

OPERATING INSTRUCTIONS



Instructions for Battery Operated
Selective Wave Receivers

The Dover

The Calais

Stewart-Warner-Alemite Corporation of Canada, Ltd.

BELLEVILLE, ONTARIO

Distributors and Dealers in All Principal Cities and Towns.

*Insist on Genuine
Stewart - Warner
Parts*

“They cost no more.”

R-178 INSTRUCTIONS and SERVICE DATA

GENERAL:

The R-178 chassis is employed in both the Calais and Dover Models, the console and mantel respectively. It is a five tube superheterodyne chassis designed for extremely economical operation on two forty-five volt "B" batteries and an "Air Cell" or two volt "A" pack, or storage battery. Note that for use with a two volt "A" pack or storage battery the terminals on rear of chassis must be connected together. With an "Air Cell" they are left disconnected. If using a Burgess 3 volt "A" battery be very careful to follow their instructions regarding the tapped resistance on the battery and DO NOT move the battery lead along the resistance strip toward the battery terminal until absolutely necessary, otherwise the tubes may be damaged. See Fig. 1.

ANTENNA:

Erect the antenna as high and clear from surrounding buildings, trees and similar objects as possible and at right angles to sources of interference such as telephone and power line wires. The antenna should be approximately 75 to 125 feet long including the lead in, and should be well insulated. Connect to yellow wire. Fig. 1.

GROUND:

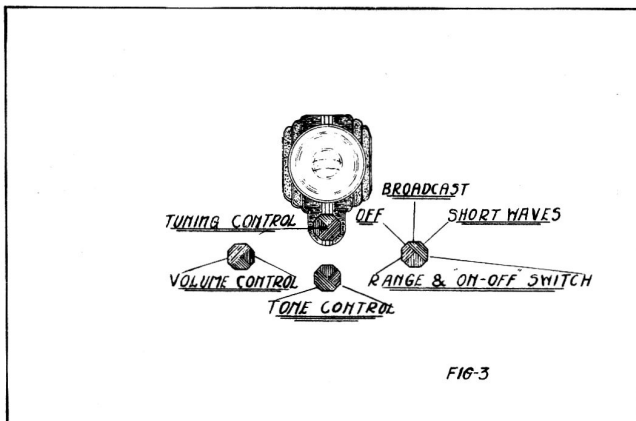
It is important to have a good ground connection. Use a fairly heavy wire as short as possible and connect to a cold water pipe, well or cistern. Connect to the black wire. Fig. 1.

BATTERIES:

Only three batteries are required to operate the receiver; two 45 volt "B" batteries and an "A" battery. No "C" batteries are required, the biases being obtained automatically from the circuit. If, under certain conditions, more power output is required a third "B" battery may be connected in series with the other two as shown in the circuit diagram. See note under "General" regarding "A" battery.

Before connecting the batteries to the cable make sure that the range switch (on the right hand side of the receiver) is turned full to the left. This disconnects the battery circuits from the receiver. Connect batteries according to table given in Fig. 5.

OPERATION:



Refer to figure 3 for the various operating controls and proceed as follows—

- Turn the range switch clockwise. On the first position the receiver covers the standard broadcast band and on the second position the short wave bands. To turn the set off rotate this knob counter-clockwise as far as it will go.
- Turn the volume control knob in a clockwise direction about $\frac{2}{3}$ of the complete rotation.

- Turn the tone control full on in a clockwise direction.
- Rotate the tuning control to the desired frequency or wave length or until a station is heard. Then adjust the volume control to the desired output volume.
- If desirable turn the tone control in a counter clockwise direction to reduce the higher frequencies and increase the lower frequencies in the reproduction. The setting of the tone control is a matter of individual taste, most natural reproduction being obtained when it is in the maximum clockwise position. It may be desirable to operate it down somewhat when listening to very distant short wave stations in order to reduce interference.

MAINTENANCE:

Have the tubes and batteries tested periodically and replace any faulty or weak tubes. It should be remembered that "B" batteries will give a great many more hours service when operated for reasonably short periods (say 2 or 3 hours per day) than when operated for longer periods 5 or 6 hours per day.

If the daylight short wave reception is taken advantage of, especially in districts where daylight reception on the broadcast band is impossible, it should be remembered that the resultant operating hours of the batteries will be increased, and, therefore, they will depreciate more rapidly.

ALIGNMENT:

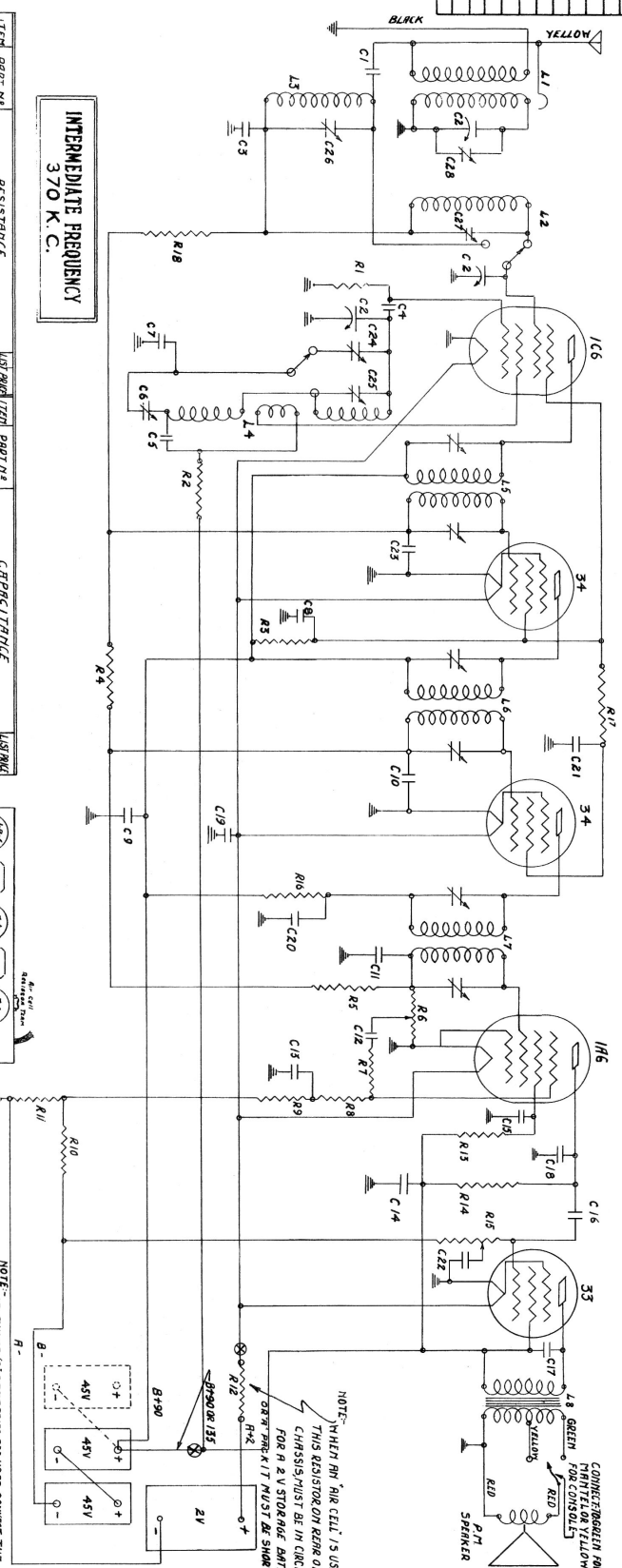
The alignment operation can all be performed without removing the chassis from the cabinet.

- Connect an output meter to the speaker terminals or between plate and screen of the output tube.
 - Connect a 370 K.C. oscillator between the grid cap of the 1-C-6 first detector and ground. Make sure that there is a condenser (approximately .02mfd) in the oscillator leads so that the 1-C-6 grid is not shorted to ground and the bias upset.
 - With the volume control full on, align the I.F. stages beginning with the last and working forward, keeping the input signal low enough so that the lowest practical output reading is obtained. Particular care must be taken in aligning the I.F. because these circuits are very selective. If the alignment was very far out repeat the above operation. This alignment should be carried out with the range switch in the "broadcast band" position and the gang condenser set about 1400 K.C.
 - Transfer the oscillator leads to the antenna and ground and tune it to 1400 K.C. With the range switch in the "broadcast position" set the dial on the receiver to 1400 K.C. and adjust C24, C27 and C28 (Fig. 1) in that order for maximum output. Keep the input from the oscillator as low as possible as before.
 - Adjust the receiver and oscillator in tune at 600 K.C. and align C6 for maximum output rocking the tuning condenser back and forth slightly while aligning.
 - If an appreciable change in C6 was necessary operation (d) should be repeated.
 - Turn the range switch to the short wave position and adjust the oscillator and tuning condenser in tune at 15 megacycles (20 meters). A fairly strong 20 meter signal will be received at two points on the dial: set the dial at the lowest wave length point.
 - Adjust C25 and C26 in that order for maximum output.
- NOTE—A bakelite screw driver must be used for adjusting C24 and C25.

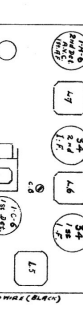
REV.	DATE	BY	REVISIONS

THIS PRINT SUPERSEDES ANY PRINT DATED PRIOR TO

IN-178



ITEM	PART No	RESISTANCE	LOTTING	PART No	CAPACITANCE	LOTTING
R1	55921	50000	22 C1	54220	20 MFD	1A
R2	55925	10000	22 C2	55226	425	6M6
R3	55822	15000	22 C3	53437	.05 MFD	200V
R4	81645	51000	20 C4	55836	50 MFD	MIF
R5	47262	500000	22 C5	55519	.01 MFD	400V
R6	55824	500000	20 C7	55827	700 MFD	SERIES MD
R7	84198	1100000	20 C8	53974	.02 MFD	MIF
R8	81682	1100000	20 C9	55716	.55	200V
R9	55812	445	33 C10	55708	2.0	400V
R10	55817	57	33 C11	55704	2.0	400V
R11	55817	57	02 C12	55708	2.0	400V
R12	55818	0.44	04 C13	53974	.02 MFD	MIF
R13	55821	50000	22 C14	53828	1.8	400V
R14	55825	150000	22 C15	53974	.01 MFD	150V
R15	55822	500000	20 C16	55837	50 MFD	200V
R16	55820	51000	20 C17	55839	.05	400V
R17	55820	51000	20 C18	55834	.0045	400V
R18	81645	51000	20 C19	55829	510 MFD	MIF
L1	55822	50000	20 C20	55829	510 MFD	100V
L2	55825	150000	.01	400V		1.8
L3	84183	5W	.05	200V		1.8
L4	55824	500000	.05	400V		2.0
L5	55822	500000	.05	400V		2.0
L6	55824	500000	.05	400V		2.0
L7	55824	500000	.05	400V		2.0
L8	55824	500000	.05	400V		2.0



TUBE	CIRCUIT LOCATION	HEATER
1C6	1ST DETECTOR-OSCILLATOR	6.3
34	1ST AF	6.3
34	2ND AF	6.3
1R6	3RD AF	6.3
33	4TH AF	6.3
54	2ND I.F.	5.0
54	2ND DET.-1ST AUDIO	5.0
54	1ST AUDIO	5.0
54	1ST I.F.	5.0
54	1ST I.F.	5.0

NOTE: ALL VOLTAGES MEASURED FROM TUBE SOCKET TO GROUND USING 90 OHM RESISTOR. ALL CURRENTS MEASURED ACROSS R11. THIS IS USED FROM (B-) TO GROUND. ALL CURRENTS MEASURED WITH R1000 OHMS PER VOLT. THIS IS USED FROM (B-) TO GROUND. ALL CURRENTS MEASURED WITH R1000 OHMS PER VOLT. THIS IS USED FROM (B-) TO GROUND.

IMPORTANT
MANTLE CABLE COLOR CODE IS THE SAME AS SHOWN FOR CONSOLE AFTER SERIAL NUMBER B-61001

LEAD	BATTERY CABLE COLOUR CODE	CONSOLE
H+2	YELLOW & BLACK	WHITE
H-	YELLOW & BLACK	BLACK
B-	GREEN & BLACK	GREEN
B+90	RED	RED
Grounds	RED & BLACK	BLUE

Circuit Diagram R-178

Checked by *DL*
D.L.
Checked by *DL*
D.L.

Adrian & Marnie
REVISIONS
IN-178

TIME TABLE *and* LOG of the MOST FREQUENTLY HEARD FOREIGN STATIONS

Since there are over 200 Foreign Stations on the air — regularly or irregularly — the Round-the-World radio listener has plenty of opportunity for exploring among the short waves. Presented here is a carefully selected list of Overseas Stations, chosen on the basis of quality of program broadcast, consistency of reception and volume. These stations offer the greatest entertainment and are the ones most frequently heard. Their broadcasts provide an enjoyable variety of concert and symphony orchestras, typical native songs and music, and a goodly fund of information on current daily topics. See next page for additional Short Wave stations.

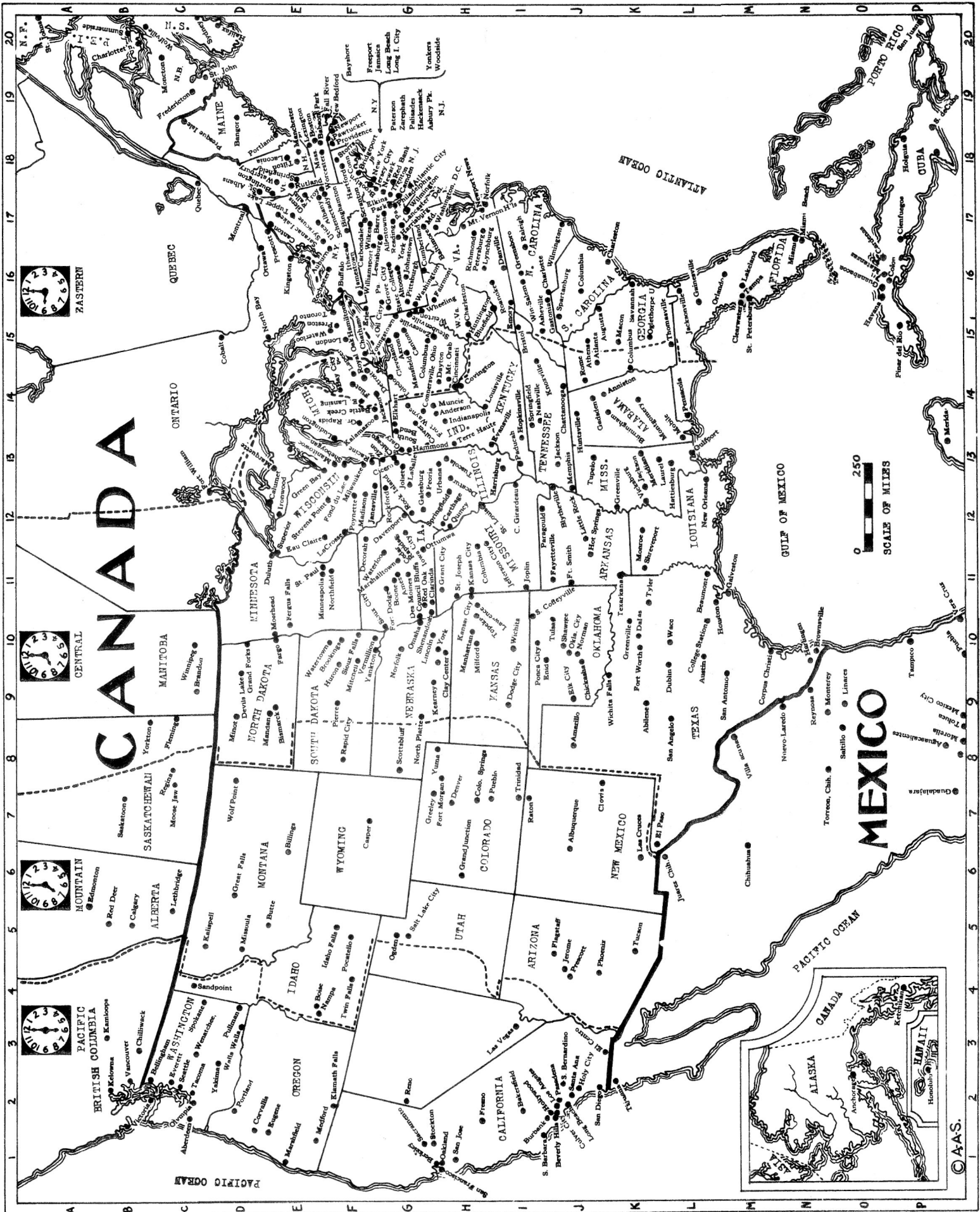
<i>Megacycles</i>	<i>Meters</i>	<i>Call</i>	<i>Location</i>	<i>Time of Broadcasts (Eastern Standard Time)</i>
21.47	13.97	GSH	London, ENGLAND	6 A.M. to 8:30 A.M., daily
17.78	16.86	GSG		6 A.M. to 8:30 A.M.
15.14	19.82	GSF		8:40 A.M. to 12:45 Noon
11.86	25.28	GSE		8:45 A.M. to 12:45 Noon
11.75	25.53	GSD		11:30 P.M. to 1:30 A.M., 1:00-8:00 P.M.
9.58	31.30	GSC		6 P.M. to 8 P.M., daily
6.05	49.59	GSA	12:30 to 1:30 A.M.	
15.24	19.68	FYA	Paris, FRANCE	7 to 10 A.M., Daily
11.88	25.20	FYA		10 A.M. to 5 P.M., Daily
11.70	25.63	FYA		2 to 11 P.M., Daily
15.20	19.73	DJB	Berlin, GERMANY	1 to 2 A.M. — 6:30 to 10 A.M., Daily
11.76	25.51	DJD		1 to 4:30 P.M. — 7 to 11 P.M., Daily
9.56	31.38	DJA		6:30 to 10 A.M. — 5 to 8 P.M., Daily
6.02	49.83	DJC		1 to 4:30 P.M. — 9 to 11 P.M., Daily
11.81	25.40	I2RO	Rome, ITALY	11:30 to 12:30 A.M. — 1.15 to 6 P.M., Daily
15.11	19.84	HVJ	Vatican City, ITALY	5:00 to 5:30 A.M., Daily
5.96	50.26	HVJ		5 to 6 A.M. Sunday — 2:00 to 2:15 P.M., Daily
17.77	16.88	PHI	Huizen, HOLLAND	7:30 to 11:00 A.M., Daily
11.73	25.57	PHI		7:30 to 10:00 A.M., Irreg.
9.86	30.40	EAQ	Madrid, SPAIN	5 to 7 P.M., Daily
9.60	31.25	CT1AA	Lisbon, PORTUGAL	Tues., Fri., 5 to 7 P.M.
9.59	31.27	HBL	Geneva, SWITZERLAND	5:30 to 6:15 P.M., Saturday
7.79	38.47	HBP		5:30 to 6:15 P.M., Saturday
9.59	31.28	VK2ME	Sydney, AUSTRALIA	Sunday 1 to 3 A.M. — 5 to 9 A.M. 11:30 A.M. to 1:30 P.M.
9.58	31.31	VK3LR	Melbourne, AUSTRALIA	3 to 7:30 A.M., Daily
9.51	31.55	VK3ME		5 to 7 A.M. Wed., Sat.
7.88	38.07	J1AA	Kemikawa — Cho Kiba-Chen — JAPAN	5 to 7 A.M., Daily
6.66	45.00	HC2RL	Guayaquil, ECUADOR	6 to 8 P.M., Sunday
6.62	45.31	PRADO	Rio Bomba, ECUADOR	9 to 11 P.M., Thursday
6.44	46.50	HJ1ABB	Barranquilla, COLOMBIA	7 to 10 P.M., Daily
6.25	48.00	HJ3ABF	Bogota, COLOMBIA	7 to 11 P.M., Daily
6.15	48.78	YV3BC	Caracas, VENEZUELA	10:30 A.M. to 1 P.M. — 4:30 to 9:30 P.M., Week days
6.11	49.08	YV1BC		5 to 10 P.M., Daily
6.06	49.50	HIX	Santo Domingo, DOMINICAN REPUBLIC	9 to 11 A.M. — 3 to 5 P.M. — 9 to 10 P.M., Irreg.
6.02	49.80	XEBT	Mexico City, MEXICO	6 to 12 P.M., Irreg.
6.00	50.00	COC	Havana, CUBA	4 to 6 P.M., Daily
6.00	50.00	RV59	Moscow, U.S.S.R.	2 to 6 P.M., Daily
5.93	50.59	HJ4ABE	Medellin, COLOMBIA	6 to 11 P.M., Daily
4.27	70.20	RV15	Khabarovsk, SIBERIA	3 to 9 A.M., Daily
4.11	73.00	HCJB	Quito, ECUADOR	7 to 10 P.M., Daily

A Partial LOG OF OTHER FOREIGN STATIONS

Megacycles	Meters	Call	LOCATION	Megacycles	Meters	Call	LOCATION
21.08	14.23	PSA	Rio de Janerio, Brazil Calls WKK, WLK daytime	6.13	48.92	LCL	Jeloy, Norway Relays Oslo 11 A.M. to 6 P.M.
21.03	14.27	LSN	Buenos Aires, Argentine 8 A.M. to 4 P.M. WKK and WLK	6.12	49.00		Johannesburg, Africa 4 to 6 A.M., 8 to 10:30 A.M., 11 A.M. to 3:40 P.M.
20.02	14.99	DHO	Nauen, Germany Calls PPU and LSM mornings	6.12	49.00	PK1WK	Bandoeang, Java, 5 to 6:30 A.M.
19.35	15.50	FTM	St. Assise, France Calls LSG 10:00 A.M.—2:00 P.M.	6.11	49.08	VE9HX	Halifax, N. S. 8:30 to 11:30 A.M., 5 to 10 P.M.
18.04	16.63	GAA	Rugby, England Calls Argentine 10:00 A.M. to 2:00 P.M.	6.11	49.08	VUC	Calcutta, India, 9:30 A.M. to noon, Saturdays 11:45 P.M. to 3 A.M.
17.75	16.92	HSP	Bangkok, Siam Calls Germany 4:30 A.M. to 6:30 A.M.	6.10	49.20	HJ1ABD	Cartegena, Colombia 11:30 A.M. to 12:30 P.M., 7 to 9 P.M.
16.04	18.71	KKP	Kauhuku, Hawaii Calls KWU 1:00 to 7:00 P.M.	6.09	49.29	VE9GW	Bowmanville, Ontario Mon., Tues., Wed., 1 to 10 P.M. Thurs., 2 to 11 P.M. Fri., Sat., 6 A.M. to 11 P.M. Sun., 10 A.M. to 7 P.M.
15.81	19.02	LSL	Buenos Aires, Argentine Calls GAA 8 A.M. to 1 and FTM 1 to 2 P.M.	6.09	49.22	VE9BJ	St. John's, N.B., Canada Near 5 and 11 P.M.
14.53	20.65	LSN	Buenos Aires, Argentine Phones New York, daytimes	6.07	49.39	YV5BMO	Maracaibo, Venezuela Irregularly 5:30 to 11 P.M.
14.46	20.75	GBW	Rugby, England Phones MNC 6 A.M. to 6 P.M.	6.07	49.39	OXY	Shamelback, Denmark 2 to 6:30 P.M., irregular
11.72	25.60	CJRX	Winnipeg, Canada 6 to 10:30 P.M., Sun. 9 to 10 P.M.	6.07	49.39	VE9CS	Vancouver, B. C. Fri. 12:30 to 1:45 A.M. Sun. Noon to Midnight
10.67	28.12	CEC	Santiago, Chili Calls HJY, evenings, irregularly	6.07	49.39	HIX	Santo Domingo, R.D. Tues., Fri., 8:10 to 10:10 P.M. Sun., 8:40 to 10:40 A.M. and 2:40 to 4:40 P.M.
10.35	28.98	LSX	Buenos Aires, Argentine Thurs. and Fri. 8 P.M., Sat. 10 P.M.	6.06	49.50	VO7LO	Nairobi, Kenya Colony 11 A.M. to 2 P.M. daily
9.60	31.25	XETE	Mexico City 8 to 10 P.M., irregular	6.05	49.60	HJ3ABI	Bogota, Colombia 8 to 10 P.M., irregular
9.37	32.02	HJ5ABH	Palmira, Colombia 11 to 12 A.M. and 7:30 to 9:30 P.M.	6.02	49.83	CQN	Macao, China Mon., Fri., 7 to 9 A.M.
9.28	32.33	GCB	Rugby, England Calls CGA and SUV afternoons	6.01	49.96	VE9DN	Drummondville, Canada Sat., after 10:30 P.M.
9.12	32.89	CP5	La Paz, Bolivia 7:30 to 10:30 P.M., irregularly	6.01	49.96	COC	Havana, Cuba, Daily 4 to 6 P.M., Also irregular 8 to 10 P.M.
8.05	37.33	CNR	Rabat, Morocco, Africa Sunday 2:30 to 5 P.M.	5.99	50.08	YV4BSG	Caracas, Venezuela 4:30 to 10:30 P.M.
7.52	39.89	KKH	Kauhuku, Hawaii Calls KWO California evenings	5.97	50.25	HJ2ABC	Cucuta, Colombia 11 A.M. to Noon, 6 to 9 P.M.
7.40	40.55	HJ3ABD	Bogota, Colombia 7:30 to 11 P.M.	5.95	50.42	HJ4ABE	Medellin, Colombia, Mon., 7 to 11 P.M. Tues., Thurs., Sat., 6:15 to 8 P.M. Wed., Fri., 7:30 to 10:30 P.M.
7.22	41.55	HKE	Bogota, Colombia Mon. 6 to 7 P.M. Tues., Fri., 8 to 9 P.M.	5.95	50.42	TGX	Guatemala City, Sun., 2 to 5 A.M. And also near Midnight
7.00	42.86	HJ1ABE	Cartagena, Colombia Mon. 10, Wed. 8 P.M.	5.88	51.49	HJ2ABA	Tunja, Colombia 1 to 2 and 7:30 to 10 P.M.
6.67	44.96	HC2RL	Guayaquil, Ecuador Sun. 5:45 to 8, Tues. 9:15 to 11:45 P.M.	5.77	52.00	XDA and XAM	Mexico, Evenings near 7 P.M.
6.61	45.35	REN	Moscow, U.S.S.R., 1 to 6 P.M.	5.70	52.65	HCK	Quito, Ecuador Generally 8 to 11 P.M.
6.48	46.30	HJ5ABD	Cali, Colombia, 7 to 10 P.M.	5.60	53.57	HJ3ABC	Cali, Colombia, 8 to 10 P.M.
6.45	46.51	HJ1ABB	Barranquilla, Colombia 7:30 to 10 P.M. daily	4.32	69.44	GDB- G6RX	Rugby, England Evenings 7 to 10 P.M.
6.32	47.50	HIZ	Santo Domingo, R.D. Daily 4:40 to 5:40; Sat. 11 to 12:40 P.M.	4.25	70.65	RV15	Khabarovsk, U.S.S.R., 1 to 9 A.M.
6.23	47.80	HI1A	Dominican Republic 12:10 to 1:40 and 7:40 to 9:40 P.M. daily. Sun. 1:40 to 4:40 P.M. and 7:40 to 9:40 P.M.				
6.13	48.92	ZGE	Kuala Lumpur, Malaya States Sun., Tues., Fri. 6:40 to 8:40 A.M.				

LEADING U.S. SHORT-WAVE RADIO STATIONS

Megacycles	Meters	Call	LOCATION	Megacycles	Meters	Call	LOCATION
21.54	13.92	W8XK	Pittsburgh, Pa., 6 A.M. to 1 P.M., Relays for KDKA	9.59	31.27	W3XAU	Philadelphia, Pa. 11 A.M. to 5 P.M., irregular
21.41	14.01	WKK	Lawrenceville, N. J., 8 A.M. till 4 P.M. Phones PSA, Brazil	9.57	31.36	WIXAZ	Boston, Mass., 6 A.M. to Midnight
17.78	16.87	W3XAL	Bound Brook, N. J., 9 A.M. to 3 P.M.	9.53	31.49	W2XAF	Schenectady, N. Y. 6:45 P.M. to 10 P.M.
15.35	19.54	KWU	Dixon, Calif. 2 till 7 P.M. Phones to Hawaii	9.49	31.60	WEF	Rocky Point, N. Y. Heard in the evening
15.34	19.56	W2XAD	Schenectady, N. Y. Mon., Wed., Fri. 1:30 to 2:30 P.M. Sun. 1 to 3 P.M.	6.43	46.69	W3XAL	Bound Brook, N. J. Relays Chain Programs
15.27	19.64	W2XE	Wayne, N. J., 10 A.M. to 12 Noon Relays for WABC	6.14	48.86	W8XK	Pittsburgh, Pa., 3:30 P.M. to 1 A.M. Relays for KDKA
15.21	19.72	W8XK	Pittsburgh, Pa., 9 A.M. to 3:15 P.M. Relays for KDKA	6.12	49.00	W2XE	Wayne, N. J. 5 P.M. to 10 P.M. Relays for WABC
13.90	21.58	WQP	Rocky Point, N. Y. Calls RNE at intervals A.M.	6.10	49.18	W3XAL	Bound Brook, N. J., 4 P.M. to Midnight, Mon., Wed., Sat.
11.97	25.11	KKQ	Bolinas, Calif. Heard irregularly evenings	6.10	49.18	W9XF	Chicago, Ill. 3:30 to 7 P.M., 8:30 to 1 A.M.
11.87	25.27	W8XK	Pittsburgh, Pa. 3:30 to 9 P.M., Relays KDKA	6.08	49.34	W9XAA	Chicago, Ill. 1 P.M. to about 6 P.M. Sun.
11.83	25.36	W2XE	Wayne, N. J. Relays WABC 2 to 4 P.M.	6.06	49.50	W3XAU	Philadelphia, Pa., 7 P.M. to Midnight
11.79	25.42	WIXAL	Boston, Mass. Relays NBC Programs	6.06	49.50	W8XAL	Cincinnati, Ohio, 6:30 A.M. to 7 P.M., 10 P.M. to 2 A.M.
				6.04	49.67	WIXAL	Boston, Mass. Daily 6 to 7 P.M.



CANADA

MEXICO



EASTERN

CENTRAL

MOUNTAIN

PACIFIC

0 250
SCALE OF MILES