LAFAYETTE MODEL HE-10 COMMUNICATIONS RECEIVER



Safayette Radio

IN NEW YORK CITY

165-08 LIBERTY AVENUE JAMAICA 33, N. Y.

Axiel 1-7000 Open FRIDAY 'rill 8:45 P.M.

NEW YORK 13, N. Y. 180 6th Ave. Worth 6-5300 BOSTON 10, Mass. 110 Federal St. HUbbard 2-7850 Open MON.-WED. '111 8:43 F.M. BRONX 58, N. Y. 542 E. Fordham Rd. FOrdham 7-8813 Open THURSDAY NEWARK 2, N. J. 24 Central Ave. MArket 2-1661 Open WIDNESDAT THE BAS P.M.

PLAINFIELD, N. J. 139 W. 2nd St. Plainfield 6-4718 Open Thursday

SPECIFICATIONS

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HEADPHONE OUTPUT High Impedance

ANTENNA INPUT 308 ohm balanced line or 75 ohm un-

balanced line

POWER OUTPUT . 1,5 waits

POWER SOURCE 105-125 volts, 50-60 cycles AC

POWER CONSUMPTION 50 waiti

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

Z - 6BD6 let and 2nd IF Amplifier 1 - 5Y3CT Full-Wave Rectifier

UNPACKING INSTRUCTIONS

After unpacking the receiver, carefully theck 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 carron:-

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 - 6, 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 walt 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 - best frequency oscillator switch, a receive-standby switch, and a best frequency oscillator pitch control.

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.

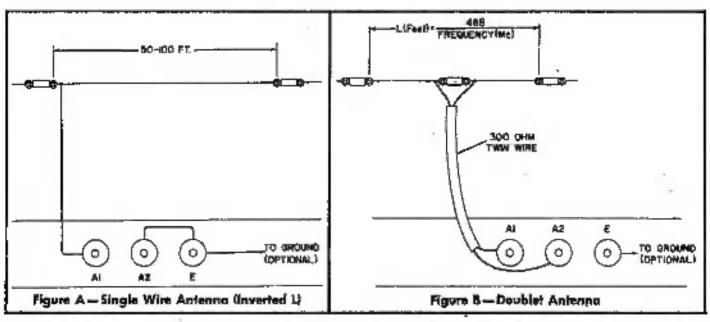
SPEAKER CONNECTION. A three-terminal strip marked CUTPUT is provided at the rear of the receiver for speaker connections. Any PM speaker with either 4 or 8 ohm impedance can be used. Simply connect one lead to the ground terminal "D" and the other lead to the terminal that corresponds to the speaker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

<u>HEADPHONES</u>, 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 "Phono" 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.



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:

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 "Al" 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 en-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 hand 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.

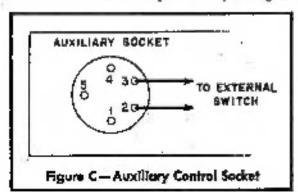
Auxiliary Control:

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 busing 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 disl. This is especially useful on the short-wave bands where separation between stations is often very small or almost non-existent. When the handspread 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.



BFO PITCH. This control may be used to vary the audio tons 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 not 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 po-

sition should be used which provides the better teception.

The MVC position should not be used for the reception of strong signals (such as the local stations on the broadcast hand), 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 best 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 GW 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 abould be carried out in the following way:

Remove the antenna from the receiver terminals so it at 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 in 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 Lafsyette Hadio as BK 1000 at \$3, 50).

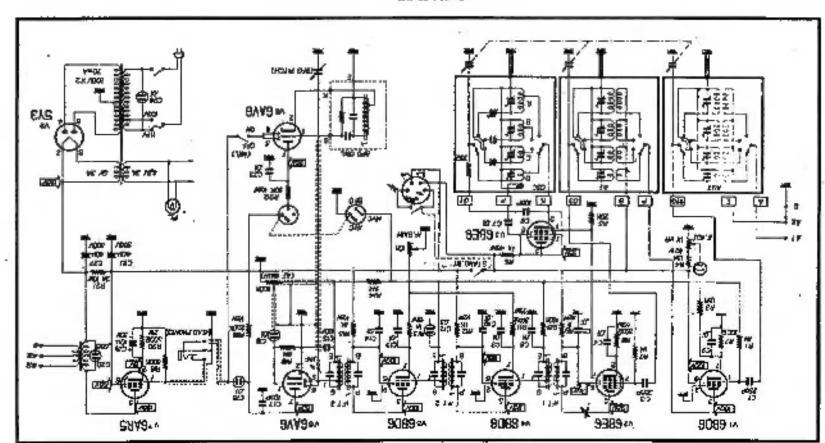
TUNING THE RECEIVER

AM RECEPTION. Set the Band Selector to the band which covers the desired frequency. Set the BFO-MVC-AVC switch to AVC, IF CAIN to maximum, AF GAIN for a comfortable listening level. Set the Bandspread pointer to "O" and tone to the desired station with the Main Tuning centrel. If you are anable 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 centrel 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 plausing 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 central 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 central 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.



SERVICE

Parts noted for langest 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 recessary, a schematic diagram is provided which includes the voltage measurements you may expect to find at certain points in the receiver. Vertations of a 20% may be considered normal,

The receiver may be returned to our service department for vepair. 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,

tered.

Aben returning the receiver, include with it a letter explaining exactly what difficulties you have encoun-

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 gritting into it, Ship by prevaits express if possible, and mark FRACILE.

Listen to the Voices of the World

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	7-16. 2-00 p. to	Pragus, Canchestowskie (Nacio Prague)	11910, 9833	fill pare.		Caretes, Venezuela	4170
	7-10. 8-10 a.m.	Water, Poland / Redio Wares)	2685, 6170, 6103, 60td	104		(Monday-Friday)	
Ι	7-55. Bulk a.m.	Menicel, Canada (Radio Cottoda)	9625. 602d	7:06 p.m. 7:15 p.m.		THE PERSON NAMED IN COLUMN	11937, 81896, 11845, 81835, 81806, 81740, 11700, 9706, 9648
105	- 1:10 - 4:10 p.m.,	Provident, Carrier / Frank Conses/	18190 (CKCX), 11730 (CHCL)	7:34 p.m.		Rome, Hely Tekyo, Japan	1975, 4040 1920(, 1970)
ı	6:04. \$:30 p.m	Sets, Bulgaria (Sofio Calling)	9700	7:30 p.m.		Proppe, Czecheslovekie -	MAC, 6170, 6195, 6001
14-	4:00 7:00 p.m.	Stockholm, Sweden (Radio Sweden)	9690	7:30 p.m.		Worsey, Palabel	75.05 JANS
7	8:60-10:36 p.M.	Cate Heitlen, Heiti / The Funnation Value Innet.	pro	8.00 m.m.		- Montow, USSA	TAPES, 11446, 11425, 11866, 11748, 11708, 9646
1		Cape Heitien, Heiti (The Evengetianic Vaicy) — so impedence on Wednesdays and Thursdays	15400, 9686, \$105	4:99 p.m.		Mentreal, Consein	11PM, 11770
ı	Polis 2:00 p.m.	Brainsville, French Equatorial Africa (Reallo Brazaspille)	13970, 9825	1:00 p.m.		Worsey, Poland	75.75, 6673
ı	\$139-14; P\$ pr. tm	Bacra, Switzerland (Switzerland Calling)		4:00 p.m. 4:05 p.m.		Solia, Bulgaria Stockholm, Swaden	7740 1429
ı			11865 (HERS), 9885 (HERS). 6168 (HERS)	\$:15 p.m.		Bearraville, Franck	PACE
1	7:00- 7:79 p.m.	Ocio. Norway (Radio Normay) - on Sundays only	15178, 11735, 9840	and biled		Equatorial Advice	11970, 9628
ı	THE PART HAVE	Constitution, Denmark (The Voice of Denmark) - no Eng-		#:30 p.m.		Montrepl, Censels	18199, 11726
	9-86-12-00 p.m.	lish on Sundays	9620 (OZF)	\$130 p.m.		Paramaribo, Surinam	1847, 4762
	130-1130 F.E.	"Quito, Recorder (RCJB - The Voice of the design) - no broadcasts on Monthlys	4711E 1501E 470E	2:31 p.m.		(Mondays paly) Bases, Switzerland	3381F Brit 1848
۱.	THE PHENN	Rome, Italy (Italian Brondousting and Television System)	15116, 11916, 9745 9676, 8010	9:00 p.m.		Steckholm, Sweden	11846, 9536, 4445 9436
1	#30-P.# p.m.	Cologne, Germany (The Voice of Bermany)	21795, 964D	7190 p.m.		Osla, Herway	10176, 15779, 1940
	9:50-10:06 p.m.	Wagner, Paleod (Radio Worspays)	9825, 8095			(Sundays only)	and and the
ı	9/30-14:10 m.m.	Hillowenen, Holland (Radio Netherlands)	Caralla E. Maria	Frield Inv. Pric.		Capanhagen, Dagment	9629
ı	9:30-17:30 p.m.	Hillworson, Holland (The Hoppy Seption) - special pro-	11360, 9290	9 HD gr.m	1	(Almostays unity)	
1		Eten un bundays only	71960, 9990	9:25 p.m.		Mescow, USSE * Rame, Hely	21870, 34945, 31825, 11825, 11746, 11746, 5700, 5666 1575, 6660
1	1-18-13-90 p.H.	Port-sto-Prince, Hottl. / Budlo Hafti/ - on Transfers salv.	6199 (4YHW)	9:10 p.m.		Cologna, Garmeny	1975, 4546
ı	9:45-19:50 a.m.	Braumville, French Equatorial Africa (Modio Brancacille)	11970, 9635	9:38 pt.m.		Western, Polencel	THE STATE OF THE S
-	# 9:55-10:55 p.m., "	Montreal, Canada (Rodio Cereda)	11345 (CKNK), 9646 (CKLF)	7:50 p.m.		Hilvenum, Hellend	11760, 7570
	19:89-10:39 p.m.	Bacharest, Romania, / Buckerest Calling)	11987, 9670	8.84 a		(net on Sundays)	
	10:00-17:50 p.HL-	Prague, Caschadovskie (Radio Prague)	9588, \$170, \$106, 80ts	4:46 p.m.		Brattaville, French Equatorial Alrica	LINES MAN
1	10:00-11:45 p.hr.	Contemals City, Contemals (TONA)	1958, 586E	10:99 p.m.		Manfred, Canada - *	11970, %25 11946, feat
	19:55-17:7季 東.州。	Madrid, Spain (The Voice of Spain)	0390, e130	10:00 p.m.		Moscow, USSR -	11670, 11845, FLRES, 11806, LYPAR, 17100, 1668
ı	10:30-11:00 p.m.	Copenhagen, Dwarark (The Voice of Betweent) - no Pos-		10:00 p.m.		Buckerrolt, Romania	11937, 7578
1		Link did Chundays	9890 (OEF)	Hel5 pure.		Medrid, Spain Copeshagen, Denmark	43a4, \$1\$0
1	11 (明41) (神 東/田	Buckgoot, Hungary (Resio Buckpart)	11919, 9833	10.46 p.m.		Copeshagen, Denmark	TOP
1	11:00-11:30 p.m	Sofia, Bulgaria (Sofia Colling)	9700	11.00 p.m.		(Monday only) Sofie, Bulgaria	
ı	11:90-13:00 p,m_	Sen June, Costs Hick PTFC - The Lighthoury of the Carth-	The latest water	11:00 p.m.		Mospee, USSE	7704 11870, 11945, 11625, 11600, 11740, 11780
l		pron)	D547, 9037	17:10 p.m.		Madild, Spain	1109c, 11940, 21825, 11800; 11740, 11760 1346, 4430
ı	11:15-12:00 b.m.	Berre, Switzerland (Switzerland Colling)	11866 (HRRG), 8636 (HRRH)	11:20 p.m.		Barne, Switzerland	21846, 4936
ı	11:15-13:00 p.m.	Medrid, Spain (The Voice of Spain)	5380, 6120	11:00 p.m.		Bucharast, Egmania	13777, #578
	11:30-12:00 p,m_	Becharet, Rumania (Bucharest Colling)	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	17:00 Mighight	ı.	SUPPLIED AND DESCRIPTION OF THE PERSON OF TH	1430
, T	12:00-12:30 a.m.	Statishalm. Humben (Kagle Sweden)	9680	12:00 Midnight		Maccom, USSR	\$1840, 1844s, France, FF240, FF200, 1646, 1645, 1840
1	12:15-12:30 a.m.	Brazzaville, French Equatorial Africa (Radio Brazestille)	31970	12:15 e.m.		Akadrid Spain	1360, 6130
1		Madrid, Spain (The Voice of Spain)	MS60, 6130			Bratta ville, Franch Equatorial Africa	11479
	12'30 I (III) A III.	Warner, Poland (Redip Warasse)	3625, 9025	17:30 a.m.		Warner, Poland	9525, 6026

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