sams

AUTO RADIO SERVICE DATA

Audiovox *C-977A, ID-400A, KM-560A, CP-1100, TM-1000*

Automatic *RED-3335* **Craig** *T603*

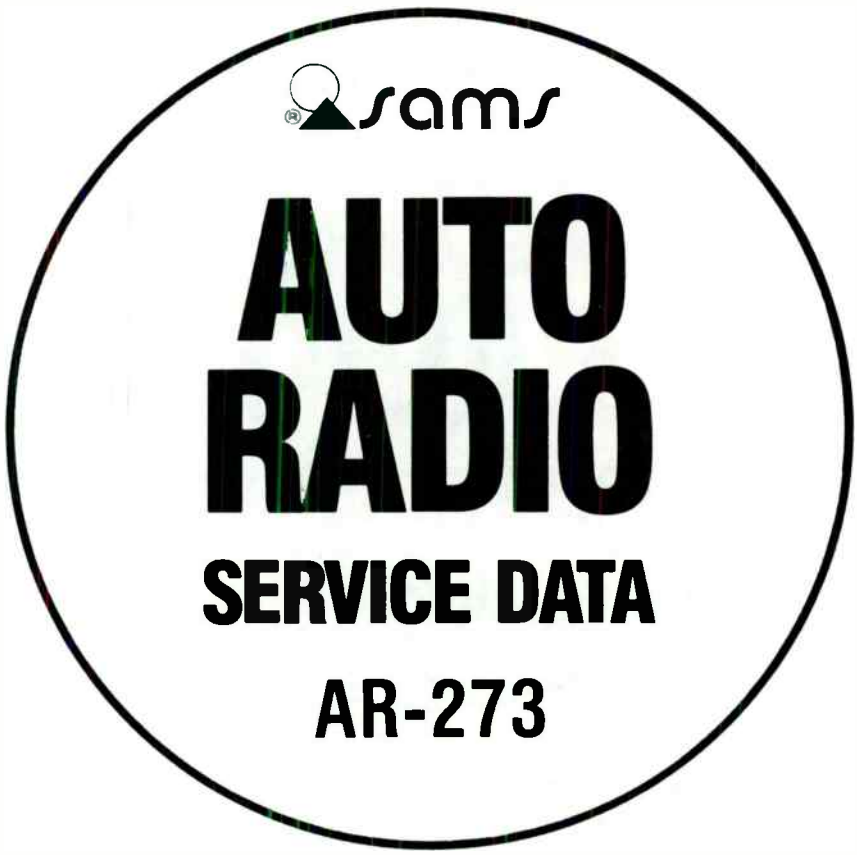
General Motors *80BPB1, 80BPBK1, 81TPB1, 81TPBK1, 83BPB1, 83BPFK1*

Handic *Wien* **J.I.L.** *613*

Motorola *5C3RMX7, 5F3RMX7, 5N3RMX7*

Pioneer *KE-2000* **Sayno** *FT416*

Ten *AT-7801/EX-1, AT-7811/EX-1*



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

FIRST EDITION
FIRST PRINTING-FEBRUARY, 1979

Library of Congress Catalog Card Number: 49-11493

TABLE OF CONTENTS

GENERAL SERVICING INFORMATION

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

POWER SOURCES

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

CLEANING

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

ALIGNMENT PROCEDURE

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

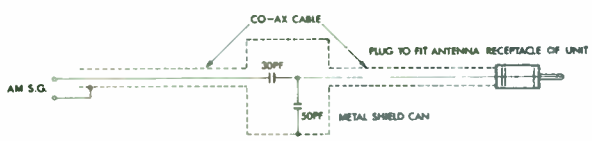
NOTES:

1. Check specified source voltage —DC, 14.4 volts —
2. Connect an AC voltmeter (VTVM) across speaker or dummy load (8 ohms, 10W, wire wound resistor)
3. Signal input must be kept as low as possible to avoid overload and clipping use output indicator of highest possible sensitivity.
4. Repeat adjustment to ensure good results.
5. Non-metalic alignment tools must be used.
6. Alignment location details: See fig. 8, 9

AM IF & RF ALIGNMENT USING AM SIGNAL GENERATOR

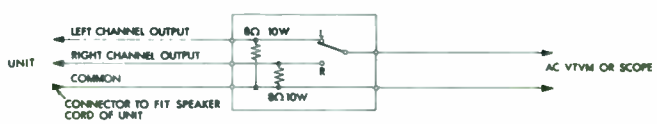
Set the radio for AM reception.
AM signal generator should be coupled with antenna receptacle (J1) through dummy
Set volume control to maximum and tone to treble.
Attenuate signal generator output to maintain 0.5 watts (2.0 volts across 8 ohms load) on AC volt meter.

STEP	GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT INDICATOR	ADJUST	REMARKS
	455KHz 400Hz, 30% mod.	Around 1000KHz of non-interference	AC VTVM across voice coil (L or R) or 8 ohms load.	T102	Adjust for maximum.
2	1630KHz	High frequency end stop.	"	C139	"
3	1400KHz	Tune to signal	"	C131 C1	"
4	600KHz	"	"	L101	Adjust L101 for maximum output in rotating radio dial slightly back and forth
5	Repeat Steps 2, 3 and 4 until no further increase. Step 3 should be last step.				
With radio installed in car and antenna extended to desired height, tune in a weak station around 1400KHz and adjust antenna trimmer (C1) for maximum output.					



AM DUMMY ANTENNA

Fig. 2



DUMMY LOAD & SWITCH BOX (FOR STEREO UNIT)

Fig. 3

FM IF ALIGNMENT USING FM SWEEP GENERATOR

Set the radio for FM reception. High side of sweep generator through 0.01 mfd. to test point ◇F1◇, low side to ground. Use only enough marker signal for indication. Set volume control to minimum and tone to treble.

STEP	GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT INDICATOR	ADJUST	REMARKS
1	10.7MHz (sweep)	Point of non-interference	Vert. amp of scope to point ◇F2◇ low side to ground.	IFT	Adjust IFT to obtain symmetry of response similar to fig. 4 according to the colour of Ceramic filter used.
2	"	"	"	T101	Adjust T101 for maximum amplitude and straightness of line.
3	Repeat above steps 1 and 2 for two or three times.				

NOTE:

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

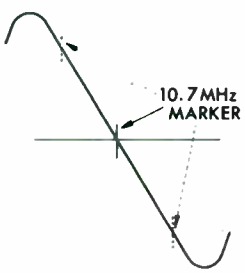
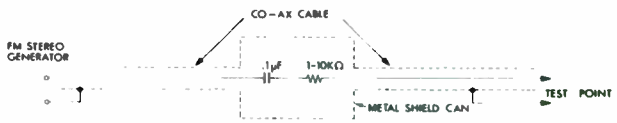


Fig. 4



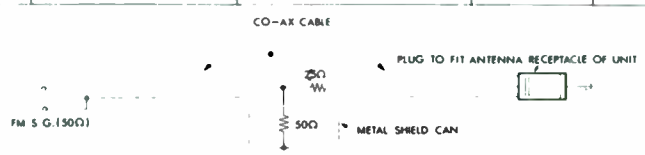
FM IF COUPLING CIRCUIT

Fig. 5

FM RF ALIGNMENT USING FM SIGNAL GENERATOR

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

STEP	GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT INDICATOR	ADJUST	REMARKS
1	109MHz (400Hz, 22.5KHz dev)	High frequency end stop	Output meter across 8 ohms load	OT	Adjust for maximum
2	98MHz (400Hz, 22.5KHz dev)	Tune for signal	"	AT RF	"



FM DUMMY ANTENNA

Fig. 6

FM MULTIPLEX ALIGNMENT USING FREQUENCY COUNTER

Set the radio for FM reception.

STEP	OUTPUT INDICATOR	ADJUST	REMARKS
1	Connect frequency counter to test point ◈M	R-117	Adjust to 19.000KHz (18.950–19.050KHz is permissible)
Note: Test point ◈F2 should be grounded while adjusting R-117			

FM MULTIPLEX ALIGNMENT WITHOUT USING FREQUENCY COUNTER

STEP	RADIO DIAL SETTING	ADJUST	REMARKS
1	Tune radio to strong FM STEREO station. (radio should be center tuned)	R-117	Rotate R-117 CW or CCW and mark the points where the STEREO INDICATOR LAMP is turned off. Then, fix R-117 at the center of the above marked points.

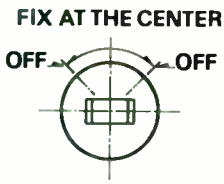


Fig. 7

TAPE PLAYER ALIGNMENT USING TEST CARTRIDGE

STEP	ITEM	ADJUSTMENT
1	Head height	Play a test cartridge, follow instructions with cartridge, and adjust head height adjustment screw for proper response.
2	Head Azimuth	Play a test cartridge, monitor RIGHT channel output and adjust Azimuth adjustment screw for maximum.
Repeat Step 1, 2 until no further improved.		

Note: For test cartridge, use RCA tape No. 321
Select No. 2 channel

PROFESSIONAL SERVICE INFORMATION

All service and internal adjustment of this unit should be performed only by a qualified service technician equipped with the proper tools and instruments.

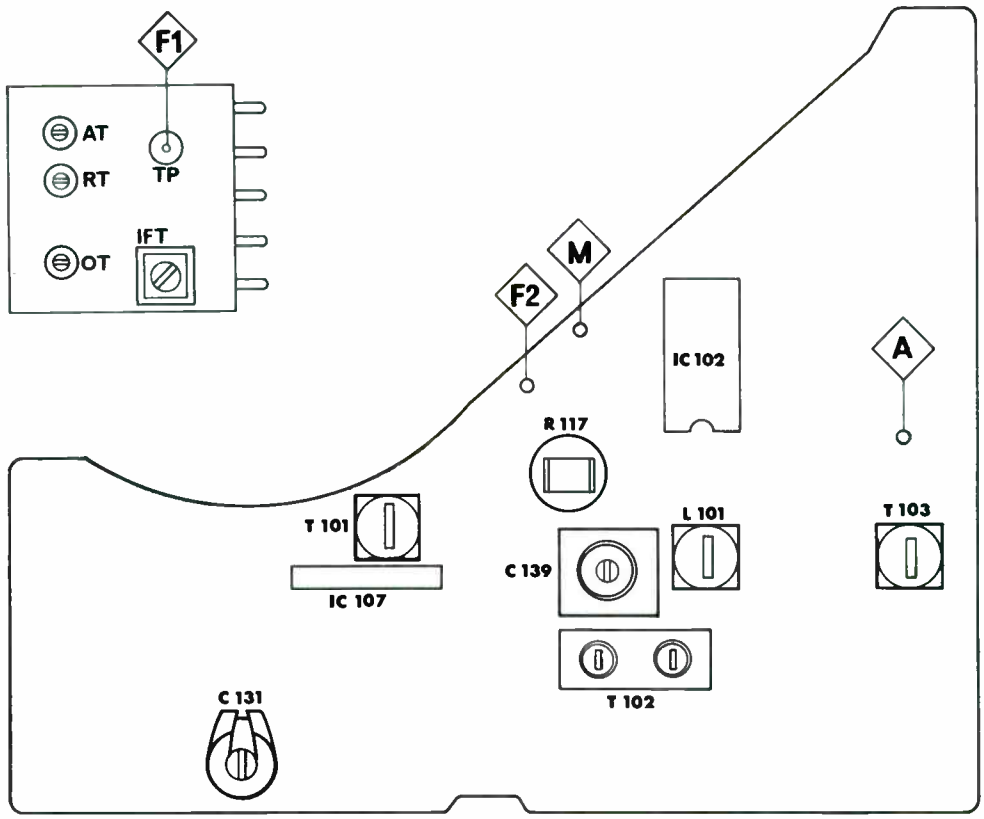


Fig. 8

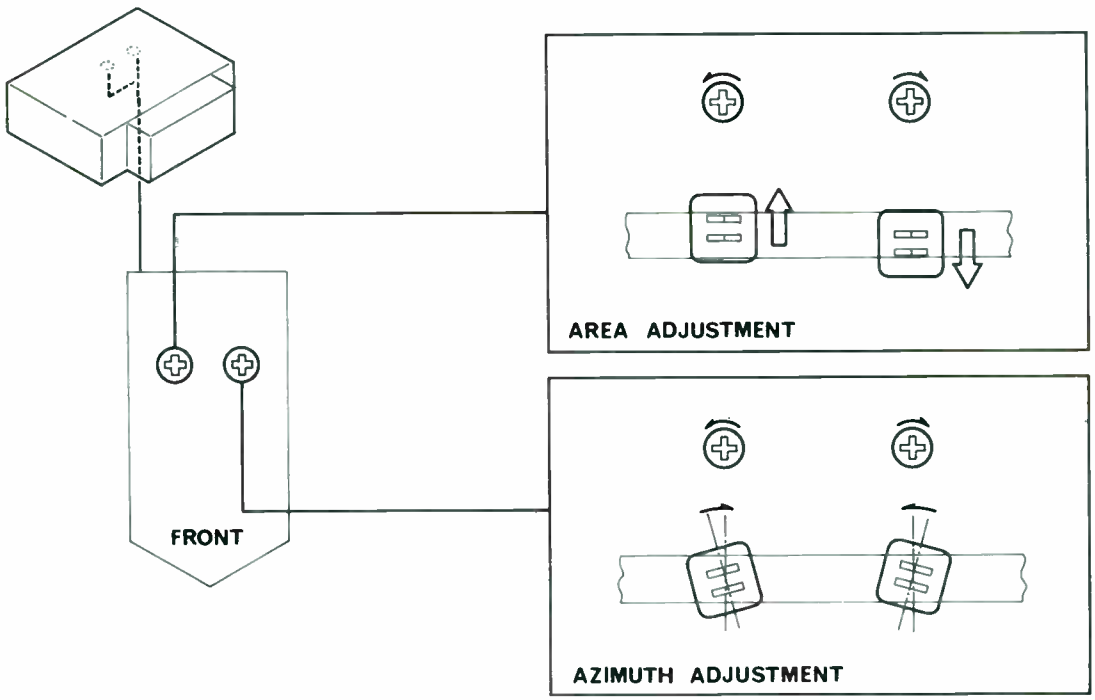
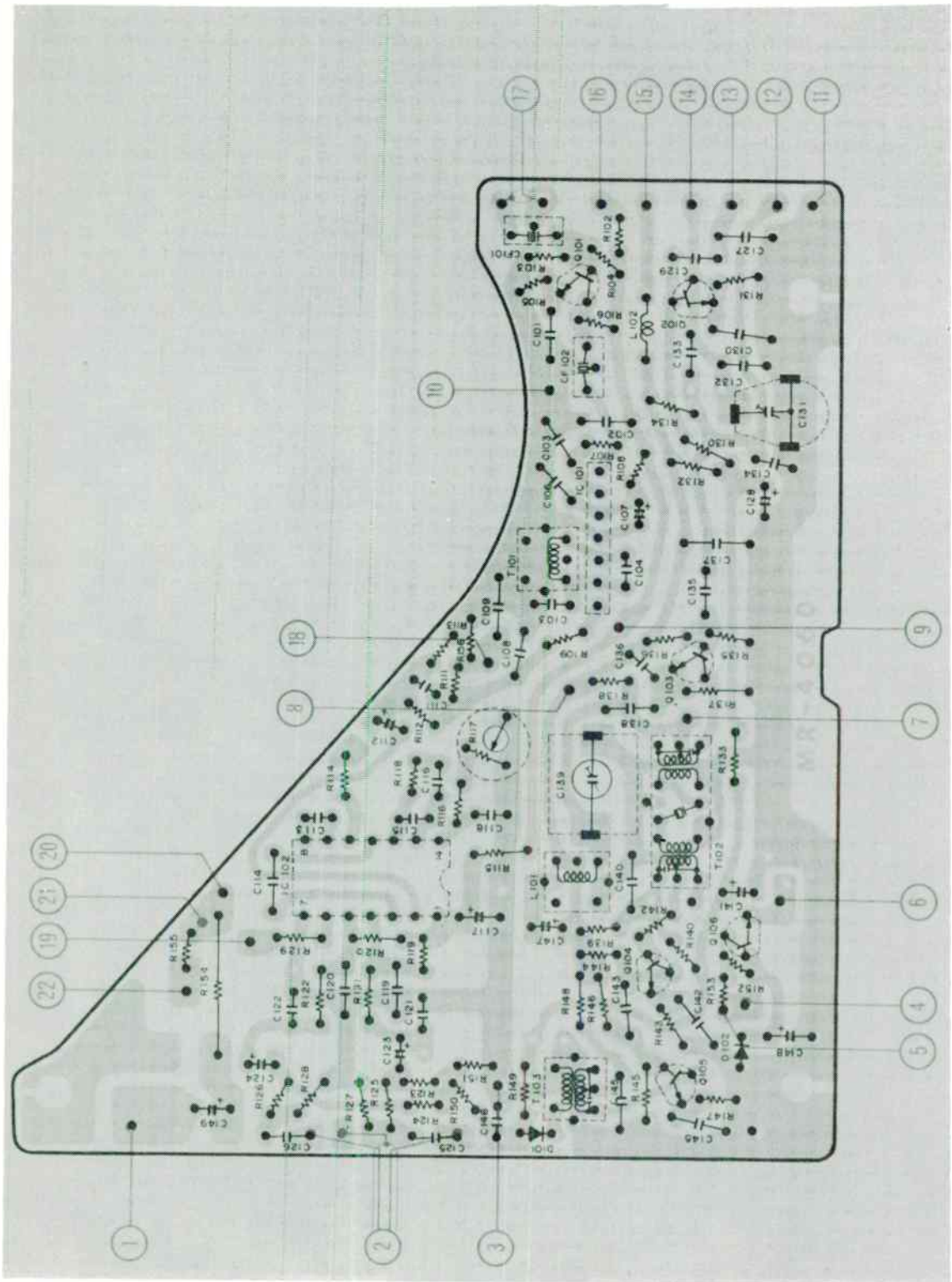
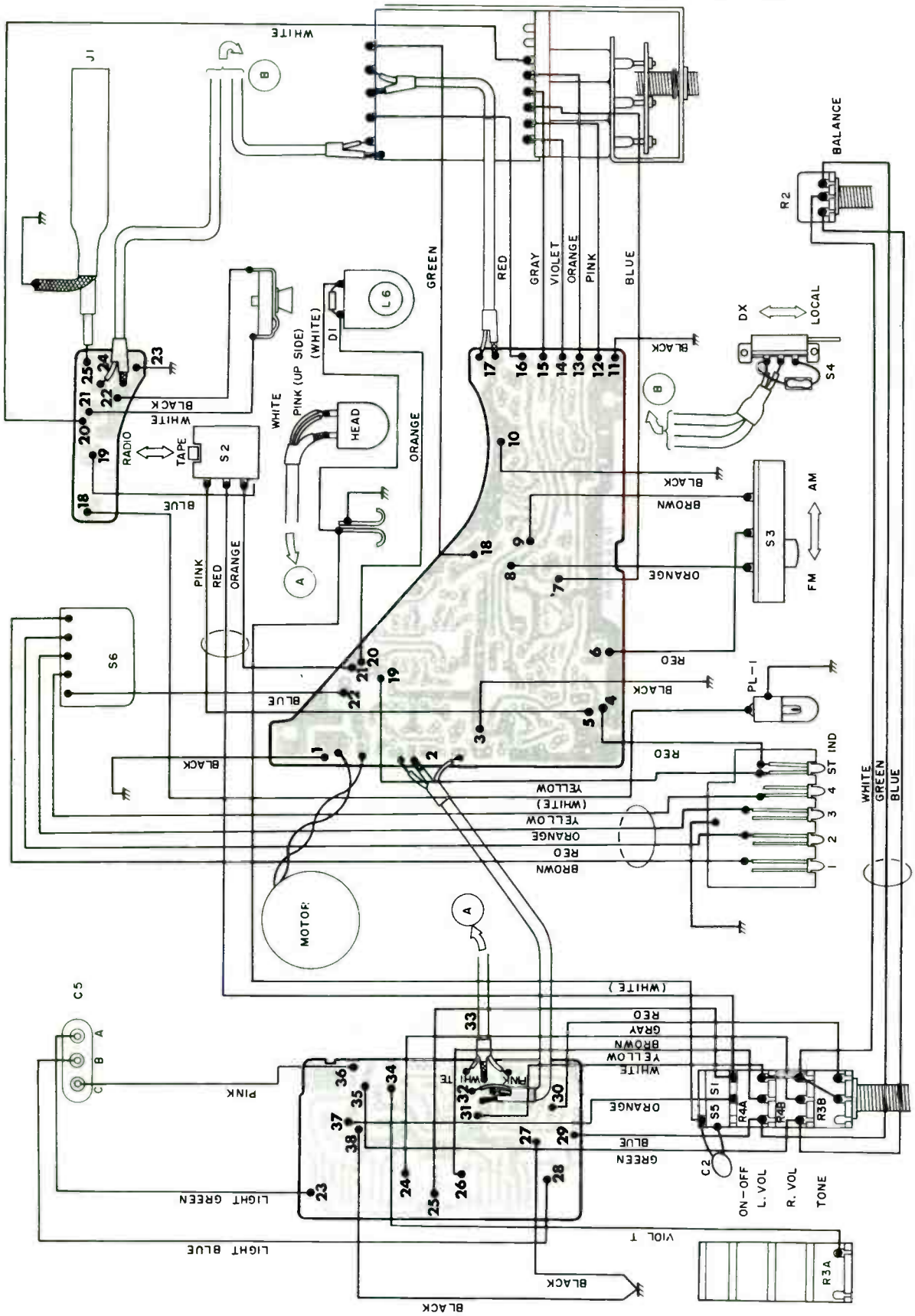


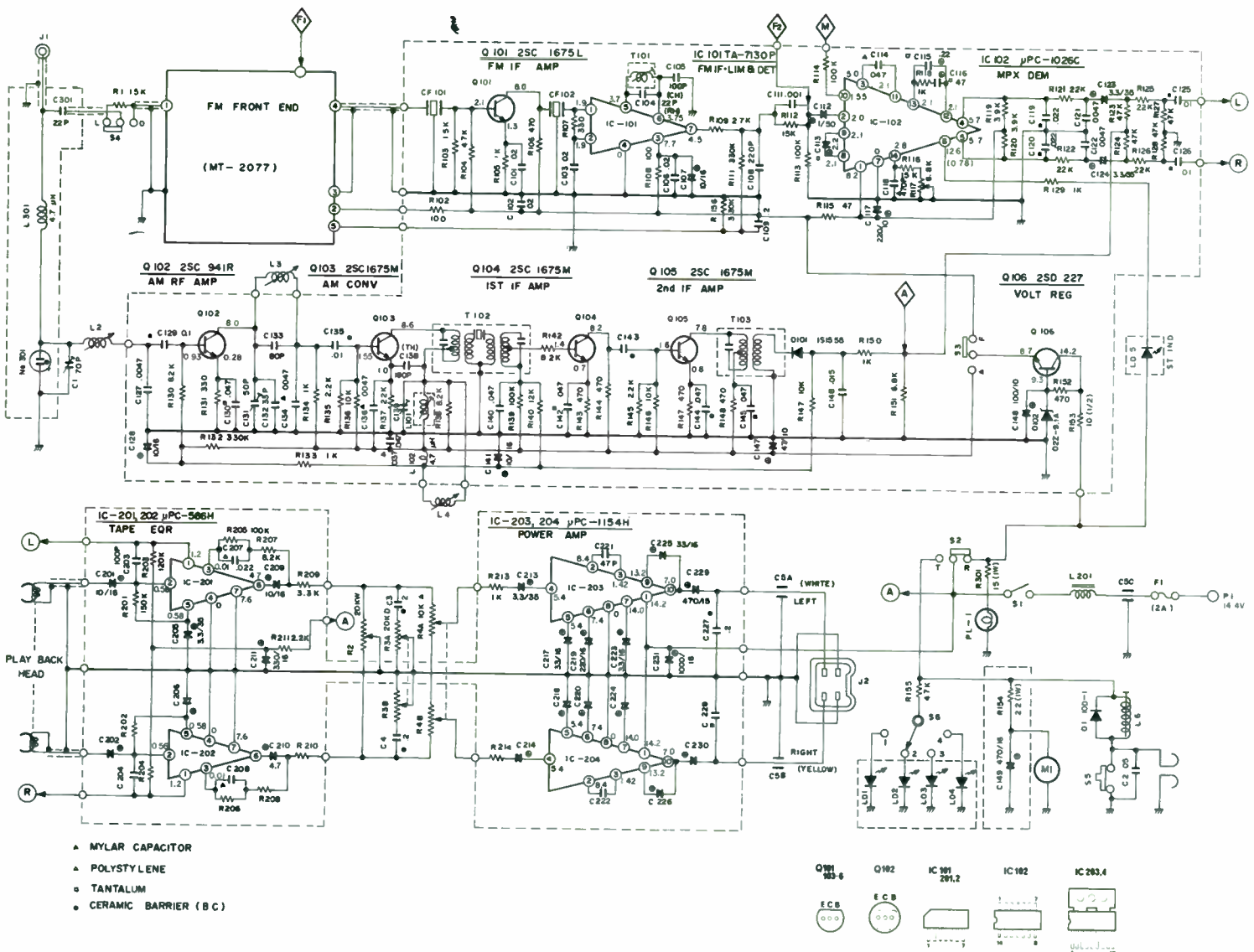
Fig. 9

ALIGNMENT LOCATION DETAIL



Audiovox *C-977A, ID-400A, KM-560A, CP-1100, TM-1000*





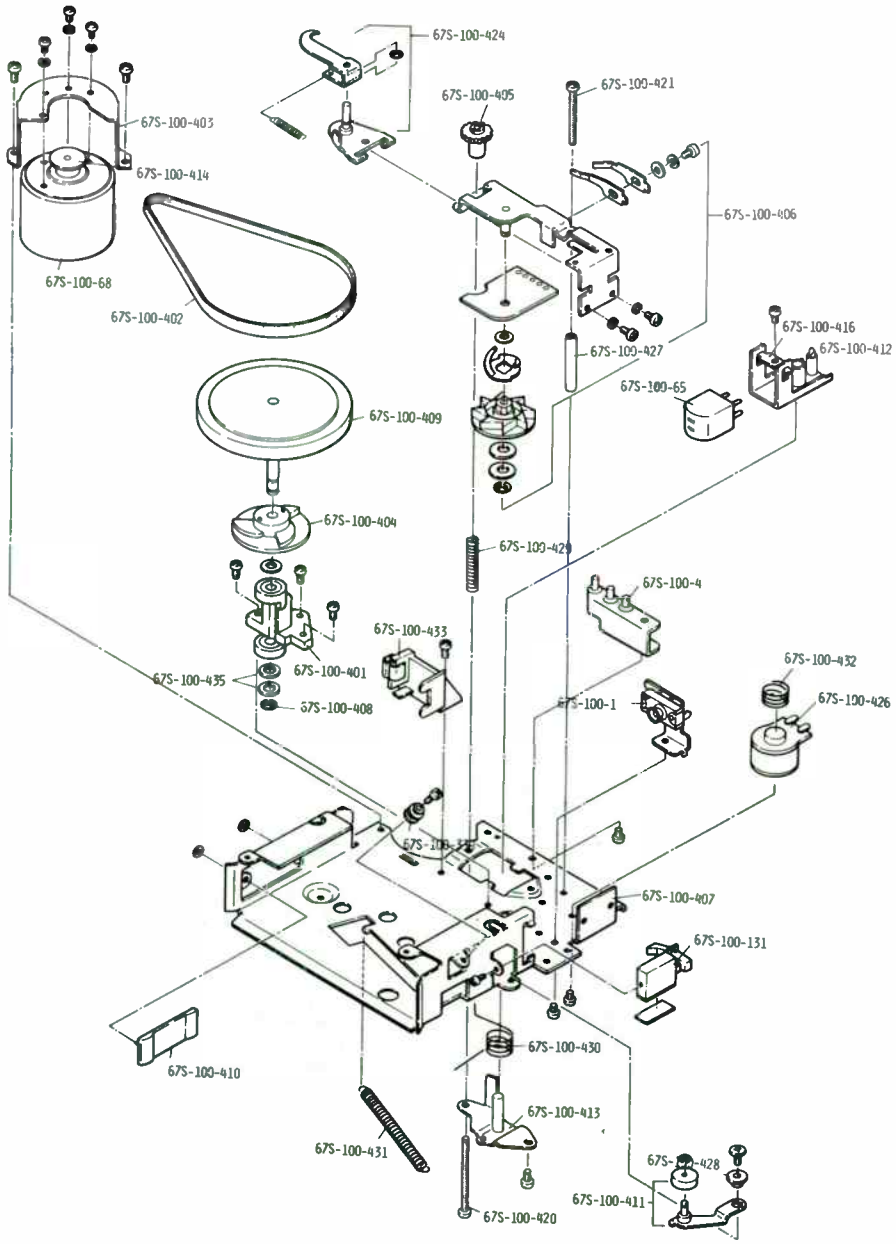


Fig. 18

ASSEMBLY LAYOUT

(DECK CHASSIS)

Reference No	Part No.	Discription	Q'ty C-977A TM-1000
ELECTRICAL PARTS			
CAPACITORS	(Unlisted capacitors on this parts list are Ceramic Disc Type, 50V. See schematic diagram for specific values.)		
C-1	67S-100- 1	70PF, max., trimmer : TC-83	1
C-2	67S-100- 2	0.05uF, 50V, ceramic	1
C-3, 4, 109, 227, 228	67S-100- 3	0.2uF, 12V, semi-conductor	5
C-5A, B, C	67S-100- 4	1,000PF × 3, feed-thru : KC-1503	1
C-101, 102, 103, 106	67S-100- 5	0.02uF, 50V, ceramic	4
C-104	67S-100- 6	22PF, 50V, N220, ceramic	1
C-105	67S-100- 7	10PF, 50V, NPO, ceramic	1
C-107, 128, 141, 201, 202 209, 210	67S-100- 8	10uF, 16V, electrolytic	7
C-108	67S-100- 9	220PF, 50V, ceramic	1
C-111	67S-100-10	0.001uF, 50V, ceramic	1
C-112	67S-100-11	1uF, 50V, electrolytic	1
C-113	67S-100-12	2.2uF, 16V, tantalum	1
C-114, 137	67S-100-13	0.047uF, 50V, mylar	2
C-115	67S-100-14	0.22uF, 35V, tantalum	1
C-116	67S-100-15	0.47uF, 35V, tantalum	1
C-117	67S-100-16	220uF, 10V, electrolytic	1
C-118	67S-100-17	470PF, 50V, polyethlene	1
C-119, 120	67S-100-18	0.022uF, 16V, semi-conductor	2
C-121, 122, 127	67S-100-19	0.0047uF, 50V, ceramic	3
C-123, 124, 205, 206, 213 214	67S-100-20	3.3uF, 35V, electrolytic	6
C-125, 126, 129, 135, 143	67S-100-21	0.01uF, 16V, semi-conductor	5
C-130, 140, 142, 144, 145	67S-100-22	0.047uF, 16V, semi-conductor	5
C-131	67S-100-23	50PF, max., trimmer : TC-30	1
C-132	67S-100-24	33PF, 50V, ceramic	1
C-133	67S-100-25	80PF, 50V, ceramic	1
C-134, 136	67S-100-26	0.0047uF, 50V, mylar	2
C-138	67S-100-27	180PF, 50V, N750, ceramic	1
C-139	67S-100-28	70PF, max., trimmer : TC-42	1
C-146	67S-100-29	0.015uF, 25V, semi-conductor	1
C-147	67S-100-30	47uF, 10V, electrolytic	1
C-148	67S-100-31	100uF, 10V, electrolytic	1
C-149, 229, 230	67S-100-32	470uF, 16V, electrolytic	3
C-203, 204	67S-100-33	100PF, 50V, ceramic	2
C-207, 208	67S-100-34	0.022uF, 50V, mylar	2
C-211	67S-100-35	330uF, 16V, electrolytic	1
C-217, 218, 223, 224, 225 226	67S-100-36	33uF, 16V, electrolytic	6
C-219, 220	67S-100-37	220uF, 16V, electrolytic	2
C-221, 222	67S-100-38	47PF, 50V, ceramic	2
C-231	67S-100-39	1,000uF, 16V, electrolytic	1
C-301	67S-100-40	22PF, 50V, ceramic	1
MISCELLANEOUS ELECTRICAL PARTS			
CF-101, 102	67S-100-61	Ceramic Filter : SFE-10.7MA-5	2
D-1	67S-100-62	Diode, spark suppressor : 10D-1	1
D-101	67S-100-63	Diode, detector & AGC : 1S-1555	1
D-102	67S-100-64	Diode, zener : 02Z-9.1A	1
H-1	67S-100-65	Playback Head : TH-2082	1
LD-1, 2, 3, 4	67S-100-66	Track Ind. : EQ854-03888A	4
LD-5	67S-100-67	FM Stereo Ind. : EQ854-03889A	1
M-1	67S-100-68	Motor : MHT-7RF2F	1
Ne-301	67S-100-69	Neon Bulb : NE-2	1
PL-1	67S-100-70	Lamp, pilot : PL-1B	1
COILS & CHOKES			
L-2, 3, 4	67S-100-81	Tuner with FM front end : MT-2077	1
L-101	67S-100-82	Coil, OSC : OL-2202	1
L-102	67S-100-83	Coil, OSC : LH4.7	1
L-201	67S-100-84	Choke, DC : NL-7	1
L-301	67S-100-85	Coil, ANT choke : SL-4.7	1
CONTROLS			
R-2	67S-100-91	Balance : VR-287	1
R-3A, B, 4A, B, S-1, 5	67S-100-92	Volume, Tone, On-Off & Ch Select : VR-288	1

Reference No.	Part No.	Discription	Q'ty C-977A TM-1000
RESISTORS	(All resistors are insulated carbon type unless otherwise specified.)		
R-1	67S-100-101	1,500, 10%, (small size)	1
R-102, 108	67S-100-102	100, 10%	2
R-103	67S-100-103	1,500, 10%	1
R-104, 155	67S-100-104	4,700, 10%	2
R-105, 118, 129, 133, 134 150, 213, 214	67S-100-105	1,000, 10%	8
R-106, 143, 144, 147, 148 152	67S-100-106	470, 10%	6
R-107, 131	67S-100-107	330, 10%	2
R-109	67S-100-108	2,700, 10%	1
R-111, 132	67S-100-109	330, 10%	2
R-112, 116	67S-100-110	15,000, 10%	2
R-113, 114, 139, 205, 206	67S-100-111	100,000, 10%	5
R-115	67S-100-112	47, 10%	1
R-117	67S-100-113	6,800, semi-fixed : VR-134	1
R-119, 120	67S-100-114	3,900, 10%	2
R-121, 122, 125, 126	67S-100-115	22,000, 10%	4
R-123, 124, 127, 128	67S-100-116	47,000, 10%	4
R-130, 138, 142, 207, 208	67S-100-117	82,000, 10%	5
R-135, 137, 145, 211	67S-100-118	22,000, 10%	4
R-136, 146, 149	67S-100-119	10,000, 10%	3
R-140	67S-100-120	12,000, 10%	1
R-151	67S-100-121	6,800, 10%	1
R-153	67S-100-122	10, 10%, 1/2W	1
R-154	67S-100-123	2.2, 10%, 1W, metal film	1
R-201, 202	67S-100-124	150,000, 10%	2
R-203, 204	67S-100-125	120,000, 10%	2
R-209, 210	67S-100-126	3,300, 10%	2
R-301	67S-100-127	15, 10%, 1W, metal film	1
SWITCHES			
S-2	67S-100-131	Tape/Radio : SW-139	1
S-3	67S-100-132	AM/FM : SW-138	1
S-4	67S-100-133	Local/DX : SW-128	1
TRANSFORMERS			
T-101	67S-100-141	FM IFT : IT-7130 (IT-1028)	1
T-102	67S-100-142	AM IFT : CFT-455C	1
T-103	67S-100-143	AM IFT : IT-2201B	1
ICS & TRANSISTORS			
IC-101	67S-100-151	FM IF, LIM & DET : TA-7130P	1
IC-102	67S-100-152	MPX Demodulator : uPC-1026C	1
IC-201, 202	67S-100-153	Tape Equalizer : uPC-566H	2
IC-203, 204	67S-100-154	Power, output : uPC-1154H	2
Q-101, 103, 104, 105	67S-100-155	FM IF, AM CONV & IF : 2SC-1675	4
Q-102	67S-100-156	AM RF : 2SC-941R	1
Q-105	67S-100-157	Voltage Regulator : 2SD-227	1

MECHANICAL PARTS			C-977A	TM-1000
	67S-100-301	Bracket, dust cover & channel indicator : MR-14728	1	—
	67S-100-302	Bracket, dust cover & channel indicator : MR-14730	—	1
	67S-100-303	Bracket, tuner : KR-14718	1	—
	67S-100-304	Bracket, tuner : KR-14729	—	1
	67S-100-305	Cable Ass'y, battery & speaker cord : QS-870	1	1
	67S-100-306	Chassis, base : PR-14722	1	—
	67S-100-307	Chassis, base : PR-14917	—	1
	67S-100-308	Chassis, front : MR-14721	1	—
	67S-100-309	Chassis, front : MR-14925	—	1
	67S-100-310	Clamp, battery & speaker cable : KR-30985	1	1
	67S-100-311	Clamp, wire : L-30	1	1
	67S-100-312	Coupling, tuning shaft : KR-30921	1	1
	67S-100-313	Cover, bottom : KR-14789	1	1
	67S-100-314	Cover, top : PR-14723	1	—
	67S-100-315	Cover, top : PR-1492F	—	1

Pages 15-30 Courtesy of AUTOMATIC RADIO MFG. CO., INC.

ALIGNMENT PROCEDURE

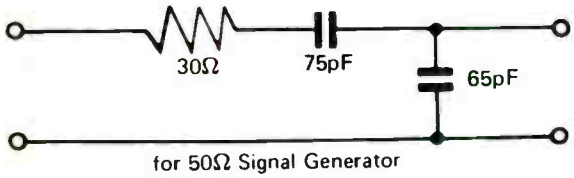
INSTRUMENTS REQUIRED

- AM Signal Generator
- FM Signal Generator
- Sweep Generator
- Marker Generator
- Output Meter (VTVM)
- Oscilloscope
- AM Dummy Ant.
- FM Dummy Ant.

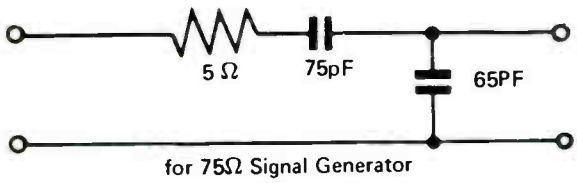
IMPORTANT

- Use non-metallic tools for correct alignment.
- Set generator signal level as low as possible to avoid signal clipping or saturation.
- Use RF generator signal 30%, 400Hz sine-wave modulation.
- Employ dummy antenna between generator and receiver for impedance matching.
- Allow at least five minutes to stabilize the instruments and the receiver prior to the alignment.

AM Dummy Antenna

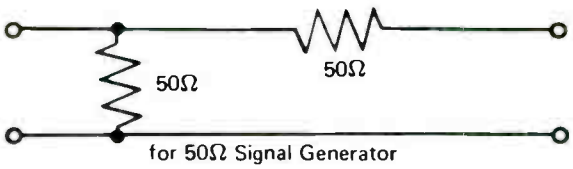


for 50Ω Signal Generator

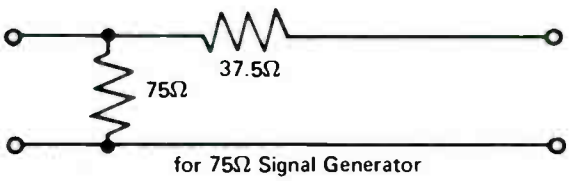


for 75Ω Signal Generator

FM Dummy Antenna



for 50Ω Signal Generator



for 75Ω Signal Generator

AM ALIGNMENT

Alignment	Instrument Connection	Generator Frequency	Dial Setting	Adjustment
IF	Sweep and Marker Generators loose coupled to TP-B. Oscilloscope to AM Det. output. (See Fig. 1)	455 kHz	High end	T601, T602 and T603, T604 to maximum output.
BAND	AM Signal Generator thru AM Dummy Ant. to the antenna jack. VTVM to Audio Power output terminal. (See Fig. 2)	510 kHz (mod.)	Low end	L602 located in the tuner pack to maximum output.
TRACKING	ditto	1400 kHz (mod.)	1400 kHz	Ant. Trimmer to maximum output.

FM and MPX ALIGNMENT

Alignment	Instrument Connection	Generator Frequency	Dial Setting	Adjustment
IF	Sweep and Marker Generators to TP-A. Oscilloscope to TP-1 (See Fig. 3)	10.7 MHz	Quiet Area near High end	T401 and T402 to symmetric "S" curve.
		10.7 MHz marker may not center due to Ceramic Filter, tune to max. symmetrical response.		
BAND	FM Signal Generator thru FM Dummy Ant. to antenna jack. VTVM to Audio Power output terminal. (See Fig. 4)	109.5 MHz (mod.)	High end	C416(FM OSC Trimmer) to maximum gain.
CALIBRATION OF FREE RUNNING FREQ.	Frequency Counter loose coupled to TP-2. (See Fig. 5)			R502 for 19 kHz.
SEPARATION	FM Signal Generator with Stereo Generator to Ant. jack through Dummy. VTVM and/or Scopes to audio output.	98 MHz	98 MHz	R443 (After R502 is adjusted for 19 kHz, this adjustment may not be necessary.)

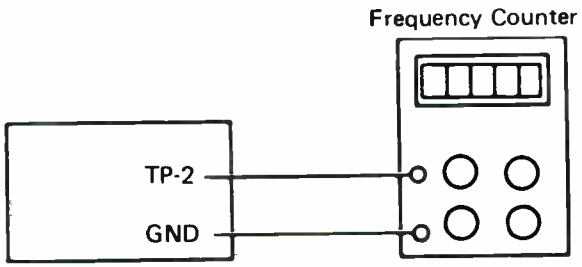
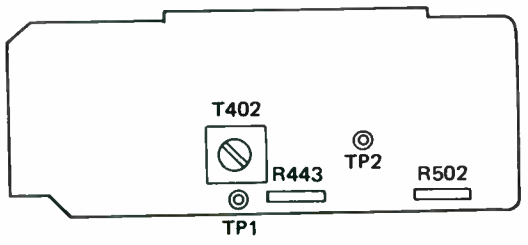
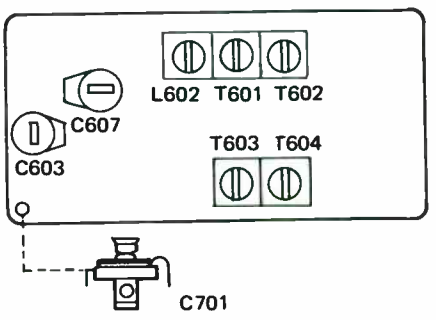
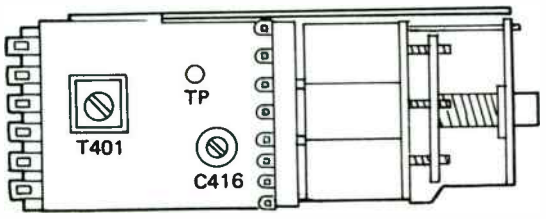


Fig. 5

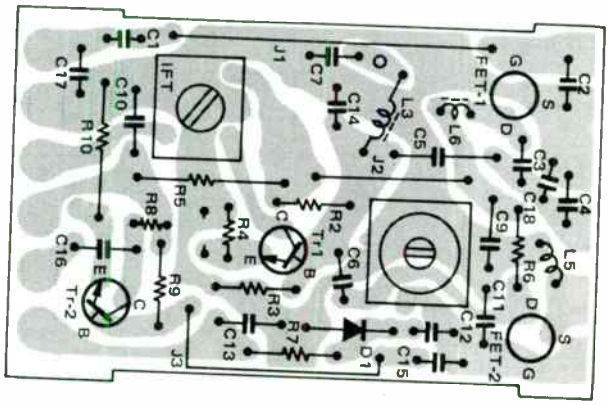
ADJUSTMENT POINTS



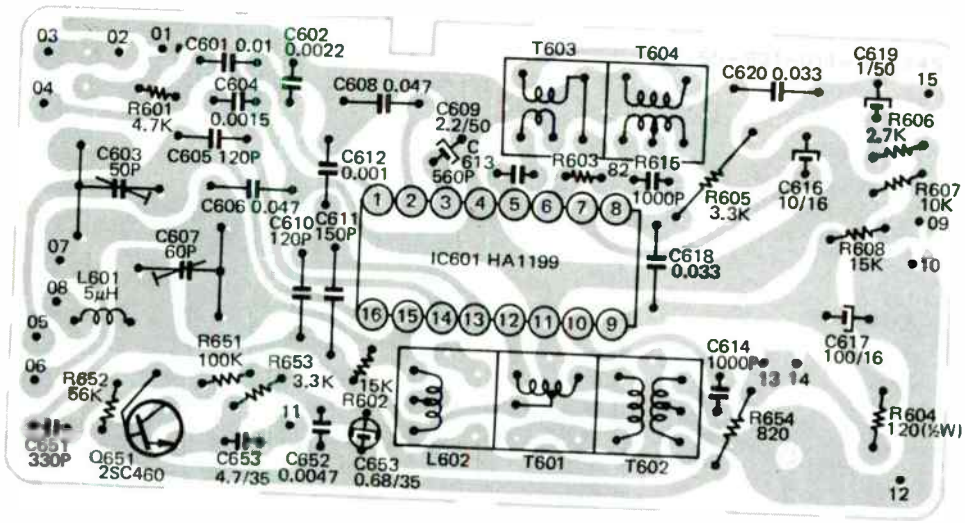




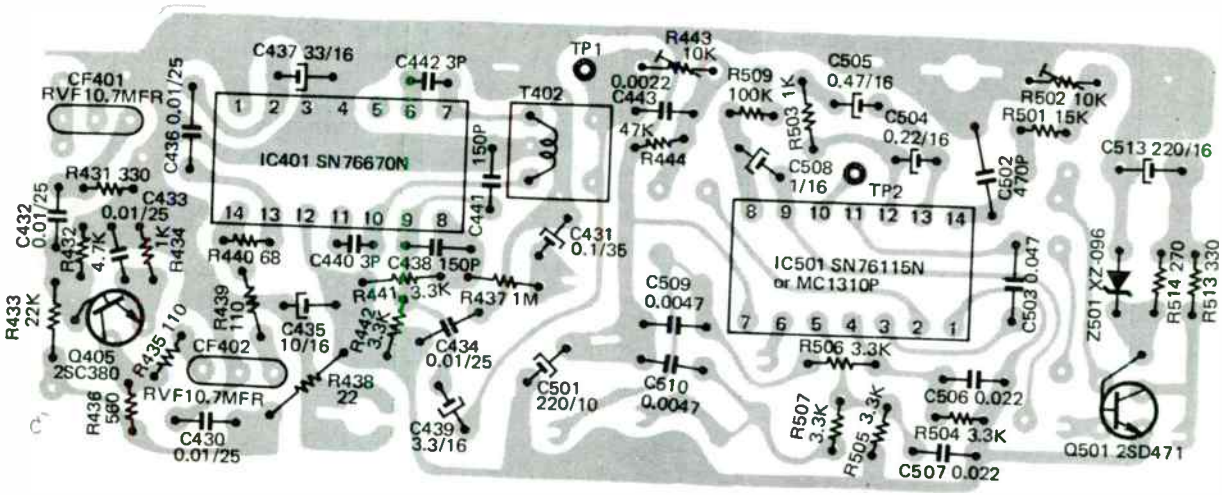
FRONT END P.C. BOARD



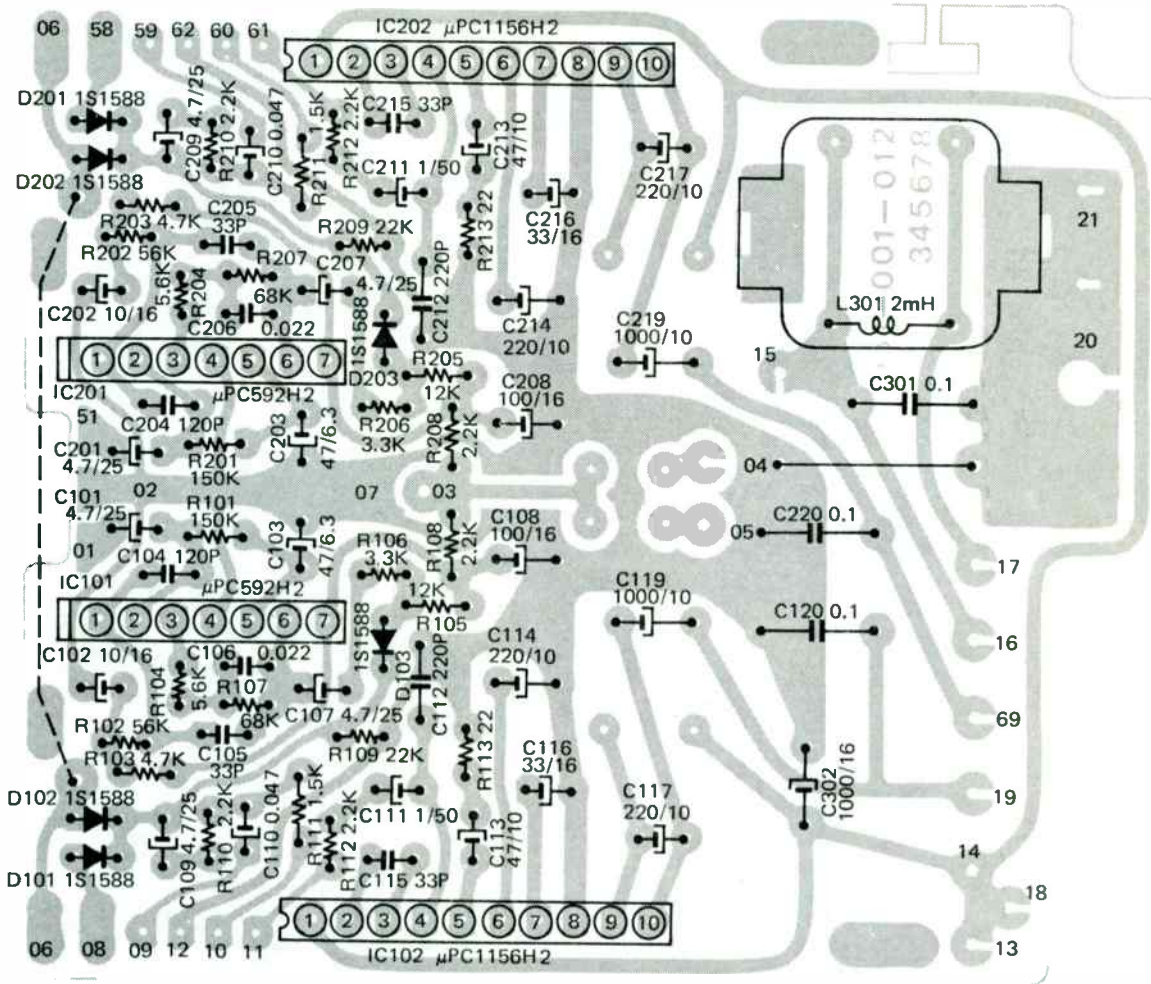
AM P.C. BOARD



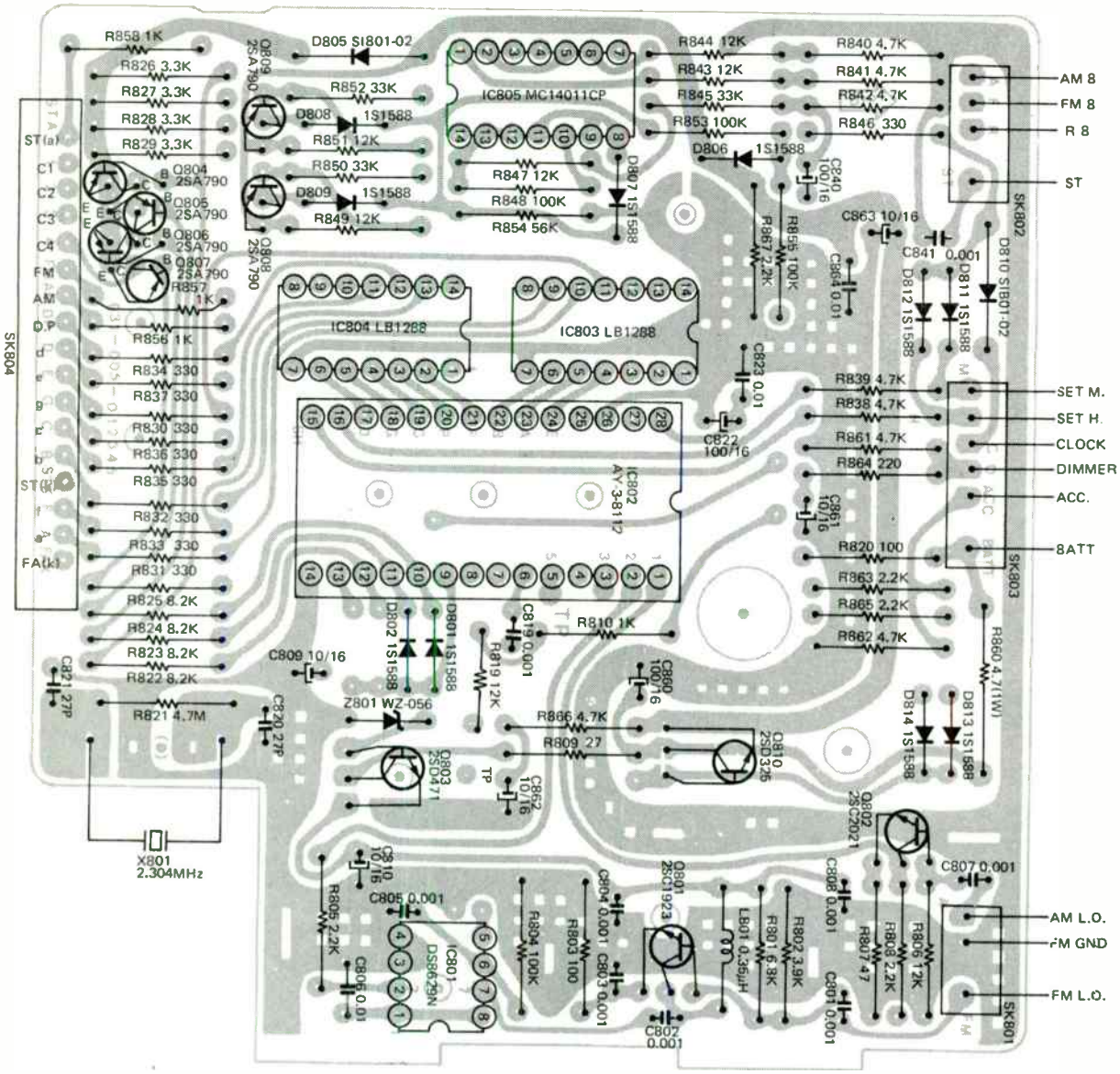
IF P.C. BOARD



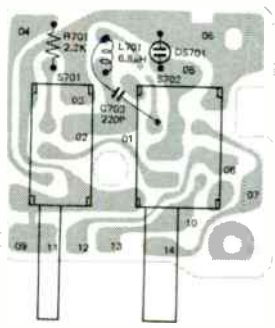
AMPLIFIER P.C. BOARD



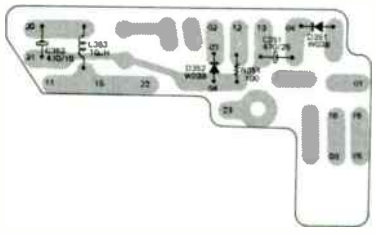
DIGITAL DISPLAY P.C. BOARD



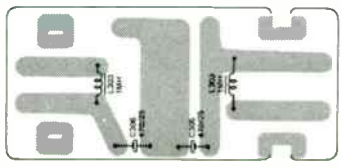
SWITCH P.C. BOARD



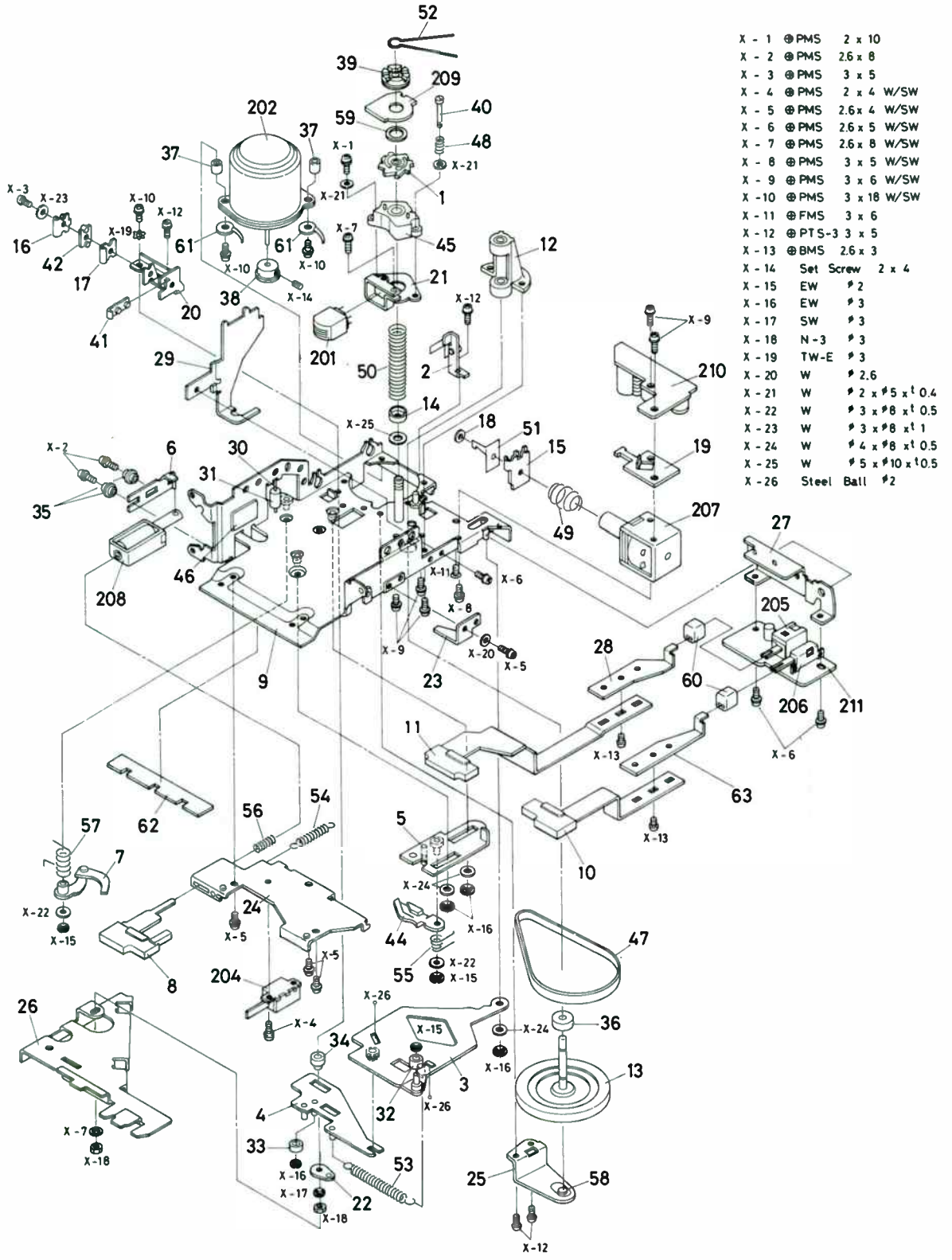
POWER SUPPLY P.C. BOARD



FILTER P.C. BOARD



EXPLODED VIEW



X - 1	⊕PMS	2 x 10	
X - 2	⊕PMS	2.6 x 8	
X - 3	⊕PMS	3 x 5	
X - 4	⊕PMS	2 x 4	W/SW
X - 5	⊕PMS	2.6 x 4	W/SW
X - 6	⊕PMS	2.6 x 5	W/SW
X - 7	⊕PMS	2.6 x 8	W/SW
X - 8	⊕PMS	3 x 5	W/SW
X - 9	⊕PMS	3 x 6	W/SW
X -10	⊕PMS	3 x 18	W/SW
X - 11	⊕FMS	3 x 6	
X - 12	⊕PTS-3	3 x 5	
X - 13	⊕BMS	2.6 x 3	
X - 14	Set Screw	2 x 4	
X - 15	EW	φ2	
X - 16	EW	φ3	
X - 17	SW	φ3	
X - 18	N-3	φ3	
X - 19	TW-E	φ3	
X - 20	W	φ2.6	
X - 21	W	φ2 x φ5 x t 0.4	
X - 22	W	φ3 x φ8 x t 0.5	
X - 23	W	φ3 x φ8 x t 1	
X - 24	W	φ4 x φ8 x t 0.5	
X - 25	W	φ5 x φ10 x t 0.5	
X - 26	Steel Ball	φ2	

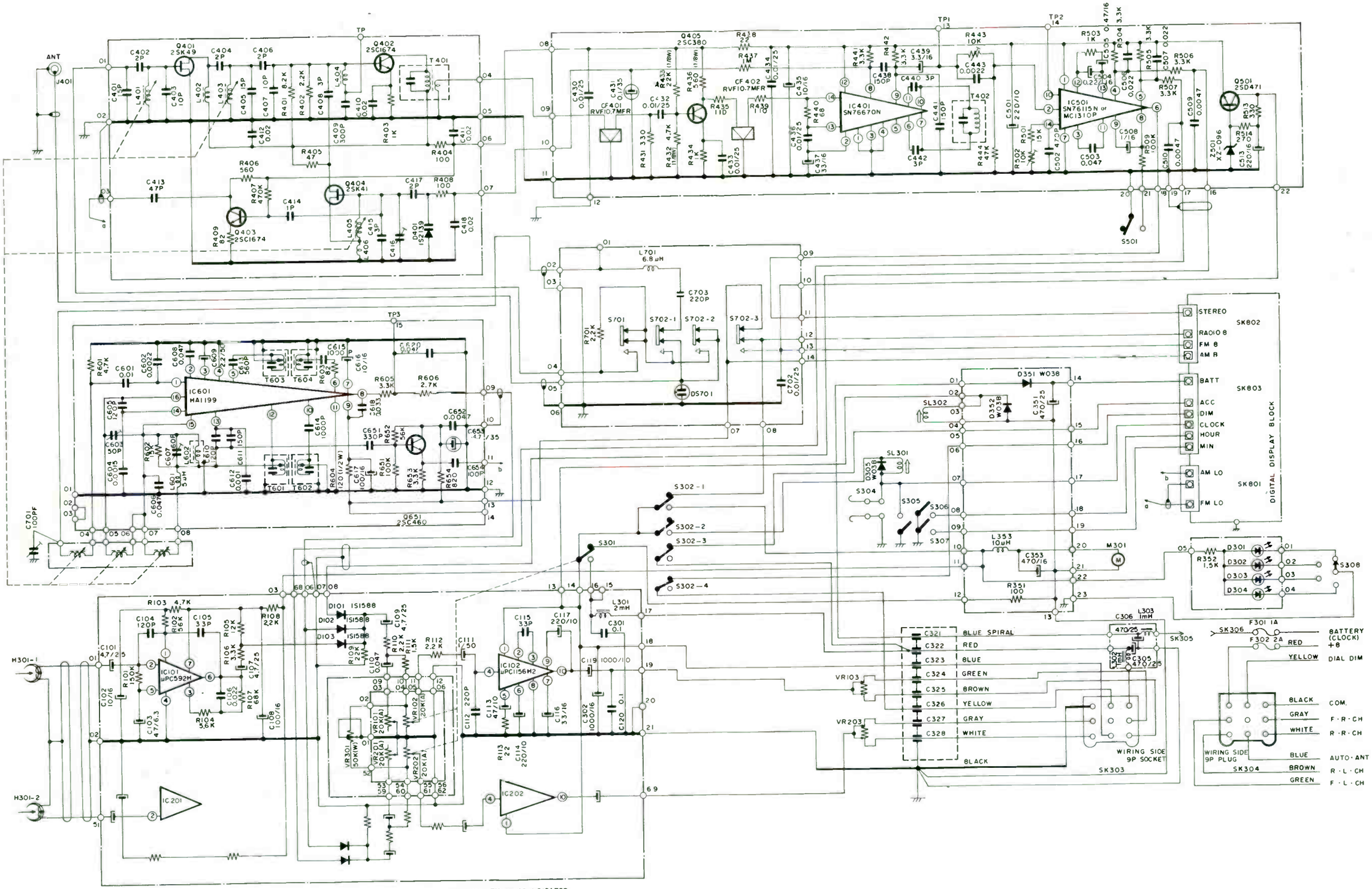
PARTS LIST

EXPLODED VIEW

Ref. No.	Part No.	Description
1	12-235-009	Ratchet – head shift
2	12-406-010	Stopper – ratchet
3	12-708-002	Pressure Roller Ass'y
4	12-708-003	Slide Plate (1)
5	12-708-004	Slide Plate (2)
6	12-708-005	Slide Plate (3)
7	12-708-006	Arm – slide plate
8	12-936-005	Knob/Lever Ass'y – stereo
9	12-934-001	Main Chassis
10	12-936-003	Knob/Lever Ass'y – Loc/DX
11	12-936-004	Knob/Lever Ass'y – band selector
12	13-891-002	Bearing – capstan
13	13-934-001	Flywheel w/capstan
14	20-191-009	Cup Washer
15	20-235-022	Plate – plunger
16	20-235-039	Arrow Head – senser
17	20-235-040	Arrow Head – tape guide
18	20-235-041	Washer – plunger
19	20-353-003	Plate (D) – plunger
20	20-708-002	Tape Guide
21	20-708-003	Head Holder
22	20-708-010	Retainer – Slide plate (1)
23	20-708-036	Guide – pressure roller arm
24	20-936-001	Control Chassis
25	20-934-004	Bracket – flywheel
26	20-934-011	Upper Plate
27	20-934-013	Bracket – SW P.C. Board
28	20-934-016	Lever – band selector
29	20-934-017	Shield Plate
30	25-708-004	Shaft – guide roller
31	27-708-001	Guide Roller – cartridge
32	27-708-002	Pressure Roller
33	27-708-003	Spacer – slide plate
34	27-708-004	Extruded Washer
35	27-708-005	Extruded Washer
36	27-713-001	Spacer – flywheel
37	27-713-002	Spacer – motor
38	28-891-103	Motor Pulley
39	28-891-111	Wheel – F.T.
40	29-708-001	Screw – head azimuth adj.
41	34-147-207	Plastic Chip – tape guide
42	34-328-601	Insulator – arrow head
44	34-708-501	Cam – pressure arm
45	34-708-502	Carrier – head ass'y
46	34-708-504	Plastic Guide – cartridge
47	34-891-701	Drive Belt
48	37-191-002	Spring – head adj.
49	37-235-101	Spring – plunger
50	37-235-102	Spring – head shift
51	37-235-201	Spring – ratchet
52	37-353-001	Spring – head retaining
53	37-708-001	Spring – pressure roller
54	37-708-002	Spring – eject
55	37-708-101	Spring – cam
56	37-594-002	Spring – stereo button
57	37-708-104	Spring – lock arm
58	38-223-406	Thrust Washer
59	38-235-003	Washer 7.4ϕ
60	38-934-001	Connector
61	20-010-012	Lead Clamp
62	38-934-003	Fiber
63	20-934-020	Lever – Loc/DX
101	12-931-006	Shield Case – top
102	12-936-001	Button – H
103	12-936-002	Button – M
104	34-936-001	Nosepiece
105	20-010-012	Lead Clamp
106	20-499-023	Locator – control shaft
107	20-595-034	Clamp – antenna cable
108	20-708-016	Bracket – power switch
109	20-931-018	Shield Case – bottom
110	20-931-020	Grounding Plate
111	20-934-002	Cartridge Guide
112	20-936-004	Cartridge Door
113	20-934-008	Retainer – LED
114	20-934-009	Bracket – amp p.c.b.
115	20-934-010	Bracket – SW
116	20-934-012	Radio Chassis
117	20-934-018	Front Panel

Ref. No.	Part No.	Description
118	20-952-004	Top Cabinet
119	20-952-005	Bottom Cabinet
120	20-933-007	Rear Panel
121	20-952-023	Clamp – wire harness
122	20-952-051	Heat Sink
123	25-934-003	Door Shaft
124	34-933-009	Back Knob
125	34-936-006	Trimplate
127	34-933-007	Front Knob
128	34-931-401	Oldham Coupler (A)
129	34-931-402	Oldham Coupler (B)
130	34-931-403	Oldham Coupler (C)
131	34-934-301	Lamp Holder
132	37-708-103	Spring – door
133	37-934-001	Spring – time set
136	38-934-002	Fiber sheet
137	20-931-019	Shield Plate
138	36-519-008	Label – ANT trimmer
139	36-708-006	Label – black
140	36-936-004	Rating Label
141	36-141-013	Plate – serial No.
142	36-954-002	Label
201	53-010-066	Playback Head
202	54-020-034	Motor
204	58-010-152	Push Switch
205	58-010-194	Push Switch
206	58-010-200	Push Switch
207	70-010-016	Solenoid Plunger
208	70-010-033	Solenoid Plunger
209	55-334-003	P.C. Board (Channel)
210	97-934-002	P.C. Board (Power)
211	97-934-004	P.C. Board (SW)
301	52-056-020	LED Ass'y
302	52-056-022	Digital Indicator
303	58-010-135	Power SW
304	58-040-030	Leaf SW
305	59-010-111	ANT Jack
306	02-936-101	Power Harness ass'y
	38-933-001	Tube
	38-931-402	Fiber sheet
	38-931-550	Vinyl tube
	62-010-307	Connector
	62-010-282	Power cord
	97-931-007	P.C. Board (Filter)
308	62-020-008	Wire lead
309	62-020-009	Wire lead
310	76-010-031	AM/FM μ-tuner
311	86-910-054	Potentiometer 20KΩ
312	87-030-005	Potentiometer
313	95-960-055	Feed thru Cap.
314	96-701-028	Mylar Trimmer
316	97-931-005	P.C. Board (Display)
318	97-931-011	P.C. Board (AM)
319	97-931-012	P.C. Board (IF)
320	97-934-003	P.C. Board (VOL.)
321	97-931-001	P.C. Board (AMP)

SCHEMATIC CIRCUIT DIAGRAM



NOTES:

S301	POWER SW (OFF)
S302	TAPE/RADIO SW (RADIO)
S304	SENSING SW (OFF)
S305	SELECTOR SW (OFF)
S306, 307	TIME SET SW (OFF)
S308	CHANNEL SELECTOR SW (1 CH)
S501	MONO/STEREO SW (STEREO)
S701	LOCAL/DX SW (LOCAL)
S702	BAND SW (AM)

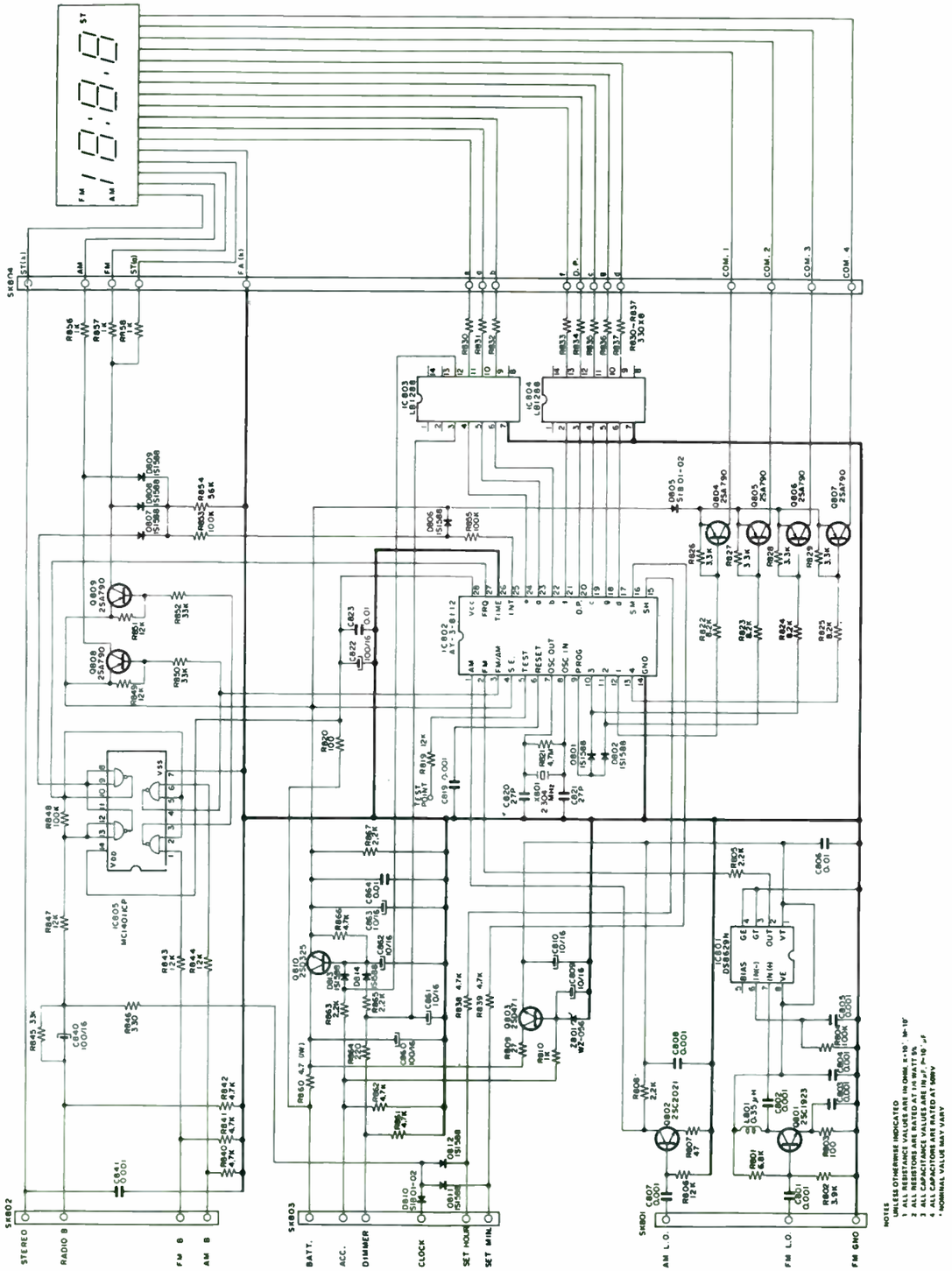
OS301~304 CHANNEL INDICATOR

UNLESS OTHERWISE INDICATED

1. ALL RESISTANCE VALUES ARE IN Ω
   K = 10^3, M = 10^6
2. ALL RESISTORS ARE RATED AT 1/4 WATT 5%
3. ALL CAPACITANCE VALUES ARE IN μF
   P = 10^{-6}μF
4. ALL CAPACITORS ARE RATED AT 50 WV

★ NOMINAL VALUE MAY VARY

SCHEMATIC DIAGRAM (DIGITAL DISPLAY)



IF P.C. BOARD

Symbol	Part No.	Description
	Semiconductors	
IC401	52-040-021-0	IC SN76670N
IC501	52-040-048-0	IC MC1310P or SN76115N
Q405	52-020-115-2	Transistor 2SC930C or 2SC380
Q501	52-025-012-0	Transistor 2SD471
Z501	52-053-030-0	Zener Diode XZ-096
	Filters & Transformer	
CF401	75-030-017-0	Filter RVE10.7MFR
CF402	75-030-017-0	Filter RVE10.7MFR
T402	56-050-517-1	FM IFT (orange)
	Resistors	
R431	81-133-123-2	Carbon 330 ohm 1/4W
R432	81-147-213-2	Carbon 4.7 ohm 1/8W
R433	81-122-313-2	Carbon 22K ohm 1/8W
R434	81-115-223-2	Carbon 1K ohm 1/4W
R435	81-111-123-2	Carbon 110 ohm 1/4W
R436	81-156-113-2	Carbon 560 ohm 1/8W
R437	81-110-523-2	Carbon 1M ohm 1/4W
R438	81-122-023-2	Carbon 22 ohm 1/4W
R439	81-111-123-2	Carbon 110 ohm 1/4W
R440	81-168-023-2	Carbon 68 ohm 1/4W
R441	81-133-223-2	Carbon 3.3K ohm 1/4W
R442	81-133-223-2	Carbon 3.3K ohm 1/4W
R443	87-100-191-0	Semi-fixed 10K ohm
R444	81-147-323-2	Carbon 47K ohm 1/4W
R501	81-115-323-2	Carbon 15K ohm 1/4W
R502	87-100-191-0	Semi-fixed 10K ohm
R503	81-110-223-2	Carbon 1K ohm 1/4W
R504	81-133-223-2	Carbon 3.3K ohm 1/4W
R505	81-133-223-2	Carbon 3.3K ohm 1/4W
R506	81-133-223-2	Carbon 3.3K ohm 1/4W
R507	81-133-223-2	Carbon 3.3K ohm 1/4W
R509	81-110-423-2	Carbon 100K ohm 1/4W
R513	81-133-123-2	Carbon 330 ohm 1/4W
R514	81-127-123-2	Carbon 270 ohm 1/4W
	Capacitors	
C430	95-253-103-7	Ceramic 0.01μF 25WV
C431	93-820-101-0	Tantalum 0.1μF 35WV
C432	95-253-103-7	Ceramic 0.01μF 25WV
C433	95-253-103-7	Ceramic 0.01μF 25WV
C434	95-253-103-7	Ceramic 0.01μF 25WV
C435	93-524-100-0	Electrolytic 10μF 16WV
C436	95-253-103-7	Ceramic 0.01μF 25WV
C437	93-524-330-1	Electrolytic 33μF 16WV
C438	94-386-151-4	Titanium 150PF 50WV
C439	93-524-337-0	Electrolytic 3.3μF 16WV
C440	94-333-307-9	Titanium 3PF 50WV
C441	94-386-151-4	Titanium 150PF 50WV
C442	94-333-307-9	Titanium 3PF 50WV
C443	93-632-222-4	Polyester film 0.0022μF 50WV
C501	93-523-221-4	Electrolytic 220μF 10WV
C502	93-724-471-4	Styrol 470PF 125WV
C503	93-632-473-4	Polyester film 0.047μF 50WV
C504	93-524-228-0	Electrolytic 0.22μF 16WV
C505	93-524-478-0	Electrolytic 0.47μF 16WV
C506	93-632-223-4	Polyester film 0.022μF 50WV
C507	93-632-223-4	Polyester film 0.022μF 50WV
C508	93-524-107-0	Electrolytic 1μF 16WV
C509	93-632-472-4	Polyester film 0.0047μF 50WV
C510	93-632-472-4	Polyester film 0.0047μF 50WV
C513	93-524-221-1	Electrolytic 220μF 16WV

AM P.C. BOARD

Symbol	Part No.	Description
	Semiconductors	
IC601	52-040-051-0	IC HA1199
Q651	52-020-189-0	Transistor 2SC460A
	Coils	
L601	56-050-610-0	Peaking Coil 5μH
L602	56-050-611-0	AM OSC Coil
	Transformers	
T601	56-050-612-0	AM IFT (black)
T602	56-050-613-0	AM IFT (white)
T603	56-050-614-0	AM IFT (orange)
T604	56-050-613-0	AM IFT (white)
	Resistors	
R601	81-147-223-2	Carbon 4.7K ohm 1/4W
R602	81-115-323-2	Carbon 15K ohm 1/4W
R603	81-182-023-2	Carbon 82 ohm 1/4W
R604	81-112-133-2	Carbon 120 ohm 1/2W
R605	81-133-223-2	Carbon 3.3K ohm 1/4W
R606	81-127-223-2	Carbon 2.7K ohm 1/4W
R651	81-110-423-2	Carbon 100K ohm 1/4W
R652	81-156-323-2	Carbon 56K ohm 1/4W
R653	81-133-223-2	Carbon 3.3K ohm 1/4W
R654	81-182-123-2	Carbon 820 ohm 1/4W

Symbol	Part No.	Description
	Capacitors	
C601	93-632-103-4	Polyester film 0.01μF 50WV
C602	93-632-222-4	Polyester film 0.0022μF 50WV
C603	96-601-005-0	Ceramic 50PF
C604	93-632-152-4	Polyester film 0.0015μF 50WV
C605	93-335-120-4	Silver mica 120PF 50WV
C606	93-632-473-4	Polyester film 0.047μF 50WV
C607	96-601-009-0	Ceramic 60PF
C608	93-632-473-4	Polyester film 0.047μF 50WV
C609	93-527-227-1	Electrolytic 2.2μF 50WV
C610	94-379-121-3	Titanium 120PF 50WV
C611	94-379-151-3	Titanium 150PF 50WV
C612	93-632-102-4	Polyester film 0.001μF 50WV
C613	95-322-561-4	Ceramic 560PF 50WV
C614	95-322-102-4	Ceramic 1000PF 50WV
C615	95-322-102-4	Ceramic 1000PF 50WV
C616	93-524-100-0	Electrolytic 10μF 16WV
C617	93-524-101-3	Electrolytic 100μF 16WV
C618	93-632-333-4	Polyester film 0.033μF 50WV
C620	93-632-473-4	Polyester film 0.047μF 50WV
C651	95-322-331-4	Ceramic 330PF 50WV
C652	93-632-472-4	Polyester film 0.0047μF 50WV
C653	93-820-111-0	Tantalum 4.7μF 35WV
C654	95-322-101-4	Ceramic 100PF 50WV

AMPLIFIER P.C. BOARD

Symbol	Part No.	Description
	Semiconductors	
IC101	52-040-025-0	IC μ-PC592H
IC102	52-040-049-0	IC μ-PC1156Hz
IC201	52-040-025-0	IC μ-PC592H
IC202	52-040-049-0	IC μ-PC1156Hz
D101	52-051-009-0	Diode 1S1588
D102	52-051-009-0	Diode 1S1588
D103	52-051-009-0	Diode 1S1588
D201	52-051-009-0	Diode 1S1588
D202	52-051-009-0	Diode 1S1588
D203	52-051-009-0	Diode 1S1588

Symbol	Part No.	Description
	Coil	
L301	56-050-036-0	Choke Coil 2mH
	Resistors	
R101	81-115-423-2	Carbon 150K ohm 1/4W
R102	81-156-323-2	Carbon 56K ohm 1/4W
R103	81-147-223-2	Carbon 4.7K ohm 1/4W
R104	81-156-223-2	Carbon 5.6K ohm 1/4W
R105	81-112-323-2	Carbon 12K ohm 1/4W
R106	81-133-223-2	Carbon 3.3K ohm 1/4W
R107	81-168-323-2	Carbon 68K ohm 1/4W

Symbol	Part No.	Description		
R108	81-122-223-2	Carbon	2.2K ohm	1/4W
R109	81-122-323-2	Carbon	22K ohm	1/4W
R110	81-122-223-2	Carbon	2.2K ohm	1/4W
R111	81-115-223-2	Carbon	1.5K ohm	1/4W
R112	81-122-223-2	Carbon	2.2K ohm	1/4W
R113	81-122-023-2	Carbon	22 ohm	1/4W
R201	81-115-423-2	Carbon	150K ohm	1/4W
R202	81-156-323-2	Carbon	56K ohm	1/4W
R203	81-147-223-2	Carbon	4.7K ohm	1/4W
R204	81-156-223-2	Carbon	5.6K ohm	1/4W
R205	81-112-323-2	Carbon	12K ohm	1/4W
R206	81-133-223-2	Carbon	3.3K ohm	1/4W
R207	81-168-323-2	Carbon	68K ohm	1/4W
R208	81-122-223-2	Carbon	2.2K ohm	1/4W
R209	81-122-323-2	Carbon	22K ohm	1/4W
R210	81-122-223-2	Carbon	2.2K ohm	1/4W
R211	81-115-223-2	Carbon	1.5K ohm	1/4W
R212	81-122-223-2	Carbon	2.2K ohm	1/4W
R213	81-122-023-2	Carbon	22 ohm	1/4W

Capacitors

C101	93-525-477-0	Electrolytic	4.7μF	25WV
C102	93-524-100-0	Electrolytic	10μF	16WV
C103	93-522-470-0	Electrolytic	47μF	6.3WV
C104	94-386-121-4	Titanium	120PF	50WV
C105	94-386-330-4	Titanium	33PF	50WV
C106	93-632-223-4	Polyester film	0.0022μF	50WV
C107	93-525-477-0	Electrolytic	4.7μF	25WV
C108	93-524-101-2	Electrolytic	100μF	16WV
C109	93-525-477-0	Electrolytic	4.7μF	25WV
C110	93-840-040-0	Aluminum	0.047μF	25WV
C111	93-527-107-1	Electrolytic	1μF	50WV
C112	94-386-221-4	Titanium	220PF	50WV
C113	93-523-470-1	Electrolytic	47μF	10WV
C114	93-523-221-4	Electrolytic	220μF	10WV
C115	94-386-330-4	Titanium	33PF	50WV
C116	93-524-330-2	Electrolytic	33PF	16WV
C117	93-523-221-5	Electrolytic	220μF	10WV
C119	93-523-102-2	Electrolytic	1000μF	10WV
C120	93-632-104-4	Polyester film	0.1μF	50WV
C201	93-525-477-0	Electrolytic	4.7μF	25WV
C202	93-524-100-0	Electrolytic	10μF	16WV
C203	93-522-470-0	Electrolytic	47μF	6.3WV
C204	94-386-121-4	Titanium	120PF	50WV
C205	94-386-330-4	Titanium	33PF	50WV
C206	93-632-223-4	Polyester film	0.022μF	50WV
C207	93-525-477-0	Electrolytic	4.7μF	25WV
C208	93-524-101-2	Electrolytic	100μF	16WV
C209	93-525-477-0	Electrolytic	4.7μF	25WV
C210	93-840-040-0	Aluminum	0.047μF	25WV
C211	93-527-107-1	Electrolytic	1μF	50WV
C212	94-386-221-4	Titanium	220PF	50WV
C213	93-523-470-1	Electrolytic	47μF	10WV
C214	93-523-221-4	Electrolytic	220μF	10WV
C215	94-386-330-4	Titanium	33PF	50WV
C216	93-524-330-2	Electrolytic	33PF	16WV
C217	93-523-221-5	Electrolytic	220μF	10WV
C219	93-523-102-2	Electrolytic	1000μF	10WV
C220	93-632-104-4	Polyester film	0.1μF	50WV
C301	93-632-104-4	Polyester film	0.1μF	50WV
C302	93-524-102-6	Electrolytic	1000μF	16WV

DISPLAY P.C. BOARD

Symbol	Part No.	Description		
		Semiconductors		
IC801	52-047-005-0	IC	DS8629N	
IC802	52-046-019-0	IC	AY-3-8112	
IC803	52-040-052-0	IC	LB1288	
IC804	52-040-052-0	IC	LB1288	
IC805	52-040-027-0	IC	MC14011CP	
Q801	52-020-201-0	Transistor	2SC1923	
Q802	52-020-203-0	Transistor	2SC2021	
Q803	52-025-012-0	Transistor	2SD471	
Q804	52-010-120-0	Transistor	2SA790	
Q805	52-010-120-0	Transistor	2SA790	
Q806	52-010-120-0	Transistor	2SA790	
Q807	52-010-120-0	Transistor	2SA790	
Q808	52-010-120-0	Transistor	2SA790	
Q809	52-010-120-0	Transistor	2SA790	
Q810	52-025-006-0	Transistor	2SD325	
D801	52-051-022-0	Diode	1S1588	
D802	52-051-022-0	Diode	1S1588	
D805	52-054-041-0	Diode	SIB-01-02	
D806	52-051-022-0	Diode	1S1588	
D807	52-051-022-0	Diode	1S1588	
D808	52-051-022-0	Diode	1S1588	
D809	52-051-022-0	Diode	1S1588	
D810	52-054-041-0	Diode	SIB-01-02	
D811	52-051-022-0	Diode	1S1588	
D812	52-051-022-0	Diode	1S1588	
D813	52-051-022-0	Diode	1S1588	
D814	52-051-022-0	Diode	1S1588	
Z801	52-053-019-0	Zener Diode	WZ-056	
		Coils		
L801	56-050-622-0	Peaking Coil 0.35μH		
		X'tal		
X801	75-010-143-0	X'tal	2.304MHz	
		Resistors		
R801	81-168-223-1	Carbon	6.8K ohm	1/4W
R802	81-139-223-1	Carbon	3.9K ohm	1/4W
R803	81-110-123-1	Carbon	100 ohm	1/4W
R804	81-110-423-1	Carbon	100K ohm	1/4W
R805	81-122-223-1	Carbon	2.2K ohm	1/4W
R806	81-112-323-1	Carbon	12K ohm	1/4W
R807	81-147-023-1	Carbon	47 ohm	1/4W
R808	81-122-223-1	Carbon	2.2K ohm	1/4W
R809	81-127-023-1	Carbon	27 ohm	1/4W
R810	81-110-223-1	Carbon	1K ohm	1/4W
R819	81-112-323-1	Carbon	12K ohm	1/4W
R820	81-110-123-1	Carbon	100 ohm	1/4W
R821	81-147-523-1	Carbon	4.7M ohm	1/4W
R822	81-182-223-1	Carbon	8.2K ohm	1/4W
R823	81-182-223-1	Carbon	8.2K ohm	1/4W
R824	81-182-223-1	Carbon	8.2K ohm	1/4W
R825	81-182-223-1	Carbon	8.2K ohm	1/4W
R826	81-133-223-1	Carbon	3.3K ohm	1/4W
R827	81-133-223-1	Carbon	3.3K ohm	1/4W
R828	81-133-223-1	Carbon	3.3K ohm	1/4W
R829	81-133-223-1	Carbon	3.3K ohm	1/4W
R830	81-133-123-1	Carbon	330 ohm	1/4W
R831	81-133-123-1	Carbon	330 ohm	1/4W
R832	81-133-123-1	Carbon	330 ohm	1/4W
R833	81-133-123-1	Carbon	330 ohm	1/4W
R834	81-133-123-1	Carbon	330 ohm	1/4W
R835	81-133-123-1	Carbon	330 ohm	1/4W
R836	81-133-123-1	Carbon	330 ohm	1/4W
R837	81-133-123-1	Carbon	330 ohm	1/4W
R838	81-147-223-1	Carbon	4.7K ohm	1/4W
R839	81-147-223-1	Carbon	4.7K ohm	1/4W
R840	81-147-223-1	Carbon	4.7K ohm	1/4W
R841	81-147-223-1	Carbon	4.7K ohm	1/4W
R842	81-147-223-1	Carbon	4.7K ohm	1/4W
R843	81-112-323-1	Carbon	12K ohm	1/4W
R844	81-112-323-1	Carbon	12K ohm	1/4W
R845	81-133-323-1	Carbon	33K ohm	1/4W
R846	81-133-123-1	Carbon	330 ohm	1/4W
R847	81-112-323-1	Carbon	12K ohm	1/4W
R848	81-110-423-1	Carbon	100K ohm	1/4W
R849	81-112-323-1	Carbon	12K ohm	1/4W
R850	81-133-323-1	Carbon	33K ohm	1/4W
R851	81-112-323-1	Carbon	12K ohm	1/4W
R852	81-133-323-1	Carbon	33K ohm	1/4W
R853	81-110-423-1	Carbon	100K ohm	1/4W
R854	81-156-323-1	Carbon	56K ohm	1/4W
R855	81-110-423-1	Carbon	100K ohm	1/4W

Symbol	Part No.	Description		
R856	81-110-223-1	Carbon	1K ohm	1/4W
R857	81-110-223-1	Carbon	1K ohm	1/4W
R858	81-110-223-1	Carbon	1K ohm	1/4W
R860	81-447-702-0	Metal oxide	4.7 ohm	1W
R861	81-147-223-1	Carbon	4.7K ohm	1/4W
R862	81-147-223-1	Carbon	4.7K ohm	1/4W
R863	81-122-223-1	Carbon	2.2K ohm	1/4W
R864	81-122-123-1	Carbon	220 ohm	1/4W
R865	81-122-223-1	Carbon	2.2K ohm	1/4W
R866	81-147-223-1	Carbon	4.7K ohm	1/4W
R867	81-122-223-1	Carbon	2.2K ohm	1/4W
		Capacitors		
C801	95-322-102-4	Ceramic	1000PF	50WV
C802	95-322-102-4	Ceramic	1000PF	50WV
C803	95-322-102-4	Ceramic	1000PF	50WV
C804	95-322-102-4	Ceramic	1000PF	50WV
C805	95-322-102-4	Ceramic	1000PF	50WV
C806	95-352-103-7	Ceramic	0.01μF	50WV
C807	95-322-102-4	Ceramic	1000PF	50WV
C808	95-322-102-4	Ceramic	1000PF	50WV
C809	93-524-100-0	Electrolytic	10μF	16WV
C810	93-524-100-0	Electrolytic	10μF	16WV
C819	95-322-102-4	Ceramic	1000PF	50WV
C820	94-353-270-3	Titanium	27PF	50WV
C821	94-353-270-3	Titanium	27PF	50WV
C822	93-524-101-7	Electrolytic	100μF	16WV
C823	95-352-103-7	Ceramic	0.01μF	50WV
C840	93-524-101-7	Electrolytic	100μF	16WV
C841	95-322-102-4	Ceramic	1000PF	50WV
C860	93-524-101-7	Electrolytic	100μF	16WV
C861	93-524-100-0	Electrolytic	10μF	16WV
C862	93-524-100-0	Electrolytic	10μF	16WV
C863	93-524-100-0	Electrolytic	10μF	16WV
C864	95-352-103-7	Ceramic	0.01μF	50WV

POWER P.C. BOARD

Symbol	Part No.	Description		
D351	52-054-037-0	Diode W06B or W03B		
D352	52-054-037-0	Diode W06B or W03B		
L353	56-054-199-1	Peaking Coil	10μH	
R351	81-110-123-2	Carbon	100 ohm	1/4W
C351	93-525-471-2	Electrolytic	470μF	25WV
C353	93-524-471-3	Electrolytic	470μF	16WV

FILTER P.C. BOARD

Symbol	Part No.	Description		
L302	56-050-037-0	Choke Coil	1mH	
L303	56-050-027-0	Choke Coil	1mH	
C305	93-525-471-2	Electrolytic	470μF	25WV
C306	93-525-471-2	Electrolytic	470μF	25WV

SWITCH P.C. BOARD

Symbol	Part No.	Description		
L701	56-050-609-0	Peaking Coil	6.8μH	
R701	81-122-223-2	Carbon	2.2K ohm	1/4W
C702	95-253-103-7	Ceramic	0.01μF	25WV
C703	94-386-221-4	Titanium	220μF	50WV

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

1) Power Supply (14V DC)
2) VTVM
3) AM & FM Signal Generator
4) Sweep Generator (455kHz - 10.7MHz)
5) Oscilloscope
6) FM Stereo Modulator
7) Digital Frequency Counter

NOTES:

* Non-Metalic tools should be used.
* Keep Generator signal level as low as possible to avoid clipping.
* Volume Control Should be set to minimum unless otherwise specified.
* Set Tone Control to maximum treble.
* Standard Modulation is 400Hz 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.

AM

STEP	ADJUSTING CIRCUIT	CONNECTIONS		FREQ'CY	DIAL SETTING	ADJUST	ADJUST FOR
		INPUT	OUTPUT				
1	AM IF	Connect Sweep Generator to antenna receptacle (SIGNAL LEVEL LOW)	Connect Scope to Test Point ◇C◇ & Ground to chassis.	455kHz (Mod.)	Lowest End	T502,T503 T504,T505	Maximum Output (See Fig. 1)
2	COVERAGE	Connect AM Signal Gen. to Antenna receptacle	Connect VTVM to Audio output of either CH.	1400kHz (Mod.)	1400kHz	C501,C506	Maximum Output
3				1650kHz	1650kHz	C513,C601	
4	REPEAT ADJUSTMENT FOR BEST RESULTS.						

FM

1	RF	Connect FM Signal Gen. to Antenna Receptacle	Connect VTVM to Audio Output of either CH.	108MHz (Mod.)	High End	TR401	Maximum Output
2	IF	Connect FM Generator, Sweep Generator to test point ◇A◇	Connect Scope to test point ◇D◇	10.7MHz (Mod.)	Low End	T401	(Set receiver to FM-DX)wave pattern on Fig. 2
NOTE: The 10.7 MHz marker need not be in center position on Scope-Wave Form.							
3	OSC	Connect FM Signal Gen. to Ant. Receptacle	Connect VTVM to Audio output of either CH.	109MHz (Mod.)	High End	TR402	Max. Reading on VTVM

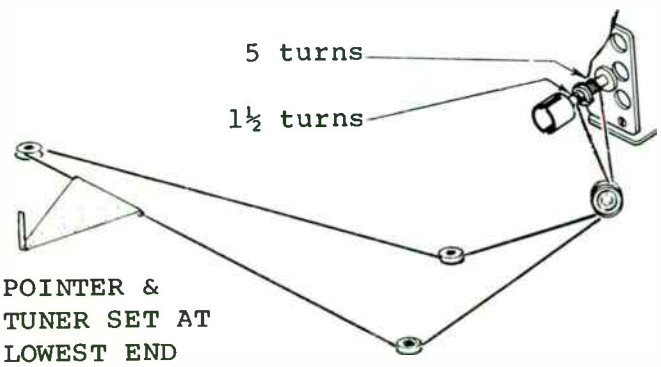
FM/MPX

(A) Connect a Digital Frequency Counter to test poin ◇E◇ (Pin No. 12 of IC502), and adjust R539 (SVR) for a reading of 19kHz.

(B) Connect FM Signal Generator and Signal Modulator to antenna receptacle, Set Stereo Modulator to 7.5kHz deviation (10%) for Pilot signal(19kHz) and 65.5 kHz deviation (90%) for L & R Main signal. Set FM signal generator to 98MHz, 1uV, 75kHz deviation (100%).

(C) Turn Mode selector of Stereo Modulator to L or R, and obtain more than 30dB of Channel separation by adjusting R544 (SVR). Also confirm that stereo indicator lamp of receiver goes ON and OFF when STEREO/MONO Switch is operated.

DIAL STRING DIAGRAM



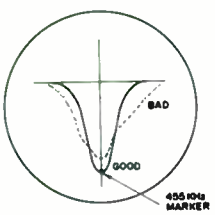


Fig. 1

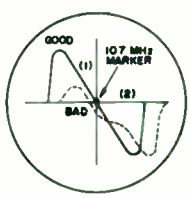
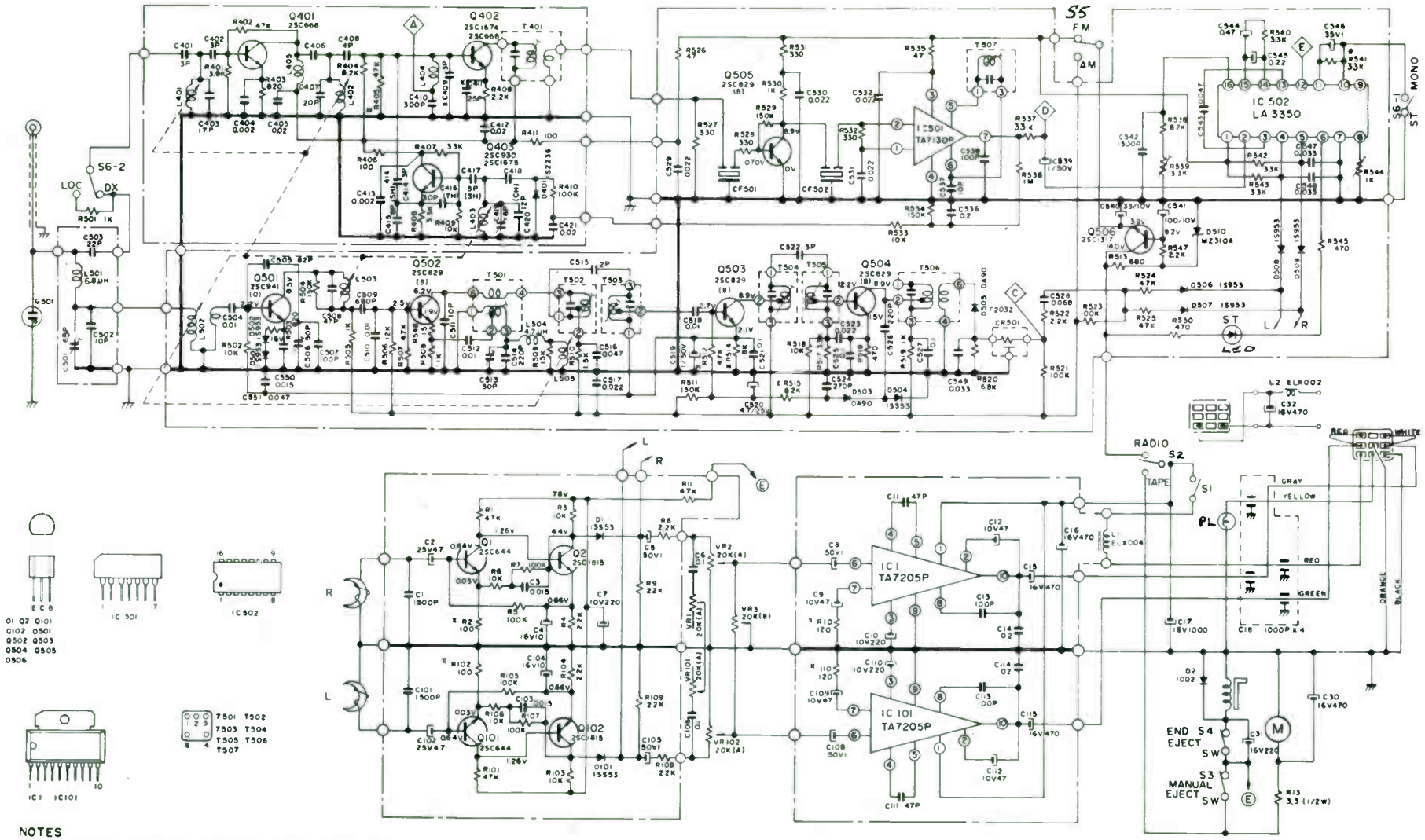


Fig. 2

SCHEMATIC DIAGRAM



NOTES

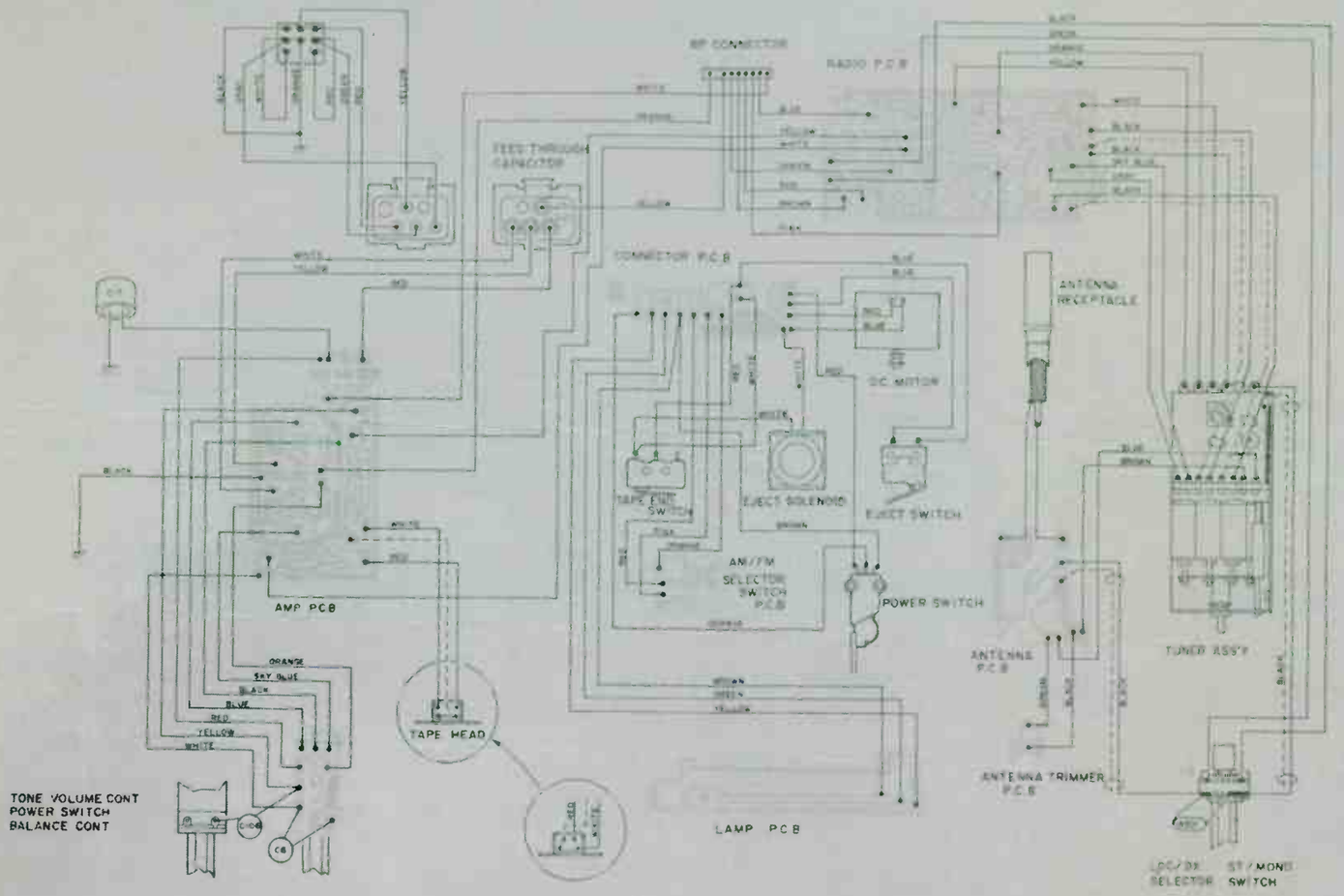
1) ✱ MARK INDICATES ADJUSTABLE IN PRODUCTION.
2) ALL RESISTANCE VALUES IN OHMS AND 1/4 WATT UNLESS OTHERWISE SPECIFIED.
3) ALL CAPACITANCE VALUES IN MICRO FARADS EXCEPT P FOR PICO FARAD.

✱ SUBJECT TO MINOR CHANGE WITHOUT NOTICE.

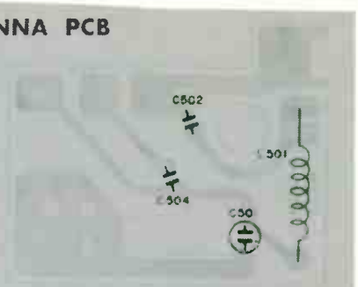
IC TERMINAL VOLTAGE (VOLT)

PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC 501	1.85	1.85	8.5	0	3.6	3.8	4.7									
IC 502	8.9	2.6	4.6	6.8	6.8	0.2	0	0.2	6.1	2.0	2.0	2.4	2.0	2.0	2.0	2.6
IC 1, IC 101	1.4	1.3	4	8.4	1.4	2.6	3.4	1.3	0	7.0						

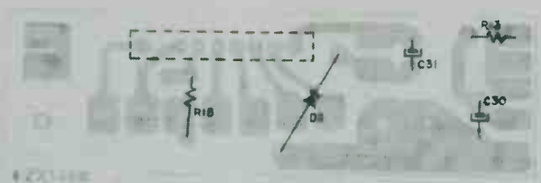
WIRING DIAGRAM



ANTENNA PCB

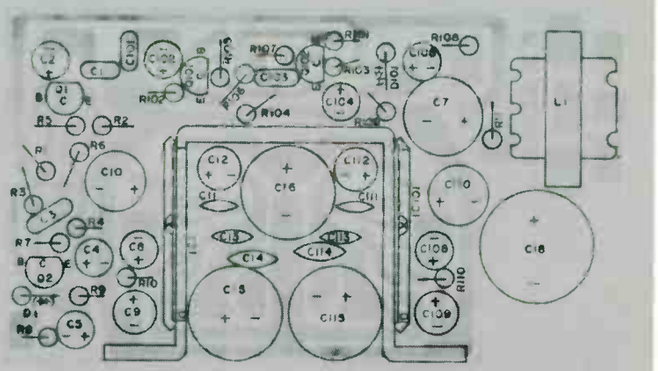


CONNECTOR PCB



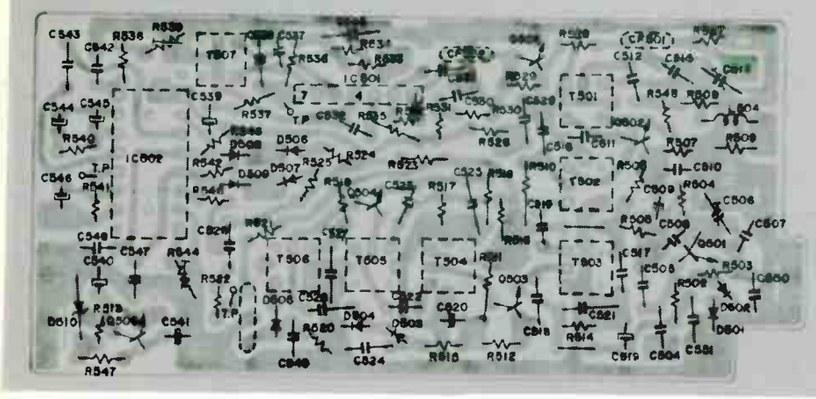
AUDIO AMP PCB

(Top View)

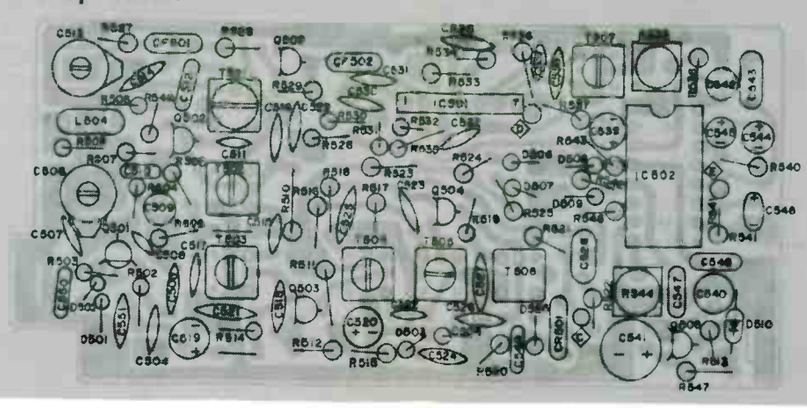


IF/MPX PCB LAYOUT

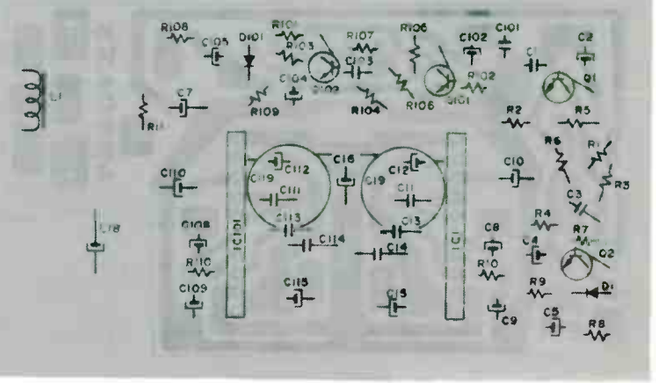
(Bottom View)



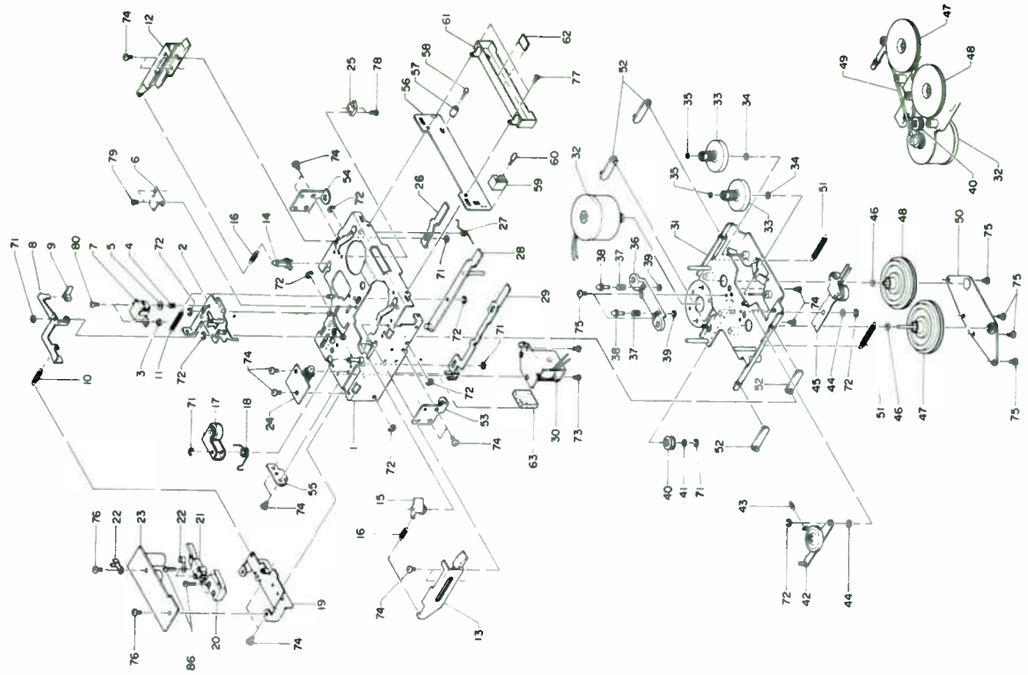
(Top View)



(Bottom View)



MECHANISM



MECHANISM

1	NSP	Ass'y, Mechanism Chassis	----	32	W150500	MOTOR	13.95
2	W150266	Ass'y, Head Slide Base	1.30	└	W150312	Pulley, Motor	.95
3	W150231	Collar, Head Mtg	.25	33	W150460	Ass'y, Reel Clutch'	1.70
4	3516054	Spr, Azimuth	.25	34	-------	Poly Washer, M5x1.6x0.25	.25
5	-------	Plain Washer, M6x2.2x0.4	.25	35	-------	Poly Washer, M3x1.2x0.25	.25
6	W150387	Holder, Slide Base	.40	36	W150203	Ass'y, Flywheel Capst Bearing	3.50
7	W150503	HEAD	8.20	37	W150272	Spr, Adjust Pin	.25
8	W150346	Detect Lever, End Tape	.45	38	W150514	Pin, Cassette Adjust	.70
9	W150804	Sensor, Detct Lever	.35	39	-------	E Ring, M1.2	.25
10	W150271	Spr, Detect Lever	.25	40	W150311	Pulley, Belt Tension	.60
11	W150275	Spr, Head Slide	.25	41	-------	Poly Washer, M4.7x2.6x0.25	.25
12	T603420	Cassette Guide(R)	.65	42	W150260	Ass'y, Idler Arm(L)	2.25
13	T603421	Cassette Guide(L)	.65	43	T180057	Spr, Idler Arm	.25
14	W150422	Guide(R)	.35	44	-------	Poly Washer, M6x3.1x0.25	.25
15	W150423	Guide(L)	.35	45	W150261	Ass'y, F.Fwd Idler	3.50
16	T180073	Spr, Guide	.30	46	3516067	Flywheel Washer, M5.5x2.1x0.25	.25
17	W150347	Ass'y, Pinch Roller Arm(L)	1.50	47	W150206	FLYWHEEL (L)	2.90
18	W150273	Spr, Pinch Roller	.25	48	W150205	FLYWHEEL (R)	2.90
19	NSP	Bkt, Switch Mtg	----	49	W150208	BELT	.85
20	3513067	Micro Sw, AUTO EJECT	1.55	50	W150267	Ass'y, Flywheel Base	1.60
21	S180094	Micro Sw, RADIO/TAPE	1.25	51	W150274	Spr, Chassis Back	.25
22	NSP	Lug Terminal, Lead Strap	----	52	W150386	Chassis Link	.25
23	T603516	Ass'y, Conn/Filter PCB Relay	3.45	53	NSP	Mtg Plate(A), Mech Deck	----
└	T603620	8P Plug, PCB Conn	.85	54	NSP	Mtg Plate(B), Mech Deck	----
24	T603517	Ass'y, AM/FM Sw PCB w/Comp	2.25	55	NSP	Mtg Plate(C), Mech Deck	----
├	W150531	Push Sw, AM/FM	1.85	56	T603518	PCB, Lamp Mtg	.85
└	W150384	"U" Lock Plate, Switch	.25	57	T603380	Holder, ST LED	.30
25	T180096	Micro Sw, Manual EJECT	1.75	58	GL31AR	LED, ST Indicator	.95
26	T603341	Lever, EJECT	.25	59	T603381	Holder, Scale Lamp	.45
27	3516056	Spr, Eject Lever	.30	60	T603550	Lamp, Dial Scale	1.30
28	T603342	Ass'y, F.FWD Cont Lever	1.30	61	T603382	Back Plate, Dial Scale	1.30
29	T603343	Lever, AM/FM Select	.55	62	T603231	Spacer, Dial Scale	.25
30	W150598	Ass'y, EJECT Electro Magnet	4.50	63	S180056	Sponge Cushion	.25
31	W150415	Ass'y, Chassis(B)	4.55				

REF. NO.	CRAIG KEY NO.	DESCRIPTION	LIST PRICE	REF. NO.	CRAIG KEY NO.	DESCRIPTION	LIST PRICE

CHOKES, COILS, TRIMMERS, FILTERS & TRANSFORMERS

L1	S101670	Choke Filter	1.40	T503	S603643	AM IFT	1.05
L2	S180103	Choke Filter	1.05	T504	S680085	AM IFT, 455kHz	1.05
L401,402, 403,502,				T505	S680086	AM IFT, 455kHz	1.05
				T506	S603644	AM IFT	1.05
503,505	S603022	Ass'y, RF Tuner w/Comp	18.00	T507	S680084	FM IFT, 10.7MHz	1.25
L404,405	T603670	RF Coil	1.05	C501	S630079	AM ANT Trimmer, 65pF	1.85
L501	W110671	RF Coil, 6.8uH	.65	C506,513	1902050	Trimmer, 50pF	1.15
L504	S630074	RF Coil, 4.7uH	.40	C419	T603671	Trimmer, 6pF	1.35
T401	T603641	FM IFT	1.35	CR501	S603645	CR Component	1.75
T501	S603641	AM OSC Coil	1.05	CF501,502	3516098	Ceramic Filter, 10.7MHz	1.35
T502	S603642	AM IFT	1.05				

REF. NO.	CRAIG KEY NO.	DESCRIPTION	LIST PRICE	REF. NO.	CRAIG KEY NO.	DESCRIPTION	LIST PRICE

MISCELLANEOUS ELECTRICAL

G501	3148142	Neon Lamp	.70	PL	T603550	Lamp, Dial Scale(14V)	1.30
S1		Power Sw(See VOL Cont)	----	R544	S680072	Semi-Var Res, 1k	.75
S2	S180094	Micro Sw, RADIO/TAPE	1.25	R539	S680071	Semi-Var Res, 3.3k	.75
S3	T180096	Micro Sw, MANUAL EJECT	1.75	VR1,101		VR 20k, TONE Cont	
S4	3513067	Sw, END TAPE EJECT	1.55	VR2,102	T603570	VR 20k, VOLUME Cont	9.95
S5	W150531	Push Sw, AM/FM	1.85	VR3		VR 20k, BALANCE Cont	
S6	T603530	Ass'y, LOC/DX-MONO/ST	7.20	S1		Power Switch	

SEMICONDUCTORS

Q1,101	2SC644	Transistor	1.80	D401	1S2236	Diode	.95
Q2,102	2SC1815	"	1.70	D501,502, 506,507,			
Q401,402	2SC668	"	.95	508,509	1S953	Diode	.85
Q403	2SC930	"	1.50	D503,505	OA90	"	.65
Q501	2SC941		1.30	D510	MZ310A	Zener Diode	.75
Q502,503, 504,505	2SC829	Transistor	1.85	LED	GL31AR	L.E.D., ST Indicator	.95
Q506	2SC1317	"	1.80	IC1,101	TA7205P	I.C., Audio AMP	5.20
D1,101, 504	1SS53	Diode	.85	IC501	TA7130P	I.C., IF	1.75
D2	10D2	"	.70	IC502	LA3350	I.C., MPX	6.80

CAPACITORS

C1,101	Polyester, 0.0015uF/50V ±10%	C514,526	Ceramic, 220pF/50V ±5%
C3,103,550	" 0.015uF/50V "	C524	" 270pF/50V "
C510,512	" 0.01uF/50V "	C517,523,529,530, 531,532	Ceramic, 0.022uF/50V +80% -20%
C547,548,549	" 0.033uF/50V "	C516,551	" 0.047uF/50V " "
C543	" 0.047uF/50V "	C6,106,504,518, 521,525,527	Ceramic, 1uF/50V
C528	" 0.068uF/50V "	C14,114,536	" 0.2uF/50V ±20%
C509	Polyethylene, 680pF/50V ±5%	C5,8,105,108, 519,539	Electrolytic, 1uF/50V
C542	" 1500pF/50V "	C2,102,520	" 4.7uF/25V
C545	Solid Aluminum, 0.22uF/16V	C4,104	" 10uF/16V
C544	" 0.47uF/16V	C540	" 33uF/10V
C546	Tantalum, 1uF/35V	C9,12,109,112	" 47uF/10V
C515	Ceramic, 2pF/50V ±0.5pF	C541	" 100uF/10V
C522	" 3pF/50V " "	C7,10,110	" 220uF/10V
C502	" 10pF/50V ±10%	C31	" 220uF/16V
C511,537	" 10pF/50V ±0.5	C15,16,30,115,32	" 470uF/16V
C503	" 22pF/50V ±10%	C17	" 1000uF/16V
C508	" 47pF/50V ±5%	C506,513	Trimmer, 50pF(see trimmers)
C11,111	" 47pF/50V ±10%	C18	Feed Thru, 1000pF x 4(T603601)
C505	" 82pF/50V ±5%		
C507	" 100pF/50V "		
C13,113,538	" 100pF/50V ±10%		

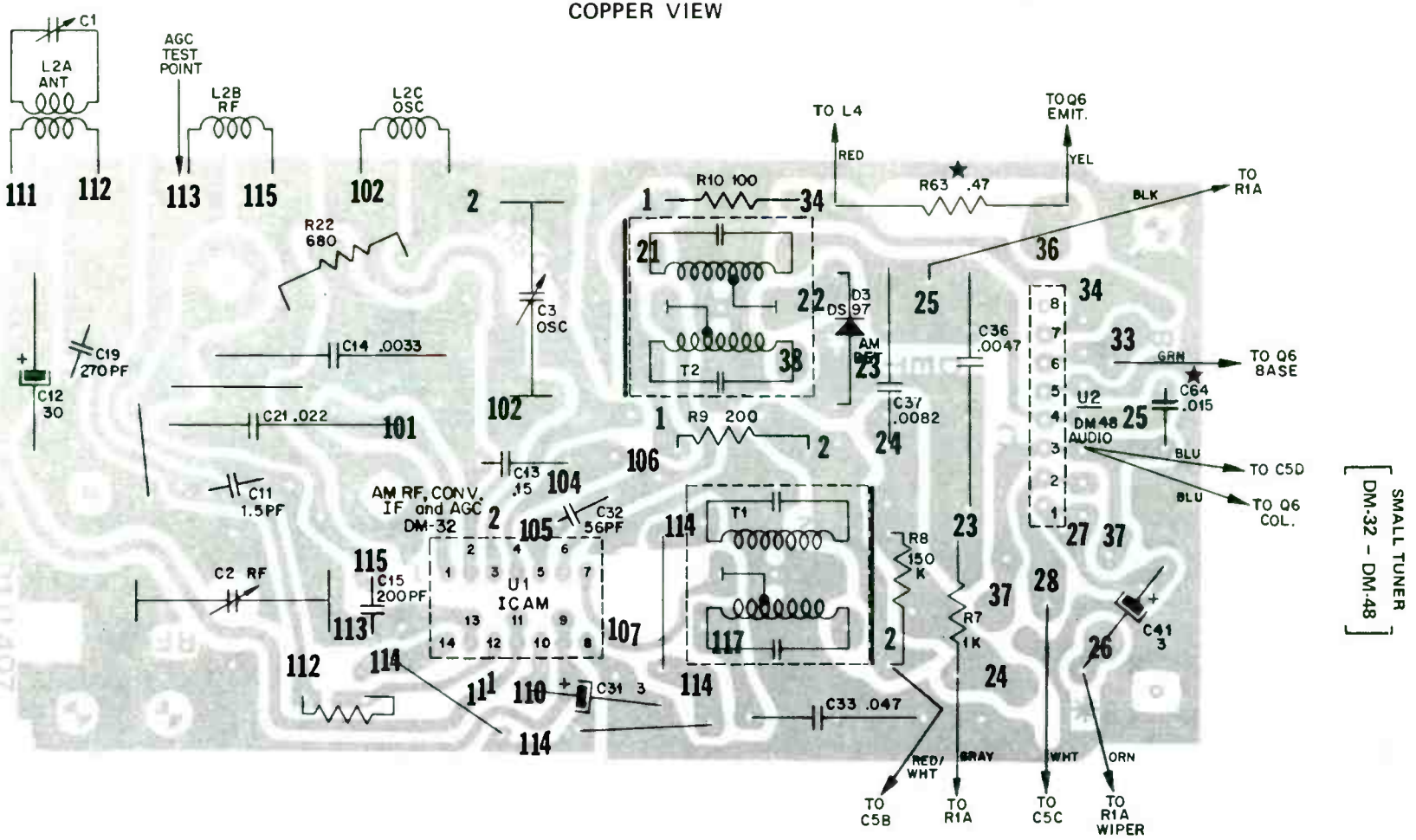
RESISTORS (ALL RESISTORS ARE CARBON ±5%, 0.25¢ EACH OR NOTED)

REF. NO.	DESCRIPTION	REF. NO.	DESCRIPTION	REF. NO.	DESCRIPTION	REF. NO.	DESCRIPTION
R548	15 Ohms, ¼W	R519,530,	1K Ohms, ¼W	R525	4.7k Ohms, ¼W	R515	82k Ohms, ¼W
R526,535	47 " "	R510	1.5k Ohms, ¼W	R520	6.8k " "	R5,7,105, 107,521, 523	100k Ohms, ¼W
R2,102	100 " "	R514	1.8k " "	R538	8.2k " "		
R10,110	120 Ohms, ¼W	R4,8,104, 108,522,		R3,6,103, 106,502,		R505,511, 529,534	150k Ohms, ¼W
R527,528, 531,532	330 Ohms, ¼W	547	2.2k Ohms, ¼W	516,533	10k Ohms, ¼W	R536	1M " "
R518,545, 550	470 Ohms, ¼W	R517,540, 542,543	3.3k Ohms, ¼W	R506	12k " "	R13	3.3 " ½W
R513	680 " "	R11,507,		R509	15k " "	R539	(see MISC ELECT)
R503	820 " "	512,524	4.7k Ohms, ¼W	R9,109	22k " "	R544	" " "
R505,508	1k " "	R501	1k " "	R537,541	33k " "		
				R1,101	47k " "		

HARDWARE (0.25¢ OR NOTED)

REF. NO.	DESCRIPTION	REF. NO.	DESCRIPTION	REF. NO.	DESCRIPTION	REF. NO.	DESCRIPTION
70	E Ring, M1.5	75	Bind Scr, M2.6x4	79	Blk Scr, BH M2x2	83	Scr, BH M3x6
71	E Ring, M2	76	" " M2.6x5	80	Scr, BH M2x5	84	Tap Scr, BH M3x5
72	E Ring, M2.5	77	" " M2x4	81	" " M3x5	85	Scr, FH M2x6x4
73	Scr, PH M2.6x3	78	" " M.6x5Blk	82	" " M3x4	86	" " M2x8
74	Bind Scr, M2.6x3						

COPPER VIEW



SMALL TUNER
[DM-32 – DM-48]

DM-32

1	2	3	4	5	6	7	8	9	10	11	12	13	14
5.2V	7.3V	7.3V	5.1V	0.25V	13.3V	0.7V	0V	0V	0.6V	0.6V	0.6V	4V	7.3V

VOLTAGES MEASURED WITH A VTVM NO SIGNAL AND 14 VOLTS APPLIED TO RADIO.

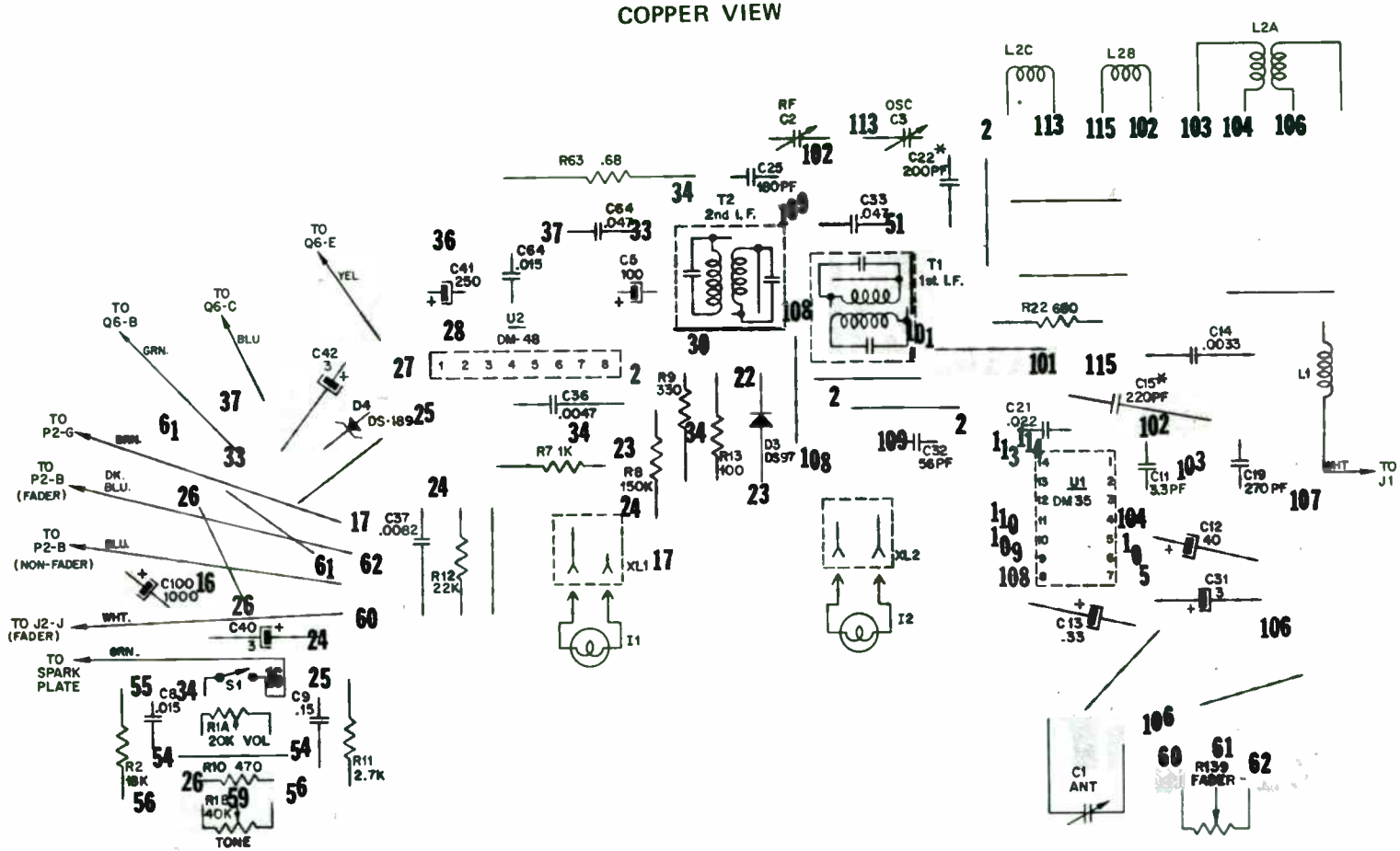
DM-48

1	0.6V
2	1.3V
3	1.5V
4	0V
5	0V
6	12.7V
7	13.4V

CAUTION:
WHEN MAKING VOLTAGE MEASUREMENTS AROUND THE DM-32, MAKE CERTAIN TO TOUCH ONLY ONE ISLAND AT A TIME.

UNLESS OTHERWISE NOTED:
ALL RESISTORS ARE ± 10%, ½ WATT.
ALL CAPACITORS ARE SHOWN IN MFD AND ARE 75 VOLT OR HIGHER EXCEPT ELECTROLYTICS AND THOSE NOTED BY AN *

COPPER VIEW



SMALL TUNER
DM-35 – DM-48

DM-35

1	2	3	4	5	6	7	8	9	10	11	12	13	14
7.3V	4.9V	0.6V	0.6V	0.6V	0V	0V	0.7V	13.3V	0.25V	4.7V	7.3V	7.3V	4.7V

VOLTAGES MEASURED WITH A VTVM NO SIGNAL AND 14 VOLTS APPLIED TO RADIO.

DM-48

1	0.6V
2	1.3V
3	1.5V
4	0V
5	0V
6	13.3V
7	13.9V

CAUTION:

WHEN MAKING VOLTAGE MEASUREMENTS AROUND PINS 5, 6 & 7 OF THE DM-35, MAKE CERTAIN TO TOUCH ONLY ONE ISLAND AT A TIME.

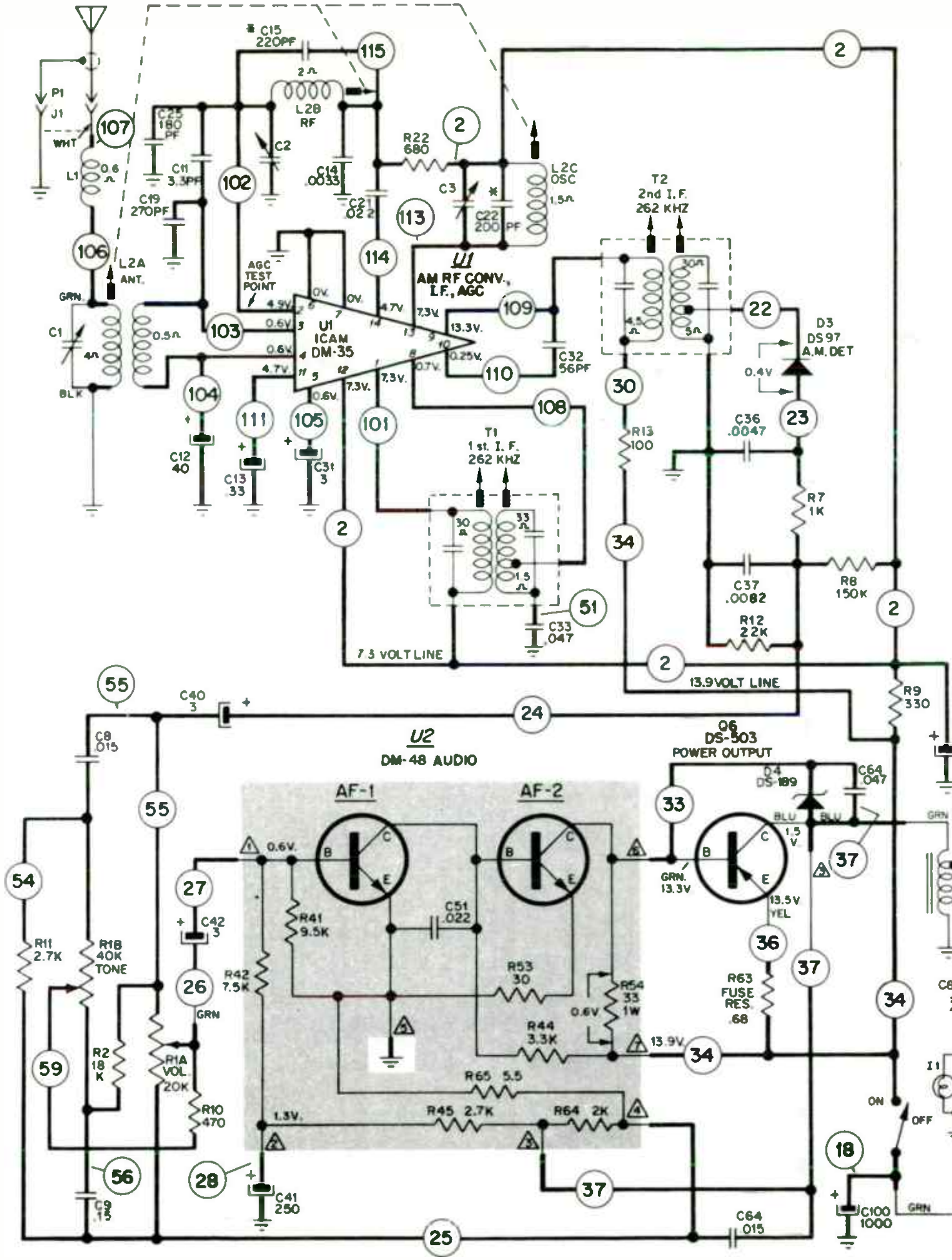
UNLESS OTHERWISE NOTED:

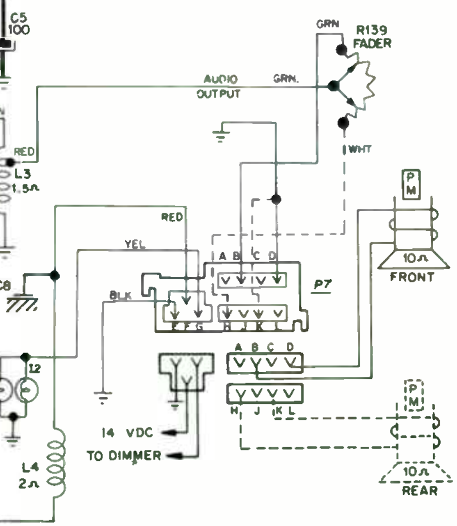
ALL RESISTORS ARE ± 10%, ½ WATT.

ALL CAPACITORS ARE SHOWN IN MFD AND ARE 75 VOLT OR HIGHER EXCEPT ELECTROLYTICS AND THOSE NOTED BY AN *

General Motors 80BPB1, 80BPBK1, 81TPB1
81TPBK1, 83BPB1, 83BPFK1

CHEVETTE 81TPB1
CHEVETTE & ACADIAN (WITH FADER) 81TPBK1





UNLESS OTHERWISE NOTED

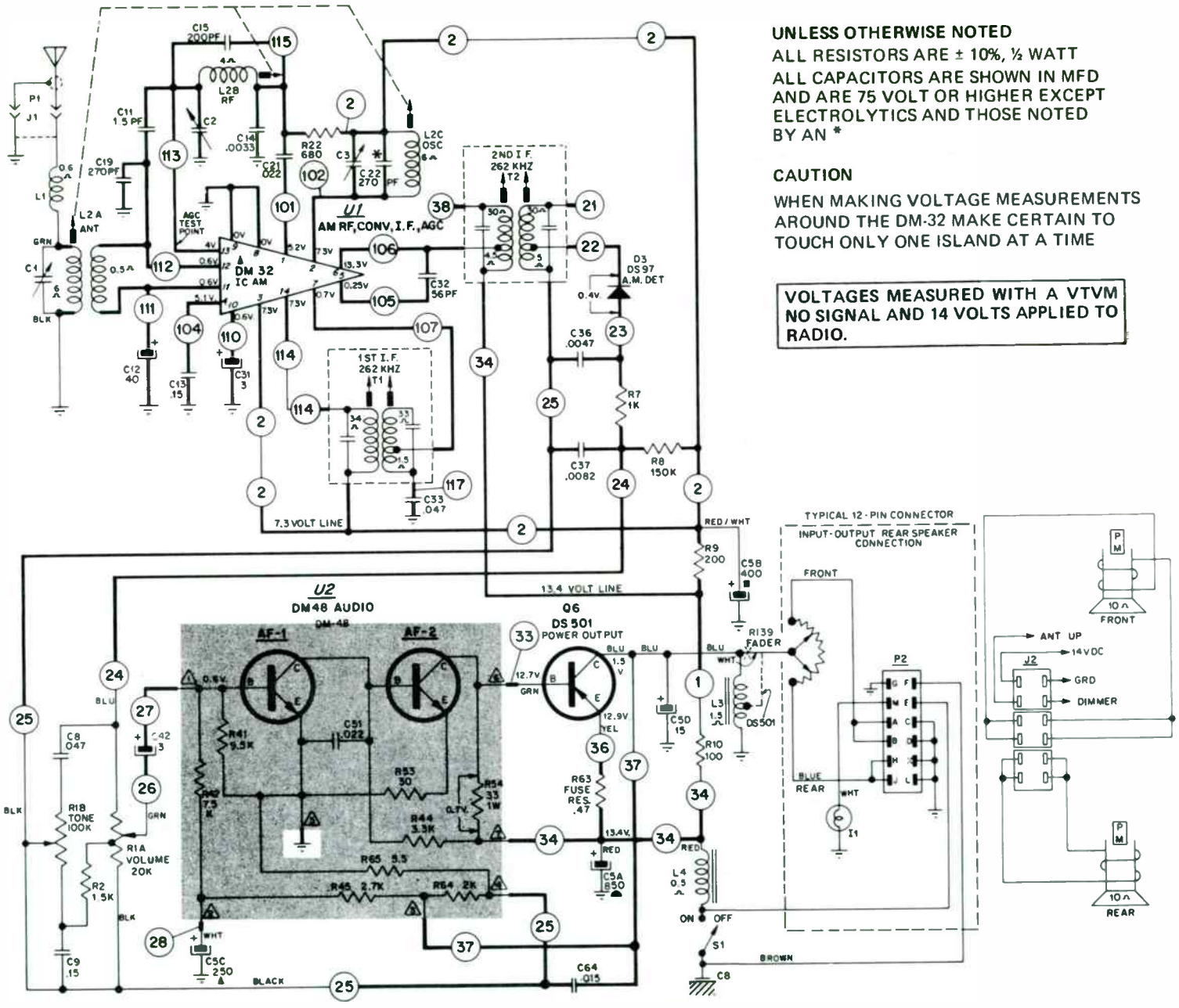
ALL RESISTORS ARE ± 10%, ½ WATT

ALL CAPACITORS ARE SHOWN IN MFD AND ARE 75 VOLT OR HIGHER EXCEPT ELECTROLYTICS AND THOSE NOTED BY AN *

CAUTION

WHEN MAKING VOLTAGE MEASUREMENTS AROUND PINS 8, 9, & 10 OF THE DM-35 MAKE CERTAIN TO TOUCH ONLY ONE ISLAND AT A TIME.

VOLTAGES MEASURED WITH A VTVM NO SIGNAL AND 14 VOLTS APPLIED TO RADIO.



UNLESS OTHERWISE NOTED

ALL RESISTORS ARE ± 10%, ½ WATT

ALL CAPACITORS ARE SHOWN IN MFD AND ARE 75 VOLT OR HIGHER EXCEPT ELECTROLYTICS AND THOSE NOTED BY AN *

CAUTION

WHEN MAKING VOLTAGE MEASUREMENTS AROUND THE DM-32 MAKE CERTAIN TO TOUCH ONLY ONE ISLAND AT A TIME

VOLTAGES MEASURED WITH A VTVM NO SIGNAL AND 14 VOLTS APPLIED TO RADIO.

General Motors 80BPB1, 80BPBK1, 81TPB1 81TPBK1, 83BPB1, 83BPFK1

ILLUS NO	SERVICE NO	DESCRIPTION
SEMICONDUCTORS		
	D3	DS-97 DIODE, AUDIO DETECTOR, DS-97
○	D4	DS-189 DIODE, ZENER, SPIKE SUPPRESSION, DS-189
Δ	Q6	DS-501 TRANSISTOR, POWER OUTPUT, DS-501
○	Q6	DS-503 TRANSISTOR, POWER OUTPUT, DS-503
Δ	U1	DM-32 MODULE, ICAM INTEGRATED CIRCUIT A.M. RF, OSC., I.F. & AGC
○	U1	DM-35 MODULE, ICAM INTEGRATED CIRCUIT A.M. RF, OSC., I.F. & AGC
	U2	DM-48 MODULE, AUDIO
COILS & TRANSFORMERS		
Δ	L1	7932356 CHOKE, ANTENNA SERIES
○	L1	7934553 CHOKE, ANTENNA SERIES
Δ	L2	7312805 COIL & HOUSING ASM.
○	L2	9347569 COIL & HOUSING ASM.
○	L3	7304511 TRANSFORMER, AUDIO OUTPUT
Δ	L3	1222297 TRANSFORMER, AUDIO OUTPUT
○	L4	7939202 CHOKE 'A' SUPPLY INPUT
Δ	L4	1221623 CHOKE 'A' SUPPLY INPUT
○	T1	9349015 TRANSFORMER 1ST I.F.
Δ	T1	7287942 TRANSFORMER 1ST I.F.
○	T2	9349372 TRANSFORMER 2ND I.F.
Δ	T2	7938937 TRANSFORMER 2ND I.F.
CAPACITORS & TRIMMERS		
Δ	C1	9344528 TRIMMER, ANTENNA
○	C1	9349885 TRIMMER, ANTENNA
Δ	C2	9346601 TRIMMER, RF
Δ	C3	9344489 TRIMMER, OSCILLATOR
○	C2 & C3	9347568 TRIMMER, RF & OSCILLATOR
Δ	C5	7935957 ELECTROLYTIC (4 SECT.) 850 MFD., 16 VOLT 400 MFD., 16 VOLT 250 MFD., 2 VOLT 15 MFD., 11.5 VRMS
○	C5	9349947 100 MFD., 16 VOLT, ELECTROLYTIC
	C8	7271564 SPARK PLATE
	C12	7298555 40 MFD., 6 VOLT TANTALUM
○	C13	7936749 .33 MFD., 20 VOLT TANTALUM
Δ	C15	7296137 200 PF., 75 VOLT CERAMIC, N750
○	C15	9349992 220 PF., 75 VOLT, POLYPROPYLENE
○	C22	7895037 200 PF., 100 VOLT CERAMIC, N80
	C31	7296348 3 MFD., 12 VOLT, ELECTROLYTIC
○	C40	7296348 3 MFD., 12 VOLT, ELECTROLYTIC
○	C41	9341557 250 MFD., 3 VOLT, ELECTROLYTIC-N/P
	C42	7296348 3 MFD., 12 VOLT, ELECTROLYTIC
○	C100	9348314 1000 MFD., 16 VOLT, ELECTROLYTIC
CONTROLS / RESISTORS		
Δ	R1	9341264 CONTROL, VOLUME TONE & SWITCH
○	R1	9348758 CONTROL, VOLUME TONE & SWITCH
○	R63	7287480 .680 OHM FUSE RESISTOR (USE EXACT REPLACEMENT)
Δ	R63	7281890 .47 OHM, FUSE RESISTOR (USE EXACT REPLACEMENT)
Δ	R139	9343404 CONTROL, FADER (INCL. MAN. DRIVE SHAFT BUSHING)
○	R139	9349398 CONTROL, FADER (INCL. MAN. DRIVE SHAFT BUSHING)

ILLUS NO	SERVICE NO	DESCRIPTION
TUNER PARTS		
Δ	1	7314210 BACKPLATE, POINTER
○	1	9348798 BACKPLATE, POINTER
Δ	2	7934009 BAR, POINTER, BELL CRANK DRIVE
Δ	3	7930918 BELL CRANK
Δ	4	9343405 BUSHING, MANUAL DRIVE SHAFT
○	4	9347763 BUSHING, MANUAL DRIVE SHAFT
Δ	4	9343404 BUSHING, MANUAL DRIVE SHAFT (INCL. FADER CONTROL)
○	4	9349398 BUSHING, MANUAL DRIVE SHAFT (INCL. FADER CONTROL)
	6	7288147 CORE, TUNING
Δ	9	7930920 DRIVE SHAFT AND WORM, MANUAL
○	9	9348371 DRIVE SHAFT AND WORM MANUAL
Δ	10	1223052 "E" RING PKG., RETAINER (20/PKG.)
○	10	1221529 "E" RING, RETAINING (10/PKG.)
Δ	11	9349061 ESCUTCHEON (INCL. DIAL & RETAINER)
Δ	11A	9345497 DIAL GLASS ASM., CALIBRATED
Δ	11C	7931869 RETAINER
X	11	9349061 ESCUTCHEON ASSEMBLY (INCL. DIAL & RETAINERS)
X	11A	9349062 DIAL GLASS, CALIBRATED
X	11B	7931869 RETAINER
○	11	9349046 ESCUTCHEON ASSEMBLY
○	12	1223677 FINGER BAR PKG., DECLUTCHING
Δ	12	1223340 FINGER BAR PKG., DECLUTCHING
○	13	9346882 LINK, DRIVE TO POINTER
Δ	14	7312801 LINK, DRIVE TO CORE BAR
○	14	9347698 LINK, DRIVE TO CORE BAR
Δ	15	7290329 LINK, POINTER CALIBRATION ADJ.
Δ	16	1222264 NUT PKG., SECURES CIRCUIT BOARD TO COIL HOUSING (10/PKG.)
Δ	17	1222265 NUT PKG., SECURES COIL HOUSING TO RADIO CASE (10/PKG.)
○	18	1223680 NUT, MANUAL & CONTROL BUSHING
Δ	18	7279805 NUT, MANUAL & CONTROL BUSHING
Δ	19	7930919 POINTER, DIAL
○	19	9347699 POINTER, DIAL
Δ	20	1222745 POINTER TIP PKG., UNIVERSAL
○	21	9349044 PUSHBUTTON (1/PKG.)
X	21	9345289 PUSHBUTTON (1/PKG.) (NO. 1, 3 & 5)
X	21	9345494 PUSHBUTTON (1/PKG.) (NO. 2 & 4)
Δ	21	7932593 PUSHBUTTON (1/PKG.) (NO. 2 & 4)
Δ	21	7931804 PUSHBUTTON (1/PKG.) (NO. 1, 3 & 5)
	22	7311994 PUSHBUTTON SLIDE
○	23A	1223106 RETAINER, LINK TO DRIVE BAR
Δ	23	7290330 RETAINER, POINTER CALIBRATION LINK
Δ	24	7935067 RETAINER, POINTER DRIVE BAR
Δ	25	7288537 RETAINER, BELL CRANK
Δ	29	7270344 SPRING, DRIVE SHAFT RETAINER
○	29	9348786 SPRING, DRIVE SHAFT RETAINER
○	29A	9348785 SPRING, DRIVE SHAFT
Δ	30	7302502 SPRING, FINGERBAR
○	30	9347723 SPRING, FINGERBAR
○	20A	9348720 SPRING, POINTER
	31	7312130 SPRING, PUSHBUTTON RETURN
	32	9342607 SPRING, TREADLE BEARING
Δ	33	1221501 SET SCREW & NUT PKG., TREADLE PIVOT
Δ	34	7313028 TREADLE BAR ASSEMBLY
○	34	9347692 TREADLE BAR ASSEMBLY
Δ	35	7312805 TUNER COILS AND HOUSING
○	35	9347569 TUNER COILS AND HOUSING

ALL MODELS UNLESS OTHERWISE NOTED

○ - CHEVETTE 81TPB1, 81TPBK1

Δ - ALL MODELS EXCEPT CHEVETTE

X - OLDSMOBILE A,B,& C 83BPB1, 83BPBK1

ILLUS. NO.	SERVICE NO.	DESCRIPTION

MISCELLANEOUS PARTS

○ P2	7933709	CONNECTOR, SOCKET, "A" LEAD & SPEAKER 10-PIN (ON RADIO)
Δ P2	*12004451	CONNECTOR, SOCKET, "A" LEAD & SPEAKER 12-PIN (ON RADIO)
○ J2	1224080	CONNECTOR PKG., BENCH HOOK-UP FOR 10-PIN CONNECTOR
Δ J2	*1224150	CONNECTOR PKG., BENCH HOOK-UP FOR 12-PIN CONNECTOR
○ 38	1222340	INSULATOR PKG., HEAT RADIATOR (DS-503)
Δ 38	1223153	INSULATOR PKG., HEAT RADIATOR (DS-501)
Δ 39	7281619	INSULATOR, PEG.
Δ 54	1223676	PLATE, TRANSISTOR MTG., (DS-503)
○ 41	9341343	RADIATOR, HEAT SINK (DS-503)
Δ 41	7938429	RADIATOR, HEAT SINK (DS-501)
Δ 42	1223490	SCREW PKG., CASE
Δ 43	1223500	SCREW PKG., CIRCUIT BOARD
J1	9340526	SOCKET, ANTENNA CONNECTOR
Δ XL1	7932633	SOCKET & LEAD ASSEMBLY, DIAL LIGHT
Δ I1		LAMP, DIAL LIGHT 1893
○ I1	7895189	LAMP, DIAL LIGHT

INSTALLATION PARTS

SERVICE NO.	DESCRIPTION	MODEL USED ON
†554375	APPLIQUE, ASM.	TORONADO
†377534	BRACKET, RADIO MTG., UPPER	CHEVROLET
†377535	BRACKET, RADIO MTG., LOWER	CHEVROLET
†463425	BRACKET, RADIO MTG., FRONT	CHEVELLE, MONTE CARLO
†463426	BRACKET, RADIO MTG., REAR	CHEVELLE, MONTE CARLO
†463481	BRACKET, RADIO MTG.	NOVA, OMEGA, SKYLARK
†461255	BRACKET, RADIO MTG.	CAMARO
†378851	BRACKET, SPKR. MTG.	NOVA, OMEGA, SKYLARK
†3973667	BRACE, RADIO MTG.	CAMARO
†549206	BRACKET, RADIO MTG.	PHOENIX
†554993	BRACKET, RADIO MTG.	OLDSMOBILE
†414372	BRACKET, RADIO MTG.	TORONADO
†557886	BRACKET, RADIO MTG.	CUTLASS
†362529	BRACKET, RADIO LH MTG.	H/SP
†362530	BRACKET, RADIO, RH MTG.	HSP
†3984631	BRACKET ASM., RADIO MTG.	HSP WAGONS
†471394	BRACKET ASM., RADIO MTG.	HSP WAGONS
†3990801	BRACKET, RADIO MTG.	HSP WAGON
†6270444	BRACKET, RADIO MTG.	TRUCKS
†459488	BRACKET, RADIO MTG.	TRUCKS
†459487	BRACKET, RADIO MTG.	G-VAN
†528172	CAP. ASM., BLOWER MOTOR	CHEVROLET, OLDSMOBILE, CUTLASS, CENTURY, BUICK
†6258253	CAP. ASM., BLOWER MOTOR	BUICK, G-VAN
†3906187	CAP. ASM., BLOWER MOTOR	PONTIAC, CHEVELLE, CHEVETTE, MONTE CARLO, CAMARO, ALL HSP, G-VAN
†3906145	CAP. ASM., BLOWER MOTOR	NOVA, OMEGA, SKYLARK
†3937157	CAPACITOR ASM., DEFROST	NOVA, OMEGA, SKYLARK, CHEVELLE, MONTE CARLO, CAMARO
†459370	CAPACITOR ASM., FUSE PANEL	CHEVROLET, CHEVELLE, MONTE CARLO, CENTURY
†377533	CAPACITOR ASM., FUSE PANEL	ALL HSP, CAMARO, CHEVETTE, NOVA, OMEGA, SKYLARK, PONTIAC
†469328	CAPACITOR, NOISE SUPP.	G-VAN
†549216	CAPACITOR ASM., NOISE SUPP.	PONTIAC, BUICK
†356129	FILTER ASM., TACHOMETER	HSP WAGONS
†348784	FILTER ASM., TACHOMETER	ALL HSP
†346160	CLIP, HOOD GROUND	NOVA, OMEGA, SKYLARK
†8916181	HARNESS ABM., RADIO TO SPKR.	CHEVETTE
†8916617	HARNESS ASM., RADIO TO FRONT SPEAKER	CHEVROLET, CHEVELLE, MONTE CARLO, TRUCKS, CAMARO, ALL HSP, NOVA, OMEGA, SKYLARK, PHOENIX
†12006109	HARNESS ASM., RADIO TO BOTH FRONT SPEAKERS	OLDSMOBILE, TORONADO, CUTLASS, CENTURY
†12006595	HARNESS ASM., RADIO TO BOTH FRONT SPEAKERS	BUICK, PONTIAC
†12001157	WIRE ASSEMBLY	G-VAN
†12001158	WIRE ASSEMBLY	G-VAN
7899363	KNOB PACKAGE	CHEVROLET
*16002647	KNOB PACKAGE	CHEVELLE, MONTE CARLO
7899393	KNOB PACKAGE	NOVA, OMEGA, SKYLARK
7895414	KNOB PACKAGE	CAMARO
1224055	KNOB PACKAGE	CHEVETTE
*16001354	KNOB PACKAGE	HSP
*16002931	KNOB PACKAGE	H-SP WAGON
*16002231	KNOB PACKAGE	OLDSMOBILE
*16002234	KNOB PACKAGE	TORONADO
*16002228	KNOB PACKAGE	CUTLASS
*7895481	KNOB PACKAGE	BUICK
*16002717	KNOB PACKAGE	CENTURY
*7899432	KNOB PACKAGE	PONTIAC
7899426	KNOB PACKAGE	PHOENIX
*7896300	KNOB PACKAGE	TRUCKS
*16002934	KNOB PACKAGE	G-VAN
†375412	PLATE ASM.	CHEVROLET
†557387	PLATE, MOUNTING	CUTLASS
†549642	SHIELD, IGNITION, ENGINE	PONTIAC

SPEAKER PARTS LIST ON PAGE A-10

* THIS PART FIRST USED IN 1978

† AVAILABLE FROM CAR DIVISION ONLY

ALL MODELS UNLESS OTHERWISE NOTED

○ - CHEVETTE 81TPB1, 81TPBK1

Δ - ALL MODELS EXCEPT CHEVETTE

INPUT OUTPUT
REAR SPEAKER

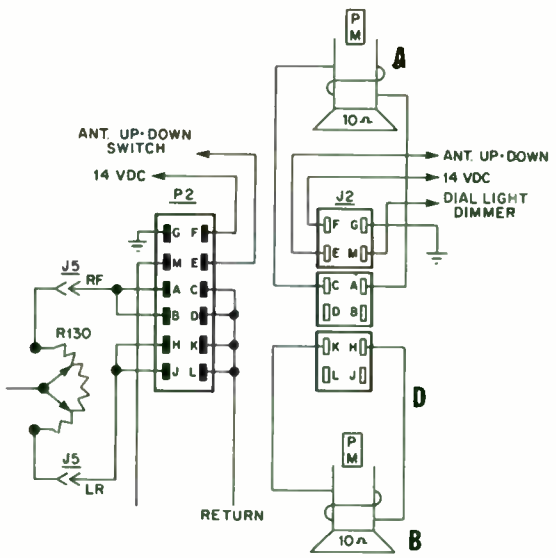
ALL AM
EXCEPT CHEVETTE

A. FRONT SPEAKER
SEE LIST AT END OF EACH PARTS LIST

B. REAR SPEAKERS
9348870.....ALL A & X
ALL B, C, E EXCEPT CHEVROLET
ALL F
ALL HSP HATCHBACKS
7898980.....ALL A-SP, A WAGON, CHEVY B
1224050.....ALL B WAGONS
9349690.....ALL HSP NOTCHBACKS
ALL HSP WAGONS
ALL X HATCHBACKS
CHEV. HSP HATCHBACKS
7938401.....C/K BLAZER
G-VAN

C. GRILLE
9612357.....ALL A (EXCEPT WAGON)
ALL X
ALL B, C, E EXCEPT CHEVROLET
2006575....ALL A WAGON, CHEVROLET B
7296229.....ALL F
7896630.....ALL HSP EXCEPT CHEVROLET
† 9859748.....ALL X HATCHBACK
ALL HSP WAGON
†376900.....C/K BLAZER
*7899405.....G-VAN

D. LEAD ASM TO REAR
* 16002399...ALL F
CHEVROLET & PONTIAC HSP
NOTCHBACK
ALL HSP
ALL X HATCHBACK
ALL HSP WAGON
* 16002244...ALL A, ASP, A WAGON
ALL X
ALL B, C, E WAGON
C/K BLAZER
G-VAN



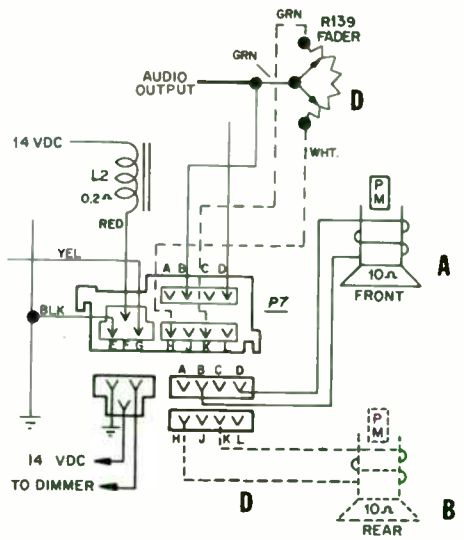
ALL AM
CHEVETTE

A. FRONT SPEAKER
9349921

B. REAR SPEAKER
9349090

C. GRILLE
† 1725318

D. LEAD ASM TO REAR
† 8901792.....TO FADER
† 1694124.....TO SPEAKER



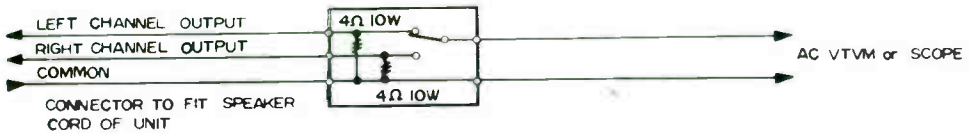
† AVAILABLE FROM CAR DIVISION ONLY

* PART FIRST USED IN 1978

AM FM MPX ALIGNMENT PROCEDURE

Before alignment is attempted, the unit should be thoroughly checked for circuit troubles.
NOTES:

1. Check for specified source voltage-D.C. 14V.
2. Connect an AC voltmeter (VTVM) across speaker or dummy load (4 ohms, 10 W, wirewound resistor) See Fig. 1.
3. Signal input must be kept as low as possible to avoid overload and clipping (use highest possible sensitivity of output indicator).
4. Repeat adjustment to insure good results.
5. Non-metalic alignment tools must be used (especially at FM alignment).
6. Alignment location details: See Fig. 14. 15
7. Test point location details: See Fig. 11, 12, 14



DUMMY LOAD & SWITCH BOX (FOR STEREO UNIT) Fig. 1

AM IF & RF ALIGNMENT USING AM SIGNAL GENERATOR

Press the AM/FM change switch to set the radio for AM reception. AM signal generator should be coupled with antenna receptacle through dummy antenna. (See Fig. 2 and Fig. 3)
Set volume control maximum and tone to high.

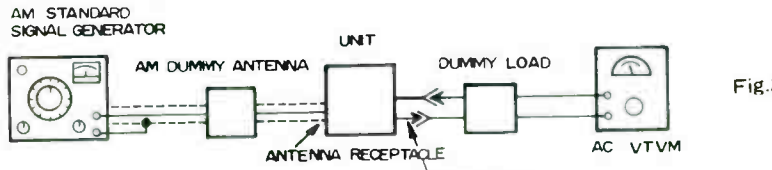


Fig. 2

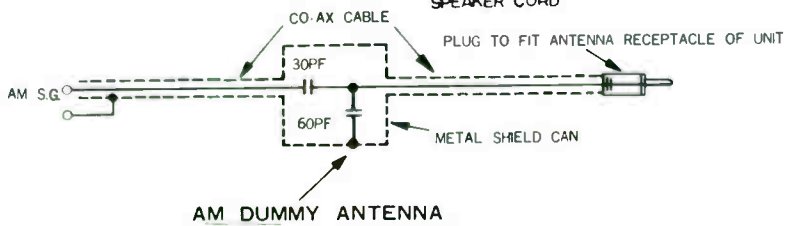


Fig. 3

STEP	GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1	455 KHz 400 Hz, 30% mod.	Around 1000 KHz of non-interference	AC VTVM across voice coil or dummy load (See Fig. 1)	CFM-201	Adjust for maximum
2	1650 KHz 400 Hz, 30% mod.	High frequency end stop	AC VTVM across voice coil or dummy load (See Fig. 1)	TC 203	Adjust for maximum
3	525 KHz 400 Hz, 30% mod.	Tone to signal	AC VTVM across voice coil or dummy load (See Fig. 1)	T 201	Adjust for maximum
4	1400 KHz 400 Hz, 30% mod.	Tune to signal	AC VTVM across voice coil or dummy load (See Fig. 1)	TC 201 TC 202	Adjust for maximum
5	Repeat step 2, 3 and 4 until no further increase. Step 4 should be last step.				

With radio installed in car and antenna extended to desired height, tune in a weak station near 1400 KHz and adjust antenna trimmer (TC 201) for maximum output.

FM IF ALIGNMENT USING FM SWEEP GENERATOR

Press the AM/FM change switch to set the radio for FM reception. High side of sweep generator through 0.01 mfd. capacitor to T.P. 1, low side to ground. (Fig. 4, 5)
Set volume control to minimum and tone to high.

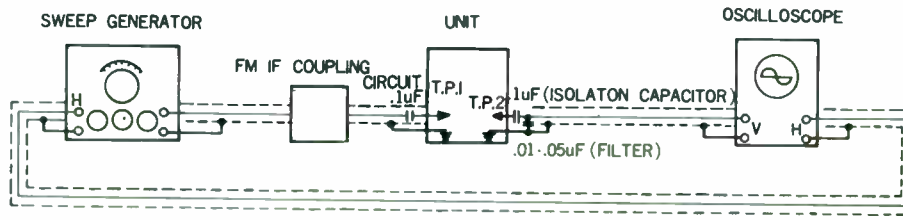
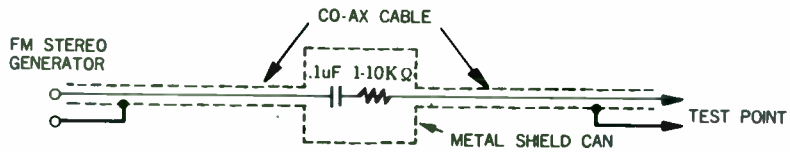


Fig.4



FM IF COUPLING CIRCUIT Fig.5

STEP	GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT INDICATOR	ADJUST	REMARKS
1	10.7 MHz (Sweep)	Point of non-interference	Vert, amp. of scope to T.P. 2, low side to ground	T1 T 101 T 102	Adjust T101, T102 & T1 to obtain symmetry of response similar to Fig. 6

NOTES:

1. FM SWEEP GENERATOR is convenient for FM IF alignment, because Ceramic Filters are used in the IF circuit.
   Five kinds of Ceramic Filters are used and they are different in their center frequencies as shown below.
   RED: 10.7 MHz, BLUE: 10.67 MHz, ORANGE: 10.73 MHz, BLACK: 10.64 MHz, WHITE: 10.76 MHz.
2. If the Ceramic Filters EXCEPT RED are used, 10.7 MHz maker will not appear at the center of "S" curve. (See Fig. 7, 8)
3. The colour of Ceramic Filters used in this radio is different according to the production lots, but the same colour dotted Filters should be replaced on the individual unit.
4. Be careful of static coupling between output lead of sweep generator and input lead of scope. The leads must be as short as possible and carefully shielded.

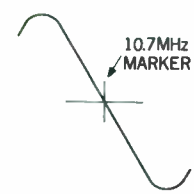


Fig.6
(RED)

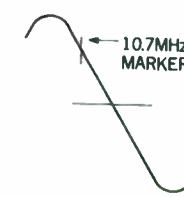


Fig.7
(WHITH,ORANGE)

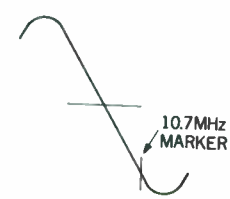


Fig.8
(BLACK or BLUE)

MULTIPLEX ALIGNMENT USING FM SIGNAL GENERATOR MODULATED BY FM STEREO SIGNAL GENERATOR

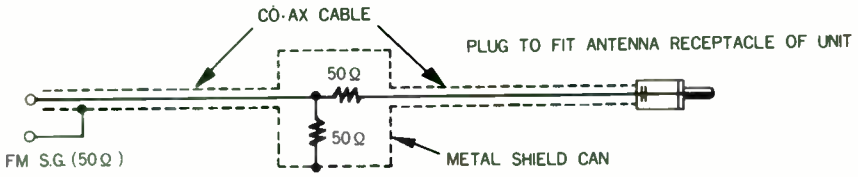
FM signal generator should be modulated by FM STEREO signal generator modulation level:

19 KHz . . . . . 10% (7.5 KHz dev.)

1000 Hz . . . . . 30% (75 KHz dev.)

FM Signal Generator output level: 1 mV, Frequency: 98 MHz

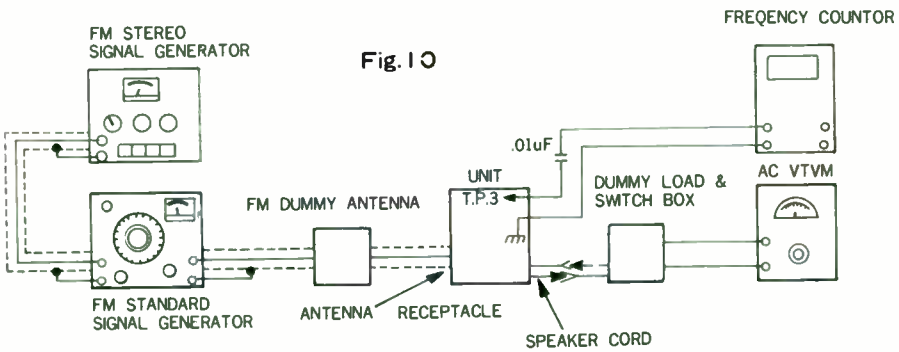
Set the radio for FM reception and tune to signal. Adjust volume control to provide 1 watt (2 volts across 4 ohms load) on AC VTVM and tone to high. Set balance control for equal output at each channel. MONO/STEREO change switch is set to STEREO. (See Fig. 9, 10)



FM DUMMY ANTENNA

Fig.9

Fig.10



STEP	MODULATION FREQUENCY	OUTPUT INDICATOR	ADJUST	REMARKS
1	No signal	Frequency countor to T.P. 3.	VR 101	Adjust for 19 KHz.
2	19 KHz (pilot signal)			Check for firing of STEREO INDICATOR.

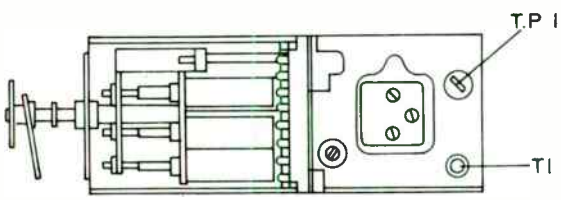


FIG 11

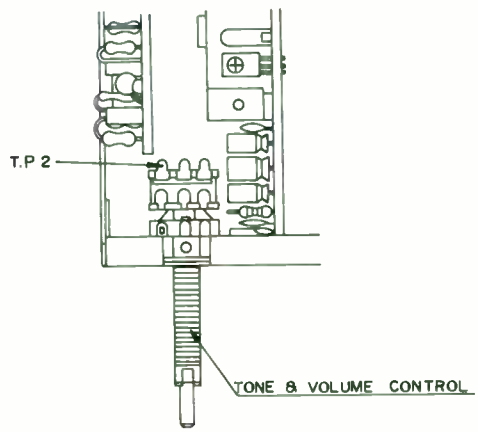


FIG 12

HEAD AZIMUTH ALIGNMENT

TEST TAPE	OUTPUT	ADJUST	REMARK
AZIMUTH TEST TAPE (6.3 KHz)	AC VTVM across 4 ohms load	A (See Fig. 13)	MAX

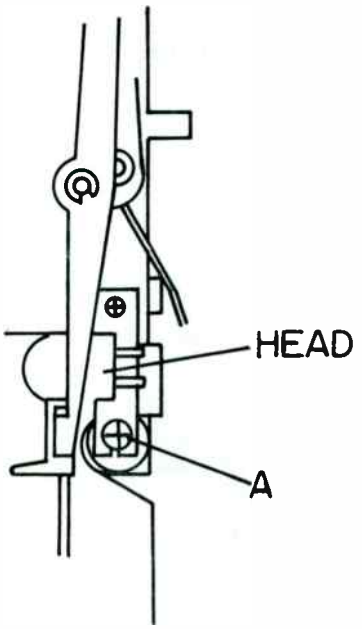
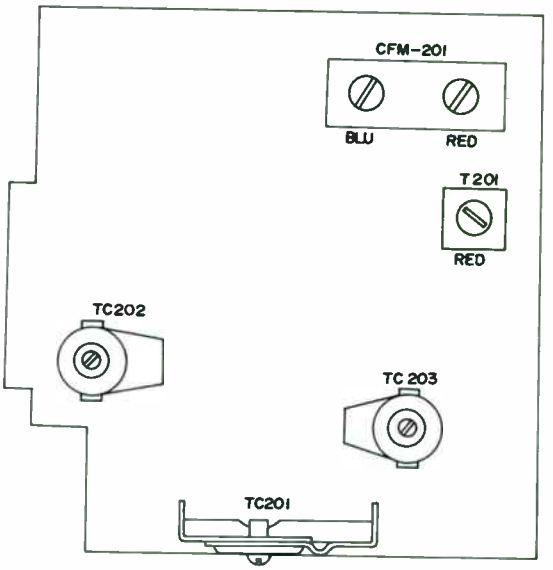
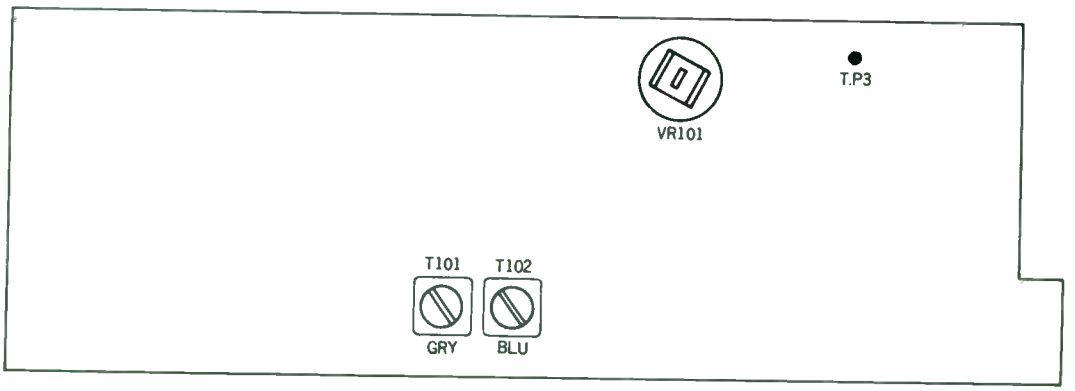


FIG 13



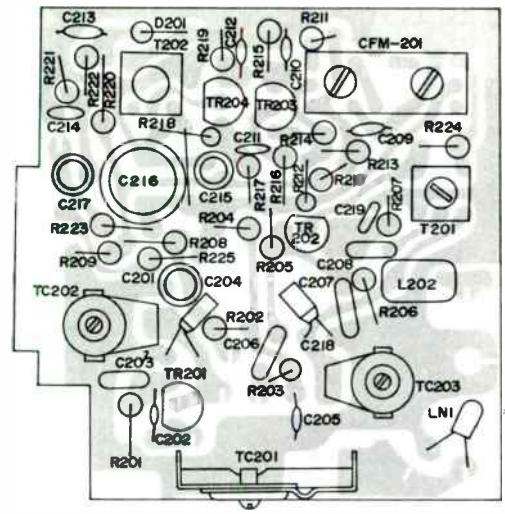
AM PANEL
(TOP VIEW)

Fig. 15

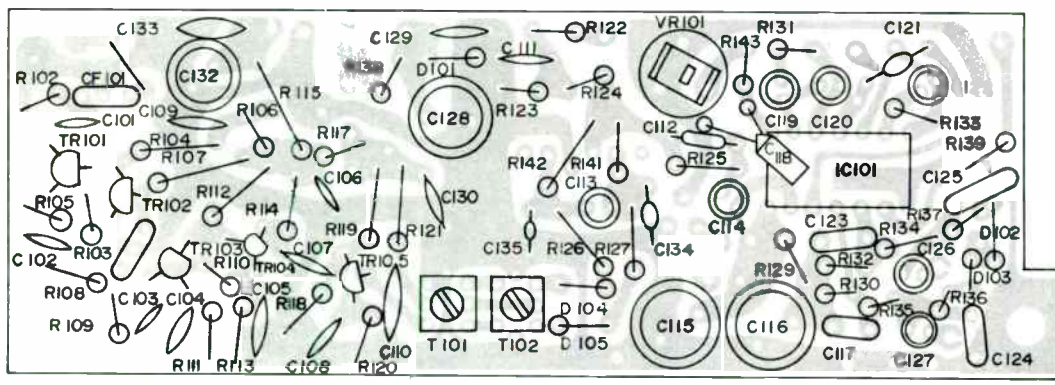


FM/IF/MPX PANEL
(TOP VIEW)

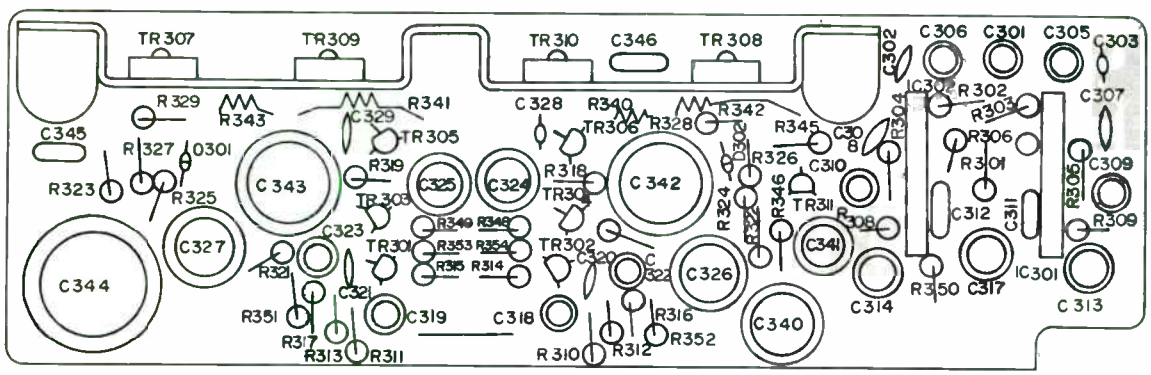
Fig. 14



AM PANEL
(TOP VIEW)

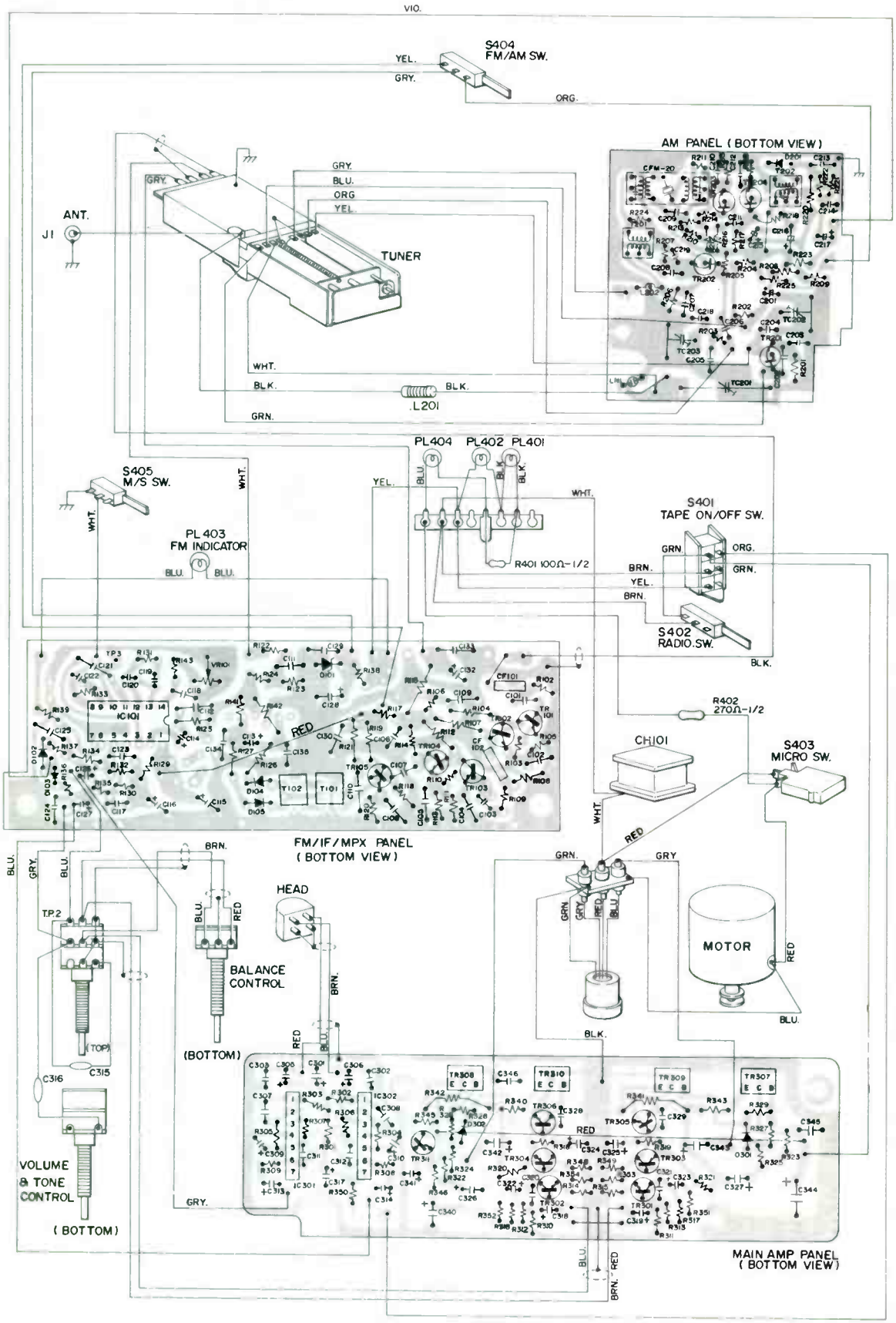


FM/IF/MPX PANEL
(TOP VIEW)

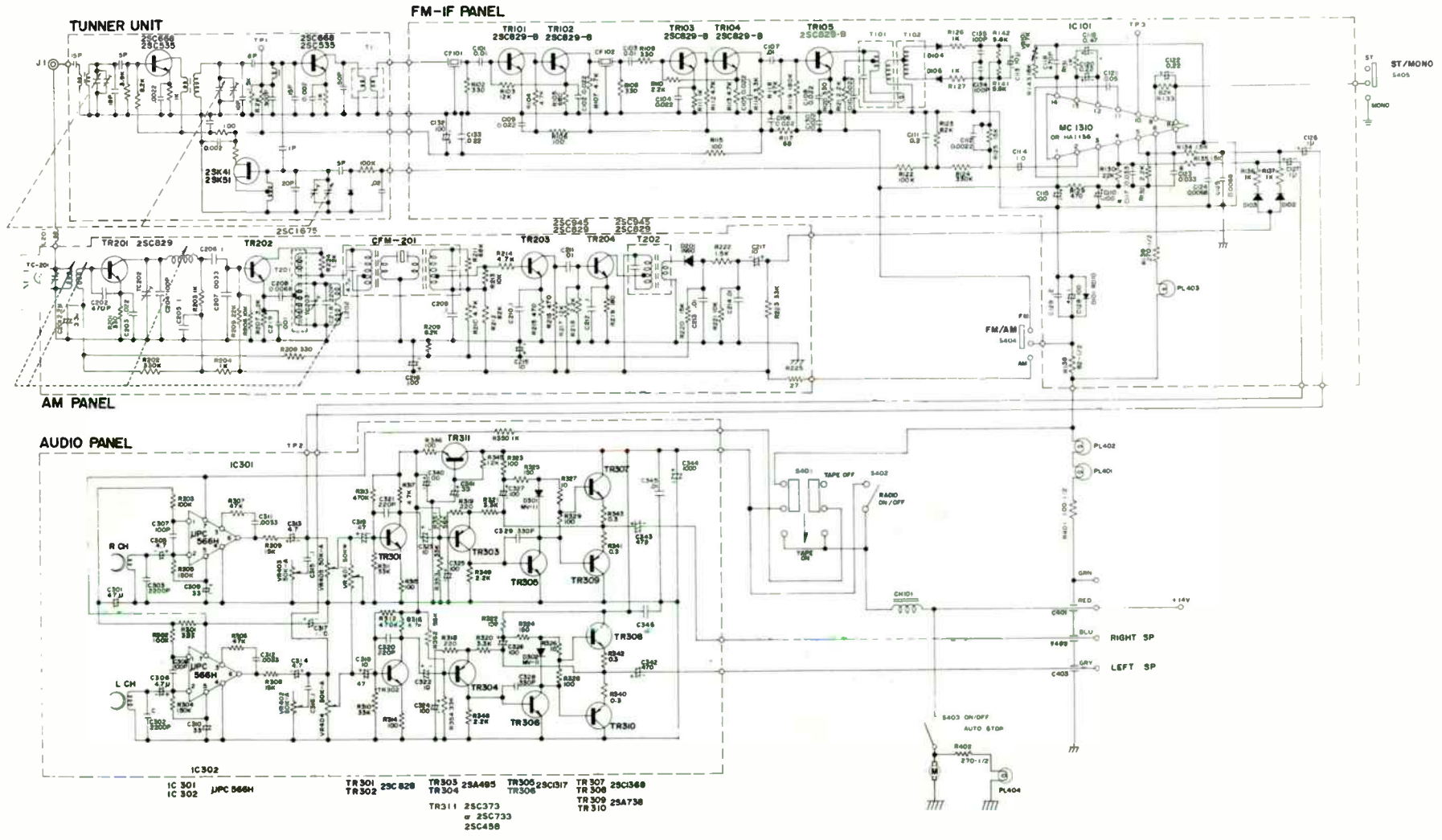


MAIN AMP PANEL
(TOP VIEW)

PRINTED CIRCUIT BOARD DIAGRAM (FOIL SIDE)



WIRING CONNECTIONS FIG-D



PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	Q'TY
1	1V43900J05	Assy., Push Sw.	1
2	7A43479J01	Bracket, Push Switch	1
3	40C41003J01	Push Switch	3
4	3S40011G33	Screw, Mch. M2x4)	6
5	1V43900J32	Assy., Bracket Dial Back	1
6	65C45037G19	Lamp	2
7	1V43900J14	Assy., Volume	1
8	18A43484J01	Volume	1
9	21B41870J2	Cap, Cer. (0.1μF)	2
10	18A43476J01	Tuning Shaft & Volume	1
11	1V43900J40	Assy., Bracket Panel	1
12	1V43900J39	Assy., Panel FM/IF/MPX	1
13	1V43900J28	Assy., Panel Main Amp	1
14	26A43164G01	Bracket, Heat Sink	1
15	3S40011G46	Scr., Mch. (M3x0.5x7)	4
16	3S40011G41	Scr., Mch. (M3x0.5x6)	2
17	7B43485J01	Bracket, Panel	1
18	3S40011G42	Screw, Mch (M3x0.5x5)	5
19	1V43900J27	Assy., Panel AM	1
20	1V43900J29	Assy., Tuner	1
21	1C43132J02	Assy., AM/FM Tuner Unit	1
22	1V43100J47	Assy., Bracket Pulley	1
23	7A43701J01	Bracket, Pulley (A)	1
24	49A43494J01	Pulley	2
25	4C42091G05	Washer "C"	1
26	43A43498J01	Spacer	1
27	1D44456J01	Assy., Cassette D.K. Mech. (B)	1
27-1	59C43352J01	Motor, DC	1
27-2	40C44458J01	Micro, Switch (VER)	2
27-3	59C43354J01	Head, Playback Stereo	1
27-4	40C44457J01	Micro, Switch (HOR)	1
28	1V44200J01	Assy., Chassis Rear	1
29	27C43488J01	Chassis, Rear	1
30	21B41880G03	Cap, Through	1
31	3S40011G31	Screw, Mch. (M2.6x0.45x4)	1
32	1V44200J02	Assy., Wire Socket (B)	1
33	37S43702G16-40	Tube, Vinyl	1
34	9C42905J04	Receptacle, Antenna	1
35	42B41424G01	Clamp, Cable	1
36	42B41424G03	Clamp, Cable	1
37	3S40018G02	Screw, Tapping (M3x8)	2
38	25C40894G03	Choke	1
39	5S40080G04	Rivet, Tubular	2
40	1V43900J33	Assy., Nose Piece	1
41	27C43475J01	Chassis, Base	1
42	7B43717J01	Bracket, Chassis Cover	1
43	43A43478J01	Bushing	2
44	65C45037G07	Lamp, Pilot	2
45	27C43497J01	Chassis, Cover	1
46	52A43495J02	Pointer	1
47	41A43445J01	Spring, Dial	1
48	30A43803G01-350	Dial, Cord	1
49	49A43494J01	Pulley	1
50	4C42091G05	Washer, "C"	1
51	36A44515J01	Knob, Eject	2
52	36A44516J01	Knob, Push	3
53	14A44302J01	Insulator, Fiber (A)	1
54	14A44302J02	Insulator, Fiber (B)	1
55	14A44436J01	Insulator, Fiber (D)	1
56	14A44436J02	Insulator, Fiber (E)	1
57	2S40000G20	Nut, Hexagon	2
58	4S40070G10	Washer, Flat	2
59	3S40011G31	Screw, Mch (M2.6x0.45x4)	2
60	3S40011G42	Screw, Mch (M3x0.5x5)	16
61	3A44205G05	Screw, Tap Tite (M3x5)	8
62	45A44426J01	Arm, Orudam	1
63	29A737272	Lug, Wrap Around	1
64	37S40157G01-10	Cut Sleeving Fbgls	1
65	31D40381G12	Strip, Term (7 ins #5 Mtg.)	1
66	6D40801G39	Res. C.F. (100-1/2)	1
67	36B44542J01	Knob, Front	2
68	36B44543J01	Knob, Back (L)	1
69	36B44543J02	Knob, Back (R)	1
70	54A44587J01	Label, Caution	1
71	54A43740J03	Label, Caution	1
72	15B44514J01	Face, Front	1
73	33A44539J01	Plate, Face (L)	1
74	33A44539J02	Plate, Face (R)	1
		ASSY., PACKING	
1	56B40230G22	Sack, Polyethylene	1
2	56C43706J02	Tray, Packing (B)	1
3	56C43706J01	Tray, Packing (A)	1
4	1V43900J37	Assy., Pamphlet	1
4-1	68A44630J01	Owners Guide	1
4-2	56B40230G12	Sack, Polyethylene	1
4-3	68A44629J01	Card, Warranty	1
5	1V43100J56	Assy., Kit Installation	1
5-1	8B41874J01	Cap., Generator	1
5-2	3A43315G02	Screw, Mch (M5x0.8x10)	1
5-3	4S40072G11	Washer, Tooth Lock (M5)	2
5-4	4S40070G08	Washer, Flat (Blk, Znc)	1
5-5	3S40012G39	Screw, Tpg (M5)	1
5-6	56B40230G09	Sack, Polyethylene	1
5-7	4S40070G10	Washer, Flat	4
5-8	2S40000G20	Nut, Hexagon (M9x0.75)	4
5-9	3A43315G03	Screw, Mch (M5x0.8x20)	1
5-10	2S40000G13	Nut, Hexagon (M5x0.8)	1
5-11	65A40348G01	Fuse (5A)	1
6	56C43707J01	Carton, Packing (Master)	1/6
7	56C43707J05	Pad, Packing	2/6
8	54B42124G02	Label, Date Code	1
9	1C44659J01	Assy., Wire Socket (A)	1
10	42B40994G05	Strap, Receiver Mtg.	1
11	56D44585J01	Carton, Packing	1
12	1V43900J38	Assy., Face Front	1
12-1	15B44514J01	Face, Front	1
12-2	33A44539J01	Plate, Face (L)	1
12-3	33A44539J02	Plate, Face (R)	1
12-4	56B40230G04	Sack, Polyethylene	1

REF NO.	PART NO.	DESCRIPTION	Q'TY	REF. NO.	PART NO.	DESCRIPTION	Q'TY
C114,C126	23D44333G01	Cap., Elec. (1-50V)	3	C401–403	21B41880G03	Cap., Through	1
				C134,C135	21C45322G22	Cap., Cer. (100P)	4
C127				C307,C308			
				C320,C321	21C45322G25	Cap., Cer. (220P)	2
C113,C322	23D44333G08	Cap., Elec. (10-16V)	5	VR101	18C41732G03	Res., Variable (4.7K)	1
				R117	6D44501G18	Res., C.F. (68-1/4)	1
C323,C215				R106,R115	6D44501G20	Res., C.F. (100-1/4)	9
C217				R314,R315			
C132,C317	23D44333G30	Cap., Elec. (100-10V)	4	R322,R323			
C324,C325				R328,R329			
C115,C116	23D44333G31	Cap., Elec. (100-16V)	7	R346			
C128,C326				R102,R108	6D44501G26	Res., C.F. (330-1/4)	6
C327,C340				R109,R120			
C216				R201,R208			
C120,C122	23C42909J01	Cap., Elec. (0.22)	2	R129,R215	6D44501G28	Res., C.F. (470-1/4)	3
C119	23C42909J02	Cap., Elec. (0.47)	1	R216			
C213,C214	21C45322G31	Cap., Cer. (0.01)	6	R105	6D44501G30	Res., C.F. (680-1/4)	1
C101,C103				R111,R127	6D44501G32	Res., C.F. (1K-1/4)	9
C107,C211				R126,R131			
C102,C104	21C45322G32	Cap., Cer. (0.022)	9	R136,R137			
C105,C106				R350,R203			
C108,C109				R204			
C110,C130				R134,R135	6D44501G34	Res., C.F. (1.5K-1/4)	3
C133				R222			
C219	8C40135G07	Cap., Myl. (0.001)	1	R110,R121	6D44501G36	Res., C.F. (2.2K-1/4)	8
C121	21B41870J01	Cap., Cer. (0.05)	1	R130,R132			
C111,C129	21B41870J03	Cap., Cer. (0.2)	2	R348,R349			
C124,C125	8C40135G10	Cap., Myl. (0.0068)	2	R207,R218			
C117,C123	8C40135G11	Cap., Myl (0.033)	2	R114,R320	6D44501G38	Res., C.F. (3.3K-1/4)	3
C112	8C40135G16	Cap., Myl. (0.0022)	1	R321			
C118	8C42195G07	Cap., Fix Ps (470P)	1	R141,R142	6D44501G41	Res., C.F. (5.6K-1/4)	2
C305,C306	23D44333G05	Cap., Elec. (4.7-25V)	2	R107,R112	6D44501G40	Res., C.F. (4.7K-1/4)	8
C342,C343	23D44333G48	Cap., Elec. (470-10V)	2	R113,R104			
C344	23C42170G22-052	Cap., Elec. (1000-16V)	1	R316,R317			
				R210,R214			
C309,C310	23D44333G18	Cap., Elec. (33-10V)	2	R225	6D44501G13	Res., C.F. (27-1/4)	1
C341	23D44333G19	Cap., Elec. (33-16V)	1	R125,R308	6D44501G46	Res., C.F. (15K-1/4)	4
C328,C329	21C45322G26	Cap., Fix. Cer. (330P)	2	R309,R220			
C302,C303	21C45322G29	Cap., Cer. (0.0022)	2	R143	6D44501G47	Res., C.F. (18K-1/4)	1
C311,C312	8C40135G20	Cap., Film (0.0033)	3	R118,R306	6D44501G52	Res., C.F. (47K-1/4)	3
C207				R307			
C313,C314	23C42909J02	Cap., Elec. (0.47-25V)	4	R123,R133	6D44501G55	Res., C.F. (82K-1/4)	3
C381,C319							
C345,C346	8C40135G14	Cap., Myl. (0.01)	3	R122,R302	6D44501G56	Res., C.F. (100K-1/4)	3
C206				R303			
C202	21C45322G27	Cap., Cer. (470P)	1	R119	6D44501G59	Res., C.F. (180K-1/4)	1
C315,C316	21B41870J02	Cap., Cer. (0.1)	6	R124,R202	6D44501G62	Res., C.F. (330K-1/4)	2
C205,C209				R138	6D44744G19	Res., C.F. (82-1/2)	1
C210,C212				R139	6D44744G25	Res., C.F. (270-1/2)	1
C203	8C40135G18	Cap., Myl. (0.022)	1	R312,R313	6D44501G64	Res., C.F (470K-1/4)	2
C208	8C40135G10	Cap., Myl. (0.0068)	1	R324,R325	6D44501G22	Res., C.F. (150-1/4)	2
C201	23D44333G02	Cap., Elec. (3.3-25V)	1	R326,R327	6D44501G08	Res., C.F. (10-1/4)	2
C204	8C42195G12	Cap., P.S. (100P)	1	R304,R305	6D44501G58	Res., C.F. (150K-1/4)	2
C218	8C42195G11	Cap., P.S. (220P)	1	R301	6D44501G39	Res., C.F. (3.9K-1/4)	1
C301	23D44333G24	Cap., Elec. (47-10V)	1	R318,R319	6D44501G24	Res., C.F. (220-1/4)	2

REF. NO.	PART NO.	DESCRIPTION	Q'TY.
R310,R311 R353,R354 R223	6D44501G50	Res., C.F. (33K-1/4)	5
R351,R352	6D44501G35	Res., C.F. (56K-1/4)	2
R340–343	30A41857J01-80(5-5)	Res., Wire	4
R219	6D44501G23	Res., C.F. (180-1/4)	1
R224	6D44501G33	Res., C.F. (1.2K-1/4)	1
R209	6D44501G43	Res., C.F. (8.2K-1/4)	1
R206,R213 R221	6D44501G44	Res., C.F. (10K-1/4)	3
R205	6D44501G48	Res., C.F. (22K-1/4)	1
R211	6D44501G54	Res., C.F. (68K-1/4)	1
R401	6D40801G39	Res., C.F. (100-1/2)	1
R103,R345 R217	6D44501G45	Res., C.F. (12K-1/4)	3
TR202	48S44580J01	Transistor 2SC1675M	1
TR203 TR204	48S44578J01	Transistor 2SC945(L)P	2
TR101 TR102 TR103 TR104 TR105 TR201	48S41815J02	Transistor 2SC829(B)	6
TR309 TR310	48S41785J03	Transistor 2SA738C	2
TR301 TR302	48S44885G01	Transistor 2SC828S	2
TR305 TR306	48S44886G01	Transistor 2SC1317Q	1
TR303 TR304	48S43238G01	Transistor 2SA495Y	2
TR311	48S40170G01	Transistor 2SC373	1
TR307 TR308	48S41784J03	Transistor 2SC1368C	2
IC101	51C42908J01	IC MPX (MC1310P)	1
IC301,IC302	48S42976J01	IC μPC 566H	2
D104,D105 D201	48B41768G01	Diode 1N60	3
D102,D103	48S42996J01	Diode, Silicon (WG1010)	2
D101	48S42098J07	Diode, Zener	1
D301,D302	48S44107J01	Varistor	2
T202	24B44575J01	IFT, AM	1
T101	24B44508J01	Coil, Disc. FM (Gry)	1
T102	24B44509J01	Coil, Disc. FM (Blu)	1
T201	24C42189G04	Coil, AM OSC	1
CFM-201	24C44577J01	IFT, Ceramic AM	1
L202	24B44179J01	Coil (4.7μH)	1
L201	24C43247J01	Choke, RF	1
CH101	25C40894G03	Choke	1
CF101 CF102	91B41273J02-017Y	Filter Cer. (10.7M) (Blk)	2
OR	91B41273J02-017Y	Filter Cer. (10.7M) (Blu)	2
OR	91B41273J03-017Y	Filter Cer. (10.7M) (Red)	2
OR	91B41273J04-017Y	Filter Cer. (10.7M) (Org)	2
OR	91B41273J05-017Y	Filter Cer. (10.7M) (Wht)	2
TC202 TC203	20C43248J01	Cap., Variable	2
TC201	20B44001J01	Cap., Trimer	1
	76B44389J01	Ferrite Core	2
S402,S404 S405	40C41003J01	Push, Switch	3
PL403 PL404	65C45037G07	Lamp, Pilot	2
PL401 PL402	65C45037G19	Lamp	2
VR402–405	18A43484J01	Volume	1
VR401	18A43476J01	Tuning Shaft & Volume	1
LN1	65B44082J01	Lamp, Neon	1

ASSEMBLY REF. NO.	COMPONENT PARTS REF. NO.	Q'TY
1	2, 3, 4	
5	6	
7	8, 9, 10	
11	12, 13, 17, 18	
13	14, 15, 16	
20	18, 21, 22, 26	
22	23, 24, 25	
28	29, 30, 31, 32, 34 35, 36, 37, 38, 39	
32	33	

ALIGNMENT PROCEDURE OF AM-FM RADIO & CB TRANSCEIVER

Alignment was performed at factory with laboratory test equipments. Therefore, before alignment the set should be thoroughly checked up on the circuit in free from troubles at first, and note following matter prior to proceed on alignment.

* Check up the specified Voltages and source polarity.
* Use fresh batteries or well regulated DC power supply.
* Connect speaker or dummy load resistor 4 to 8 ohms to output cables.
* None-metallic tools must be used for especially IF and RF Sect. alignments.
* Signal input must be kept as low as possible to avoid over load and clipping using highest possible sensitivity output indicator.
* In connection of signal source and indicator to the test point the lower side should be connected to the ground closed to the test point high side connected.
* Be sure no static coupling between input and output signal.

i) FM RADIO SECTION ALIGNMENT using sweep signal generator.

Notes: 1. When sweep signal generator is used for alignment of FM IF stage, the marker color is set at center part of "S" curve trace. Because of fixed ceramic filters, five kinds of center frequency, are used in, which is identified as follows; Yellow-10.78, Red-10.70, White-10.74, Black-10.66 and Green-10.62 MHz.
2. In order to make correct alignment of front end and IF-stage, input signal must be kept lower than 10 uV at antenna input.

STEP	CONNECT SIGNAL SOURCE TO	CONNECT OUTPUT INDICATOR TO	SET SIGNAL SOURCE	SET RADIO DIAL	ADJUST ON	ADJUST FOR
1	Unlock FM/AM switch for FM position.					
2	Sweep signal generator to test point located in front end unit through .01uF capacitor	Oscilloscope to the test point	10.7MHz (unmodulated)	Quiet point on band	IFT-101	Maximum amplitude ("S" curve trace)
3					IFT*	Maximum amplitude *Located in front end unit
4	Repeat above steps to make sure the alignment has been made correctly.					
5	Signal generator to antenna input terminal through matching net work (no sweep)	VTVM to the speaker cable terminated with 4 to 8 ohms dummy load	108MHz	108MHz	OT*	Maximum amplitude
6			88MHz	88MHz	OSC	Maximum amplitude
7			106MHz	106MHz	AT* & RT*	Maximum amplitude
8	Repeat above three steps to make sure the alignment has been made correctly.					*Located in front end unit

ii) AM RADIO SECTION ALIGNMENT

Notes: 1. RF signal generator is connected to the antenna input terminal through matching net-work.
2. Modulation level is 40% maximum.
3. RF signal level is kept as lower as possible.
4. Output indicator is connected to the Left or Right speaker cable terminated with 4 to 8 ohms resistor.

STEP	SOURCE SIGNAL	SET RADIO DIAL TO	ADJUST ON	ADJUST FOR
1	Lock FM-AM switch for AM position.			
2	262.5 KHz	Quiet point on band	IFT-201, 202, 203, 204	Maximum amplitude.
3	1,610KHz	1,610 KHz	CT-203	Maximum amplitude.
4	530KHz	530 KHz	OSC	Maximum amplitude.
5	1,400 KHz	1,400 KHz	CT-201, 202	Maximum amplitude.
6	Repeat these steps to make sure the correct alignment has been made.			

iii) FM MULTIPLEX DEMODULATOR ALIGNMENT using FM signal generator and MULTIPLEX STEREO signal generator.

1. Connect the frequency counter to the test point (TP) of IC103 (Pin No. 10) and then adjust VR103 within the limits of 19 KHz ±100 HZ.
2. Adjust VR101 to obtain the maximum separation.

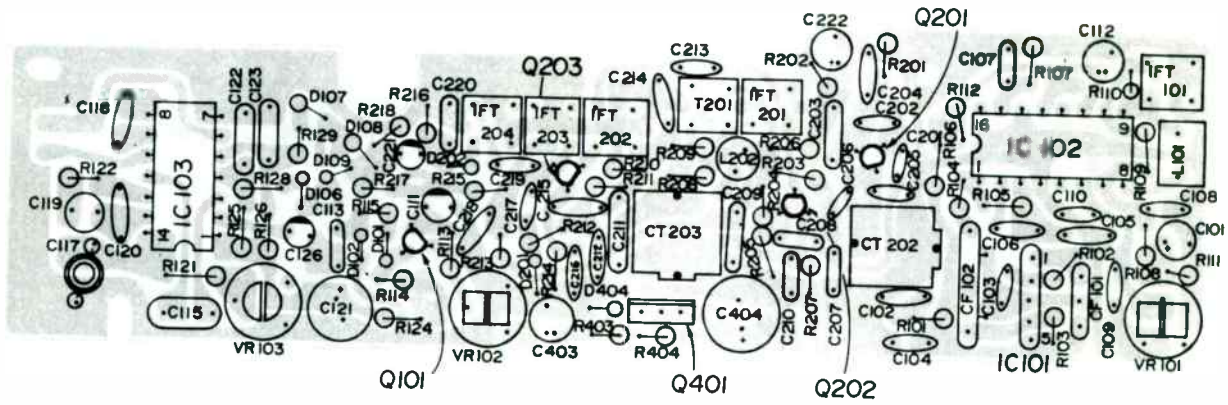


Fig. 9
IF AMP. P.C. BOARD
COMPONENT SIDE

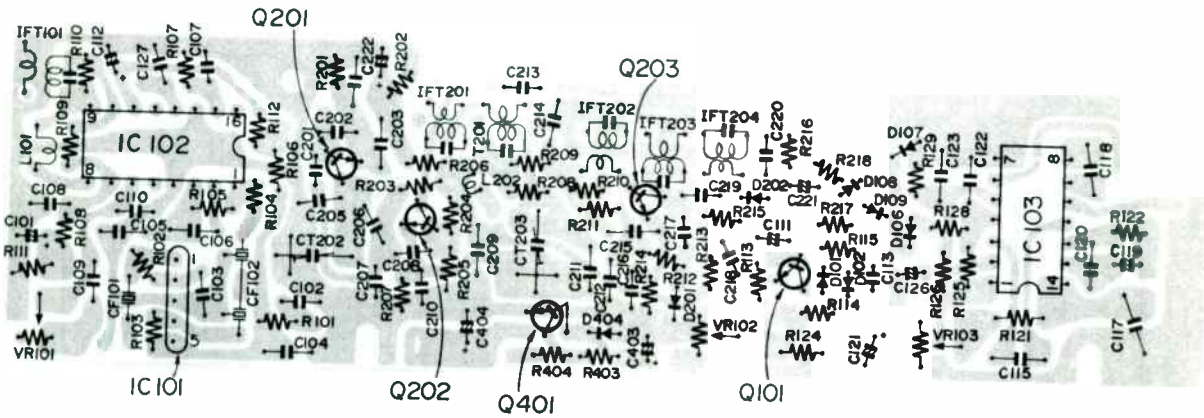


Fig. 10
IF AMP. P.C. BOARD
WIRING SIDE

PART LOCATION

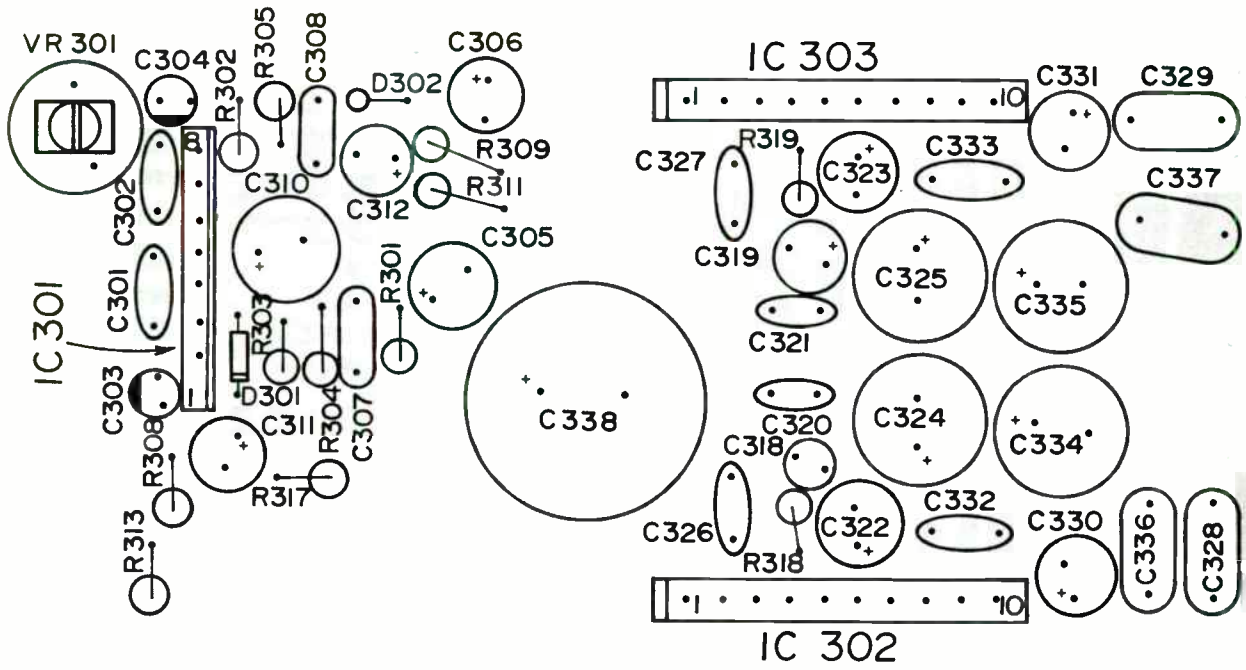


Fig. 11
POWER AMP. P.C. BOARD
COMPONENT SIDE

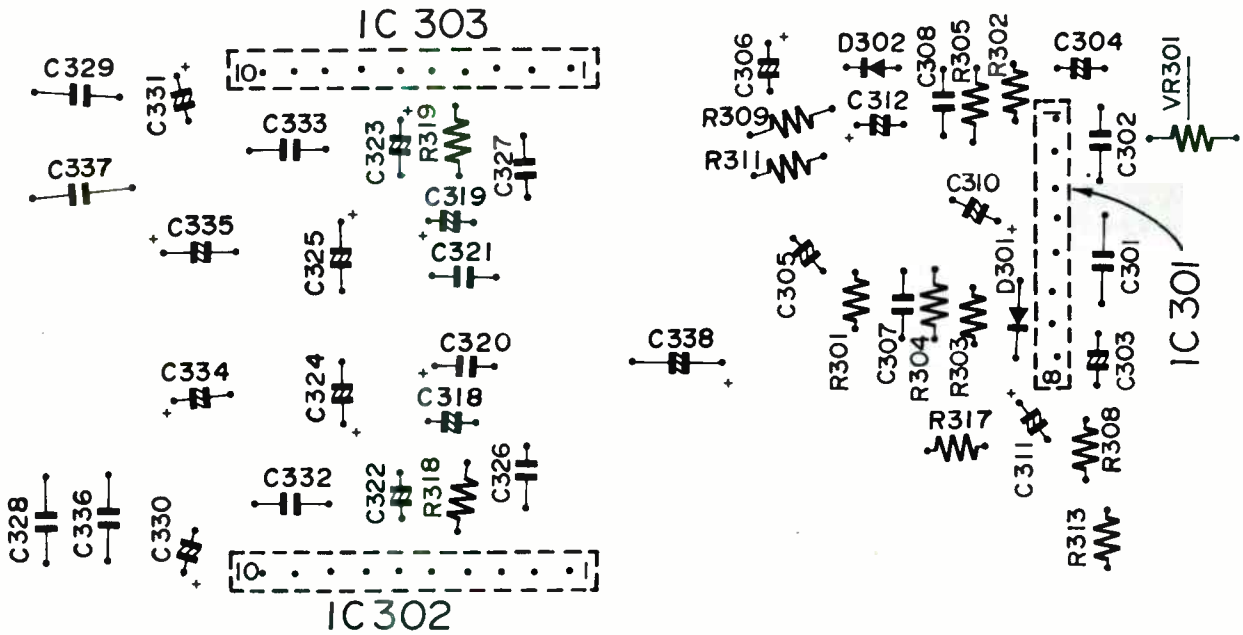


Fig. 12
POWER AMP. P.C. BOARD
WIRING SIDE

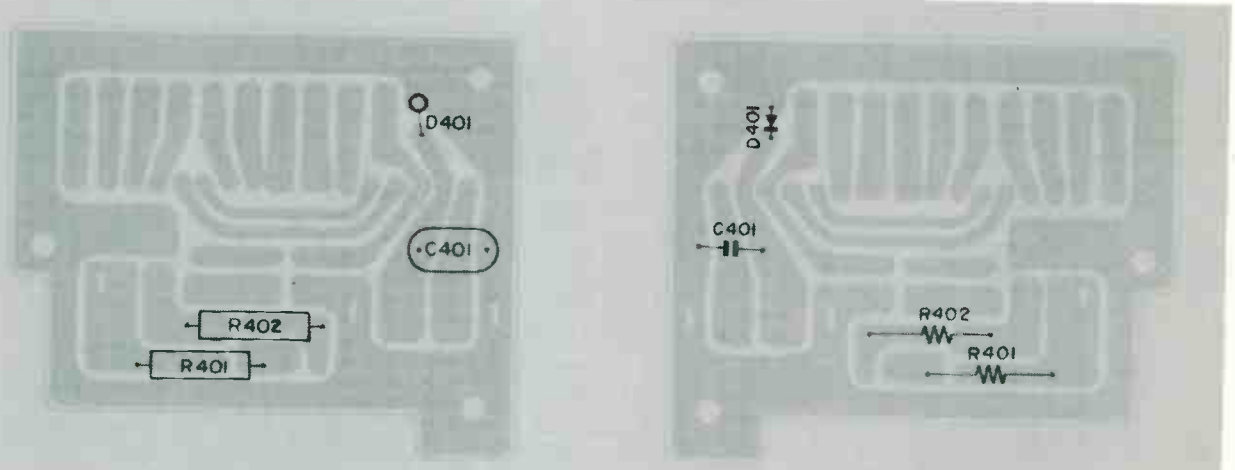


Fig. 13
OUTPUT LEAD P.C. BOARDS
COMPOENNT/WIRING SIDES

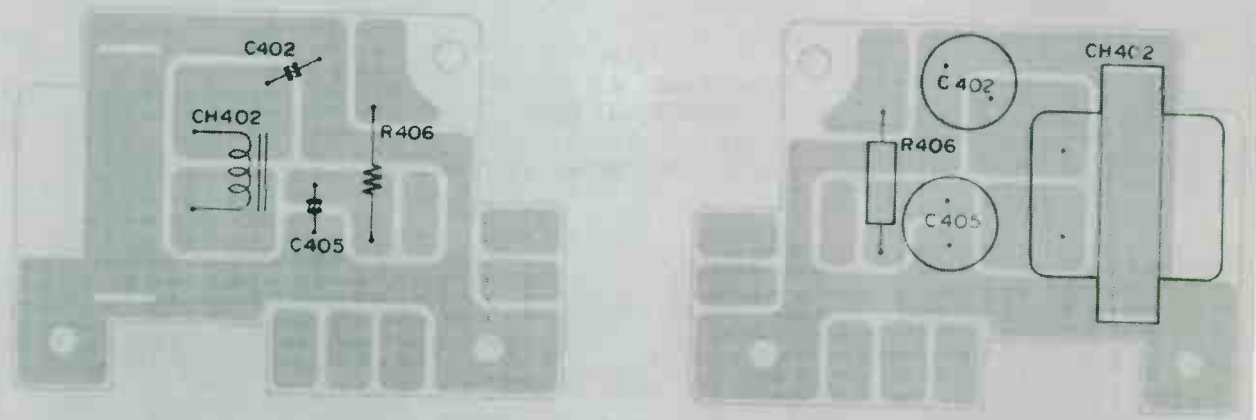
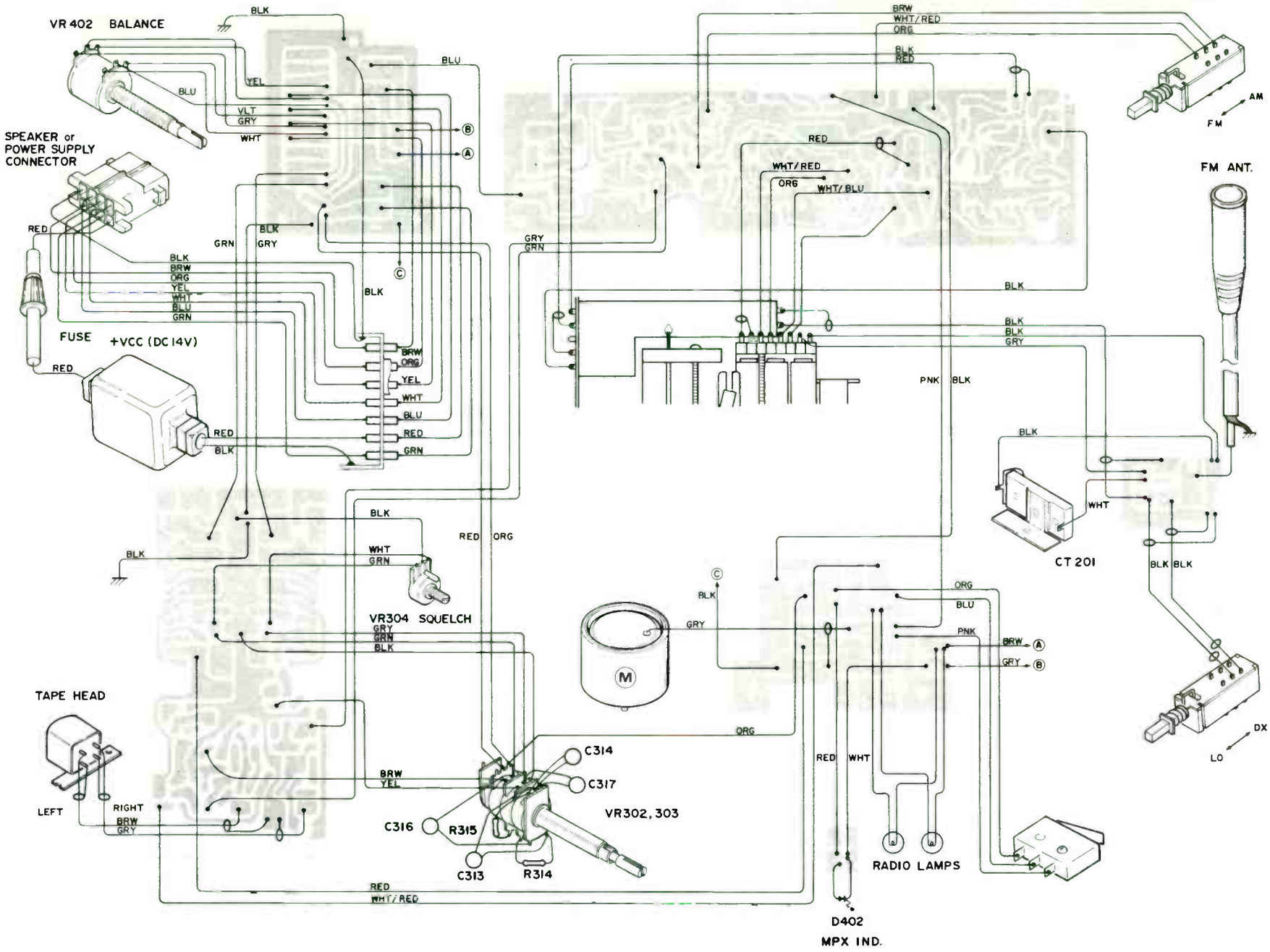
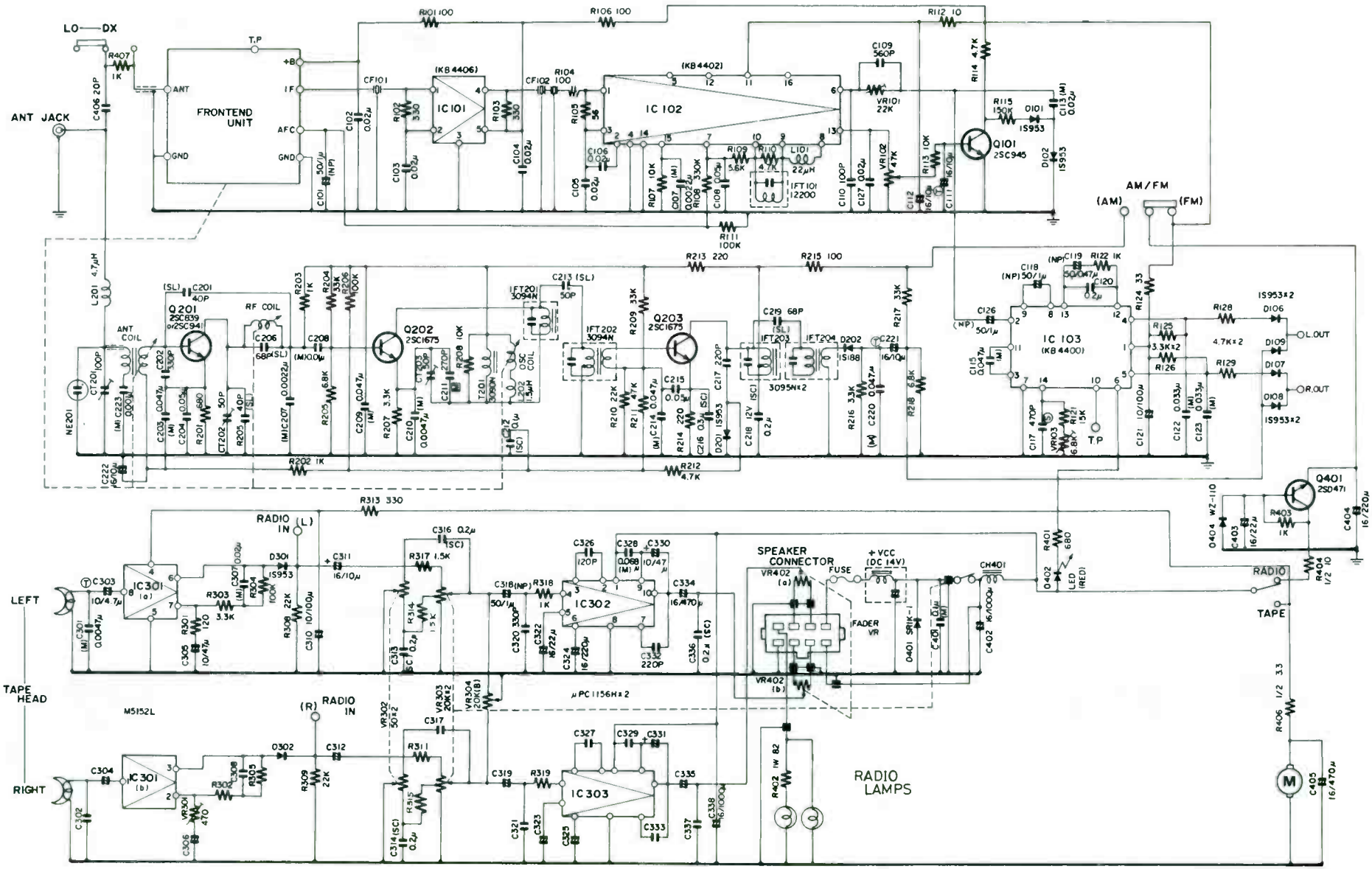


Fig. 14
POWER SUPPLY P.C. BOARDS
COMPONENT/WIRING SIDES

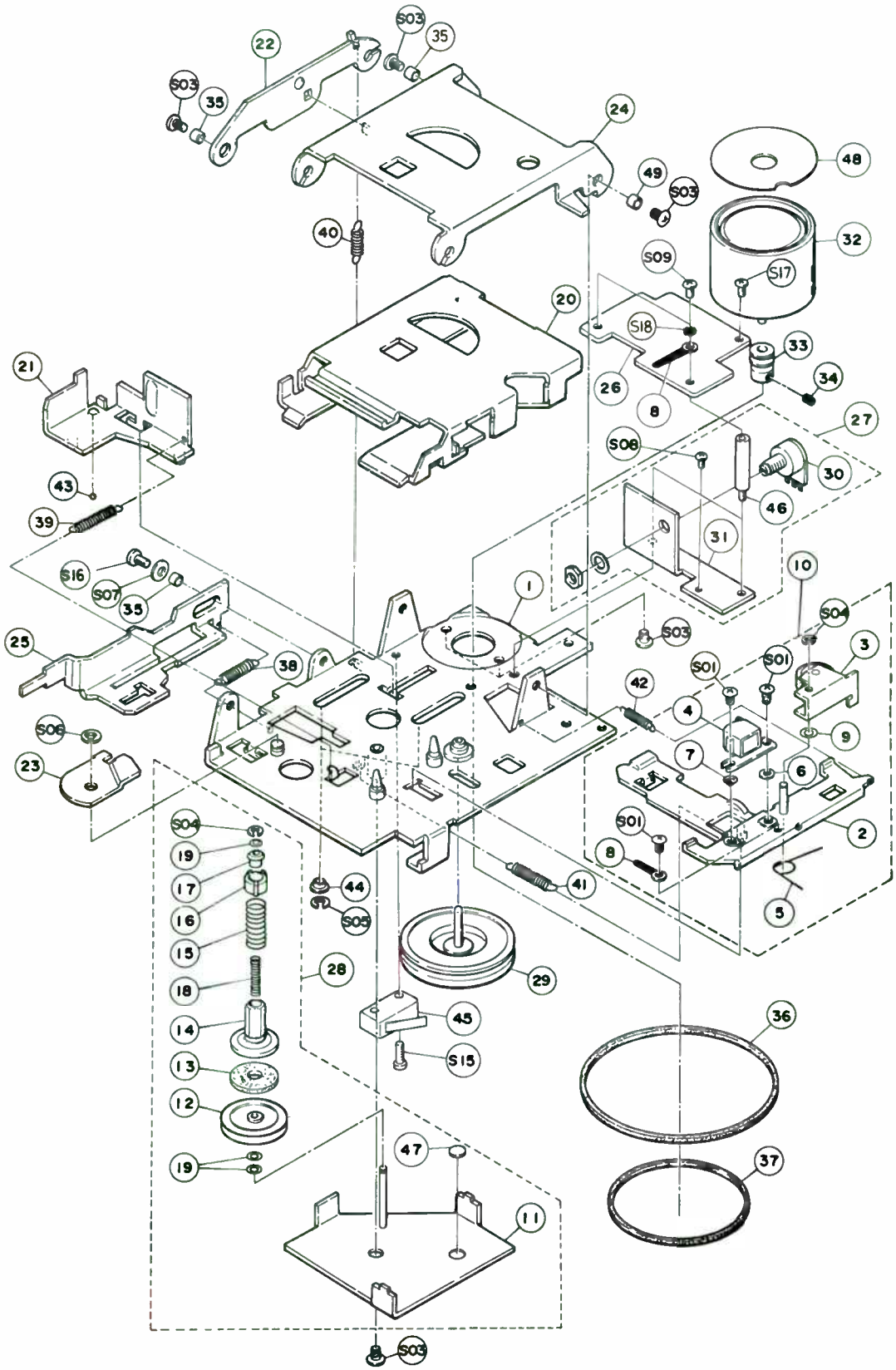
Fig. 15
ANTENNA P.C. BOARDS
COMPONENT/WIRING SIDES



SCHEMATIC DIAGRAM Fig. 16



ASSEMBLY LAYOUT Tape transport mechanism Fig. 18



COMPONENTS LIST. (Re. Fig.-17 Final assembling)

Ref. No.	Part No.	Description	Q'ty
101	20176	Cassette Tape Mechanism	1
102	45101	Case, Top	1
103	45102	Case, Bottom	1
104	45086	Side Plate, L	1
105	45087	Side Plate, R	1
106	45190	Rear Plate	1
107	45095	Dial Pinter	1
108	42664	Nut, Potentiometer Positioning	6
109	038001	Washer 3/8", Teethed, Potentiometer Positioning	6
110	950278	Serial No. Label	1
111	922795	Antenna Lead	1
112	923207	Receptacle, 8P Connector Cord	1
113	42414	Lead Masking	1
114	45033	Masking, MIC Cord	1
115	44789	Guide, Potentiometer Positioning	2
116	45224	Collar, Potentiometer Positioning	2
117	950218	Operation Label R	1
118	950207	Operation Label L	1
119	923380	Pilot Lamp	1
120	913287	Antenna Trimmer	1
121	44366	Pushbutton, EJ/FF	1
122	44471	Pushbutton, FM/AM, LO/DX	2
123	45205	Escutcheon	1
124	45211	Cartridge Door Flap	1
125	45097	Dial Gauge	1
126	45189	Plate, Escutcheon	1
127	45089	Mirror, Dial Gauge	1
128	44145	Shaft, Door Flap	1
129	44164	Spring, Door Flap	1
130	44683	Knob K, Outer	2
131	44717	Knob C, Inner	2
132	45115	Knob G, Inner	2
133	45116/122	Knob G, Outer	2
134	45090	Bracket, SQ	1
	45091	Holder, R Lamp	1
135	43000	Cushion Rubber	1
136	30730	Indicator Base Ass'y	1
137	45099	Case, Front	1
	44788	VR Back Plate	2
138	30717	IF Amp. P.C. Board Ass'y	1

Ref. No.	Part No.	Description	Q'ty
139	30733	Power Amp. P.C. Board Ass'y	1
140	30734	Output Lead P.C. Board	1
141	915474	Volume/Tone Control	1
142	315349	Fader Control 701 (w/Joint)	1
143	30736	Antenna P.C. Board Ass'y	1
144	32448	Heat Sink, Power Amp.	1
145	44959	Spacer L. Heat Sink	1
	44969	Spacer R, Heat Sink	1
146	31340	Pushbutton Tuner CBS-AT02	1
147	45093	Mtg. Stud R, IF P.C.B.	1
148	45092	Mtg. Stud L, IF P.C.B.	1
149	45085	Bracket, Tuner	1
150	45084	Holder, Switch	2
151	912085	Push-push Switch	2
152	45181	Feed Through Cap.	1
153	923362	Pad, Lead Wire	2
154		Shaft Adjustment Label	1
155	923451	Radio Lamp	1
156	45326	Holder, Lamp (L)	1
S02	022607	Screw M2.5 x 4, RH	2
S08	022648	Screw M2.6 x 3, RH	1
S09	022602	Screw M2.6 x 4, RH	2
S10	022656	Screw M2.6 x 6, RH	2
S11	032609	Washer M2.6, Teethed	3
S12	022603	Screw M2.6 x 8, RH	4
S13	012601	Nut M2.6, Hex.	4
S14	022638	Screw M2.6 x 6, RH Tapping	6
S16	023055	Screw M3 x 4, BH	17
S17	023145	Screw M3 x 6, BH	4
S18	023058	Screw M3 x 4, RH	8
S19	023123	Screw M3 x 6, RH	3
S20	032603	Washer M2.6 Plain	3
S22	022016	Screw M2 x 3, BH	1
S23	022659	Screw M2.6 x 4, Truss	6
	45009	Trim Plate	1
	44325	Back up Plate	1
	44272	Ford Gasket	1
	42616	Strap	1
	41973	Accessories in Bag	1
	923205	8P Connector Cord	1

COMPONENTS LIST (Re. Gig.-18 Tape transport mechanism)

Ref. No.	Part No.	Description	Q'ty
1	21530	Main Chassis Ass'y	1
2	23927	Head Bracket	1
3	21403	Pinch Roller Ass'y	1
4	917008	Head	1
5	23724	Spring, Pinch Roller	1
6	23940	Washer, Fiber	1
7	23928	Spring, Azimuth	1
8	922095	Pad, Lead Wire	1
9	23643	Washer, Polistyren	1
10		Consists of Ref. No. 2~9 + S01 & S04	1
11	21529	Sub-Chassis Ass'y	1
12	23929	Pulley, Take up Reel	1
13	23652	Washer, Friction	1
14	23744	Post	1
15	23862	Spring, Take up Reel	2
16	23987	Rim, Take up Reel CM400	1
17	23767	Cap, Post	2
18	23771	Spring, Post	1

Ref. No.	Part No.	Description	Q'ty
19	23643	Washer, Polistyren	3
20	21523	Cassette Housing Ass'y	1
21	21524	Cassette Actuator Ass'y	1
22	21518	Sub-Arm Ass'y	1
23	23911	Thrust Plate	1
24	23913	Pak Arm	1
25	23915	Eject Lever	1
26	30720	Power Supply P.C.B. Ass'y	1
27		Consists of Ref. No. 30, 31	1
28		Consists of Ref. No. 11~16 + 47	1
29	24058	Flywheel	1
30	915465	Balance Control, Left/Right	1
31	45098	Bracket, Volume	1
32	911024	Motor	1
33/34	23711/ 022632	Motor Pulley w/Lock Screw	1
35	23875	Washer, Eject Lever	3
36	23747	Belt, Main	1

COMPONENTS LIST (Re. Fig.-18 Tape transport mechanism) (Cont'd)

Ref. No.	Part No.	Description	Q'ty
37	24062	Belt, Take up Reel	1
38	23916	Spring, Eject Lever	1
39	23917	Spring, Pak Slide	1
40	23918	Spring, Pak Arm	1
41	23919	Spring, Head Bracket	1
42	23936	Sub-Spring, Head Bracket	1
43	023165	Steel Ball	1
44	23931	Collar, Pak Slide	2
45	912084	Micro Switch	1
46	45173	Collar, Power Supply P.C.B.	2
47	23784	Thrust Washer	1
48	23909	Shield Plate, Motor	1
49	23719	Washer, Pak Arm	1

Ref. No.	Part No.	Description	Q'ty
S01	022017	Screw M2 x 4, Truss	3
S03	022655	Screw M2.6 x 4, BH	6
S04	031501	E Ring M1.5	2
S05	032501	E Ring M2.5	2
S06	033016	E Ring M3	1
S07	032603	Washer M2.6, Plain	1
S08	022648	Screw M2.6 x 3, RH	1
S09	022602	Screw M2.6 x 4, RH	2
S15	022310	Screw M2.3 x 10, RH	1
S16	022610	Screw M2.6 x 5, RH	1
S17	022659	Screw M2.6 x 4, Truss	1
S18	032607	Washer M2.6 Teethed	1

ELECTRICAL COMPONENTS LIST

Ref. No.	Part No.	Description	Q'ty
SEMI-CONDUCTORS			
Q101	916033	Silicon Transistor 2SC945	1
Q201	916127	Silicon Transistor 2SC941	1
Q202, 203	916144	Silicon Transistor 2SC1675	2
Q401	916126	Silicon Transistor 2SD471	1
IC101	916124	IC KB4406	1
IC102	916123	IC KB4402	1
IC103	916108	IC KB4400	1
IC301	916106	IC M5152L	1
IC302, 303	916125	IC uPC1156H	2
D101, 102	923147	Diode IS953	2
D106 thru. 109	923147	Diode IS953	4
D201	923147	Diode IS953	1
D202	922604	Diode IS188	1
D301, 302	923147	Diode IS953	2
D401	922860	Diode SR1K-1	1
D402	922878	L.E.D. GL-31AR	1
D404	923233	Diode WZ-110	1
COILS & OTHER COMPONENTS			
IFT101	923133	IFT, FM 12200	1
IFT201, 202	922907	IFT, AM 3094N	2
IFT203, 204	922906	IFT, AM 3095N	2
L101	923170	Micro Inductor 22uH	1
L201	913346	Micro Inductor 4.7uH	1
L202	913351	Micro Inductor 1.5uH	1
CH401	914031	Choke Coil	1
T201	922905	IFT, AM 3090N	1
CF101, 102, 103	923454	Ceramic Filter SFE10.7MA5	3

Ref. No.	Part No.	Description	Q'ty
RESISTORS, all are 1/8 watts 10% tolerance unless otherwise specified.			
R101	915009	100 ohm	1
R102, 103	915351	330 "	2
R104	915009	100 "	1
R105	915403	56 "	1
R106	915009	100 "	1
R107	915015	10K "	1
R108	915171	330K "	1
R109	915409	5.6K "	1
R110	915327	4.7K "	1
R111	915039	100K "	1
R112	915060	10 "	1
R113	915015	10K "	1
R114	915327	4.7K "	1
R115	915412	150K "	1
R121	915341	15K "	1
R122	915003	1K "	1
R123		No component	
R124	915366	33 ohm	1
R125, 126	915004	3.3K "	2
R127		No component	1
R128, 129	915327	4.7K ohm	2
R201	915337	680 ohm	1
R202, 203	915003	1K "	2
R204	915052	33K "	1
R205	915340	6.8K "	1
R206	915039	100K "	1
R207	915004	3.3K "	1
R208	915015	10K "	1
R209	915052	33K "	1
R210	915342	22K "	1
R211	915343	47K "	1
R212	915327	4.7K "	1
R213, 214	915336	220 "	2
R215	915009	100 "	1
R216	915004	3.3K "	1
R217	915052	33K "	1
R218	915340	6.8K "	1
R301	915469	120 ohm	1
R302, 303	915004	3.3K "	2

ELECTRICAL COMPONENTS LIST (Cont'd)

Ref. No.	Part No.	Description	Q'ty
R304, 305	915039	100K ohm	2
R308, 309	915342	22K "	2
R311	915001	1.5K "	1
R313	915351	330 "	1
R314, 315		No component	
R317	915001	1.5K "	1
R318, 319	915003	1K "	2
R401	915124	680 ohm 1/2 watt	1
R402	915216	82 " 1 watt	1
R403	915003	1K "	1
R404	915106	10 " 1/2 watt	1
R405		No component	
R406	915065	3.3 " 1/2 watt	1
R407	915003	1K "	1
VR101	915262	Solid Volume 22K ohm	1
VR102	915428	Solid Volume 47K ohm	1
VR103	915434	Solid Volume 6.8K ohm	1
VR301	915431	Solid Volume 470 ohm	1
VR302, 302	915474	Volume/Tone/on-off Switch	1
VR304	915465	Balance Control	1
VR402	915349	Fader/Manual Tuning	1
CAPACITORS, all are in 50 working voltage unless otherwise specified.			
C101	913349	Electrolytic 1uF NP	1
C102 thru. 106	913121	Ceramic 0.02uF	5
C107	913043	Mylar 0.0022uF	1
C108	913002	Ceramic 0.05uF	1
C109	913213	Ceramic 560pF	1
C110	913098	Ceramic 100pF	1
C111	913381	Tantalum 10uF 16V	1
C112	913175	Electrolytic 10uF 16V	1
C113	913045	Mylar 0.022uF	1
C114		No component	
C115	913044	Mylar 0.047uF	1
C116		No component	
C117	913096	Polistyren 470pF	1
C118	913349	Electrolytic 1uF NP	1
C119	913348	Electrolytic 0.47uF NP	1
C120	913284	Semi-Con. 0.2uF 12V (SC)	1
C121	913013	Electrolytic 100uF 10V	1
C122, 123	913108	Mylar 0.03uF	2
C124, 125		No component	
C126	913349	Electrolytic 1uF (NP)	1
C127	913121	Ceramic 0.02uF	1
C201	913466	Ceramic 40pF (SL)	1
C202	913073	Ceramic 330pF	1
C203	913044	Mylar 0.047uF	1

Ref. No.	Part No.	Description	Q'ty
C204	913002	Ceramic 0.05uF	1
C205	913466	Ceramic 40pF (SL)	1
C206	913465	Ceramic 68pF (SL)	1
C207	913043	Mylar 0.0022uF	1
C208	913020	Mylar 0.01uF	1
C209	913044	Mylar 0.047uF	1
C210	913040	Mylar 0.0047uF	1
C211	913352	Mica 270pF	1
C212	913318	Semi-Con. 0.1uF 12V (SC)	1
C213	913467	Ceramic 50pF	1
C214	913044	Mylar 0.047uF	1
C215	913002	Ceramic 0.05uF	1
C216	913260	Semi-Con. 0.3uF 12V (SC)	1
C217	913077	Ceramic 220pF	1
C218	913284	Semi-Con. 0.2uF 12V (SC)	1
C219	913465	Ceramic 68pF (SL)	1
C220	913044	Mylar 0.047uF	1
C221	913381	Tantalum 10uF 16V	1
C222	913175	Electrolytic 10uF 16V	1
C223	913071	Mylar 0.001uF	1
C301, 302	913040	Mylar 0.0047uF	2
C303, 304	913314	Tantalum 4.7uF 10V	2
C305, 306	913196	Electrolytic 47uF 10V	2
C307, 308	913010	Mylar 0.02uF	2
C309		No component	
C310	913013	Electrolytic 100uF 10V	1
C311, 312	913175	Electrolytic 10uF 16V	2
C313, 314	913284	Semi-Con. 0.2uF 12V (SC)	2
C315		No component	
C316, 317	913284	Semi-Con. 0.2uF 12V (SC)	2
C318, 319	913349	Electrolytic 1uF (NP)	2
C320, 321	913073	Ceramic 330pF	2
C322, 323	913217	Electrolytic 22uF 16V	2
C324, 325	913069	Electrolytic 220uF 16V	2
C326, 327	913115	Ceramic 120pF	2
C328, 329	913446	Mylar 0.068uF	2
C330, 331	913196	Electrolytic 47uF 10V	2
C332, 333	913077	Ceramic 220pF	2
C334, 335	913030	Electrolytic 470uF 16V	2
C336, 337	913284	Semi-Con. 0.2uF 12V (SC)	2
C338	913061	Electrolytic 1000uF 16	1
C401	913021	Mylar 0.1uF	1
C402	913061	Electrolytic 1000uF 16V	1
C403	913217	Electrolytic 22uF 16V	1
C404	913069	Electrolytic 220uF 16V	1
C405	913030	Electrolytic 470uF 16V	1
C406	913124	Ceramic 20pF	1
CT201	913287	Trimmer, Antenna 100pF	1
CT202, 203	913511	Trimmer 50pF	2

Pages 65-76 Courtesy of MOTOROLA

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.

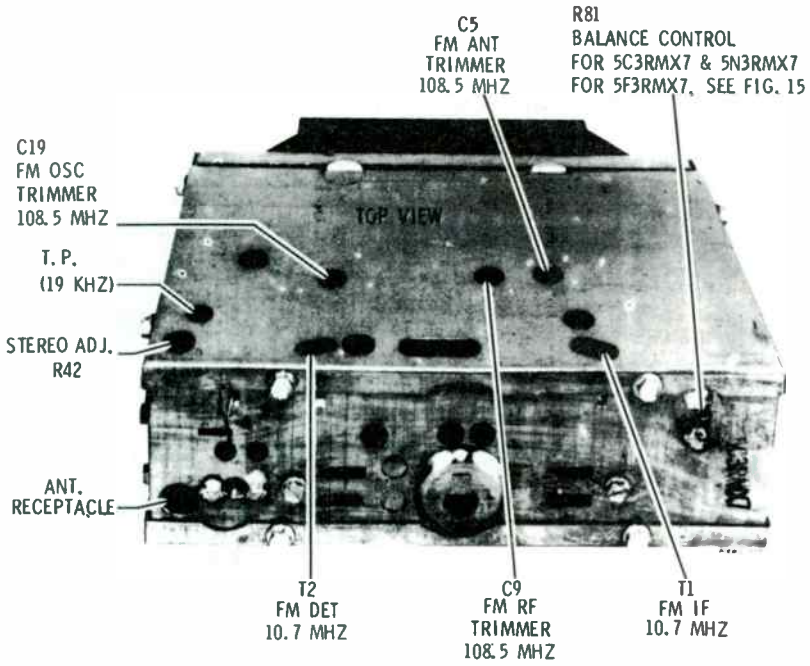
ALIGNMENT CONDITIONS - Input level to the receiver +14.0V DC. During FM alignment, the generator output signal amplitude must be set above or below the receiver limiting level depending on the adjustment made. The limiting level is the point where further increase in input does not increase the output level. During alignment then, either keep the 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.

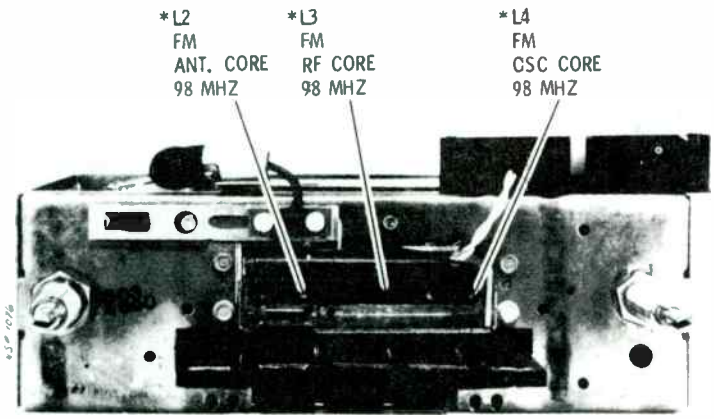
PRE-ALIGNMENT STEPS

1. The "AM-FM" switch, in "FM" position.
2. "Local/Distance" switch, in "Distance" position
3. Tone control, in full treble position (C.W.)
4. Balance control, equal power output.
5. Connect resistive loads to left & right speaker output.

FM ALIGNMENT USING FM GENERATOR

STEP	GENERATOR CONNECTION	GENERATOR FREQUENCY	RADIO FREQUENCY	OUTPUT INDICATOR	ADJUST	REMARKS
FM - IF ALIGNMENT						
1	To ant recept thru termination (Fig. 3)	10.7MHz (75KHz deviation @ 400 Hz Mod - into limiting,) 100KuV or better	108.5MHz	VTVM-AC probe or scope across 4.0 ohm output load	T2	Adjust for max output.
2	"	10.7MHz (75 KHz 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	Adjust for max output. Repeat Steps 3,4 & 5 for optimum peak.
FM - RF ALIGNMENT - DO NOT perform Steps 8 & 9 unless the tuner has been tampered with or associated components have been replaced. Before proceeding with Step 8, back the FM tuning cores as far as possible out of the coils to eliminate their effect on trimmer adjustments, and readjust Steps 6 & 7.						
6	Ant receptacle thru termination (Fig. 3)	108.5MHz (22.5 KHz deviation @ 400Hz Mod - use max sig.)	108.5MHz	VTVM-AC probe or scope across 4.0 ohm output load	C19	Adjust for max signal output.
7	"	108.5MHz (22.5 KHz deviation @ 400Hz Mod - below limiting)	"	"	C9, C5	"
8	"	98MHz (22.5KHz deviation @ 400Hz Mod - use max sig)	98MHz	"	L4	Adjust for max signal output. See "FM Alignment Point Location" detail for core carriage note. Adjust for max signal output. See Fig. 2 for core carriage note. Repeat Steps 8 & 9.
9	"	98MHz (22.5KHz deviation @ 400Hz Mod - below limiting.)	"	"	L3,L2	





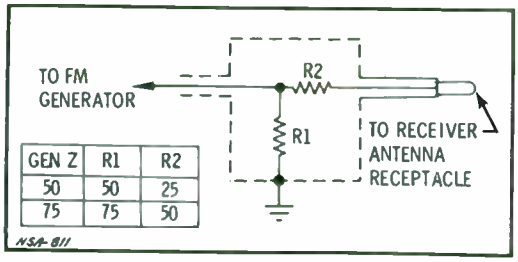
REMOVE TRIM ESCUTCHEON, DIAL SCALE BACKGROUND & PILOT LIGHT TO GAIN ACCESS TO TUNER CORES IF ADJUSTMENTS ARE NECESSARY.

*CORE ADJUSTMENTS

ADJUST ONLY IF NECESSARY - DUE TO LARGE VARIATIONS IN SENSITIVITY ACROSS BAND AND/OR DIAL CALIBRATION. AFTER ADJUSTMENT, REPEAT STEPS 3, 4, & 5.

NOTE:
TUNER CORE CARRIAGE SHOULD BE SET .400" FROM HIGH END STOP WHEN CORE ADJUSTMENTS ARE BEING MADE (98MHZ)

FIG. 2 - FM ALIGNMENT POINT LOCATION



GEN Z	R1	R2
50	50	25
75	75	50

FIG. 3 - FM RF & IF GENERATOR TERMINATION

FM STEREO RECEPTION

When the receiver is tuned to an FM stereo station, the stereo indicator will become illuminated. As long as 10uV 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 for an equivalent monaural signal. Consequently, a 40db signal/noise ratio would be required in monaural operation, if adequate signal/noise (20db) and separation (15db) are to be realized after switching to stereo mode of operation.

To maintain an acceptable signal/noise ratio when tuned to a weak FM station, the receiver switches to the monaural mode of operation. (The stereo indicator light will go out, all 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.

STEREO ALIGNMENT

The FM Stereo System should be aligned only with the use of an RF generator. The following steps must be performed before starting to align an FM Stereo System.

. The "AM-FM" switch must be in the "FM" position.
"Local/Distance" switch in "Distance" position.
Balance Control, equal power output
Tone Control, in full treble position (c.w.)
The generator output must be at a high "RF" level (1KuV or better)

6. FM radio "RF & IF" circuits must be properly aligned before beginning stereo alignment. CAUTION should be observed when servicing the multiplex IC. Shorting or grounding of contact pins will cause damage to the IC.
7. For good stereo reception it is imperative that the stereo frequency adjust control (R 42) be accurately tuned for 19 KHZ output on pin 11 of IC2 (typically within 1%). Two adjustment procedures are given depending upon equipment availability, see figures 4 & 5.

9. TUNER CLUTCH ADJUSTMENT - (If necessary)
a. Remove radio bottom cover.
b. Loosen set screw and adjust disc-to-plate spacing for .015"-.025" with an end pushbutton depressed.
c. Set left pushbutton at low end of dial (88Mhz).
d. Set right pushbutton at high end of dial (1610KHZ).
e. At dial low end, depress right pushbutton only until key slide cam contacts treadle bar. Then check for .005" minimum clutch spacing.
f. If adjustment is required, repeat steps "b" (set for slightly wider gap) and "e" as necessary until correct spacings are obtained.

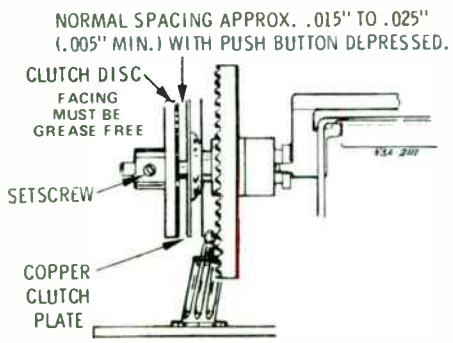


FIG. 1 CLUTCH ADJUSTMENT DETAIL

METHOD 1

Ideally, one of the most accurate ways to adjust R42 would be with the aid of a Frequency Counter. Connect the counter to pin no. 11 of IC2 as shown in Fig. 4. Adjust R42 for 19 KHZ as seen on the Counter.

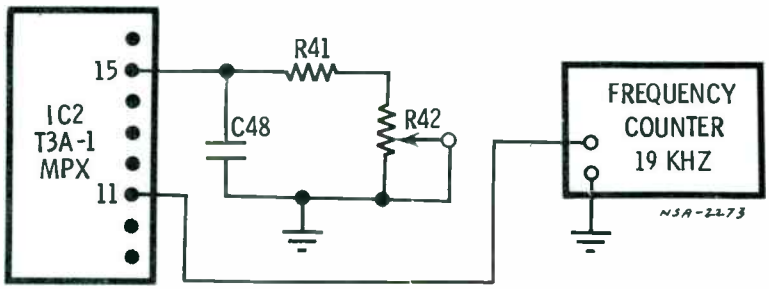


FIG. 4 - R42 ADJUSTMENT WITH COUNTER

METHOD 2

Accurate alignment of R42 can also be obtained by using a 19KHZ filter connected from the test point of the stereo IC chip (IC2, pin no. 11). Connect a scope or A.C. volt meter as shown in Fig. 5 & adjust R42 for maximum output indication.

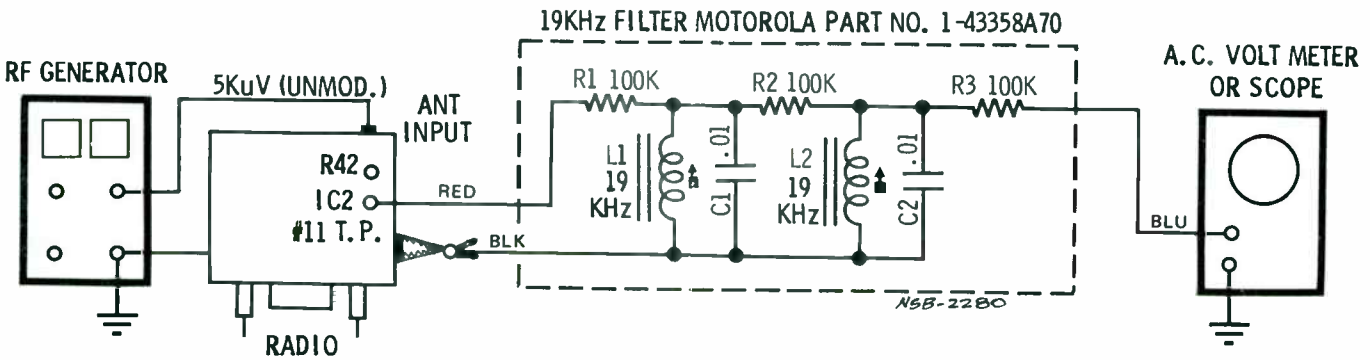


FIG. 5 - R42 ADJUSTMENT WITH AC METER OR SCOPE

PARTS LIST FOR 19KHZ FILTER (1-43358A70)

REF. NO.	PART NO.	DESCRIPTION
C1,C2	8-10226A25	.01MFD ± 20% 50V mylar
L1,L2	24-40794D01	COIL, 19KHZ
R1-R3	6-125534	100K ± 5% 1/4W

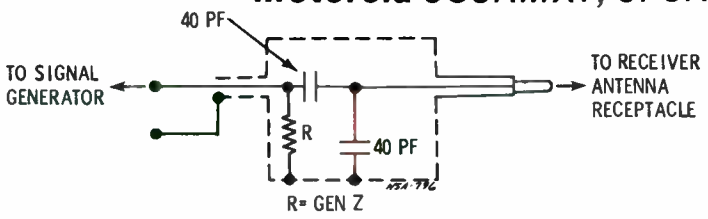


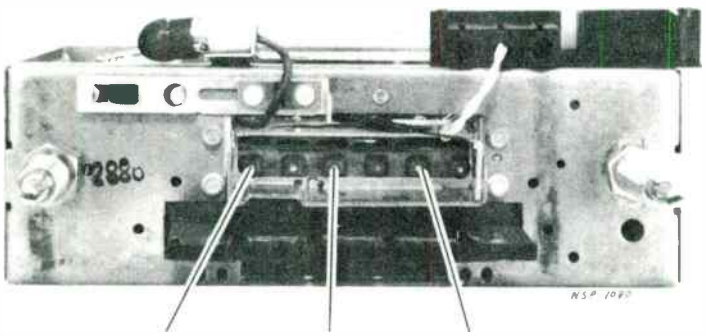
FIG. 12 - AM DUMMY ANTENNA DETAIL

REMOVE TRIM ESCUTCHEON, DIAL SCALE BACKGROUND & PILOT LIGHT TO GAIN ACCESS TO TUNER CORES IF ADJUSTMENTS ARE NECESSARY.

* CORE ADJUSTMENTS

ADJUST ONLY IF NECESSARY - DUE TO LARGE VARIATIONS IN SENSITIVITY ACROSS BAND AND/OR DIAL CALIBRATION. AFTER ADJUSTMENT, REPEAT STEPS 5, 6 & 7.

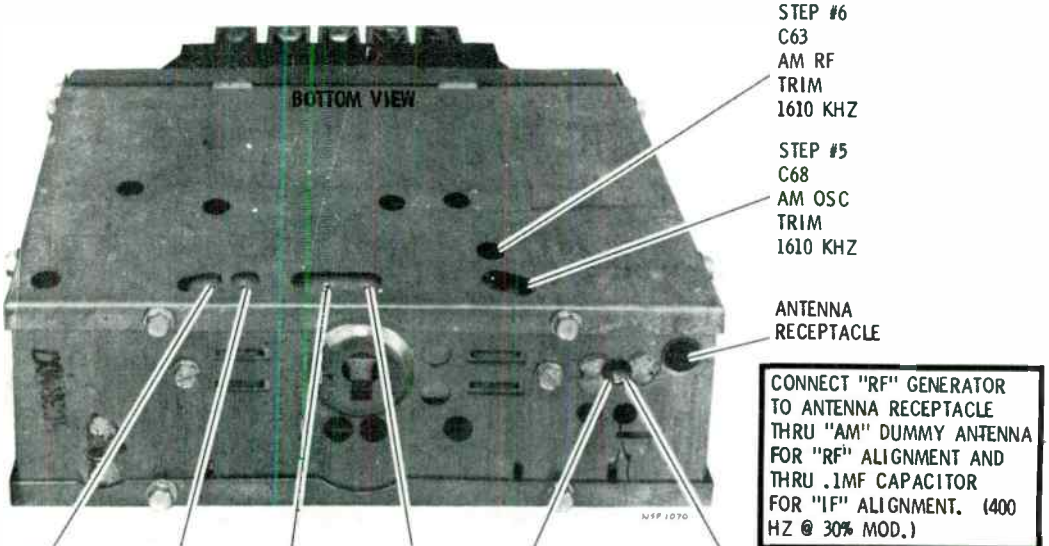
NOTE:
TUNER CORE CARRIAGE SHOULD BE SET .443" FROM HIGH END STOP WHEN CORE ADJUSTMENTS ARE BEING MADE.



FRONT VIEW

AM ALIGNMENT

ADJUST ALL STEPS FOR MAX OUTPUT INDICATION ON A. C. METER CONNECTED ACROSS A SPEAKER LOAD: MAINTAIN APPROXIMATELY 1 WATT OUTPUT DURING ALIGNMENT PROCEDURE (1.8V ACROSS 4. OHM LOAD)



BOTTOM VIEW

FIG. 13 - AM ALIGNMENT POINT LOCATION

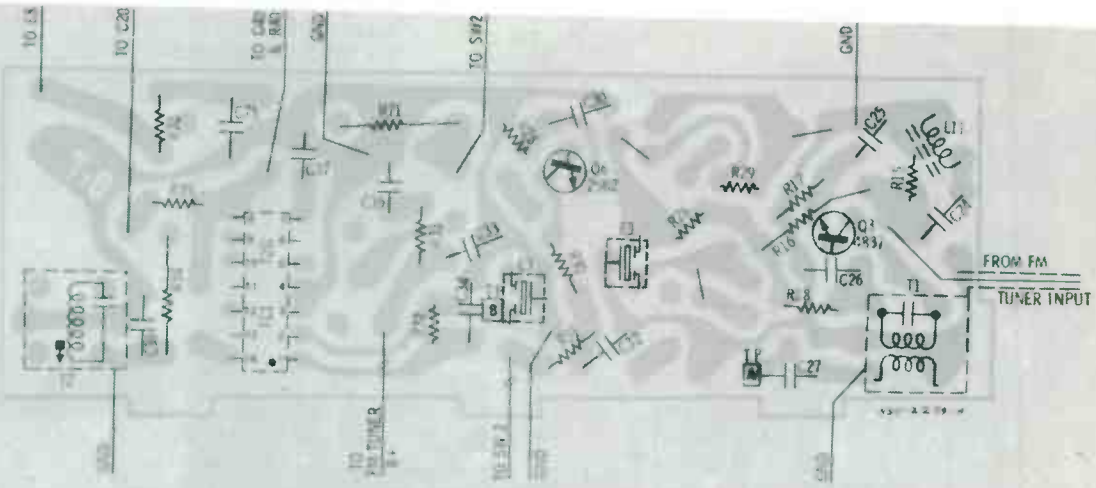
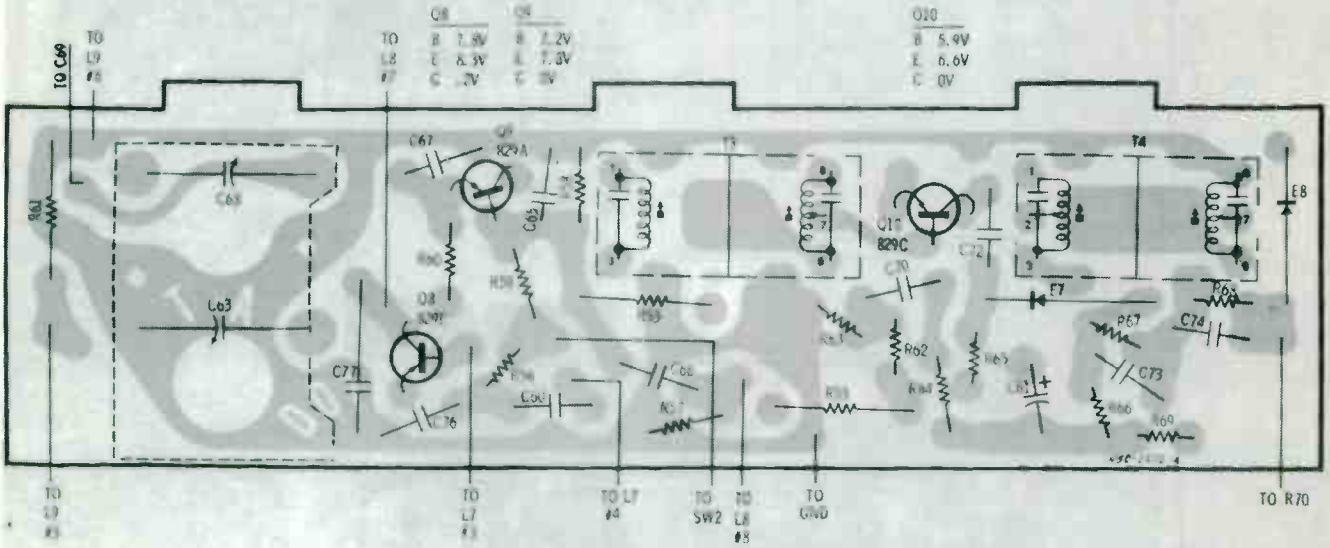
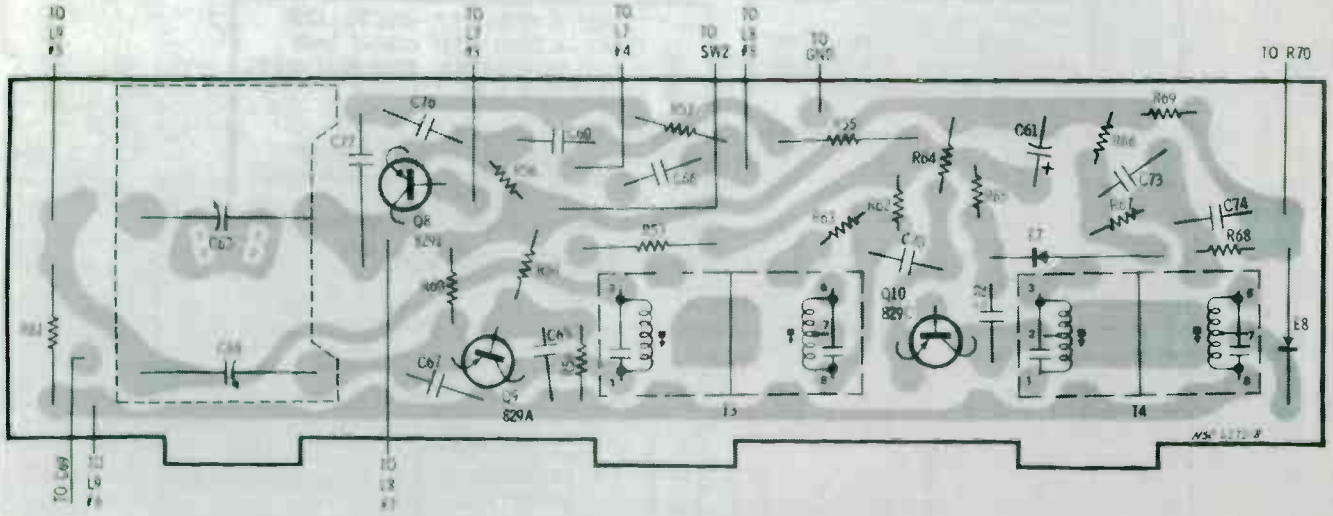


FIG. 7 - FM IF PLATED BOARD DIAGRAM (TOP VIEW - COMPONENT SIDE)



TOP VIEW - COMPONENT SIDE



BOTTOM VIEW - WIRING SIDE

AM RADIO PLATED BOARD DIAGRAM

IC1 T.C

PIN	VOLTS	PIN	VOLTS
1	1.8V	8	5.2V
2	2.0V	9	3.8V
3	0.0V	10	3.9V
4	0.0V	11	-
5	8.4V	12	-
6	-	13	-
7	-	14	-

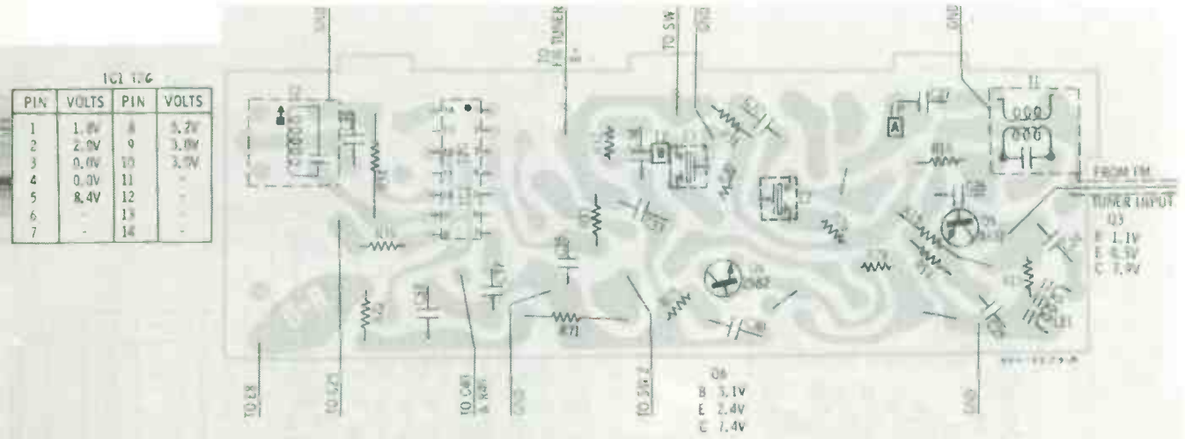
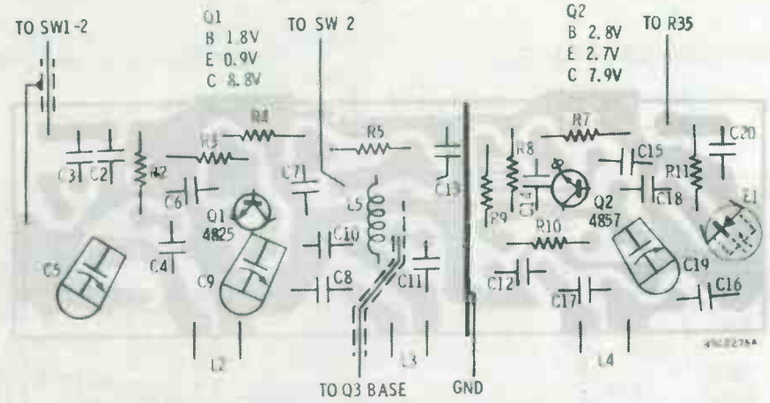
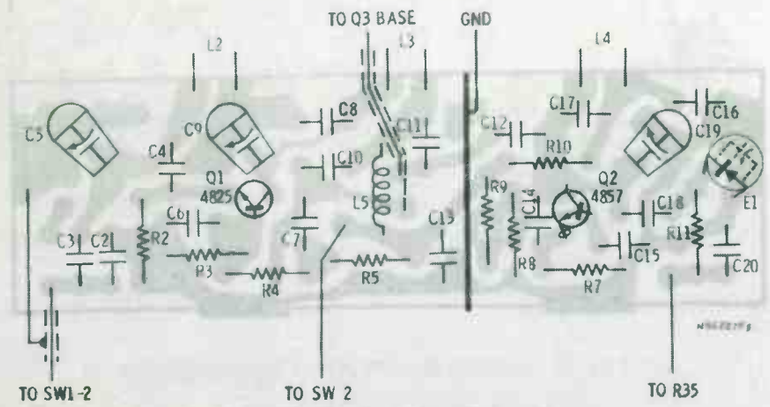


FIG. 7 - FM IF PLATED BOARD DIAGRAM (BOTTOM VIEW - WIRING SIDE)

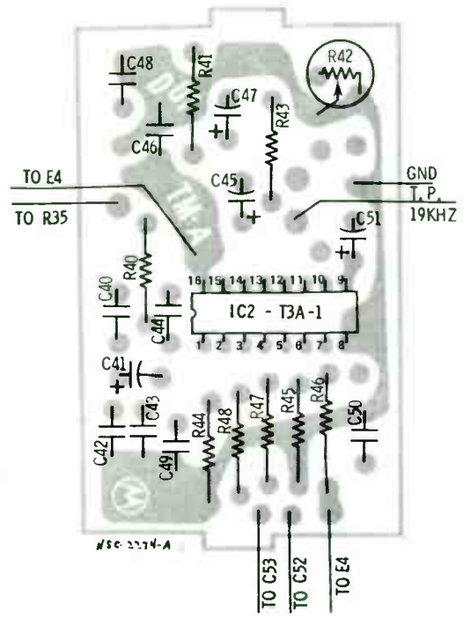


TOP VIEW - COMPONENT SIDE

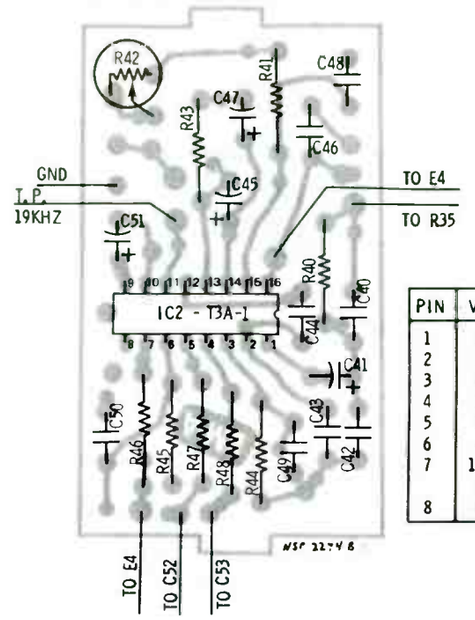


BOTTOM VIEW - WIRING SIDE

FM TUNER PLATED BOARD



TOP VIEW - COMPONENT SIDE

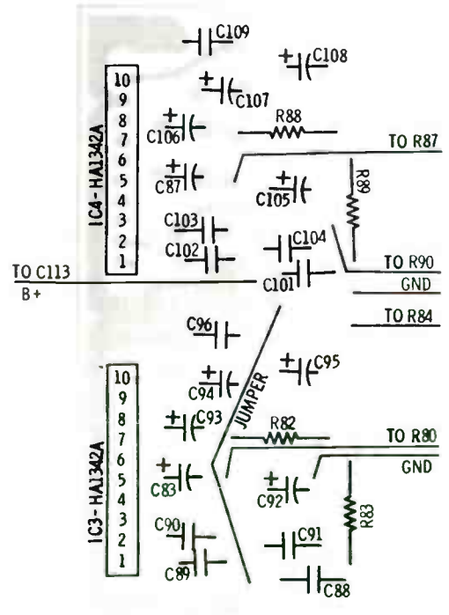


IC2

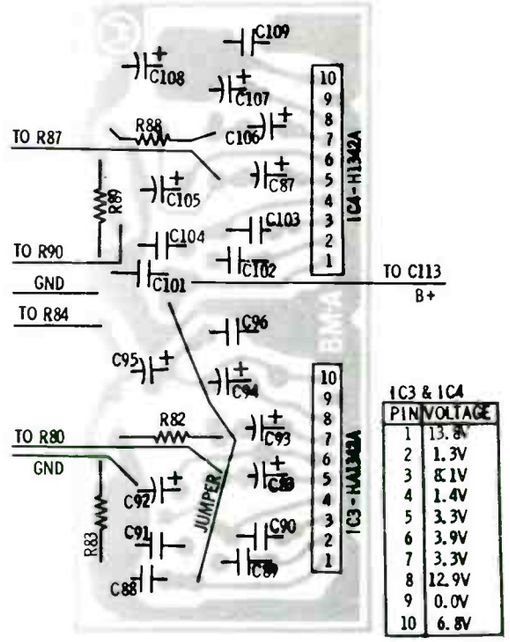
PIN	VOLTS	PIN	VOLTS
1	3.1	9	2.8
2	5.4	10	2.8
3	4.3	11	1.8
4	3.7	12	2.8
5	3.7	13	2.7
6	4.3	14	2.7
7	13.8/ 1.4	15	2.6
8	0	16	13.8

BOTTOM VIEW - WIRING SIDE

FIG. 10 - MPX PLATED BOARD DIAGRAM



TOP VIEW - COMPONENT SIDE



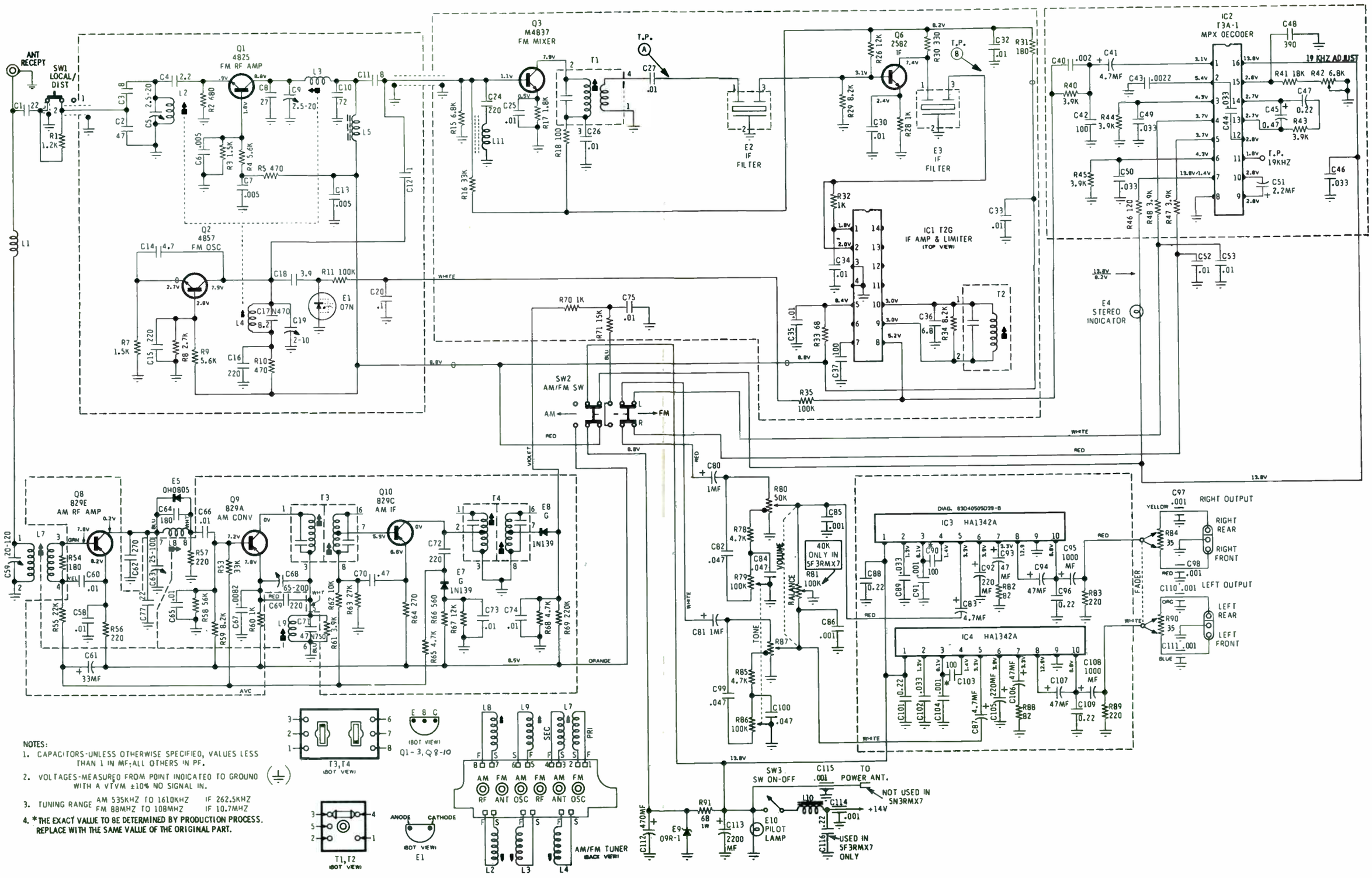
IC3 & IC4

PIN	VOLTAGE
1	13.8V
2	1.3V
3	8.1V
4	1.4V
5	3.3V
6	3.9V
7	3.3V
8	12.9V
9	0.0V
10	6.8V

BOTTOM VIEW - WIRING SIDE

FIG. 11 - AUDIO AMP PLATED BOARD DIAGRAM

Motorola 5C3RMX7, 5F3RMX7, 5N3RMX7



NOTES:

1. CAPACITORS-UNLESS OTHERWISE SPECIFIED, VALUES LESS THAN 1 IN MF; ALL OTHERS IN PF.
2. VOLTAGES-MEASURED FROM POINT INDICATED TO GROUND WITH A VTVM ±10% NO SIGNAL IN.
3. TUNING RANGE AM 535KHZ TO 1610KHZ IF 262.5KHZ
   FM 88MHZ TO 108MHZ IF 10.7MHZ
4. *THE EXACT VALUE TO BE DETERMINED BY PRODUCTION PROCESS. REPLACE WITH THE SAME VALUE OF THE ORIGINAL PART.

NOTE: ALL PARTS LISTED ARE RECOMMENDED REPLACEMENT PARTS

REF. NO.	PART NUMBER	DESCRIPTION
		ELECTRICAL PARTS
		CAPACITORS
C1	21-43539A17	22PF 10% 100V N150 disc
C2	21-43539A24	47PF 10% 100V disc
C3	21-43539A25	8PF 10% 100V NPO disc
C4	21-43539A14	2.2PF 10% 100V NPO disc
C5	20-40937D02	TRIMMER, VAR:FM ANT.(2.5-20PF)
C6,7	21-43538A43	.005MF 20% 100V Z5U disc
C8	21-43539A50	27PF 10% 100V disc
C9	20-40937D02	TRIMMER, VAR:FM RF.(2.5-20PF)
C10	21-40367A21	72PF 10% 100V mica
C11	21-43539A25	8PF 10% 100V NPO disc
C12	21-43539A16	1PF ±.25PF 100V NPO disc
C13	21-43538A43	.005MF 20% 100V Z5U disc
C14	21-43539A74	4.7PF ±.25PF 100V NPO disc
C15, 16	21-40367A07	220PF 5% 100V mica
C17	21-43539A67	8.2PF 5% 100V N470 disc
C18	21-135339	3.9PF ±.25PF 100V NPO disc
C19	20-40937D01	TRIMMER, VAR:FM OSC.(2-10PF)
C20	21-41680A20	.1MF 12V Y5T disc
C24	21-131477	220PF 10% 500V Y5F disc
C25-27	21-43538A62	.01MF 100V Y5U disc
C30	21-43538A62	.01MF 100V Y5U disc
C32-35	21-43538A62	.01MF 100V Y5U disc
C36	21-43539A36	6.8PF 10% 100V NPO disc
C37	21-43539A59	100PF 5% 100V N330 disc
C40	8-42208B24	.0022MF 10% 50V mylar
C41	23-10818A05	4.7MF 25V lytic
C42	21-43538A50	100PF 10% 100V Z5F
C43	8-42208B24	.0022MF 50V mylar
C44	8-42208B20	.033MF 20% 50V mylar
C45	*23-10818A01	.47MF 50V lytic
C46	8-42208B20	.033MF 20% 50V mylar
C47	23-10818A34	.22MF 50V lytic
C48	21-40367A33	390PF 5% 100V mica
C49,50	8-42208B20	.033MF 20% 50V mylar
C51	23-10818A03	2.2MF 50V lytic
C52,53	8-42208B06	.01MF 20% 50V mylar
C58	21-43538A42	.01MF 100V Z5U disc
C59	20-64065B05	TRIM.,VAR.MICA:AM ANT.(20-120)
C60	21-43538A42	.01MF 100V Z5U disc
C61	23-10818A09	33MF 16V lytic
C62	8-10226A57	270PF 5% 125V N150 poly
C63	20-64618A10	TRIMMER, DUAL:AM RF.(25-100PF)
C64	8-10226A60	180PF 5% 125V N150 poly
C65,66	8-41719B16	.01MF 10% 50V mylar
C67	8-41719B47	.0082MF 10% 50V mylar
C68	20-64618A10	TRIMMER, DUAL:AM OSC.(65-200PF)
C69	21-131477	220PF 10% 500V Y5F disc
C70	21-41680A21	.47MF 3V Y5S disc
C71	21-43539A33	47PF 10% 100V N750 disc
C72	8-10226A66	220PF 5% 630V N150 poly
C73,74	21-43538A42	.01MF 100V Z5U disc
C75	21-43538A62	.01MF 100V Y5U disc
C77	21-124554	22PF 5% 500V NPO disc
C80,81	23-10818A51	1MF 50V lytic
C82	8-42208B21	.047MF 20% 50V mylar
C83	23-10818A05	4.7MF 25V lytic
C84	8-42208B21	.047MF 20% 50V mylar
C85,86	8-42208B08	.001MF 20% 50V mylar
C87	23-10818A05	4.7MF 25V lytic
C88	8-42208B01	.22MF 10% 50V mylar
C89	8-42208B17	.033MF 10% 50V mylar
C90	21-43539A24	47PF 10% 100V N220 disc
C91	8-42208B08	.001MF 20% 50V mylar
C92	23-10818A14	220MF 6.3V lytic
C93,94	23-10818A10	47MF 10V lytic
C95	23-10818A16	1000MF 10V lytic
C96	8-42208B01	.22MF 10% 50V mylar
C97,98	21-560232	1000Pf 500V FEED-THRU
C99, 100	8-42208B21	.047MF 20% 50V mylar
C101	8-42208B01	.22MF 10% 50V mylar
C102	8-42208B17	.033MF 10% 50V mylar
C103	21-43539A24	47PF 10% 100V N220 disc
C104	8-42208B08	.001MF 20% 50V mylar
C105	23-10818A14	220MF 6.3V lytic
C106, 107	23-10818A10	47MF 10V lytic
C108	23-10818A16	1000MF 10V lytic
C109	8-42208B01	.22MF 10% 50V mylar
C110, 111	21-560232	1000PF 500V FEED-THRU
C112	23-10818A26	470MF 16V lytic
C113	*23-10818A31	2200MF 16V lytic
C114, 115	21-560232	1000PF 500V FEED-THRU
C116	8-42208B01	.22MF 10% 50V mylar(5F3RMX7)
		MISCELLANEOUS ELECTRICAL PARTS
E1	48-137487	DIODE, silicon D7N
E2,3	91-41457C01	FILTER, ceramic(use 91-43353A53) (repl as matched pairs only)
E4	65-139160	BULB, stereo ind.
E5	48-137573	DIODE, silicon: DHD805
E7,8	48-134587	DIODE IN139 (use 48-137495)
E9	48-137628	DIODE, silicon zener D9R-1
E10	65-134111	BULB, dial light(5C3RMX7, 5N3RMX7)
E10	65-138044	BULB, dial light(5F3RMX7)
		INTEGRATED CIRCUITS
IC1	51-10619A01	T2G IF amp & limiter
IC2	51-10711A01	T3A-1 MPX
IC3,4	51-10806A01	HA 1342A AUDIO POWER AMP
		COILS & CHOKES
L1	24-40788A16	CHOKE, antenna
L2-4	1-40750E97	COILS & mtg plate
L5	24-40788A08	COIL, RF
L7-9	1-40750E97	COILS & mtg plate
L10	25-40953D01	CHOKE, filter
L11	24-64003B04	COIL, IF TRAP
		TRANSISTORS
Q1	48-134825	4825 FM-RF
Q2	48-134857	4857 FM osc

REF. NO.	PART NUMBER	DESCRIPTION
		MISCELLANEOUS ELECTRICAL PARTS (cont)
Q3	48-134837	M4837 FM mixer
Q6	48-137351	25B2 FM IF
Q8	48-134914	829E AM RF amp
Q9	48-134830	829A AM conv.
Q10	48-134832	829C AM IF
		RESISTORS
		THOSE LISTED, 5% OR BETTER, ALSO UNIQUE VALUES. (REFER TO PL-76 FOR PART NO'S. OF OTHER VALUES.)
R41	6-10053A21	18K 5% 1/4W
R42	18-43556C04	CONTROL, 19KHZ adj.
R79,80 86,87	18-40792E03	CONTROL, multiple:vol 50K tone 100K incl's SW1 & SW3 (5C3RMX7)
R79,80 86,87	18-40792E05	CONTROL, multiple:vol 50K tone 100K incl's SW1 & SW3 (5F3RMX7)
R79,80 86,87	18-40792E01	CONTROL, multiple: vol 50K tone 100K incl's SW1 & SW3 (5N3RMX7)
R81	18-40302D02	CONTROL, balance 100K (5C3RMX7, 5N3RMX7)
R81	18-64358B07	CONTROL, balance 40K(5F3RMX7)
R84,90	18-40521E01	CONTROL, fader 35 ohm(5C3RMX7)
R84,90	18-40521E03	CONTROL, fader 35 ohm(5F3RMX7)
R84,90	18-40521E04	CONTROL, fader 35 ohm(5N3RMX7)
R91	* 6-10053F22	68 ohm 10% 1W
		SWITCHES
S1		SWITCH, local/distance: part of R79,80,86,87
S2	40-40098C01	SWITCH, AM/FM SELECTOR
S3		ON/OFF Part of R79,80,86,87
		TRANSFORMERS
T1	24-41713C03	FM IF
T2	24-40250D01	FM detector
T3	24-64670B01	1st AM IF
T4	24-64670B02	2nd AM IF
		MECHANICAL PARTS
	*45-40961D01	ARM actuating: AM/FM selector (5C3RMX7)
2	64-40966D01	BACKGROUND, dial scale (5C3RMX7)
3	*64-40851D01	BACKGROUND, dial scale (5F3RMX7)
4	64-40749D01	BACKGROUND, dial scale (5N3RMX7)
	84-40989D01	BOARD, plated:FM tuner less comp
	84-40996D01	BOARD, plated:Audio less comp
	84-40844D03	BOARD, plated: IF less comp
	84-40358D01	BOARD, plated: AM less comp
	*84-40993D01	BOARD, plated: MPX less comp
	* 7-40999D01	BRACKET, arm actuating (5F3RMX7)
	* 7-40964D01	BRACKET, arm support(5C3RMX7)
	*64-40853D01	BRACKET, background(5F3RMX7)
	* 7-40443D01	BRACKET, control mtg(5F3RMX7)
	7-40448D01	BRACKET, detent sw. AM/FM (5F3RMX7)
	*42-40972D01	BRACKET, MPX bulb (5F3RMX7,5N3RMX7)
	7-40534E02	BRACKET, radio mtg (5F3RMX7)
	43-40878D02	BUSHING, mtg (5C3RMX7)
	43-40878D01	BUSHING, mtg (5N3RMX7)
	43-10187A24	BUSHING, control mtg(5N3RMX7)
	*38-40960D01	BUTTON, bandswitch: AM/FM selector(5C3RMX7)
	38-40405D02	BUTTON, bandswitch: AM/FM selector (5F3RMX7)
	38-40259D02	BUTTON, bandswitch: AM/FM selector (5N3RMX7)
11	30-40006D03	CABLE "A" lead (5C3RMX7)
12	30-43082A30	CABLE "A" lead (5F3RMX7)
13	30-544945	CABLE "A" lead (5N3RMX7)
14	30-41006D01	CABLE, power ant. (5C3RMX7,5F3RMX7)
15	30-40301D05	CABLE, speaker: 3 way conn R side
16	30-40301D06	CABLE, speaker: 3 way conn L side
	*42-10270A89	CLIP, jumper P.C. board
	*41-40973D01	CLIP, rubber MPX bulb ret (5F3RMX7,5N3RMX7)
17	49-42607B02	CLUTCH, disc: incl set scrw
	76-40553B26	CORE, tuning:AM ant & RF
	76-40533B08	CORE, tuning: AM osc
	76-43567B01	CORE, tuning: FM ant
	76-43567B31	CORE, tuning: FM osc
	76-43567B30	CORE, tuning: FM RF
	*15-40746D03	COVER, top & bottom
	61-41463C05	DIFFUSER, dial light (5C3RMX7,5N3RMX7)
	61-40640D01	DIFFUSER, dial light(5F3RMX7)
19	*13-40956D01	ESCUTCHEON, trim: less dial scale & sel button(5C3RMX7)
20	* 1-40398D09	ESCUTCHEON, trim: incl dial scale (5F3RMX7)
21	*13-40867D03	ESCUTCHEON, trim: less dial scale & sel button(5N3RMX7)
22	76-544401	FERRITE, bead
23	44-41442C11	GEAR, crown: incl bushing and disc (5C3RMX7)
24	44-41442C07	GEAR, crown: incl bushing and disc (5F3RMX7)
25	44-41442C12	GEAR, crown: incl bushing and disc (5N3RMX7)
26	47-43767C02	GEAR, pinion (5F3RMX7)
	5-10115A28	GROMMET, retainer: MPX bulb (5C3RMX7)
	5-43388B01	GROMMET, coil mtg
	*36-40404D01	KNOB, balance (5F3RMX7)
26B	13-40051D01	MASK, dial (5N3RMX7)
	2-2879	NUT, hex 7/16-28 control mtg
	2-121771	NUT, hex 3/8-32 control mtg (5F3RMX7)

3. ADJUSTMENT

3.1 FM IF ADJUSTMENT

• **Connection Diagram**

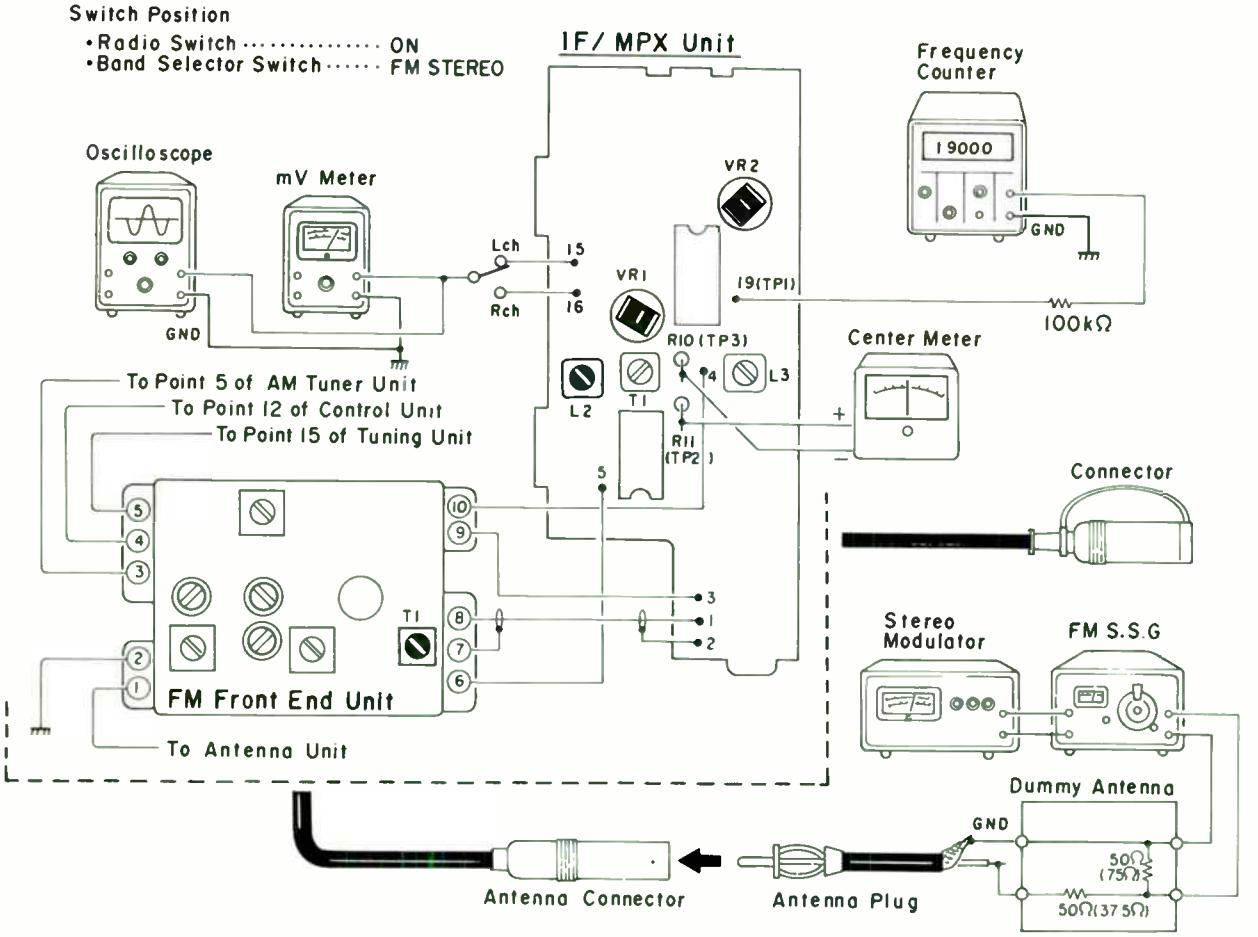


Fig. 10

To Adjust

. Add output signal of zero from SSG and adjust L2 (yellow color) so that the pointer of center meter (use one graduated for over 200μA) will come to the center, when using an DC volt ammeter (use one graduater for over 200μA), set the pointer to 0.
. Add output signal of 98 MHz 60 dB from SSG, multi-signal of modulated frequency 1,000 Hz of stereo modulator and tune to 98 MHz on the dial (the pointer of the center meter is at the center).
3. Adjust T1 (FM Front End Unit) so that separated signal will be minimal in its distotion factor.
4. Check if the distortion factor is minimal, and when the adjustment is found imperfect, adjust L2 (yellow color).

NOTE:
When adjusting, do not move T1 and L3 of IF/MPX Unit.

3.2 FM TRACKING ADJUSTMENT

• Connection Diagram

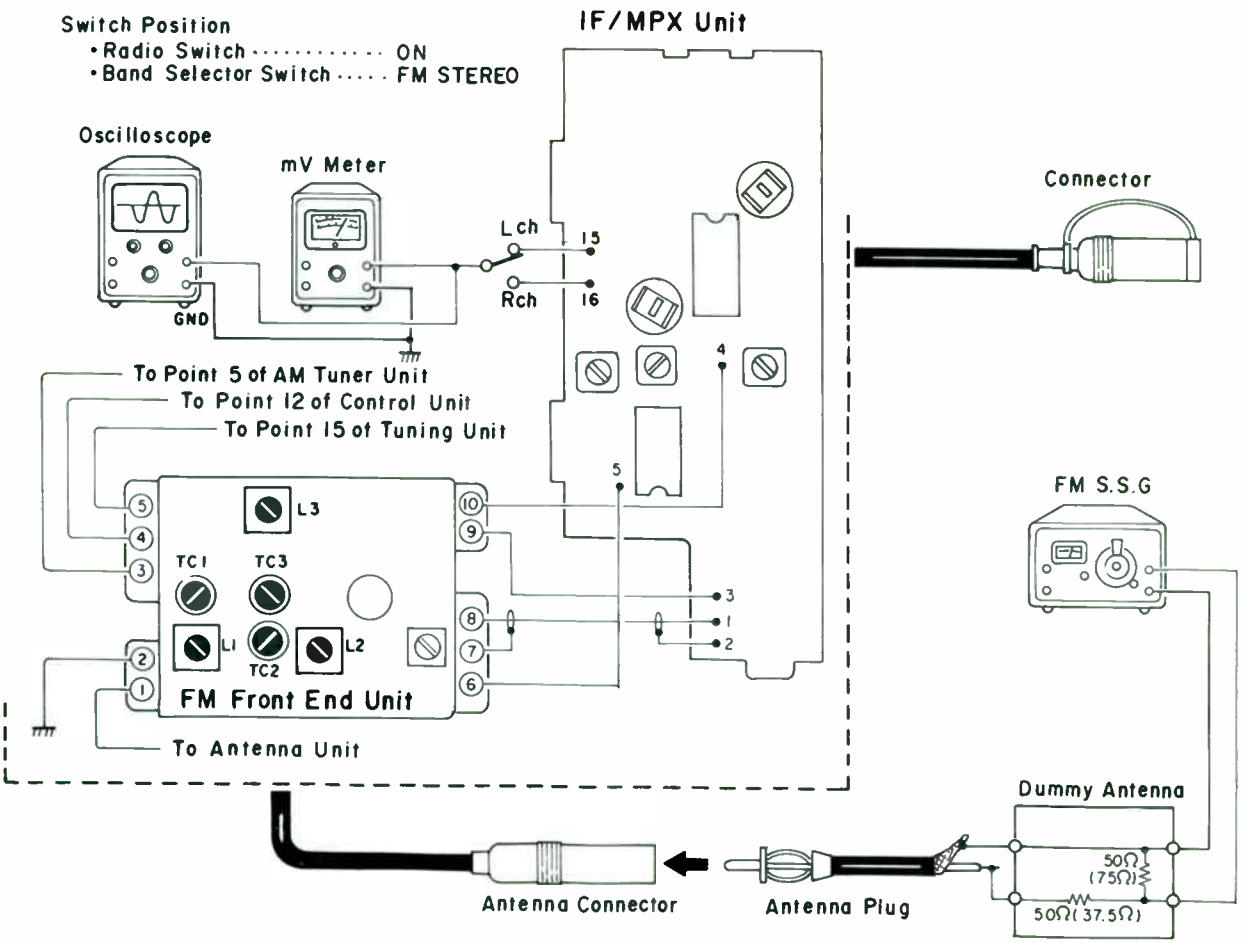


Fig. 11

• To Adjust

SSG Frequency	Pointer Position	Adjustment Point	Note
1. 87.0MHz (400Hz, 100% modulation), output level 8dB (μV)	Minimum	L3	87.0MHz can be received
2. 109.0MHz (400Hz, 100% modulation), output level 8dB (μV)	Maximum	TC3	109.0MHz can be received
3. Repeat items (1) and (2) alternately so that broadcast can be received at the frequency between 87.0MHz and 109.0MHz.			
4. 90MHz (400Hz, 100% modulation), output level 5dB (μV)	Tuned position	L1, L2	Maximum output
5. 106MHz (400Hz, 100% modulation), output level 5dB (μV)	Tuned position	TC1, TC3	Maximum output
6. Repeat items (4) and (5) alternately so that the mV meter indicates maximum output.			

3.3 AM IF ADJUSTMENT

• Connection Diagram

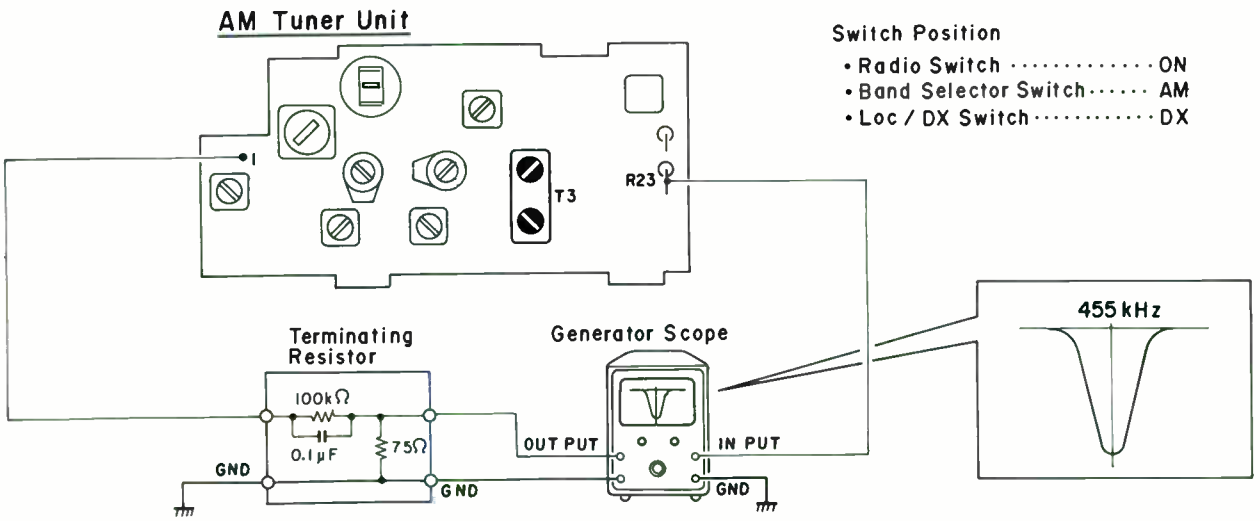


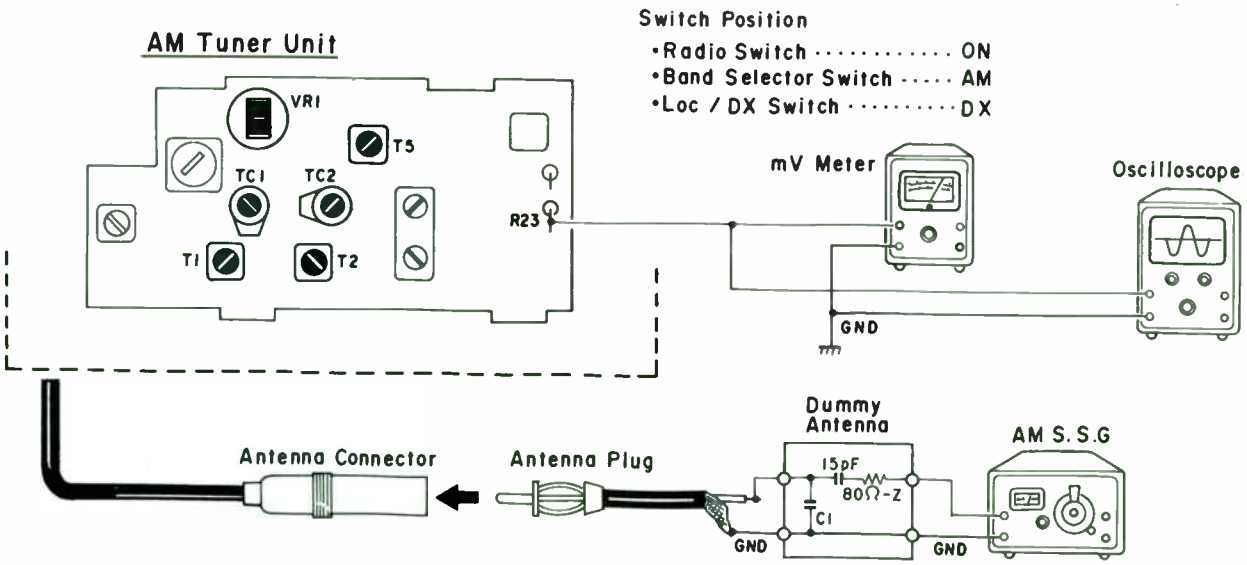
Fig. 12

• To Adjust

1. Set Generator Scope as follows:
   Frequency centering on sweep 455kHz
   Input level. 0.3Vp-p/cm
   Output level ..... 3mV∿10mV
2. Tune to a nearby 1,600kHz station.
3. Turn the cores (red and blue) of T3 and adjust so that U-curve will be at maximum amplitude and best symmetry.

3.4 AM TRACKING ADJUSTMENT

• Connection Diagram



NOTICE:
Select C1 so that total capacity of 80pF is attained from t
direction of the receiver jack.
Z: Output impedance of the S.S.G.

Fig.

• To Adjust

SSG Frequency	Pointer Position	Adjustment Point	Note
1. 1,660kHz (400Hz, 30% modulation), output level 30dB (μV)	Maximum	T5	1,660kHz can be received
2. 515kHz (400Hz, 30% modulation), output level 30dB (μV)	Minimum	VR1	515kHz can be recieved
3. 1,400kHz (400Hz, 30% modulation), output level 30dB (μV)	Tune to 1,400kHz	TC1, TC2	mV meter at maximum
4. 600kHz (400Hz, 30% modulation), output level 30dB (μV)	Tune to 600kHz	T1, T2	
5. Repeat items (3) and (4) alternately so that the mV meter indicates maximum output.			

3.5 TUNING VOLTAGE ADJUSTMENT

- **Connection Diagram**

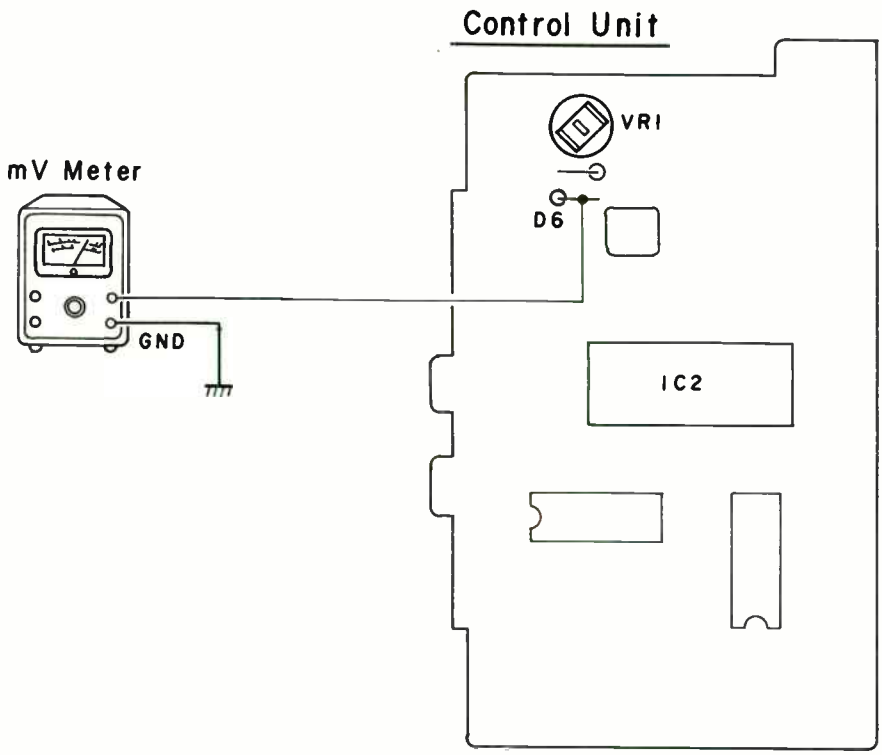


Fig. 14

- **To Adjust**

Turn the tuning knob so that LED No. 16 from the left on the dial is illuminated. Adjust VR1 to obtain a 9.4V reading on the mV meter.

• Parts Connection

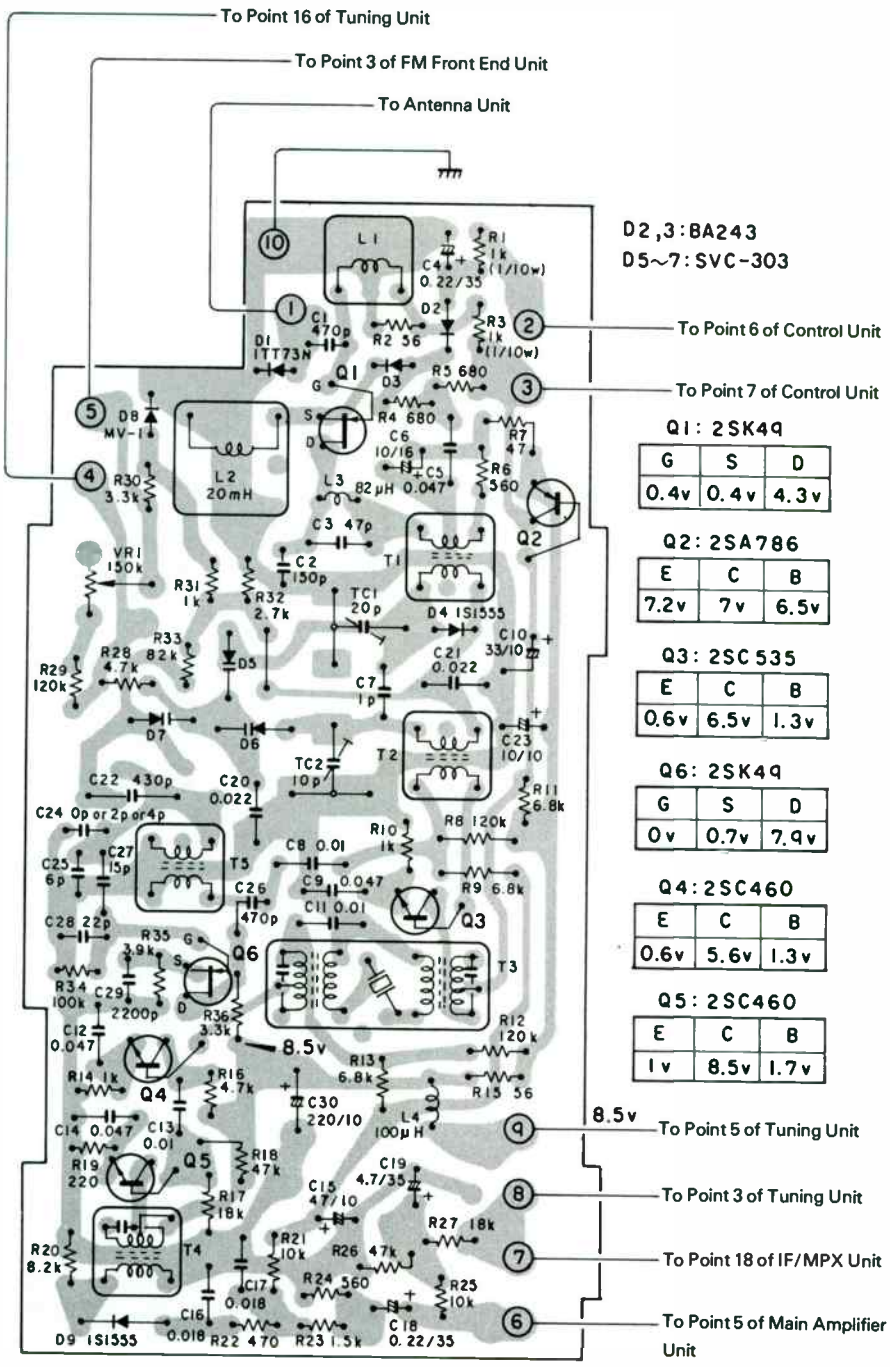


Fig. 16

AM TUNER UNIT (CWE-225)

• **Parts List**

NOTICE: Of the descriptive symbols of the resistor and capacitor, the encircled alphabetic letter denotes the allowable error.

Example: RD1/4VS100 Ⓙ C: ±0.25pF F: ±1pF J: ±5% M: ±20% Z: $^{+80}_{-20}$%

CEA100 Ⓟ 25 D: ±0.5pF G: ±2% K: ±10% X: $^{+40}_{-20}$% P: $^{+100}_{-10}$%

MISCELLANEOUS

Ref. Key	Parts No.	Description
Q1	2SK49-H2	FET
Q2	2SA786-R	Transistor
Q3	2SC535-B	Transistor
Q4,5	2SC460-B	Transistor
Q6	2SK49-H1	FET
D1	ITT73N	Diode
D2,3	BA243	Diode
D4	1S1555	Diode
D5∿7	SVC-303Q-P1 or	Diode
	SVC-303R-P1 or	Diode
	SVC-303S-P1	Diode
D8	MV-1	Diode
D9	1S1555	Diode
TC1	C43-607	Ceramic Trimmer, 20pF
TC2	CCG-008	Ceramic Trimmer, 10pF
L1	CTC-058	Coil
L2	CTH-049	Coil, 20mH
L3	CTF-084	Ferri-Inductor, 82μH
L4	T24-030	Ferri-Inductor, 100μH
T1	CTB-051	RF Coil
T2	CTB-052	RF Coil
T3	CTE-037	IF Transformer
T4	CTE-038	IF Transformer
T5	CTB-053	OSC Coil
VR1	CCP-052	Volume, 150kΩ

CAPACITORS

Ref. Key	Parts No.	Description		
C1	CKDYB471K50	Capacitor	470pF	50V
C2	CKDYB151K50	Capacitor	150pF	50V
C3	CCDSL470K50	Capacitor	47pF	50V
C4	CSZAR22M35	Capacitor	0.22μF	35V
C5	CKDBC473M25	Capacitor	0.047μF	25V
C6	CEA100P16	Capacitor	10μF	16V
C7	CCDSL010C50	Capacitor	1pF	50V
C8	CKDYD103M50	Capacitor	0.01μF	50V
C9	CKDBC473M25	Capacitor	0.047μF	25V
C10	CEA330P10	Capacitor	33μF	10V
C11	CKDYF103Z25	Capacitor	0.01μF	25V
C12	CKDBC473M25	Capacitor	0.047μF	25V
C13	CKDYF103Z25	Capacitor	0.01μF	25V
C14	CKDBC473M25	Capacitor	0.047μF	25V
C15	CEA470P10	Capacitor	47μF	10V
C16,17	CQMA183M50	Capacitor	0.018μF	50V
C18	CSZAR22M35	Capacitor	0.22μF	35V
C19	CEA4R7P35	Capacitor	4.7μF	35V
C20,21	CQMA223K50	Capacitor	0.022μF	50V
C22	CCG-033	Capacitor	430pF	
C23	CSZA100M10	Capacitor	10μF	10V
C24	CCDCH040C50or	Capacitor	4pF	50V
	CCDCH020C50	Capacitor	2pF	50V
C25	CCDUJ060D50	Capacitor	6pF	50V
C26	CKDYB471K50	Capacitor	470pF	50V
C27	CCDVK150J50	Capacitor	15pF	50V
C28	CCDVK220J50	Capacitor	22pF	50V
C29	CKDYB222K50	Capacitor	2200pF	50V
C30	CCH-028	Capacitor	220μF	10V

Caution:
Diodes D5∿D7 and capacitor C24 used mutually in the following assembly.

D5∿D7	C24
SVC-303Q-P1	CCDCH040C50 4pF
SVC-303R-P1	CCDCH020C50 2pF
SVC-303S-P1	Non Capacitance

6. FM FRONT END UNIT (CWB-059)

• Parts Connection

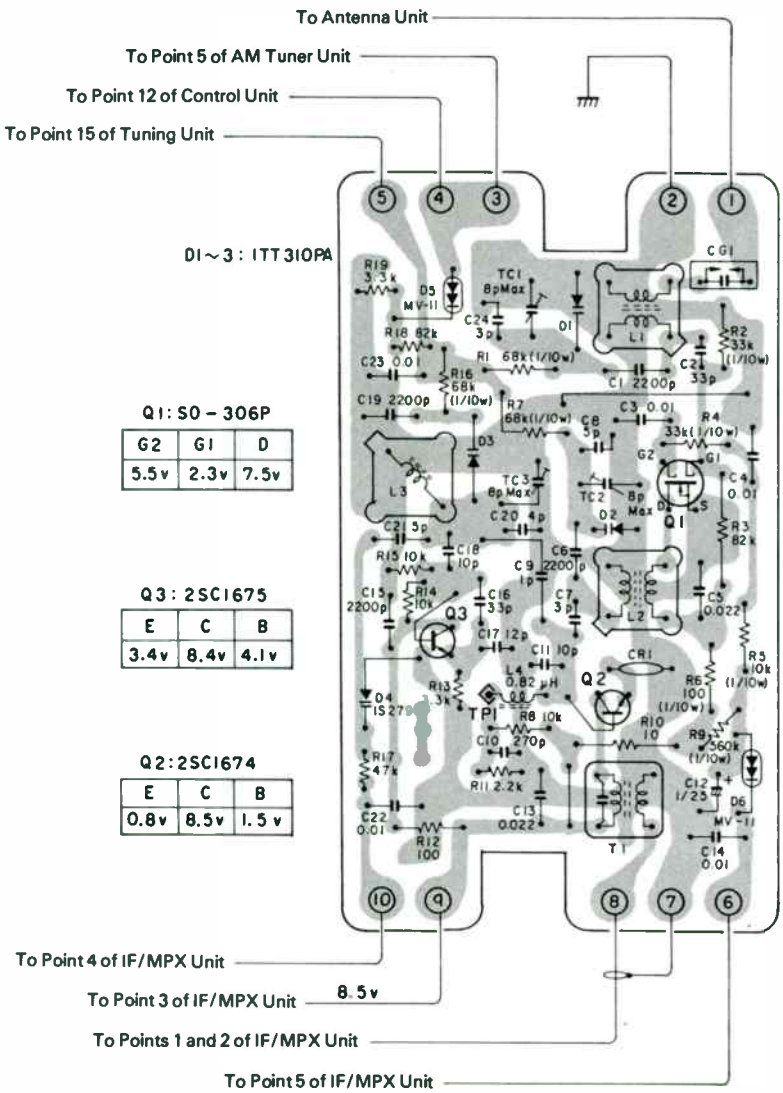


Fig. 17

• Parts List

MISCELLANEOUS

Ref. Key	Parts No.	Description
Q1	SD-306P	FET
Q2	2SC1674-L,K	Transistor
Q3	2SC1675-M	Transistor
D1~3	ITT310PA	Diode
D4	1S2790	Diode
D5, 6	MV-11	Diode
TC1~3	CCG-034	Trimmer Capacitor, 8pF
L1, 2	CTC-092	Coil
L3	CTC-093	Coil
L4	CTF-015	Ferri-Inductor, 0.82μH
T1	CTC-043	IF Transformer
CG1	CCL-068	Capacitor
CR1	CCX-001	Multiple Components

• **Parts List**

MISCELLANEOUS

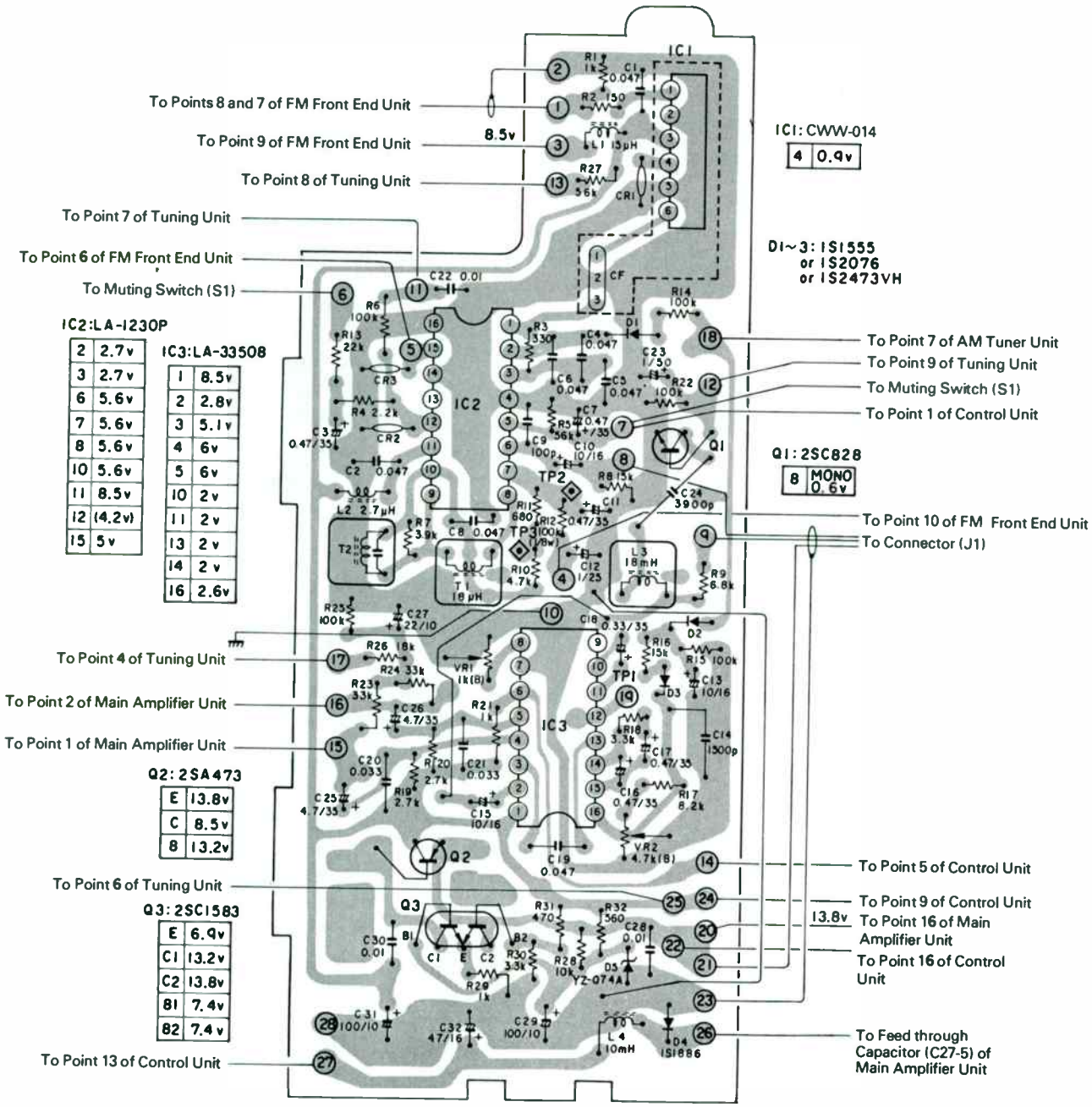
Ref. Key	Parts No.	Description
IC1	CWW-014	IC and Ceramic Filter
IC2	LA-1230P	IC
IC3	LA-3350B	IC
Q1	2SC828-Q,R	Transistor
Q2	2SA473-O	Transistor
Q3	2SC1583-F,G	Transistor
D1∿3	1S1555 or	Diode
	1S2076 or	Diode
	1S2473VH	Diode
D4	1S1886	Diode
D5	YZ-074A	Diode
L1	CTF-016 or	Ferri-Inductor, 15μH
	CTF-078	Ferri-Inductor, 15μH
L2	CTF-065 or	Ferri-Inductor, 2.7μH
	CTF-076	Ferri-Inductor, 2.7μH
L3	CTC-057 or	Coil, 18mH
	CTC-058	Coil, 18mH
L4	CTC-096	Inductor, 10mH
T1	CTC-090	IF Transformer, 18μH
T2	CTC-091	IF Transformer, 18μH
VR1	C92-617	Volume, 1kΩ (B)
VR2	C92-618	Volume, 4.7kΩ (B)
CR1	CWW-026	Multiple Components
CR2	CWW-033	Multiple Components
CR3	CWW-032	Multiple Components

CAPACITORS

Ref. Key	Parts No.	Description		
C1	CKDYA222K50	Capacitor	2200pF	50V
C2	CCDSL330J50	Capacitor	33pF	50V
C3,4	CKDYF103Z25	Capacitor	0.01μF	25V
C5	CKDYF223Z25	Capacitor	0.022μF	25V
C6	CKDYA222K50	Capacitor	2200pF	50V
C7	CCDCH030D50	Capacitor	3pF	50V
C8	CCDSH050D50	Capacitor	5pF	50V
C9	CGB010K500	Capacitor	1pF	500V
C10	CKDYB271K50	Capacitor	270pF	50V
C11	CCDCH100F50	Capacitor	10pF	50V
C12	CSZA010M25	Capacitor	1μF	25V
C13	CKDYF223Z25	Capacitor	0.022μF	25V
C14	CKDYF103Z25	Capacitor	0.01μF	25V
C15	CKDYA222K50	Capacitor	2200pF	50V
C16	CCDSH330J50	Capacitor	33pF	50V
C17	CCDTH120J50	Capacitor	12pF	50V
C18	CCDRH100F50	Capacitor	10pF	50V
C19	CKDYA222K50	Capacitor	2200pF	50V
C20	CCDRH040D50	Capacitor	4pF	50V
C21	CCDTH050D50	Capacitor	5pF	50V
C22,23	CKDYF103Z25	Capacitor	0.01μF	25V
C24	CCDSH030D50	Capacitor	3pF	50V

7. IF/MPX UNIT (CWE-229)

• Parts Connection



IF/MPX UNIT (CWE-229)

CAPACITORS

Ref. Key	Parts No.	Description		
C1,2	CKDBC473M25	Capacitor	0.047μF	25V
C3	CSZAR47M35	Capacitor	0.47μF	35V
C4~6	CKDBC473M25	Capacitor	0.047μF	25V
C7	CSZAR47M35	Capacitor	0.47μF	35V
C8	CKDBC473M25	Capacitor	0.047μF	25V
C9	CCDSL101K50	Capacitor	100pF	50V
C10	CEA100P16	Capacitor	10μF	16V
C11	CSZAR47M35	Capacitor	0.47μF	35V
C12	CSZA010M25	Capacitor	1μF	25V
C13	CEA100P16	Capacitor	10μF	16V
C14	CQSA152J50	Capacitor	1500pF	50V
C15	CEA100P16	Capacitor	10μF	16V
C16,17	CSZAR47M35	Capacitor	0.47μF	35V
C18	CSZAR33M35	Capacitor	0.33μF	35V
C19	CQMA473K50	Capacitor	0.047μF	50V
C20,21	CQMA333K50	Capacitor	0.033μF	50V
C22	CKDYF103Z25	Capacitor	0.01μF	25V
C23	CEA010P50	Capacitor	1μF	50V
C24	CQSA392J50	Capacitor	3900pF	50V
C25,26	CEA4R7P35	Capacitor	4.7μF	35V
C27	CEA220P10	Capacitor	22μF	10V
C28	CKDBC103M25	Capacitor	0.01μF	25V
C29	CEA101P10	Capacitor	100μF	10V
C30	CKDBC103M25	Capacitor	0.01μF	25V
C31	CEA101P10	Capacitor	100μF	10V
C32	CEA470P16	Capacitor	47μF	16V

8. TUNING UNIT

• Parts Connection

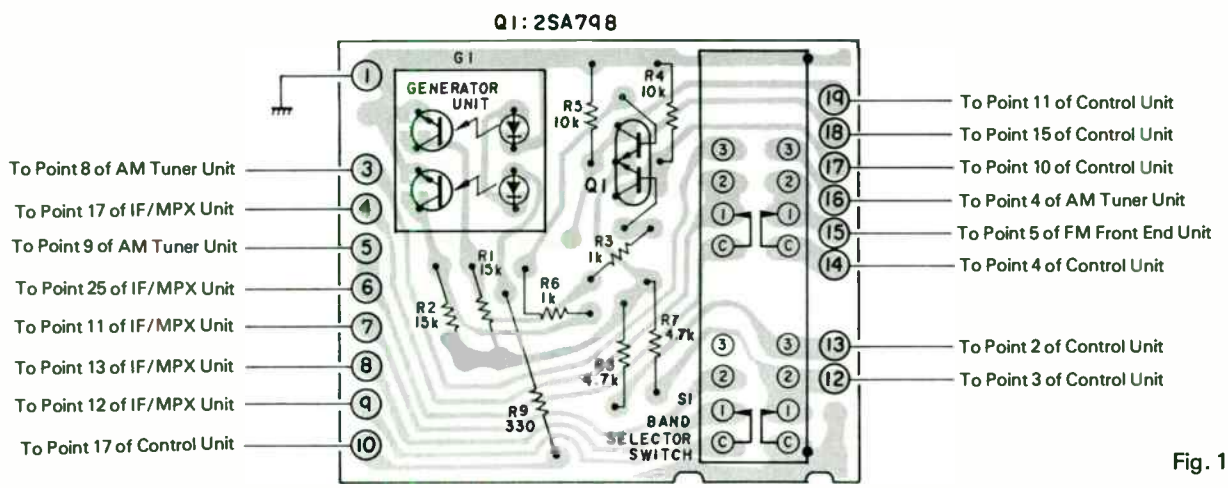


Fig. 19

• Parts List

Ref. Key	Parts No.	Description		
Q1	2SA798-G	Transistor		
S1	CSD-013	Switch		
R1,2	CCN-047	Resistor	15kΩ	1/10W
R3	CCN-031	Resistor	1kΩ	1/10W
R4,5	CCN-007	Resistor	10kΩ	1/10W
R6	CCN-031	Resistor	1kΩ	1/10W
R7,8	CCN-014	Resistor	4.7kΩ	1/10W
R9	RD1/4PS331J	Resistor	330Ω	1/4W
G1	CXB-673	Generator Unit		

• **Parts Connection**

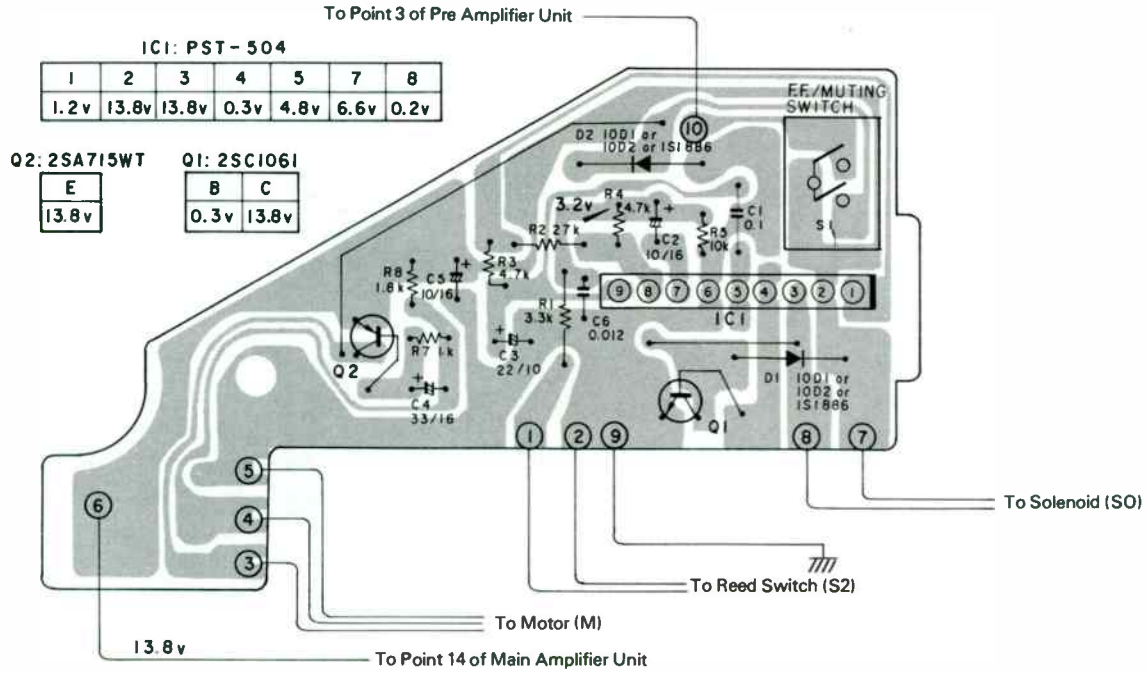


Fig. 20

• **Parts List**

MISCELLANEOUS

Ref. Key	Parts No.	Description
IC1	PST-504	IC
Q1	2SC1061-B,C,D	Transistor
Q2	2SA715WT-B,C,D	Transistor
D1,2	10D1 or	Diode
	10D2 or	Diode
	1S1886	Diode
S1	CSN-047	Switch

RESISTORS

Ref. Key	Parts No.	Description		
R1	RD1/4VS332J	Resistor	3.3kΩ	1/4W
R2	RD1/4VS273J	Resistor	27kΩ	1/4W
R3,4	RD1/4VS472J	Resistor	4.7kΩ	1/4W
R5	RE1/4VS103J	Resistor	10kΩ	1/4W
R6	VACANT			
R7	RD1/4VS102J	Resistor	1kΩ	1/4W
R8	RD1/4VS182J	Resistor	1.8kΩ	1/4W

CAPACITORS

Ref. Key	Parts No.	Description		
C1	CCG-005	Capacitor	0.1μF	
C2	CEA100P16	Capacitor	10μF	16V
C3	CEA220P10	Capacitor	22μF	10V
C4	CEA330P16	Capacitor	33μF	16V
C5	CEA100P16	Capacitor	10μF	16V
C6	CQMA123M50	Capacitor	0.012μF	50V

10. CONTROL UNIT

• Parts Connection

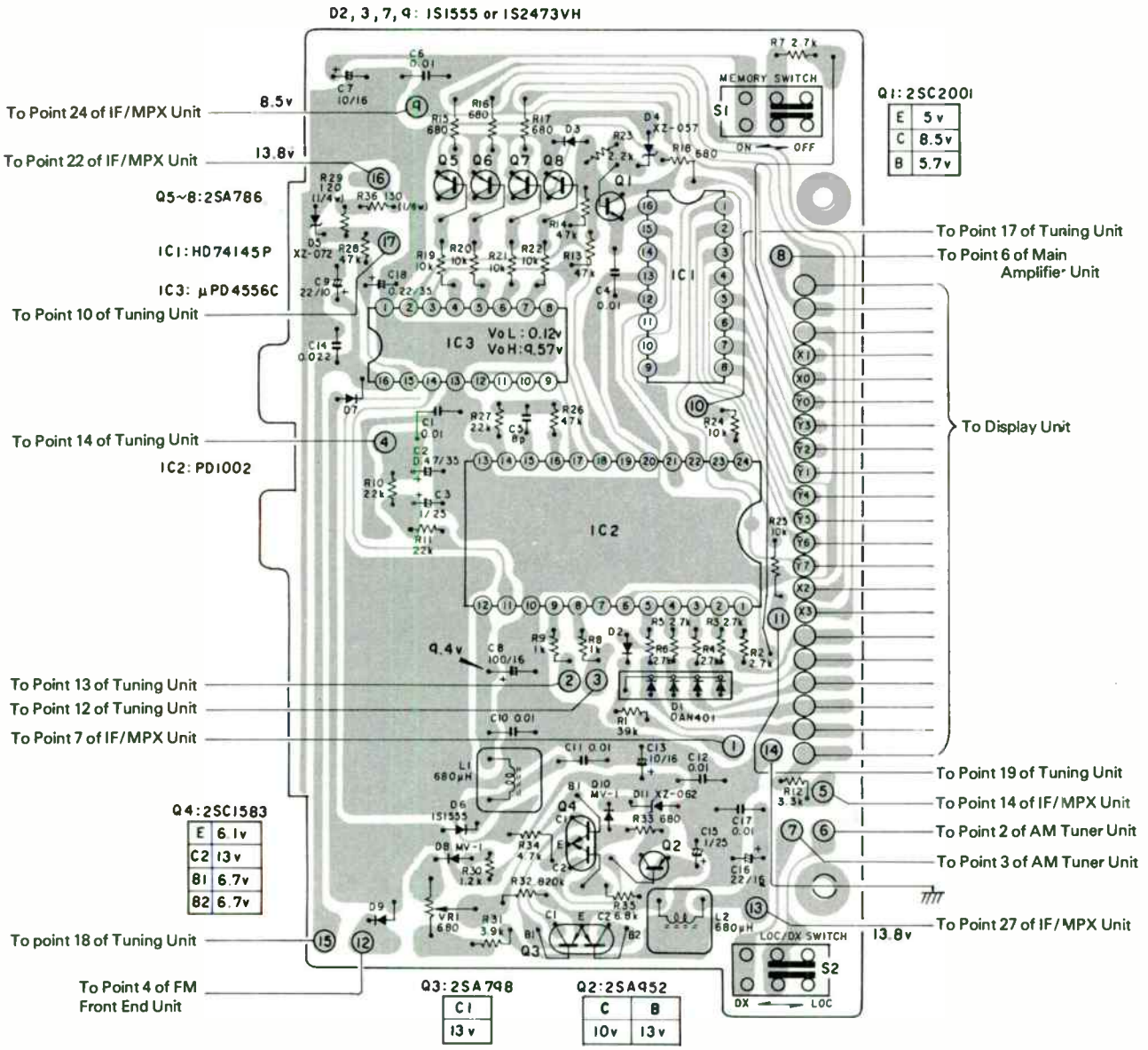


Fig. 21

• Parts List

MISCELLANEOUS

Ref. Key	Parts No.	Description
IC1	HD74145P	IC
IC2	PD1002	IC
IC3	μPD4556C	IC
Q1	2SC2001-L,M	Transistor
Q2	2SA952-L,M	Transistor
Q3	2SA798-F,G	Transistor
Q4	2SC1583-F,G	Transistor
Q5~8	2SA786-Q,R	Transistor
D1	DAN401	Diode Array
D2,3	1S1555 or	Diode

Ref. Key	Parts No.	Description
	1S2473VH	Diode
D4	XZ-057	Diode
D5	XZ-072	Diode
D6	1S1555	Diode
D7	1S1555 or	Diode
	1S2473VH	Diode
D8	MV-1	Diode
D9	1S1555 or	Diode
	1S2473VH	Diode
D10	MV-1	Diode

Ref. Key	Parts No.	Description
D11	XZ-062	Diode
S1	CSG-102	Switch
S2	CSG-100	Switch
L1,2	CTC-094	Coil, 680μH
VR1	CCP-051	Volume, 680Ω

RESISTORS

Ref. Key	Parts No.	Description		
R1	RD1/8VS393J	Resistor	39kΩ	1/8W
R2~7	RD1/8VS272J	Resistor	2.7kΩ	1/8W
R8,9	RD1/8VS102J	Resistor	1kΩ	1/8W
R10,11	CCN-036	Resistor	22kΩ	1/4W
R12	RD1/8VS332J	Resistor	3.3kΩ	1/8W
R13,14	RD1/8VS473J	Resistor	47kΩ	1/8W
R15~18	RD1/8VS681J	Resistor	680Ω	1/8W
R19~22	RD1/8VS103J	Resistor	10kΩ	1/8W
R23	RD1/8VS222J	Resistor	2.2kΩ	1/8W
R24,25	RD1/8VS103J	Resistor	10kΩ	1/8W
R26	RD1/8VS473J	Resistor	47kΩ	1/8W
R27	RD1/8VS223J	Resistor	22kΩ	1/8W
R28	RD1/8VS473J	Resistor	47kΩ	1/8W
R29	RD1/4PS121J	Resistor	120Ω	1/4W
R30	CCN-034	Resistor	1.2kΩ	1/4W

Ref. Key	Parts No.	Description		
R31	CCN-035	Resistor	3.9kΩ	1/4W
R32	RD1/8VS824J	Resistor	820kΩ	1/8W
R33	RD1/8VS681J	Resistor	680Ω	1/8W
R34	RD1/8VS472J	Resistor	4.7kΩ	1/8W
R35	RD1/8VS682J	Resistor	6.8kΩ	1/8W
R36	RD1/4PS151J	Resistor	150Ω	1/4W

CAPACITORS

Ref. Key	Parts No.	Description		
C1	CKDYD103M50	Capacitor	0.01μF	50V
C2	CSZAR47K35	Capacitor	0.47μF	35V
C3	CSZA010K25	Capacitor	1μF	25V
C4	CKDYD103M50	Capacitor	0.01μF	50V
C5	CCDCH080D50	Capacitor	8pF	50V
C6	CKDYD103M50	Capacitor	0.01μF	50V
C7	CSZA100K16	Capacitor	10μF	16V
C8	CEA101P16	Capacitor	100μF	16V
C9	CSZA220K10	Capacitor	22μF	10V
C10~12	CKDYD103M50	Capacitor	0.01μF	50V

Ref. Key	Parts No.	Description		
C13	CSZA100K16	Capacitor	10μF	16V
C14	CKDYF223Z25	Capacitor	0.022μF	25V
C15	CSZA010K25	Capacitor	1μF	25V
C16	CEA220P16	Capacitor	22μF	16V
C17	CKDYD103M50	Capacitor	0.01μF	50V
C18	CSZAR22K35	Capacitor	0.22μF	35V

11. MAIN AMPLIFIER UNIT (CWH-063)

- **Parts Connection**

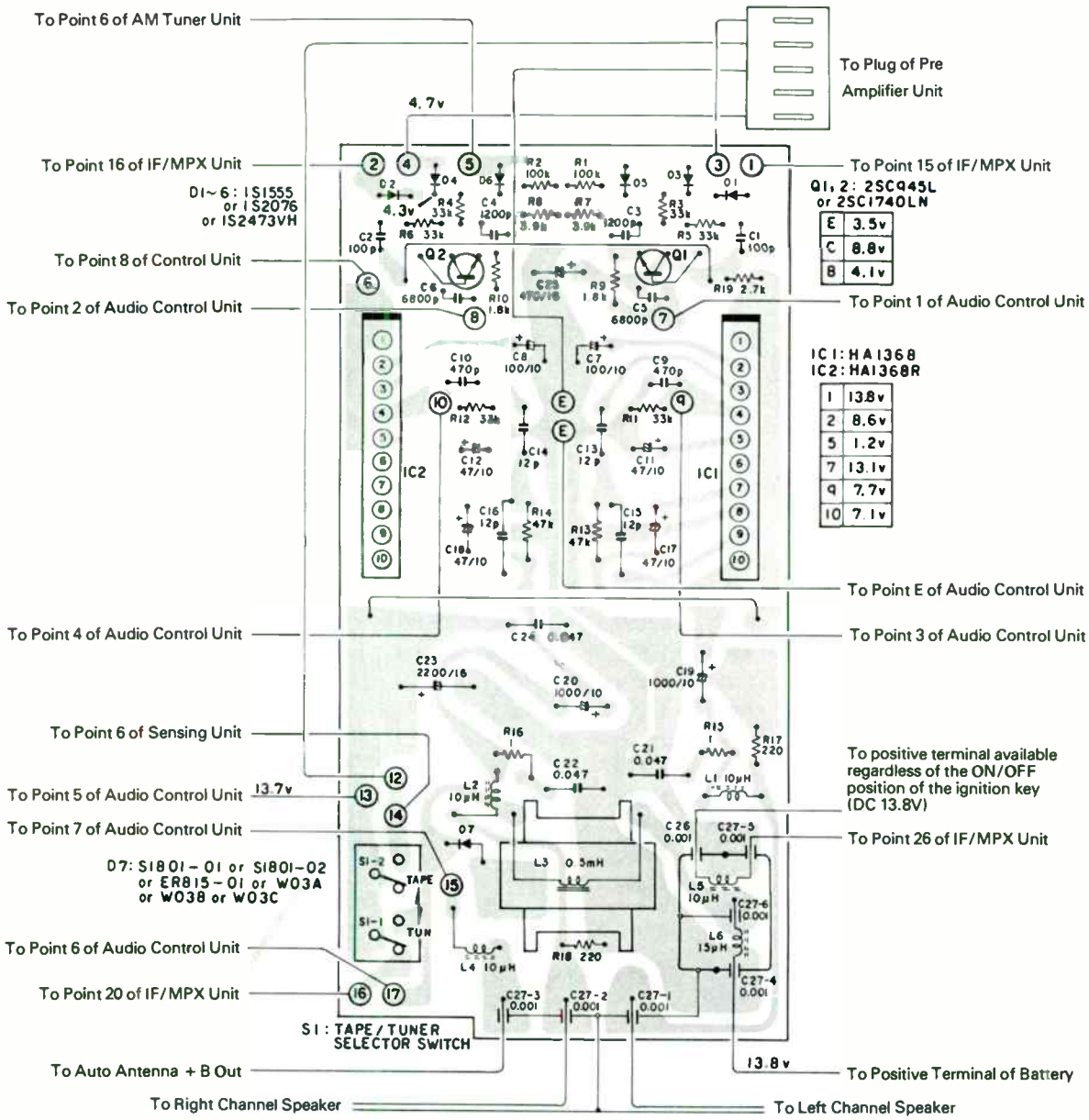


Fig. 22

• Parts List

MISCELLANEOUS

Ref. Key	Parts No.	Description
IC1	HA1368	IC
IC2	HA1368R	IC
Q1,2	2SC945L-P,K or	Transistor
	2SC1740LN-R,S	Transistor
D1~6	1S1555 or	Diode
	1S2076 or	Diode
	1S2473VH	Diode
D7	SIB01-01 or	Diode
	SIB01-02 or	Diode
	ERB15-01 or	Diode
	W03A or	Diode
	W03B or	Diode
	W03C	Diode
L1,2	CTH-035	Coil, 10μH
L3	CTH-018	Coil, 0.5mH
L4,5	CTH-035	Coil, 10μH
L6	CTF-003	Coil, 15μH
S1	CSL-003	Switch

RESISTORS

Ref. Key	Parts No.	Description		
R1,2	RD1/4VS104J	Resistor	100kΩ	1/4W
R3~6	RD1/4VS333J	Resistor	33kΩ	1/4W
R7,8	RD1/4VS392J	Resistor	3.9kΩ	1/4W
R9,10	RD1/4VS182J	Resistor	1.8kΩ	1/4W
R11,12	RD1/4VS333J	Resistor	33kΩ	1/4W
R13,14	RD1/4VS473J	Resistor	47kΩ	1/4W
R15,16	RD1/4VS010J	Resistor	1Ω	1/4W
R17,18	RD1/4VS221J	Resistor	220Ω	1/4W
R19	RD1/4VS272J	Resistor	2.7kΩ	1/4W

CAPACITORS

Ref. Key	Parts No.	Description		
C1,2	CKDYB101K50	Capacitor	100pF	50V
C3,4	CQMA122J50	Capacitor	1200pF	50V
C5,6	CQMA682J50	Capacitor	6800pF	50V
C7,8	CEA101P10	Capacitor	100μF	10V
C9,10	CKDYB471K50	Capacitor	470pF	50V
C11,12	CEA470P10	Capacitor	47μF	10V
C13~16	CCDSL120J50	Capacitor	12pF	50V
C17,18	CEA470P10	Capacitor	47μF	10V
C19,20	CCH-022	Capacitor	1000μF	10V
C21,22	CQMA473M50	Capacitor	0.047μF	50V
C23	CCH-032	Capacitor	2200μF	16V
C24	CQMA473M50	Capacitor	0.047μF	50V
C25	CCH-020	Capacitor	470μF	16V
C26	CCL-070	Feed through Cap.	0.001μF	
C27	CCL-071	Feed through Cap. 0.001μF × 6		

12. PRE AMPLIFIER UNIT (CWF-043)

• **Parts Connection**

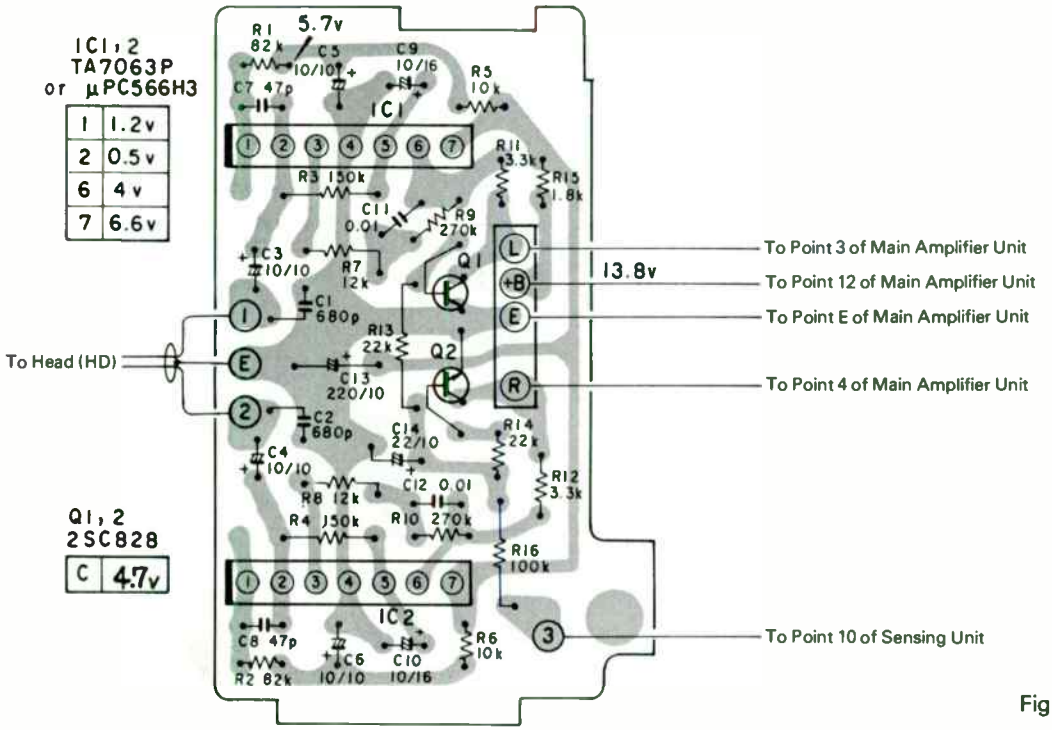


Fig. 23

• **Parts List**

MISCELLANEOUS

Ref. Key	Parts No.	Description
IC1,2	TA7063P-C,D,E or	IC
	μPC566H3-N,M,L	IC
Q1,2	2SC828-Q,R	Transistor

RESISTORS

Ref. Key	Parts No.	Description		
R1,2	RD1/4VS823J	Resistor	82kΩ	1/4W
R3,4	RD1/4VS154J	Resistor	150kΩ	1/4W
R5,6	RD1/4VS103J	Resistor	10kΩ	1/4W
R7,8	RD1/4VS123J	Resistor	12kΩ	1/4W
R9,10	RD1/4VS274J	Resistor	270kΩ	1/4W

Ref. Key	Parts No.	Description		
R11,12	RD1/4VS332J	Resistor	3.3kΩ	1/4W
R13,14	RD1/4VS223J	Resistor	22kΩ	1/4W
R15	RD1/4VS182J	Resistor	1.8kΩ	1/4W
R16	RD1/4VS104J	Resistor	100kΩ	1/4W

CAPACITORS

Ref. Key	Parts No.	Description		
C1,2	CKDYB681K50	Capacitor	680pF	50V
C3~6	CSZA100M10	Capacitor	10μF	10V
C7,8	CCDSL470K50	Capacitor	47pF	50V
C9,10	CEA100P16	Capacitor	10μF	16V
C11,12	CQMA103K50	Capacitor	0.01μF	50V

Ref. Key	Parts No.	Description		
C13	CCH-028	Capacitor	220μF	10V
C14	CSZA220M10	Capacitor	22μF	10V

13. AUDIO CONTROL UNIT (CWG-047) KE-2000

• Parts Connection

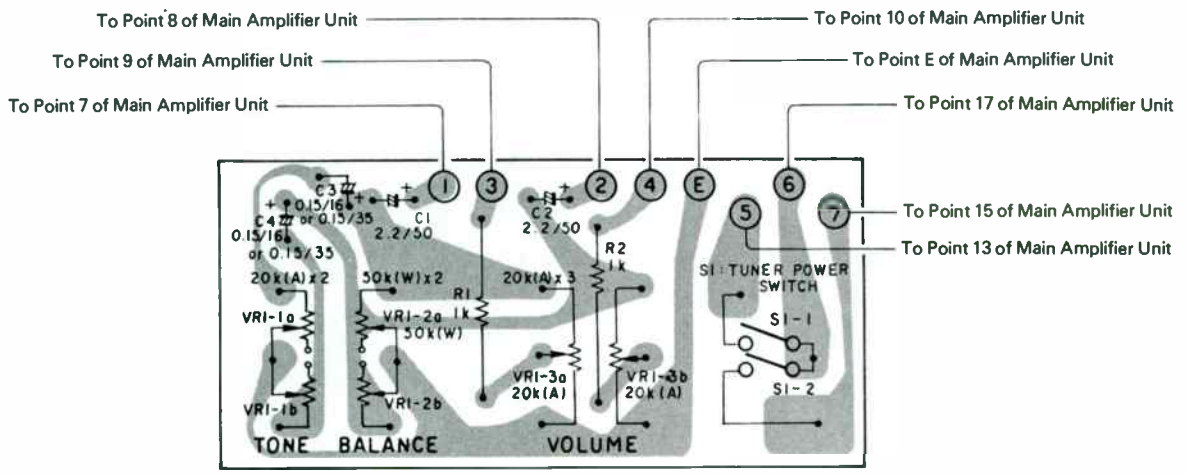


Fig. 24

• Parts List

Ref. Key	Parts No.	Description		
VR1	CCS-176	Volume/Switch		
S1	CCS-176	Volume/Switch		
R1,2	RD1/4PS102J	Resistor	1kΩ	1/4W
C1,2	CEA2R2P50	Capacitor	2.2μF	50V
C3,4	CSZAR15M35 or	Capacitor	0.15μF	35V
	CSYAR15M16	Capacitor	0.15μF	16V

14. MISCELLANEOUS PARTS LIST

Ref. Key	Parts No.	Description
S1	CSG-107	Switch
S2	CSN-043 or	Switch
	CSN-055	Switch
S3	CSG-101	Switch
D1	BU440	LED Array
D2	TLR-102	LED
C1	CCL-074	Feed through Cap, 3pF×2
L1	CTF-085	Ferri-Inductor, 30μH
IL1	CEL-065	Lamp, 14V 60mA
SO	CXP-021	Solenoid

Ref. Key	Parts No.	Description
HD	CPB-032 or	Head
	CPB-034	Head
M	CXM-046	Motor
ANT	CDH-032	Antenna Connector
FU1	E21-005	Fuse, 2A
FU2	CEK-041	Fuse, 0.1A
J1	CDE-307	Connector

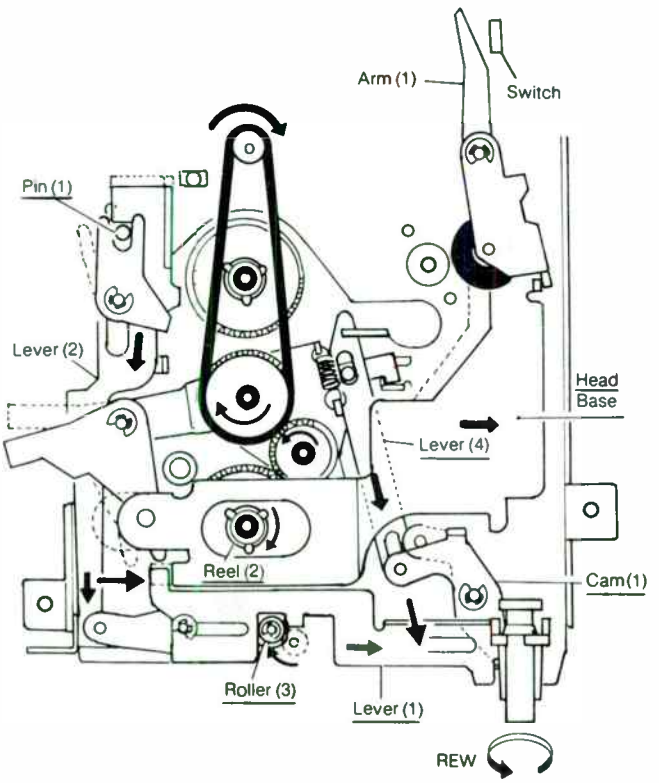


Fig. 17

2. ADJUSTMENT

2.1 TAPE SPEED ADJUSTMENT

Tape speed can be adjusted by replacing the motor pulley. Three types of pulleys differing in diameter available as shown in the table below. The pulley surface has either one groove, two grooves or no groove to help distinguish the diameter (Fig. 18).

Diameter	Parts No.	No. of Grooves
9.50mm	CXB-267	None
9.60mm	CXB-268	One
9.70mm	CXB-269	Two

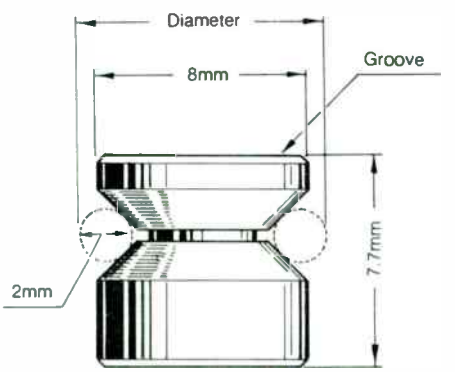


Fig. 18

2.2 AZIMUTH ADJUSTMENT

1. Connect VTVM and the speaker (4Ω)to the green and gray leads, respectively. Connect the red lead to a DC regulated power supply and apply 13.8V.
2. Insert a 333 Hz (STD-331) test tape. With balance set at medium and tone at maximum, turn volume for an output reading of 0 dB.
3. Insert a 6.3 kHz (STD-331) test tape.
4. Turn the azimuth adjusting screw so that outputs of Lch and Rch are each at maximum symmetrically (Fig. 19).

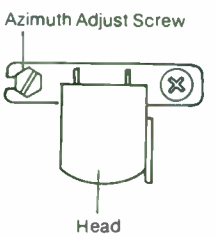
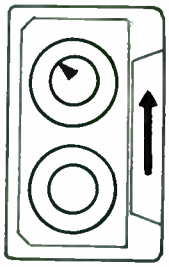


Fig. 19

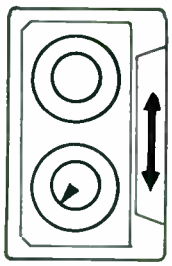
2.3 CHECK POINTS OF CASSETTE MECHANISM

When replaced or repaired cassette mechanism parts, refer to values in the following table.

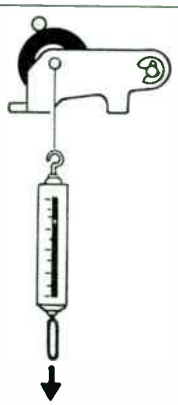
(1) Wind torque
Take measurement for 5~6 seconds using a cassette torque meter (120g/cm) to make sure torque is 55~75g/cm.



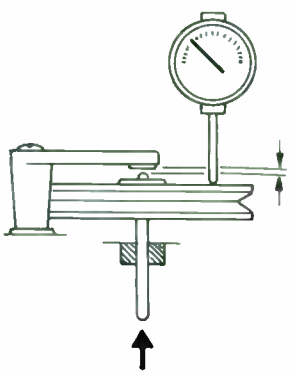
(2) F.F. and rewind torque
Take measurement for 5~6 seconds using a cassette torque meter (120g/cm) to make sure torque is 65g/cm or more.



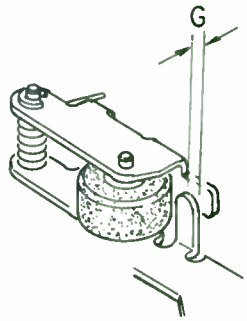
(3) Pinch roller press adhesion force
Measure using a tension gauge (500g) to make sure the load is 200~300g with the pinch roller starting to rotate in contact with the capatan shaft.



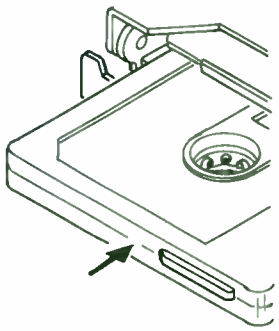
(4) Clearance between flywheel and flywheel bracket
Set a dial pick gauge as shown in the figure, and check to make sure the difference is between 0.1 mm and 0.5 mm, when the flywheel is applied with pressure in the arrowed direction.



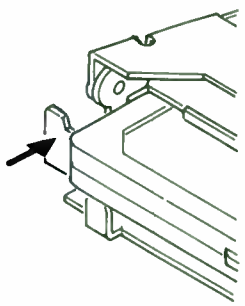
(5) Clearance between pinch roller and head base stopper
Determine using a thickness gauge that clearance is 0.5±0.2 mm, when in play mode.



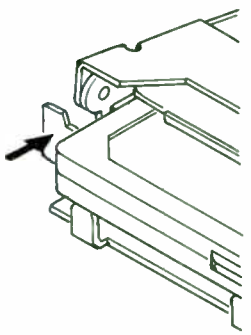
(6) Cassette loading force
Using tension gauge (3 kg) at the center of the cassette, check to make sure the indication is less than 2.3 kg.

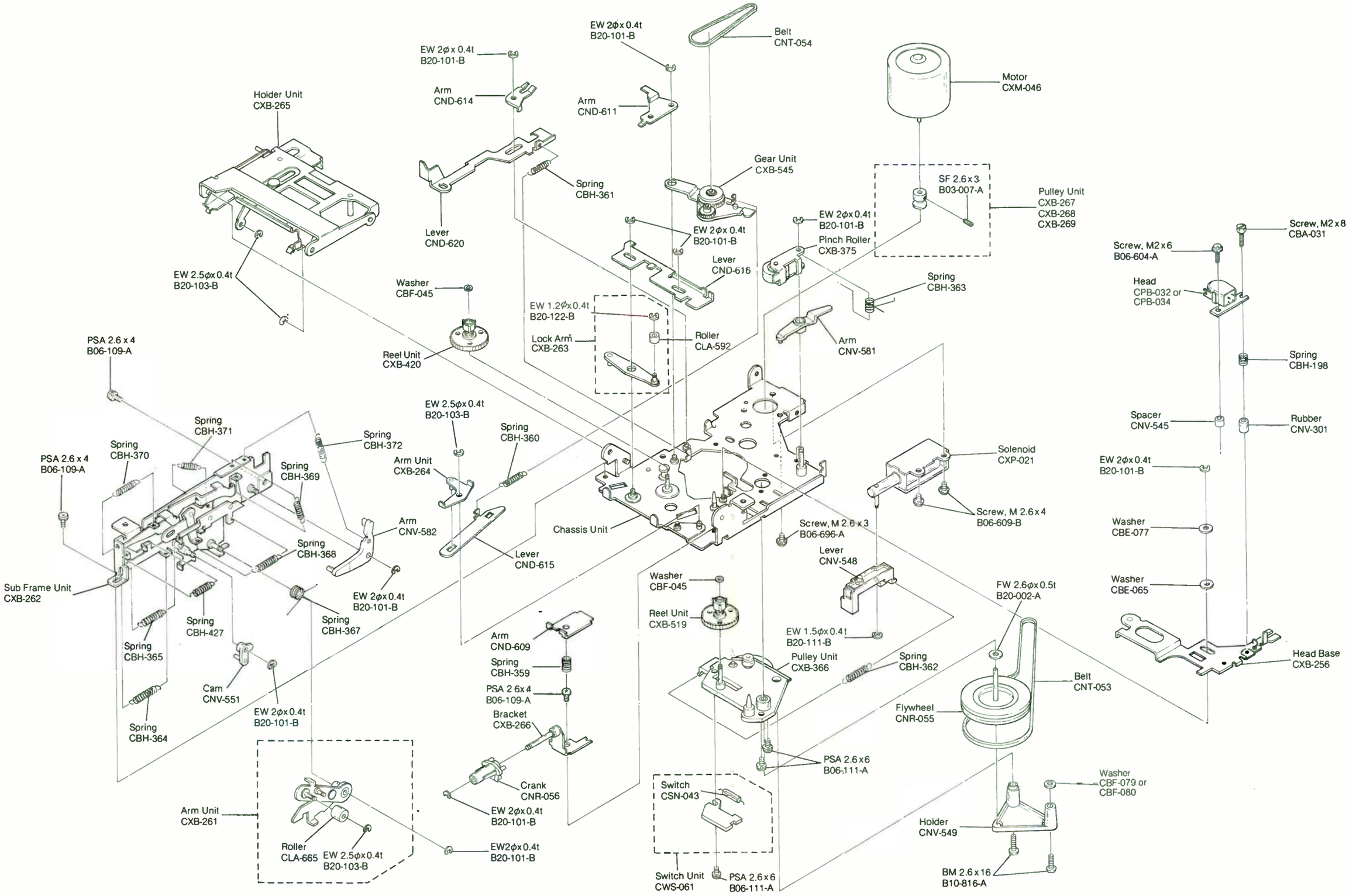


(7) F.F. and rewind releasing force
Using a tension gauge (1 kg) in the arrowed direction, check to make sure the indication is less than 0.5 kg.

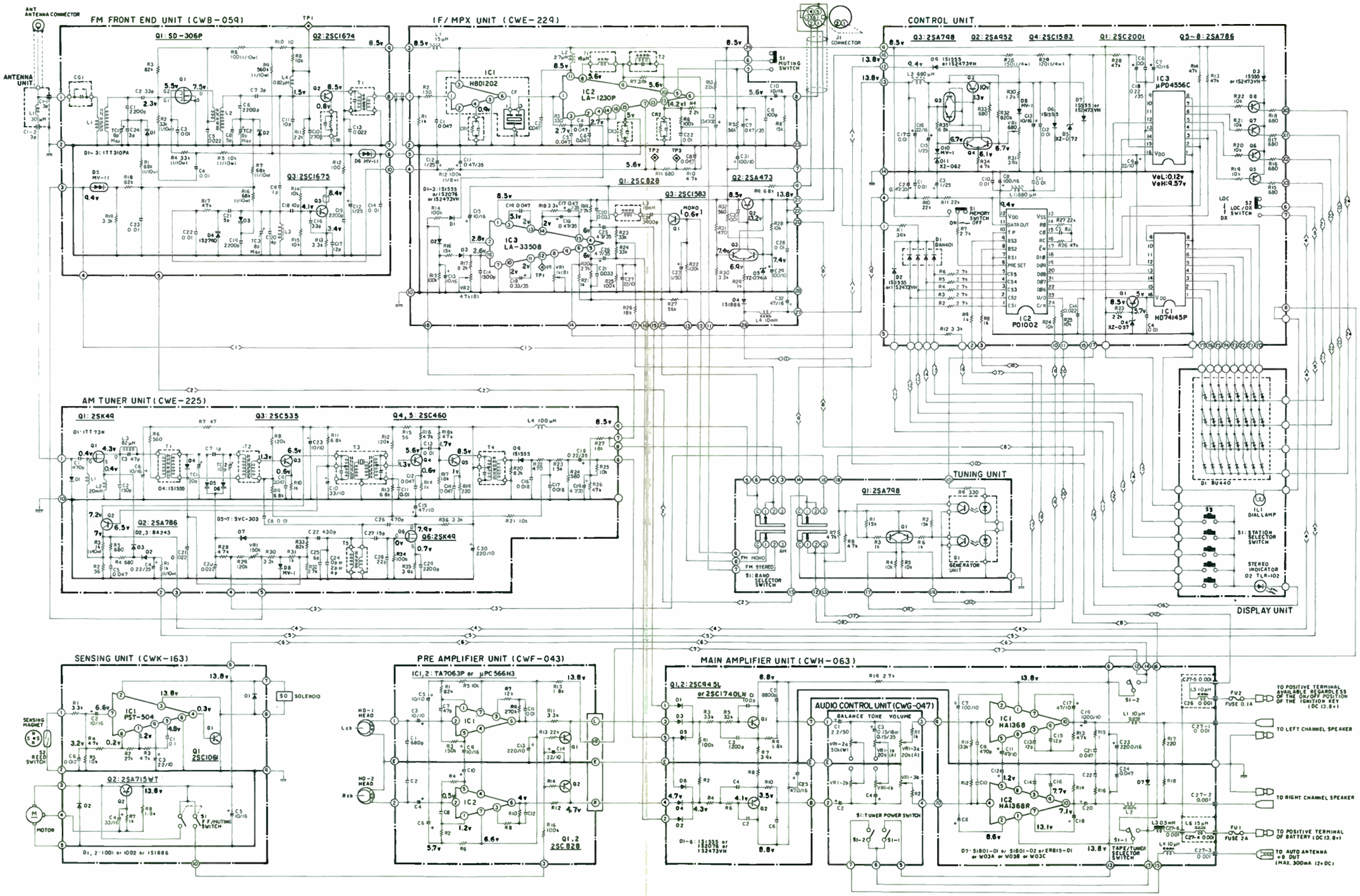


(8) Eject force
Using tension gauge (3 kg) in the arrowed direction, check to make sure the indication is less than 1 kg.

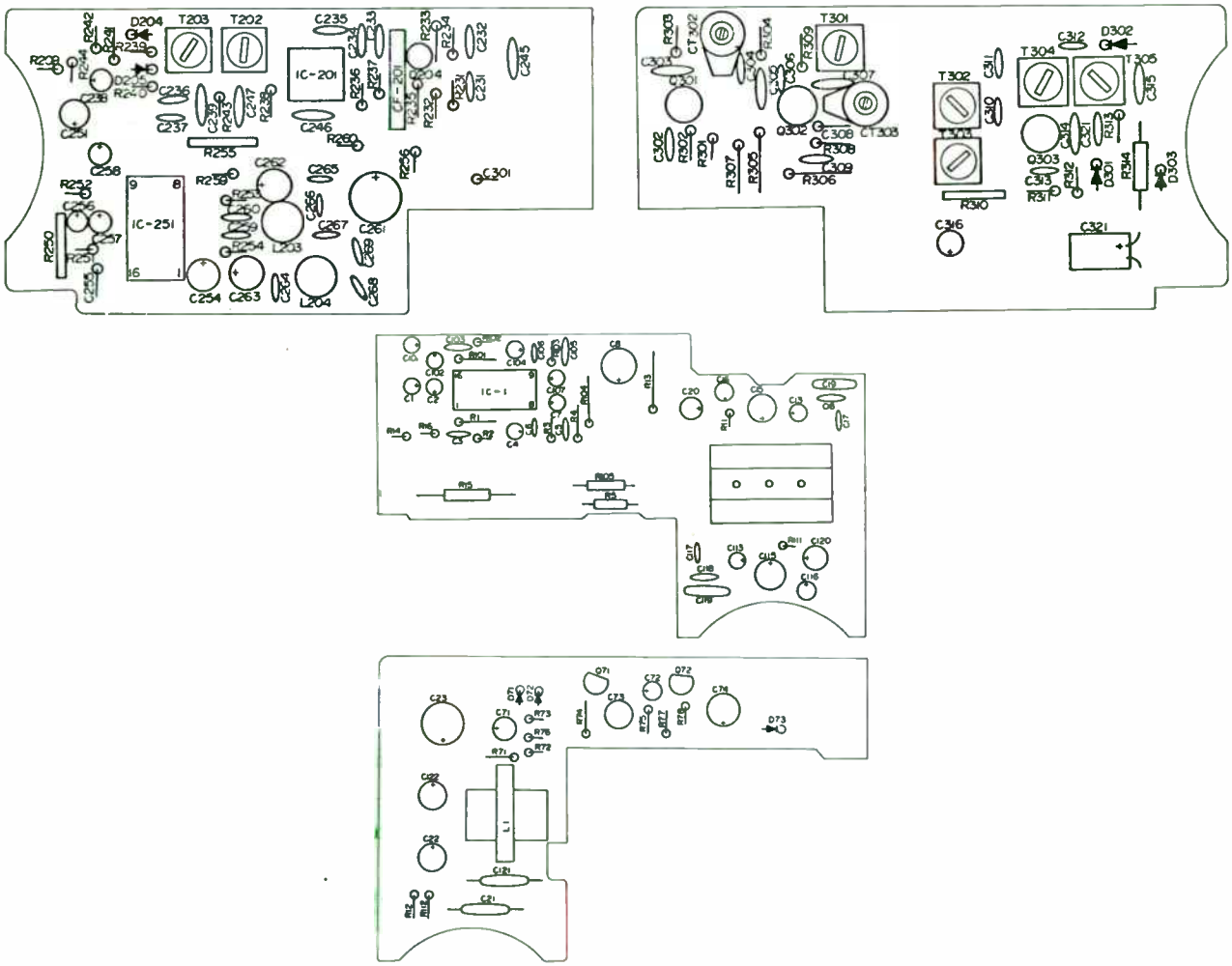




Pioneer KE-2000



MAIN PARTS IDENTIFICATION ILLUSTRATION

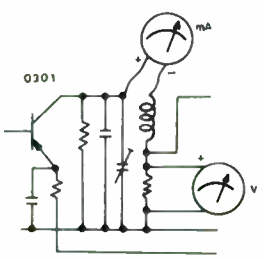


ALIGNMENT PROCEDURES

Collector Current Adjustment (Q301 2SA322)

AM

1. Operate the unit in AM mode without connection of car antenna.
2. Insert a milliammeter between the collector (Q301) and the coil (TUNER RF) as shown.
3. Adjust Mini-pot (R310) for the collector current of Q301 2SA322 to be 600 ±50μA. (See Fig. 1)



ALIGNMENT PROCEDURES

Check power supply voltage (13.2V) and ground polarity
Signal generator output;
- Modulation frequency 400 Hz
- Modulation percentage 30%
- Signal level just high enough to provide meter deflection.

Signal application;
- Antenna receptacle thru the dummy antenna.

Output meter connection;
- Across a speaker or a dummy load. (4 ohms).

Setting of radio controls;
- Volume control at maximum response.
- Tone control at high note emphasis.

AM IF and RF Alignment

Step	Mode	Signal Input	Frequency of Signal GEN.	Dial Setting of Radio	Components to be Adjusted for Maximum Output
1	AM	Thru dummy Ant. (Fig. 3)	455 kHz	Low end stop	IFT T302, 303, 304, 305
2			505 kHz	Low end stop	OSC coil T301
3			1,640 kHz	High end stop	OSC trimmer CT303
4			1,400 kHz	1,400 kHz	RF trimmer CT302 Ant. trimmer CT301

Repeat steps 1, 2, 3 and 4.
*With radio installed in car and antenna fully extended, tune in a weak station near 1400 kHz and adjust CT301 for maximum volume.

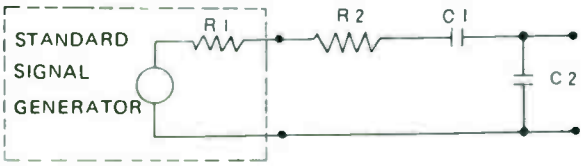


Fig. 3

C_1 = 15pF
C_2 = 60pF
R_2 = 80 (ohms) – R_1

Alignment of Head Azimuth

1. Insert a BASF 6.3 kHz standard test tape and set the unit in play mode.
2. Turn the azimuth adjusting screw until you obtain maximum reading on the VTVM.

FM IF Alignment

STEP	ALIGNMENT FREQUENCY	TEST EQUIPMENT CONNECTION	ADJUSTMENT
1	10.7 MHz	Connect output of FM IF sweep marker generator to ANT terminal, input to R243 and common ground.	Tune T201 T202, for maximum amplitude and symmetrical response curve as shown in Fig. 5.
2			Tune T203 for symmetrical S curve as shown in Fig 6.

*Repeat steps 1 and 2.

FM RF Alignment

STEP	SIGNAL INPUT	FREQUENCY OF SIGNAL GEN.	DIAL SETTING OF RADIO	COMPONENTS TO BE ADJUSTED FOR MAXIMUM OUTPUT
1	Thru dummy ANT. Fig. 7	86.8 MHz	Low end stop	Osc. trimmer CT203
2		98 MHz	98 MHz	RF trimmer CT202, ANT trimmer CT201
3		Confirm overall tuning range to be from 86.7 – 87.0 MHz thru 109.5 – 110.5 MHz.		

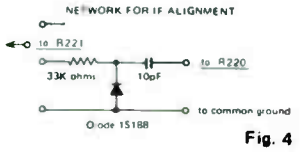


Fig. 4

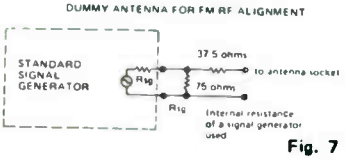


Fig. 7

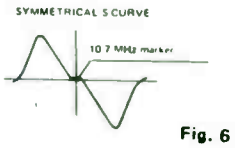


Fig. 6

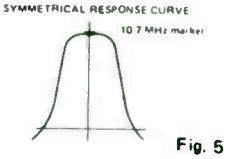


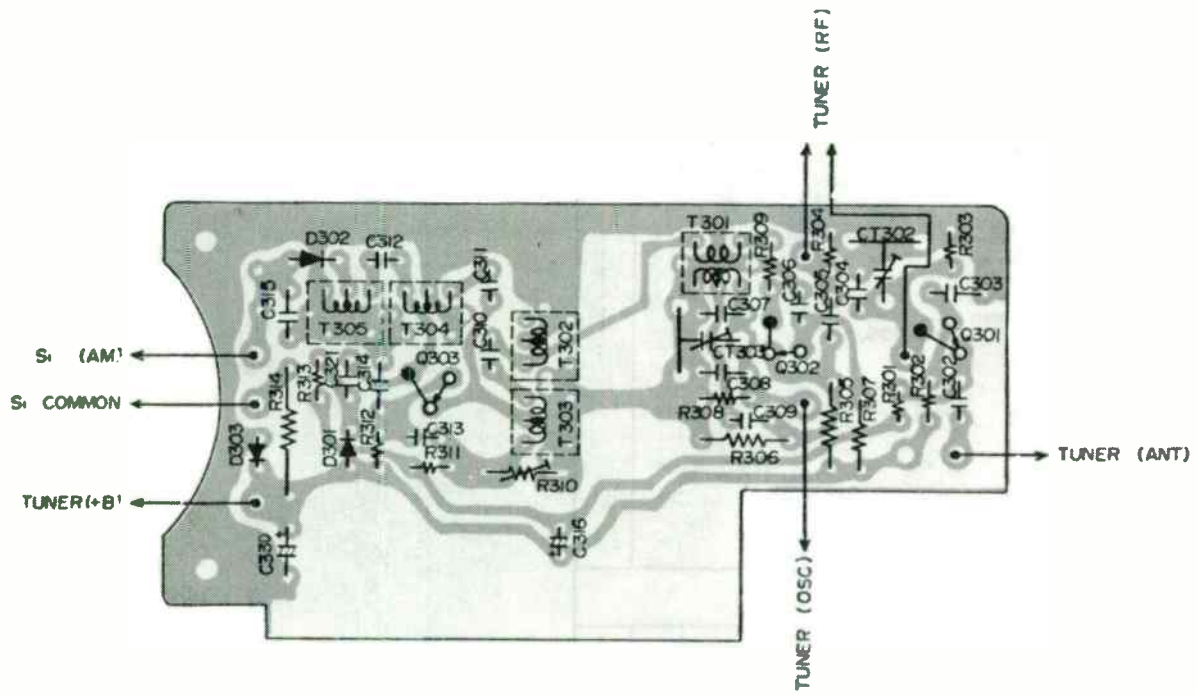
Fig. 5

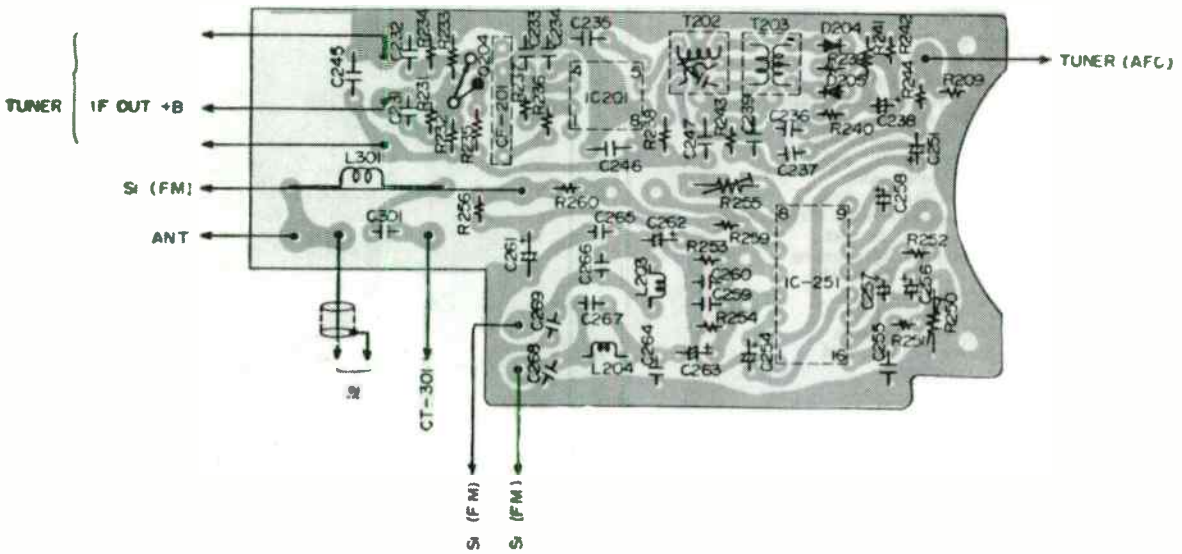
FM MULTIPLEX ALIGNMENT

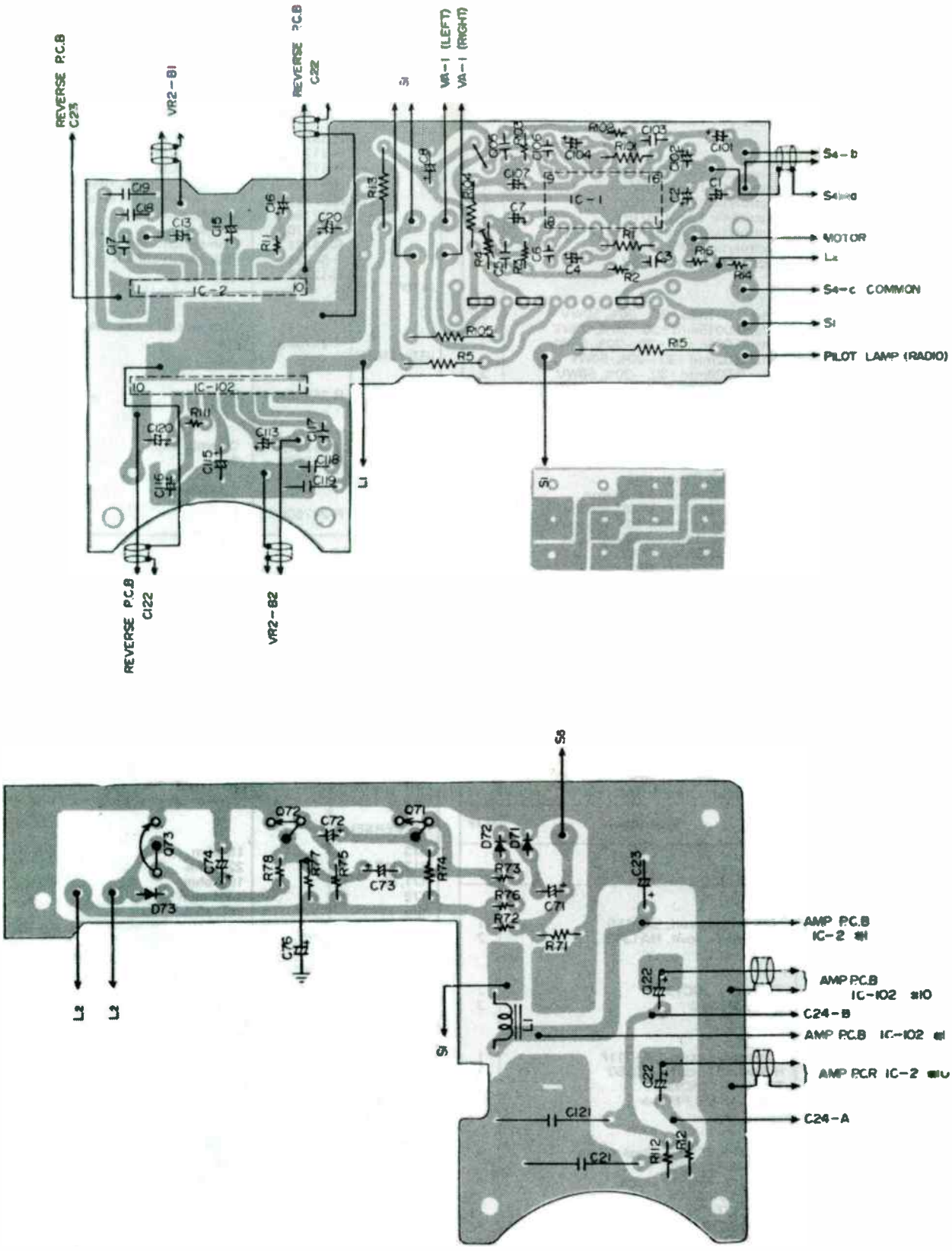
PRELIMINARIES:

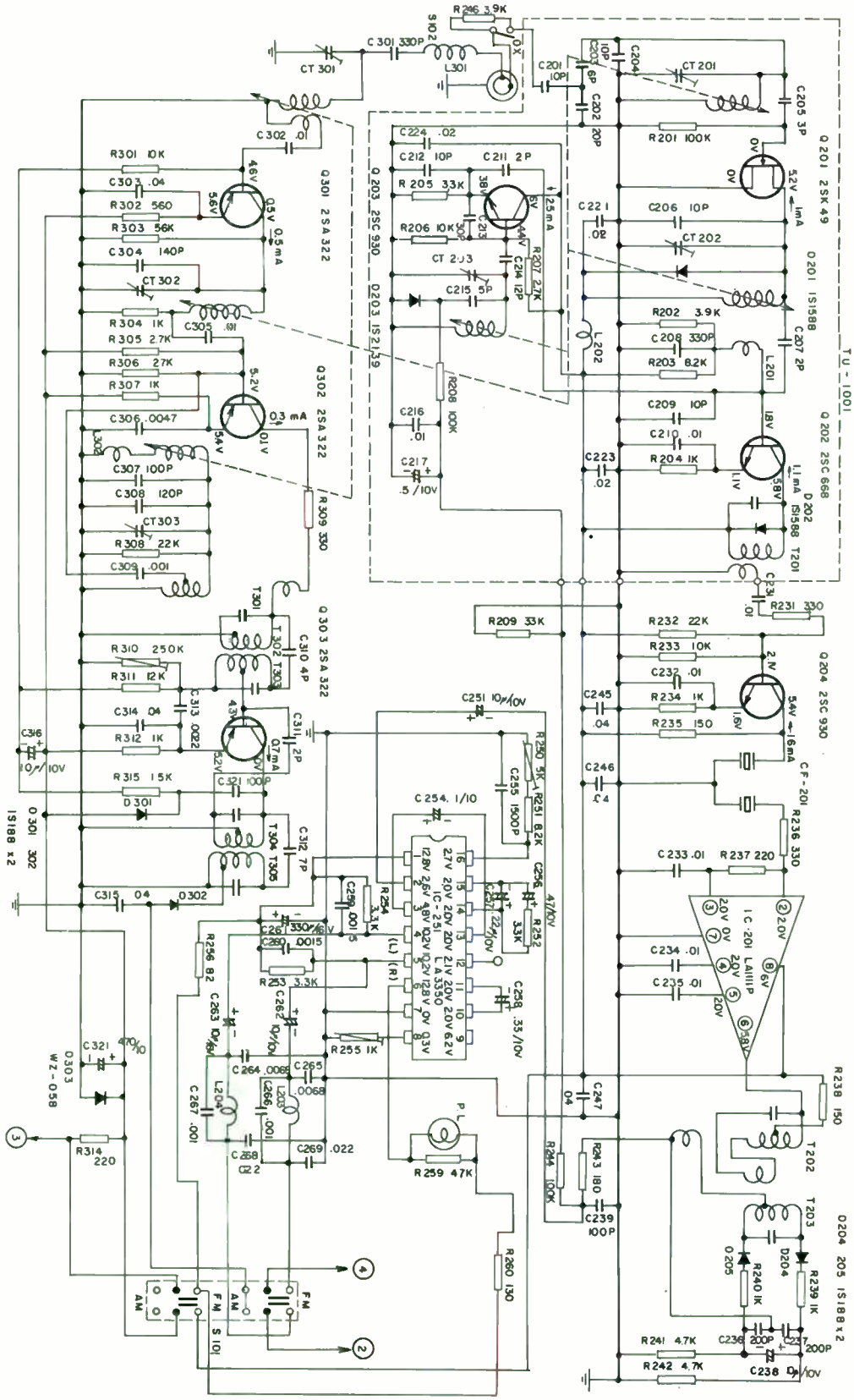
1. A stereo signal modulator (SSM) and a CSA signal generator are necessary to perform this alignment.
2. All adjustments below must be done, setting the dial pointer at 98 MHz on dial scale and applying 60 dB FM signal modulated by specified signals as described below.

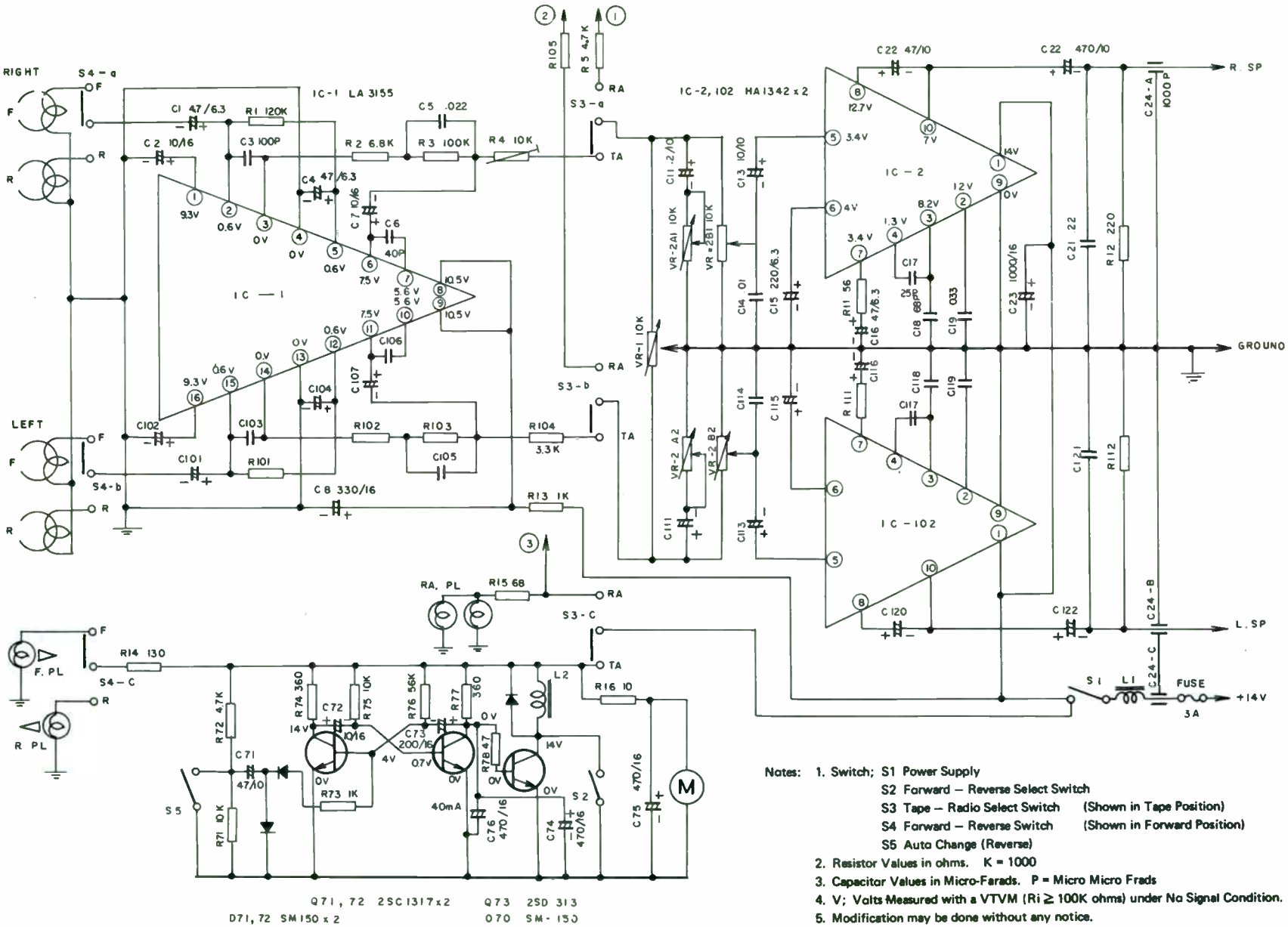
STEP	ALIGNMENT	INSTRUMENT CONNECTIONS		ADJUSTMENT
		INPUT	OUTPUT	
1	19 KHz Pilot	Apply FM signal (modulated only by pilot signal at 10% modulation) thru dummy antenna to ANT terminal, and turn FM stereo signal of SSM OFF.	Connect Frequency Counter to Pin #12 of IC251 and common ground.	Adjust R250 for correct fequency.
2	Stereo Signal	Apply FM stereo signal (modulated only by pilot signal at 10% modulation) and stereo signal at 30% modulation) thru dummy antenna to ANT terminal. Place output signal switch of SSM in RIGHT position.	Connect VTVM to speaker output leads of Left Channel	Stereo Separation Control (R255) for minimum output on VTVM.
		Apply FM stereo signal (modulated only by pilot signal and stereo signal) thru dummy antenna to ANT terminal. Place output signal switch of SSM in LEFT position.	Connect VTVM to Speaker output leads of Right Channel.	Adjust Stereo Separation Control (R255) for minimum output on VTVM.



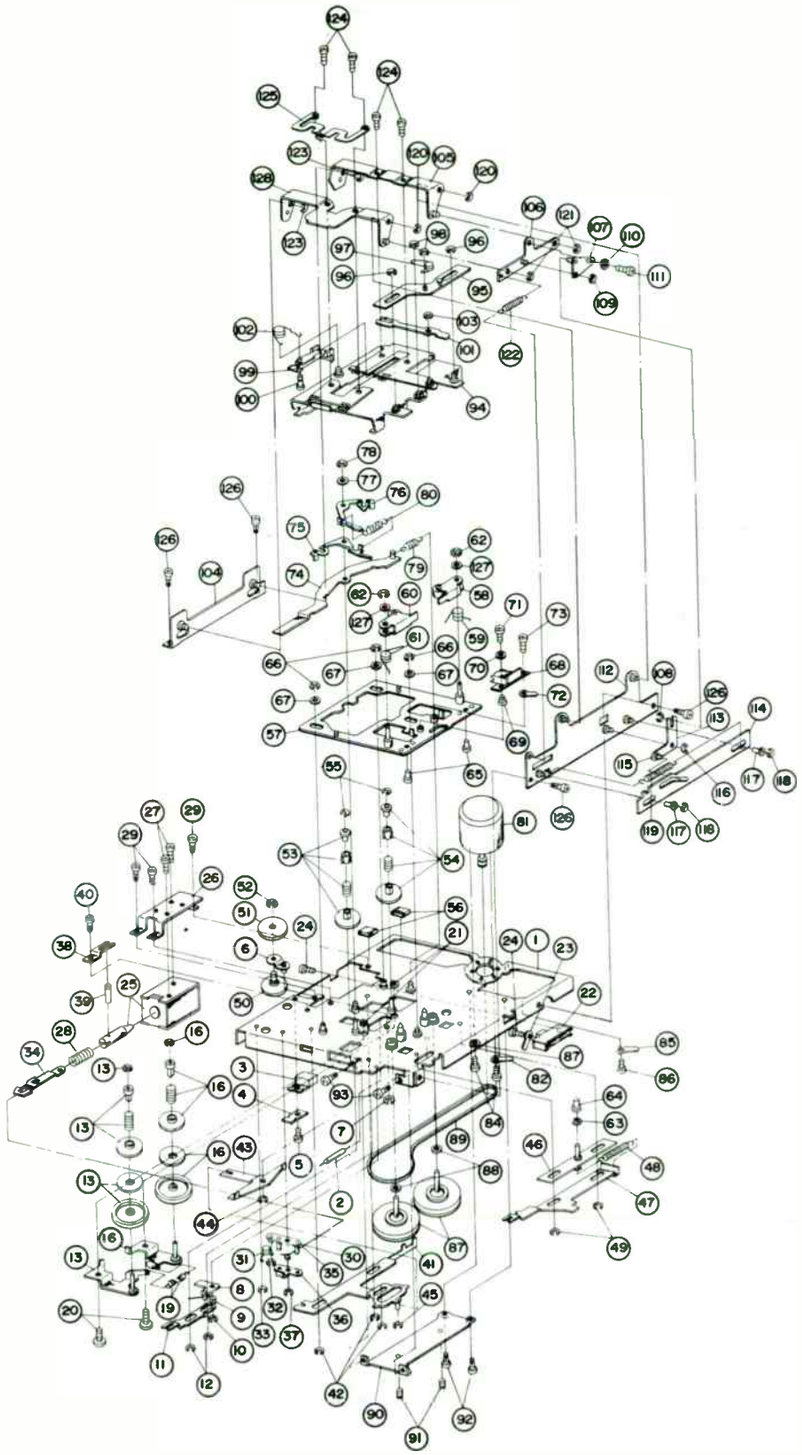








Notes:
1. Switch; S1 Power Supply
   S2 Forward – Reverse Select Switch
   S3 Tape – Radio Select Switch (Shown in Tape Position)
   S4 Forward – Reverse Switch (Shown in Forward Position)
   S5 Auto Change (Reverse)
2. Resistor Values in ohms. K = 1000
3. Capacitor Values in Micro-Farads. P = Micro Micro Frads
4. V; Volts Measured with a VTVM (Ri ≥ 100K ohms) under No Signal Condition.
5. Modification may be done without any notice.



Key No.	Part No.	Description	Q'ty
CASSETTE MECHANISM PARTS			
1	R-S870878	Chassis assembly	1
2	R-S17038	Lead switch	1
3		Transistor, 2SD313D	1
4	R-S3006	Lug	1
5		Screw, Bind Hd., 3 x 8	1
6	R-S870879	Bracket assembly, Idler	1
7		Ring, E, 3	1
8	R-S870880	Lock lever assembly	1
9	R-157437	Spring, Lock lever	1
10		Ring, E, 2	1
11	R-1170605	Stop lever	1
12		Ring, E, 2	2
13	R-S870881	Idler A assembly	1
16	R-S870882	Idler B assembly	1
19	R-157433	Spring, Idler A & B	2
20	R-157404a	Special screw	2
21		Nut, Hex Hd., 2.6	2
22	R-S47175	Slide switch	1
23	R-127636	Lug	2
24		Screw, Bind Hd., 2.6 x 3	2
25	R-S870472a	DC solenoid	1
26	R-1170589	Metal bracket, Solenoid	1
27		Screw, Pan Hd., 3 x 4	2
28	R-157429	Spring Solenoid	1
29		Tap. Screw, Pan Hd., 3 x 4	3
30	R-S870883	Click lever assembly	1
31	R-157431	Spring, Twist	1
32		Ring, E, 2	1
33		Ring, E, 2	1
34	R-1170590	Click lever	1
35	R-157430	Spring	1
36	R-1170592	Click B	1
37		Ring, E, 2	1
38	R-237122	Guide plate	1
39	R-157497	Guide pin	1
40		Tap. Screw, Pan Hd., 3x4	1
41	R-S870884	Slide lever assembly, Reverse	1
42		Ring, E, 2	3
43	R-1170594a	Brake	1
44		Ring, E, 3	1
45		Ring, E, 2	1
46	R-S870885	Play lever A assembly	1
47	R-1170602	Play lever B	1
48	R-157436	Coil spring, Play	1
49		Ring, E, 2	2
50	R-S870886	Idler C assembly	1
51	R-3971132	Idler D	1
52		Ring, E, 2	1
53	R-S870887	Take-up reel A assembly	1
54	R-S870488	Take-up reel B	1
55		Ring, E, 1.2	2
56	R-4170775	Rubber cushion	2
57	R-S870888	Slide base assembly	1
58	R-S870889	Pinch roller A assembly	1
59	R-157428	Spring Pinch roller	1
60	R-S870890	Pinch roller B assembly	1
61	R-157427	Spring B, Pinch roller	1
62		Ring, E, 2	2
63	R-157410	Roller	1
64	R-157411	Sleeve	1
65	R-3971009	Spacer	2
66		Ring, E, 2	1
67		Washer, Nylon, 3x0.13	3
68	R-S07155	Head	1
69	R-157426	Spring, Head	1
70		Washer, Flat, 2	1
71		Screw, Pan Hd., 2x5	1
72	R-127636	Lug	1
73		Screw, Pan Hd., 2x4	1
74	R-S870891	Lever, F. FWD & Rewind assembly	1
75	R-1170599	Pawl A	1
76	R-1170600	Pawl B	1
77		Washer, Nylon, 3x0.25	1
78		Ring, E, 2	1
79	R-157534	Spring, F. FWD & Rewind lever	1
80	R-157435a	Spring, Pawl	1
81	R-S57034	Motor	1
82	R-127636	Lug	1

Key No.	Part No.	Description	Q'ty
CASSETTE MECHANISM			
83		Washer, Flat, 2.6	1
84		Screw, Bind Hd., 2.6x3	2
85	R-127636	Lug	1
86		Tap. Screw, Pan Hd., 3x4	1
87	R-S870473a	Flywheel	2
88		Washer, Nylon, 2.5x0.25t	1
89	R-447853a	Square belt	1
90	R-1170597	Support, Flywheel	1
91	R-157405	Special screw	2
92		Screw, Bind Hd., 3x5	2
93		Tap. Screw, Pan Hd., 3x4	2
94	R-S870892	Cassette holder assembly	1
95	R-S870893	Eject lever assembly	1
96		Ring, E, 2	2
97	R-157513a	Spring, Twist	1
98		Ring, E, 2	2
99	R-3970658a	Carrige, Cassette	1
100	R-157425	Pole, Carrige	1
101	R-137045a	Lever, Carrige	1
102	R-157440a	Spring, Twist	1
103		Ring, E, 2	1
104	R-S870896	Lift arm holder A assembly	1
105	R-S870804	Lift arm B assembly	1
128	R-S870895	Lift arm A assembly	1
106	R-S870897	Link arm assembly	1
107	R-S870898	Adjusting plate assembly	1
108		Ring, E, 2, Link arm	1
109		Ring, E, 3, Link arm	1
110		Washer, External Tooth Lock, 3	1
111		Screw, Bind Hd., 3x4	1
112	R-S870899	Link arm holder B assembly	1
113	R-S870900	L Link assembly	1
114	R-1170610a	Play lever C	1
115	R-157411	Sleeve, L link	1
116		Ring, E, 2	1
117	R-157418	Sleeve, Link arm holder B	2
118		Ring, E, 1.5	2
119	R-157438a	Spring	1
120		Ring, E, 2, Lift arm A & B	2
121		Ring, E, 3, Adjusting plate	2
122	R-157439a	Spring	1
123		Ring, E, 2, Lift arm A & B	2
124		Screw, Bind Hd., 2.6x3, Lift arm A & B	4
125	R-257136a	Spring plate, Lift arm A	1
126		Tap. Screw, Pan Hd., 3x6 Lift arm holder	2
127		Washer, Nylon, 3x0.25	2

NOTES: 1. Part orders must contain Model Number, Part Number and Description.
2. Unless otherwise noted, component parts indicated by parentheses in the column Q'ty are not available.
3. Ordering quantity of screws and/or resistors must be multiple of 10 pcs.

Part No.	Description	Q'ty
PACKAGE		
R-4072697	Individual carton	1
R-4170710	Styrofoam cushion, Right side	1
R-4170711	Styrofoam cushion, Left side	1
R-4771460a	Instruction book	1
R-477958a	Guarantee card	1
R-4770933	Catalog	1
R-4770958	Attention sheet	1
R-4770983	Guarantee card	1
R-4771508	Label	1
R-4771509	Instruction book	1
R-4072919	Protector, C190xC190	1
R-4072920	Protector, K220xS125xK220	1
	Polyethylene bag, 260x400 Unit	1
	Polyethylène bag, 140x190, Gascket	1
	Polyethylene bag, 50x90, Knob	1
	Polyethylene bag, 80x240, Spacer panel	1
	Polyethylene bag, 80x200, Accessory	1
	Polyethylene bag, 50x120, Knob	2
ACCESSORY		
R-3970983	Panel, Trim	1
R-A71183	Knob assembly, Tuning	1
R-A71240	Knob assembly, Vol./Push Rev.	1
R-3970985	Knob, Tone/Balance	2
R-3970984	Knob, Tone/Balance	2
R-367166	Gascket	1
R-1270108	Panel, Spacer	1
R-1170727	Nut, Panel	4
R-1170723	Washer Panel	2
R-118092	Washer, Panel	2
R-111685a-1	Perforated metal	1
R-R7006	Noise suppression resistor	1
R-S1313	Fuse, 3A	1
R-S870367	Plug assembly, Power speaker	1
R-127072	Terminal, Power	1
	Bolt, Hex Hd. with Washer, 5x10	1
	Bolt, Hex Hd., 6x30	1
	Washer, Spring, 6	1
	Washer, Flat, 6	2
	Nut, Hex Hd., 6	1
CABINET		
R-1270052a	Metal casing, Left	1
R-1270053	Metal casing, Right	1
R-1270058	Metal bracket, Special capacitor	1
R-1270059	Metal bracket, Antenna	1
R-1270055a	Metal lid, Top & Bottom	2
R-1270054	Panel, Front	1
R-A71256	Back plate assembly	1
R-1170665	Metal bracket Trimmer	1
R-1170673	Metal bracket Eject lever guide	1
R-1170666	Metal bracket, Eject lever	1
R-157502	Spring, Eject	1
R-137050	Metal bracket, Eject	1
R-S870649	Pointer assembly	1
R-A71229	Panel assembly, Nose & dial scale	1
R-4771459	Specification sheet	1
R-A71230	Knob assembly, PLAY	1
R-A71231	Knob assembly, STOP	1
R-A71232	Knob assembly, EJECT	1
R-A71233	Knob assembly, FWD/REV	1
R-A71234	Knob assembly, LO-DX/FM-AM	2
R-477984	Label, FCC	1
R-4771508	Label	1
CHASSIS		
R-A71235	Circuit board assembly, AMP.	1
R-A71236	Circuit board assembly, REVERSE	1
R-A71237	Circuit board assembly, FM TUNER	1
R-A71238	Circuit board assembly, AM TUNER	1
R-4170681	Circuit board, VR	1
R-1170678	Metal bracket, LO-DX/AM-FM switch	1
R-447881	Lamp holder, Stereo	1

Schematic Location	Part No.	Description	Q'ty
CHASSIS			
	R-A71255	Metal bracket assembly	1
		Dial cord strings L-550	1
	R-157501	Spring, Dial cord	1
	R-1170674	Metal bracket, Tuner	1
	R-237137	Heat sink, IC	1
	R-247557	Special screw, P.C.B., 5x5.4	7
	R-247248	Special screw, P.C.B.	4
	R-1170676	Switch lever, Tape-Radio select switch	1
	R-1170677	Switch lever, Tape-Radio select lever	1
	R-127636	Lug, Pilot lamp	3
	R-S3063	Lug, Pilot lamp earth	1
	R-397022	Coupling A, TUNING	2
	R-397956	Coupling B, TUNING	1
	R-1270106	Special washer TUN/VOL. Shaft	2
	R-1170727	Special nut, TUN/VOL. shaft	2
COILS & TRANSFORMERS			
L302	R-W1064	Choke coil, 5μH	1
(REVERSE)			
L1	R-W6735	Choke coil	1
(FM TUNER)			
T202	R-W5T768	IF transformer	1
T203	R-W5T769	IF transformer	1
L301	R-W1015a	Choke coil, 6μH	1
L203,204	R-W1751	Choke coil, 50mH	2
(AM TUNER)			
T302	R-W5T244	IF transformer	1
T303	R-W5T245	IF transformer	1
T304	R-W5T246	IF transformer	1
T305	R-W5T247	IF transformer	1
T301	R-W8189a	OSC coil	1
CONTROLS			
VR1	R-R1167055	Variable resistor, Balance 10K-B	1
VR2	R-R1167054	Variable resistor, Tone/Vol., 10K-B,D	1
	R-S870681	Tuner assembly, AM FM	1
CT301	R-C0702a	Trimmer 50pF	1
(AMP.)			
R4	R-R110718	Preset resistor, 10K-B	1
(FM TUNER)			
R255	R-R110714	Preset resistor 1K	1
R250	R-R11012	Preset resistor 5K	1
(AM TUNER)			
CT302,303	R-C0702a	Trimmer 50pF	1
R310	R-R11018	Preset resistor 250K	1
CAPACITORS			
C14,114		Mylar 0.01 mfd, +30 −20%, 50WV	2
C75,76		Electrolytic 470mfd/16V	2
C11,111		Electrolytic 0.22mfd/10V Alsicon	2
(AMP.)			
C5,105		Mylar, 0.022mfd, +30 −20%, 50WV	2
C19,119		Mylar, 0.033mfd +30 −20%, 50WV	2
C3,103		Ceramic, 100pF ±10%, 50WV	2
C6,106		Ceramic, 40 pF ±10%, 50WV	2
C17,117		Ceramic, 25pF ±10%, 50WV	2
C18,118		Ceramic, 68pF ±10%, 50WV	2
C1,101		Electrolytic 4.7mfd/6.3V	2
C2,102,7,107		Electrolytic 10mfd/16V	4
C4,104,16,116		Electrolytic 47mfd/6.3V	4
C8		Electrolytic 330mfd/16V	1

NOTES: 1. Part orders must contain Model Number, Part Number and Description.
2. Unless otherwise noted, component parts indicated by parentheses in the column Q'ty are not available.
3. Ordering quantity of screws and/or resistors must be multiple of 10 pcs.

Schematic Location	Description	Q'ty
CAPACITORS		
C15,115	Electrolytic 220mfd/6.3V	2
C20,120	Electrolytic 47mfd/10V	2
C13,113	Electrolytic 10mfd/10V	2
(REVERSE)		
C21,121	Mylar 0.22mfd, +30 −20%, 50WV	2
C72	Electrolytic 10mfd/16V	1
C71	Electrolytic 47mfd/10V	1
C23	Electrolytic 1000mfd/16V	1
C22,122	Electrolytic 470mfd/10V	2
C73	Electrolytic 220mfd/16V	1
C74	Electrolytic 470mfd/16V	1
(FM TUNER)		
C266,267	Mylar 0.001mfd +30 −20%, 50WV	2
C259,260	Mylar 0.0015mfd +30 −20%, 50WV	2
C264,265	Mylar 0.0068 mfd +30 −20%, 50WV	2
C268,269	Mylar 0.02mfd +30 −20%, 50WV	2
C245,246,247	Mylar 0.039mfd +30, −20%, 50WV	3
C231,232,233, 234,235	Ceramic 0.01mfd, +80 −20%, 50WV YM	5
C236,237	Ceramic 200pF ±10%, 50WV SL	2
C239	Ceramic 100pF ±10%, 50WV SL	1
C255	Styrol, 1500pF ±10%, 50V	1
C301	Styrol 330pF ±10%, 50V	1
C238,251	Electrolytic 10mfd/10V	2
C254	Electrolytic 1mfd/10V Alsicon	1
C256	Electrolytic 0.22mfd/10V Alsicon	1
C257	Electrolytic 0.22mfd/10V Alsicon	1
C258	Electrolytic 0.33mfd/10V Alsicon	1
C261	Electrolytic 330mfd/16V	1
C262,263	Electrolytic 10mfd/16V	2
(AM TUNER)		
C302,305	Mylar 0.01mfd, +30 −20%, 50WV	2
C309	Mylar 0.001mfd +30 −20%, 50WV	1
C313	Mylar, 0.0022mfd, +30 −20%, 50WV	1
C303,314,315	Mylar, 0.039mfd, +30 −20%, 50WV	3
C306	Mylar, 0.0047mfd, +30 −20%, 50WV	1
C321,307	Ceramic 100pF ±10%, 50WV SL	2
C304	Ceramic 140pF ±10%, 50WV SL	1
C310	Ceramic 4pF ±10%, 50WV SL	1
C311	Ceramic 2pF ±10%, 50WV SL	1
C312	Ceramic 7pF ±10%, 50WV SL	1
C308	Styrol, 120pF ±10%, 50V	1
C316	Electrolytic 10mfd/10V	1
C330	Electrolytic 470mfd/10V	1

Ref. No.	Description	Q'ty
SEMICONDUCTORS		
(AMP.)		
IC1	Integrated circuit, LA3155	1
IC2,102	Integrated circuit, HA1342	2
(REVERSE)		
Q71,72	Transistor, 2SC1317	2
D71,72,73	Diode SM-150	3
(FM TUNER)		
IC201	Integrated circuit, LA1111P	1
IC251	Integrated circuit, LA3350	1
Q204	Transistor, 2SC930	1
D204,205	Diode, 1S188 FM pair	2
(AM TUNER)		
Q301	Transistor 2SA322 Black	1
Q302	Transistor 2SA322	1
Q303	Transistor 2SA322 Green	1
D301,302	Diode, 1S188 AM	2
D303	Diode, WZ-058	1
D260	Diode, WZ-081	1

Schematic Location	Part No.	Description	Q'ty
MISCELLANEOUS			
C24-A,B,C	R-C7702	Special capacitor	1
	R-S870745	Cassette mechanism assembly, FEC-51	1
	R-S870368	Socket assembly Power speaker	1
	R-S17117a	Pilot lamp, MPX, 5V 60mA	1
	R-S17133-4	Pilot lamp, dial, 5V 60mA	2
	R-S17117a-3	Pilot lamp, L=400, Red, 5V 60mA	1
	R-S17117a-9	Pilot lamp, L=400, Orange, 5V 60mA	1
	R-S2156-8	Socket, Antenna	1
	R-127702	Lug, 2.6φ	3
	R-S47217	Push switch AM FM	1
	R-S47218	Push switch LO DX	1
	R-127636	Lug, 3φ	2
(AMP.)			
	R-S47216	Slide switch, TAPE-RADIO	1
	R-247505	Pin	16
(REVERSE)			
	R-247505	Pin	3
(FM TUNER)			
CF201			
	R-S17146	Ceramic filter	1
	R-247505	Pin	13
(AM TUNER)			
	R-247505	Pin	5
RESISTORS (Resistors are of carbon type, ±10% allowance and ¼W unless otherwise noted.)			
R246		3.9K ohm	1
(AMP.)			
R1,101		120K ohm	2
R2,102		6.8K ohm	2
R3,103		100K ohm	2
R104		3.3K ohm	1
R5,105		4.7K ohm	2
R13		1K ohm	1
R11,111		56 ohm	2
R16		Solid, 10 ohm, ±10%, ½W	1
R14		Metal oxide film, 130 ohm, ±10%, 1W	1
R15		Metal oxide film, 68 ohm, ±10%, 2W	1
(REVERSE)			
R73		1K ohm	1
R12,112		220 ohm	2
R71,75		10K ohm	2
R72		4.7K ohm	1
R76		56K ohm	1
R78		47 ohm	1
R74		Solid, 360 ohm, ±10%, ½W	1
R77		Metal oxide film, 360 ohm, ±10%, 2S	1
(FM TUNER)			
R231,236		330 ohm	2
R232		22K ohm	1
R233		10K ohm	1
R234,239,240		1K ohm	3
R235,238		150 ohm	2
R237		220 ohm	1
R241,242,259		4.7K ohm	3
R243		180 ohm	1
R244		100K ohm	1
R209		33K ohm	1
R251		8.2K ohm	1
R252,253,254		3.3K ohm	3
R256		180 ohm	1
R260		Metal oxide film, 130 ohm, ±10%, 1W	1

Pages 111-122 Courtesy of FUJITSU CALIFORNIA, INC.

AM ALIGNMENT (AT-7801-1 and AT-7811-1)

[1] IF Alignment

(1) Preparations for alignment

a. Connections

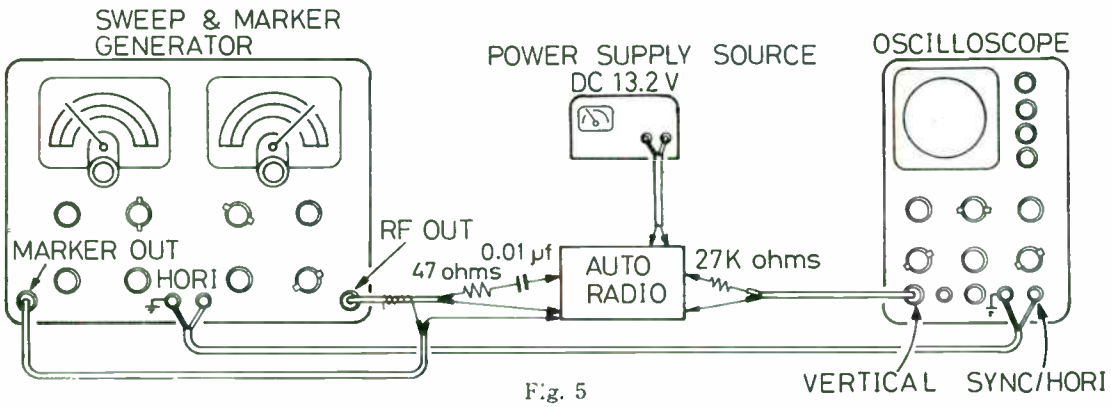


Fig. 5

SWEEP GENERATOR OUTPUT	OSCILLOSCOPE VERTICAL INPUT	OSCILLOSCOPE HORIZONTAL INPUT
Connect TP1 in Fig. 10 through 0.01 μF capacitor and 47 ohm resistor	Connect TP2 in Fig. 10 through 27k-ohm resistor	Connect with HORIZONTAL terminal of sweep generator

b. Power supply : 13.2 VDC

c. Switch : Band selector for AM

d. Controls : Volume for minimum
Tone for high

(2) Alignment (Refer to Fig. 10 for ADJUSTMENT POINTS.)

STEP	PURPOSE	SWEEP GENERATOR FREQUENCY	SET TUNER TO	ADJUSTMENT POINT	PROCEDURE
1	IF	455 kHz	Near 1,000 kHz no signal exists	T 4, T 5	Get maximum IF curve and best symmetry on both sides.
2	Repeat STEP 1 until no further gain in output can be obtained.				

[2] Tracking Alignment

(1) Preparations for alignment

a. Connections

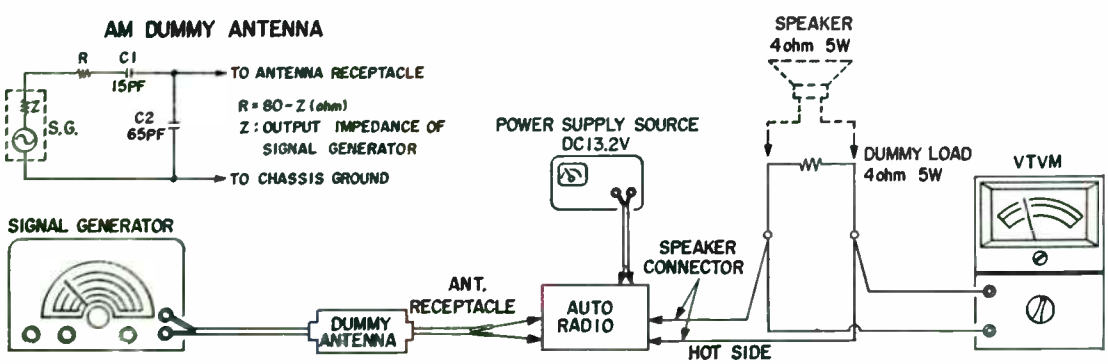


Fig. 6

b. Power supply : 13.2 VDC

c. Switch : Band selector for AM

d. Controls : Volume for maximum
Tone for high

(2) Alignment (Refer to Fig. 10 for ADJUSTMENT POINTS.)

STEP	PURPOSE	GENERATOR FREQUENCY	SET TUNER TO	ADJUSTMENT POINT	PROCEDURE
1	Tuning range	1,640 kHz (400 Hz, 30%, AM modulated)	High-end stop	C_{55}	Adjust for maximum meter indication.
2		510 kHz (400 Hz, 30%, AM modulated)	Low-end stop	T_3	
3	Repeat STEP 1 and 2 until no further gain in output can be obtained.				
4	Tracking	1,400 kHz (400 Hz, 30%, AM modulated)	Just tune in SG frequency	C_{52}	Adjust for maximum meter indication.
5				C_{46}	

NOTE: Always readjust antenna trimmer C_{46} when radio or antenna is reinstalled, tuning in a weak station around 1,400 kHz and get maximum volume.

FM ALIGNMENT (AT-7811-1)

[1] IF Alignment

(1) Preparations for alignment

a. Connections (Refer to Fig. 1)

SWEEP GENERATOR OUTPUT	OSCILLOSCOPE VERTICAL INPUT	OSCILLOSCOPE HORIZONTAL INPUT
Connect [TP1] in Fig. 10 through 0.01 μF capacitor	Connect [TP3] in Fig. 10 through 27k-ohm resistor	Connect with HORIZONTAL terminal of sweep generator

b. Power supply : 13.2 VDC

c. Switch : Band selector for FM

d. Controls : Volume for minimum
Tone for high

(2) Alignment (Refer to Fig. 10 for ADJUSTMENT POINTS.)

STEP	PURPOSE	SWEEP GENERATOR FREQUENCY	SET TUNER TO	ADJUSTMENT POINT	PROCEDURE
1	IF circuit	Center frequency varies according to the color of the ceramic filter (Refer to chart given below)	Near 98 MHz no signal exists	$T_{1,2}$	S-curve adjust for full gain and length at linears. (See Fig. 8)
2					
3	Detector circuit				Keep S-curve straight at the center, and adjust waveform for best symmetry of S-curve against the axis as much as possible. (See Fig. 8)
4	Repeat STEP 1 to 3 until no further gain output can be obtained.				

COLOR	CENTER FREQUENCY
Black	10.64 MHz ± 30 kHz
Blue	10.67 MHz ± 30 kHz
Red	10.70 MHz ± 30 kHz
Orange	10.73 MHz ± 30 kHz
White	10.76 MHz ± 30 kHz

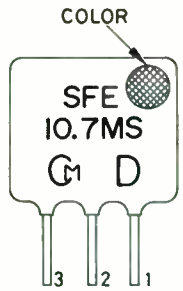


Fig. 7

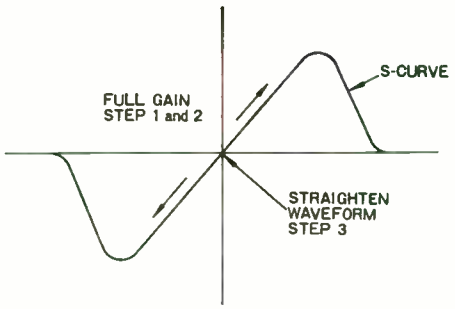


Fig. 8

(3) Points to watch in replacing ceramic filter

In the FM circuit there are two ceramic filters. It is important that both filters have the same color (i.e. the same center frequency).

a. Readjustment is not necessary if a defective ceramic filter is replaced with one of the same color.

b. Both filters should be made in the same color if one of them must be replaced with a different colored filter. Readjustment will be necessary because of the changed center frequency.

[2] Tracking alignment (Refer to Fig. 10 for ADJUSTMENT POINTS.)

(1) Preparations for Alignment

a. Connections

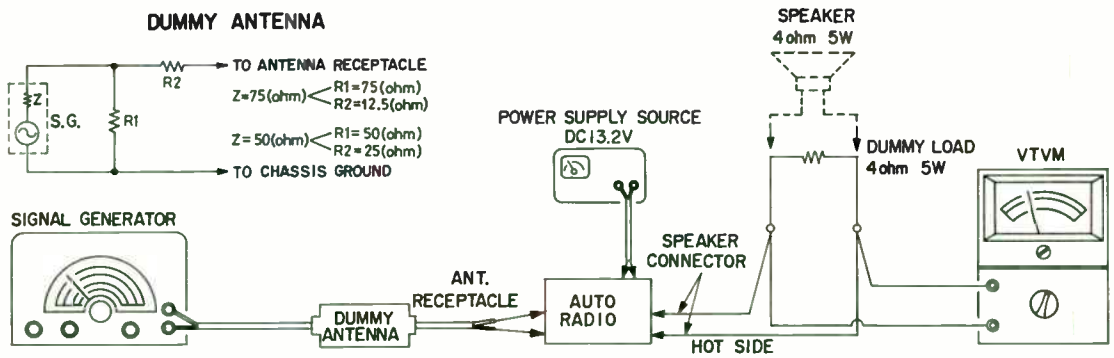


Fig. 9

b. Power supply : 13.2 VDC

c. Switch : Band selector for FM

d. Controls : Volume for maximum
Tone for high

(2) Alignment (Refer to Fig. 10 for ADJUSTMENT POINTS.)

STEP	PURPOSE	GENERATOR FREQUENCY	SET TUNER TO	ADJUSTMENT POINT	PROCEDURE
1	Tuning range	86.5 MHz (400 Hz, 30%, FM modulated)	Low-end stop	C_{25}	Adjust for maximum meter indication.
2		108.5 MHz (400 Hz, 30%, FM modulated)	High-end stop		108.5 MHz must be received.
3	Tracking	98 MHz (400 Hz, 30%, FM modulated)	Just tune in SG frequency	C_{12}	Adjust for maximum meter indication.
4				C_4	

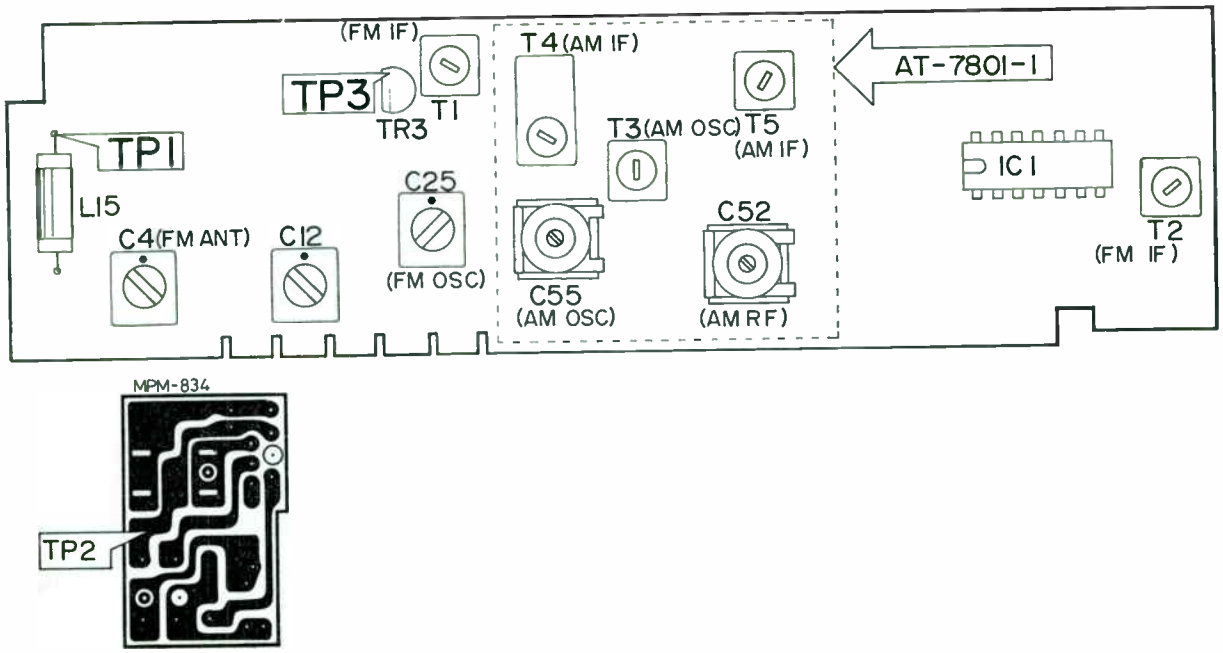


Fig. 10 ADJUSTMENT POINTS (AT-7801-1 and AT-7811-1)

SCHEMATIC (AT-7801-1)

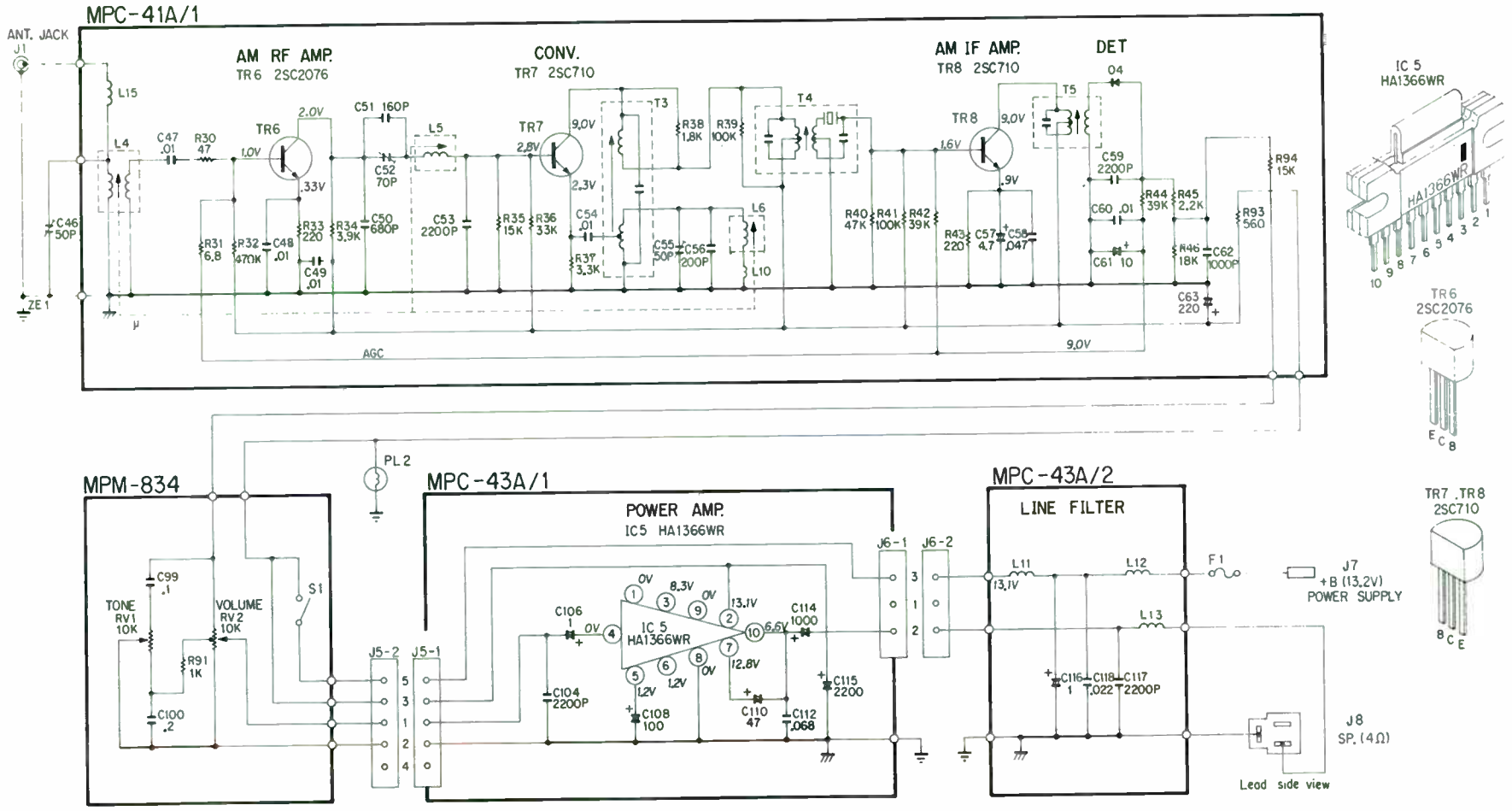


Fig .1

NOTES:
1. All resistance in ohms, K=10³, M=10⁶
2. All capacitance in μF, P=μμF
3. DC voltages against the chassis measured with 100,000 ohm per volt meter, power supply set at +13.2 VDC, no signal input.

WIRING ON PC BOARD (AT-7801-1)

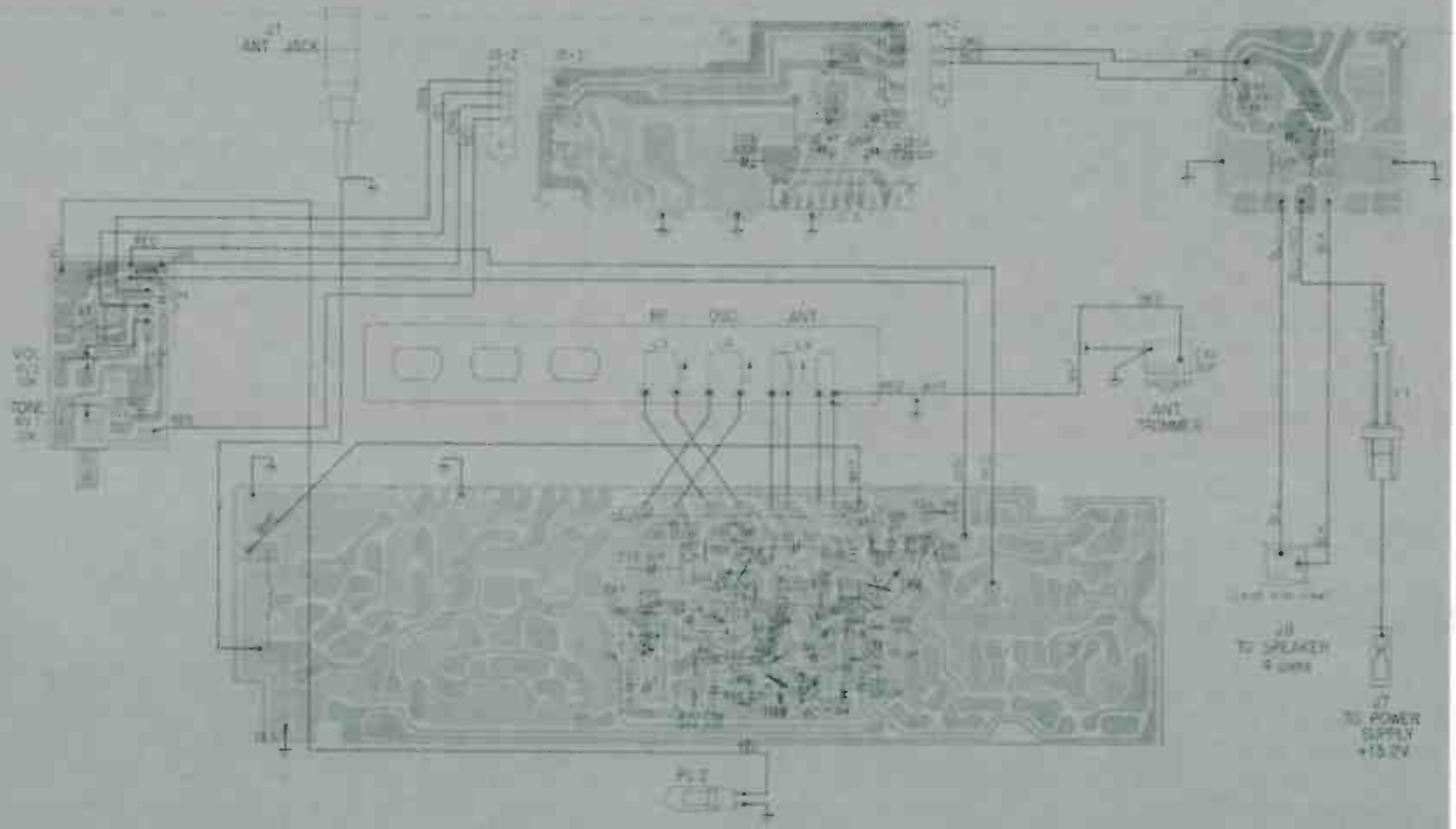


Fig. 2

Pin / TR	TR 6	TR 7	TR 8
BASE	1.0V	2.8V	1.6V
EMITTER	.3V	2.3V	.9V
COLLECTOR	2.0V	9.0V	8.0V

Pin / I C	1	2	3	4	5	6	7	8	9	10
I C 6	0V	13.1V	8.3V	0V	3.2V	3.2V	12.8V	0V	0V	6.6V

WIRING ON PC BOARD (A.T-7811-1)

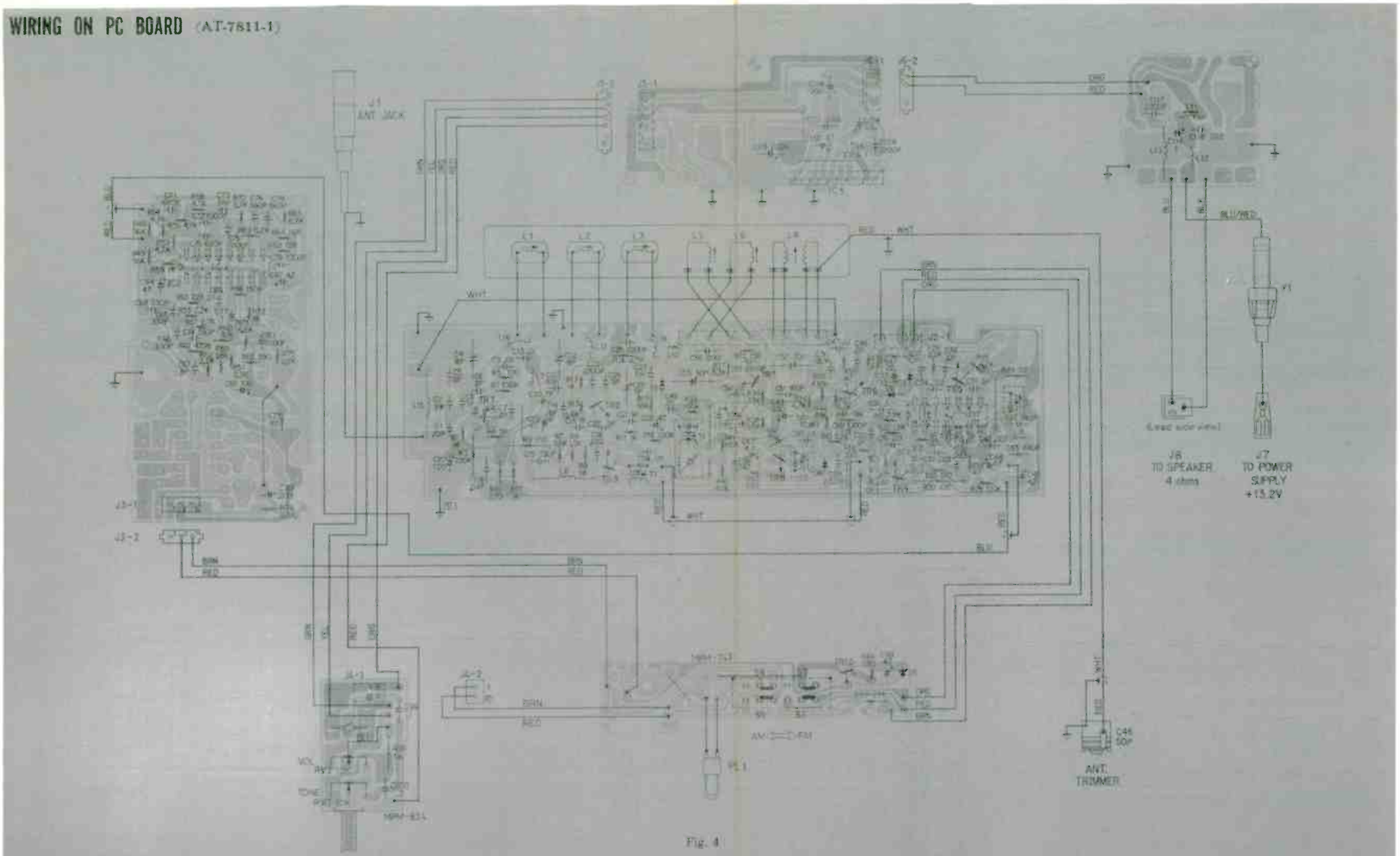


Fig. 4

Pin \ TR	TR 1
1 DRAIN	7.4V
2 GATE 2	1.6V
3 GATE 1	.7V
4 SOURCE	.4V

Pin \ TR	TR 2	TR 3	TR 4	TR 5	TR 6	TR 7	TR 8	TR10
BASE	1.3V	1.6V	2.6V	2.7V	1.0V	2.5V	1.6V	8.8V
EMITTER	.7V	.5V	1.9V	2.0V	3.3V	2.2V	.5V	9.2V
COLLECTOR	7.2V	7.4V	8.5V	4.3V	2.0V	9.0V	9.0V	13.3V

IC \ Pin	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC 1	4.6V	2.0V	4.1V	0V	2.7V	2.0V	3.7V	6.0V	3.7V	2.0V	4.8V	1.8V	2.0V	2.0V		
IC 2	4.2V	2.0V	2.0V	5.5V	2.6V	4.3V	4.9V	4.8V	12.7V	51.7V	0V	12.6V	3.6V	3.6V	2.5V	0V
IC 3	0V	13.1V	8.3V	0V	1.2V	1.7V	12.6V	0V	0V	8.8V						

SCHEMATIC (AT-7811-1)

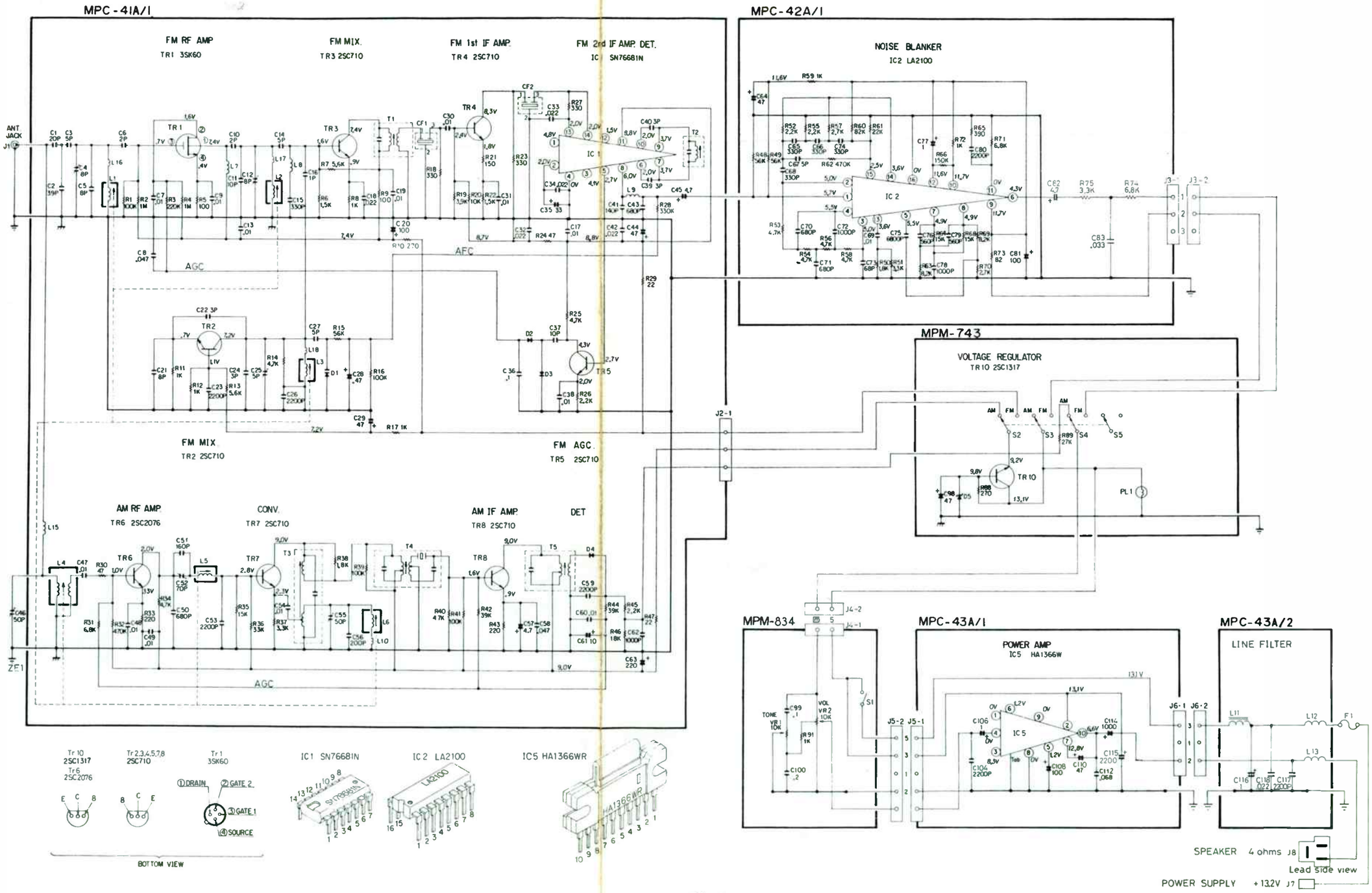


Fig. 3

NOTES:
1. All resistance in ohms, K=10^3, M=10^6
2. All capacitance in μF, P=$\mu\mu$F
3. DC voltages against the chassis measured with 100,000 ohm per volt meter, power supply set at +13.2 VDC, no signal input.

Symbol No. AT-7801-1	Symbol No. AT-7811-1	Stock No.	Description		
CAPACITORS					
	C 1	RN-ECC-DSL200K-1	20 pF	50V	ceramic
	C 2	RN-ECC-DSL390K-1	39 pF	〃	〃
	C 3, 14, 67	RN-ECC-DSL050D-1	5 pF	〃	〃
	C 5, 21	RN-ECC-DSL080D-1	8 pF	〃	〃
	C 6, 10	RN-ECC-DSL020C-1	2 pF	〃	〃
C47, 48, 49 54, 60	C 7, 9, 13, 17 19, 30, 31, 38 47, 48, 49, 54 60, 69	RN-ECB-DOX103E	.01 μF	50V	ceramic
C58	C 8, 58	RN-ECB-DBC473E	.047 μF	〃	〃
	C11	RN-ECC-DSL100F-1	10 pF	〃	〃
	C15	RN-ECG-DSA331J	330 pF	〃	〃
	C16	RN-ECC-DSL010C-1	1 pF	〃	〃
C118	C18, 118	RN-ECF-R223V50	.022 μF	50V	mylar
C108	C20, 108	RN-ECE-M101V10-2	100 μF	10V	electrolytic
	C22, 39, 40	RN-ECC-DSL030C-1	3 pF	50V	ceramic
C 53, 59, 104 117	C23, 26, 53, 59 104, 117	RN-ECK-DB222K-1	2200 pF	〃	〃
	C24	RN-ECC-DCJ030C-1	3 pF	〃	〃
	C27	RN-ECC-DXL050D-1	5 pF	50V	ceramic
	C28	RN-ECE-MR47V50	.47 μF	〃	electrolytic
C110	C29, 44, 98 110	RN-ECE-M470V10-1	47 μF	10V	〃
	C32, 33, 34, 42	RN-ECB-DOX223E	.022 μF	50V	ceramic
	C35	RN-ECE-M330V10	33 μF	10V	electrolytic
C99	C36, 99	RN-ECB-DBC104B	.1 μF	12V	ceramic
	C37	RN-ECC-DSL100F-1	10 pF	50V	〃
	C41	RN-ECC-DSL141K-1	140 pF	〃	〃
	C43	RN-ECK-DB681K-1	680 pF	〃	〃
C57	C45, 57, 82	RN-ECE-M4R7V25	4.7 μF	25V	electrolytic
C50	C50	RN-ECG-DSA681J	680 pF	50V	ceramic
C51	C51	RN-ECC-DSL161K-1	160 pF	〃	〃
C56	C56	RN-ECC-DPH201K-1	200 pF	〃	〃
C61	C61	RN-ECE-M100V16-1	10 μF	16V	electrolytic
C62	C62	RN-ECK-DYR102M	1000 pF	50V	ceramic
C63	C63	RN-ECE-M221V10-3	220 μF	10V	electrolytic
	C64	RN-ECE-M470V16	47 μF	16V	〃
	C65, 66, 68, 74	RN-ECK-DB331K-1	330 pF	50V	ceramic
	C70, 71	RN-ECK-DB681K-1	680 pF	〃	〃
	C72, 78	RN-ECK-DB102K-1	1000 pF	〃	〃
	C73	RN-ECC-DSL680K-1	68 pF	50V	ceramic
	C75	RN-ECK-DYR682M	6800 pF	〃	〃
	C76, 79	RN-ECK-DB561K-1	560 pF	〃	〃
C106, 116	C77, 106, 116	RN-ECE-M1R0V50	1 μF	〃	electrolytic
	C80	RN-ECK-RYW222M	2200 pF	〃	ceramic

Symbol No. AT-7801-1	Symbol No. AT-7811-1	Stock No.	Description		
	C_{81}	RN-ECE-M101V16-2	100 μF	16V	electrolytic
	C_{83}	RN-ECF-R333V50	.033 μF	50V	mylar
C_{100}	C_{100}	RN-ECB-DBC204B	.2 μF	12V	ceramic
C_{112}	C_{112}	RN-ECF-R683V50	.068 μF	50V	mylar
C_{114}	C_{114}	RN-ECE-M102V16-5	1000 μF	16V	electrolytic
C_{115}	C_{115}	RN-ECE-M222V16	2200 μF	16V	electrolytic
VARIABLE CAPACITORS					
	$C_{4,12}$	RN-ECT-S080-50	8 pF		FM ANT. RF trimmer
	C_{25}	RN-ECT-S050-49	5 pF		FM OSC trimmer
C_{45}	C_{45}	RN-ECT-S500-38	50 pF		AM ANT. trimmer
C_{52}	C_{52}	RN-ECT-N700-46-1	70 pF		AM RF trimmer
C_{55}	C_{55}	RN-ECT-N500-45	50 pF		AM OSC trimmer
VARIABLE RESISTOR					
	$RV_{1,2}S_1$	RN-ERV-2R2-114	Tone : 10k ohm, Volume : 10k ohm (includes power ON/OFF switch)		variable resistor
TRANSISTORS					
	TR_1	RN-EVF-3SK60	FM RF amp., FET		
TR_7	$TR_{2,3,4,5,7}$	RN-EVS-2SC710-C	FM OSC. MIX. IF. AGC and AM CONV., silicon		
TR_6	TR_6	RN-EVS-2SC2076-BC	AM RF amp., silicon		
TR_8	TR_8	RN-EVS-2SC710-D	AM IF amp., silicon		
	TR_{10}	RN-EVS-2SC1317-QR	Voltage regulator, silicon		
ICs					
	IC_1	RN-EIC-SN76681N	FM 2nd IF amp., linear-monolithic		
	IC_2	RN-EIC-LA2100	FM Noise blanker, linear-monolithic		
IC_5	IC_5	RN-EIC-HA1366WR	Power, amp., linear-monolithic		
DIODES					
	D_1	RN-EDC-ITT410	FM AFC variable capacitance		
D_4	$D_{2,3,4}$	RN-EDG-1S446	FM AGC and AM DET, germanium		
	D_5	RN-EDT-9R1E-C	Regulator, 9V, zener		
COILS					
	L_7	RN-ELH-C2R2	Choke, 2.2 μH		
L_{13}	$L_{8,13}$	RN-ELH-BR74	Choke, .74 μH		
	L_9	RN-ELH-C680	Choke, 68 μH		
L_{10}	L_{10}	RN-ELH-C6R2	Choke, 6.2 μH		
L_{11}	L_{11}	RN-ELL-205	Choke, filter, 3 mH		
L_{12}	L_{12}	RN-ELL-209	Choke, filter, 50 μH		
L_{15}	L_{15}	RN-ELH-B6R2-1	Choke, 6.2 μH		
	$L_{16,17}$	RN-ELH-AR03-2	FM series coil		
	L_{18}	RN-ELH-AR03-3	FM osc. series coil		
TRANSFORMERS & CERAMIC FILTERS					
	T_1	RN-ETF-131-1	FM IF 10.7 MHz		
	T_2	RN-ETF-138	FM IF 10.7 MHz		
T_3	T_3	RN-ETH-206	AM oscillator		
T_4	T_4	RN-EFC-A1-105	AM ceramic filter, 455 kHz		
T_5	T_5	RN-ETA-134-1	AM IF 455 kHz		
	$CF_{1,2}$	RN-EFC-F2-112	Ceramic filter, 10.7 MHz		

INDEX

Listing all models in Auto Radio Series volumes from 1970 (AR-70).
For models covered before 1970, see the Annual Index.

Abbreviations used: (EP) Early Produ (LP) Late Production (SN) Serial Number (Rev) Revised (PCB) Production Change Bulletin

AUTOMATIC (CONT.)

CEP4735 AR-171
CEV3524 AR-168
CEX4471 AR-170
CEX5471B/6471A AR-241
CEY3517(Sim.to Pg 19) AR-164
CFC2260AC AR-131
CFE6745A AR-119
CFE8001 AR-91
CFF3298 AR-169
CFI3245 AR-172
CFM1687/2200 AR-131
CFM3299 AR-169
CFV1701/2202, AC AR-131
CFV3298 AR-169
CH62 AR-239
CH64 AR-241
CHA4109 AR-176
CHF4299 AR-169
CHF5299B/6230 1/299A AR-239
CHL4002 AR-159
CHP4710 AR-171
CHX4463 AR-170
CHX4635 AR-177
CHX5463B/6463A AR-241
CKE4533 AR-168
CKF4296 AR-169
CKF5296B/6296A AR-239
CKL4019 AR-159
CKP4741 AR-171
CKX44B9 AR-170
CKX54B9B/6489A AR-241
CLU2098 AR-159
CMC3006A AR-159
CNV3022 AR-159
CP3002A AR-159
CPE3714 AR-171
CPE4542 AR-168
CPF4257 AR-172
CPL4006 AR-160
CPL4006T (Sim.to Pg.45) AR-160
CPL4006T (UP 22064T)(Sim.to Pg.45) AR-160
CPP3710 AR-171
CPV3013 AR-159
CPV7154 AR-71
CPX4440 AR-171
CRS9440 AR-103
CSA4125 AR-176
CSA9934 AR-103
CSE4525 AR-168
CSF4285/89 AR-169
CSF5289B/62B9A AR-239
CSL4042 AR-168
CSP4726 AR-171
CSX4479 AR-170
CSX5479B/6479A AR-241
CTL4001(Sim.to Pg.5) AR-159
CUL4013 AR-159
CVA4113 AR-176
CVE4513 AR-169
CVF4298 AR-169
CVF529BB/6298A AR-239
CVP4714 AR-171
CVX4481 AR-170
CVX4653 AR-177
CVX54B9B/64B9A AR-241
CXP3413 AR-170
CXP3463 AR-167
CXV3481 AR-167
CYP3015 AR-159
DC61 AR-242
DC62 AR-239
DC64 AR-241
DC65 AR-252
DC67 AR-245
0002555 AR-171
00F1492 AR-131
0EPB112M AR-85
0KP3077 AR-159
0PP2346 AR-169
ECF4259 AR-172
ECL4055(Sim.to Pg.45) AR-160
ECN3055 AR-159
EMS2121 AR-119
EMX6810 AR-89
ESS8528 AR-94
EXP8012 AR-121
Echomatell AR-71
F065 AR-252
F067 AR-245
FB65 AR-252
FBX446.0 AR-170
FEO3525/536 AR-168
FEP3503/514 AR-168
FFB1470/2213 AR-131
FFM1632/2231 AR-131
FFM3288 AR-169
FFM3354 AR-175
FK62 AR-239
FKF4285 AR-169
FKF5285B/6285A AR-239
FKL4053 AR-159
FKX4499 AR-170
FKX5499B/6499A AR-241
FM7880 AR-86
FO61 AR-242
FO62 AR-239
FO64 AR-241
FOE4503 AR-168
FOF4288 AR-169
FOF5288A, B AR-239
FOL4042 AR-159
FOM8404(See Pg.5) AR-159
FOP4704 AR-171
FOX4451 AR-170
FOX4655 AR-177
FOX5451B/6451A AR-241
FP3042 AR-159
FPE3726 AR-171
FPM1468/2217 AR-131
FPM3298 AR-169
FPO3024 AR-159
FPP3704 AR-171
FPX3644 AR-165
FX64 AR-241
FXO3479 AR-167
FXP3451 AR-167
FXP3451B AR-170
FXT3611 AR-177
GAF5267B/6267A AR-239
GAP3031, A AR-159
GAX5452B/6452A AR-241
GEP3294 AR-169
GES6394PAK, T/B111 1 PAK AR-71
GFP1495/2210 AR-131
GFP3333 AR-175
GM61 AR-242
GM67 AR-245
GPE4545 AR-168
GPF4294 AR-169
GPF5294B/6294A AR-239
GPL4041(Grand Boss 104) AR-158
GPP3733/4733 AR-171
GPX4459 AR-170
GPX5459A/6459A AR-241
GXP3459 AR-167

AUTOMATIC (CONT.)

GXP3459B AR-170
GXP3665 AR-165
Grand Boss104 AR-158
HQR3093 AR-159
HRL4093 AR-159
HRX4444 AR-170
IDC3224 AR-220
IEP3543(Sim.to Pg.21) AR-169
IFF2375 AR-246
IFX2462 AR-248
IPP3732 AR-171
IXP3445 AR-167
IXP3445B AR-170
KGF4231 AR-172
KGL4087(Sim.to Pg.5) AR-159
KGX4418 AR-174
LMA4127 AR-176
LME4293 AR-169
LME4527 AR-168
LMF4293 AR-169
LML4028 AR-159
LMP4737 AR-171
LMX4487 AR-170
MC03046 AR-159
MCM4816(Sim.to Pg.5) AR-163
MDD2560C AR-242
MDQ2520C AR-245
MEF4283 AR-169
MEF5283B/62B3A AR-239
MEL4051 AR-159
MEM4816(See Pg.5) AR-163
MEP4716 AR-171
MES1454 AR-119
MET3515(Sim.to Pg. 19) AR-164
MEX4497 AR-170
MEX4659 AR-177
MEX5497B/6497A AR-241
MFD3281 AR-169
MFM1858/2239 AR-131
MFM3283 AR-169
MFP3804 AR-163
MFV2240 AR-131
MFV3284 AR-169
MIN9945 AR-121
MMD3832B AR-159
MMM2590(See Pg.5) AR-173
MMT3816 AR-163
MMV3B22B AR-163
MNE6725A AR-123
MNI1410 AR-123
MPQ3B20, B AR-163
MPT3716 AR-169
MT3051 AR-159
MTR3824 AR-163
MU61 AR-242
MU64 AR-241
MU65 AR-252
MUE4547 AR-168
MUF4281 AR-169
MUF52B1B/6281B AR-239
MUL4046 AR-159
MUM4B32(See Pg.5) AR-163
MUX4453 AR-170
MUX5453B/6453A AR-241
MV62 AR-239
MV64 AR-241
MVE4521 AR-168
MVF4284 AR-169
MVF5284B/6284A AR-239
MVL4058 AR-159
MVM4822(Pg.5) AR-163
MVX4493 AR-170
MVX5493B/6493A AR-241
MX03453 AR-167
#MXR8404 AR-125
MXT3497 AR-167
MXT3497B AR-170
MXT3648 AR-165
MXV3493 AR-168
MXV3493B AR-170
N065 AR-252
N062 AR-239
N064 AR-241
NDA4117 AR-176
NDE4517 AR-119
NOF4270 AR-169
NOL4015(Sim.to Pg.5) AR-159
NOX4475(Sim.to Pg. 15) AR-165
NPB2408 AR-270
NPP2349 AR-176
NPX2390 AR-168
NPX2390F AR-225
OE3026A AR-159
OFA3390 AR-169
OFO3247 AR-172
OFM1869/2215 AR-131
OFM3290 AR-169
OKN3009 AR-159
OL62 AR-239
OL64 AR-241
OLA4101 AR-176
OLE4290 AR-169
OLE4501 AR-168
OLF5290B/6290A AR-239
OLL4026(Sim.to Pg.5) AR-159
OLP4702 AR-171
OLX4483 AR-170
OLX5483B/6483A AR-241
OMA3099A AR-159
OML4099 AR-159
OMX5411B/6411B AR-241
OPE3702 AR-171
OPF4251 AR-172
OPL4009(Sim.to Pg.5) AR-159
OPX4438 AR-174
OPX4472 AR-170
OXA3670 AR-165
OXE3483 AR-167
OXE3632 AR-165
Opus103 AR-160
P065 AR-252
PC3030A AR-159
PEC3507(See Pg.19) AR-164
PE03519 AR-168
PFM1434/2208 AR-131
PFM3295 AR-169
PIE4519 AR-168
PIF4286(Sim.to Pg.21) AR-169
PIF5286B/6286A AR-239
PIL4050 AR-159
PIM4820(Sim.to Pg.5) AR-163
PIP4720 AR-173
PIX4495 AR-170
PIX5495B/6495A AR-241
PNF1898/2235 AR-131
PNF3358 AR-175
PNO3050 AR-159
P062 AR-239
P064 AR-241
POE4507 AR-168
POF4295 AR-169
POF5295B/6295A AR-239
POL4030 AR-159
POP4708 AR-171
POX4455 AR-170
POX4645 AR-177
POX5455B/6455A AR-241
PPC3708 AR-171
PPP2500 AR-171

AUTOMATIC (CONT.)

PPX23B9(Late Prod.See Pg.19) AR-164
PPX23B9(Early Prod.) AR-127
PXC3455 AR-167
PXC3455B AR-170
PXN3638 AR-165
QME2445A AR-153
RED3335 AR-273
RRX4446 AR-170
#RTR7284.A AR-76
RVB6782 AR-71
Rally500 AR-229
#SCE6804 AR-77
SEA6801 AR-72
SEO3300 AR-99
SEK3529/540 AR-168
SEL9606 AR-74
#SFB6802 AR-79
SFK2258 AR-131
SFK3279 AR-169
SKX3097 AR-159
SPA500B/5000B/1B AR-141
SPC5002B(Boss102) AR-152
SPO5003B(Opus103) AR-150
SPE5004B(Grand Boss104) AR-158
SPF5005B(Stock 105) AR-147
SPX3735 AR-171
SPX2369/6500 AR-252
SSS2595 AR-143
SST1179 AR-145
SXK3471 AR-167
SXK3673 AR-165
TCP3028 AR-159
TCS3749A AR-159
TCX3019 AR-159
TDD4730 AR-171
TDF4278(Sim.to Pg.21) AR-169
TOF5278B/627BA AR-239
TOX4477 AR-170
TDX5477B/6477A AR-241
TEC3533(See Pg.19) AR-164
TER3523(Late Prod.) AR-168
TER3523 AR-164
TFC1489/2211 AR-131
TFC3293 AR-169
TFK3285/42B5 AR-169
TFO2254 AR-131
TFO3278 AR-169
TFX3207/285/296 AR-169
TKP3053 AR-159
TLU1590 AR-74
TM1550PA AR-160
TMA1550T AR-160
TQR3044 AR-222
TPO3730 AR-171
TPP3737 AR-171
TPR3724 AR-171
#TR7292 AR-81
TRE3524/4523 AR-168
TRF1490/2233 AR-131
TRF3287 AR-169
TRF3356 AR-175
TRF42B7 AR-169
TRF5287B/6287A AR-239
TRL4045 AR-159
TRM4824(See Pg.5) AR-163
TRM4724 AR-171
TRX4491 AR-170
TRX4647 AR-177
TRX5491B/6491B AR-241
TXC3449/489 AR-167
TXC3650 AR-165
TXO3477/79 AR-167
TXP3491B AR-170
TXP3499 AR-167
TXR3491 AR-167
TXR3636 AR-165
UAF3310 AR-269
UAF6270 AR-94
UAF6270H AR-269
UAF6270L AR-226
UP2064P(Sim.to Pg.5) AR-159
UP2064T(Sim.to Pg.45) AR-160
UPB3200 AR-270
UPK2354T AR-271
UPX2354F AR-225
US76219 AR-86
VAL4088 AR-159
VAX4443 AR-170
VBF4229 AR-172
VBL4088(Sim.to Pg.5) AR-159
VBX4416 AR-174
VEF4505 AR-168
VEF4297 AR-169
VEF5297B/6297A AR-239
VEL4004(Sim.to Pg.5) AR-159
VEP4706 AR-171
VEX4457 AR-170
VEX5457B/6457A AR-241
VFA1847/2204 AR-131
VFA3297 AR-169
VFP3249 AR-172
VGA3004 AR-159
VOX4428 AR-174
VP6228 AR-74
VP6235 AR-89
VPA3706 AR-171
VSC6767 AR-70
VSF4233 AR-172
VSX4420 AR-174
VWF4235 AR-172
VWX4422 AR-174
VXA3457 AR-167
VXA3626 AR-165
WP22B9A(Sim.to Pg.5) AR-159
XEM1156(Series M) AR-149
XME1443 AR-149
XPA2575A(See Pg.15) AR-165
XTP3487 AR-167
XTP34B7B AR-170
5400B AR-241
6100 AR-242
6400 AR-241
6700 AR-245

BENDIX

R2BG,BT,BV(Pg.113) AR-102
2B100AM/1AM AR-131
2B200FM/1FM/300,MPX/2B301MPX AR-133
3B200FM/1FM/300MPX/1MBX,MPX AR-133

BLAUPUNKT

CR4090 AR-254
FrankfortStereoUS(7636421) AR-255
7636421 AR-255

BOMANASTROSONIX

AP15 AR-189
ApolloXV AR-189
BM566S AR-200
BM590 AR-225
BM595 AR-228
#BM900VW AR-128
BM907 AR-116
BM909 AR-119

BOMANASTROSONIX (CONT.)

BM910 AR-111
BM911 AR-141
BM921(Sim.to Pg.73) AR-153
BM926 AR-119
BM950 AR-146
BM960 AR-121
BM1000 AR-117
BM1100 AR-130
BM1110 AR-165
BM1120 AR-232
BM1123 AR-212
BM1125 AR-205
BM1129 AR-257
BM1130 AR-166
BM1145 AR-257
BM1150 AR-156
BM1150B AR-230
BM1330 AR-168
BM1330B AR-269
BM1330E AR-268
BM1335(Late Version) AR-196
BM1335 (Early Prod.)(IC Version) AR-187
BM1339 AR-259
#BM1900 AR-126
#BM2900 AR-120
CR500 AR-109
CR520 AR-122
CR800 AR-109
CR820 AR-124
CT20 AR-185
CT21 AR-186
CT2200 AR-204
Century20 AR-185
Century21 AR-186
DP5000 AR-176
MPXB0 AR-185
SP80/88 AR-143
SP90 AR-116
SP91 AR-169
SP190 AR-131
Sport91 AR-169
Sport92 AR-165
#VW1 72 FM AR-128
VW305PB(Sim.to Pg.5) AR-142
VW405FM AR-144
100M AR-115
150M AR-187
293 8M AR-260
294.8PB AR-261
#300PB AR-118
305PB AR-142
350FM AR-144
400FM AR-112
402FM AR-222
405FM(See Pg.5) AR-144
600MPX AR-113
602MPX AR-163
605MPX AR-188
642MPX AR-163
650MPX AR-224
2000MPX AR-179

BRITISHLEYLAND

FBSMXR/9SMB AR-122
HAC725 AR-122
#HAC731 AR-128
N1V1017/1B/21 AR-216
R100 AR-122
1BM1441/42/43 AR-216
#1BM2132 AR-128
2BAMBL AR-130
2BFMBL(See Pg.5) AR-129
2BM1441/42/43 AR-216
2BMXBL(See Pg.5) AR-129
2FBPMJ AR-129
3BFMBL,BMXBL(See Pg.5) AR-129
5BM1441/42/43 AR-216

BRITISHMOTOR CO.

BSMB AR-108

BUICK
(See General Motors)

CADILLAC
(See General Motors)

CAMARO
(See General Motors)

CARPAL

CP30(Sim.to Pg.5) AR-90

CARTAPE

CT3604 AR-195
CT3700 AR-147
CT3882M AR-196
CT3900 AR-148
CT4300 AR-168
CT4305(See Pg.39) AR-168
CT4310 AR-233
CT4350(Sim.to Pg.39) AR-168
CT4355 AR-227
CT4355 AR-237
CT4400 AR-197
CT4800 AR-119
CT8000 AR-123
CT8030A AR-189
CT8104A AR-191
CT8200 AR-121
CT8300P AR-177
CT8359 AR-173
CT8500-4 AR-132
CT8800 AR-123
CT8900 AR-116
CT8999 AR-123
CT9300 AR-235
CT13882 AR-157
CTI8102 AR-143
CTI8202 AR-146
CTI8599 AR-149
CTI8877 AR-163
CTI8999A AR-152
X8020 AR-150
X8030,A AR-189
X8100 AR-119
513LSC AR-209
514FS AR-211

CHANNEL MASTER

CM6826 AR-239
AE6801 AR-237
AE6802 AR-236
AE6810 AR-241
AE6811 AR-243
6203 AR-116
6204 AR-113
6275 AR-223
#6280 AR-128
6282 AR-122
#6283 AR-126
6284 AR-129

CHANNEL MASTER (CONT.)

#6285 AR-125
6286 AR-124
6287 AR-151
6288 AR-154
6289 AR-183
6291 AR-121
6292 AR-119
6294 AR-158
6295 AR-152
6296 AR-156
6297 AR-157
6298 AR-227
6299 AR-226
6317 AR-103
6318 AR-142
6348 AR-229
6376 AR-189
6378 AR-188
6379 AR-187
63B2 AR-223
63B3 AR-185
6385A AR-224

CHEVELLE
(See General Motors)

CHEVROLET
(See General Motors)

CHRYSLER

AR6155G-BL,L AR-117
AR1770CE AR-267
AR3100CR AR-272
AR3100CR-B AR-272
AR5705CR AR-268
AR5705CRB AR-268
ARA10L,W AR-117
BBCC AR-94
BBJ AR-89
BOS AR-92
BVO AR-94
#CF9503 AR-87
CF10103 AR-88
CF10503 AR-93
#CF15703 AR-96
CF54403 AR-86
CF61003 AR-88
CF65803 AR-85
CF74803 AR-90
CF74903 AR-89
CF75203 AR-88
#CF75503 AR-87
CF75603 AR-88
CF75703 AR-93
CF79503 AR-92
#CF84403 AR-87
#CG01303 AR-104
CG01403/05903 AR-105
#CG15603 AR-104
CG16503 AR-106
#CG16603 AR-104
#CG16703 AR-106
CG64803 AR-93
CG72704 AR-89
#CG01303 AR-104
CG01403/5903 AR-105
0BBCC AR-94
0BBJ AR-89
0BOS AR-92
0BOT AR-97
0BVO AR-94
RS67SUB-K AR-270
1BBC,BBJ AR-89
1BSJ,BS1B AR-114
1BVD(Sim.to Pg.45) AR-94
1CH1210 AR-136
1CH1404 AR-157
1CH1401 AR-179
1CH2011 AR-108
1CH2401 AR-181
1CH2402 AR-180
1CH3507 AR-195
1CH3513 AR-214
1CH4007 AR-90
1CH4220 AR-155
1CH4307(See Pg.23) AR-155
1CH4402 AR-180
1CH4405 AR-181
1CH4507 AR-195
1CH4508 AR-192
1CL2206 AR-133
1CL2311 AR-153
1DC2002 AR-84
1OP2010 AR-109
1OP2209 AR-133
1OT1214 AR-135
1OT1315 AR-137
1OT1244 AR-135
1OT1316 AR-153
1DT1317 AR-154
1DT1336 AR-153
1DT2214 AR-133
1DT2314 AR-159
1PO2207/8 AR-135
1PO1207/8 AR-131
#1PO1209/211 AR-128
1PO1313 AR-156
1PO1506 AR-196
1PO2207/8 AR-135
1PO2209 AR-133
1PO2308 AR-159
1PO2309/312 AR-152
1PO2346/47/49 AR-158
1PO2509 AR-194
1PF2205 AR-135
1PF1206 AR-131
1PF1312 AR-156
#1PF2009 AR-81
1PF2205 AR-135
1PF2310 AR-152
1PF2347 AR-158
#2CH1005 AR-81
2CH1210 AR-136
2CH1401 AR-179
2CH1605 AR-223
2CH2602 AR-228
2DC1011 AR-83
2DP1006 AR-84
2OT1316 AR-153
#2PO1209/211/12 AR-128
2PD1306/8/315 AR-157
2PD1506 AR-196
2PD2313 AR-159
#2PD2509 AR-194
#2PF1007 AR-79
#2PF1203 AR-128
2PF1324 AR-157
5CH1401 AR-179
5CH1605 AR-223
5CH2401 AR-181
5CH2402 AR-180
5CH2602 AR-228
5CH3507 AR-195
5CH4402 AR-180
5CH4405 AR-181
5CH4507 AR-195

CHRYSLER (CONT.)

5CH4508 AR-192
5PO1506 AR-196
5PD2509 AR-194
18BFW1 AR-98
18BFW2(Sim.to Pg.27) AR-98
28BFW1 AR-109
38BFW1 AR-147
402/4 AR-73
350147 AR-251
2824744 AR-97
2824B58/59(0B0T) AR-97
#2884095 AR-87
2884101(CF10103) AR-88
2884105 AR-93
2884287/89 AR-73
2884544 AR-86
2884610(CF61003) AR-88
2884633(1CH4007) AR-90
2884649 AR-92
2884658(CF65803) AR-85
2884748(CF74803) AR-90
2884749 AR-89
2884750(0BV0) AR-94
#2884750 AR-128
2884752(0BBCC) AR-94
2884754 AR-83
#2884755(2PF1007) AR-79
#2884755(CF75203) AR-87
2884756(CF75603) AR-88
2884756(2DP1006) AR-84
2884757 AR-93
2884758(0BBJ,1BBJ) AR-89
#2884758(2CH1005) AR-81
2884759(2PO1315) AR-157
#2884759(2PO1212) AR-128
2884759(0BBJ,1BBJ) AR-89
2884795(CF79503) AR-92
#2884B44 AR-87
2884847 AR-73
#2884874 AR-77
#2884875 AR-79
#2884876 AR-77
2958648 AR-93
2958827 AR-89
34205601(CH2011) AR-108
#3420826 AR-87
#34208881(PF2009) AR-81
34208B9 AR-109
#3489157 AR-96
34B96501(1DT1336) AR-153
34B96501(1DT1316) AR-153
34B96501(1DT1244) AR-135
34B96501(1DT1214) AR-135
#3501013(CG01303) AR-104
3501013(2PD1308) AR-157
#3501013(1PD1209,2PO1209) AR-128
3501013(1BBC) AR-89
3501014/45 AR-105
3501059(CG05903) AR-105
3501156(2PF1324) AR-157
3501156(1971/72 Prod.) AR-122
#3501156(1971 Prod.) AR-104
3501157 AR-109
3501163(1CH1314) AR-157
3501163(1CH1210 or 2CH1210) AR-136
3501164(28BFW1)(1972 Prod.) AR-109
3501164(1973 Prod.) AR-147
3501164 AR-98
3501165(CG16503) AR-108
#3501B66 AR-104
#3501167 AR-106
3501213 AR-179
3501232/33/34/35 AR-181
3501237/38 AR-176
3501239(5CH2402) AR-180
3501239(2CH2402) AR-180
3501239(1CH2402) AR-180
3501240(1OP2209) AR-195
3501240(5CH2401) AR-181
3501240(1CH3507) AR-195
3501240(1CH2401) AR-181
3501328(5CH4507) AR-195
3501328(5CH4405) AR-181
3501328(1CH4507) AR-195
3501328(1CH4405) AR-181
3501329(5CH4402) AR-180
3501329(5CG4508) AR-192
3501329(1CH4508) AR-192
3501329(1CH4402) AR-180
3501457 AR-253
3501458 AR-251
3501472 AR-228
3501501(1PD2309) AR-152
3501501(1PD2208) AR-135
3501502(1PF2310) AR-152
3501503(1PD2207) AR-135
3501504(1CL2311) AR-153
3501504(1CG2061) AR-133
3501506(1PD1313) AR-156
3501506 (1PO1207)(1972 Barracuda) AR-131
3501507 (1PO1208)(1972 Satellite) AR-131
3501508(1PF1312) AR-156
3501508(1PF1206)(1972 Fury) AR-131
3501521 AR-159
3501531 AR-155
3501622(2PO1306) AR-157
3501623 AR-194
3501625 AR-159
3501635 34 35 AR-158
3501638 39 640 41(Sim.to Pg 35) AR-181
3501654 55(Sim.to Pg 35) AR-176
#3601167(CG16703) AR-106
3635069(1DT1317) AR-154
3635069(1DT1215) AR-137
3635149(1DT2314) AR-159
3635149(1DT2214) AR-133
3895716(Sim.to Pg 35) AR-181
3895717(Sim.to Pg 35) AR-176
4048001 AR-269
7313306 AR-147
RS67SUB K AR-270

CLARICON

48 500 AR-83

CLARION

JC201(RE366E) AR-240
JC201(PE620E) AR-239
PA430A AR-190
PA434A AR-170
PE606B AR-201
PE618A AR-244
PE620 AR-240
PE659A AR-234
PE662B AR-253
PE666A AR-257
PE676A AR-258
PE702A AR-233
PE703A(Late Prod) AR-267
PE703A(Early Prod) AR-264
PE703B(Late Prod) AR-267

CLARION (CONT.)

PE703B(Early Prod) AR-264
PE703C(Late Prod) AR-267
PE703C(Early Prod) AR-264
PU434A(See Pg. 79) AR-170
PU617A AR-205
PU657A AR-210
PU659A AR-234
RE121A,B AR-162
RE126A AR-166
RE127A AR-169
RE132B AR-184
RE308B AR-167
RE311A,B AR-164
RE321A,B AR-186
RE322A AR-224
RE322B AR-182
RE338C,D AR-248
RE341A AR-225
RE342A AR-232
RE344B AR-241
RE345B AR-238
RE350B AR-269
RE351A AR-243
RE351B AR-250
RE361A AR-255
RE366E AR-239
RT343A,N(Series) AR-270

COBRA

45XLR AR-248

COMET

(See Ford)

CONTINENTAL

(For Auto Radio)
(See Ford)

CORTINA

(See Ford)

CORVETTE

(See General Motors)

CORVAIR

(See General Motors)

COUGAR

(See Ford)

CRAIG

S600 AR-268
S603,A AR-270
T600 AR-267
T603 AR-273
#1901 AR-118
1902 AR-231
3108 AR-91
3116 AR-95
3117 AR-89
3119 AR-90
3120/21 AR-83
3122 AR-122
3123 AR-99
#3124 AR-106
3125 AR-108
3126 AR-121
3127 AR-117
3128 AR-194
3129 AR-158
3130 AR-150
3132 AR-156
3133 AR-159
3134 AR-151
3135 AR-191
3136 AR-196
3137 AR-200
3138 AR-196
3139 AR-197
3140 AR-193
3141 AR-207
3142 AR-203
3143 AR-194
3144,A AR-198
3145 AR-237
3146 AR-243
3148 AR-204
3148A AR-236
3149 AR-248
3504/5 AR-154
3506 AR-158
3507 AR-177
3508 AR-157
3511 AR-206
3512/13 AR-208
3516 AR-240
3520 AR-258
3521 AR-249

CRANWOOD

TC77T AR-212
TC95MPX(See Pg. 47) AR-184
TC207MPX AR-211
52T AR-208
77T AR-212
95MPX(See Pg. 47) AR-184
207MPX AR-211
100007 254 AR-208
100017 219 AR-213

CROWN

CSC1500/1800 AR-107

DART

(See Chrysler)

DELCO

(See General Motors)

DESOTO

(See Chrysler)

DODGE

(See Chrysler)

DOLPHIN

#DFM888(Sim.to Pg.81) AR-104

DYNATRONICS

S401 AR-95
#S808 AR-79
S84B AR-91

EDSEL

(See Ford)

FALCON

(See Ford)

FO-MO-CO

(See Ford)

FORD

B8AF19A171AA(Sim to Pg. 37) AR-246
C7VF19A180AB AR-251
#C8DA19A049E (1970 Prod.) AR-87
C8VY18805B5 AR-71
#C9AA19A127C AR-80
C9AA19A241 AR-73
C9DA18806 AR-83
#C9LA19A241B AR-80
#C9MA19A241 AR-78
C9MA19A242C AR-88
#C9SA19A241 AR-76
#C8DA19A049 AR-87
#C8DA19A049E AR-106
D0DA1880b AR-83
#D0GA19A241 AR-81
D0MA19A242,C AR-85
D0MY18805B AR-85
D0RJ19A241A AR-109
D0RJ1880bA AR-102
#D0WA19A24 AR-81
D0WA19A242A AR-86
D0YA19A243 AR-84
#D0ZA1880b AR-81
#DAA19A241 AR-80
#DAA19A243 AR-80
DLA19A242 AR-92
DMA19A242 AR-85
DSA19A242 AR-84
DVA19A242E (1LN4003) AR-108
D1AA19A241 AR-94
#D1AA19A242AD AR-104
D1AA1880b AR-94
D1DA1880b AR-94
D1DJ19A241AA AR-108
D1GA19A241 AR-98
D1HA1880b AR-94
#D1LA19A242AA AR-104
D1LA1880b AR-98
D1MA19A241 AR-98
D1MA19A242AD AR-105
D1OA19A241 AR-94
D1OA1880b AR-94
D1SA19A242AB AR-102
D1SA1880bAB AR-101
D1TA19A241 AR-94
D1TA1880b AR-94
D1TJ1880bAA AR-97
D1UA1880b AR-94
D1VA19A241 AR-97
D1VA19A242AA AR-102
D1VA19A244(See Pg. 37) AR-82
D1WA19A241 AR-98
D1WA19A242AD AR-105
D1YA19A241 AR-98
D1YA19A242AD AR-105
D1ZA19A241 AR-94
#D1ZA19A242AD AR-104
D1ZA1880b AR-94
D2AA19A241-125 AR-127
D2AA19A242AE AR-135
#D2AA1880b AR-126
#D2DA1880b AR-125
D2DJ19A241AA AR-133
D2HA1880b(1973 Prod.) AR-138
#D2HA1880b AR-126
D2OA1880b AR-138
D2SA19A242AH AR-135
#D2TA19A241 AR-126
#D2TA1880b AR-124
D2TJ1880b AR-124
D2UA1880b(1973 Prod.) AR-138
#D2UA1880b AR-126
D2VA19A241 AR-127
D2VA19A242AD AR-135
#D2VA1880b AR-126
D2ZA19A241 AR-127
D2ZA19A242AF AR-135
D2ZA1880b AR-129
D3AA19A168AD AR-155
D3AA19A241 AR-137
D3DA19A241 AR-137
D3DA1880b AR-136
D3SA19A241 AR-137
D3TA1880bA,B AR-138
D3VA19A168AC AR-155
D3ZA19A242AB AR-153
D3ZA1880b AR-136
D4AA19A168AA AR-181
D4AA19A168BA AR-181
D4AA19A241AA AR-174
D4AA1880bAA AR-171
D4BJ18810AA AR-172
D4DA19A171BA AR-178
D4GA19A241AA AR-174
D4HA1880bAA AR-170
D4HA18810AA,BA AR-172
D4RJ19A241AA AR-182
D4TA1880bAA AR-171
D4TA1880bBA AR-170
D4TA18810AA AR-172
D4UA1880bAA AR-170
D4VA19A168AA AR-183
D4VA19A241AA AR-174
D4VA1880bBA AR-171
D5AA19A168 AR-186
D5AA19A168BD AR-222
D5AA19A171AB AR-200
D5AA19A241(Sim.to Pg.61) AR-188
D5DA19A168AA AR-199
D5DA19A171AB AR-200
D5HA18810AA(Sim.to Pg.49) AR-172
D5MA19A168AA(Sim.to Pg.55) AR-186
D5SA19A168 AR-186
D5SA19A241 AR-188
D5VA19A168 AR-186
D5VA19A241 AR-188
D6AA1880bBA AR-247
D6BA19A168AA AR-223
D6BA19A242AA AR-223
D6DA19A171 AR-226
D6DA1880bAA AR-221
D6DF19A171AA AR-246
D6EA19A171 AR-226
D6EA19A171AC AR-246
D6EA19A242AA AR-223
D6GA19A171 AR-226
D6SA19A188AD AR-228
D6TA19A171AA AR-246
D6TA19A241(Sim.to Pg.61) AR-188
D6TA1880bAB(Sim to Pg.85) AR-171

FORD (CONT.)

D6ZA19A242AA AR-223
D7AF19A168AA,AB AR-248
D7AF19A168CA AR-252
D7AF19A180AB AR-251
D7AF19A188AB(Sim.to Pg45) AR-228
D7AF19A241AB,BA AR-249
D7AF1880bAA AR-248
D7EF19A241AB AR-249
D7MF19A168AA AR-252
D7SF19A241AB AR-249
D7TF19A171AB AR-246
D7TF19A241AB AR-249
D7TF1880bAA AR-248
D7VF19A168AB AR-248
D7VF19A171AB AR-246
D7VF19A188AB(Sim.to Pg45) AR-228
D7VF19A241AB,BA AR-249
D8AF19A171AA AR-246
D8AF19A171AA AR-272
D8AF19A180AA(Sim.to Pg.43) AR-251
D8AF19A188AA(Sim.to Pg.45) AR-228
D8AF19A241AA AR-264
D8AF1880bAA AR-271
D8EF18B814AA AR-263
D8EF19A171AA AR-272
D8EF19A241AA AR-264
D8EF1880bBA AR-271
D8HF19A241BA AR-264
D8HF1880bCA,DA,EA AR-271
D8MF19A180AB(Sim.to Pg.43) AR-251
D8MF19A188AA(Sim to Pg.45) AR-228
D8MF19A241AA AR-264
D8TF18B814AC AR-263
D8TF19A171AA AR-272
D8TF19A241AA(Late) AR-268
D8TF19A241AA(Early) AR-264
D8TF1880bBA AR-271
D8UF18B814AA AR-263
D8VF19A171AA AR-272
D12A1880b AR-126
D20A19A241 AR-127
D20A1880b AR-122
D22A19A241AA AR-133
#D22A1880b AR-125
D27J1880b AR-138
D27J1880bBA AR-247
D27J1880bCA AR-248
D32A19A171AA AR-178
D32AJ19A241 AR-137
D32A1880b AR-136
D40A19A241AA AR-180
D42A19A171AB AR-179
D42A1880bAB AR-170
D44A1880bAA AR-178
D52-19A171 AR-200
D52A19A241 AR-174
D74F19A180BA(Sim.to Pg.43) AR-251
D74F19A188CA(Sim.to Pg.45) AR-228
D77J19A171AA AR-272
D77J1880bAA AR-271
D80F1880bAA,BA AR-262
D0AA1880b AR-83
#D0AA19A241 AR-81
D0DA19A241 AR-75
D0DA1880b AR-83
#D0HA1880b(Sim.to Pg.55) AR-77
D0LA19A241 AR-94
D0LA19A242 AR-92
D0LA1880b AR-84
#D0MA1880b AR-77
#D0OA19A241 AR-79
D0OA1880b AR-83
#D0SA19A241 AR-96
D0SA19A242 AR-84
D0SA1880b AR-83
#D0TA1880b(Sim.to Pg.55) AR-77
#D0TJ18806(Sim.to Pg.55) AR-77
#D0UA1880b(Sim.to Pg.55) AR-77
D0VA19A241 AR-75
D0VA19A242E AR-108
D0VA19A244 AR-82
D0VA19A18P AD AR-228
D0YA19A241 AR-82
#D0ZA19A241 AR-79
D0ZA19A242 AR-86
#D0ZA1880b AR-81
ED-D1GA-19 AR-97
ED-D1OA-19 AR-98
ED-D1SA-19241 AR-103
ED-D1TA-19 AR-98
ED-D1WA-19 AR-97
ED-D1ZA-19 AR-98
ED1D1GA19A AR-97
ED1D1OA19A AR-98
ED1D1SA19A AR-100
ED1D1TA19A AR-98
ED1D1WA19A AR-97
ED1D1ZA19A AR-98
FBTBC AR-71
#Mark III (69) AR-80
0BLSS AR-82
#0BM AR-77
0BTF AR-83
#0BTM,0BTP,0BTPL,0BTU AR-77
0FBA(D0YA-19A241) AR-82
0FBD AR-75
0FBF(Early Prod.)(See Pg. 59) AR-73
#0FBF (D0AA-19A241)(Late Prod.) AR-81
#0FBG(D0GA 19A241) AR-81
0FBL AR-75
0FBM(D0MY 18805B) AR-85
0FBM (D0MA 19A241)(See Pg. 47) AR-85
#0FBO AR-79
#0FBSW AR-96
#0FBW(D0WA 19A241) AR-81
0FBX AR-94
#0FBZ AR-79
LN4707(Sim.to Pg45) AR-228
T9MM(C9MA 19A242C) AR-88
TF864AX AR-181
1BLSS(See Pg. 37) AR-82
1BTF AR-115
1CP1047 AR-102
1CP1323 AR-153
1CP2033 AR-109
1CP2235 AR-135
1CP2417 AR-182
1CR4005 AR-86
1F1RAM4 AR-178
1F2RFM4 AR-178
1F3RMX4 AR-180
1FBA AR-98
1FBF AR-94

FORD (CONT.)

1FBG AR-98
1FBGG,FBGX,FBL AR-97
1FBM AR-98
1FBO AR-94
1FB00,FB0X AR-98
1FBSS,FBSX AR-100
1FBTP AR-94
1FBTPP,FBTPX,FBW AR-98
1FBWW,FBWX AR-97
1FBZ AR-94
1FBZX,FBZZ AR-98
1FD2507 AR-200
#1FD4103 AR-104
1FD4217 AR-135
1FD4302 AR-155
1FD4505 AR-222
1FD4510 AR-199
1FD4511 AR-222
1FD4602 AR-228
1FD4607/8 AR-223
#1FD5001 AR-80
#1FD5003 AR-87
#1FD5101 AR-106
1LN4003 AR-106
1LN4213 AR-135
1LN4306 AR-155
1LN4606 AR-228
1MA2119 AR-106
1MA2233 AR-133
1MT4002 AR-92
1MY4106 AR-105
1MZ4004 AR-86
1MZ4218 AR-135
1MZ4304 AR-153
1PN2120 AR-108
1PN2216 AR-133
1PN2318 AR-178
1PN2513 AR-200
1PN4605 AR-223
1T84008 AR-84
1T84211(D2SA-19A242-AH) AR-135
#2BL,BLAF AR-126
2CR7/4107 AR-105
2FBF,FBFAK,FBL,FBO AR-127
#2FBTP AR-126
#2FBTPAC AR-127
2FBZ AR-127
#2FD4103 AR-104
2FD4607/8 AR-223
2LN4110 AR-102
2MR4111 AR-105
#2MT4108 AR-104
2MY4106 AR-105
#2MZ4101 AR-104
2T84109 AR-102
5CP2417 AR-182
5F1RAM4 AR-178
5F2RFM4 AR-178
5F3RMX4 AR-180
5FD2507 AR-200
5FD4510 AR-199
5FD4706(Sim.to Pg45) AR-228
5FD4804(Sim.to Pg. 45) AR-228
5LN4707/714/4805(Sim. to Pg. 45) AR-228
5PN2318 AR-178
5PN2411 AR-179
5PN2508(Sim.to Pg79) AR-179
5PN2513 AR-200
6A-D6DA19A171 AR-226
6A-D6DA1880bAA AR-221
6A-D6EA19A171 AR-226
7SF19A241AB AR-201
9FBF AR-73
9FBL,FBLU AR-71
#9FBM AR-78
#9FBS AR-76
#9FBX AR-80
9MABL AR-94
73EB18K810AA AR-153

FULTONE

737 AR-198

GM & GMC

(See General Motors)

GENERAL MOTORS

01APB1(Late Prod) AR-101
#01APB1(Early Prod) AR-76
01APB2(Late Prod) AR-101
#01APB2(Early Prod) AR-76
#01BFM1/2 AR-77
01BFMT1/2 AR-75
01BFP1/2 AR-74
01BFP3 AR-92
01BPB1/2 AR-73
01BPBT1/2 AR-74
#01BT411 AR-76
01BT412 AR-86
#01FFM1 AR-77
01FFMT1(Sim.To Pg.19) AR-75
01FFP1 AR-92
#01FPB1 AR-76
01FPBT1(Sim.to Pg.57) AR-74
01TFP3 AR-92
#01TPB1(Early Prod) AR-76
01TPB2(Late Prod) AR-101
#01TPB2(Early Prod) AR-76
#01VFM1/2 AR-78
01VFM3 AR-79
01VFP1/2 AR-74
01VFP3 AR-92
#01VMPA1 AR-78
#01VMPH1 AR-78
#02AFM1 AR-76
02AFM2(Two Piece Unit) AR-89
#02AFM2(One Piece Unit) AR-79
02AFP1/2 AR-94
02AFPK1 AR-94
02APB1(Late Prod.) AR-101
02APB1(Early Prod.) AR-82
02APBK1(Early Prod.) AR-82
02APBK1(Late Prod.) AR-101
#02BFM1 AR-76
02BFM2 AR-89
02BFP1 AR-94
02BFPK1 AR-94
#02BMF1 AR-76
02BPB1 AR-75
02BPBK2 AR-73
02BPBT1 AR-74
#02BT411 AR-80
02BT412 AR-90
02FBPK2 AR-101
#02FFM1 AR-76
02FFM2 AR-79
02FFP1/2 AR-94
02FFPK2 AR-94
02FPB1(Late Prod) AR-101
02FPB1(Early Prod) AR-82
02FPB2(Late Prod.) AR-101
02FPB2(Early Prod) AR-82
02FPBK2 AR-82
02FT412 AR-90
#02GFM1 AR-79

GENERAL MOTORS (CONT.)

02GFP1 AR-94
02GFPK1/2 AR-94
02GPB1 AR-75
02GPBK1 AR-75
#03AFM1 AR-80
03AFM2 AR-88
03APB1(Late Prod) AR-98
03APB1(Early Prod) AR-84
#03BFM1 AR-80
03BFM2 AR-88
03BPB1 AR-73
#03BT411 AR-78
#03BT412 AR-87
#03EFM1 AR-80
03EFM2 AR-88
03EPB1 AR-73
#03ET411 AR-78
#03ET412 AR-87
04AFP1 AR-75
04AFP2 AR-88
04APB1(Late Prod) AR-100
#04APB1(Early Prod) AR-80
04AT411 AR-82
#04AT412 AR-81
04BFM1 AR-83
04BFP1 AR-75
#04BPB1 AR-77
04BPB2 AR-73
#04BPB4/84 AR-77
04BT411 AR-82
#04BT412 AR-81
#04CFP1 AR-76
04CFPK2 AR-93
#04CFW1 AR-79
#04CMW1 AR-78
#04CMWK1 AR-78
04CT411 AR-83
04CT412 AR-94
04EFM1 AR-83
04EFM2 AR-88
04EFP1 AR-75
04EFP2 AR-88
#04EPB1 AR-77
04EPB2 AR-73
#04EPB4 AR-77
#04LPB1 AR-78
#05CFP1 AR-76
05CFPK2 AR-93
#05CFW1 AR-79
#05CMW1 AR-78
#05CMWK1 AR-78
05CT411 AR-83
05CT412 AR-94
06TCFP2 AR-92
06T411 AR-84
06TT412 AR-93
06TTCP1 AR-74
CBD20 AR-250
VFP1 AR-260
#1APB AR-80
#1APB2 AR-76
1BFMT1/2 AR-75
1BPBT1/2 AR-74
#1BT411 AR-76
1BT412 AR-85
1FFMT1(Sim to Pg. 19) AR-75
1FPBT1(Sim to Pg. 57) AR-74
2BFM2 AR-89
2BT412 AR-90
2FFP2 AR-94
2FT412 AR-90
#2GFM1 AR-79
2GFP1 AR-94
#3BT411 AR-78
#3ET411 AR-78
#3ET412 AR-87
4AT411 AR-82
#4AT412 AR-81
#4BPB4 AR-77
4BT411 AR-82
#4BT412 AR-81
4LPB1 AR-100
4PPB1 AR-100
5BFPK)(See Pg. 103) AR-191
5CT411 AR-83
5CT412 AR-94
50BPBT3 AR-215
6TT411 AR-84
6TT412 AR-93
11AFM1 AR-100
11AFMT1(See Pg. 19) AR-75
#11AFP1 AR-104
#11APB1 AR-96
11APB1(See Pg. 57) AR-74
11BFM1/2 AR-101
11BFM3(Sim.to Pg. 25) AR-101
11BFMT1 AR-105
11BFMT2 AR-118
11BFP1/2 AR-93
11BFP3(Sim.to Pg. 47) AR-93
11BFPK1/2 AR-93
11BFPK3(Sim.to Pg 47) AR-93
11BPB2 AR-97
11BPBK2 AR-97
11BPBT1 AR-102
11BPBT2 AR-115
11BT411 AR-97
11HFP2 AR-93
11HPB2 AR-97
#11TFP1 AR-104
#11TPB1 AR-96
11TT411 AR-97
#11VFM1(See Pg. 25) AR-78
#11VFP1 AR-104
#12AFM1 AR-106
12AFP1(1971) AR-100
#12AFP1(1971 1/2) AR-120
12AFPK1(1971) AR-97
#12AFPK1(1971 1/2) AR-120
12APB1 AR-98
12APBK1 AR-98
12AT411 AR-97
12BFM1 AR-100
12BFM2(Sim to Pg. 87) AR-100
#12BFMT1 AR-104
12BFMT2 AR-115
12BFP1 AR-102
12BFP2(Sim to Pg. 101) AR-102
12BFPK1 AR-102
12BFPK2(Sim to Pg. 101) AR-102
12BPB2 AR-105
12BPBK2 AR-105
12BPBT1 AR-101
12BPBT2 AR-117
12BPT1 AR-101
12BT411 AR-97
12FFM1 AR-106
12FFP1(1971) AR-97
#12FFP1(1971 1/2) AR-120
12FFPK1(1971) AR-97
#12FFPK1(1971 1/2) AR-120
12FPB1 AR-98
12FPBK1 AR-98
12FT451 AR-97
#12GFM1 AR-106
12GFP1(1971) AR-97
#12GFP1(1971 1/2) AR-120
12GFPK1(1971) AR-97

GENERAL MOTORS (CONT.)

#12GFPK1(1971 1/2) AR-120
12GPB1 AR-98
12GPBK1 AR-98
13AFM1 AR-105
13APB1 AR-101
13AT411 AR-97
13BFM1/2 AR-98
13BFMT1 AR-97
13BFMT2 AR-117
13BPB2 AR-101
#13BPBT1 AR-96
#13BPBT2 AR-118
14AFP1 AR-101
#14APB1 AR-106
14AT411 AR-97
14BFM1 AR-102
14BFMT1 AR-98
#14BFMT2 AR-120
#14BFP1 AR-96
#14BFP2(Sim.to Pg. 11) AR-96
14BPB1 AR-97
14BPBT1 AR-100
14BPBT2 AR-114
14BT411 AR-97
#14LPB2 AR-96
14PPB1 AR-97
#15CFMT1/2 AR-96
15CFMT3 AR-114
15CFP1 AR-100
15CFP2(Sim.to Pg. 29) AR-100
15CMW1 AR-102
15CMW2(Sim to Pg. 19) AR-102
15CT411 AR-97
#16TFP1 AR-104
#16TRMP1 AR-96
16TT411 AR-97
#16TTCP1 AR-96
16UT411 AR-97
20BCT11 AR-115
21AFM1 AR-113
21AFMT1(See Pg. 19) AR-75
21AFP1 AR-117
21AFP2/3 AR-127
#21AFP21 AR-120
21AFPK1 AR-117
21AFPK2/3 AR-127
21APB1(Late Prod.) AR-114
#21APB1(Early Prod) AR-110
21APB2(Early Prod.) AR-114
21APBK1(Late Prod.) AR-114
#21APBK1(Early Prod) AR-110
#21APBK2(Late Prod.) AR-126
21APBK2(Late Prod.) AR-124
21APBT1(See Pg. 57) AR-74
21AT411 AR-112
21ATFP2 AR-127
21BFM1 AR-114
21BFM3/4(Sim.to Pg. 41) AR-114
#21BFMT1 AR-118
21BFP1 AR-113
21BFP2(See Pg. 61) AR-113
21BFPK1 AR-113
21BFPK2(See Pg. 61) AR-113
21BPB1 AR-112
#21BPB2 AR-120
21BPBK1 AR-112
#21BPBK2 AR-120
21BPBT1 AR-115
#21BPBT2 AR-125
21HPB1 AR-112
21HPB2 AR-120
21HPBK1 AR-112
#21HPBK2 AR-120
21TFP1 AR-117
21TFP3 AR-127
#21TPB1 AR-110
21TPB2 AR-124
21TT411 AR-112
#21VFM1(See Pg. 25) AR-78
21VFP1 AR-117
21VFP2/3 AR-127
#21VMPA1(See Pg. 39) AR-78
#21VMPH1(See Pg. 39) AR-78
#21XFMT1(7936191) AR-118
#21XFMT1(7930121) AR-118
21XPB1 AR-115
21XPBT1(Late Prod.) AR-117
21XPBT1(Early Prod.) AR-115
22AFM1 AR-113
#22AFP1/2 AR-120
#22AFP3(See Pg. 89) AR-120
#22AFPK1/2/3 AR-120
22APB1 AR-114
#22APB2 AR-126
22APBK1 AR-114
#22APBK2 AR-126
22AT411 AR-112
22BFM1/2 AR-112
22BFM4(Sim to Pg 91) AR-112
22BFMT1 AR-115
22BFP1 AR-109
#22BFP2(See Pg. 99) AR-109
22BFPK1 AR-109
#22BFPK2(See Pg. 99) AR-109
#22BPB1 AR-118
22BPB2 AR-138
22BPB2A AR-138
#22BPB3(Sim.to Pg 93) AR-115
22BPB22KA AR-138
#22BPBK1 AR-118
22BPBK2 AR-122
22BPBK2A AR-138
#22BPBK3 AR-122
22BPBT1 AR-117
#22BPBT2 AR-117
22BT411 AR-112
22FBPK1 AR-114
22FFM1 AR-113
#22FFP1 AR-120
#22FFP2 AR-120
#22FFP3(See Pg. 89) AR-120
#22FFPK1/2/3 AR-120
22FPB1 AR-114
#22FPB2/22 AR-126
#22FPBK2 AR-126
22FT411 AR-112
22GFM1 AR-113
#22GFP1/2 AR-120
#22GFPK1 AR-120
#22GFPK2 AR-120
#22GFPK3 AR-120
22GPB1 AR-114
#22GPB2 AR-126
22GPBK1 AR-114
#22GPBK2 AR-126
22KA2 AR-138
22XT411 AR-112
23AFM1 AR-112
23AFP1 AR-115
#23AFP2/3 AR-128
#23APB1 AR-120
#23APB2 AR-128
23AT411 AR-112
#23BFM1 AR-110
#23BFM3(Sim to Pg. 91) AR-110
23BFMT1 AR-117
23BFP1 AR-114
23BPB1 AR-115

GENERAL MOTORS (CONT.)

#23BPB2 AR-125
#23BPBT1 AR-118
#23BPBT2 AR-126
23FPBK1 AR-114
#24AFP1 AR-118
#24AFP2/3 AR-129
24APB1 AR-115
#24APB2 AR-125
24AT411 AR-112
24BFM1 AR-113
#24BFMT1 AR-120
#24BFP1 AR-110
24BPB1 AR-124
24BPB2 AR-124
24BPBT1 AR-114
24BPBT2(1972) AR-114
#24BPBT2(1972 1/2) AR-128
#24BPT2 AR-128
24BT411 AR-112
24LPB1 AR-124
#24LPB2 AR-126
24PPB1 AR-112
24PPB2 AR-127
25CFMT1/2 AR-114
25CFP1 AR-112
#25CMW1/2 AR-110
25CT411 AR-110
26TCFP2/3 AR-127
26TFP1 AR-117
#26TRMP1 AR-110
26TRMP2 AR-124
26TT411 AR-112
#26TTCP1 AR-110
26TTCP2 AR-108
30LPB1 AR-139
30LPB2(Sim to Pg 17) AR-144
30PPB1(See Pg 73) AR-127
31APB1 AR-137
31APB2 * AR-145
31APBK1 AR-137
31APBK3 AR-145
31BFB1 AR-138
31BFM1 AR-140
31BFMT1 AR-151
31BFMT2 AR-142
31BFP1 AR-138
31BFPK1 AR-138
31BPB1 AR-176
31BPB2 AR-145
31BPBK1 AR-137
31BPBK2 AR-145
31BPBT1 AR-139
31FFMT1(See Pg 19) AR-75
31FPBT1(See Pg 57) AR-174
31TPB1(See Pg. 47) AR-124
31TTCP1(See Pg. 47) AR-124
31XFM1(See Pg. 29) AR-109
31XFP1(See Pg. 25) AR-127
31XPB1(See Pg. 47) AR-124
31XPBK1(See Pg. 47) AR-124
31XPK1(See Pg. 25) AR-127
#31YFM1(See Pg. 25) AR-78
31YFP1(See Pg. 25) AR-127
32AFM M3 AR-154
32AFM1 AR-144
32AFM2 AR-154
32AFMT1 AR-152
32AFMT2 AR-148
32AFP1 AR-137
32AFP2 AR-149
32AFP31 AR-137
32AFP32 AR-149
32AFPK1 AR-137
32AFPK2 AR-137
32APB1 AR-140
32APB2 AR-138
32APB31 AR-140
32APB32 AR-138
32APBK1 AR-140
32APBK2 AR-138
32APBT1 AR-144
32BFM1 AR-144
32BFMT1 AR-152
32BFMT2 AR-148
32BFP1/31 AR-137
32BFPK1 AR-137
32BPB2 AR-138
32BPB32 AR-138
32BPBK1 AR-140
32BPBK2 AR-138
32BPBT1 AR-145
32FFM1(See Pg.81) AR-113
#32FFP1(See Pg.89) AR-120
#32FFPK1(See Pg.89) AR-120
#32FPB1(See Pg.107) AR-126
#32FPBK1(See Pg.107) AR-126
32GPB1 AR-140
32GPB2 AR-138
32GPBK1 AR-140
32GPBK2 AR-138
33AFM1 (PCBAR 151) AR-139
33AFMT2 AR-144
33AFP1 AR-146
33AFPK1 AR-146
33APB1 AR-142
33APB2 AR-147
33APBK1 AR-142
33APBK2 AR-147
33APBT1 AR-140
33BFM1 (PCBAR 151) AR-139
33BFMT1 AR-145
33BFMT2 AR-144
33BFP1 AR-146
33BPB1 AR-142
33BPB2 AR-147
33BPBT1 AR-140
34AFM1 AR-142
34AFMT1 AR-150
34AFMT2 AR-145
34AFP1 AR-140
34AFPK1 AR-140
34APB1 AR-139
34APB2 AR-144
34APBK1 AR-139
34APBK2 AR-144
34APBT1 AR-138
34BFM2 AR-142
34BFM4 AR-172
34BFMT1 AR-145
34BFP1 AR-140
34BPB1 AR-144
34BPB2 AR-144
34BPBT1 AR-138
34FMT1 AR-144
35TFP1 AR-127
35TFP1(See Pg. 25) AR-127
35TRMP1(See Pg 47) AR-124
35TTCP1(See Pg 47) AR-124
36CFMT1 AR-139
36CFP1 AR-142
36CMW1 AR-144
36CMW2 AR-178
40LPB1 AR-171
41APB1 AR-165
41APBK1 AR-165
41BFM1 AR-174
41BFM2 AR-169
41BFMT1 AR-171
41BFP1 AR-168
41BFPK1 AR-168

GENERAL MOTORS (CONT.)

41BPB1 AR-165
41BPBK1 AR-165
41BPBT1 AR-166
41FFMT1(Sim to Pg. 19) AR-75
41FPBT1(Sim to Pg. 17) AR-101
41SVB1 AR-167
41SVPB1 AR-167
41TFP1(Sim. to Pg. 25) AR-127
41TPB1 AR-167
41XFM1(Sim. to Pg. 29) AR-109
41XFP1(Sim to Pg. 25) AR-127
41XFPK1(Sim. to Pg. 25) AR-127
41XPB1(Sim. to Pg. 51) AR-107
41YFP1/2(Sim. to Pg. 25) AR-127
42AFM1 AR-176
42AFMT1 AR-169
42AFP1 AR-173
42AFPK1 AR-173
42APB1 AR-175
42APBK1 AR-175
42APBK3(See Pg. 85) AR-175
42APBT1 AR-170
42BFM1 AR-179
42BFM2 AR-168
42BFMT3 AR-176
42BFMT1 AR-169
42BFP1 AR-172
42BFP2 AR-173
42BFPK1 AR-172
42BFPK2 AR-173
42BPB1/41 AR-175
42BPBK1 AR-175
42BPBT1 AR-170
42FFM1(Sim to Pg. 81) AR-113
#42FFP1/41(Sim to Pg. 89) AR-120
42FPB1 AR-174
42FPBK1/41 AR-174
42GPB1 AR-175
42GPBK1 AR-175
42GPBK3(See Pg. 85) AR-175
43APB1 AR-173
43APBK1 AR-173
43BFM1 AR-171
43BFMT1 AR-168
43BFP1 AR-138
43BFPK1 AR-138
43BPB1 AR-176
43BPBK1 AR-173
44AFM1 AR-175
44AFM2 AR-172
44AFMT1 AR-173
44AFP1 AR-170
44AFPK1 AR-170
44APB1 AR-171
44APBK1 AR-171
44APBT1 AR-169
44BFM1 AR-175
44BFM3 AR-187
44BFMT1 AR-173
44BFP1 AR-170
44BPB1 AR-171
44BPBT1 AR-169
45RFMT1 (PCBAR 175) AR-151
45TFP1(Sim. to Pg. 25) AR-127
45TPB1 AR-167
45TTCP1 AR-167
46CFMT1/2 AR-170
46CFP AR-175
46CFP1 AR-175
46CMW1 AR-178
46CMW2 AR-178
50APB1 AR-192
50APB3(See Pg. 29) AR-192
50APBK1 AR-192
50APBK3(See Pg. 29) AR-192
50BFM1(See Pg. 103) AR-188
50BFMT1/2 AR-191
50BFMT3 AR-191
50BFP1(See Pg. 103) AR-191
50BPB1 AR-192
50BPB3(See Pg. 29) AR-192
50BPBK1 AR-192
50BPBK3(See Pg. 29) AR-192
50BPBT1 AR-190
50BPBT2 AR-190
50BPBT3 AR-215
50HFM1(See Pg. 103) AR-188
50HFP1(See Pg. 103) AR-191
50HFPK1(See Pg. 103) AR-191
51AFMT1 AR-187
51APB1 AR-187
51APBK1 AR-187
51BFM1/2 AR-191
51BFMT1/2 AR-189
51BFP1 AR-186
51BFPK1 AR-186
51BK1 AR-187
51BPB1 AR-187
51BPBK1 AR-187
51BPBT1/2 AR-188
51BPBT3 AR-207
51FFM1 AR-191
51PK1 AR-186
51SVPB1 AR-167
51SVPB2 AR-217
51TFP1 AR-189
51TPB1 AR-186
51XFM1 AR-191
51XFM51 AR-192
51XFMI AR-191
51XFMT1/2 AR-189
51XFP1 AR-189
51XFPK1 AR-189
51XMT1/2 AR-192
51XPB1 AR-186
51XPB2 AR-217
51XPBK1 AR-186
51XPBK2 AR-217
51XPBT1/2 AR-193
51YFM1 AR-191
51YFP1 AR-189
52AFM1 AR-190
52AFMT1 AR-187
52AFMT3 AR-215
52AFP1 AR-189
52AFPK1 AR-189
52APB1 AR-193
52APBK1 AR-193
52APBT1/2 AR-192
52APBT3 AR-213
52BFM1 AR-187
52BFMT1/2 AR-187
52BFMT3 AR-215
52BFP1 AR-189
52BFPK1 AR-189
52BK1 AR-186
52BK2 AR-217
52BPB1 AR-193
52BPBK1 AR-193
52BPBT1/2 AR-192
52BPBT3 AR-213
52FFM1 AR-191
52FFP1 AR-189
52FFPK1 AR-189
52FMT3 AR-215
52FPB1 AR-186
52FPB2 AR-217

GENERAL MOTORS (CONT.)

52FPBK1 AR-193
52FPBK2 AR-217
52GPB1 AR-193
52GPBK1 AR-193
52PK1 AR-189
53APB1 AR-190
53APB2(See Pg 93) AR-190
53APBK1 AR-190
53APBK2(See Pg. 93) AR-190
53BFM1 AR-188
53BFMT1/2 AR-193
53BFMT3 AR-219
53BFP1 AR-191
53BFPK1 AR-191
53BPB1 AR-190
53BPB2(See Pg. 93) AR-190
53BPBK1 AR-190
53BPBK2(See Pg. 93) AR-190
53BPBT1/2 AR-195
53BPBT3 AR-210
54BFM1/2 AR-189
54BFP1 AR-188
54BFPK1 AR-188
54LPB1 AR-192
55TFP1 AR-189
55TPB1 AR-186
55TPB2 AR-217
55TTCP1 AR-186
55TTCP2 AR-217
56CFMT1/2/3 AR-194
56CFMT4 AR-213
56CFP1 AR-190
56CMW1/2 AR-192
60APB1(See Pg. 29) AR-192
60APBK1(See Pg. 29) AR-192
60BFM1(See Pg. 13) AR-189
60BFP1(See Pg. 21) AR-188
60BFPK1(See Pg. 21) AR-188
60BK1 AR-186
60BPB1(See Pg. 29) AR-192
60BPBK1(See Pg. 29) AR-192
60BPBT2 AR-256
60HBT1/2 AR-220
60HFM1(See Pg. 57) AR-191
60HFMT1/2 AR-221
60HFP1(See Pg. 27) AR-186
60HFPK1(See Pg. 27) AR-186
60HPB1(See Pg. 27) AR-187
60HPB1(See Pg. 65) AR-187
60HPBT1/2 AR-220
60PK1 AR-189
60XFM1(See Pg. 85) AR-191
60XFP1(See Pg. 85) AR-189
60XFPK1(See Pg. 85) AR-191
60XPB1(See Pg. 87) AR-186
60XPBK1(See Pg. 87) AR-186
61BFMT1(See Pg. 29) AR-206
61BFMT2(Sim. to Pg. 47) AR-221
61BPB1(See Pg. 65) AR-187
61BPBK1(See Pg. 65) AR-187
61BPBT1(See Pg. 5) AR-207
61BPBT2 AR-256
61GUPB1 AR-252
61GVFP1(See Pg. 85) AR-189
61GVPB1(See Pg. 87) AR-186
61HFM2 (Sim. to Radio Portion Pg. 47) AR-221
61SUPB1 AR-253
61SVPB1(See Pg. 87) AR-186
61TB1 AR-217
61TBK1 AR-217
61TFP1 AR-218
61TFPK1 AR-218
61TPB1 AR-217
61TPB1 AR-217
61TPBK1 AR-217
61XFM1(See Pg. 85) AR-191
61YFM1(See Pg. 85) AR-191
62AFP1(See Pg. 103) AR-189
62APB1(See Pg. 107) AR-193
62APBT2 AR-256
62BK1(See Pg. 107) AR-193
62BPB1(See Pg. 107) AR-193
62BPBT2 AR-256
62FFM1(See Pg. 85) AR-191
62FFP1(See Pg. 85) AR-189
62FPB1(See Pg. 87) AR-186
62FPB1BK1 AR-252
62FPBK1 AR-252
62PK1(See Pg. 85) AR-189
63AFK1(See Pg. 103) AR-189
63AFM1(See Pg. 103) AR-188
63APB1(See Pg. 103) AR-189
63APB1(See Pg. 93) AR-190
63APBK1(See Pg. 93) AR-190
63APBT2 AR-256
66CFP1(See Pg. 35) AR-190
66CMW1(See Pg. 39) AR-213
70AFM1 AR-243
70AFMT1/2 AR-255
70APB1 AR-239
70APBK1 AR-239
70BCB1 AR-250
70BCB2 AR-254
70BFM1 AR-242
70BFMT1/2 AR-250
70BFMC3 AR-254
70BFMD1/2 AR-257
70BFMT1/2 AR-245
70BFP1 AR-240
70BFPK1 AR-240
70BPB1 AR-239
70BPBK1 AR-239
70BPBT1/2 AR-246
70BPT1/2 AR-246
70EFM1/2 AR-243
70EFMT1/2 AR-255
70FP1 AR-240
70HBPT1/2 AR-246
70HFM1 AR-244
70HFM51 AR-245
70HFMT1/2 AR-245
70HFP1 AR-240
70HFPK1 AR-240
70HPB1 AR-239
70HPBK1 AR-239
70HPBT1/2 AR-246
71AFMT1/2 AR-255
71BPB1 AR-239
71BPBK1 AR-239
71GUPB1 AR-253
71GUPBK1 AR-253
71GVPB1(Sim to Pg. 85) AR-186
71HBPT1/2 AR-246
71HFMT1/2 AR-245
71HPBT1/2 AR-246
71SUPB1 AR-253
71TFP1 AR-251
71TPB1 AR-251
71TPB1(Sim to Pg. 43) AR-217
71TPBK1(Sim to Pg. 43) AR-217
71YFMC1 AR-254
72AFM1 AR-242
72AFMT1 AR-255
72AFMT2 AR-255
72APB1 AR-240
72APBK1 AR-239

GENERAL MOTORS (CONT.)

72APK1 AR-240
72FPB1 AR-252
72FPBK1 AR-252
72FT41(See Pg. 47) AR-112
73AFM1 AR-242
73AFMC1/2 AR-250
73AFMC3 AR-254
73AFMT1/3 AR-255
73AFP1 AR-240
73AFPK1 AR-240
73APB1 AR-239
73APBK1 AR-239
73GFM1/2 AR-243
73GFMT1/2 AR-245
76CFMC1/2 AR-250
76CFMC3 AR-254
76CFMD1/2 AR-257
76CFMT1/2 AR-247
76CFMW1 AR-253
76CFP1 AR-240
76DFMW1 AR-253
76FMT3 AR-247
76KFMC1/2 AR-250
76KFMC3 AR-254
76KFMD1/2 AR-257
76KFMT1/3 AR-247
76KFMW1 AR-253
80AFMC1 AR-262
80BCB1(16000876) AR-264
80BCB1(16000866) AR-264
80BCB1(16000810) AR-264
80BFCT1 AR-261
80BFCT2 AR-261
80BFMC1(Sim to Pg.23) AR-250
80BFMD1 AR-259
80BFMT1/2 AR-261
80BFP1 AR-260
80BFPC1 AR-262
80BFPK1 AR-260
80BFTC1/2 AR-264
80BPB1 AR-273
80BPBK1 AR-273
80BPBT1/2 AR-259
81TFM2 AR-270
81TFP1(Sim to Pg.93) AR-239
81TPB1 AR-273
81TPBK1 AR-273
81YFMC1 AR-262
81YFMT1/2 AR-261
82XFMI(See Pg. 25) AR-242
83BPB1 AR-273
83BPFK1 AR-273
86CFMD1 AR-260
86CFMT1/2 AR-263
86CFMW1 AR-263
86CFTC1/2 AR-264
86DFMW1 AR-263
86KFMD1 AR-260
86KFMT1/2 AR-263
86KFMW1 AR-263
86KFTC1/2 AR-264
86TT431 AR-73
91VFM2 AR-70
91VFP1 AR-73
91VMP11 AR-70
92BFP1 AR-73
92BFP6(Sim to Pg. 105) AR-73
92BPB1 AR-72
92BPB6(Sim to Pg. 89) AR-72
#92GFM3 AR-79
92GPB1 AR-72
92GPB6(Sim to Pg. 89) AR-72
93AFP1 AR-70
93BFW1/2 AR-74
93BPB1/2 AR-71
93EFW1/2 AR-74
93EPB1 AR-71
94AFP1 AR-70
94BFP1 AR-70
94EFP1 AR-70
94PPB1 AR-70
95CFP1/2 AR-74
95CT411/12 AR-71
95GVPB1/2 AR-73
96TT411/12 AR-73
#148FMT2 AR-120
518FMT3 AR-206
73552 AR-98
731766 AR-186
731971 AR-97
789220/9443 AR-250
789585 1 AR-229
793031 AR-102
793032 AR-100
793361 AR-191
793364 AR-187
932522 AR-193
934164 AR-173
995107 AR-134
7039152 AR-145
7298832, A AR-73
#7301466 AR-104
7302721(1969 Prod.) AR-73
#7302721 AR-104
7303201(1969 Prod.) AR-70
7303211 AR-70
7303302A AR-254
#7305516(1972 Prod.) AR-110
7305516(1972 1/2 Prod.) AR-124
#7305516(1971 Prod.) AR-96
7305841(6)71(SVPB1). AR-253
7305841(4)SVPB1). AR-167
#7305841(1972 Prod.) AR-110
7305841(1972 1/2 Prod.) AR-96
#7305841(1971 Prod.) AR-96
7305841 AR-186
7306914/934/964/7205 AR-70
#7307302(1972) AR-114
#7307302(1972 1/2 Prod.) AR-126
7307302(1971) AR-98
7307303 AR-71
7307312 AR-72
7307313 AR-74
7307332(1972) AR-114
#7307332(1972 1/2 Prod.) AR-126
7307332(1971 Prod.) AR-98
7307332(1969 Prod.) AR-72
7307402(1971 Prod.) AR-97
#7307402 (1971 1/2 and Prod) AR-120
7307412 AR-73
#7307432 (1971 1/2 and 1972 Prod.) AR-120
7307432/456 AR-97
7307554(1972 Prod.) AR-112
7307554(1971 Prod.) AR-97
7307702(1972) AR-112
7307702(1971) AR-97
7307813 AR-74
7307863 AR-70
7308166(1972 Prod.) AR-112
7308166(1971 Prod.) AR-97
7308166(1969 Prod.) AR-73
7308203/311205 AR-71
7312234(1972 Prod.) AR-112

GENERAL MOTORS (CONT.)

7312234(1972 1/2 Prod.) AR-127
7312234(1971 Prod.) AR-97
7312234(1969 Prod.) AR-70
7312332(1972) AR-113
#7312332(1971) AR-106
7312892(1972) AR-114
#7312892(1972 1/2 Prod.) AR-126
7312892(1971) AR-98
7312912(1972) AR-114
#7312912(1972 1/2 Prod.) AR-126
7312912(1971) AR-98
7312922(1971 Prod.) AR-97
#7312922 (1971 1/2 and 1972 Prod.) AR-120
7312941 AR-97
#7312942 (1971 1/2 and 1972 Prod.) AR-120
7313091 AR-70
7313514(24AFP213) AR-129
#7313514(1972 Prod.) AR-118
7313514(1971 Prod.) AR-101
7313522(76/77 Prod) AR-252
7313522(1974 Prod) AR-174
7313522(1972) AR-114
#7313522(1972 1/2 Prod.) AR-126
7313522(1971) AR-98
7313532(1975 Prod) AR-189
7313532(1971 Prod) AR-97
#7313532 (1971 1/2 and 1972 Prod.) AR-120
7313542(1975 Prod) AR-191
7313542(1972) AR-113
7313552(76/77 Prod) AR-252
7313552(1974 Prod.) AR-174
7313552(1972) AR-114
#7313552(1972 1/2 Prod.) AR-126
7313552(1971) AR-98
7313562(1975 Prod) AR-189
7313562(1971 Prod) AR-97
#7313562 (1971 1/2 and 1972 Prod.) AR-120
#7313604(1972 Revised). AR-125
7313604(1972 Prod.) AR-115
#7313604(1971 Prod.) AR-106
7313971(1972 Prod.) AR-112
7313971(1971 Prod.) AR-97
7314201(71BPB1) AR-239
7314201(1975 Prod.) AR-187
7314201(1974 Prod.) AR-165
7314201(1973-1/2 Prod.) AR-145
7314201(1973 Prod.) AR-137
7314201(1972 Prod.) AR-112
#7314201(1972 1/2 Prod.) AR-120
7314201(1971 Prod.) AR-97
7314211(41BFMT1) AR-174
7314211(41BFM2) AR-169
7314211(1973 Prod) AR-140
7314211(1972 Prod.) AR-114
7314211(1971 Prod.) AR-101
7314221 AR-191
7314221 AR-93
#7314291 AR-104
7321B92 AR-114
7346723 AR-190
7397312 AR-72
7890200 AR-246
7895080 AR-243
7895366 AR-253
7895373 AR-255
7895376 AR-247
7895510 AR-255
7895851/-1 AR-229
7896001(Sim. to Pg. 47) AR-221
7896111 AR-252
7896200 AR-246
7896210 AR-245
7896296 AR-244
7896306 AR-253
7896316 AR-247
7897241 AR-251
7897366/7401 AR-253
7897411(Sim. to Pg. 85) AR-189
7897770/780 AR-242
7898150 AR-246
7898220 AR-250
7898340 AR-262
7898426 AR-250
7898433 AR-239
7898436 AR-250
7898443 AR-239
7898460 AR-259
7898470 AR-262
7898473 AR-243
7898490 AR-261
7898493 AR-245
7898500 AR-259
7898510 AR-261
7898570 AR-250
7898940 AR-255
7899443 AR-252
7905841 AR-174
7914201 AR-187
#7930012(1972 Prod.) AR-118
7930012(1972 1/2 Prod.) AR-122
7930012(1971 Prod) AR-105
7930013 AR-101
7930015(1972 Prod.) AR-112
7930015(1971 Prod.) AR-100
7930022(1972) AR-109
7930022(1971) AR-102
#7930025(1972 Prod.) AR-110
7930025(1971 Prod.) AR-102
7930032(1972) AR-112
7930032(1971) AR-100
7930032(13BMF1/2) AR-98
7930033 AR-98
#7930035 AR-96
#7930053(1971) AR-96
#7930053(1971 1/2 Prod) AR-118
7930061(1972) AR-115
#7930061(1972 1/2 Prod.) AR-125
7930063(1972 Prod.) AR-117
7930063(1971 Prod.) AR-97
7930063(1971 1/2) AR-117
7930069 AR-117
7930093(1972 Prod.) AR-117
#7930121(1971 1/2 Prod) AR-118
7930121(1971 Prod.) AR-105
#7930121 AR-104
7930134(1973 Prod.) AR-138
#7930134(1972 1/2 Prod.) AR-128
7930134(1971) AR-100
7930134(1971 1/2) AR-114
#7930144(1971 1/2 Prod.) AR-120
7930144(1971 Prod.) AR-98
7930161 AR-115
7930202(1972) AR-115
#7930202(1972 Revised). AR-118

GENERAL MOTORS (CONT.)

7930202(1972 1/2 Prod.) AR-122
7930202(1971) AR-105
7930212(1972) AR-109
7930212(1971) AR-102
7930224(1972 1/2 Prod.) AR-124
7930224(1972 Prod.) AR-117
#7930224(1971 Prod.) AR-104
#7930234(1972 Prod.) AR-110
#7930234(1971 Prod.) AR-96
7930242(1972 1/2 Prod.) AR-127
7930242(1971) AR-101
7930242(1971 1/2, 1972) AR-117
7930244(1972 Prod.) AR-113
7930244(1971 Prod.) AR-102
7930252 AR-115
7930254(1975 Prod.) AR-192
7930254(1974 Prod.) AR-171
7930254(1973 Prod.) AR-139
7930254(1972) AR-114
#7930254(1972 1/2 Prod.) AR-126
#7930254(1971 Prod.) AR-96
7930492(1972) AR-112
7930492(1971) AR-97
7930495(1972 Prod.) AR-112
7930495(1971 Prod.) AR-97
7930542(1972) AR-113
#7930542(1971) AR-106
7930631 AR-102
7931093(1973 Prod.) AR-139
7931466(1975 Prod.) AR-189
7931466(1972 1/2 Prod.) AR-127
7931466(1971 Prod.) AR-117
7931766(1975 Prod.) AR-186
7931766(1974 Prod.) AR-167
#7931766(1972 Prod.) AR-110
7931766(1972 1/2 Prod.) AR-124
#7931766(1971 Prod.) AR-96
7932743 AR-101
7932753 AR-105
7932763 AR-97
7933241(1975 Prod.) AR-186
7933241(1974 Prod.) AR-167
7933241(1972 1/2 Prod.) AR-124
#7933241(1972 Prod.) AR-110
#7933241(1971 Prod.) AR-96
7933251(1975 Prod.) AR-189
7933251(1972 Prod.) AR-117
7933251(1972 1/2 Prod.) AR-127
7933261(1975 Prod.) AR-191
7933261(1972 Prod.) AR-109
7933261(1971 Prod.) AR-100
7933271(See Pg. 57) AR-74
7933271(1975 Prod.) AR-193
7933281(See Pg. 19) AR-75
7933281(1975 Prod.) AR-192
7933291(71BPBK1) AR-239
7933291(1975 Prod) AR-187
7933291(1974 Prod.) AR-165
7933291(1972 Prod.) AR-137
7933291(1973 1/2 Prod.) AR-145
7933291(1972 Prod.) AR-112
#7933291(1972 1/2 Prod.) AR-120
7933291(1971 Prod.) AR-97
7933301(1975 Prod.) AR-186
7933301(1974 Prod.) AR-168
7933301(1973 Prod.) AR-138
7933301(1972 Prod.) AR-113
7933301(1971 Prod.) AR-93
7933401 AR-217
7933501(21APBK1) AR-114
7933501(1975 Prod.) AR-186
7933501(1974 Prod.) AR-167
#7933501(1972 Prod.) AR-110
7933501(1972 1/2 Prod.) AR-124
7933511(1975 Prod.) AR-189
#7933511(1972 Prod.) AR-120
7933511(1972 Prod.) AR-117
7933511(1972 1/2 Prod.) AR-127
7933641(70HPB1) AR-239
7933641(1975 Prod.) AR-187
7933641(1974 Prod.) AR-165
7933641(1973 Prod.) AR-137
7933641(1973 1/2 Prod.) AR-145
7933641(1972 Prod.) AR-112
#7933641(1972 1/2 Prod.) AR-120
7934782(1972) AR-112
7934782(1971) AR-97
7935002(1974 Prod.) AR-175
7935002(1973 Prod.) AR-140
7935002(1973 1/2 Prod.) AR-138
#7935003(1972 Prod.) AR-120
#7935003(1972 1/2 Prod.) AR-128
7935004(1974 Prod.) AR-171
7935004(1973-1/2 Prod.) AR-144
7935004(1973 Prod.) AR-139
7935012(1974 Prod.) AR-175
7935012(1973 Prod.) AR-140
7935012(1973 1/2 Prod.) AR-138
7935013 AR-112
7935014(1974 Prod.) AR-170
7935014 AR-140
7935021(70HPBK1) AR-239
7935021(1975 Prod.) AR-187
7935021(1973 Prod.) AR-137
7935021(1973 1/2 Prod.) AR-145
7935021(1972 Prod.) AR-112
#7935021(1972 1/2 Prod.) AR-120
7935022 AR-137
7935023(23BPB1) AR-115
#7935023(1972 Prod.) AR-125
7935024(44ATM2) AR-172
7935024(44AFM1) AR-175
7935024(34AFM1) AR-142
7935032 AR-137
#7935033 AR-110
7935034(1974 Prod.) AR-169
7935034(1973 Prod.) AR-138
7935042 AR-144
7935043 AR-140
7935044(44AFMT1) AR-173
7935044(34AFMT2) AR-145
7935044(34AFMT1) AR-150
7935053(1973 Prod.) AR-145
7935053(1973 1/2 Prod.) AR-144
#7935063(1972 Prod.) AR-118
#7935063(1972 1/2 Prod.) AR-126
7935092(42APBT1) AR-170

GENERAL MOTORS (CONT.)

7935092(32APBT1) AR-145
7935092(1975 Prod.) AR-192
7935102(52AFMT1/2) AR-187
7935102(42AFMT1) AR-169
7935102(32AFMT2) AR-148
7935102(32AFMT1) AR-152
7935201 AR-165
7935374(1972) AR-112
7935374(1971) AR-97
7935814(1975 Prod) AR-171
7935814(1973-1/2 Prod.) AR-144
7935814(1973 Prod) AR-139
7936834 AR-140
7936011(1975 Prod.) AR-186
7936011(1974 Prod.) AR-168
7936011(1973 Prod.) AR-138
7936011(1972 Prod.) AR-113
7936011(1971 Prod.) AR-93
7936143(19731/2 Prod.) AR-147
7936181(1972 Prod.) AR-117
7936181(1971 1/2 Prod.) AR-115
7936191 AR-115
7936232 AR-112
7936271 AR-117
7936601 AR-112
7936721 AR-127
7937005 AR-114
7937400 AR-115
7937413 AR-112
7937571(1972 Prod) AR-117
7937571(1972 1/2 Prod.) AR-127
●7937581(See Pg. 25) AR-78
7937943(1973 Prod) AR-142
7937943(1973 1/2 Prod.) AR-147
7937953 AR-139
7937963 AR-140
7937973(1973 Prod) AR-145
7937973(19731/2 Prod.) AR-144
7937983 AR-139
7938003(1973 Prod) AR-142
7938003(19731/2 Prod.) AR-147
7938303(1972 Prod) AR-115
●7938303(19721/2 Prod.) AR-128
7938313 AR-114
7938323/333 AR-146
7939071(1975 Prod) AR-207
7939071(1974 Prod.) AR-166
7939071(1973 Prod) AR-139
7939081(71AFMT1) AR-255
7939081(51BFMT3) AR-206
7939081(51BFMT1/2) AR-189
7939081(41BFMT1) AR-171
7939081(31BFMT2) AR-142
7939081(31BFMT1) AR-151
7939102(1975 Prod) AR-193
7939102(1974 Prod) AR-175
7939102(1973 Prod.) AR-140
7939102(19731/2 Prod.) AR-138
7939112(1975 Prod) AR-193
7939112(1974 Prod) AR-175
7939112(1973 Prod.) AR-140
7939112(19731/2 Prod.) AR-138
7939122(42BFP1) AR-172
7939122(32BFP1) AR-137
7939132(42BFPK1) AR-172
7939132(32BFPK1) AR-137
7939142(42BFM2) AR-168
7939142(42BFM1) AR-179
7939142(32BFM1) AR-144
7939152(52BPBT1/2) AR-192
7939152(42BPBT1) AR-170
7939152(32BPBT1) AR-145
7939162(52BFMT1/2) AR-187
7939162(42BFMT1) AR-169
7939162(32BFMT2) AR-148
7939162(32BFMT1) AR-152
9240442 AR-240
9303026 AR-217
9340432(32AFPK2) AR-149
9340432(1974 Prod.) AR-173
9340442(1977 Prod) AR-240
9340442(1975 Prod) AR-189
9340442(1974 Prod) AR-173
9340452(72AFM1) AR-242
9340452(1975 Prod) AR-190
9340452(1974 Prod) AR-176
9341624(1973 Prod) AR-139
9341634(1973-1/2 Prod.) AR-142
9341634(1973 Prod) AR-140
9341846(1974 Prod) AR-178
9341846(1973 Prod) AR-144
9341866 AR-142
9341876 AR-139
9342208 AR-145
9342222 AR-175
9342522(1975 Prod) AR-193
9342522(1973 Prod.) AR-140
9342522(19731/2 Prod.) AR-138
9342532(1973 Prod.) AR-140
9342532(19731/2 Prod.) AR-138
9342532 AR-175
9342563 AR-146
9342586 AR-178
9342606(1975 Prod) AR-190
9342606(1974 Prod) AR-175
9343020 AR-167
9343026 AR-186
9343051 AR-189
9343061(1976 Prod) AR-253
9343061(1975 Prod) AR-186
9343061(1974 Prod) AR-167
9343283/293/3303/313 AR-173
9343323/333 AR-176
9343343 AR-171
9343353 AR-172
9343363 AR-168
9343482/492 AR-189
9343502(52BFM1) AR-190
9343502(42BFM3) AR-176
9344124 AR-171
9344134 AR-170
9344144(44BFM3) AR-172
9344144(44BFM1) AR-175
9344154 AR-169
9344164 AR-173
9344336(56CFMT4) AR-213
9344336(56CFMT1/2/3) AR-194
9344336(46CFMT12) AR-170
9344376 AR-192
9344651 AR-189
9344661(See Pg.85) AR-191
9345270/280 AR-240
9345290 AR-242
9345373-1 AR-255

GENERAL MOTORS (CONT.)

9345480(70APBK1) AR-239
9345480(50APBK1) AR-192
9345490(70BPBK1) AR-239
9345490(50BPBK1) AR-192
9345500(50BPBT3) AR-215
9345500(50BPBT1/2) AR-190
9345510(50BFMT3) AR-210
9345510(50BFMT1/2) AR-191
9345510-2 AR-255
9345534/544 AR-188
9345554 AR-189
9345930(70APB1) AR-239
9345930(50ABP1) AR-192
9345940(70BPB1) AR-239
9345940(50BPB1) AR-192
9346703/713/723/733 AR-190
9346743/753 AR-191
9346763(73AFM1) AR-242
9346763(53BFM1) AR-188
9346773(53BPBT3) AR-210
9346773(53BPBT1/2) AR-195
9346783(53BFMT1/2) AR-219
9346783(53BFMT1/2) AR-193
9347102 AR-215
9347162 AR-193
9347172(73APB1) AR-239
9347172(51XPBT1/2) AR-193
9347740(71HFMT1/2) AR-245
9347740(60HFMT1/2) AR-221
9347980(71HPBT1/2) AR-246
9347980(50/60HPBT1/2) AR-220
9348082(72AFMT1) AR-255
9348082(52AFMT3) AR-215
9348082-2 AR-255
9348292/8302 AR-213
9348311/321 AR-217
9348331/341 AR-218
9349470/480 AR-240
9349490(See Pg. 103) AR-188
9448082(72AFMT1) AR-255
9898160 AR-245
9898453/463 AR-240
16000370 AR-261
16000420(Sim. to Pg.93) AR-239
16000440/43/456/466 AR-254
16000570(80BCB1) AR-264
16000570(70BCB2) AR-254
16000666/676/686 AR-263
16001062(See Pg. 25) AR-242
16001111 AR-254
16001516/526 AR-263
16001536/546/1650 AR-260
16001691 AR-262
16001700/1801 AR-260
73135652 AR-189
93448082 AR-215
93455930 AR-239

GIBBS

CR332A, B, C/35B AR-71
CR335N AR-151
CR337B AR-71
●CR616 AR-80
CR627/630 AR-70
●CR644/45 AR-81
GS565 AR-177
GT80(CelicaGT) AR-154
636 AR-103
657 AR-161
●805/7 AR-87
912 AR-103
920 AR-101
●950/52 AR-87

HAMMOND

HD500 AR-176
HD501 AR-141
HD515 AR-185
HD525 AR-148
HD555 AR-153
HD575 AR-146
HD585 AR-187
920(Sim to Pg. 45) AR-101

HANDIC

Miami AR-271
Paris AR-270
Wien AR-273

HITACHI

CS133 AR-103
CS214 AR-166
CS1000IC AR-111
CS1050IC AR-103
CS1100IC AR-103
CS1150IC AR-123
CS1440IC AR-153
CS1700IC/750IC AR-123
CSK1300IC AR-148
KM1520M AR-129
TRQ(W) AR-103
TRQ21(W) AR-105
TRQ20b AR-116
TRQ215R(E) AR-145
TRQ280(W) AR-93
●TRQ286(W) AR-106
TRQ340EF AR-89
TRQ770D(W) AR-89
TRQ770W AR-89
●TRQ253(E) AR-96
TRQ260(W) AR-92
TRQ28C(3) AR-93

HONDA

A20BD4b3-64749 AR-263
CR1719FUH AR-263

HUSKEE

●TM104M AR-77
●60-299 AR-77

HY-GAIN

CR1719FUH AR-263

IMPERIAL
(See Chrysler)

INLAND-DYNATRONICS

AF604 AR-124
AFX802 AR-182
AT830 AR-135
ATK830(See Pg. 71) AR-135
AXT838 AR-151
AXT885 AR-214
CTX50 AR-172
●FM404 AR-125
FM704 AR-184
KJ6830 AR-135
MPT80 AR-131
MPT801 AR-145
●MPX2000 AR-128
QK48 AR-175
RA04 AR-140
RA05 AR-139
RF06 AR-142

INLAND-DYNATRONICS (CONT.)

RX14 AR-184
S70A AR-147
S75 AR-121
S85 AR-119
S100 AR-141
S400 AR-176
S405 AR-174
S505 AR-213
S705A AR-143
S900 AR-119
S900A AR-178
S1000 AR-149
S4001 AR-197
S4200 AR-187
WAF609 AR-129
WV209A AR-124
WV509 AR-122
X304 AR-122
203A AR-124
206 AR-180

INTERNATIONAL

F9SMIH AR-124
●OBT1H AR-76
●1BT1H AR-110
●1HA1914 AR-120
●1HA1918 AR-125
●244764R91 AR-125
●244793R91 AR-120
517 AR-213

JIL

517 AR-213
528 AR-209
601M2S AR-197
603M1S AR-193
606CB AR-231
608 AR-261
612 AR-259
613 AR-273
701MPX AR-182
701MPXU AR-215
702FM AR-195
704MPX AR-216
707 AR-271
815M AR-202
817FM AR-204
821G AR-184
822FM AR-197
828 D AR-195
830QNN AR-180
831 N, NN AR-198
831R AR-194
832Q AR-202
841 AR-190
842 AR-199
843 AR-200
844 AR-206
846 N AR-208
848 AR-211
851 AR-215
852CB AR-230
861 AR-270
862 AR-262
871 AR-266

JCPENNEY

0110 AR-193
851-0455 AR-134
851-0479 AR-141
851-0513 AR-138
981-0100 AR-134
981-0101 AR-119
981-0103 AR-195
981-0105 AR-121
981-0110 AR-193
981-0115 AR-141
981-0140 AR-196
981-0161 AR-164
981-0165 AR-137
981 0166(Sim. to Pg. 79) AR-137
981-0180 AR-166
981-1373 AR-194
981-1514(Sim. to Pg. 79) AR-137
981-2230 AR-194
●981-5225 AR-125
981-5937 AR-196
981-7479 AR-164
981-7553 AR-193
985-2757 AR-195
985-6907 AR-141
2230 AR-194

JEEP
(See American Motors)

JOHNDEERE

AR56773 AR-161
AR57156/60083 AR-158
●OBTJD AR-78
●1AR4231 AR-110
1BTJD AR-113
1JD1229 AR-161
1JD1243/45 AR-158
●7SMJD AR-110

KMART

K200 AR-211
10007-217 AR-211

KENWORTH

●K370C2 AR-126
K345393 AR-122
1KW1904 AR-122
●1KW2915 AR-126

KRACO

KCB2370 AR-236
KCB2390 AR-251
KID550 AR-161
KID560A AR-204
KID560D AR-262
KID565 AR-241
KID565A/66 AR-205
KID570A AR-205
KID575 AR-264
KID580B AR-238
KID580C AR-255
KIS444 AR-166
KQ600 AR-173
KR1100 AR-159
KR1110 AR-163
KR1120 AR-160
KR1130 AR-162
KR1220 AR-203
KR1230 AR-209
KR1240 AR-268
KS340 AR-197
KS400B AR-167
KS400C AR-210
KS425 AR-141
KS430 AR-158
KS440 AR-200
KS450 AR-168
KS480 AR-207
KS555 AR-169

KRACO (CONT.)

KS666B AR-165
KS690 AR-199
KS699 AR-267
KS750(Marquis M 750) AR-143
KS800 AR-173
KS890 AR-171

LAFAYETTE

Sterc088 AR-91
99 15521W AR-91

LEARJET

A10 AR-229
A20 AR-176
A25 AR-141
A26(See Pg. 57) AR-141
A40 AR-143
A46 AR-204
A50/55 AR-147
A70(See Pg. 51) AR-162
A71 AR-213
A72 AR-238
A73 AR-241
A75 AR-163
A80 AR-185
A81G AR-243
A83 AR-250
A85 AR-185
A90 AR-205
A120 AR-150
A125 AR-190
A126 AR-206
A140 AR-140
A146 AR-210
A152 AR-198
A225 AR-160
A226 AR-212
A245 AR-163
A250 AR-72
A255 AR-209
●A260 AR-77
A275 AR-183
A295 AR-203
AR1145(See Pg. 49) AR-140
R905 AR-182
R925 AR-181
R927 AR-234
R945 AR-177
R946 AR-236
R947/957 AR-235
7A480K(Sim. to Pg.57) AR-235
7A947A(Sim. to Pg.49) AR-235
7A957K(Sim. to Pg.40) AR-235
7R927A(Sim. to Pg.43) AR-234
7R947K/957K(Sim. to Pg.49) AR-235

LINCOLN
(For Auto Radio)
(See Ford)

LLOYD'S

2A15B07/7 AR-132

MACKTRUCK

U7MMT AR-112
1MK1132 AR-153
204SX28 AR-108
204SX58 AR-153

MASSEY FERGUSON

0BTMF AR-82
1BTMF AR-117
1MF1250 AR-164
19842A91 AR-164

MASTERWORK

M8200 AR-72

MAZDA

1MM1418 AR-215
2MM1418 AR-215
5MM1418 AR-215
19842A91 AR-215

MEDALLION

63-030 AR-252
65-201/2 AR-124
●65-203 AR-120
65-206 AR-101
●65-212 AR-96
●65-231 AR-104
65-241 AR-102
65-302 AR-159
65-303 AR-160
65-304 AR-155
65-306 AR-160
65-312 AR-155
65-314 AR-174
65-320 AR-199
65-406 AR-185
65-412 AR-188
65-413 AR-239
65-414 AR-188
65-416 AR-228
65-481 AR-107
65-482/84 AR-103
65-486 AR-123
65-489 AR-232
65-490 AR-207
65-494 AR-234
65-496 AR-235
65-498 AR-238
65-500 AR-116
65-501A AR-121
65-501B AR-150
65-502 AR-123
65-505 AR-119
65-506 AR-123
65-509 AR-157
65-516 AR-200
65-528 AR-149
65-531 AR-163
65-532 AR-178
65-534 AR-198
65-540 AR-161
65-550 AR-158
65-554 AR-256
65-558 AR-240
65-560 AR-165
65-562 AR-198
65-564 AR-255
65-565 AR-205
65-566 AR-208
65-576 AR-199
65-589 AR-202

MERCURY
(For Auto Radio)
(See Ford)

MERCURY RECORDS

D6DF19A171AA AR-246
D6EA1880bAA AR-245

MERCURY RECORDS (CONT.)

D6ZA19A242AA AR-223
2MR6 AR-105

METEOR
(See Ford)

MGA

ARb15SG BL,L AR-117
ARA10L,W AR-117

MIDLAND

655548 AR-269
●65-230 AR-78
67 250 AR-272
67 440 AR-267

MITSUBISHI

AR27745E SUB AR-267
AR27745U SUB AR-267

MOPAR
(See Chrysler)

MORSE/ELECTROPHONIC

RTM2A AR-146

MOTOROLA

●CE70A AR-77
●CK70A AR-77
CMX501 AR-127
●CT70A AR-77
●CT71A AR-106
●CV71A AR-106
●CY70A AR-77
●F8SMP AR-125
FM70M AR-82
FM150M AR-85
FM152M AR-235
FM210A AR-72
FM212A AR-241
FM214A AR-201
FM273AX AR-203
●FM360A AR-87
FM362A AR-237
FM481AX AR-130
FM675A/775AX AR-202
FM775AX1 AR-225
FM992X AR-85
P718S AR-116
●PC70A AR-77
●PC71A AR-106
●PT70A AR-77
TD138J AR-116
TF752S AR-159
TF756S AR-225
TF800S AR-90
●TF852AX AR-232
TF853AX AR-271
TF864AX AR-181
TF874AX AR-218
TF878AX AR-269
TM8A AR-71
TM18A AR-73
●TM81A AR-106
●TM104M(Pg.163) AR-77
TM105M AR-75
TM200S AR-111
TM213S AR-162
●TM270M AR-79
TM299A AR-71
●TM316S AR-216
●TM329M AR-77
TM402S AR-230
TM413S AR-160
TM416S AR-217
TM529A AR-75
TM570A AR-82
TM573A AR-158
TM703S AR-95
TM713S AR-72
TM714S AR-82
TM718S AR-116
TM912S AR-162
TM2265 AR-215
1C2RFM4(See Pg.43) AR-178
1C3RMX4(See Pg. 39) AR-180
1C5RMX4 AR-204
1CP2417 AR-182
1F3RMX4 AR-180
2MP2031 AR-127
3FAEC7 AR-267
5C3RMX7 AR-273
5C5RMX4 AR-204
5CP2417 AR-182
5F3RMX4 AR-180
5F3RMX7 AR-273
5F4RMX4 AR-204
5FM216A AR-223
5FM273AX AR-203
5FM365A AR-223
5FM481AX1 AR-204
5FM484AX1 AR-204
5FM485AX AR-226
5N3RMX7 AR-273
75AMFT/10P3598 AR-109
875AX AR-225

MUNTZ/STEREO

M430 AR-190
M431 AR-173
M607(PU-607A-01) AR-133
M650 AR-161
M651 AR-162
M860(PU-428A-01) AR-134
M880(PU-427B-02) AR-134
M883(PU-419A-01) AR-132
M884 AR-136
M886(PU-421A-01) AR-134
M888(PU-423A-01) AR-143
M940(PU-809A-01) AR-141
PU419A01 AR-132
PU421A01 AR-134
PU423A01 AR-143
PU427B02 AR-134
PU428A01 AR-134
PU434A(See Pg.79) AR-170
PU606A01 AR-136
PU607A01/1 AR-133
PU809A01 AR-141

NIVICO

1310 AR-75

OLDSMOBILE
(See General Motors)

OLSON

AU332A AR-185
AU334 AR-201

OPEL
(See General Motors)

PANASONIC

CQ252EU AR-182
CQ742EU AR-229
CQ840EU AR-237
CQ841EU AR-262
CQ880EU AR-146
CQ881BU AR-194
CQ898EU AR-219
CQ909EU AR-108
CQ959EU AR-175
CQ969EU AR-230
CQ989EU AR-224
CQ999EU AR-232
CQ1289EU AR-269
CQ1711EU AR-258
CQ1720EU AR-260
CQ2289EU AR-267
CQ2700EU AR-261
CQ2989EU AR-268
CQ6700EU AR-262
CR B1717EU AR-233
CR B4737EU AR-244
CR B4747EU AR-247
CR3B AR-149
CR119EU AR-140
CR143EU AR-138
CR242EU AR-176
CR501EUA AR-150
CR5145EU AR-140
CR515EU AR-220
CR656EU AR-167
CR657EU/58EU AR-217
CR700EU AR-139
CR701EU AR-166
CR714EU AR-174
CR1545EU AR-235
CR1657EU/58EU/59EU AR-242
CR1714EU AR-234
CR2702EU/3EU/4EU AR-270
CX131EU AR-143
CX325EU/26EU AR-151
CX351EU AR-111
CX375EU AR-177
CX385EU AR-221
CX475EU AR-183
CX567EU AR-172
CX568EU(Sim to Pg. 95) AR-172
CX601EU (PCBAR 176) AR-144
CX675EU AR-181
CX777SU AR-99
CX830EU AR-111
CX880EU AR-148
CX888SU AR-95
2703EU/4EU AR-270

PEUGEOT

2PG2130(91802) AR-129
98102 AR-129

PHILCO-FORD
(See Ford)

PHILCO-LINCOLN
(See Ford)

PHILCO-MERCURY
(See Ford)

PIONEER

GX1500G AR-220
GX2020G AR-218
GX5050G AR-259
KE2000 AR-273
KP3333R AR-227
KP4000G,ZE AR-227
KP5005 AR-272
KP8000G AR-257
KP8005G AR-256
KPH9000U AR-271
QP444E AR-155
TP200 AR-222
TP222E AR-143
TP232EA/33EA AR-216
TP252E AR-242
TP700E AR-152
TP727E AR-248
TP777E AR-145
TP800E AR-221
TP828E AR-221
TP900E AR-250
TP6000,G AR-146
TP6001G AR-246
TP7000G,ZE AR-219
TP7005G AR-244
TP8000E AR-148
TP8001E AR-228
TP9005G AR-244

PLYMOUTH
(See Chrysler)

PONTIAC
(See General Motors)

PORSCHE

Sapphire XV111 AR-192
Sapphire XVII AR-124
Sapphire XX1 AR-191
Sapphire XXV AR-181
●1PE1123 AR-118
1PE2124(1971911T,914) AR-130
1PE2127 AR-156
1PE2241/42 AR-157
1VW1327(Sapphire XVIII) AR-155
1VW1419 AR-192
1VW2323(Sapphire X1X) AR-154
1VW2335 AR-181
1VW2427 AR-199
1VW3401 AR-193
1VW4112 AR-124
1VW4309(Sapphire XX1) AR-179
1VW4412 AR-201
1VW4419 AR-191
2VW1327(Sapphire XVIII) AR-155
5VW1327(Sapphire XVIII) AR-155
5VW1419 AR-192
5VW2335 AR-181
5VW2427 AR-199
5VW3401 AR-193
5VW4309(Sapphire XX1) AR-179
5VW4412 AR-201
5VW4419 AR-191

RANGER

R12PBX AR-86
R62MPX0/2/4/A00000 AR-74
R71T AR-111
R100C0 AR-75

RANGER (CONT.)

R102 AR-75
R102CD AR-147
R104 AR-75
R201M AR-142
RR19FM(IC Version) AR-149
#RR22R AR-78
RR24PB AR-105
#RR26FM AR-106
RR29PB AR-108
RR32/34/35MPX AR-72
RR36PB AR-148
RR42FT AR-95
RR42T(See Pg.77) AR-95
#RR47T AR-79
#RR47T0/2/4 AR-79
RR53T AR-213
RR54T AR-220
RR56T AR-141
RR65TD AR-150
RR69TC AR-175
RR77T AR-212
RR77W AR-161
RR86T AR-216
RR93MPX AR-217
RR104C AR-178
RR201M AR-142
RR203 AR-233
RR203MPX AR-151
RR2003MPX AR-211
TC104C AR-178
TP803 AR-74
51T AR-208
53T AR-213
54T AR-220
77T AR-212
86T AR-216
93MPX AR-217
100007 151 AR-151
100007 172 AR-141
#100007 191 AR-79
100007 210 AR-233
100007 224 AR-141
100007 253 AR-208
100007 255 AR-213
100017 219 AR-212

RCA

PA424A1 AR-149
12R100(12R0100) AR-167
12R150 AR-212
12R200 AR-161
12R210 AR-260
12R300/1 AR-143
12R490 AR-197
12R500 AR-144
12R600 AR-147
12R606 AR-207
12R607 AR-212
12R703 AR-202
12R704 AR-272
12R710 AR-263
12R800(PA424A 01) AR-149
14T400 AR-245
14T410 AR-251
20C505 AR-271

REALISTIC

12 1341 AR-207
12 1372 AR-208
12 1802 AR-223
12 1815 AR-231
12 1819 AR-164
12 1822 AR-156
12 1825 AR-154
12 1827 AR-95
12 1828 AR-99
12-1831 AR-201
12-1832 AR-152
12 1833 AR-141
12 1834 AR-156
12 1835 AR-198
12 1836 AR-254
12 2024/26 AR-155
14-820 AR-143

REALISTIC (CONT.)

14-821 AR-142
14-822 AR-145
14 858 AR-146
14-873 AR-130
14 876 AR-134
14-878 AR-129
14 879 AR-139
14-894 AR-141
14 896 AR-129
14 898 AR-144
14 899 AR-140

RENAULT

F8SMXD(5568 00) AR-131
#1RE1926(55569 00) AR-118
#1RE1927(55569 01) AR-118
#1RE1928(55569 04) AR-118
1RE2916(55569 02) AR-131
1RE2917(55569 03) AR-131
1RE2918(55569 05) AR-131
5568 00 AR-131
#55569 00-01 04 AR-118
#55569 01 AR-118
55569 02-03 05 AR-131
55569 3 AR-131
#55569 4 AR-118
55569 5 AR-131

RIVERSIDE
(See Wards)

SAAB

00BSAA,BSAB/01BSA AR-113
01BSA99 AR-113
8BSA AR-70
9AA99 Sim. to Pg.115) AR-70
9BSA,BSAA(Sim.to Pg.115) AR-70
#9FBSA AR-110
#9FBSA99 AR-110
#9FBSAB AR-110
99(Sim.to Pg.115) AR-70
500127(8BSA)(See Pg.115) AR-70

SANYO

FT407 AR-271
FT414 AR-272
FT416 AR-273
FT842 AR-132
FT863 AR-127
FT866 AR-130
FT883 AR-121

SEARS-SILVERTONE

136 50450 AR-153
564-5071 AR-99
564 50420 AR-156
564-50440 AR-154
564-50460 AR-160
564 50480 AR-157
564-50700/1 AR-99
564-50740 AR-163
564-626410 AR-88
564-626420 AR-93
564-626430 AR-92
564 626450 AR-158
564-626460 AR-161
564-626470 AR-162
833 50290 AR-89
833-62040 AR-158
833-62080 AR-84
833-62340 AR-103
833-62460 AR-92
833-62840 AR-101
833-62860/2901 AR-92
833-62930 AR-85
833 63120/21 AR-103
833 63170 AR-99
833-63230 AR-107
833-63280(See Pg.107) AR-103
833 R6286 AR-92

SEARS-SILVERTONE (CONT.)

905 50720 AR-86
905 50721 AR-159

SIMCA
(See Chrysler)

SONY

TC24FA AR-237
TC25F AR-201
TC26F,P AR-221
TC28 AR-256
TC30(See Pg.89) AR-164
TC30A AR-164
TC34 AR-268

STEREOSONIC

490S AR-163
500S AR-211
501S AR-164
502S AR-199
503S AR-164
504S AR-160
505 AR-203
730S(See Pg.5) AR-165
790S AR-164
791S AR-160

STUDEBAKER

#19BFM1(Sim.to Pg.81) AR-106

SUPERSCOPE

CA20 AR-253

TECHNICS
(Also See Panasonic)

RS271US AR-136

TEN

AT3700 1 AR-271
AT7801 1 AR-273
AT7811 1 AR-273
DP640-1/3 AR-272

TENNA

R100C/2/4 AR-75
RR2013CMX AR-270
RR2014MPX AR-268
RR2015MPX/17MPX AR-272
TC67T AR-180
TC68T AR-182
TC70T AR-107
TC73T AR-175
TC80T AR-116
TC81T AR-107
TC82T AR-111
TC95MPX AR-184
TC104C AR-178
TC112CMX AR-184
100007 218 AR-182

TOYOTA

CR122FT/27FT AR-114
CR201FCT,FUT AR-146
CR251BT,FUT,T AR-184
CR523FT/28FT AR-117
CR582FCT,FUT AR-150
CR652BTL,BTR,FUT,T AR-180
CR753FUTA,TA/54FUTA AR-208
CR754FWTA AR-207
CR755T AR-214
CX161FTB/65FTB AR-114
CX171FUT-T AR-146
CX175FUT,T/76FUT-T,FWT AR-214
CX361FUT,T AR-208
CX362FUT,T/63FUT AR-180
RT60DFT AR-122
RT60LFT AR-115
T071FM AR-135

TOYOTA (CONT.)

T071MPX AR-156
T071PB AR-135
852-20250 AR-180
852-20270/280 AR-208
862-20240 AR-184
86011 20200 AR-180
86011-22110/23020 AR-214
86011 29055 AR-184
86011-29065 AR-180
86021-20030 AR-208
86021-20040/21030 AR-180
86021-22030/31 AR-214
86120 20090 (CR-122FT/127FT) AR-114
86120 20110 (CR-523FT/528FT) AR-117
86120-20130 AR-184
86120-20150 AR-180
86120-20190 AR-208
86120-22010(RT-60DFT) AR-122
86120-22040(RT-60LFT) AR-115
86120 22050 AR-184
86120-22080 AR-150
86120-22110 AR-214
86260-14010(CX-165FTB) AR-114
86260 20011(CX-161FTB) AR-114
86260-20020 AR-208
86260-20030 AR-180
86260-22010(CX-171FUT) AR-146
86260-22020(2) AR-214

TRIUMPH

#B,BTR,BTRA (BTR AR-110
2BFM1 (See Pg.5) AR-129
2FBPT(2FBP) AR-129
3BFM1 (See Pg.5) AR-129
9FBTR AR-113

TRUETONE

DC4050 AR-72
DC4050C AR-136
DC4051A AR-167
DC4053 AR-159
#DC4054B AR-106
#DC4055 AR-76
DC4060(MIC4060A 07) AR-93
DC4060(MED4060A-47) AR-160
DC4060B AR-100
DC5056 AR-71
DC5554 AR-183
DC5560 AR-184
DC5564 AR-185
IDI4DC7908A86 AR-99
IDI7002A(4DC7002) AR-132
IDI7002A27 AR-134
IDI7015A27(4DC7015) AR-132
IDI7105A27 AR-134
IDI7140A27 AR-136
IDI7400A47 AR-178
IDI7406A47 AR-179
IDI7418 AR-183
IDI7500A57 AR-218
IDI7606A57 AR-217
IDI7908A86 AR-99
ITC7004A07 AR-111
ITC7006A07 AR-91
#ITC7008A07 AR-77
ITC7010A07 AR-99
ITC7508A96 AR-99
ITC7910A86 AR-95
MED4051A47 AR-167
MED4053A47 AR-159
MED4060A47 AR-160
MED5554A57 AR-183
MED5560A57 AR-184
MED5560A67 AR-247
MED5564A57 AR-185
MED5564B67 AR-234
MED7208A37 AR-134

TRUETONE (CONT.)

MED7305B37 AR-151
MED7403A47 AR-209
MED7408A47 AR-215
MED7503A57 AR-211
MED7510A57 AR-214
MIC4050A07 AR-72
MIC4050C17 AR-136
#MIC4054B17 AR-106
#MIC4055A07 AR-76
MIC4060A07 AR-93
MIC4060B17 AR-100
MIC5056A96 AR-71
MIC7003A17 AR-116
MIC7012A17 AR-134
MIC7305A37 AR-134
#MID4055A07 AR-76
MID5056A07 AR-71
#S808 AR-77
4DC7002(1DI7002A 17) AR-134
4DC7002(1DI7002A-27) AR-132
4DC7003 AR-116
4DC7004 AR-111
4DC7006 AR-91
#4DC7008 AR-77
4DC7010 AR-99
4DC7012 AR-134
4DC7015 AR-133
4DC7015B AR-175
4DC7105/7208 AR-134
4DC7305(MED7305A-37) AR-134
4DC7305(MED7305B-37) AR-151
4DC7400A AR-178
4DC7403 AR-209
4DC7406A AR-179
4DC7408 AR-215
4DC7418 AR-183
4DC7500 AR-218
4DC7503 AR-211
4DC7510 AR-214
4DC7606 AR-217
4DC7908 AR-99
4DC7910 AR-95
4DX7140 AR-136
23-5560 AR-247
23-5564-2 AR-234

VAUXHALL
(See General Motors)

VOLKSWAGEN

#Canadian AR-80
1VW1327 AR-155
1VW2219 AR-157
R28G,BT,BV AR-102
RR36PB AR-148
#Sapphire XI AR-80
Sapphire XII AR-84
#Sapphire XV AR-118
Sapphire XVII AR-124
Sapphire XVIII AR-192
Sapphire XXI AR-191
Sapphire XXV AR-181
#1VW10 AR-80
1VW20Sapphire(XII) AR-84
#1VW1116/18 AR-118
1VW1419 AR-192
1VW2109 (Sapphire XIV)(1971 Sedan 411,Transporter,Karmann Ghia) AR-130
1VW2111 (Sapphire XIV)(1971 Fastback, Squareback) AR-130
1VW2323(Sapphire XIX) AR-154
1VW2335 AR-181
1VW2427 AR-199
1VW3401 AR-193
1VW4112 AR-124
1VW4309(Sapphire XXI) AR-179
1VW4412 AR-201
1VW4419 AR-191
28G AR-102
2BT(R2BT) AR-102
2BV(R2BV) AR-102

VOLKSWAGEN (CONT.)

#2VW1003 AR-80
#2VW1116 AR-118
2VW1327 AR-155
2VW2109(Sapphire XIV) AR-130
#3VW1116 AR-118
5VW1327 AR-155
5VW1419 AR-192
5VW1804(MTR5011804A) AR-269
5VW2335 AR-181
5VW2427 AR-199
5VW3401 AR-193
5VW4309(Sapphire XXI) AR-179
5VW4412 AR-201
5VW4419 AR-191

VOLVO

D AR-109
DBVD AR-109
DBVD,DBVOC/1BVD,BVOC,D AR-109
#1VV2032/2908(279971) AR-120
1VW2114/16(Sapphire XVI) AR-156
2BAMVO AR-129
2BFMVO AR-135
#2VV2016(279959 1972 Prod.) AR-120
3BFMVO AR-135
9FBVD,FBVD,FBVDC AR-112
#279959/971 AR-120

WARDS-RIVERSIDE
(See Wards)

WARDS

FJB6471 AR-19
FKI16779A(61-16779) AR-132
GEN3989A AR-271
ZCX16730A AR-91
ZCX16732A,B AR-95
ZCX16753A,B,C,D AR-116
61-16730 AR-91
61-16753 AR-116
61-16779 AR-133

WELTRON

717/18 AR-111

WHEEL-HORSE

1BTWN AR-114

WHITE MOTOR CO.

1TR1247(20-7000656) AR-165
#1WM2134(02-7074020) AR-118
#2-7074020 AR-118

WILLYS-OVERLAND
(See American Motors)

WIZARD

ITC7910A96 AR-95
4DC7910 AR-95

XTAL

XA84 AR-219
XA86 AR-218
XA88 AR-220
XA803 AR-253
XA806 AR-254
XA808 AR-225
XCB23A AR-249
XCB28 AR-242
XCB88 AR-246

AR-273
008059

HOWARD W. SAMS & CO., INC.
4300 WEST 62nd ST. • INDIANAPOLIS, INDIANA 46268