



## ARRL Periodicals Archive – Search Results

### A membership benefit of ARRL and the ARRL Technical Information Service

**ARRL Members:** You may print a copy for personal use. Any other use of the information requires permission (see Copyright/Reprint Notice below).

**Need a higher quality reprint or scan?** Some of the scans contained within the periodical archive were produced with older imaging technology. If you require a higher quality reprint or scan, please contact the ARRL Technical Information Service for assistance. Photocopies are \$3 for ARRL members, \$5 for nonmembers. For members, TIS can send the photocopies immediately and include an invoice. Nonmembers must prepay. Details are available at [www.arrl.org/tis](http://www.arrl.org/tis) or email [photocopy@arrl.org](mailto:photocopy@arrl.org).

**QST on CD-ROM:** Annual CD-ROMs are available for recent publication years. For details and ordering information, visit [www.arrl.org/qst](http://www.arrl.org/qst).

**Non-Members:** Get access to the ARRL Periodicals Archive when you join ARRL today at [www.arrl.org/join](http://www.arrl.org/join). For a complete list of membership benefits, visit [www.arrl.org/benefits](http://www.arrl.org/benefits).

### Copyright/Reprint Notice

In general, all ARRL content is copyrighted. ARRL articles, pages, or documents--printed and online--are not in the public domain. Therefore, they may not be freely distributed or copied. Additionally, no part of this document may be copied, sold to third parties, or otherwise commercially exploited without the explicit prior written consent of ARRL. You cannot post this document to a Web site or otherwise distribute it to others through any electronic medium.

For permission to quote or reprint material from ARRL, send a request including the issue date, a description of the material requested, and a description of where you intend to use the reprinted material to the ARRL Editorial & Production Department: [permission@arrl.org](mailto:permission@arrl.org).

**QST Issue:** Oct 1963

**Title:** Heathkit Model HG-10 VFO

**Author:** Edward Tilton, W1HDQ

[Click Here to Report a Problem with this File](#)



## 2009 ARRL Periodicals on CD-ROM

ARRL's popular journals are available on a compact, fully-searchable CD-ROM. Every word and photo published throughout 2009 is included!

- **QST** The official membership journal of ARRL
- **NCJ** National Contest Journal
- **QEX** Forum for Communications Experimenters

**SEARCH** the full text of every article by entering titles, call signs, names—almost any word. **SEE** every word, photo (including color images), drawing and table in technical and general-interest features, columns and product reviews, plus all advertisements. **PRINT** what you see, or copy it into other applications.

**System Requirements:** Microsoft Windows™ and Macintosh systems, using the industry standard Adobe® Acrobat® Reader® software. The Acrobat Reader is a free download at [www.adobe.com](http://www.adobe.com).

### 2009 ARRL Periodicals on CD-ROM

ARRL Order No. 1486  
**Only \$24.95\***

\*plus shipping and handling

Additional sets available:

2008 Ed., ARRL Order No. 9406, \$24.95  
2007 Ed., ARRL Order No. 1204, \$19.95  
2006 Ed., ARRL Order No. 9841, \$19.95  
2005 Ed., ARRL Order No. 9574, \$19.95  
2004 Ed., ARRL Order No. 9396, \$19.95  
2003 Ed., ARRL Order No. 9124, \$19.95  
2002 Ed., ARRL Order No. 8802, \$19.95  
2001 Ed., ARRL Order No. 8632, \$19.95

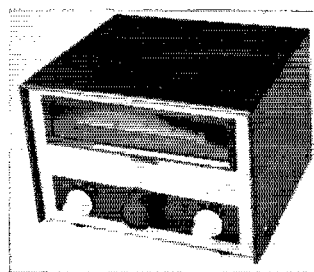


**ARRL** The national association for **AMATEUR RADIO™**

SHOP DIRECT or call for a dealer near you.  
ONLINE [WWW.ARRL.ORG/SHOP](http://WWW.ARRL.ORG/SHOP)  
ORDER TOLL-FREE 888/277-5289 (US)

## • Recent Equipment —

### Heathkit Model HG-10 V.F.O.



Thorough the manufacturer says in his instruction book that this v.f.o. "was designed primarily to match the Heathkit DX-60 transmitter, both electrically and in styling" he must have had other uses in mind. The DX-60 is an 80-through-10 transmitter, while the HG-10 v.f.o. has calibrated ranges for these bands and for 50 and 144 Mc. as well. Electrically, only the keying method and the power cable are designed for the DX-60, and adaptation to other uses is not impaired thereby. V.h.f. operators with transmitters using 8-Mc. crystals will find it well suited to their needs.

The oscillator is the pentode section of a 6CH5 in a series-tuned Clapp circuit. The triode portion of the tube is a cathode follower, for coupling the output to the crystal socket of the transmitter with which the v.f.o. is to be used. A voltage regulator tube (0B2) is included, and instructions are given for determining the value of dropping resistor required for various supply voltages. Specific values are recommended for the DX-60 and DX-40 transmitters, whose power supplies will provide the heater and plate

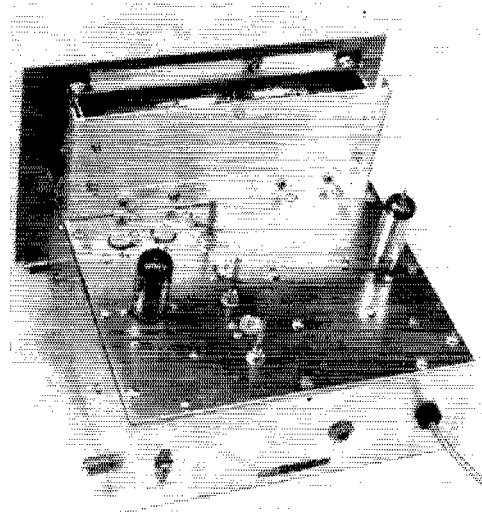
power for the HG-10. Since only 6.3 volts a.c. at 0.75 amp. and either 108 volts d.c. regulated at a few milliamperes (or 150 to 350 volts unregulated d.c. at about 30 ma.) are required, power usually can be taken from the transmitter. Information on a simple power supply is given in the instruction book, in case the user wishes to provide one especially for the v.f.o.

In using the v.f.o. with the DX-60 the transmitter supplies the necessary negative voltage for grid-block keying. This may be adaptable to other transmitters but in any case the instructions are explicit in regard to adaptation to other keying methods. V.h.f. men need not be concerned here, as it is customary in work at 50 Mc. and above to key in stages farther along in the transmitter.

Three coils are used in the v.f.o. tuned circuits, one for 40, 20, 15 and 10, another for 80, and a third for 6 and 2. Various fixed and variable capacitors are switched in to make the oscillator cover the calibrated ranges for the 7 bands. Though they are not provided for in calibrated dial scales, the 220-Mc. band and the most-used middle portion of the 420-Mc. band can be covered on the 2-meter range. Temperature compensation is provided on all ranges. Except for the 80-meter position the output frequency is always between 7 and 9 Mc.

Operating controls of the HG-10 are a function switch on the left side of the panel (standby, operate and spot), a 7-position bandswitch on the right, and the frequency-control knob at the center. The dial scales are about 4¾ inches long, printed in black on a translucent white drum which is rotated by the bandswitch. Only one scale at a time shows on the illuminated window. The dial mechanism has the usual array of nylon and spring-loaded gears, and the indicating pointer is string-driven.

The model shown in the photographs was shipped wired, so we cannot report on the assembly and wiring process. It is relatively simple, mechanically and electrically, so there should be little trouble in putting it together and on the air. It was given the acid test at W1HDQ — operated on the v.h.f. bands, where instability problems are many times more severe than on lower frequencies. Our observations were that the temperature compensation was extremely



Rear view of the Heath HG-10 v.f.o. The oscillator tube is at the left. Trimmers for setting the various bands are just above the oscillator and in a line at its right.

#### Heathkit VFO. Model HG-10

Height: 6½ inches.

Width: 9⅜ inches.

Depth: 9⅛ inches.

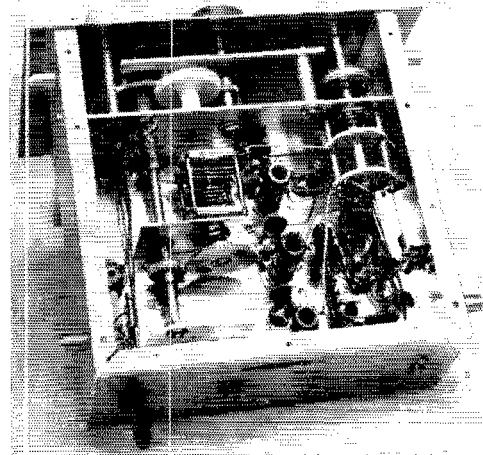
Weight: 9½ pounds.

Power Requirements: 108 volts d.c. or more, at 25 ma.; 6.3 volts a.c. or d.c., at 0.75 amp.

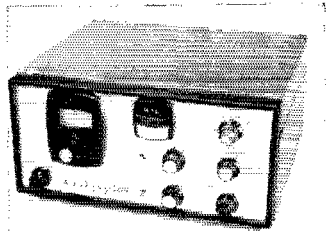
Price Class: \$35 in kit form.

Manufacturer: Heath Company, Benton Harbor 9, Michigan.

good, and the quality of the note was acceptable. The critical listener would not need to be told that a v.f.o. was in use, but there was no buzz-saw effect, so commonly heard on the v.h.f. bands these days. Even with 54 times frequency multiplication, on 432 Mc., there was little drift, and the note was only slightly fuzzy. It was considerably less than T9 at this frequency, but if there's a v.f.o. that wouldn't be, we've yet to see it. — E.P.T.



Bottom of the v.f.o., with its cover plate removed. The dial-driven main tuning capacitor is at the left center, with the three coils at its right. At the upper right is the band switch



## WRL Galaxy 300

### S.S.B. Transceiver

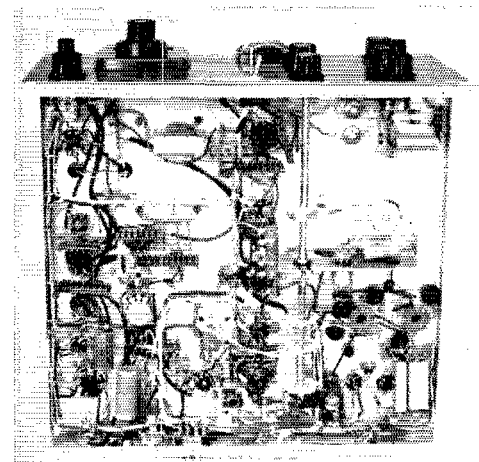
WRL's contribution to the current s.s.b. transceiver craze is the Galaxy 300. Rated at 300 watts p.e.p. input, it covers the phone portions (3.8-4.0 Mc., 7.05-7.35 Mc., 14.2-14.4 Mc.) of the 80-, 40-, and 20-meter bands. The transmitter and receiver sections use a common 9-Mc. crystal filter and share some of the same tubes, including a few of the new compactron types. The transceiver is supplied for push-to-talk operation with an optional plug-in voice-operated break-in (VOX) unit. A matching power-supply console and a linear amplifier are available from the manufacturer.

For simplicity of explanation, the block diagrams of the transceiver shown in Figs. 1 and 2 have been broken down to show the transmitter and receiver sections as separate units. A star alongside a tube in the diagrams indicates that the tube is used for both transmitting and receiving.

#### Transmitter

Fig. 1 shows the line-up of major components when transmitting. Audio from any high-impedance microphone (with a push-to-talk switch and a PL-68 3-circuit small-barrel plug) is amplified in two triode stages of a 6D10 compactron, V<sub>14</sub>, and fed to a 7360 balanced modulator. Also arriving at the balanced modulator is

9.1-Mc. energy from a crystal-controlled oscillator, V<sub>5A</sub>, a 6MI1 compactron. The oscillator frequency is controlled by either of two crystals, Y<sub>1</sub>, Y<sub>2</sub>, which are selected by a panel sideband switch, S<sub>2A</sub> in Fig. 1.



Bottom view of the Galaxy 300 transceiver. The figure-eight belt drive coming off the shaft that runs down the chassis from the front panel is for the final amplifier band switch.