11.50

REALISTIC®

Service Manual

20-206

DX-100

General Coverage Communications Receiver

Catalog Number:20-206

CUSTOM MANUFACTURED FOR RADIO SHACK TC A DIVISION OF TANDY CORPORATION

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SPECIFICATIONS

The supply voltage is 120 V ±3 V, 60 Hz (240 V AC, 50 Hz for Australian models).
The power source must be isolated from other equipment connected to antenna or output.
The room temperature is 25 degrees C (77 degrees F).

A BAND

Speaker impedance: 8 ohms
Output readings are taken across a non-reactive load.
Output reference level is 50 mW total power.
The generator output shall terminate in an IRE loop with loop pointing toward rear of receiver.
Modulation: 1000 Hz, 30%

	UNIT	NOMINAL	LIMIT
Frequency Coverage	kHz	510–1650	520–1620
IF	kHz	455	±5
Antenna Sensitivity for S/N 10 dB at 600 kHz	μV/m	100	250
at 1000 kHz	μV/m	100	250
at 1400 kHz	μV/m	100	250
S/N at 1 mV/m at 1000 kHz	dB	31	25
ACA at reference level at 1000 kHz	dB	50	40
AGC figure of merit	dB	55	45
IF rejection at 600 kHz	dB	34	28
Image rejection at 1400 kHz	dB	38	30
Band-width at 6 dB down	kHz	6	3–6
Output, at 10% THD at 1000 kHz 5 mV/m, 1000 Hz, 30% Mod.	mW	750	550
Distortion at reference output at 1000 Hz, 30% Mod. at 5 mV/m	%	1.5	5
DC Current drain, no signal	mA	15	25
Whistle modulation of 2nd & 3rd harmonic at 1–10 mV/m	%	3	15
Dial Calibration at 600 kHz	kHz	—	±25
at 1000 kHz	kHz	—	±50
at 1600 kHz	kHz	—	±75

The oscillator must operate at 600 kHz, with all supply voltages of 105 V AC; an over-voltage of 10% shall not be harmful.

B BAND

Speaker impedance: 8 ohms
Use resistive load.
Reference output level: 50 mW
Connect signal generator hot lead through 18 pF capacitor to antenna terminal.
Disconnect telescopic antenna cable.
Modulation: 1000 Hz, 30%

	UNIT	NOMINAL	LIMIT
Frequency Coverage	MHz	1.5–4.8	1.55–4.5
IF	kHz	455	±5
Sensitivity for reference output power, S/N 10 dB at 1.8 MHz	μV/m	15	30
at 3 MHz	μV/m	10	25
at 4 MHz	μV/m	7	15
Image rejection at 4 MHz	dB	25	20
Dial Calibration at 1.8 MHz	kHz	—	±50
at 4 MHz	kHz	—	±150

C BAND

Speaker impedance: 8 ohms
Use resistive load.
Reference output level: 50 mW
Connect signal generator hot lead through 18 pF capacitor to antenna terminal.
Disconnect telescopic antenna cable.
Modulation: 1000 Hz, 30%

	UNIT	NOMINAL	LIMIT
Frequency Coverage	MHz	4.2–13.5	4.5–13
IF	kHz	455	±5
Sensitivity for reference output power, S/N 10 dB at 5 MHz	μV	15	30
at 7 MHz	μV	8	20
at 12 MHz	μV	4	10
Image rejection at 12 MHz	dB	12	8
Dial Calibration at 5 MHz	kHz	–	±150
at 10 MHz	kHz	–	±300
BFO Pitch range at 7 MHz	kHz	IF ± 5	IF ± 3

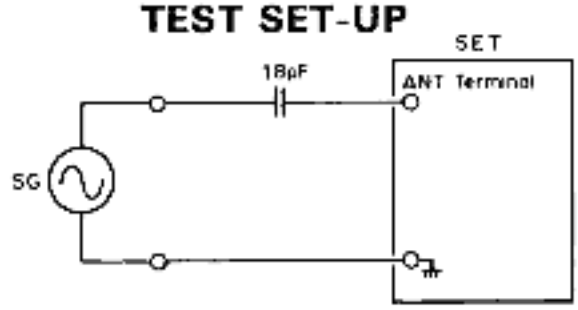
D BAND

Speaker impedance: 8 ohms
Use resistive load.
Reference output level: 50 mW
Connect signal generator hot lead through 18 pF capacitor to antenna terminal.
Disconnect telescopic antenna cable.
Modulation: 1000 Hz, 30%

	UNIT	NOMINAL	LIMIT
Frequency Coverage	MHz	12–31	13–30
IF	kHz	455	±5
Sensitivity for reference output power, S/N 10 dB at 14 MHz	μV	12	25
at 21 MHz	μV	5	12
at 28 MHz	μV	3	7
Image rejection at 28 MHz	dB	5	2
Dial Calibration at 13 MHz	kHz	–	±250
at 28 MHz	kHz	–	±400

NOTE: Nominal Specs represent the design specs; all units should be able to approximate these – some will exceed and some may drop slightly below these specs.
Limit Specs represent the absolute worst condition which still might be considered acceptable; in no case should a unit perform to less than within any Limit Spec.

TEST SET-UP



BLOCK DIAGRAM

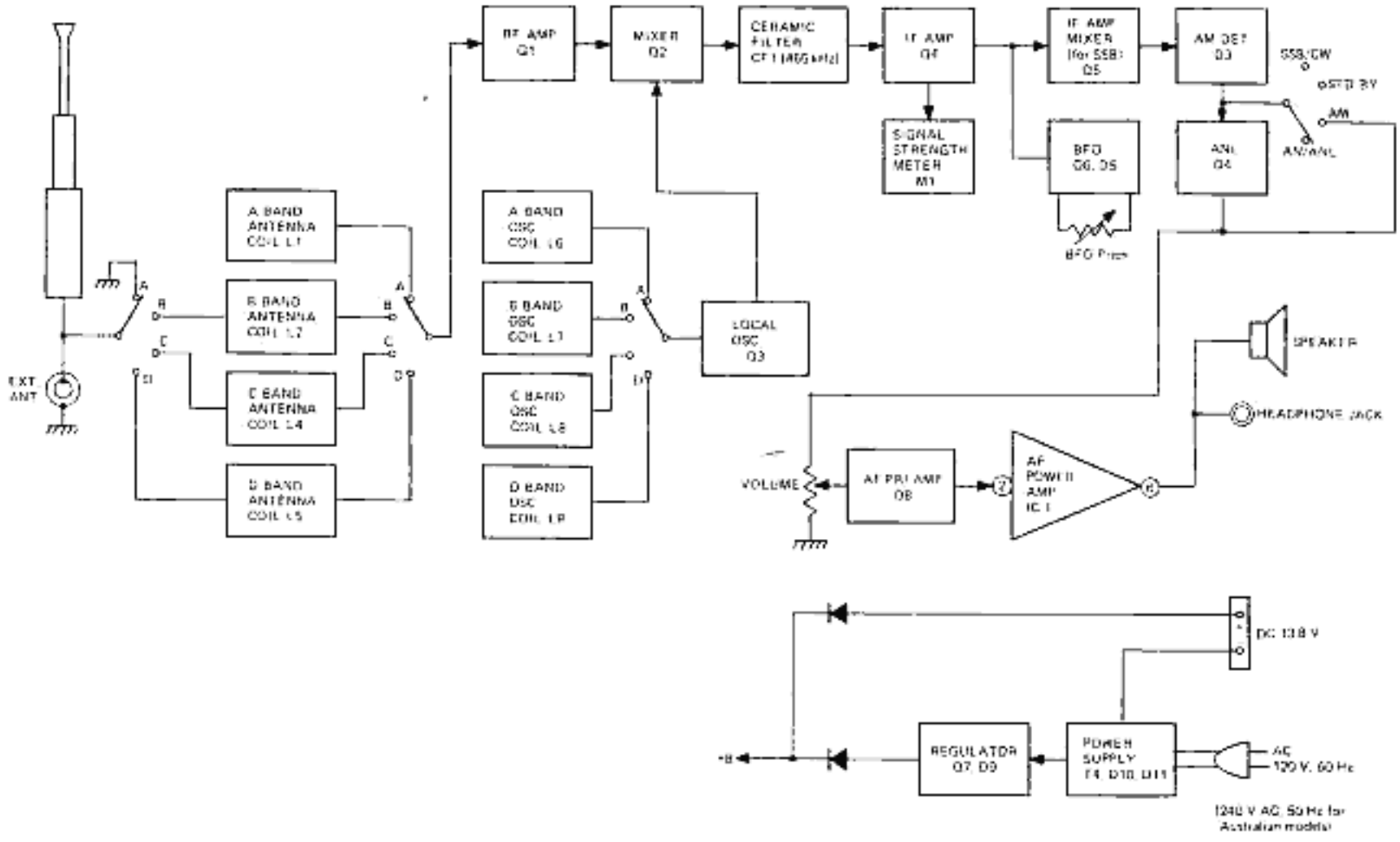
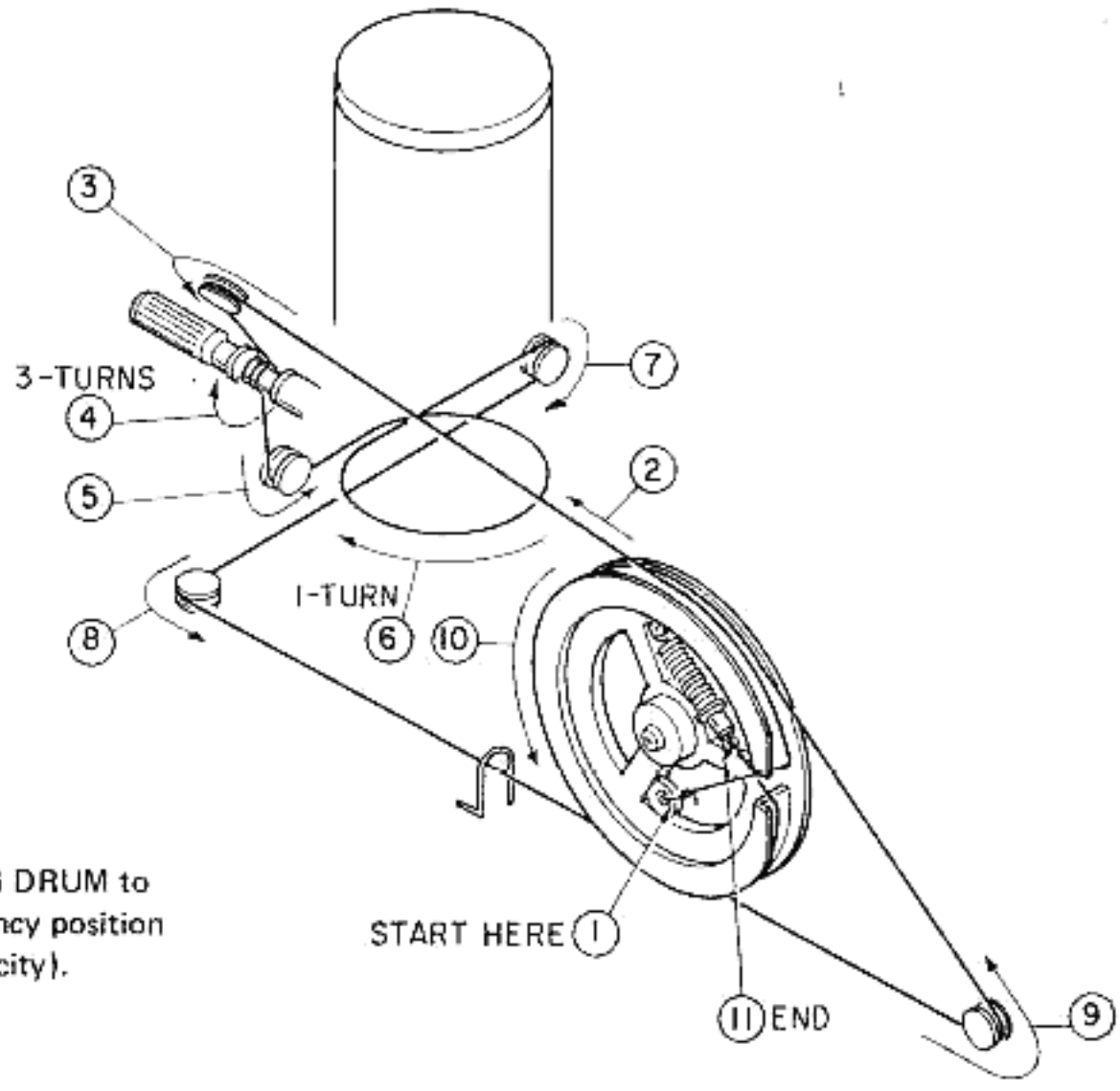


Figure 1

DIAL STRINGING DIAGRAM



Note: Set TUNING DRUM to Low Frequency position (MAX. Capacity).

Figure 2

ALIGNMENT INSTRUCTIONS

ALIGNMENT POINTS LOCATION

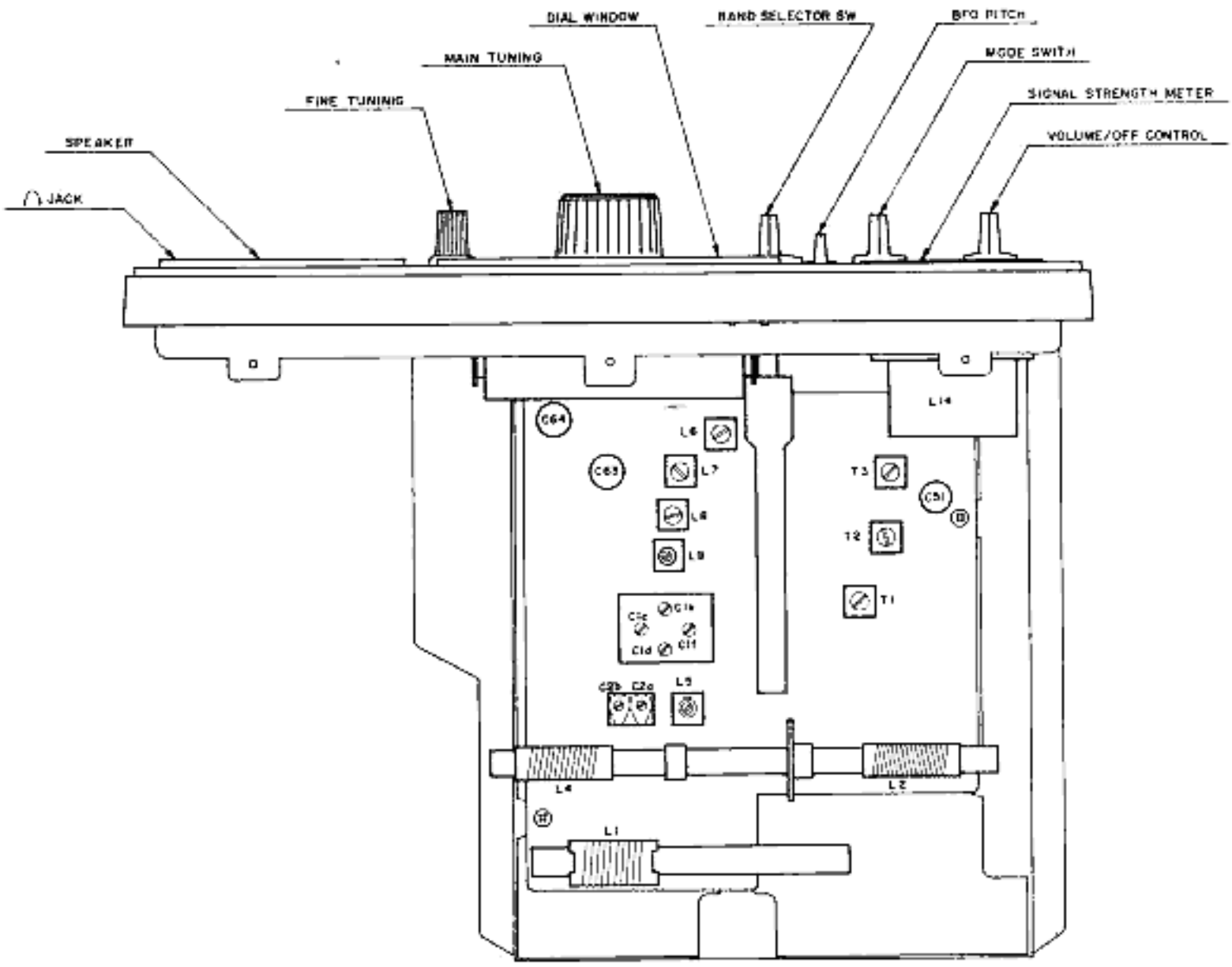


Figure 3

EQUIPMENT REQUIRED

1. AM Signal Generator
2. Vacuum Tube Voltmeter
3. Frequency Counter

GENERAL PREPARATIONS

1. Check source voltage for 120 V, 60 Hz (240 V, 50 Hz for Australian models).
2. Set BAND switch to band being aligned.
3. Turn FINE Tuning and BFO Pitch to center position (zero).
4. Set MODE switch to AM.
5. For bands B, C and D telescopic antenna should be disconnected.
6. Signal input should be kept as low as possible to avoid AGC action.
7. Standard modulation is 1000 Hz 30% for all bands.
8. Connection of signal generator should be between chassis ground and EXT. ANT. Jack.

A, B, C, D BAND IF ALIGNMENT

Alignment	Equipment	Connection	Step	Gen. Freq.	Dial Setting	Adjustment	For
IF	AM Signal Generator, V.T.V.M.	See Figure 4.		455 kHz	Maximum Frequency (A BAND)	T1, T2, T3	Maximum Output

A BAND ALIGNMENT

Alignment	Equipment	Connection	Step	Gen. Freq.	Dial Setting	Adjustment	For
TUNING COVERAGE	AM Signal Generator, V.T.V.M.	See Figure 5.	1	505 kHz	Maximum Frequency	L6 OSC. Coil	Maximum Output
			2	1650 kHz	Maximum Frequency	C1e	Maximum Output
			3	Repeat steps 1 and 2 until tuning coverage is exactly from 505 kHz to 1650 kHz.			
TRACKING	AM Signal Generator, V.T.V.M.	See Figure 5.	1	600 kHz	Tune to Signal.	L1 Antenna Coil	Maximum Output
			2	1400 kHz	Tune to Signal.	C1c	Maximum Output
			3	Repeat steps 1 and 2 until no further improvement can be made.			

B BAND ALIGNMENT

Alignment	Equipment	Connection	Step	Gen. Freq.	Dial Setting	Adjustment	For
TUNING RANGE	AM Signal Generator, V.T.V.M.	See Figure 6.	1	1.5 MHz	1.5 MHz	L7 OSC. Coil	Maximum Output
			2	4.8 MHz	4.8 MHz	C1f	Maximum Output
			3	Repeat steps 1 and 2 until tuning range covers exactly from 1.5 MHz to 4.8 MHz.			
TRACKING	AM Signal Generator, V.T.V.M.	See Figure 6.	1	1.8 MHz	Tune to Signal.	L2 Antenna Coil	Maximum Output
			2	4.0 MHz	Tune to Signal.	C1d	Maximum Output
			3	Repeat steps 1 and 2 until no further improvement can be made.			

C BAND ALIGNMENT

Alignment	Equipment	Connection	Step	Gen. Freq.	Dial Setting	Adjustment	For
TUNING RANGE	AM Signal Generator, V.T.V.M.	See Figure 7.	1	4.2 MHz	4.2 MHz	L8 OSC. Coil	Maximum Output
			2	13.5 MHz	13.5 MHz	C3a	Maximum Output
			3	Repeat steps 1 and 2 until tuning range covers exactly from 4.2 MHz to 13.5 MHz.			
TRACKING	AM Signal Generator, V.T.V.M.	See Figure 7.	1	5 MHz	Tune to Signal	L4 Antenna Coil	Maximum Output
			2	12 MHz	Tune to Signal.	C2b	Maximum Output
			3	Repeat steps 1 and 2 until no further improvement can be made.			

D BAND ALIGNMENT

Alignment	Equipment	Connection	Step	Gen. Freq.	Dial Setting	Adjustment	For
TUNING RANGE	AM Signal Generator, V.T.V.M.	See Figure 8.	1	12 MHz	12 MHz	L9 OSC. Coil	Maximum Output
			2	31 MHz	31 MHz	C3b	Maximum Output
			3	Repeat steps 1 and 2 until tuning range covers exactly from 12 MHz to 31 MHz.			
TRACKING	AM Signal Generator, V.T.V.M.	See Figure 8.	1	14 MHz	Tune to Signal.	L5 Antenna Coil	Maximum Output
			2	28 MHz	Tune to Signal.	C2a	Maximum Output
			3	Repeat steps 1 and 2 until no further improvement can be made.			

BFO ALIGNMENT

Alignment	Equipment	Connection	Step	Gen. Freq.	Adjust for
BFO	AM Signal Generator, Frequency Counter, V.T.V.M.	See Figure 9.	1	Set BAND Switch to C.	
			2	Set MODE Switch to AM.	
			3	Tune BFO Pitch and FINE Tuning to center position (zero).	
			4	7 MHz (AM, 1 kHz, 30%)	Tune the Main Tuning on set to Generator Frequency.
			5	7 MHz (No Modulation)	Set MODE Switch to SSB/CW. (At this time, Beat Sound comes on.)
			6	7 MHz (No Modulation)	Adjust L14 for no Beat Sound indication on speaker.
			7	Make sure that the Beat frequency is above 3.2 kHz on Frequency Counter by turning BFO Pitch Control to Maximum + (or −). If the frequency is below 3.2 kHz, repeat steps 3 through 6 until no further improvement can be made.	

EQUIPMENT CONNECTIONS

A, B, C, D BAND IF

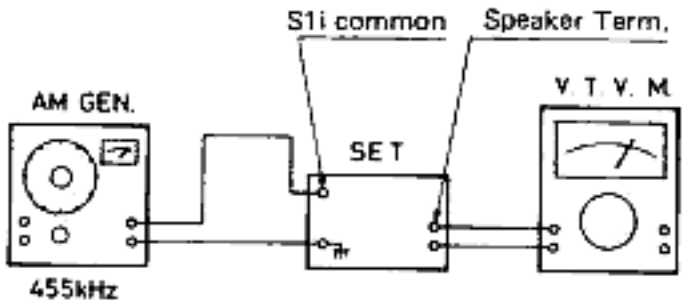


Figure 4

A BAND/TRACKING

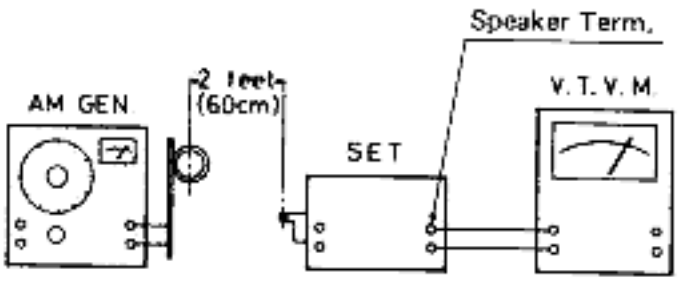


Figure 5

B BAND/TRACKING

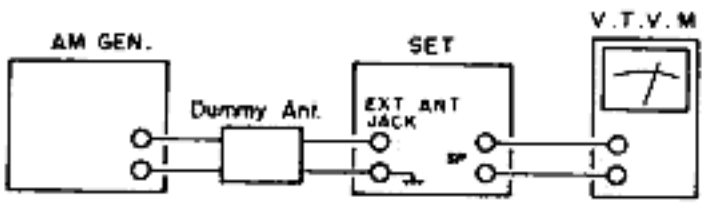


Figure 6

C BAND/TRACKING

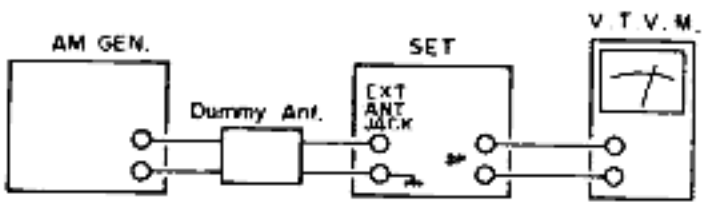


Figure 7

D BAND/TRACKING

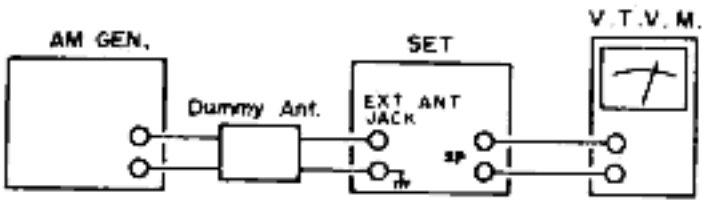


Figure 8

BFO ALIGNMENT

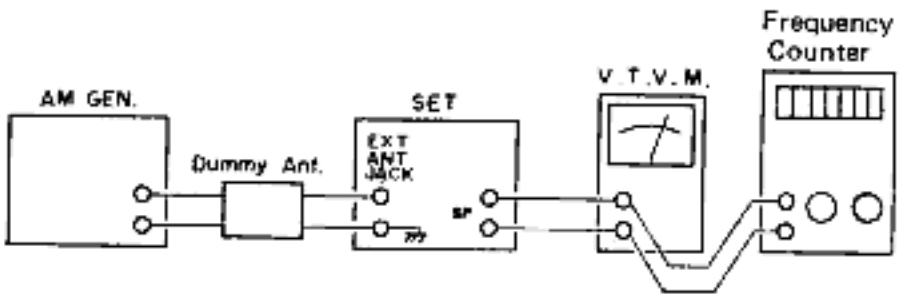


Figure 9

SCHEMATIC OF DUMMY ANTENNA

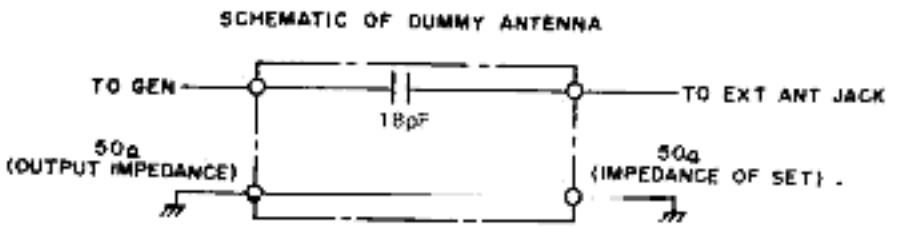


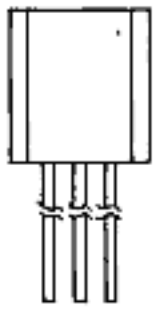
Figure 10

TROUBLESHOOTING CHART

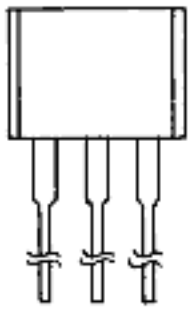
SYMPTOM	CAUSE AND REMEDY
1) No output	A) Faulty AC power cord: Replace the cord. B) Faulty 12 V DC Jack: Repair or replace. C) DC cable polarity is wrong: Correct polarity. D) Blown in-line fuse: Replace. E) Rectifier defective: Replace. F) Defective Q7 or D9 circuitry: Replace defective component. G) HEADPHONE jack is defective: Repair or replace. H) Speaker voice coil is defective: Replace. I) Open power transformer: Replace the transformer. J) Defect in the power switch: Replace the switch. K) Defective IC: Replace defective IC. L) Defect in the power switch S4: Repair or replace it. M) Defect in VOLUME (R1): Replace.
2) A BAND does not work.	A) Poor contact in BAND switch: Repair or replace switch. B) Transistor, diode, IFT, IC, resistor, coil or capacitor in A BAND IF circuit defective: Replace the defective component(s). C) Bar Antenna coil defective: Repair or replace.
3) B BAND does not work.	A) Poor contact in selector switch: Repair or replace switch. B) Transistor, diode, IFT, IC, resistor, coil or capacitor in B BAND IF circuit defective: Replace the defective component(s). C) Defective Antenna coil L3: Replace it.
4) C BAND does not work.	A) Poor contact in selector switch: Repair or replace switch. B) Transistor, diode, IFT, IC, coil, resistor or capacitor in C BAND IF circuit defective: C) Antenna coil defective: Repair or replace.
5) D BAND does not work.	A) Poor contact in selector switch: Repair or replace switch. B) Transistor, diode, IFT, IC, coil, resistor or capacitor in D BAND IF circuit defective: Replace the defective component(s). C) Defective Antenna coil L5: Replace it.

SYMPTOM	CAUSE AND REMEDY
6) No effect with fully extended rod Antenna on B, C, D BAND	A) Poor contact of band selector switch and rod Antenna: Repair or replace. B) Broken wire between band selector switch and antenna: Repair or replace.
7) No effect when connecting external antenna	A) Poor contact on jack for EXT. ANT. or defective jack: Repair or replace.
8) HEADPHONE jack does not function.	A) Poor contact on HEADPHONE jack or defective jack: Repair or replace.
9) MODE Switch does not work.	A) Poor contact in MODE Switch: Repair or replace. B) Defective D4 circuitry: – Replace defective component(s). C) Defective L14, Q6, D5 or R2 circuitry: Replace defective component(s).
10) BFO does not work.	A) Defective R2: Replace. B) Defective R51, R52, D5 or Q6 circuitry: Replace defective component(s).
11) SIGNAL STRENGTH Meter does not work.	A) Defective SIGNAL STRENGTH Meter: Replace. B) Defective C73: Replace.
12) FINE Tuning does not work.	A) Defective R3: Replace. B) Defective D14, C69 or S1f circuitry: Repair or replace defective component(s).

IC & TRANSISTOR LEAD IDENTIFICATION



2SC1674
2SC1730



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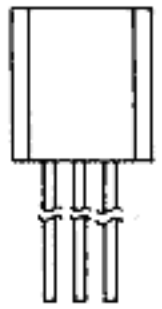

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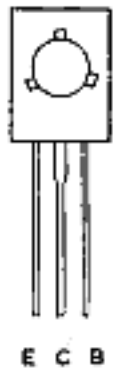
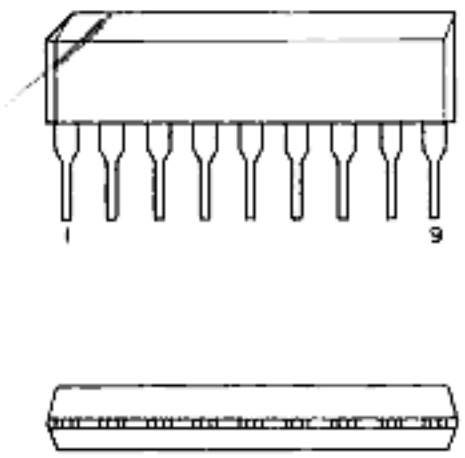
JE9014



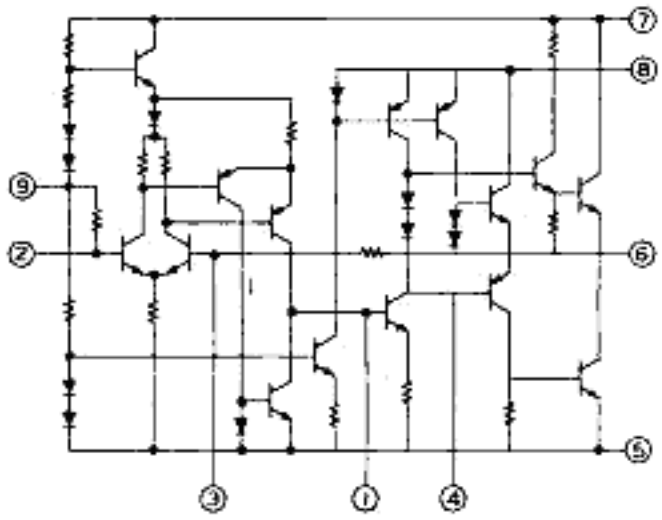
MJE9400

IC-1 TA7313P/HA12013



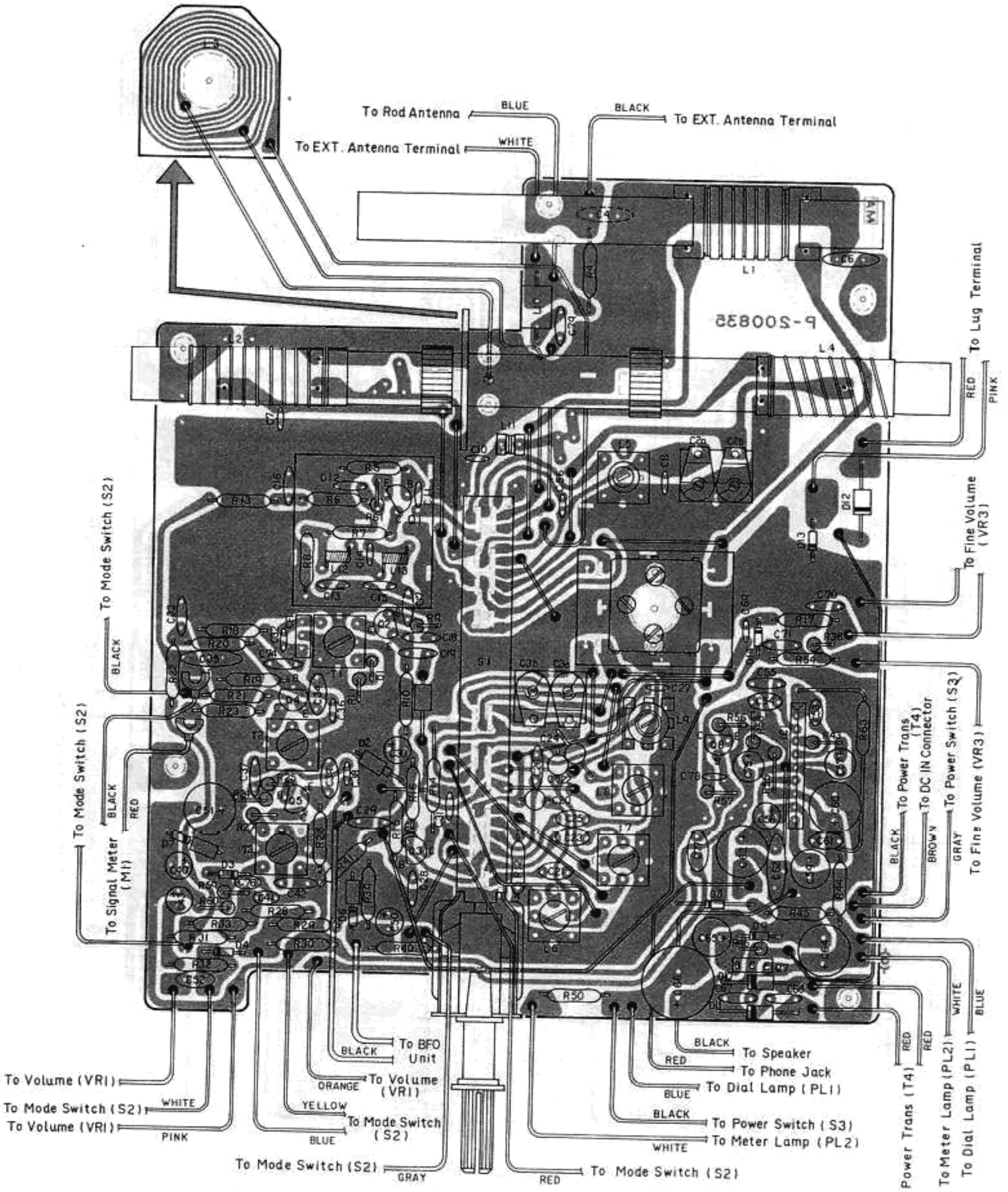
TA7313P

IC, INTERNAL CONNECTION

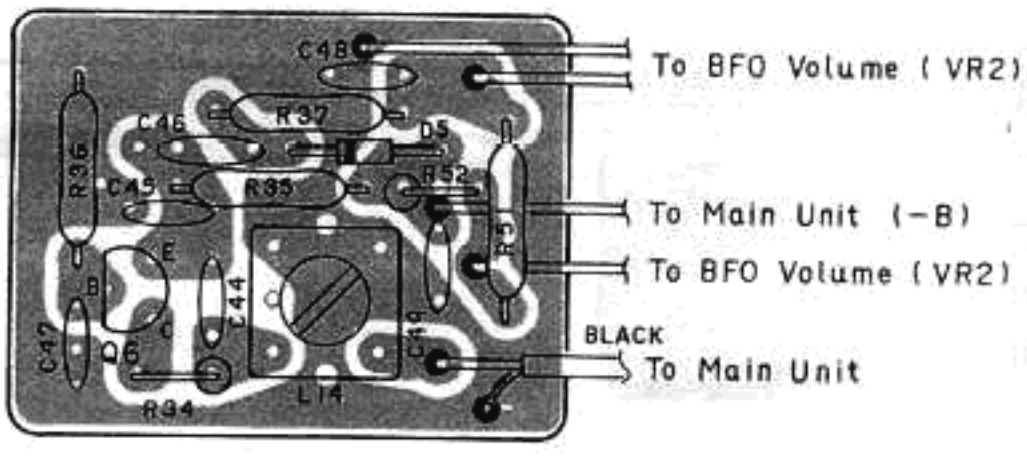


TA7313P

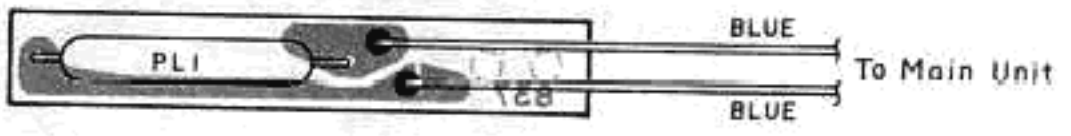
PRINTED CIRCUIT BOARD (TOP VIEW)



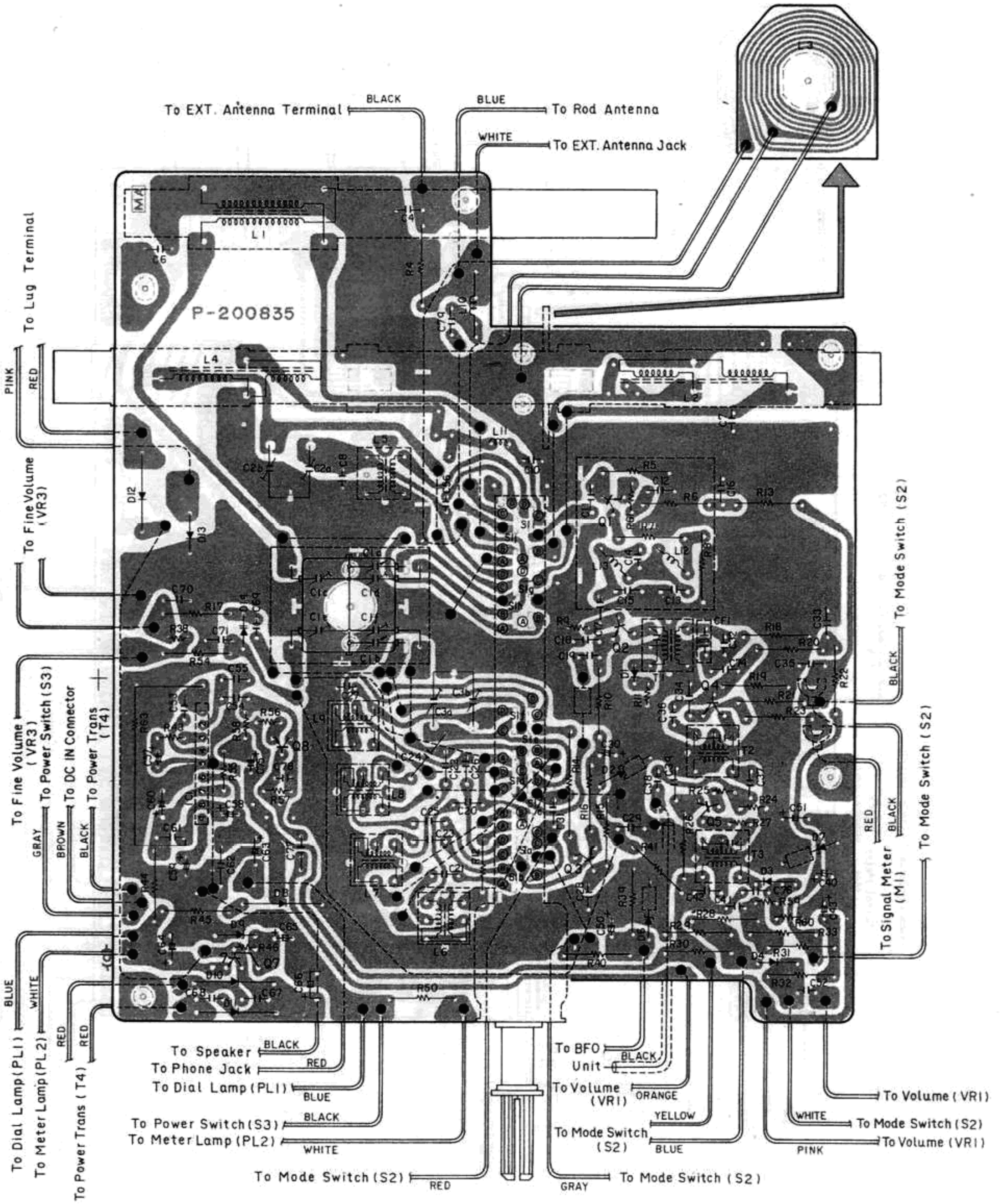
BFO P.C.B.



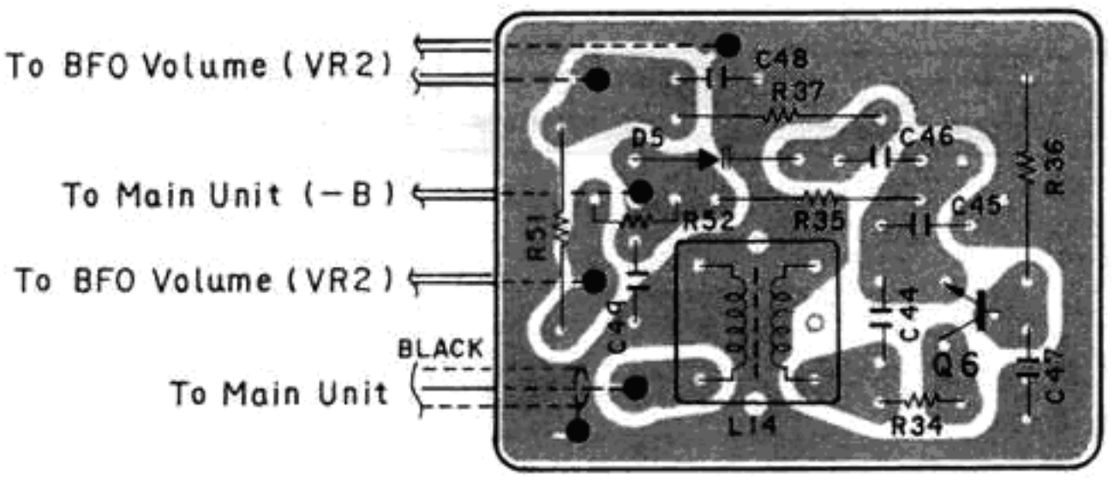
LAMP P.C.B.



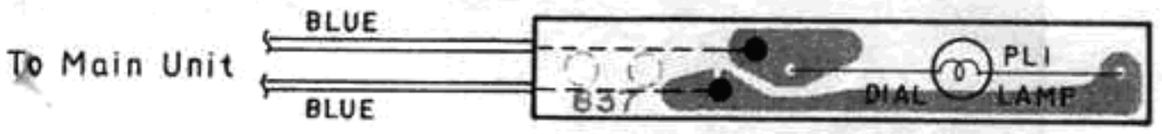
PRINTED CIRCUIT BOARD (BOTTOM VIEW)



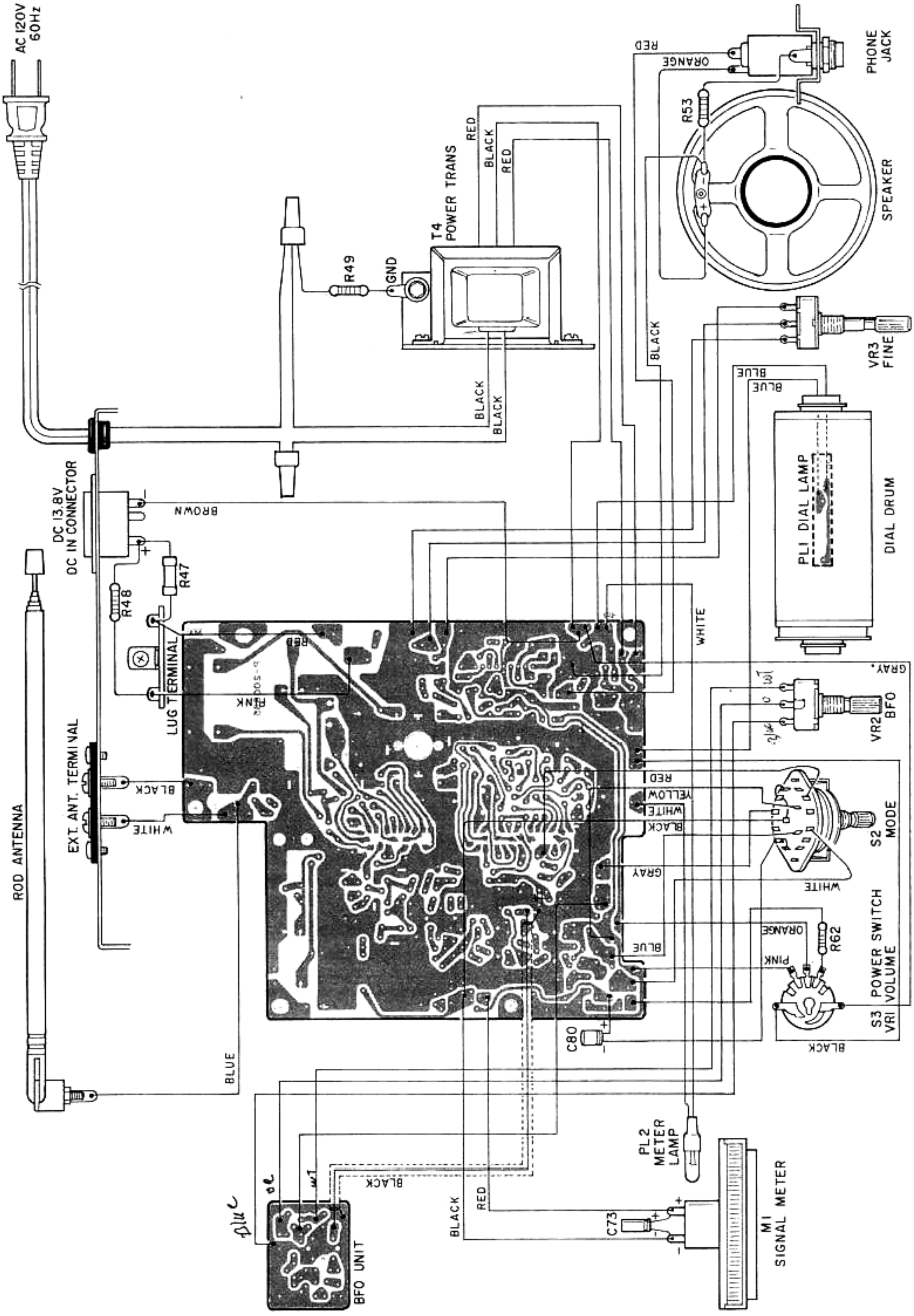
BFO P.C.B.



LAMP P.C.B.



WIRING DIAGRAM



ELECTRICAL PARTS LIST

Ref. No.	Description	RS Part No. (Mfr's Part No.)
CAPACITORS	( ): Variance Value SL : 350–100 ppm/°C	
C1a-f	Poly Variable Capacitor 226 pF x 2	C-4723 (P-150047)
C2a, b	Trimmer Capacitor AT2-52W or 2T16M or 2T-P15	C-1119 (P-160015) or (P-160022) or (P-160012)
C3a, b	Trimmer Capacitor AT2-52W or 2T16M or 2T-P15	C-0858 (P-160015) or (P-160022) or (P-160012)
C4	Ceramic 0.04 μF 25 WV	
C5	Not used	
C6	Ceramic 0.04 μF 25 WV	
C7	Ceramic 5 pF ± 0.5 pF 50 WV (SL)	CF-1105
C8	Ceramic 15(0–22) pF ± 10% 50 WV (SL)	CF-1195
C9	Not used	
C10	Ceramic 24 pF ± 10% 50 WV (SL)	CF-1262
C11	Ceramic 0.022 μF 25 WV	
C12	Ceramic 0.04 μF 25 WV	
C13	Ceramic 100 pF ± 10% 50 WV (SL)	CF-1425
C14	Ceramic 47 pF ± 10% 50 WV (SL)	CF-1366
C15	Ceramic 100 pF ± 10% 50 WV (SL)	CF-1425
C16	Ceramic 0.022 μF 25 WV	
C17	Ceramic 0.022 μF 25 WV	
C18	Ceramic 68 pF ± 10% 50 WV (SL)	CF-1959
C19	Polyester 0.01 μF ± 20% 50 WV	
C20	Polystyrene 240 pF ± 5% 50 WV	
C21	Polyester 0.0047 μF ± 20% 50 WV	
C22	Polystyrene 680 pF ± 5% 50 WV	
C23	Polyester 0.0022 μF ± 20% 50 WV	
C24	Polystyrene 2200 pF ± 5% 50 WV	
C25	Polyester 0.001 μF ± 20% 50 WV	
C26	Ceramic 470 pF ± 10% 50 WV (SL)	CF-1519
C27	Ceramic 24(0–27) pF ± 10% 50 WV (NPO)	CF-1261
*C27	Ceramic 18(0–27) pF ± 10% 50 WV	
C28	Ceramic 0.022 μF 25 WV	
C29	Ceramic 0.04 μF 25 WV	
C30	Electrolytic 10 μF/10 V or 16 V	
C31	Ceramic 0.022 μF 25 WV	
C32	Ceramic 1 pF ± 0.25 pF 50 WV (SL)	CF-1015
C33	Ceramic 0.022 μF 25 WV	
C34	Polyester 0.039 μF ± 20% 50 WV	
C35	Ceramic 0.1 μF 25 WV	
C36	Ceramic 1 pF ± 0.25 pF 50 WV (SL)	CF-1015
C37	Ceramic 0.022 μF 25 WV	
C38	Ceramic 33(22–72) pF ± 10% 50 WV (SL)	CF-1315
C39	Polyester 0.039 μF ± 20% 50 WV	
C40	Electrolytic 1 μF/50 V	
C41	Polyester 0.001 μF ± 20% 50 WV	
C42	Ceramic 0.04 μF 25 WV	
C43	Electrolytic 0.47 μF/50 V	
C44	Polystyrene 680 pF ± 5% 50 WV	
C45	Ceramic 240 pF ± 5% 50 WV (N470)	CF-2163
C46	Ceramic 100 pF ± 10% 50 WV (NPO)	CF-1424
C47	Ceramic 330 pF ± 10% 50 WV (SL)	CF-2026
C48	Ceramic 0.01 μF 50 WV	
C49	Ceramic 0.04 μF 25 WV	
C50	Electrolytic 10 μF/10 V or 16 V	
C51	Electrolytic 470 μF/10 V	
C52	Polyester 0.0047 μF ± 20% 50 WV	
C53	Polyester 0.0022 μF ± 20% 50 WV	
C54	Polyester 0.022 μF ± 20% 50 WV	
C55	Ceramic 0.01 μF 50 WV	
C56	Ceramic 7 pF ± 0.5 pF 50 WV (SL)	CF-1120
C57	Electrolytic 33 μF/10 V	
C58	Electrolytic 47 μF/10 V	
C59	Electrolytic 100 μF/10 V	
C60	Electrolytic 220 μF/10 V	
C61	Ceramic 0.022 μF 25 WV	
C62	Ceramic 0.1 μF 25 WV	
C63	Electrolytic 220 μF/10 V	
C64	Electrolytic 220 μF/10 V	
C65	Electrolytic 100 μF/10 V	
C66	Electrolytic 470 μF/16 V	
C67	Ceramic 0.022 μF 25 WV	
C68	Ceramic 0.022 μF 25 WV	
C69	Ceramic 15 pF ± 10% 50 WV (NPO)	CF-1190
C70	Ceramic 0.01 μF 50 WV	
C71	Ceramic 0.022 μF 25 WV	
C72	Not used	
C73	Electrolytic 3.3 μF/50 V	
C74	Ceramic 0.022 μF 25 WV	
C75	Electrolytic 47 μF/10 V	
C76	Polyester 0.0056 μF ± 20% 50 WV	
C77	Polyester 0.047 μF ± 20% 50 WV	
C78	Ceramic 680 pF ± 20% 50 WV	
C79	Ceramic 0.01 μF 50 WV	
C80	Electrolytic 4.7 μF/25 V	
C81	Not used	
CERAMIC FILTER		
CF1	Ceramic Filter CFM2-455Z	C-1118 (P-130090)
DIODES		
D1	Silicon Diode 1N4148	DX-0022
D2	Zener Diode XZ062 or RD6.2EB2	DX-1419
D3	Silicon Diode 1N4148	DX-0022
D4	Silicon Diode 1N4148	DX-0022
D5	Silicon Diode 1S310S or 1S2688	DX-1240

*For Japanese Models Only

Ref. No.	Description	RS Part No. (Mfr's Part No.)
D6	Zener Diode XZ062 or RD6.2EB2	DX-1419
D7	Zener Diode XZ072 or RD7.5EB2	DX-1435
D8	Silicon Diode 1N4148	DX-0022
D9	Zener Diode XZ090 or RD9.1EB3	DX-1434
D10	Silicon Diode 10E-1	DX-1039
D11	Silicon Diode 10E-1	DX-1039
D12	Silicon Diode 10E-1	DX-1039
D13	Silicon Diode 1N4148	DX-0022
D14	Silicon Diode 1S2139-A	DX-0291

INTEGRATED CIRCUITS

IC1	TA7313P or LA4140 or HA12013	MX-3426

Ref. No.	Description	Mfr's Part No.	RS Part No.
COILS			
L1	ANT Coil AC-128	CA-0702	P-110128
L2	ANT Coil AC-129	CA-5344	P-110129
L3	Coil P.C.B.	X-8601	P-200838
L4	ANT Coil AC-129	CA-5344	P-110129
L5	ANT Coil AC-127	CA-5487	P-110127
L6	OSC Coil OC-100	CA-5483	P-120100
L7	OSC Coil OC-101	CA-5484	P-120101
L8	OSC Coil OC-102	CA-5485	P-120102
L9	OSC Coil OC-103	CA-5486	P-120103
L10	Inductor C8-A1 1.2 μH	CA-5482	P-360095
L11	Feri Inductor 0.63 μH	CA-0675	P-360010
L12	AIR Coil HR5-8½TI	CA-5480	P-340108
L13	AIR Coil HL5-9½TI	CA-5481	P-340109
L14	OSC Coil OC-099		P-120099

Ref. No.	Description	RS Part No. (Mfr's Part No.)
LAMPS		
PL1	Dial Lamp 3.4 ϕ 10 V 40 mA	L-0874 (P-240104)
PL2	Meter Lamp LEAD TYPE 4.2 ϕ 8 V 30 mA	L-1219 (P-240126)
TRANSISTORS		
Q1	Transistor 2SC1674(L) or 2SC668(D)	
Q2	Transistor 2SC1674(M) or 2SC668(C)	
Q3	Transistor 2SC1730(L)	
Q4	Transistor JE9011(F)	MX-3740

Ref. No.	Description	RS Part No. (Mfr's Part No.)
Q5	Transistor JE9011(H)	MX-3742
Q6	Transistor JE9011(G)	MX-3741
Q7	Transistor MJE9400-2	MX-4481
Q8	Transistor JE9014(C)	MX-4417
TRANSFORMERS		
T1	AM IFT OA-088	CA-8114 (P-130088)
T2	AM IFT OA-079	CA-8115 (P-130079)
T3	AM IFT OA-089	CA-8116 (P-130089)
**T4	Power Transformer 120 V, 60 Hz	TA-0841 (P-100753)
*T4	Power Transformer 120 V, 60 Hz	(P-100754)
*T4	Power Transformer 240 V, 50 Hz	(P-100788) or (P-100799)
*T4	Power Transformer 100 V, 50/60 Hz	(P-100820)
RESISTORS ( ): Variance Value		
R1	VOLUME 5 kΩD	(P-171435)
R2	BFO Volume 100 kΩB	P-6645 (P-171302)
R3	FINE Volume 100 kΩB	P-6494 (P-171303)
R4	Carbon PZ 1.2 MΩ ½ WV	
*R4	Not used	
*R4	Not used	
R5	Carbon PZ 820 kΩ ¼ WV	
R6	Carbon PZ 820 Ω ¼ WV	
R7	Carbon PZ 47 Ω ¼ WV	
R8	Carbon PZ 100 Ω ¼ WV	
R9	Carbon UZ 820 kΩ ¼ WV	
R10	Carbon PZ 3.3 kΩ ¼ WV	
R11	Carbon UZ 22 kΩ ¼ WV	
R12	Carbon PZ 47 Ω ¼ WV	
R13	Carbon PZ 47 Ω ¼ WV	
R14	Carbon PZ 680 Ω ¼ WV	
R15	Carbon PZ 470 kΩ ¼ WV	
R16	Carbon PZ 6.8 kΩ ¼ WV	
R17	Carbon PZ 100 kΩ ¼ WV	
R18	Carbon PZ 3.3 kΩ ¼ WV	
R19	Carbon PZ 220 kΩ ¼ WV	
R20	Carbon PZ 8.2 kΩ ½ WV	
R21	Carbon PZ 470 Ω ¼ WV	
R22	Carbon PZ 1 kΩ ¼ WV	
R23	Carbon PZ 1 kΩ ¼ WV	
R24	Carbon UZ 330 kΩ ¼ WV	
R25	Carbon UZ 47 Ω ¼ WV	
R26	Carbon PZ 680 Ω ¼ WV	
R27	Carbon UZ 680 Ω ¼ WV	

*For USA Models Only *For Canadian Models Only *For Australian Models Only **For Japanese Models Only

Ref. No.	Description	RS Part No. (Mfr's Part No.)
R28	Carbon PZ 100 kΩ ¼ WV	
R29	Carbon PZ 300 kΩ ¼ WV	
R30	Carbon PZ 68 kΩ ¼ WV	
R31	Carbon PZ 68 kΩ ¼ WV	
R32	Carbon PZ 68 kΩ ¼ WV	
R33	Carbon PZ 33 kΩ ¼ WV	
R34	Carbon UZ 150 Ω ¼ WV	
R35	Carbon PZ 150 kΩ ¼ WV	
R36	Carbon PZ 470 kΩ ¼ WV	
R37	Carbon PZ 100 kΩ ¼ WV	
R38	Carbon UZ 18 kΩ ¼ WV	
R39	Carbon PZ 10 kΩ ¼ WV	
R40	Carbon PZ 150 Ω ¼ WV	
R41	Carbon PZ 150 Ω ¼ WV	
R42	Not used	
R43	Carbon UZ 18 Ω ¼ WV	
R44	Carbon PZ 4.7(4.7–8.2)Ω ½ WV	
R45	Carbon PZ 27 Ω ¼ WV	
R46	Carbon UZ 270 Ω ¼ WV	
R47	Metal Oxide 15 Ω 2 WV	
R48	Carbon PZ 330 Ω ½ WV	
R49	Carbon PZ 2.2 MΩ ½ WV	
*R49	Not used	
•R49	Not used	
R50	Carbon PZ 56 Ω ¼ WV	

Ref. No.	Description	RS Part No. (Mfr's Part No.)
°R51	Carbon PZ 27–47 kΩ ¼ WV	
°R52	Carbon UZ 10–22 kΩ ¼ WV	
R53	Carbon PZ 82 Ω ½ WV	
R54	Carbon PZ 15 kΩ ¼ WV	
R55	Carbon UZ 5.6 kΩ ¼ WV	
R56	Carbon UZ 120 Ω ¼ WV	
R57	Carbon UZ 150 kΩ ¼ WV	
R58	Carbon UZ 1.5 kΩ ¼ WV	
R59	Carbon UZ 39 kΩ ¼ WV	
R60	Carbon UZ 68 kΩ ¼ WV	
R61	Carbon UZ 22 Ω ¼ WV	
R62	Carbon PZ 22(10–68) kΩ ¼ WV	
R63	Carbon PZ 82(47–82) kΩ ¼ WV	
SWITCHES		
S1a-j	Slide Rotary Switch BAND	S-1453 (P-180465)
S2	Rotary Switch MODE	S-1454 (P-180466)
FERRITE BEADS CORE		
	Ferrite Beads Core	HB-7169 (P-500009) or (P-500006)

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EXPLODED VIEW PARTS LIST

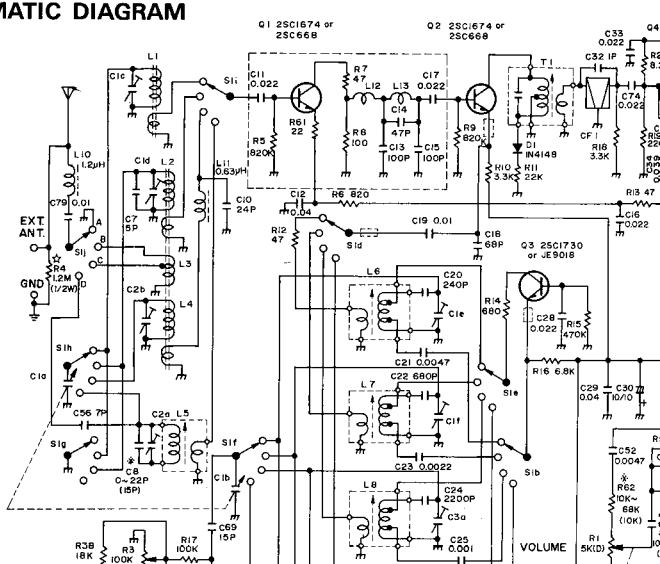
Ref. No.	Description	RS Part No.	Mfr's Part No.
1	VOLUME/MODE/BAND Knob	K-3451	P-650349
2	BFO Knob	K-4083	P-650454
3	Main Tuning Knob (with cap: P-710198)	K-4336	P-650461
4	FINE Tuning Knob (with cap: P-710199)	K-4337	P-650462
5–8	Front Panel Ass'y	Z-5728	M-00083
	5 Front Panel		P-610747
	6 Dial Frame		P-710201
	7 Dial Window		P-610749
	8 Window		P-610750
9	Phone Jack Holder		P-412220
10	Headphone Jack (J1)	J-0994	P-190139
11	Speaker	S-4924	P-270093
12	SCALE (FINE Tuning Controller)	D-5434	P-610748
13	Coil Spring	RB-6969	P-440102
14	Pulley	D-0269	P-430007
15	Tuning Shaft Ass'y		P-420367
16	Shaft Holder	HB-1344	P-610094
17	Cushion		P-680283
18	Meter	M-0469	P-230101
19	Cushion		P-680254
20	Front Chassis		P-400293
21	Lamp Holder A (for PL2)		P-412219
22	Shield Case C (for BFO P.C.B.: P-200836)	X-8600	P-412214
23	NET		P-660233
24	Cushion		P-680282
25	Dial Drum	D-0458	P-610751
26	Drum Guide	D-0459	P-610754
27	Sheet		P-680270
28	Drum Holder	D-0457	P-610752
29	Lamp P.C.B. (with Lamp)		P-200837
30	Lamp Holder (for PL1)	HC-0137	P-412218
31	Holder	HC-0136	P-412217
32	BFO Volume (R2)	P-6645	P-171302
33	VOLUME (R1)		P-171435
34	MODE Rotary Switch		P-180466
35	Main P.C.B. Unit	X-8599	U-24402
36	Shield Cover		P-412216
37	Shield Case B		P-412213
38	Shield Case A		P-412212
39	Core Holder	HB-2897	P-610395
40	Coil P.C.B.		P-200838
41	Pulley Shaft	D-3270	P-420303
42	FINE Volume (R3)	P-6494	P-171303
43	Pulley 76	D-0359	P-430031
44	Dial Spring A	RB-5620	P-440075
45	P.C.B. Holder		P-412338
46	Spacer		P-480348
47	Pulley Shaft	D-3203	P-420234
48	Chassis		P-400292
*48	Chassis		P-400292A
49	LUG Terminal		P-320078
50	Transformer Holder		P-412323
**51	Power Transformer	TA-0841	P-100753
*51	Power Transformer		P-100754

Ref. No.	Description	RS Part No.	Mfr's Part No.
*51	Power Transformer		P-100788 or P-100799
*51	Power Transformer		P-100820
52	Clamp Connecter	H-3305	P-320006
*52	Terminal Block		P-320251
53	Cord Stopper	HB-0705	P-480010
*53	Cord Stopper		P-480080
54	AC Line Cord	W-1000	P-310115
*54	AC Line Cord	W-2527	P-310034
*54	AC Line Cord		P-310106
55	DC 12 V Jack (J2)	J-4684	P-190321
56	Terminal Plate	HB-7354	P-320221
57–			
59	Cabinet Ass'y	Z-5729	M-00084
	57 Cabinet		P-600122A
	58 Shield Sheet		P-480338
	59 Rubber Foot	F-0237	P-680168
60	Net		P-660234
61	Net		P-660225
*62	Back Board	Z-5730	P-630137
*62	Back Board		P-630141
*62	Back Board		P-630144
*62	Back Board		P-630147
63	Antenna Stopper	A-4463	P-610753
64	Rod Antenna	A-0376	P-330028
*64	Rod Antenna		P-330032

Ref. No.	Description	RS Part No. (Mfr's Part No.)
F1	Tapping Screw 3φ x 8BT-PLAX	
F2	Tapping Screw 3φ x 8BT-Ⅲ	
F3	Screw 3φ x 12 x 3	
F4	Tapping Screw 3φ x 8BT-Ⅱ	
F5	Nylon Rivet 3φ x 4.5	
F6	Tapping Screw 3φ x 10BT-PLAX	
F7	Fiver Washer 3.2φ x 8φ	
F8	Screw 2φ x 5P	
F9	Screw 3φ x 6P	
F10	Triple Screw 3φ x 6P	
F11	Screw 3φ x 9 x 3	
F12	Screw 2.6φ x 6P	
F13	Screw 3φ x 6P	
F14	Screw 2φ x 6P	
F15	Screw 2φ x 12P	
F16	Nut 2N	
F17	Flange Nut 3N	
F18	Egg Lug 3	
F19	Screw (Black) 3φ x 6P	
F20	Screw 3φ x 10B	
F21	Tapping Screw 3φ x 12BT-PLAX	
F22	Screw 3φ x 8B	
F23	Nut 3N	
F24	Lug Terminal t = 0.5	(P-320075)
F25	Spring Washer 3SW	
*F26	Screw 3φ x 16	
*F27	Square Nut	(P-410111)

*For USA Models Only *For Canadian Models Only *For Australian Models Only *For Japanese Models Only

SCHEMATIC DIAGRAM



TRANSISTOR AND IC VOLTAGE CHART

IC-1 VOLTAGE CHART

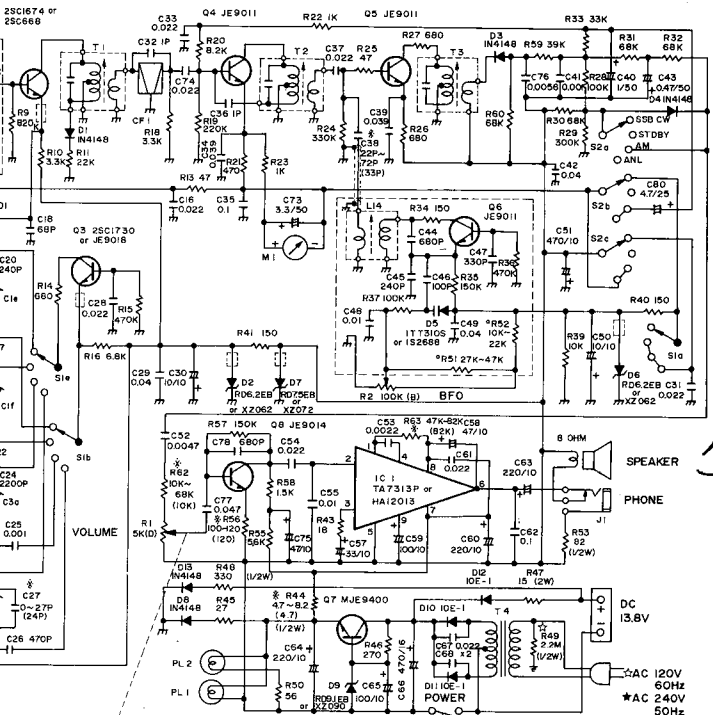
PIN No.	1	2	3	4	5	6	7	8	9
PIN VOLTAGE	0.7	4.1	4.2	4.2	0	4.2	8.4	8.2	4.2

TRANSISTOR VOLTAGE CHART

	Q1			Q2			Q3			Q4			Q5			Q6			Q7		
	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
Transistor Voltage [V]	0.7	7.2	1.4	2.3	7.3	2.9	4.1	7.0	4.6	0.5	7.3	1.2	1.3	6.0	2.0	5.8	7.3	6.5	8.4	11.5	9.1

All Voltage are same regardless of BAND Switch position. MODE Switch is AM position. BFO and FINE are center position. All voltage value are indicated in volts with no signal measured with V.T.V.M.

20-206



MX-342

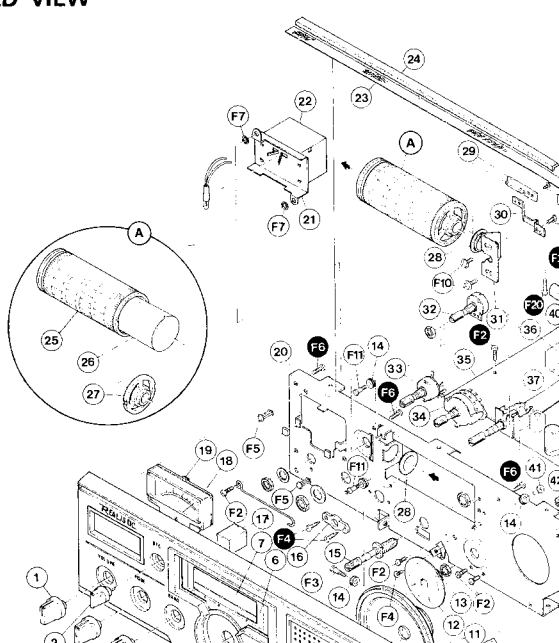
Q6			Q7		
E	C	B	E	C	B
6.8	7.3	6.5	8.4	11.5	9.1

AM position, BFO and signal measured with

NOTE:

(1) ALL RESISTANCE VALUES ARE INDICATED IN "OHM" (K = 10^3 OHM, M = 10^6 OHM).
(2) ALL CAPACITANCE VALUES ARE INDICATED IN "μF" (P = 10^{-6} μF).
(3) ※ MAY VARY FROM UNIT TO UNIT FOR BEST PERFORMANCE.
(4) ○ WHEN D5 IS USED AS ITT310S, THE VALUE OF R51 MUST BE 47 K OHM AND R52 MUST BE 22K OHM.
○ WHEN D5 IS USED AS IS2688, THE VALUE OF R51 MUST BE 27K OHM AND R52 MUST BE 10K OHM.
(5) ☆ FOR USA AND CANADIAN MODELS ONLY.
★ FOR AUSTRALIAN MODELS ONLY.

EXPLODED VIEW



Removal of Cabinet

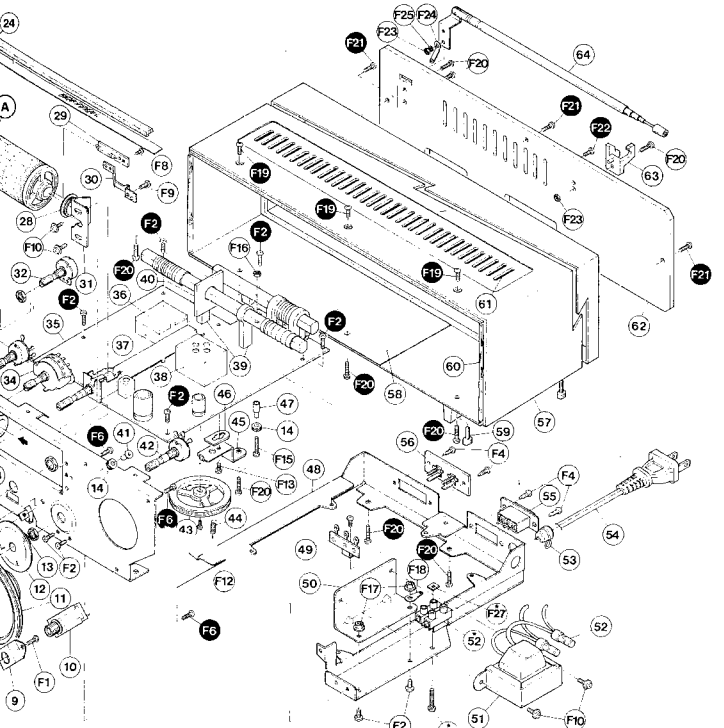
Remove 12 screws from the cabinet (57) [3 screws F19 from the top of cabinet, 5 screws F20 on the bottom of cabinet and 3 screws F21, 1 screw F22 on the back board].

Removal of

1. Remove k
2. Remove 6
3. Remove t
4. Remove t
5. Remove C
6. Remove F

Caution: So

* For Austr



Removal of Main P.C.B.

abinet, on the

1. Remove knobs (VOLUME, MODE, BFO, BAND, Tuning, FINE knob).
2. Remove 6 screws (F6) from Front Panel (5) [(F6) on the Front Chassis (20)].
3. Remove the shaft holder (16) by removing 2 screws (F4) on the Front Chassis.
4. Remove the MODE Rotary Switch (34).
5. Remove Dial string from Pulley 76 (43), Pulley (14).
6. Remove P.C.B. (35) by removing 5 screws (F2) on the Main P.C.B.

Caution: Some wires are attached to Front Panel.

* For Australian Models Only.

RADIO SHACK A DIVISION OF TANDY CORPORATION

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CANADA: BARRIE, ONTARIO L4M 4W5

TANDY CORPORATION

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