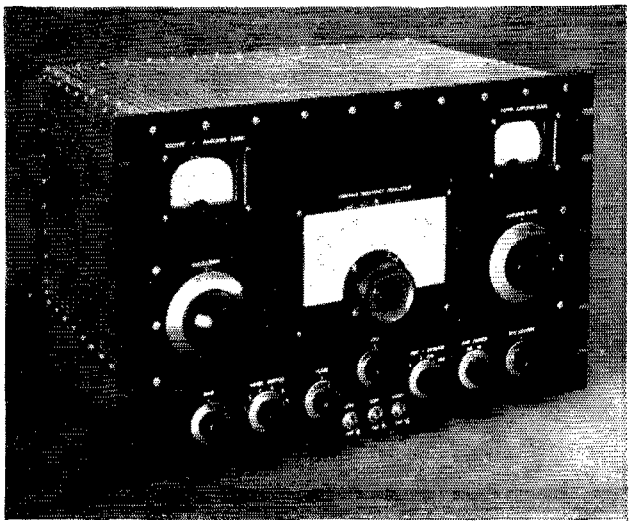


The panel of the 813 transmitter is 12¼ by 19 inches. Windows for the grid and the plate meters are at the upper left- and right-hand corners directly above the excitation and the amplifier plate controls, respectively. The VFO vernier dial is centered above oscillator bandset capacitor, C_2. Tuning knobs for C_4, S_3, C_5, S_1, S_2 and C_{10} are in line from left to right across the panel just above the toggle-type a.c. line switches. Perforated aluminum is used to enclose the transmitter.

Three-Control Six-Band 813 Transmitter

Multiband Tanks in a 500-Watt High-Frequency Rig

BY C. VERNON CHAMBERS,* W1JEQ

THE prime considerations in the design of the transmitter shown in the photographs were power, operating convenience, TVI, safety and appearance. Use of a 500-watt output stage leaves little doubt about the power angle. Operating convenience is placed at a nearly maximum level by the inclusion of a built-in VFO and the complete elimination of plug-in coils. To change bands, it is only necessary to retune three homemade multicircuit tuners and readjust the output coupler. There is only one r.f. switch and this need be thrown only when shifting between high- and low-frequency bands. Furthermore, the unit takes up no more space than the average receiver. In other words, it's a compact layout that can rest right on the operating table. TVI has been handled by employing all of the wiring, by-passing and shielding methods that have become standard practice during the last year or two. Safety is automatically taken care of by the elimination of plug-in coils, and the fact that the transmitter need never be opened during the normal course of operation. The neat commercial appearance is obtained by a carefully planned panel and chassis layout and the use of readily available panel markings.

Circuit

As the circuit of Fig. 1 shows, the VFO uses a 5763 in a Clapp circuit operating in the 3.5-Mc. region. The total usable frequency range of 3370 to 4000 kc. is split into three bandspread ranges, tuned by C_1, which is fitted with a calibrated dial. These ranges are selected by proper setting of C_2. The principal range covers 3500 to 3750 kc. This range is used for all operation except in the 11-meter band and the 75-meter 'phone band. By adjusting C_2 to a higher capacitance, the frequency range is lowered to include 3370 kc. for 11-meter operation; with C_2 set at a lower capacitance, the tuning range is shifted to cover 3750 to 4000 kc. for 75-meter 'phone work. The oscillator screen voltage is regulated by the 0A2 VR tube.

The oscillator circuit is followed by two isolating stages. The first is a 6C4 connected as a cathode follower, which is very effective in reducing reaction on the oscillator by subsequent stages. Good oscillator keying for break-in is a result, even at 28 Mc. Since the output of the cathode follower is quite small, it is followed by a 5763 in an amplifier fixed-tuned in the 3.5-Mc. region.

Frequency multiplying to reach the higher-frequency bands is done in the next two stages,

• Here is a package of power for 3.5 through 28 Mc. that has no more tuning controls than many low-power, one- or two-band jobs. It's a *break-in* layout, complete with VFO and output-coupling circuits. The use of simple homemade multiband tuners — there are only three of them — has eliminated the need for complicated r.f. switching circuits and dangerous plug-in coils. And the rig can be moved from band to band in not much more time than it takes to note the frequency change in the logbook.

* Technical Assistant, *QST*. •

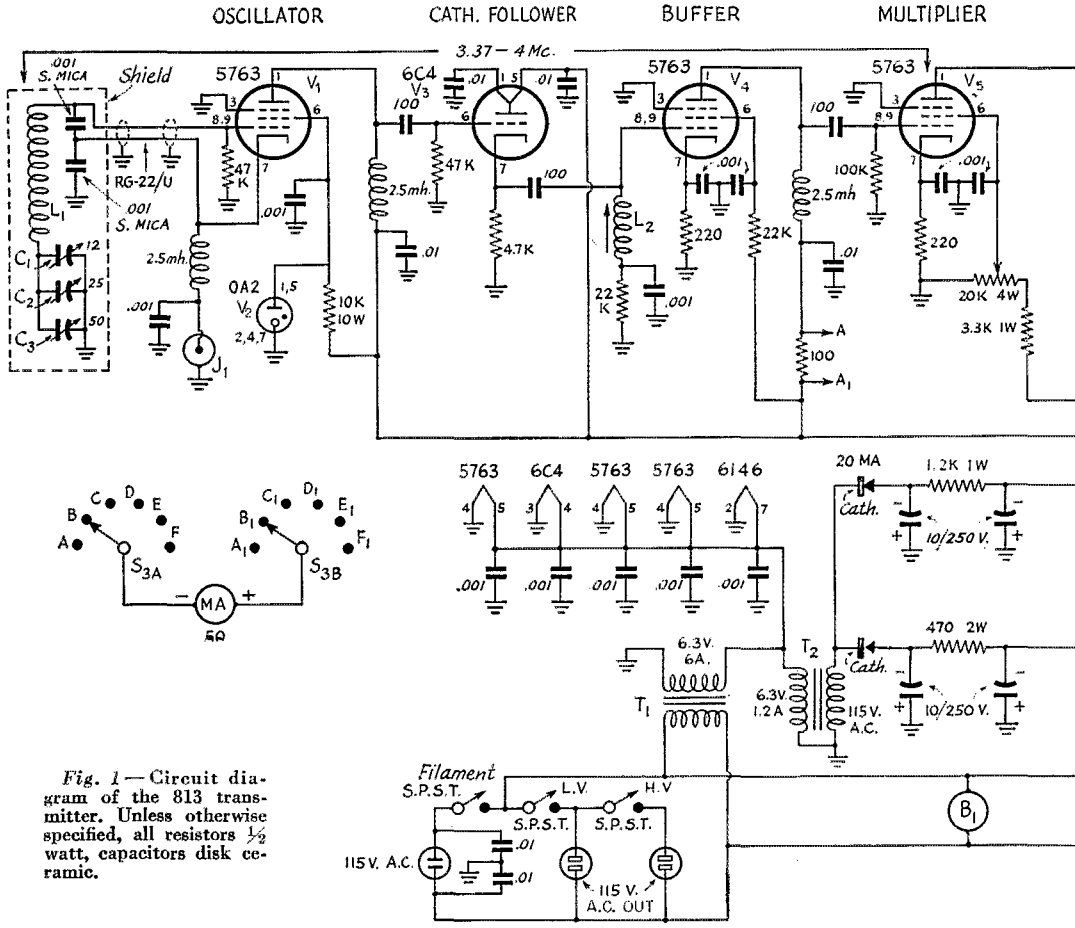


Fig. 1 — Circuit diagram of the 813 transmitter. Unless otherwise specified, all resistors ½ watt, capacitors disk ceramic.

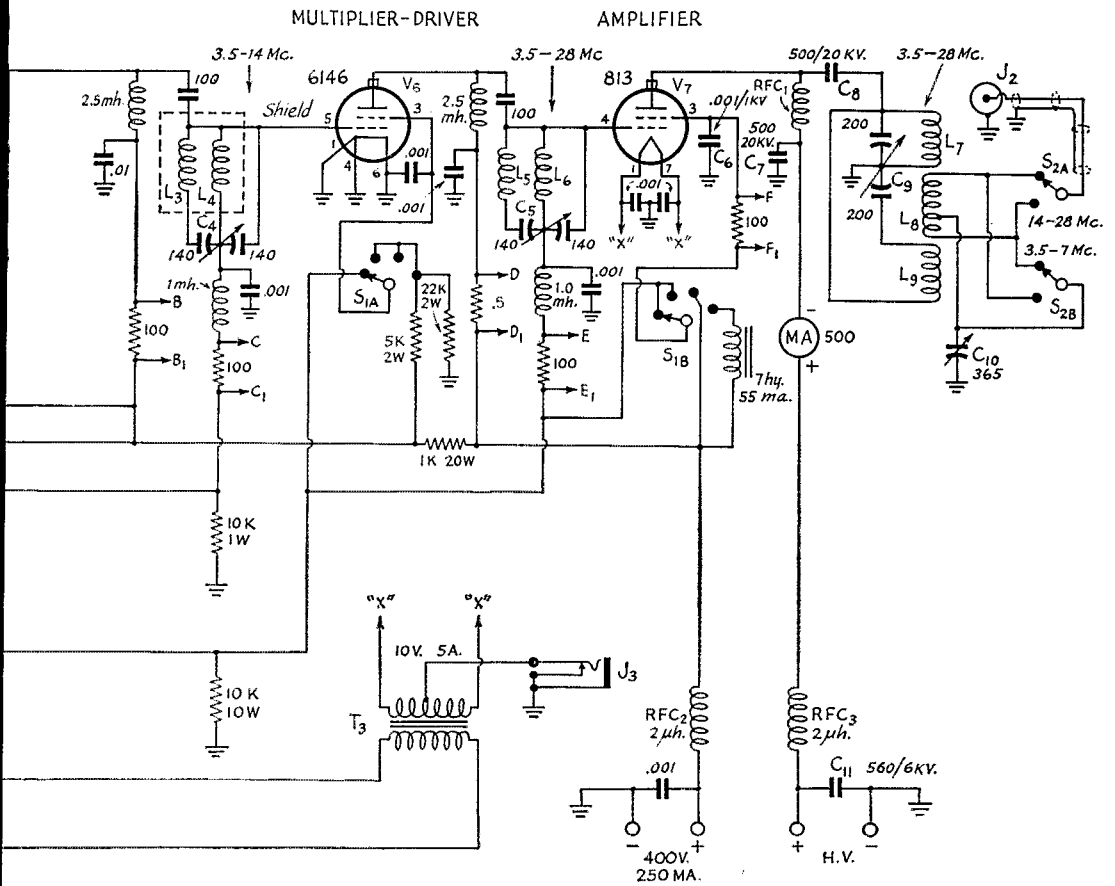
C_1 — Approx. 12-$\mu\mu$f. variable (Cardwell PL-6001 rear stator plate removed, rear rotor plate bent; see text).
C_2 — 25-$\mu\mu$f. variable (Cardwell PL-6002).
C_3 — 50-$\mu\mu$f. variable (Cardwell PL-6009).
C_4, C_5 — 140-$\mu\mu$f.-per-section variable (Cardwell PL-6043).
C_6 — 0.001-μf. disk, 1000 volts.
C_7, C_8 — 500-$\mu\mu$f. ceramic, 20,000 volts (Sprague 20DK-T5).
C_9 — 200-$\mu\mu$f.-per-section variable (Johnson 200DD35).
C_{10} — 365-$\mu\mu$f. variable (Cardwell PL-7006).
C_{11} — 560-$\mu\mu$f. disk, 6000 volts (Centralab DD60-561).
L_1 — 35 μh. — 34 turns No. 16, 2½ inches long, 2 inches diam. (B & W 80-BCL with plug-in base and link removed).
L_2 — 69 to 134 μh. — 93 turns No. 36 enam., 17/32 inch long, ½ inch diam.; close-wound on National XR-50 slug-tuned form.
L_3 — 2.6 μh. — 31 turns No. 20, 1 15/16 inches long, ½ inch diam. (B & W 3003).
L_4 — 5.3 μh. — 30 turns No. 20, 1⅞ inches long, ¾ inch diam. (B & W 3011).
L_5 — 1.5 μh. — 11 turns No. 16 enam., 13/16 inch long, ¾ inch diam.

the first using a 5763, while the second employs the larger 6146 to drive the final amplifier. These two stages are tuned with multiband tuners — circuits which have a tuning range that includes all necessary bands. Thus no switching or plug-in coils are needed.

To assure complete stability without the possible necessity for special precautions that would complicate the circuit and its adjustment, neither of these two stages is operated as a straight amplifier, except on 80 meters. Frequency is doubled in the 6146 stage for output on 40, 20 and 10 meters, and tripled for output on 15 meters. The 5763 stage is operated at 3.5 Mc. for 80- and 40-meter output, doubles to 7 Mc. for 20- and 15-meter output, and quadruples to 14 Mc. for 10-meter output. Excitation to the final is adjusted by the potentiometer in the screen circuit of this stage.

The 813 in the final amplifier also uses a multiband tuner to cover all bands. This stage is always operated as a straight amplifier, and should be entirely stable without neutralization. The only switching necessary is in the output link circuit in changing between high- and low-frequency bands. S_{2B} of this circuit shorts the bottom section of L_3 at 3.5 and 7 Mc. and cuts out the top part of the coil at 14 Mc. and above. Loading is adjusted by C_{10}.

A 50-ma. meter may be switched to read plate current in the exciter stages, and grid current in the driver and final-amplifier stages. Provision



L_6 — 8.9 μh. — 29½ turns No. 20, 1⅞ inches long, 1 inch diam. (B & W 3015).
L_7 — 5.1 μh. — 10 turns No. 12, 1⅝ inches long, 2½ inches diam.; see text. (B & W 3905-1).
L_8 — 4.2 μh. — 9 turns No. 12, 1⅞ inches long, 2½ inches diam., tapped at 8th turn; see text. (B & W 3905-1).
L_9 — 1.6 μh. — 7 turns ¼-inch copper tubing, 2⅛ inches long, 2 inches diam.
B_1 — Blower and motor, 115 v. a.c. (available from Allied Radio, Chicago, catalog No. 72–702 motor and 72–703 fan).
J_1 — Key jack — 'phono input jack.
J_2 — Coaxial cable connector.
J_3 — Midget closed-circuit jack.
RFC_1 — R.f. choke, 129 turns No. 26 d.c.c., 3⅜ inches long, 11/16 inch diam., wound on Millen No. 31004 ceramic stand-off insulator.
RFC_2, RFC_3 — 2-μh. r.f. choke (National R-60).
S_1 — 2-pole 5-position phenolic selector switch, non-shorting (Centralab 1405).
S_2 — 2-pole 5-position steatite selector switch, used as d.p.d.t. (Centralab 2505).
S_3 — 2-pole 6-position phenolic selector switch (Centralab 1411).
T_1 — 6.3-volt 6-amp. filament transformer (Triad F-18A).
T_2 — 6.3-volt 1.2-amp. filament transformer (Triad F-14X).
T_3 — 10-volt 5-amp. fil. transformer (Triad F-23U).

for reading 813 screen-grid current is also made. The ½-ohm resistor in the 6146 high-voltage lead multiplies the meter-scale reading by three. A separate 500-ma. meter is used to check plate current to the 813.

The two-circuit rotary switch, S_1, is used to bias the screens of the 6146 and 813 negative while tuning up the preceding stages and setting the VFO to frequency. In the first position, both screens are biased; in the second position, only the 813 screen is biased, while positive voltage from a voltage divider is applied to the screen of the 6146 so that this stage may be tuned up. In the third and fourth positions, positive voltage is applied to both screens, but in the last position it is applied to the 813 screen through an audio choke so that the stage may be screen-plate modulated.

Two 20-ma. rectifiers are included in the unit, to supply fixed bias to the 6146 and 813, so that the plate currents will be cut off during keying intervals. Both rectifier systems operate from a single 6.3-volt filament transformer connected in reverse. The bias transformer, T_2, is operated from the 6.3-volt winding of the filament transformer, T_1.

Two a.c. outlets are provided for connecting the primaries of external high- and low-voltage supplies into the control circuit consisting of three toggle switches. B_1 is the ventilating blower that starts operating as soon as the filament switch is closed. This is virtually a

necessity with so much power confined in a small space. The jack, J_3, provides a means of keying the final amplifier, rather than the oscillator, or it may be used for the connection of an external cathode modulator.[1]

Construction

Most of the constructional details will be evident from the photographs and their captions. However, construction will be simplified by doing the basic operations in logical order. Start with the layout of parts that mount on the front wall of the chassis. Do not remove the wrapping from the chassis for the time being, as the paper covering provides a convenient surface on which to make location marks. Start with a vertical line at the center of the front wall of the chassis, and then add three additional lines, each 2⅛ inches apart, on each side of the center guide. Now, mark the positions of the ten controls that are chassis-mounted. The VFO bandset control is directly above the center toggle switch, and is far enough down from the top of the chassis to permit use of a right-angle drive between the knob and the variable condenser (to be mounted later on). The spacing between toggle switches is 1 inch, and the six controls that flank the center line are centered on their guide lines already drawn. Next, drill a small hole — a No. 35 does very nicely — through each of the ten location points. This will permit the chassis to be used as a template during the panel-layout stages of construction.

The layout of components on the rear wall of the chassis is next on the list. Actual placement of parts is not critical, and easily can be duplicated after brief study of the rear and bottom views of the transmitter.

The VFO tank subassembly may be constructed at this time. Remove the top and bottom covers from the square box and then mark the mounting position for C_1 on the front wall — centered 2⅛ inches up from the bottom. Screw the bottom cover in place and mark mounting-hole locations for C_2, C_3 and L_1. Do not drill any holes at the moment. C_2 should be centered in the bottom of the box with its shaft vertical, 1⅝ inches back from the front edge. C_3 should be similarly mounted to the left of C_2. The 2-inch isolantite stand-off insulators that support L_1 should be located so as to allow the coil to be placed at the exact center of the bottom plate. The point where the RG-22/U cable will leave the compartment should be at the rear left-hand corner of the box.

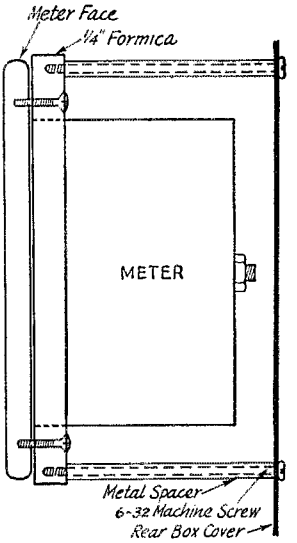
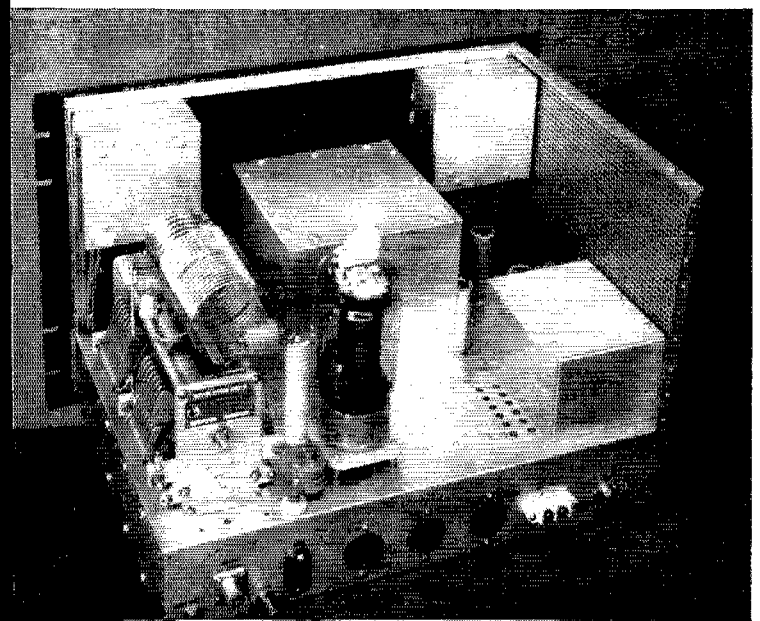


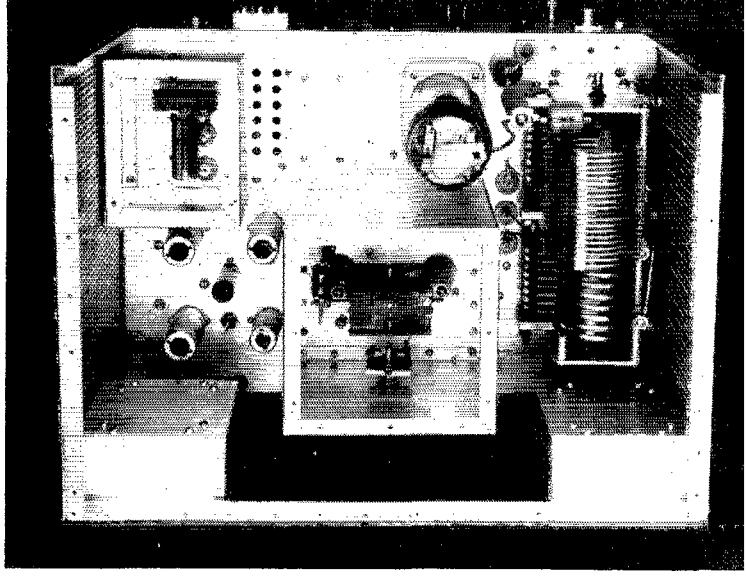
Fig. 2 — The 3-inch square meters are mounted on the covers of the boxes with four spacers.

The box is mounted on the chassis with machine screws around the bottom lip of the box and the bottom cover. When the transmitter was first constructed, screws were used only at the original cover-mounting holes. While no difficulty was encountered on higher-frequency bands, the keyed signal was chirpy with serious a.c. modulation on 80 meters caused, apparently, by feed-back from the adjacent final tank when

[1] Gardner, "The Simplest Modulator," *QST*, Sept., 1953.



Rear view of the 813 transmitter. L_7, L_8 are mounted on top of the amplifier tank capacitor, C_9. The 813 socket is mounted on ½-inch metal posts directly over a 2¼-inch diameter chassis hole. C_7 is near the high-voltage feed-through at the rear of the chassis, and supports the cold end of RFC_1. C_8 is mounted between the top end of RFC_1 and a No. 12 wire lead that connects to the plate end of L_7. Holes through the chassis to the right of the 813 provide ventilation for the 6146 below deck. J_3, J_2 and a ground terminal are to the left of the high-voltage terminal on the rear wall of the chassis. Next in line, to the right, are the a.c. receptacles, the low-voltage input terminals and the key jack, J_1.



View of the 813 transmitter with the outer shielding and the covers for the shielded compartments opened for inspection. The metal box near the center is 6 × 6 × 6 inches and houses C_1, C_2, C_3, L_1 and the silver-mica capacitors of the oscillator grid circuit. The aluminum cases for the meters are 2 × 4 × 4 inches. The 3 × 4 × 5-inch box in the upper left-hand corner of the chassis provides shielding for L_3 and L_4. The arrangement of tubes to the left of the oscillator enclosure has V_3 and V_4 to the right and left, respectively, of the tuning slug for L_2. The 0A2 is below and to the right of V_5, and V_1 is at the upper right-hand corner of the group. Feed-through insulators to the right of the oscillator compartment carry leads between coupling coil, L_8, and output switch, S_2.

♦

tuned to the same frequency as the VFO. There was also considerable dragging of the oscillator frequency with tuning of the final stage and even the antenna coupler. This was entirely cleared up by adding screws at 1-inch intervals around the bottom. The bottom contact with the chassis seemed to be considerably more important than the tightness of the top cover, but it would be well to use the same screw spacing on top as insurance. These additional holes, as well as those for the condensers, coil and coax, should now be marked and drilled with a No. 35 drill. The box should then be centered on the chassis, with its front edge 1 3/16 inches back from the front edge of the chassis. Using the bottom cover as a template, the holes should be duplicated in the chassis. Draw a square around the box and then set it aside. This will remind you to keep that area clear while the rest of the chassis layout is being worked.

The interior and the bottom views of the transmitter show how the components for V_1 through V_5 have been grouped at one corner of the chassis. After the sockets for these tubes, and L_2, have been fitted into the layout, mounting holes should be provided for the amplifier tank capacitor, for C_7, V_7 and the feed-throughs for the h.v. and output-coupling leads. The shaft for C_9 should be aligned parallel with and 2¼ inches in from the left end (rear view) of the chassis, and the rear end plate of the capacitor should be 1⅝ inches in from the back edge of the chassis. Feed-through insulators for the link circuit are located in between C_9 and the oscillator compartment. The h.v. feed-through is at the rear edge of the chassis, directly above the h.v. safety terminal. The socket of V_7 is centered 2¼ inches from the rear edge of the chassis, and 6¾ inches from the end.

Aluminum brackets for the under-chassis construction should now be bent into shape. The one that supports T_1 and T_2 is 2⅞ inches high, 4¾ inches long and has side and bottom lips for fastening to the chassis. The bracket for the 6146 has a 2¼-inch section for the socket, and a 5-inch member that serves as a shield between the grid and the plate circuits of the driver. This bracket has a ½-inch hole at the rear corner that passes the lead between the grid prong of the tube socket and the stator terminal of C_4. This bracket is placed with the long side 3⅛ inches in from the right end (bottom view) of the chassis. A series of ¼-inch ventilation holes for the 6146 should be drilled in the chassis before the bracket is bolted in place. The brackets for C_4, C_{10} and S_2, and the tubular spacers used to raise C_5 off the chassis should all have dimensions which allow the shafts of the controls to line up with the holes already marked on the front wall of the chassis. Before C_4 is permanently installed, mount three feed-through insulators in the chassis, just directly over the stator and the rotor terminals of the capacitor. These insulators will be used to support L_3 and L_4 (in the 3 × 4 × 5-inch box in the interior view) and for feeding leads between the coils and C_4.

The next job is that of spotting mounting holes on the panel. Lay the panel face down on a bench or table, and then use the front walls of the chassis and the VFO shield as templates for marking holes for the condensers and switches. Allow the panel to overlap the bottom of the chassis by 3/16 inch during this operation. Now, mark a hole for the shaft of C_9, remove the chassis, and then measure off locations for the meters and the excitation control. The excitation control should balance with the shaft position for C_9, and the centers of the meters should be above and in line with these last two controls. Now, drill mounting holes for the National SCN VFO and the National AM (used with C_9) dials, and then cut windows for the meters. These cut-outs should match the inside dimensions of the National type CFA chart frames. The mounting hardware for the frames is used to hold the meter boxes against the rear of the panel. Fig. 2 shows a method of subassembly that provides both d.c. insulation and r.f. shielding for the meters.

The holes in the VFO compartment and the

top of the chassis may now be enlarged to the proper size for the mounting screws and oscillator components. The holes in the front wall of the chassis should also be enlarged to accommodate the control shafts, and the panel holes reamed correspondingly. When performing this operation, allow for the use of panel bushings with the right-angle drive and C_{10}. Panel-bearing shaft assemblies are to be used with C_4, C_5 and S_2. In the final assembly, insulated shaft couplers must be used between the panel bearings and shafts of C_4 and C_5.

Inductors L_7–L_8 and L_9 should be mounted on C_9 before the capacitor is secured to the chassis. L_7–L_8 is made from a length of B & W 3905-1 coil material. Clip the support bars at one end of the coil and unwind one full turn. Count off 10¼ turns and clip the winding *without* breaking the support bars. Bend the last quarter turn out from the body of the coil. This section of the assembly is L_7. Completely remove the next ¾ turn — watch the bars. This leaves a ¼-inch space between L_7 and the adjacent coil, L_8. Count off 10 turns, remove the excess material and unwind the last full turn. Now solder heavy wire leads, approximately 6 inches long, to the inside end, and to the first turn (counted from the open end) of L_8.

Tuning Chart for the 813 Transmitter

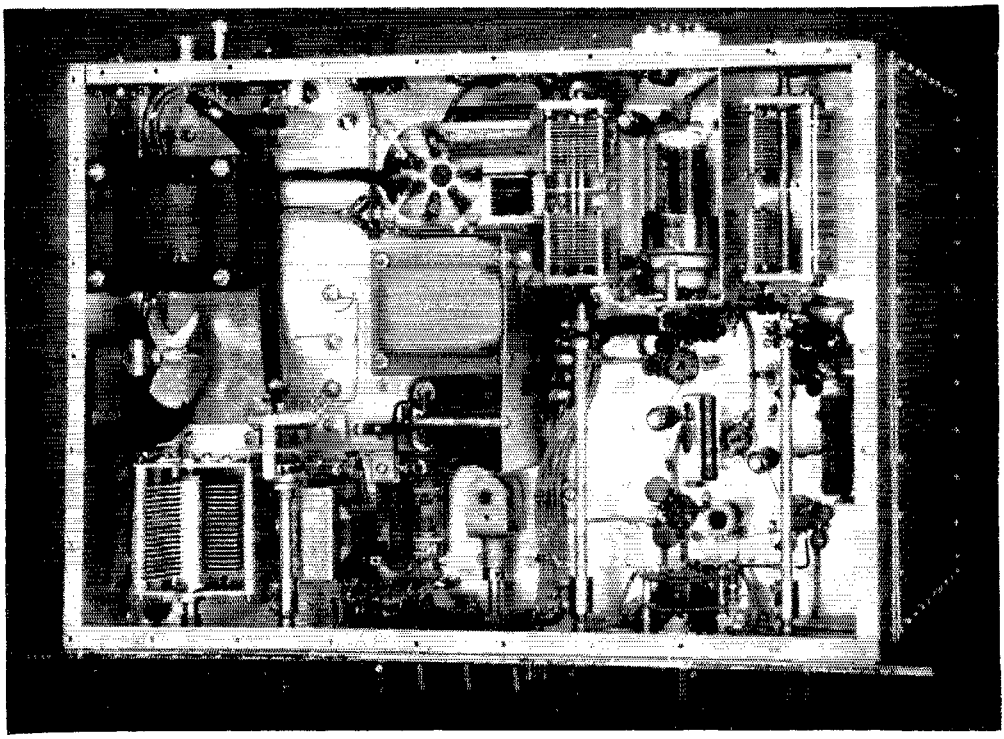
Output Band (Mc.)	C_4 Dial [1]	C_4 Band (Mc.)	C_5 Dial [1]	C_5 Band (Mc.)	C_9 Dial [2]
3.6	8.8	3.5	6.1	3.5	77
7	8.8	3.5	0.5	7	9
14	1.5	7	9.5	14	82
21	1.5	7	3.7	21	26
27–28	4.7	14	1.8	28	7

[1] 10-division dial — 10 max. capacitance.
[2] 100-division dial — 100 max. capacitance.

Hold the coil assembly above the rear section of C_9 in a position similar to that shown in the rear view of the transmitter. Now adjust the length of the lead at the rear end of L_7 until it reaches the stator terminal at the back of C_9. Bend the inside lead of L_7 over to the tubular support rod that runs the length of the capacitor, mark the intersection and then drill and tap the rod for a 6-32 machine screw. Place C_9 on the chassis and cut to length the three leads from L_8 to the coupling-circuit feed-throughs. Remove the coil-condenser assembly from the chassis and mount L_9 on ½-inch stand-offs, just to the front of L_8.

(*Continued on page 112*)

The bottom cover is removed in this view of the 813 transmitter. T_3 and the B_1 are on the wall at the left end of the 3 × 12 × 17-inch aluminum chassis. C_{10}, S_2 and the 7-hy. choke are at the lower left corner. Bias-circuit components for the final are to the left of the right-angle drive for C_2. An aluminum bracket at the center of the chassis supports T_1, T_2 and the 6146 biasing components. C_5 is mounted on metal pillars to the left of V_6 and C_4 is bolted to a bracket at the right of the tube. Below V_6 are the tube socket and plate r.f. choke for the oscillator. L_2, located below the 0A2 socket, is flanked to the left and right by sockets and components for V_3 and V_4. The 20-watt resistor, multiplier plate choke and the socket for V_5 form a triangle just below C_4.



Six-Band Rig

(Continued from page 16)

The outside end of L_9 (the end near the front of C_9) is connected to the front terminal of the rear stator section. The inside end of L_9 should connect straight down to the rear terminal of the front stator section of the condenser. Use lengths of ¼-inch copper tubing for these two leads. The rear, or plate, end of L_7 should go to the rear stator of C_9 and the inside end of the coil can be attached directly to the condenser support bar with a machine screw. After the assembly has been bolted to the chassis, complete the wiring between L_8 and the output switch, S_2. The large section of L_8 provides coupling at 3.5 and 7 Mc. and the 1-turn link takes care of coupling at 14 Mc. and above.

The panel and the chassis can now be fastened together by means of the panel-mounted components. National type P and HRS knobs are used with the excitation and the lower line of controls, respectively. Later on, the two will be rigidly held together by means of the shielding that encloses the transmitter. The various views of the transmitter show how perforated aluminum, ½-inch angle and self-tapping screws (except for the use of binder-head machine screws for fastening to the panel) have been used in the construction of the shielded enclosure.

Most of the power wiring is done with Belden No. 8885 shielded wire. A heavy-duty type of shielded wire (Belden 8656, Birnbach 1820, or shielded ignition cable) should be used for the h.v. leads to the 813 circuit, and solid tinned wire is used for r.f. wiring.

Adjustment

A 400-volt 250-ma. supply is required for the exciter and the screen of the final amplifier. For full rated output from the 813, a supply delivering 2000 to 2200 volts at 300 ma. (including bleeder current) is needed. The amplifier may, of course, be operated at lower plate voltage with less power input.

The VFO tuning ranges should first be adjusted. Set S_1 to the first position, biasing the screen of the 6146. Adjust the screen potentiometer in the 5763 multiplier stage to zero, and turn on the filaments and the low-voltage supply. Set C_1 at 95 degrees on the dial (near minimum capacitance). Set C_2 accurately at midscale. Then, listening on a calibrated receiver, adjust C_3 until the VFO signal is heard at 3750 kc.

Now, tune the receiver to 3500 kc., and turn C_1 toward maximum capacitance until the VFO signal is heard. This should be close to the lower end of the dial. By carefully bending the rearmost rotor plate of C_1 toward the rear, it should be possible to adjust the range of 3500 to 3750 kc. so that it covers from 5 to 95 degrees on the dial. Some slight readjustment of C_3 may be necessary during the plate-bending process to keep the band centered on the dial. Mark the setting of C_2 accurately so that it may be reset easily.

(Continued on page 114)

Now, set C_1 at about 15 degrees. Set the receiver at 3750 kc. and reduce the capacitance of C_2 until the VFO signal is heard. Then, tuning the receiver to 4000 kc., the VFO signal should be heard when its dial is set at about 85 degrees. Mark this setting of C_2.

If it is desired to center the 11-meter band on the dial, set C_1 at midscale. Increase the capacitance of C_2 until the VFO signal is heard at 3387 kc. Mark this setting of C_2, also accurately.

The next step can be done most easily with a high-resistance voltmeter connected across the grid leak of the 5763 buffer amplifier. Set C_1 and C_2 at minimum capacitance, and adjust the slug in L_2 for maximum grid voltage. Then watch the grid voltage as C_2 is swung through its range. If there is appreciable increase in grid voltage as C_2 is turned toward maximum capacitance, tune L_2 to a higher frequency by moving the slug out more. By correct adjustment of the slug, the grid voltage should remain essentially constant over the entire usable frequency range.

Now turn the meter switch to read 6146 grid current, and turn the excitation control to maximum. Resonate the output tank circuit of the 5763 frequency multiplier at 80 meters (near maximum capacitance) as indicated by maximum 6146 grid current. Reduce the excitation control to give a 6146 grid current of 2 or 3 ma.

Next, turn S_1 to the second position, so that screen voltage is applied to the 6146, but not to the 813. Turn the meter switch to read 6146 plate current, and resonate the 6146 output tank circuit as indicated by the plate-current dip (near maximum capacitance). Turning the meter switch to read 813 grid current, adjust the excitation control to give a reading of about 25 ma. With this portion of the transmitter lined up, it is to be expected that the plate current for tubes V_4, V_5 and V_6 will be approximately 35, 15 and 50 ma., respectively.

The 813 should be tested initially at reduced plate voltage. Plate voltage can be reduced by inserting a 150-watt lamp in series with the high-voltage transformer primary. A 300-watt lamp bulb connected across the output connector can be used as a dummy load for testing. Turn S_1 to the third position to apply screen voltage to the 813, set S_2 at the low-frequency position, apply plate voltage and resonate the output tank circuit (near maximum capacitance) as indicated by a dip in plate current. Full plate voltage may now be applied and C_{10} adjusted to give proper loading (220 ma. maximum). Adjust the excitation control to give a final-amplifier grid current of 15 to 20 ma. Screen-current for the 813 should be approximately 40 ma. when the excitation and loading are properly adjusted.

Tuning up on the other bands is done in a similar manner, by adjusting the tuners in each circuit to the correct band to obtain the desired multiplication. Plate current in the multiplier and driver stages will increase to values of 35 and 90 ma., respectively, when these

(Continued on page 116)

circuits are used as frequency multipliers. The table shows the approximate dial setting for each band, but each should be checked with an absorption wavemeter and the setting logged for future reference.

Naturally, an antenna tuner will be required if the transmitter is to be worked into an antenna system using anything other than coaxial feed. The rig has been coupled through conventional tuners during the testing and on-the-air operating periods, and we are quick to admit that these run-of-the-mill tuners slow down the band-changing operation. In fact, when it takes more time to make frequency changes in a simple coupler circuit than it does in a 500-watt rig — well, it's high time to do something about the situation. We can't make any promises at the moment other than to say that the very next project will be some sort of wide-range, get there-in-a-hurry tuner. Naturally, we'll pass the good word along if this idea pans out.

Correspondence

(*Continued from page 62*)

experimenting with A5 emission, may use the suffix "TV" in announcing his station call sign.

"The use of any prefix, suffix, or other innovation (except phonetic aids to identify the station call sign as provided by Section 12.82(d) of Part 12) is prohibited by Section 12.158 of Part 12."

This letter was signed by Wm. P. Massing, Acting Secretary.

As I said above, I do not know if anyone has ever transmitted the "-TV" suffix; but, for the benefit of any who might contemplate doing so, I have one word of advice: DON'T.

By the way, I hope that there will be more articles on ham TV.

— *James C. Grubs, W8GRT*

PUBLIC RELATIONS HELPS

29 High St.
Brattleboro, Vt.

Editor, *QST:*

I wish to express my thanks for your fine help in helping me make my speech on amateur radio. The Lions Club here enjoyed it very much and the booklets you sent were passed out to all the members. From the prepared speech you sent, I had at my fingertips very good information to tell them. It was very helpful and have been asked to speak at the local schools because of your fine help. I wish not only to thank you, but the League in backing me up.

— *C. Burns Robinson, W1SDG*

STOLEN EQUIPMENT

3108 Wenz Ave.
Waco, Texas

Editor, *QST:*

Recently someone broke into the Civil Defense building and stole the following amateur equipment which was the property of the Central Texas Amateur Club: one Johnson Viking-I transmitter, with four holes drilled in the top near the center for mounting the Johnson VFO (the VFO was of course taken along), and one National 183-D receiver with four holes drilled in the bottom for mounting on a board. Both the transmitter and receiver were mounted on a large board for easy transportation in case of emergency.

If possible, we would like for you to insert a small notice in *QST* so that others may be on the lookout for this equipment.

— *C. J. McCauley, Secy., W5TV.1*
Central Texas Ama. Radio Club