160 Meter Mickey Mouse

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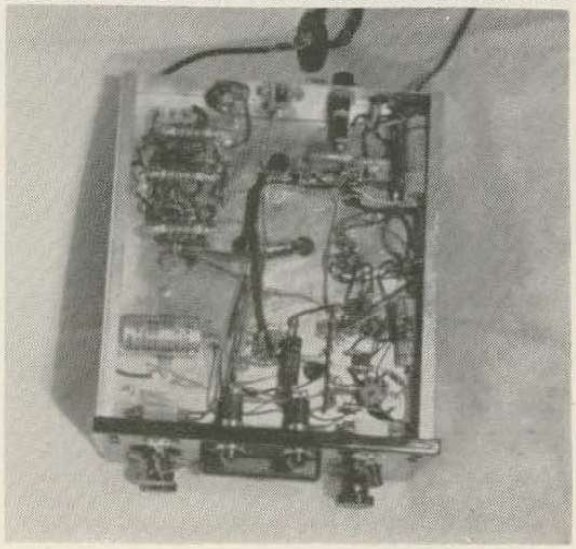
WITH the increased amount of activity on the amateur bands these days, it becomes even more difficult to find the frequency space to carry on the famous "rag chew" session with the local brothers of the profession without "tromping" on some poor soul in the next state who is trying to stretch some range out of the "Half Quart" rig, or move that piece of traffic thru the QRM. Faced with these problems, it becomes even more sensible to make use of that 25 kilocycle hunk of frequency in the 160 meter band for the "local" activity. Range of 25 miles or so is consistent on these frequencies with occasional real DX reported on quite low power. So, to this I add the question "Why not a rig that is portable enough to carry to the over night fishing hole or on the vacation"? The rig described here, combined with a "tuned over" AC/DC set or, small portable provides this portability as well as reasonable power on a vertical or half of the old 75 meter dipole.

Circuit and construction is along conventional lines with the exception of the power supply, which is less common. Here the circuit makes use of a pair of the modern silicon rectifiers in a half wave doubler circuit running straight out of the 115 volt line. Two things are accomplished by this. First the familiar power transformer is absent (a sizeable cost reduction) and second, the ac ground system is used to advantage with the portable whip. To do this without making the cabinet "hot," a built in line polarity indicator is used. With the power switch OFF and the chassis connected to the line "hot" side, the neon will provide enough glow thru leakage to be seen, even if no ground is present on the cabinet. If the neon glows, the line plug need only be turned ½ turn to correctly polarize. A 2 amp fuse in the ground side provides protection in case of a mistake in polarity when the rig is attached to an earth ground. Such a system is not dangerous when handled properly. It is strongly advised that an earth ground be attached to the cabinet whenever possible, however.

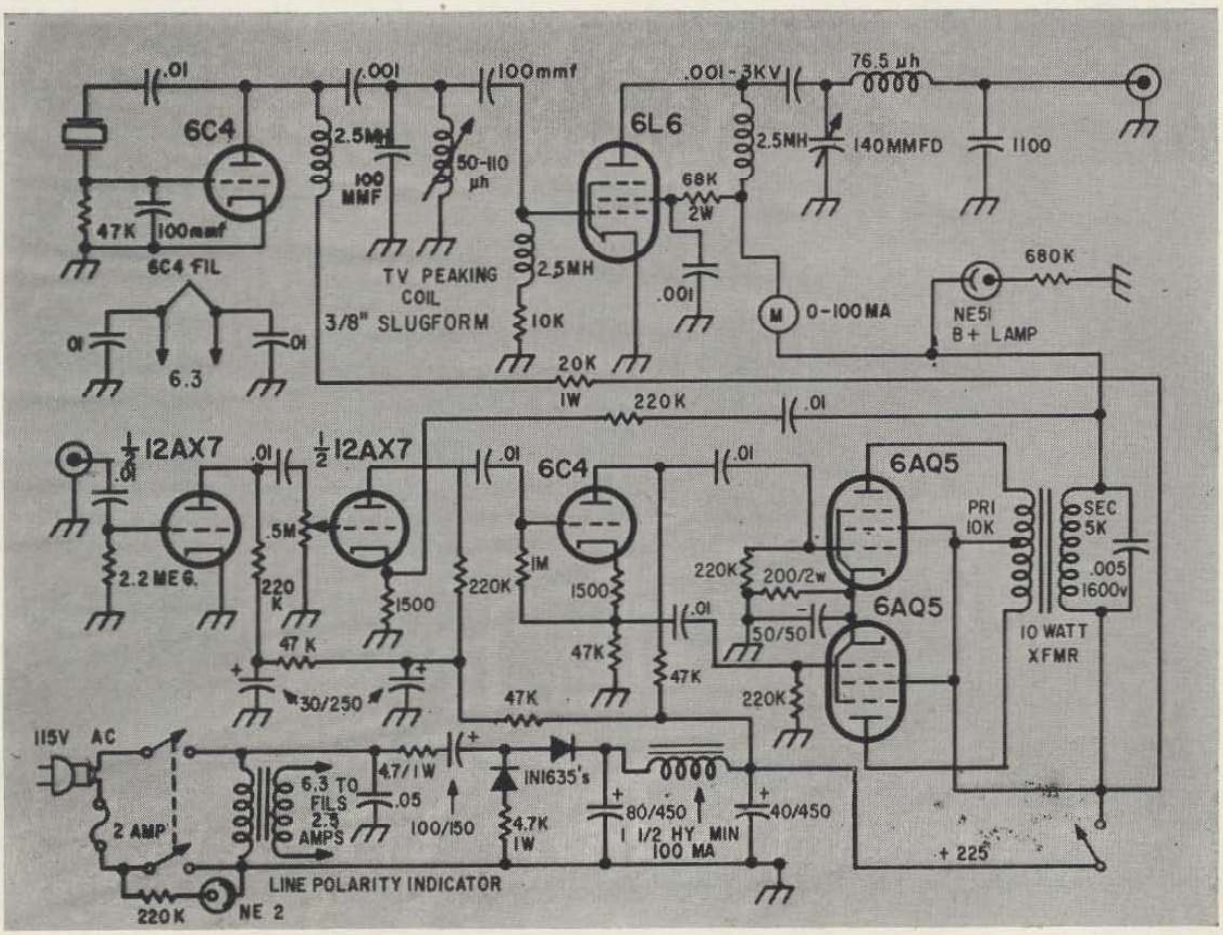


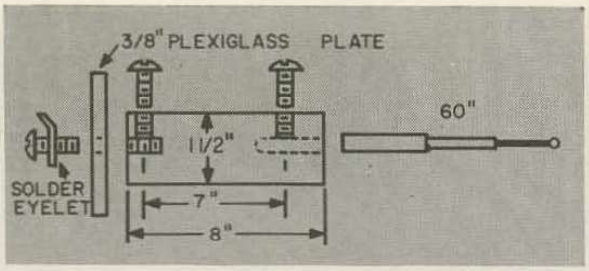
Parts placement is not critical and no shielding between components should be necessary. It is suggested that the modulator be placed as far as possible on the chassis from the rf section. The familiar 6L6 was selected for the final stage because it operates efficiently at the relatively low plate voltage and is usually readily available from the junk box. Grid drive should be adequate when the OSC tuning coil is peaked. If more drive is required, this can be accomplished by decreasing the 20K dropping resistor in the oscillator plate. Grid drive should be near 3 ma.

Although the final is capable of more than the 18 watts indicated, the modulator is good for only about 9 watts. If 100% modulation is to be realized the final must be held down to this value.

Cabinet construction is three piece with the 1½" chassis fixed to the front plate by the switches and indicating lamps. The cabinet is wrap around constructed with a partial back panel installed. Two ⅞" chassis punch holes are made in the cabinet, one to allow mounting of the whip and the other to allow the banana jack antenna terminal clearance. This jack is sub-mounted on a piece of ⅛" Plexiglass for insulation. Cabinet dimensions are 6" H x 9" W x 10" deep.

The whip is a 60" automotive replacement antenna. The base loading coil is constructed of Textolite or similar dowel, 1½" dia. 8" long. A 2½" x 2½" square of ⅜" Plexiglass forms the base. This is mounted to the dowel with a single #8-32 screw which is first placed over a solder eyelet. Connection for the winding is obtained by drilling and tapping for a #4-40 of length to jam the #8-32 mounting bolt. An appropriate size hole into the top of the dowel will mount the whip. Again the winding solders to a #4-40 jam bolt (see sketch). The coil is close wound of #22 enamel over 7" of the diameter of the coil. Total turns should be approximately 260. Actual loading of the coil can be accomplished by on the air tests. A simple way to achieve this is to extend the whip fully and tune the final to resonance with the loading capacitor fully closed. The plate switch may be turned off and on, the final "dipped" and the extension whip





slid down to the point where maximum plate current is drawn while in resonance. This is the tuned point for the antenna. To load it will probably be necessary to extend the antenna ½ inch or so from the tuned point. It is then only necessary to remove a few turns from the whip and extend it again to the tuned point. Remove enough turns to tune the whip about 4 inches from fully extended. This will then allow for variables in loading in different locations where the antenna system is influenced by metal, etc.

Three of these units have been constructed by your author and they have proven to be extremely versatile rigs to own. Audio quality is excellent, signal output is very good (20 miles on the whip) and no component has failed on any unit after having been in service for several months. . . . **K9PAL**

Improve Weak Signal Radio-Teletype Reception

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THE circuit in Fig. 1 is somewhat conventional, but with balanced detector, trigger and keyer tubes. A filter circuit consisting of an .02 mfd condenser, two 100K resistors and the 220K resistor form a long time constant circuit in the detector output which completely wipes out noise spikes that could trigger the keyer stage when signals are weak. Observations on the scope indicate all traces of noise spikes are eliminated by this circuit. It can be shown that removal of these condensers during noisy reception will cause very bad garbling of otherwise perfect copy. Note coupling resistors R1 and R2 on the grid of the driver tube. Both resistors are identical, their value being determined by the voltage developed at the plates of the 6AL5 detector. These are nothing more than part of a voltage divider to drop the dc voltage on the grids of the 12AU7 to —8 volts as measured on a VTVM, when the respective half of the 6AL5 is conducting. Transformers T1 and T2 are approximately 1:1 but if substitutions are made it will only be necessary to adjust the coupling resistors R1