USE GLASS TUBE ONLY FOR HIGH INSULATION

PRESET MAX. VOL. TO AVOID OVERLOAD

MASTER VOL. CONTROL

SHELL PEDAL

TO FRAME ON PIANO

PREAMPLIFIER "ELECTONE" PIANO
BUILT BY DAVID BOGEN CO., INC. 9-30-37

POWER AMPLIFIER "ELECTONE" PIANO
MADE BY DAVID BOGEN CO., INC.
40 WATT INVERSE FEED BACK FIXED BIAS
9-30-37

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AMPLIFIER CIRCUITS:
The output transformer is especially designed and if it is damaged, an exact replacement is necessary.
The tone control is subject to wide variations according to individual requirements. Some forms depend on the cathode by-pass for control; therefore, replace this component with exact value.
Use only glass tubes in the input, as the leakage is less, and only glass tubes in the output, because of the possibility of a short to the shell.

NOISE ELIMINATION:
First suspect dirt on the pick-up screws. These are insulated with lacquer, but this is not perfect. Clean with a vacuum-cleaner with blower attachment, which should be run for a few minutes so that the hose will be free from dirt. A thin strip of paper can be worked between the strings and the pick-up screws to remove stubborn particles of dirt.

Moisture may get into the wooden strip supporting the pick-up screws. This can be dried by placing in the bottom of the piano a ½ pint fruit jar which is 1/3 filled with calcium chloride. This should be renewed when it disintegrates. When the strip is dry it should be oiled with NuJol.

Another source of noise may be leakage in the input group (the two 10-megohm resistors and the .1-mf condenser). Replace with the best components obtainable. In severe climates place these three components in a small cardboard pill-box and fill it with paraffine wax, bringing out the leads so they can be readily connected to their proper points.

HUM:
Hum may be due to trouble in the filters, unmatched output tubes, or a poor bias rectifier, if trouble is confined to the amplifier.

Electrostatic pick-up to screws is shielded by the back-board of the piano. This board must make good contact with the ground clamps. If proper contact cannot be established, cover the back-board with tin-foil shellaced in place and grounded.

REGULATING PICK-UP SCREWS:
This must be done with the help of a professional piano tuner who must be a tone regulator. The tuner should make a tone regulate the piano very soft, paying attention to evenness of tone and not evenness of volume. Then he can strike the notes, telling the serviceman at the rear of the piano, if the pick-up screws need adjustment. Turn screws to right to make louder -- to the left to make softer. Take care that screws are not turned too far to the right, so that the strings will touch screw when a very hard blow is struck on the key.

These screws should ordinarily need no attention during the life of the piano. Only in case of buckling of the mechanism or tampering need these be touched.

SETTING MASTER LEVEL CONTROL:
The striking of the hammer on the strings sets up tremendous transients in the electrical circuit which last a small fraction of a second. These tend to overload the amplifier and when the average output of the amplifier is 3 or 4 watts, the transients may be of the order of several hundred watts. Accordingly, a 40-watt amplifier is used for low average power. Do not set the screw-driver type volume control too high. The instrument is not supposed to sound louder than an ordinary acoustic piano.

Overload causes rattling similar to speaker cone rattles. Do not blame the speaker until you are sure.

SWELL PEDAL ADJUSTMENT:
The mechanical connection from the swell pedal to its control should be set so that with the pedal completely depressed, the sound from the speaker is just not noticeable.

NOTE:
Special parts and further service information may be obtained from Krakauer Brothers, 191 Cypress Ave., New York City.
Intermediate Alignment: Only when an intermediate transformer has become defective due to an open or burned out finding should it be necessary to readjust the intermediate transformer. For aligning either the intermediate transformer or the variable condenser, it is necessary that an oscillator be used with some type of output measuring device. To align the intermediate transformer:

1. Connect the high side of the oscillator output to the control grid of the No. 32 Modulator tube. The ground side of the oscillator should be connected to the chassis.

2. Set the oscillator at 465 kilocycles (this must be accurate) and adjust the output of the oscillator so that a convenient reading is obtained on the output meter.

3. Align the first intermediate transformer by turning one of the intermediate transformer trimmer screws up and down until maximum reading is obtained on the output meter. Then adjust the other trimmer screw in the same manner.

4. The second I.F. transformer should next be adjusted in the same manner. The intermediate transformer trimmer screws are accessible through the small hole in the top of the intermediate transformer shield.

To align the variable condenser:

1. Connect the high output side of the oscillator to the set antenna lead and the ground side of the oscillator to the chassis.

2. Tune the receiver to 1400 kilocycles on the dial and set the oscillator to this frequency.

3. Adjust the variable condenser trimmer screws for maximum output reading.

4. Tune the set to approximately 600 kilocycles on the dial and adjust the oscillator frequency to 600 kilocycles. Adjust the padding condenser located on the rear of the chassis adjacent to the antenna and ground leads and accessible through the hole in the chassis for maximum output reading.

When making this adjustment be sure to rock the variable condenser slightly to the right and left using the position where the greatest output reading is obtained.

These prices are subject to change without notice.
LAFAYETTE MODEL C40

To align receiver—Short C3—apply 175 K.C. to grid of V3 and adjust L4 with R1 fully on—remove short on C3—Tune in 1500 K.C. signal and adjust Trimmer on C3 to 11.5 on dial—adjust trimmers on C1 and C2.

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To Align the Receiver: Uncoil antenna wire and adjust trimmers at any high frequency station preferably 1500 Kc.

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MODELS B97-98
Socket, Trimmers
Coils, Phono

LAFAYETTE RADIO MFG. CO.

Fig. 5—Location of Tubes

Fig. 7—Phonograph Connections

Fig. 8—Location of Phono Knockouts

Fig. 6—R.F. and Oscillator Coil Base Terminal Arrangement and D.C. Resistance of Windings

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I.FAYE 1'F, RADIO MFG. CO. MODEL S B97-98 Schematic

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Voltage Alignment

Range C Alignment

CAUTION: When aligning the short wave bands be sure NOT to adjust at the same time. The signal can be checked as follows: Let us say the signal generator for 1000 KC. The signal will then be heard at 9000 KC on the dial of the radio. The signal will also be heard at 10000 KC and 15000 KC. It may be necessary to increase the input signal to hear the signal.

5000 KC Adjustment

Set the signal generator to 5000 KC. Connect the antenna lead to the receiver through a 5000 ohm resistor to the output of the signal generator. Turn the selector switch to the Range C position (key short wave band) and tune the receiver to a signal on the control panel. Adjust the range C trimmer (C18) until maximum output is obtained. See Fig. 4 for location of this trimmer.

6000 KC Adjustment

Set the signal generator for 6000 KC. Turn the selector switch to the Range C position (key short wave band) and tune the receiver to a signal on the control panel. Adjust the range C trimmer (C18) until maximum output is obtained. See Fig. 4 for location of this trimmer.

Trimmer Replacement

If one trimner of the gap trimmer should become defective, it is not necessary to replace the entire trimmer. A single trimner (P17A) can be used in the replacement part, if necessary. Be sure the lead is properly grounded. Therefore, the trimner should then be inserted so that the trimner is grounded in the gap trimmer. This connection is then made to the trimner. Connect it to the trimner lead and then to the gap trimmer lead. The other side of the trimner is then connected to the ground connection, forming a true trimner. It should be noted that the trimner lead is not grounded. In replacing a trimner, be sure to keep leads as short as possible and keep the grounded lead as far from ground as possible.

Planetary Drive Assembly

The planetary assembly is the unit that is integral with the tuning shaft. The planetary assembly is the unit that is integral with the tuning shaft. If the trimner is not to be used, the trimner lead will slip in slow speed. This condition, however, under all conditions, will not tighten the nut.

Should the trimner be removed, the drive cord will not slip when the planetary assembly is removed. The drive trimner, drive drum, and gears to see if the trimner is running properly or if the planetary assembly is defective or damaged internally and a new unit will be required.

Phonograph Connections

Phonograph connections can be made as shown in Fig. 7. The parts required as shown in the parts list and the connections are made by opening the switch circuit at the volume control. This is done by removing the wire connecting the volume control to the speaker. Connect the speaker to the output of the phonograph drive. Shine the wire to the correct length and solder it to the proper terminal on the phonograph switch—See Fig. 7, keeping the wire close to the back of the chassis base. A wire is then connected from the lug on the above mentioned terminal strip to which Q22 was connected, to the correct terminal on the phonograph switch—See Fig. 7. This wire should be brought directly to the back of the chassis at a point close to the phonograph jack pin tip nearest the channel provided for it in the chassis base.

It will be necessary to re-secure the AC power cord away from the AC input panel cord by routing it between the volume control and the fiber choke and then straight back to the hole provided for it in the chassis base.

Twenty-five Cycle Models

The twenty-five cycle receiver differs from the sixty cycle receiver only in the fact that a different power transformer is used. The correct power transformer is shown in the parts list. The twenty-five cycle receiver can be operated satisfactorily on a sixty cycle power supply. However, the receiver is not true to the sixty cycle receiver, and cannot be operated from a twenty-five cycle power supply.

A 115-250 volt, 40 to 60 cycle as well as other power transformers with special power ratings are also available for this model.