

FIG. 5. CHASSIS DRILLING DIAGRAM for the heterodyne exciter. Hole locations and sizes are those for the parts used in W2FBS's model. All parts should be carefully checked to determine hole sizes and locations actually required before drilling the chassis. Approximate locations for the angle brackets for the bandswitch, and interstage shield are illustrated. Outlines showing the space allotted to the power transformer (T_{201}), filter choke (L_{201}) and packaged VFO unit are approximate and indicate the space needed for the largest such parts apt to be used in constructing this exciter unit.

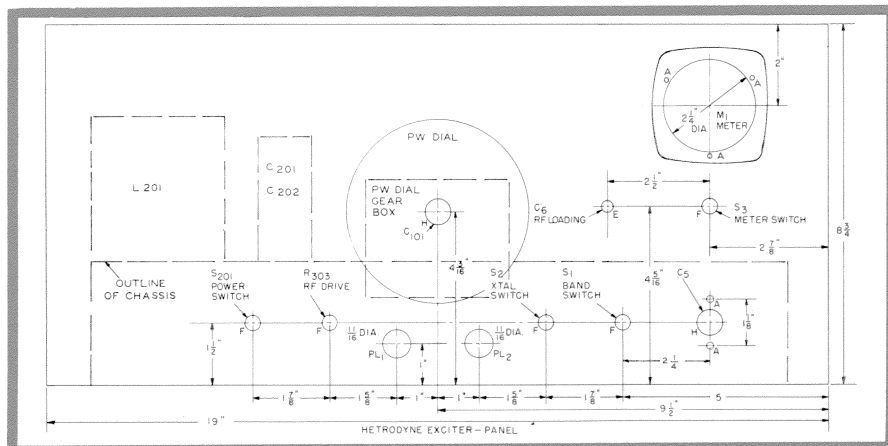


FIG. 6. PANEL LAYOUT DIAGRAM for the heterodyne exciter. Locations shown for parts match those in the chassis drilling diagram, Fig. 5. The meter may be moved to suit the constructor's requirements. W2FBS has since added a "zero" switch (S_{301}), and zeroing signal level potentiometer (R_{301}), where PL_1 and PL_2 are shown on this diagram. The pilot light brackets were then moved to the blank section of the panel left of the POWER SWITCH (S_{201}), and below L_{201} .

TABLE IV HOLE SIZE CHART

"A"	drill—No. 31 clears 4-40 screw.
"B"	drill—No. 26 clears 6-32 screw.
"C"	drill—No. 17 clears 8-32 screw.
"D"	drill—No. 9 clears 10-32 screw.
"E"	drill—9/32-inch diameter.
"F"	drill—3/8-inch diameter.
"G"	drill—1/2-inch diameter.
"H"	socket punch—5/8-inch diameter for 7-pin miniature tube socket.
"J"	socket punch—3/4-inch diameter for 9-pin miniature tube socket.
"K"	socket punch—1 1/8-inch diameter for small octal tube socket.
"L"	socket punch—1 1/4-inch diameter for large receiving tube socket.

wall, are obtained from the index assembly kit for S_2 (Centralab P-123 index).

Make sure the whole bandswitch assembly turns smoothly before disassembling it from the chassis. Then the tube and crystal sockets, and other smaller components in the RF section — but not the coils — can be mounted. Wire in the bypass capacitors, resistors, and power wiring in this section of the chassis. Then add the tube sockets and other small components in the power supply and portion of the keyer below the chassis, and wire them.

The keyer unit subchassis — a 2 1/4 x 2 1/4 x 5-inch Minibox (Bud CU-2104A,

or equivalent) — can also be assembled and mounted on the chassis. All components and wiring shown inside the dashed box at the lower right-hand corner of the schematic diagram, Fig. 3, should be included in this box.

Wind all of the coils, using the specifications given in TABLE III — COIL TABLE. Note that there is a total of 16 small slug-tuned coils; one each of L_1 to L_4 , L_{101} and L_{102} , plus five each of L_7 and L_8 . It's a good idea to check each of the coils with a grid-dip oscillator to see that they tune about 10 percent higher than the alignment frequencies specified for each in TABLE III. Connect the proper capacitances across them (connect 10-mmF capacitors temporarily across L_{11} , L_{12} and L_{102} to represent circuit capacitance), with the tuning slugs at mid-position. Cover the windings with good quality coil dope after checking the tuning range.

Mount the switch wafers on the rear of the chassis (S_{1A} and S_{1B} , and S_2) and wire the leads to the crystal sockets with No. 18 tinned copper wire. Then the four crystal oscillator coils (L_1 to L_4) can be mounted and wired. Wire leads which run from the RF tube sockets to the bandswitch and coils should be soldered to the socket before the angle brackets, switch wafers, and other RF coils are assembled. The interstage shield, and GP-50 tuner should be mounted after all other parts and wiring are in the front portion of the RF section.

Resistors for the 7581 tube current metering circuits are wired in close to this tube socket, and wire leads (preferably color coded) are run up through a 1/2-inch rubber grommet at the right front corner of the chassis and connected to the meter selector switch (S_3). This switch and the meter (M_1) may be fastened to the chassis temporarily with a scrap piece of hardboard or sheet metal.

It's a good idea to hook up a temporary external power supply to the RF section and try it out before the chassis gets too full of the keyer and power supply components (especially the heavy power transformer), and the VFO unit. Tuneup is described later in this article, but this procedure may be followed initially now, and a recheck made later.

After the RF section has been checked and found to be working properly, the power transformer, filament transformers and other heavier components may be mounted and wired into place. The VFO unit is fastened to the chassis, and the panel and meter assembled. If the National NPW-0 dial is used, follow the manufacturer's assembly instructions closely to avoid getting the dial out of adjustment (we speak from experience on this — ed.).

A matched set of panel control knobs should be added to the exciter to achieve an integrated appearance, and decal type lettering can be used to identify all of the controls. W2FBS made up a chart of tuning dial settings for the 7581 plate tuning and loading controls for his model.

THE ALIGNMENT PROCEDURE should be quite simple if the coils have been checked for proper frequency coverage ahead of time (this is much easier than having to remove a coil to add or remove turns once it has been assembled).