sams

AUTO RADIO SERVICE DATA

Chrysler By Mitsubishi ***Plymouth Sapporo/ Dodge Challenger*** *RS-66SUB-K*

Ford Truck *5FD4802(D8HF-19A242-AB),*

Ford & Mercury *5FD4803(D8DF-19A242-AB),*

Ford Pinto & Mercury Bobcat *5PN4806 (D8EF-19A242-AB)*

JCPenney *0244(981-0250)(981-0244-00)* ***J.I.L.*** *631*

Panasonic *CQ-3988EU,EC/89EU* ***Pioneer*** *GX-4040*

Realistic *12-1342* ***Sankyo*** *SCS-222*

Sanyo *FT1003*

sams

AUTO RADIO SERVICE DATA

AR-275

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

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MODEL NUMBER *PAGE*

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 PROCEDURES

1) Tape player

When provided with a test tape.

- Adjustment of azimuth.

(1) Insert the test tape.
(2) Select the program No.3.
(3) Adjust balance control to the extreme right so that the output may come from the right loudspeaker.
(4) Adjust the azimuth adjustment screw, shown in Fig. 6, so that 7.5KHz sound may become to the maximum in the right loudspeaker.

- Adjustment of height.

(1) Insert the test tape.
(2) Select the program No.2.
(3) Adjust balance control to the medium position. Adjustment volume control to a desired level.
(4) Turn the height adjustment NUT-HEX in Fig. 5, so that the sounds of No.1 Program and No.3 Program may not be heard.

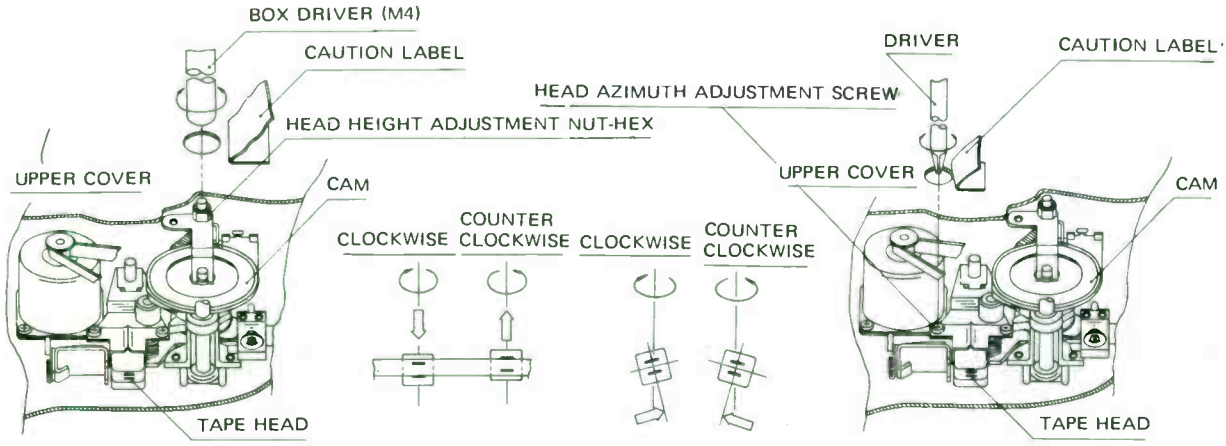
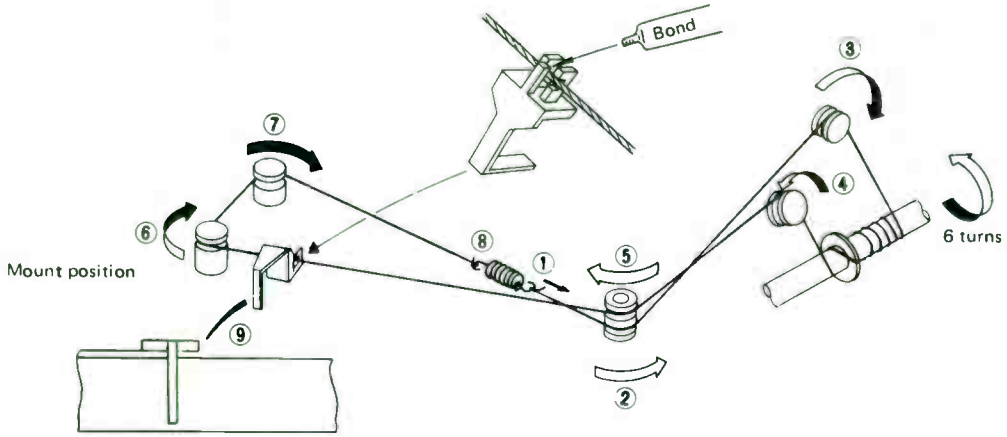


Fig. 5

Fig. 6

How to wind dial string

(a) The winding direction and number of turns of the string should be as illustrated.
(b) Mount the pointer at the position and in the manner illustrated.



2) FM

STEP	STAGE	CONNECT SIGNAL GENERATOR TO	CONNECT INDICATOR TO	SET SIGNAL SOURCE	SET RADIO DIAL	ADJUST	ADJUST FOR
1	IF	Fig. 7	Fig. 8	10.7 MHz	Point of non-interference	T101 T151 T152	Maximum amplitude and symmetry NOTICE Center frequency be decided at ceramic filter
2						Repeat procedures 1	
3	Discrimi-nator	Fig. 7	Fig. 9	10.7 MHz	Point of non-interference	T153	• Symmetry wave
4						Repeat procedures 3	
5	Oscillator	Fig. 10	Fig. 11	88 MHz	88 MHz	VC103	• Tune in
6				104 MHz	104 MHz	VC103	• Tune in
7	RF	Fig. 10	Fig. 11	96 MHz	96 MHz	VC101 VC102	• Maximum output

CENTER FREQUENCY OF CERAMIC FILTER

COLOR	CENTER FREQUENCY
Black	10.64±0.03 MHz
Blue	10.67± "
Red	10.70± "
Orange	10.73± "
White	10.76± "

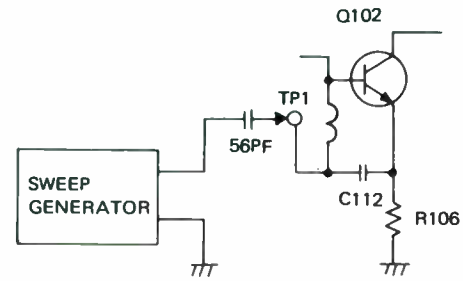


Fig. 7

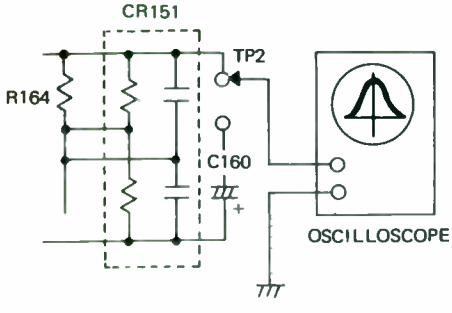


Fig. 8

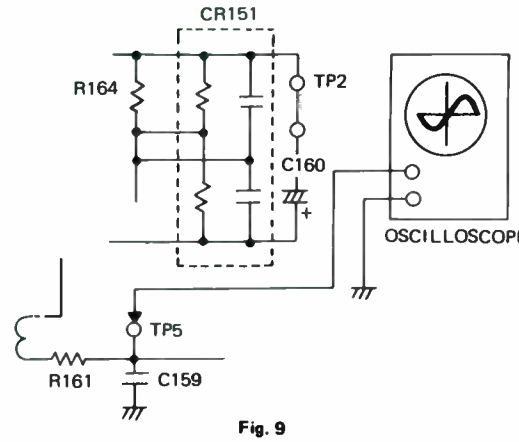


Fig. 9

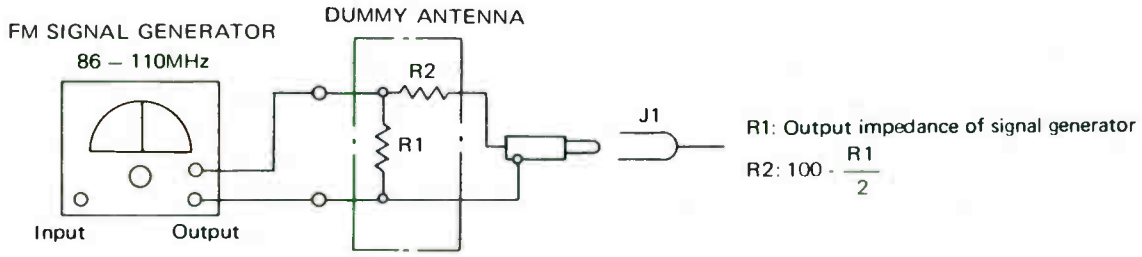


Fig. 10

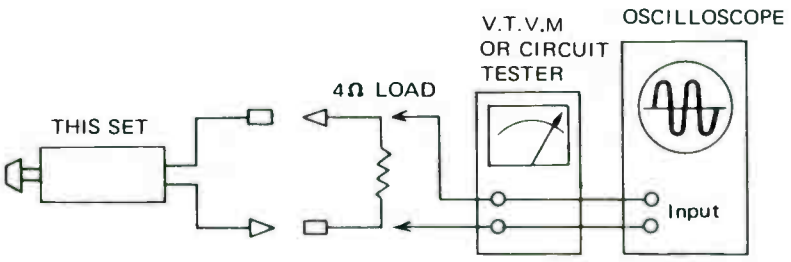


Fig. 11

3) FM STEREO

STEP	STAGE	CONNECT FREQUENCY COUNTER TO	ADJUST	ADJUST FOR
	PLL	Fig 12	VR201	19KHz±0.1KHz

Alternate Method :

Adjust VR201 to turn on stereo indicator lamp, check stereo separation by tuning to a stereo broadcast.

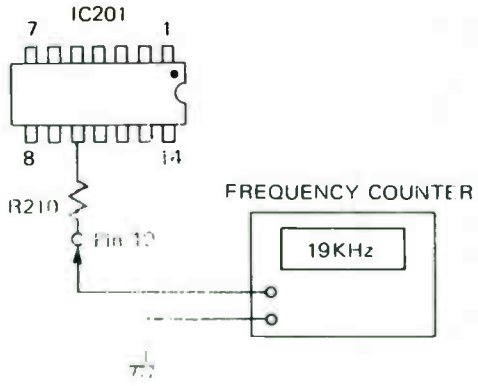


Fig. 12

4) AM

STEP	STAGE	CONNECT SIGNAL GENERATOR TO	CONNECT INDICATOR TO	SET SIGNAL SOURCE	SET RADIO DIAL	ADJUST	ADJUST FOR
1	IF	Fig. 13	Fig. 14	450 KHz (400Hz Mod.)	Point of non interference near 1600 KHz	T2–5	450±3 KHz
2						Repeat procedure 1	
3	Oscillation RF	Fig. 15	Output meter across Voice Coil	1630 KHz	High freq. end stop	VC3	Tune in
4				510 KHz	Low freq. end stop	T1	Tune in
5						Repeat procedure 3–4	
6				1400 KHz	1400 KHz	VC1 VC2	Maximum output
7			"			Repeat procedure 6	Check the range of the frequency of the received wave.

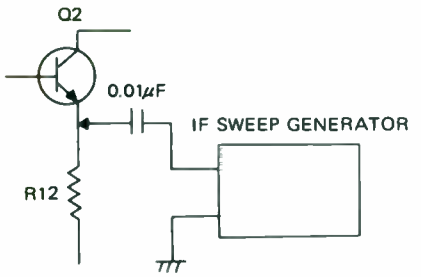


Fig. 13

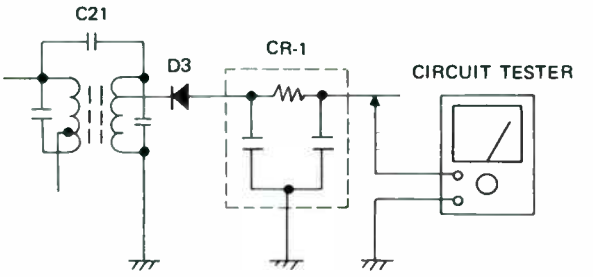


Fig. 14

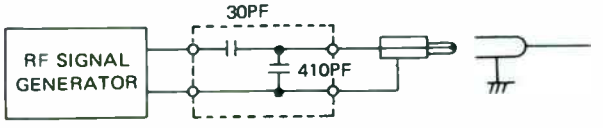
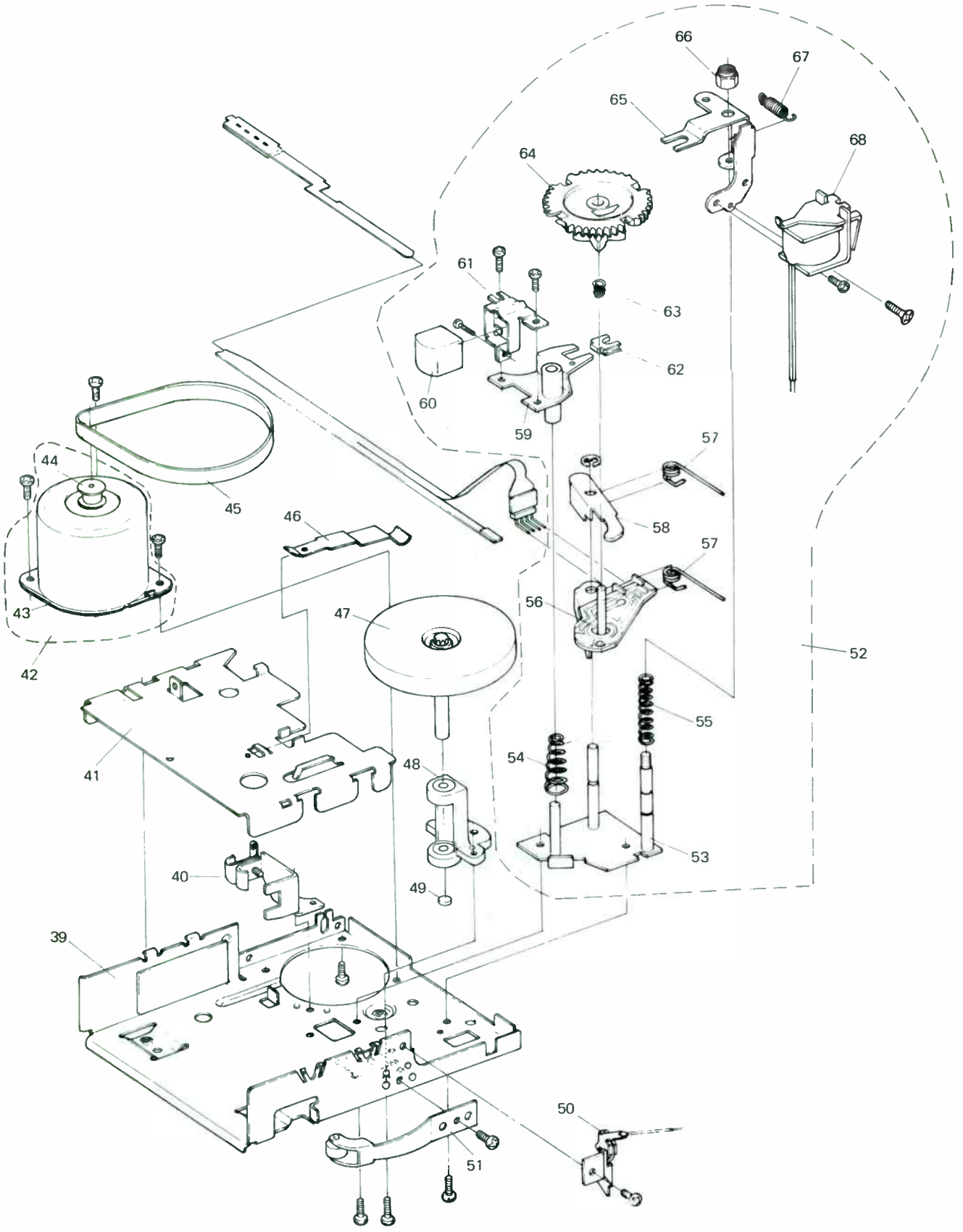


Fig. 15

TROUBLE SHOOTING

TROUBLES	CIRCUIT	CAUSES	REPAIR
No sound at all	AF amp.	• IC302, 402 damaged	• Replace
		• IC302, 402 bias resistor open	• "
		• C317, 417 open	• "
		• VR303, 403 open	• "
		• S5-b, c switch damaged	• "
No sound at player	Pre amp.	• IC301 damaged	• Replace
		• IC301 bias resistor open	• "
		• Magnetic head open	• "
		• C302, 402 open	• "
	Motor	• Motor short	• Replace
		• S5-a switch damaged	• "
		• Check for mechanical part	• Repair
No sound at radio		• S5-b, c switch damaged	• Replace
		• R220 open	• "
No sound at AM section	AM RF, IF	• Q1~3 damaged	• Replace
		• Q1~3 bias resistor open	• "
		• Antenna socket short	• "
		• L1, 4 open	• "
		• Tuner coil open	• "
		• D3 damaged	• "
		• T1~T5 open	• "
		• CR1 open	• "
No sound at FM section	FM RF, IF	• Q101~103, 151 damaged	• Replace
		• Q101~103, 151 bias resistor open	• "
		• IC151, 201 damaged	• "
		• CF151, 152 damaged	• "
		• T101, 151, 152, 153 open	• "
		• D151, 152 damaged	• "
		• CR151 open	• "
Low sound	AF amp.	• Check for AF amp. circuit	• Repair
FM low sensitivity	FM RF, IF	• Misalignment IFT	• Readjustment
		• Check for FM RF, IF circuit	• Repair
Distorted sound		• IC302, 402 damaged	• Replace
		• IC201 damaged	• "
		• C204, 318 open	• "



12. PARTS LIST

In order to expedite delivery of replacement part orders, unless full information is supplied, delay in processing of orders will result.

Specify :
1. Model number
2. Part number and Description
3. Quantity

1) Mechanical Parts

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	590K12002	Upper Cover	39	560K05701	Base Chassis
2	923L28902	Ass'y PWB SW	40	590L51101	Tape Guide
3	590L51401	Holder Deck	41	590L51203	Upper Plate
4	923K16302	Ass'y PWB IF	42	923L12503	Ass'y Motor
5	591M26001	Holder-66	43	288P01901	Motor
6	570M22401	Spring-D	44	630M32802	Motor Pulley
7	590L53601	Lever-SW	45	521M00501	Gum Belt
8	943L38101	Ass'y Holder Pointer	46	570M16301	Upper Clamper
9	253L00601	Lead Lamp	47	524L00502	Flywheel
10	253L00602	"	48	530L00201	Metal Case
11	892K00201	Dial Shutter	49	640D91104	Washer-FW
12	570M22501	Spring Shutter	50	202L00601	C-Trimmer
13	923K16202	Ass'y PWB RF	51	591M18001	Clamper
14	591M25901	Lever SW-B	52	943K25402	Ass'y Head Mecha.
15	295K03902	Tuner	53	943L16801	Ass'y Plate Posts
16	591M16301	Holder-TP	54	570M11001	Spring Head
17	591M19401	Holder-RF	55	570M09601	Spring Fine
18	449L02101	Socket Ant	56	943L37901	Ass'y Gear Posts
19	590L51602	Holder-F	57	570M09502	Spring Trip
20	923L29001	Ass'y FPC LED	58	525M02701	Lever Trip
21	923K16401	Ass'y PWB AF	59	943L16901	Ass'y Base Head
22	923L29201	Ass'y VR-Triple Shaft	60	460L00501	Head
23	129L05302	VR-Triple Shaft	61	590L21802	Band Head
24	591M16201	Washer Axis	62	641M07601	Slider
25	560K05804	Bottom Base	63	570M09701	Spring Gear
26	591M15901	Cover	64	943L26501	Ass'y Cam Gear
27	704M17803	Button DX	65	590M63401	Lever Fine
28	704M19201	Selector	66	679L00201	Nut-U
29	704M19301	Knob-C	67	570M13801	Spring-T
30	704L04401	Knob B-S	68	479L00702	Clutch
31	963L10202	Ass'y Knob A-S	69	590L52301	Heat Sink
32	129L05802	VR-Fader	70	590M93801	Shield Plate
33	241L30602	FPC Fader	71	591M16501	Shield Case
34	590D95401	Cable Clamper	72	591M16601	Shield Cover
35	923L34302	Ass'y Holder-CP	73	704M17502	Button Tuner
36	242L07102	Lead-F	74	702K07401	Panel
37	242L10402	Lead 6 CFM	75	590L54901	Bracket-R
38	242L11501	Lead SP	76	590L55001	Bracket-L

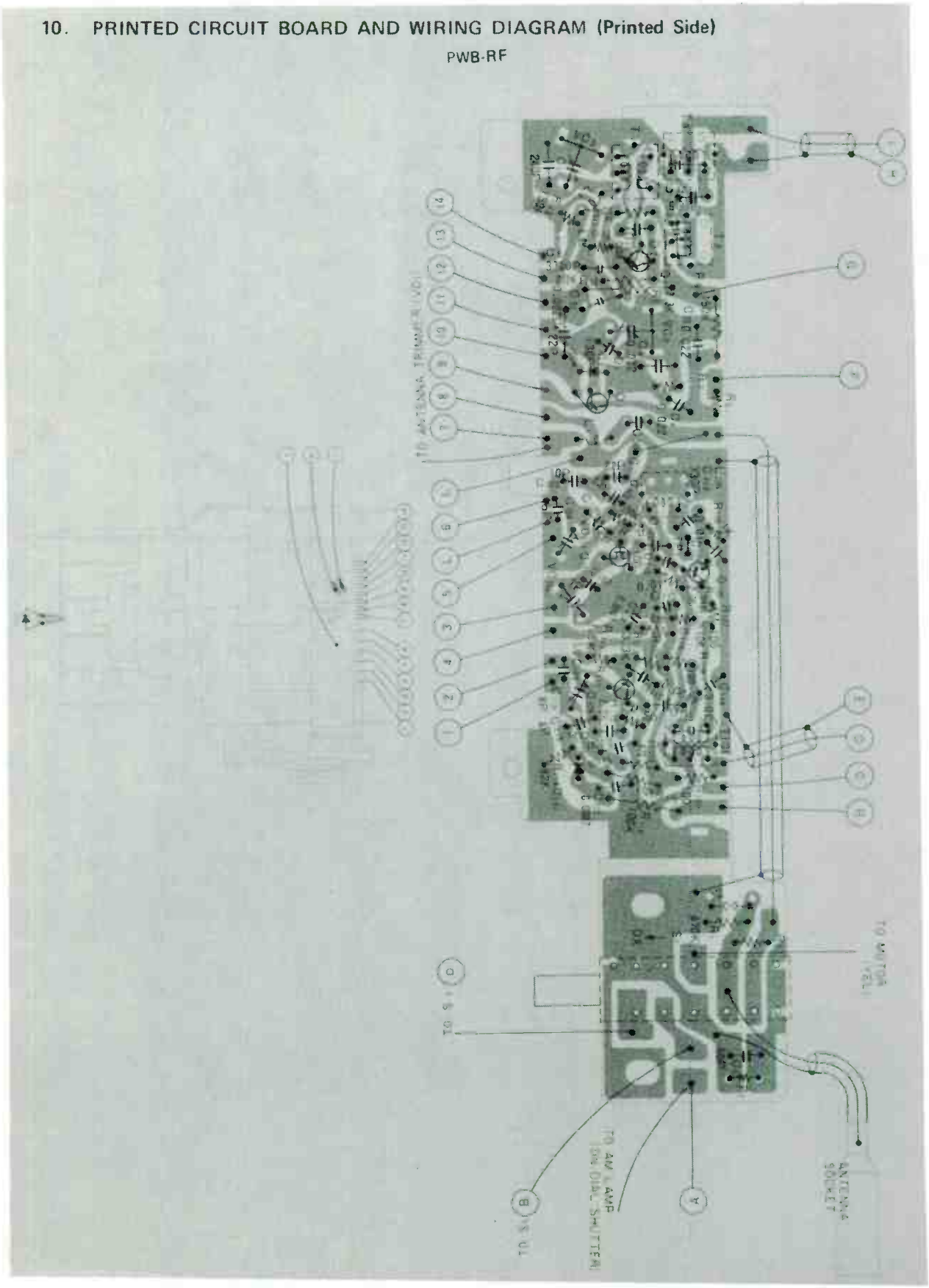
2) Electrical Parts

Ref. No.	Part No.	Description
RESISTORS		
VR201,301, 302,402	127M02101	VR-Semifixed
303,403	129L05302	VR-Triple Shaft
304,404	129L05802	VR-Fader
CAPACITORS		
VC101~103	202L00301	C-Trimmer
1	202L00601	"
2,3	202P10401	"
SEMICONDUCTORS		
Q103	260P10403	TR 2SC739-C
3	260P17102	" 2SC710-C, D
1,151	260P17103	" 2SC710-C
2	260P17503	" 2SC711-D
102	260P17603	" 2SC763-C
101	260P23702	" 2SK61-O
D2,3	264P00401	Diode MD34
151,152	264P01306	" 1N60P
101	264P07501	" SC-15
4,9,10	264P08801	" V-06C
201	264P10505	" EQB-01-08
1	264P11701	" 1S953
202	264P13901	Diode-LE SLP-119
5~8	264P14301	" SLP-114B
IC151	266M00101	IC TA7061A/BA402
301	266P31601	" M51521L
251	266P31801	" M51011P
302	266P32101	" M51513L
402	266P32102	" M51513L
201	266P71001	" HA1156

Ref. No.	Part No.	Description
TRANSFORMERS AND COILS		
L2,3,4,102, 103,105	295K03902	Tuner
104	320D04601	Coil Trap
4	351D02103	Coil Choke
1	351L00101	Coil Choke
F201,202	351L00201	Filter
L9	351M00201	Coil Choke
7	351P00105	Trans Choke
L8	351P00902	Trans Choke
T1	373M00102	Trans OSC
152	374C00403	Trans IF
153	374C00404	"
2,4	374L00101	"
3	374L00102	"
5	374L00104	"
101,151	374L00201	"
OTHERS		
Z1	224D01901	Air Gap
	241L31602	FPC Fader
	241L31701	FPC LED
	241M12801	PWB VR
	241M14901	PWB SW
PL2	253L00601	Lead Lamp
1	253L00602	Lead Lamp
	283P00102	Fuse 2A
CF151,152	296M00301	Ceramic Filter
S6	431L01901	SW-Slide
7	432L02001	SW-Push
	433L00103	SW-Seesaw
TL, TR	460L00501	Head
	479L00702	Clutch
CR151	149L00101	CR-Multiple
1	149L00301	"

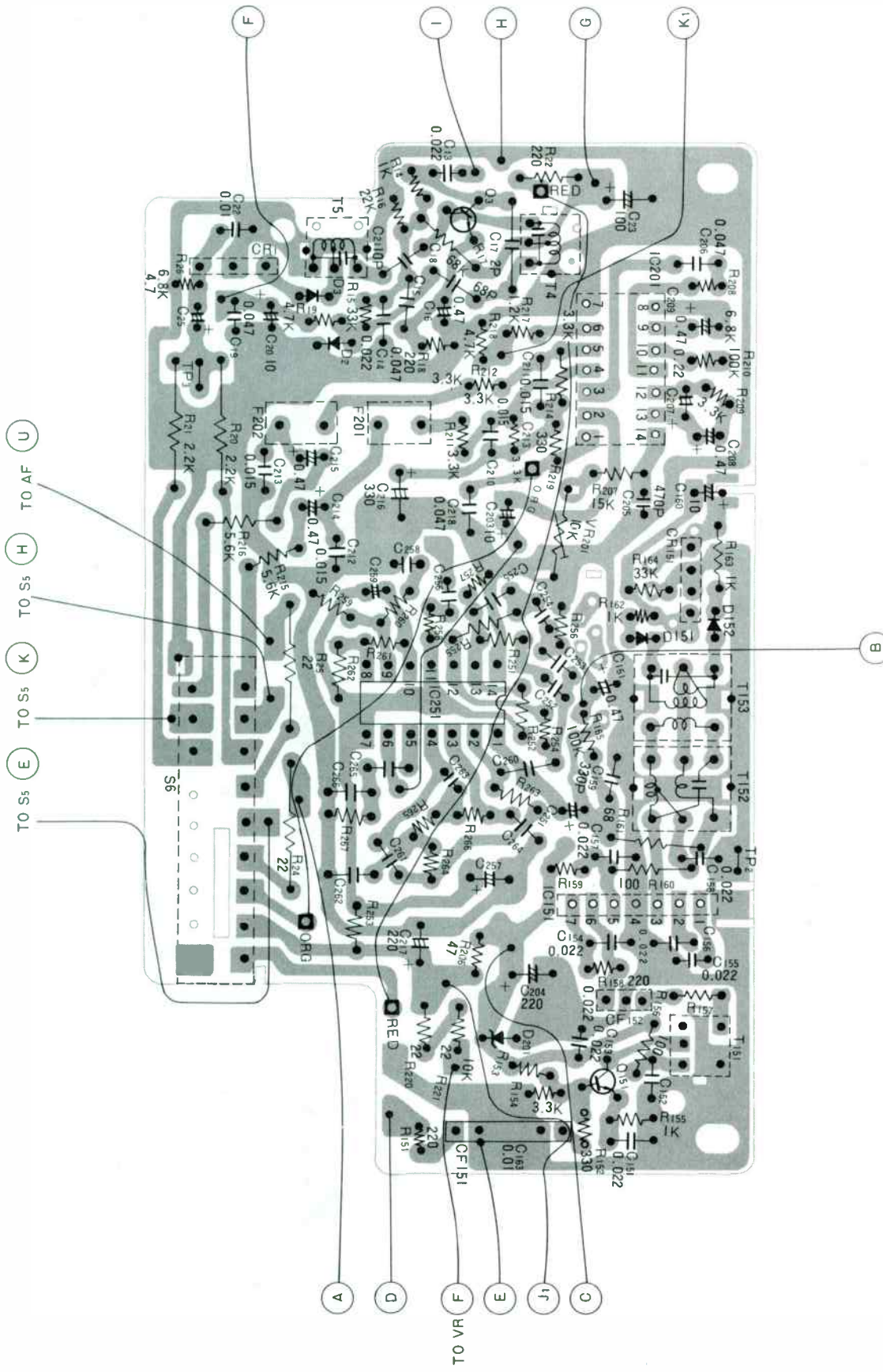
10. PRINTED CIRCUIT BOARD AND WIRING DIAGRAM (Printed Side)

PWB-RF



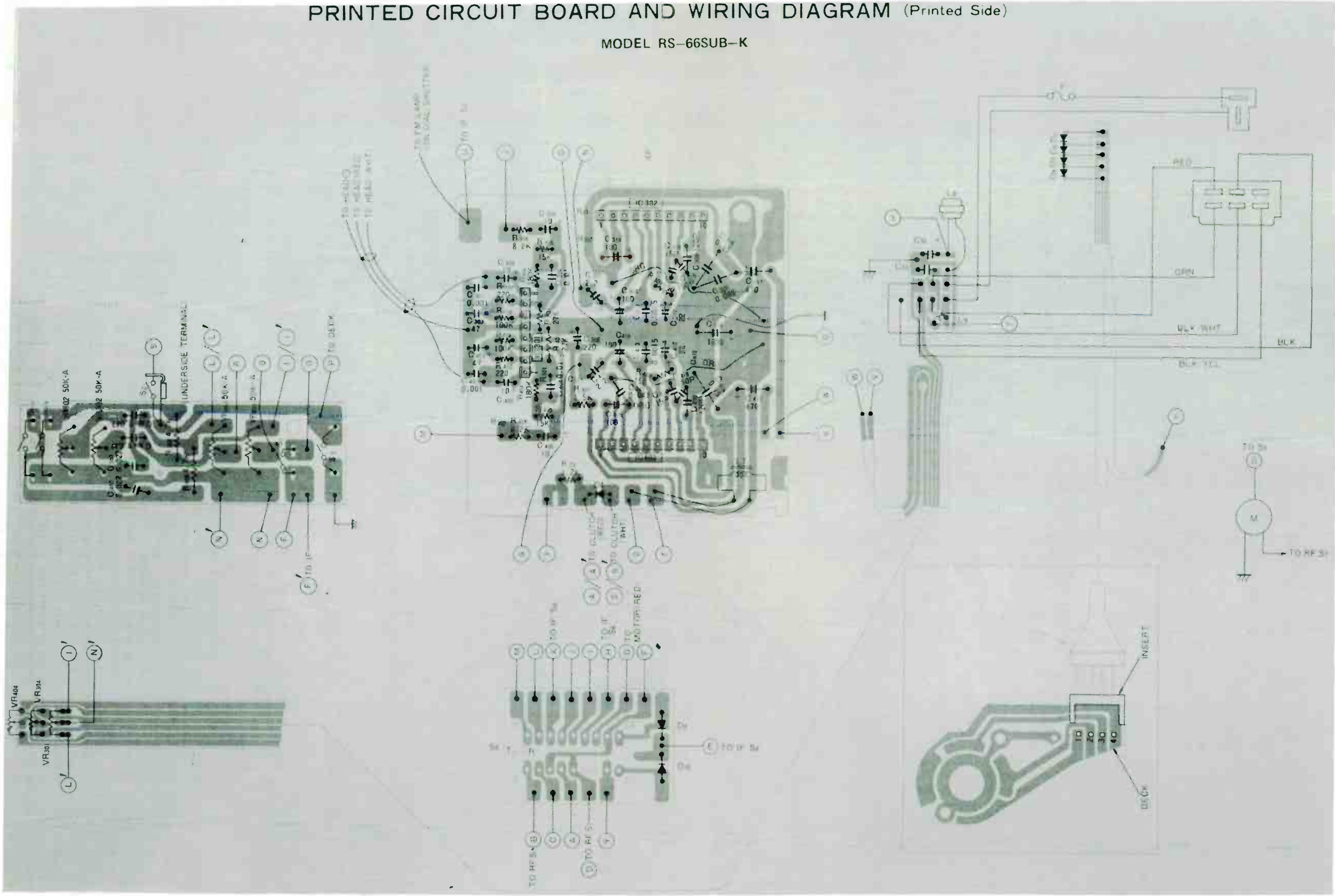
PRINTED CIRCUIT BOARD AND WIRING DIAGRAM (Printed Side)

PWB-IF



PRINTED CIRCUIT BOARD AND WIRING DIAGRAM (Printed Side)

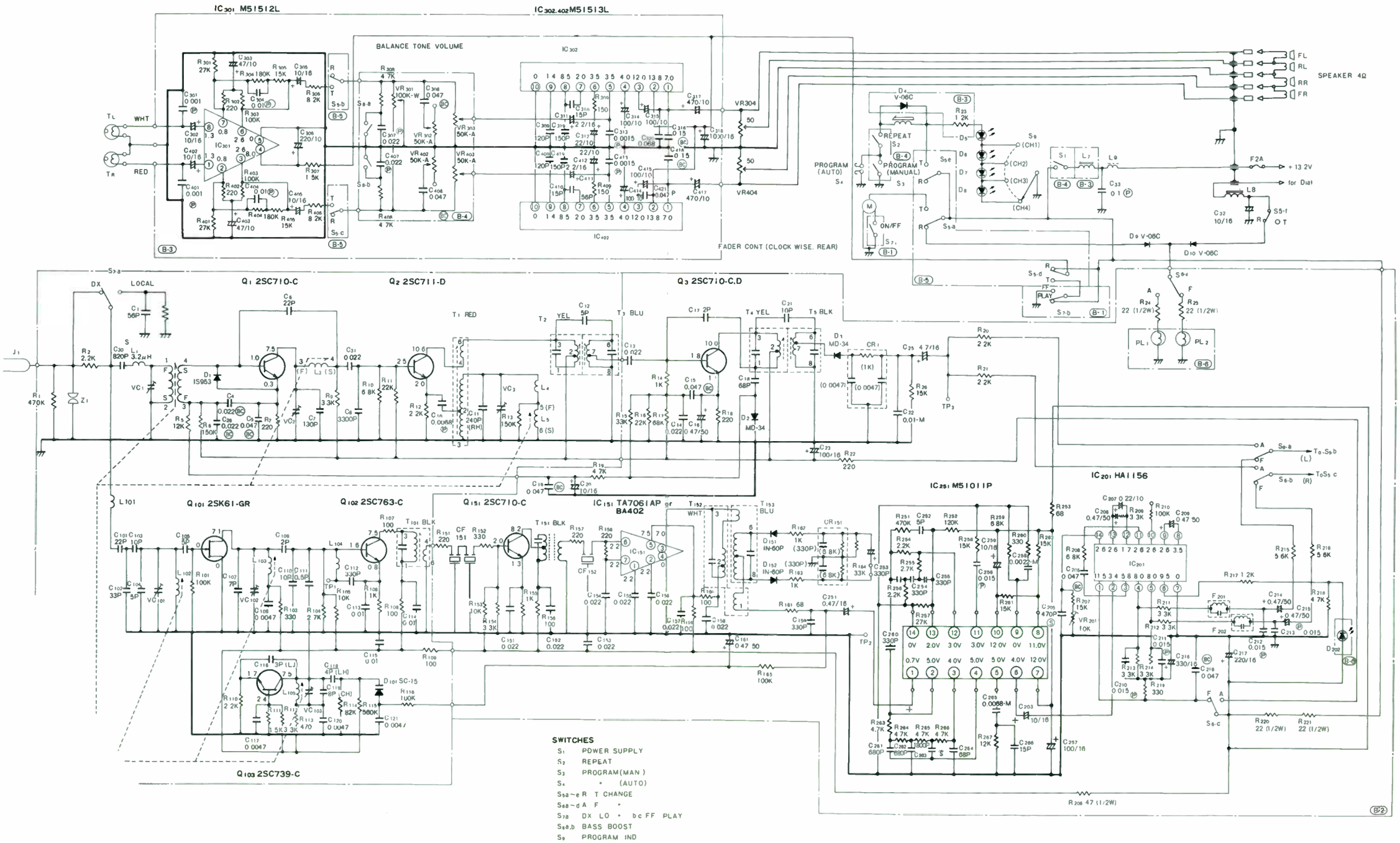
MODEL RS-66SUB-K



Chrysler By Mitsubishi *Plymouth Sapporo/*
Dodge Challenger* *RS-66SUB-K

SCHEMATIC DIAGRAM

MODEL RS–66SUB–K



Ford Truck 5FD4802(D8HF-19A242-AB), Ford & Mercury 5FD4803(D8DF-19A242-AB), Ford Pinto & Mercury Bobcat 5PN4806 (D8EF-19A242-AB)

HEAD ADJUSTMENTS

Head adjustments may be required for cases of crosstalk, poor high frequency, or if the head has been replaced. A suitable test tape should be used for the height and azimuth adjustments. Motorola has a suitable test tape cartridge available for the field under part number 99-43309A01. Instructions, in the form of a label on the cartridge, are included.

TAPE CARTRIDGES - Before servicing a tape player, always check for the possibility of a defective pre-recorded tape cartridge, particularily if one is returned with the unit. This should be done by substituting the tape cartridge with one that is known to be good.

1. HEAD HEIGHT ADJUSTMENT - This is an adjustment to move the head up or down so that it can be positioned exactly in line with the pre-recorded information on the tape. Misadjustment of this screw would cause crosstalk and/or poor separation. With the Motorola test tape proceed as follows:

A. Connect output loads across each channel. (3.2 ohm 10W)
B. Insert test tape cartridge into tape slot and index head to tracks 2 and 6.
C. Set balance control for maximum output from left channel.
D. Set tone control for treble (maximum clockwise position.)
E. Connect scope (or VTVM) across left channel output (track 2 information - 1Khz will be presented.) Adjust height adjusting screw for a null; it is not necessary to remove the cover to make this adjustment. This adjustment will minimize crosstalk. The adjustment is made with a 3/32" Allen wrench is self locking and need not be cemented.

2. AZIMUTH ADJUSTMENT - Connect scope or VTVM across the output of the right channel and adjust balance control for maximum right channel output (track 6 information - 8Khz will be presented.) Use a screwdriver and adjust for maximum output. Repeat Steps 1 and 2 to optimize these adjustments.

OTHER ADJUSTMENTS

1. INDEXING SOLENOID ADJUSTMENT - This adjustment should be made if the indexing solenoid is replaced or does not index down to 11 volts. Adjust as follows:

A. Insert tape cartridge into tape player and adjust power supply to 11 volts.
B. Use a blade type screwdriver. Turn the adjustment screw into the coil, in 1/4 turn increments and at the same time index the player. Continue to index while turning the screw until the solenoid just fails to index the tape head.
C. Back the screw out of the coil until the head just indexes properly. After this point, back out the screw an additional 1/4 turn.
D. Adjust the power supply to 16 volts. Check for proper indexing. If solenoid does not index properly at 16 volts, recheck steps A thru C.

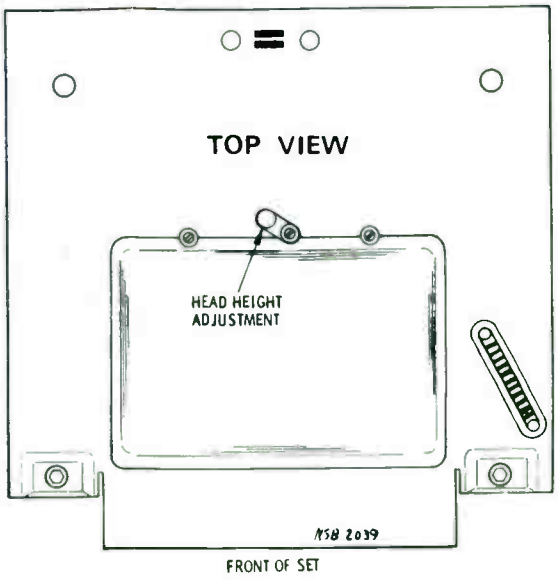


FIG. 3 HEAD HEIGHT ADJUSTMENT

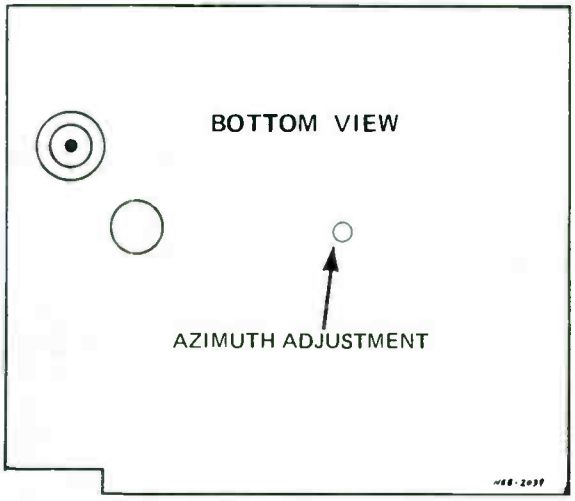


FIG. 4 AZIMUTH ADJUSTMENT

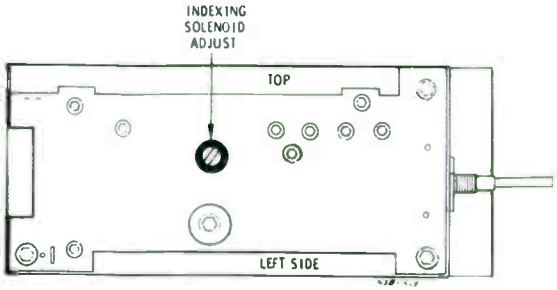


FIG. 5 INDEXING SOLENOID ADJUSTMENT

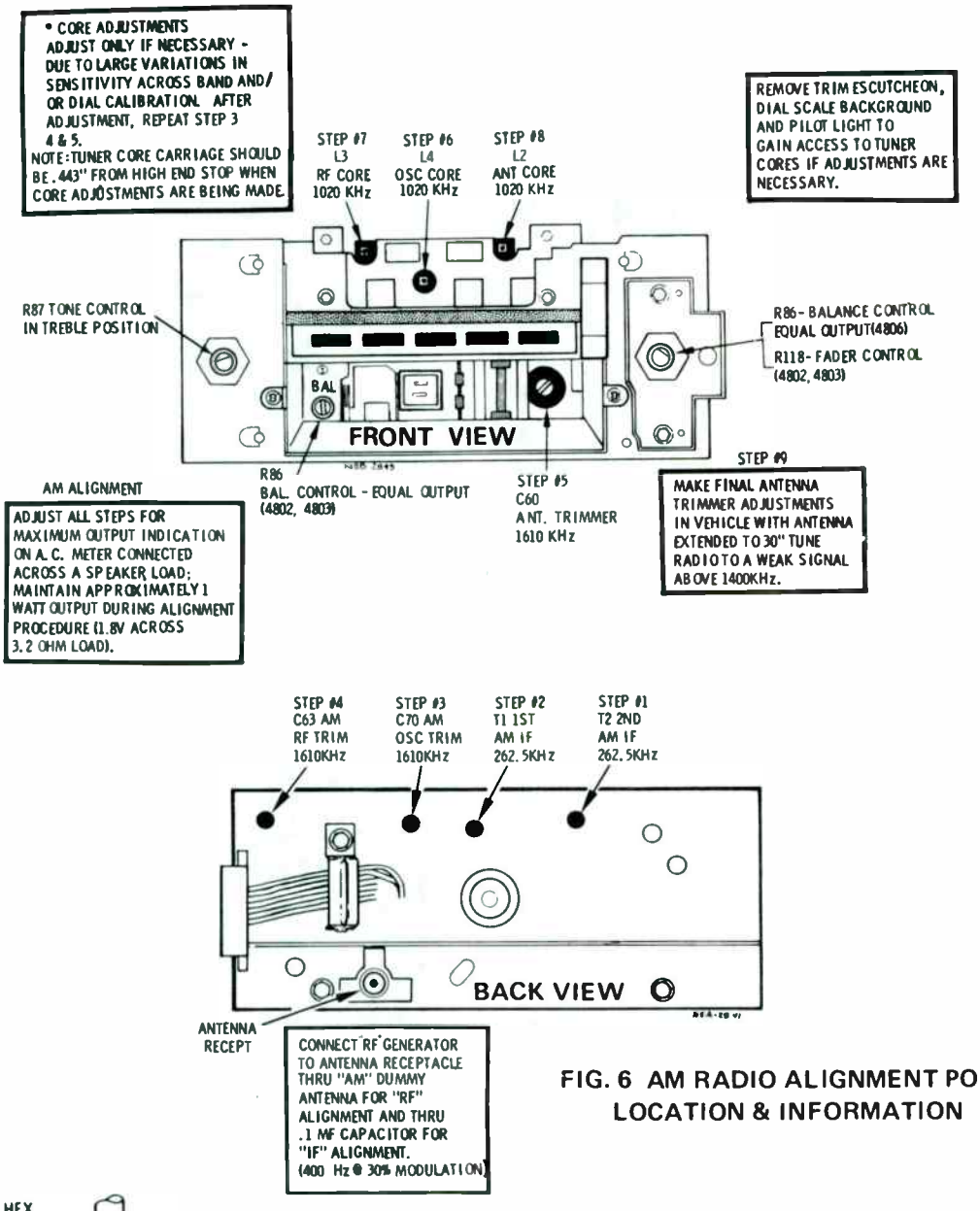


FIG. 6 AM RADIO ALIGNMENT POINT LOCATION & INFORMATION

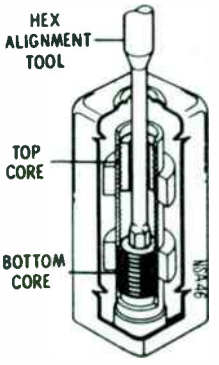


FIG. 7 IF ALIGNMENT DETAIL

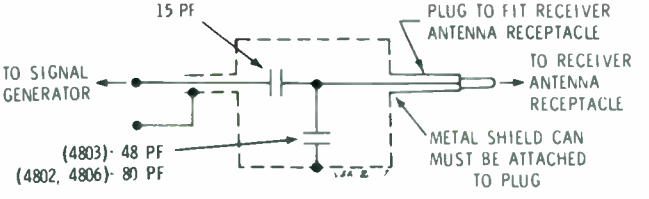


FIG. 8 "DUMMY" ANTENNA DETAIL

TAPE DECK PARTS (MODEL 2TD261-4806) (MODEL 2TD272-4802, 2TD265-4803)

REF NO.	PART NO.	DESCRIPTION
1	75-10178A20	PAD, MOTOR
2		
3	5-40336C02	SUPPORT, MOTOR
4	59-43663B06	MOTOR, D C (also E4)
5		RIVET, .122 X 5/32 (3 ins • 1 ground mtg & lug wraparound)
6		STRIP, TERMINAL (3 ins • 1 ground)
7	3-138630	SCREW, tpg. 4-40 x 1/4 (wraparound lug mtg. on motor)
8		LUG, wraparound
9	18-4022LF01	CONTROL, BALANCE: 32K also R86 (4802, 4803)
10,11	3-138640	SCREW, TPG 4-40 X 1/4 (sw Brkt mtg.)
12		INSULATOR, SLIDE SW
13	7-41854C03	BRACKET, SLIDE SW
14	2-10101A57	NUT, SPRING (switch cam mtg.)
15	4-136582	WASHER, FLAT (switch cam ret.)
16	45-40248F03	CAM, SW
17		CHASSIS, TAPE PLAYER
18	40-41363B08	SWITCH, SLIDE (also E9)
20	45-40280F01	LINK, detatch (4802, 4803)
20	45-40292F01	LINK, detatch (4806)
21	41-40293F02	SPRING, COILED: cartridge bracket
22	1-42099C88	BRACKET, cartridge ret. : incl. items 22-28
29	22-42038A08	PIN, DRIVE
31	20-40746A21	ANT. TRIMMER (4802, ALSO C60)
31	20-40746A22	ANT. TRIMMER (4803, 4806 - ALSO C60)
32	24-43032B01	COIL ANT (also L1)
33		STRIP TERMINAL (2 ins. #1 ground)
36	4-41955C01	WASHER, WAVE (flywheel)
38	49-40260F01	FLYWHEEL: incl. capstan shaft
39	4-40246A10	WASHER "C" flywheel
40	42-42561C01	BELT, drive
45	3-138094	SCREW, tpg: 6-20 x 1/4 (bottom plate mtg.)
46		LUG, wraparound
47		RIVET, .122 x 5/32 (tape guide brkt. mtg.)
48	64-40196F03	PLATE, bottom
49	25-41269C11	CHOKE, FILTER (also L6)
50	1-43803C01	BRACKET, TAPE GUIDE
51	46-40255F01	GUIDE, tape stripper
52	3-138968	SCREW, set: 3-48 X 1/8 (head mtg.)
53	59-43641A02	HEAD, STEREO TAPE (also E13) (use 59-40481G01)
54	46-40295F03	RETAINER, head mounting
55	3-138702	SCREW, tpg: 2-56 x 5/16 (AZIMUTH ADJ.)
56	46-40294F01	BLOCK, head pivot
57	41-40597C03	SPRING, wire form (head pivot block ret.)
58	41-42018C01	SPRING, head tension
59	43-43593B02	SPACER, delrin (cartridge ret.)
60	40-43642A01	SWITCH, contact (also E7)
61		RIVET, 122 X 3/16 (SW contact mtg.)
62	32-42644B01	SHIM, head (used with 59-43542A01)
64	1-40299E29	COIL, solenoid (also E6)
65	2-42051B01	NUT, spring (sol. stop)
66,67	3-132421	SCREW, tpg 6-20 x 1/4 (CL head sol. brkt. mtg.)
68	4-40104A14	WASHER, spring (sol. stop)
69	46-41161C01	STOP, solenoid
70	7-41836C03	BRACKET, solenoid
71	41-40445B01	SPRING, solenoid use 41-41716B02
72	1-42099C89	PAWLS & PLUNGER incl. items 72, 73, 75, &76
74	41-40681B03	SPRING, pawl tension
77	41-41251B08	SPRING, cam ratchet tension
80	1-43353A83	CAM, ratchet (incl item 93)
81	4-139084	WASHER, flat
82	22-10215A02	HAIRPIN (cam shaft)
83	47-40102C04	SHAFT, cam (height adj.)
84, 86	4-40409B04	WASHER, thrust (capstan shaft) OR -*4A48042E02
85	83-40411B03	BEARING, thrust (capstan shaft) OR -*43A40473E02
87	4-40246A10	WASHER "C" (capstan shaft)
88	7-41850C01	BRACKET, cam shaft
89	47-41868C03	SHAFT, guide hex head (cam shaft brkt. mtg.)
91	4-139139	WASHER, flat
92	4-136582	WASHER, flat (some sets)
93	4-10058B16	WASHER, FIBRE (part of item 80)

NOTE: REFERENCE NUMBERS WITHOUT PART NUMBERS ARE LISTED FOR REFERENCE ONLY.

* NOTE: PARTS MUST BE USED TOGETHER

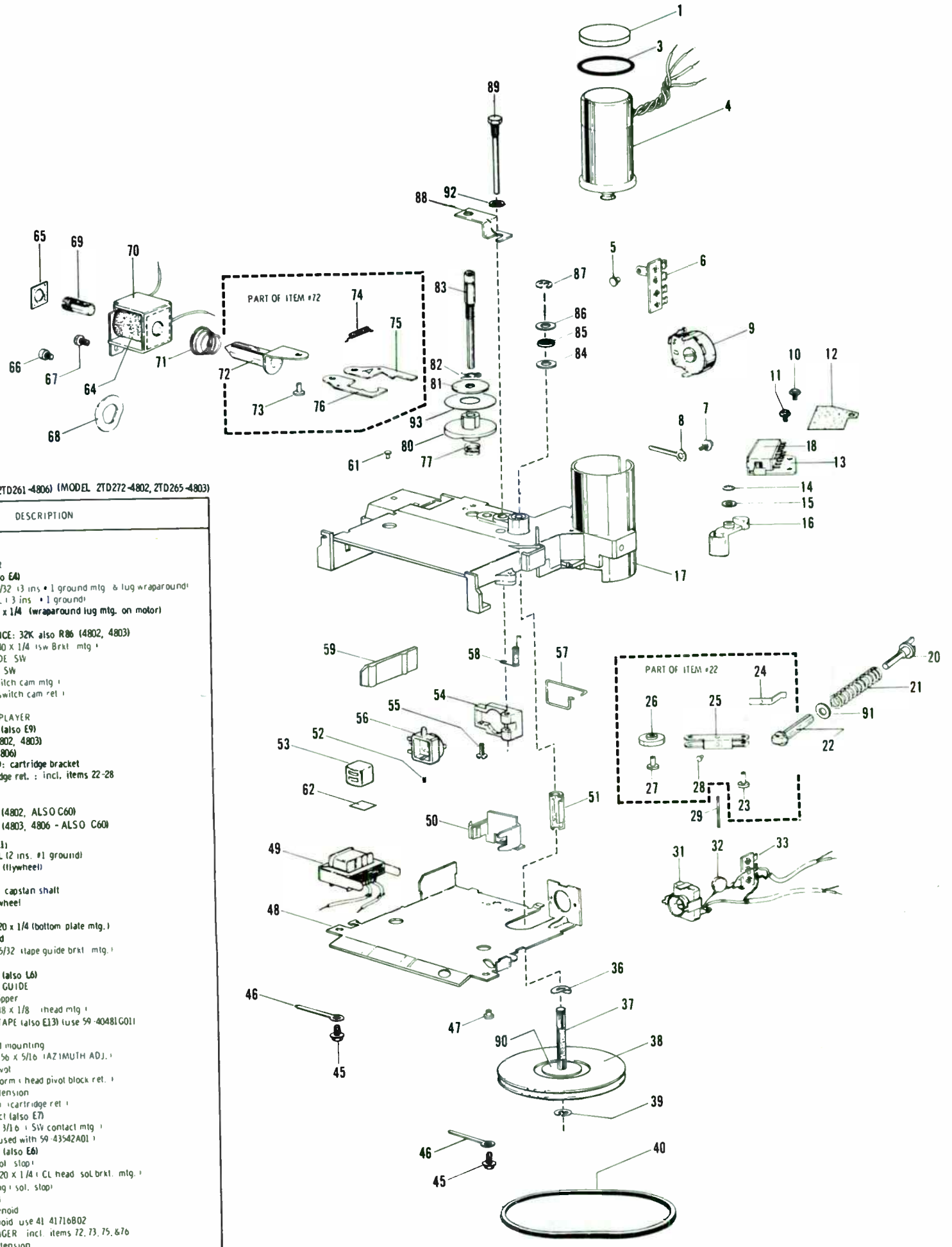
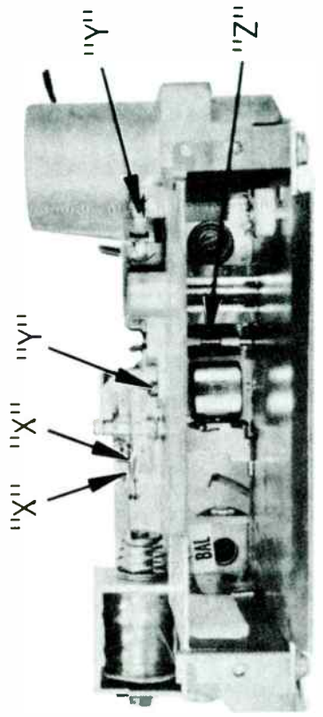


FIG. 15 EIGHT TRACK TAPE DECK EXPLODED VIEW

Ford Truck 5FD4802(D8HF-19A242-AB), Ford & Mercury 5FD4803(D8DF-19A242-AB), Ford Pinto & Mercury Bobcat 5PN4806 (D8EF-19A242-AB)



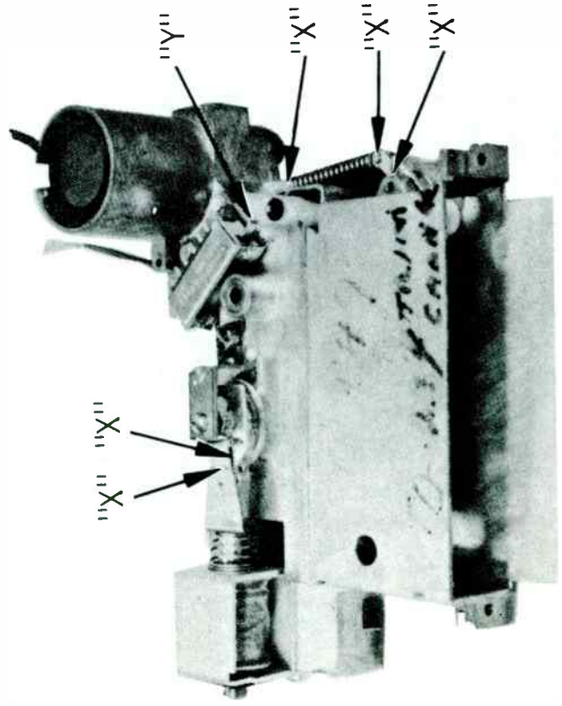
NOTE: ALL POINTS OR SURFACES MARKED "X" APPLY PLASTILUBE NO. 00, ALL SURFACES MARKED "Y" SILICON GREASE AND ALL SURFACES MARKED "Z" MOLYKOTE "G".

FIG. 16 TAPE DECK LUBRICATION POINTS

LUBRICATION

This unit is lubricated at the factory and normally no additional lubrication is required: however, if parts are replaced, the following areas should be lightly lubricated as follows:

Plastilube No. 00 Part Number 11-40059A55	Detatch mechanism pivot points. Pawl ratchet pivot point and sliding surfaces.
Silicon Grease Part Number 11-490487	Cam face where transfer pin rides. Face of changeover switch cam actuator.
Molykote "G" Part Number 11-125896	Head mechanism guide shaft.



MODELS 5FD4802, 4803, 4806

NOTE: ALL PARTS LISTED ARE RECOMMENDED REPLACEMENT PARTS

REF. NO.	PART NUMBER	DESCRIPTION
		ELECTRICAL PARTS
		CAPACITORS
C57	21-40367A06	470 PF 10% 100ydisc
C58	21-180C54	.01MF 100V Y5U disc
C59	21-43539A24	47PF 10% 100V N220 disc
C60	20-40747A27	TRIMMER, ant.: 25-150 PF
C61	21-43538A04	330PF 10% 100V Z5F disc
C62	8-41719B19	.01MF 20% 50V mylar
C63	20-40677G01	TRIMMER, ceramic. :10-60MF
C64	21-43539A63	82PF 5% 100V NPO disc
C65	21-43539A52	70PF 5% 100V N750disc
C66,		
C67	8-41719B19	.01MF 20% 50V mylar
C68	8-41719B09	.0047MF 10% 50V
C69	23-43280A02	2.0MF 10V lytic
C70	20-40677E01	TRIMMER, ceramic :10-60PF
C71	21-43539A07	150PF 5% 100V N470 disc
C72	21-43842B02	220PF 5% 100V mica
C73	8-41719B18	.0068MF 10% 50V mylar
C74	23-43280A34	10MF 6V lytic
C75	21-43538A49	.0015MF
C76	8-41719B48	.1MF 20% 50V mylar
C77	21-43538A01	150MF 10% 100V Z5F disc
C78	8-41719B48	.1MF 20% 50V mylar
C79	8-41719B19	.01MF 20% 50V mylar
C80	23-41928A38	125MF 16V lytic
C81	23-43280A20	.1MF 15V lytic
C85,		
C86	23-42674B20	22MF 25V lytic
C89,		
C90	23-43280A34	10MF 6V lytic
C91,		
C92	8-42208B18	.047 10% 50V
C93,		
C94	8-41719B48	.0082MF 10% 50V mylar
C95	23-41928A43	680MF 15V lytic
C96	8-42208B03	.1MF 10% 50V mylar
C105,		
C106	23-43280A25	.5MF 15V lytic
C107,		
C108	8-42208B18	.047MF 10% 50V mylar
C109,		
C110	23-43280A15	.1MF 15V lytic
C111,		
C112	8-41719B14	.0068 10% 50V mylar
C113,		
C114	23-43280A01	1MF 15V lytic
C115	23-10818A10	47MF 15V lytic
C116,		
C117	23-42674B44	100MF 10V lytic
C118,		
C119	21-43538A45	330PF 10% 100V Z5F disc
C120,		
C121	23-42674B38	100MF 10V lytic
C122,		
C123	23-42674B22	1800MF 16V lytic
C124,		
C125	8-42208B06	.01MF 20% 50V mylar
C126	23-42674B10	400MF 16V lytic
C127,		
C128	23-42674B22	1800MF 16V lytic
C129	23-41928A44	1000MF 16V lytic
C130,		
C131	21-43538A32	.01MF 100V Z5U disc
C132	23-42674B10	400MF 16V
		COILS & CHOKES
*L1	24-40788A04	COIL, antenna
L2-L4	1-40099E73	COILS & MTG. PLATE (ant, osc & RF)
L5	1-43900C93	COIL, choke
L6	25-41269C11	CHOKE, filter
L7	30-43056A32	CABLE, 2 way conn("A" lead & in-line choke (4803 & 4806)
L7	30-43056A31	CABLE, 2 way conn("A" lead & in-line choke (4802)
L8	1-43700C12	COIL, choke
		DIODES
E1, E2	48-134816	DIODE, silicon DHD 800
E3	48-137029	RECTIFIER, silicon D2H
E5	48-137029	RECTIFIER, silicon D2H
E10	48-137029	RECTIFIER, silicon D2H
		INTEGRATED CIRCUITS
IC1	51-10634A01	T2K : dual power
		MISCELLANEOUS ELECTRICAL PARTS
E4	59-43663B06	MOTOR, reg DC
E6	24-42064B06	COIL, solenoid (detenting head)
E12	65-138044	BULB, dial light: 1893
E13	59-43641A02	HEAD, stereo
E14	30-40797C07	CABLE, tape head
		RESISTORS
R50	6-129779	560 5% 1/4W
R51	6-10053A45	390 5% 1/4W
R52	6-129188	820K 5% 1/4W
R53	6-10053A71	82K 5% 1/4W
*R54	6-10053A86	560K 5% 1/4W
R55	6-40005599	27K 5% 1/4W
R56,		
R57	6-10053C44	3.3K 5% 1/4W
R58	6-129237	6.8K 5% 1/4W
R59	6-40006514	100K 5% 1/4W
R60	6-129669	4.7K 5% 1/4W
R61	6-129526	33K 5% 1/4W
R62	6-129237	6.8K 5% 1/4W
R63	6-129431	180 5% 1/4W
R64	6-131275	220 5% 1/4W
R65	6-129299	68K 5% 1/4W
R66	6-129681	1.5K 5% 1/4W
R67	6-129709	470 5% 1/4W
R68	6-10053A26	33 5% 1/4W
R69	6-131276	150 5% 1/4W
R70	6-10033A45	390 5% 1/4W
R71,		
R72	6-129887	12K 5% 1/4W
R73	6-129805	1K 5% 1/4W
R74,		
R75	6-129983	8.2K 5% 1/4W
R76,		
R77	6-10053C07	82 5% 1/4W
R78	6-131526	18K 5% 1/4W
*R79,		
R80	6-131858	270K 5% 1/4W
R81	6-131526	18K 5% 1/4W
R84,		
R85	6-129681	1.5K 5% 1/4W
R86	18-43944C01	CONTROL, balance; 32K (4806)
	18-40221F01	CONTROL, balance;32K (4802,4803)
R87,		
R88	18-41849B16	CONTROL, dual;Tone 50K, VOL 30K (4802, 4803)
R87,		
R88	18-41849B11	CONTROL, dual;Tone 50K. VOL 30K (4802,4803)
R89,		
R90	6-129669	4.7K 5% 1/4W

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

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

Ford Truck 5FD4802(D8HF-19A242-AB), Ford & Mercury 5FD4803(D8DF-19A242-AB), Ford Pinto & Mercury Bobcat 5PN4806

NOTE: ALL PARTS LISTED ARE RECOMMENDED REPLACEMENT PARTS

REF. NO.	PART NUMBER	DESCRIPTION
		RESISTORS (cont)
		THOSE LISTED 5% OR BETTER ALSO UNIQUE VALUES
R91, R92	6-129149	470K 5% 1/4W
R93, R94	6-10053C27	560 5% 1/4W
R95, R96	6-10053C57	10K 5% 1/2W
R97, R98	6-128683	150K 5% 1/4W
R99	6-131526	18K 5% 1/4W
R100, R101	6-129707	2.7K 5% 1/4W
R102, R103	6-10053A38	120 5% 1/4W
R104, R105	6-129681	1.5K 5% 1/4W
R106-R109	6-10053A28	39 5% 1/4W
R110, R111	6-10053C09	100 5% 1/4W
R112, R113	6-10053C16	150 5% 1/4W
R114-R117	17-40139C08	.27 10% 1/4W
R118, R119	18-41053C01	CONTROL, dual fader(4802, 4803)
		SWITCHES
E7		SWITCH, auto detent (also #60)
E8		SWITCH, manual detent (PO #50)
E9	40-41363B08	SWITCH, slide
		TRANSFORMERS
T1	24-40310B15	1ST IF
T2	24-40310B16	2ND IF
		TRANSISTORS
Q1	48-137351	25B2 RF
Q2	48-137350	25A2 CONVERTER
Q3	48-134809	54B IF
Q4	48-137437	A9V MOTOR REGULATOR (USE 48-134080)
Q5, Q6	48-134810	54C AUDIO AMP
Q7, Q8	48-137504	P5D PRE-DRIVER
Q9, Q10	48-137505	B1M DRIVER
Q11, Q12	48-137509	B1N OUTPUT BIAS
Q13, Q14	48-137080	A5A OUTPUT
Q15, Q16	48-137259	P3P OUTPUT
		MECHANICAL PARTS
	64-40422E01	BACKGROUND, dial (4802, 4803)
	64-40144E01	BACKGROUND, dial (4806)
	7-41474C02	BRACKET & SPRING: crown (4802, 4803)
100	7-41873C01	BRACKET, spkr, cable ret
	7-41851C03	BRACKET, switch mtg
101	7-41474C01	BRACKET & SPRING; crown (4806)
102	1-41669C04	BUSHING & DISC
*103	30-43056A31	CABLE, 2 way conn ;incl "A" lead & in-line choke (4806)
*103	30-43056A32	CABLE, 2 way conn:incl "A" lead & in-line choke (4802, 4803)
104	30-43949C01	CABLE, 3 way conn: spkr (4806)
104	30-41692B03	CABLE,5 way conn: spkr(4802, 4803)
105	30-43847C01	CABLE, ANTENNA (4802)
	30-41860C01	CABLE, audio board conn
	30-41860C02	CABLE, IF board conn
106	49-42607B01	CLUTCH & DISC:incl set screw
*107	15-41837C01	COVER, bottom (4802, 4803)
108	1-40099E63	COVER, top;incl pilot light lead clamp (4806)
	1-40099E90	COVER, top:incl pilot light lead clamp
	42-40262F01	CLIP, speed:dial background mtg
*	26-40639E01	DIFFUSER & SHIELD (4802, 4803)
109	13-41165C01	ESCUTCHEON, sub
*111	13-43988C05	ESCUTCHEON, trim:incl door & dial scale (4806)
*111	13-43988C06	ESCUTCHEON, trim incl door & dial scale (4802, 4803)
110	1-41668C03	GEAR & DISC : crown
	5-43388B01	GROMMET, core carriage arm
	5-42929B01	GROMMET, mtg plate
	5-42929B02	GROMMET, mtg plate
	14-42773B02	INSULATOR, transistor
	14-43162B03	INSULATOR, transistor : nylon shoulder
	2-138695	NUT, hex: 3/8 - 32 X 3/32; control mtg.
	2-42352C01	NUT, hex: 3/8 - 32 x 1/8: control mtg (4802, 4803)
	2-8354	NUT, hex: #3-40: transistor mtg
112	52-40281C04	POINTER & ARM
113	38-41477C01	PUSH BUTTONS
	9-42764B01	RECEPTACLE, antenna
	42-10219A10	RETAINER, "E" ring: pointer mtg
114	42-10113A07	RING, ext ret: clutch shaft
115	1-43200B05	SCREW & NUT; tuner carriage ret
116	3-563128	SCREW, set: 4-40; disc clutch
	3-139460	SCREW, mach: #3-48 x 5/16; transistor mtg
	3-138770	SCREW, mach:#3 - 48 x 3/8: transistor mtg A94
	3-132347	SCREW, tpg: #4 - 40 x 1/4; audio board ret
	3-138630	SCREW, tpg: #4 - 40 x 1/4; switch mtg
	3-138396	SCREW, tpg: #6 - 20 x 5/16 clu head;tape deck to sub escut.
	3-138724	SCREW, tpg:#8 - 18 x 1/4: cover mtg
117	47-43463B25	SHAFT, clutch
118	1-41587C05	SHAFT, tuning: incl pinion gear (4806)
118	1-41587C01	SHAFT, tuning: incl pinion gear (4802, 4803)
120	43-43985C01	SPACER, control shaft: tuning (4806)
119	43-43985C02	SPACER, control shaft: vol on-off (4806)
	41-40648B01	SPRING, cam clutch
	41-42441B01	SPRING, link
121	41-536529	SPRING, shaft ret.
	41-41805A01	SPRING, pointer tension
122	46-562381	STUD, trimount:dial light bracket ret
123	46-565414	STUD, trimount: escutcheon mtg.
	77-41900C85	TUNER, AM RADIO: AS 349 (4806)
	77-41900C86	TUNER, AM RADIO, AS 370 (4802,4803)
	4-40660C01	WASHER, lock: transistor mtg P3P
	4-10057A07	WASHER, shoulder: transistor mtg A5A

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE. * DENOTES NEW ITEM APPEARING IN ANY LIST FOR FIRST TIME.

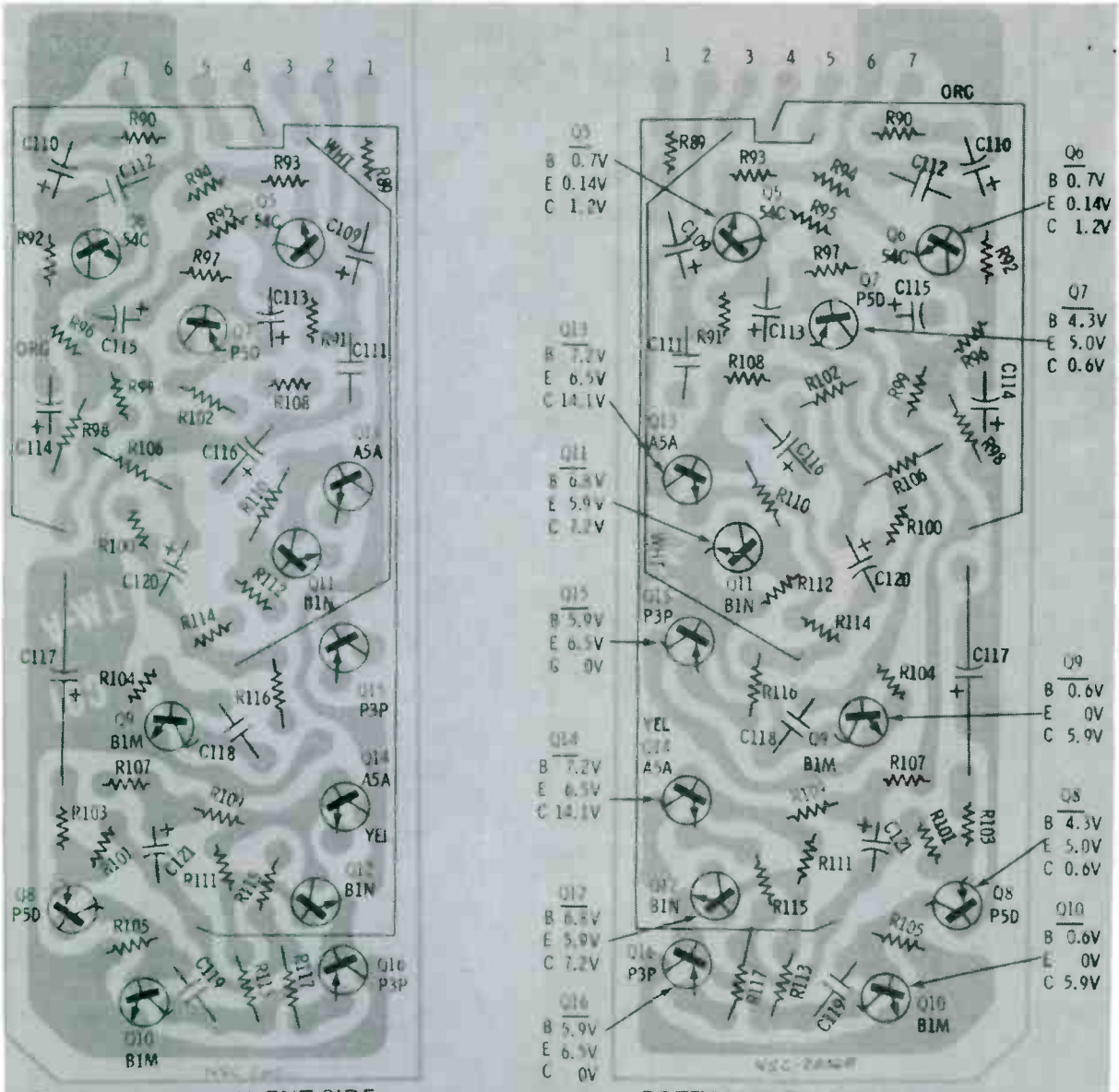


FIG 10 AUDIO PLATED BOARD DIAGRAM

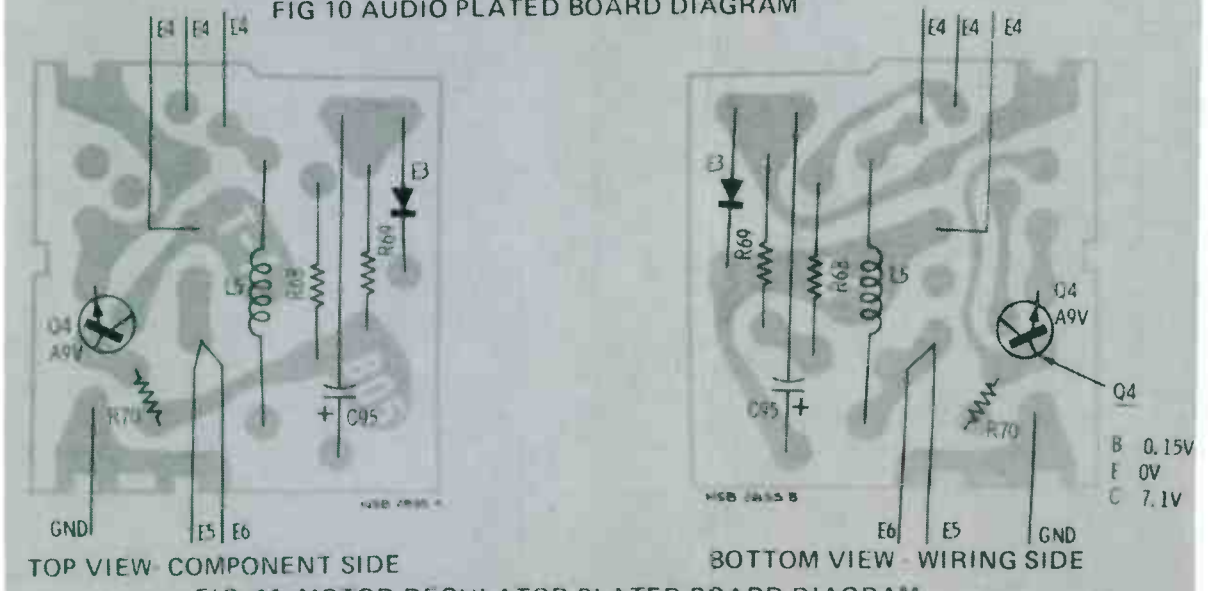
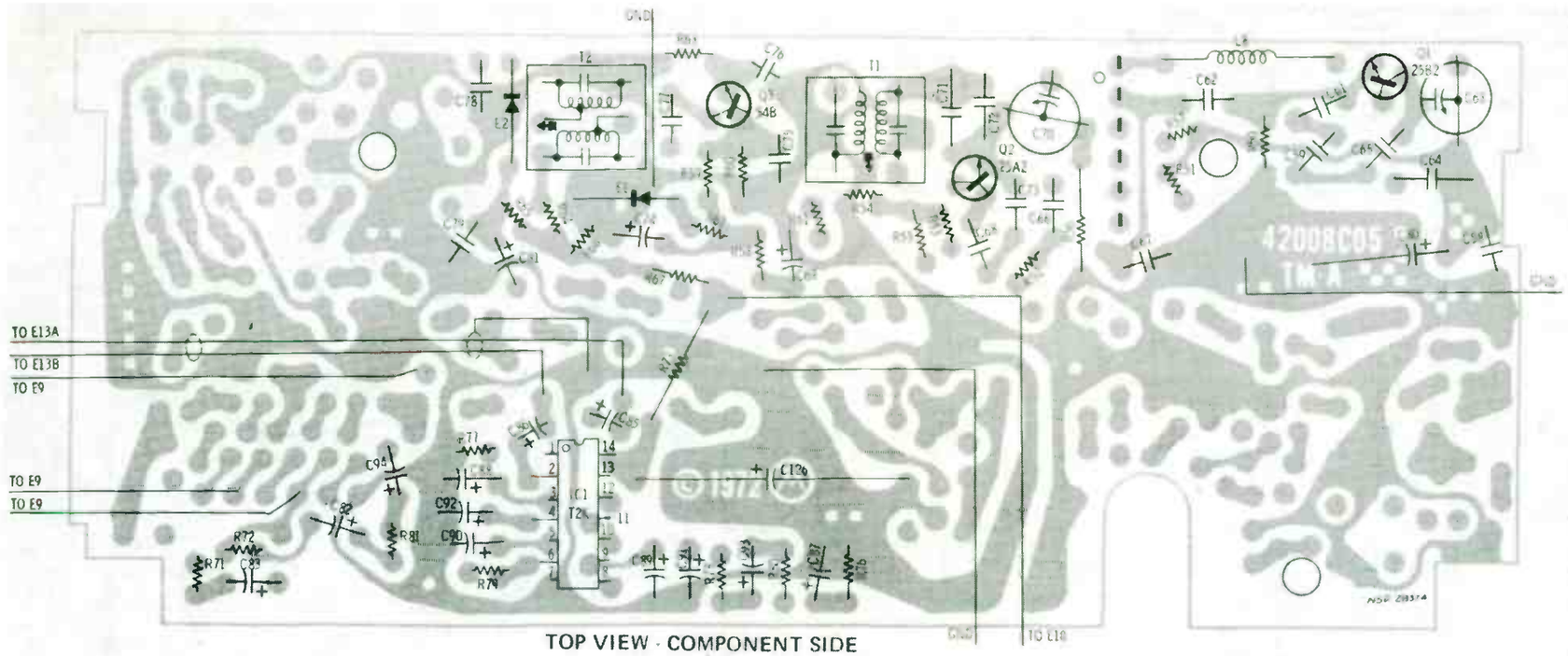


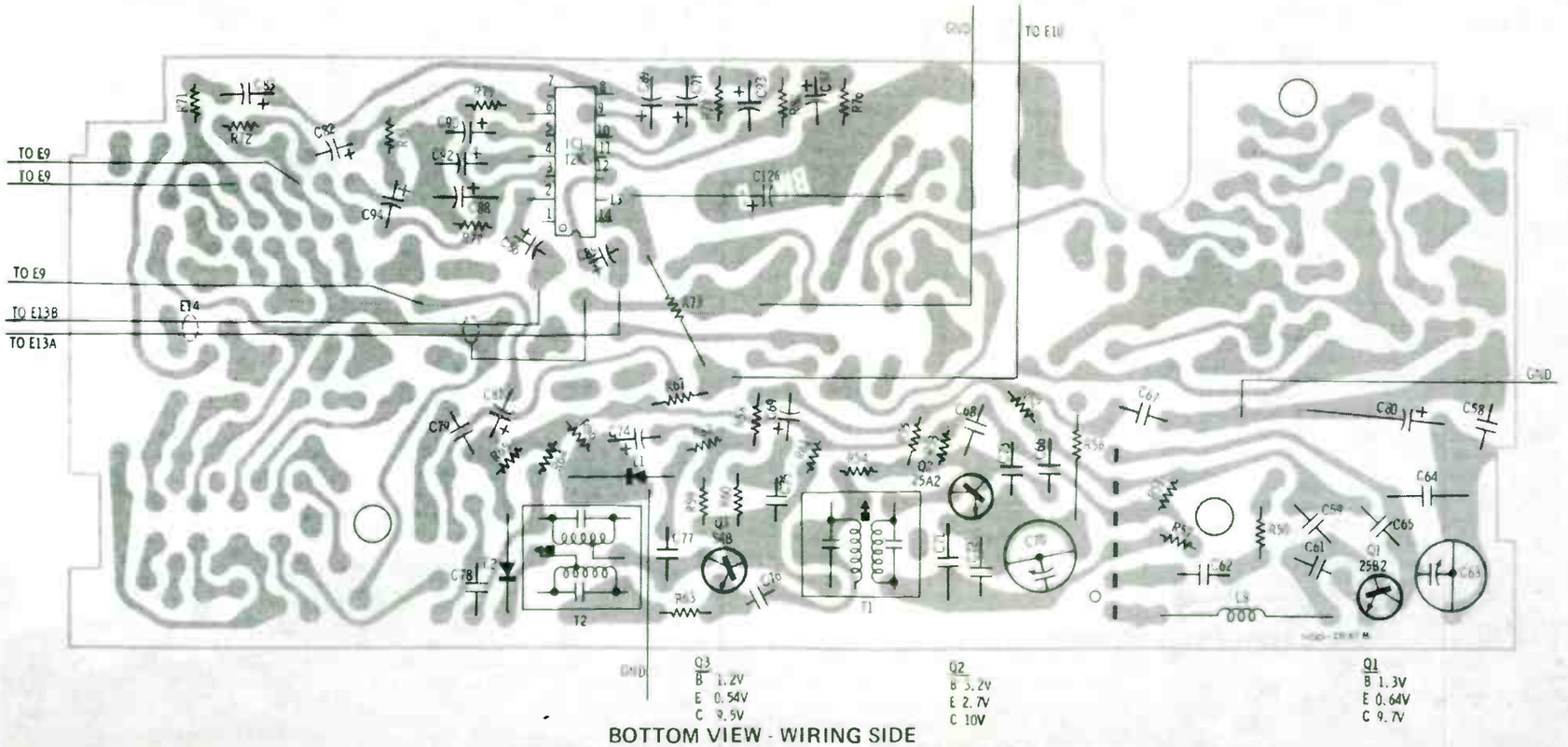
FIG. 11 MOTOR REGULATOR PLATED BOARD DIAGRAM



TOP VIEW - COMPONENT SIDE

IC1

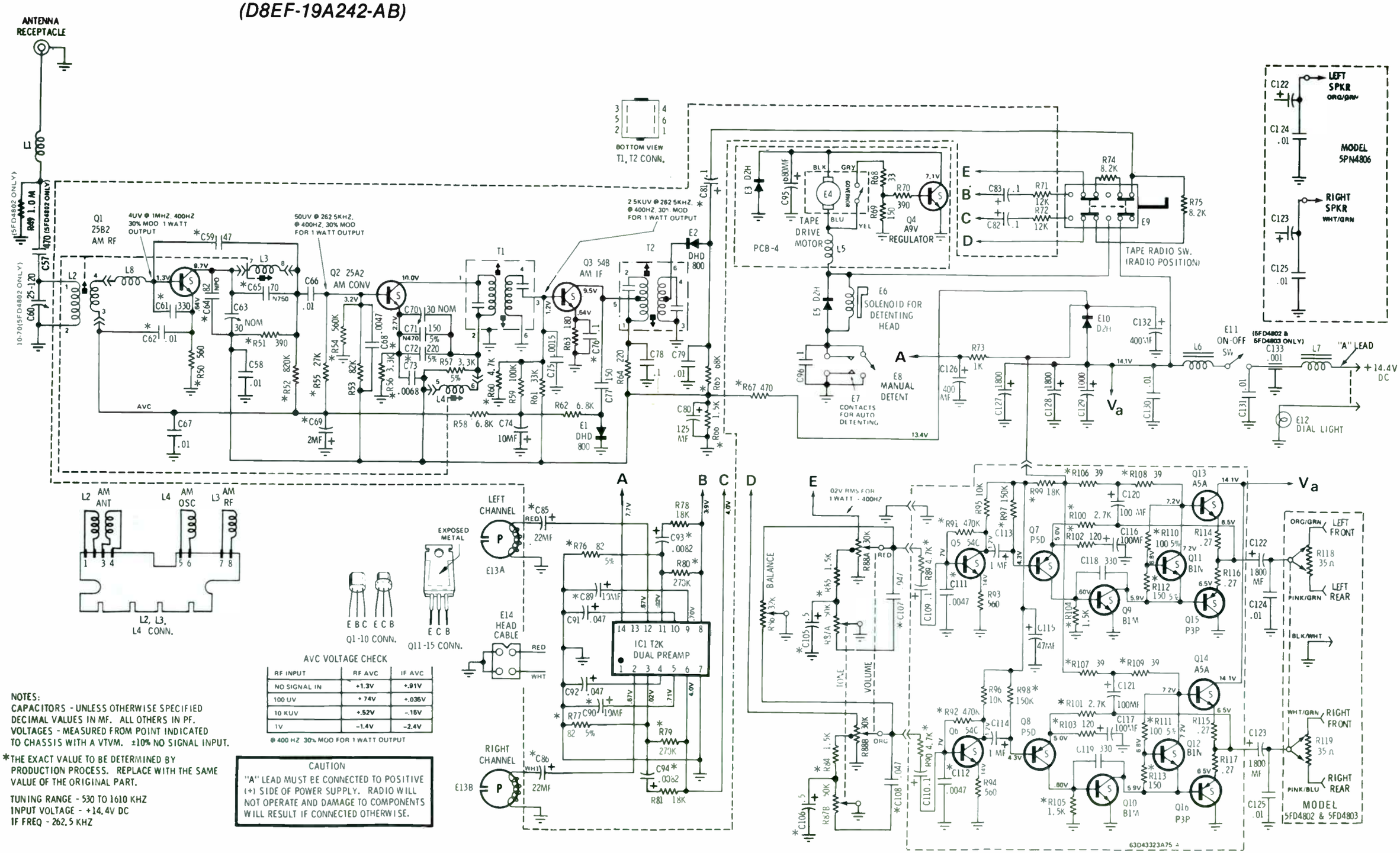
PIN	VOLTS
1	N/C
2	0.67V
3	.02V
4	
5	0.71V
6	4V
7	0V
8	3.9V
9	0.7V
10	
11	.02V
12	0.67V
13	N/C
14	7.7V



BOTTOM VIEW - WIRING SIDE

FIG.12 AM & PRE-AMP PLATED BOARD DIAGRAM

Ford Truck *5FD4802(D8HF-19A242-AB),*
Ford & Mercury *5FD4803(D8DF-19A242-AB),*
Ford Pinto & Mercury Bobcat *5PN4806*
(D8EF-19A242-AB)



AVC VOLTAGE CHECK

RF INPUT	RF AVC	IF AVC
NO SIGNAL IN	+1.3V	+.91V
100 UV	+.74V	+.035V
10 KUV	+.52V	-.15V
1V	-1.4V	-2.4V

@ 400 HZ 30% MOD FOR 1 WATT OUTPUT

NOTES:
CAPACITORS - UNLESS OTHERWISE SPECIFIED DECIMAL VALUES IN MF. ALL OTHERS IN PF.
VOLTAGES - MEASURED FROM POINT INDICATED TO CHASSIS WITH A VTVM. ±10% NO SIGNAL INPUT.

*THE EXACT VALUE TO BE DETERMINED BY PRODUCTION PROCESS. REPLACE WITH THE SAME VALUE OF THE ORIGINAL PART.

TUNING RANGE - 530 TO 1610 KHZ
INPUT VOLTAGE - +14.4V DC
IF FREQ - 262.5 KHZ

CAUTION
"A" LEAD MUST BE CONNECTED TO POSITIVE (+) SIDE OF POWER SUPPLY. RADIO WILL NOT OPERATE AND DAMAGE TO COMPONENTS WILL RESULT IF CONNECTED OTHERWISE.

Electrical Adjustment

General

Test Conditions

Signal generator output : ····· Modulation frequency 400 Hz
Modulation percentage 30 %
Signal level just high enough to provide meter deflection.

Signal application : ····· Antenna receptacle through the dummy antenna.

Output meter connection : ··· Across a speaker or a dummy load 8 ohms.

Setting of radio controls : ··· Volume control at maximum response.
Tone control at high note emphasis.

Power supply : ····· 14V

*Location of the components for alignment are shown in CIRCUIT BOARD DIAGRAM (Component side). (Page 5)

IF and AM Alignment

Step	Mode	Signal Input	Frequency of Signal Generator	Dial Setting of Radio	Components to be Adjusted for Max. Output
1	AM	Through dummy Ant. Figure 7a	455 KHz	Low end stop	IFT T302, 303, 304, 305
2			510 $^{+5}_{-10}$ KHz	Low end stop	OSC coil T301
3			1650 $^{+30}_{-20}$ KHz	High end stop	OSC trimmer CT303
4			1400 KHz	1400 KHz	RF trimmer CT302 Ant. trimmer CT301 (Figure 6)

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.

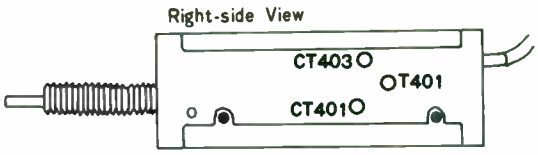


Figure 7b

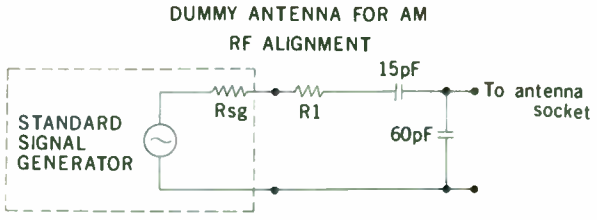


Figure 7a

R1 = 80 − Rsg (ohms)
Rsg : Internal resistance of a signal generator used.

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 TP201 and common ground.	Tune T401 for maximum amplitude and symmetrical response curve as shown in Figure 8 by tuning T401. (Figure 7b)
2			Tune T201 for symmetrical S curve as shown in Figure 9.

*Retune T401, T201 by checking S curve as shown in Figure 9.
It is not necessary to tune exactly 10.7 MHz marker to the center of S curve.

FM RF Alignment

Step	Signal Input	Frequency of Signal Generator	Dial Setting of Radio	Components to be Adjusted for Maximum Output
1	Through dummy ANT. Figure 10	87.25 ±0.2MHz	Low end stop	Osc. trimmer CT403 (Figure 6)
2		98 MHz	98 MHz	ANT trimmer CT401 (Figure 6)
3		Confirm overall tuning range to be from 87.25 ±0.25MHz through 109.5 ±0.5MHz.		

SYMMETRICAL RESPONSE CURVE

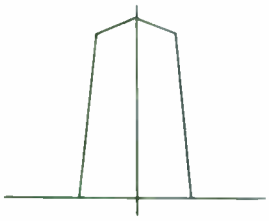


Figure 8

SYMMETRICAL S CURVE

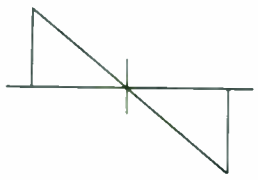


Figure 9

DUMMY ANTENNA FOR FM RF ALIGMENT

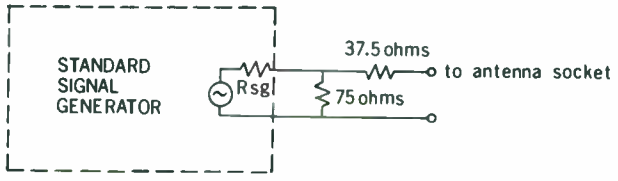


Figure 10

Rsg : Internal resistance of a signal generator used.

FM Multiplex Alignment (PLL)

Preliminaties :

1. A stereo signal modulator (SSM) and SCA signal generator are necessary to perform this alignment.
2. All adjustments below must be done setting the dial pointer at 98MHz on dial scale and applying 1KμV FM signal modulated by specified signals as described below.
3. MPX button should be placed in stereo position in during FM multiplex alignment.

Step	Alignment	Instrument Connections		Adjustment
		Input	Output	
1	19 kHz Pilot	No signal condition.	Connect frequency counter to pin 12 of IC (251) or TP251 and common ground.	Adjust VR (R252) for frequency to be 19.00 kHz.
2	Stereo Signal	Apply FM stereo signal (modulated only by pilot signal at 10% modulation and stereo signal at 30% modulation) through dummy ant. to ant. terminals. Place output signal switch of S.S.M. in right position.	Connect VTVM to speaker output leads of Left Channel.	Stereo Separation Control (R257) for minimum output on VTVM.

Alignment of Pre-Amp output level

1. Insert a BASF 1KHz standard test tape and set the unit in play mode.
2. Adjust semi-fixed volume R112 until you obtain same output (Right and Left) reading on the VTVM.
3. Make sure that no difference between Right and Left output level is in forward mode or reverse mode.

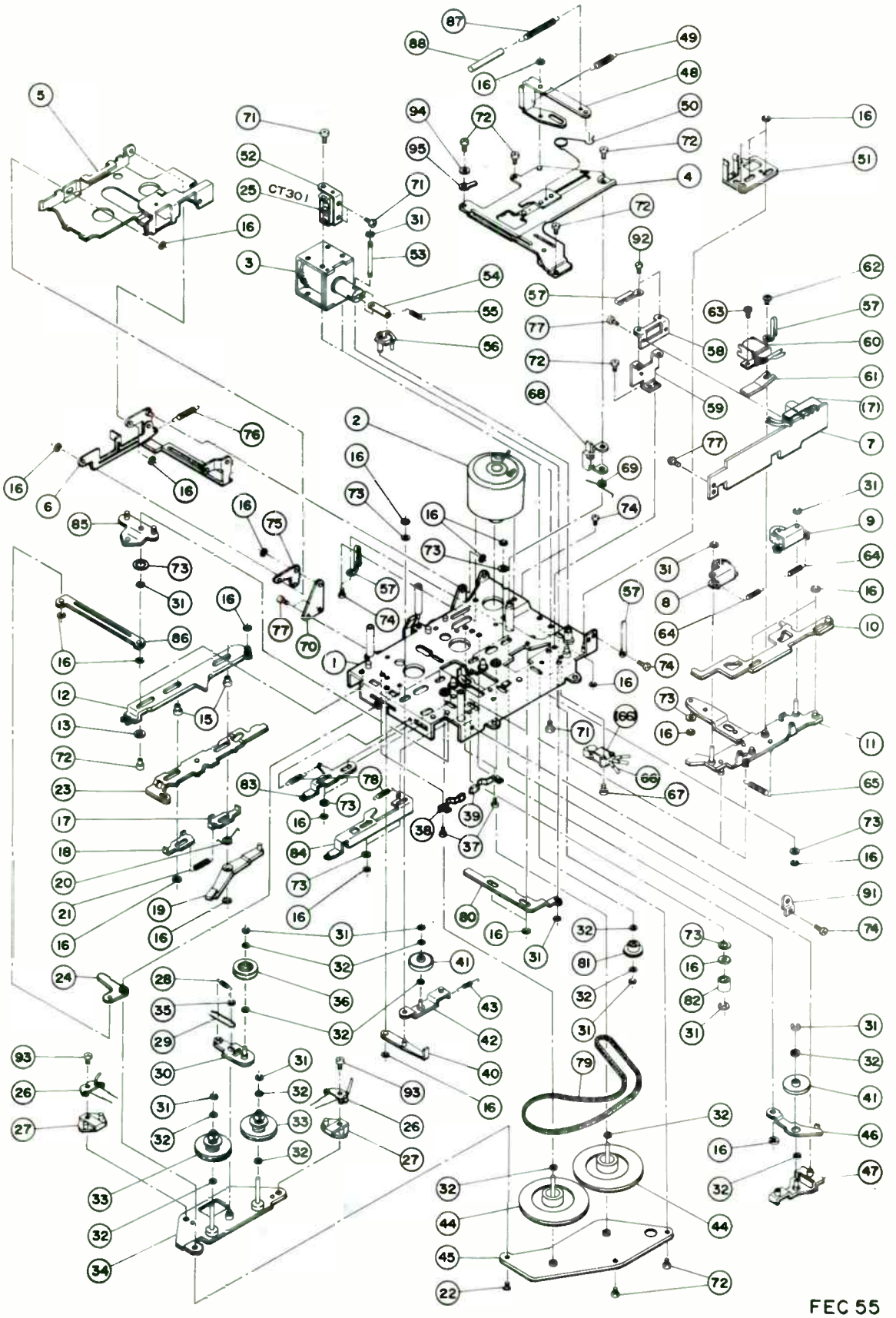
Mechanical Adjustment

Adjustment of Head Azimuth

1. Insert a RCA 1-102 test tape and set the unit in play mode.
2. Turn the azimuth adjusting screw until you obtain maximum reading on the VTVM.

Exploded View-Mechanism

(All part numbers for this exploded view are listed on pages 8-10.)



Replacement Parts List

Mechanism

Ref. No.	JC Penney Part No.	Supplier Part No.	Description
1		F011-033	Chassis assembly
2		F064-016	Motor
3		F024-017	Solenoid
4		F041-017	Cassette base assembly
5		F027-019	Cassette support assembly
6		F044-016	Arm lifter assembly
7		F062-019	Mechanism P. C. Board assembly ⑤
8		F014-024	Pinch roller REW
9		F014-025	Pinch roller FF
10		F054-012	Select arm FF /REW
11		F012-24	Head plate
12		F031-017	Lever eject assembly
13		FL303-11	Spacer Eject
15		FL319-11	Spacer
16			E ring 2
17		FC371-11	Hold plate A
18		FC372-11	Hold plate B
19		F066-015	Lock arm assembly
20		FK206-11	Lock spring
21		FK207-13	Coil spring
22			Screw flat Hd., M2. 5x0. 45x4
23		F072-011	Slide plate assembly
24		FL035-016	Lever assembly, FF
25		CM11C-00	Trimer 70pF, CT301
26		F042-026	Switch
27		FC383-11	Switch plate
28		FK309-11	Coil spring FF /REW idler
29		FK204-13	Spring
30		F020-013	Arm assembly, FF /REW idler
31			E ring 1. 5
32		FJ111-18	Polyslider
33		FP207-13	Reel plate
34		F057-013	Reel bracket
35			E ring 3
36		FP196-11	Idler FF /REW
37			Screw flat Hd., M2x0. 4x1. 5
38		F028-015	Brake assembly
39		F028-014	Brake assembly
40		F016-012	Arm idler assembly
41		FP194-11	Play idler
42		F017-014	Base idler assembly
43		FK211-11	Coil spling

⑤If estimated repair cost exceeds replacement cost, throw away. Do not repair.

Mechanism

Ref. No.	JC Penney Part No.	Supplier Part No.	Description
44		FP193-11	Flywheel
45		F026-017	Support flywheel assembly
46		FC362-12	Arm idler (C)
47		F017-013	Base idler (C) assembly
48		FC345-12	Inverse lever
49		FK215-11	Coil spring
50		FK213-11	Spring inverse
51		F049-014	Select lever assembly
52		FC351-12	Bracket trimmer
53		FL310-11	Pin solenoid
54		F049-013	Arm solenoid assembly
55		FK205-11	Coil spring
56		F055-012	Cam assembly
57		FH111-11	Lug
58		FC353-11	Bracket A FF/REW switch
59		F073-011	Bracket B FF/REW switch
60		F029-026	Head
61		FK154-12	Spring plate Head
62		FG137-11	Lock screw
63		FG137-12	Lock screw
64		FK212-11	Coil spring pinch roller
65		FK209-12	Coil spring
66		FE118-11	Snap switch
67			Screw pan Hd., M2x0.4x8
68		FC352-11	Clutch arm
69		FK208-11	Spring
70		F073-012	Bracket clutch lever assembly
71		FG141-14	Screw pan Hd., with washer
72		FG141-12	Screw pan Hd., with washer
73		FC388-11	Washer
74		FG141-13	Screw pan Hd., with washer
75		F051-012	Crank lever assembly
76		FK214-11	Coil spring
77		FG140-12	Screw flat Hd.,
78		FK292-13	Coil spring FF/REW lever
79		FP197-11	Belt drive
80		FC349-11	Lever
81		FP206-11	Pulley
82		FL527-11	Roller
83		FC619-11	Lever REW
84		FC618-11	Lever FF
85		F116-012	Link FF/REW

Mechanism

Ref. No.	JC Penney Part No.	Supplier Part No.	Description
86		FC621-11	Arm B
87		FK328-11	Coil spring
88		EE150-45	Tube
91		FC373-11	Metal bracket switch
92		FG141-11	Screw pan Hd., with washer
93		FG138-12	Screw flat Hd.,
94		MJ112-20	Washer
95		MH114-11	Terminal
96		FE116-12	Slide switch

Mechanism P. C. Board

Semiconductors

(Q1) Q71		2SC945L	Transistor
(Q2) D73		N13T1	Transistor
(Q3) Q72		2SC2001	Transistor
(Q4) Q73		2SD235	Transistor
(D1, 2) D72, D71		1S1555	Diode
(D3) D74		10E2	Diode

Resistors (all resistors are 10% tolerance)

(R2, 3) R74, R73		*	8.2K ohm
(R4, 5, 13) R71, R72, R81		*	10 K ohm
(R7) R75		*	470K ohm
(R8) R78		*	18 K ohm
(R11) R77		*	4.7K ohm
(R12) R79		*	27K ohm
(R15) R76		*	33K ohm
(R1) R82		*	Metal oxide film, 130 ohm, ±5%, 1W
(R14) R80		*	Metal oxide film, 100 ohm, ±5%, ½W

Capacitors

C5		*	Ceramic, 10000pF, +80 −20%, 50V
C6, 7		*	Ceramic, 22000pF, +80 −20%, 50V
(C1, 2) C73, C74		*	Electrolytic, 3.3μF, 50V
(C3) C76		*	Electrolytic, 4.7μF, 25V

Wiring Diagram

Tuner P. C. Board (Solder side)

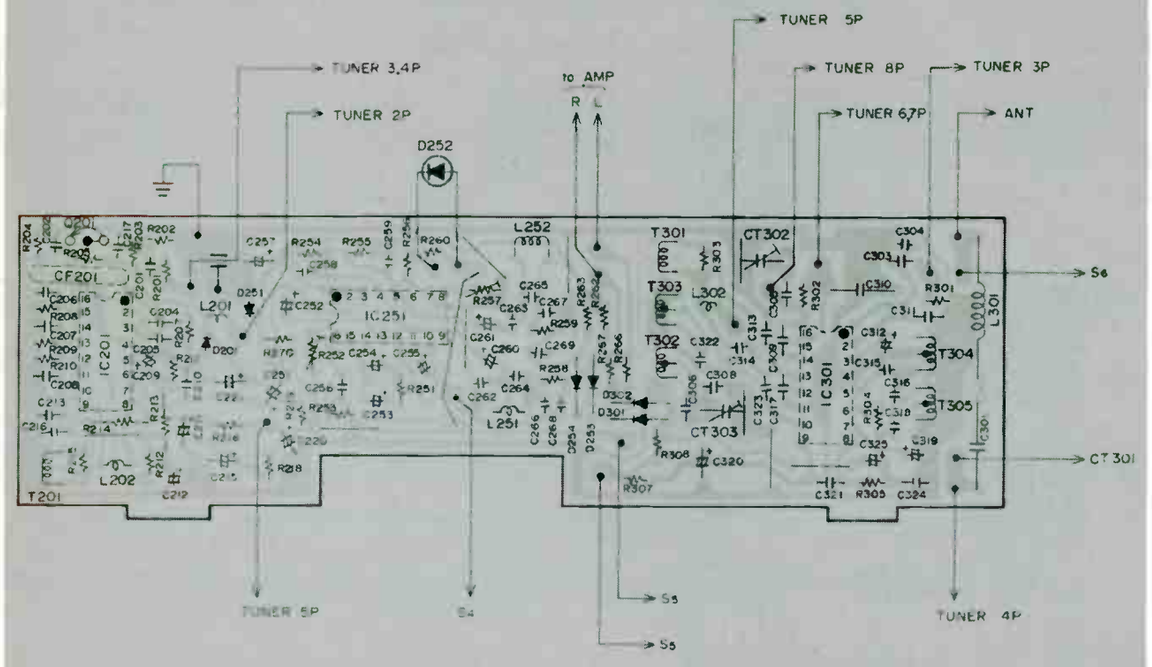


Figure 17

MECHANISM P. C. Board (Solder side)

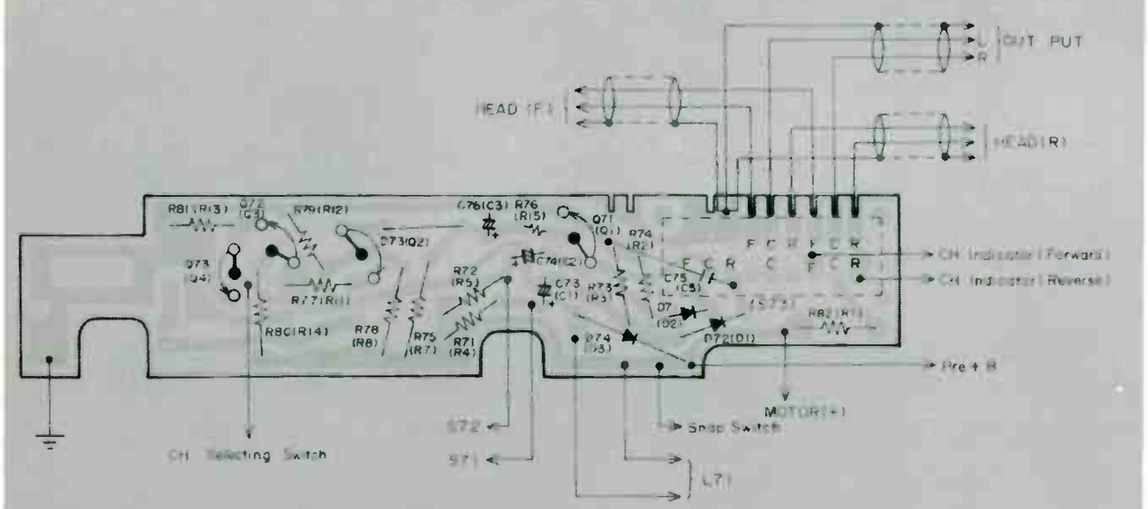


Figure 18

Wiring Diagram

AMP P. C. Board (Solder side)

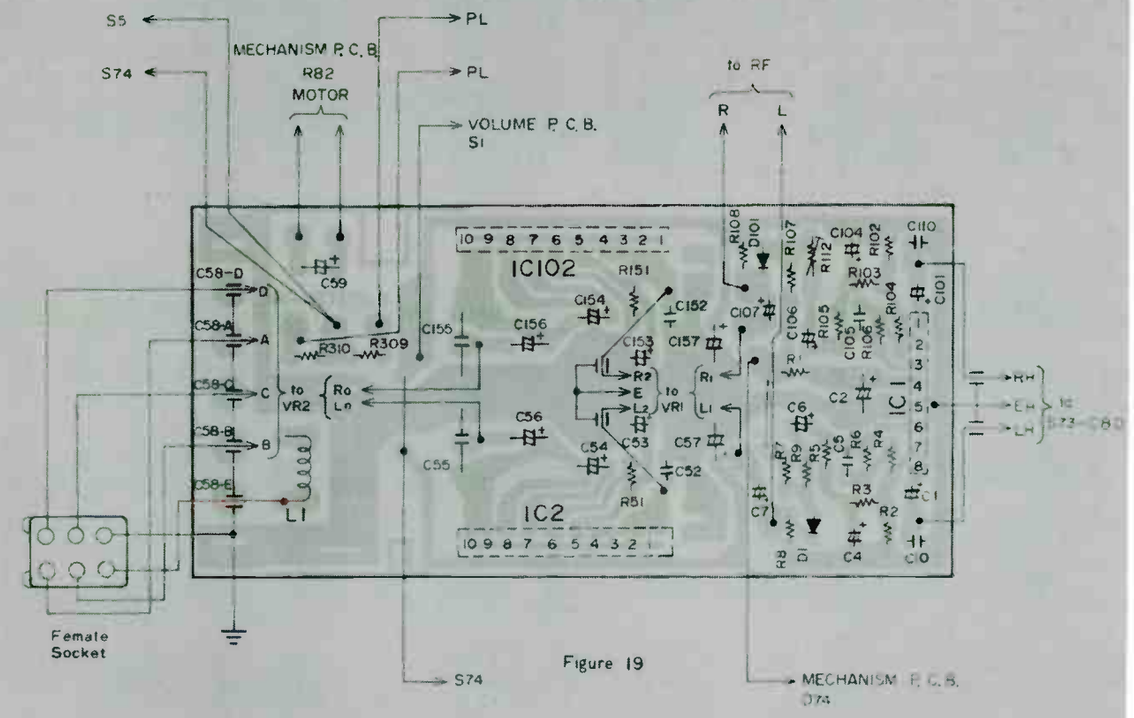


Figure 19

VOLUME P. C. Board (Solder side)

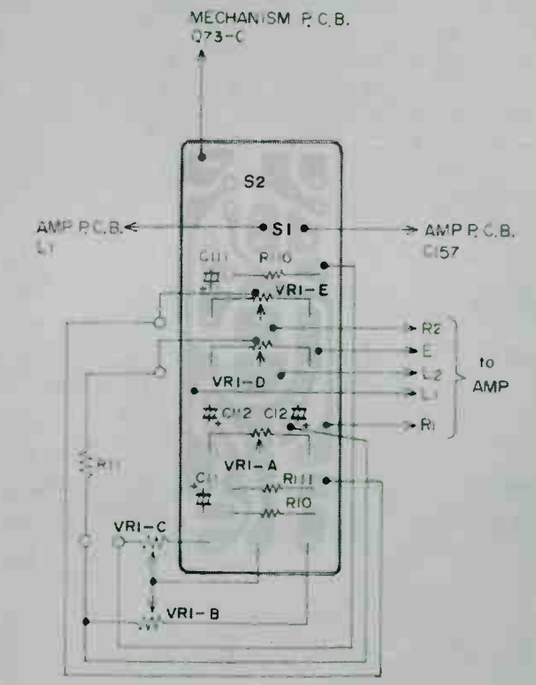
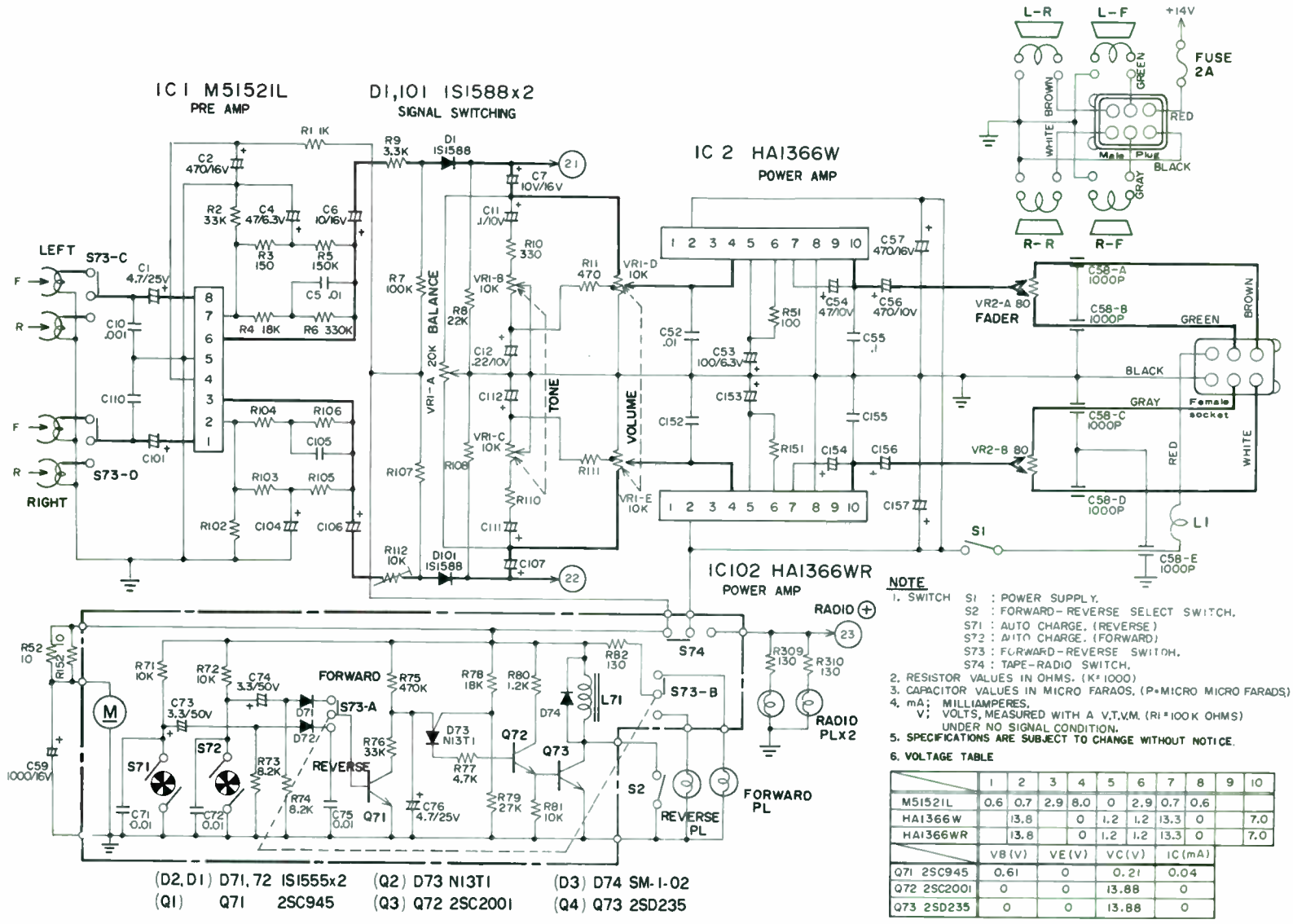


Figure 20

Schematic Diagram — Amp/Mechanism P.C. Boards



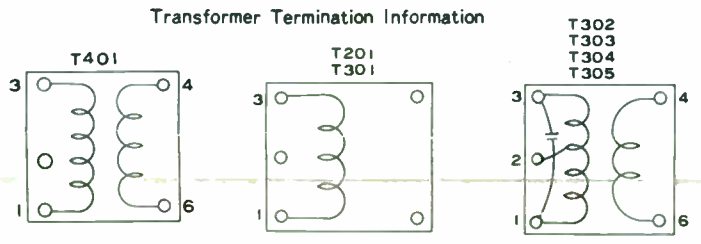
NOTE

1. SWITCH S1 : POWER SUPPLY.
   S2 : FORWARD-REVERSE SELECT SWITCH.
   S71 : AUTO CHARGE. (REVERSE)
   S72 : AUTO CHARGE. (FORWARD)
   S73 : FORWARD-REVERSE SWITCH.
   S74 : TAPE-RADIO SWITCH.
2. RESISTOR VALUES IN OHMS. (K=1000)
3. CAPACITOR VALUES IN MICRO FARADS. (P=MICRO MICRO FARADS)
4. mA; MILLIAMPERES.
   V; VOLTS, MEASURED WITH A V.T.V.M. (Ri=100K OHMS) UNDER NO SIGNAL CONDITION.
5. SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.
6. VOLTAGE TABLE

	1	2	3	4	5	6	7	8	9	10
M5152IL	0.6	0.7	2.9	8.0	0	2.9	0.7	0.6		
HAI366W		13.8		0	1.2	1.2	13.3	0		7.0
HAI366WR		13.8		0	1.2	1.2	13.3	0		7.0

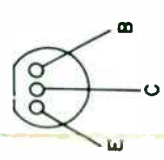
	VB(V)	VE(V)	VC(V)	IC(mA)
Q71 2SC945	0.61	0	0.21	0.04
Q72 2SC2001	0	0	13.88	0
Q73 2SD235	0	0	13.88	0

Transformer Termination Information



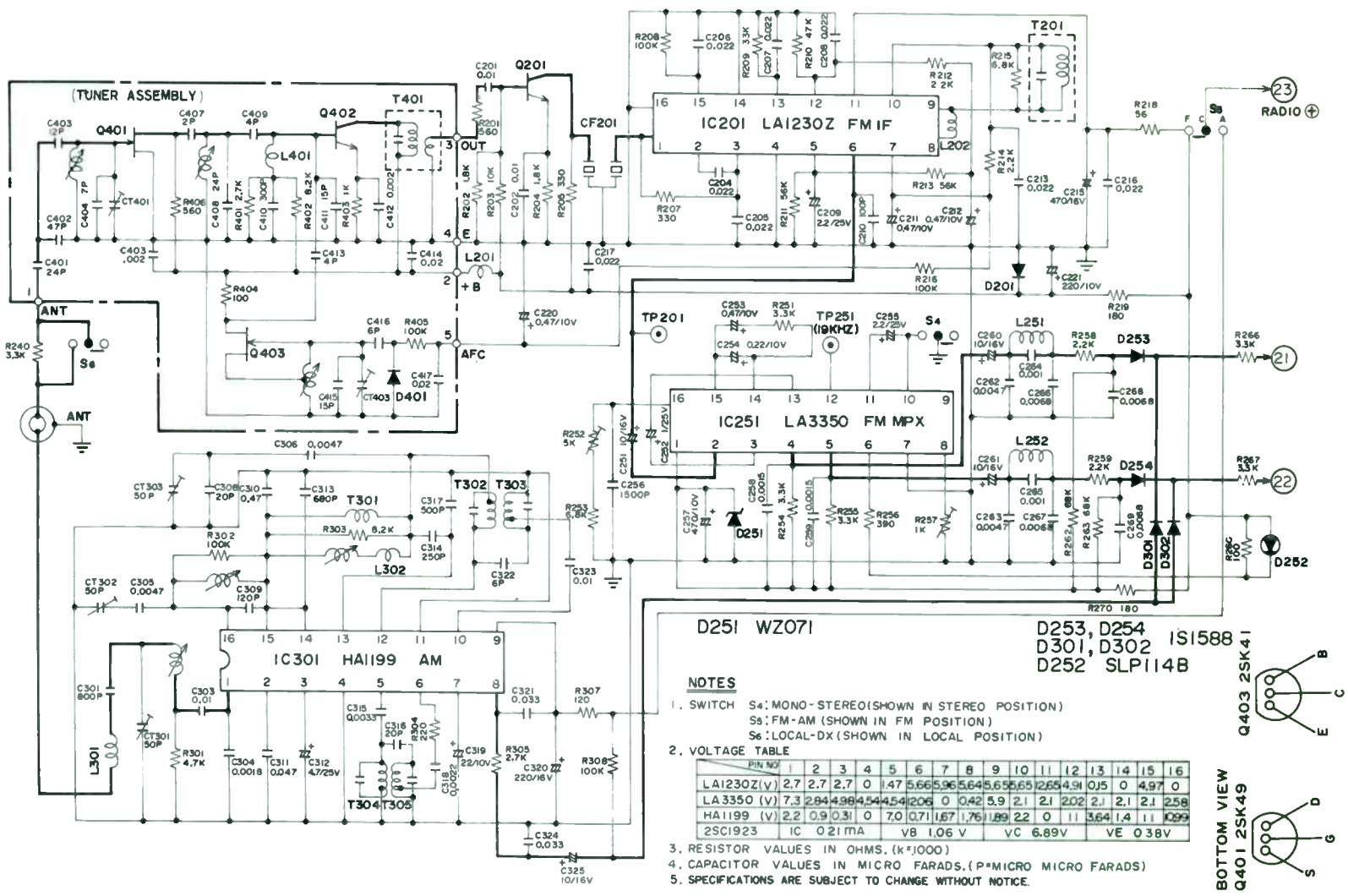
Q401 2SK49 Q402 2SC668 Q403 2SK41 Q201 2SC1923 D401 IS2686

Q71 2SC945 Q402 2SC668 Q201 2SC1923 <bottom>



D201 WZ071

Schematic Diagram — Tuner P.C. Board



D251 WZ071

D253, D254 D301, D302 IS1588
D252 SLP114B

Q403 2SK41

BOTTOM VIEW Q401 2SK49

NOTES

1. SWITCH S4: MONO-STEREO (SHOWN IN STEREO POSITION)
   S5: FM-AM (SHOWN IN FM POSITION)
   S6: LOCAL-DX (SHOWN IN LOCAL POSITION)
2. VOLTAGE TABLE

PIN NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
LA1230Z (V)	2.7	2.7	2.7	0	1.47	5.66	5.96	5.64	5.65	5.65	2.65	4.91	0.15	0	4.97	0
LA3350 (V)	7.3	2.84	4.98	4.54	4.54	2.06	0	0.42	5.9	2.1	2.1	2.02	2.1	2.1	2.1	2.58
HA1199 (V)	2.2	0.9	0.31	0	7.0	0.71	1.67	1.76	1.89	2.2	0	11	3.64	1.4	11	10.99
2SC1923	IC 0.21mA				VB 1.06 V				VC 6.89V				VE 0.38V			

3. RESISTOR VALUES IN OHMS. (K=1000)
4. CAPACITOR VALUES IN MICRO FARADS. (P=MICRO MICRO FARADS)
5. SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

Replacement Parts List

Tuner and Amp P. C. Boards

Semiconductors

Ref. No.	JC Penney Part No.	Supplier Part No.	Description
IC1		M51521L	IC
IC2		HA1366W	IC
IC102		HA1366WR	IC
IC201		LA1230Z	IC
IC251		LA3350	IC
IC301		HA1199	IC
D1		1S1588	Diode
D101		1S1588	Diode
D201		WZ-071	Diode
D251		WZ-071	Diode
D252		SLP-114B	LED
D253		1S1588	Diode
D254		1S1588	Diode
D301		1S1588	Diode
D302		1S1588	Diode
Q201		2SC1923	Transistor

Coils

L1		R-W6735	Choke coil
L201		R-W1055	Choke coil, 1 μH
L202		R-W1798	Choke coil, 18 μH
L251		R-W1751	Choke coil, 40mH
L252		R-W1751	Choke coil, 40mH
L301		R-W1015e	Choke coil , 6 μH
L302		R-W1064	Choke coil, 5 μH

Transformers

T201		R-W5T778	IF transformer
T301		R-W87007	OSC coil
T302		R-W5T791	IF transformer
T303		R-W5T790	IF transformer
T304		R-W5T790	IF transformer
T305		R-W5T790	IF transformer
CF201		R-S17146	Ceramic filter

Resistors (all resistors are 10% tolerance)

R1		*	1K ohm
R2		*	33K ohm
R3		*	150 ohm
R4		*	18K ohm
R5		*	150K ohm
R6		*	330K ohm
R7		*	100K ohm

* Common Electronic Part.

Resistors (all resistors are 10% tolerance)

Ref. No.	JC Penney Part No.	Supplier Part No.	Description
R257		R-R110731	Semi-variable, 1K ohm
R258		*	2.2K ohm
R259		*	2.2K ohm
R260		*	100 ohm
R262		*	68K ohm
R263		*	68K ohm
R266		*	3.3K ohm
R267		*	3.3K ohm
R270		*	Solid, 180 ohm, ±10%, ½W
R301		*	4.7K ohm
R302		*	100K ohm
R303		*	8.2K ohm
R304		*	220 ohm
R305		*	2.7K ohm
R307		*	120 ohm
R308		*	100K ohm
R309		*	Metal oxide film, 130 ohm, ±10%, 1W
R310		*	Metal oxide film, 130 ohm, ±10%, 1W

Capacitors

C1		*	Electrolytic 4.7μF, 25V, M
C2		*	Electrolytic 470μF, 16V, C
C4		*	Electrolytic 47μF, 6.3V, M
C5		*	Semiconductor, 0.01μF, ±20%, 25V
C6		*	Electrolytic 10μF, 16V, M
C7		*	Electrolytic 10μF, 16V, M
C10		*	Semiconductor, 0.001μF, ±20%, 25V
C11		*	Electrolytic 0.1μF, 10V or 16V, Tantalum
C12		*	Electrolytic 0.2μF, 10V or 16V, Tantalum
C52		*	Semiconductor, 0.01μF, ±20%, 25V
C53		*	Electrolytic 100μF, 6.3V, G
C54		*	Electrolytic 47μF, 10V, M
C55		*	Mylar, 0.1μF, +30 −20%, 50V
C56		*	Electrolytic 470μF, 10V, C
C57		*	Electrolytic 470μF, 16V, C
C58-A,B,C,D,E		R-C4008	Feed Thru Capacitor, 1000pF
C59		*	Electrolytic 1000μF, 16V, C
C101		*	Electrolytic 4.7μF, 25V, M
C104		*	Electrolytic 47μF, 6.3V, M
C105		*	Semiconductor, 0.01μF, ±20%,
C106		*	Electrolytic 10μF, 16V, M
C107		*	Electrolytic 10μF, 16V, M

* Common Electronic Part.

Capacitors

Ref. No.	JC Penney Part No.	Supplier Part No.	Description
C110		*	Semiconductor, 0.001 μF, ±20%, 25V
C111		*	Electrolytic 0.1 μF, 10V or 16V, Tantalum
C112		*	Electrolytic 0.2 μF, 10V or 16V, Tantalum
C152		*	Semiconductor, 0.01 μF, ±20%, 25V
C153		*	Electrolytic 100 μF, 6.3V, C
C154		*	Electrolytic 47 μF, 10V, M
C155		*	Mylar, 0.1 μF, +30 −20%, 50V
C156		*	Electrolytic 470 μF, 10V, C
C157		*	Electrolytic 470 μF, 16V, C
C201		*	Semiconductor, 0.01 μF, ±20%, 25V
C202		*	Semiconductor, 0.01 μF, ±20%, 25V
C204		*	Semiconductor, 0.02 or 0.022 μF, ±20%, 25V
C205		*	Semiconductor, 0.02 or 0.022 μF, ±20%, 25V
C206		*	Semiconductor, 0.02 or 0.022 μF, ±20%, 25V
C207		*	Semiconductor, 0.02 or 0.022 μF, ±20%, 25V
C208		*	Semiconductor, 0.02 or 0.022 μF, ±20%, 25V
C209		*	Electrolytic 2.2 μF, 25V, M
C210		*	Ceramic, 100pF, ±10%, 50V, SL
C211		*	Electrolytic 0.47 μF, 10V or 16V, Tantalum
C212		*	Electrolytic 0.47 μF, 10V or 16V, Tantalum
C213		*	Semiconductor, 0.02 or 0.022 μF, ±20%, 25V
C215		*	Electrolytic 470 μF, 16V, C
C216		*	Semiconductor, 0.02 or 0.022 μF, ±20%, 25V
C217		*	Semiconductor, 0.02 or 0.022 μF, ±20%, 25V
C220		*	Electrolytic 0.47 μF, 10V or 16V, Tantalum
C221		*	Electrolytic 220 μF, 10V, X
C251		*	Electrolytic 10 μF, 16V, M
C252		*	Electrolytic 1 μF, 25V, M
C253		*	Electrolytic 0.47 μF, 10V or 16V, Tantalum
C254		*	Electrolytic 0.22 μF, 10V or 16V, Tantalum
C255		*	Electrolytic 2.2 μF, 25V, M
C256		*	Styrol, 1500pF, ±5%, 50V
C257		*	Electrolytic 470 μF, 10V, C
C258		*	Semiconductor, 0.0015 μF, ±20%, 25V
C259		*	Semiconductor, 0.0015 μF, ±20%, 25V
C260		*	Electrolytic 10 μF, 16V, M
C261		*	Electrolytic 10 μF, 16V, M
C262		*	Semiconductor, 0.0047 or 0.005 μF, ±20%, 25V
C263		*	Semiconductor, 0.0047 or 0.005 μF, ±20%, 25V
C264		*	Semiconductor, 0.001 μF, ±20%, 25V
C265		*	Semiconductor, 0.001 μF, ±20%, 25V
C266		*	Semiconductor, 0.0068 μF, ±20%, 25V

* Common Electronic Part.

Capacitors

Ref. No.	JC Penney Part No.	Supplier Part No.	Description
C267		*	Semiconductor, 0.0068 μF, ±20%, 25V
C268		*	Semiconductor, 0.0068 μF, ±20%, 25V
C269		*	Semiconductor, 0.0068 μF, ±20%, 25V
C301		*	Styrol, 800pF, ±10%, 50V
C303		*	Semiconductor, 0.01 μF, ±20%, 25V
C304		*	Semiconductor, 0.0018 μF, ±20%, 25V
C305		*	Semiconductor, 0.0047 or 0.005 μF, ±20%, 25V
C306		*	Mylar, 0.0047 or 0.005 μF, +30 −20%, 50V
C308		*	Ceramic, 20pF, ±10%, 50V, SL
C309		*	Ceramic, 120pF, ±10%, 50V, SL
C310		*	ML, 0.47 or 0.5 μF, ±20%, 50V
C311		*	Semiconductor, 0.047 μF, ±20%, 25V
C312		*	Electrolytic 4.7 μF, 25V, M
C313		*	Ceramic, 680pF, ±10%, 50V, B
C314		*	Styrol, 250pF, ±5%, 50V
C315		*	Semiconductor, 0.0033 μF, ±20%, 25V
C316		*	Ceramic, 20pF, ±10%, 50V, SL
C317		*	Styrol, 500pF, ±5%, 50V
C318		*	Semiconductor, 0.002 μF, ±20%, 25V
C319		*	Electrolytic 22 μF, 10V, M
C320		*	Electrolytic 220 μF, 16V, H
C321		*	Semiconductor, 0.033 μF, ±20%, 25V
C322		*	Ceramic, 6pF, ±10%, 50V, SL
C323		*	Semiconductor, 0.01 μF, ±20%, 25V
C324		*	Semiconductor, 0.033 μF, ±20%, 25V
C325		*	Electrolytic 10 μF, 16V, M
CT302		R-C0702a	Trimmer, 50pF
CT303		R-C0702a	Trimmer, 50pF

Mechanical Installation

1		R-A72683	Knob assembly, ON-OFF-VOL./TUNING
2		R-3971858	Knob, TONE/FADER
3		R-3972382	Panel, 132mm
3		R-3972381	Panel, 147mm
		R-367201	Gasket
		R-11685a-1	Metal bracket
		R-S37169	Lead terminal assembly
		R-A72701	Mounting hardware assembly

Cabinet & Chassis

4		R-1271347	Metal casing, Front
5		R-1271349	Metal casing, Right
6		R-1271348	Metal casing, Left
7		R-1271350	Metal casing, Rear
8		R-A73369	Nose panel assembly
9		R-2672033	Cassette door
10		R-147099	Shaft
11		R-1271359	Metal bracket
12		R-157679	Coil spring
13		R-A73370	Back plate assembly
14		R-S871608	Pointer

* Common Electronic Part.

Cabinet & Chassis

Ref. No.	JC Penney Part No.	Supplier Part No.	Description
15		R-3972371	Knob, ST/MO
16		R-3972376	Knob, EJECT
17		R-3972375	Knob, RWD
18		R-3972374	Knob, F.F
19		R-3972373	Knob, FM/AM
20		R-3972372	Knob, DX/LO
21		R-1270711a	Metal lid, Top
22		R-A73371	Metal lid assembly, Bottom
		R-4773072	Specification sheet
		R-4772602	Label
23		R-A73372	Printed circuit board assembly, AMP. ⑤
24		R-A73373	Printed circuit board assembly, TUNER ①
25		R-A73374	Printed circuit board assembly, VR ②
26		R-4171767	Printed circuit board, LED ②
27		R-4171768	Printed circuit board, ST-MO ②
28		R-4171787	Printed circuit board, Lamp ②
29		R-A73375	Metal bracket assembly
30		R-4470076	Holder
31		R-A73376	Base chassis assembly
32		R-1271354	Lever
33		R-1271358	Metal bracket, Tuner
34		R-3971652	Rope guide
35		R-1271356	Metal bracket, AM-FM/DX-LO SW
36		R-1271357	Metal bracket, P.C.B.
37		R-3971481	Coupling (B)
38		R-3971482	Coupling (A)
		R-367131	Hishi tube, 5 ϕx0.5tx20L, Cord
			Dial cord string, ϕ0.3x400
39		R-157501	Coil spring, Rope
40		R-1270130	Washer, Shaft
41		R-1170564	Nut, Shaft
42		R-S871587	Tuner assembly ⑤
43		R-1271355	Heat sink
44		R-1270871	Metal bracket
45 (VR1-A, B, C, D, E)		R-R1167194	Variable resistor, 10K-Ax4 20K-B
46 (VR2-A, B)		R-R1167190	Variable resistor, 80-Bx2

Miscellaneous

47		R-S871597	Mechanism assembly, FEC55
48		R-S37168	Lead terminal
		R-S17115	Pilot lamp
		R-S17269	Cord clip
49		R-S2156-8	ANT socket
		R-247505-2	Pin, 15mm
50 (S4)		R-S47400-1	Push switch, MO/ST
51 (S5)		R-S47400	Push switch, AM/FM
52 (S6)		R-S47400	Push switch, DX/LO
		R-4074212	Individual carton
		R-4171742	Styro-foam cushion, Right & Left
		R-4773071	Instruction book

① Field repair. Do not exchange.
② Throw away. Do not repair.
⑤ If estimated repair cost exceeds replacement cost, throw away. Do not repair.

Dial Stringing

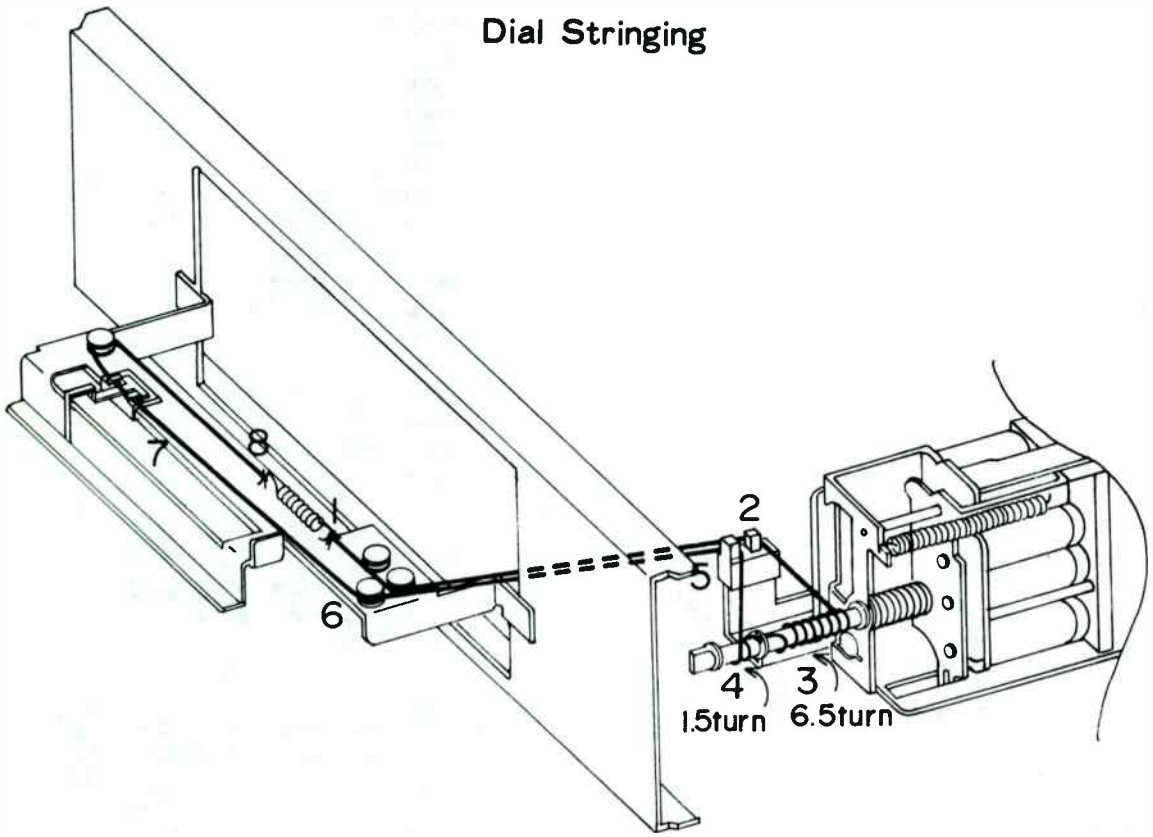


Figure 22

Pages 47-56 Courtesy of J.I.L. CORP. OF AMERICA

ALIGNMENT PROCEDURE OF AM-FM RADIO

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.
* Non-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	Slide FM/AM switch to the left side for FM position.					
2	Sweep signal generator to test point located in front end unit through 1K ohm resistor	Oscilloscope to the test point through 0.01μF capacitor	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

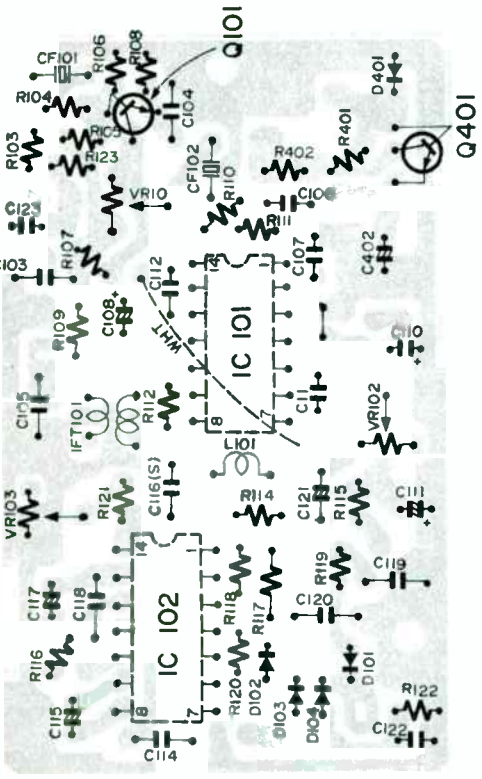
Notes: 1. RF signal generator is connected to the antenna input terminal through matching net-work.
2. Modulation level is 40% maximum.
3. RF signal level is kept as lower as possible.
4. Output indicator is connected to the Left or Right speaker cable terminated with 4 to 8 ohms resistor.

STEP	SOURCE SIGNAL	SET RADIO DIAL TO	ADJUST ON	ADJUST FOR
1	Slide FM/AM switch to the right side for AM position.			
2	455 KHz	Quiet point on band	IFT-201, 202, 203, 204	Maximum amplitude.
3	1,610 KHz	1,610 KHz	CT 203	Maximum amplitude.
4	530 KHz	530 KHz	OSC	Maximum amplitude.
5	1,400 KHz	1,400 KHz	CT 201, 202	Maximum amplitude.
6	Repeat above 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 signal generator with antenna input terminal and adjust VR101 to obtain the stereo when the input level is approximately 20 db.
2. Connect the frequency counter to the test point (TP) of IC102 (Pin No. 10) and then adjust VR102 within the limits of 19 kHz ±100 Hz.
3. Adjust VR103 to obtain the maximum separation.

PART LOCATION



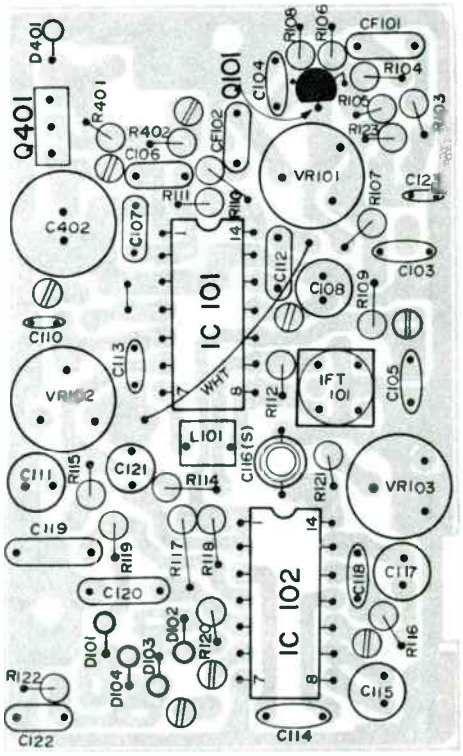
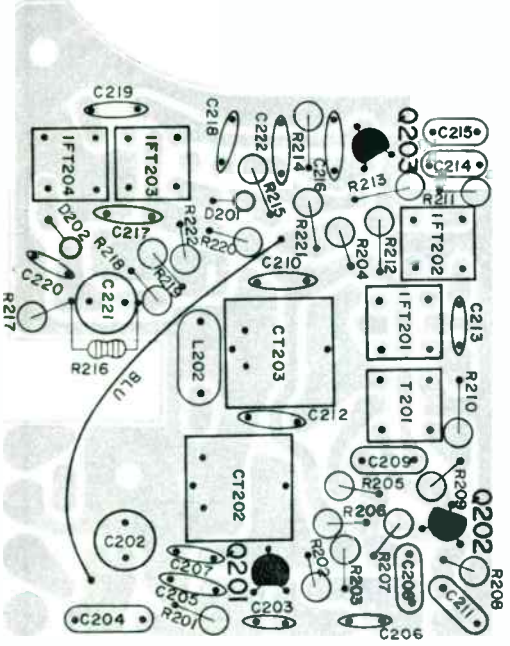


Fig. 11
FM AMP. P.C. BOARDS
WIRING/COMPONENT SIDES



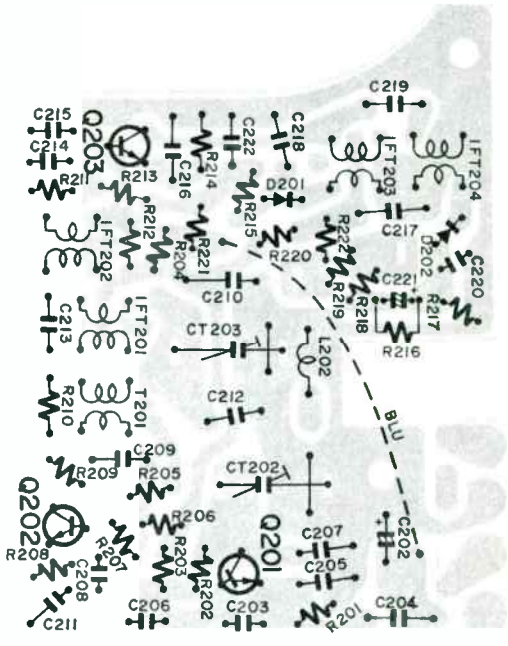


Fig. 12
AM AMP. P.C. BOARDS
COMPONENT/WIRING SIDES

PART LOCATION

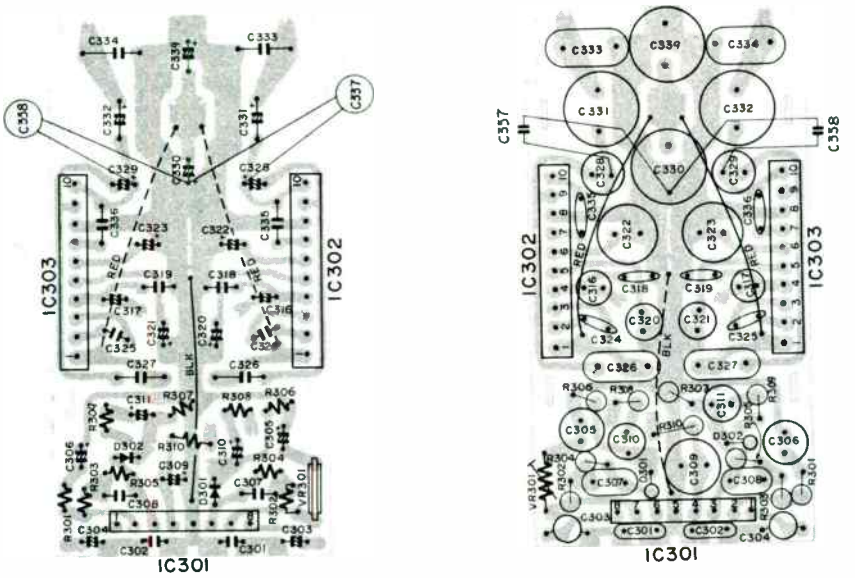


Fig. 13
POWER AMP. P.C. BOARDS
WIRING/COMPONENT SIDES

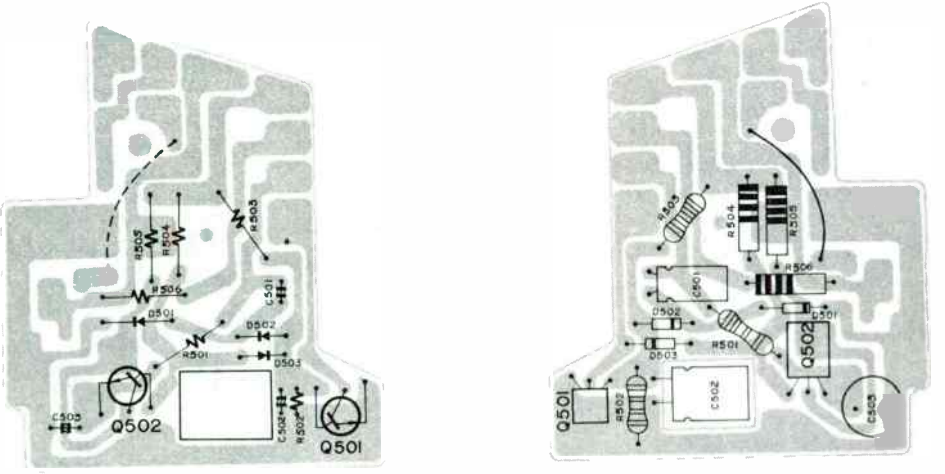


Fig. 14
POWER SUPPLY P.C. BOARDS
WIRING/COMPONENT SIDES

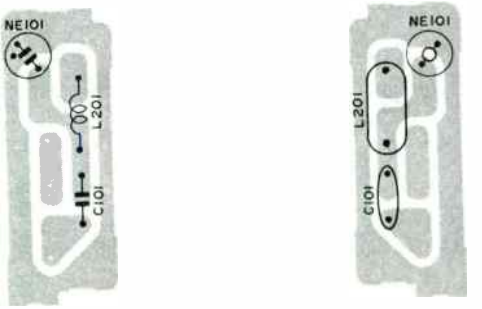
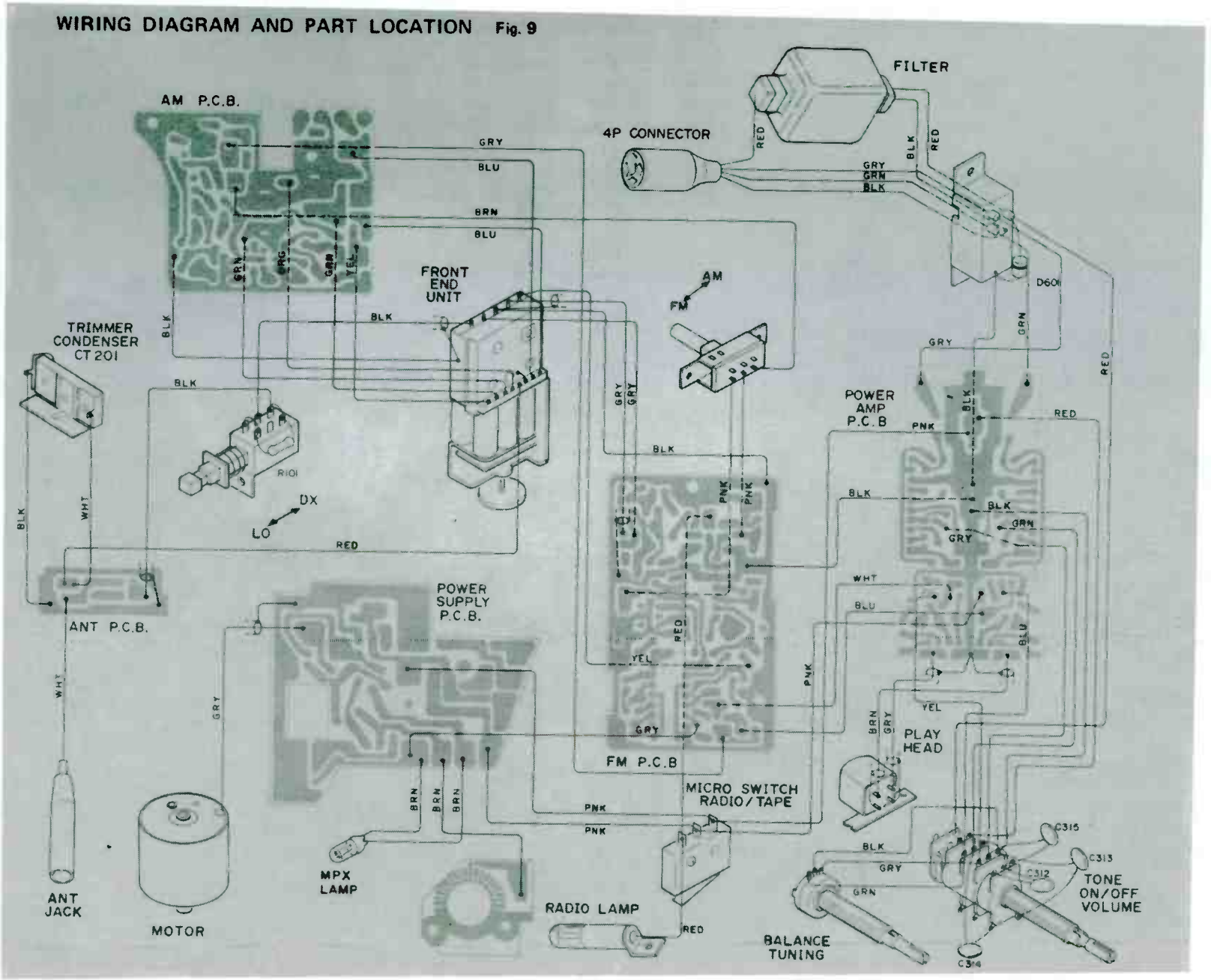
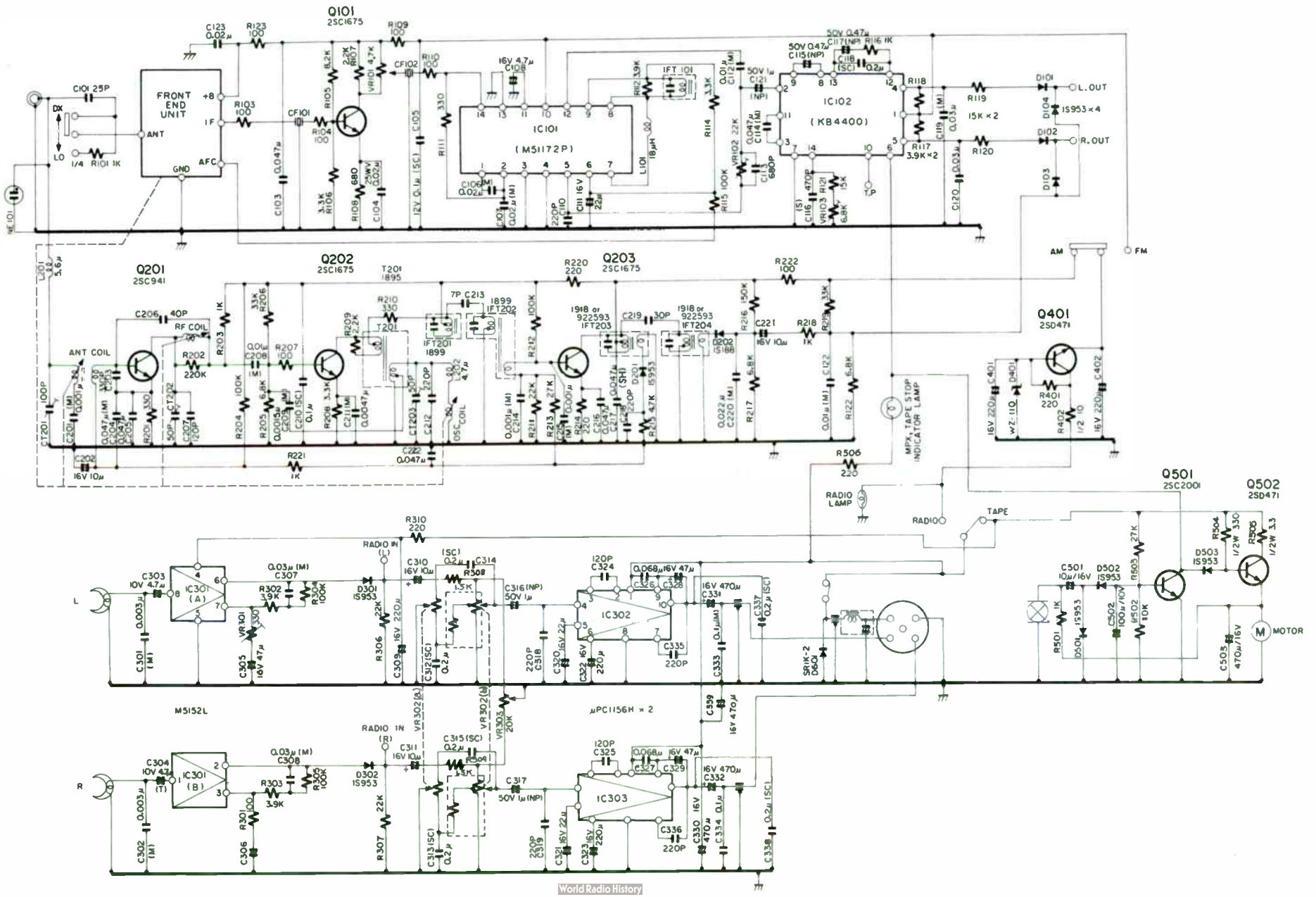


Fig. 15
ANT P.C. BOARD
COMPONENT/WIRING SIDES

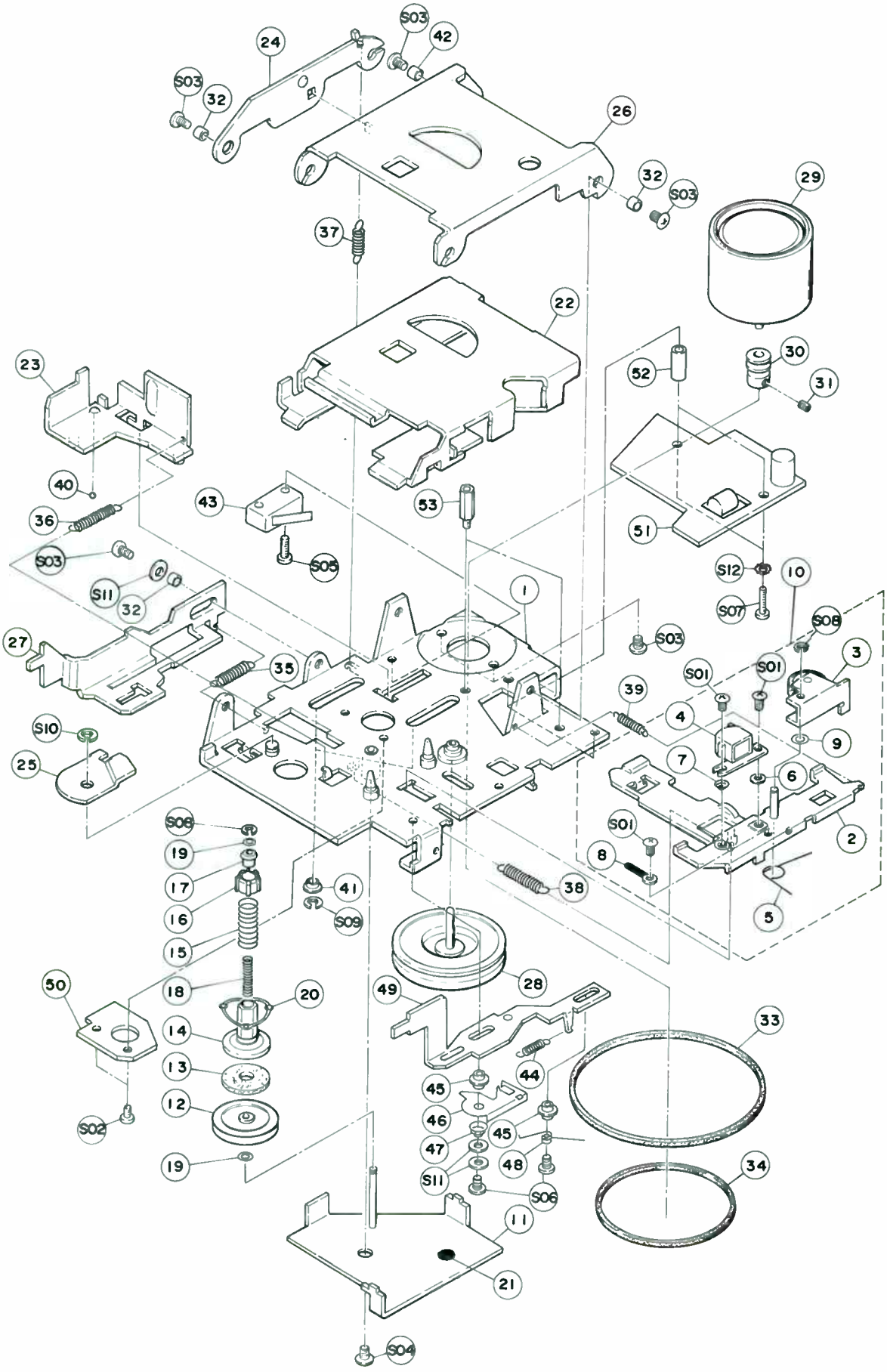
WIRING DIAGRAM AND PART LOCATION Fig. 9



SCHEMATIC DIAGRAM Fig. 10



ASSEMBLY LAYOUT Tape Transport Mechanism Fig. 17



COMPONENTS LIST (Re. Fig. 15 Final assembling)

Drawing Ref. No.	Part No.	Description	Q'ty
101	20202	Tape Transport Mechanism 300NSF	1
102	44928	Case, Top	1
103	45740	Case, Bottom	1
104	44660	Masking, Lead Wire	1
105	45727	Rear Plate	1
106	45611	Bracket, Tuner	1
107	913287	Antenna Trimmer	1
108	923360	Antenna Lead	1
109	915346	Potentiometer Balance/Tuning	1
110	45618	Side Plate, Left	1
111	45619	Side Plate, Right	1
112	44922	Case, Front	1
113	45748	Knob, LO/DX	1
114	45735	Dial Pointer	1
115	45734	Guide, Dial Pointer	1
116	45567	Collar, AM/FM Change SW	1
117	45722	Knob, Eject	1
118	45723	Knob, Fast Forward	1
119	42664	VR Nut	6
120	038001	Washer 3/8", Teethed	6
121	42642	Spring, Dial Cord	1
122	923152	Dial Cord	1
123	44004	VR Washer	2
124	950207	Operation Tag L	1
125	950186	Operation Tag K	1
126	45739	Bracket, AM/FM Switch	1
127	45728	Lever, AM/FM Switch	1
128	950350	Serial No. Label	1
129	44270/ 44269	Coupling/Coupling Connector	2
130	44271	Cross Shaped Coupling	1
131	923561	Radio Lamp	1
132	45779	Dial Scale	1
133	912104	Slide Switch	1
134	45775	Stud, Dial Pointer	1
135	45216	Spacer, Tuner	1
136	45724	Escutcheon	1
137	45715	Slide Knob	1
138	44303	Spring, Slide Knob	1
139	45729	Pad, Slide Knob Spring	1
140	022691	Twin Screw M2.6 x 6	1
141	45733	Cartridge Door Flap	1
142	44145	Shaft, Door, Flap	1
143	44164	Spring, Door Flap	1
144	45721	Aluminum Plates, Escutcheon	2
145	45725	Crystal Plate, Dial Scale	1
146	45732	Aluminum Plates, Dial Scale	2

Drawing Ref. No.	Part No.	Description	Q'ty
147	45730	FM Plate	1
148	45731	AM Plate	1
149	45242	Bracket, Tuner Dial Cord Pulley	1
150	44345	Dial Cord Pulley 4φ	3
151	42646	Collar, Dial Cord Pulley	4
152	45754/ 45855	Knob, Outer/Spring, Knob	2
153	45755	Knob, Inner	2
	45773	Bracket, Dial Cord Pulley	1
154	45269	Shaft, Dial Cord	2
	45854	Pin, Dial Cord	1
155	40231	Switch Lever Ass'y, LO/DX	1
156	30933	AM Amp. P.C. Board Ass'y	1
157	30916	FM Amp. P.C. Board Ass'y	1
158	30934	Power Amp. P.C. Board Ass'y	1
159	30917	Volume Ass'y	1
160	30918	Front End Ass'y	1
161	45180	Feed Throught Capacitor Ass'y	1
162	41894	Receptacle, 5P Connector Cord	1
163	32425	Print Board, ANT	1
164	45130	Antenna Shield Case	1
165	45770	Base, Dial Pointer	1
166	912113	Push Switch	1
167	923563	MPX Lamp	1
168	42239	Cushion Foam	1
169	922095	Pad, Lead Wire	1
	922439	Ground Lead	1
	41501	5P Connector Cord	1
	42616	Strap	1
	41973	Accessories in bag (Bolt, Nut, Washer, etc.)	1
	44832	Trim Plate	1
	44272	Gasket	1
	45834	Control Plate	2
S03	022655	Screw M2.6 x 4, Truss	8
S08	031501	E Ring M1.5	2
S13	022032	Screw M2 x 3, Truss	2
S14	022022	Screw M2 x 8, Truss	1
S15	022659	Screw M2.6 x 4, Truss	1
S16	022016	Screw M2 x 3, BH	2
S17	023055	Screw M3 x 4, BH	26
S18	023043	Screw M3 x 6, BH	3
S19	023122	Screw M3 x 6, BH	4

COMPONENTS LIST (Re. Fig. 16 Tape Transport mechanism)

Drawing Ref. No.	Part No.	Description	Q'ty
1	21645	Main Chassis Ass'y	1
2	23927	Head Bracket	1
3	21403	Pinch Roller Ass'y	1
4	917008	Head for Playback	1
5	23724	Spring, Pinch Roller	1
6	23940	Fiber Washer	1
7	23928	Spring, Azimuth	1
8	922095	Pad, Lead Wire	1
9	23643	Washer, Polistyren	2
10	21646	Head Base Ass'y	1

Drawing Ref. No.	Part No.	Description	Q'ty
11	21603	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 CM500	2
17	23767	Cap, Post	2
18	23771	Spring, Post	1
19	24097	Poli-Slider (A)	2
20	24077	Ring Contact	1

COMPONENT LIST (Re. Fig. 16 Tape Transport mechanism) (Cont'd)

Drawing Ref. No.	Part No.	Description	Q'ty
21	23784	Thrust Washer	1
22	21523	Cassette Housing Ass'y	1
23	21524	Cassette Actuator Ass'y	1
24	21518	Sub-Arm Ass'y	1
25	23911	Thrust Plate	1
26	23913	Pack Arm	1
27	24104	Eject Lever	1
28	21536	Flywheel Ass'y	1
29	911024	Motor	1
30/31	23711/ 022632	Motor Pulley w/Lock Screw	1
32	23875	Washer, Eject Lever	3
33	23747	Belt, Main	1
34	23749	Belt, Take up Reel	1
35	23916	Spring, Eject Lever	1
36	23917	Spring, Pack Slide	1
37	23918	Spring, Pack Arm	1
38	23919	Spring, Head Bracket	1
39	23936	Sub-Spring, Head Bracket	1
40	023165	Steel Ball	1
41	23931	Collar, Pack Slide	2
42	23719	Washer, Pack Arm	1
43	912084	Micro Switch	1
44	24035	Arm Spring	1

Drawing Ref. No.	Part No.	Description	Q'ty
45	24106	Collar, Lever	2
46	24107	Lock, Plate	1
47	24108	Spring, A. Lock Plate	1
48	24109	Spring, B. Lock Plate	1
49	21604	F.F. Lever Ass'y	1
50	32514	Print Board, Detector	1
51	30928	Power Supply P.C. Board Ass'y	1
52	45429	Collar, P.C.B.	2
53	44394	Collar, AM P.C.B.	2
S01	022017	Screw M2 x 4, Truss	3
S02	022001	Screw M2 x 3, RH	2
S03	022655	Screw M2.6 x 4, Truss	6
S04	022654	Screw M2.6 x 6, PH	1
S05	022310	Screw M2.3 x 10, RH	1
S06	022669	Screw M2.6 x 8, Truss	2
S07	022653	Screw M2.6 x 12, RH	2
S08	031501	E Ring M1.5	2
S09	032501	E Ring M2.5	2
S10	033016	E Ring M3	1
S11	032603	Washer M2.6, Plain	3
S12	032607	Washer M2.6, Teethed	4

ELECTRICAL COMPONENT LIST

Ref. No.	Part No.	Description	Q'ty
SEMI-CONDUCTORS			
Q101	916144	Silicon Transistor 2SC1675	1
Q201	916127	Silicon Transistor 2SC941	1
Q202, 203	916144	Silicon Transistor 2SC1675	2
Q401	916126	Silicon Transistor 2SD471	1
Q501	916162	Silicon Transistor 2SC2001	1
Q502	916126	Silicon Transistor 2SD471	1
IC101	916157	IC M51172P	1
IC102	916108	IC KB4400	1
IC301	916106	IC M5152L	1
IC302, 303	916125	IC uPC1156H	2
D101 thru. 104	923147	Diode IS953	4
D201	923147	Diode IS953	1
D202	922604	Diode IS188	1
D301, 302	923147	Diode IS953	2
D401	923233	Diode WZ-110, Zener	1
D501, 502, 503	923147	Diode IS953	3
D601	922969	Diode SR1K-2	1
COILS AND OTHERS			
L101	913556	Micro Inductor 18uH	1
L201	913548	Micro Inductor 5.6uH	1
L202	913346	Micro Inductor 4.7uH	1
IFT101	923133	IFT, FM 12200	1
IFT201, 202	922594	IFT, AM 1899	2
IFT203, 204	922593	IFT, AM 1918	2

Ref. No.	Part No.	Description	Q'ty
T201	922592	IFT, AM 1895	1
CF101, 102	922974	Ceramic Filter SFE10.7MS2	2
RESISTORS			
R101	915072	1K ohm 1/4W	1
R102		No component	
R103, 104	915009	100 ohm 1/8W	2
R105	915005	8.2K " "	1
R106	915004	3.3K " "	1
R107	915007	2.2K " "	1
R108	915337	680 " "	1
R109, 110	915009	100 " "	2
R111	915351	330 " "	1
R112	915325	3.9K " "	1
R113		No component	
R114	915004	3.3K ohm 1/8W	1
R115	915039	100K " "	1
R116	915003	1K " "	1
R117, 118	915325	3.9K " "	2
R119, 120, 121	915341	15K " "	3
R122	915340	6.8K " "	1
R123	915009	100 " "	1
R201	915020	330 ohm 1/4W	1
R202	915154	220K " "	1
R203	915072	1K " "	1
R204	915064	100K " "	1
R205	915081	6.8K " "	1
R206	915044	33K " "	1
R207	915077	100 " "	1
R208	915073	3.3K " "	1

ELECTRICAL COMPONENT LIST (Cont'd)

Ref. No.	Part No.	Description	Q'ty
R209	915097	2.2K ohm 1/4W	1
R210	915020	330 " "	1
R211	915096	22K " "	1
R212	915064	100K " "	1
R213	915024	27K " "	1
R214	915043	220 " "	1
R215	915025	4.7K " "	1
R216	915412	150K " 1/8W	1
R217	915081	6.8K " 1/4W	1
R218	915072	1K " "	1
R219	915044	33K " "	1
R220	915043	220 " "	1
R221	915072	1K " "	1
R222	915077	100 " "	1
R301	915009	100 ohm 1/8W	1
R302, 303	915325	3.9K " "	2
R304, 305	915039	100K " "	2
R306, 307	915342	22K " "	2
R308, 309	915001	1.5K " "	2
R310	915336	220 " "	1
R401	915336	220 ohm 1/8W	1
R402	915091	10 " 1/2W	1
R501	915003	1K ohm 1/8W	1
R502	915015	10K " "	1
R503	915395	27K " "	1
R504	915136	330 " 1/2W	1
R505	915065	3.3 " "	1
R506	915098	220 " "	1
R507	915066	150 " 1/8W	1
VR101	915373	Solid Volume 4.7K ohm	1
VR102	915262	Solid Volume 22K ohm	1
VR103	915434	Solid Volume 6.8K ohm	1
VR301	915455	Semi-Variable Resistor 300 ohm	1
VR302 (a), (b)	915474	Potentiometer, Volume/Tone/ On-Off Switch	1
VR303	915346	Potentiometer, Balance/Tuning	1

CAPACITORS, all are in 50 working voltage unless otherwise specified.

C101	913093	Ceramic 25pF	1
C102		No component	
C103	913063	Ceramic 0.047uF	1
C104	913125	Ceramic 0.022uF	1
C105	913284	Semi-Con. 0.1uF 12V (SC)	1
C106, 107	913045	Mylar 0.022uF	2
C108	913148	Electrolytic 4.7uF 16V	1
C109		No component	
C110	913077	Ceramic 220pF	1
C111	913217	Electrolytic 22uF 16V	1
C112	913020	Mylar 0.01uF	1
C113	913162	Ceramic 680pF	1
C114	913044	Mylar 0.047uF	1
C115	913348	Electrolytic 0.47uF (NP)	1

Ref. No.	Part No.	Description	Q'ty
C116	913096	Polystyren 470pF	1
C117	913348	Electrolytic 0.47uF (NP)	1
C118	913331	Semi-Con. 0.2uF 12V (SC)	1
C119, 120	913108	Mylar 0.033uF	2
C121	913349	Electrolytic 1uF (NP)	1
C122	913020	Mylar 0.01uF	1
C123	913125	Ceramic 0.022uF	1
C201	913071	Mylar 0.001uF	1
C202	913175	Electrolytic 10uF 16V	1
C203	913073	Ceramic 330pF	1
C204	913044	Mylar 0.047uF	1
C205	913063	Ceramic 0.047uF	1
C206	913172	Ceramic 40pF	1
C207	913115	Ceramic 120pF	1
C208	913020	Mylar 0.01uF	1
C209	913210	Mylar 0.0015uF	1
C210	913318	Semi-Con. 0.1uF 12V (SC)	1
C211	913040	Mylar 0.0047uF	1
C212	913077	Ceramic 220pF	1
C213	913122	Ceramic 7pF	1
C214, 215	913071	Mylar 0.001uF	2
C216, 217	913063	Ceramic 0.047uF	2
C218	913313	Ceramic 220pF (SH)	1
C219	913171	Ceramic 30pF	1
C220	913010	Mylar 0.02uF	1
C221	913175	Electrolytic 10uF 16V	1
C222	913063	Ceramic 0.047uF	1
C301, 302	913373	Mylar 0.003uF	2
C303, 304	913314	Tantalum 4.7uF 10V	2
C305, 306	913180	Electrolytic 47uF 16V	2
C307, 308	913108	Mylar 0.03uF	2
C309	913069	Electrolytic 220uF 16V	1
C310, 311	913175	Electrolytic 10uF 16V	2
C312 thru. 315	913284	Semi-Con. 0.2uF 12V (SC)	4
C316, 317	913349	Electrolytic 1uF (NP)	2
C318, 319	913077	Ceramic 220pF	2
C320, 321	913217	Electrolytic 22uF 16V	2
C322, 323	913069	Electrolytic 220uF 16V	2
C324, 325	913115	Ceramic 120pF	2
C326, 327	913446	Mylar 0.068uF	2
C328, 329	913180	Electrolytic 47uF 16V	2
C330, 331, 332	913030	Electrolytic 470uF 16V	3
C333, 334	913021	Mylar 0.1uF	2
C335, 336	913077	Ceramic 220pF	2
C337, 338	913284	Semi-Con. 0.2uF 12V (SC)	2
C339	913030	Electrolytic 470uF 16V	1
C401, 402	913069	Electrolytic 220uF 16V	2
C501	913175	Electrolytic 10uF 16V	1
C502	913013	Electrolytic 100uF 10V	1
C503	913156	Electrolytic 470uF 16V	1
CT201	913287	Trimmer, Antenna 100pF	1
CT202, 203	913511	Trimmer 50pF	2

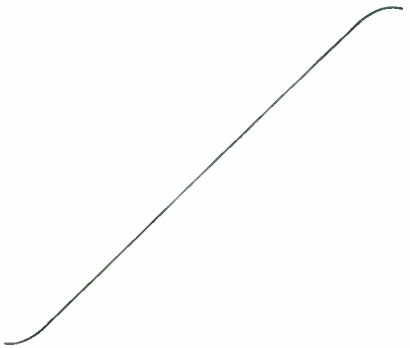


Fig. 5
"S" CURVE TRACE

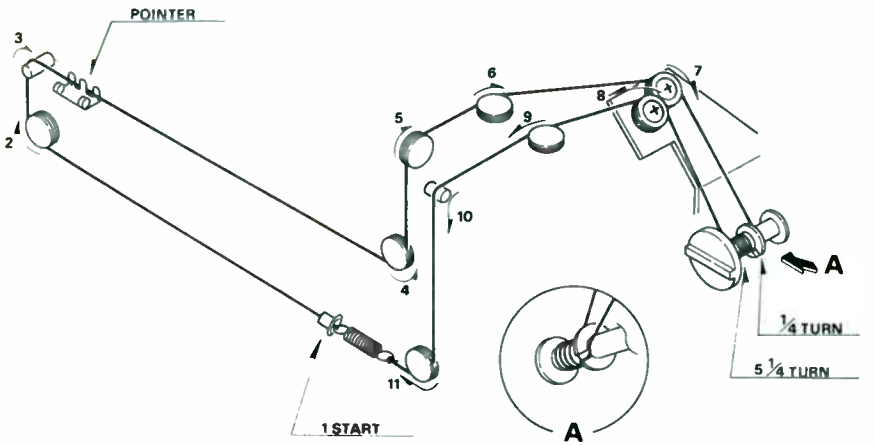


Fig. 6
DIAL STRING ARRANGEMENT

Pages 57-69 Courtesy of PANASONIC CONSUMER PARTS DIV.

ALIGNMENT INSTRUCTIONS

■ EQUIPMENT REQUIRED

- Signal Generator: AM 450 ~ 1700 kHz, 400 Hz Mod. @30%
  FM 10.7 MHz, 86 ~ 110 MHz, 400 Hz Mod. @30% and Stereo Signal Generator
- Sweep Generator: 450 kHz, 10.7 MHz
- Antenna Pad: Refer to Fig. 1 and Fig. 3.
- Indicator: Output meter (AC voltmeter or VTVM)
  Oscilloscope and Frequency Counter
- Power Source Voltage: DC 13.8 V (standard voltage for measurement)

AM (I-F & RF) ALIGNMENT

- Set Volume Control at maximum, and Tone in the treble position.
- Set Band Selector Switch in the AM position.
- Set Balance Control in center.
- Connect the signal generator to the antenna receptacle through the antenna pad. (Fig. 1)
- Keep the signal generator output low enough to prevent overloading the circuit.

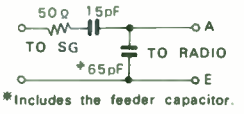


Fig. 1 Antenna Pad

		STEP	GENERATOR FREQUENCY	BAND SELECTOR SETTING	RADIO-DIAL SETTING	SIGNAL FEED POINT	INDICATOR CONNECTION	ADJUST	REMARKS
AM	IF	❶~❹	450 kHz [Unmodulated or 400 Hz Mod.]	AM	Point of non-interference. (on/about 600 kHz)	Through pad (Fig. 1) to antenna receptacle.	Between Point ⑤ and ground or speaker terminals.	IFT104 ⟨ IFT101	Adjust for maximum.
AM	RF	❺	510 kHz [400 Hz Mod.]	"	Low freq. end stop.	"	Output meter across speaker terminals.	L106 (OSC)	"
AM	RF	❻	1640 kHz [400 Hz Mod.]	"	High freq. end stop.	"	"	C113 (OSC)	"
AM	RF	❼~❽	1400 kHz [400 Hz Mod.]	"	Tune to signal.	"	"	C104 (RF) C101 (ANT)	"

- When radio is installed in car, antenna fully extended, tune in a weak station near 1400 kHz and adjust C101 for minimum output.
- Refer to ANTENNA TRIMMER ALIGNMENT, page 1.
- Repeat steps two or three times.

FM (I-F & RF) ALIGNMENT

● FM I-F ALIGNMENT USING FM SIGNAL GENERATOR AND SWEEP GENERATOR

- Volume, Tone and Balance Control may be left in any position.
- Set Band Selector Switch in the FM position.
- Set DX/LOCAL Selector Switch in the DX position.
- Connect the signal generator to the antenna receptacle through the antenna pad. (Fig. 3)
- Keep the signal generator output low enough to prevent overloading the circuit.

	STEP	GENERATOR FREQUENCY	RADIO-DIAL SETTING	SIGNAL FEED POINT	INDICATOR CONNECTION	ADJUST	REMARKS
FM IF	❾	10.7 MHz	Point of non-interference.	Through pad (Fig. 3) to antenna receptacle.	Vert. amp of scope to point ⑤, low side to ground.	IFT51	Adjust for maximum amplitude and proper linearity between ±100 kHz markers.
FM IF	❿~⓭	"	"	"	"	IFT151 IFT152	

- Repeat step ❾, ❿ & ⓭ two or three times.

Fig. 2

● FM RF ALIGNMENT

- Set Volume Control at maximum, and Tone in the treble position.
- Set Band Selector Switch in the FM position.
- Set DX/LOCAL Selector Switch in the DX position.
- Set Balance Control in center.
- Connect the signal generator to the antenna receptacle through the antenna pad. (Fig. 3)
- Keep the signal generator output enough to prevent overloading the circuit.

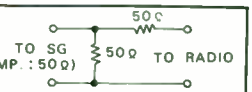


Fig. 3 Antenna Pad

	STEP	GENERATOR FREQUENCY	RADIO-DIAL SETTING	SIGNAL FEED POINT	INDICATOR CONNECTION	ADJUST	REMARKS
FM RF	⓬	87.0 MHz [400 Hz Mod.]	Low freq. end stop.	Through pad (Fig. 3) to antenna receptacle.	Output meter across speaker terminals.	C75 (OSC)	Adjust for maximum. Repeat steps two or three times.
FM RF	⓭~⓯	98.0 MHz [400 Hz Mod]	Tune to signal.	"	"	C65 (RF) C58 (ANT)	

- In the step ⓬, adjust lower frequency at 87.0 MHz. The upper frequency will be within 108 ~ 110 MHz, because of design characteristics. It is nonadjustable.

MULTIPLEX ALIGNMENT USING FM SIGNAL GENERATOR AND STEREO SIGNAL GENERATOR

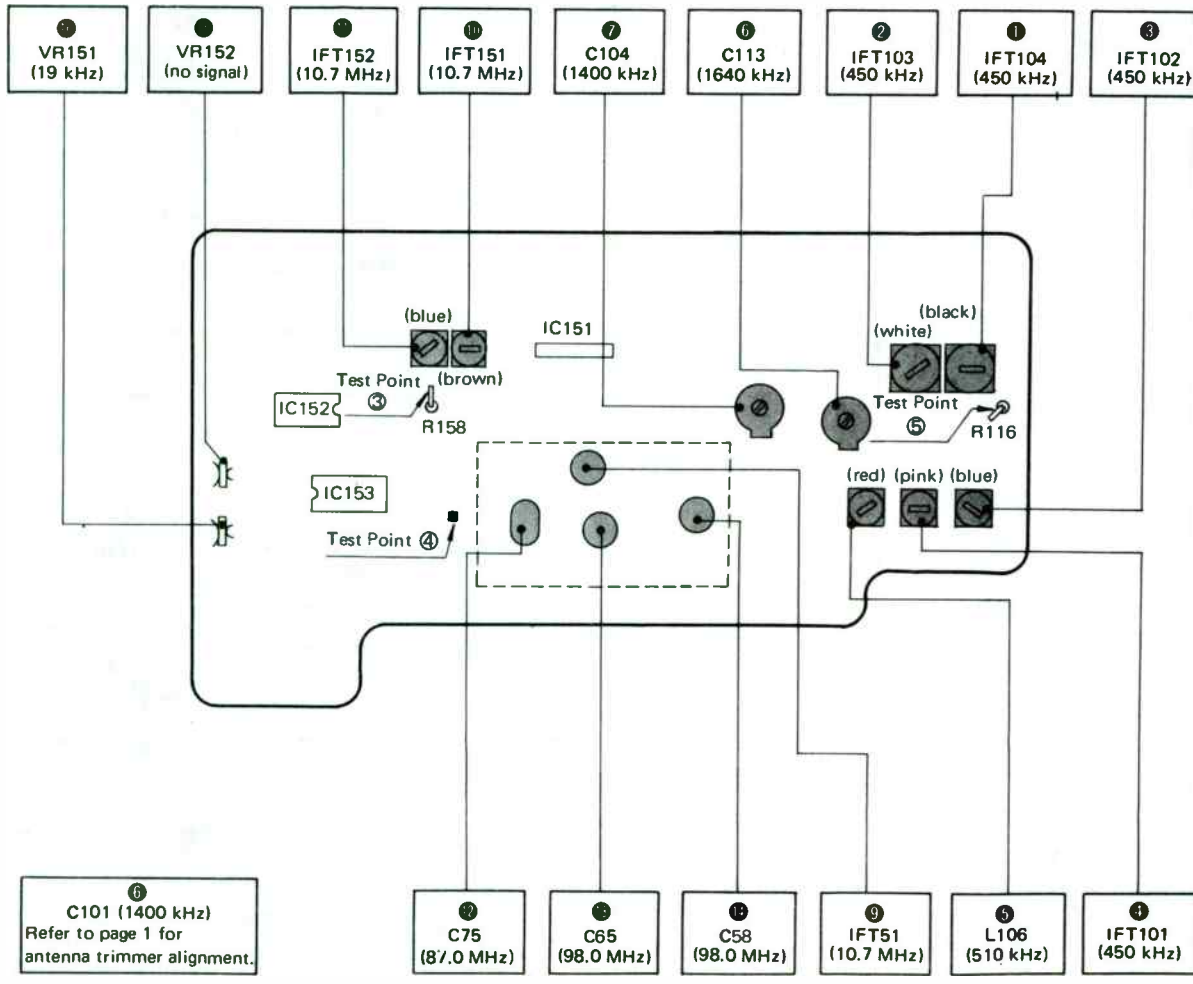
- Set Volume Control at maximum, and Tone in the treble position.
- Set Balance Control in center.
- Set DX/LOCAL Selector Switch in the DX position.
- Connect the signal generator to the antenna receptacle through the antenna pad. (Fig. 3)
- Keep the signal generator output low enough to prevent overloading the circuit.
- FM signal generator should be modulated by the stereo signal generator.

Modulation Level: 19 kHz, 10%
400 Hz, 30%
FM signal generator output level: 1 mV
FM signal generator frequency: 98 MHz

	STEP	MODULATION FREQUENCY	INDICATOR	ADJUST	REMARKS
FM MPX	❶	No signal input	Frequency counter to Test Point ④, low side to ground.	VR152	Adjust to 19 kHz ± 30 Hz.
	❷	19 kHz, 400 Hz (Right Channel)	VTVM to right speaker terminals.	VR151	Adjust for minimum.
		19 kHz, 400 Hz (Left Channel)	VTVM to left speaker terminals.		Adjust for minimum.

- Repeat steps two or three times.

NOTES: 1) Test Point ⑤ is negative side of C119 in the line of R116
2) Test Point ③ is the R158 in the line of R165.
3) Test Point ④ is the terminal No. 12 of IC153.



■ Numbers in ● are indicated ALIGNMENT STEPS.

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
		TAPE DECK PARTS		
		HEAD		
H (2-B)	YEAHP1082AA	Playback Head	1	
		MECHANICAL PARTS		
M201 (1-A)	YEFA01279	Chassis	1	
M202 (2-A)	YEFX046243	Gate Plate	1	
M203 (1-A)	YEFX999162	Slide Plate	1	
M204 (2-C)	YEFX234115	Channel Selector Cam	1	
M205 (1-B) (2-C)	YEJW02076	Washer, Flat	2	
M206 (2-C)	YEFR03026	Belt	1	
M207 (1-C)	YEFX213129	Flywheel Metal	1	
M208 (2-C)	YEFX213127	Flywheel Ass'y	1	
M209 (2-B)	YEFX236121	Head Holder Ass'y	1	
M210 (2-B)	YEFX007153	Head Clamper	1	
M211 (2-B)	YEAJ18091	Head Shield Wire	1	
M212 (3-B)	YEFX046250	Lever Ass'y	1	
M213 (2-A)	YEFX026051	Motor Ass'y (w/Pulley)	1	
M214 (3-B)	YEFX234116	Cam	1	
M215 (3-B)	YEJW03003	Washer, Wave	1	
M216 (3-C)	YEFX005200	Spring, Auto-Lever	1	
M217 (2-C)	YEAX01015	Solenoid	1	
M218 (2-C)	YEFW04044	Bearing Metal	1	
M219 (3-C)	YEFX046236	Moving Plate Ass'y	1	
M220 (3-C)	YEFX046240	Selector Plate	1	
M221 (1-B)	YEFX046241	Base Plate Ass'y	1	
M222 (2-B)	YEFX005368	Moving Spring	1	
M223 (1-C)	YEFX249157	Arm Ass'y	1	
M224 (1-C)	YEFX218150	Pressure Roller	1	
M225 (1-B)	YEFX005382	Pressure Roller	1	

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
M226 (1-C)	YEFW05057	Shaft Coller	1	
M227 (2-C)	YEFX005367	Spring, Solenoid	1	
M228 (3-B)	YEFW07056	Stud	1	
M229 (3-B)	YEFX234117	Adjustment Cam	1	
M230 (3-B)	YEFX005372	Adjustment Spring	1	
M231 (3-C)	YEFX005370	Plate Spring	1	
M232 (2-B)	YEFX235105	Tape Guide Ass'y	1	
M235 (2-A)	YEFX021706	Motor Holder	1	
M236 (3-A)	YEFX999149	Motor Insulator	3	
M237 (1-B)	XUC4FX	E-ring, 4mmø	1	
M238 (3-B)	XUC3FX	E-ring, 3mmø	1	
M239 (3-C)	XUC2FX	E-ring, 2mmø	1	
M240 (1-C)	XUC15FX	E-ring, 1.5mmø	1	
M241 (3-B)	XWG4FX	Washer, Flat 4mmø	1	
M242 (3-C)	XWG26FX	Washer, Flat 2.6mmø	1	
M243 (1-B)	XXA2C2FX	Screw, 2mmø x 2mm	1	
M244 (3-B)	YEJT02008	⊕Screw, Tapping	1	
M245 (3-A)	YEJT02007	⊕Screw, Tapping	3	
M246	XYN26 + C5FXS	⊕Screw w/Washer, 2.6mmø x 15mm	4	
M247	XYN3 + 32FXS	⊕Screw w/Washer, 3mmø x 32mm	1	
M248	XYN3 + 5FXS	⊕Screw w/Washer, 3mmø x 5mm	1	
M249	XYN26 + 4FXS	⊕Screw w/Washer, 2.6mmø x 4mm	1	
M250	XTN3 + 6CFXS	⊕Screw, Tapping 3mmø x 6mm	4	
M251	XTN3 + 5CFXS	⊕Screw, Tapping 3mmø x 5mm	4	

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
ICs				
RADIO BLOCK				
IC151	YEAMUPC577H	FM IF AMP	1	
IC152	AN101	FM INQ	1	
IC153	AN362	FM MPX AMP	1	
IC250, 350	YEAMSTK430	AF Power AMP	2	
TRANSISTORS				
RADIO BLOCK				
Q51, 52	2SC1047	FM RF AMP, FM Mix	2	
Q53, 102, 151 103	2SC829	FM OSC, AM Conv., IF AMP, AM IF AMP	4	
Q101	2SC2076	AM RF AMP	1	
Q104, 240, 340	2SC828	AF AMP	3	
PRE AMP BLOCK				
Q200, 300	2SC644	Pre AMP	2	
Q201, 301	2SC828	Pre AMP	2	
DIODES				
RADIO BLOCK				
D51, 52, 53	MA150	Over-Loading	7	
103, 104, 106		AM Det		
156		Reverse Voltage Prevention		

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
D54	YEAD029	FM AFC	1	
D101, 102	OA90	AM AGC	2	
D151, 152	YEAD032	FM DISC	2	
D155	LN25DLCF	Stereo Indicator	1	
D701, 702, 703	YEAD024	Voltage Stabilizer	3	
PRE AMP BLOCK				
D700	YEAD030	Spark Suppresion	1	
CAPACITORS				
RADIO BLOCK				
C52	YECCD1H180KM	18 PF 50WV ±10% Ceramic	1	
C53	YECCD1H180KM	18 PF 50WV ±10% Ceramic	1	
C54	ECKD1H103PF	0.01 MFD 50WV +100, −0% Ceramic	1	
C55	YECCD1H100JS	10 PF 50WV ±5% Ceramic	1	
C56	YECCD1H180KM	18 PF 50WV ±10% Ceramic	1	
C57	YECCD1H080DS	8 PF 50WV ±0.5 PF Ceramic	1	
C59	YECCD1H020CM	2 PF 50WV ±0.25 PF Ceramic	1	
C60	YECKD05471K	470 PF 50WV ±10% Ceramic	1	
C61	YECKD05471K	470 PF 50WV ±10% Ceramic	1	
C63	YECCD1H060DM	6 PF 50WV ±0.5 PF Ceramic	1	
C64	YECCD1H120JU	12 PF 50WV ±5% Ceramic	1	
C66	YECCD1H020CM	2 PF 50WV ±0.25 PF Ceramic	1	
C67	YECCD1H270KM	27 PF 50WV ±10% Ceramic	1	
C68	YECCD1H271JM	270 PF 50WV ±5% Ceramic	1	
C69	YECKD05103Z	0.01 MFD 50WV +80, −20% Ceramic	1	

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
C71	YECCD1H390KM	39 PF 50WV ±10% Ceramic	1	
C72	YECKD05471K	470 PF 50WV ±10% Ceramic	1	
C73	YECCD1H030DU	3 PF 50WV ±0.5 PF Ceramic	1	
C74	YECCD1H040DU	4 PF 50WV ±0.5 PF Ceramic	1	
C76	YECCD1H010CM	1 PF 50WV ±0.25 PF Ceramic	1	
C77	YECCD1H040DU	4 PF 50WV ±0.5 PF Ceramic	1	
C78	YECQN1H472K	0.0047 MFD 50WV ±10% Polyester	1	
C79	YECKD05103Z	0.01 MFD 50WV +80, −20% Ceramic	1	
C80	ECEA50V1L	1 MFD 50WV Electrolytic	1	
C102	ECKD1H103PF	0.01 MFD 50WV +100, −0% Ceramic	1	
C103	YECCD1H100FM	10 PF 50WV ±1 PF Ceramic	1	
C105	YECCD1H391KM	390 PF 50WV ±10% Ceramic	1	
C106	YECCD1H101KM	100 PF 50WV ±10% Ceramic	1	
C107	YECQN1H103M	0.01 MFD 50WV ±20% Polyester	1	
C108	YECQN1H222M	0.0022 MFD 50WV ±20% Polyester	1	
C109	YECQN1H473M	0.047 MFD 50WV ±20% Polyester	1	
C110	YECQN1H222K	0.0022 MFD 50WV ±10% Polyester	1	
C111	YECQN1H103M	0.01 MFD 50WV ±20% Polyester	1	
C112	YECCD1H181KT	180 PF 50WV ±10% Ceramic	1	
C114	YECQN1H103M	0.01 MFD 50WV ±20% Polyester	1	
C115	ECEA50V1L	1 MFD 50WV Electrolytic	1	
C116	ECEA16V33L	33 MFD 16WV Electrolytic	1	
C117	YECQN1H473M	0.047 MFD 50WV ±20% Polyester	1	
C118	YECCD1H331KM	330 PF 50WV ±10% Ceramic	1	
C119	ECEA50V1L	1 MFD 50WV Electrolytic	1	
C120	YECQN1H473M	0.047 MFD 50WV ±20% Polyester	1	
C121	YECQN1H103M	0.01 MFD 50WV ±20% Polyester	1	
C122	YECQN1H393M	0.039 MFD 50WV ±20% Polyester	1	
C123	YECQN1H473M	0.047 MFD 50WV ±20% Polyester	1	
C124	YECQN1H104M	0.1 MFD 50WV ±20% Polyester	1	
C151	ECKD1H103PF	0.01 MFD 50WV +100, −0% Ceramic	1	
C152	YECQN1H223M	0.022 MFD 50WV ±20% Polyester	1	
C153	YECKD05103Z	0.01 MFD 50WV +80, −20% Ceramic	1	
C154	YECQN1H333M	0.033 MFD 50WV ±20% Polyester	1	

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
C155	YECKD05103Z	0.01 MFD 50WV +80, −20% Ceramic	1	
C158	YECCD1H181KM	180 PF 50WV ±10% Ceramic	1	
C159	YECCD1H181KM	180 PF 50WV ±10% Ceramic	1	
C160	YECCD1H181KM	180 PF 50WV ±10% Ceramic	1	
C161	ECEA25V4R7L	4.7 MFD 25WV Electrolytic	1	
C162	YECCD1H121KM	120 PF 50WV ±10% Ceramic	1	
C163	ECEA50V1L	1 MFD 50WV Electrolytic	1	
C164	YECCD1H331KM	330 PF 50WV ±10% Ceramic	1	
C165	YECCD1H050DM	5 PF 50WV ±0.5 PF Ceramic	1	
C166	ECQS1681JZ	680 PF 125WV ±5% Polystyrene	1	
C167	ECQS1681JZ	680 PF 125WV ±5% Polystyrene	1	
C168	YECQN1H122K	0.0012 MFD 50WV ±10% Ceramic	1	
C169	YECCD1H680KM	68 PF 50WV ±10% Ceramic	1	
C170	YECQN1H682M	0.0068 MFD 50WV ±20% Polyester	1	
C171	YECQN1H103M	0.01 MFD 50WV ±20% Polyester	1	
C172	ECEA50V1L	1 MFD 50WV Electrolytic	1	
C173	YECQN1H222K	0.0022 MFD 50WV ±10% Polyester	1	
C174	ECEA16V10L	10 MFD 16WV Electrolytic	1	
C175	YECQN1H102K	0.001 MFD 50WV ±10% Polyster	1	
C176	ECEA16V10L	10 MFD 16WV Electrolytic	1	
C177	YECQN1H473M	0.047 MFD 50WV ±20% Polyester	1	
C178	YECQN1H333M	0.033 MFD 50WV ±20% Polyester	1	
C179	YECQN1H333M	0.033 MFD 50WV ±20% Polyester	1	
C180	ECEA50V1L	1 MFD 50WV Electrolytic	1	
C181	ECQS1391JZ	390 PF 125WV ±5% Polystyrene	1	
C182	ECEA50MR47	0.47 MFD 50WV Electrolytic	1	
C183	ECEA50MR22	0.22 MFD 50WV Electrolytic	1	
C240	ECEA50V1L	1 MFD 50WV Electrolytic	1	
C241	ECEA50V1L	1 MFD 50WV Electrolytic	1	
C242	YECCD12104M	0.1 MFD 12WV ±20% Ceramic	1	
C243	ECEA50V1L	1 MFD 50WV Electrolytic	1	
C244	ECSF35ER1	0.1 MFD 35WV Tantalum	1	
C245	YECQN1H333M	0.033 MFD 50WV ±20% Polyester	1	
C250	ECEA50V1L	1 MFD 50WV Electrolytic	1	

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
C251	ECEA10V47L	47 MFD 10WV Electrolytic	1	
C252	ECEA16V100L	100 MFD 16WV Electrolytic	1	
C254	ECEA10V47L	47 MFD 10WV Electrolytic	1	
C255	ECEA10V47L	47 MFD 10WV Electrolytic	1	
C256	YECCD12104M	0.1 MFD 12WV ±20% Ceramic	1	
C257	ECEA10V47L	47 MFD 10WV Electrolytic	1	
C258	ECEA16V10L	10 MFD 16WV Electrolytic	1	
C259	ECEA50V1L	1 MFD 50WV Electrolytic	1	
C340	ECEA50V1L	1 MFD 50WV Electrolytic	1	
C341	ECEA50V1L	1 MFD 50WV Electrolytic	1	
C342	YECCD12104M	0.1 MFD 12WV ±20% Ceramic	1	
C343	ECEA50V1L	1 MFD 50WV Electrolytic	1	
C344	ECSF35ER1	0.1 MFD 35WV Tantalum	1	
C345	YECQN1H333M	0.033 MFD 50WV ±20% Polyester	1	
C350	ECEA50V1L	1 MFD 50WV Electrolytic	1	
C351	ECEA10V47L	47 MFD 10WV Electrolytic	1	
C352	ECEA16V100L	100 MFD 16WV Electrolytic	1	
C354	ECEA10V47L	47 MFD 10WV Electrolytic	1	
C355	ECEA10V47L	47 MFD 10WV Electrolytic	1	
C356	YECCD12104M	0.1 MFD 12WV ±20% Ceramic	1	
C357	ECEA10V47L	47 MFD 10WV Electrolytic	1	
C358	ECEA16V10L	10 MFD 16WV Electrolytic	1	
C359	ECEA50V1L	1 MFD 50WV Electrolytic	1	
C701	YECCL510355	1000 PF Feedthrough	1	
C702	ECEA16V1000Z	1000 MFD 16WV Electrolytic	1	
C703	ECEA16V1000Z	1000 MFD 16WV Electrolytic	1	
C704	ECEA16V330L	330 MFD 16WV Electrolytic	1	
C705	ECEA16V100L	100 MFD 16WV Electrolytic	1	
C706	ECEA16V100L	100 MFD 16WV Electrolytic	1	
C707	ECEA10V100L	100 MFD 10WV Electrolytic	1	
C708	ECEA10V220L	220 MFD 10WV Electrolytic	1	
C710	ECEA10V47L	47 MFD 10WV Electrolytic	1	
C711	ECEA16V10L	10 MFD 16WV Electrolytic	1	
C712	ECEA10V100L	100 MFD 10WV Electrolytic	1	
C715	ECEA10V100L	100 MFD 10WV Electrolytic	1	
C719	YECQN1H103M	0.01 MFD 50WV ±20% Polyester	1	
C720	YECKD05103Z	0.01 MFD 50WV +80, −20% Ceramic	1	
C721	YECKD05103Z	0.01 MFD 50WV +80, −20% Ceramic	1	

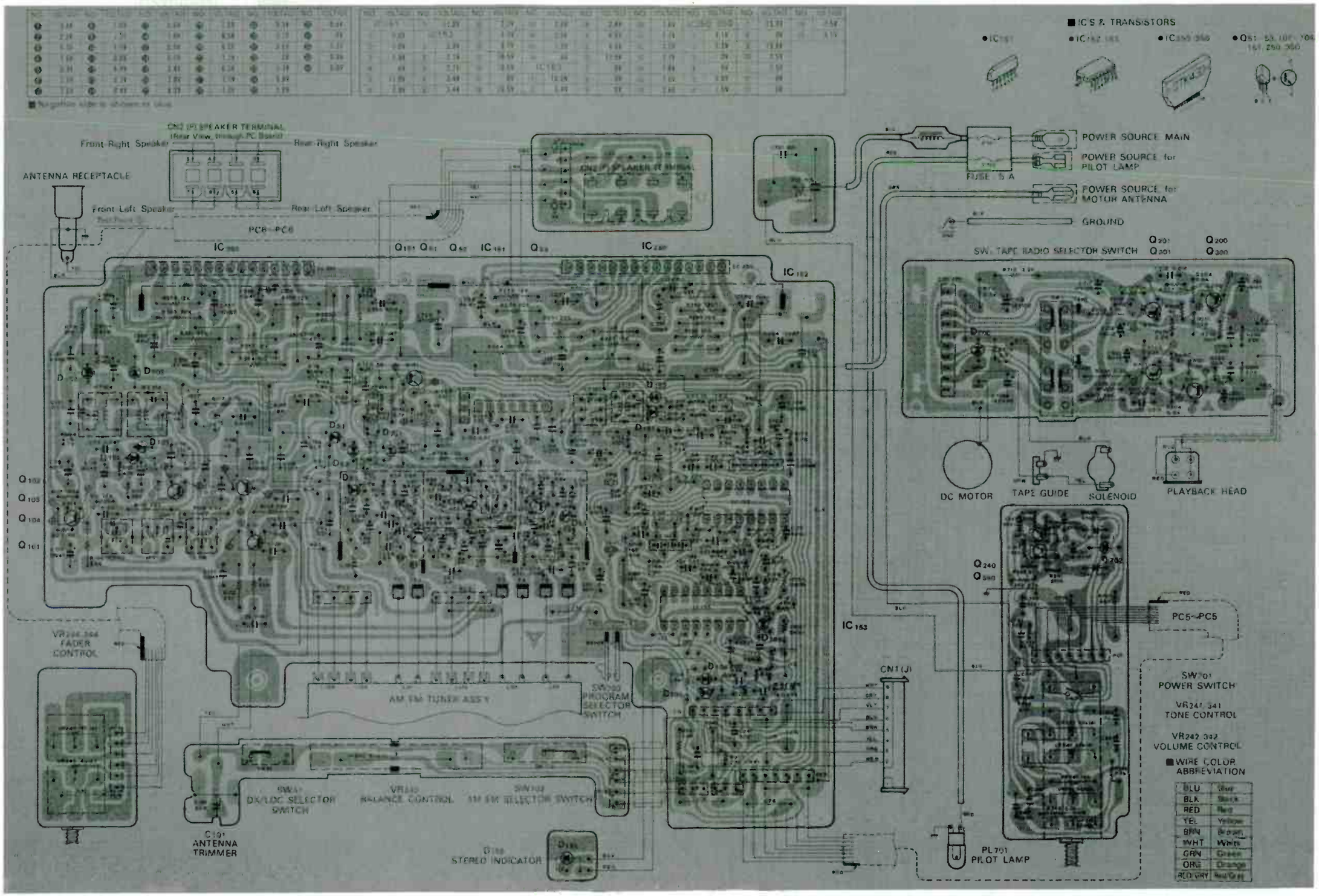
PRE AMP BLOCK

C200	YECQN1H102K	0.001 MFD	50WV	±10%	Polyester	1	
C201	ECEA16V10L	10 MFD	16WV		Electrolytic	1	
C202	ECEA16V10L	10 MFD	16WV		Electrolytic	1	
C203	YECQN1H153M	0.015 MFD	50WV	±20%	Polyester	1	
C300	YECQN1H102K	0.001 MFD	50WV	±10%	Polyester	1	
C301	ECEA16V10L	10 MFD	16WV		Electrolytic	1	
C302	ECEA16V10L	10 MFD	16WV		Electrolytic	1	
C303	YECQN1H153M	0.015 MFD	50WV	±20%	Polyester	1	
C716	ECEA16V100L	100 MFD	16WV		Electrolytic	1	
C717	ECEA10V100L	100 MFD	10WV		Electrolytic	1	
C718	ECEA16V220L	220 MFD	16WV		Electrolytic	1	

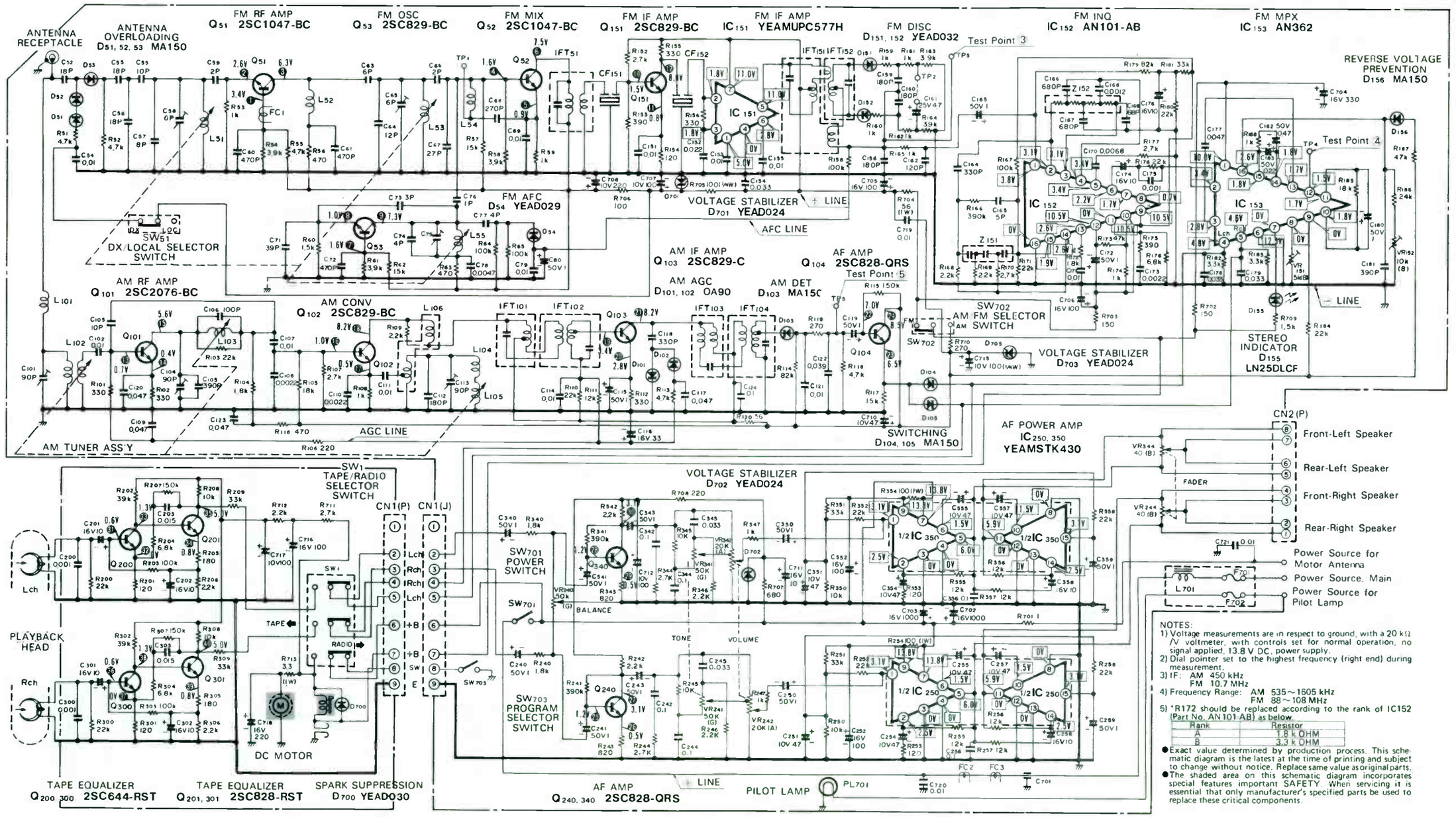
RESISTORS

RADIO BLOCK

R51	ERD18TJ472	4.7k OHM	1/8W	±5%	Carbon	1	
R52	ERD18VJ472	4.7k OHM	1/8W	±5%	Carbon	1	
R53	ERD18VJ102	1k OHM	1/8W	±5%	Carbon	1	
R54	ERD18VJ392	3.9k OHM	1/8W	±5%	Carbon	1	
R55	ERD18VJ472	4.7k OHM	1/8W	±5%	Carbon	1	
R56	ERD18VJ471	470 OHM	1/8W	±5%	Carbon	1	
R57	ERD18VJ153	15k OHM	1/8W	±5%	Carbon	1	
R58	ERD18VJ392	3.9k OHM	1/8W	±5%	Carbon	1	
R59	ERD18VJ102	1k OHM	1/8W	±5%	Carbon	1	



SCHEMATIC DIAGRAM MODELS CQ-3988EU/EC, 3989EU



NOTES:
1) Voltage measurements are in respect to ground, with a 20 kΩ /V voltmeter, with controls set for normal operation, no signal applied. 13.8 V DC, power supply.
2) Dial pointer set to the highest frequency (right end) during measurement.
3) IF: AM 450 kHz
FM 10.7 MHz
4) Frequency Range: AM 535~1605 kHz
FM 88~108 MHz
5) *R172 should be replaced according to the rank of IC152 (Part No. AN101AB) as below.

Rank	Resistor
A	1.8 k OHM
B	3.3 k OHM

- Exact value determined by production process. This schematic diagram is the latest at the time of printing and subject to change without notice. Replace same value as original parts.
- The shaded area on this schematic diagram incorporates special features important SAFETY. When servicing it is essential that only manufacturer's specified parts be used to replace these critical components.

R	51 52 202 102 208 53 54 55 56 109 57 58 59 152 155 113 156 120 347 119 159 161 163 168 170 167 179 181 188 187 201 204 207 205 103 209 104 118 105 60 61 62 63 64 65 110 111 706 153 157 708 705 347 247 351 158 160 162 164 166 356 171 172 173 177 178 180 183 185 203 307 308 206 106 107 108 340 341 112 154 346 345 114 350 165 354 710 169 357 703 174 175 176 702 182 709 184 186 200 101 302 304 305 309 712 711 240 241 242 342 344 245 247 707 251 116 352 117 704 353 355 256 701 358 300 301 303 306 713 243 343 244 246 250 252 253 254 255 257 258
C	52 53 55 58 59 63 65 60 68 117 152 158 159 164 163 165 166 167 168 169 176 177 183 182 704 54 103 56 57 104 106 60 107 71 61 64 73 67 76 69 708 151 707 342 153 154 155 705 160 161 171 170 174 175 101 102 108 72 74 75 78 77 79 80 343 118 344 345 711 121 122 119 710 719 162 355 715 357 358 706 172 173 178 179 721 180 200 201 120 109 203 202 105 123 717 716 110 111 112 113 340 341 115 116 712 242 245 350 351 352 354 703 702 356 257 258 706 359 181 300 301 303 302 718 240 114 241 243 244 250 251 252 254 720 255 256 259

Ref. No.	Part No.	Part Name & Description		Pcs Set	Remarks
VARIABLE CAPACITORS					
C58, 65	ECV1ZW06X32	6 PF	Trimmer	2	
C75	YECTAT1397	50 PF	Trimmer	1	
C101, 104, 113	YECTT1090	90 PF	Trimmer	3	
VARIABLE RESISTORS					
VR151	EVNJ0AA00B53	5k OHM (B)	Semi-fixed	1	
VR152	EVNJ0AA00B14	10k OHM (B)	Semi-fixed	1	
VR240	EVAHH1S10G54	50k OHM (G)	Balance Control	1	
VR241, 341	EWKPUBS09908	20k OHM (A)	Volume Control	1	
242, 342		50k OHM (G)	Tone Control		
w/SW701			with Power Switch		
VR244, 344	EVMXXAS43BB1	40 OHM (B)	Fader Control	1	
COILS, TRANSFORMERS AND CERAMIC FILTERS					
L52	YELT04C5R6K	FM RF Coil		1	
L54	YELT03C011	FM RF Coil		1	
L101	YELT04C8R2K	Loading Coil		1	
L104	YELT06N5R6	AM RF Coil		1	
L106	YELL07S069	AM OSC Coil		1	
IFT51	YEIF07S7049	FM IFT		1	
IFT101	YEIA07S7076A	AM IFT		1	
IFT102	YEIA07S7077B	AM IFT		1	
IFT103	YEIA10S7091	AM IFT		1	
IFT104	YEIA10S7092	AM IFT		1	

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
IFT151	YEIF07S7048	FM IFT	1	
IFT152	YEIF07S7047	FM IFT	1	
CF151, 152	YEIN09N5007	Ceramic Filter	2	
FC, FC2, 3	YEAZQ5BRH002	Ferrite Core	3	
SWITCHES				
SW51	YEAS07060	DX/Local Selector Switch	1	
SW702	YEAS07059	AM/FM Selector Switch	1	
SW1	YEAS07063	Tape/Radio Selector Switch	1	
SW703	YEAS23115	Program Selector Switch	1	
COMPONENT COMBINATIONS				
Z151	EXF3SM03	Capacitor Block, 330 PF x 3	1	
Z152	EXBS84472K	Resistor Block, 4.7k OHM x 4	1	
TUNER				
M50	YEAU05262A	Tuner Ass'y	1	
M50-1	YEFE10242A	Push Button	5	

4. ADJUSTMENT

4.1 FM IF ADJUSTMENT

• Connection Diagram

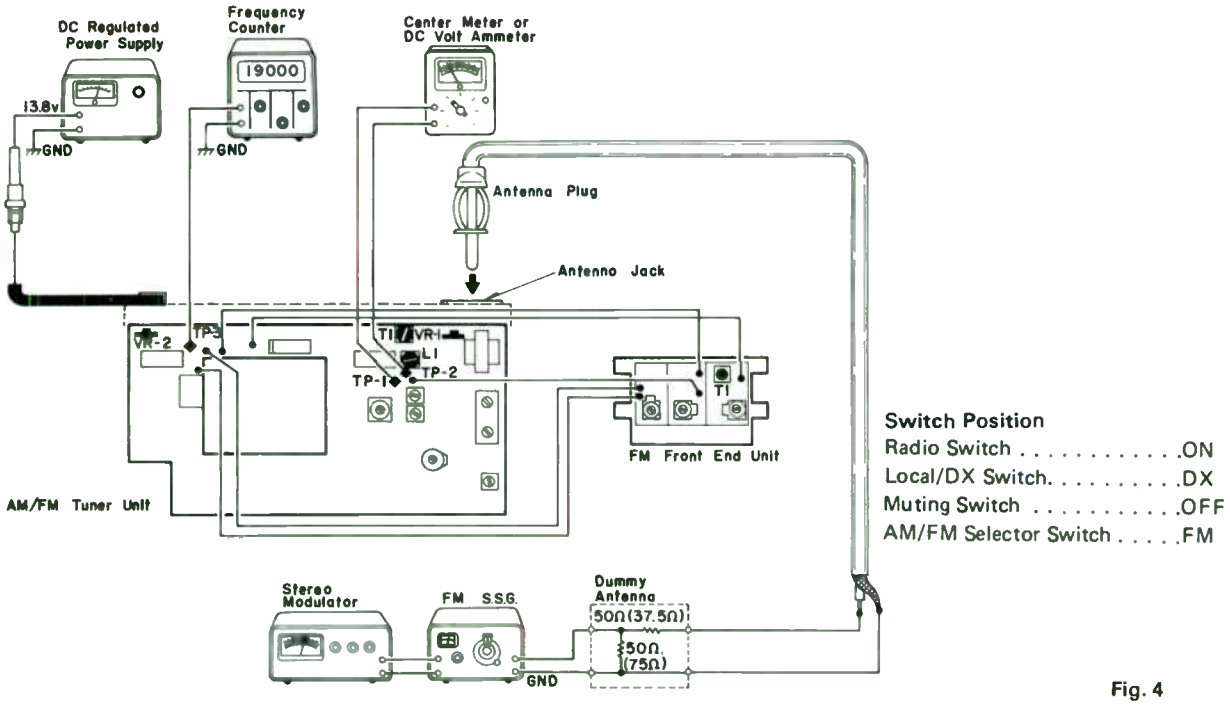


Fig. 4

• To Adjust

1. Add output signal of 0dB from SSG and adjust T1 (orange color) so that the pointer of center meter (use one graduated for over 200 μA), will come to the center. When using a DC volt ammeter (use one graduated for over 200 μA), set the pointer to 0.
2. Add output signal of 98MHz 60dB from SSG and tune to 98MHz on the dial (the pointer of the center meter is at the center).
3. Add output signal of 5dB from SSG and adjust T1(front end) so that the output will become maximum.
4. Add output signal of 0dB from SSG, adjust T1 (orange color) so that the pointer of the center meter is at the center.

Note: When adjusting, do not move L1 (green color)

4.2 STEREO LIGHTING LEVEL ADJUSTMENT

• Connection Diagram

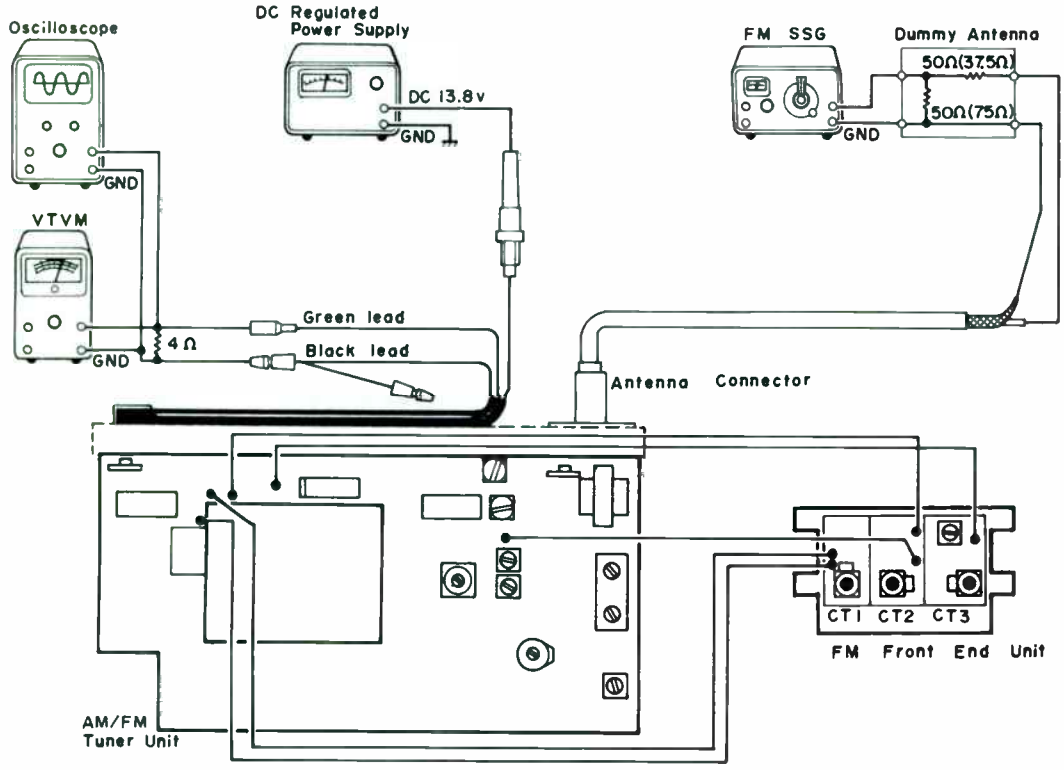
Connect as shown in Fig. 4. Set the position of the switch as well.

• To Adjust

1. Add unmodulated signal of 60 dB from SSG and adjust VR2 so that the frequency counter will indicate 19kHz ± 20Hz (any tuning position will do).
2. Add 98MHz output 20dB from SSG and multi-signal of modulated frequency 1,000Hz of stereo modulator. Adjust VR1 so that the stereo indicator will light up. Slowly turn VR1 and set it at the position just before the stereo indicator will go out.
3. Gradually lower SSG output signal from 60dB and check if the stereo indicator is lighting at the range between 27 and 32dB.

4.3 FM TRACKING ADJUSTMENT

• Connection Diagram



Switch Position

Radio Switch . . . . . .ON
Local/DX Switch. . . . . .DX
Muting Switch . . . . . .OFF
AM/FM Selector Switch . . . . .FM

Fig. 5

• To Adjust

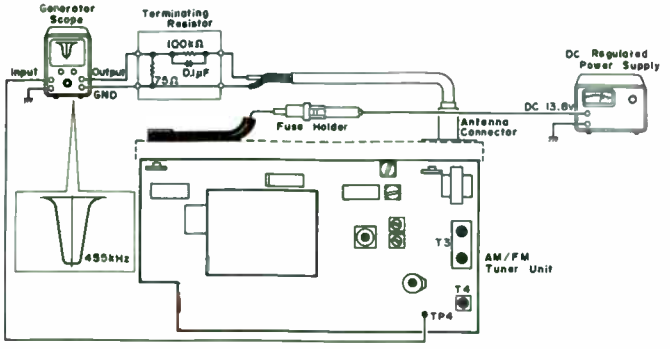
Modulation frequency of FM S.S.G.: 400Hz, Modulation percentage: 100%

SSG frequency	Pointer position	Adjustment point	Notes
1. 108.5MHz output level 8dB	Maximum	CT3	108.5MHz can be received.
2. 87.2MHz output level 8dB	Minimum	None	Check if 87.2MHz can be received.
3. 98MHz output level 5dB	Tuned position	CT1, CT2	Maximum output

ADJUSTMENT

4.4 AM IF ADJUSTMENT

● **Connection Diagram**



Switch Position
Radio Switch ..... ON
AM/FM Selector Switch ..... AM

Fig. 6

● **To Adjust**

1. Set Generator scope as follows:
   Frequency centering on sweep 455kHz
   Input gain 0.3Vp-p/cm
   Output level ..... 3mV ~ 10mV
2. Turn the cores (red and blue) of T3 and T4 adjust so that U-curve will be at maximum amplitude and best symmetry.

4.5 AM RF ADJUSTMENT

● **Connection Diagram**

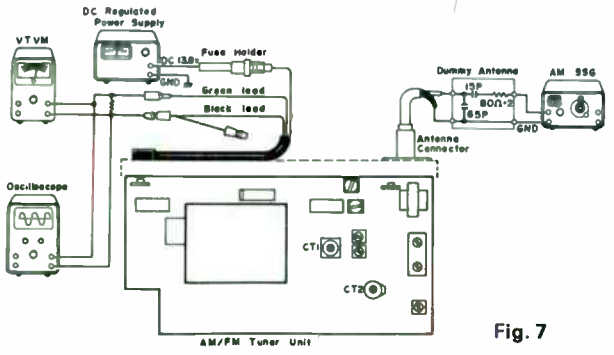


Fig. 7

Switch Position
Radio Switch ..... ON
AM/FM Selector Switch ..... AM

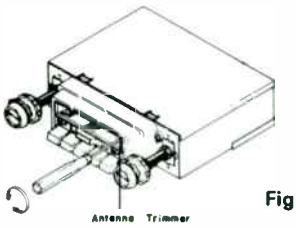


Fig. 8

● **To Adjust**

Modulation frequency of AM S.S.G.: 400Hz, Modulation percentage: 30%

SSG frequency	Pointer position	Adjustment point	Notes
1. 1,620 kHz output level 20dB	Maximum	CT2 (OSC)	1,620 ± 10kHz can be received.
2. 520 kHz output level 20 dB	Minimum	None	Check if 520 ± 5kHz can be received.
3. 1,000 kHz output level 20 dB	Tuned position	CT1 (antenna trimmer)	Maximum output
4. 1,000 kHz output level 20 dB	Tuned position	CT1 (RF)	Maximum output

6. AM/FM TUNER UNIT (CWE-204)

- Parts Connection

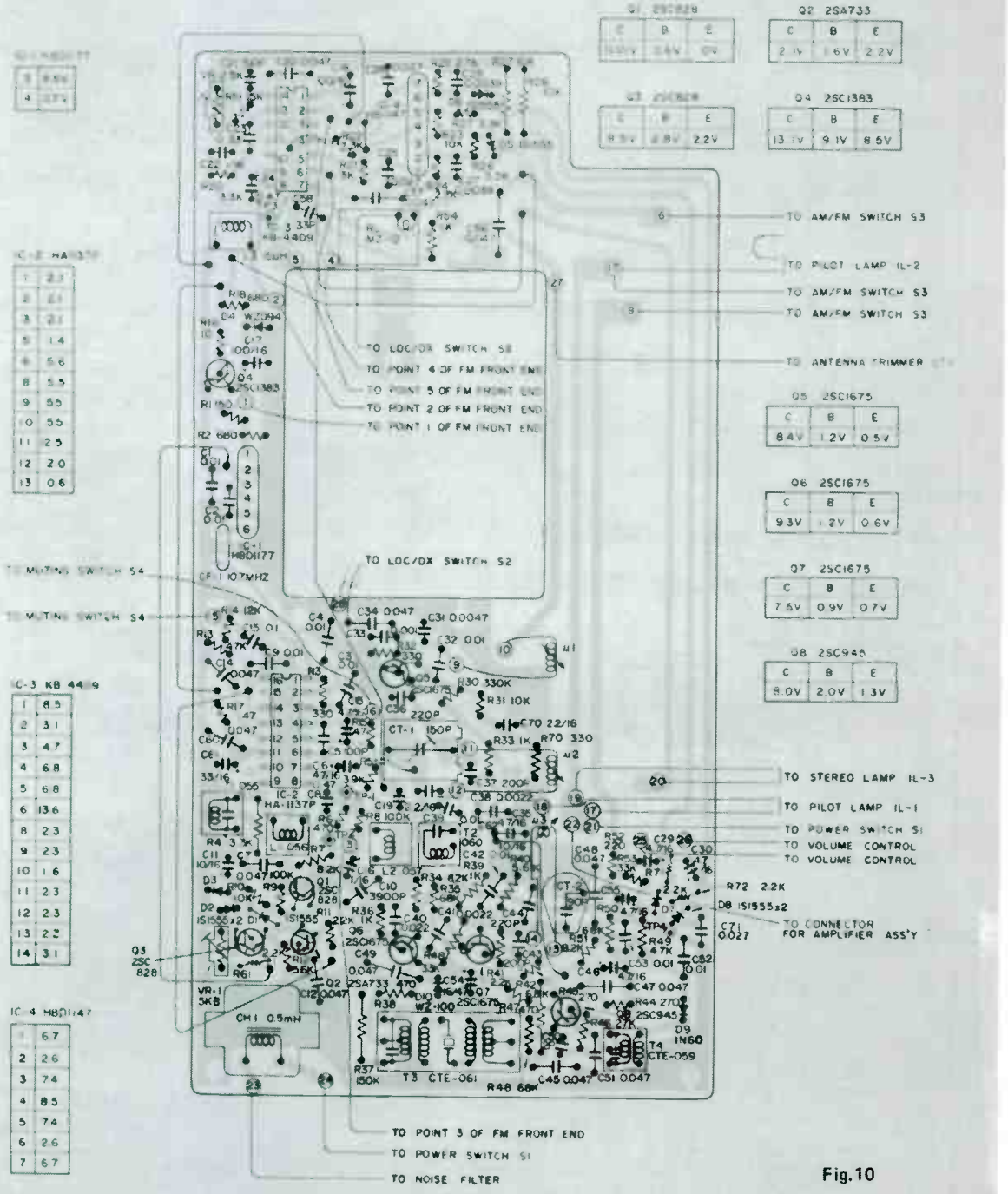


Fig.10

AM/FM TUNER UNIT (CWE-204)

• 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 **NOTE: IC 1 and CF1 should be same tint each other.**

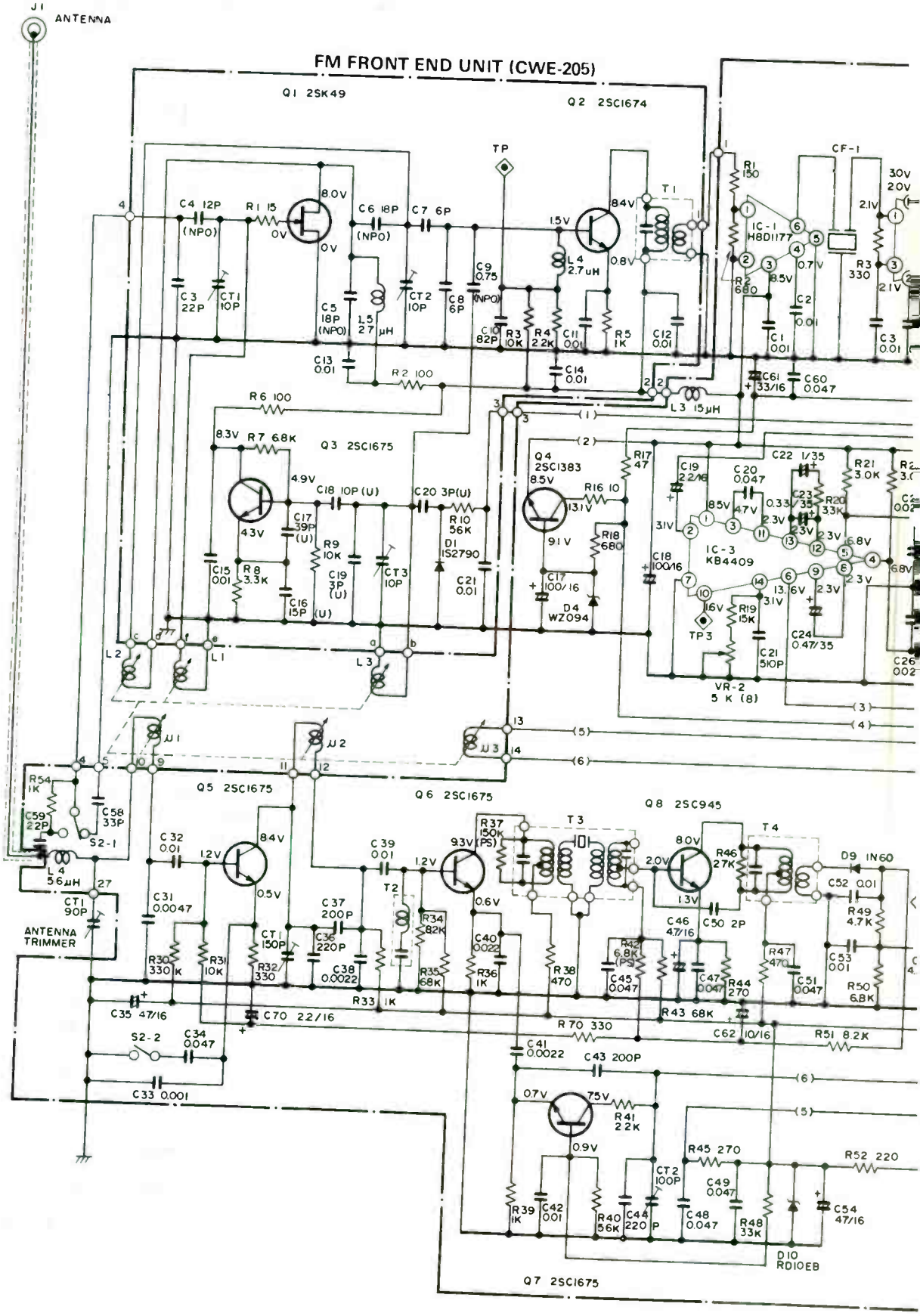
Ref. Key	Parts No.	Description	Notes
IC1	H8D1177	IC	Black, Blue, Red, Orange, White
IC2	HA1137P	IC	
IC3	KB4409	IC	
IC4	H8D1147	IC	
Q1	2SC828-P, Q, R	Transistor	
Q2	2SA733-P, Q, R	Transistor	
Q3	2SC828-P, Q, R	Transistor	
Q4	2SC1383-B, C	Transistor	
Q5	2SC1675-M	Transistor	
Q6	2SC1675-M	Transistor	
Q7	2SC1675-M	Transistor	
Q8	2SC945-R	Transistor	
D2	1S1555	Diode	
D3	1S1555	Diode	
D4	WZ-094	Diode	
D5	1S1555	Diode	
D6	1S1555	Diode	
D7	1S1555	Diode	
D8	1S1555	Diode	
D9	1N60	Diode	
D10	WZ-100	Diode	
CT1	CCG-027	Ceramic Trimmer 150 pF	
CT2	CCG-022	Ceramic Trimmer 80 pF	
CF1	CTF-040	Ceramic Filter	Black, Blue, Red, Orange, White
L1	CTC-056	IF Transformer (Green)	FM DET.
L2	CTC-057	Coil	
L3	CTF-068	RF Coil 15 μH	
L4	CTF-069	Ferri-inductor 5.6 μH	
T1	CTC-055	IF Transformer (Orange)	FM DET.
T2	CTE-060	Coil	
T3	CTE-023	IF Transformer	AM Coupler
T4	CTE-059	IF Transformer	AM DET.
VR1	CCP-048	Semi-Variable Resistor	
VR2	CCP-048	Semi-Variable Resistor	
CH	CTH-036	Choke Coil 0.5 mH	
RL	CSR-041	Relay MZ-12	

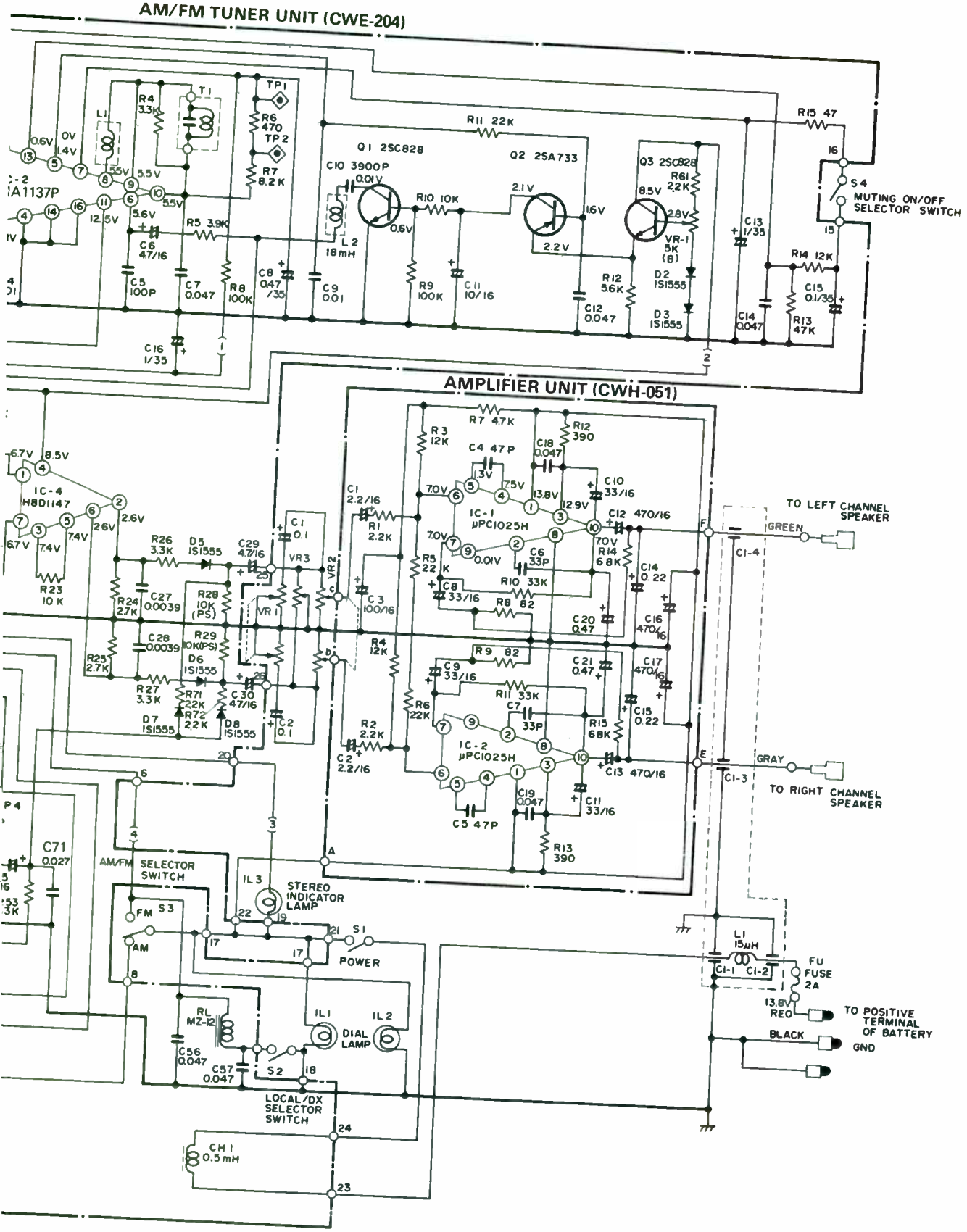
CAPACITORS

Ref. Key	Parts No.	Description		
C1	CKDYF103Z25	Capacitor	0.01 μF	25V
C2	CKDYF103Z25	Capacitor	0.01 μF	25V
C3	CKDYF103Z25	Capacitor	0.01 μF	25V
C4	CKDYF103Z25	Capacitor	0.01 μF	25V
C5	CCDSL101K50	Capacitor	100 pF	50V
C6	CEA4R7P16	Capacitor	4.7 μF	16V
C7	CKDYF473Z25	Capacitor	0.047 μF	25V
C8	CEAR47P35	Capacitor	0.47 μF	35V
C9	CKDYF103Z25	Capacitor	0.01 μF	25V
C10	CQSA392J50	Capacitor	3900 pF	50V

AM/FM TUNER UNIT (CWE-204)

Ref. Key	Parts No.	Description		
C11	CEA100P16	Capacitor	10 μF	16V
C12	CKDYF473Z25	Capacitor	0.047 μF	25V
C13	CEA010P35	Capacitor	1 μF	35V
C14	CKDYF473Z25	Capacitor	0.047 μF	25V
C15	CSZA0R1M35	Capacitor	0.1 μF	35V
C16	CEA010P35	Capacitor	1 μF	35V
C17	CEA101P16	Capacitor	100 μF	16V
C18	CEA101P16	Capacitor	100 μF	16V
C19	CEA2R2P16	Capacitor	2.2 μF	16V
C20	CQMA473K50	Capacitor	0.047 μF	50V
C21	CQSA511J50	Capacitor	510 pF	50V
C22	CEA010P35	Capacitor	1 μF	35V
C23	CSZAR33M35	Capacitor	0.33 μF	35V
C24	CEAR47P35	Capacitor	0.47 μF	35V
C25	CQMA273K50	Capacitor	0.027 μF	50V
C26	CQMA273K50	Capacitor	0.027 μF	50V
C27	CQMA392K50	Capacitor	3900 pF	50V
C28	CQMA392K50	Capacitor	3900 pF	50V
C29	CEA4R7P16	Capacitor	4.7 μF	16V
C30	CEA4R7P16	Capacitor	4.7 μF	16V
C31	CQMA472K50	Capacitor	4700 pF	50V
C32	CKDYF103Z25	Capacitor	0.01 μF	25V
C33	CQMA102K50	Capacitor	1000 pF	50V
C34	CQMA473K50	Capacitor	0.047 μF	50V
C35	CEA470P16	Capacitor	47 μF	16V
C36	CQSA221J50	Capacitor	220 pF	50V
C37	CQSA201J50	Capacitor	200 pF	50V
C38	CQMA222K50	Capacitor	2200 pF	50V
C39	CQMA103K50	Capacitor	0.01 μF	50V
C40	CQMA223K50	Capacitor	0.022 μF	50V
C41	CQMA222K50	Capacitor	2200 pF	50V
C42	CQMA103K50	Capacitor	0.01 μF	50V
C43	CQSA201J50	Capacitor	200 pF	50V
C44	CQSA221J50	Capacitor	220 pF	50V
C45	CKDYF473Z25	Capacitor	0.047 μF	25V
C46	CEA4R7P16	Capacitor	4.7 μF	16V
C47	CKDYF473Z25	Capacitor	0.047 μF	25V
C48	CKDYF473Z25	Capacitor	0.047 μF	25V
C49	CKDYF473Z25	Capacitor	0.047 μF	25V
C50	CCDSL020C50	Capacitor	2 pF	50V
C51	CKDYF473Z25	Capacitor	0.047 μF	25V
C52	CQMA103K50	Capacitor	0.01 μF	50V
C53	CQMA103K50	Capacitor	0.01 μF	50V
C54	CEA470P16	Capacitor	47 μF	16V
C55	CEA4R7P16	Capacitor	4.7 μF	16V
C56	CKDYF473Z25	Capacitor	0.047 μF	25V
C57	CKDYF473Z25	Capacitor	0.047 μF	25V
C58	CCDSL330K50	Capacitor	33 pF	50V
C59	CCDSL220K50	Capacitor	22 pF	50V
C60	CKDYF473Z25	Capacitor	0.047 μF	25V
C61	CEA330P16	Capacitor	33 μF	16V
C62	CEA100P16	Capacitor	10 μF	16V
C70	CEA2R2P16	Capacitor	2.2 μF	16V
C71	CQMA273K50	Capacitor	0.027 μF	50V





ALIGNMENT INSTRUCTIONS

Alignment was performed at factory with laboratory test equipment. Therefore, before attempting re-alignment, the set should be thoroughly checked prior to proceeding with alignment.

1. Check specified voltage (DC 13.8V) and source polarity.
2. Non-metallic tools must be used especially for the IF and RF section alignment.
3. Signal input must be kept as low as possible to avoid over-load and clipping (use highest possible sensitivity of output indicator).
4. Set Function switch to band being aligned.
5. Use AM dummy antenna/FM dummy antenna as shown in Figure 1/4.
6. TP (test point) locations are shown in wiring Diagram and Schematic Diagram.
7. Standard modulation is 1 kHz at 30% amplitude for AM (1 kHz at 22.5 kHz deviation for FM).

AM SECTION

NOTE: 1) Controls: Volume control ..... Maximum position
Tone control ..... Off (HI) position

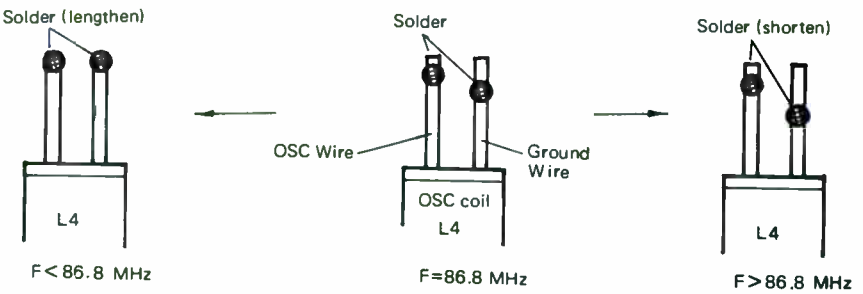
2) Reduce the output of Signal Generator to keep 500mW (8 ohm load) at Speaker output.

Circuit Alignment	Equipment Connection	Step	Gen. Freq.	Dial Setting	Adjustments
IF	AM Signal Generator through a dummy to Antenna TP1 and ground. Output meter across 8 ohm load. (See Figure 1)	1	455 kHz	Low end of dial (Quiet point on band).	T6, 7, 8, 9 Adjust for maximum output.
		2			Repeat until no further improvement can be made.
455 kHz TRAP	AM Signal Generator through a dummy to Antenna TP1 and ground. Output meter across 8 ohm load. (See Figure 1)	3	455 kHz (1kHz 30% Mod.)	Low end of dial.	L8 (Trap coil) Adjust for minimum output.
BAND	Connect Signal Generator through a dummy to the Antenna TP 1 and Ground. Output meter across 8 ohm load. (See Figure 1)	4	515 kHz (1kHz 30% Mod.)	Low end of dial.	L11 (Osc coil) Adjust for maximum output.
		5	1650 kHz (30% Mod.)	High end of dial.	TC5 (OSC trimmer) Adjust for maximum output. Repeat steps 4 and 5.
TRACKING	Same as "BAND"		1400 kHz (1kHz 30% Mod.)	1400 kHz (Tune to Signal)	TC3, 4 Adjust for Maximum output.

FM SECTION

NOTE: 1) Controls: Volume control ..... Maximum position (Steps 1 ~ 3)
Adjust to keep 500mW output (Steps 4 ~ 6)
Tone control ..... HI position

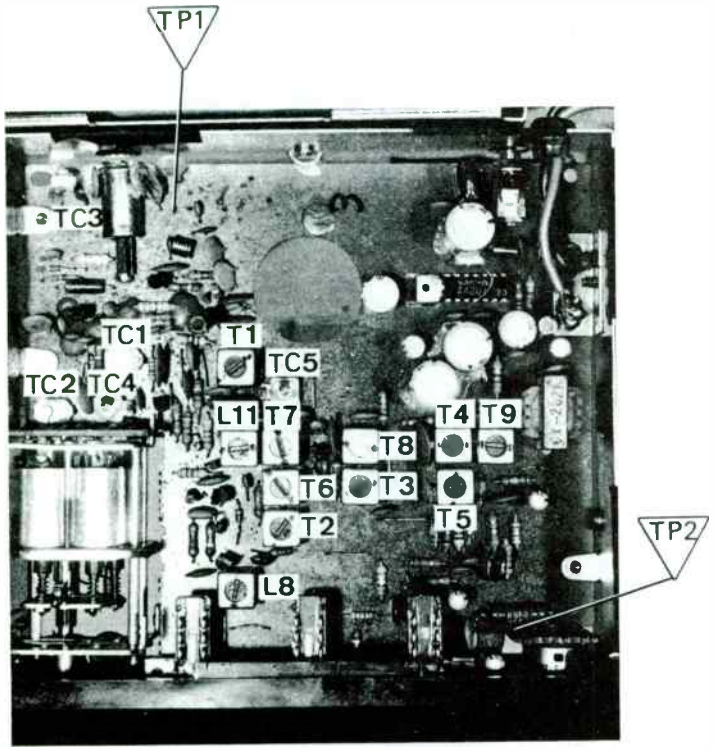
2) Adjustment at the low-end normally will only be needed if L-4 is replaced. Otherwise, you need only check the low-end tracking (86.8 MHz). Low-end tracking can be adjusted as follows:

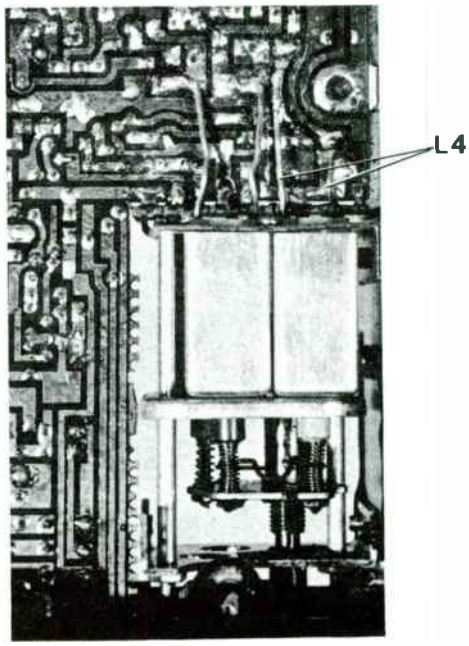


Low-end tracking can be shifted by moving the solder connection point of L-4. Lengthen the lead-connection if low-end tracking point is below 86.8; shorten the connection point if the low-end tracking is above 86.8. While repairing or aligning the unit, do not touch or move this Osc. wire unless it is necessary.

Circuit Alignment	Equipment connection	Step	Fen. Freq.	Dial Setting	Adjustments
IF	IF Sweep Generator Marker Generator to ANT Terminal TP1 and Ground. Oscilloscope from TP2 to Ground (See Figure 2.)	1	10.7MHz	Quiet point on band	T1, 2, 3, 4 Adjust for maximum amplitude.
		2	10.7MHz	Same as step 1.	T5 Adjust for maximum symmetrical response as shown in Figure 3.
		3			Repeat steps 1 and 2 to assure optimum IF response. (See Figure 3)
LOCAL OSCILLATOR (BAND)	Connect Signal Generator through a dummy to TP1 and ground. Output meter across 8 ohm load. (See Figure 4)	4	109MHz (1kHz, 22.5 kHz Deviation)	High end of dial	TC2 (FM Osc coil) Adjust for maximum output.
		5	86.8MHz (1 kHz, 22.5 kHz Deviation)	Low end of dial.	Confirm low-end tracking (typically there will be no need for adjustment) Refer to "NOTE 2"
TRACKING	Same as "BAND"	6	104MHz (1 kHz, 22.5 kHz Deviation)	104MHz (Tune to Signal)	TC1 (RF Trimmer) Adjust for maximum output.

ALIGNMENT POINTS





EQUIPMENT CONNECTIONS

FIGURE 1. AM IF/BAND/TRACKING

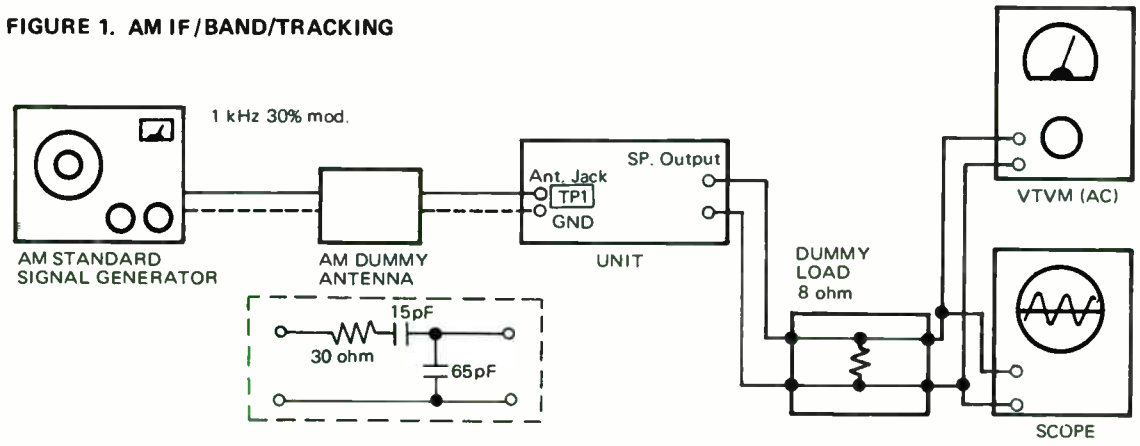


FIGURE 2. FM IF

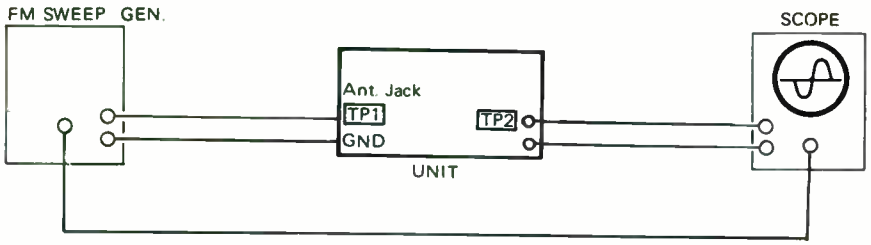


FIGURE 3. FM IF WAVEFORM

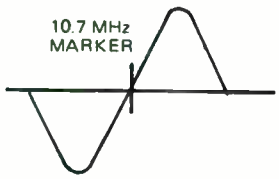
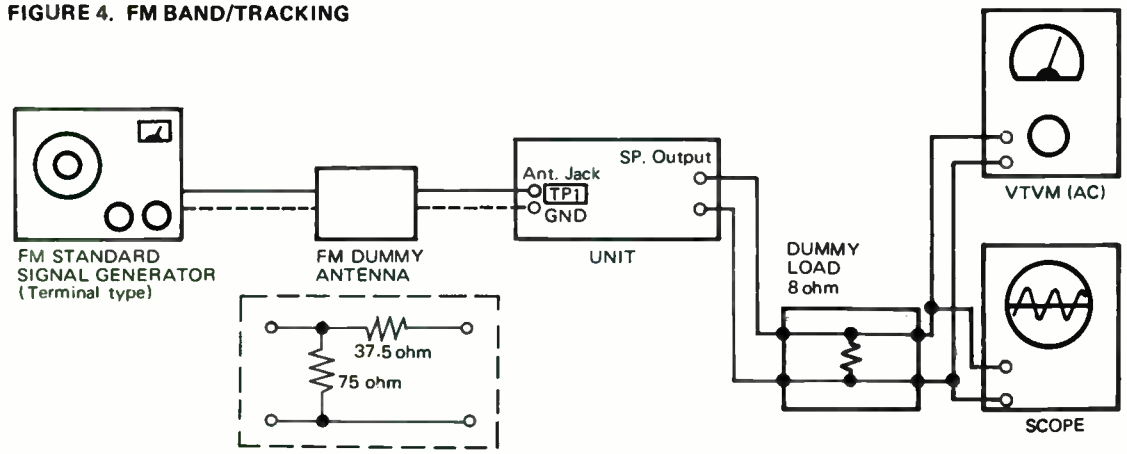


FIGURE 4. FM BAND/TRACKING



REPLACEMENT PARTS LIST

ELECTRICAL PARTS

NOTE: 1) TOLERANCE: C = ±0.25pF, D = ±0.5pF, J = ±5%, K = ±10%, M = ±20%, P = +100–0%, Z = +80–20%.
2) RESISTORS : All fixed resistors are 1/4W, J (±5%) tolerance, unless otherwise noted.

Ref. No.	Description		RS. No.	Mfr. No.
	CAPACITORS			
C1	Ceramic	0.022μF/50V, Z	C223ZJ-CP	12G3223
C2	Ceramic	0.022μF/50V, Z	C223ZJ-CP	12G3223
C3	Ceramic	0.022μF/50V, Z	C223ZJ-CP	12G3223
C4	Ceramic	15pF/50V, K	C150KJ-CP	1271150
C5	Ceramic	25pF/50V, K	C250KJ-CP	1271250
C6	Ceramic	25pF/50V, K	C250KJ-CP	1271250
C7	Ceramic	0.0047μF/50V, P	CH72PJ-CP	12E3472
C8	Ceramic	10pF/50V, D	C100DJ-CP	1270100
C9	Ceramic	3pF/50V, D	C030DJ-CP	1271309
C10	Ceramic	22pF/50V, K	C220KJ-CP	1271220
C11	Ceramic	330pF/50V, K	C331KJ-CP	1271331
C12	Ceramic	0.0047μF/50V, P	CH72PJ-CP	12E3472
C13	Ceramic	5pF/50V, C	C050CJ-CP	1270509
C14	Ceramic	10pF/50V, D	C100DJ-CP	1270100
C15	Ceramic	10pF/50V, D	C100DJ-CP	1270100
C16	Ceramic	22pF/50V, K	C220KJ-CP	1271220
C17	Ceramic	8pF/50V, D	C080DJ-CP	1270809
C18	Ceramic	3pF/50V, D	C030DJ-CP	1271309
C19	Ceramic	0.022μF/50V, Z	C223ZJ-CP	12G3223
C20	Ceramic	0.022μF/50V, Z	C223ZJ-CP	12G3223
C21	Ceramic	0.022μF/50V, Z	C223ZJ-CP	12G3223
C22	Ceramic	0.047μF/50V, Z	CH73ZJ-CP	12G3473
C23	Ceramic	0.022μF/50V, Z	C223ZJ-CP	12G3223
C24	Ceramic	0.022μF/50V, Z	C223ZJ-CP	12G3223
C25	Ceramic	0.022μF/50V, Z	C223ZJ-CP	12G3223
C26	Mylar	0.01μF/50V, M	C103MJ-MP	1252103
C27	Ceramic	0.001μF/50V, K	C102RJ-CP	12D3102
C28	Ceramic	0-0.5pF/50V, D		1271001-5
C29	Ceramic	0.022μF/50V, Z	C223ZJ-CP	12G3223
C30	Ceramic	0.022μF/50V, Z	C223ZJ-CP	12G3223
C31	Ceramic	120pF/50V, K	C121KJ-CP	1271121
C32	Ceramic	0.0022μF/50V, M	C222MJ-CP	12D3222
C33	Ceramic	0.022μF/50V, Z		12G3223
C34	Mica	230pF/50V, J	C231JJ-MP	1241231
C35	Ceramic	3pF/50V, D	C030DJ-CP	1271309
C36	Ceramic	0.022μF/50V, Z	C223ZJ-CP	12G3223
C37	Ceramic	1pF/50V, D	C010DJ-CP	1271109
C38	Ceramic	1pF/50V, D	C010DJ-CP	1271109
C39	Ceramic	0.047μF/50V, Z	C473ZJ-CP	12G3473
C40	Ceramic	0.022μF/50V, Z	C223ZJ-CP	12G3223
C41	Ceramic	0.0022μF/50V, M	C222MJ-CP	12D3222
C42	Ceramic	1pF/50V, D	C010DJ-CP	1271109
C43	Ceramic	0.047μF/50V, Z	C473ZJ-CP	12G3473
C44	Electrolytic	4.7μF/16V	C475QD-AP	1203475
C45	Ceramic	0.001μF/50V, K	C102KJ-CP	12D3102
C46	Ceramic	0.001μF/50V, K	C102KJ-CP	12D3102
C47	Mylar	0.0056μF/50V, M	C562MJ-MP	1252562
C48	Ceramic	0.01μF/50V, M	C103MJ-CP	12D3103
C49	Mylar	0.033μF/50V, M	C333MJ-MP	1252333
C50	Mylar	0.022μF/50V, M	C223MJ-MP	1252223
C51	Ceramic	0.01μF/50V, M	C103MJ-CP	12D3103
C52	Ceramic	0.047μF/50V, Z	C473ZJ-CP	12G3473
C53	Electrolytic	4.7μF/16V,	C475QD-AP	1203475
C54	Electrolytic	4.7μF/16V	C475QD-AP	1203475
C55	Electrolytic	0.47μF/16V	C474QD-AP	1203474

Ref. No.	Description		RS. No.	Mfr. No.
C56	Ceramic	330pF/50V, K	C331KJ-CP	1271331
C57	Electrolytic	33μF/16V,	C336QD-AP	1203336
C58	Electrolytic	220μF/16V,	C227QD-AP	1203227
C59	Ceramic	100pF/50V, K	C101KJ-CP	1271101
C60	Ceramic	0.001μF/50V, K	C102KJ-CP	12D3102
C61	Electrolytic	47μF/16V	C474QD-AP	1203476
C62	Electrolytic	10μF/16V	C104QD-AP	1203106
C63	Mylar	0.15μF/50V, M	C154MJ-MP	1252154
C64	Electrolytic	470μF/16V	C477QD-AP	1203477
C65	Electrolytic	470μF/16V	C477QD-ZPA	1203477
C66	Electrolytic	470μF/16V	C477QD-AP	1203477
C67	Ceramic	0.001μF/50V, K	C102KJ-CP	12D3102
C68	Ceramic	0.001μF/50V, K	C102KJ-CP	12D3102
C69	Feed Thru	1000pF	C-0935	1220167
C70	Feed Thru	1000pF	C-0935	1220167
C71	Ceramic	4pF/50V, C	CD40CJ-CP	1270409
C72	Ceramic	0.01μF/50V, M	C103MJ-CP	12D3103
C73	MP			
	RESISTORS			
R1	Carbon	560 ohm		1321561
R2	Carbon	3.9K ohm		1321392
R3	Carbon	1K ohm		1321102
R4	Carbon	5.6K ohm		1321562
R5	Carbon	680 ohm		1321681
R6	Carbon	150K ohm		1321154
R7 *	Carbon	6.8K ohm or Not used		1321682
R8	Carbon	5.6K ohm		1321562
R9	Carbon	470 ohm		1321471
R10	Carbon	390K ohm		1321394
R11	Carbon	56 ohm		1321560
R12	Carbon	39K ohm		1321393
R13	Carbon	3.9K ohm		1321392
R14	Carbon	680 ohm		1321681
R15	Carbon	330 ohm		1321331
R16	Carbon	330 ohm		1321331
R17	Carbon	560 ohm		1321561
R18	Carbon	220 ohm		1321221
R19	Carbon	3.9K ohm		1321392
R20	Carbon	1K ohm		1321102
R21	Carbon	5.6K ohm		1321562
R22	Carbon	1.5K ohm		1321152
R23	Carbon	27K ohm		1321273
R24	Carbon	390 ohm		1321392
R25	Carbon	56K ohm		1321563
R26	Carbon	15K ohm		1321153
R27	Carbon	470 ohm		1321471
R28	Carbon	1.2K ohm		1321122
R29	Carbon	1.5K ohm		1321152
R30	Carbon	470 ohm		1321471
R31	Carbon	820 ohm		1321821
R32	Carbon	1K ohm		1321102
R33	Carbon	12K ohm		1321123
R34	Carbon	1.2K ohm		1321122
R35	Carbon	12K ohm		1321123
R36	Carbon	10K ohm		1321103

ELECTRICAL PARTS

NOTE: 1) TOLERANCE: C = ±0.25pF, D = ±0.5pF, J = ±5%, K = +10%, M = ±20%, P = +100–0%, Z = +80–20%.
2) RESISTORS : All fixed resistors are 1/4W, J (±5%) tolerance, unless otherwise noted.

Ref. No.	Description	RS. No.	Mfr. No.
R37	Carbon 560 ohm		1321561
R38	Carbon 4.7K ohm		1321472
R39	Carbon 5.6K ohm		1321562
R40	Carbon 15K ohm		1321153
R41	Carbon 5.6K ohm		1321562
R42	Carbon 270K ohm		1321274
R43	Carbon 100K ohm		1321104
R44	Carbon 330 ohm		1321331
R45	Carbon 100K ohm		1321104
R46	Carbon 680 ohm		1321681
R47	Metal Oxide Film 39 ohm, 2W		1323390
R49	Carbon 150 ohm	CB-2021	1321150
	INTEGRATED CIRCUIT		
IC1	IC (Audio)	MX-3219	LA4201
	TRANSISTORS		
Q1	Transistor (Si)	MX-3267	MPS9626F or G
Q2	Transistor (Si)	MX-3267	MPS9626G or H
Q3	Transistor (Si)		MPS9626G or H
Q4	Transistor (Si)	MX-3268	MPS9626E or F
Q5	Transistor (Si)		MPS9626F or G
Q6	Transistor (Si)		MPS9626F or G
Q7	Transistor (Si)		MPS9626E or F
Q8	Transistor (Si)		MPS9626G or H
	DIODES		
D1	Diode (Si) 30V, 150mA	DX-0287	1S2076
D2	Vari-Cap	DX-0301	1S2638
D3	Diode (Si) 30V, 150mA		1S2076
D4	Diode (Si) 30V, 150mA		1S2076
D5	Diode (Si) 30V, 150mA		1S2076
D6	Diode (Ge) 25V, 50mA	DX-0152	1N60P
D7	Diode (Ge) 25V, 50mA		1N60P
D8	Diode (Ge) 25V, 50mA	DX-0167	1N60
D9	Varister 6V, 30mA	DX-0315	KB265
D10	Polarity Protect 100V, 1A	DX-0585	10D-1

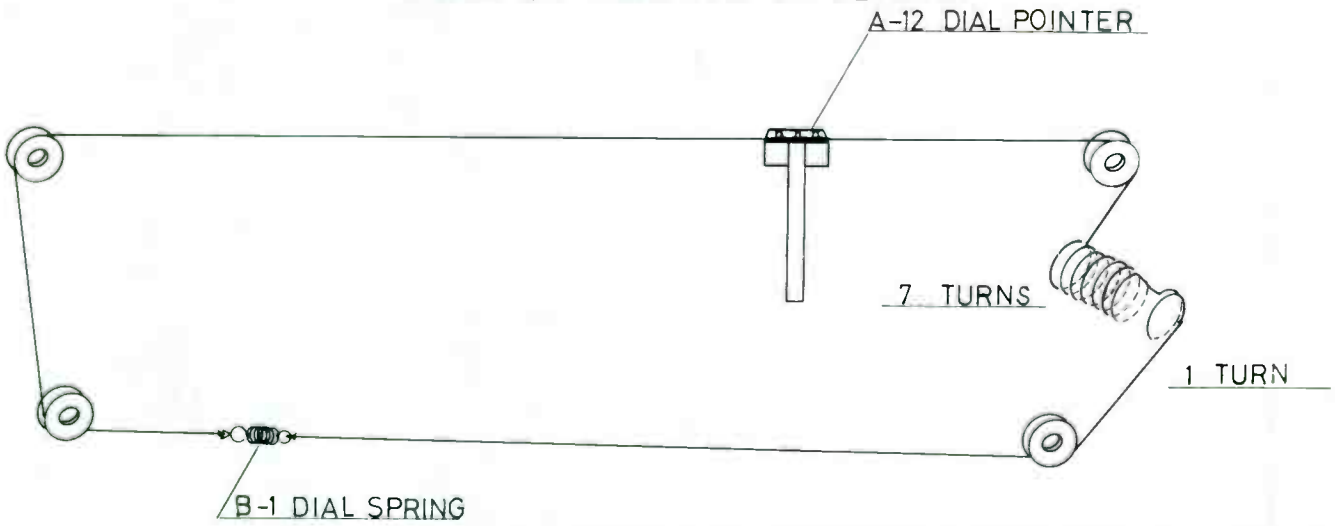
Ref. No.	Description	RS. No.	Mfr. No.
D11	Diode (Si) 30V, 150mA		1S2076
D12	Diode (Si) 30V, 150mA		1S2076
	COILS/TRANSFORMERS		
L1	FM Coil	CA-3387	111M078
L3	FM Trap Coil	CA-2674	111M077
L5	FM Choke Coil	CB-2246	412M001
L8	455kHz Trap Coil	CA-3308	11AM130
L9	FM Choke Coil		412M001
L11	AM OSC Coil	CA-4943	113M359
L12	FM Trap Coil		111M077
T1	FM IFT	CA-7905	11LM105H
T2	FM IFT		11LM105H
T3	FM IFT		11LM105H
T4	FM IFT	CA-7904	11DM060H
T5	FM IFT		11EH222
T6	AM IFT	CA-7907	11AM238
T7	AM IFT		11AM238
T8	AM IFT	CA-7908	11BM223
T9	AM IFT	CA-7908	11CM226
T10	Choke Trans	CA-7909	119E021
	TRIMMER CAPACITORS		
TC1	Film Trimmer 10pF	C-0933	1280050
TC2	Film Trimmer 10pF		1280050
TC3	Ceramic Trimmer 30pF	C-0934	1280084
TC4	Ceramic Trimmer 50pF	C-0936	1280055
TC5	Ceramic Trimmer 50pF		1280055
	FILTER		
CF1	Ceramic Filter 10.7 MHz	C-0281	1810046
	LAMPS		
PL1	Pilot Lamp 6.3V, 200mA	L-0927	1830170
NE1	Neon Lamp 65V, 0.3mA	L-0930	1832014
	SWITCHES		
S1-1, 2	Function Selector SW. (Push type)	S-7387	1622377
S2-1, 2	Function Selector SW. (Push type)		
S3-1, 2	Tone Control SW. (Push type)		

ELECTRICAL PARTS

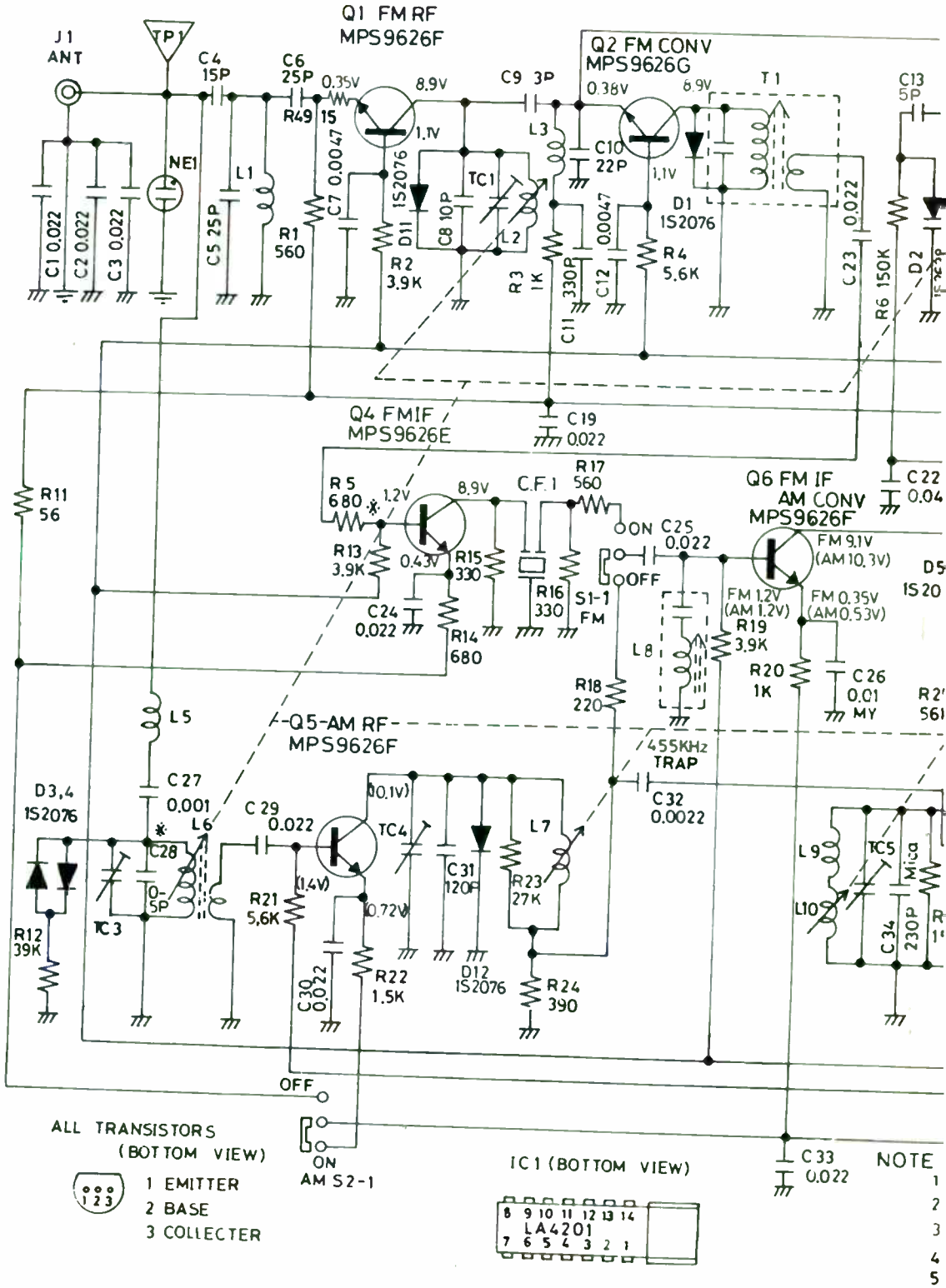
Ref. No.	Description	RS. No.	Mfr. No.
L2, L4, L6, L7, L10	Tuner unit		1810159
VR1, S4	ON/OFF Volume 10K ohm (A)	P-1899	139N839
	OTHERS		
SP1	Speaker	S-4741	1520305

Ref. No.	Description	RS. No.	Mfr. No.
LD1, LD2	Battery Cord	W-2194	1720986
ST1	Cord Stopper		1790142
F1	Fuse 1.2A	HF-0061	4790028
F2	Fuse 1.2A	HF-0061	4790028
R48	Noise Suppressor (Accesory)		1330003
C73	MP Capacitor (Accesory)		1220098
PCB1	Main P.C.B.	X-7824	1611665A
PCB2	Tuner P.C.B.	X-7825	1611665B
PCB3	Volume P.C.B.	X-7826	1611665C
J1	Ant. Connector	J-4599	1720927
J2	Earphone Jack	J-0677	1630080

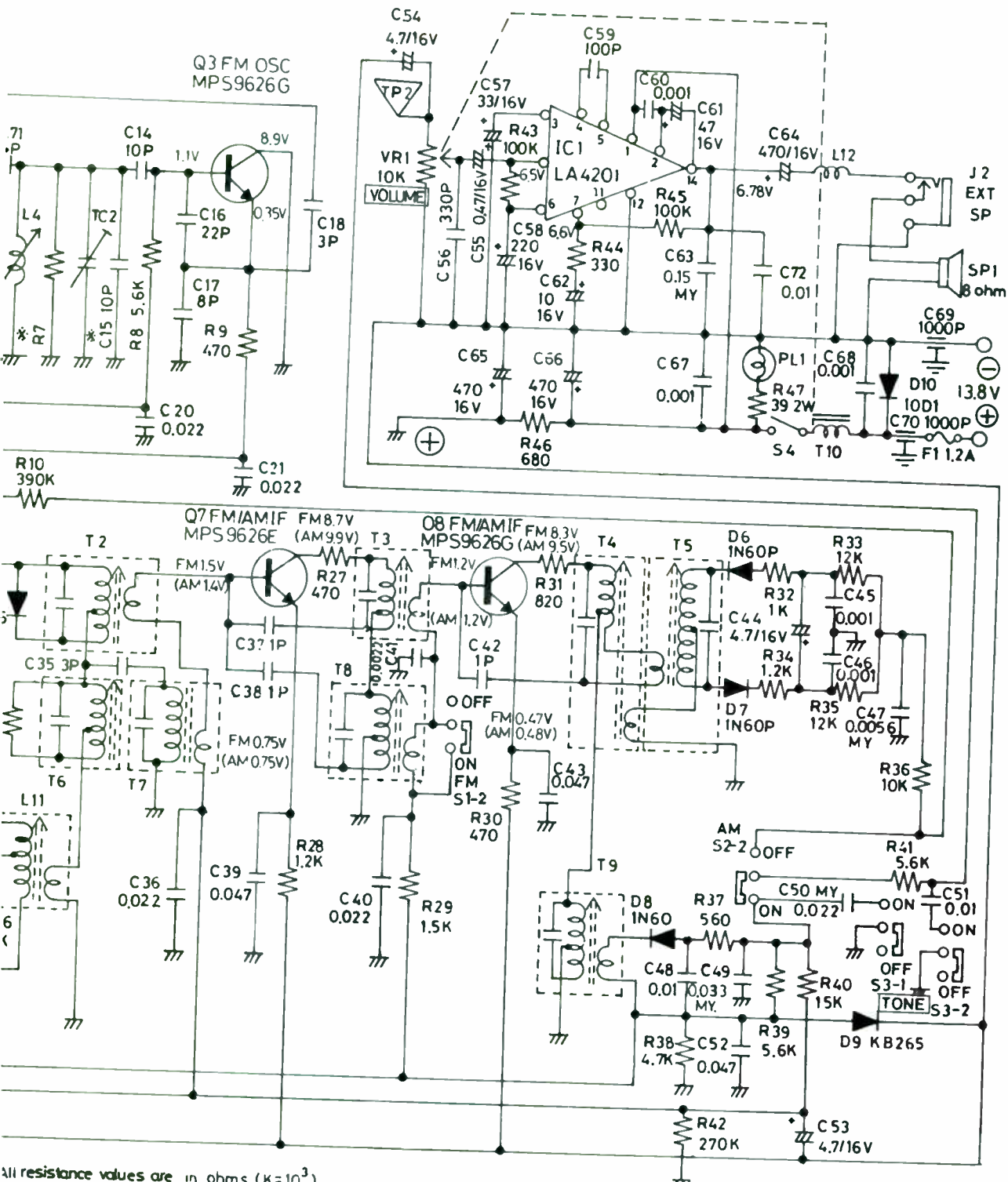
DIAL STRINGING DIAGRAM



NOTE: Rotate Tuning Shaft to max. clockwise and slide Dial Pointer to extreme right.



:MATIC DIAGRAM



All resistance values are in ohms. ($K=10^3$)

All capacitance values are in μF unless otherwise indicated. ($p=\mu\mu F$)

Values may vary from unit to unit.

TP : Test point

Voltages of Transistorsare measured from minus B in FM mode.
And voltage values in( ) are measured in AM mode.

6. AM/FM MPX ALIGNMENT PROCEDURE

Step	Signal Source	Output Indicator	Set Signal to	Set Radio Dial to	Adjust-	Adjust for
1	Set function switch to MW and local-DX switch to DX.					
2	Sweep Gen. connected to TP5, (Fig. 6) & chassis placed nearest to TP5.	Sweep Gen. connected to TP4 (R418) & chassis placed nearest to TP4.	455 kHz	Quiet point on band	Adj 1	Fig. 10
3	Signal Gen. or Sweep Gen. connected to antenna terminal through dummy antenna. (Fig. 11)	VTVM or Sweep Gen. connected to TP4 & chassis placed nearest to TP4	515 kHz	515 kHz Turning knob fully counterclockwise	Adj 2	Maximum
4			1 650 kHz	1 650 kHz Turning knob fully clockwise	Adj 3	
5			1 400 kHz	1 400 kHz	Adj 4	
6	Repeat steps 2 through 5 if necessary to obtain maximum sensitivity.					
7	Set function switch to FM and local-DX switch to DX.					
8	Sweep Gen. connected to TP1 (Fig. 6) & chassis placed nearest TP1.	Sweep Gen. connected to TP2 (R324) & chassis placed nearest to TP2	10.7 MHz	Quiet point on band	Adj 5	Fig. 12
9					Adj 6	Fig. 13
10	Sig. Gen. or Sweep Gen. connected to antenna terminal through dummy antenna. (Fig. 14)	Sweep Gen. connected to TP2 & chassis placed nearest to TP2.	87.5 MHz	Turning knob fully counter-clockwise.	Adj 7	Maximum
11			106 MHz	106 MHz (Mark between 104 MHz & 108 MHz	Adj 8 Adj 9	Maximum
12	Repeat steps 8 through 11 if necessary to obtain maximum sensitivity.					
13	Sig. Gen. connected to antenna terminal through dummy antenna (Fig. 14)	Frequency counter connected to TP3 & chassis placed nearest to TP3.	98 MHz	98 MHz	Adj 10	Frequency 19.05 kHz ± 20 Hz
14	Sig. (stereo signal) connected to antenna terminal through dummy antenna.	VTVM & oscilloscope connected to output.	98 MHz	98 MHz	Adj 10	Separation Maximum

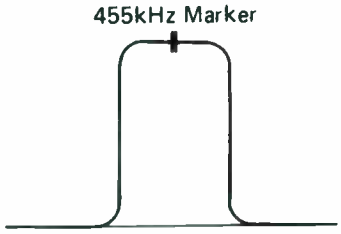


Fig. 10

Adjust to obtain the maximum waveform with a flat top. The marker is not always centered.

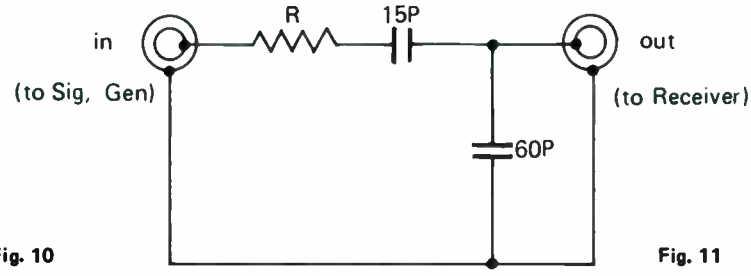


Fig. 11

Dummy Ant.

R = (80 – Generator Impedance) Ω

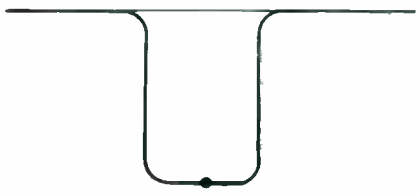


Fig. 12

10.7MHz Marker

Turn the orange color core clockwise to maximum and adjust the black color core to obtain a maximum waveform. Note that the 10.7 MHz Marker is not always centered because of the ceramic filter used.

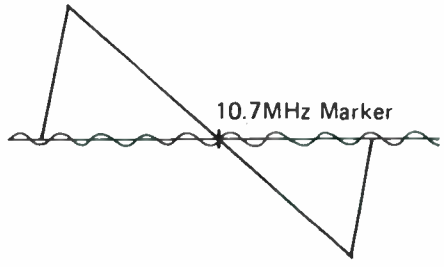


Fig. 13

Turn the black color core to obtain a maximum waveform and the orange color core to minimize noise. Repeat these two operations if necessary to obtain symmetry.

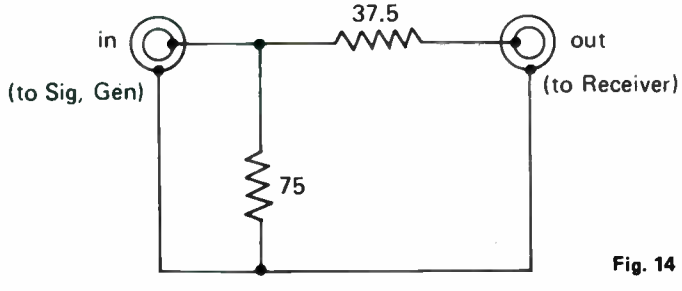


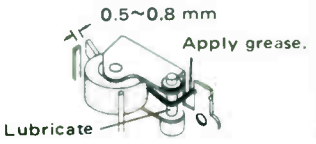
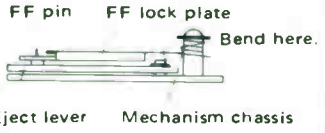
Fig. 14

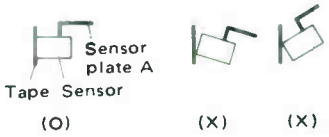
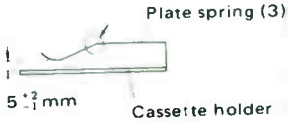
A) Adjusted sections (Symbol: Adj)
Adj 1 – Adj 13

B) Testing points (Symbol: TP)
TP 1 – TP 11

8. TROUBLESHOOTING

8.1 Tape section

Symptom	Cause	Correction
• Tape doesn't rotate. Motor doesn't rotate. • Motor rotates. (but tape does not rotate.)	1. Switch S3 2. Power fuse 1. Slippage of a soiled belt (19) (20) and pinch roller (21). 2. Belt (19) (20) disengaged. 3. Motor pulley unsoldered. 4. Lack of pinch roller pressure due to defect in pinch roller arm. 5. Lack of pinch roller pressure due to poorly positioned head plate (2). 6. Cassette tape defective.	Replace. Replace. Clean. Reengage Resolder  • Adjust sag of head leads. • Wire amp leads freely from head plate (2). Replace.
Tape speed is too fast	1. Defect of pinch roller arm. 2. Lack of pinch roller pressure due to poorly positioned head plate (2). 3. Motor defective	Same as 4 in "Motor rotates." Same as 5 in "Motor rotates." • Replace. • Motor pulley change. i) Unsolder motor pulley. ii) Unsolder adjusting pulley. *  * Use screw bond "Super 5M".
Fast forward is impossible.	1. FF plate can not be locked. 2. Slippage of soiled fly wheel (16) and reel disc. 3. Lack of reel disc (22) friction torque 4. Motor defective. 5. Cassette tape defective.	• FF lock plate is not horizontal.  • Bend FF lock plate downward as indicated.  Clean. Replace. Replace. Replace.
Excessive wow and flutter	1.Slippage of belt. flywheel, capstan. 2. Expansion of belt (19) (20). 3. Excessive or lack of take up torque 4. Lack of pinch roller pressure 5. Defect of flywheel (16). 6. Motor defective. 7. Cassette tape defective.	Clean. Replace. Replace reel disc (22). See "4 in Motor rotates". Replace. Replace. Replace.

Symptom	Cause	Correction
Mechanical noise	1. Pinch roller and capstan bearing wanting lubrication. 2. Motor defective 3. Reel disc defective	Lubricate. Replace. Replace.
Auto stop mechanism inoperable.	Cassette sensor position defective.	Adjust so that the sensor is in complete contact with the tape face. 
Head plate return defective.	1. Eject lever bend defective. 2. Head plate bend defective 3. Head roller does not turn.	Replace. Replace. • Replace. • Lubricate head roller.
Cassette can't be loaded normally.	1. Cassette holder plate spring (3) poorly positioned. 2. Cassette sensor exsessively enters into the cassette holder. 3. Cassette tape defective.	Adjust at the place indicated by the arrow.  Adjust cassette sensor. Replace.
Cassette can't be ejected normally.	1. Door ( ) deformed. 2. Cassette holder plate spring (3) poorly positioned. 3. Cassette tape defective.	Repair. Same as 1 in "Cassette can't be loaded normally." Replace.
Tape lamp does not light.	1. Lead wires to lamp are broken. 2. Auto stop switch defective. 3. Warning P.C.B. defective.	Check. Adjust or replace. Check.
Tape lamp does not light at tape end.	1. Auto stop switch defective. 2. Warning P.C.B. defective.	Check. Check.

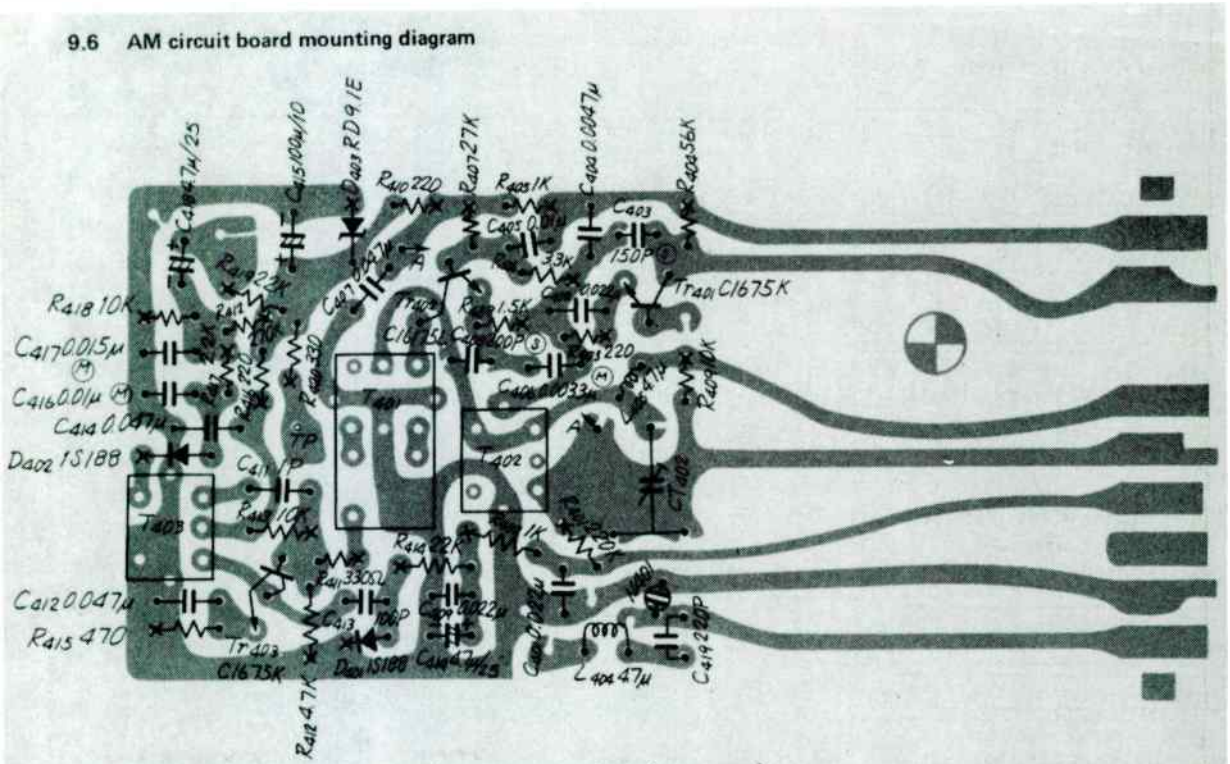
8.2 Amplifier section

Symptom	Cause	Correction
Lack of sound volume and/or distortion of sound.	1. Head is dirty or damaged. 2. Head position is improper. 3. R107 (207) or 105 (205)is defective. 4. Preamp. or power amp. is defective.	Clean or replace. Adjust. Replace. Check or replace.
High notes are lost.	1. Head is dirty or damaged. 2. Head position is improper. 3. R106 (206) or C107 (207) is defective.	Clean or replace. Adjust. Check and replace.

8.3 Radio section

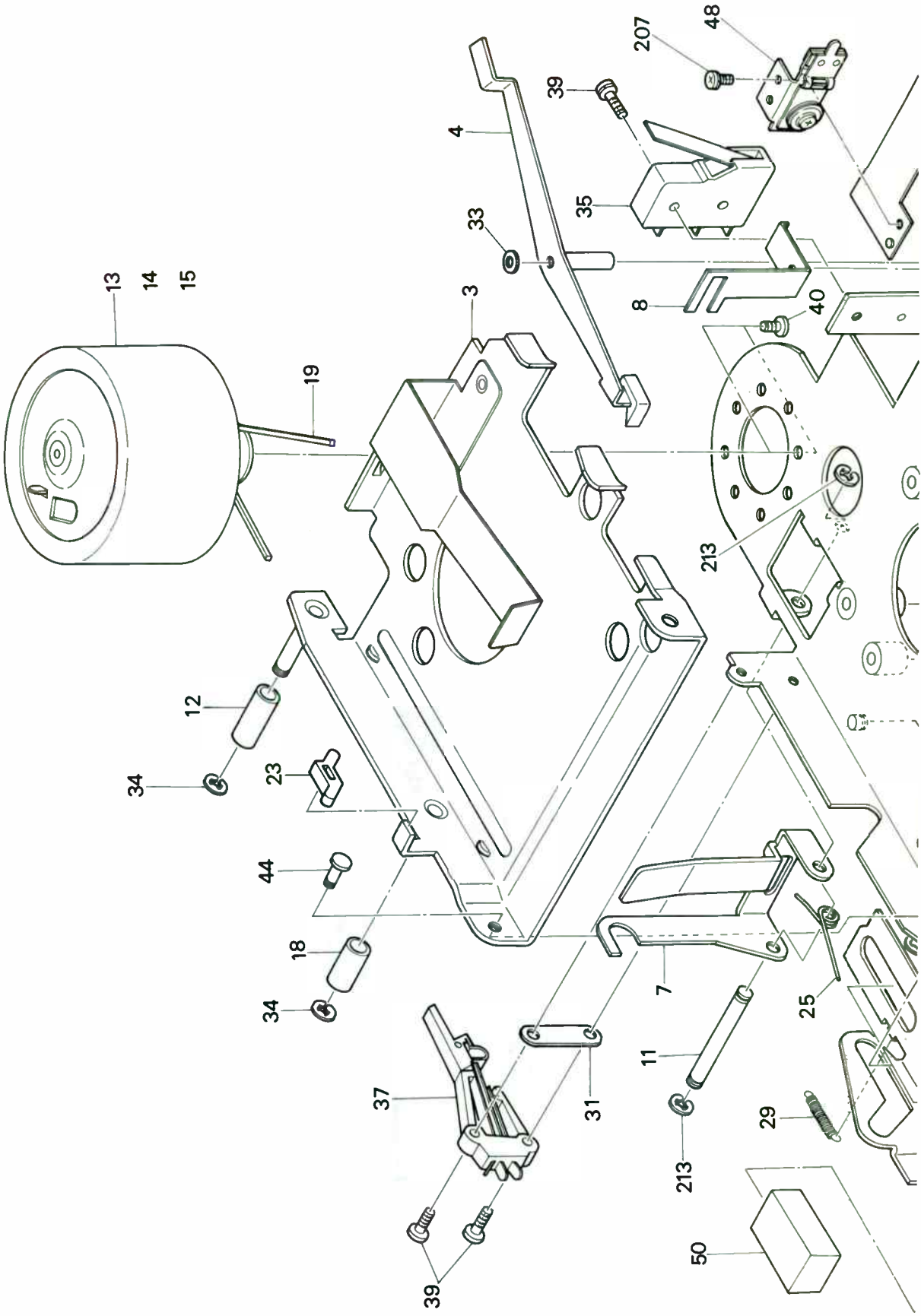
Symptom	Cause	Correction
No sound		
Tape works normally	1. Switch S5 (S1)	Check or replace.
Dial scale lamp lights	1. Switch S6 (S302)	Check or replace.
Output at Ⓐ and Ⓑ are normal with input from antenna jack.	1. Switch S302, S303 Lead ①, ② disconnected.	Check or replace.
FM doesn't sound		
FM sensitivity is low		
Q40 base voltage is 9.0 V (Tr305)	1. D302, Tr305	Check or replace.
Q40 emitter voltage is 8.4 V (Tr305)	1. Tr305, IC301, IC302, Tr 304	Check or replace.
With 98 MHz modulated by 400 Hz at 30 % applied from antenna 3 dB limiting sensitivity is about 20 dBμ at (TP2).	1. Tr304, F301, F302, T302, SW301, R301	Replace. Adjust. Check.
With the same input, 3 dB limiting sensitivity is about 20 dBμ at 4 ohm load of audio output.	1. IC302, D304, 305, 306, 307	Check or replace.
Channels are not separated with FM stereo.		
FM MPX lamp doesn't light.		
With frequency counter connected at (TP3) oscillation frequency is 19.05 kHz ± 20 Hz.	1. VR301 2. IC302	Adjust. Check or replace.
With 98 MHz modulated by 19 kHz at 10 % applied and when 20 dBμ input is applied to the above-mentioned signal, the MPX lamp does not light.	1. T302, IC302 2. Lead wire to stereo lamp is broken.	Check or replace. Replace.
MW doesn't produce sound.		
MW sensitivity is low.		
Voltage at Tr401 base is 0.7 V.	1. Tr401, D403	Check or replace.
When 455 kHz modulated by 400 Hz at 30 % applied through 0.01 μF to (M1) from SG, output is normal at (TP4).	1. Tr402, Tr403, T401	Check & replace.
With same input, output Ⓐ Ⓑ are normal.	1. D304, 305, 306, 307	Check & replace.
Output and frequency of local oscillation are normal across lead (flexible lead).	1. Lead (flexible lead ③, ④ disconnected. 2. T402, L402	Connect. Check & replace.
With 1 000 kHz modulated by 400 Hz at 30 % applied from antenna socket, output is normal.	1. Lead ⑤, ⑥, ⑦, ⑧ and/or (flexible lead) disconnected. 2. SW301	Connect. Check or replace.

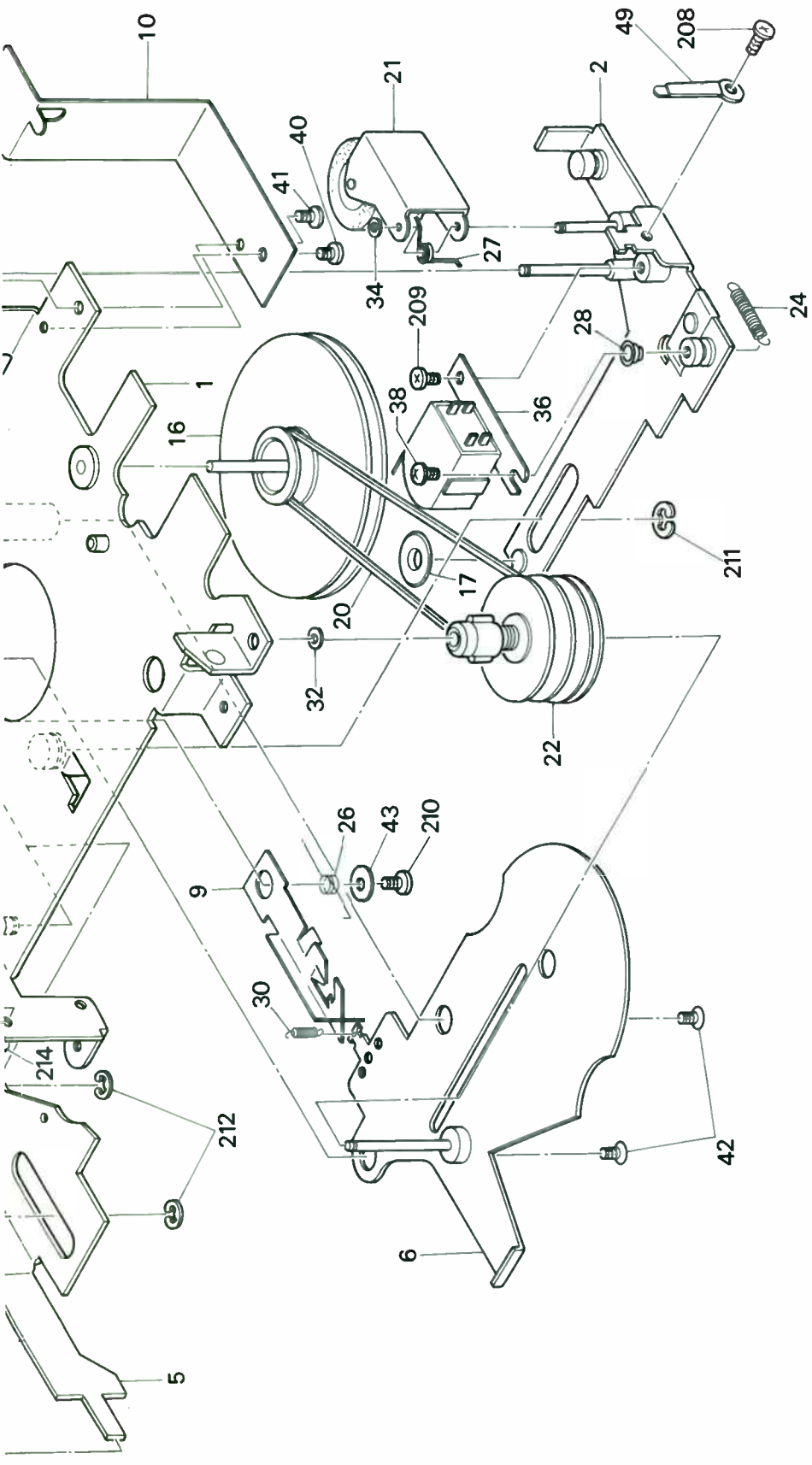
9.6 AM circuit board mounting diagram



Note: 1. A~A is a jumper wire (brown)

2. R_{418} should be mounted by bending the SR resistor
3. Leads should be soldered cut to less than 2mm after being soldered.
4. Test points should extend between 4~8mm.
5. Parts should be mounted less than 2mm above the boa
6. C_{418} should be soldered onto the P. board.



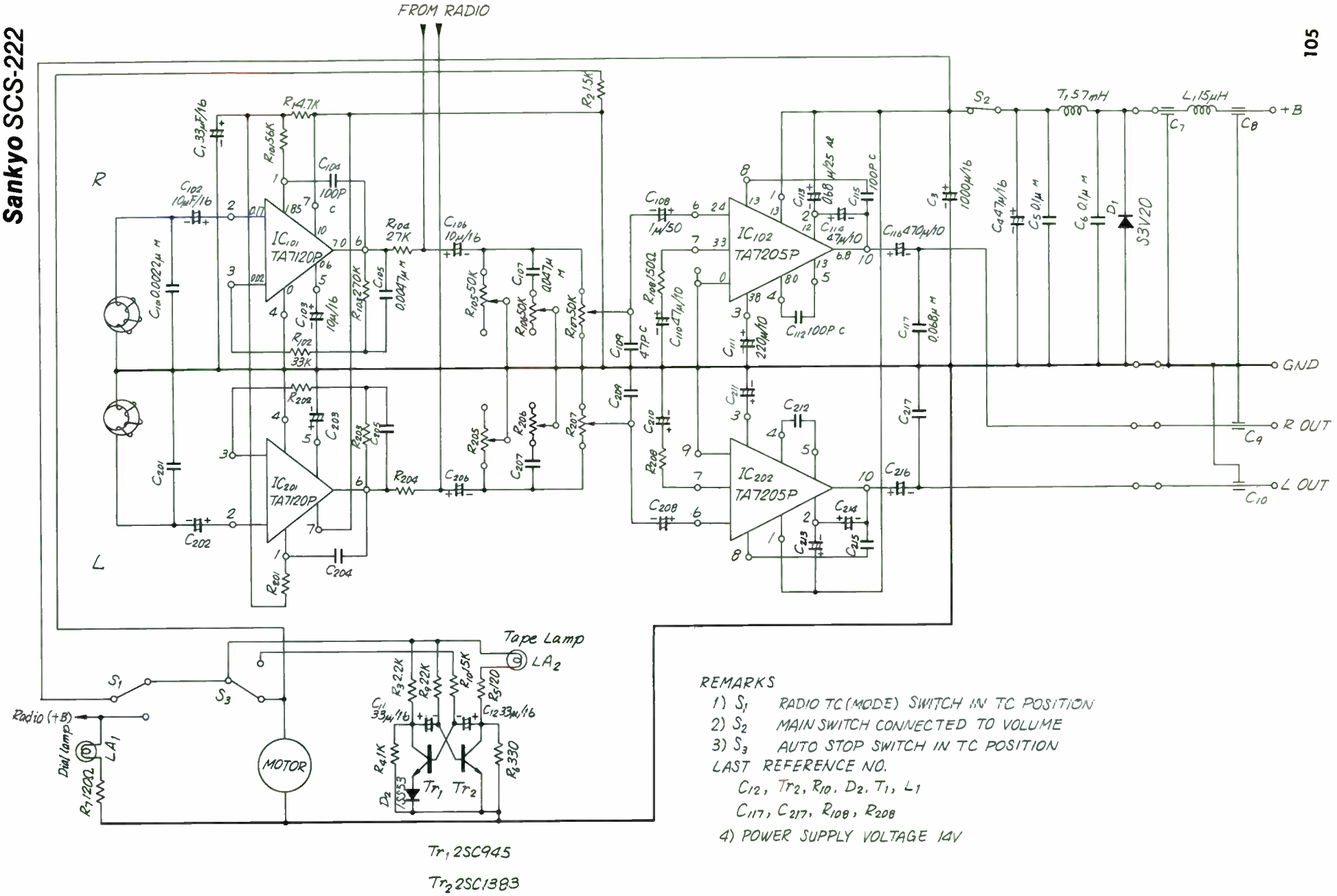


Drawing No.	Part No.
1	307-003H
2	307-010
3	307-147
4	307-020
5	307-126
6	307-109B
7	307-026M
8	307-028
9	307-030B
10	307-136
11	307-031W
12	307-194
13	307-034A
14	307-034B
15	307-034C
16	307-035
17	307-144
18	307-033W
19	307-148
20	307-148B
21	307-038
22	307-039
23	307-071
24	307-042W
25	307-044
26	307-045
27	307-046
28	307-047
29	307-125
30	307-055
31	307-153
32	307-100
33	307-101
34	307-102
35	307-105
36	307-106
37	307-108
38	307-301
39	307-302
40	307-303
41	307-304
42	307-305
43	307-306
44	307-192
48	KGE 30092
49	KGE 0356
50	KGE 99150
207	19034
208	14536
209	14380
210	14572
211	22147
212	22140
213	22136

11. MECHANICAL PARTS LIST

Drawing No.	Part No.	Part Name	Q'ty	Remarks
49	KGE 0356	Wire clamp	3	
109	KGE 0357	"	1	
81	KGE 011399	Mounting plate ass'y A	1	
100	KGE 011401	Pulley bracket ass'y	1	
102	KGE 011402	Mounting plate ass'y C	1	
92	KGE 011440	FM/IF base ass'y	1	
95	KGE 011441	MW base ass'y	1	
59	KGE 011564	Filter case ass'y	1	
89	KGE 011731	Mechanical unit	1	
88	KGE 011872	5P socket ass'y	1	
66	KGE 011904	String ass'y	1	
65	KGE 011905	Pulley mounting plate ass'y	1	
101	KGE 011906	Mounting plate ass'y B	1	
54	KGE 011909	Auto stop base ass'y	1	
77	KGE 012160	AU amp. ass'y	1	
53	KGE 012286	Upper case ass'y	1	
87	KGE 012437	Nose piece ass'y	1	
1	307-003H	Mech. chassis ass'y	1	
2	307-010	Head chassis ass'y	1	
4	307-020	Auto stop ass'y	1	
7	307-026M	Lock plate M	1	
8	307-028	Stopper plate	1	
9	307-030B	Stopper plate F.F.	1	
11	307-031W	Locker stud W	1	
18	307-033W	Roller	1	ϕ 4.3
13	307-034A	Motor pulley ass'y A	0 ~ 1	ϕ 11 (For standard)
14	307-034B	" B	0 ~ 1	ϕ 10.95 (For adjusting)
15	307-034C	" C	0 ~ 1	ϕ 11.05 (For adjusting)
16	307-035	Flywheel	1	
21	307-038	Pinch roller ass'y	1	
22	307-039	Reel crutch ass'y	1	
24	307-042W	Head chassis spring	1	
25	307-044	Lock spring	1	
26	307-045	F.F. lock spring	1	
27	307-046	Pinch roller spring	1	
28	307-047	Azimuth spring	1	
30	307-055	Case spring	1	
23	307-071	Plastic holder	1	
32	307-100	Teflon washer	1	ϕ 1.2
33	307-101	"	1	ϕ 1.7
34	307-102	"	3	ϕ 2
35	307-105	Micro switch	1	
36	307-106	Cassette head	1	
37	307-108	Power switch	1	
6	307-109B	Flywheel support ass'y	1	
29	307-125	Eject spring B	1	
5	307-126	Eject lever ass'y	1	
10	307-136	Antenna plate	1	
17	307-144	Head roller	1	ϕ 10
3	307-147	Cassette chassis ass'y	1	
19	307-148	Drive belt	1	
20	307-148B	Crutch belt	1	
31	307-153	Switch plate	1	
44	307-192	Left pin	1	
12	307-194	Roller S	1	
38	307-301	Mushroom head screw	1	M2 x 8

Drawing No.	Part No.	Part Name	Q'ty	Remarks
39	307-302	⊕P.H.N.S. with spring washer	3	M2 x 8
40	307-303	Bind screw	3	M2.6 x 3.5
41	307-304	"	1	M2.6 x 5
42	307-305	Flat screw	2	M2.6 x 5
43	307-306	Washer	1	ϕ 3
61	KGE 3505	Wire holder	1	
52	KGE 13841	FCC label	1	
56	KGE 13850	Cushion	1	
93	KGE 19002	"	1	
79	KGE 20608	Tri-shaft volume	1	
97	KGE 20640	Tuning shaft with VR	1	
48	KGE 30092	Trimmer condenser	1	
62	KGE 42488	Push switch	2	
70	KGE 49249	Lamp (For MPX)	1	
69	KGE 49250	" (For Tape)	1	
94	KGE 49273	Tuner	1	
98	KGE 49299	Antenna holder	1	
72	KGE 49334	Lamp (For Dial)	1	
90	KGE 50737	Cover plate	1	
71	KGE 95643	Lamp holder	1	
96	KGE 95653	Joint slider	1	
78	KGE 98168	Heatsink	1	
63	KGE 98194	Push button	2	
58	KGE 98197	Filter cover	2	
57	KGE 98198	Filter clumper	1	
80	KGE 98259	Volume basse plate	1	
99	KGE 98572	Separator	1	
60	KGE 98662	Shield plate	1	
76	KGE 98867	"	1	
106	KGE 98977	Nut	4	
105	KGE 98978	Washer	6	
67	KGE 99013	Indicator	1	
86	KGE 99028	Volume holder	2	
84	KGC 99067	Front panel A	1	
85	KGD 99068	" B	1	
83	KGD 99071	Gasket	1	
108	KGD 99069	Inner knob	2	
107	KGD 99070	Outer knob	2	
51	KGE 99130	Model name plate	1	
103	KGC 99136	Bottom case	1	
91	KGD 99138	Front chassis	1	
104	KGD 99139	Bottom plate	1	
64	KGD 99140	Switch mounting plate	1	
82	KGE 99141	Side bracket	2	
55	KGE 99142	Auto stop base mounting plate	1	
68	KGE 99143	Lamp holder	1	
73	KGE 99147	Indicator guide	1	
74	KGE 99148	Back plate	1	
50	KGE 99150	Eject button	1	
75	KGE 99151	Dial plate	1	
203	14250	⊕ P.H.M.S.	4	M2 x 3
205	14255	"	3	M2.6 x 4
209	14380	"	1	M2 x 6
208	14536	"	1	M2.6 x 3
210	14572	"	1	M3 x 4
206	19012	⊕ P.H.N.S. with spring washer	4	M2.6 x 8



REMARKS

1) S_1 RADIO TC (MODE) SWITCH IN TC POSITION
2) S_2 MAIN SWITCH CONNECTED TO VOLUME
3) S_3 AUTO STOP SWITCH IN TC POSITION

LAST REFERENCE NO.

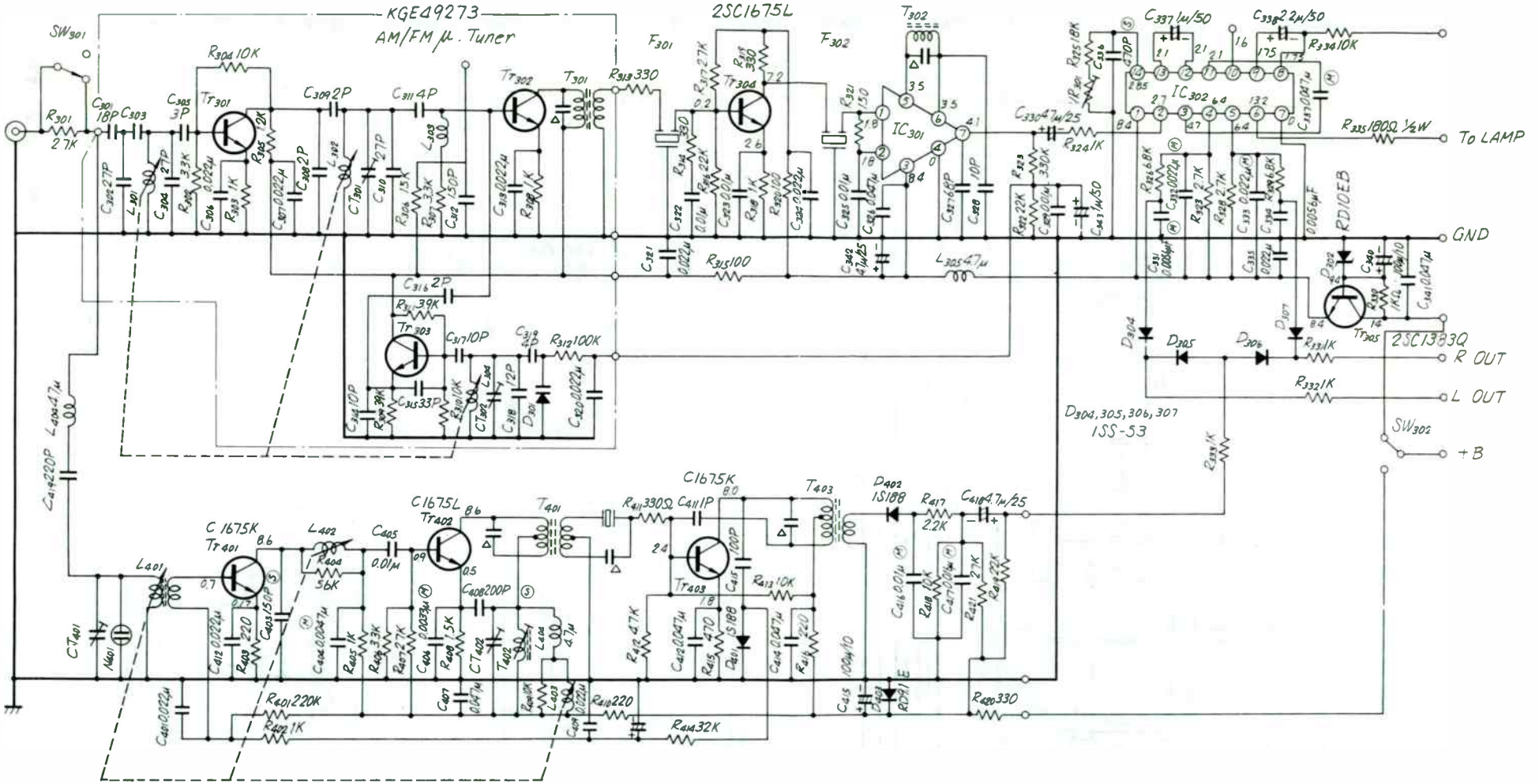
C_{12}, Tr_2, R_{10}, D_2, T_1, L_1

C_{117}, C_{217}, R_{108}, R_{208}

4) POWER SUPPLY VOLTAGE 14V

Tr_1 2SC945

Tr_2 2SC1383



REMARKS

1) SW_{301} LOC-DX CHANGE SWITCH IN DX POSITION
2) SW_{302} FM-MW CHANGE SWITCH IN FM POSITION
3) CAPACITORS MARKED WITH Δ ARE INCLUDED IN TRANSFORMER
4) m MYLAR CAPACITOR
   s STYROL CAPACITOR
5) LAST REFERENCE NO R_{335} R_{421}
   C_{343} C_{419}
6) POWER SUPPLY VOLTAGE 14V

9.3 Electrical parts list

Amplifier section

Ref. No	Part No.	Description	Remarks	Q'ty
IC101, 201	KEG 46441	IC	TA7120P	2
IC102, 202	KGE 46259	IC	TA7205P	2
C1	KGE 46435	Diode	S3V20	1
D2	KGE 46465	"	1SS53	1
Tr1	KGE 46147	Transistor	2SC945 (K)	1
Tr2	KGE 41414	"	2SC1383	1
T1	KGE 47120	Chock Coil	5.7 mH	1
L1	KGE 47053	Inductor	15 mH	1
LA1	KGE 49334	Lamp	(Dial Lamp)	1
LA2	KGE49250	"	(Tape Lamp)	1
S1	307 – 108	Power Switch		1
S2			Included in KGE20608	
S3	307 – 105	Micro Switch		1
C1, 11, 12	KGE 34771	Electrolytic	33 μF/16	3
C2	KGE 34773	"	100 μF/16	1
C3	KGE 34777	"	1000 μF/16	1
C4	KGE 34772	"	47 μF/16	1
C5, 6	KGE 31148	Mylar	0.1 μF/50	2
C7, 8, 9, 10	KGE 35474	Feed-thru Cap.	1000 PF/50	4
C101, 201	KGE 10125	Mylar	0.0022 μF/50	2
C102, 103 106, 202 203, 206	KGE 34769	Electrolytic	10 μF/16	6
C104, 112 115, 204 212, 215	KGE 33401	Ceramic	100 pF/50	6
C105, 205	KGE10559	Mylar	0.0047 μF/50	2
C107, 207	KGE 10577	"	0.047 μF/50	2
C108, 208	KGE 34800	Electrolytic	1 μF/50	2
C109, 209	KGE 33393	Ceramic	47 pF/50	2
C110, 114 210, 214	KGE 34762	Electrolytic	47 μF/10	4
C111, 211	KGE 34764	Electrolytic	220 μF/10	2
C113, 213	KGE 33722	Aluminium Fiexed	0.68 μF/25	2
C116, 216	KGE 34813	Electrolytic	470 μF/10	2
C117, 217	KGE 3243	Mylar	0.068 μF/50	2
R1	KGE 10146	Carbon	4.7 kΩ RD1/4UR	1
R2	KGE 11260	"	1.5 kΩ "	1
R3	KGE 5066	"	2.2 kΩ "	1
R4	KGE 11258	"	1 kΩ "	1
R5	KGE 26174	"	120 Ω RD1/2SR	1
R6	KGE 3226	"	330 Ω RD1/4UR	1
R7	KGE 26174	"	120 Ω RD1/2SR	1
R9	KGE 5068	"	22 kΩ RD1/4UR	1
R10	KGE 2532	"	15 kΩ "	1
R101, 201	KGE 10149	"	56 kΩ RD1/4UR	2
R102, 202	KGE 6265	"	33 kΩ "	2
R103, 203	KGE 21131	"	270 kΩ "	2
R104	KGE 5067	"	27 kΩ "	1
R105, 205	KGE 20640	Variable Resistor	50 kΩ	1
R106, 107 206, 207	KGE 20608	"	50 kΩ	1
R108, 208	KGE 10141	"	150 Ω RD1/4UR	2

Tuner section

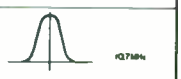
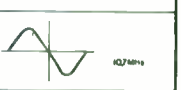
Ref. No	Part No.	Description	Remarks	Q'ty
Tr304	KGE 46338	Transistor	2SC1675L	1
Tr305	KGE 41414	"	2SC1383Q	1
Tr401, 403	KGE 46339	"	2SC1675K	2
Tr402	KGE 46338	"	2SC1675L	1
IC301	KGE 46442	IC	TA7130P	1
IC302	KGE 46278	"	SN76115N	1
D301			Included in KGE49273	
D302	KGE 46297	Diode	RD10EB	1
D304, 305 306, 307	KGE 46465	"	1SS-53	4
D401, 402	KGE 41959	Diode	1S188FM-1	2
D403	KGE 46296	"	RD9.1EB	1
N401	KGE 49220	Neon Lamp	NE-38	1
T301			Included in KGE49273	
T302	KGE 47080	FM. I.F.T	119 ACS-13107Z	1
T401	KGE 40677	MW, Ceramic Filter	CFZ-455C	1
T402	KGE 40951	MW, Oscillator Trans	7BR-3104N	1
T403	KGE 47040	MW, I.F.T	159GC-1009	1
L301 – 304			Included in KGE49273	
L401 – 403			"	
CT301, 302			"	
L305, 404, 405	KGE 40080	Micro Inductor	4.7 μH	3
CT401	KGE 30092	Trimmer	68 pF	1
CT402	KGE 30069	"	65 pF	1
F301, 302	KGE 47032	FM, Ceramic Filter	SFE 10.7MA5Z (A.B)	2
VR301	KGE 20191	Semi Variable Resistor	6.8 kΩ (B)	1
C301 – 320			Included in KGE49273	
C321, 324, 335	KGE 33564	Ceramic	0.022 μF/50	3
C322, 323 325, 329	KGE 33563	Ceramic	0.01 μF/50	4
C326, 341	KGE 33565	Ceramic	0.047 μF/50	2
C327	KGE 33462	"	68 pF/50	1
C328	KGE 33442	"	10 pF/50	1
C330, 342	KGE 34779	Electrolytic	4.7 μF/25	2
C331, 334	KGE 3118	Mylar	0.0056 μF/50	2
C332, 333	KGE 3224		0.022 μF/50	2
C336	KGE 34641	Polystyrene	470 pF/50	1
C337, 343	KGE 34800	Electrolytic	1 μF/50	2
C338	KGE 34801	"	2.2 μF/50	1
C339	KGE 10577	Mylar	0.047 μF/50	1
C340	KGE 34763	Electrolytic	100 μF/10	1
C401, 402, 409	KGE 33564	Ceramic	0.022 μF/50	3
C403	KGE 34629	Polystyrene	150 pF/50	1
C404	KGE 10559	Mylar	0.0047 μF/50	1
C405	KGE 33563	Ceramic	0.01 μF/50	1
C406	KGE 5071	Mylar	0.0033 μF/50	1
C407, 412, 414	KGE 33565	Ceramic	0.047 μF/50	3
C408	KGE 34632	Polystyrene	200 pF/50	1
C410, 418	KGE 34779	Electrolytic	4.7 μF/25	2
C411	KGE 33367	Ceramic	1 pF ± 0.25 pF	1
C413	KGE 33401	"	100 pF ± 5 %	1
C415	KGE 34763	Electrolytic	100 μF/10	1
C416	KGE 1181	Mylar	0.01 μF/50	1
C417	KGE 3223	"	0.015 μF/50	1
C419	KGE 33409	Ceramic	220 pF ± 5 %	1

Pages 109-122 Courtesy of SANYO (ELECTRIC)

TUNER ADJUSTMENT

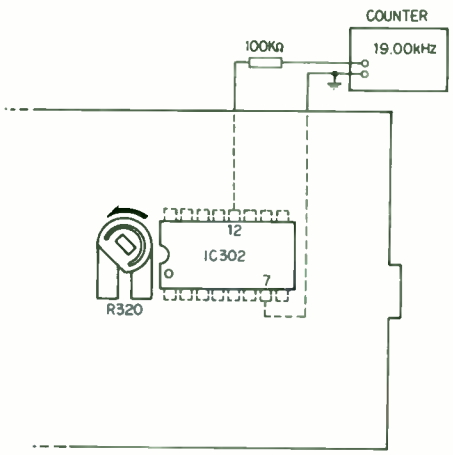
The followings are radio alignment procedures for technicians reference.
Note: Use a screwdriver with plastic grip for all adjustments.

FM IF & RF ALIGNMENT

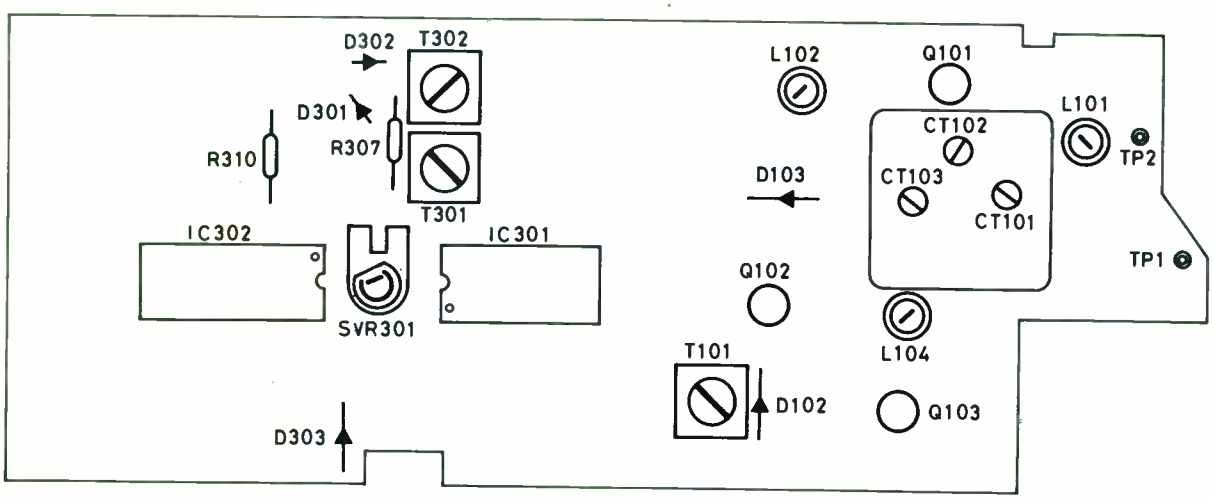
Step	Adjusting circuit	Connections		Frequency	Position of tuning dial	Adjustment	VTVM and Scope
		Input	Output				
1	IF	Connect sweep marker generator output to TP1, 2 (C104, Ground)	Connect SMG input to test points R307, Ground.	10.7MHz (unmodulated)	Near maximum under no signal	T101, T301	
2	Detector		Connect SMG input to test points R310, Ground.			T302	
3	Tuning Coverage and Dial Calibration	Connect FM SG to TP1, 2 (C104, Ground)	Connect VTVM to Speaker terminals.	87MHz (400Hz, 30% modulation)	Low End	L104	Maximum reading on VTVM
				109MHz (400Hz, 30% modulation)	High End	CT3	
4	Tracking			90MHz (400Hz, 30% modulation)	90MHz	L101, L102	
				106MHz (400Hz, 30% modulation)	106MHz	CT-1, 2	

FM MPX ALIGNMENT

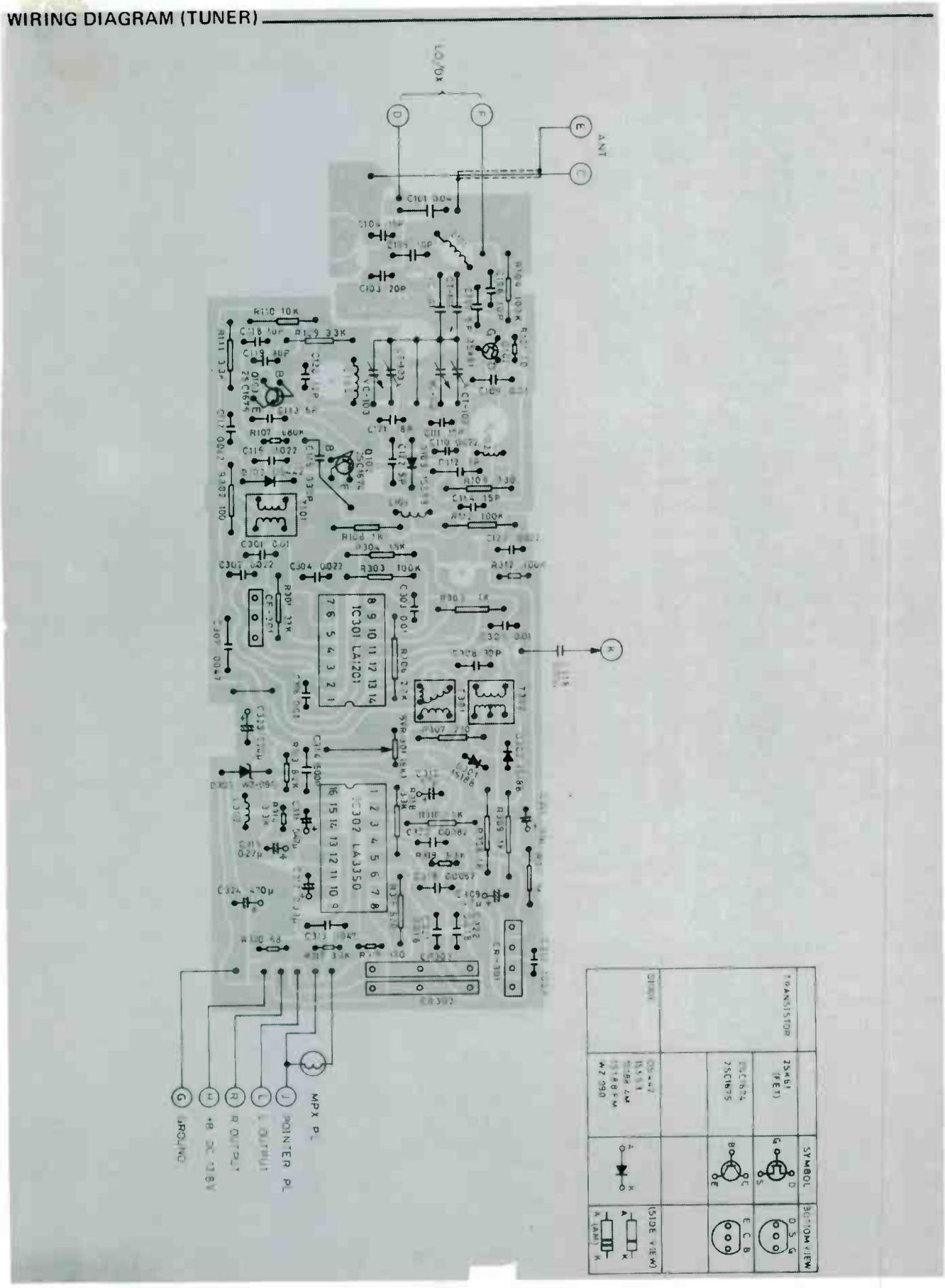
Adjust the SVR 301 until the counter frequency reading becomes within 19.00 KHz.



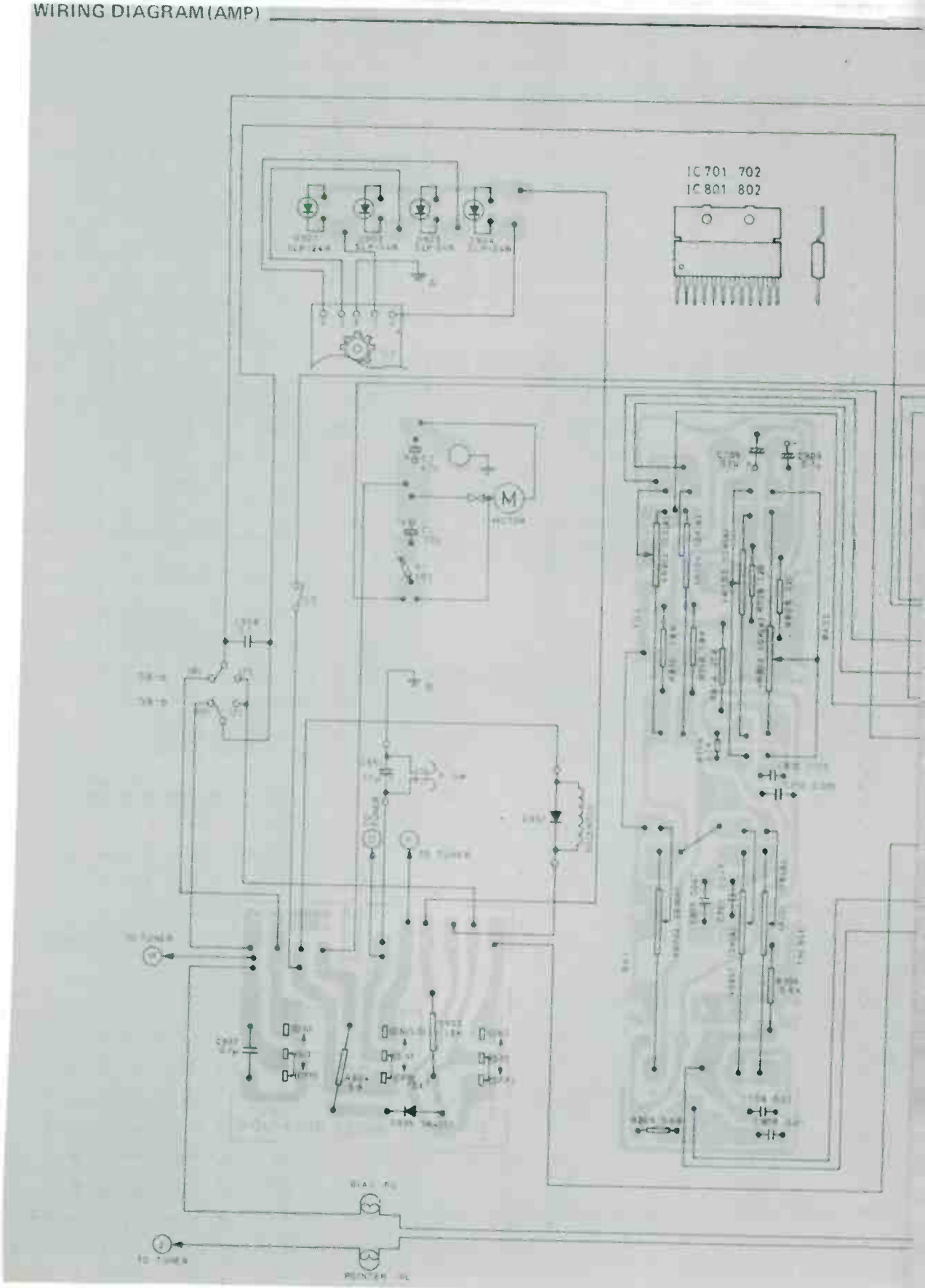
PARTS LOCATION



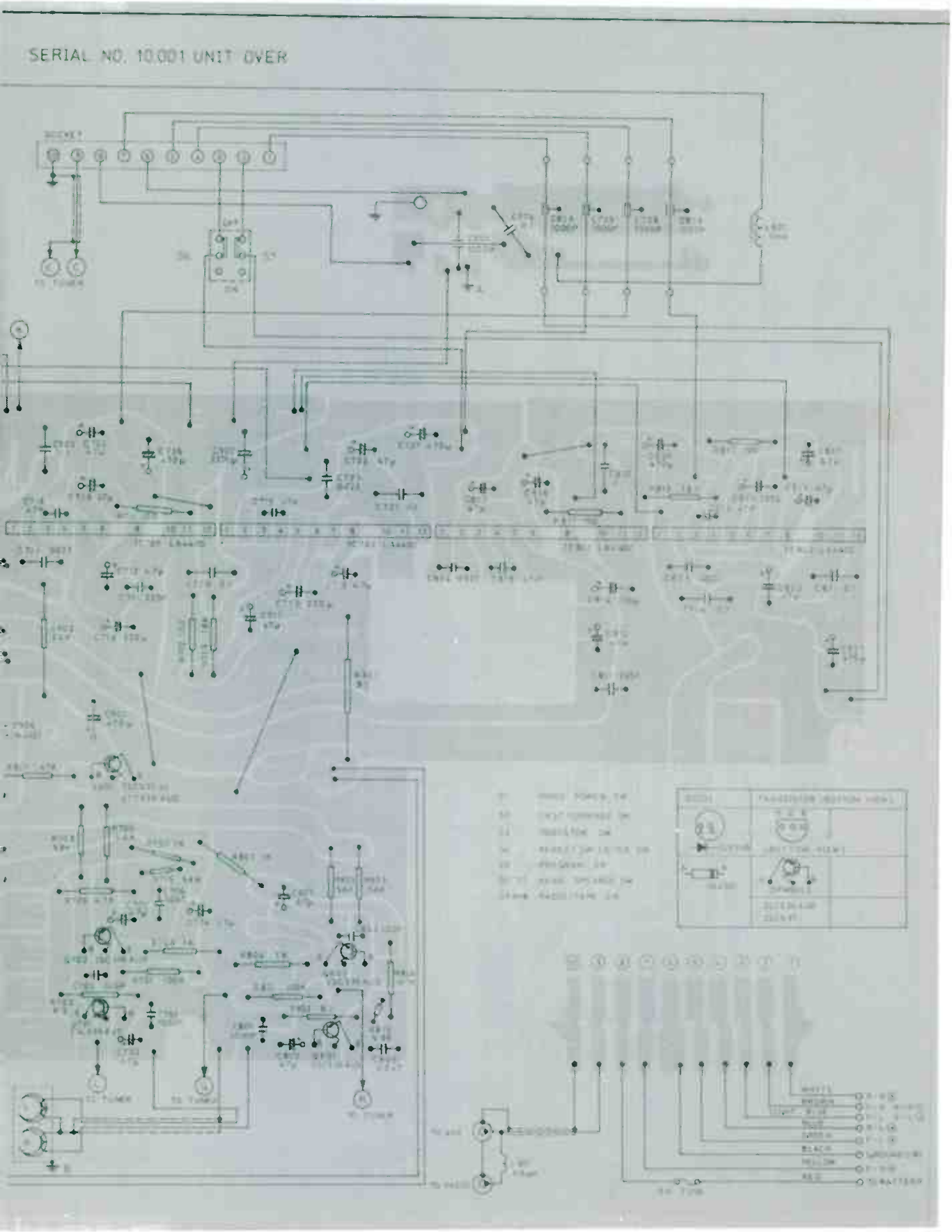
WIRING DIAGRAM (TUNER)



WIRING DIAGRAM (AMP)



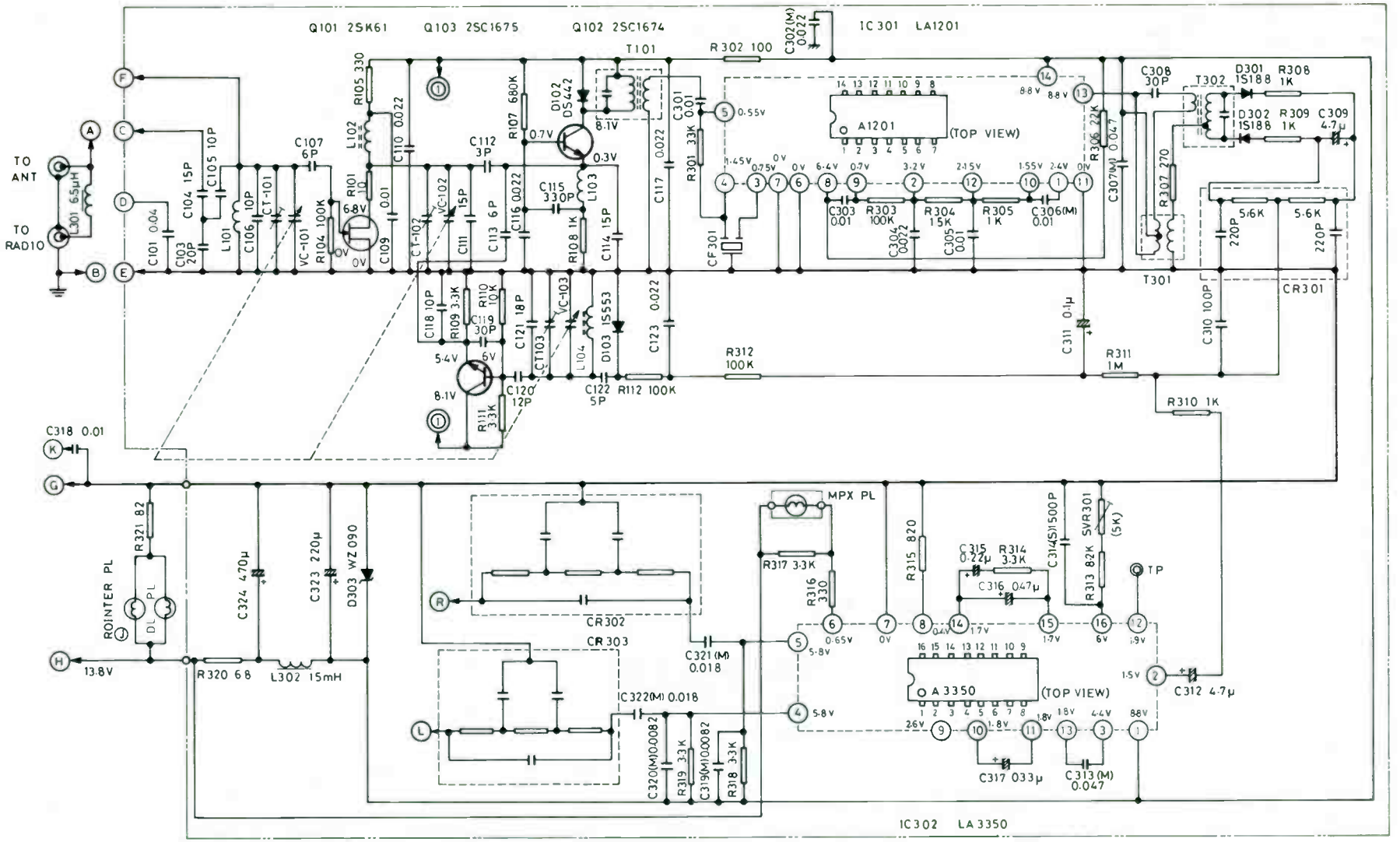
SERIAL NO. 10,001 UNIT OVER



PARTS LIST

Ref. No.	Part No.	Description	Q'ty
PACKING			
	141-6-132T-71000	Individual Carton	1
	141-6-144T-33200	Pad, Right Side	1
	141-6-144T-33300	Pad, Left Side	1
	141-6-231T-04201	Polyethylene Bag, Set	1
	147-6-474T-01101	Fuse Label, 5A	1
	141-6-411T-84400	Instruction Book	1
	141-6-478T-08100	Sticker, AZIMUTH	1
	141-6-478T-01200	Sticker, HEIGHT	1
	141-6-478T-07500	Sticker, Speaker Matrix	3
	141-6-478T-10200	Sticker, To Radio, To Antenna	1
	123-6-493R-10500	Customer Card	1
	141-6-401T-00100	Guide Book	1
	141-6-472T-13400	Caution Label	1
		Polyethylene Bag, 100x150mm, Cord	1
	4-234T-01300	Fuse, 5A	1
ACCESSARIES			
	141-0-351T-347910	Bracket Mounting Assembly, Set	1
	141-0-464T-221910	Fixer Assembly, Bracket Mounting	1
	4-226T-995910	P.C.B. Assembly, Lead	1
	141-0-871T-01800	Mounting Parts Assembly	1
		Hexagon Hd. Bolt, 6x20mm, (+)	(2)
		Nut, 6mm	(4)
		Washer, 6x13x1mm	(8)
		Spring Washer, 6mm	(4)
		Hexagon Hd. Bolt, 6x30mm, (+)	(2)
	4-234T-01300	Fuse, 5A	(1)
	4-221T-00500	Resistor	(1)
		Polyethylene Bag, 100x100mm	(1)
	4-243T-12500	Antenna Cable	1
CABINET & CHASSIS			
1	141-2-111T-29300	Cabinet, Top	1
2	141-2-731T-41000	Slide, Right Side	1
3	141-2-731T-41100	Slide, Left Side	1
4	141-0-125T-092910	Bottom Lid Assembly	1
5	141-0-122T-163910	Front Panel Assembly	1
6	141-2-365T-35500	Bracket Switch	1
7	141-2-853T-46300	Spring Plate, Program, Large	1
8	141-2-853T-46400	Spring Plate, Program, Small	1
9	141-2-164T-17100	Slide Knob, VOL/BAL	2
10	141-0-164T-172910	Slide Knob Assembly, BASS/TREBLE	2
11	141-0-161T-334910	Push Button Assembly, R.SP	1
12	141-0-161T-335910	Push Button Assembly, PRO	1
13	141-0-161T-332910	Push Button Assembly, RADIO/FFWD	2
14	141-2-161T-333910	Push Button Assembly, LO/REPEAT, DX/OFF	1
15		Cushion, 4x4x10mm, P.C.B. mtg.	1
16	141-2-368T-09900	Heat Sink	1
17	141-2-310T-02500	Bracket, IC	1
18	141-0-311T-233910	Chassis Assembly	1
19	141-0-163T-358910	Rotary Knob, TUNING	1
20	141-2-538T-05600	Drum	1
21	123-2-481R-11000	Spring Coil	1
22	141-2-661T-21400	Pulley	2
23	141-2-753T-07900	Shaft, Tuning	1
24	141-2-513T-02200	Carriage	1
	141-2-322T-32200	Shield Plate, Large	1
	141-2-322T-32300	Shield Plate, Small	1
		Dial Rope, 0.3φx750mm	1
25	141-2-352T-21600	Spacer, Dial Rope	1
26	141-2-472T-00101	Lug, Volume Lead	2
27	141-2-472T-01001	Lug, LED Lead mtg.	1

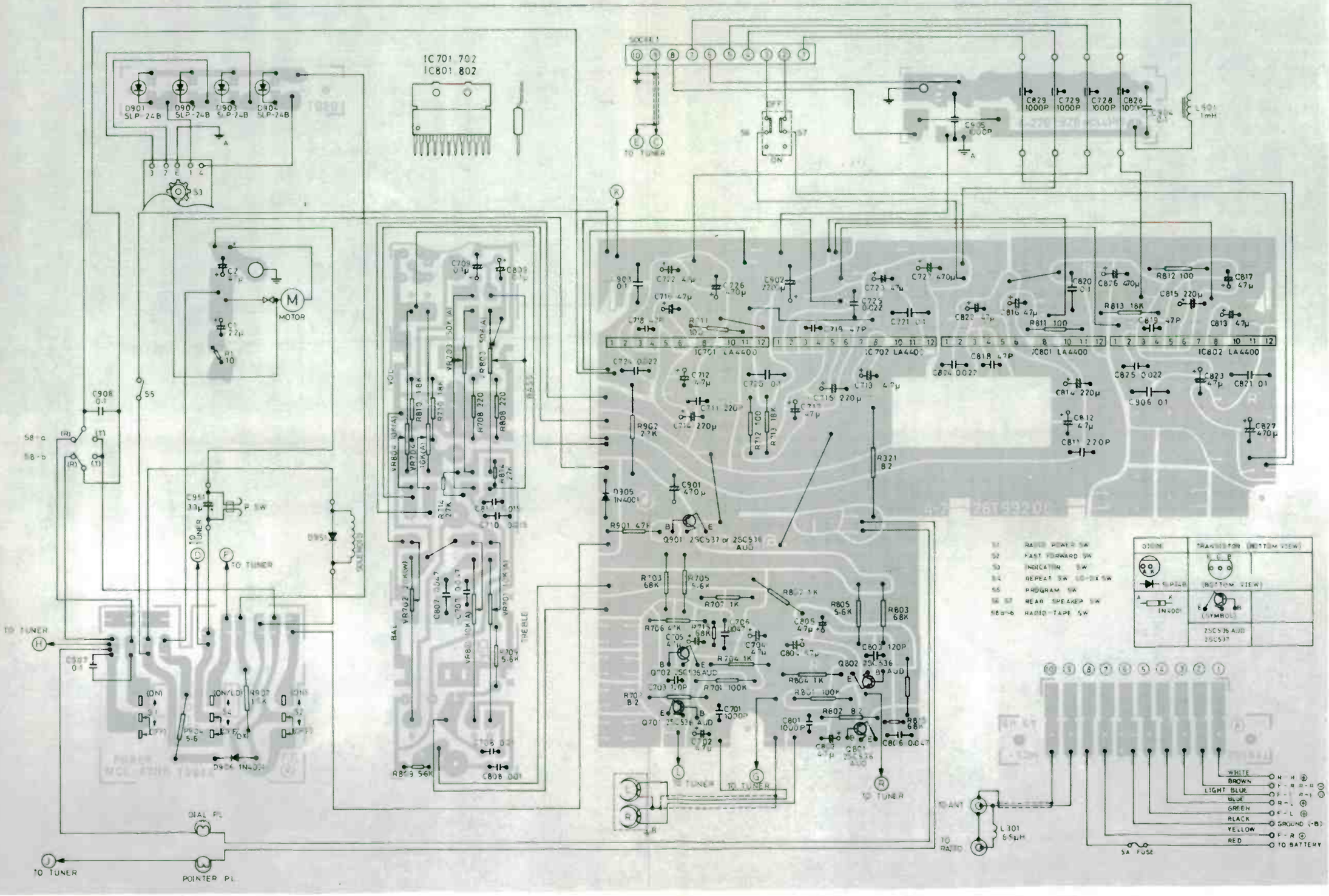
Ref. No.	Part No.	Description	Q'ty
SEMICONDUCTORS			
Q101		Transistor, 2SK61Y1, (FET)	1
Q102		Transistor, 2SC1674M	1
Q103		Transistor, 2SC1675L	1
IC301		Integrated Circuit, LA1201B2	1
IC302		Integrated Circuit, LA3350B	1
D102		Diode, DS442	1
D103		Diode, 1S553	1
D301,302		Diode, 1S188FM-1	2
D303		Diode, WZ090	1
Q701,801		Transistor, 2SC536AUD	2
Q702,802		Transistor, 2SC536AUD	2
Q901		Transistor, 2SC536AUD or Transistor, 2SC537	1
IC701,702 801,802		Integrated Circuit, LA4400A or B	4
D901,902, 903,904		Diode, SLP24B, (LED)	4
D905,906		Diode, 1N4001	2
ELECTRICAL PARTS (TUNER)			
L101	4-265R-10171	VHF Coil	1
L102	4-265T-02900	VHF Coil	1
L103	4-265R-12700	VHF Coil	1
L104	4-265T-02800	VHF Coil	1
L301	4-253T-05800	Choke Coil, 6.5μH	1
L302	4-253T-01015	Choke Coil, 15mH	1
CR301	4-227R-11600	CR Pack	1
CR302,303	4-227T-01400 or 4-227T-01410	CR Pack	2
CF301	4-256T-80400 / 4-256T-80471 / 4-256T-80472 / 4-256T-80473 / 4-256T-80474 (or)	IF Filter, FM	1
T101	4-256R-20830	IF Transformer, FM	1
T301	4-256R-15130	IF Transformer, FM	1
T302	4-256R-02330	IF Transformer, FM	1
S1	4-231T-50671	Switch, Radio Power	1
	4-235T-32371	Socket, 4P	1
	4-236T-09500	Plug, 4P	1
PL1	4-612T-05971 or 4-612T-06474	Lamp, 5V 60mA	2
PL2	4-612T-06573	Lamp, 5V 60mA	1
	4-226T-938911	P.C.B. Assembly, Tuner	1
ELECTRICAL PARTS (AUDIO)			
S2	4-231T-50671	Switch, F FWD	1
S4	4-231T-50671	Switch, LO/REPEAT, DX/OFF	1
S6,7	4-231T-42771	Switch, Rear SP	1
S8	4-231T-51300	Switch, RADIO/OFF	1
	4-234T-01300	Fuse, 5A	1
41	4-235T-36500	Socket, Output	1
42	4-226T-992910	P.C.B. Assembly, Audio	1
43	4-226T-993910	P.C.B. Assembly, Volume	1
44	4-226T-994910	P.C.B. Assembly, Switch	1
45	4-226T-928910	P.C.B. Assembly, Feed Through Capacitor	1
46	4-226T-92900	P.C.B. LED	1



NOTE 1 ALL RESISTOR VALUES IN OHMS UNLESS OTHERWISE
2 ALL CAPACITOR VALUES IN MFD UNLESS OTHERWISE
BUT $\mu = 10^{-6}$ FD $P = 10^{-6}$ MFD $= 10^{-12}$ FD

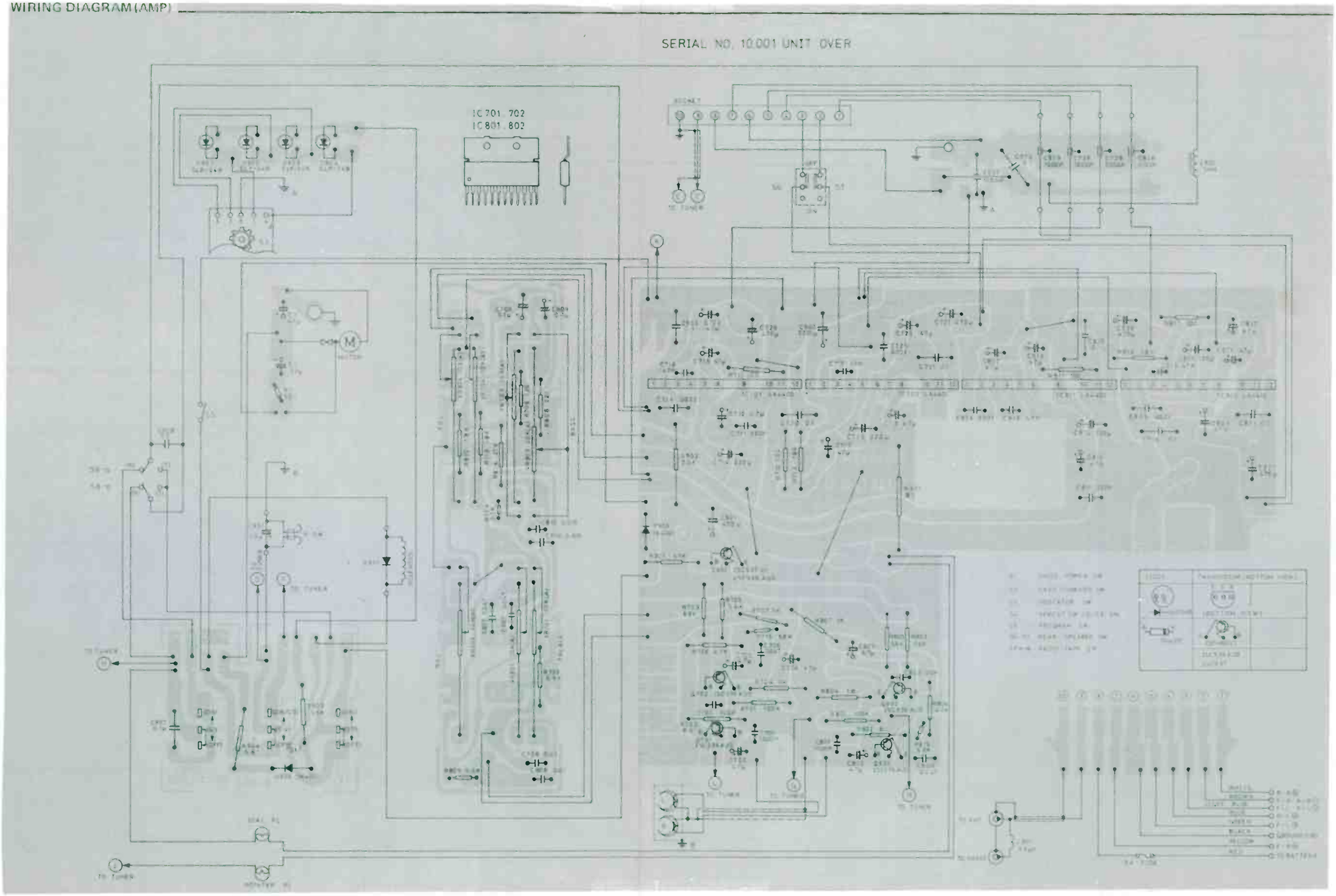
WIRING DIAGRAM (AMP)

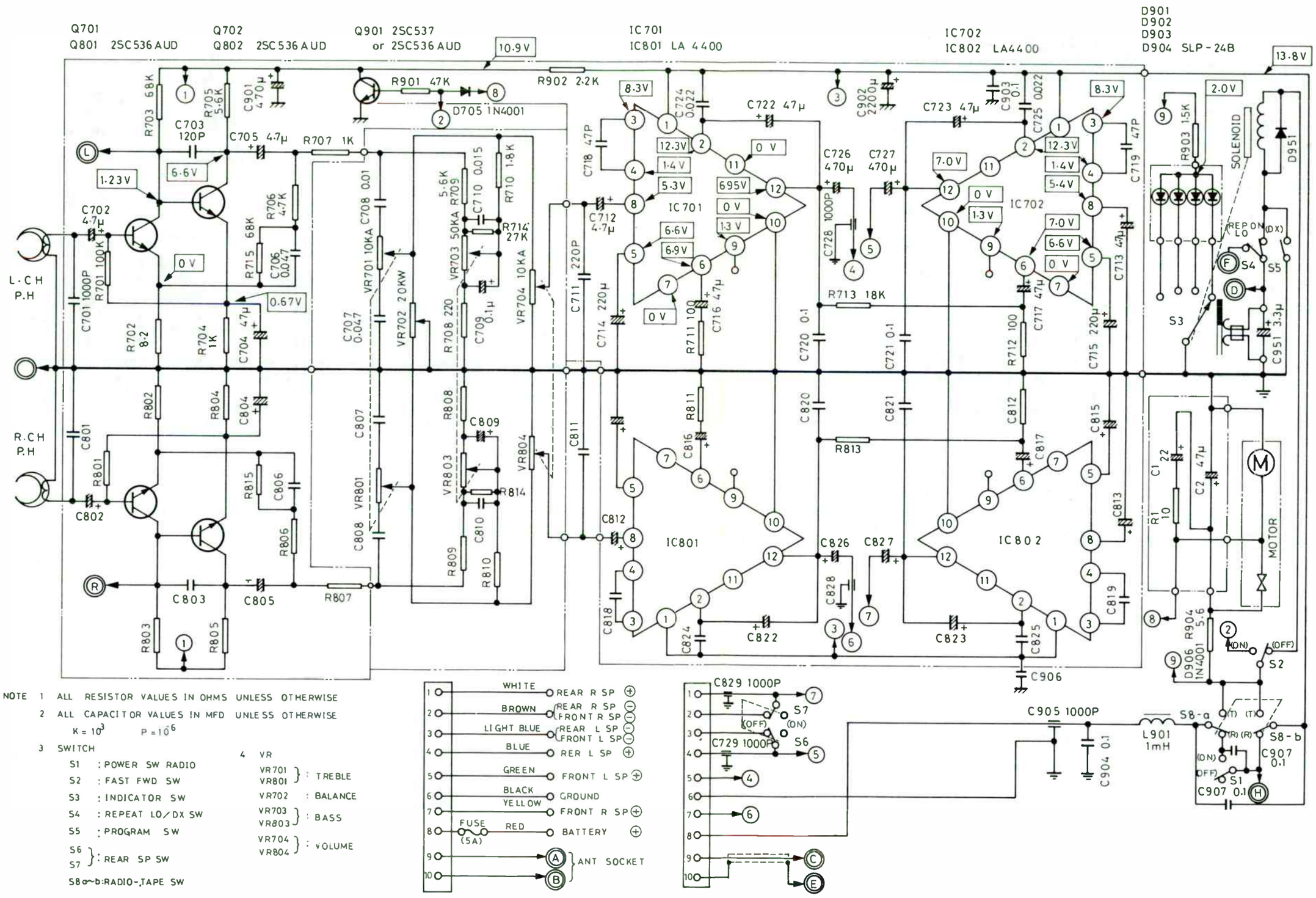
SERIAL NO. 1 - 10.000 UNIT



Sankyo SCS-222

WIRING DIAGRAM (AMP)





NOTE 1 ALL RESISTOR VALUES IN OHMS UNLESS OTHERWISE

2 ALL CAPACITOR VALUES IN MFD UNLESS OTHERWISE

K = 10^3 P = 10^6

3 SWITCH

S1 : POWER SW RADIO
S2 : FAST FWD SW
S3 : INDICATOR SW
S4 : REPEAT LO/DX SW
S5 : PROGRAM SW
S6, S7 : REAR SP SW
S8a~b : RADIO-TAPE SW

4 VR

VR701, VR801 : TREBLE
VR702 : BALANCE
VR703, VR803 : BASS
VR704, VR804 : VOLUME

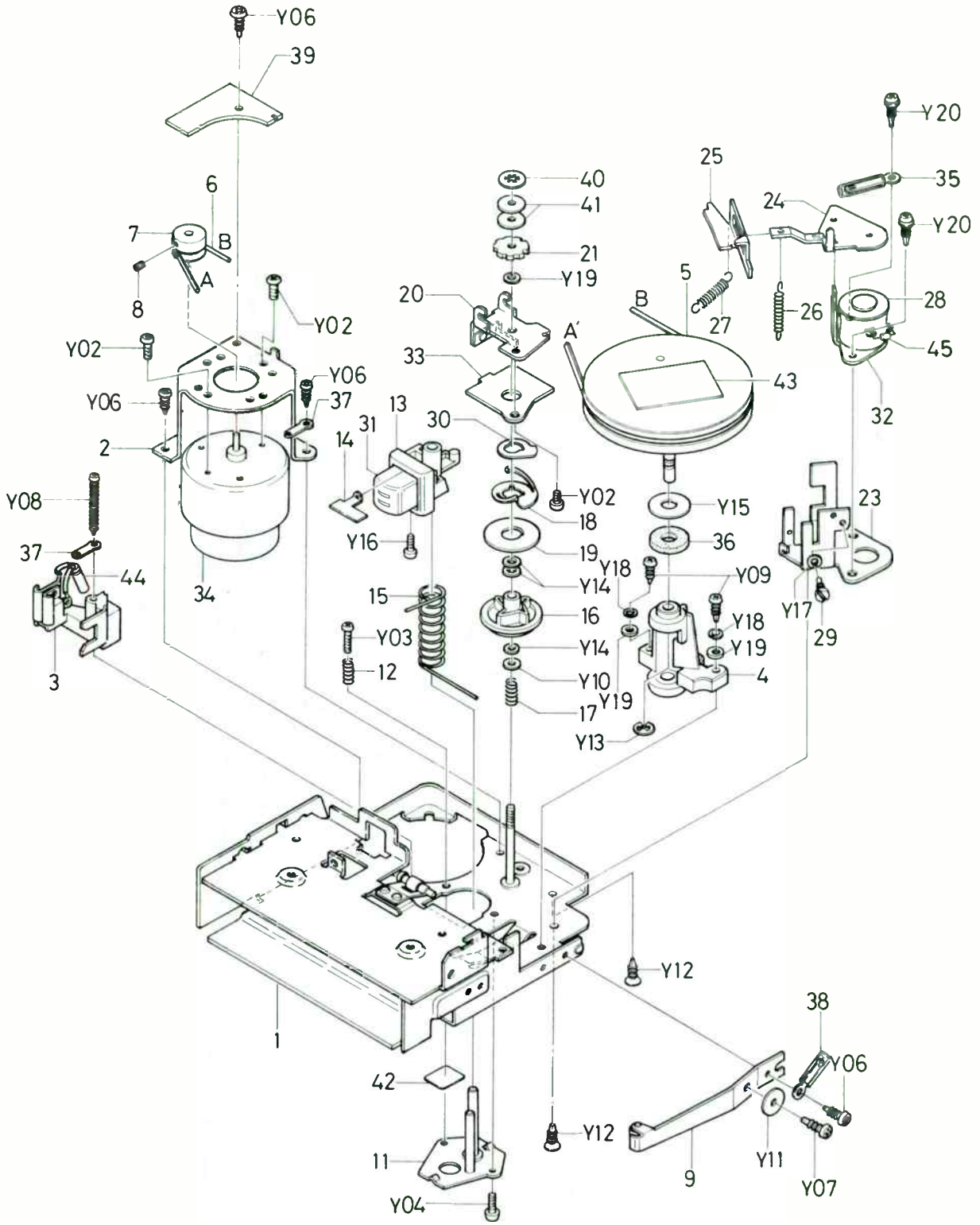
Ref. No.	Part No.	Description	Q'ty
MOUNTING PARTS			
Y01		Screw, Pan Hd., 2.6x6mm	1
Y02		Screw, Pan Hd., 3x6mm	4
Y03		Tapping Screw, Pan Hd., 2.6x6mm	1
Y04		Tapping Screw, Pan Hd., 3x6mm	16
Y05		Tapping Screw, Pan Hd., 3x8mm	11
Y06		Tapping Screw, Pan Hd., 3x10mm	1
Y07		Tapping Screw, Pan Hd. with Washer, 3x8mm	4
Y08		Screw, Pan Hd. with Spring Washer, 3x4mm	5
Y09		Special Screw, 1.7x4mm	2
Y10		Special Screw, 1.7x6mm	1
Y11		Spring Washer, 1.7mm	2
Y12		Nut, 3mm	4
Y13		Washer, 2.1x6x0.3mm	1
Y14		Fiber Washer, 3.3x8x0.5mm	2
Y15		Screw, Bind Hd., 3x4mm	2
Y16		Graphite Nylon Washer, 3.1x5.4x0.5mm	1
RESISTORS (TUNER)			
		All Resistors are Carbon P-type ¼W, ±10% unless otherwise noted.	
R101		10 ohm	1
R302		100 ohm	1
R307		270 ohm	1
R105		330 ohm	1
R315		820 ohm	1
R108,305, 308,309, 310		1K ohm	5
R304		1.5K ohm	1
R306		2.2K ohm	1
R318,319, 109,111, 314,317		3.3K ohm	6
R313		8.2K ohm	1
R110		10K ohm	1
R301		33K ohm	1
R104,112, 303,312		100K ohm	4
R107		680K ohm	1
R311		1M ohm	1
R320		Solid, 68 ohm, ±10%, ½W	1
R316		Solid, 330 ohm, ±10%, ½W	1
R321		Metal Oxide, 82 ohm, ±10%, 2W	1
SVR301	4-222T-39574	Semi-fixed Variable Resistor, 5K ohm	1

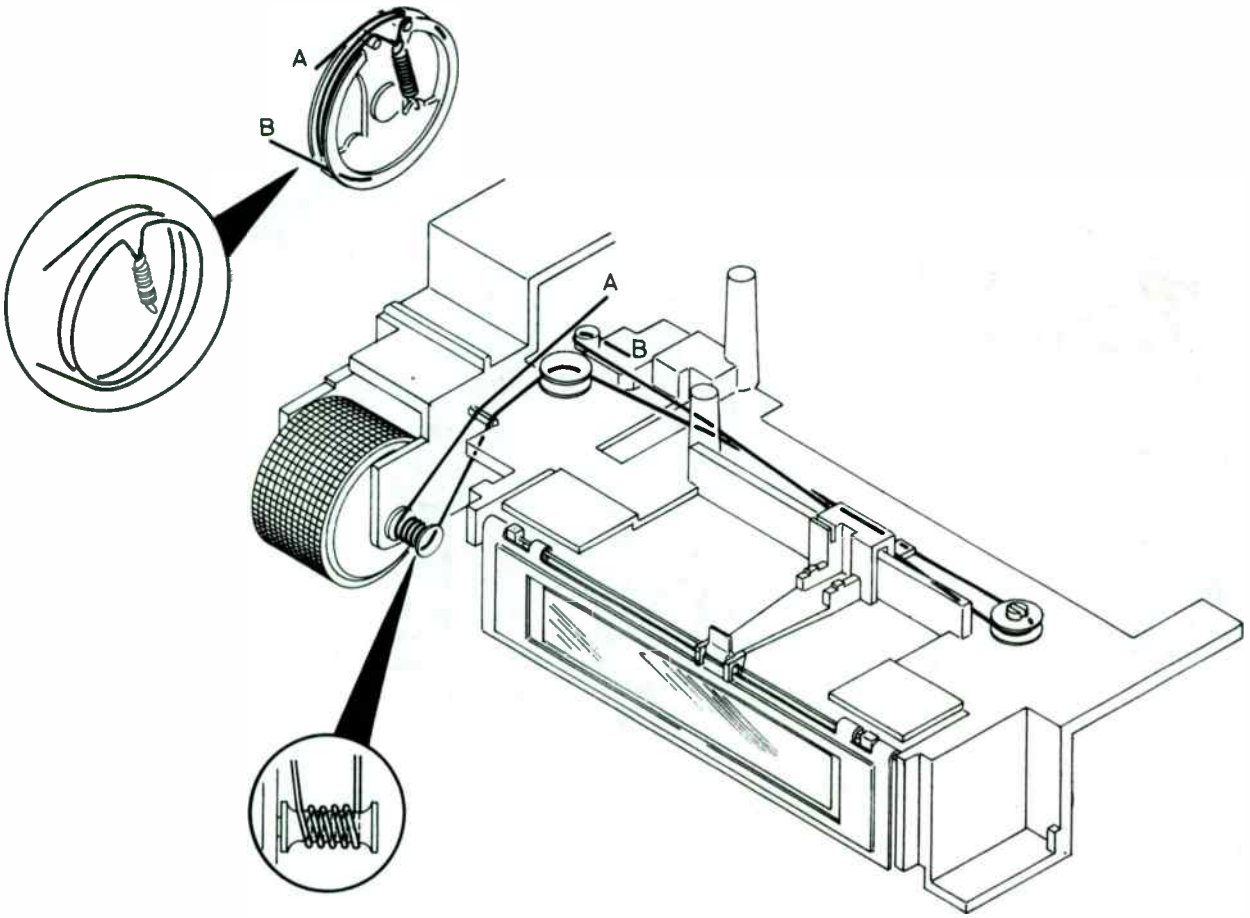
Ref.No.	Part No.	Description	Q'ty
RESISTORS (AUDIO)			
		All Resistors are Carbon P-type ¼W, ±10% unless otherwise noted.	
R702,802		8.2 ohm	2
R711,811, 712,812		100 ohm	4
R708,808		220 ohm	2
R704,804, 707,807		1K ohm	4
R903		1.5K ohm	1
R710,810		1.8K ohm	2
R902		2.2K ohm	1
R706,806		4.7K ohm	2
R705,805, 709,809		5.6K ohm	4
R713,813		18K ohm	2
R714,814		27K ohm	2
R901		47K ohm	1
R703,803, 715,815		68K ohm	4
R701,801		100K ohm	2
R904		Solid, 5.6 ohm, ±10%, ½W	1
VR701,801	4-222T-46771	Variable Resistor, 10K ohm "A" x 2, TREBLE	1
VR702	4-222T-46800	Variable Resistor, 20K ohm "W", BALANCE	1
VR703,803	4-222T-46772	Variable Resistor, 50K ohm "A" x 2, BASS	1
VR704,804	4-222T-46700	Variable Resistor, 10K ohm "A" x 2, VOLUME	1
CAPACITOR (TUNER)			
C112		Ceramic, 3pF, ±0.25pF, 50V	1
C122		Ceramic, 5pF, ±0.25pF, 50V	1
C107,113		Ceramic, 6pF, ±0.5pF, 50V	2
C105,106, 118		Ceramic, 10pF, ±10%, 50V	3
C120		Ceramic, 12pF, ±10%, 50V	1
C104,111, 114		Ceramic, 15pF, ±10%, 50V	3
C121		Ceramic, 18pF, ±10%, 50V	1
C103		Ceramic, 20pF, ±10%, 50V	1
C119,308		Ceramic, 30pF, ±10%, 50V	2
C310		Ceramic, 100pF, ±10%, 50V	1
C115		Ceramic, 330pF, ±10%, 50V	1
C109,301, 303,305, 318		Ceramic, 0.01μF, +80 −20%, 50V	5
C110,117 116,123, 304		Ceramic, 0.022μF, +80 −20%, 50V	5
C101		Ceramic, 0.04μF, ±20%, 50V	1
C314		Styrol, 1500pF, ±5%, 125V	1
C319,320		Mylar, 0.0082μF, ±20%, 50V	2
C306		Mylar, 0.01μF, ±20%, 50V	1
C321,322		Mylar, 0.018μF, ±20%, 50V	2
C302		Mylar, 0.022μF, ±20%, 50V	1
C307,313		Mylar, 0.047μF, ±20%, 50V	2
C311		Electrolytic, 0.1μF, 10V	1
C315		Electrolytic, 0.22μF, 10V	1
C317		Electrolytic, 0.33μF, 10V	1
C316		Electrolytic, 0.47μF, 10V	1
C309,312		Electrolytic, 4.7μF, 25V	2
C324		Electrolytic, 470μF, 16V	1
C323		Electrolytic, 220μF, 10V	1
VC,CT	4-224T-06800	Tuning Capacitor	1

Ref. No.	Part No.	Description	Q'ty
CAPACITOR (AUDIO)			
C718,818, 719,819		Ceramic, 47pF, ±20%, 50V	4
C703,803		Ceramic, 120pF, ±20%, 50V	2
C904,907, 908		Ceramic, 0.1μF, +80 −20%, 50V	3
C701,801		Mylar, 0.001μF, ±20%, 50V	2
C708,808		Mylar, 0.01μF, ±20%, 50V	2
C710,810		Mylar, 0.015μF, ±20%, 50V	2
C724,824, 725,825		Mylar, 0.022μF, ±20%, 50V	4
C706,806, 707,807		Mylar, 0.047μF, ±20%, 50V	4
C720,820, 721,821, 903,906		Mylar, 0.1μF, ±20%, 50V	6
C709,809		Electrolytic, 0.1μF, 10V	2
C702,802, 705,805, 712,812, 713,813		Electrolytic, 4.7μF, 25V	8
C704,804		Electrolytic, 47μF, 6.3V	2
C716,816, 717,817, 722,822, 723,823		Electrolytic, 47μF, 10V	8
C714,814, 715,815		Electrolytic, 220μF, 10V	4
C726,826, 727,827		Electrolytic, 470μF, 10V	4
C901		Electrolytic, 470μF, 16V	1
C902		Electrolytic, 2200μF, 16V	1
C728,828, 729,829, 905	4-223T-03800	Feed Through Capacitor, 1000pF	5
C711,811		Ceramic, 220pF, ±20%, 50V	2

Ref. No.	Part No.	Description	Q'ty
MECHANISM (AT-8063)			
1	141-0-311T-204911	Chassis Assembly	1
2	141-2-378T-07500	Bracket Motor	1
3	141-0-821T-00200	Tape Guide Assembly	1
4	141-0-571T-00700	Bearing Axis Assembly	1
5	141-0-521T-05600	Flywheel Assembly	1
6	141-2-564T-16300	Belt	1
7	141-2-661T-69102	Pulley, Motor	1
	141-2-661T-69103 or 141-2-661T-69104		
8		Screw, Headless, 2.6x5mm	1
9	141-0-853T-417910	Spring Plate Assembly, Side Pressure	1
11	141-0-375T-063910	Bracket, Head Assembly	1
12	147-2-851T-00900	Spring Coil Azimuth	1
13	141-2-375T-06200	Bracket, Head	1
14	141-2-352T-21300	Spacer, Head Earth	1
15	141-2-851T-89600	Spring Coil	1
16	141-2-671T-05000	Cam	1
17	141-2-851T-89500	Spring Coil	1
18	141-2-764T-01400	Brush, Channel	1
19	141-2-352T-14400	Spacer, Brush	1
20	141-0-351T-334910	Bracket Mounting Assembly	1
21	141-2-411T-07400	Plate Nut	1
23	141-2-351T-33202	Bracket Mounting	1
24	141-2-741T-92301	Lever	1
25	141-2-741T-81101	Lever	1
26	141-2-851T-92600	Spring Coil, Bracket Mounting	1
27	141-2-855T-10200	Spring Coil, Lever mtg.	1
28	141-2-352T-16500	Spacer, Magnetic Coil mtg.	1
29	141-2-421T-20400	Special Screw, Bracket mtg.	1
30	141-2-352T-16700	Spacer, Cam	1
31	4-242T-19100	Magnetic Head	1
32	4-264T-06300	Magnetic Coil	1
33	4-226T-80300	P.C.B., Channel	1
34	4-527T-09000	Motor	1
35	141-2-472T-05801	Lug, Head Lead mtg.	1
36		Felt Washer, 9x13x2mm, Bearing Axis	1
37	123-2-472R-00400	Lug, Earth	2
38	123-2-472R-00600	Lug, Head Lead mtg.	1
39	4-226T-95600	P.C.B., Motor	1
40		Push Nut, 2.5x10x0.15mm, Gear	1
41	141-2-457T-09200	Special Washer, 4.5x9x1mm, Gear	2
42	141-2-352T-20000	Spacer	1
43	141-6-474T-02500	Identification Label	1
44		Electrolytic, 3.3μF, 16V, C951	1
45		Diode, 1N4002 or 10D-1, D951	1
		Electrolytic, 22μF, 16V, C1	1
		Solid, 10 ohm, ½W, R1	1
		Electrolytic, 47μF, 16V, C2	1
Y02		Screw, Pan Hd., 2.6x4mm	3
Y03		Screw, Pan Hd., 2.6x10mm	1
Y04		Screw, Pan Hd., 3x8mm	1
Y06		Tapping Screw, Pan Hd., 3x6mm	4
Y07		Tapping Screw, Pan Hd., 3x8mm	1
Y08		Tapping Screw, Pan Hd., 3x20mm	1
Y09		Screw, Pan Hd., 3x12mm	2
Y10		Washer, 3x6x0.5mm	1
Y11		Washer, 3x8x0.5mm	1
Y12		Tapping Screw, Flat Hd., 3x6mm	2
Y13		"E" Ring, 4mm	1
Y14		Graphite Nylon Washer, 3x5.4x0.25mm	3
Y15		Graphite Nylon Washer, 6.5x13x1mm	1
Y16		Tapping Tight Screw, 2.5x5mm	1
Y17		Spring Washer, 2.6mm	1
Y18		Spring Washer, 3mm	2
Y19		Washer, 3x6x1mm	3
Y20		Tapping Screw, Bind Hd., 3x6mm	2

EXPLODED VIEW (MECHANISM)





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