

Tune the quadrupler for maximum output and then raise its frequency until output just starts to fall off. This will compensate for the decreasing output as the crystal frequency is raised. The mixer output and the amplifier are tuned in the same manner as the previous mixer-amplifier combination.

The signal from the amplifier is yours to use, either according to the block diagram or in your own circuitry.

The overtone crystals used in this circuit will probably have to be ordered from a manufacturer as they are for uncommon frequencies. The 29.625 appears to be available in very limited quantity from Quaker Electronics. The other crystals are available from a number of surplus houses at 50c each. All may require a minute quantity of grinding if exact frequency tolerance is desired.

Operation

Because of the previous work, the stepping relay, etc., this is the shortest section: Turn the unit on. Look at the Nixie's to see what frequency range you're on. Turn the button until it switches to the range you want to be on. Turn the VFO to the desired frequency within that range. Period.

To many, the complete coverage of two meters may seem frivolous. I worry about the population explosion which seems to be outdistanced by the Ham Explosion. Those of you who don't worry will soon. I feel that all

of two meters will soon be in use, and until then, there are nets and other reasons why the top mc is in use.

This system is also applicable to the lower frequencies, with perhaps a 20 kc VFO and crystals 20 kc apart. This would be simpler to tune than the two meter unit and for many would be more practical. The stepping relay-readout tube circuitry would be the same convenience.

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- C1—50pf variable capacitor (Hammarlund MC-50 or equiv.)
- C2—3-25pf compression trimmer
- C3-C7—3-25pf compression trimmer
- L-1—40 turns, #36 enameled on 3/8 in. iron slug tuned form
- L2—2.5 turns around cold end of L1
- L3—16 turns #22 enameled around coil form in BC458 series VFO (iron slug tuned) see text
- L4—45 turns #36 enameled on 3/8 in. iron slug tuned form
- L5—20 turns #28 enameled on 3/8 in. iron slug tuned form
- L6—3 turns insulated wire over cold end of L5
- L7—25 turns nr 28 on 3/8 in. iron slug tuned form
- L8—2 turns insulated wire over cold end of L7
- L9—20 turns nr 26 enameled on 1/4 in. iron slug tuned form
- L10, L12, L14, 5 turns #20 spaced one turn on 3/8 in. brass tuned form
- L11—1.5 turns insulated wire over L10
- L13—2 turns over L12
- Y1—7500 FT243
- Y2—7700 FT243
- Y3—7900 FT243
- Y4—8100 FT243
- Y5—8300 FT243
- Y6—29.375000 HC6/U
- Y7—29.625000 HC6/U
- Y8—29.875000 HC6/U
- Y9—30.125000 HC6/U
- RY1—see text
- I-1—I3 Nixies—see text

All third overtone

Heath Warrior Tip

Present owners of the Heathkit Warrior KW linear amplifier model HA-10 may be interested in making their linear really a true KW amplifier with a very slight modification. I installed a toggle switch between the Power-On switch and the high voltage indicator panel light. This switch is used to shunt the swinging choke in the power supply. The net result—the no load plate voltage increases from 1600 to beyond 2,000 volts. In the CW mode, with 500 MA indicating on the meter, the plate voltage drops to just a shade over 2,000 volts. In the SSB mode I have been able to kick the meter up to 400/500 MA with no evidence of distortion or flat topping. I might add that I did not try this gimmick with the original 811A tubes in the linear, but did use UE 572As

which have a greater plate dissipation capability and are directly interchangeable with the 811s. Although the 811s may not be capable of taking this maximum power in the CW mode at that voltage and current, there is no reason why the tubes could not withstand similar voltage and current conditions in SSB application. Just a note of caution: after about three hours of continuous roundtable QSO on SSB, the power transformer gets pretty warm. It is suggested that the "high voltage" position be used when the going gets rough. With the switch in the off position the choke is in the circuit and the linear amplifier is operating normally. Incidentally, the increased voltage from the power supply has no adverse affect on the meter, as the increase beyond 2,000 volts seems to be within the tolerance parameters of the meter. Similarly, no other deterioration on components was noted. On-air reports indicate an increase of talk power under most conditions with the higher voltage application.

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