



MONITOR RADIO

OPERATING

AND

SERVICE

INSTRUCTIONS

WT-4



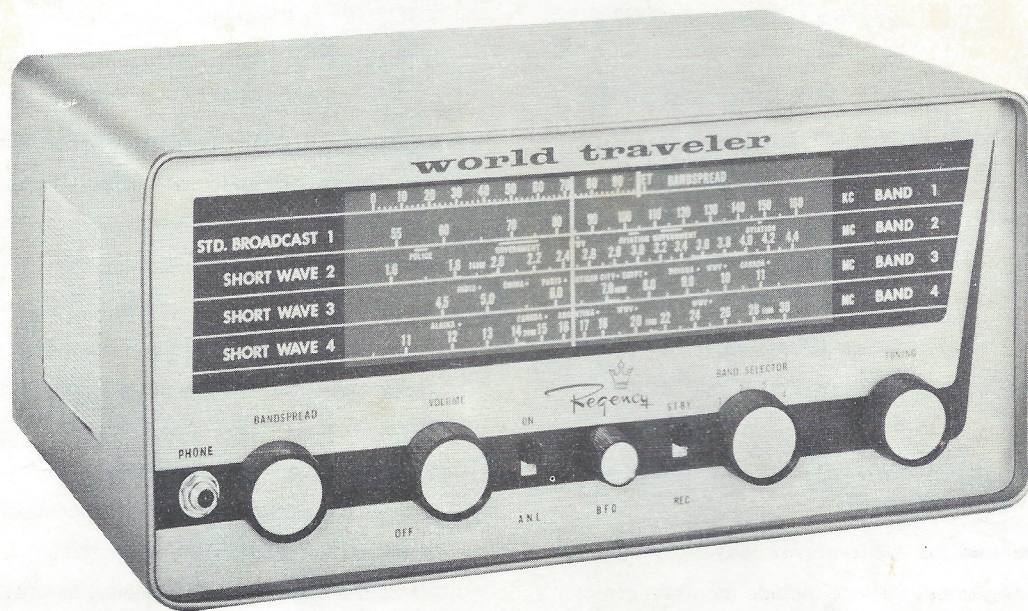
Regency

ELECTRONICS INC.

MONITOR RADIO DIVISION

ETON PIKE INDIANAPOLIS 26, INDIANA

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INTRODUCTION

The Monitoradio model WT-4, World Traveler, is designed to provide both the usual "long wave" standard broadcast reception and "short wave" international broadcast reception. Therefore, the World Traveler allows the listener to span the oceans and travel around the world by means 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:

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

GENERAL

The Monitoradio model WT-4 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	3.5 μ v at 20 MC (6 db signal-to-noise ratio with 30% mod.)
Selectivity	6 db down, \pm 4.5 KC; 60 db down, \pm 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 convenience of the listener, and access to a good electrical ground and an outside antenna. Many hours of listening enjoyment are available from a short wave receiver so it is recommended that the selection of a location for the World Traveler 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 lightning 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.

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 $1\mu v$ 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

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.

NOTE:

These settings are approximate and are NOT final.

PARTS LIST

<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>PART NO.</u>	<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>PART NO.</u>
	<u>TUBES</u>			<u>CAPACITORS (CONT.)</u>	
V1		6CL8A	C31	220pf $\pm 20\%$ Z5F 500V Ceramic	
V2		12BA6	C32	.001 μ f $\pm 20\%$ Z5U 500V Ceramic	
V3		12AV6	C33	NOT USED	
V4		6AQ5A	C34	.001 μ f $\pm 20\%$ Z5U 500V Ceramic	
			C35	NOT USED	
			C36	.01 μ f GMV Z5U 500V Ceramic	
			C37	.005 GMV Z5U 500V Ceramic	
			C38	.005 GMV Z5U 500V Ceramic	
			C39	40 μ f/250V Electrolytic	
			C40	.01 μ f GMV Z5U 500V Ceramic	
				<u>RESISTORS</u>	
	<u>CAPACITORS</u>				
C1	40-20-10-40 μ f/350V -350V -350V -150V Electrolytic		R1	2M Variable	300-268-18
C2	.01 μ f GMV Z5U 500V Ceramic		R2	1.5K Variable	101-734-6
C3	2-25pf Ceramic Trimmer		R3	100 Ω $\pm 10\%$ 1/2W Carbon	
C4	4-40pf Ceramic Trimmer		R4	47K $\pm 10\%$ 1/2W Carbon	
C5	4-40pf Ceramic Trimmer		R5	3.3M $\pm 10\%$ 1/2W Carbon	
C6	4-40pf Ceramic Trimmer		R6	1M $\pm 10\%$ 1/2W Carbon	
C7	220pf $\pm 10\%$ NPO 500V Ceramic		R7	100K $\pm 10\%$ 1/2W Carbon	
C8	Main Tuning	301-338-1	R8	4.7K $\pm 10\%$ 1/2W Carbon	
C9	Bandsread	301-338-2	R9	470 Ω $\pm 10\%$ 1/2W Carbon	
C10	1.0pf $\pm 10\%$ 500V Composition		R10	270 Ω $\pm 10\%$ 1/2W Carbon	
C11	7-100pf Ceramic Trimmer		R11	2.2M $\pm 10\%$ 1/2W Carbon	
C12	4-40pf Ceramic Trimmer		R12	47K $\pm 10\%$ 1/2W Carbon	
C13	4-40pf Ceramic Trimmer		R13	470K $\pm 10\%$ 1/2W Carbon	
C14	4-40pf Ceramic Trimmer		R14	10M $\pm 10\%$ 1/2W Carbon	
C15	.005 μ f GMV Z5U 500V Ceramic		R15	270K $\pm 10\%$ 1/2W Carbon	
C16	82pf $\pm 10\%$ N750 600V Ceramic		R16	470K $\pm 10\%$ 1/2W Carbon	
C17	.01 μ f GMV Z5U 500V Ceramic		R17	470 Ω $\pm 10\%$ 1/2W Carbon	
C18	560pf $\pm 5\%$ 125V Polystyrene		R18	18 Ω $\pm 10\%$ 1/2W Carbon	
C19	1800pf $\pm 5\%$ 125V Polystyrene		R19	250 Ω $\pm 10\%$ 5W W.W.	
C20	3900pf $\pm 5\%$ 125V Polystyrene		R20	1K $\pm 10\%$ 1/2W Carbon	
C21	.01 μ f GMV Z5U 500V Ceramic		R21	4.7K $\pm 10\%$ 1/2W Carbon	
C22	.01 μ f GMV Z5U 500V Ceramic		R22	1K $\pm 10\%$ 1/2W Carbon	
C23	.01 μ f GMV Z5U 500V Ceramic		R23	4.7K $\pm 10\%$ 1/2W Carbon	
C24	SEE T3		R24	100K $\pm 10\%$ 1/2W Carbon	
C25	SEE T3				
C26	.01 μ f GMV Z5U 500V Ceramic				
C27	30pf $\pm 5\%$ NPO 500V Ceramic				
C28	SEE T4				
C29	SEE T4				
C30	30pf $\pm 5\%$ NPO 500V Ceramic				

PARTS LIST (CON'T.)

<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>PART NO.</u>	<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>PART NO.</u>
<u>TRANSFORMERS</u>			<u>MISCELLANEOUS</u>		
T1	Power Transformer	500-685	M1	Dial Light	#1813
T2	Output Transformer	301-335	M2	Dial Light	#1813
T3	IF 455KC	1655-6	CR1	Diode 400PIV 500 MA.	ED-3004
T4	IF 455KC	1655-6	CR2	Diode 400 PIV 500 MA.	ED-3004
<u>COILS</u>			J1	Phone Jack	J6-2
L1	RF Band #1	301-340	SPK 1	Speaker	14826
L2	RF Band #2	301-341		Cabinet	600-173-2
L3	RF Band #3	301-342		Panel (Front)	500-681
L4	RF Band #4	301-343		Panel (Back)	500-629-2
L5	Osc. Band #1	301-344		Knob (Bandspread-Tuning)	27002-1
L6	Osc. Band #2	301-345		Knob (Band-Volume)	27002P-1
L7	Osc. Band #3	301-346		Knob (BFO)	26600P-1
L8	Osc. Band #4	301-347		Dial Glass	301-336
<u>SWITCHES</u>				Feet	100-435-11
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			

~~7.6 x 3~~
100

47

2.6 @ 3 ea.

6 + 6 x 3 = 7.

2
65
4

\$ 2.60
+ ~~2.60~~

2.70
- 1.25

1.45

WARRANTY

This Receiver is sold under an exclusive 1-year warranty, which warrants it to be free from defects in material and workmanship. We agree to repair or replace at the point of manufacture, without charge, all parts showing such defects, provided the unit is delivered to us, intact for our examination, with all transportation charges prepaid to our factory, within one year from the date of sale to the original purchaser, and provided such examination discloses in our final judgment, that it is thus defective. Pilot lights, tubes, vibrator, fuses, and diodes shall be covered by the manufacturer's standard EIA warranty and such items shall be excluded from the provisions of this warranty.

This warranty does not apply if the Receiver has been subjected to misuse, neglect, accidents, incorrect wiring not our own, improper installation, or put to use in violation of instructions furnished by us, nor to Receivers that have been damaged by lightning, excess current, repaired or altered outside our factory, nor to the Receiver that has had its serial number altered or removed.

CHANGES

The Company reserves the right to modify or change the equipment, in whole or in part, at any time prior to delivery in order to include refinements deemed appropriate by the Company, but without incurring any liability to modify or change any equipment previously delivered, or to supply new equipment in accordance with earlier specifications.

Monitoradio Division, Regency Electronics, Inc.

24-HOUR SHORT-WAVE SCHEDULE

ABBREVIATIONS USED IN THIS SCHEDULE

*—Transmissions beamed to North America
 +—Best reception in Western U.S.
 B.C.—Broadcasting Company (or Corporation)
 Br.—British

C.—Central
 E.—East
 N.—North
 R.—Radio
 Rep.—Republic
 S.—South
 W.—West

All times listed are Eastern Standard Time. To convert, subtract 1 hour for Central Standard Time, 2 hours for Mountain Standard Time, and 3 hours for Pacific Standard Time. All frequencies are in kilocycles.

TIME (EST)	FREQ.	CALL	STATION NAME	LOCATION
12 MIDNIGHT				
	4973	—	R. Yaounde	Yaounde, Cameroon
	6040	—	R. Yaounde	Yaounde, Cameroon
	6145 +	DMQ6	Deutsche Welle	Cologne, W. Germany
	9575 +	DMQ9	Deutsche Welle	Cologne, W. Germany
	9735 +	DMQ9	Deutsche Welle	Cologne, W. Germany
12:15 A.M.				
	5035	—	Ici Bangui	Bangui, C. African Rep.
	6130 +	—	R. Nacional de Espana	Madrid, Spain
	7220	—	R. Bangui	Bangui, C. African Rep.
	9360 +	—	R. Nacional de Espana	Madrid, Spain
12:30 A.M.				
	6090	—	V. Cambodia	Phnom Penh, Cambodia
	6185	—	W. Nigeria B.C.	Ibadan, Nigeria
	11925	HLK6	Korean B.C.	Seoul, S. Korea
12:45 A.M.				
	4885	—	E. Nigeria B.C.	Enugu, Nigeria
1 A.M.				
	4685	—	Deutsche Welle	Cologne, W. Germany
	5984	—	R. Buea	Yaounde, Cameroon
	6015	—	V. America	Rhodes, Greece
	6090	LRI1	Argentina Calling	Buenos Aires, Argentina
	6185	—	V. America	Rhodes, Greece
	7130	—	V. America	Rhodes, Greece
	9530	—	V. America	Rhodes, Greece
	11780	LRI2	Argentina Calling	Buenos Aires, Argentina
	11785	DMQ11	Deutsche Welle	Cologne, W. Germany
1:30 A.M.				
	11975	ELWA	R. Village	Monrovia, Liberia
	7075	—	United Arab Rep. B.C.	Cairo, Egypt
	11930	—	United Arab Rep. B.C.	Cairo, Egypt
	15335	—	R. Ceylon	Colombo, Ceylon
1:45 A.M.				
	6145	—	Ici Paris	Paris, France
	7280	—	Ici Paris	Paris, France
	9620	—	Ici Paris	Paris, France
	9775	—	Ici Paris	Paris, France
	11845	—	Ici Paris	Paris, France
	15245	—	Ici Paris	Paris, France
2 A.M.				
	3316	—	Sierra Leone B.C.	Freetown, Sierra Leone
	5980	—	Sierra Leone B.C.	Freetown, Sierra Leone
	6050	HCJB	V. Andes	Quito, Ecuador
	7035	—	R. Peking	Peking, China
	7120	XZK4	Burma B.C.	Rangoon, Burma
	7525	—	R. Nederland	Hilversum, Netherlands
	9650	—	R. Peking	Peking, China
	11730	—	R. Nederland	Hilversum, Netherlands
2:15 A.M.				
	9580	—	R. Australia	Melbourne, Australia
2:30 A.M.				
	6105	—	V. Malaya	Kuala Lumpur, Malaya
	7110	—	V. Malaya	Kuala Lumpur, Malaya
	7220	—	Trans World R.	Monte Carlo, Monaco
	9635	—	R. Malaya	Kuala Lumpur, Malaya
	9675	—	Warsaw Calling	Warsaw, Poland
	11840	—	Warsaw Calling	Warsaw, Poland
	11900	—	V. Malaya	Kuala Lumpur, Malaya
	11925	HLK6	Korean B.C.	Seoul, S. Korea
	11945	DMQ11	Deutsche Welle	Cologne, W. Germany
	15275	DMQ15	Deutsche Welle	Cologne, W. Germany