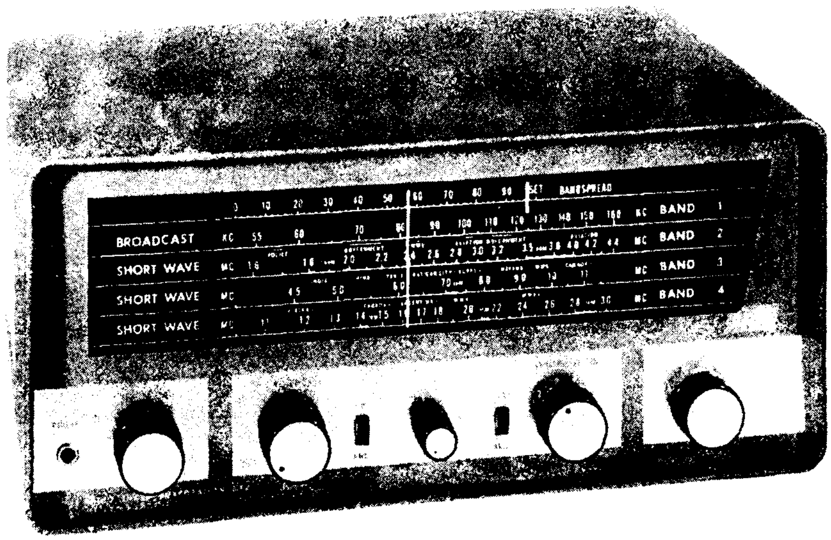
REALISTIC

COMMUNICATION RECEIVER

OPERATING AND SERVICE INSTRUCTIONS

MODEL DX-75

RADIO SHACK CORPORATION
DIVISION OF TANDY CORPORATION



INTRODUCTION

The Realistic DX-75 Communications Receiver is designed to provide both the usual "long wave" standard broadcast reception and "short wave" international broadcast reception. Therefore, it allows the listener to span the oceans and travel around the world by means of radio waves. of radio waves.

Short wave radio signals are used for long distance transmission because of the way they are reflected back to earth by the ionosphere. Radiation from space (primarily from the sun) causes ionization of the layers of gases high above the earth. Short wave radio signals will not penetrate these ionized gases; instead, they bounce back to earth much like a stone skips across the surface of quiet water. Variations in the reflecting characteristics of the ionosphere due to sun spots, seasons, time of day, etc., produce periods when the skipping of short wave signals is especially effective. Since many of these periods occur in regular cycles the listener may develop a schedule of the best times to listen for signals from distant parts of the world.

Listed below are some of the many types of broadcasts that can be heard on the short wave bands:

- Amateur Radio (Ham)
- Mobile Radio - Telephone
- Military
- Citizens Band (CB)
- Int. Short Wave (Voice of America, etc.)
- Standard Time Signals (WWV)

GENERAL

The Realistic DX-75 is a four band AM receiver which covers the standard broadcast frequencies in one band: 550 to 1600 KC; and the short wave frequencies in three bands: 1.6 to 4.4 MC; 4.5 to 11 MC; 11 to 30 MC. Utilizing four tubes (one multipurpose tube affords five tube performance) plus rectifier, the superhetrodyne circuit is designed to operate from a 105 to 125 volt, 60 cycle power source. A power transformer eliminates the hazard of a hot chassis. Housed in a vinyl clad steel table model cabinet, the receiver features an eight inch "slide rule" type dial with continuous tuning of all four bands, plus bandspread for precise location of signals on the busy short wave bands.

SPECIFICATIONS

Dimensions	6-5/16 x 14-1/4 x 19-17/32
Weight (net)	15 pounds
Frequency Range	550 to 1600 KC - 1.6 to 30 MC
Sensitivity	3.5μv at 20 MC (6 db signal-to-noise ratio with 30% mod.)
Selectivity	6 db down, ±4.5 KC; 60 db down, ± 25 KC
Audio Output	1.5 watts
Input Voltage	105 to 125 volts, 60 cps
Power Consumption	35 watts

INSTALLATION

Choice of a location for the receiver may be subject to several considerations. These include the arrangement of furniture in the room, the comfort and convience of the listener, and access to a good electrical ground and an outside antenna. Mary hours of listening enjoyment are available from a short wave receiver so it is recommended that the selection of a location for the DX-75 be be carefully made.

The antenna for standard broadcast is self-contained, however, an outside antenna is required for distance reception on the short wave bands. As a general rule an outside antenna should be as high as practical and as long as possible (up to 100 ft.) for best reception of short wave signals. The antenna should be mounted away from power lines, trees, buildings, etc., and should be attached to its supports by glass or ceramic insulators. No. 12 to 16 ga. copper covered steel wire (uninsulated) is best for both the antenna and the down lead. A lightening arrestor should be connected to the down lead for protection against storm damage. For additional information on antenna design refer to "A. R. R. L. Antenna Book" published by American Radio Relay League, or to any of the many other antenna handbooks currently available.

Connect the down lead from the antenna to the #2 terminal on the rear of the receiver and connect the #1 terminal to a good earth ground such as a water pipe. Plug the power cord into a standard receptacle providing 117 VAC power.

OPERATION

VOLUME Clockwise rotation of the Volume control knob turns on power and increases volume.

BAND SELECTOR Rotation of the Band Selector knob switches antenna and local oscillator circuits for the various tuning bands. Index numbers are located near the knob and at each end of the dial.

TUNING Rotation of the Tuning knob causes the main tuning indicator (red) to move across the dial.

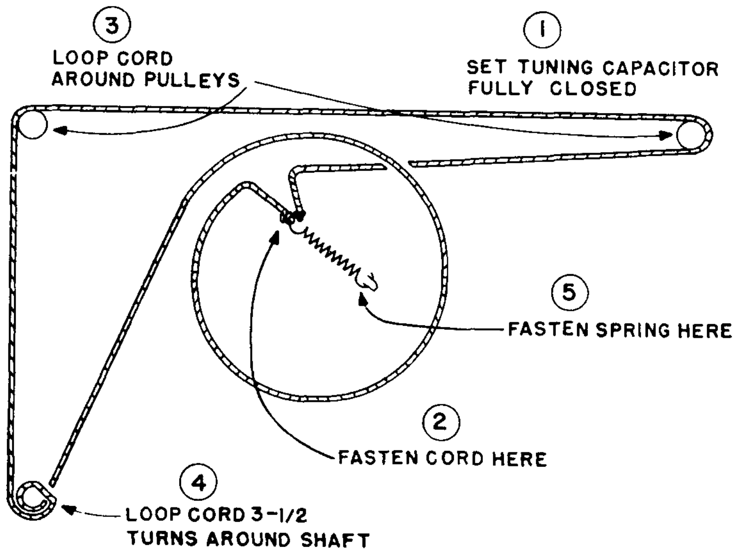
BANDSPREAD Rotation of the Bandspread knob affects a fine tuning adjustment of the reception frequency. Normally the indicator should be adjusted to the SET position. After the approximate frequency has been tuned by use of the main tuning knob, the bandspread adjustment gradually reduces the frequency for pinpoint selection of signals.

BFO Clockwise rotation of the BFO control turns on a Beat Frequency Oscillator and increases the % of modulation of the IF signal by this oscillator. A CW signal, as used for single side band or code telegraphy purposes, contains no modulation and must be modulated in the receiver for proper reception (Note: settings in the lower range of this control may also improve reception of weak signals other than CW type).

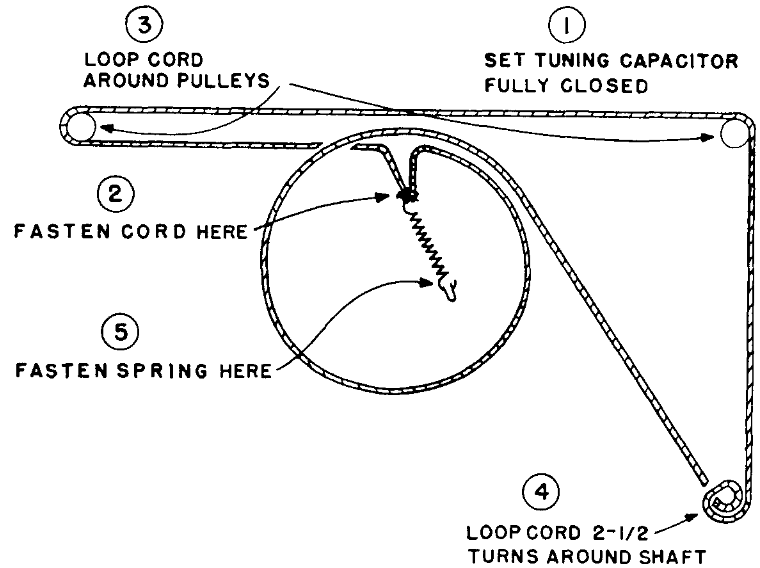
ANL ON In the up position this slide switch activates the Automatic Noise Limiter circuits designed to minimize background noise, static, etc. Operation in the down position may be necessary for reception of the very weak signals since the noise limiter suppresses all lower level signals.

REC/STBY The receiver may be silenced by moving this slide switch to the STBY position without actually turning off power to the tubes. Switching back to the REC position instantly returns the receiver to normal operation without warm-up or retuning.

PHONE This jack provides a connection for headphones (50 to 1000 ohms) which automatically silences the internal speaker. The Volume control functions as usual to vary the volume at the headphones.

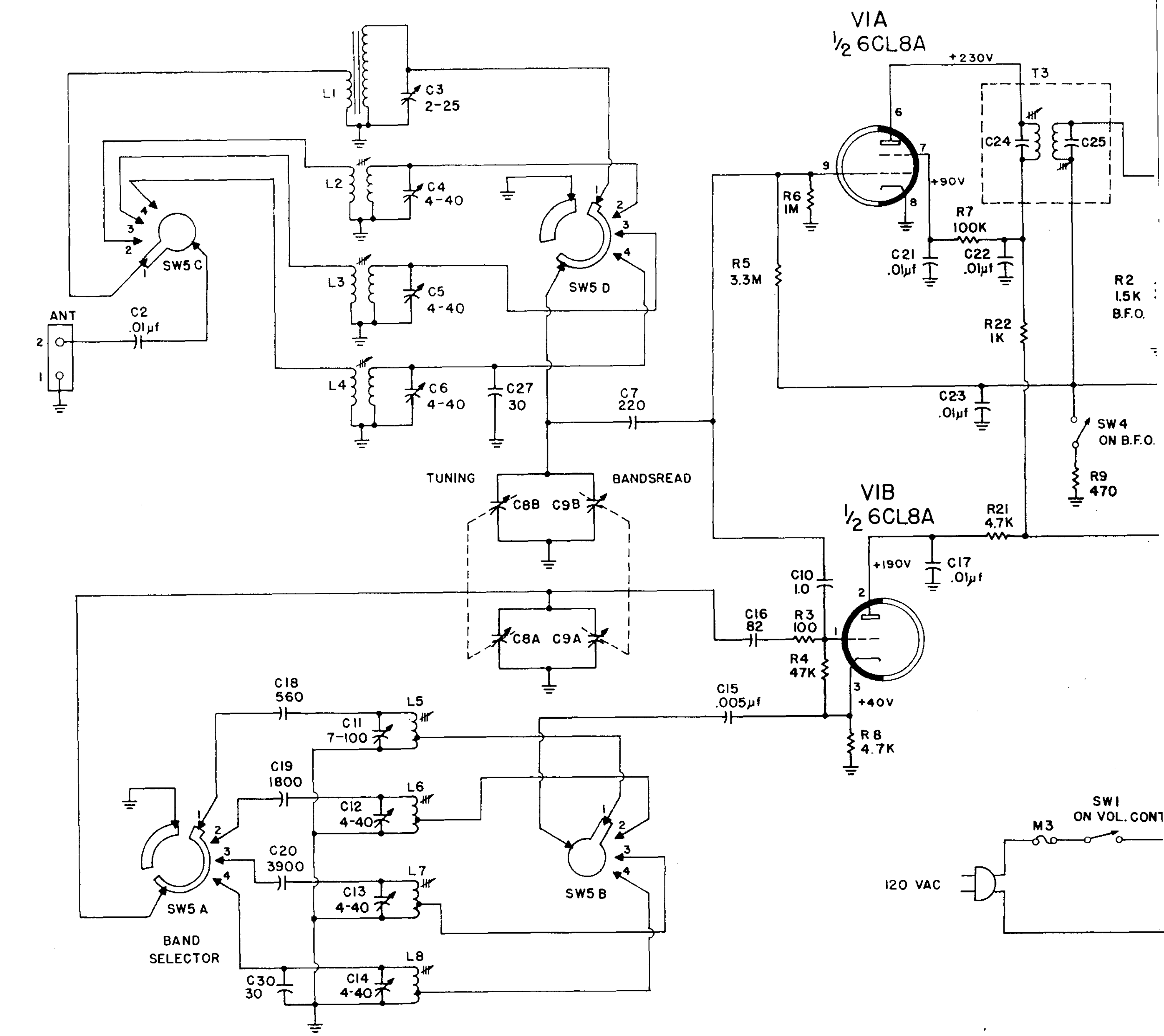


MAIN TUNING DIAL CORD
(REAR VIEW)



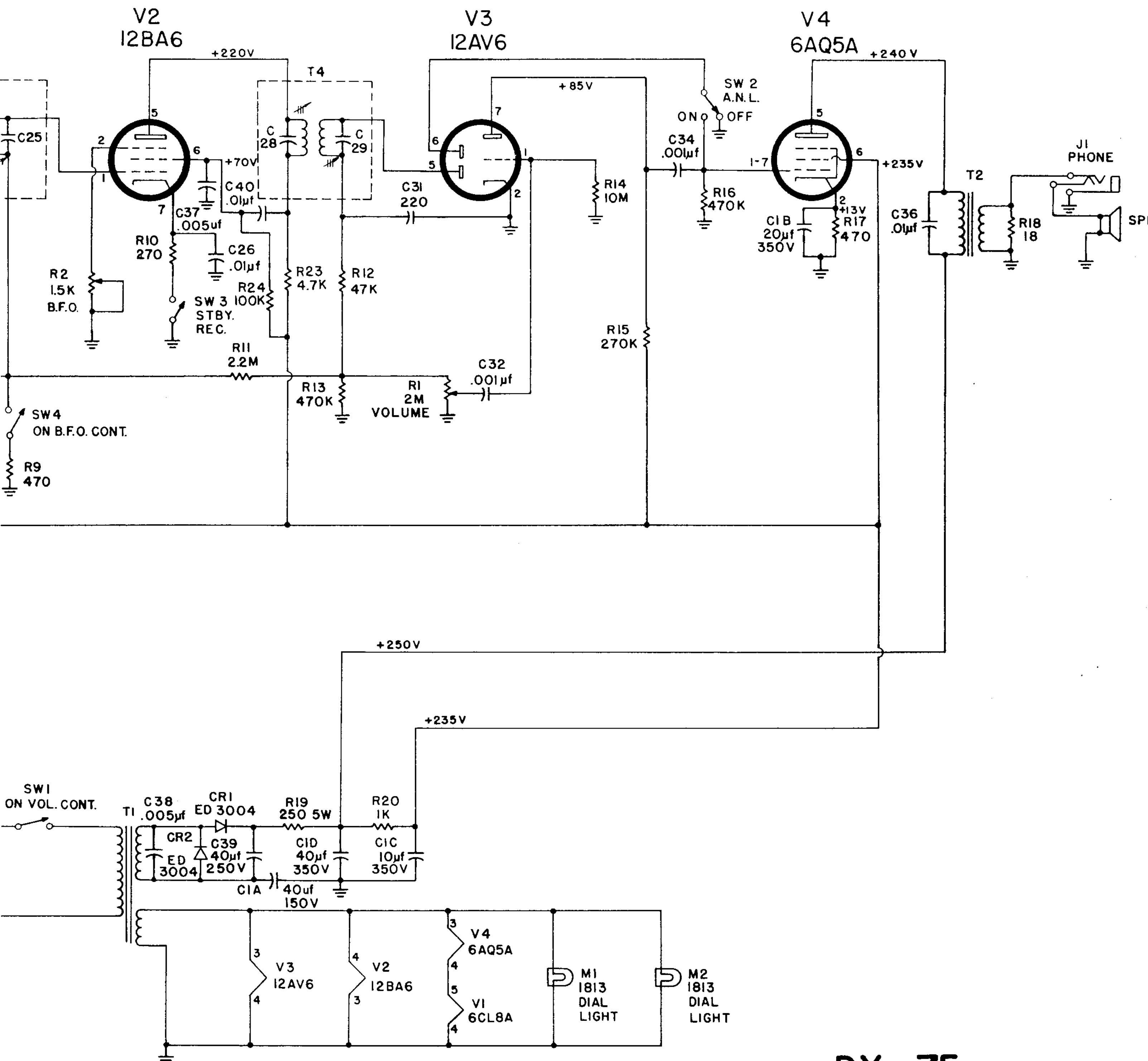
BAND SPREAD DIAL CORD
(REAR VIEW)

Fig. 1 Dial Stringing Diagram



ALL RESISTOR VALUES ARE IN OHMS & 1/2 WATT UNLESS OTHERWISE SPECIFIED.

ALL CAPACITOR VALUES ARE IN MICROMICROFARADS UNLESS OTHERWISE SPECIFIED.


V2
12BA6
V3
12AV6
V4
6AQ5A
+220V
T4
+85V
SW 2
A.N.L.
ON
OFF
+240V
C25
C 28
C 29
+70V
C40
.01µf
C31
220
C34
.001µf
R14
10M
R16
470K
1-7
+235V
J1
PHONE
T2
C37
.005µf
R10
270
C26
.01µf
R23
4.7K
R12
47K
R24
100K
C1B
20µf
350V
R17
470
+13V
C36
.01µf
R18
18
SP1
R2
1.5K
B.F.O.
SW 3
STBY.
REC.
R11
2.2M
R15
270K
C32
.001µf
R13
470K
R1
2M
VOLUME
SW4
ON B.F.O. CONT.
R9
470
+250V
+235V
SW1
ON VOL. CONT.
T1
C38
.005µf
CR1
ED 3004
CR2
ED
3004
C39
40µf
250V
R19
250 5W
R20
1K
C1D
40µf
350V
C1C
10µf
350V
C1A
40uf
150V
V4
6AQ5A
V3
12AV6
V2
12BA6
V1
6CL8A
M1
1813
DIAL
LIGHT
M2
1813
DIAL
LIGHT

DX-75

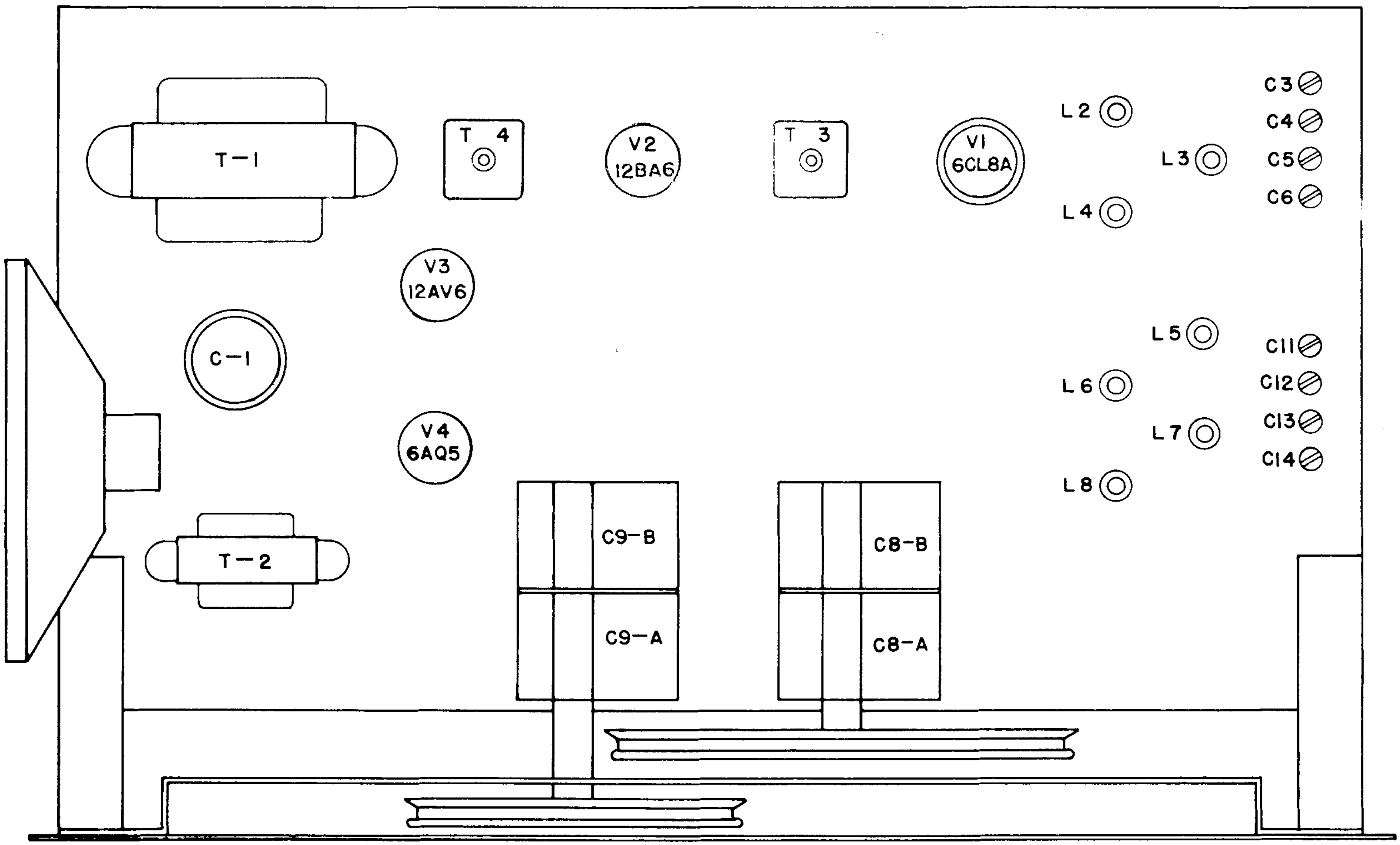


Fig. 2 Chassis Layout Diagram

ALIGNMENT INSTRUCTIONS

Equipment required:

1. Oscilloscope with calibrated vertical scale
2. RF Signal generator capable of:
   a. Operation from 455 KC to 30 MC
   b. Attenuation below 1μv output
   c. Modulation at 1 KC with variable modulation percentages

IF Alignment

1. Loosely couple a 455 KC, 50% modulated signal into the antenna terminals (Band Selector in position #1)
2. Connect oscilloscope to speaker terminals
3. With signal generator set to lowest useable signal level, peak all IF transformers for maximum recovered audio.

RF Alignment

1. Preliminary set up
   a. Beginning with all trimmer capacitors tightly closed, open the trimmers as follows:

C3	1/4 Turn
C4	3/4 Turn
C5	1/4 Turn
C6	7/8 Turn
C11	1/2 Turn
C12	1/4 Turn
C13	1/4 Turn
C14	1/4 Turn

   b. Beginning with all slugs at top of form adjust as follows:

L2	15 Turns
L3	22 Turns
L4	15 Turns
L5	30 Turns
L6	22 Turns
L7	30 Turns
L8	15 Turns

NOTE:

These settings are approximate and are NOT final.

RF Alignment (con't.)

2. Final Alignment
   In the following procedure, a signal of the specified frequency (70% modulated) is fed into the antenna terminal. The antenna and local oscillator tuned circuits are adjusted for maximum recovered audio, always adjusting the oscillator components first.

Band	Signal Freq. and Dial Setting	Adjust for Maximum
1	600 KC 1400 KC	L5, L1 C11, C3
2	1.8 MC 4.3 MC	L6, L2 C12, C4
3	5.0 MC 11.0 MC	L7, L3 C13, C5
4	11.0 MC 30.0 MC	L8, L4 C14, C6

NOTE: The above adjustments should be made in the order shown, and should be repeated several times on each band, until proper tracking and calibration are obtained.

PARTS LIST

TUBES

ITEM NO.	DESCRIPTION	PART NO.
V1		6CL8A
V2		12BA6
V3		12AV6
V4		6AQ5A

CAPACITORS

ITEM NO.	DESCRIPTION	PART NO.
C1	40-20-10-40µf/350V-350V-350V-150V Electrolytic	
C2	.01µf GMV Z5U 500V Ceramic	
C3	2-25pf Ceramic Trimmer	
C4	4-40pf Ceramic Trimmer	
C5	4-40pf Ceramic Trimmer	
C6	4-40pf Ceramic Trimmer	
C7	220pf ±10% NPO 500V Ceramic	
C8	Main Tuning	301-338-1
C9	Bandspread	301-338-2
C10	1.0pf ±10% 500V Composition	
C11	7-100pf Ceramic Trimmer	
C12	4-40pf Ceramic Trimmer	
C13	4-40pf Ceramic Trimmer	
C14	4-40pf Ceramic Trimmer	
C15	.005µf GMV Z5U 500V Ceramic	
C16	82pf ±10% N750 600V Ceramic	
C17	.01µf GMV Z5U 500V Ceramic	
C18	560pf ±5% 125V Polystyrene	
C19	1800pf ±5% 125V Polystyrene	
C20	3900pf ±5% 125V Polystyrene	
C21	.01µf GMV Z5U 500V Ceramic	
C22	.01µf GMV Z5U 500V Ceramic	
C23	.01µf GMV Z5U 500V Ceramic	
C24	SEE T3	
C25	SEE T3	
C26	.01µf GMV Z5U 500V Ceramic	
C27	30pf ±5% NPO 500V Ceramic	
C28	SEE T4	
C29	SEE T4	
C30	30pf ±5% NPO 500V Ceramic	

CAPACITORS (CONT.)

ITEM NO.	DESCRIPTION	PART NO.
C31	220pf ±20% Z5F 500V Ceramic	
C32	.001µf ±20% Z5U 500V Ceramic	
C33	NOT USED	
C34	.001µf ±20% Z5U 500V Ceramic	
C35	NOT USED	
C36	.01µf GMV Z5U 500V Ceramic	
C37	.005 GMV Z5U 500V Ceramic	
C38	.005 GMV Z5U 500V Ceramic	
C39	40µf/250V Electrolytic	
C40	.01µf GMV Z5U 500V Ceramic	

RESISTORS

ITEM NO.	DESCRIPTION	PART NO.
R1	2M Variable	300-268-18
R2	1.5K Variable	101-734-6
R3	100Ω ±10% 1/2W Carbon	
R4	47K ±10% 1/2W Carbon	
R5	3.3M ±10% 1/2W Carbon	
R6	1M ±10% 1/2W Carbon	
R7	100K ±10% 1/2W Carbon	
R8	4.7K ±10% 1/2W Carbon	
R9	470Ω ±10% 1/2W Carbon	
R10	270Ω ±10% 1/2W Carbon	
R11	2.2M ±10% 1/2W Carbon	
R12	47K ±10% 1/2W Carbon	
R13	470K ±10% 1/2W Carbon	
R14	10M ±10% 1/2W Carbon	
R15	270K ±10% 1/2W Carbon	
R16	470K ±10% 1/2W Carbon	
R17	470Ω ±10% 1/2W Carbon	
R18	18Ω ±10% 1/2W Carbon	
R19	250Ω ±10% 5W W.W.	
R20	1K ±10% 1/2W Carbon	
R21	4.7K ±10% 1/2W Carbon	
R22	1K ±10% 1/2W Carbon	
R23	4.7K ± 10% 1/2W Carbon	
R24	100K±10% 1/2W Carbon	

ITEM NO.	DESCRIPTION	PART NO.
	TRANSFORMERS	
T1	Power Transformer	500-685
T2	Output Transformer	301-335
T3	IF 455KC	1655-6
T4	IF 455KC	1655-6
	COILS	
L1	RF Band #1	301-340
L2	RF Band #2	301-341
L3	RF Band #3	301-342
L4	RF Band #4	301-343
L5	Osc. Band #1	301-344
L6	Osc. Band #2	301-345
L7	Osc. Band #3	301-346
L8	Osc. Band #4	301-347
	SWITCHES	
SW1	Power Switch (On Volume Control)	300-268-18
SW2	ANL (On - Off)	SS-32
SW3	STBY-REC	SS-32
SW4	BFO Switch (On BFO Control)	101-734-6
SW5	Band Switch	301-339

ITEM NO.	DESCRIPTION	PART NO.
	MISCELLANEOUS	
M1	Dial Light	#1813
M2	Dial Light	#1813
CR1	Diode 400PIV 500 MA.	ED-3004
CR2	Diode 400 PIV 500 MA.	ED-3004
J1	Phone Jack	J6-2
SPK 1	Speaker	14826
	Cabinet	600-173-3
	Panel (Front)	500-787
	Panel (Back)	500-629-2
	Knob (Bandspread-Tuning)	27002-1
	Knob (Band-Volume)	27002P-1
	Knob (BFO)	26600P-1
	Dial Glass	301-336
	Feet	100-435-11