LAFAYETTE

FM Communications Receiver

Model HA-52 152-174MC

(Stock No. 99-2526WX)

INSTALLATION AND OPERATING MANUAL

SPECIFICATIONS

TUNING RANGE	FM, 152-174 Mc.
SENSITIVITY	4 μv for 20 db quieting.
IMAGE RATIO	23 db.
IF	10.7 Mc.
AUDIO OUTPUT	0.8 watt into 4" PM Speaker.
ANTENNA INPUT	50-75 ohms Impedance.
HEADPHONE OUTPUT	8 ohms Impedance, standard phone jack provided.
TUBES AND SEMI-CONDUCTORS	V1 6CW4 Tuned Nuvistor RF Amplifier V2 6AQ8 Mixer & Local Osc. V3 6BA6 IF Amplifier V4 6BA6 IF Amplifier V5 6AU6 IF Amplifier V6 6AL5 Ratio Detector V7 12AX7 Squelch and 1st Audio V8 6AR5 Audio Output D1, D2 5GH Silicon Rectifiers
POWER SUPPLY	Full wave, transformer operated.
POWER CONSUMPTION	45 watts at 117 volts, 50/60 cycles AC.
DIMENSIONS	11-1/16" W. x 5-1/4" H. x 7-3/8" D.
NET WEIGHT	10 lbs.

GENERAL

The Lafayette Model HA-52 is an 8-tube AC operated superheterodyne receiver designed to receive FM (frequency modulated) signals over a band of 152-174 Mc. This band covers police, forestry, utilities, petroleum pipelines, industrial and other communication services.

A similar receiver, Model HA-50, which covers a frequency range of 30-50 Mc is also available for monitoring the transmission of the services mentioned above.

PRINTED IN USA
IM-370 9-64 2.5MC

INSTALLATION

POWER

This receiver operates from 110-120 volts, 50/60 cycles AC. Do not attempt to operate it from any other power source.

LOCATION

The receiver may be set up in any area that is convenient but care should be taken to avoid using any excessively warm location or one that does not offer sufficient ventilation. Books or other objects should not be placed over the ventilating slots in the top of the cabinet since this will restrict ventilation.

ANTENNAS

In areas of high signal strength, a single 2-ft. length of insulated wire connected to the "ANT" terminal will provide good results. Since most of the transmitters operating in the 152-174 Mc band employ vertically polarized antennas, the 2-ft. length of wire should be extended vertically to provide maximum pick-up.

For long-range reception, the use of a ground plane antenna is recommended. These types are ideal for use in areas of low signal strength and are available from Lafayette under stock #40-1302W.

NOTE: Best results will be obtained with any antenna if it is installed as high as possible. This will ensure minimum noise pick-up and also permit better reception of signals which, at these frequencies, generally follow a line-of-sight path.

ANTENNA CABLE

The antenna is connected to the receiver by means of coaxial cable. RG-58/U cable has an impedance of 50 ohms and is ideal for this purpose. To attach to the receiver, connect the shield to the "GND" terminal and the center conductor to the "ANT" terminal. For lightning protection, the shield should be grounded at the point of entrance to the building. Use a heavy wire--the aluminum wire sold for grounding TV antennas is ideal. The ground wire should be connected to a copper rod buried in the ground or to a cold waterpipe.

PHONES OR EXTERNAL SPEAKER

Headphones of 8 ohms impedance may be used by simply plugging into the jack designated "Phones". An external 8-ohm speaker may also be connected to this jack, using a standard phone plug. Insertion of a phone plug into the jack automatically silences the internal speaker.

OPERATING INSTRUCTIONS

After the receiver has been connected to an antenna and a suitable AC power supply, turn the unit on by means of the VOLUME control (clockwise rotation operates the ON-OFF switch), and set the SQUELCH control fully counter-clockwise. When the receiver has warmed up, a "rushing" noise should be heard from the speaker. Tune to the desired station by rotating the TUNE control, and adjust volume as desired.

SQUELCH

The squelch circuit cuts off receiver output during "standby" (no-signal) periods, but restores it when a signal is present. This feature is particularly useful in those cases which require the operator to monitor a channel for considerable lengths of time (as in network operations) where background noise during no-signal periods, if not suppressed, might cause undue fatigue.

The circuit is adjustable and therefore permits varying degrees of squelch action, as required by the operator. In the extreme counter-clockwise position of the control, the squelch circuit is disabled and the receiver provides maximum sensitivity. Clockwise rotation produces progressively stronger squelch action, with maximum squelch at the extreme clockwise position. The amount of squelch required is normally determined by the strength of the background noise, the control usually being adjusted to the point at which the sound output almost disappears (with no signal input).

CAUTION: In areas of high noise, the squelch may have to be greatly increased in order to produce quieting of the receiver. Under these conditions, however, signals insufficiently strong to overcome the additional squelch action will not be heard. To disable the squelch or receive extremely weak signals, the control should be rotated fully counter-clockwise.

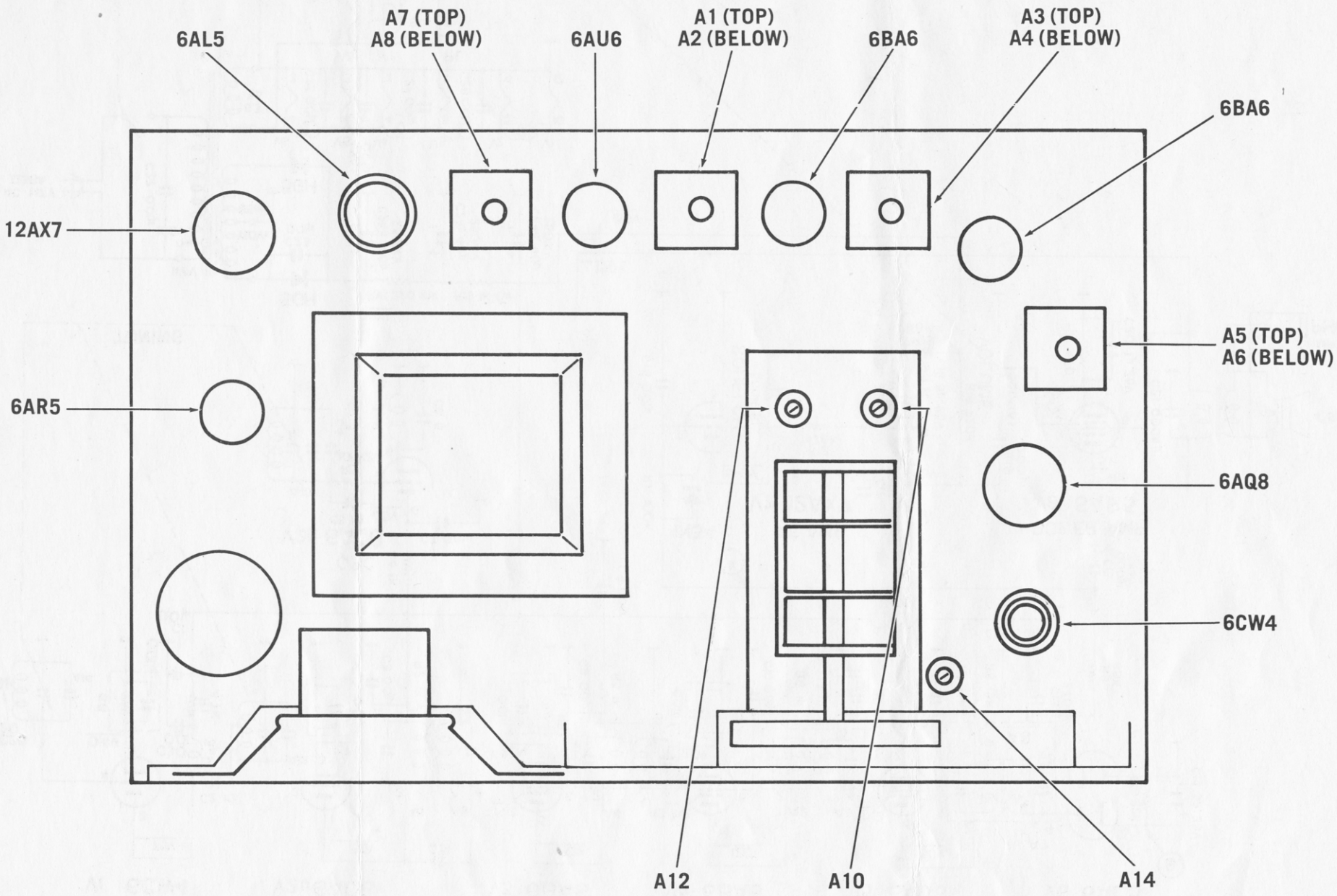
ALIGNMENT

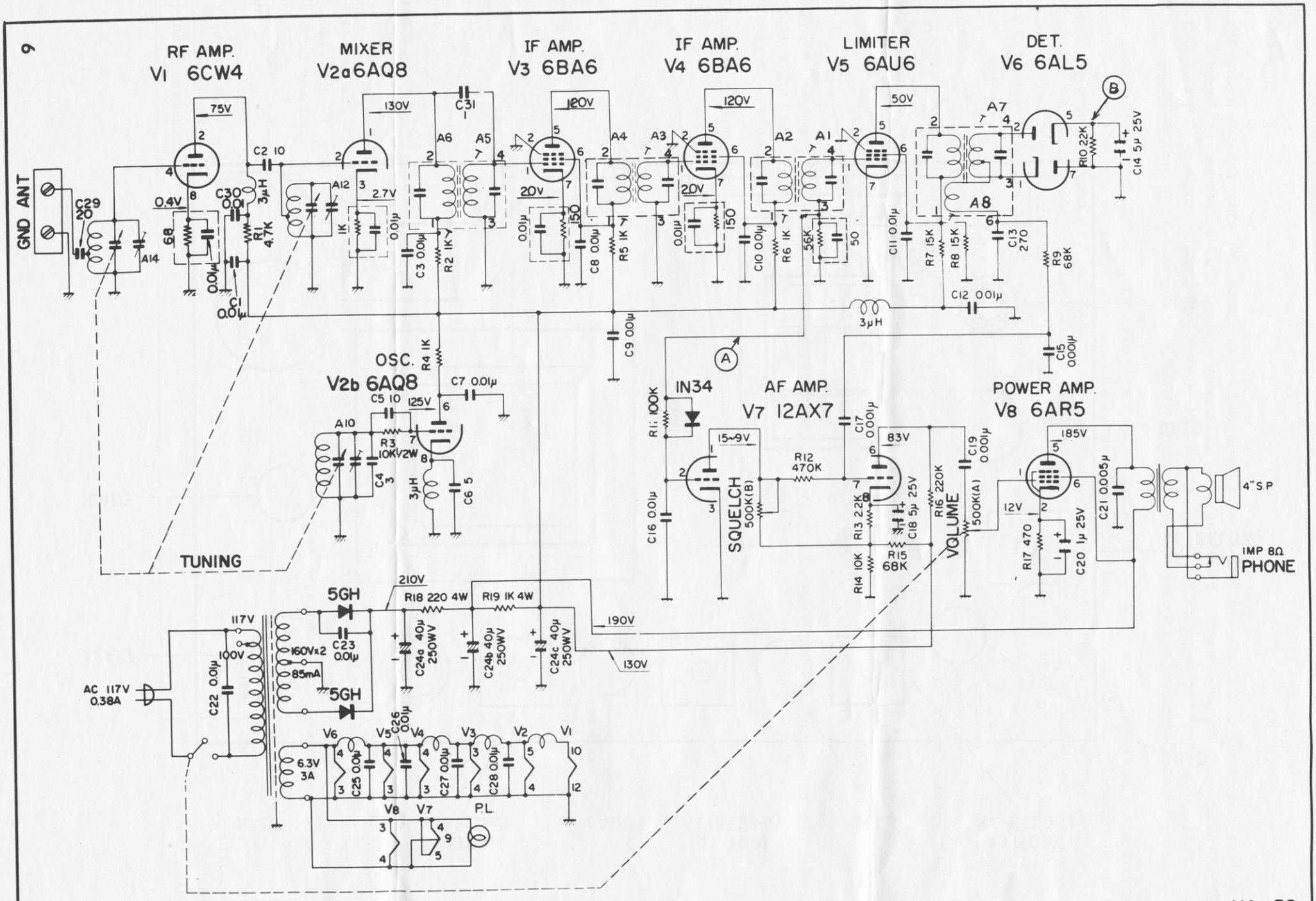
The receiver was fully aligned and tested at the factory before shipment, and should not normally require further adjustment. However, alignment may become necessary due to aging of components, servicing, etc.

Equipment Required: AM Signal Generator
VTVM
Non-metallic Alignment Tool

ALIGNMENT CHART

	SIGNAL GENERATOR COUPLING	INPUT SIGNAL AND FREQUENCY	DIAL SETTING	VTVM CONNECTION	ADJUSTMENT	ADJUST FOR
1.	Between Pin 2 of V2 (6AQ8) and chassis through 0.1 μf capacitor	10.7 Mc. (unmodulated)	Any setting where no external signals are received	Between point (A) and chassis through series resistor(100-500K Ω)	A6 thru A1	Maximum negative DC voltage
2.	To antenna terminals through 75 ohm resistor	156 Mc., 15 Kc deviation, modulated 400 or 1000 cycles. Input level 1000 to 5000 μv.	156 Mc	Between point (B) and chassis through series resistor (100-500 K Ω)	A7, A8	Maximum output voltage (positive DC)
3.	To antenna terminals through 75 ohm resistor	170 Mc -- otherwise same as above	170 Mc	Between point (A) and chassis	A10 A12 A14	Maximum output voltage (negative DC)


6AL5
A7 (TOP)
A8 (BELOW)
6AU6
A1 (TOP)
A2 (BELOW)
6BA6
A3 (TOP)
A4 (BELOW)
6BA6
12AX7
A5 (TOP)
A6 (BELOW)
6AR5
6AQ8
6CW4
A12
A10
A14


RF AMP.
V1 6CW4
MIXER
V2a6AQ8
IF AMP.
V3 6BA6
IF AMP.
V4 6BA6
LIMITER
V5 6AU6
DET.
V6 6AL5
GND ANT
OSC.
V2b 6AQ8
TUNING
IN34
AF AMP.
V7 12AX7
SQUELCH
500K(B)
VOLUME
500K(A)
POWER AMP.
V8 6AR5
4"S.P
IMP 8Ω
PHONE
AC 117V
0.38A
5GH
5GH
P.L.
75V
130V
120V
120V
50V
20V
20V
0.4V
2.7V
15~9V
83V
185V
12V
210V
190V
130V
117V
100V
160Vx2
85mA
6.3V
3A
3μH
3μH
R1 4.7K
R2 1K
R3 10K1/2W
R4 1K
R5 1K
R6 1K
R7 15K
R8 15K
R9 68K
R10 22K
R11 100K
R12 470K
R13 2.2K
R14 10K
R15 68K
R16 220K
R17 470
R18 220 4W
R19 1K 4W
C1 0.01μ
C2 10
C3 0.01μ
C4 3
C5 10
C6 5
C7 0.01μ
C8 0.01μ
C9 0.01μ
C10 0.01μ
C11 0.01μ
C12 0.01μ
C13 270
C14 5μ 25V
C15 0.01μ
C16 0.01μ
C17 0.001μ
C18 5μ 25V
C19 0.001μ
C20 1μ 25V
C21 0.0005μ
C22 0.01μ
C23 0.01μ
C24a 40μ 250WV
C24b 40μ 250WV
C24c 40μ 250WV
C25 0.01μ
C26 0.01μ
C27 0.01μ
C28 0.01μ
C29 20
C30 0.001
C31
A1
A2
A3
A4
A5
A6
A7
A8
A10
A12
A14
B

NOTES

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