chart for assistance in locating the trouble.

Service Note:

When servicing radio with the housing removed, a heatsink must be attached to IC1 to prevent damaging IC.

TROUBLE SYMPTOM	PROBABLE CAUSE
More than 8.0 volts at output Pin 4 of IC1	1. Defective IC1
Less than 6.5 volts at output Pin 4 of IC1	1. Defective (shorted) IC1 2. Shorted C23
Excessive current and fuse blows	Defective IC1
Excessive current, no output	Speaker lead shorted

Ford D9AF18806BA, D9EF18806AA,
 D9HF1806BA/CA/DA, D9TF18806AA,
 D9OF18806AA

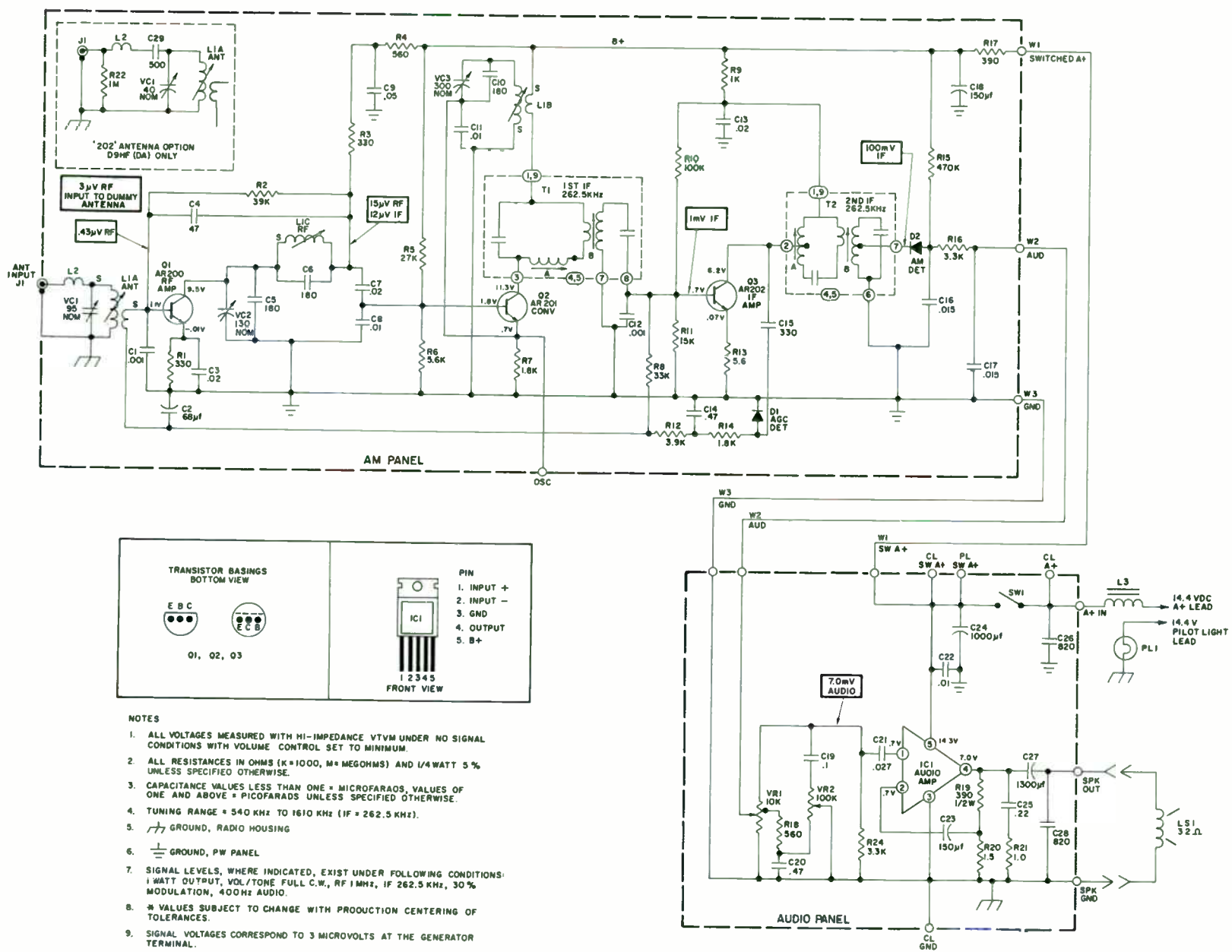


FIGURE 2-17. SCHEMATIC DIAGRAM
 IC AM MODELS D9AF (BA), D9EF, D9HF, D9OF AND D9TF

ELECTRICAL PARTS LIST

79 1/2 IC AM MODELS D9AF, D9EF, D9HF (BA, CA, DA), D9OF AND D9TF

New parts not previously carried are indicated by the symbol "#" following the number.

SYM-BOL	*W A R R.	DESCRIPTION	SERVICE PART NO.
CAPACITORS			
C1	C	.001 mf/50V, Q1 base	3L0-0007-37
C2	C	68 mf/16V, AGC filter	3L0-0009-26
C3	C	.02 mf/16V, Q1 emit.	3L0-0008-17
C4	C	47 pf/50V, RF neut.	3L0-0007-60
C5	C	180 pf/50V, N750, temp. comp.	3L0-0006-41
C6	C	180 pf/50V, N750, temp. comp.	3L0-0006-41
C7	C	.02 mf/50V, RF coupler	3L0-0008-73
C8	C	.01 mf/50V, Q2 base	3L0-0007-72
C9	C	.05 mf/25V, B+ filter	3L0-0008-39
C10	C	180 pf/50V, N750, temp. comp.	3L0-0006-41
C11	C	.01 mf/50V, osc. tank	3L0-1001-8
C12	C	.001 mf/50V, Q3 base	3L0-0007-37
C13	C	.02 mf/16V, B+ filter	3L0-0008-17
C14	C	.47 mf/3V, AGC filter	3L0-0008-14
C15	C	330 pf/500V, AGC input	3L0-0007-1
C16	C	.015 mf/25V, AM filter	3L0-0008-18
C17	C	.015 mf/25V, AM filter	3L0-0008-18
C18	C	150 mf/16V, B+ filter	3L0-0009-45
C19	C	.1 mf/3V, Hi-cut	3L0-0008-12
C20	C	.47 mf/3V, bass boost	3L0-0008-14
C21	C	.027 mf/12V, audio cplg.	3L0-0008-35
C22	C	.01 mf/25V, spark filter	3L0-0008-16
C23	C	150 mf/16V, DC feedback	3L0-0009-50
C24	C	1000 mf/16V, A+ filter	3L0-0009-44
C25	C	.22 mf/50V, AF stab.	3L0-1001-31
C26	C	820 pf/500V, spark filter	3L0-0007-25
C27	C	1300 mf/10V, spkr. output	3L0-0009-51
C28	C	820 pf/500V, AF stab.	3L0-0007-25
C29	C	500 pf/150V, ant., D9HF(DA) only	3L0-0006-24
VC1	C	120 pf (nom.) ant. trim., D9EF, D9HF(CA), D9OF, and D9TF	3L1-0005-1
VC1	C	155 pf (nom.) ant. trim., D9HF(BA)	3L1-0005-4
VC1	C	40 pf (nom.) ant. trim., D9HF(DA)	3L1-0005-6
VC1	C	80 pf (nom.) ant. trim., D9AF	3L1-0005-5
VC2	C	120 pf (nom.) RF trim.	3L1-0005-1
VC3	C	300 pf (nom.) osc. trim.	3L1-0005-3
DIODES			
D1	P	AGC detector	3L4-2003-1
D2	P	AM detector	3L4-2003-1
INTEGRATED CIRCUITS			
IC1	S	Audio ampl.	3L4-9020-1
PILOT LAMPS			
DS1	K	1893, pilot lamp	3L4-0001-6
COILS			
L1A	D	Ant. tuning	3L2-0007-18
L1B	D	Osc. tuning	3L2-0002-9
L1C	D	RF tuning	3L2-0007-19
L2	J	RF choke	3L2-0034-4
L3	N	A+ choke, part of A+ cable	

SYM-BOL	*W A R R.	DESCRIPTION	SERVICE PART NO.
TRANSFORMERS			
T1	E	1st IF	3L2-0019-1
T2	E	2nd IF	3L2-0019-2
TRANSISTORS			
Q1	A	AR200, RF amp.	3L4-6007-1
Q2	A	AR201, converter	3L4-6007-2
Q3	A	AR202, IF amp.	3L4-6007-3
RESISTORS			
R1	G	330 5% 1/4W, Q1 emit.	
R2	G	39K 5% 1/4W, Q1 base	
R3	G	330 5% 1/4W, Q1 B+	
R4	G	560 5% 1/4W, B+ div.	
R5	G	27K 5% 1/4W, Q2 base	
R6	G	5.6K 5% 1/4W, Q2 base	
R7	G	1.8K 5% 1/4W, Q2 emit.	
R8	G	33K 5% 1/4W, Q3 AGC	
R9	G	1K 5% 1/4W, B+ div.	
R10	G	100K 5% 1/4W, Q3 base	
R11	G	15K 5% 1/4W, Q3 base	
R12	G	3.9K 5% 1/4W, AGC filter	
R13	G	5.6 5% 1/4W, Q3 emit.	3L3-9561205
R14	G	1.8K 5% 1/4W, AGC filter	
R15	G	470K 5% 1/4W, det. bias	
R16	G	3.3K 5% 1/4W, det. filter	
R17	G	390 5% 1/4W, B+ filter	
R18	G	560 5% 1/4W, Vol. tap	
R19	G	390 5% 1/2W, feedback div.	
R20	G	1.5 5% 1/4W, feedback div.	3L3-9151205
R21	G	1.0 5% 1/4W, AF stab.	3L3-9101205
R22	G	1.0 Meg. 5% 1/4W, ant. input, D9HF(DA) only	
R24	G	3.3K 5% 1/4W, IC1 input	
CONTROLS			
VR1, 2	H, I	Vol./Tone, on/off switch D9AF, D9HF(DA), D9OF (option)	3L3-0021-46# 3L3-0021-45#
		D9AF, D9HF(DA), D9OF (option)	3L3-0021-40#
	H, I	Vol./Tone, on/off switch D9EF	3L3-0021-29#
		D9EF (option)	3L3-0021-13
		D9EF (option)	3L3-0021-44#
	H, I	Vol./Tone, on/off switch D9TF	3L3-0021-34#
		D9TF (option)	3L3-0021-22
		D9TF (option)	3L3-0021-42#
	H, I	Vol./Tone, on/off switch D9HF(BA)	3L3-0021-38#
		D9HF(BA) (option)	3L3-0021-39#
		D9HF(BA) (option)	3L3-0021-26
	H, I	Vol./Tone, on/off switch D9HF(CA)	3L3-0021-37#
		D9HF(CA) (option)	3L3-0021-25
		D9HF(CA) (option)	3L3-0021-41#

*Warranty component category

Ford D9AF18806BA, D9EF18806AA, D9HF1806BA/CA/DA, D9TF18806AA, D90F18806AA

MECHANICAL AND ELECTRICAL MISCELLANEOUS PARTS LIST

79 1/2 IC AM MODELS D9AF, D9EF, D9HF (BA, CA, DA), D90F AND D9TF

New parts not previously carried are indicated by the symbol "*" following the number.

*W A R R.	DESCRIPTION	SERVICE PART NO.
Z	Barrier, Light	2L7-0019-2
L	Bezel, D9AF, D9HF(DA), D90F & D9TF	2L7-0265-7
L	Bezel, D9EF	2L7-0265-8
L	Bezel, D9HF(CA)	2L7-0265-9
L	Bezel, D9HF(BA)	2L7-0265-10
Z	Bolt, Mtg.	2L8-0060-6
Z	Bracket, Chassis mtg., D9EF	2L8-0639-1
N	Bracket & Socket Assy., Pilot light	7L6-0215-2
Z	Bushing, Tuning shaft	
	D9AF, D9HF(BA, DA) & D90F	2L8-0222-5
	D9HF(CA)	2L8-0222-10*
	D9EF	2L8-0222-7
	D9TF	2L8-0222-2
O	Button, Push (5 used)	2L7-0145-2
N	Cable Assy., A lead, D9HF(BA)	4L1-0138-6
N	Cable Assy., A lead, D9HF(CA)	4L1-0138-7
N	Cable Assy., A lead & P. L., D9AF, D9EF, D9HF(DA) & D90F	4L1-0115-3
N	Cable Assy., A lead & P. L., D9TF	4L1-0115-6
N	Cable Assy, Pilot light, D9HF(BA) & D9HF(CA)	4L1-0139-2
N	Cable Assy., Speaker, D9AF, D9HF(CA & DA) & D90F	4L1-0116-3
N	Cable Assy., Speaker, D9HF(BA) & D9TF	4L1-0116-4
N	Cable Assy., Speaker, D9EF	4L1-0116-2
Z	Clamp, A+ & P. L. cable	2L8-0226-1
Z	Clamp, P. L. cable	LL-0014-1
Z	Clip, Ant. socket	2L8-0545-2
Z	Clip, Audio IC	2L8-0785-1*
D	Core, Ant. & RF (opt. -5 & -6)	2L8-0069-4
D	Core, Osc.	2L8-0045-6
L	Filter, Color, D9 F, D9 F, D9 F & D9 F	2L7-0147-1
L	Filter, Color, D9EF, D9 F & D9 F	2L7-0147-4

*W A R R.	DESCRIPTION	SERVICE PART NO.
Z	Grommet, Coil mtg.	2L7-0022-1
Z	Housing	2L8-0616-2*
Z	Insulator, Pilot light	2L7-0064-1
Z	Nut, Mtg.	2L8-0061-1
Z	Nut, Tuning shaft & Vol. cont.	28-14686-1
Z	Pointer, Dial	2L8-0077-22
M	P.W. Panel Assy., AM & audio,	
	D9AF	7L6-0825-8*
	D9EF	7L6-0825-3*
	D9HF(BA)	7L6-0825-6*
	D9HF(CA)	7L6-0825-7*
	D9HF(DA)	7L6-0825-2*
	D90F	7L6-0825-1*
	D9TF	7L6-0825-4*
Z	Ring, Retaining, tuning shaft	E1W61043FE5
O	Shaft, Pinion	2L7-0030-20
Z	Shaft, Tuning	
	D9AF, D9HF(DA) & D90F	2L7-0056-14
	D9HF(CA)	2L7-0056-18*
	D9EF	2L7-0056-15
	D9HF(BA)	2L7-0056-19*
	D9TF	2L7-0056-11
Z	Shield, Pilot light	2L8-0225-1
D	Sleeve, Paper (3)	5L4-0002-1
D	Sleeve, Powdered iron (opt. -2, -3, -4 & -5)	2L8-0138-1
Z	Socket, Ant.	2L8-0544-1
Z	Spacer, Vol. & tuning	
	D9HF(CA)	2L8-0177-1
	D9TF	2L8-0177-4
	D9EF	2L8-0177-6
Z	Spacer, Vol. cont., D9AF, D9HF(BA & DA) & D90F	2L8-0177-3
Z	Spring, Pilot light	2L8-0067-1
L	Sub dial	2L7-0220-1

*Warranty component category

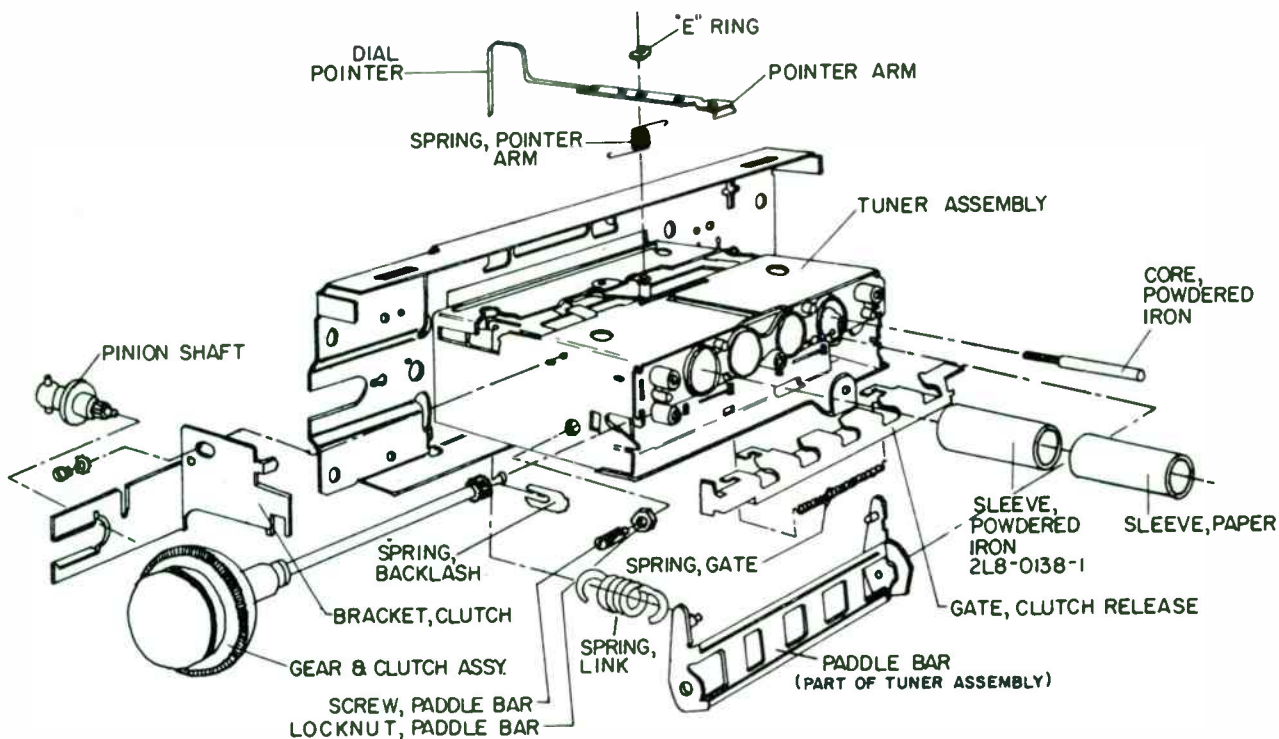
TUNER REPLACEMENT PARTS

79 1/2 IC AM MODELS D9AF, D9EF, D9HF (BA, CA, DA), D90F AND D9TF

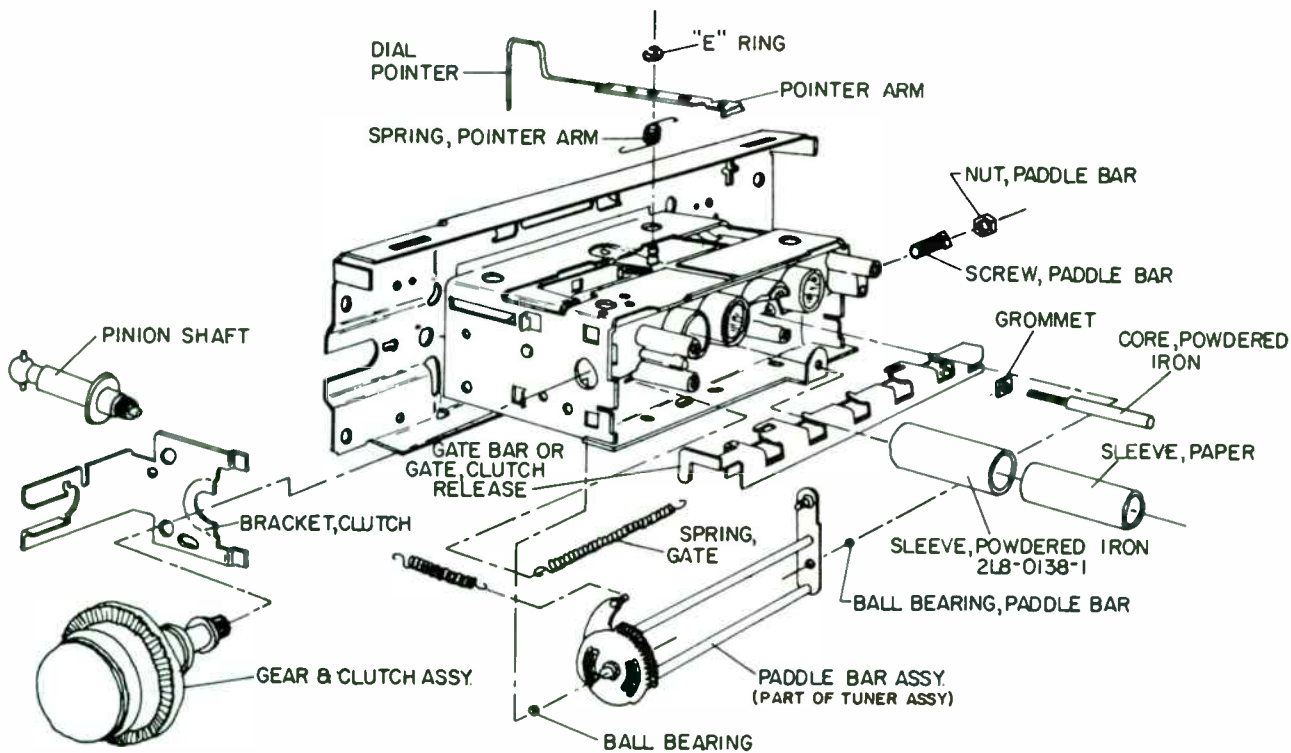
New parts not previously carried are indicated by the symbol "*" following the number.

All parts are warranty component category F.

DESCRIPTION	SERVICE PART NO.	
	TYPE 1	TYPE 2
Tuner Assy.	7L6-0394-7*	7L6-0390-5
Ball Bearing, Paddle bar (2)	-	7L6-0150-7
Bracket, Clutch	2L8-0707-1	7L6-0150-76
Clutch, Drive assy.	7L6-0402-3*	7L6-0150-77
"E" Ring, Pointer arm	1W60971FE7	7L6-0150-25
Gate, Clutch release (cam)	2L8-0213-2	7L6-0150-17
Grommet, Carriage (3)	-	7L6-0150-15
Nut, Paddle bar	-	7L6-0150-11
Pointer Arm	2L8-0740-2*	7L6-0150-82
Screw, Paddle bar	-	7L6-0150-10
Screw & Nut Assy., Paddle bar	-	7L6-0150-9
Spring, Backlash	2L8-0344-1	-
Spring, Gate	2L8-0719-1*	7L6-0150-19
Spring, Pointer arm	2L8-0756-1*	7L6-0150-23



**FIGURE 2-12. EXPLODED VIEW—TYPE I TUNER
IC AM MODELS D9AF (BA), D9EF, D9HF, D9OF AND D9TF**



**FIGURE 2-13. EXPLODED VIEW—TYPE 2 TUNER (G)
IC AM MODELS D9AF (BA), D9EF, D9HF, D9OF AND D9TF**

FM ALIGNMENT

GENERAL INFORMATION - The factory alignment is performed with laboratory equipment. The circuits are quite stable and not ordinarily subject to drift, therefore, before alignment is attempted, the set should be thoroughly checked for circuit troubles. An FM generator should be used for FM alignment.

ALIGNMENT CONDITIONS - Input level to the receiver +14V DC. During FM alignment the input amplitude must be set above or below the limiting level depending on the adjustment made. The limiting level is the point where further increase in input does not increase the output level. During alignment then, either keep the level below this point (below limiting level) or above this point (into limiting) as pointed out in the alignment procedure. In addition, the signal generator leads must be carefully shielded. If noise voltage on the generator leads is high enough to cause limiting, it is almost impossible to align the receiver properly because tuning adjustments will not show up as variations in the VTVM reading. To avoid this, the leads must be carefully shielded and kept short.

FM ALIGNMENT USING FM GENERATOR

STEP	GENERATOR CONNECTION	GENERATOR FREQUENCY	RADIO FREQUENCY	OUTPUT INDICATOR	ADJUST	REMARKS
FM-IF ALIGNMENT						
1	No gen. required	—	—	VTVM AC probe across 4.0 ohm output load	T1, T101, T102	Adjust for max noise output on VTVM
2	Direct thru ant receptacle	109Mhz (22.5Khz dev @ 400Hz mod-below limiting	High end stop	"	TC3	Adjust for max output on VTVM
3	"	98Mhz (22.5Khz dev @ 400Hz mod-below limiting	98Mhz	VTVM AC probe or scope across 4.0 ohm output load	TC2, TC1	" "
4	"	98Mhz (75Khz dev @ 400Hz mod-into limiting)	Tune receiver to best response	Scope across 4.0 ohm output load	T102	Observe for good waveform. When tuning thru resonance, if response is unsymmetrical, re-adjust T102 slightly to give equal signal drop off on each side of resonance

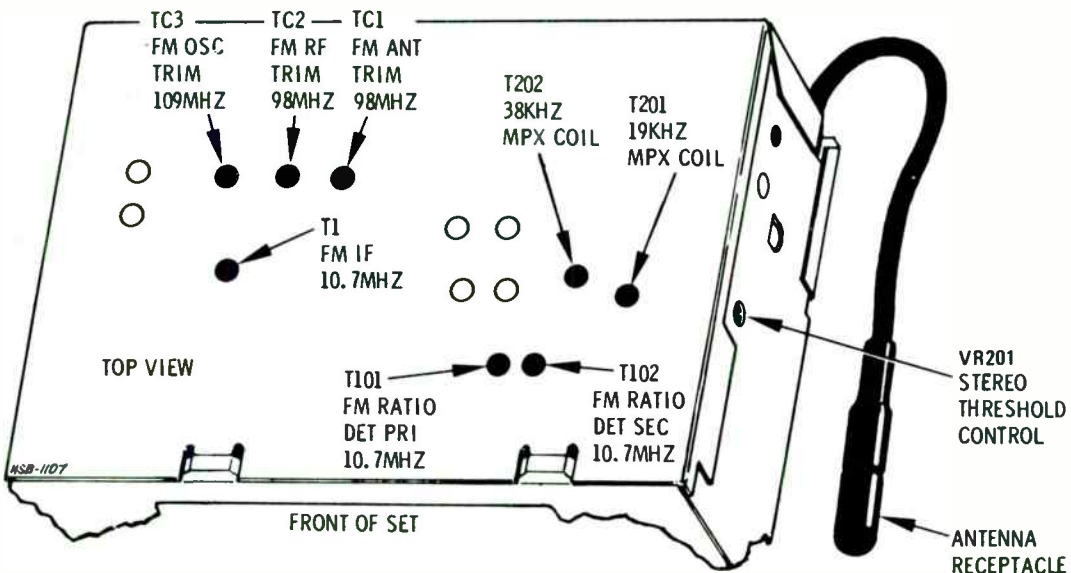


FIG. 25 - 2MM3515 FM & MPX ALIGNMENT POINT LOCATION

FM STEREO RECEPTION

When the receiver is tuned to a sufficiently strong FM stereo station, the stereo indicator will become illuminated. As long as 20uV or better of signal strength is received, the indicator will remain illuminated.

A recovered stereo signal is inherently more noisy than a comparable monaural signal; the weaker the signal, the higher the resultant noise level. Typically, the signal/noise ratio for a demodulated stereo signal is 20db less than that of an equivalent monaural signal. Consequently, a 40db signal/noise ratio would be required in monaural operation, before switching to stereo, if adequate signal/noise and separation are to be realized.

To maintain an acceptable signal/noise ratio when tuned to a weak FM stereo station, the receiver switches to the mon-

aural mode of operation. (The stereo indicator light will go out, both speakers will operate, but without the stereo effect.) As the signal strength increases the noise level will drop and the receiver will switch back to a stereo mode of operation. This switching action from stereo to monaural and back to stereo is automatic and requires no adjustments by the customer.

Good stereo reception requires a relatively strong composite signal on pin 3 of IC201 in addition to a positive DC voltage on pin 4. The DC voltage varies with signal strength and is derived from TR201. The DC voltage will rise to 1.5 volts (representing a received signal of 20uV or more) and then drop down to 0.9 volts as the receiver switches to stereo operation. In this way, a good signal/noise ratio is assured during stereo operation.

STEREO ALIGNMENT

The FM stereo multiplex system should be aligned only with the use of an FM multiplex generator.

The following steps must be performed before starting to align an FM stereo multiplex system.

1. The "AM-FM" switch must be in the "FM" position.
2. The generator output must be at a high RF level (100uV

better with local/distant switch in DISTANT position). The FM stereo light (PL702) should be lit during the alignment procedure. If it is not, either the generator output is too low, the circuits are out of alignment or inoperative.

3. FM radio "IF's" must be properly aligned before beginning multiplex alignment. CAUTION should be observed when servicing the multiplex IC. Shorting or grounding of contact pins will cause damage to the IC.

STEP	GENERATOR CONNECTION	MODULATION	OUTPUT INDICATOR	ADJUST	REMARKS
1	Connect an RF signal modulated with multiplex signal to antenna input	19Khz pilot @ 10% modulation	Connect low capacity probe of AC voltmeter to pin 2 of T201. Use lowest possible range on AC voltmeter	T201, 19Khz coil	1. Accurately tune radio to RF frequency of stereo generator. 2. Turn off left and right channel multiplex signals. 3. Adjust T201 for max output.
2	"	"	Connect low capacity probe of AC voltmeter to pin 13 of multiplex chip IC201. Use lowest possible range on AC voltmeter	T202, 38Khz coil	1. Adjust T202 for max output.
3.	"	"	Connect receiver speaker leads to output indicators (either separate meters or part of multiplex generator)	T202, then T201	1. First turn on left and right channel multiplex signals and adjust audio output to 1 watt in each channel. Then turn off right channel multiplex signal and adjust T201 and T202 for a minimum in the right channel output indicator (max separation). 2. Repeat procedure for left channel separation.
4.	"	19Khz pilot @ 10% modulation and 20UV level	Stereo indicator lamp PL702	VR201 (threshold control)	Adjust VR201 until lamp just becomes illuminated. Remove all test equipment and check for proper stereo operation.

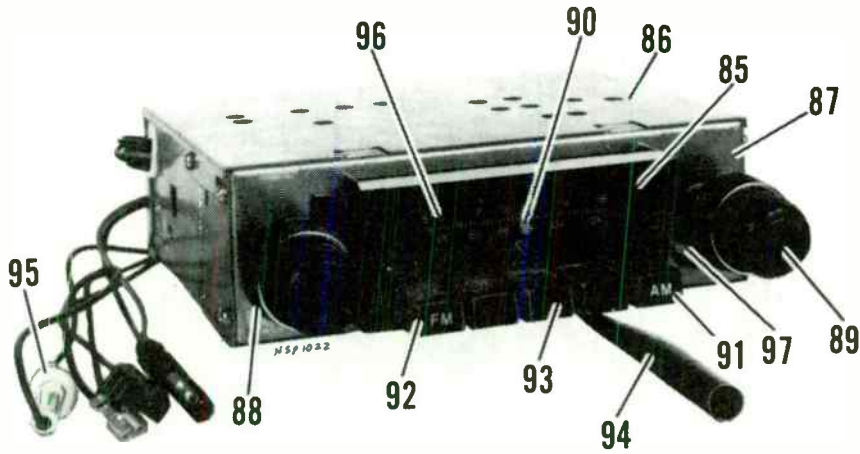


FIG. 26 - 2MM3515 PARTS LOCATION

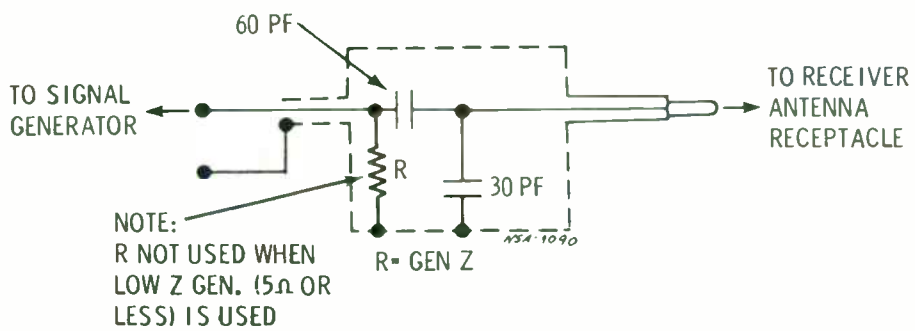
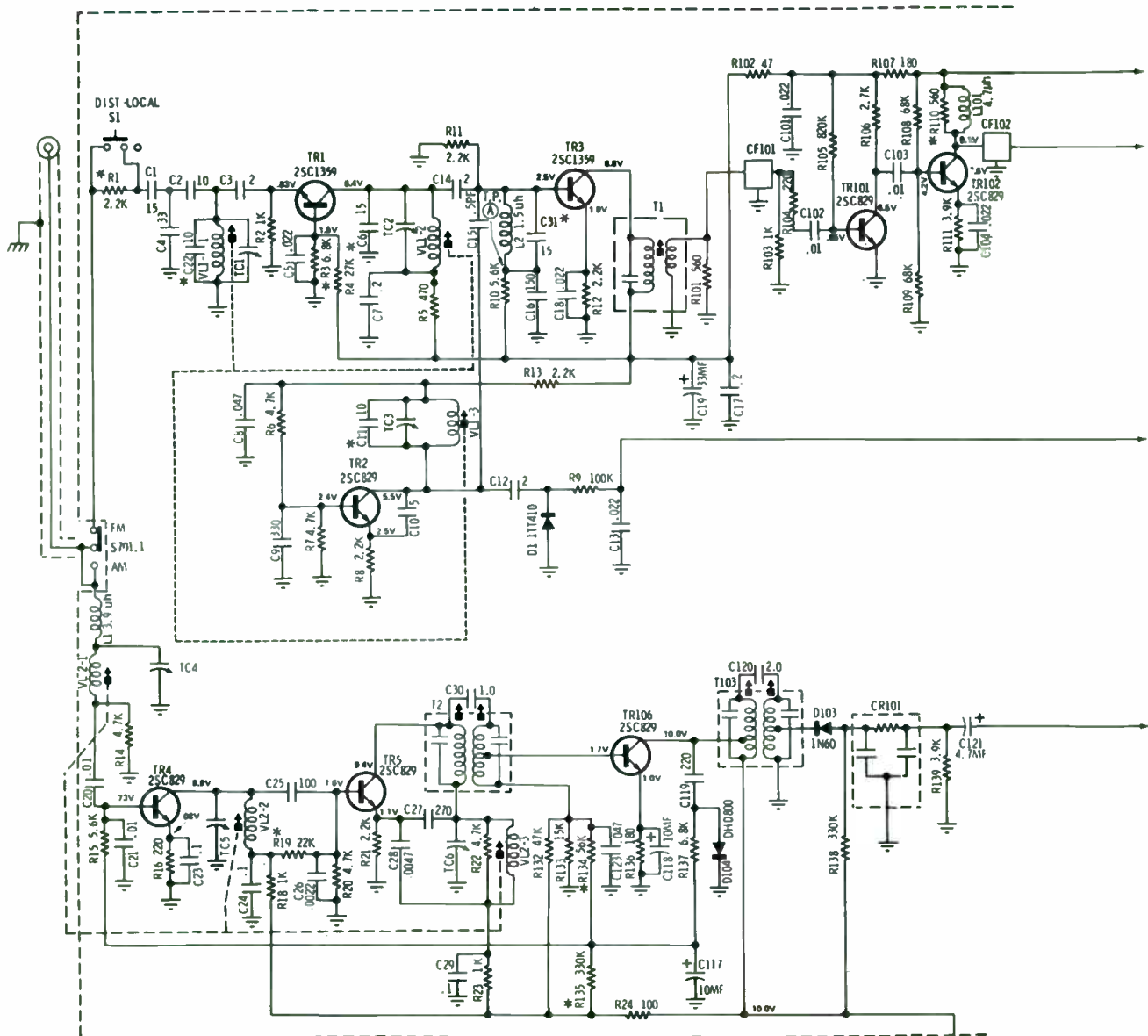


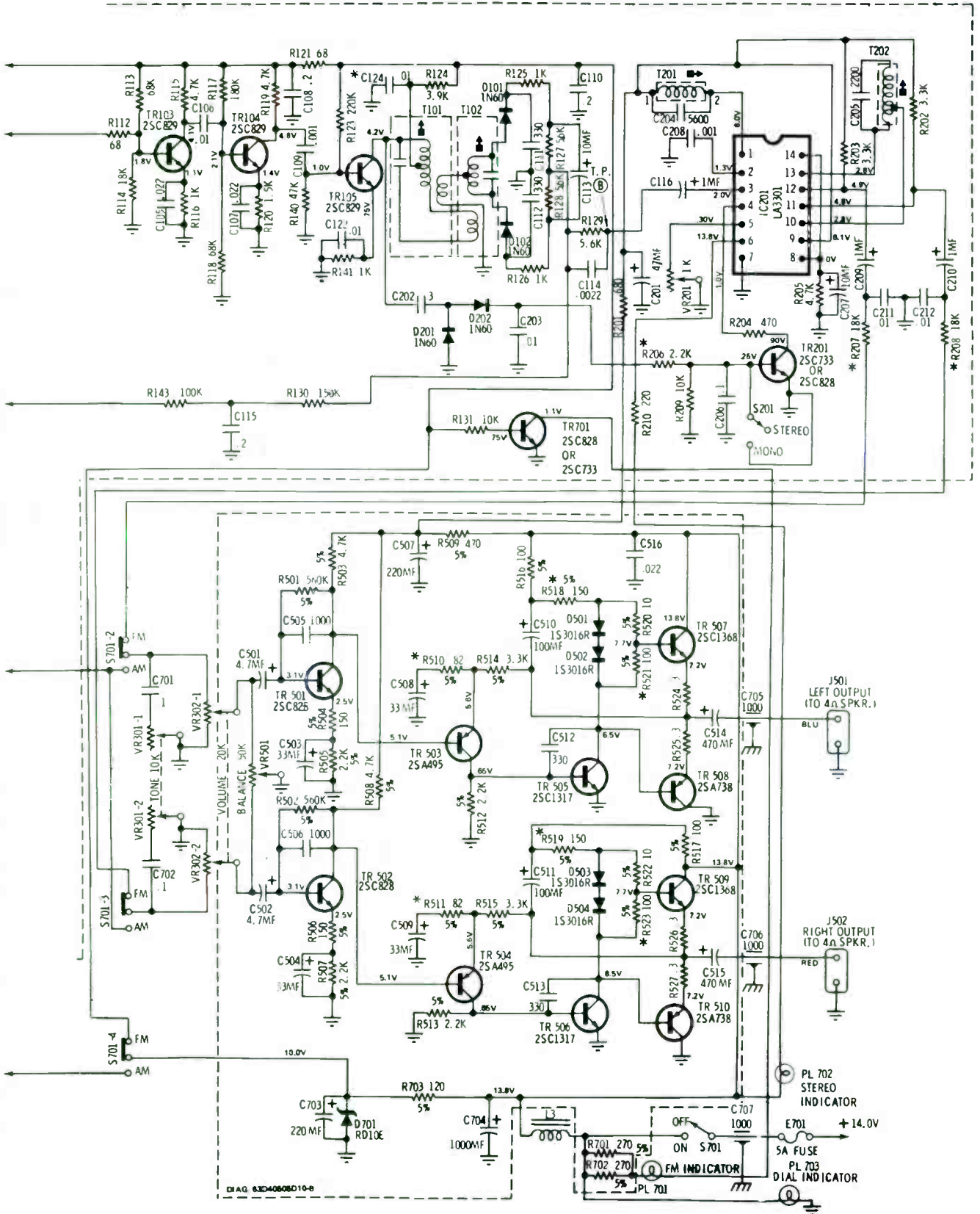
FIG. 27 - 2MM3515 AM DUMMY ANTENNA DETAIL



NOTES:
 CAPACITORS: - UNLESS OTHERWISE SPECIFIED, DECIMAL VALUE LESS THAN 1. IN MF. ALL OTHERS IN PF.
 VOLTAGES: - MEASURED FROM POINT INDICATED TO CHASSIS WITH A VTVM, ±10% NO SIGNAL INPUT.
 INPUT VOLTAGE: - 14.0 V. DC.
 TUNING RANGE: AM: 540 TO 1610 KHZ
 FM: 88 TO 108 MHZ
 IF FREQ. : AM: 262.5 KHZ
 FM: 10.7 MHZ

* EXACT VALUE DETERMINED BY PRODUCTION PROCESS, REPLACE WITH SAME VALUE AS ORIGINAL PART.

- E C B
-
- DOT VIEW
- 2SC828
 - 2SC829
 - 2SC733
 - 2SC1317
 - 2SC1359
 - 2SA495
- E C B
-
- 2SC1368
 - 2SA738



AM & FM CORES ARE FACTORY SET & ARE NOT TO BE ADJUSTED. IF DAMAGE OCCURS IT IS RECOMMENDED THAT COMPLETE TUNER BE REPLACED.

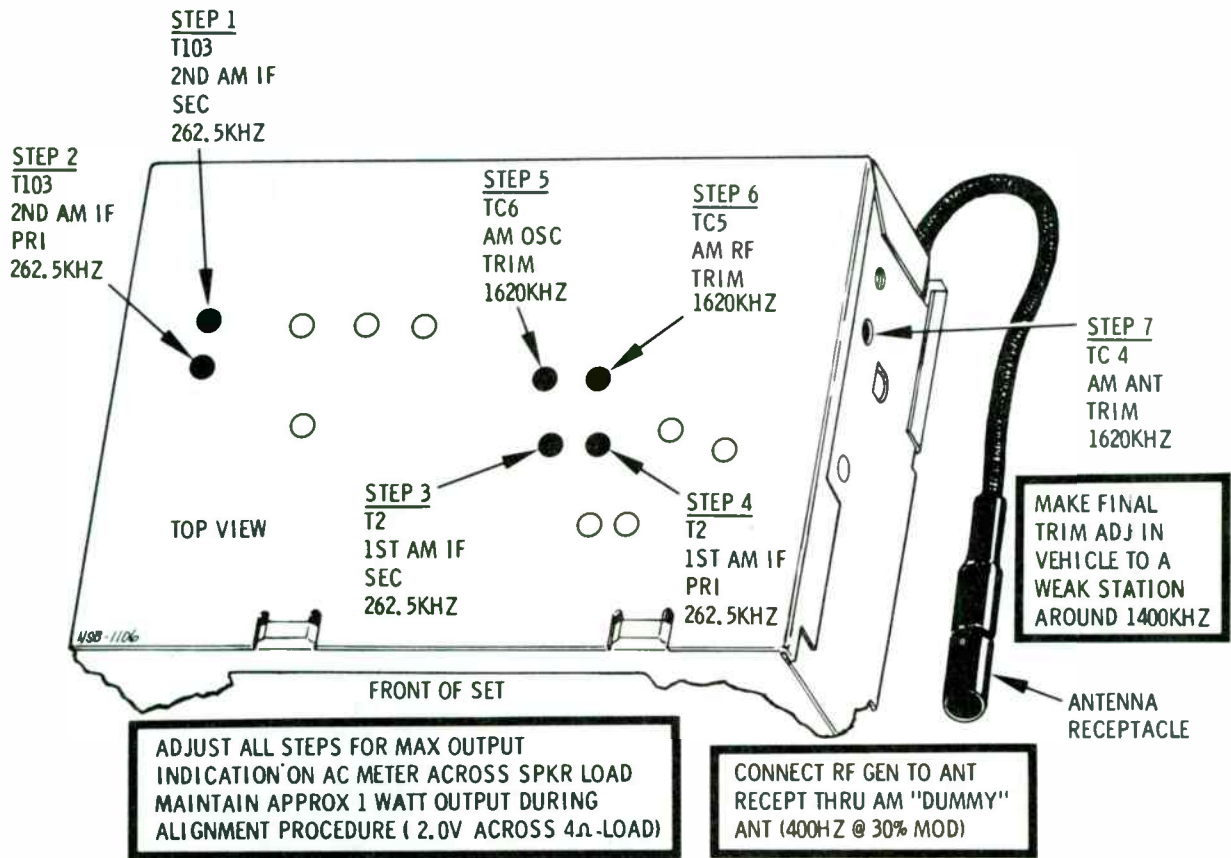
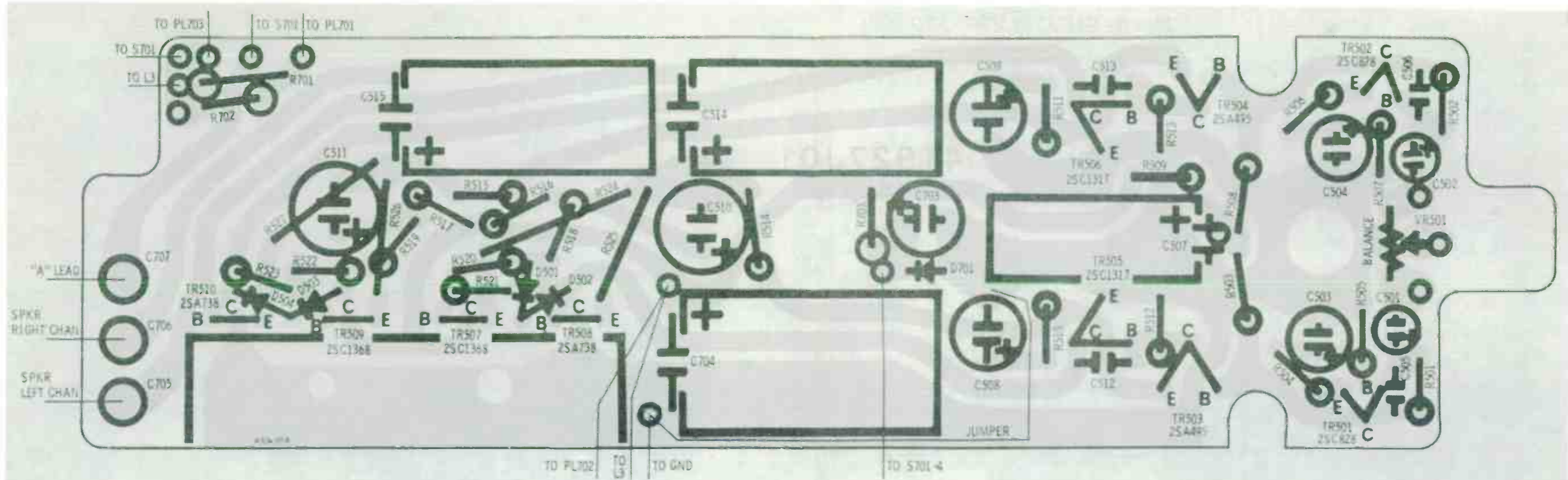
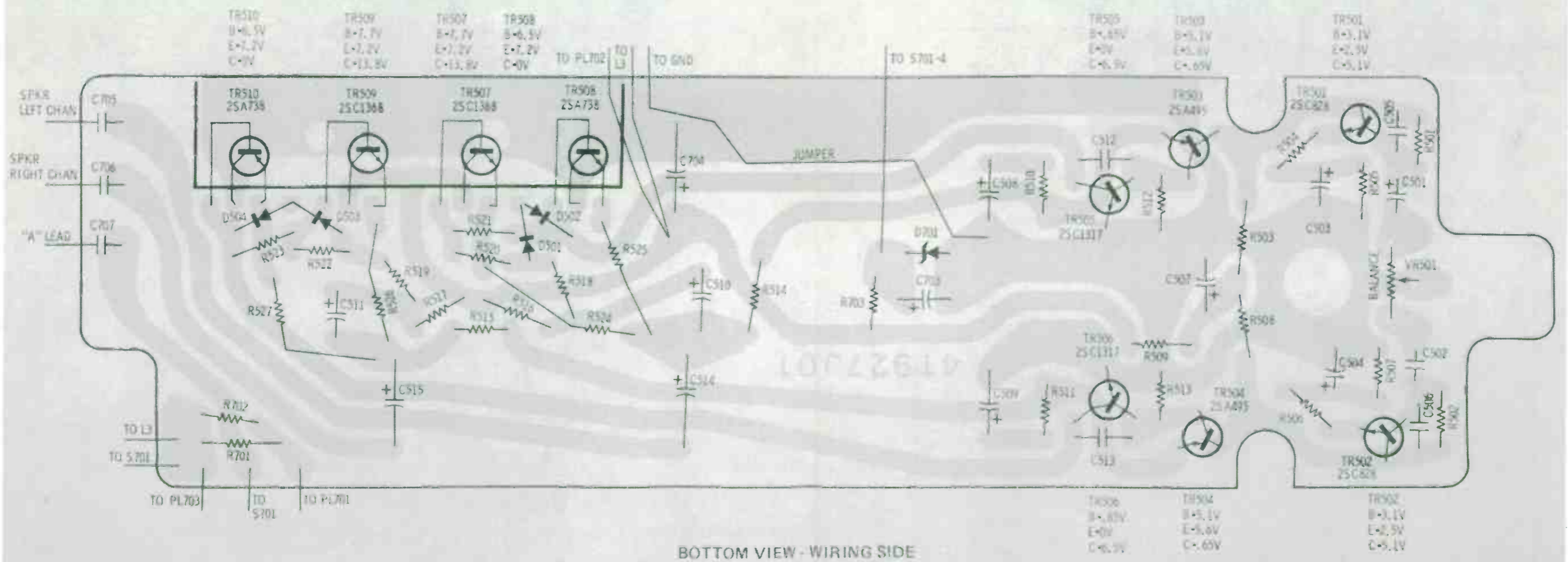


FIG. 32 - 2MM3515 AM ALIGNMENT POINT LOCATION

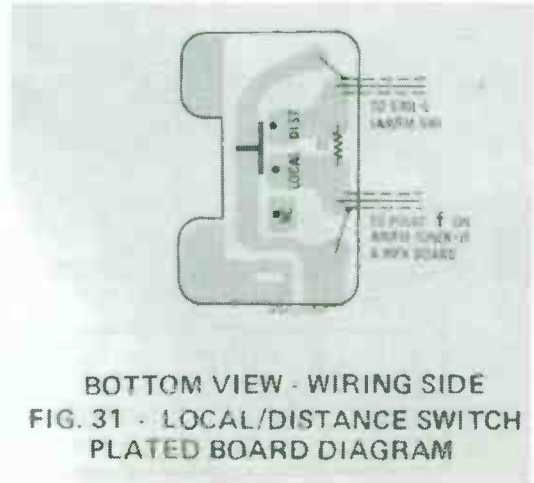
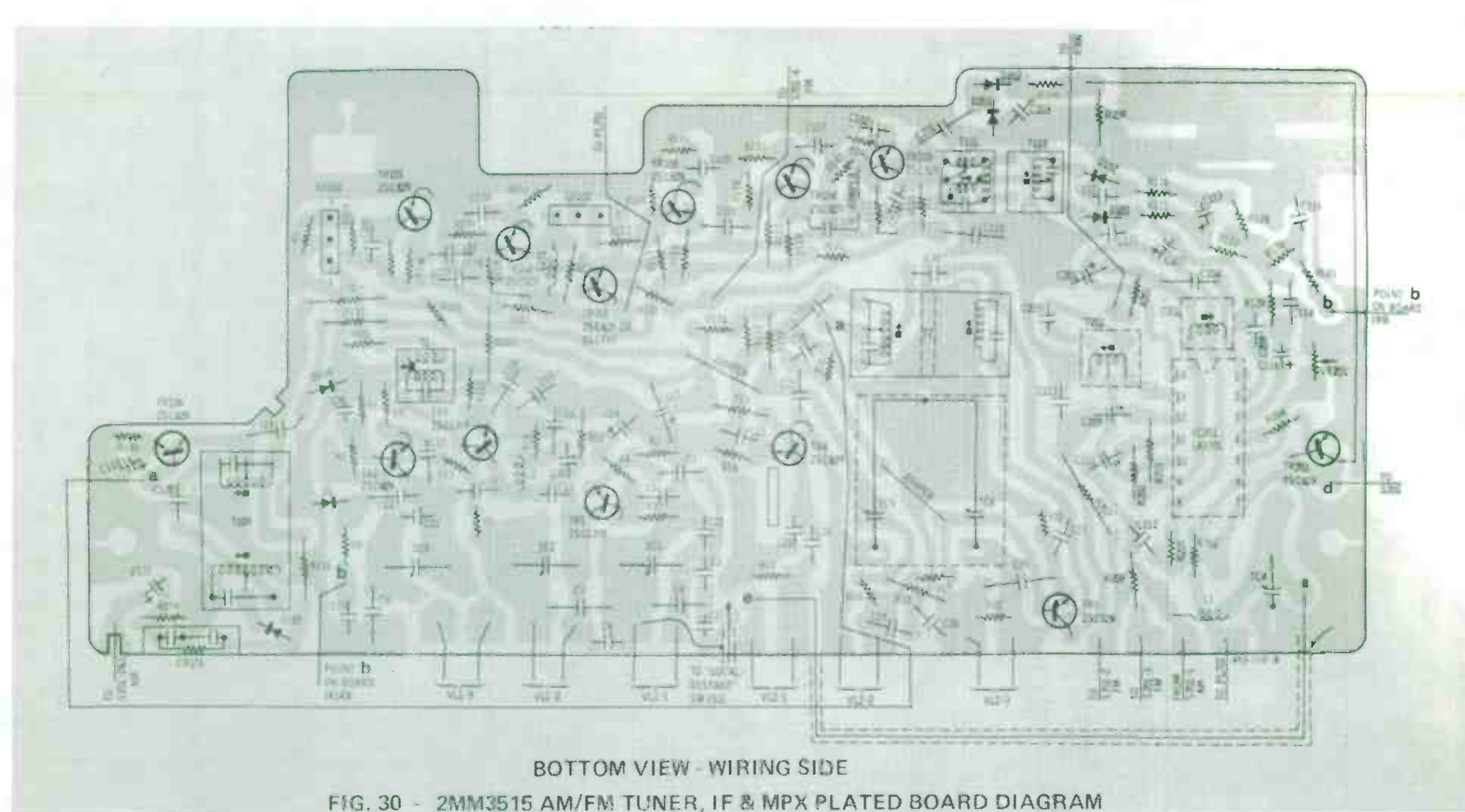
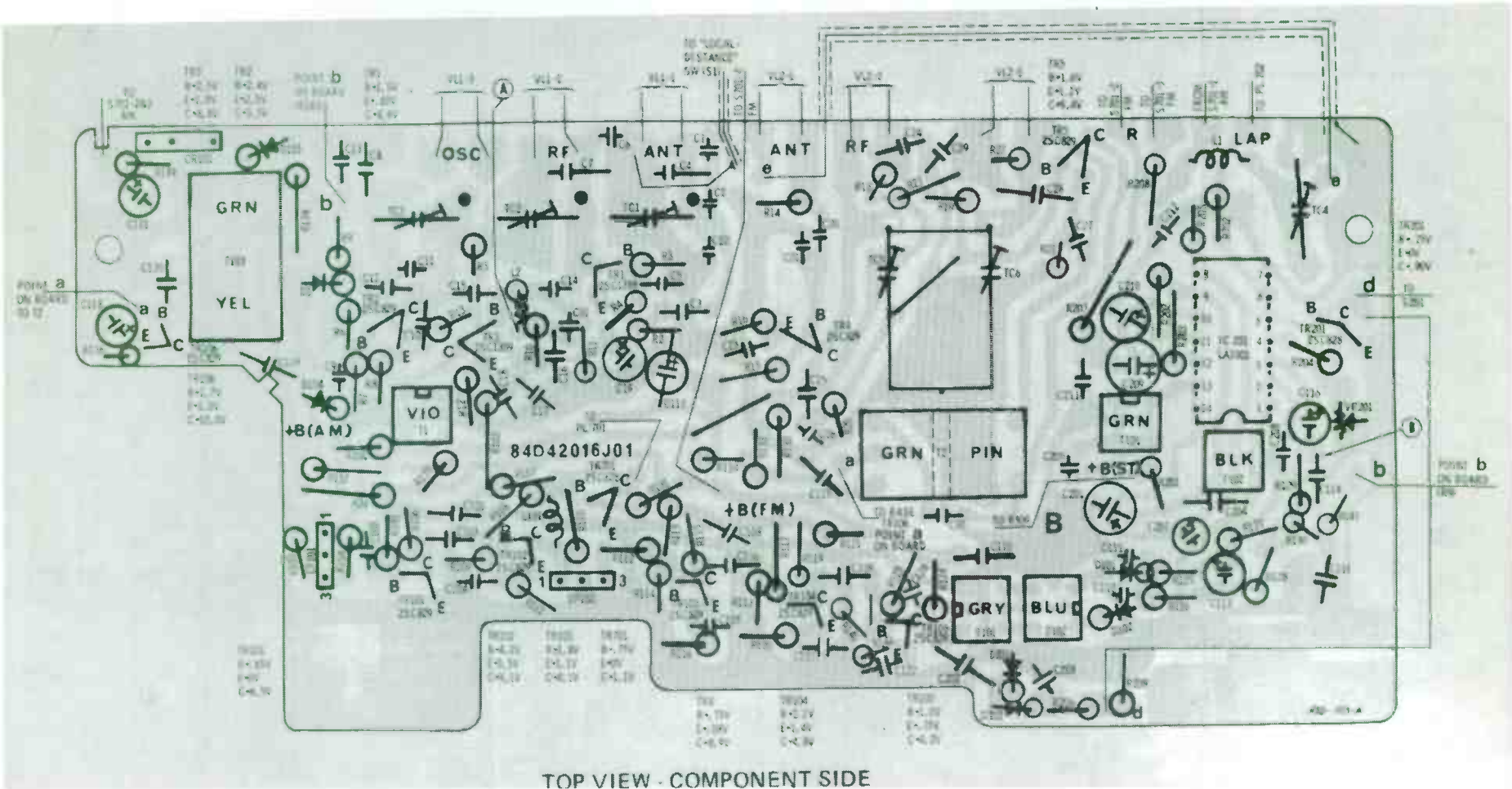


TOP VIEW - COMPONENT SIDE



BOTTOM VIEW - WIRING SIDE

FIG. 28 - 2M3515 AUDIO AMP PLATED BOARD DIAGRAM



2MM3515 PARTS LIST

NOTE. ALL PARTS LISTED ARE RECOMMENDED REPLACEMENT PARTS

REF. NO.	PART NUMBER	DESCRIPTION	REF. NO.	PART NUMBER	DESCRIPTION
ELECTRICAL PARTS					
CAPACITORS					
C1	21-45322G12	15PF 5% 50V disc	C203	21-45322G31	.01MF 50V disc
C2	21-45322G10	10PF .5PF 50V disc	C204	8-42195G05	5600PF
C3	21-45322G02	2PF .25PF 50V disc	C205	8-42195G01	2200PF
C4	21-45322G16	33PF 5% 50V disc	C206	21-41870J02	.1MF 24V disc
C5	21-45322G32	.022MF 50V disc	C207	23-44333G08	10MF 16V lytic
C6	21-41701J08	15PF	C208	21-45322G28	.001MF 50V disc
C7	21-41870J03	.2MF 24V disc	C209,		
C8	21-41870J01	.047MF 24V disc	210,	23-44333G01	1MF 50V lytic
C9	21-45322G26	330PF 20% 50V disc	C211,		
C10	21-45322G05	5PF .25PF 50V disc	212	8-40135G14	.01MF
C11	21-41701J04	10PF	C501	23-44333G05	4.7MF 25V lytic
C12	21-45322G02	2PF .25PF 50V disc	C503	23-44333G17	33MF 6.3V lytic
C13	21-45322G32	.022MF 50V disc	C504	23-44333G17	33MF 6.3V lytic
C14	21-45322G02	2PF .25PF 50V disc	C505	21-45322G28	.001MF 50V disc
C15	21-45322G34	.5PF	C506	21-45322G28	.001MF 50V disc
C16	21-45322G24	150PF 10% 50V disc	C507	23-44333G37	220PF 16V lytic
C17	21-41870J03	.2MF 24V disc	C508	23-44333G19	33MF 16V lytic
C18	21-45322G32	.022MF 50V disc	C509	23-44333G19	33MF 16V lytic
C19	23-44333G18	33MF 10V lytic	C510,		
C20,21	8-40135G14	.01MF 20. 50V film	511	23-44333G31	100MF 16V lytic
C22	21-41701J04	10PF	C512,		
C23,24	21-41870J02	.1MF 24V disc	513	21-45322G26	330PF 20% 50V disc
C25	21-41701J07	100PF	C514,		
C26	8-40135G16	.0022MF 10% 50V film	515	23-44333G49	470MF 16V lytic
C27	21-41701J06	270PF	C516	21-45322G32	.022MF 50V disc
C28	8-40135G15	.0047MF 10% 50V film	C701	21-41870J02	.1MF 50V disc
C29	21-41870J02	.1MF 24V disc	C702	21-41870J02	.1MF 50V disc
C30	21-45322G01	1PF .25PF 50V disc	C703	23-44333G36	220MF 10V lytic
C31	21-45322G12	15PF 5% 50V disc	C704	23-44333G55	1000MF 16V lytic
C101	21-45322G32	.022MF 50V disc	C705-707	21-41880J03	1000MF 500V FEED THRU
C102,			TC1-		
103	21-45322G31	.01MF 50V disc	3	20-45320G01	TRIMMER,variable:FM ANT,OSC,RF
C104,			TC4	20-41817J01	TRIMMER,variable:AM-ANT
105	21-45322G32	.022MF 50V disc	TC5,6	20-41458J01	TRIMMER,variable:AM-OSC & RF
C106	21-45322G31	.01MF 50V disc	MISCELLANEOUS ELECTRICAL PARTS		
C107	21-45322G32	.022MF 50V disc	CF101,		
C108	21-41870J03	.2MF 24V disc	102	91-41273J03	FILTER,cer.(use:91-43353A72) (Replace as matched pairs)
C109	21-45322G28	.001MF 50V disc	CR101	51-41818J01	RC network
C110	21-41870J03	.2MF 24V disc	D1	48-45323G01	DIODE, varactor:1TT410
C111,			D101-		
112	21-45322G26	330PF 20% 50V disc	103	48-41768G01	DIODE,germanium:1N60
C113	23-44333G08	10MF 16V lytic	D104	48-134816	DIODE,silicon:DHD800
C114	21-45322G29	.0022MF 50V disc	D201,		
C115	21-41870J03	.2MF 24V disc	202	48-41768G01	DIODE:1N60
C116	23-44333G01	1MF 50V lytic	D501-		
C117,			504	48-43265G01	VARISTOR:1S3016R
118	23-44333G08	10MF 16V lytic	D701	48-41873J03	DIODE,zener:RD10E
C119	21-45322G25	220PF 10% 50V disc	E701	65-40348G01	FUSE,5 amp(use:65-134265)
C120	21-45322G02	2PF .25PF 50V disc	PL701	65-45037G04	BULB,FM ind:6V-6MA
C121	23-44333G05	4.7MF 25V lytic	PL702	65-45037G06	BULB, stereo ind(use:65-45037G05)
C122	21-45322G31	.01MF 50V disc	PL703	1-41900J42	BULB,dial light
C123	21-41870J01	.047MF 24V disc	J501,		
C124	21-45322G31	.01MF 50V disc	502	30-45005G02	CABLE,speaker
C201	23-44333G25	47MF 16V lytic	S1	40-41861J01	SWITCH,local-distant
C202	21-45322G03	3PF .25PF 50V disc	S701-1 thru-4		AM/FM sw. pt of tuner

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: ALL PARTS LISTED ARE RECOMMENDED REPLACEMENT PARTS

REF. NO.	PART NUMBER	DESCRIPTION	REF. NO.	PART NUMBER	DESCRIPTION
COILS & CHOKES			SWITCHES		
L1	24-41871J01	3.9uh	S1	40-41861J01	SLIDE:local-distant
L2	24-41872J01	1.5uh	S201		STEREO-MONO(pt of VR301,302)
L3	25-40894G03	CHOKE,filter	S701		AM/FM SELECTOR & ON-OFF (pt of VR301,302)
L101	24-45294G09	4.7uh:indicator	TRANSFORMERS		
INTEGRATED CIRCUITS			T1	24-41864J01	FM IF
IC201	51-41850J01	LA3301	T2	24-64670B01	AM IF
TRANSISTORS			T101	24-41865J01	FM DISCRIMINATOR(Primary)
TR1	48-41816J01	2SC1359(A)	T102	24-41866J01	FM DISCRIMINATOR(Secondary)
TR2	48-41815J02	2SC829(B)	T103	24-64670B02	AM IF
TR3	48-41816J01	2SC1359(A)	T201	24-41867J01	19Khz
TR4,5	48-41815J02	2SC829(B)	T202	24-41868J01	38Khz
TR101-106	48-41815J02	2SC829(B)	MECHANICAL PARTS		
TR201	48-44885G01	2SC828(S)	85	1-41700J07	BACKGROUND,dial scale:incl FM & Stereo Screen
TR501,502	48-44885G01	2SC828(S)		84-42016J01	BOARD,plated:AM/FM/MPX(less components)
TR503	48-44885G01	2SC828(S)		84-41927J01	BOARD,plated:amp & filter
TR504	48-43238G01	2SA495(Y)		7-40507F13	BRACKET,pointer mtg
TR505,506	48-44886G01	2SC1317(Q)		7-40507F09	BRACKET,ret:disc clutch
TR507	48-41784J03	2SC1368(C)		43-43527A09	BUSHING,control mtg
TR508	48-41785J03	2SA738(C)		43-42072J02	BUSHING,dial light ret
TR509	48-41784J03	2SC1368(C)		38-40538F13	BUTTON,pointer brkt mtg
TR510	48-41785J03	2SA738(C)		30-45005G02	CABLE,spkr
TR701	48-44885G01	2SC828(S)		49-40549F01	CLUTCH,disc
RESISTORS				15-41845J01	COVER,bottom
(THOSE LISTED, 5% OR BETTER, ALSO UNIQUE VALUES. REFER TO PL-76 FOR PARTS NO'S. OF OTHER VALUES.)			86	15-41860J01	COVER,top
R501	6-10053C88	560K 5% 1/2W	87	15-41852J01	ESCUTCHEON,sub:dial bkgrd ret
R502	6-10053C88	560K 5% 1/2W		44-40544F01	GEAR,crown:incl bushing & disc
R503	6-129669	4700 5% 1/4W		14-41878J01	INSULATOR,transistor
R504	6-131276	150 5% 1/4W		1-41700J16	KIT,installation:complete
R505	6-129804	2200 5% 1/4W	88	36-544812	KNOB,local/distance tone
R506	6-131276	150 5% 1/4W	89	36-64341B01	KNOB>manual tune,vol
R507	6-129804	2200 5% 1/4W		33-41313J01	NAMEPLATE,Motorola/Stereo
R508	6-129669	4700 5% 1/4W		2-40000G20	NUT,hex:M9(use escut. mtg)
R509	6-129709	470 5% 1/4W	90	1-41700J12	POINTER & ARM
R510	6-10053C07	82 5% 1/2W	91	38-40538F10	PUSHBUTTON:AM
R511	6-10053C07	82 5% 1/2W	92	38-40538F11	PUSHBUTTON:FM
R512	6-129804	2200 5% 1/4W	93	38-40538F12	PUSHBUTTON:plain
R513	6-129804	2200 5% 1/4W	94	9-41390J01	RECEPTACLE,antenna
R514	6-129981	3300 5% 1/4W		1-44981G04	RECEPTACLE,fuse:incl fuse
R515	6-129981	3300 5% 1/4W		42-40542F06	RING,"E"ret:man tuning shaft
R516,517	6-131524	100 5% 1/4W		*61-40366F02	SCALE,dial
R518,519	6-131276	150 5% 1/4W		3-40011G58	SCREW,mch:M2.6x.45x3(Feed thru cap ret.)
R520	6-10053B84	10 5% 1/2W		3-40011G59	SCREW,mch:M3x6(PC bd mtg)
R521	6-131524	100 5% 1/4W		3-44205G01	SCREW,tpg:M3x.5x6(cover mtg)
R522	6-10053B84	10 5% 1/2W		47-40547F09	SHAFT,man tuning:incl pinion gear
R523	6-131524	100 5% 1/2W		43-41851J01	SPACER,cable ret
R524-527	30-41857J01	.3 ohm wire		41-40541F02	SPRING,tension:clutch mtg
R701,702	6-10053C19	270 5% 1/2W		41-40541F01	SPRING,ret:man tuning shaft
R703	6-10053C11	120 5% 1/2W		77-41994J01	TUNER,complete
VR201	18-42061J01	CONTROL VARIABLE		4-42091G07	WASHER,"C"(control mtg to dial scale)
VR301,302	18-41752J01	CONTROL,vol 20K & tone 10K		4-40504F02	WASHER,cup:clutch tension spring ret
VR501	18-41869J18	CONTROL,balance 50K	97	4-42219J01	WASHER,flat(control mtg)
				4-40504F01	WASHER,spring:crown gear & disc clutch assy.
				4-40504F03	WASHER,spring:pointer brkt mtg
				4-40070G28	WASHER,trim escut. ret.

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

* DENOTES NEW ITEM APPEARING IN ANY LIST FOR FIRST TIME.

FM ALIGNMENT

GENERAL INFORMATION - The factory alignment is performed with laboratory equipment. The circuits are quite stable and not ordinarily subject to drift. Therefore, before alignment is attempted, the set should be thoroughly checked for circuit troubles. An FM generator should be used for FM alignment.

ALIGNMENT CONDITIONS - Input level to the receiver +14.0V DC. During FM alignment, the generator signal amplitude must be set above or below the receiver limiting level depending on the adjustment made. The limiting level is the point where further increase in input does not increase the output level. During alignment then, either keep the RF level below this point (below limiting level) or above this point (into limiting) as pointed out in the alignment procedure. In addition, the signal generator leads must be short and carefully shielded. If noise voltage on the generator leads is high enough to cause limiting, it is almost impossible to align the receiver properly because tuning adjustments will not show up as variations in the VTVM reading.

FM ALIGNMENT USING FM GENERATOR - ALL MODELS EXCEPT - 3515

STEP	GENERATOR CONNECTION	GENERATOR FREQUENCY	RADIO FREQUENCY	OUTPUT INDICATOR	ADJUST	REMARKS
FM - IF ALIGNMENT						
1	Direct thru ant receptacle	10.7Mhz (75Khz deviation @ 400Hz Mod into limiting, 100KuV or better)	108Mhz	VTVM-AC probe or scope across 3.2 ohm output load	T2	Adjust for max output.
2	"	10.7Mhz (75Khz deviation @ 400Hz Mod below limiting)	"	"	T1	Adjust for max output. Repeat steps 1 & 2 for optimum peak.
The following steps are required to bring the IF system into line with the ceramic filters in order to achieve maximum sensitivity.						
3	"	98Mhz (75Khz deviation @ 400Hz Mod - below limiting)	98Mhz	"	Radio freq.	Adjust for best Symmetry on scope, or max output on VTVM.
4	"	98Mhz (75Khz deviation @ 400Hz Mod - into limiting 100KuV or better)	"	"	T2	Adjust for max output.
5	"	98Mhz (75Khz deviation @ 400Hz Mod - below limiting)	"	"	T1	" Repeat steps 3,4 & 5 for optimum peak.

FM - RF ALIGNMENT - DO NOT perform Steps 6, 7, 8 & 9 unless the tuner has been tampered with or associated components have been replaced. Before proceeding with Step 6, back the FM tuning cores as far as possible out of the coils to eliminate their effect on trimmer adjustments.

6	Antenna receptacle thru termination (Fig. 14)	108Mhz (22.5Khz deviation @ 400Hz Mod - use max sig)	108Mhz	VTVM-AC probe or scope across 3.2 ohm output load	C18	Adjust for max signal output.
7	"	108Mhz (22.5Khz deviation @ 400Hz Mod - below limiting)	"	"	C9, C4	"
8	"	98Mhz (22.5Khz deviation @ 400Hz Mod - use max sig)	98Mhz	"	L4	Adjust for max signal output. See "FM Alignment Locations" detail for core carriage note.
9	"	98Mhz (22.5Khz deviation @ 400Hz Mod - below limiting)	"	"	L3, L2	Adjust for max signal output. See Fig. 15 for core carriage note. Repeat steps 6 thru 9.

ALL MODELS EXCEPT 3515

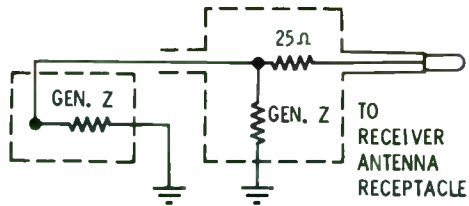


FIG. 14 - FM GENERATOR TERMINATION

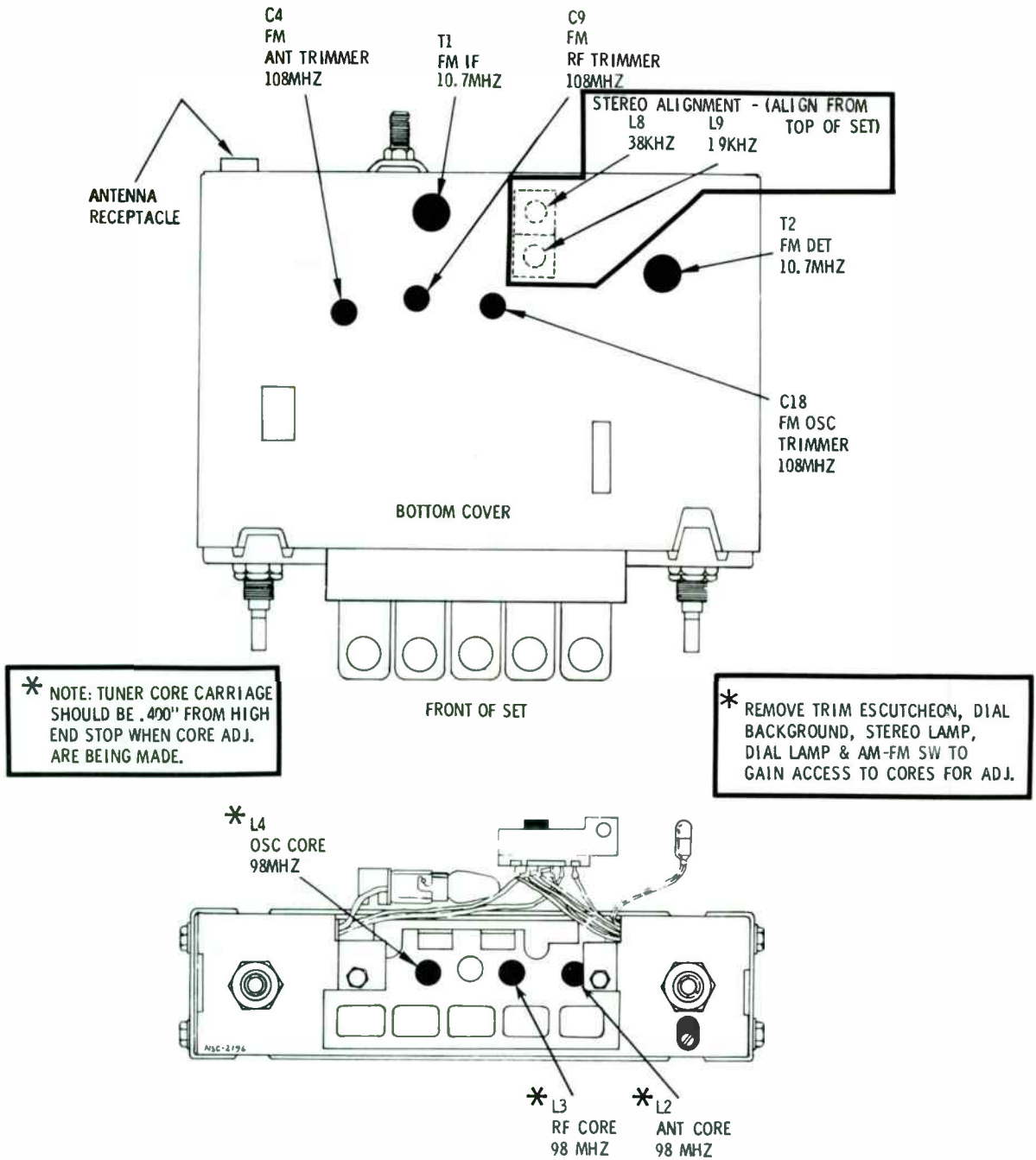


FIG. 15 - FM & MPX ALIGNMENT POINT LOCATION (ALL MODELS EXCEPT 2MM3515)

Mazda 5MM3406(0000-10-103)
Volvo 2VV3514(11281003-1),2VV3609
(11281992-5),5VV3404

FM STEREO RECEPTION

When the receiver is tuned to a sufficiently strong FM stereo station, the stereo indicator will become illuminated. As long as 25uV or better of signal strength is received, the indicator will remain illuminated.

A recovered stereo signal is inherently more noisy than a comparable monaural signal; the weaker the signal, the higher the resultant noise level. Typically, the signal/noise ratio for a demodulated stereo signal is 20db less than that of an equivalent monaural signal. Consequently, a 40db signal/noise ratio would be required in monaural operation, before switching to stereo, if adequate signal/noise and separation are to be realized.

To maintain an acceptable signal/noise ratio when tuned to a weak FM stereo station, the receiver switches to the mon-

aural mode of operation. (The stereo indicator light will go out, both speakers will operate, but without the stereo effect.) As the signal strength increases the noise level will drop and the receiver will switch back to a stereo mode of operation. This switching action from stereo to monaural and back to stereo is automatic and requires no adjustments by the customer.

Good stereo reception requires a relatively strong composite signal on pin 3 of IC2 in addition to a positive DC voltage on pin 4. The DC voltage varies with signal strength and is derived from IC1. The DC voltage will rise to 1.5 volts (representing a received signal of 25uV or more) and then drop down to 0.9 volts as the receiver switches to stereo operation. In this way, a good signal/noise ratio is assured during stereo operation.

STEREO ALIGNMENT

The FM stereo multiplex system should be aligned only with the use of an FM multiplex generator.

The following steps must be performed before starting to align an FM stereo multiplex system.

1. The "AM-FM" switch must be in the "FM" position.
2. The generator output must be at a high RF level (100uV

better.) The FM stereo light (E4) should be lit during the alignment procedure. If it is not, either the generator output is too low, the circuits are out of alignment or inoperative.

3. FM radio "IF's" must be properly aligned before beginning multiplex alignment. CAUTION should be observed when servicing the multiplex IC. Shorting or grounding of contact pins will cause damage to the IC.

ALL MODELS EXCEPT - 3515

STEP	GENERATOR CONNECTION	MODULATION	OUTPUT INDICATOR	ADJUST	REMARKS
1	Connect an RF signal modulated with multiplex signal to antenna input	19Khz pilot @ 10% modulation	Connect low capacity probe of AC voltmeter to pin 2 of L9. Use lowest possible range on AC voltmeter	L9, 19Khz coil	1. Accurately tune radio to RF frequency of stereo generator. 2. Turn off left and right channel multiplex signals. 3. Adjust L9 for max output.
2	"	"	Connect low capacity probe of AC voltmeter to pin 13 of multiplex chip IC2. Use lowest possible range on AC voltmeter	L8, 38Khz coil	1. Adjust L8 for max output.
3.	"	"	Connect receiver speaker leads to output indicators (either separate meters or part of multiplex generator)	L8, then L9	1. First turn on left and right channel multiplex signals and adjust audio output to 1 watt in each channel. Then turn off right channel multiplex signal and adjust L8 and L9 for a minimum in the right channel output indicator (max separation.) 2. Repeat procedure for left channel separation. 3. Remove all test equipment and check for proper stereo operation.

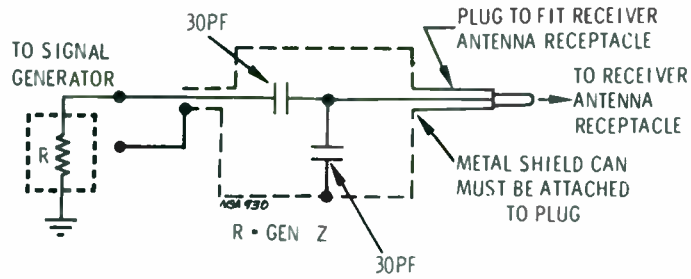
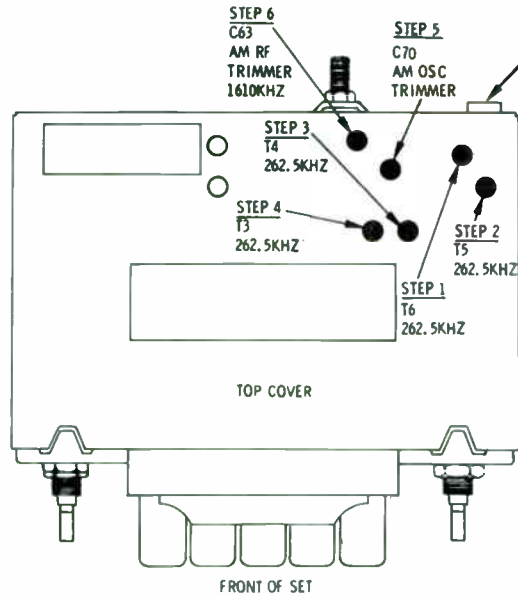


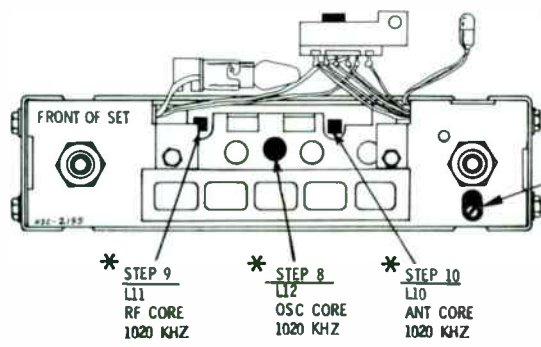
FIG. 21 - AM DUMMY ANTENNA DETAIL

AM ALIGNMENT
 ADJUST ALL STEPS FOR MAX OUTPUT INDICATION ON A.C. METER, CONNECTED ACROSS SPEAKER LOAD. MAINTAIN APPROX. 1 WATT OUTPUT DURING ALIGNMENT PROCEDURE (1.79V) ACROSS 3.2Ω LOAD. REPEAT ALL ADJUSTMENTS AS REQUIRED UNTIL NO FURTHER IMPROVEMENT IS OBTAINED.



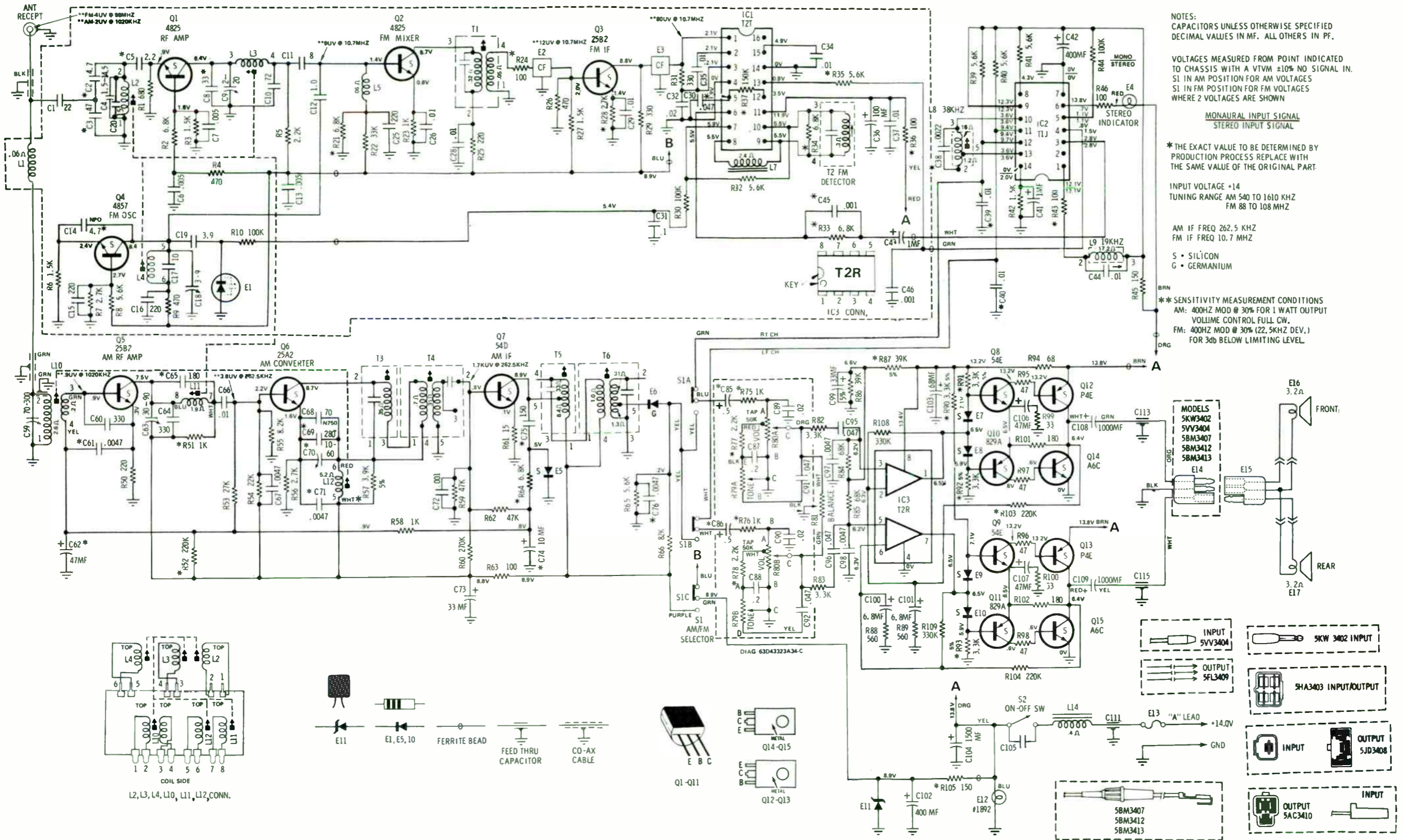
CONNECT "RF" GENERATOR TO ANTENNA RECEPTACLE THROUGH "AM" DUMMY ANTENNA FOR "RF" ALIGNMENT AND THRU .1MF CAPACITOR FOR "IF" ALIGNMENT (400 HZ @ 30% MOD.)

*** CORE ADJUSTMENTS**
 NOTE: ADJUST ONLY IF NECESSARY-DUE TO POOR SENSITIVITY, AFTER ADJUSTMENT REPEAT STEPS 5,6&7 IF NECESSARY
 NOTE: TUNER CORE CARRIAGE SHOULD BE 443" FROM HIGH END STOP WHEN CORE ADJUSTMENTS ARE BEING MADE.
 NOTE: TRIM ESCUTCHEON, DIAL BACKGROUND, PILOT LIGHT, STEREO LIGHT, & SWITCH MUST BE REMOVED TO PERFORM CORE ADJUSTMENTS.



STEP #11
 MAKE FINAL ANTENNA TRIMMER ADJUSTMENT IN VEHICLE WITH ANTENNA EXTENDED TO 30" AND RADIO TUNED TO A WEAK STATION ABOVE 1400 KHZ.

FIG. 22 - AM ALIGNMENT POINT LOCATION (ALL MODELS EXCEPT 2MM3515)



**Mazda 5MM3406(0000-10-103)
Volvo 2VV3514(11281003-1),2VV3609
(11281992-5),5VV3404**

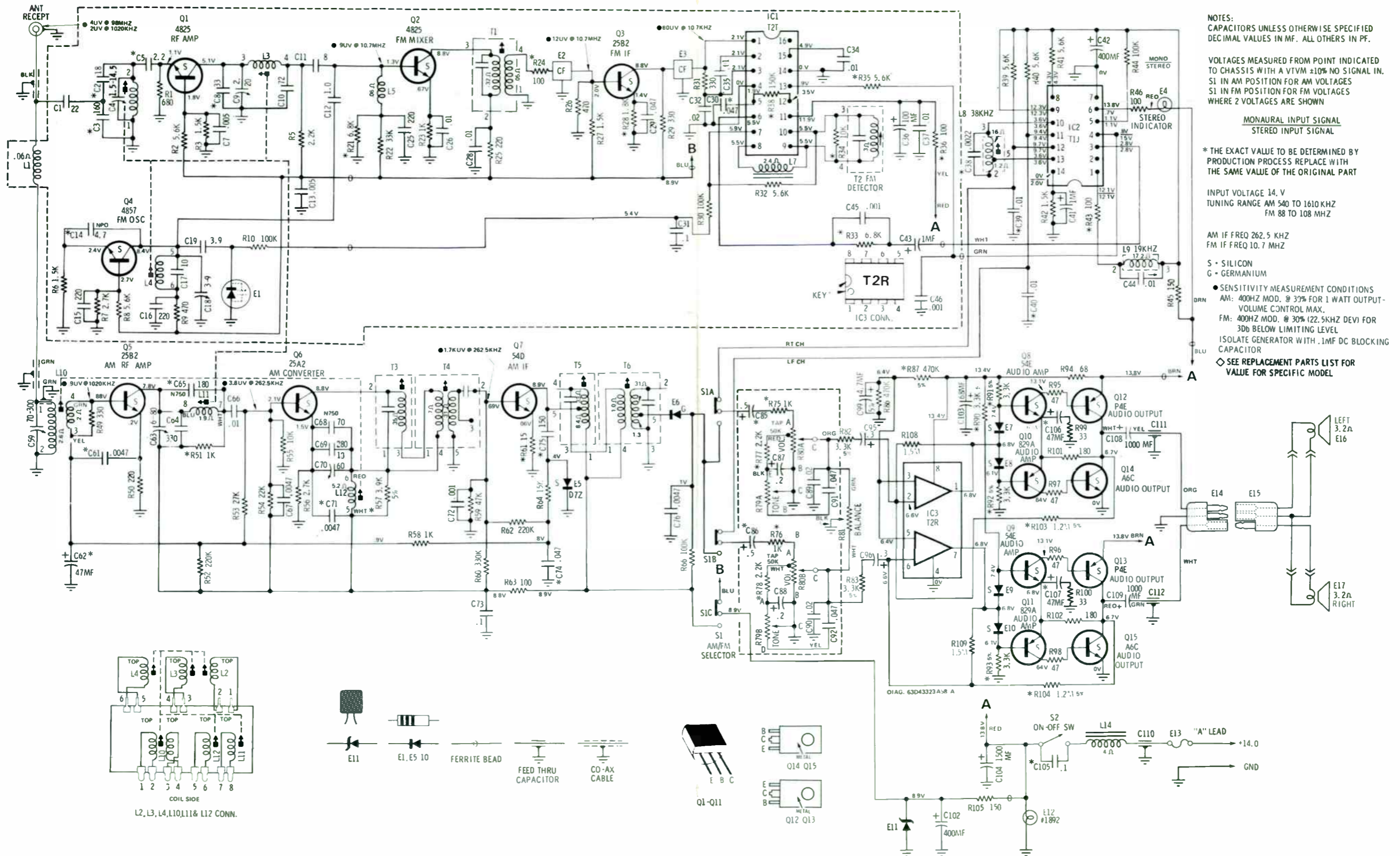
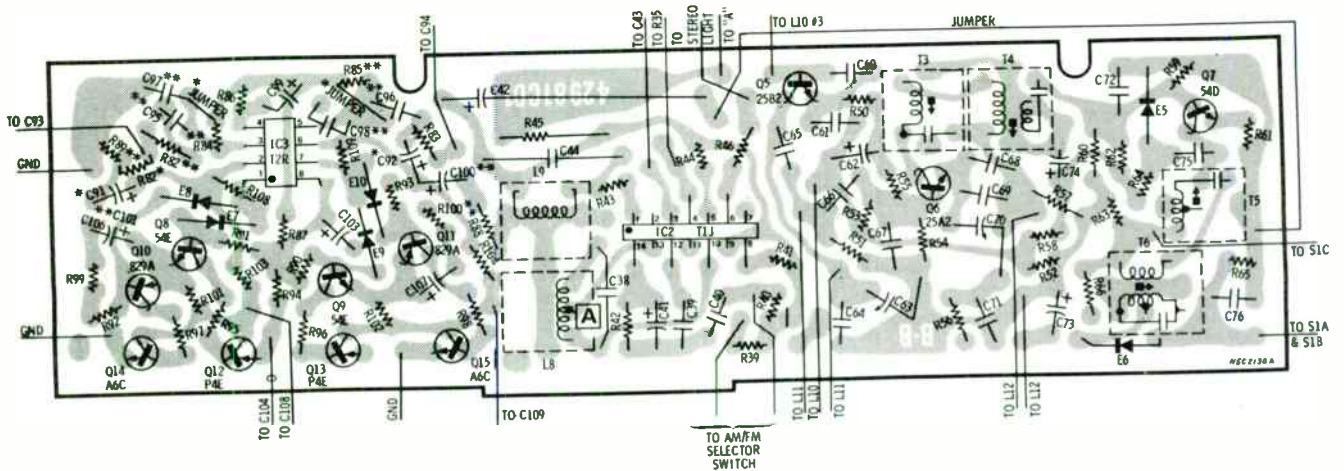


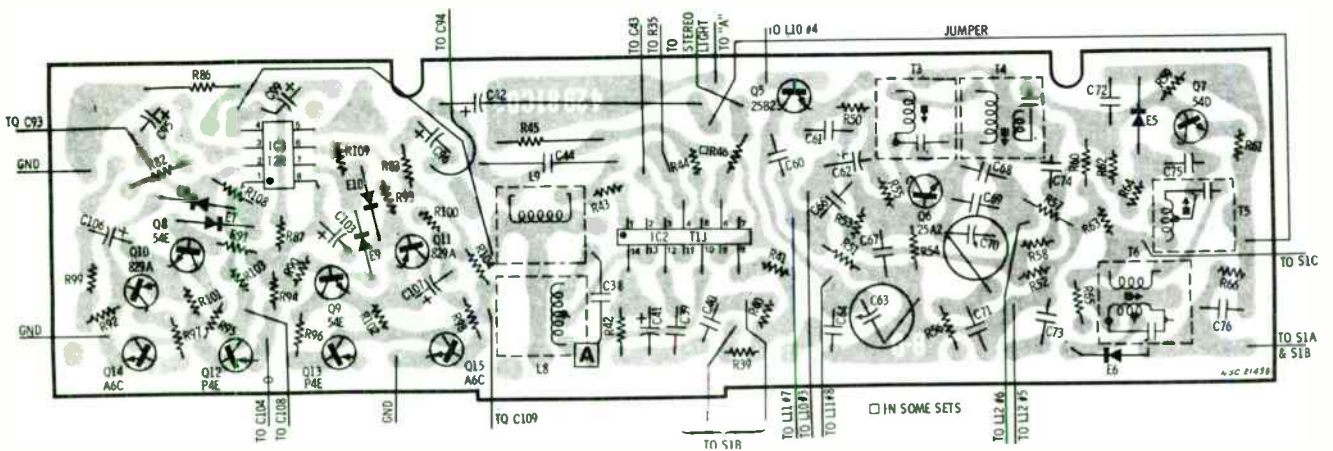
FIG. 23 - 2VV3514, 2VV3609 SCHEMATIC DIAGRAM

**Mazda 5MM3406(0000-10-103)
Volvo 2VV3514(11281003-1),2VV3609
(11281992-5),5VV3404**



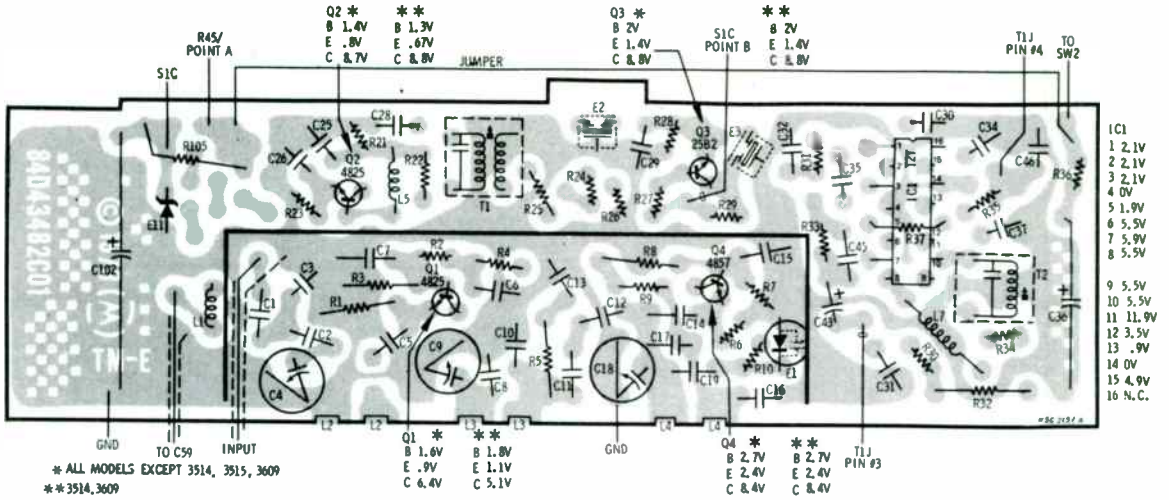
BOTTOM VIEW - WIRING SIDE

**FIG. 17 - AM/AUDIO/MPX PLATED BOARD DIAGRAM
(ALL MODELS EXCEPT 2VV3514, 2MM3515 & 2VV3609)**

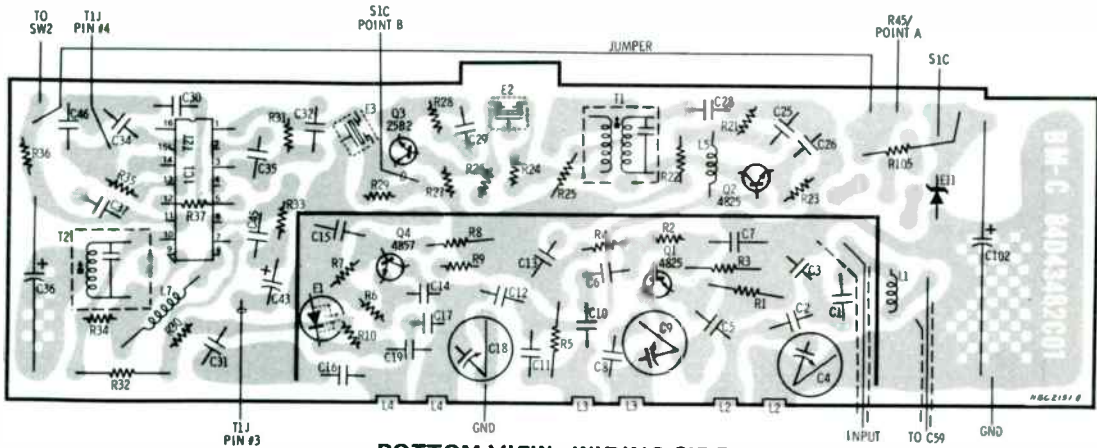


BOTTOM VIEW - WIRING SIDE

FIG. 18 - AM/AUDIO/MPX PLATED BOARD DIAGRAM(MODELS 2VV3514, 2VV3609)

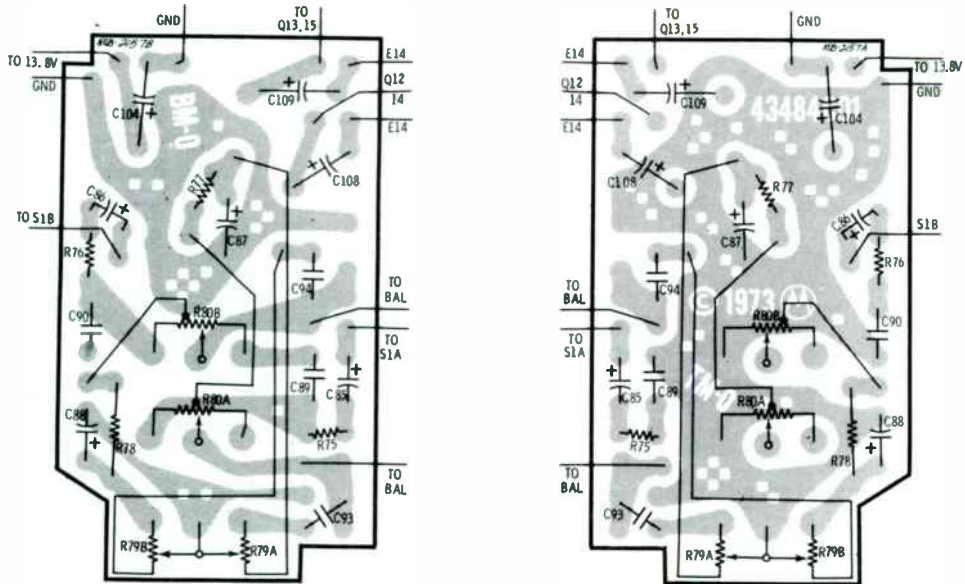


TOP VIEW - COMPONENT SIDE



BOTTOM VIEW - WIRING SIDE

FIG. 19 - FM TUNER & IF PLATED BOARD DIAGRAM
 (ALL MODELS EXCEPT 2MM3515)



BOTTOM VIEW - WIRING SIDE

TOP VIEW - COMPONENT SIDE

FIG. 20 - VOLUME & TONE PLATED BOARD DIAGRAM
 (ALL MODELS EXCEPT 2MM3515)

Mazda 5MM3406(0000-10-103)
Volvo 2VV3514(11281003-1),2VV3609
(11281992-5),5VV3404

ALL MODELS EXCEPT 2MM3515

NOTE ALL PARTS LISTED ARE RECOMMENDED REPLACEMENT PARTS

REF. NO.	PART NUMBER	DESCRIPTION	REF. NO.	PART NUMBER	DESCRIPTION
ELECTRICAL PARTS					
CAPACITORS					
C1	21-43539A40	22PF 10% 100V NPO disc	C42	23-42674B10	400MF 16V lytic
C2	21-43539A51	18PF 10% 100V N150 disc (3514 & 3609)	C43	23-42582B03	1MF 25V lytic
	21-43539A70	4.7PF ±.25PF 100V N150 disc (All models except 3514&3609)	C44	8-10226A76	.01MF 5% 33V N150 poly
C3	21-40367A32	160PF 5% 100V mica(3514&3609)	C45	21-43538A45	330PF 10% 100V Z5F disc(All models except 3403,3514,3609)
	21-43539A24	47PF 10% 100V N220 disc (All models except 3514 & 3609)		21-43538A31	.001MF 10% 100V Z5F disc(3403, 3609)
C4	20-40392F04	TRIMMER,POLY:FM ANT 1.5-14.5PF		8-42208B08	.001MF 20% 50V mylar(3514)
C5	21-43539A14	2.2PF 10% 100V NPO disc	C46	21-43538A31	.001MF 10% 100V Z5F disc
C6	21-43538A43	.005MF 20% 100V Z5U disc (All models except 3514 & 3609)	C59	20-40647C01	TRIMMER,VARIABLE MICA:AM ANT 70-300PF
C7	21-43538A43	.005MF 20% 100V Z5U disc	C60	21-43538A45	330PF 10% 100V Z5F disc (All models except 3514 & 3609)
C8	21-40367A25	33PF 10% 100V mica		21-43539A57	180PF 5% 100V N750 disc(3514 & 3609)
C9	20-40392F02	TRIMMER,POLY:FM RF 2-20PF	C61	8-42208B16	.0047MF 10% 50V mylar
C10	21-40367A21	72PF 10% 100V mica(3514&3609)	C62	23-42674B23	47MF 10V lytic
	21-43539A89	72PF 10% 100V N150 disc(All models except 3514 & 3609)	C63	20-43646B02	TRIMMER,CERAMIC:AM RF 30-90PF (All models except 3514&3609)
C11	21-43539A25	8PF 10% 100V NPO disc		20-40391F02	TRIMMER,POLY:AM RF 6-80PF(3514 & 3609)
C12	21-43539A16	1PF ±.25PF 100V NPO disc	C64	21-40367A27	330PF 5% 100V mica
C13	21-43538A43	.005MF 20% 100V Z5U disc	C65	21-43539A57	180PF 5% 100V N750 disc(All except 3404)
C14	21-43539A74	4.7PF ±.25PF 100V NPO disc		21-43539A95	180PF 5% 100V N750 disc(3404)
C15,			C66	8-42208B15	.01MF 10% 50V mylar
16	21-40367A07	220PF 5% 100V mica	C67	8-42208B16	.0047MF 10% 50V mylar
C17	21-43539A66	10PF 5% 100V N220 disc	C68	21-43539A52	70PF 5% 100V N750 disc
C18	20-40429B04	TRIMMER,CERAMIC:FM OSC 3-9PF	C69	21-43842B08	280PF 5% 100V mica
C19	21-43539A47	3.9PF 10% 100V N150 disc	C70	20-43646B01	TRIMMER,CERAMIC:AM OSC 10-60PF
C20	21-43539A73	15PF 5% 100V N220 disc (All models except 3514 & 3609)	C71	8-42208B16	.0047MF 10% 50V mylar
C25	21-43538A60	220PF 10% 100V Y5F disc	C72	21-43538A31	.001MF 10% 100V Z5F disc
C26	21-43538A60	220PF 10% 100V Y5F disc(3514)	C73	23-42582B01	33MF 10V lytic(All models except 3403,3404,3514,3609)
	8-42208B15	.01MF 10% 50V mylar(All models except 3514)		23-42674B23	47MF 10V lytic(3403,3404)
C28	8-42208B15	.01MF 10% 50V mylar		8-42208B03	.1MF 10% 50V mylar(3514,3609)
C29	8-42208B15	.01MF 10% 50V mylar(All models except 3609)	C74	23-42674B31	10MF 16V lytic(All models except 3514,3609)
	8-42208B21	.047MF 20% 50V mylar(3609)		8-42208B18	.047MF 10% 50V mylar(3514, 3609)
C30	8-42208B18	.047MF 10% 50V mylar(All models except 3609)	C75	21-43538A01	150PF 10% 100V Z5F disc
	8-42208B21	.047MF 20% 50V mylar(3609)	C76	8-42208B16	.0047MF 10% 50V mylar
C31	8-42208B10	.1MF 20% 50V mylar	C85,		
C32	8-42208B11	.02MF 20% 50V mylar	86	23-43280A21	.5MF 15V lytic(use:23-43280A 25)
C33	21-43538A50	100PF 10% 100V Z5F disc(All models except 3403,3514,3609)	C87,		
C34	8-42208B15	.01MF 10% 50V mylar	88	23-43280A33	.2MF 15V lytic
C35	8-42208B15	.01MF 10% 50V mylar	C89	8-42208A11	.02MF 20% 50V mylar(All models except 3403)
C36	23-42674B43	100MF 16V lytic		8-42208B25	.015MF 10% 50V mylar(3403)
C37	8-42208B15	.01MF 10% 50V mylar	C90	8-42208A11	.02MF 20% 50V mylar(All models except 3403)
C38	8-10226A64	.0022MF 5% 63V N150 poly(use: 8-10226A63)		8-42208B25	.015MF 10% 50V mylar(3403)
C39	8-42208B15	.01MF 10% 50V mylar(All models except 3403)	C91	8-42208B18	.047MF 10% 50V mylar
	8-42208B16	.0047MF 10% 50V mylar(3403)	C92	8-42208B18	.047MF 10% 50V mylar
C40	8-42208B15	.01MF 10% 50V mylar(All models except 3403)	C95	8-42208B18	.047MF 10% 50V mylar(All models except 3514, 3609)
	8-42208B16	.0047MF 10% 50V mylar(3403)		23-43280A32	.3MF 10V lytic(3514,3609)
C41	23-43280A17	1.MF 15V lytic	C96	8-42208B18	.047MF 10% 50V mylar(All models except 3514,3609)
				23-43280A32	.3MF 10V lytic(3514,3609)

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NOTE ALL PARTS LISTED ARE RECOMMENDED REPLACEMENT PARTS

REF NO	PART NUMBER	DESCRIPTION	REF NO	PART NUMBER	DESCRIPTION
ELECTRICAL PARTS (cont)					
C97	8-42208B16	.0047MF 10% 50V mylar(All models except 3514, 3609)	E15	30-40824C06	CABLE,STEREO ADAPTER:RX2,RX3, 808 (3406)
C98	8-42208B16	.0047MF 10% 50V mylar(All models except 3514, 3609)		30-43590C01	CABLE,STEREO ADAPTER-3407,3413
C99	23-42582B01	33MF 10V lytic(All models except 3514, 3609)		*30-40824C08	CABLE,STEREO ADAPTER(3412)
	23-42674B30	4.7MF 16V lytic(3514,3609)		30-40824C09	CABLE,STEREO ADAPTER(3514)
C100	23-42582B10	6.8MF 35V lytic(All models except 3514, 3609)	E16	30-40824C10	CABLE,STEREO ADAPTER(3609)
C101	23-42582B10	6.8MF 35V lytic(All models except 3514, 3609)		50-40356F01	SPEAKER,FRONT:5"PM,3.2ohm;RX2 RX3,808,B1800(3406)
C102	23-42674B10	400MF 16V lytic		50-40560C02	SPEAKER & HOUSING:WEDGE MTG: RX2 (3406)
C103	23-42674B39	68MF 16V lytic		50-40525C03	SPEAKER,5X7"PM:3.2ohm (3412)
C104	23-42674B41	1500MF 16V lytic		50-40168E01	SPEAKER, 5" Round spcl(3514)
C105	8-42208B10	.1MF 20% 50V mylar	E17	30-40017F06	CABLE,REAR SPKR:REAR DECK"Lto R";RX2(3406)
C106, 107	23-42674B23	47MF 10V lytic	E17	50-40560C02	SPEAKER & HSING:WEDGE MTG;RX2 (3406)
C108, 109	23-42674B42	1000MF 10V lytic		50-40356F01	SPEAKER,REAR:5"PM,3.2ohm;RX2, RX3,808(3406)
C110	21-560232	1000MF 500V FEED-THRU(3514, 3609)		50-40525C03	SPEAKER,5X7"PM:3.2ohm(3412)
C111	21-560232	1000MF 500V FEED-THRU		*50-40168E01	SPEAKER,5"Round spcl(3514)
C112	21-560232	1000MF 500V FEED-THRU(3514, 3609)	E18	30-41195C07	CABLE,4 way conn(3403)
C113	21-560232	1000MF 500V FEED-THRU(All models except 3514,3609)	INTEGRATED CIRCUITS		
C115	21-560232	1000MF 500V FEED-THRU(All models except 3514,3609)	IC1	51-10658A01	T2T:FM Det
	8-42938A02	IGNITION SWITCH(3412,3514, 3609)	IC2	51-10422A02	T1J:MPX
	8-40141C01	CAPACITOR, GENERATOR (3514)	IC3	51-10650A01	T2R:Audio
MISCELLANEOUS ELECTRICAL PARTS			COILS & CHOKES		
E1	48-40516C01	DIODE,VARIABLE volt cap(All models except 3403,3404,3514, 3606)	L1	24-40788A08	COIL,IF TRAP
	48-137487	DIODE,SILICON:D7N(3403,3404, 3514,3609)	L2-4	1-43000C06	COILS & MTG PLATE
E2,3	91-41457C01	FILTER,CERAMIC(Replace as matched pairs)(use:91-43353A53)	L5	24-40788A08	COIL,IF TRAP
E4	65-40259C04	BULB,STEREO INDICATOR	L7	24-42991C06	COIL, CHOKE
E5	48-134816	DIODE,SILICON:DHD800(All models except 3609)	L8	24-42814C02	MPX:38 KHZ
	48-137514	DIODE,SILICON:D7Z(3609)	L9	24-42814C02	MPX: 19 KHZ
E6	48-134587	DIODE,GERMANIUM:1N139(All models except 3609)	L10-12	1-43000C06	COILS & MTG PLATE
	48-137514	DIODE,SILICON:D7Z(3609)	L14	24-41694C04	CHOKE, FILTER
E7-10	48-137514	DIODE,SILICON:D7Z		24-43107C01	CHOKE,FILTER:INLINE (3609)
E11	48-41763C03	DIODE,ZENER:8.4-9V	TRANSISTORS		
E12	65-538410	BULB #1892(All models except 3409)	Q1	48-134825	4825 FM RF AMP
	65-138044	BULB #1893(3409)	Q2	48-134825	4825 FM MIXER
E13	65-122345	FUSE,5 amp(All models except 3402, 3403)	Q3	48-137351	25B2 FM IF
E14	30-42940A22	CABLE,3 way conn(3403,3406, 3407,3412, 3413, 3514, 3609)	Q4	48-134857	4857 FM OSC
	30-41270B09	CABLE, 3 way conn(3402)	Q5	48-137351	25B2 AM RF AMP
	30-43081C03	CABLE, 3 way conn (3408)	Q6	48-137350	25A2 AM CONVERTER
			Q7	48-134811	54D AM IF
			Q8,9	48-134846	54E DRIVER
			Q10,11	48-134830	829A DRIVER
			Q12,13	48-137331	P4E OUTPUT
			Q14,15	48-137145	A6C OUTPUT
			RESISTORS		
			(THOSE LISTED, 5% OR BETTER, ALSO UNIQUE VALUES. REFER TO PL-76 FOR PARTS NO'S. OF OTHER VALUES.)		
			R53	6-129667	22K 5% 1/4W(3514,3609)
			R57	6-129819	3900 5% 1/4W
			R79, 80	18-42925C06	CONTROL,mult:vol 50K,tone30K inc1 S2 (3404,3514,3609)

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Mazda 5MM3406(0000-10-103)
Volvo 2VV3514(11281003-1),2VV3609
(11281992-5),5VV3404

NOTE ALL PARTS LISTED ARE RECOMMENDED REPLACEMENT PARTS

REF. NO	PART NUMBER	DESCRIPTION	REF. NO.	PART NUMBER	DESCRIPTION
ELECTRICAL PARTS (cont)			5	38-40242E03	BUTTON, AM/FM slide (3403)
R79, 80	18-42925C07	CONTROL,mult:vol 50K,tone 30K incl S2 (3403)	6	38-40242E05	BUTTON,AM/FM slide(3404,3514, 3609)
R81	18-43438C05	CONTROL,bal:15K	7	38-40242E13	BUTTON,AM/FM slide (3406)
R82, 83	6-129231	3300 5% 1/2W (3514)	8	38-40242E06	BUTTON,AM/FM slide(3407,12,13)
R86	6-129149	470K 5% 1/4W (3514, 3609)	9	38-40242E12	BUTTON,AM/FM slide(3408)
R87	6-129796	470K 5% 1/2W (3514, 3609)	10	38-41578C09	BUTTON,AM/FM slide(3409)
R90, 91	6-129981	3300 5% 1/4W (3514, 3609)	10A	38-40242E08	BUTTON,AM/FM slide (3410)
R92, 93	6-129231	3300 5% 1/2W (3514, 3609)	11	30-40134D01	CABLE,antenna ferrule(3403,09)
R103	* 6-124495	1.2M 5% 1/2W (3514, 3609)	11A	*30-40049C81	CABLE,grounding
104			11B	30-40049C13	CABLE,grounding(3404,3514,3609)
R108			11C	*30-40049C75	CABLE,grounding(3406)
109	6-127000	1.5M 5% 1/2W (3514, 3609)	11D	*30-40049C40	CABLE,grounding(3407,12,13)
SWITCHES				30-64375A05	CABLE,grounding:shielded braid (3514,3609)
S1	40-43939B02	AM/FM SELECTOR	12	30-41270B09	CABLE,spkr(3402)
S2		Part of R79 & R80		30-64375A09	CABLE,grounding:shielded braid (3514)
TRANSFORMERS			13	30-42940A22	CABLE,spkr(3404,06,07,12,13, 3514,3609)
T1	24-41713C05	FM IF (All models except 3403, 3404, 3514, 3609)	14	30-43081C03	CABLE,spkr(3408)
T1	24-41713C03	FM IF (3403,3404,3514,3609)	15	30-43081C04	CABLE,spkr(3410)
T2	24-42147C02	FM DETECTOR	16	30-40017F06	CABLE,spkr:rear(3406)
T3	24-41714C01	AM 1st IF Primary		*30-40093E01	CABLE,stereo adaptor(3402)
T4	24-41714C02	AM 1st IF Secondary		30-40824C06	CABLE,stereo adaptor(3406)
T5	24-41714C05	AM 2nd IF Primary	*30-40824C10		CABLE,stereo adapter(3609)
T6	24-41714C06	AM 2nd IF Secondary	30-43590C01		CABLE,stereo adaptor(3407,3413)
			30-41195C07		CABLE,spkr & "A" lead(use: 30-41195C02)(3403) 4 way conn.
			22		CABLE,stereo adaptor(3412)
				*30-40824C08	CABLE,stereo adaptor(3412)
				30-565440	CABLE,suppression (3514)
MECHANICAL PARTS			23	49-42607B01	CLUTCH,disc
1	85-41524B03	ANTENNA (3412)		76-40553B26	CORE,tuning:AM ANT & RF
2	64-41798C05	BACKGROUND,dial scale		76-40553B08	CORE,tuning:AM OSC
	13-43066A01	BEZEL,trim (3609)		76-43567B21	CORE,tuning:FM ANT(All models except 3403)
	84-42981C01	BOARD,plated:AM/MPX/AUDIO(less components)(All models except 3514, 3609)		76-43567B16	CORE,tuning:FM RF (All models except 3403)
	84-42981C03	BOARD,plated:AM/MPX/AUDIO(less components)(3609,3514)		77-43567B23	CORE,tuning:FM OSC(All models except 3403)
	84-43482C01	BOARD,plated:FM(less comp.)	24	45-40277E01	COUPLING,star shaped(on man. tun. shaft)(All models except 3403,3514,3609)
	84-43484C01	BOARD,plated:vol & tone(less comp.)		15-43411C02	COVER,bottom
	* 3-40730A07	BOLT,spcl:1/4-20(chassis mtg) (3402, 3403, 3409)		15-43412C03	COVER,top
	3-40730A01	BOLT,spcl:1/4-20(chassis mtg) (All models except 3402,3,9)	25	61-41463C01	DIFFUSER,light(3403)
	7-43952B01	BRACKET,AM/FM slide sw mtg (All models except 3609)	26		
	* 7-40375F01	BRACKET, mtg chassis (3514)	27	61-41742B02	DIFFUSER,light(3409)
	7-43338C02	BRACKET, mtg:left hand (3406)	28	64-41629C06	ESCUTCHEON,sub
	7-43338C01	BRACKET,mtg:right hand (3406)		13-43526C01	ESCUTCHEON,trim:RX2(3406)
	64-42311C01	BRACKET,shaft ret(All models except 3403,3514,3609)		13-43527C01	ESCUTCHEON,trim:RX3,808(3406)
	7-43491C01	BRACKET,stereo light		13-40350F01	ESCUTCHEON,trim:B1800(3406)
	7-41658C03	BRACKET,trimmer mtg		13-43491B03	ESCUTCHEON,trim(3407,3413)
3	43-43611C01	BUSHING,spacer (3406)	30	76-544401	FERRITE BEAD
4	38-40242E10	BUTTON,AM/FM slide (3402)	31	44-42304C03	GEAR,crown & clutch
			32	44-42305C01	GEAR,pinion(3403)
				13-40357F01	GRILLE,spkr:rear flush mtg (3406)

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REF. NO.	PART NUMBER	DESCRIPTION	REF. NO.	PART NUMBER	DESCRIPTION
	MECHANICAL PARTS (cont)		55	1-43358A38	SCALE,dial:incl sel button-3402
			56	1-43358A42	SCALE,dial:incl sel button-3403
			57	1-43358A39	SCALE,dial:incl sel button(3404,3514,3609)
	13-43169A06	GRILLE,spkr(3412)	58	1-43358A41	SCALE,dial:incl sel button-3406
	5-43388B01	GROMMET,core carriage arm(All models except 3403)	59	1-43358A43	SCALE,dial:incl sel button(3407,3412,3413)
	5-10115A24	GROMMET,kit inst. (3514)	60	1-43358A40	SCALE,dial:incl sel button (3408)
	5-536918	GROMMET,mtg plate	61	1-43358A44	SCALE,dial:incl sel button (3409)
32A	*14-44699A01	INSULATOR,cable 4 way(3403)	62	1-43358A45	SCALE,dial:incl sel button (3410)
	14-43120C01	INSULATOR,transistor	63	1-43200B05	SCREW & NUT adj
	1-40600F11	KIT,installation:mtg nuts;RX2, RX3,808,B1800(3406)	64	3-563128	SCREW,set:4-40(disc clutch) (All models except 3403,3514,3609)
	* 1-40600F16	KIT,installation:real flush mtg nuts;RX2, RX3,808(3406)		3-138394	SCREW,tpg:3-48x3/4(trans mtg) (All models except 3514)
	* 1-40600F18	KIT,installation:wedge mtg sleeving;RX2 (3406)	65	47-43463B16	SHAFT,clutch
	1-40600F28	KIT,installation:rear spkr & flush mtg sleeving;RX2,RX3,808 (3406)	66	47-41001C04	SHAFT,man tuning:incl coupling (All models except 3403,3514,3609)
	1-43899C47	KIT,installation:incl knobs & mtg parts (3407)	67	47-42306C09	SHAFT,man tuning:incl socket (3514,3609)
	1-40600F43	KIT,installation:incl knobs & mtg pts (3412)	68	*47-42306C12	SHAFT,man tuning:incl socket (3403)
	* 1-40600F44	KIT,installation:incl knobs & mtg pts (3413)		1-43800C05	SHUTTER & ACT. ARMS
	* 1-40600F83	KIT,installation:incl knobs & mtg pts (3514)		9-42576A25	SOCKET,pilot light & lead
33	36-40039B01	KNOB,tone (3402,3409)	69	44-42305C01	SHAFT,pinion(3514,3609)
	36-43219B02	KNOB,tone (3406)	70	43-42603B04	SPACER,control mtg(3402,03,07,08,09,10,13)
35	36-43219B01	KNOB,tone(3407,08,12,13)	71	43-42603B03	SPACER,control mtg(3404,3514,3609)
36	36-43219B02	KNOB,tone(3609)		*43-43552C03	SPACER,rear mtg(3402,03,09)
37	36-43681C01	KNOB,vol & sel(3402,3408)	72	41-40283E01	SPRING,bias:pinion shaft ret
	36-43401B01	KNOB,vol & sel(3406,07,12,13,3609)	74	41-40648B01	SPRING,cam clutch
			75	41-42441B01	SPRING,link
39	36-40252B04	KNOB,vol & sel (3409)		41-40650A01	SPRING,shaft ret
	2-10054A29	NUT,clip-on(3514)		41-41805A01	SPRING,pointer tension
	2-565333	NUT,hex:1/4-20(chassis mtg)	77	42-544845	STRAP,receiver mtg (3406)
	2-124821	NUT,hex:1/2-28(chassis mtg) (3609)		42-485718	STRAP,receiver mtg(3407,3413)
	2-121771	NUT,hex:3/8-32(control ret)	78	46-565260	STUD,trimount(dial scale mtg)
40	13-41525C06	OVERLAY(All models except 3409)		29-40201E01	TERMINAL,adapter(3514,3609)
41	13-41525C11	OVERLAY (3409)	79	*77-41900C78	TUNER,FS-361:comp.(3403)
42	44-42305C01	PINION(All models except(3403,3514,3609)		77-41900C66	TUNER,FS-331:comp(All models except 3403)
43	64-40326F02	PLATE,front:radio mtg(3609)		4-139052	WASHER,AM/FM slide button ret
44	64-40456C02	PLATE,spkr mtg(3412)		42-10113A07	WASHER,clutch shaft ret.(3403)
45	52-42479B38	POINTER & ARM		4-43176C01	WASHER,locating
46	38-42185B01	PUSHBUTTON		4-43722B01	WASHER,spacer clutch shaft-3403
	9-42764B01	RECEPTACLE,ant(All models except 3403)		42-10219A10	WASHER,pointer ret (3403)
48	9-42176A08	RECEPTACLE,fuse:incl fuse (3404,3514,3609)			
49	9-42176A13	RECEPTACLE,fuse:incl fuse(3406)			
50	9-42176A15	RECEPTACLE,fuse:incl fuse(3407,3412,3413)			
51	9-42176A14	RECEPTACLE,fuse:incl fuse(3408)			
52	9-41356C29	RECEPTACLE,fuse:incl fuse(3409)			
53	9-42176A10	RECEPTACLE,fuse:incl fuse(3410)			
	42-10219A10	RETAINER,"E"ring(pointer ret) (All models except 3403)			
54	42-10113A07	RING,ext.ret(clutch shaft) (All models except 3403)			

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PE663C	284	3148	204	D1DA18806	94	D6BA19A168BD	222	D8VF19A171AA		1F3RMX4	180
PE666A	257	3148A	236	D1DJ19A241AA	108	D6BA19A242AA	223	(Late Version)	277	1FA	98
PE676A	258	3149A	247	D1GA19A241	98	D6DA19A171	226	D8VF19A171AA	277	1FBF	94
PE702A	233	3504/05	154	D1HA18806	94	D6DA18806AA	221	D9AF18806AA	283	1FBG	98
PE703A(Late Prod)	267	3506	158	D1LA19A242AA	104	D6DF19A171AA	246	D9AF19A168AA, BA	281	1FBGG	97
PE703A(Early Prod)	264	3507	177	D1LA18806	98	D6EA19A171	226	D9AF19A171AA	277	1FBGX	97
PE703B(Late Prod)	267	3508	157	D1MA19A241	98	D6EA19A171AC	246	D9AF19A171AB	282	1FBL	97
PE703B(Early Prod)	264	3511/12	206	D1MA19A242AD	105	D6EA18806AA	245	D9AF19A198AA	284	1FBM	98
PE703C(Late Prod)	267	3513	208	D1OA19A241	94	D6HA18806AA	245	D9AF19A198BA	284	1FBO	94
PE703C(Early Prod)	264	3516	240	D1OA18806	94	D6SA19A188AD	228	D9AF19A241AA	280	1FBOO	94
PU434A(Pg 79)	170	3520	258	D1SA19A242AB	102	D6TA19A241	188	D9DF19A171AA	282	1FBOX	98
PU617A	205	3521	249	D1SA18806AB	101	(Pg 61)	188	D9DF19A198AA	284	1FBSS	100
PU657A	210	CRANWOOD		D1TA19A241	94	D6TA18806AB	171	D9EF19A171AA	282	1FBT	94
PU659A	234	TC77T	212	D1TJ18806AA	97	(Pg 85)	171	D9EF19A198AA	284	1FBTPP	98
RE121A/B	162	TC95MPX (Pg 47)	184	D1UA18806	94	D6TA18806BA	245	D9HF19A168AA	281	1FBTPX	98
RE126A	166	TC207MPX	211	D1VA19A241	97	D6TJ19A171AA	246	D9HF18806AA	286	1FBW	98
RE127A	169	52T	208	D1VA19A242AA	102	D6VA19A188AD	228	D9LF18826AE	276	1FBWW	97
RE132B	184	77T	212	D1WA19A241	98	D7AF19A168AA	248	D9MF18806AA	286	1FBWX	97
RE308B	167	207MPX	211	D1WA19A242AD	105	D7AF19A168CA	252	D9SF19A168AA	281	1FBZ	94
RE311A/B	164	100017-219	212	D1YA19A241	98	D7AF19A180AB	251	D9TF19A171AA	282	1FBZX	98
RE321A/B	186	100007-254	208	D1YA19A242AD	105	D7AF19A188AB	249	D9VF19A168AA	281	1FBZZ	98
RE322A	224	CROWN		D1ZA19A241	94	(Pg 45)	228	D9VF19A171AA	277	1FD2507	200
RE322B	182	D2AA19A241	130	D1ZA19A242AD	104	D7AF19A241AB	249	D9VF19A171AB	282	1FD4103	104
RE338A/B	230	D2AA19A241-125	127	D2AA19A241	130	D7AF19A241BA	249	D9VF19A198AA	284	1FD4217	135
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RE342A	232	D2AA18806	126	D2BA18810	114	D7EF19A241BA	249	D1Z18806	94	1FD4510	199
RE344B	241	D2DA18806	125	D2DA18806	125	D7MF19A168AA	252	D2A19A171AA	133	1FD4511	222
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RE350B	269	D27J18806BA	247	D2HA18806 (72)	126	D27J18806CA	248	D27J18806BA	247	1FD4608	223
RE351A	243	D27TF18806AA	248	D2HA18806 (73)	138	D32A19A171AA	178	D27J18806BA	248	1FD5001	80
RE351B	250	D27VF19A168AB	248	D2HA18810(2BTT)	114	D32A19A241	137	D3A19A171AA	178	1FD5003	87
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		D8AF19A241AA	264	D2UA18806	138	D8AF19A188AA	274	(Pg 45)	228	1MZ4004	86
		D8AF19A241AB	280	D2VA19A241	127	D8AF19A188AA	274	D77J-19A171AA		1MZ4218	135
		D8AF18806AA	248	D2VA19A242AD	127	D8AF19A241AA	264	(Pg 45)	228	1MZ4304	153
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		D8EF18806BB	286	D2ZA19A241	127	(Pg 75)	248	D77J-18806AA		1PN2318	178
		D8AF19A188AA	228	D2ZA19A242AF	135	D8AF18806AB	286	(Pg 75)	248	1PN2411	179
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		D8EF19A241AA	264	D3VA19168AC	155	ED1D1SA19A241	100	ED1D1SA19A241	100	2FBF/BFAK	127
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		D8EF19A242AB	275	D3ZA18806	136	ED1D1WA19A241	97	ED1D1WA19A241	97	2FBO	127
		D8EF18806BA	271	D4AA19A168AA	183	ED1D1Z19A241	98	ED1D1Z19A241	98	2FBTB, 2FBTPAC	126
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		D8HF19A168BB	281	D4AA18806AA	171	EDD1SA19A241	100	EDD1SA19A241	100	2FD4103	104
		D8HF19A241BA	264	D4BA18810AA	172	EDD1TA19A241	98	EDD1TA19A241	98	2FD4607	223
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6AD6DA18806AA	226	05CMM1/MWK1	78	16UT411	97	23APB2	128	33AFPB1	146
6AD6EA19A171	221	05CT411	83	20BCT11	115	23AT411	112	33AFPBK2	146
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9FBLU	71	06TT412	93	21AFP1 (Chev.)	117	23BPB1	115	33APBK2	147
9FBS	76	06TTCF1	74	21AFP1 (Pont.)	120	23BPB2	125	33APBT1	140
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		12AFP1 (71 Pont.)	97	21HPB2	120	26TRMP1	110	35RMT1 (PCB	
		12AFP1 (72 Pont.)	120	21HPBK1	112	26TRMP2	124	AR151)	175
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53BPB1	190	70HFM1/T2	245	90BFFC1	286	7312234 (94PPB1)	70	7898340 (90BFFC1)	286	7933241 (21APB1)	
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53BPBK1	190	70HFFPK1	240	90BFFPK2	284	7312332 (22GFM1)	113	7898433	239	7933241 (21APB1)	
53BPBK2 (Pg 93)	190	70HPB1	239	90BPBT1	283	7312892 (12APB1)	98	7898436	250	Pont.	114
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54LPB1	192	71BPB1	239	91VFM2	70	7312912 (22GFPBK1)	114	7898460 (90BFFM1)	283	7933241 (41XPB1)	167
55TFP1	189	71BPBK1	239	91VFP1	73	7312912 (22GFPBK2)	126	7898470	262	7933241 (51XPB1)	186
55TPB1	186	71GVFK1 (Pg 85)	189	91VMP11	70	7312922 (12AFPBK1)		7898470 (90BFFMC1)	286	7933241 (51XPB2/	
55TPB2	217	71GVPB1	253	91YFCT1	283	71 Pont.	97	7898473	243	BK2)	217
55TTCP1	186	71GVPBK1	253	91YFMI	283	7312922 (12AFPBK1)		7898490	261	7933251 (11AFP1)	104
55TTCP2	217	71HFM1/T2	245	91YFMT1	283	72 Pont.	120	7898490 (91YFMT1)	283	7933251 (21AFP1)	
56CFMT1/T2/T3	194	71HPBT1/T2	246	91YFP2	284	7312922		7898493	245	Chev.	117
56CFMT4	213	71SVPB1	253	92BFP6 (Pg 105)	73	(22AFP1/K2/K3)	120	7898500	259	7933251 (21AFP1)	
56CFF1	190	71TFP1	251	92BPB1	72	7312942 (12GFPBK1)	120	7898500 (90BPBT1)	283	Pont.	120
56CFM2	192	71TFPPK1	251	92BPF6 (Pg 89)	72	7312942 (22GFPBK1/K2/		7898510	261	7933251 (21AFP2/	
60APB1/BK1 (Pg 29)	192	71TPB1 (Pg 43)	217	92GFM3	79	K3)	120	7898510 (90BFMT1)	283	P3)	127
60BFM1 (Pg 13)	189	71TPBK1 (Pg 43)	217	92GPB1	72	7313091	70	7898570	250	7933251 (51XFP1/	
60BFPP1/PK1 (Pg 21)	188	72AFM1	242	92GPB6 (Pg 89)	72	7313514 (14AFP1)	101	7898940	255	PK1)	189
60BPBT1	256	72AFMT1	255	93AFP1	74	7313514 (24AFP1)	118	7899443	250	7933261 (11AFP1)	100
60HFM1 (Pg 57)	191	72AFMT2	255	93BPM1	74	7313514 (24AFP2)	129	7930012 (22BPB2)	122	7933261 (21AFP1)	
60HFM1/T2	221	72AFP1	240	93BFW2	74	7313522 (12FPB1)	98	7930013	101	Chev.	109
60HFP1/PK1 (Pg 27)	186	72AFP1/T2	240	93BPB1/2	71	7313522 (22FPB1)	114	7930015 (15CFP1)	100	7933261 (21AFP1)	
60HFP1 (Pg 103)	191	72APB1	239	93EFM1	74	7313522 (22FPB2)	126	7930015 (25CFP1)	112	Pont.	113
60HFP1 (Pg 103)	191	72APBK1	239	93EFM2	74	7313522 (42FPB1)	174	7930022 (12BFP1)	102	7933261 (51XFM1)	191
60HFPK1 (Pg 103)	191	72FPB1	252	93EPB1	71	7313522 (52FPB1)	186	7930022 (22BFP1)	109	7933271 (21APBT1)	74
60HPB1/BK1 (Pg 65)	187	72FPBK1	252	94AFP1	70	7313522 (52FPB2)	217	7930022 (22BFP2)		7933271 (51XPBT1/	
60HPBT1/T2	220	72FT41 (Pg 47)	112	94BFP1	70	7313522 (62FPB1)	252	(Pg 99)	109	T2)	193
60XFM1 (Pg 85)	191	73AFM1	242	94EFP1	70	7313522 (72FPBK1)	252	7930025	102	7933281 (21AFMT1)	
60XFP1/PK (Pg 85)	189	73AFMC1/MC2	250	94PPB1	70	7313522 (72FPBK1)	252	7930032 (12BFM1)	100	(Pg 19)	75
60XPB1/BK1 (Pg 87)	186	73AFMC3	254	95CFP1	74	7313522 (72FPBK1)	252	7930032 (22BFM1/		7933281 (51XFM1/	
61BFMT1 (Pg 29)	206	73AFMT1	255	95CFP2	74	7313532 (12FFP1)		M2)	112	T2)/	192
61BFMT2 (Pg 47)	221	73AFMT3	255	95CT411/12	71	72 Pont.	120	7930033	98	7933291 (11BPBK2)	97
61BPB1/BK1 (Pg 65)	187	73AFP1	240	95CWB1/2	70	7313532 (22FFP1/		7930035	96	7933291 (21BPBK1)	112
61BPBT1 (Pg 5)	207	73AFP1/T2	240	96TT411	73	P2)	120	7930053 (13BPBT1)	96	7933291 (21BPBK2)	120
61BPBT2	256	73AFP1	240	96TT412	73	7313542 (12FFM1)	106	7930053 (13BPBT2)	118	7933291 (31BPBK1)	137
61GVFP1 (Pg 85)	189	73APB1	239	7298832A	73	7313542 (22FFM1)	113	7930061	115	7933291 (31BPBK2)	145
61GVPB1	253	73APBK1	239	7301466	104	7313542 (52FFM1)	191	7930063 (13BFMT1)	97	7933291 (41BPBK1)	165
61HFM2 (Pg 47)	229	73GFM1/M2	243	7302721 (91VFP1)	73	7313552 (12FPBK1)	98	7930063 (13BFMT2)	117	7933291 (51BPBK1)	189
61HFM3	221	73GFM1/T2	245	7302721 (11VFP1)	104	7313552 (22FPBK1)	114	7930093	117	7933301 (71BPBK1)	237
61SVPB1	253	76CFM1/MC2	250	7303201	70	7313552 (22FPBK2)	126	7930121 (11BFMT1)	105	7933301 (11BFPP3/PK3)	
61TFP1/PK1	218	76CFMD1/D2	257	7303211	70	7313552 (42FPBK1)	174	7930121 (11BFMT2)	118	(Pg 47)	93
61TPB1/BK1	217	76CFMT1/T2	247	7303302A	73	7313552 (52FPBK1)	186	7930121 (12BFMT1)	104	7933301 (21BFMK1)	113
61XFM1 (Pg 85)	191	(PCB AR-253)	247	7305516 (16TTCP1)	96	7313552 (52FPBK2)	217	7930121 (21XFM1)	118	7933301 (21BFMK2)	113
61YFM1 (Pg 85)	191	76CFMW1	253	7305516 (26TTCP1)	110	71 Pont.	97	7930134 (14BPBT2)	114	7933301 (31BFPK1)	138
61YFP1 (Pg 85)	189	76CFPK1	244	7305584 (11TPB1)	96	7313562 (12FPBK1)		7930134 (24BPBT1)	114	7933301 (41BFPK1)	168
62AFM1 (Pg 103)	190	76DFM1	253	7305841 (51SVPB2)	217	72 Pont.	120	7930134 (34BPBT1)	138	7933401	217
62AFP1/PK (Pg 103)	189	76KFMC3	254	7305841 (21TPB1)	110	7313562 (22FPBK1/K2/		7930144 (14BFMT1)	98	7933501 (21APBK1)	
62APB1/BK1 (Pg 107)	193	76KFMD1/D2	257	7305841 (21TPB2)	124	K3)	120	7930144 (14BFMT2)	120	Pont.	114
62APBT2	256	76KFMT1/T3 (PCB AR-253)	247	7305841 (41SVPB1)	167	7313604 (14APB1)	106	7930144 (24BFMT1)	120	7933501 (21APBK2)	124
62BFM1 (Pg 103)	190	76KFMW1	253	7305841 (51SVPB1)	186	7313604 (24APB1)	115	7930161	115	Chev.	124
62BFP1/PK2 (Pg 103)	189	76KFMT1	262	7305841 (61/71SVPB1)	253	7313604 (24APB2)	125	7930202 (12BPBK2)	105	7933501 (21APBK2)	
62BPB1/BK1 (Pg 107)	193	80BCB1	264	7306914	70	7313971 (11BT411)	97	7930202 (22BPBK1)	118	Pont.	126
62BPBT2	256	80BFCT1	261	7306934	70	7313971 (21AT411)	112	7930202 (22BPBK2)	115	7933501 (41XPBK1)	167
62BFM1 (Pg 85)	191	80BFCT2	261	7306964	70	7314201 (11BPB2)	97	7930202 (22BPBK3)	122	7933501 (51XPBK1)	186
62FPF1/PK1 (Pg 85)	189	80BFMD1	265	7307205	70	7314201 (21BPB1)	112	7930212 (12BFPK1)	102	7933511 (21AFP1)	
62FPB1 (7313522)	252	80BFFM1	265	7307302 (12APB1)	98	7314201 (21BPB2)	120	7930212 (12BFPK2)	109	Chev.	117
62FPBK1	252	80BFFM2	259	7307302 (22APB1)	114	7314201 (31BPB1)	137	(Pg 99)	109	7933511 (21AFP1)	120
63AFM1 (Pg 103)	188	80BFFM3	261	7307302 (22APB2)	126	7314201 (31BPB2)	145	7930224	117	7933511 (21AFP2/	
63AFP1/PK1 (Pg 103)	189	80BFFC1	262	7307303	71	7314201 (51BPB1)	187	7930234 (14RFP1)	96	K3)	127
63APB1/BK1 (Pg 93)	190	80BFFPK1	260	7307312	72	7314201 (71BPB1)	239	7930234 (24RFP1)	110	7933511 (51XFPK1)	189
63APBT2	256	80BFTC1	264	7307313	74	7314211 (11BFM1/		7930242 (12BPBT1)	101	7933561 (11HPB2)	97
65HDPB1 (Pg 87)	186	80BFTC2	264	7307332 (12GFPB1)	98	M2)	101	7930242 (12BPBT2)	117	7933641 (21HPB1)	112
65TCFPP1 (Pg 85)	189	80BFTD1	265	7307332 (22GFPB1)	114	7314211 (21RFP1)	114	7930242 (22BPBT1)	117	7933641 (41APB1)	165
65TCPB1 (Pg 87)	186	80BPB1 (Pg 93)	239	7307332 (22GPB2)	126	7314211 (31BFM1)		7930242 (22BPBT2)	127	7933641 (51APB1)	187
66CFF1 (Pg 35)	190	80BPPBK1	273	7307332 (92GPB1)	72	(PCB AR151)	140	7930244 (14BFM1)	102	7933641 (31APB2)	145
66CFM1 (Pg 29)	213	80BPBT1/T2	259	7307402 (12AFP1)		7314211 (41BFM1)	174	7930244 (24BPB2)	125	7933641 (41APB1)	165
70AFM1	242	81TFM2	270	71 Pont.	97	7314211 (41BFM2)	169	7930252	115	7933641 (51APB1)	187
70AFMT1	255	81TFP1 (Pg 93)	239	7307402 (12AFP1)		7314211 (51BFM1/		7930254 (141PB2)	96	7933641 (70HPB1)	239
70AFMT2	255	81TPB1 (Pg 43)	217	72 Pont.	120	M2)	191	7930254 (241PB2)	114	7934782 (12RT411)	97
70APB1	239	81TPBK1	273	7307402 (22AFP1/		7314221	93	7930254 (241PB2)	126	7934782 (22BT411)	112
70APBK1	239	81YFMC1	262	P2)	120	7314291	104	7930254 (501PB1)	139	7935002 (32APB1/	
70BCB1	250	81YFMT1/T2	261	7307412	73	7895080	243	7930254 (40LPB1)	171	B2)	140
70BCB2	254	81YFP1	260	7307432 (12GFP1)		7895366	253	7930254 (50LPB1)	192	7935002 (42APB1)	175
70BFM1	242	82KFM1	242	71 Pont.	97	7895373	255	7930254 (50LPB1)	192</		

GENERAL MOTORS (CONT.)	VOL.	GENERAL MOTORS (CONT.)	VOL.	GENERAL MOTORS (CONT.)	VOL.	GRUNDIG	VOL.	JCPenney	VOL.	JOHN DEERE (CONT.)	VOL.
7935021 (51APBK1)	187	7939132 (32BFPK1)	137	9345544	188	GCM-4600	286	0110	193	0BTJD	78
7935022 (70HPBK1)	239	7939132 (42BFPK2)	172	9345554	189			0244	275	1AR4231	110
7935023	137	7939142 (32BFM1)	144	9345930 (50APB1)	192	HAMMOND		981-0100	134	1BTJD	113
7935024 (23BPB1)	115	7939142 (42BFM1)	179	9345930 (70APB1)	239			981-0101	119	1JD1229	161
7935024 (23PB2)	125	7939142 (42BFM2)	168	9345940 (50BPB1)	192	HD500	176	981-0103	195	1JD1243	158
7935024 (34AFM1)	142	7939152 (32BPB1)	145	9345940 (70BPB1)	239	HD501	141	981-0105	121	1JD1245	158
7935024 (44AFM1)	175	7939152 (42BPB1)	170	9346703	190	HD515	185	981-0110	193	7SMJD	110
7935024 (44AFM2)	172	7939152 (52BPB1/		9346713	190	HD525	148	981-0115	141		
7935032	137	T2)	192	9346723	190	HD555	153	981-0140	196	K MART	
7935033	110	7939162 (32BFMT1)	152	9346733	190	HD575	146	981-0161	164	K200	211
7935034 (34APBT1)	138	7939162 (32BFMT2)	148	9346743	191	HD585	187	981-0165	137	100007-217	211
7935034 (44APBT1)	169	7939162 (42BFMT1)	169	9346753	191	920 (Pg 45)	101	981-0166 (Pg 79)	137		
7935042	144	7939162 (52BFMT1/		9346763	188	HANDIC		981-0180	166	KARMANN GHIA	
7935043	140	T2)	187	9346763 (73AFM1)	242			981-0244-00	275	(See Volkswagen)	
7935044 (34AFMT1)	150	9303026	217	9346773 (53BPBT1/		Miami	271	981-0250-00	282	KENWORTH	
7935044 (34AFMT2)	145	9340432 (32AFP2)	149	T2)	195	Paris	270	981-0326	282	K370C2	126
7935044 (44AFMT1)	173	9340432 (32AFP2K2)	149	9346773 (53BPBT3)	210	Wien	273	981-1506	166	K345393	122
7935053 (34AFMT1)	145	9340432 (42AFP1)	173	9346783	193			981-1514 (Pg 79)	137	1KW1904	122
7935053 (33AFMT2)	144	9340432 (52AFP1)	189	9347102	215	HITACHI		981-15225	125	1KW2915	126
7935063	118	9340432 (72AFP1)	240	9347172 (72APBK1)	193	CS133	103	981-1593	196		
7935092 (32APBT1)	145	9340442 (42BFPK1/		9347172 (72APBK1)	239	CS214	166	981-1759	164		
7935092 (42APBT1)	170	K2)	173	9347740 (60HFMT1/		CS1000IC	111	981-7479	193	KRACO	
7935092 (52APBT1/		9340442 (52AFP1)	189	T2)	221	CS1050IC	123	985-2757	195	KCB2370	236
T2)	192	9340442 (72AFP1)	240	9347740 (71HFMT1/		CS1100IC	103	985-6907	191	KCB2390	251
7935102 (32AFMT1)	152	9340452 (42AFM1)	176	T2)	245	CS1150IC	123	2230	141	KID550	161
7935102 (32AFMT2)	148	9340452 (52AFM1)	190	9347980 (50HPBT1,		CS1440IC	153			KID560A	204
7935102 (42AFM1)	169	9340642 (72AFM1)	242	60HPBT1/T2)	220	CS1700IC	123	JEEP		KID5600	262
7935102 (52AFMT1)	187	9341624 (34BPB1)	139	9347980 (71HPBT1/		CS1750IC	143	(Also See American		KID565	241
7935201 (41APBK1)	165	9341624 (34BPB2)	139	T2)	246	CSK1300 IC	148	Motors)		KID566	262
7935374	112	9341634 (34BFP1)	140	9348082 (72AFMT1)	255	KM152QH	129	1JC1603	234	KID570A	205
7935814 (34APBK1)	139	9341634 (34BFP2)	142	9348311	217	TRQ206	116	1KJ1024	118	KID575	264
7935814 (34APBK2)	144	9341846 (36GMM1)	144	9348321	217	HONDA		1KJ1025	118	KID580B	238
7935814 (44APBK1)	171	9341846 (36GMM2)	178	9348341	218	A208D463-64749	263	1KJ1048	118	KID580C	255
7935834 (34AFPK1)	140	9341866	142	9349082 (52AFMT3)	215	CR1719FUH	263	1KJ1326/32	168	KIS444	166
7935834 (44AFPK1)	170	9341876	139	9349082-2	255			1KJ2512 (Pg 5)	169	KQ600	173
7935841	125	9342204	145	9349470 (70BFP1)	240	HUSKEE		5JC1603	234	KR1100	159
7936011 (11HFPP2)	93	9342222	175	9349480 (Pg 103)	191	TM104M (60-299)	77	5JC1613	234	KR1110	163
7936011 (21BFP1)	113	9342522 (32GPB1)	140	9349480 (70BFPK1)	240	IMPERIAL		981026	118	KR1120	160
7936011 (21BFP2)	113	9342522 (32GPB2)	138	9343061	217	(See Chrysler)		981030	118	KR1130	162
7936011 (51BFP1)	138	9342522 (52GPB1)	193	9898160	245	INLAND DYNATRONICS		984336	118	KR1220	203
7936011 (41BFP1)	168	9342532 (32GPB2K)	138	9898453	240	AF604	124	5457087	234	KR1230	209
7936011 (51BFP1)	186	9342532 (32GPBK1)	140	9898463	240	AFX802	182	5460125	234	KR1240	268
7936143 (33APB1)	142	9342532 (42GPBK2)	175	16000370	261	AT830	135	8997004	168	KS340	197
7936143 (33APB2)	147	9342563	146	16000420 (Pg 93)	239	AFK830 (Pg 71)	135	8997025 (Pg 5)	169	KS400B	167
7936181 (Chev.)	115	9342586	178	16000443	254	AXT838	151	J.I.L.		KS400C	210
7936181 (Pont.)	117	9342606 (46CFP1)	175	16000445	254	AXT885	214	515	207	KS425	141
7936191	115	9342606 (56CFP1)	190	16000456	254	AXT885	214	517	213	KS430	158
7936232	112	9343020	167	16000466	254	CTX50	172	528	209	KS440	200
7936271	117	9343026	186	16000570 (70BCB2)	254	FM404	125	601M2S	197	KS450	168
7936601	112	9343051	189	16000570 (80BCB1)	264	FXM40	125	603M1S	193	KS480	207
7936721	127	9343061 (41TPB1)	167	16000666	263	FXM70	144	606CB	231	KS555	169
7937005	114	9343061 (51TPB1)	186	16000676	263	MPT80	131	608	261	KS668	165
7937025	110	9343061 (61/	253	16000786	264	MPT801	145	612	259	KS690	199
7937400	115	71GVPB1)	253	16001062	242	MPX2000	128	613	273	KS750	143
7937413 (23AT411)	112	9343283	173	16001111	254	QK48	175	631	275	KS800	173
7937571 (21VFP1)	117	9343293	173	16001381	285	RA04	140	632	278	KS890	171
7937571 (21VFP2)	127	9343303	173	16001516	263	RA05	139	633	282	LAFAYETTE	
7937581	78	9343313	173	16001526	263	RF06	142	701MPX	182	Stereo 88	91
7937943 (33BPB1)	142	9343323	176	16001536	260	RX14	184	701MPXU	215	99-15521W	91
7937943 (33PB2)	147	9343333	176	16001546	260	S70A	147	702FPM	195		
7937953 (PCB		9343343	171	16001650	260	S75	121	704MPX	216	LANCER	
ARI51)	139	9343353	172	16001650 (90BFP2)	284	S85	119	707	271	(See Chrysler)	
7937963	140	9343363	168	16001691	262	S100	141	815M	202	LARK (See Studebaker)	
7937973 (33BFMT1)	145	9343414 (44BFP1)	175	16001691 (91YFMT1)	286	S400	176	817FM	204	LEAR JET	
7937973 (33BFMT2)	144	9344144 (44BFP3)	172	16001700	260	S405	174	821G	184	A10	229
7937983 (PCB		9344154	169	16001700 (90BFPK2)	284	S505	213	822FM	197	A20	176
ARI51)	139	9344164	173	16001801	260	S705A	143	828/P	195	A25	141
7938003 (33APBK1)	142	9344336 (46CFMT1/		16001801 (91YFCT1)	284	S900A	119	830NN	180	A26 (Pg 57)	141
7938003 (33APBK2)	147	T2)	170	16005091 (91YFCT1)	284	S1000	149	831N/NN	198	A40	143
7938303 (23AFP1)	115	9344336 (56CFMT1/		16005490 (90BFCT1)	283	S4001	197	831R	194	A46	204
7938303 (23AFP2/		T3)	194	16006270	286	S4200	187	832Q	202	A50	147
P3)	128	9344376	192	16006280	286	WAF609	129	841	190	A55	147
7938313	114	9344651	189	16006281	286	WV209A	125	842	199	A70 (Pg 51)	162
7938323	146	9344661	191	GIBBS		WV509	122	843	200	A71	213
7938333	146	9345270 (Pg 103)	191	CR332A/B/C	71	X304	122	844	206	A72	238
7939071 (31BPBT1)	139	9345270 (70HFP1)	240	CR335B/337B	71	203A	125	846/N	208	A73	241
7939071 (41BPBT1)	166	9345280 (Pg 103)	191	CR335N	151	206	180	848	211	A75	262
7939071 (51BPBT1/		9345290 (Pg 103)	188	CR616	80			851	215	A80	185
T2)	188	9345290 (70AFM1)	242	CR627	70	INTERNATIONAL		852CB	230	A81G	243
7939071 (51BPBT3)	207	9345373-1	255	CR630	70	F9SMIH	124	861	270	A83	250
7939081 (31BFMT1)	151	9345480 (50APBK1)	192	CR640/645	81	OBTH	76	862	262	A85	185
7939081 (31BFMT2)	142	9345480 (70APBK1)	239	GSS65	177	1BTIH	110	871	266	A90	205
7939081 (41BFMT1)	171	9345490 (50BPBK1)	192	GT80	154	IHA1914	120	872	274	A120	150
7939081 (51BFMT1/		9345490 (70BPBK1)	239	9345500 (50BPB1)	190	IHA1918	125	873	276	A125 (Ser #A12-10001	190
T2)	189	9345500 (50BPB2)	190	9345500 (50BPB3)	215	111643C1	278	874E	285	& Up)	190
7939081 (51BFMT3)	206	9345510	210	9345510 (50BPBT2)	190	111645C1	278	AR567755	161	A126	206
7939081 (71AFMT1)	255	9345510-2	255	9345510 (50BPBT3)	215	11647C1	280	AR57156	158	A140	140
7939081-2	255	9345534	188	920	101	244766-R91	125	AR60083	158	A146	210
7939102 (32BPB1/				950, 952	87	244792-R91					

LEAR JET (CONT.)	VOL.	MEDALLION (CONT.)	VOL.	MOTOROLA (CONT.)	VOL.	PANASONIC (CONT.)	VOL.	PIONEER (CONT.)	VOL.	RCA (CONT.)	VOL.
A152	198	65-562	198	TM570A	82	CQ5500EC,EU	278	TP8000E	148	12R490	197
A219 (Pg 77)	58	65-564	255	TM573A	158	CQ5711EC/EU	283	TP8001E	228	12R500	144
A225	160	65-565	205	TM703S	95	CQ5712EC/EU	283	TP9004G	276	12R600	147
A226	212	65-566	208	TM713S	72	CQ6520EU	274	TP9005G	244	12R606	207
A245	163	65-576	199	TM714S (Mech. Ch		CQ6700EU	262	TP9006G	276	12R607	212
A250	72	65-589	202	MTD176J	82	CQ8520EU	277			12R703	202
A255	209			TM718S	116	CR003B	149	PLYMOUTH (See Chrysler)		12R704	272
A260	77			TM912S	162	CR119EU	140			12R710	263
A275	183	MERCURY (See Ford)		1C2RPM4 (Pg 43)	178	CR143EU	138			12R800	149
A295	203			1C3RMX4 (Pg 39)	180	CR242EU	176	PONTIAC (See General Motors)		20C505	271
ARI45(Pg 49)	140	MGA		1C5RMX4	204	CR501EUA	150				
R905	182			2MP2031	127	CR514EU	140			REALISTIC	
R915	186	AR615SGL	117	5C2RFM8	280	CR515EU	220	PORSCHE		121341	207
R925	181	AR615SGBL	117	5C3RMX7	273	CR656EU	167	1PE1123	118	121372	208
R927	234	ARA10L	117	5C3RMX8	280	CR657EU/658EU	217	1PE1214	130	121802	223
R945	177	ARA10W	117	5C4RMX4	280	CR700EU	139	1PE2127	156	121815	231
R946	236			5CP2417	182	CR701EU	166	1PE2241,1PE2242	157	121819	164
R947	235	MIDLAND		5F3RMX4	180	CR714EU	174			121822	158
R957	235			5F3RMX7	273	CR1515EU	235	1VW1327	155	121825	154
7A80K (Pg 57)	185	65-554B	269	5F3RMX8	280	CR1657EU	242	1VW1419	192	121827	95
7A947A (Pg 49)	235	65-230	78	5F4RMX4	204	CR1658EU	242	1VW2323	154	121828	99
7A957K (Pg 49)	235	67-440	267	5F4RMX4	204	CR1659EU	242	1VW2335	181	121831	201
		67-455	278	5FM216A	223	CR1714EU	234	1VW2427	199	121832	152
		67-457	274	5FM273AX	203	CR1717EU	233	1VW3401	193	121833	141
		67-550	277	5FM355A	223	CR2657EU/58EU/ 59EU	286	1VW4112	124	121834	156
		67-555	281	5FM481AX1/4AX1	204	CR2702EU/3EU/4EU/ 551SEC,EU	270	1VW4309	179	121835	198
		67-557	280	5FM485AX	226	CR3703EU,EU/4EU/ 551SEC,EU	281	1VW4412,5VW4412	201	121836	254
				5N3RMX7	273	CR4520EU	284	2VW1327	155	122024	155
				75MFT	109	CR5703EC/EU	282	5VW1327	155	122026	155
				10P3598	109	CR5704EU	282	5VW1419	192		
				200	125	CR5704EU	282	5VW1601	279	RENAULT	
		MITSUBISHI				CRB4737EU	244	5VW2335	181	F8SMXD	131
		AR-27745F SUB	267	MUNTZ/STEREO		CRB4747EU	247	5VW2427	199	1RE1926	118
		AR-27745U SUB	267			CR84737EU	244	5VW3401	193	1RE1927	118
				M430	190	CX131EU	143	5VW3608	281	1RE1928	118
		MONTGOMERY WARD		M431	173	CX252EU	151	5VW4309	179	1RE2916	131
		(See Riversside)		M607	133	CX326EU	151	5VW4412	201	1RE2917	131
				M650	161	CX351EU	111			1RE2918	131
		MOPAR		M651	162	CX375EU	177	RANGER		5508-00	131
		(See Chrysler)		M860	134	CX385EU	221	R12PBX	86	55569-00	118
				M880	134	CX475EU	183	R62MPX0	74	55569-02	131
		MORSE ELECTROPHONICS		M883	132	CX567EU	172	R62MPX2	74	55569-03	131
				M884	136	CX568EU (Pg 95)	172	R62MPX4	74	55569-04	118
				M886	134	CX601EU	144	R71T	111	55569-05	131
		RTM2A	146	M888	143	CX601EU (PCB	144	R100C	75		
				M940	141	AR144)	176	R100C2	75	SAAB	
		MOTOROLA		PU419-01	132	CX675EU	181	R100C4	75	OBSA, OB5AA, OB5AB,	
		CE70A	77	PU421A01	134	CX777SU	99	R201M	142	OB5A99, 1BSA,	
		CK70A	77	PU423-01	143	CX830EU	111	RR19FM (IC	149	1BSA99	113
		CMX501	127	PU427A02	134	CX880EU	148	Version)	149	1BSA99	113
		CT70A	77	PU428A01	134	CX880EU(AR148)	164	RR22-2	78	8BSA	70
		CT71A	106	PU434 (Pg 79)	170	CX888SU	95	RR24PB	105	9BSA, 9BSAA, 9BSA99	70
		CV71A	106	PU606A01	136	2703EU/4EU	270	RR26FM	106	9FBSA, 9FBSAB,	110
		CY70A	77	PU607A01	133			RR29PB	108	9FBSA99	110
		F8SMP	125	PU809A01	141			RR35MPX/2/4	72	500127 (Pg 115)	70
		FM70M	82					RR36PB	148		
		FM150M	85	NIVICO				RR42FT	95	SANKYO	
		FM152M	235	1310	75			RR47T0/T2/T4	79		
		FM210A	72	OLDSMOBILE				RR53T	213	SCS222	275
		FM212A	241	(See General Motors)				RR54T	220	SCS333	274
		FM214A	201	OLSON				RR56T	141	SCS444	276
		FM273AX	203	AU332A	185			RR65TD	150		
		FMS60A	87	AU334	201			RR69TC	175		
		FMS62A	237	OPEL				RR77T	212	SANYO	
		FM481AX	130	(See General Motors)				RR77M	161	FB702	278
		FM675A	202	PANASONIC				RR86T	216	FT407	271
		FM775AX	202	CA9500EU	279			RR93MPX	217	FT414	272
		FM775AX1	225	CA9600EC/EU	285			RR104C	178	FT416	273
		FM992X	85	CJ3510EU	279			RR201M	142	FT607	283
		P718S	116	CQ252EU	182			RR203MPX	233	FT842	132
		PC70A	77	CQ742EU	229			RR35MPX	233	FT863	127
		PC71A	106	CQ840EU	237			TP803	74	FT866	130
		PT70A	77	CQ841EU	262			51T	208	FT871	277
		TD138J	116	CQ880EU	146			53T	213	FT872	276
		TF752S	159	CQ880EU(PCB	146			54T	220	FT875	274
		TF756S	225	AR146)	164			77T	212	FT883	121
		TF800S	90	CQ881EU	194			86T	216	FT1003	275
		TF852AX	232	CQ898EU	219			93MPX	217		
		TF853AX	271	CQ909EU	108			100007-151	151	SEARS	
		TF864AX (Pg 75)	181	CQ959EU	175			100007-210	233	136,50450	153
		TF874AX	218	CQ969EU	230			100007-253	208	564,5071	99
		TF875AX	224	CQ989EU	224			10007-255	215	564,50420	156
		TF878AX	279	CQ999EU	232			100017-219	212	564,50440	154
		TM8A	71	CQ1289EU	269					564,50460	160
		TM18A	73	CQ1711EU	258			PA424A01	149	564,50480	157
		TM18A	106	CQ1720EU	260			12R0100	167	564,50700	99
		TM105M	75	CQ2289EU	267			12R100	167	564,50710	99
		TM200S	111	CQ2700EU	261			12R150	212	564,50740	163
		TM203S (Pg 57)	95	CQ2989EU	268			12R200	161	564,62640	88
		TM213S	162	CQ3711EC, EU/ 12EC,EU	276			12R210	260	564,626420	93
		TM226S	215	CQ3988EC,EU/89FU	275			12R300	143	564,626430	92
		TM270M	79					12R301	143	564,626450	158
		TM299M	71								
		TM316S	216								
		TM329M	77								
		TM402S	230								
		TM413S	160								
		TM416S	217								
		TM529A	75								

SEARS (CONT.)	VOL.	SUPERSCOPE	VOL.	TOYOTA (CONT.)	VOL.	TRUETONE (CONT.)	VOL.	TRUETONE (CONT.)	VOL.	VOLVO	VOL.
564.626460	161	CA20	253	00852-20250	180	IDI7606A57	217	4DC7500	218	OBVO, 1BVO	109
564.626470	162			00852-20270	208	IDI7706A77(Pg 39)	213	4DC7503	211	OBVOC, 1BVOC	109
833.626286	92	TEN		00852-20280	208	IDI7908A86	211	4DC7510	214	OBVOD, 1BVOD	109
833.502900	89			00862-20240	184	ITC7004A07	111	4DC7606	217	1VV2032, 1VV2908	120
833.620400	91	AT3700-1	271	81120-22080	150	(4DC7004)	111	4DC7910	95	2BAMVO	129
833.620800	84	AT7801-1	273	86011-20200	180	ITC7006A07	91	4DX7140	136	2BFMVO	135
833.623400	103	AT7811-1	273	86011-22110	214	ITC7008A07	77	23-5564-0	247	2VV2016	120
833.624600	92	AT7822-1	274	86011-23020	214	ITC7010A07		23-5564-2	234	3BFMVO	135
833.628400	101	AT7823-1	274	86011-25055	184	(4DC7010)	99	23-7810-7	282	9FBVO, 9FBVOC	112
833.628600	92	DP640-1/3	272	86011-29065	180	ITC7908A96		26-7706-OC(Pg 39)	213	9FBVOD	112
833.502900	89	GL7851-1	281	86021-20030	208	(4DC7908)	99			279959	120
833.620400	91	GP7881	282	86021-20040	208	ITC7910A86	95	VALIANT		279971	120
833.620800	84			86021-22030	214	MCC7810A77	282	(See Chrysler)			
833.623400	103	TENNA		86021-22031	214	MED4051A47	167			WARDS RIVERSIDE	
833.624600	92			86120-20090	114	MED4053A47	159	VOLKSWAGEN			
833.628400	101	R100C/2/4	75	86120-20110	117	MED4060A47	160	R2BG	102	FKI16779A	132
833.628600	92	RR2013CMX	270	86120-20130	184	MED5554A57	183	R2BT	102	ZCX16730A	91
833.629300	85	RR2014MPX	268	86120-20150	180	MED5560A57	184	R2BV	102	ZCX16732A,	
833.631200		RR2015MPX/17MPX	272	86120-20190	208	MED5560A67	247	RR36PB	148	ZCX16732B	95
833.631210	103	TC67T	180	86120-22010	122	MED5564A47	185	VW71FM	136	ZCX16753A/B/C/D	116
833.631700	99	TC68T	182	86120-22040	115	MED5564B67	234	VW405FM	144	61-16730	91
833.632300	107	TC70T	107	86120-22050	146	MED7208A37	134	1VW101	80	61-16753	116
833.632800(Pg 107)	103	TC73T	175	86120-22110	214	MED7305B37	151	1VW20	84	61-16779	132
905.507200	86	TC80T	116	86260-14010	114	MED7403A47	209	1VW116	120		
905.507210	159	TC81T	107	86260-20011	114	MED7408A47	215	1VW118	118	WELTRON	
		TC82T	111	86260-20020	208	MED7503A57	211	1VW1327	155	717, 718	111
		TC9SMPX	184	86260-22010	146	MED7510A57	214	1VW1419	192	WHEEL HORSE	
		TC104C	178	86260-22020	214	MIC4050A07	72	1VW2109	130	1BTWH 71 Tractor	114
		TC112CM	184	86260-22021	214	MIC4054B17	106	1VW2111	130	WHITE	
						MIC4055A07	76	1VW2114	156	02-7074020	118
		TOYOTA		TRIUMPH		MIC4060A07	93	1VW2116	156	1RT1247 (Tractor)	165
		CR127FT	114	2FBP	129	MIC4060B17	100	1VW2219	157	1M2134	118
		CR201FUT/FCT	146	2FBPT	129	MIC5056A96	71	1VW2323	154	20-7000656	165
		CR251BT	184	9FBTR	113	MIC7003A17	116	1VW2335	181		
		CR251FUT	184	TRUETONE		MIC7012A17	134	1VW2427	199	WIZARD	
		CR251T	184	DC4050	72	MIC7305A17	134	1VW3401	193	ITC7910A96	95
		CR528FT	117	DC4050C	136	MID4055A07	76	1VW4112	124	4DC7910	15
		CR582FUT/FCT	150	DC4051	167	MIDS056A07	71	1VW4309	179		
		CR652BTL	180	DC4053	159	S808	77	1VW4412, 5VW4412	201	XTAL	
		CR652BTR	180	DC4054	106	4DC4060B	100	1VW4419	191	XA84	219
		CR652FUT	180	DC4055	76	4DC7002	132	2BG	102	XA86	218
		CR652T	180	DC4055B	76	4DC7002	134	2BT	102	XA88	220
		CR753FUTA, CR753.TA,	208	DC4056	160	4DC7003	116	2BV	102	XA805	253
		CR754FUTA	208	DC4060	93	4DC7006	91	2VW1003	80	XA806	254
		CR755.T	214	DC4060	160	4DC7008	77	2VW1116	118	XA808	225
		CX161FTB	114	DC5056	71	4DC7012	134	2VW1327	155	XCB23A	249
		CX165FTB	114	DC5054	183	4DC7015	132	2VW2109	130	XCB28	242
		CX171FUT/.T	214	DC5560	184	4DC7015B	175	3VW1116	118	XCB88	246
		CX175FUT/.T	214	DC5564	185	4DC7105	134	5VW1327	155		
		CX176FUT/.T	214	DI4DC7908A86	99	4DC7208	134	5VW1419	192		
		CX361FUT, CX361.T	208	IDI7002A17	132	4DC7305		5VW1601	279		
		CX362FUT	180	IDI7002A27	134	(MED7305B37)	151	5VW1804			
		CX362T	180	IDI7015A27	132	4DC7305		(MTR5011804A)	269		
		CX363FUT	180	IDI7105A27	134	(MTC7305A17)	134	5VW2335	181		
		RT60DFT	122	IDI7140A27	136	4DC7400A	178	5VW2427	199		
		RT60LFT	115	IDI7400A47	178	4DC7403	209	5VW3401	193		
		TO71FM	135	IDI7406A47	179	4DC7406A	179	5VW3608	281		
		TO71MPX	156	IDI7418	183	4DC7408	215	5VW4309	179		
		TO71PB	135	IDI7500A57	218	4DC7418	183	5VW4419	191		

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