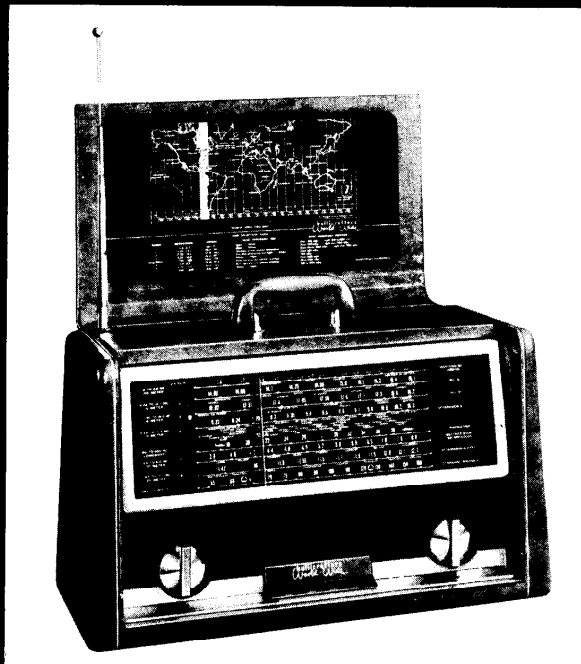




hallicrafters
World-Wide
8-BAND PORTABLE
SERVICE INSTRUCTIONS



Hallicrafters World-Wide Portable
Model TW-2000



the hallicrafters CANADA
LIMITED
DON MILLS — ONTARIO



Fig. 1. Model TW-1000

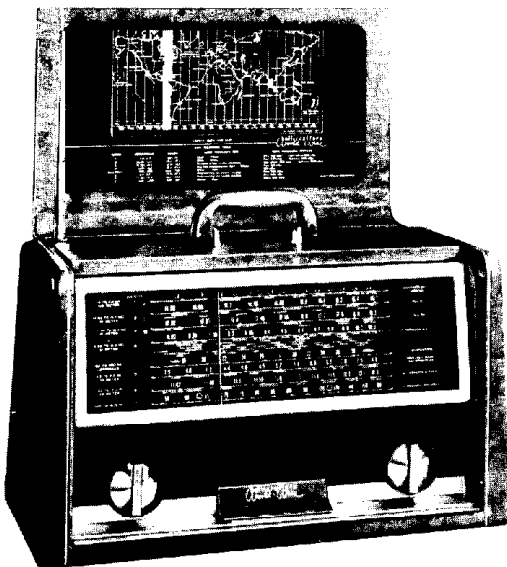


Fig. 2 Models TW2000 & TW2000 (Run 2)

TECHNICAL SPECIFICATIONS

TUBES AND RECTIFIERS 5 tubes plus 1 selenium rectifier

POWER SUPPLY . . . 105-120 volt DC or 25/60 cycle AC;
90V "B" / 9V "A" battery pack;
220 volt AC/DC with Ballast Adapter 1X1438.

POWER CONSUMPTION 20 watts

SPEAKER 5 X 7 inch oval; 3.2-ohm voice coil

HEADPHONE OUTPUT IMPEDANCE 3.2 ohms

INTERMEDIATE FREQUENCY 455 KC

ANTENNA Stick-loop and *Skyrider for BC and LW bands, whip for SW bands, and terminals for long wire for use on all bands. Note: Front cover loop antenna is used on TW-1000 in place of stick-loop.

* The removable Skyrider antenna provides reception in automobiles, trains, steel constructed buildings, etc. where satisfactory reception is normally impossible. The Skyrider is located on the back cover and has an extension cable and suction cups for window mounting.

FREQUENCY COVERAGE

Band	Frequency Range
1	1.8 - 3.9 MC
2	14.62 - 15.7 MC
3	17.32 - 18.2 MC
4	9.22 - 10.3 MC
5	3.9 - 8.0 MC
6	11.42 - 12.3 MC
7	540 - 1600 KC
LW	180 - 400 KC

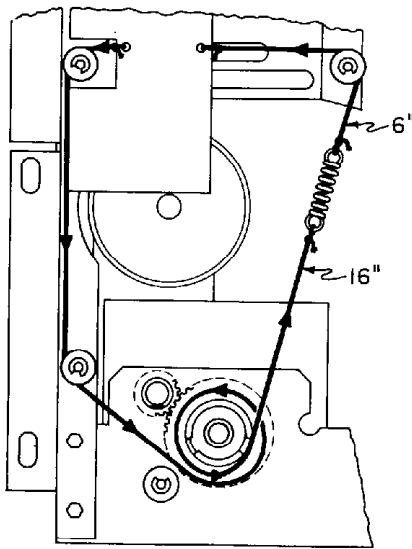
MODEL COMPARISON

Models TW-1000, TW2000 and TW2000 (Run 2) are electrically identical except for the built-in broadcast/longwave antenna and tuner. The TW-1000 uses a conventional loop antenna concealed in the front cover while the TW2000 and TW2000 (Run 2) employ a stick-loop antenna which mounts on the top of the chassis. (See Fig. 8.) Physical differences between models are readily apparent by reference to Figs. 1 and 2.

TUNING DIAL

To tune bands 1 thru 7, set the Band Selector knob so that the red band indicator at the left side of the dial is opposite the desired band. To tune the longwave band, rotate the Band Selector knob fully clockwise so that the yellow band indicators become visible at the left side of the dial.

**NOTE: BAND SELECTOR CONTROL
SET FULLY CLOCKWISE.**



**Fig. 3. Band Indicator Plate
Stringing Diagram**

REMOVING CHASSIS AND FRONT PANEL ASSEMBLY FROM CABINET

The chassis and front panel assembly are removable from the cabinet as a unit:

1. Remove the three screws at the bottom of the cabinet.
2. Remove the two hex nuts at the rear of the front panel assembly (one on each side).
3. Unplug the whip antenna lead. On model TW-1000, also unplug the loop antenna cable.
4. Slide the chassis and front panel assembly out through the front of the cabinet.

TUNER SERVICE

GENERAL

The Dynamic Turret Tuner employed in the "World-Wide" portable consists of a 1U4 RF amplifier stage and a 1L6 mixer-oscillator stage.

Band selection is accomplished by rotation of the tuner turret assembly, which has a separate set of two snap-in coil strips for each band. One strip contains the antenna coil and the other contains the RF and oscillator coils. (See Fig. 7). Coils can be identified as to band by the number stamped on the outside of the coil strip. Refer to the chart at the top of the schematic diagram for cross reference of coil marking, band, and frequency range.

Extreme care must be exercised in handling or servicing the tuner. Location and lead dress of components and wiring are usually very critical. Parts location and ground connections should be as originally made. The tuner was carefully aligned at the factory and should normally not require complete realignment under normal operating conditions.

Replacement of tubes (especially 1L6 mixer-oscillator) may cause some slight detuning of the tuner circuits. When replacing the 1L6, it may be necessary to touch up the oscillator slug adjustments. Replacement of the tuning gang may require complete realignment of the receiver.

NOTE: Models TW-2000 (Run 2) have a removable button plug to the right of the Band Selector knob which provides access to the oscillator slugs without removing the baffle board and dial assemblies.

Be sure that the coils are properly paired for the indicated band and that the coils follow proper sequence. Refer to chart at top of schematic diagram.

REMOVING TUNER FROM CHASSIS

- a. Remove front control knobs by pulling in a forward direction.
- b. Remove dial escutcheon by removing the screws at sides and bottom.
- c. Remove dial scale by removing (4) screws at front of dial and (1) screw at rear.
- d. Disconnect the speaker leads.
- e. Remove baffle board assembly by removing the (2) long and (2) short machine screws.
- f. Remove large gear and pulley assembly by removing (2) Allen Head set screws, in models TW-1000 and TW-2000. In (the) TW-2000 (Run 2) remove the roll pin in the shaft and one Allen Head set screw.)
- g. Disconnect the tuner leads.
- h. Remove (2) screws at front of chassis and (2) studs at rear of chassis holding tuner in place.
- i. Lift out tuner at rear and remove.

REMOVING TUNER TURRET ASSEMBLY

- a. Remove tuner from chassis as outlined above.
- b. Remove the front and rear turret retainer springs by depressing straight end of spring from tab on tuner chassis end plate.
- c. Grasp turret shaft at front and rear and remove turret from tuner assembly.
- d. For reassembly, position turret so that the stop at the rear end of turret is facing outward from the tuner assembly. Then press turret into position and replace front and rear turret retaining springs.

REMOVING SNAP-IN COIL STRIPS

Insert a screwdriver blade between the coil retainer spring and the turret end plate. Twist the blade away from the turret and lift the end of the coil upward and remove.

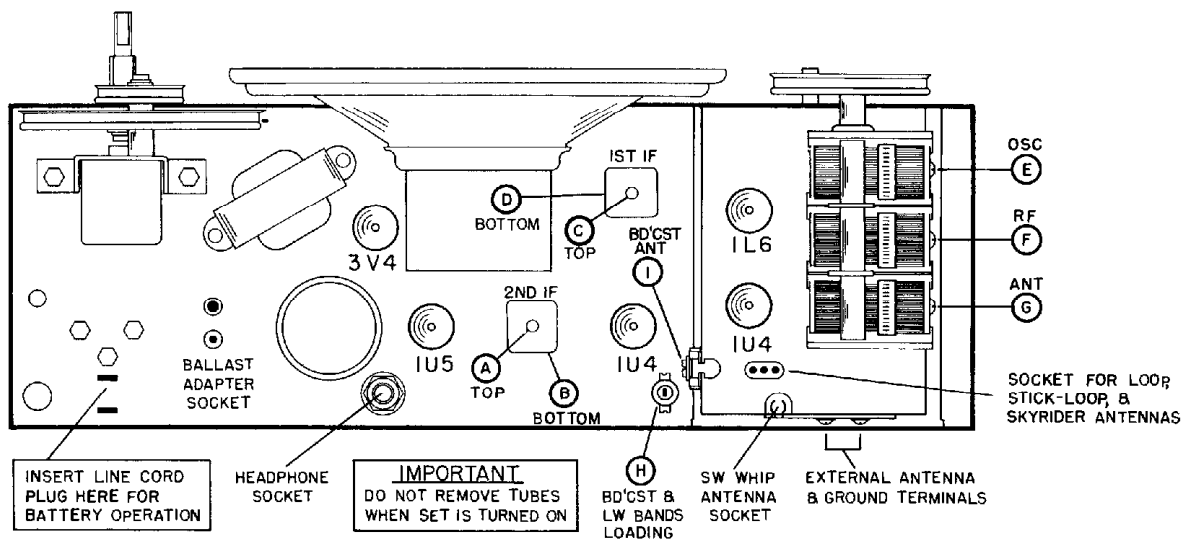


Fig. 4. Top View of Chassis Showing Location of Alignment Adjustments and Tubes

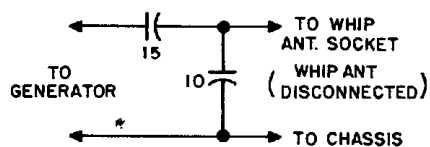


Fig. 5. Dummy Antenna for Bands 1 and 5

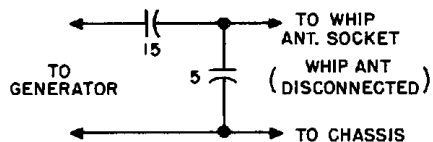


Fig. 6. Dummy Antenna for Bands 2, 3, 4 and 6

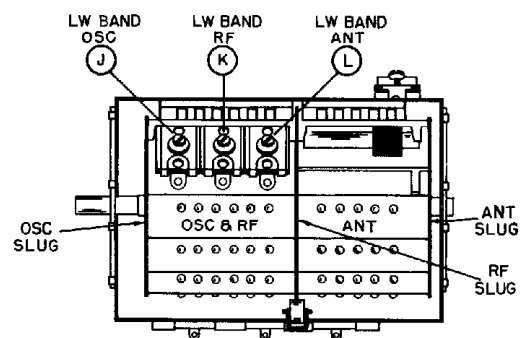


Fig. 7. Bottom View of Tuner Showing Location of Alignment Adjustments

ALIGNMENT INSTRUCTIONS

- Be sure both the set and the signal generator are thoroughly warmed up before starting alignment.
- Use an accurate signal generator which has a modulated output and covers 455 KC to 17.55 MC.
- Set the volume control at maximum and disconnect the SW whip antenna. On model TW-1000, raise the front cover to place the loop antenna in its operating position.
- Connect the output meter across the speaker voice coil.
- To avoid AVC action, use lowest output setting of signal generator which gives satisfactory reading on meter (approx. 50 milliwatts).
- The local oscillator frequency is higher than the signal frequency on bands 1, 7, & LW (8). The local oscillator is lower than the signal frequency on all other bands.
- To adjust the oscillator slugs on the TW-1000 and TW-2000, it will be necessary to first remove the baffle board and dial assemblies by following Steps (a) thru (c) under "Removing Tuner from Chassis" on page 3. The oscillator slugs are accessible thru the opening at the front of the tuner (see Fig. 11).

Note: Models TW-2000 (Run 2) have a removable button plug to the right of the Band Selector knob which provides access to the oscillator slugs without removing the baffle board and dial assemblies.

- The RF and antenna slugs are accessible thru the opening at the rear of the tuner. (See Figs. 7 and 8.) Note that it is necessary to unclip and remove the antenna coil strip of the band being aligned to gain access to the RF slug.
- Refer to Figs. 4 and 7 for location of alignment adjustments. The alignment adjustments are also shown on the schematic diagram.

ALIGNMENT PROCEDURE

Step	Signal Generator Connections	Generator Frequency	Band Selector Setting	Receiver Dial Setting	Adjust for Maximum Output
1	High side thru .1 mfd capacitor to stator plates of center section of tuning gang. Low side to chassis.	455 KC	7	1000 KC	A and B (2nd IF) C and D (1st IF)
2	Radiate gen. signal into stick-loop or loop antenna.	1500 KC	7	1500 KC	E (oscillator trimmer on gang)
3	Same as Step 2.	1400 KC	7	1400 KC	F (RF trimmer on gang)
4	Same as Step 2.	600 KC	7	600 KC	Oscillator and RF slugs.
5	Connect dummy antenna as shown in Fig. 5.	2.0 MC	1	2.0 MC	Oscillator, RF, and antenna slugs.
6	Same as Step 5.	3.5 MC	1	3.5 MC	G (antenna trimmer on gang)
7	Same as Step 2.	600 KC	7	600 KC	H (loading coil on main chassis)
8	Same as Step 2.	1400 KC	7	1400 KC	I (antenna trimmer on side of tuner)
9	Connect dummy antenna as shown in Fig. 6.	15.0 MC	2	15.0 MC	Oscillator slug
10	Same as Step 9.	14.8 MC	2	14.8 MC	RF and antenna slugs
11	Same as Step 9.	18.0 MC	3	18.0 MC	Oscillator slug
12	Same as Step 9.	17.55 MC	3	17.55 MC	RF and antenna slugs
13	Same as Step 9.	10.0 MC	4	10.0 MC	Oscillator slug
14	Same as Step 9.	9.5 MC	4	9.5 MC	RF and antenna slugs
15	Same as Step 5.	4.0 MC	5	4.0 MC	Oscillator slug
16	Same as Step 5.	5.2 MC	5	5.2 MC	RF and antenna slugs
17	Same as Step 9.	12.0 MC	6	12.0 MC	Oscillator slug
18	Same as Step 9.	11.6 MC	6	11.6 MC	RF and antenna slugs
19	Same as Step 2.	400 KC	Long Wave	400 KC	J (oscillator trimmer)
20	Same as Step 2.	360 KC	Long Wave	360 KC	K (RF trimmer) and L (antenna trimmer)
21	Same as Step 2.	200 KC	Long Wave	200 KC	Oscillator, RF, and antenna slugs
22	Unplug stick-loop or loop antenna and plug "Skyrider" antenna in its place. Radiate gen. signal into "Skyrider".	1400 KC	7	1400 KC	Trimmer screw on end of "Skyrider" antenna.

REPLACEMENT BATTERY PACKS

Eveready	Ray-O-Vac	General	Burgess
752	AB995	343	G6B60

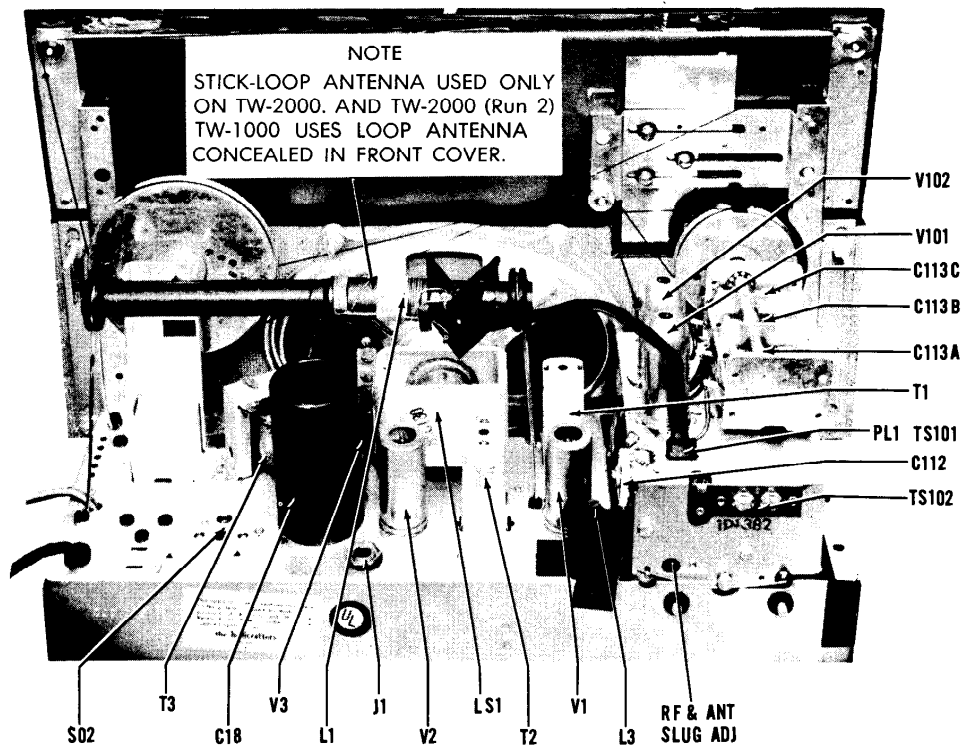


Fig. 8. Top View of Chassis Showing Component Location

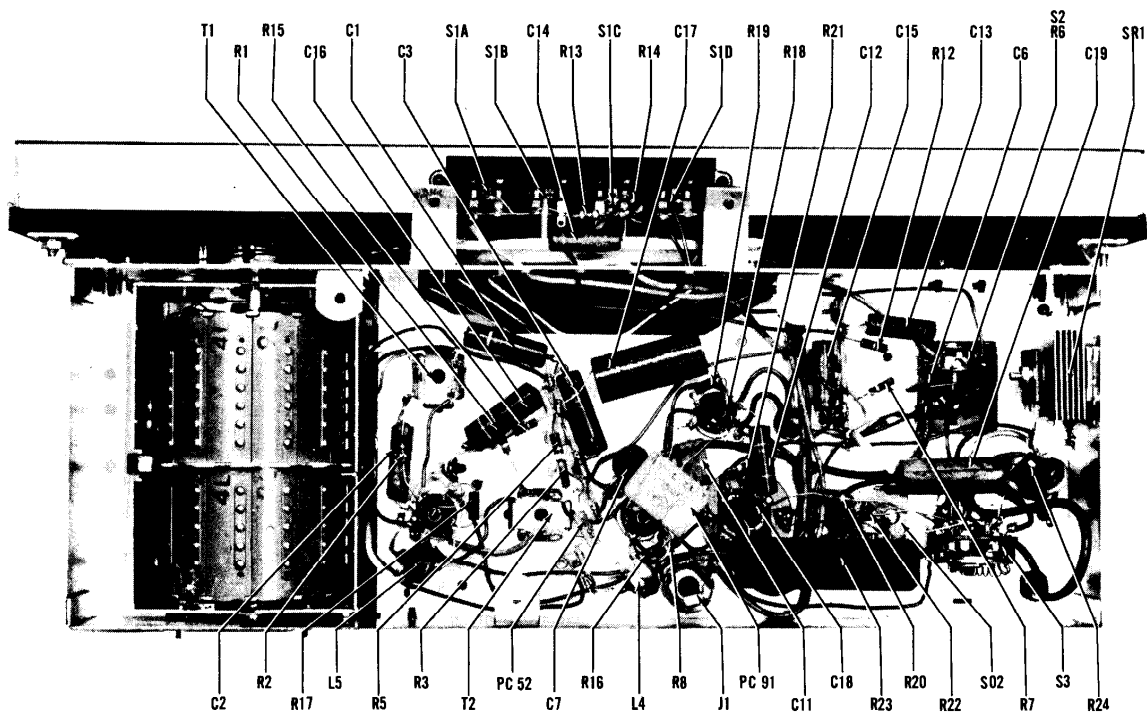


Fig. 9. Bottom View of Chassis Showing Component Location

MAIN CHASSIS PARTS LIST

Schematic Symbol	Description	Hallcrafters Part Number	Schematic Symbol	Description	Hallcrafters Part Number
CAPACITORS			COILS AND TRANSFORMERS		
C-1,3	0.047 mfd. 200V., molded tubular paper	46BS473L2	L-1	Antenna, stick-loop (includes cable, plug, grommets, and capacitor)	57D197
C-2	0.01 mfd. 400V., molded tubular paper	46BS103L4	L-2	Antenna, "Skyrider"; complete	57C170
C-4,5	50 mmf. (part of diode filter plate PC-52)	-----	L-3	Coil, antenna loading	51B1586
C-6,7	0.01 mfd. 450V., ceramic disc	47A224	L-4,5	Choke, RF	53A265
C-8,10	0.005 mfd. (part of pentode couplate PC-91)	-----	L-6	Antenna, loop (less cable and plug)	57C169
C-9	100 mmf. (part of pentode couplate PC-91)	-----	T-1,2	Transformer, IF	50C242
C-11	270 mmf. 500 V., mica	47X20B271K	T-3	Transformer, audio output	55C198
C-12	0.0047 mfd. 600V., molded tubular paper	46BS472L6	PLUGS AND SOCKETS		
C-13,14	0.022 mfd. 200V., molded tubular paper	46BS223L2	J-1	Jack, phone	36A002
C-15	0.001 mfd. 600V., molded tubular paper	46BS102L6	PL-1,2,4	Plug, antenna; 3-prong	10A659
C-16	0.047 mfd. 600V., molded tubular paper	46BR473L6	PL-3	Line cord and plug	87A3592
C-17	100 mfd. 25V., electrolytic	45B214	SO-1	Socket, battery cable (less shell)	10A296
C-18	Dual 40 mfd. 150V., 80 mfd. 150V., 80 mfd. 25V.; electrolytic	45B215	SO-1	Shell for socket SO-1	10A294
C-19	0.047 mfd. 600V., molded tubular paper	46BS473L6	SO-2	Socket, ballast adapter	10A507
*C-20	1000 mmf 500 volt disc	47B230	SO-2	Socket, tube; 7-pin miniature	6B297
RESISTORS			TUBES AND RECTIFIERS		
R-1	1000 ohms 10%, 1/2 watt, carbon	23X20X102K	V-1	1U4: IF amplifier	90X1U4
R-2	2.7 megohms 10%, 1/2 watt, carbon	23X20X275K	V-2	1U5: detector and audio amplifier	90X1U5
R-3	2.2 megohms 10%, 1/2 watt, carbon	23X20X225K	V-3	3V4: audio output	90X3V4
R-4	47,000 ohms (part of diode filter plate PC-52)	-----	SR-1	Rectifier, selenium; 100 ma.	27A161
R-5	1 megohm 10%, 1/2 watt, carbon	23X20X105K	SWITCHES		
R-6	Volume control, 1 megohm (includes on-off switch S-2)	25B1009	S-1	Switch assembly, tone for TW-1000	60A503
R-7	1500 ohms 10%, 1/2 watt, carbon	23X20X152K	S-2	Switch, on-off (part of R-6)	60A570
R-8	10 megohms 10%, 1/2 watt, carbon	23X20X106K	S-3	Switch, power changeover	60B504
R-9	4.7 megohms (part of pentode couplate PC-91)	-----	MISCELLANEOUS		
R-10	1 megohm (part of pentode couplate PC-91)	-----	Clip	IF transformer mtg.	76A365
R-11	2.2 megohms (part of pentode couplate PC-91)	-----	Cord	dial (specify length)	38A026
R-12	100,000 ohms 10%, 1/2 watt, carbon	23X20X104K	PC-52	Diode filter plate (includes R-4, C-4, and C-5)	49A023
R-13	18,000 ohms 10%, 1/2 watt, carbon	23X20X183K	Grommet	rubber; tuner rear mtg.	16A299
R-14	27,000 ohms 10%, 1/2 watt, carbon	23X20X273K	Lock	line cord	76A974
R-15	330,000 ohms 10%, 1/2 watt, carbon	23X20X334K	Mounting plate	bakelite (for C-18)	8A749
R-16	68 ohms 5%, 1/2 watt, carbon	23X20X680J	PC-91	Pentode couplate (includes R-9, R-10, R-11, C-8, C-9, and C-10)	49A024
R-17	100 ohms 5%, 1/2 watt, carbon	23X20X101J	Plate band indicator		63C839
R-18	220 ohms 5%, 1/2 watt, carbon	23X20X221J	Pointer, dial		82B223
R-19	1500 ohms 5%, 1/2 watt, carbon	23X20X152J	Pulley	1-1/4" string dia.	28A067
R-20, 21	1000 ohms 10%, 1/2 watt, carbon	23X20X102K		3/4" string dia.	28A137
R-22	3300 ohms 5%, 1/2 watt, carbon	23X20X332J		3-1/2" string dia.	28A128
R-23	2000 ohms 5%, 10 watts, wirewound	24A959	LS-1	Speaker, PM; 5" x 7" oval (3.2 ohm voice coil)	85C130
R-24	82 ohms 5%, 2 watts, carbon	23X40X820J	Spring	dial cord tension	75A012
*R-25	10 megohms 10%; 1/2 watt, carbon	23X20X106K		7/8" overall	75A012
*R-26	2200 ohms 10% 1 watt carbon	23X30X222K		11/16" overall	75A163
				Spring, band indicator plate: 9/64" overall	75A266
				Tube shield	69A306
				Tube shield base	69A308

φ Used on Models TW1000 and TW2000 only.

* Used on Models TW2000 (Run 2) only.

CABINET & FRONT PANEL ASSEMBLY PARTS LIST

Description	Hallicrafters Part Number for Model	
	TW-1000	TW-2000 and TW-2000 Run 2
Antenna, whip	57B173	57B196
Button plug, front panel		17B149 (Used on Run 2 only)
Cabinet	78F1031	78F1053
Channel, rubber		
1" long	16A300	16A300
5" long	16A301	16A301
Dial Scale	83D425	83D449
Dial glass	22B369	22B369
Escutcheon, dial	7D386	7D488
Escutcheon, tone control	7C389	7C497
Eyelet, whip antenna; fibre	5A446	5A449
Grille and baffle board assembly	7D393	7E489
Grommet, rubber; whip antenna shock mount	16A299	16A299
Knob, volume (includes spring)	15C598	15C661
Knob, band selector (includes spring)	15C599	15C659
Knob, tuning (includes spring)	15C600	15C660
Trim strip, control marking	8C1888	8C2219

PARTS LIST for DYNAMIC TURRET TUNERS 1D1382 & 1-2175

Schematic Symbol	Ref. No. on Fig. 10	Description	Cross Reference	Hallicrafters Part Number
		Dynamic turret Turner Assembly complete with tubes	Models TW1000. TW2000. 31L-301	1D1382
		Dynamic turret Turner Assembly complete with tubes	Model TW2000 (Run 2)	1-2175

CAPACITORS

For part numbers of capacitors C-101 thru C-107 and C-111, see "Coil Strips".

C-108. 1.	Trimmer, 4-80 mmfd.	13F-216	121-431
C-109. 2.	Trimmer, 2.2-40 mmfd.	13F-232	121-432
C-110. 3.	Trimmer, 9-180 mmfd.	13F-234	121-430
C-112. 4.	Trimmer, 2-20 mmfd.	13F-225	121-397
C-113. 5.	Tuning gang, 3 section.	13G-009	48C297
C-114.	22 mmfd. GP, ceramic.	CD8GP220J	121-405
C-115.	6.8 mmfd. 10%, $\frac{1}{4}$ " ceramic disc	CD8C6R8K	121-401
C-116, 119, 120, 121	270 mmfd. 10%, $\frac{3}{8}$ " ceramic disc	CD12D271K	121-404
C-117.	0.005 mfd. GMV, $\frac{9}{16}$ " ceramic disc	CD17X502Z	121-402
C-118, 122, 125, 127	0.047 mfd. 20%, 200V.; molded tubular paper.	13A-029	121-398
C-123.	0.02 mfd. GMV, $\frac{5}{8}$ " ceramic disc	CD20X203Z	121-403
C-124.	0.1 mfd. 20%, 200V.; molded tubular paper	13A-030	121-399
C-126.	0.001 mfd. GMV, $\frac{1}{4}$ " ceramic disc	CD8X102Z	121-400

GMV - Guaranteed Minimum Value

GP - General Purpose

PARTS LIST for DYNAMIC TURRET TURNERS 1D1382 & 1-2175

Schematic Symbol	Ref. No. on Fig. 10	Description	Cross Reference	Hallcrafters Part Number
RESISTORS				
R-101,104.	1	megohm 10%, $\frac{1}{2}$ W.	12TAE105K	23X20X105K
R-102.	15	15,000 ohm 10%, $\frac{1}{2}$ W.	12TAE153K	23X20X153K
R-103.	3.9	3.9 megohm 10%, $\frac{1}{2}$ W.	12TAE395K	23X20X395K
R-105.	180,000	180,000 ohm 10%, $\frac{1}{2}$ W.	12TAE184K	23X20X184K
R-106.	18,000	18,000 ohm 10%, $\frac{1}{2}$ W.	12TAE183K	23X20X183K
R-107.	68,000	68,000 ohm 10%, $\frac{1}{2}$ W.	12TAE683K	23X20X683K
R-108.	1000	1000 ohm 10%, $\frac{1}{2}$ W.	12TAE102K	23X20X102K
R-109.	10,000	10,000 ohm 10%, $\frac{1}{2}$ W.	12TAE103K	23X20X103K
R-110.	82	82 ohm 10%, $\frac{1}{2}$ W.	12TAE820K	23X20X820K
R-111.	120	120 ohm 10%, $\frac{1}{2}$ W.	12TAE121K	23X20X121K

φ In Tuner 1D1382 (Models TW1000 and TW2000), deleted from Tuner 1-2175 (Model TW2000, Run 2.).

TUBES

V-101.	1U4	RF amplifier	1U4	90X1U4
V-102.	1L6	mixer/oscillator	1L6	90X1L6

MISCELLANEOUS

TS-101.	6.	Antenna input terminal board assembly	27C-006	121-394
	7.	Contact bracket assembly	31B-278	121-386
	8.	Detent roller	31B-016	121-388
	9.	Detent spring	31B-005	121-389
	10.	Drum and shaft assembly; less coil strips	31B-631	121-395
	11.	Grommet, rubber; for mtg. gang	21A-028	121-392
	12.	Shaft retaining spring	31B-030	121-387
SO-101.	13.	Socket, 3-prong; antenna	27B-011	121-393
	14.	Socket, tube	27A-020	121-391
	15.	Tube shield	16S-006	121-390

COIL STRIPS

NOTE: The coil strips are supplied complete with capacitors and cores. The capacitors and cores may also be ordered separately.

1L	16	Antenna coil strip, band 7	31L-201	88-920
2L	17	Antenna coil strip, band 1	31L-202	88-908
		Core	20E-035	121-406
		550 mmfd. 3%, 300 V.; silver mica	13B-088	121-407
4L	18	Antenna coil strip, band 5	31L-203	88-916
		Core	20E-035	121-406
		330 mmfd. 3%, 300V.; silver mica	13B-091	121-408
		4.25 mmfd. $\pm$.5 mmfd., NPO; ceramic disc	13D-226	121-409
9L	19	Antenna coil strip, band 4	31L-204	88-914
		Core	20E-035	121-406
		22 mmfd. 5%, N330; $\frac{1}{4}$ " ceramic disc	13L-8S220J	121-410
11L	20	Antenna coil strip, band 6	31L-205	88-918
		Core	20E-035	121-406
		15 mmfd. 5%, N80; $\frac{1}{4}$ " ceramic disc	13L-8L150J	121-411
14L	21	Antenna coil strip, band 2	31L-206	88-910
		Core	20E-035	121-406
		13 mmfd. 5%, N80; $\frac{1}{2}$ " ceramic disc	13L-8L130J	121-412
17L	22	Antenna coil strip, band 3	31L-207	88-912
		Core	20E-035	121-406
		10 mmfd. 5%, NPO; $\frac{1}{4}$ " ceramic disc	13L-8C100J	121-413
3L	23	Antenna coil strip, LW band	31L-208	88-922
		Core	20E-042	121-414
1L	24	RF/osc. coil strip, band 7	31L-251	88-919
		Core	20E-035	121-406
		470 mmfd. 3%, 300V.; silver mica	13B-085	121-415
		18 mmfd. 5%, N330; $\frac{1}{4}$ " ceramic disc	13L-8S180J	121-416
2L	25	RF/osc. coil strip, band 1	31L-252	88-907
		Core	20E-035	121-406
		360 mmfd. 3%, 300V.; silver mica	13B-086	121-417
		560 mmfd. 3%, 300V.; silver mica	13B-087	121-418
		6.8 mmfd. $\pm$.5 mmfd., NPO; ceramic	13D-215	121-419
4L	26	RF/osc. coil strip, band 5	31L-253	88-915
		Core, 3/8" long	20E-035	121-406
		Core, 5/8" long	20E-038	121-420
		380 mmfd. 3%, 300V.; silver mica	13B-089	121-421
		340 mmfd. 3%, 300V.; silver mica	13B-090	121-422
		5 mmfd. $\pm$.5 mmfd., NPO; ceramic	13L-8C050K	121-423

N - neg. temp. coef. NPO - zero temp coef.

PARTS LIST for DYNAMIC TURRET TUNERS 1D1382 & 1-2175

COIL STRIPS (Cont.)			
Coil Strip Marking	Ref. No. on Fig. 10	Description	Cross Reference Hallicrafters Part Number
9L.....	27.....	RF/osc. coil strip, band 4.....	31L-254 88-913
		Core, 3/8" long.....	20E-035 121-406
		Core, 1/2" long.....	20E-036 121-424
		18 mmfd. 5%, N330; 1/4" ceramic disc.....	13L-8S180J 121-416
		24 mmfd. 5%, N750; 1/4" ceramic disc.....	13L-8U240J 121-425
11L.....	28.....	RF/osc. coil strip, band 6.....	31L-255 88-917
		Core.....	20E-035 121-406
		18 mmfd. 5%, N330; 1/4" ceramic disc.....	13L-8S180J 121-416
		13 mmfd. 5%, N80; 1/4" ceramic disc.....	13L-8L130J 121-412
14L.....	29.....	RF/osc. coil strip, band 2.....	31L-256 88-909
		Core.....	20E-035 121-406
		17 mmfd. 5%, N330; 1/4" ceramic disc.....	13L-8S170J 121-426
		12 mmfd. 5%, NPO; 1/4" ceramic disc.....	13L-8C120J 121-427
17L.....	30.....	RF/osc. coil strip, band 3.....	31L-257 88-911
		Core, 1/2" long.....	20E-036 121-424
		Core, 3/8" long.....	20E-035 121-406
		12 mmfd. 5%, NPO; 1/4" ceramic disc.....	13L-8C120J 121-427
		14 mmfd. 5%, N80; 1/4" ceramic disc.....	13L-8L140J 121-428
3L.....	31.....	RF/osc. coil strip, LW band.....	31L-258 88-921
		Core, 3/8" long.....	20E-035 121-406
		Core, 1/2" long.....	20E-042 121-414
		300 mmfd. 5%, 300V.; silver mica.....	13B-093 121-429

N - neg. temp. coef.

NPO - zero temp. coef.

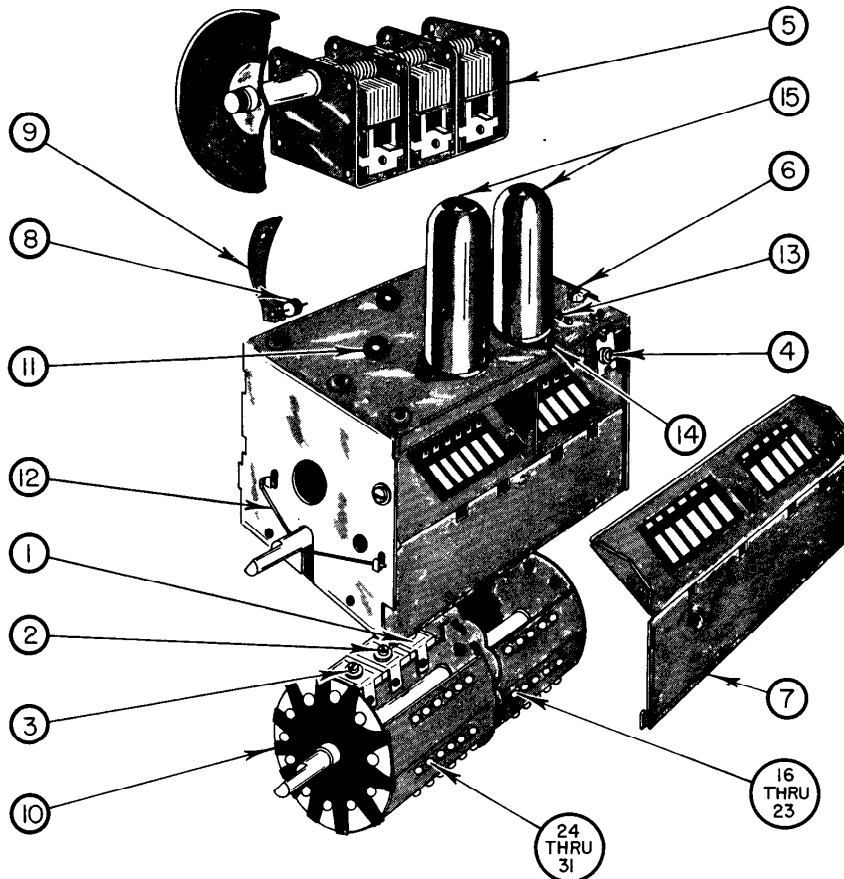


Fig. 10. Exploded View of Dynamic Turret Tuner

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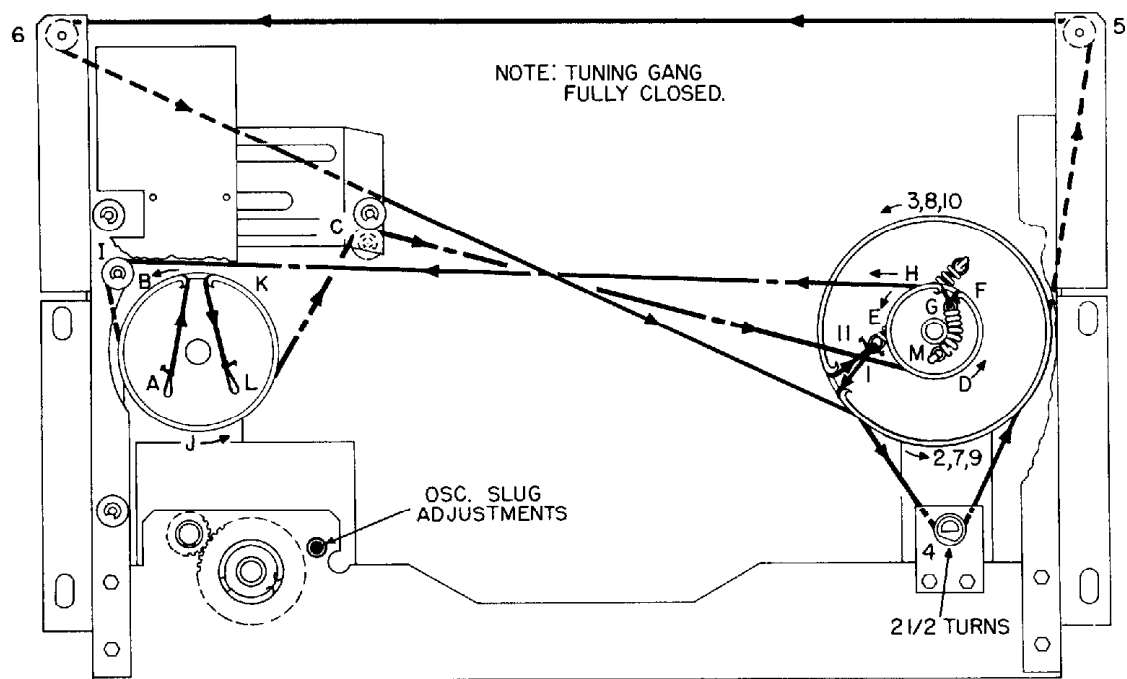
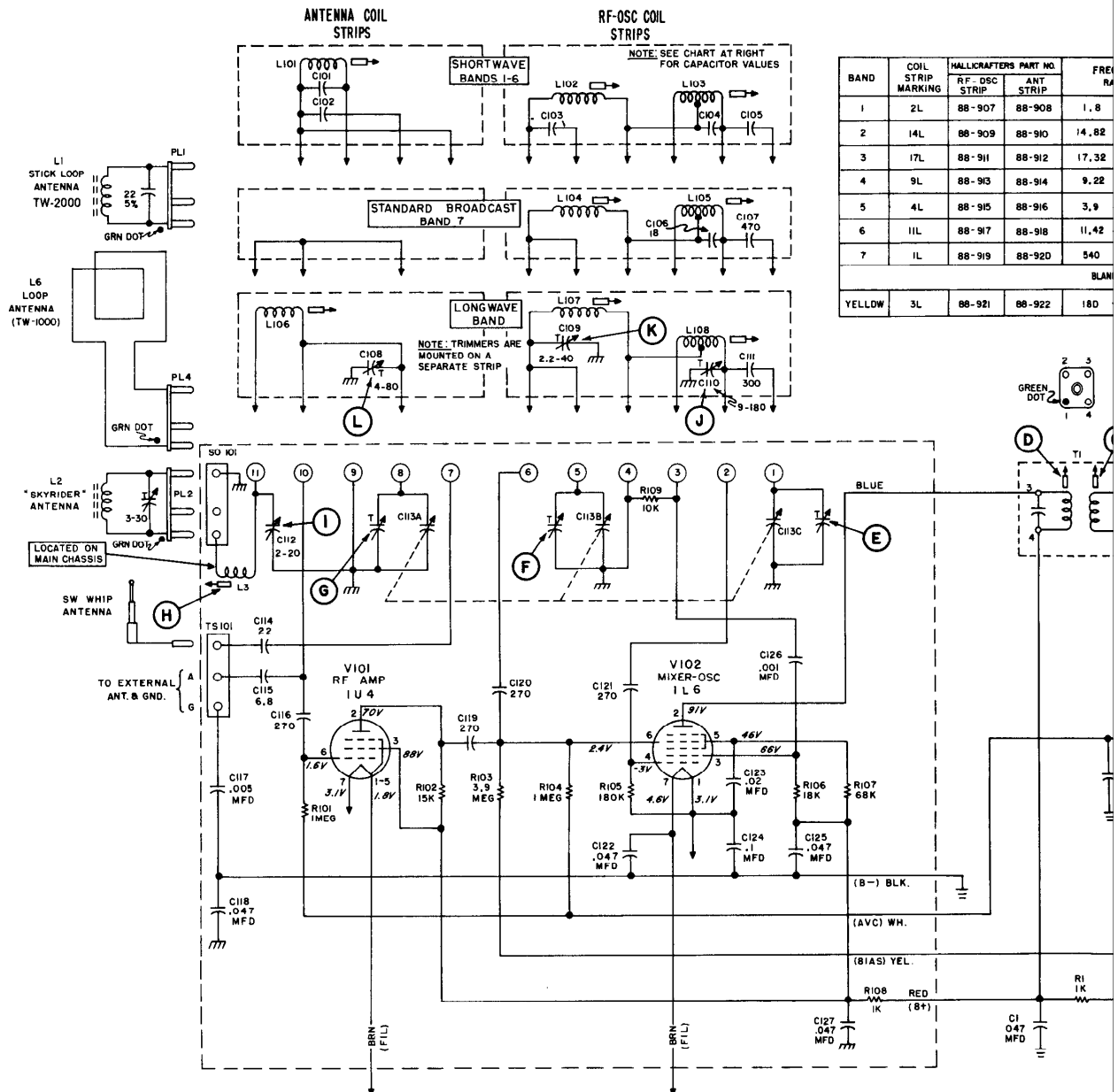


Fig. 11. Dial Pointer and Tuning Gong Stringing Diagram

NOTES

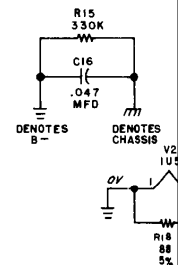
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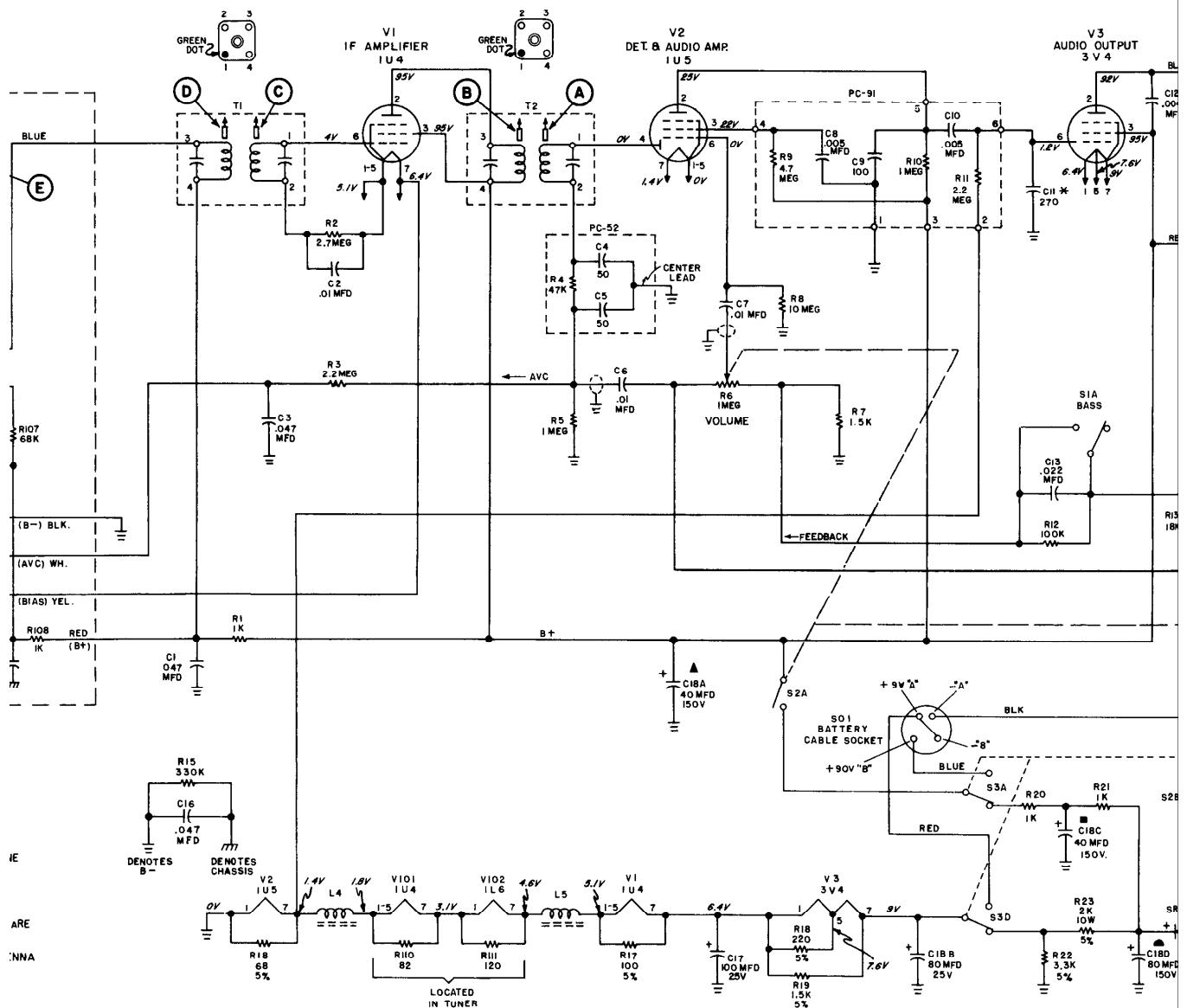
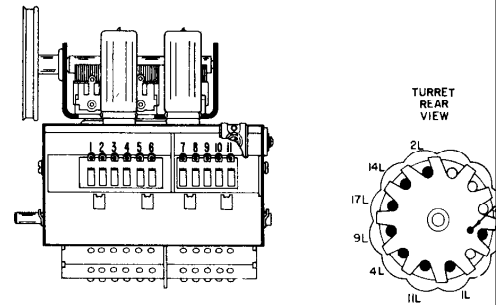


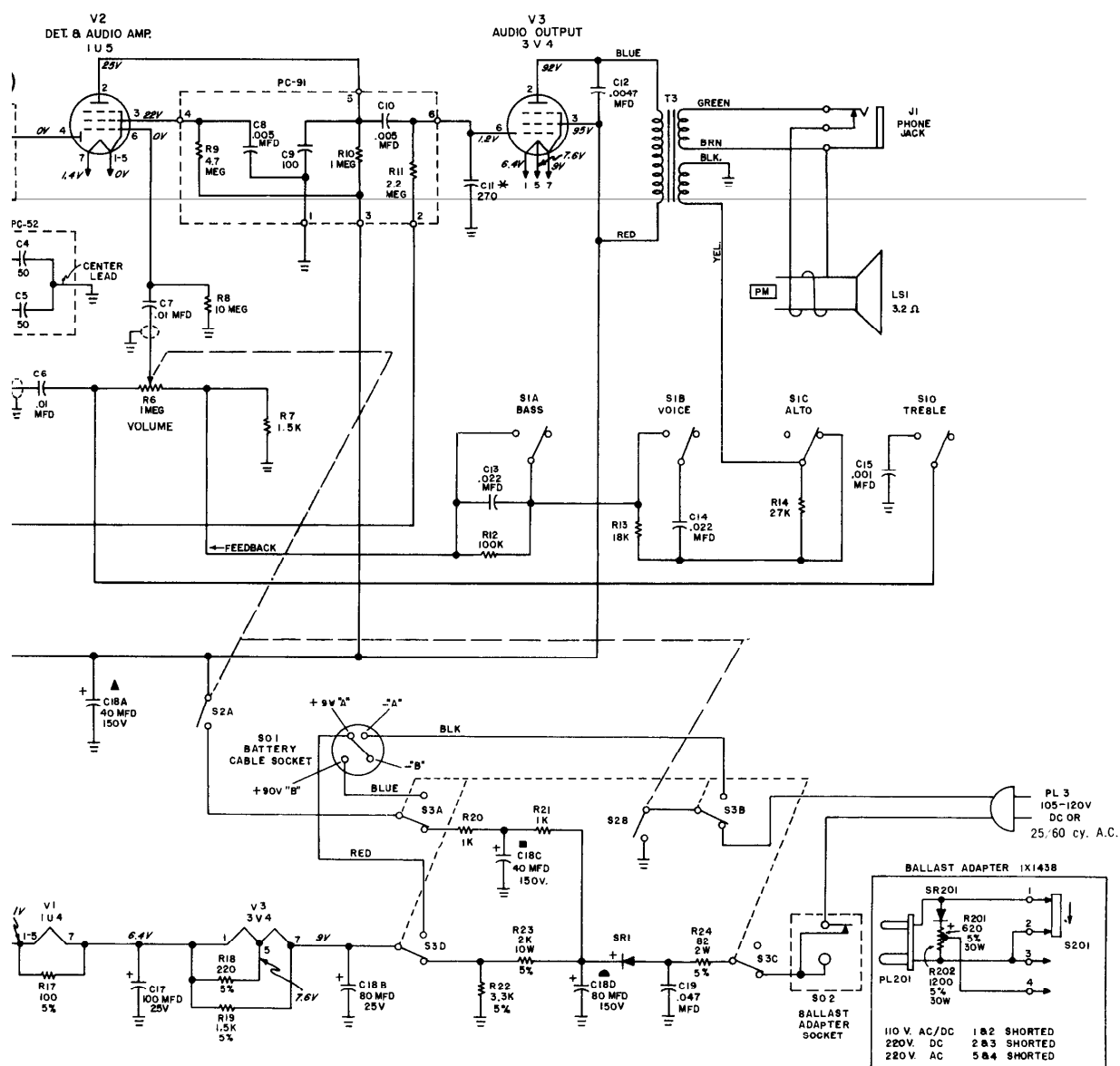
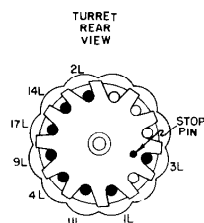
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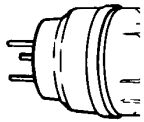
1. RESISTANCE IN OHMS AND CAPACITANCE IN MMF UNLESS OTHERWISE SPECIFIED. K=1000
2. RESISTORS ARE 1/2 WATT AND 10% UNLESS OTHERWISE SPECIFIED.
3. INTERMEDIATE FREQUENCY=455 KC
4. TONE SWITCH S-1 SHOWN IN RIGHT HAND POSITION (AS VIEWED FROM FRONT OF SET).
5. POWER CHANGEOVER SWITCH S-3 SHOWN IN AC/DC POSITION. FOR BATTERY OPERATION, INSERT LINE CORD PLUG INTO CHASSIS RECEPTACLE (SEE FIG.3).
6. LINE VOLTAGE: AC/DC OPERATION - 117 VOLTS
BATTERY OPERATION - 90V "B" AND 9V "A"
7. ALL VOLTAGES MEASURED WITH VTVM BETWEEN TUBE SOCKET TERMINALS AND B-($\frac{1}{2}$). VOLTAGES ARE DC AND POSITIVE UNLESS OTHERWISE SPECIFIED.
8. ALL VOLTAGES ARE MEASURED IN BROADCAST POSITION (BAHD7) WITH STICK-LOOP OR LOOP ANTENNA DISCONNECTED AND GANG FULLY CLOSED.
- * ON SOME SETS, C11 IS 220MMF WHEN MAKING REPLACEMENT, USE 270 MMF CAPACITOR.

VALUES AND TOLERANCES SHOWN ARE NOMINAL AND VARIATIONS MAY BE FOUND. IT IS RECOMMENDED THAT THE VALUE OF ANY REPLACEMENT CORRESPOND TO THE NOMINAL VALUE OF THE PART BEING REPLACED.



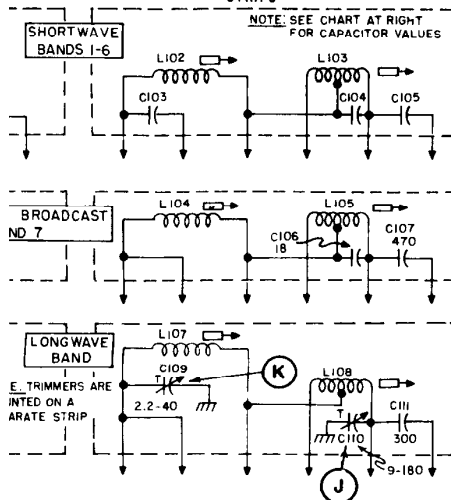




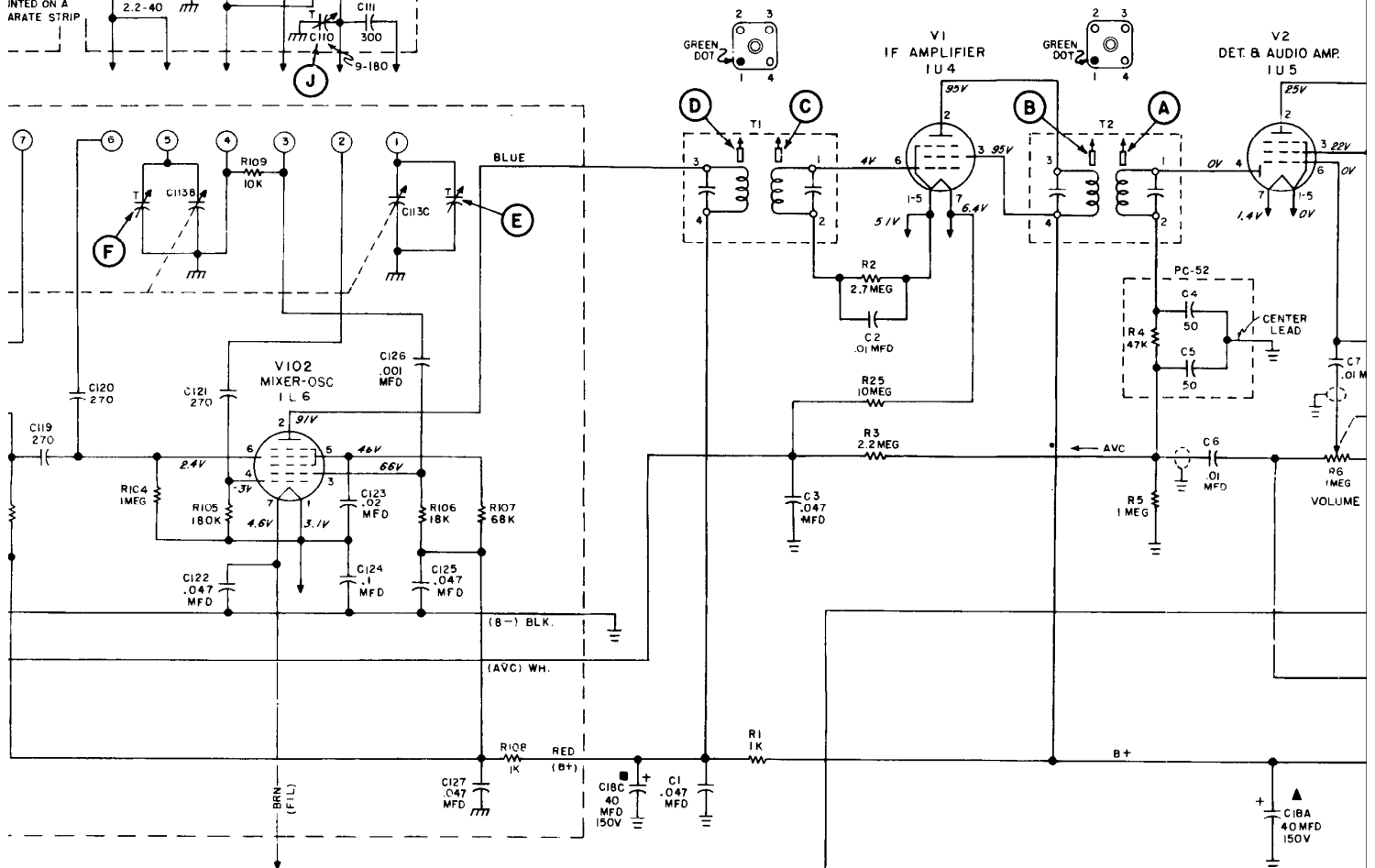


1. RESISTANCE IN OHMS AND CAPACITANCE IN MMF UNLESS OTHERWISE SPECIFIED. K=1000
2. RESISTORS ARE 1/2 WATT AND 10% UNLESS OTHERWISE SPECIFIED.
3. INTERMEDIATE FREQUENCY - 455 KC
4. TONE SWITCH S-1 SHOWN IN RIGHT HAND POSITION (AS VIEWED FROM FRONT OF SET).
5. POWER CHANGEOVER SWITCH S-3 SHOWN IN AC/DC POSITION. FOR BATTERY OPERATION, INSERT LINE CORD PLUG INTO CHASSIS RECEPTACLE (SEE FIG.3).
6. LINE VOLTAGE: AC/DC OPERATION - 117 VOLTS
BATTERY OPERATION - 90V "B" AND 9V "A"
7. ALL VOLTAGES MEASURED WITH VTVM BETWEEN TUBE SOCKET TERMINALS AND B-($\frac{1}{2}$). VOLTAGES ARE DC AND POSITIVE UNLESS OTHERWISE SPECIFIED.
8. ALL VOLTAGES ARE MEASURED IN BROADCAST POSITION (BAND 7) WITH STICK-LOOP OR LOOP ANTENNA DISCONNECTED AND GANG FULLY CLOSED.
- * ON SOME SETS, C11 IS 220 MMF. WHEN MAKING REPLACEMENT, USE 270 MMF CAPACITOR.

RF-OSC COIL STRIPS



BAND	COIL STRIP MARKING	MALICRAFTERS PART NO	RF - OSC STRIP	ANT STRIP	FREQUENCY RANGE	C101	C102	C103	C104	C105
1	2L	88-907	88-908		1.8 — 3.9 MC	NONE	550	560	6.8	360
2	14L	88-909	88-910		14.62 — 15.7 MC	NONE	13	17	NONE	12
3	17L	88-911	88-912		17.32 — 18.2 MC	NONE	10	14	NONE	12
4	9L	88-913	88-914		9.22 — 10.3 MC	NONE	22	24	NONE	18
5	4L	88-915	88-916		3.9 — 8.0 MC	4.25	330	340	5	380
6	11L	88-917	88-918		11.42 — 12.3 MC	NONE	15	18	NONE	13
7	1L	88-919	88-920		540 — 1600 KC					
BLANK POSITION										
YELLOW	3L	88-921	88-922		180 — 40p KC					



NOTES

1. CAPACITANCE IN MMF UNLESS OTHERWISE SPECIFIED. K=1000

2. 10% TOLERANCE UNLESS OTHERWISE SPECIFIED.

3. KC

4. 1/2 HAND POSITION (AS VIEWED FROM FRONT OF SET).

5. -3 SHOWN IN AC/D.C. POSITION. FOR BATTERY OPERATION, INSERT LINE IN BATTERY POSITION (SEE FIG. 3).

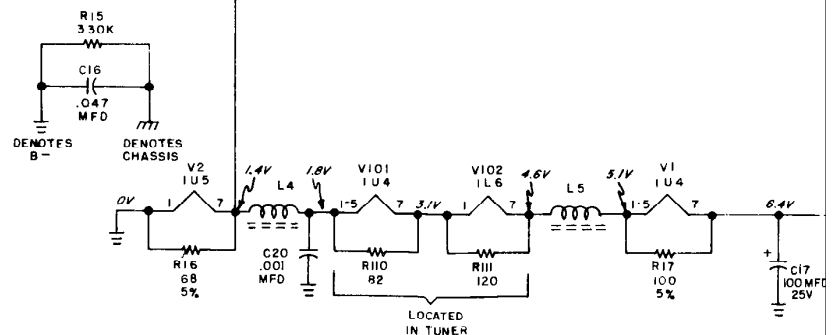
6. ON - 117 VOLTS

7. TUNING - 90V "B" AND 9V "A"

8. VOLTAGE BETWEEN TUBE SOCKET TERMINALS AND B- (1/2). VOLTAGES ARE OTHERWISE SPECIFIED.

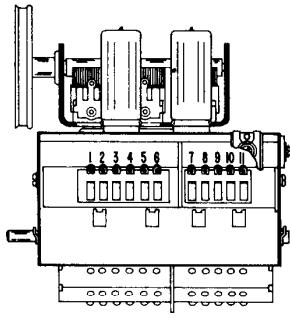
9. IN BROADCAST POSITION (BAND 7) WITH STICK-LOOP OR LOOP ANTENNA FULLY CLOSED.

10. WHEN MAKING REPLACEMENT, USE 270 MMF CAPACITOR.



TW-2000 RUN 2

1
C105
360
12
12
18
380
13

TURRET
REAR
VIEW