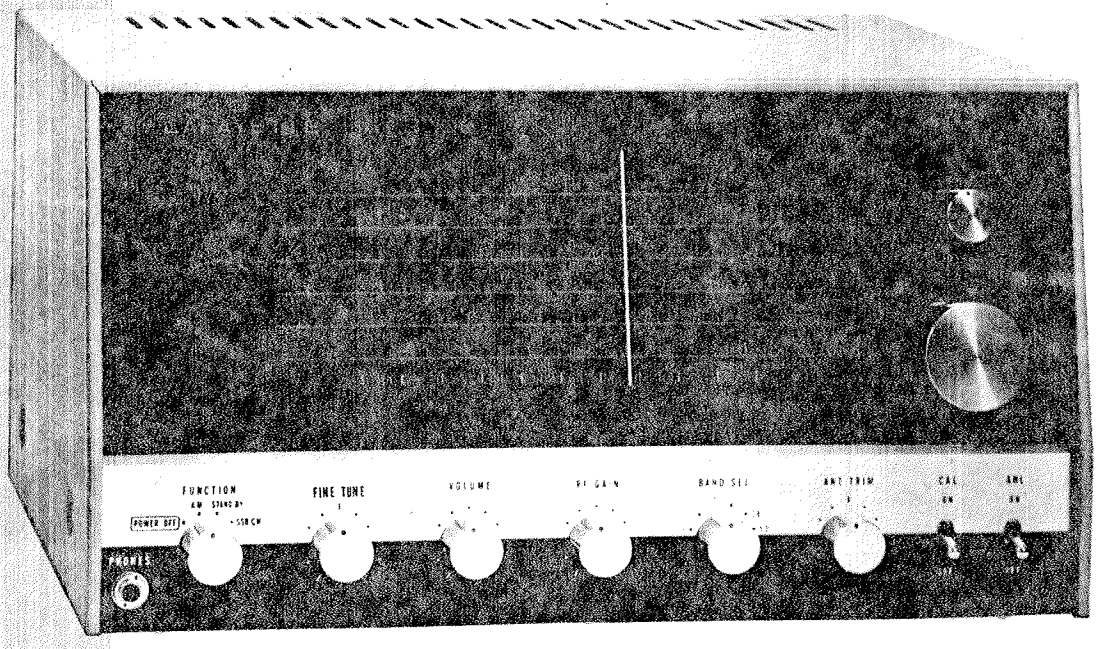
LAFAYETTE

Model HA-800B

Stock No 99-26155WX



80 Through 6 Meter Amateur Communications Receiver

LRE

AFAYETTE RADIO ELECTRONICS CORPORATION

INSTALLATION AND OPERATING MANUAL

TECHNICAL SPECIFICATIONS

FREQUENCY COVERAGE	3.5 - 4.0 MHz [80 meters] 7.0 - 7.3 MHz [40 meters] 14.0 - 14.35 MHz [20 meters] 21.0 - 21.45 MHz [15 meters] 28.0 - 29.70 MHz [10 meters] 50.0 - 54.0 MHz [6 meters]
RECEIVING MODES	AM, Standby, Single Sideband and CW
ANTENNA INPUT IMPEDANCE	50 ohms
SENSITIVITY	For 10 db S/N ratio: 1μV or better on all meter bands.
SELECTIVITY	Bandwidth ±6 KHz at 60 db down
IMAGE REJECTION	Better than 40 db
IF REJECTION	Better than 40 db
INTERMEDIATE FREQUENCIES	First IF: 2.608 MHz Second IF: 455 KHz
BFO FREQUENCY	455 KHz (Fixed)
FINE TUNE	Varies Local Oscillator ±1 KHz
AUDIO OUTPUT	1 watt [maximum], 500 mV Rec. output
OUTPUT IMPEDANCE	8 and 500 ohms
AUXILIARY CIRCUITS	Automatic Noies Limiter Beat Frequency Oscillator 100 KHz Crystal Calibrator Circuit [crystal optional] "S" Meter - Automatic Volume Control

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TRANSISTOR COMPLEMENT	FET-1	2SK19GR	1st RF Amplifier
	FET-2	2SK19BL	1st Mixer
	FET-3	2SK19GR	1st Local Oscillator
	FET-4	2SK19BL	AGC Amplifier
	TR-1	2SC785R	2nd RF Amplifier
	TR-2	2SC458B	100KHz Calibrator
	TR-3	2SC784R	2nd Mixer
	TR-4	2SC458B	2nd Local Oscillator
	TR-5	2SC458C	IF Amplifier
	TR-6	2SC458C	IF Amplifier
	TR-7	2SC458B	AGC Amplifier
	TR-8	2SC458B	BF0
	TR-9	2SC458B	Product Detector
	TR-10	2SC712	Audio Amplifier
	TR-11	2SC712	Audio Amplfier
	TR-12	2SC1013	Audio Power Output
	TR-13	2SC1013	Audio Power Output
	TR-14	2SC712	DC Voltage Regulator
	TR-15	2SC712	DC Voltage Regulator
	TR-16	2SC458B	AGC Amplifier

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DIODE COMPLEMENT	D-1	RD-7A	DC Voltage Regulator
	D-2	1S1503	Calibrator
	D-4	1N60	AGC
	D-5	1N60	AM Detector
	D-6	1N60	ANL
	D-7	1N60	ANL
	D-8	1S1210	Temperature Compensation
	D-9	1S1210	Temperature Compensation
	D-10	V06B	AC Rectifier
	D-11	V06B	AC Rectifier
	D-12	RD-7A	DC Voltage Regulator

POWER REQUIREMENTS . . . . . AC: 105-120 volts, 50/60 Hz

DIMENSIONS . . . . . 15" wide x 9¾" deep x 8¼" high

WEIGHT . . . . . 16 lbs.

LAFAYETTE RESERVES THE RIGHT TO DISCONTINUE UNITS OR TO CHANGE SPECIFICATIONS AT ANY TIME WITHOUT INCURRING ANY OBLIGATION TO INCORPORATE NEW FEATURES IN UNITS PREVIOUSLY SOLD.

GENERAL DESCRIPTION

The Lafayette Model HA-800B is an amateur band receiver covering the 80, 40, 20, 15, 10 and 6 meter amateur bands. The receiver is designed to receive CW [code], AM [amplitude modulated voice], and SSB [single sideband] signals in the covered bands.

The receiver employs dual frequency conversion on all bands for high image and spurious signal rejection. Dual tuned RF and tuned mixer stages provide maximum sensitivity with a good signal-to-noise ratio. Two intermediate frequency amplifiers plus two 455 KHz mechanical filters provide high selectivity with tailored skirt frequency attenuation. Detection circuitry utilizes a regular diode detector for AM and special product detection in conjunction with a beat frequency osicllator for CW and single sideband signals.

Auxiliary circuits provide for automatic gain control [AGC], automatic noise limiting [ANL], fully variable front-end RF gain, 100 KHz crystal-controlled calibrator [crystal optional extra], and "S" meter calibrated in "S" units from 1 to 9 and in decibels above S9. The entire circuitry is voltage regulated and second local conversion oscillator is crystal-controlled for stable operation.

The receiver is designed to operate from 105-120 volts, 50/60 Hz AC. A 1 ampere fuse provides overload protection for the AC transformer circuit. AC rectification is achieved by a filtered full-wave network. Antenna input impedance is 50 ohms unbalanced. Audio output impedance is 8 or 500 ohms. A special audio output jack for direct recording supplies up to 500 mV output signal. A front panel headphone jack is also provided for private listening.

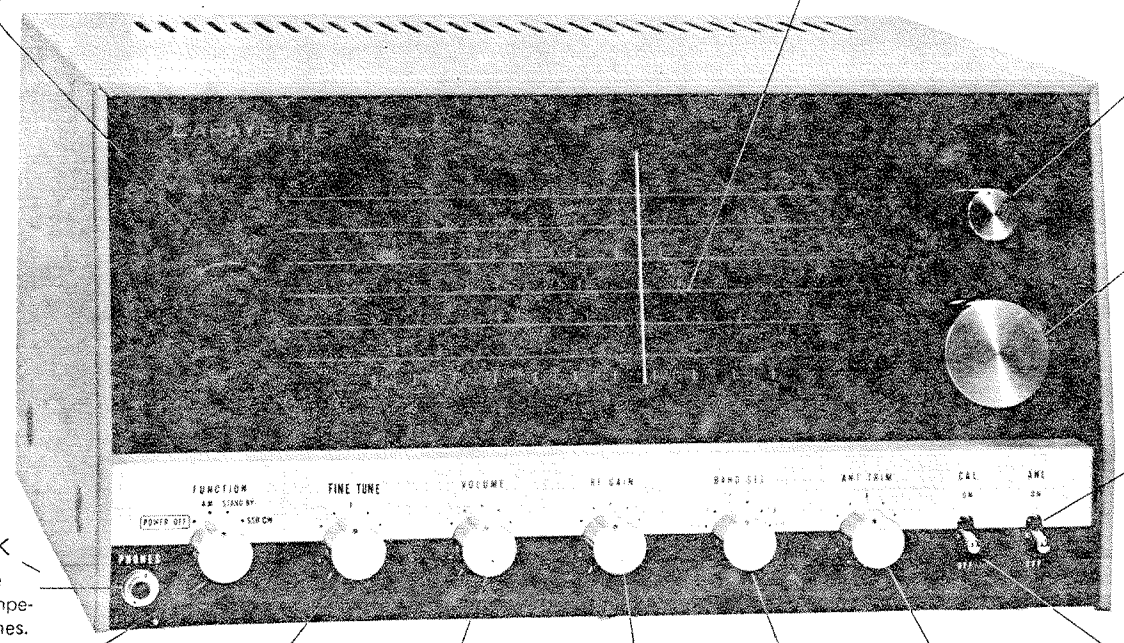
The HA-800B employs an accurately calibrated large slide rule dial for easy read-out of frequency. A logging scale numbered from 0 to 100 is provided for calibration convenience.

The HA-800B receiver will provide reliable amateur band reception if operated in accordance with this manual. We suggested that you keep the manual close at hand and in a safe place so that you may refer to it whenever necessary.

UNPACKING INSTRUCTIONS

The receiver has been packed with adequate internal carton bracing and cushioning to withstand normal handling in shipment on common carriers. Examine the carton exterior for signs of severe damage [crushing, piercing, etc.]. In the event of obvious serious damage, examine the equipment carefully to determine the extent of internal damage, save packing material and make claim against transportation company.

It would be a good idea if the shipping carton and internal packing were saved for a period of time. Many customers have found that saving the carton is a great convenience in the event of moving or prolonged storage. It should also be kept in mind that if it should become necessary to return the receiver for repair under Warranty, it must be returned in the original shipping carton.



S-METER
Illuminated tuning meter reads relative signal strength of all incoming signals.

TUNING DIAL
Large illuminated slide-rule tuning dial; separate scale for each amateur band. Also includes "logging" scale.

DIAL CAL CONTROL
Used to permit accurate tuning dial calibration.

TUNING
Tunes receiver over each amateur band, as selected by the Band Selector.

ANL SWITCH
Switches in Automatic Noise Limiter during AM operation.

CAL SWITCH
Switches in 100 KHz Calibrator to permit accurate calibration of tuning dial (100 KHz crystal not normally supplied—optional at extra cost).

PHONE JACK
Standard phone jack for low-impedance headphones.

FUNCTION SWITCH
Switches receiver "ON" and selects desired mode of operation.

FINE TUNE
In the SSB CW mode, varies the pitch of the CW signal and tunes station in either direction for clarity of speech.

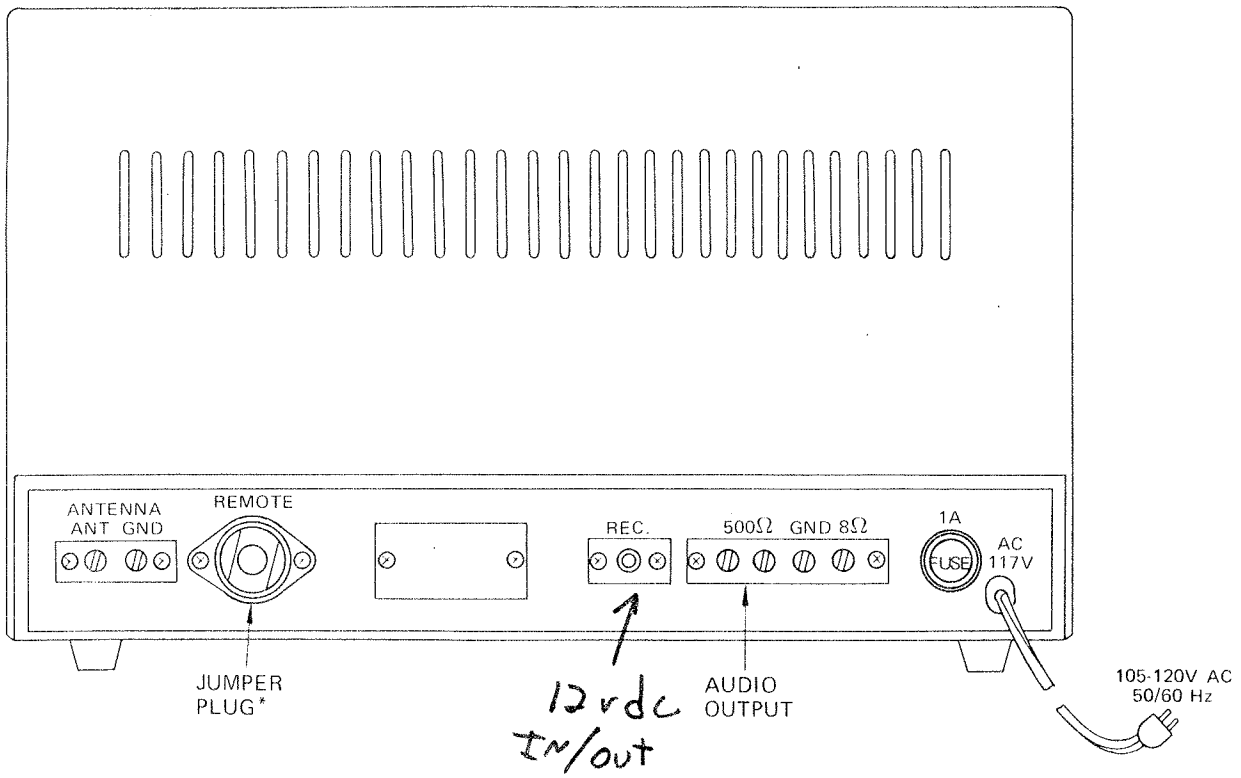
VOLUME
Varies the audio output level to the speaker.

RF GAIN
Used as a gain control for CW and SSB operation.

BAND SELECTOR
Selects the desired Amateur band (80 thru 6 meters).

ANT TRIM
Matches the receiver to the antenna.

FIGURE 1. OPERATING CONTROLS AND FEATURES.



* For normal operation plug must always remain inserted in "REMOTE" socket.

For DC in, center is positive, Shield is negative. when in 12v operation, rec lights don't work.

Figure 2. Rear View

INSTALLATION

LOCATION

In general, the location of the receiver is not critical; it may be placed in any location that proves convenient. However, care should be taken to avoid excessively warm locations such as those near radiators and/or heating vents.

ELECTRICAL POWER

The receiver is designed to operate from 105-120 volt 50/60 Hz AC power source. Operating the receiver on any other AC power source will severely damage the unit.

SPEAKER CONNECTIONS

A 4-screw terminal strip marked "output" is provided on the rear apron of the receiver for speaker or alternate headphone connection. Any permanent magnet [PM] speaker with an 8 ohm impedance may be connected directly across the terminals marked GND and 8 ohms. An excellent speaker for this purpose is the Lafayette HE-48C speaker available under Stock No. 99-25397.

For speaker and headphone operation simultaneously, phones may be wired directly across the 500Ω output terminals. The headphones connected to these terminals should be of the low impedance type (up to 2000 ohms).

HEADPHONES

The front panel PHONES jack is provided for operation when private or close listening is desired. This jack mates with a standard ¼" 2-conductor phone plug available from any local electronics parts store or Lafayette Radio Electronics under Stock #99-62234. For optimum results, the headphones should be of the low impedance type although impedances up to 2000 ohms will provide satisfactory operation. Insertion of the phone plug into the front panel headphone jack automatically silences the speaker connected to the 8 ohm output terminals on the rear apron of the receiver.

TAPE RECORDER CONNECTION – Disconnected

Provision has been made in the receiver to permit recording of all signals being received. A special output jack on the rear chassis [marked REC] is provided for connection to the Radio/Aux input on a tape recorder. Use a shielded audio cable terminated with an RCA-type phono plug [this plug matches the REC jack on the receiver] to connect the receiver to the tape recorder. The audio output at this jack is present during all modes of receiving but will vary in output level in accordance with the setting of the VOLUME control.

REMOTE SOCKET/JUMPER PLUG

The REMOTE socket and plug on the back of the HA-800B allows control of the receiver when used in conjunction with a transmitter. Most transmitters contain terminals for receiver switching -- if not, an external switching device can be constructed. In the case of remote switching, the FUNCTION switch should be set to the AM or CW/SSB position, depending on the desired mode. For normal operation, the jumper plug must always remain inserted in the REMOTE socket. Figure 3A reflects the original Remote Plug wiring. Figure 3B illustrates the manner in which the plug is wired for transmitters containing a pair of relay contacts for receiver control. Removing the original jumper wire at point "X" and connecting a pair of wire leads to the relay, switches the B+ to the receiver. With the contacts closed, voltage will be applied in the usual manner; contacts opened will break the B+ line and put the receiver in a "standby" mode. Figure 3B also shows connections made to pins 1 and 8 when the audio output is to be connected to a 500 ohm line. If it is desired to only connect a remote 8-ohm speaker to the plug, it may be connected directly across pins 1 and 6 with the original jumper wire connected, as shown in Figure 3C.

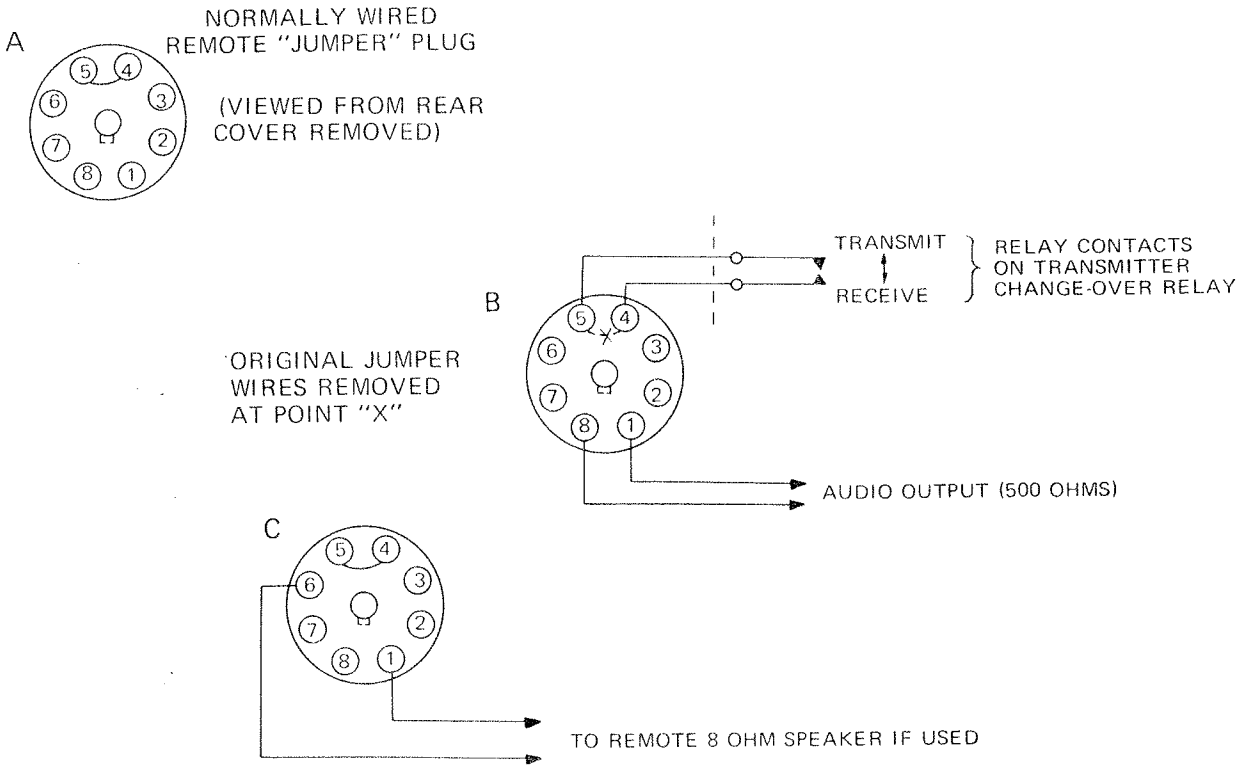


Figure 3. Plug Wiring

FUSE

The fuse socket on the rear chassis contains a 125 volts 1-ampere [slow-blow] protective fuse. If replacement becomes necessary, replace only with one of the same rating. Unscrew the spring loaded cap [marked FUSE] to remove the fuse.

ANTENNAS

The receiving capabilities of your receiver will be greatly determined by the efficiency of the antenna system used. Best results will be obtained with any antenna if it is installed as high and in the clear as possible. This will ensure minimum noise pick-up and permit better reception of signals. Due to the complexity of the subject, it is not within the scope of this manual to provide extensive information on antenna systems, although this section does contain some general information that may be of value.

The receiver is designed to operate from either a single wire or a balanced type antenna. The front panel ANT TRIM control permits a good match to most antenna systems of 50-400 ohms. The antenna input circuit is of the unbalanced type and is ideally suited for use with a coaxial transmission line.

More elaborate antenna systems than those suggested in this section may be installed to provide better performance. Information on a number of different types can be obtained by referring to the Radio Amateurs Handbook or the ARRL Antenna Book, both published by the American Radio Relay League, West Hartford, Conn.

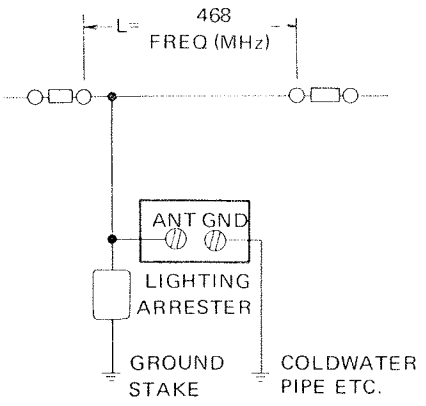


Figure 4.A

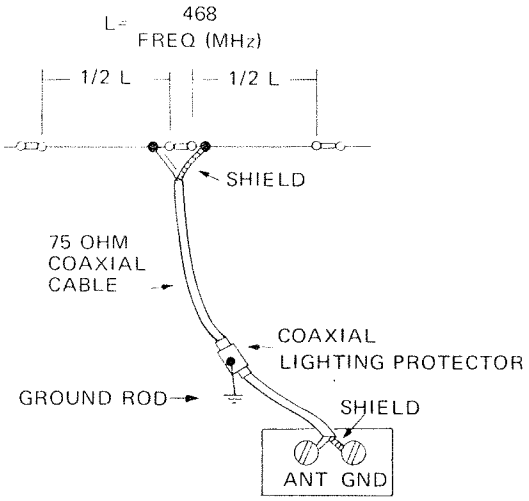


Figure 4.B

SINGLE WIRE ANTENNA

The single-wire antenna [or inverted L] will provide satisfactory reception over the entire tuning range of the receiver. This type is shown in Figure 4A. For best results the antenna should be installed as high as possible; the horizontal section should preferably be a half-wavelength long at the lowest frequency of operation and end-fed, as shown. Since the lowest frequency on this receiver is 3.5 MHz, the correct length would be:

$$\text{Length [ft.]} = \frac{468}{3.5 \text{ MHz}} = \text{Approx. 134 ft.}$$

Lengths shorter than 134 feet may be used if space is limited, with some loss in efficiency. Generally, this type of antenna provides maximum pick-up at right angles to its entire length. This should be borne in mind when installing the antenna. In some locations, reception may be improved by connecting a ground wire from the receiver chassis to a coldwater pipe or outside ground rod. For protection against lightning, a lightning arrestor should be included in any outdoor antenna system.

DIPOLE ANTENNA

A dipole or doublet antenna will give excellent results, especially if cut for a specific amateur band. A 75 ohm coaxial cable transmission line should be used to connect the antenna to the receiver as shown in Figure 4B. Since the dipole antenna provides optimum performance only at a given frequency, it should be cut to the length for the most used band of frequencies. The overall length of the dipole antenna may be determined by using the following formula:

$$\frac{468}{\text{Frequency in Megahertz}} = \text{L [Length in feet]}$$

For example: If operation is desired on 3.5 MHz [the low end of the 80 meter amateur band], the full length of the antenna should be approximately 134 feet as determined by the formula.

$$\frac{468}{3.5 \text{ MHz}} = \text{Approximately 134 feet}$$

Since the dipole antenna displays directional properties broadside to its length, it should be oriented in such a manner that maximum signal pick-up can be obtained from the desired direction. An antenna height of 30-50 feet is recommended for good reception of weak signals.

OPERATING CONTROLS AND INDICATORS

1. "S" METER

The "S" Meter indicates the relative signal strength on an illuminated dial. The dial is calibrated in S units from 0 to 9 and in db above S9. The db range is from 10 to 30 db.

2. SLIDE RULE TUNING DIAL

The illuminated slide rule tuning dial indicates the frequency to which the receiver is set. A separate dial scale is provided for all bands. A logging scale of 0 to 100 is provided at the bottom of the dial. Each band except for the 10 and 6 meter band is marked in increments of 10 KHz. The 10 meter band is marked in increments of 50 KHz, and the 6 meter band in increments of 250 KHz.

3. TUNING CONTROL

The Tuning Control varies the frequency of the receiver over the band selected by the Band Switch.

4. DIAL CAL CONTROL

The CAL control varies the frequency of the 1st local oscillator and is used in conjunction with the 100 KHz crystal calibrator or any other received signal of known frequency to maintain the accuracy of the tuning dial reading. Initially, set this control to the 12 o'clock position and change it only when re-calibration of the dial appears necessary.

5. ANL ON-OFF SWITCH

The ANL ON-OFF Switch turns the Automatic Noise Limiter on or off when the receiver is operated in the AM mode.

6. CAL ON-OFF SWITCH

The Cal ON-OFF Switch turns the 100 KHz crystal calibrator on or off [crystal is an optional extra].

7. ANT TRIM CONTROL

The antenna trim control is used to tune the antenna circuit for maximum sensitivity on each of the bands covered by the receiver.

8. RF GAIN CONTROL

The RF Gain Control varies the gain of the RF amplifier in all modes of receiver operation.

9. BAND SWITCH

The Band Switch selects the amateur band of frequencies [80, 40, 20, 15, 10 or 6 meter bands] on which the receiver will operate.

10. VOLUME CONTROL

The Volume Control provides adjustment of the audio level at the speaker or headphones.

11. FINE TUNE CONTROL

The FINE TUNE control varies the frequency of the First Local Oscillator by ±1 KHz. When using the AM mode, this control will permit slight adjustment of your tuning in cases where the received signal is slightly off frequency. When using the SSB CW mode for SSB operation, this control is used as a voice clarifier by tuning it over the indicated area for clearest, most intelligible voice reception. When using the SSB CW mode for CW operation, it varies the pitch of the CW signal.

12. PHONES JACK

The Phones Jack provides for connecting headphones from the front panel. When the headphones are plugged in, the 8 ohm tap on the terminal strip at the rear of the receiver is automatically disconnected. However, audio output to the 500 ohm terminals is still present.

13. FUNCTION SWITCH

The Function Switch selects the receiver mode of operation as follows:

POWER OFF . . . . . Removes power from the primary of the AC power transformer.

AM . . . . . In this position the receiver will receive amplitude modulated [voice] signals.

STAND BY . . . . . In this position the audio output of the receiver is silenced while power remains applied to all stages.

SSB CW . . . . . In this position the FINE TUNE CONTROL is activated and the receiver will receive Single Sideband or CW signals.

OPERATION

INITIAL CONTROL SETTINGS

Table 1 lists the initial settings for the operating controls for each type of operation. After the desired signal has been tuned in, the degree of strength or clarity with which the signal is received will depend upon proper readjustment of the operating controls.

TABLE 1. INITIAL CONTROL SETTINGS

CONTROL	AM OPERATION	CW OPERATION	SSB OPERATION
FUNCTION Switch	AM	SSB CW	SSB CW
FINE TUNE Control	Mid-position	Mid-position	Mid-position
VOLUME Control	Adjust for desired Audio output	Set to ½ maximum	Set to ½ maximum
BAND SEL Switch	Set to desired band	Set to desired band	Set to desired band
RF GAIN Control	Set to maximum	Adjust for desired output level	Adjust for desired output level
ANT TRIM Control	Adjust for maximum "S" reading	Adjust for maximum output	Adjust for maximum output
CAL Switch	Off	Off	Off
ANL Switch	Off	Off	Off

AM OPERATION (Phone)

Place all controls in the positions indicated in Table 1 for AM operation. Tune to the desired frequency. If you wish to check scale calibrations, follow the procedure outlined under "Calibrating The Tuning Dial". Always use the ANT TRIM control to peak for maximum background noise or signal. If excessive noise from auto ignition, etc., make reception difficult, set ANL switch to "on".

CW OPERATION (Code)

Place all controls as indicated in Table 1 for CW operation. For reception of CW, the RF GAIN control is used as a volume control with VOLUME control set to its mid-position [approximately]. After peaking the ANT TRIM control for maximum background noise, tune the CW signal to "zero beat" and adjust the FINE TUNE control to either side of the center dot for the desired pitch.

SSB OPERATION (Single Sideband)

In most cases the only stations that will be received operating single sideband will be amateur radio operators. However, some commercial radio stations may also be found operating SSB. Control settings for sideband reception are virtually the same as for CW.

Set VOLUME control to the mid-position and use the RF GAIN control to adjust the signal level. Tune station in using TUNING control and adjust FINE TUNE Control in either direction until clarity of speech is obtained.

NOTE

Tune station as accurately as possible, since FINE TUNE control can only be varied ±1KHz, otherwise speech will be garbled and cannot be clarified.

CALIBRATING THE TUNING DIAL

The procedure for calibrating the tuning dial is simple and should be employed whenever a check of the receiver tuning accuracy is required. Switch to the band you intend to operate on, and set the CAL switch "on". Make sure a 100 KHz crystal has been inserted into the receiver--the 100 KHz crystal is optional at extra cost with this receiver. Now set the tuning dial to the edge of the band and adjust the CAL control for zero beat or a peak calibrator signal. The dial calibration can be checked for accuracy by comparing the dial calibrations with the marker signals which appear at every 100 KHz on the dial.

100 KHz CRYSTAL CALIBRATOR

The 100 KHz Calibrator circuit will provide accurate signal markers every 100 KHz over the full tuning range of the receiver and can thus be used to calibrate the receiver tuning dial [See section "Calibrating The Tuning Dial"]. The 100 KHz crystal is not normally supplied with the receiver unless so ordered [Lafayette Stock No. for the 100 KHz crystal is 40-09015L].

INSTALLING THE 100KHz CRYSTAL

The crystal can be inserted into its socket by removing the cage of the receiver. The location of the socket is shown in Part Location.

RETURNING THE UNIT FOR REPAIR

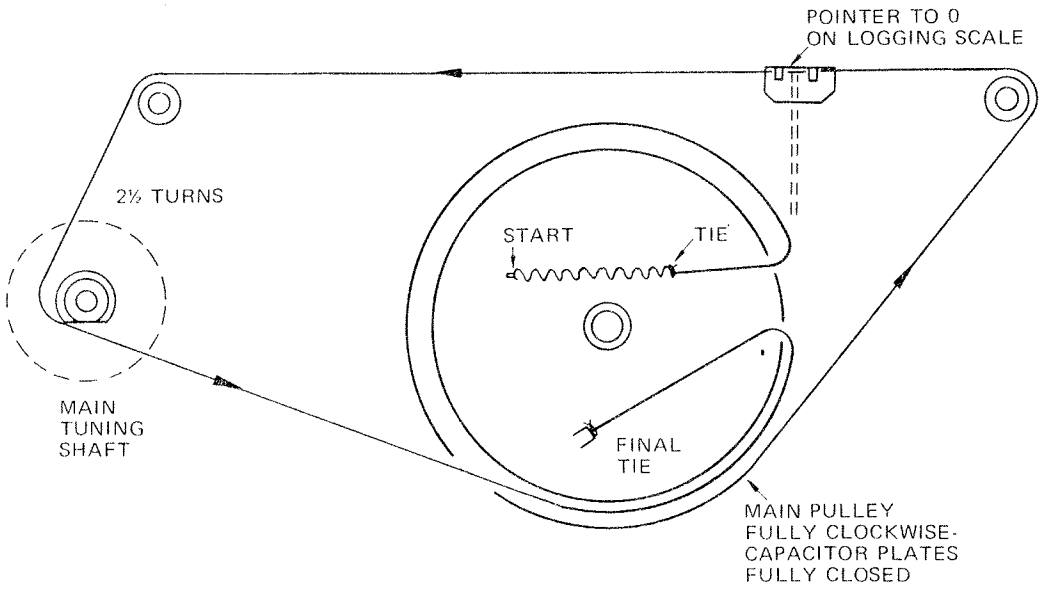
In the event that repair is necessary (either in or out of warranty), we recommend that you return the receiver to the Lafayette store from which it was purchased. If the unit is to be shipped to our main service center for service, please read the instructions which follow.

SHIPPING INSTRUTIONS

Pack the unit very carefully to avoid damage in transit, preferably in its original carton. If the original carton is not available, use a sturdy carton with 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. Include with the unit a letter explaining exactly what difficulties you haye encountered [remember to add extra First Class postage and indicate on the outside of the carton that First Class-Mail is enclosed]. Ship by prepaid express if possible and mark ELECTRONIC EQUIPMENT—FRAGILE. Clearly address the carton as follows:

SERVICE DIVISION
LAFAYETTE RADIO ELECTRONICS CORP.
150 Engineers Road
Hauppauge, L.I., N.Y. 11787

DIAL CORD STRINGING



ALIGNMENT

NOTE: The receiver has been fully aligned at the factory before shipment and does not normally require further adjustment. When required, the receiver may be aligned using the procedure given below.

TEST EQUIPMENT REQUIRED

Calibrated RF Signal Generator
Non-metallic Alignment Tools
AC VTVM [for output indication]

COVER REMOVAL

Remove four screws, two on either side of the receiver cover and remove the cover. It is not necessary to remove the bottom plate as all alignment adjustments located on the bottom of the chassis are available through holes in the bottom plate.

ALIGNMENT PROCEDURE

Set receiver controls as follows:

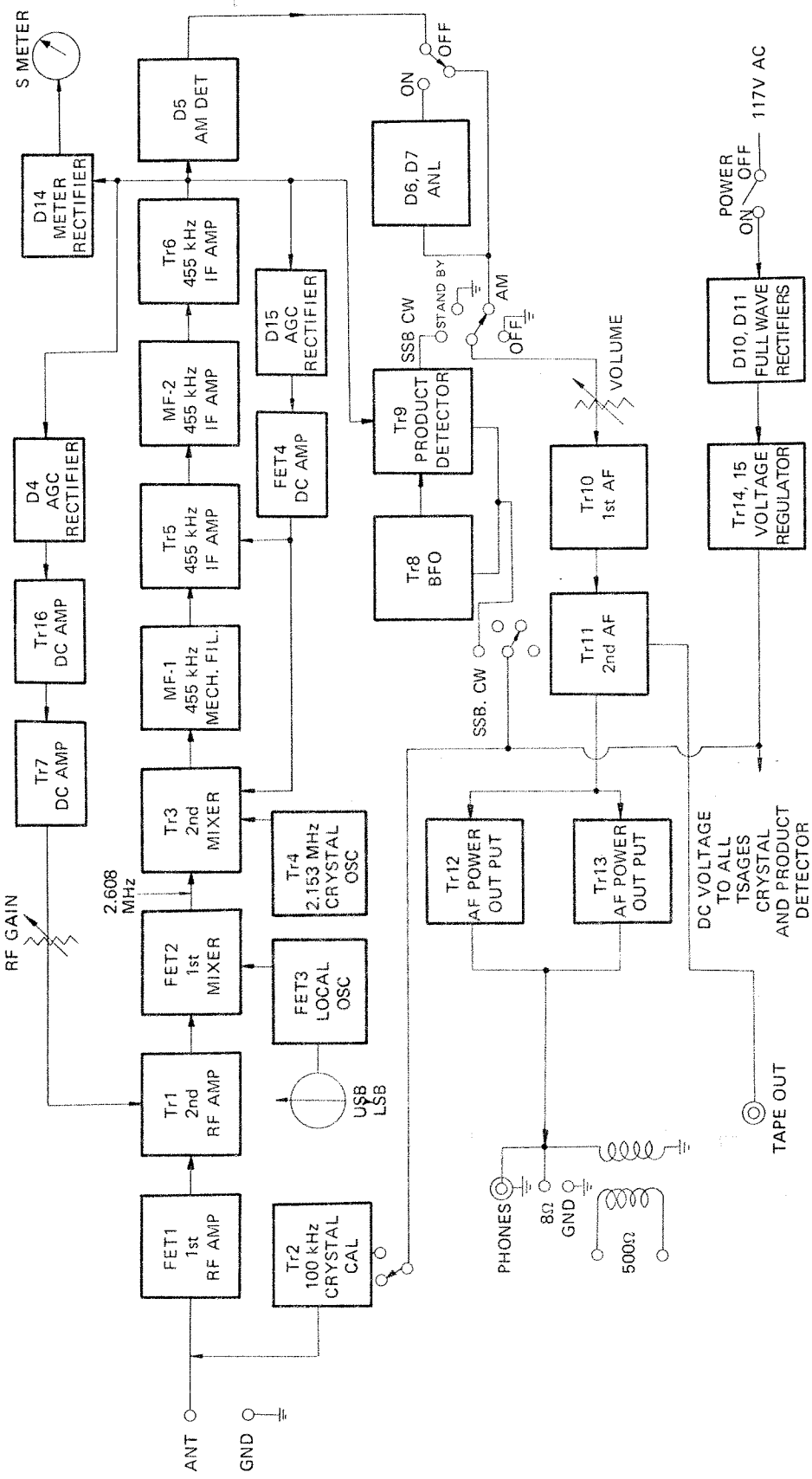
FUNCTION switch to AM
RF GAIN control to maximum
DIAL CAL switch to OFF
ANL switch to OFF
ANT TRIM to center position
FINE TUNE to center position

Connect the VTVM to the speaker output terminals and proceed as directed in the chart.

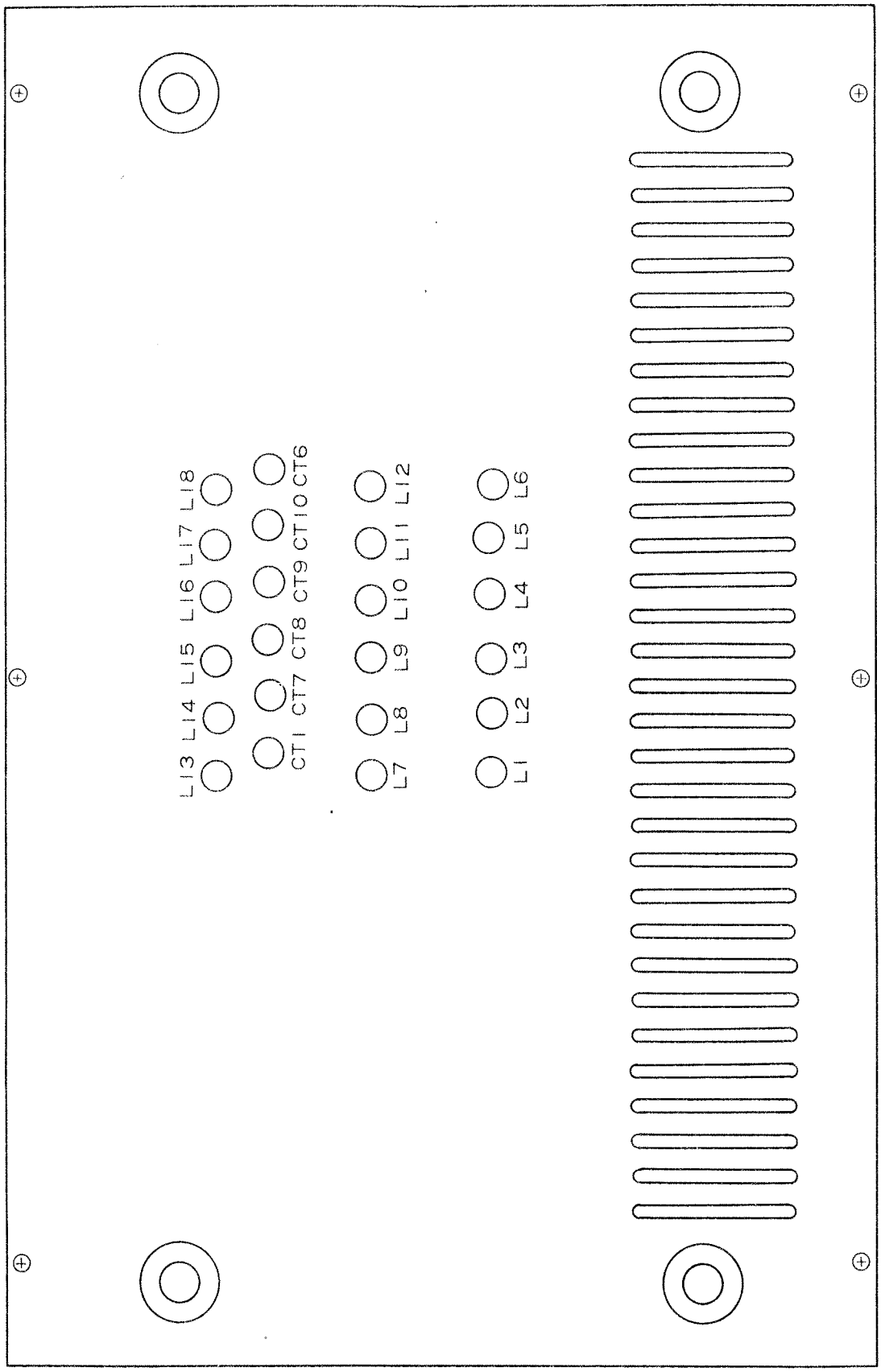
ALIGNMENT PROCEDURE

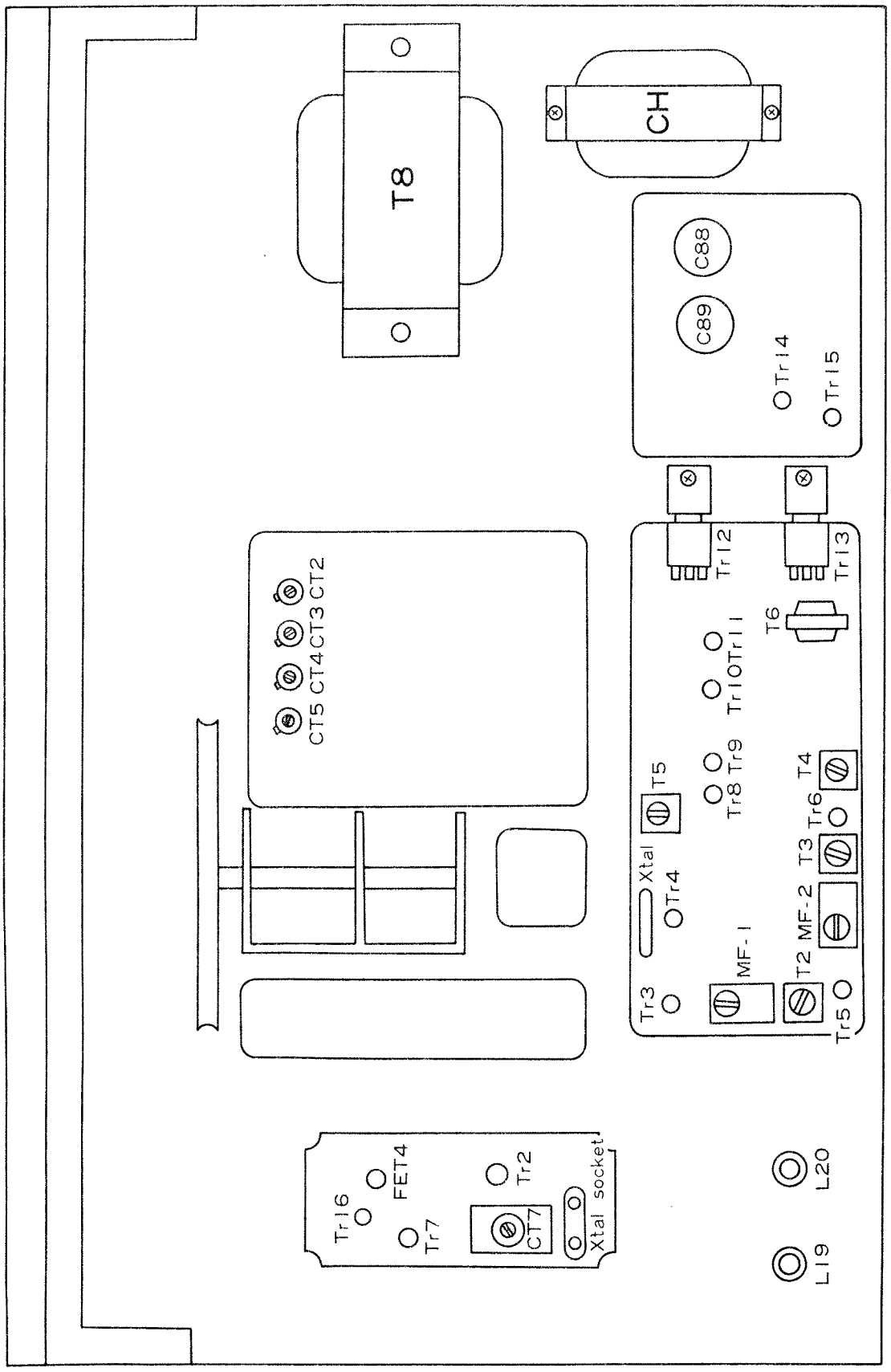
STEP	S.G. COUPLING AND INPUT SIGNAL	BAND SWITCH	RECEIVER DIAL [MHz]	ADJUST	INDICATION
Align 2nd IF	455KHz, Mod. 30% at 1000Hz Connect S.G. between base of Tr-3 and chassis			MF-1, MF-2, T2, 3 and 4	Adjust for maximum
Align 1st IF	2.608MHz, Connect S.G. between Gate of FET-2 and chassis			T1	"
Align 1st Oscillator	[1] Connect S.G. to ANT terminal. Set Cal control to center mark. Do not move Cal adjustment for remainder of procedure				
	[2] Set S.G. to 3.5MHz	3.5	3.5	3.5MHz OSC core L13	Adjust for maximum
	[3] Set S.G. to 4.0MHz	3.5	4.0	3.5MHz OSC trimmer CT1	"
	[4] Repeat [2] and [3]				
	[5] Set S.G. to 7.0MHz	7	7.0	7 MHz OSC core L14	"
	[6] Set S.G. to 7.3MHz	7	7.3	7 MHz OSC trimmer CT7	"
	[7] Repeat [5] and [6]				
	[8] Set S.G. to 14.0MHz	14	14.0	14MHz OSC core L15	"
	[9] Set S.G. to 14.35MHz	14	14.35	14MHz OSC trimmer CT8	"
	[10] Repeat [8] and [9]				
	[11] Set S.G. to 21.0MHz	21	21.0	21MHz OSC core L16	"
	[12] Set S.G. to 21.45MHz	21	21.45	21MHz OSC trimmer CT9	"
	[13] Repeat [11] and [12]				
	[14] Set S.G. to 28.0MHz	28	28.0	28MHz OSC core L17	"
	[15] Set S.G. to 29.7MHz	28	29.7	29MHz OSC trimmer CT10	"
	[16] Repeat [14] and [15]				
	[17] Set S.G. to 50.0MHz	50	50.0	50MHz OSC core L18	"

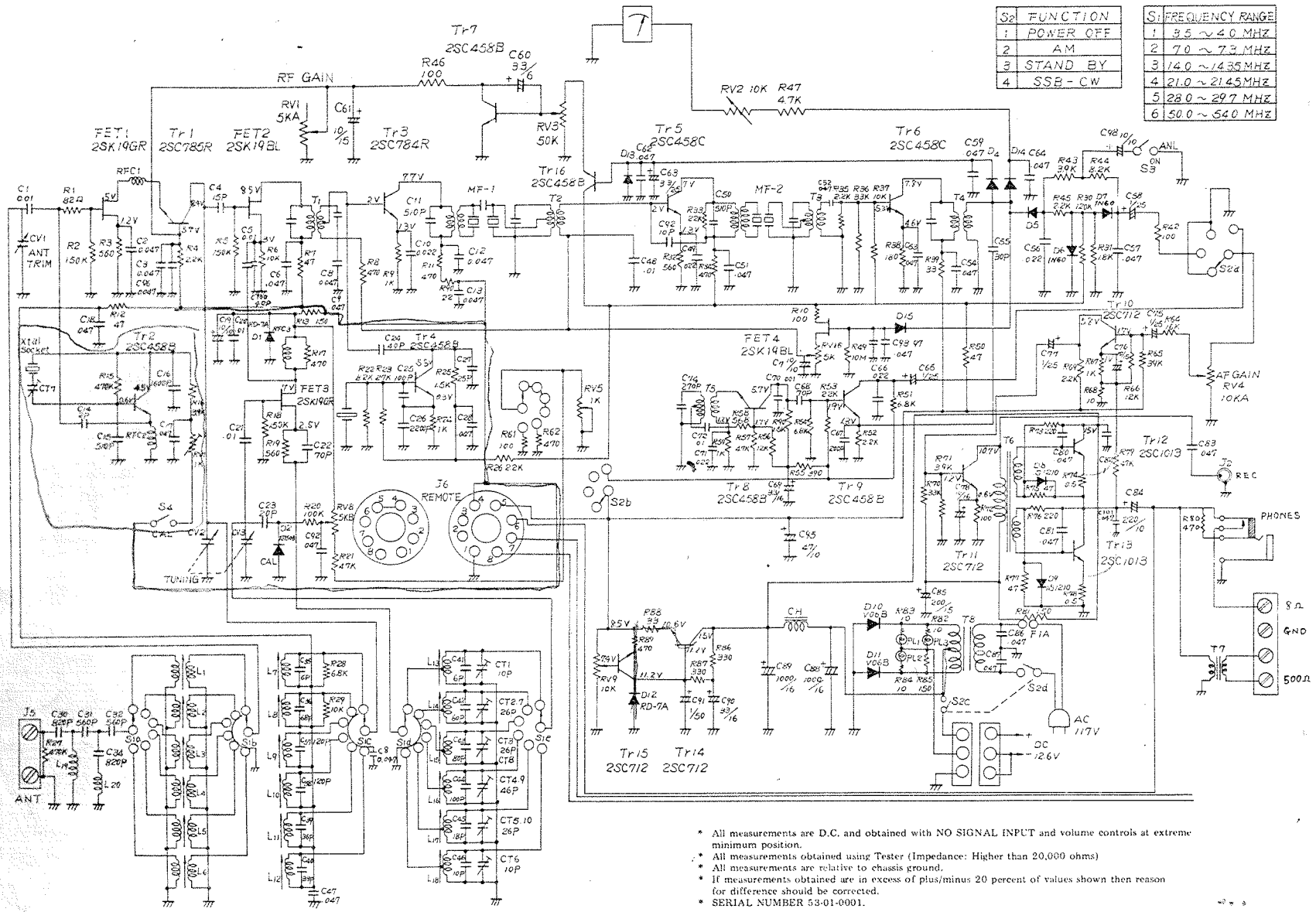
STEP	S.G. COUPLING AND INPUT SIGNAL	BAND SWITCH	RECEIVER DIAL [MHz]	ADJUST	OUTPUT INDICATION
	[18] Set S.G. to 54.0 MHz	50	54.0	54MHz OSC trimmer CT6	Adjust for maximum
	[19] Repeat [17] and [18]				
Align ANT and RF Coils	[1] Set S.G. to 3.7MHz	3.5	3.7	Cores of 3.5 MHz ANT RF coils L1 and L7	Adjust for maximum
	[2] Set S.G. to 7.15MHz	7	7.15	Cores of 7 MHz ANT and RF coils L2 and L8	"
	[3] Set S.G. to 14.15MHz	14	14.15	Cores of 14 MHz ANT and RF coils L3 and L9	"
	[4] Set S.G. to 21.2MHz	21	21.2	Cores of 21 MHz ANT and RF coils L4 and L10	"
	[5] Set S.G. to 28.5MHz	28	28.5	Cores of 28 MHz AND and RF coils L5 and L11	"
	[6] Set S.G. to 51MHz	50	51.0	Cores of 50 MHz ANT and RF coils L6 and L12	
S Meter	Set S.G. to 14.0MHz unmodulated. Connect S.G. to ANT terminal [100μv S.G. level]	14	14.15	RV2	S-9 on front panel S meter
Align 1st IF Trap Coil	Set S.G. to 2.608MHz Mod. 30% at 1000Hz [100μv level] Connect S.G. to ANT terminal	3.5		L20	Adjust for minimum



LAFAYETTE HA-800B FUNCTIONAL BLOCK DIAGRAM


L13 L14 L15 L16 L17 L18
CT1 CT7 CT8 CT9 CT10 CT6
L7 L8 L9 L10 L11 L12
L1 L2 L3 L4 L5 L6


T8
CH
C88
C89
Tr14
Tr15
CT5 CT4 CT3 CT2
Tr12
Tr13
T6
Tr10 Tr11
Tr8 Tr9
T5
Xtal
Tr4
T4
T3
Tr6
MF-2
MF-1
T2
Tr3
Tr5
Tr16
FET4
Tr7
Tr2
CT7
Xtal socket
L20
L19



* All measurements are D.C. and obtained with NO SIGNAL INPUT and volume controls at extreme minimum position.
* All measurements obtained using Tester (Impedance: Higher than 20,000 ohms)
* All measurements are relative to chassis ground.
* If measurements obtained are in excess of plus/minus 20 percent of values shown then reason for difference should be corrected.
* SERIAL NUMBER 53-01-0001.

HA – 800B Receiver