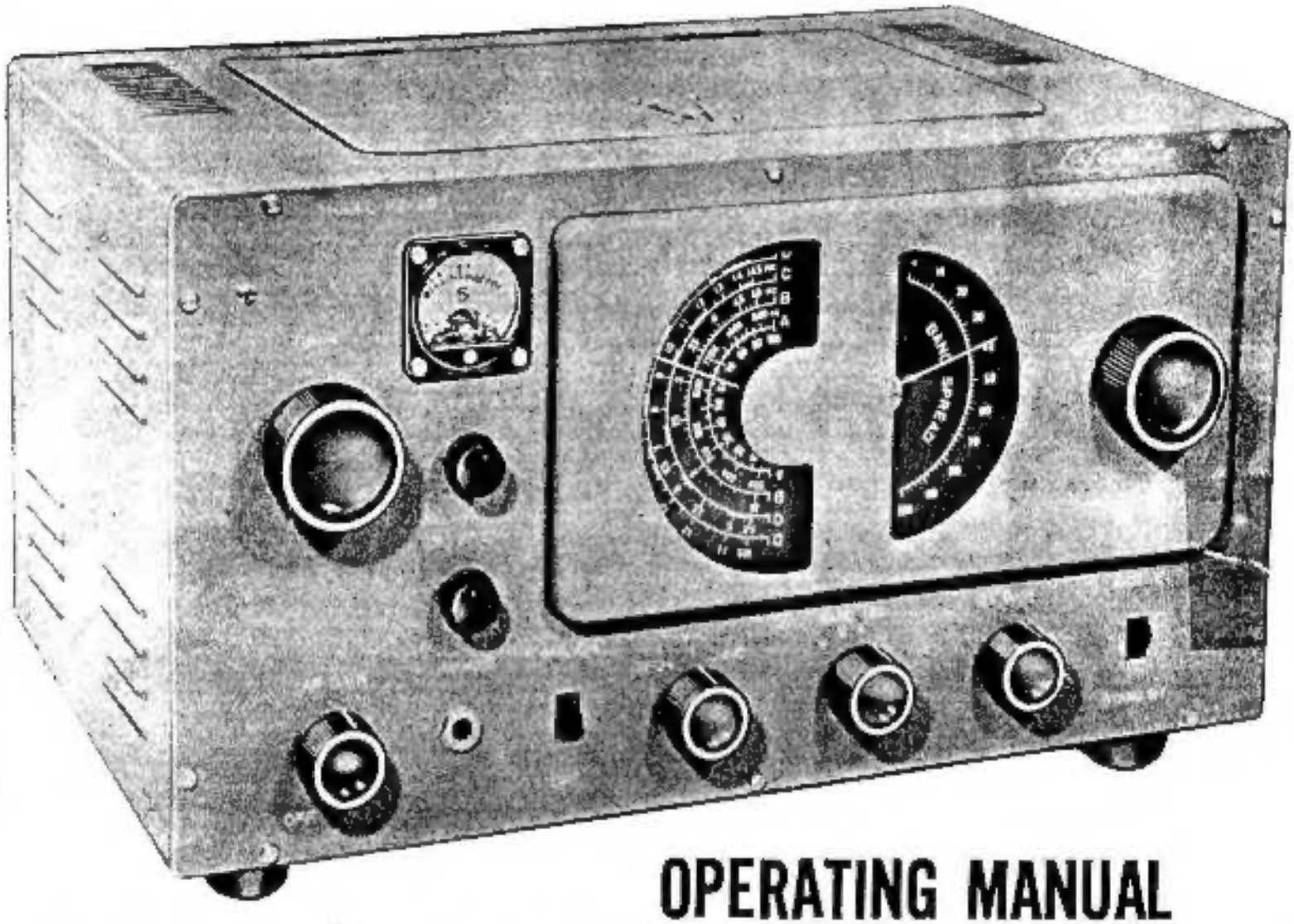
LAFAYETTE MODEL HE-10
COMMUNICATIONS RECEIVER



OPERATING MANUAL

SPECIFICATIONS

SPEAKER OUTPUT	4, 8 ohms
HEADPHONE OUTPUT	High Impedance
ANTENNA INPUT	300 ohm balanced line or 75 ohm unbalanced line
POWER OUTPUT	1.5 watts
POWER SOURCE	105-125 volts, 50-60 cycles AC
POWER CONSUMPTION	50 watts
TUNING RANGE	550 KC to 30 MC in four bands
INTERMEDIATE FREQUENCY	455 KC
SENSITIVITY	1.25 μv for 10 db S/N ratio
SELECTIVITY	-60 db (at 1 MC ± 10 KC)
SIZE	7-7/8"H x 15"W x 9"D
WEIGHT	20 lbs.

TUBES				
	1 - 6BD6	RF Amplifier	1 - 6AV6	Detector, AVC & AF Amplifier
	1 - 6BE6	Mixer	1 - 6AV6	BFO & ANL
	1 - 6BE6	HF Oscillator	1 - 6AR5	Audio Output
	2 - 6BD6	1st and 2nd IF Amplifier	1 - 5Y3GT	Full-Wave Rectifier

UNPACKING INSTRUCTIONS

After unpacking the receiver, carefully check for possible damage which may have occurred in transit. Should any sign of damage be apparent, file a claim with the carrier immediately. The following accessories should be included in the carton:-

80" Speaker lead

1 Standard Phone Plug

1 Plug (for the Auxiliary Control Socket)

GENERAL DESCRIPTION

Your new Lafayette HE-10 is a high quality superheterodyne communications receiver, covering the frequency range from 550 kilocycles (KC) to 30 megacycles (MC) in four bands.

FREQUENCY COVERAGE

BAND	FREQUENCY RANGE	
A	550 - 1600 KC	Broadcast
B	1.6 - 4.8 MC	SW
C	4.8 - 14.5 MC	SW
D	11 - 30 MC	SW

The receiver employs 9 tubes including a full wave rectifier and provides both AM and CW (code) reception. The output power of the receiver is sufficient to drive a 4-12" PM speaker adequately. The receiver operates on 105-125 volt AC, 50-60 cycle power source.

Special features incorporated in your receiver include bandspread for fine tuning of the shortwave bands, an automatic noise limiter for reducing the effects of interference, a front panel jack for headphones, automatic volume control - beat frequency oscillator switch, a receive-standby switch, and a beat frequency oscillator pitch control.

PRINTED IN U.S.A. • ENTIRE CONTENTS COPYRIGHTED 1958 BY LAFAYETTE RADIO CORPORATION • 165-08 LIBERTY AVE., JAMAICA 33, N. Y.

INSTALLATION

POWER SOURCE. The receiver is designed to operate from a 105-125 volt, 50-60 cycle AC power source. Power consumption is 50 watts. Failure to operate the receiver from the specified sources of power may result in serious damage. DO NOT OPERATE FROM A DC SOURCE.

SPEAKER CONNECTION. A three-terminal strip marked OUTPUT is provided at the rear of the receiver for speaker connections. Any PM speaker with either 4 or 8 ohm impedance can be used. Simply connect one lead to the ground terminal "O" and the other lead to the terminal that corresponds to the speaker impedance. The output power of the receiver is sufficient to drive a 4-12" PM speaker adequately.

HEADPHONES. A standard phone jack is provided on the front panel of the receiver for headphone reception. Use of high impedance headphones is necessary for maximum headphone output. Any commercial high impedance crystal or magnetic headphones may be used. The speaker output is automatically disconnected when phone plug is inserted in the "Phone" jack.

ANTENNAS

The terminals marked "A1, "A2", and "E" at the rear of the receiver are for antenna and ground connections. Either of the following two types of connections can be used to obtain satisfactory results.

INVERTED L ANTENNA. The Inverted L type of antenna will provide satisfactory performance over the entire tuning range. Simply short A2 and E with the jumper wire, and connect one end of the antenna wire to A1. For good reception, the antenna wire should be placed as high as possible and 50-100 feet long (See Fig. A). In some instances, a wire connected from terminal "E" to a water pipe may improve reception.

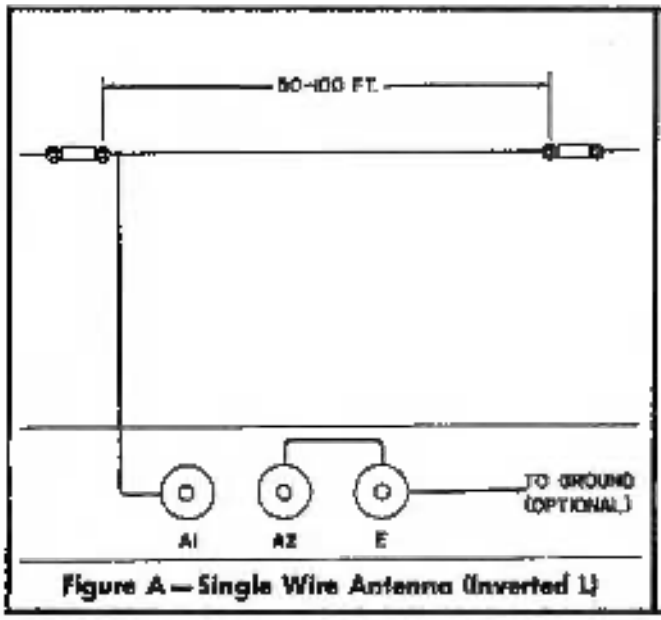


Figure A—Single Wire Antenna (Inverted L)

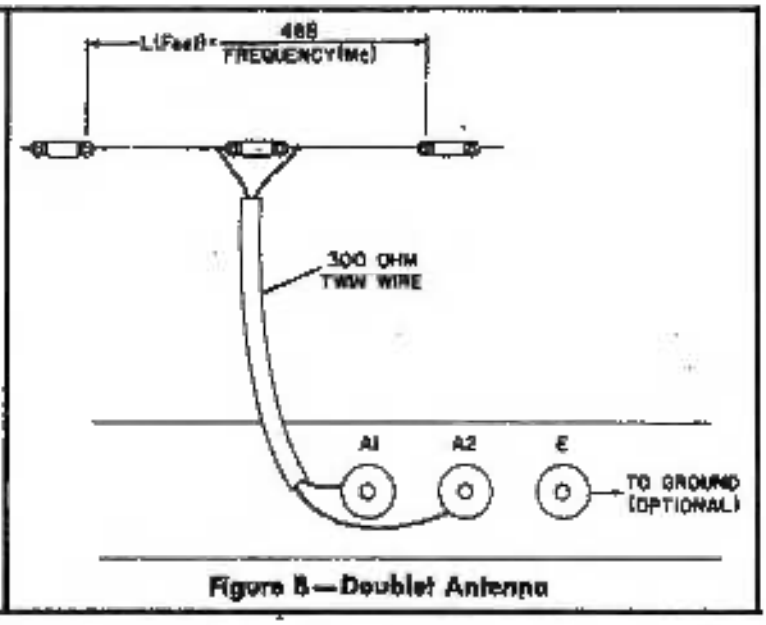


Figure B—Doublet Antenna

DOUBLET ANTENNA. A doublet antenna will give excellent results, especially on amateur bands. A 300 ohms balanced transmission line such as "TV twin lead" (shown in Fig. B) may be used. Since the doublet antenna provides optimum performance only at a given frequency, it should be cut to the length for the most often used band of frequencies. The overall length of a doublet antenna can be determined by using the following formula:

$$L \text{ (Length in feet)} = \frac{468}{\text{Frequency in megacycles}}$$

Since the doublet antenna displays directional properties broadside to its length, it should be oriented in such a manner that maximum signal pickup can be realized.

When using either a balanced transmission line or a twisted pair, the leads connect to terminals "A1" and "A2" respectively, and the jumper wire between "A2" and "E" is removed. A height of 30-50 feet is recommended for good reception of weak signals.

FUSE. A 1 amp fuse is located at the rear of the receiver. To remove it, unscrew the spring loaded cap.

OPERATION

Following is a brief description of the functions of the various controls on the front panel. Full appreciation as well as realization of the capabilities of the receiver can be expected only if you become familiar with each of the control functions.

AF GAIN. This control is a combination receiver on-off switch and volume control. Clockwise rotation turns on the receiver and increases volume; counter-clockwise rotation decreases volume and turns off the receiver. Illumination of dial scales indicates that the receiver is operative.

BAND SEL. The Band Selector Control should be set for the band covering the desired range of frequencies.

RECEIVE/STAND BY. This switch should be normally set at "RECEIVE". Switching to "STAND BY" silences receiver without turning it off. In this position, DC voltage to the RF stages is cut off, but the tube heaters remain in operation. To resume reception instantly, simply return the switch to the "RECEIVE" position. This feature is useful to the "ham" who may wish to have the receiver inoperative during periods of transmission.

Auxiliary Control: A socket in the back of the receiver allows simultaneous control of this receiver with a transmitter. An external switching device can be constructed so that the receiver will be inoperative during periods of transmission. In this case, the RECEIVE/STAND BY switch is placed in the STAND BY position. The external switch can be attached to the 5-pin socket so that pins (3) and (2) (see Fig. C) of the socket will be connected when signal reception is desired. In this manner, signal reception will be instantaneous, as plate voltage will be applied to the RF stages when the switch is closed accordingly.

ANL ON/OFF. This switch should be normally set at "OFF". If excessive spurious noises (such as those caused by auto ignition) interfere with reception, turn the switch to "ANL ON", and the automatic noise limiter circuit will be in operation. This control should be used only when necessary, since it tends to reduce the overall efficiency of the receiver.

MAIN TUNING. This tuning control operates the main tuning dial. This dial has four calibrated frequency scales, one for each of the four frequency bands. The frequency band is shown in KC on the standard broadcast range and in MC on the short-wave ranges. A 100-division logging scale is provided for logging stations on this dial when necessary.

BANDSPREAD TUNING. This is a supplementary control which electrically spreads out the scales of the main tuning dial. This is especially useful on the short-wave bands where separation between stations is often very small or almost non-existent. When the bandspread tuning pointer is set at 0 on the 0-100 logging scale, the calibration of the Main Tuning Scale is correct. However, moving the bandspread pointer towards 100 on the logging scale subtracts from the frequency indicated on the Main Tuning scale. Logging of short-wave stations is possible by noting the readings on both the Main Tuning and Bandspread Scales.

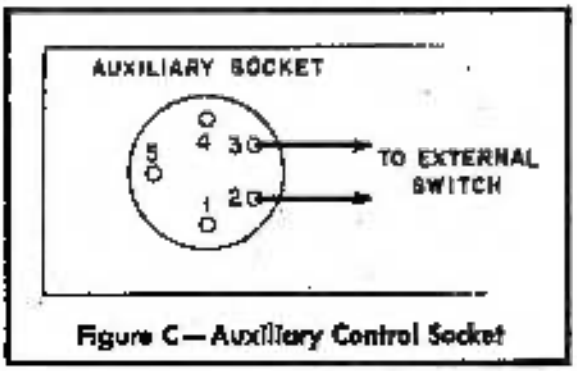


Figure C—Auxiliary Control Socket

BFO PITCH. This control may be used to vary the audio tone of CW signals. It should be set for the tone most pleasing to your ears. This control is in effect only when the BFO-MVC-AVC Switch is in the BFO position.

BFO-MVC-AVC. This switch, when set to the AVC position, places the automatic volume control circuit in operation, and provides effective compensation for fading and maintains constant output on either strong or weak signals. In certain instances, it may be advisable to use the MVC position (making the AVC circuit inoperative), as in the case where a desired weak station is adjacent to a powerful one. Generally, the position should be used which provides the better reception.

The MVC position should not be used for the reception of strong signals (such as the local stations on the broadcast band), otherwise overloading and distortion will occur. Although this can be overcome by reducing the IF GAIN, no benefit is obtained by listening to a strong AM signal with the AVC circuit off.

The MVC position can be used where added gain is required during the reception of weak signals. The gain of the receiver can be adjusted using both the AF and IF gain controls. The AVC circuit is inoperative in this position.

The BFO position is used only for CW reception. It places the beat frequency oscillator in operation to make code signals intelligible, and is used in conjunction with the BFO PITCH Control explained earlier.

IF GAIN. This control is used in conjunction with the AF GAIN Control to regulate the output of the receiver during CW reception.

In cases where the incoming signal is too strong, causing overloading and distortion, the control should be turned counter-clockwise accordingly to reduce the sensitivity of the receiver.

S METER. This meter provides a means of measuring the relative strength of incoming AM signals, and will only operate when the BFO-MVC-AVC switch is in the AVC position. The meter has an adjustment control (S METER ADJUST) with which to calibrate the S meter. This should be carried out in the following way:

> Remove the antenna from the receiver terminals so that there is no signal input to the unit. Adjust the S METER ADJUST control for a reading of 0 on the S Meter with the IF GAIN control at maximum. When tuning to very powerful stations (such as the local stations on the broadcast band), it may be necessary to reduce the IF gain to prevent too high a reading on the S Meter.

SHORT-WAVE LISTENING

Bands B, C and D cover the high frequency or short-wave bands. On these frequencies can be found the millions of radio stations transmitting from all over the world, which provide both English and foreign-language broadcasts. These include transmissions by amateurs or "hams" who operate on various selected bands of frequencies which can also be tuned in with your Lafayette receiver. The bands of frequencies on which the majority of commercial stations broadcast are indicated by the thick white segments of the main tuning scale. An example of this is the range covering 11 to 12 MC on band D.

A characteristic of short-wave is that reception varies with the time of day, the season of the year and with weather conditions. In order to know just when and where to listen, a listening chart which lists English language broadcast stations best heard in North America is included in this manual.

The various bands of frequencies assigned to amateurs can be obtained by referring to The Amateur's Radio Handbook (available from Lafayette Radio as BK 1000 at $3.50).

TUNING THE RECEIVER

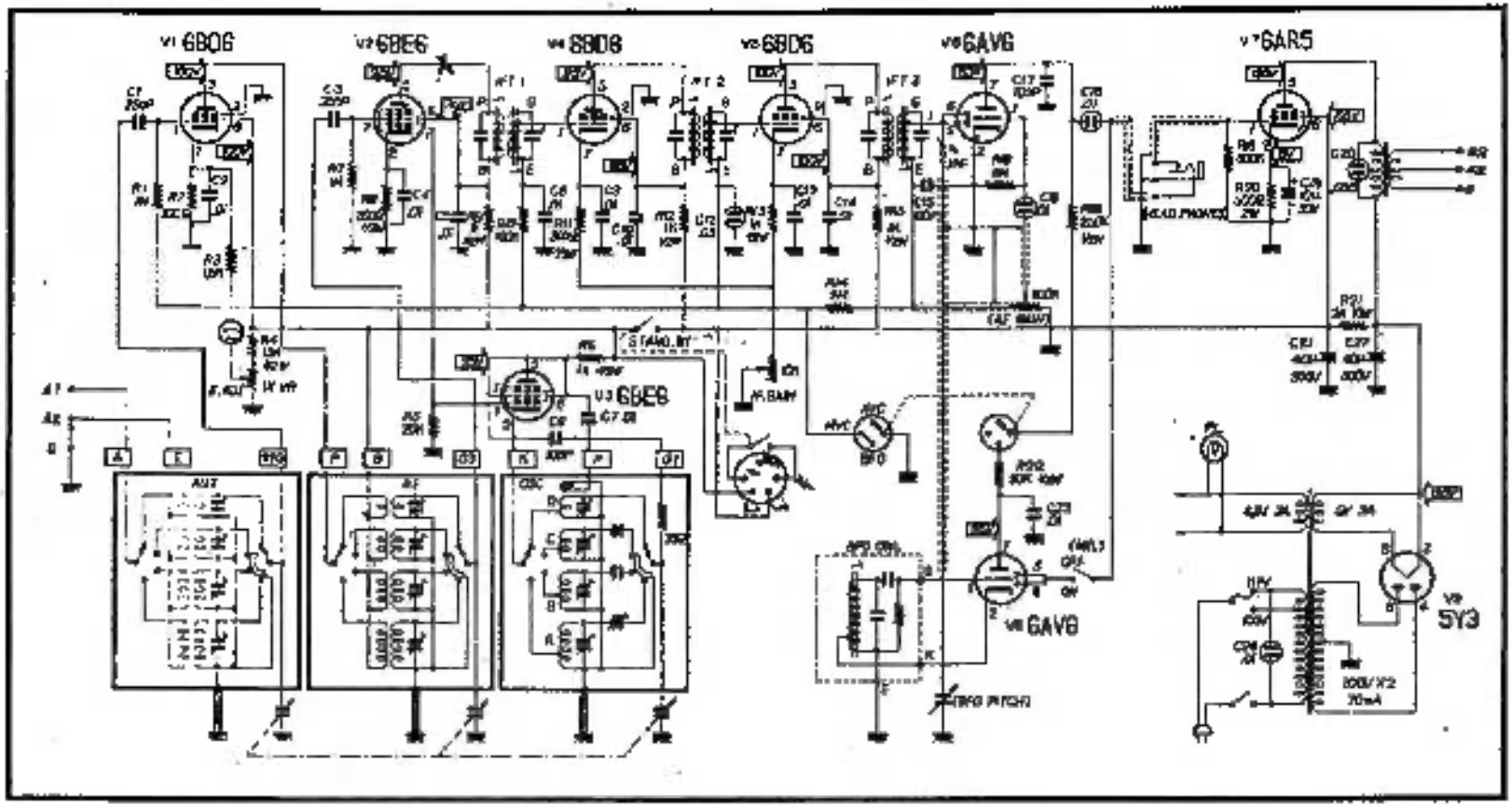
AM RECEPTION. Set the Band Selector to the band which covers the desired frequency. Set the BFO-MVC-AVC switch to AVC, IF GAIN to maximum, AF GAIN for a comfortable listening level. Set the Bandspread pointer to "O" and tune to the desired station with the Main Tuning control. If you are unable to locate the station fairly easily in this way, set the Main Tuning pointer to a point slightly higher in frequency than the station being sought, and slowly turn the Bandspread control clockwise. This will provide fine tuning in the direction of the desired station. If noisy conditions are encountered, use the ANL switch if it improves reception. If the station is very weak, set the BFO-MVC-AVC switch to MVC to provide added gain. If the signal becomes stronger and overloading and distortion occur, use the IF gain control to reduce the sensitivity of the receiver, or switch back to AVC.

CW RECEPTION. Set the Band Selector to the band which covers the desired frequency. Set the BFO-MVC-AVC switch to BFO, IF GAIN to approximately its mid-way position, AF GAIN for a comfortable listening level. Tune in to any CW signal and adjust the BFO PITCH control for a pleasing note. Use the Main Tuning control to tune to the desired station (with Bandspread at "O").

If you are unable to locate the station, set the main tuning indicator to a point slightly higher in frequency than the station being sought, and slowly rotate the Bandspread control clockwise. This will provide fine tuning in the direction of the desired station. When the station is finally located, the BFO PITCH control can be readjusted to provide any suitable tone. Use the ANL switch to reduce excessive noise if it exists, and the IF GAIN control for a suitable level to prevent overloading.

Note: Always set the IF GAIN as close to maximum as possible, without causing the receiver to overload and distort.

SCHEMATIC DIAGRAM HE-10



SERVICE

Parts noted for longest life have been used in your receiver, and except for normal tube replacement, very little service should be needed. To facilitate your own servicing when necessary, a schematic diagram is provided which includes the voltage measurements you may expect to find at certain points in the receiver. Variations of ± 20% may be considered normal.

The receiver may be returned to our service department for repair. If returned during the warranty period, no charges will be made for repair, provided that all the conditions of the Warranty are met. If outside the warranty period, charges will be made for parts and labor required to correct the defect.

When returning the receiver, include with it a letter explaining exactly what difficulties you have encountered.

Pack very carefully to avoid damage in transit, preferably in the original carton, plus the original spacers; otherwise in a sturdy carton with at least 3 inches of shredded paper or excelsior around the unit. In the latter case, wrap the unit in paper first to avoid particles of packing material getting into it. Ship by prepaid express if possible, and mark **FRAGILE**.

Listen to the Voices of the World

ENGLISH LANGUAGE SHORT-WAVE BROADCAST STATIONS BEST HEARD IN WESTERN NORTH AMERICA

Readers in the western part of the United States and Canada will find the following list of "Best Heard" stations helpful in tuning the short-wave broadcast bands. The left-hand column lists the hour in Pacific Standard Time for broadcasts in English only; in the middle column, the city and country from which the broadcasts originate are listed with the name the station uses for identification in parentheses, and on the right are the frequencies and call letters for stations using them during their broadcasts.

TIME (PST)	CITY, COUNTRY (NAME)	FREQUENCIES (kc.)
1:00- 1:00 a.m.	Manila, Philippines *(The Call of the Orient)*	11855, 9730
6:30- 7:30 a.m.	Djakarta, Indonesia *(The Voice of Indonesia)*	9710, 4910
7:15- 8:15 a.m.	Melbourne, Australia *(Radio Australia)*	11770 (VLC11)
8:00- 8:15 a.m.	Stockholm, Sweden *(Radio Sweden)*	15155
10:00- 1:00 p.m.	London, England *(North American Service)*	17700
1:00- 2:15 p.m.	London, England *(General Overseas Service)*	17700, 15310
2:15- 3:45 p.m.	London, England *(General Overseas Service)*	15310, 11930
3:00- 3:30 p.m.	Tokyo, Japan *(Radio Japan)*	17825 (JOA23), 15235 (JOB9)
3:00- 7:00 p.m.	London, England *(General Overseas Service)*	11930, 9825
3:00-10:00 p.m.	Moscow, USSR *(Radio Moscow)*	17865, 15140
4:30- 4:00 p.m.	Tokyo, Japan *(Radio Japan)*	15235 (JOB9), 11705 (JOA4)
4:30- 5:45 p.m.	Montreal, Canada *(Radio Canada)*	15190 (CKCX), 11720 (CHOL)
5:00- 7:00 p.m.	Cape Haitien, Haiti *(The Evangelistic Voice)* — no broadcasts on Wednesday and Thursday	15400, 9695
6:30- 7:15 p.m.	Berne, Switzerland *(Switzerland Calling)*	11865 (HER5), 9535 (HER4), 6165 (HER3)
6:00- 9:00 p.m.	Quito, Ecuador (HCJB — *The Voice of the Andes*) — no broadcast on Monday	15115, 11915, 9745
6:30- 6:45 p.m.	Rome, Italy *(Italian Broadcasting & TV System)*	9575, 6010
6:00- 6:40 p.m.	Cologne, Germany *(The Voice of Germany)*	11795, 9640
6:00- 7:00 p.m.	Warsaw, Poland *(Radio Warsaw)*	9525, 6095
6:30- 7:30 p.m.	Hilversum, Holland *(Radio Netherlands)*	11950, 9590
6:30- 8:00 p.m.	Hilversum, Holland *(The Happy Station)* — special program on Sundays only	11950, 9590
6:45- 7:00 p.m.	Brazzaville, FEA *(Radio Brazzaville, French Equatorial Africa)*	11970, 9620
6:45- 7:15 p.m.	Montreal, Canada *(Radio Canada)*	11945 (CKNR), 9585 (CKLP)
7:00- 7:00 p.m.	Bucharest, Romania *(Bucharest Calling)*	11937, 9570
7:00- 7:30 p.m.	Peking, China *(Radio Peking)*	17745, 17720, 15350, 15118
7:00- 8:30 p.m.	Prague, Czechoslovakia *(Radio Prague)*	9665, 6170, 6105, 6055
7:00- 8:45 p.m.	Guatemala City, Guatemala (TGNA)	9668, 5952
7:15- 8:00 p.m.	Madrid, Spain *(The Voice of Spain)*	9360, 6130
7:30- 8:00 p.m.	Copenhagen, Denmark *(The Voice of Denmark)* — no English on Sundays	9520 (OZF)
7:30- 9:00 p.m.	Tokyo, Japan *(Radio Japan)*	15235 (JOB9), 11705 (JOA4)
8:00- 8:20 p.m.	Oslo, Norway *(Radio Norway)* — on Sundays only	15175, 11735, 9640
8:00- 8:30 p.m.	Budapest, Hungary *(Radio Budapest)*	11910, 9833
8:00- 8:30 p.m.	Sofia, Bulgaria *(Sofia Calling)*	9700
8:00- 9:00 p.m.	San Jose, Costa Rica (TIFC — *The Lighthouse of the Caribbean*)	9647, 6037
8:15- 9:00 p.m.	Berne, Switzerland *(Switzerland Calling)*	11865 (HER5), 9535 (HER4)
8:15- 9:00 p.m.	Madrid, Spain *(The Voice of Spain)*	9360, 6130
8:20- 9:00 p.m.	Bucharest, Romania *(Bucharest Calling)*	11937, 9570
9:00- 9:30 p.m.	Taipei, Taiwan *(The Voice of Free China)*	15225, 11915
9:00- 9:30 p.m.	Stockholm, Sweden *(Radio Sweden)*	9630
9:15- 9:30 p.m.	Brazzaville, FEA *(Radio Brazzaville, French Equatorial Africa)*	11970
9:15-10:00 p.m.	Madrid, Spain *(The Voice of Spain)*	9360, 6130
9:30-10:00 p.m.	Warsaw, Poland *(Radio Warsaw)*	9525, 6025
10:30-11:00 p.m.	Taipei, Taiwan *(The Voice of Free China)*	15225, 11915
10:30- 2:45 a.m.	Wellington, New Zealand *(Radio New Zealand)*	9540 (ZL21), 6080 (ZL7)
11:30-11:45 p.m.	Papeete, Tahiti *(The Voice of France in the Pacific)*	6135
12:00- 1:15 a.m.	Manila, Philippines *(Call of the Orient)*	17800, 15300, 11855, 9730

NEWS BROADCASTS FOR WESTERN NORTH AMERICA

The following listing of news broadcasts has been prepared for those readers living in the Western United States and Canada. Times are given in Pacific Standard Time and the frequencies in kilocycles.

TIME (PST)	CITY AND COUNTRY	FREQUENCIES (kc.)
6:45 a.m.	Djakarta, Indonesia	9710, 4910
7:00 a.m.	Manila, Philippines	11855, 9730
7:30 a.m.	Melbourne, Australia	11770
8:00 a.m.	Stockholm, Sweden	15155
9:00 a.m.	London, England	17700
12:00 Noon	London, England	17700
1:00 p.m.	London, England	15310, 11930, 9825
1:00 p.m.	Tokyo, Japan	17825, 15235
3:00 p.m.	Moscow, USSR	17865, 15140
4:00 p.m.	Moscow, USSR	17865, 15140
4:30 p.m.	Delhi, India	17720, 15160
4:30 p.m.	Tokyo, Japan	15235, 11705
5:00 p.m.	Montreal, Canada	15190, 11720
5:00 p.m.	Moscow, USSR	17865, 15140
5:00 p.m.	Karachi, Pakistan	17750, 15335
5:00 p.m.	Montreal, Canada	15190, 11720
5:35 p.m.	Berne, Switzerland	11865, 9535, 6165
6:00 p.m.	London, England	11930, 9825
6:00 p.m.	Moscow, USSR	17865, 15140
6:25 p.m.	Rome, Italy	9575, 6010
6:30 p.m.	Cologne, Germany	11795, 9640
6:30 p.m.	Warsaw, Poland	9525, 6095
6:30 p.m.	Hilversum, Holland (not on Sunday)	11950, 9590
6:30 p.m.	Delhi, India	17830, 15160, 11710
6:45 p.m.	Brazzaville, French Equatorial Africa	11970, 9620
7:00 p.m.	Moscow, USSR	17865, 15140
7:00 p.m.	Montreal, Canada	11945, 9585
7:00 p.m.	Bucharest, Romania	11937, 9570
7:00 p.m.	Peking, China	17745, 17720, 15350, 15118
7:00 p.m.	Prague, Czechoslovakia	9665, 6170, 6105, 6055
7:15 p.m.	Madrid, Spain	9360, 6130
7:30 p.m.	Copenhagen, Denmark (only Mondays)	9520
7:30 p.m.	Tokyo, Japan	15235, 11705
8:00 p.m.	Moscow, USSR	17865, 15140
8:00 p.m.	Oslo, Norway (only Sundays)	15175, 11735, 9640
8:00 p.m.	Sofia, Bulgaria	9700
8:15 p.m.	Madrid, Spain	9360, 6130
8:20 p.m.	Berne, Switzerland	11865, 9535
8:30 p.m.	Bucharest, Romania	11937, 9570
9:00 p.m.	Taipei, Taiwan	15225, 11915
9:00 p.m.	Moscow, USSR	17865, 15140
9:00 p.m.	Stockholm, Sweden	9630
9:15 p.m.	Brazzaville, French Equatorial Africa	11970
9:15 p.m.	Madrid, Spain	9360, 6130
9:30 p.m.	Warsaw, Poland	9525, 6025
10:30 p.m.	Taipei, Taiwan	15225, 11915
11:30 p.m.	Wellington, New Zealand	9540, 6080
11:30 p.m.	Papeete, Tahiti	6135
12:30 a.m.	Wellington, New Zealand (not on Sunday)	9540, 6080
1:30 a.m.	Manila, Philippines	11855, 9730
2:30 a.m.	Wellington, New Zealand	9540, 6080

REPRINTED FROM POPULAR ELECTRONICS BY PERMISSION

ENGLISH LANGUAGE SHORT-WAVE BROADCAST STATIONS BEST HEARD IN EASTERN NORTH AMERICA

TIME (EST)	CITY, COUNTRY (NAME)	FREQUENCIES (kc.)
4:30- 4:30 a.m.	Warsaw, Poland *(Radio Warsaw)*	17800, 9590
7:00- 7:15 a.m.	Helsinki, Finland *(Finland Calling)* — no English on Sundays and holidays	17780, 15190
7:15- 8:15 a.m.	Warsaw, Poland *(Radio Warsaw)*	17800, 15120
7:15- 8:45 a.m.	Melbourne, Australia *(Radio Australia)*	11770, [VLA11]
8:00- 9:30 a.m.	Cape Haitien, Haiti *(The Evangelistic Voice)* — no broadcast on Thursdays	15390, 9670
8:15- 8:45 a.m.	Stockholm, Sweden *(Radio Sweden)*	17840
10:00-12:15 p.m.	London, England *(North American Service)*	17900
1:00- 4:00 p.m.	London, England *(North American Service)*	17900
4:00- 9:15 p.m.	London, England *(General Overseas Service)*	17705, 15310, 9098
4:15- 4:45 p.m.	Hilversum, Holland *(Radio Netherlands)* — no English on Sundays	16985, 11959
4:30- 5:30 p.m.	Jerusalem, Israel *(The Voice of Zion)*	9008
5:00- 6:00 p.m.	Port-au-Prince, Haiti *(Radio Commerce)*—on Sundays only	9492 (4VC)
5:15- 6:15 p.m.	London, England *(General Overseas Service)*	16310, 11820
6:00- 6:30 p.m.	Tokyo, Japan *(Radio Japan)*	17835 (JDA22), 15235 (JCH8)
6:00-10:00 p.m.	London, England *(General Overseas Service)*	11820, 9825
6:00- 1:00 a.m.	Moscow, USSR *(Radio Moscow)*	11937, 11860, 11844, 11835, 11805, 11740, 11700, 9700, 9685
6:15- 7:00 p.m.	Ankara, Turkey *(Radio Ankara)*	9515
7:15- 7:35 p.m.	Rome, Italy *(Italian Broadcasting and Television System)*	9575, 6010
7:30- 7:50 p.m.	Tokyo, Japan *(Radio Japan)*	15285, (JOB8), 11705 (JDA4)
7:30- 8:00 p.m.	Budapest, Hungary *(Radio Budapest)*	11910, 9833
7:30- 8:00 p.m.	Prague, Czechoslovakia *(Radio Prague)*	9685, 6170, 6105, 6055
7:30- 8:30 p.m.	Warsaw, Poland *(Radio Warsaw)*	9525, 6025
7:15- 8:45 p.m.	Montreal, Canada *(Radio Canada)*	15190 (CKCX), 11730 (CHOL)
8:00- 8:30 p.m.	Sofia, Bulgaria *(Sofia Calling)*	9700
8:00- 9:00 p.m.	Stockholm, Sweden *(Radio Sweden)*	9620
8:00-10:30 p.m.	Cape Haitien, Haiti *(The Evangelistic Voice)* — no broadcasts on Wednesdays and Thursdays	15400, 9686, 6105
8:15- 9:00 p.m.	Brazzaville, French Equatorial Africa *(Radio Brazzaville)*	11970, 9525
8:30-10:15 p.m.	Berne, Switzerland *(Switzerland Calling)*	11865 (HER6), 9535 (HER4), 6160 (HER8)
9:00- 9:30 p.m.	Oslo, Norway *(Radio Norway)* — on Sundays only	15175, 11735, 9540
9:00- 9:30 p.m.	Copenhagen, Denmark *(The Voice of Denmark)* — no English on Sundays	9520 (OZF)
9:00-12:00 p.m.	Quito, Ecuador (HCJB — *The Voice of the Andes*) — no broadcasts on Mondays	15115, 11915, 9745
9:25- 9:45 p.m.	Rome, Italy *(Italian Broadcasting and Television System)*	9575, 6010
9:30-9:45 p.m.	Cologne, Germany *(The Voice of Germany)*	11795, 9540
9:30-10:00 p.m.	Warsaw, Poland *(Radio Warsaw)*	9525, 6025
9:30-10:15 p.m.	Hilversum, Holland *(Radio Netherlands)*	11950, 9590
9:30-11:00 p.m.	Hilversum, Holland *(The Happy Station)* — special program on Sundays only	11950, 9590
9:30-11:00 p.m.	Port-au-Prince, Haiti *(Radio Haiti)* — on Thursdays only	6109 (4VEW)
9:45-10:30 p.m.	Brazzaville, French Equatorial Africa *(Radio Brazzaville)*	11970, 9525
9:55-10:30 p.m.	Montreal, Canada *(Radio Canada)*	11845 (CKNK), 9625 (CKLF)
10:00-10:30 p.m.	Bucharest, Romania *(Bucharest Calling)*	11927, 9570
10:00-11:00 p.m.	Prague, Czechoslovakia *(Radio Prague)*	9525, 6170, 6105, 6055
10:00-11:45 p.m.	Guatemala City, Guatemala (TGNA)	9958, 5952
10:15-11:00 p.m.	Madrid, Spain *(The Voice of Spain)*	9590, 6130
10:30-11:00 p.m.	Copenhagen, Denmark *(The Voice of Denmark)* — no English on Sundays	9520 (OZF)
11:00-11:30 p.m.	Budapest, Hungary *(Radio Budapest)*	11910, 9833
11:00-11:30 p.m.	Sofia, Bulgaria *(Sofia Calling)*	9700
11:00-12:00 p.m.	San Juan, Costa Rica (TIFC — *The Lighthouse of the Caribbean*)	9547, 9037
11:15-12:00 p.m.	Berne, Switzerland *(Switzerland Calling)*	11865 (HER6), 9535 (HER4)
11:15-12:00 p.m.	Madrid, Spain *(The Voice of Spain)*	9590, 6130
11:30-12:00 p.m.	Bucharest, Rumania *(Bucharest Calling)*	11927, 9570
12:00-12:30 a.m.	Stockholm, Sweden *(Radio Sweden)*	9620
12:15-12:30 a.m.	Brazzaville, French Equatorial Africa *(Radio Brazzaville)*	11970
12:15- 1:00 a.m.	Madrid, Spain *(The Voice of Spain)*	9590, 6130
12:30- 1:00 a.m.	Warsaw, Poland *(Radio Warsaw)*	9525, 6025

NEWS BROADCASTS FOR EASTERN NORTH AMERICA

TIME (EST)	CITY AND COUNTRY	FREQUENCIES (kc.)
5:30 a.m.	Wellington, New Zealand	9540, 6060
6:00 a.m.	Warsaw, Poland	17800, 15120
6:15 a.m.	Djakarta, Indonesia	9710
7:00 a.m.	Helsinki, Finland	17780, 15190
7:15 a.m.	Warsaw, Poland	17800, 15120
7:15 a.m.	Melbourne, Australia	11770
7:45 a.m.	Warsaw, Poland	17800, 15120
8:15 a.m.	Stockholm, Sweden	17840
8:15 a.m.	Melbourne, Australia	11770
8:45 a.m.	Lisbon, Portugal	21495, 17895
12:00 Noon	London, England	17900
12:15 p.m.	Lisbon, Portugal	21705, 17895
12:20 p.m.	Athens, Greece	17775, 15345
2:00 p.m.	London, England	17900
3:15 p.m.	Teheran, Iran	15100
3:30 p.m.	Damascus, Syria	17865
4:15 p.m.	Hilversum, Holland	16965, 11959
4:30 p.m.	Jerusalem, Israel	9008
5:15 p.m.	Belgrade, Yugoslavia	6100
6:00 p.m.	London, England	15310, 11820, 9825
6:00 p.m.	Tokyo, Japan	17825, 15235
6:00 p.m.	Moscow, USSR	11937, 11890, 11845, 11825, 11805, 11780, 11700, 9700, 9685
6:15 p.m.	Ankara, Turkey	9515
6:30 p.m.	Caracas, Venezuela (Monday-Friday)	9770
7:00 p.m.	Moscow, USSR	11937, 11890, 11845, 11825, 11805, 11780, 11700, 9700, 9685
7:15 p.m.	Rome, Italy	9575, 6010
7:30 p.m.	Tokyo, Japan	15285, 11705
7:30 p.m.	Prague, Czechoslovakia	9685, 6170, 6105, 6055
7:30 p.m.	Warsaw, Poland	9525, 6025
8:00 p.m.	Moscow, USSR	11890, 11845, 11825, 11805, 11780, 11700, 9685
8:00 p.m.	Montreal, Canada	15190, 11730
8:00 p.m.	Warsaw, Poland	9525, 6025
8:00 p.m.	Sofia, Bulgaria	9700
8:15 p.m.	Stockholm, Sweden	9620
8:15 p.m.	Brazzaville, French Equatorial Africa	11970, 9525
8:30 p.m.	Montreal, Canada	15190, 11730
8:30 p.m.	Paramaribo, Surinam (Monday only)	15497, 4782
8:30 p.m.	Berne, Switzerland	11865, 9535, 6160
9:00 p.m.	Stockholm, Sweden	9620
9:00 p.m.	Oslo, Norway (Sunday only)	15175, 11735, 9540
9:00 p.m.	Copenhagen, Denmark (Monday only)	9520
9:00 p.m.	Moscow, USSR	11890, 11845, 11825, 11805, 11780, 11700, 9700, 9685
9:25 p.m.	Rome, Italy	9575, 6010
9:30 p.m.	Cologne, Germany	11795, 9540
9:30 p.m.	Warsaw, Poland	9525, 6025
9:30 p.m.	Hilversum, Holland (not on Sunday)	11950, 9590
9:45 p.m.	Brazzaville, French Equatorial Africa	11970, 9525
10:00 p.m.	Montreal, Canada	11845, 9625
10:00 p.m.	Moscow, USSR	11890, 11845, 11825, 11805, 11780, 11700, 9685
10:00 p.m.	Bucharest, Romania	11927, 9570
10:15 p.m.	Madrid, Spain	9590, 6130
10:30 p.m.	Copenhagen, Denmark (Monday only)	9520
11:00 p.m.	Sofia, Bulgaria	9700
11:00 p.m.	Moscow, USSR	11890, 11845, 11825, 11805, 11780, 11700
11:10 p.m.	Madrid, Spain	9590, 6130
11:20 p.m.	Berne, Switzerland	11865, 9535
11:30 p.m.	Bucharest, Romania	11927, 9570
12:00 Midnight	Stockholm, Sweden	9620
12:00 Midnight	Moscow, USSR	11860, 11845, 11825, 11780, 11700, 9685, 9665, 9510
12:15 a.m.	Madrid, Spain	9590, 6130
12:15 a.m.	Brazzaville, French Equatorial Africa	11970
12:30 a.m.	Warsaw, Poland	9525, 6025