amateur catalog 965-A



Viking

Amateur Transmitters and Accessories

first choice of amateurs the world over



E. F. JOHNSON COMPANY
WASECA, MINNESOTA, U.S.A.

10 Watts AM input

Instant selection

of 5 frequencies

Viking 10 Meter "Messenger"



For information concerning Civil Defense Certification — See back cover.

The Viking "10-Meter Messenger" is a superbly-engineered transceiver in one compact package, ideally suited for use in a fixed location or for under-dash mounting in a mobile vehicle or boat. The "10-Meter Messenger" provides instant selection of five pre-tuned frequencies in the range of 29.4 to 29.7 megacycles, within a 300 kc segment of the 10-meter band.

Designed with 10 tubes (including rectifier), the "10-Meter Messenger" is completely crystal controlled. The superheterodyne receiver is extremely sensitive, enabling you to hear signals clearly which would be lost in less sensitive equipment. Greater selectivity reduces interference from adjacent channels . . . keeps your received signal clear and crisp for greater intelligibility . . . permits greater communication distance. Built-in automatic noise limiter (ANL) suppresses ignition and other electrical noises from neon signs, power lines, etc. . . . automatic volume control effectively prevents distortion at close ranges. The automatic "Squelch" control lets you set the receiver sensitivity as desired, to eliminate annoying background noises.

The transmitter is designed with a 7054 crystal oscillator coupled to a high gain 7061 final amplifier . . . puts out a clean, crisp, well-modulated signal! Rugged push-to-talk ceramic microphone will not be affected by either moisture or heat . . . sturdy die-cast front panel and heavy-gauge steel cabinet help protect the unit from accidental damage from shock or vibration. Other features include a wide range pi-L network output circuit; automatic "Transmit" indicator; self-contained power supply.

The "10-Meter Messenger" is exceptionally easy to install anywhere — under the dashboard of an automobile (with little or no sacrifice of leg room), in a boat, or practically anywhere you choose. Dual voltage units will operate on either 6V DC or 115V AC; or 12V DC and 115V AC with just the switch of a power cord (furnished with the unit). The "10-Meter Messenger" comes completely equipped with power cords, tubes, microphone and crystals for 29,640 kc, the national calling and emergency frequency. Up to 4 additional crystal pairs may be installed for other frequencies for routine operation.

SPECIFICATIONS

FREQUENCY RANGE:
Pre-tuned for 29.4 to 29.7 mcs.

POWER INPUT:
10 Watts Amplitude Modulated Phone

POWER REQUIREMENTS:
(2 models Available)
6V D.C. and 115V A.C.
12V D.C. and 115V A.C.
80 watts maximum.

FUSE PROTECTION
Fused power cord

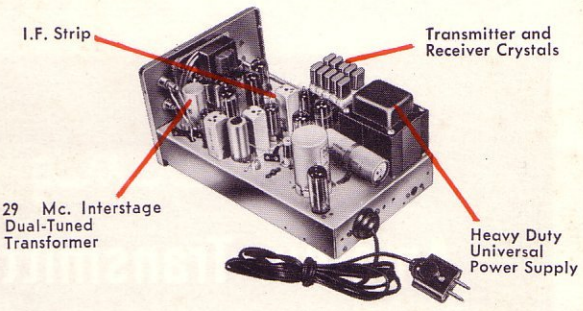
TUBE COMPLEMENT

6BJ6—R.F. Amplifier
12B56—Mixer — Crystal Oscillator
6BJ6—I.F. Amplifier
6AL5—Detector, AVC, ANL
12AU7—First Audio and Speech Amplifier
6AW8—Second Audio Amplifier, Squelch
12AB5—Modulator
7054—Crystal Oscillator
7061—Power Amplifier
12BW4—Rectifier

The Viking "10-Meter Messenger" is available wired and tested only in a compact grey wrinkle-finish cabinet with a handsome chrome-plated front panel. Dimensions: 5⅝" high x 7" wide x 11⅜" deep. Net weight: 12¼ lbs. Shipping weight: 17 lbs.

Cat. No. 242-202 115V and 6V . . . "10-Meter Messenger" complete with tubes, microphone, and one pair of crystals . . . . . **$139.75** Amateur Net

Cat. No. 242-203 115V and 12V . . . "10-Meter Messenger" complete with tubes, microphone, and one pair of crystals . . . . . **$139.75** Amateur Net



10 Meter "Messenger" Accessories

Cat. No. 251-828 Universal dash mounting kit. For mounting the 10 Meter "Messenger" under the dashboard of car, truck, or boat . . . . . **$2.50 Amateur Net**

Cat. No. 251-830 Sturdy etched aluminum carrying handle. Easily mounted. Convenient swing-away feature when not in use . . . . . **$1.50 Amateur Net**

Viking "Challenger"

120 watts CW input, 80 through 10

...85 watts on 6 meters

70 watts phone, 80 through 6 meters!



The new Viking "Challenger" is ideal for the novice or experienced amateur for fixed station, emergency, portable, or field day use! A full size transmitter with three RF stages, the "Challenger" is designed for fast, easy tuning, excellent stability, and plenty of reserve drive! Instant bandswitching 80 through 6 meters — 70 watts phone input — 120 watts CW input 80 through 10 meters and 85 watts CW input on 6 meters! Straight through final amplifier operation even on 6 meters provides excellent efficiency and modulation characteristics.

FREQUENCY CONTROL — The "Challenger" may be controlled by plug-in crystals or any VFO delivering 5 miliwatts (8 to 10 volts across 22,000 ohms) or more output on 160 or 80 and 40 meters.

OUTPUT CIRCUIT — The wide range, Hi-"Q" output circuit is designed to handle 40 to 600 ohm resistive antenna loads and will also tune out large amounts of reactance. Plate circuit capacitor switching provides the best combination of variable and padding capacity for easy tuning and proper loading. Final amplifier has two husky 6DQ6A bridge neutralized tetrodes driven by a single 6DQ6A buffer.

"SHAPED" KEYING CIRCUIT — Designed particularly to satisfy the critical CW operator, the "Challenger's" special "LC" keying circuit provides true "shaped" CW waveform and suppresses clicks and chirps.

AUDIO SYSTEM — A built-in high gain 12AX7 dual triode speech amplifier permits the use of any crystal or high impedance dynamic microphone. A rugged 6AQ5 clamp tube modulator provides modulation levels up to 100% with clear, distinct audio response. On CW the 6AQ5 serves as a clamper, protecting the final amplifier tubes.

TVI SUPPRESSION — The cabinet of the "Challenger" is effectively shielded for TVI suppression. Power line and meter are equipped with "L" section filters. Interior harness leads and filaments are by-passed. Careful by-passing of the final amplifier and special circuit techniques minimize harmonics in the output circuit.

POWER SUPPLY — The built-in power supply delivers 550 volts DC at 275 ma., 6.3 volts AC at 5 amps, and 5 volts AC at 3 amps. Fused power line plug protects transmitter against abnormal overloads.

SPECIFICATIONS

FREQUENCY RANGE:
80, 40, 20, 15, 10, and 6 meters

POWER REQUIREMENTS:
105-125 volts AC, 50-60 cycle single phase. 270 watts maximum.

POWER INPUT:
70 Watts Amplitude Modulated Phone — 80 through 6 meters.
120 Watts Continuous Wave — 80 through 10 meters.
85 Watts Continuous Wave on 6 meters.

TUBE COMPLEMENT

6AU6 — Oscillator
6DQ6A — Buffer-Multiplier
6DQ6A — Final Amplifier (2)
12AX7 — Cascade Speech Amplifier
6AQ5 — Clamper and Screen Modulator
5U4GB — Rectifier

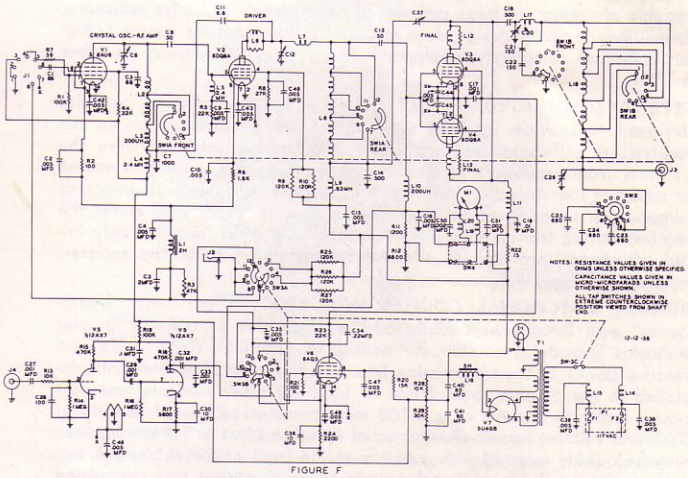


FIGURE F

The Viking "Challenger" is available completely wired and tested or as an easy-to-assemble kit. The aluminum cabinet is finished in attractive maroon and grey with green nomenclature. Assembly instructions for the kit include photographs, diagrams, and step-by-step wiring directions. Wiring harness, all necessary hardware furnished — no drilling or metal work necessary. Dimensions: 13¼" wide x 9⅛" high x 10⅛" deep. Net Weight: 24 lbs. Shipping Weight: 28 lbs.

Cat. No. 240-182-1 Viking "Challenger" Kit with tubes . . . . . .

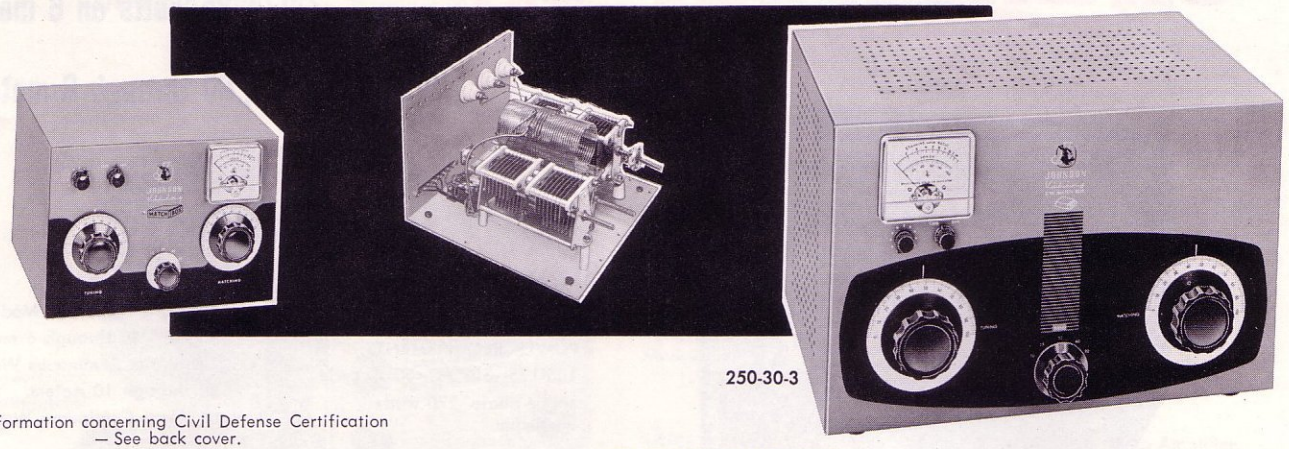
AMATEUR NET **$124.75**

Cat. No. 240-182-2 Viking "Challenger" wired and tested, with tubes . . . . . **$169.75 Amateur Net**

Bandswitching

No plug-in coils

Viking "Matchboxes"



250-30-3

For information concerning Civil Defense Certification — See back cover.

The new Viking "Matchboxes" are completely integrated antenna matching and switching systems for CW and Amplitude Modulated transmitters up to 275 watts or one kilowatt with provision for continuous monitoring of either incident or reflected transmission line power. In SSB mode, the 275 watt unit will handle 750 watts and the kilowatt unit is rated up to 3 kilowatts P.E.P. input. A unique, balanced high "Q" tuned circuit and careful shielding provide more than 20 db of additional harmonic suppression.

Bandswitching on 80, 40, 20, 15 and 10 meters and completely front panel controlled, these versatile new "Matchboxes" are furnished with Directional Coupler and built-in Directional Coupler Indicator. Units will quickly match the transmitter to balanced or unbalanced lines over a wide range of antenna impedances. In addition, the "Matchboxes" are capable of tuning out large amounts of capacitive or inductive reactance. Revolutionary circuit design does away with the annoying use of "plug-in" coils and completely eliminates "load-tapping" necessary in other couplers.

RECEIVER INPUT IMPEDANCE MATCHING — The "Matchboxes" are also designed to provide separate matching of the antenna system to the receiver. A self-contained, heavy-duty change-over relay switches the antenna from receiver to transmitter, grounding the receiver antenna terminals in the "transmit" position, thus preventing damage to front-end components. In addition to antenna change-over, relay also mutes the receiver during transmission. An adjustable link, which requires only initial adjustment, provides an effective impedance match to the receiver, substantially improving receiver performance.

BUILT-IN DIRECTIONAL COUPLER INDICATOR — These new "Matchboxes" with Directional Coupler and self-contained Directional Coupler Indicator provide a continuous reading of Standing Wave Ratio and relative power in the transmission line. Coupler may be permanently installed in the 52-ohm coaxial line or used for other measurement purposes. Indicator consists of a 0-100 microammeter calibrated directly in SWR and relative power. Monitoring of either incident or reflected power may be quickly selected with a switch on the front of the cabinet. A second control on the front panel permits easy adjustment and calibration of the meter.

TUNING AND MATCHING — Antenna tuning and matching is accomplished with just two front panel controls. When changing bands, simply switch to the correct band position, and for proper RF energy transfer adjust the controls for minimum SWR as indicated by the meter. Tuning is sufficiently broad so that a single setting of the controls will cover a large segment of an amateur band.

All "Matchbox" connections are conveniently located at the rear of the unit. Cabinets are attractively finished in maroon and grey, and are effectively shielded to reduce harmonic radiation. The Directional Coupler Indicator and operational controls are located on the front panel, providing convenience and ready visibility. Plastic mounting feet protect the operating table. Units are supplied assembled, wired and pre-tested only — complete operating instructions included.

IMPORTANT NOTE: A suitable RF measuring device such as a SWR Bridge is essential for proper tuning and adjustment of any antenna coupler. The Johnson 250-37 Directional Coupler and the 250-38 Indicator, for power up to one kilowatt, are available as separate catalog items. They provide precision operation and reliability at a moderate price. (See Page 17 for details.)

275 WATT "MATCHBOX"

Designed to match a 52 ohm coaxial link line to reactive and non-reactive loads ranging from 25 to 1500 ohms for balanced lines, and 25 to 3000 ohms for unbalanced lines, this "Matchbox" will match virtually any transmission line terminal impedance, within the above values, throughout the 3.5 to 30 mc amateur band. The link line operates without standing waves, providing a convenient point for the installation of a Johnson 250-20 Low Pass RF Filter for improved harmonic suppression. Feed-through insulators are provided for connecting balanced or unbalanced feedlines. Dimensions: 9⅞" wide x 10½" deep x 7" high. Net Weight: 7¼ lb. Shipping Weight: 11 lbs. For transmitters with a maximum power input of 275 watts.

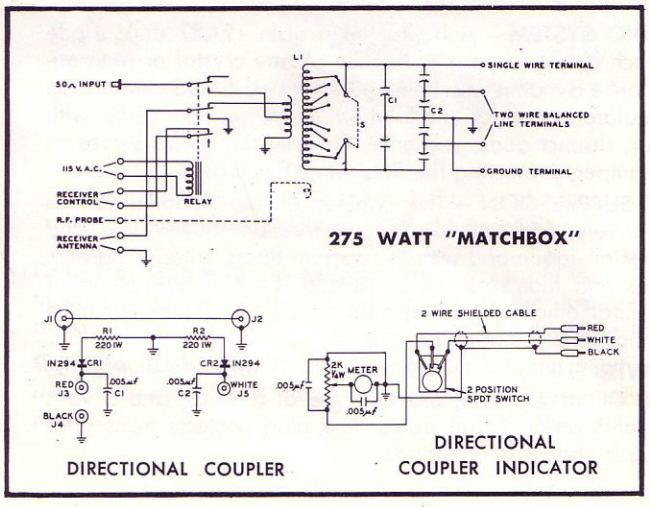
Cat. No. **250-23-3** With Directional Coupler and Indicator ..... **$94.95 Amateur Net**

Cat. No. **250-23-1** Less Directional Coupler and Indicator ..... **$64.95 Amateur Net**

KILOWATT "MATCHBOX"

The Kilowatt "Matchbox" is designed to handle unbalanced line impedances from 50 to 2000 ohms, balanced line impedances from 50 to 1500 ohms. The antenna change-over system includes a time delay circuit for the relay, providing "fast make — slow break" action to prevent arcing or sticking of relay contacts. This feature also protects the transmitter and the receiver components from possible damage due to high voltage transients during antenna change-over switching. Feed-through insulators are provided for connecting balanced or unbalanced lines. A standard SO-239 connector is provided for 52 ohm coaxial lines. Dimensions: 17¼" wide x 12⅛" deep x 10⅞" high. Net Weight: 19 lbs. Shipping Weight: 27 lbs. For transmitters with a maximum power input of 1000 watts.

Cat. No. **250-30-3** With Directional Coupler and Indicator ..... **$154.50 Amateur Net**

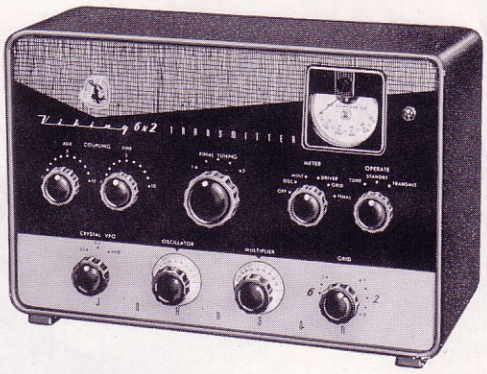


150 watts CW

100 watts phone

Bandswitching 6 and 2 meters

Viking "6N2"



For information concerning Civil Defense Certification — See back cover.

This compact VHF transmitter offers instant bandswitching coverage of both 6 and 2 meters. The Viking "6N2" is completely shielded and effectively TVI suppressed, and may be used with the Viking "Ranger" and "Ranger II," Viking "Valiant" and "Valiant II" or similar power supply-modulator combinations capable of at least 6.3 VAC at 3.5 amp., 300 VDC at 70 ma., 300 to 750 VDC at 200 ma. and 30 watts or more of audio. Power input of the Viking "6N2" is rated at 150 watts CW and 100 watts AM phone.

FREQUENCY CONTROL — The Viking "6N2" may be operated by external VFO or built-in crystal control. 8 to 9 mc crystals are used in a pentode oscillator, which doubles in the plate circuit. This avoids tricky overtone circuits, eliminates critical adjustment and prevents frequency output which is not harmonically related to the fundamental of the crystal. VFO operation may be obtained simply by plugging in an external VFO with an 8-9 mc output and turning the VFO/Crystal switch to the VFO position. Provision for zeroing the VFO is also provided.

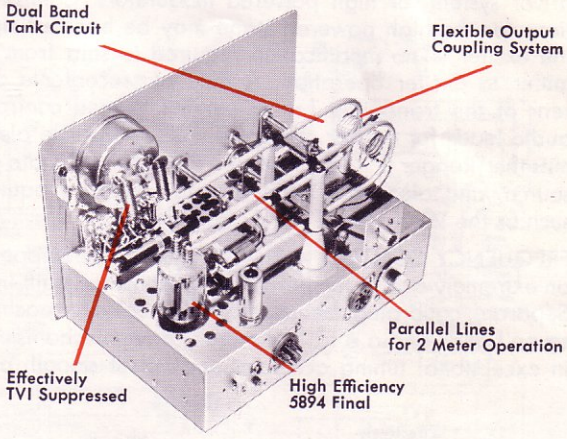
OUTPUT CIRCUIT — The final amplifier uses a type 5894 dual tetrode in a push-pull circuit. It is capable of 150 watts input on CW or FM and 100 watts input on AM phone. The final tank is a dual band device and requires no switching when changing bands. High efficiency is obtained by the use of silver plated balanced tank circuits with parallel lines for maximum efficiency on 2 meters. The output link, which is adjustable, is also a two band device. Series capacitive reactance compensation is incorporated for maximum coupling flexibility.

"SHAPED" KEYING CIRCUIT — Designed particularly to satisfy the critical CW operator, the "6N2" is equipped with a special "LC" keying circuit which provides true "shaped" CW waveform and suppresses clicks and chirps.

TVI SUPPRESSION — The cabinet of the "6N2" is effectively shielded for TVI suppression. Power line and meter are equipped with "L" section filters. Interior harness leads and filaments are by-passed. Careful by-passing of the final amplifier and special circuit techniques minimize harmonics in the output circuit.

TUBE COMPLEMENT

6U8 — (pentode section) — crystal — oscillator — doubler
6U8 — (triode section) — tripler
6360 — tripler-driver
5894 — final amplifier
6AQ5 — clamper



The Viking "6N2" is available only as a completely wired and tested unit. Cabinet is finished in attractive maroon and grey with green nomenclature. Dimensions: 13⅛" wide x 8⅜" high x 8½" deep. Net Weight: 10 lbs. Shipping Weight: 14 pounds.

Cat. No. 240-201-2 Viking "6N2" wired and tested with tubes, less crystals, key and microphone . . . . . .

AMATEUR NET **$194.50**

75 watts CW input

65 watts phone

Completely self-contained

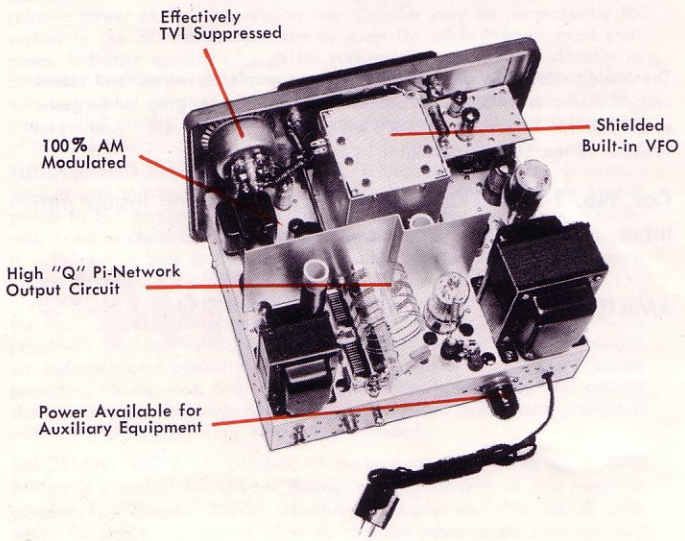
Viking "Ranger II"

Effectively TVI suppressed, and completely self-contained, the Viking "Ranger II" transmitter/exciter is available as a complete, easily assembled kit or as a wired and tested unit. A phone and CW transmitter for 6 through 160 meters, the "Ranger II" may also be used as a flexible exciter without modification.

As a transmitter, the "Ranger II" is a rugged and compact 75 watt CW input or 65 watt phone unit. The "Ranger II" has a pi-network coupling system that will match antenna loads from 50 to 500 ohms and will tune out large amounts of reactance. Single-knob bandswitching on seven amateur bands: 160, 80, 40, 20, 15, 10 and 6 meters — built-in VFO or crystal control. Timed sequence (grid block) keying provides ideal "make" or "break" on your keyed signal, yet the "break-in" advantages of a keyed VFO are retained.

As an exciter, the "Ranger II" will drive any of the popular kilowatt level tubes and will provide a high quality speech driver system for high powered modulators. Control functions for the high powered stage may be handled right at the exciter — no modification required to shift from transmitter to exciter operation. A nine pin receptacle on the rear of the transmitter brings out TVI filtered control and audio leads for exciter operation. This receptacle also permits the "Ranger II" to be used as a filament and plate power source, and also as a modulator for auxiliary equipment such as the Viking "6N2" VHF transmitter.

FREQUENCY CONTROL — The "Ranger II" is equipped with an extremely stable, temperature compensated built-in VFO. Separate, calibrated, bandspread dial scales for each of the seven bands and a 6 to 1 planetary drive mechanism result in exceptional tuning accuracy and velvet smooth control.



Plexiglas dial is edgelighted — Plexiglas pointer is positioned to insure a minimum of parallax. Precise 10 kc calibration increments on each band provide uniform and accurate dial interpolation.

TUNING — The "Ranger II's" basic tuning controls are located on the VFO dial escutcheon. QSY within the phone or CW portion of a band is usually possible by merely changing the VFO frequency setting. For larger frequency excursions, simply touch up the grid (Buffer) tuning, adjust loading, and dip the final.

OUTPUT CIRCUIT — An efficient pi-network tank circuit is used in the final amplifier. Designed to handle 50 to 500 ohm resistive antenna loads it will also tune out large amounts of reactance. Plate circuit capacitor switching provides the best combination of variable and padding capacity for easy tuning and proper loading. Final amplifier tube is a 6146.

TIMED SEQUENCE KEYING — This highly flexible keying system applies wave shaping to the keyed amplifier stages for perfect "make" and "break" on your keyed signal. Signal clicks and chirps are eliminated, yet the "break-in" advantages of a keyed VFO are retained. The system operates so fast that a breaking station may be heard between transmitted dots! Electronically operated, this timed sequence keying system uses no relays and only one dual triode plus a rectifier tube for the grid block bias.

AUDIO SYSTEM — An all-triode speech amplifier permits the use of any crystal or high impedance dynamic microphone. Push-pull 7027A modulators provide 100% modulation, response is limited to 250-3000 cycles for maximum communication effectiveness.

TVI SUPPRESSION — Completely TVI suppressed, the "Ranger II" cabinet is electrically sealed with flexible monel braid on the inside of the front panel and large cabinet overlap. A cup type shield seals the meter, and spring contact washers on the front panel shafts prevent possible radiation from shaft clearance openings. Power line and relay jack have double L type filters; all auxiliary socket, meter, dial lamp, key, and meter lamp leads equipped with L filter networks. To minimize chassis harmonics, interior harness leads and filaments are by-passed. Careful bypassing of the final and special circuit techniques minimize harmonics in the output circuit.

POWER SUPPLIES — Self-contained high and low voltage power supplies use choke input filtering — high voltage supply delivers 500 to 525 V DC to the final and modulators — low voltage supply delivers 300 V DC for the exciter and speech stages. A separate relay jack provides 115 V AC for antenna change-over and control relays, and is energized by the "operate" switch on the front panel.

SPECIFICATIONS

FREQUENCY RANGE:

160, 80, 40, 20, 15, 10 and 6 meters

POWER REQUIREMENTS:

105-120 V AC, 50-60 cycles, single phase, 260 watts maximum.

POWER INPUT:

75 Watts Continuous Wave
65 Watts Amplitude Modulated Phone

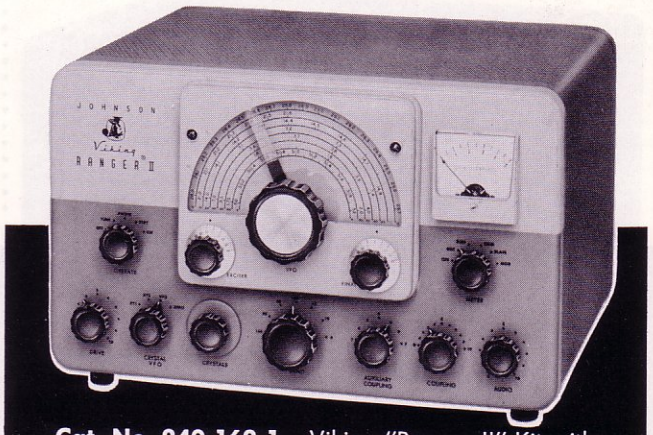
FUSE PROTECTION:

Transmitter fuses are located in the 115 V. power plug.

TUBE COMPLEMENT

6AU6—Variable Frequency Oscillator
6CL6—Crystal Oscillator/VFO Isolator
6CL6—Buffer/Doubler
5763—6 Meter Doubler
12AU7—Keyer Tube
12AX7—Dual Triode Speech Amplifier
12AU7—Dual Triode Audio Driver
OA2—Voltage Regulator
6146—Final Amplifier
6AQ5—Clamper
7027A—Push-Pull Modulators (2)
6AL5—Bias Rectifier
6AX5GT—Low Voltage Rectifier
5R4GY—High Voltage Rectifier

The Viking "Ranger II" is available completely wired and tested or as a complete, ready to assemble kit. The 18 gauge steel cabinet is finished in attractive two-tone grey, with maroon knobs and nomenclature. Assembly instructions for the kit include photographs, diagrams and step-by-step wiring directions — wiring harness, all necessary hardware, and connectors furnished — no drilling or metal work necessary. Dimensions: 15½" wide x 9⅝" high x 14" deep. Net Weight: 43 pounds. Shipping Weight: 54 pounds.

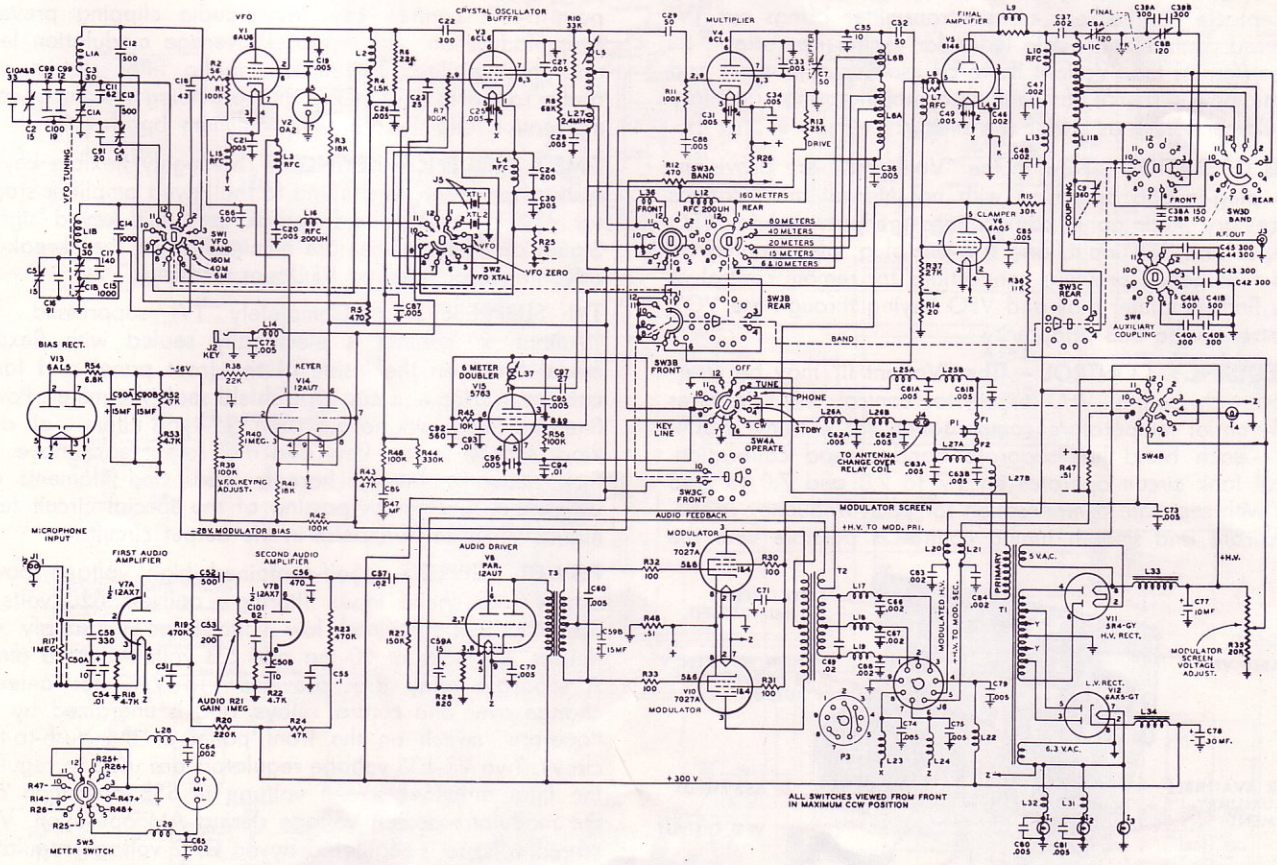


Cat. No. 240-162-1 Viking "Ranger II" Kit with tubes, less crystals, key and microphone.

AMATEUR NET $249.50

Cat. No. 240-162-2 Viking "Ranger II" wired and tested with tubes, less crystals, key and microphone. . . . . **$359.50 Amateur Net**

For information concerning Civil Defense Certification — See back cover.



Built-in provisions for use with SSB adapter

275 watts CW and SSB*; 200 watts phone!

Bandswitching 160 through 10 meters

* with an auxiliary SSB exciter

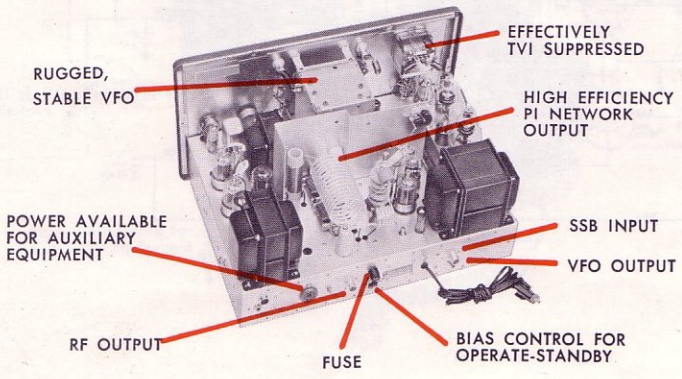
Viking "Valiant II"

Newly restyled — and offering many new operating and performance features, the "Valiant II" gives you outstanding flexibility and performance in a compact desk-top rig! Completely bandswitching 160 through 10 meters—delivers a full 275 watts input CW or SSB (with auxiliary SSB exciter or the new Viking SSB Adapter) and 200 watts AM! Low level audio clipping prevents overmodulation and increases modulation level and intelligibility for increased communications power. Differentially temperature compensated VFO operates in the 1.75 to 2 mc. and 7.0 to 7.45 mc. ranges — provides the extreme stability necessary for peak SSB operation. High efficiency pi-network tank circuit will match loads from 50 to 600 ohms and tunes out large amounts of reactance — final tank coil is silver-plated. Other features: complete TVI suppression; timed sequence (grid block) keying; high gain push-to-talk audio system for use with high impedance crystal or dynamic microphones; built-in low pass audio filter; self-contained power supply; and control mode switching.

As an exciter, the "Valiant II" will drive any of the popular kilowatt level tubes, and will provide a high quality speech driver system for high powered modulators. The 9-pin receptacle on the rear of the transmitter brings out TVI filtered control and audio leads for exciter operation . . . Also permits the "Valiant II" to be used as a filament and plate power source, as well as a modulator for auxiliary equipments such as a VHF transmitter.

SSB OPERATION —New in the "Valiant II" are provisions for plug-in SSB operation with no internal modifications necessary. Rear panel coax fittings are provided for VFO output and SSB input, and a 5-pin plug, also located on the rear panel, provides connections for remote control of the final amplifier bias and VFO keying through the VOX control of the SSB adapter.

FREQUENCY CONTROL — The "Valiant II" may be operated with built-in VFO or crystal control. VFO features differential temperature compensation for extreme stability — each band has separate band spread calibration. Dual tank circuit operates on 1.7 to 2.0 and 7.0 to 7.45 mc with separate compensation for each frequency range. Accurate and smooth tuning control is possible with the 6 to 1 planetary drive mechanism. Plexiglass dial is edge-lighted, plexiglass pointer is positioned to insure a minimum of parallax. Each band is divided into precise 10 KC increments for accurate dial readings and interpolation.



TUNING — The basic tuning controls of the "Valiant II" are located on the VFO dial escutcheon. QSY within the phone or CW portion of a band is usually possible by merely changing the VFO frequency setting. Larger frequency excursions will require a simple touch up of the exciter tuning, loading, and dipping the final.

OUTPUT CIRCUIT — Efficient pi-network tank circuit with a silver plated inductor is used in the final amplifier. Designed to handle 50 to 600 ohm resistance antenna loads, it will also tune out large amounts of reactance. Three 6146 tubes are used in the final amplifier. RF output is available through a standard SO-239 coaxial connector on the rear of the chassis.

AUDIO SYSTEM — The "Valiant II" has a high gain audio circuit which provides reserve gain for use with high impedance crystal or dynamic microphones and features push-to-talk control. Low level audio clipping prevents over modulation and increases average modulation level and intelligibility. Built-in low audio filter restricts the audio range to 3500 CPS, thus providing maximum communication effectiveness with minimum bandwidth.

TIMED SEQUENCE KEYING — This highly flexible keying system applies wave shaping to the keyed amplifier stages for perfect "make" and "break" of your keyed signal. Signal clicks and chirps are eliminated, yet the "break-in" advantages of a keyed VFO are retained.

TVI SUPPRESSION — Completely TVI suppressed, the "Valiant II" cabinet is electrically sealed with flexible monel braid on the inside of the front panel and large cabinet overlap — a cup type shield seals the meter. Power line and relay jack have double "L" type filters — all auxiliary socket, meter, key, and dial lamp leads have "L" filter networks. Interior harness leads and filaments are by-passed. Careful by-passing of the special circuit techniques minimize harmonics in the output circuit.

POWER SUPPLIES — Self-contained high voltage power supply uses choke input filtering — delivers 620 volts at 500 ma. Self-contained low voltage power supply will deliver 300 volts at 90 ma and 6.3 volts AC at 6 amps. A separate relay jack provides 115 VAC for antenna change over and control relays, and is energized by the "operate" switch on the front panel or the push-to-talk circuit. Two VR-105 voltage regulators are used to regulate the final amplifier screen voltage in SSB operation and the modulator screen voltage during AM operation. VFO screen voltage is regulated by an OA2 voltage regulator.

SPECIFICATIONS

FREQUENCY RANGE:
160, 80, 40, 20, 15, and 10 meters

POWER REQUIREMENTS:
105-120 V AC, 50-60 cycles, single phase

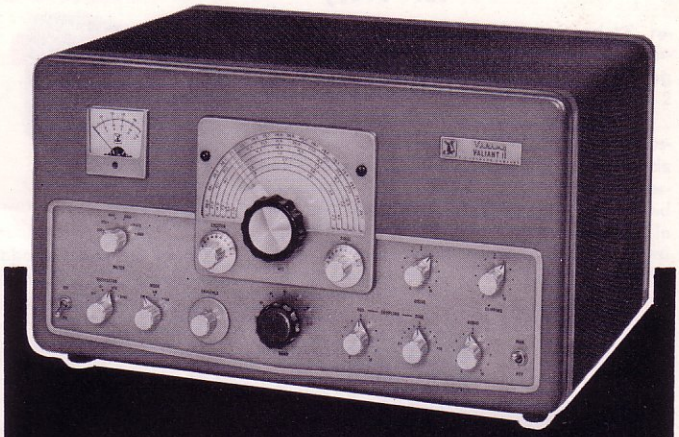
POWER INPUT:
275 Watts Continuous Wave
275 Watts Single Sideband (With auxiliary SSB exciter or Viking SSB Adapter)
200 Watts Amplitude Modulated Phone

FUSE PROTECTION:
Transmitter fuses are located in the 115 V. power plug. Separate internal fuse furnishes protection for low voltage power transformer and associated components.

TUBE COMPLEMENT

6AU6—Variable Frequency Oscillator
0A2—VFO Screen Voltage Regulator
6CL6—Crystal Oscillator/VFO Isolator
5763—R.F. Driver
6146—Parallel Final Amplifier, Bridge Neutralized (3)
12AX7—Cascade Speech Amplifier
6AL5—Audio Clipper
6C4—Audio Amplifier
12AU7—Parallel Audio Driver
6146—Push-Pull Class AB2 Modulator (2)
12AU7—Timed Sequence Keyer
6AQ5—Clamper
866A—High Voltage Rectifiers (2)
5V4G—Low Voltage Rectifier
6BY5GA—Bias Rectifier
VR-105—Screen Voltage Regulators (2)

The Viking Valiant II is available completely wired and tested or as an easy to assemble kit. The 18 gauge steel cabinet is finished in attractive two-tone gray metallic, with maroon nomenclature. The VFO and band switching knobs are maroon plastic, with the remaining controls being of solid machined aluminum. Complete kit includes assembly instruction, photographs, diagrams and step-by-step wiring directions. Wiring harness, all necessary hardware furnished — no drilling or metal work necessary. Dimensions: 21" wide x 11½" high x 14" deep. Net Weight: 73 lbs. Shipping Weight: 83 lbs.

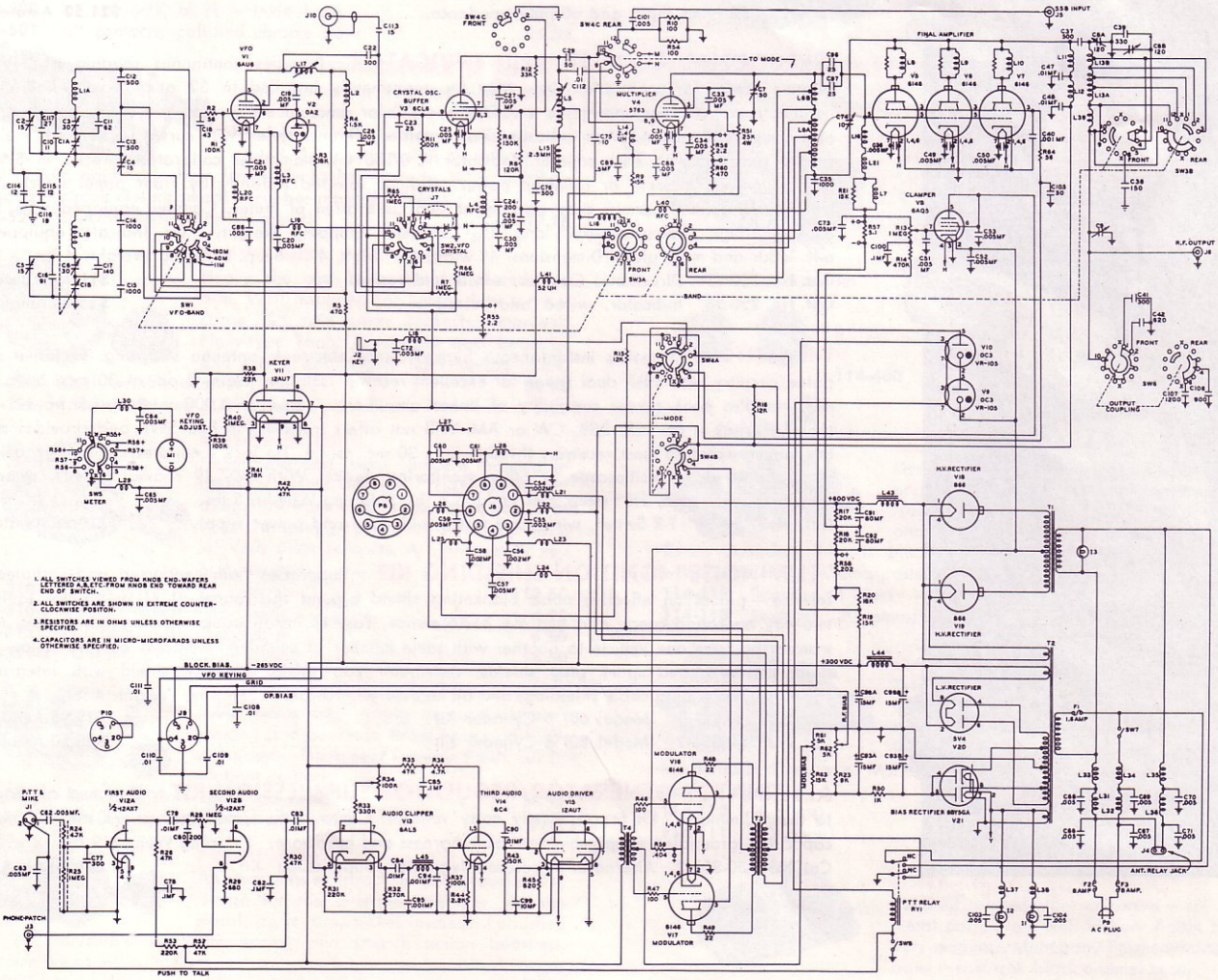


Cat. No. 240-105-1 Viking "Valiant II" Kit with tubes, less crystals . . . . . .

AMATEUR NET **$375.00**

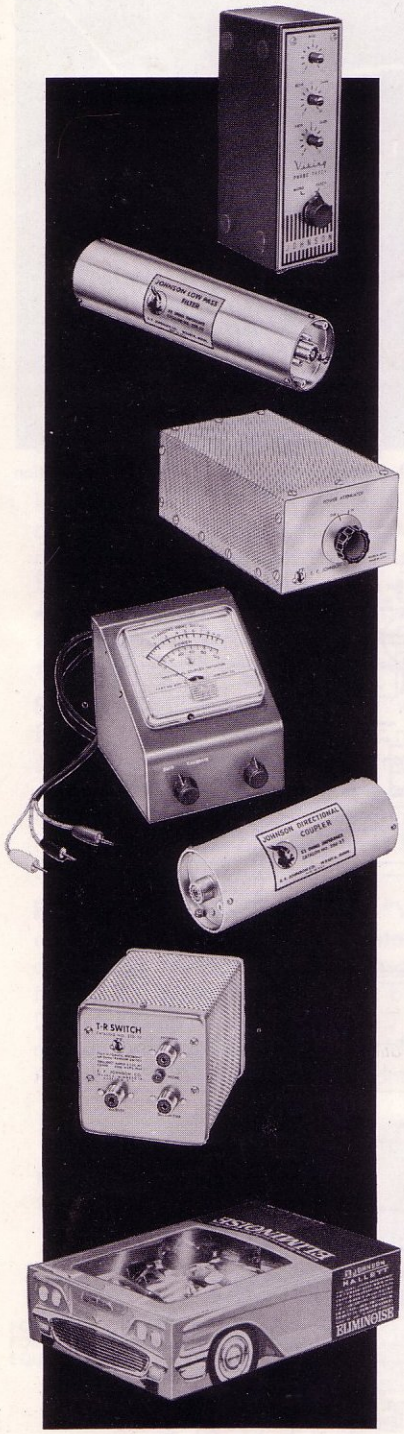
Cat. No. 240-105-2 Viking "Valiant II" wired and tested with tubes, less crystals . . . . . .
. . . . . **$495.00 AMATEUR NET**

For information concerning Civil Defense Certification — See back cover.



for every
amateur operator

Johnson Station Accessories



"PHONE PATCH" — Compact, automatic HYBRID-transformer type unit provides push-to-talk or manual operation in addition to voice control (VOX) for SSB, DSB or AM. Adjustable "line null" control — separate gain controls for transmitter and receiver inputs. In "patch" position receiver speaker is de-energized and audio is switched to telephone handset for undistorted, hum-free audio response. Effectively shielded — RF filtering and bypassing prevents RF feedback from telephone line. Easy to install and operate. Dimensions: 2" wide, 6" high, 2½" deep. Shipping Weight: 3 lbs.

Cat. No. 250-46 Viking "Phone Patch," wired and tested ..... **$25.00 Amateur Net**

LOW PASS FILTER — Handles more than 1000 watts RF — 75 db or more attenuation of harmonic and spurious frequencies above 54 mcs. — less than .25 db insertion loss. Case designed for ready accessibility and insulated, fixed capacitors are replaceable. SO-239 coaxial connectors at input and output terminals. Not for use on 6 meters. Dimensions: 9" long, 2 5/16" diameter. Shipping Weight: 3 lbs.

Cat. No. 250-20 52 ohms impedance, wired and pre-tuned ..... **$14.95 Amateur Net**

Cat. No. 250-35 72 ohms impedance, wired and pre-tuned ..... **$14.95 Amateur Net**

ATTENUATORS — These "T-pad" attenuators provide 6 db. attenuation with required power dissipation to permit various units to serve as exciters for the Viking "Thunderbolt" linear Amplifier. Equipped with SO-239 coaxial receptacles for input and output connections. Front panel dial instantaneously switches attenuator in or out of circuit. Dimensions: 4½" wide, 3⅛" high, 9⅛" deep. Net Weight: 1 lb. Shipping Weight: 2 lbs.

Cat. No. 250-42-1 — Use with "Ranger" or similar unit. Max. Power Dissipation: 45 watts. Max. Power Input: 60 watts. 350 ohms input and output impedance. Provision for adding 75 watt light bulb for use with "Viking II" or other transmitter/exciter of similar power. Max. Power Dissipation with light bulb: 110-120 watts. ..... **$21.50 Amateur Net**

Cat. No. 250-42-3 — Use with HT-32 or similar unit. Max. Power Dissipation: 45 watts. Max. Power Input: 70 watts. 50 ohms input and output impedance. ..... **$21.50 Amateur Net**

DIRECTIONAL COUPLER AND INDICATOR — Provides continuous reading of SWR and relative power in transmission line. May be permanently installed in 52 ohm coaxial line — readily handles maximum legal power as specified by FCC for amateur service. Standard tip jacks permit use of a commercial multimeter as indicating instrument — reference sheets with curves for popular multimeter ranges supplied with each coupler. Indicator is 0-100 micro-ammeter calibrated directly in SWR and relative power. Incident or reflected power readings selected instantly by front panel switch. Second front panel control permits easy adjustment and calibration of meter. Coupler equipped with SO-239 coaxial fittings. Dimensions: 6¼" long, 2 5/16" diameter. Shipping Weight: 2 lbs. Indicator equipped with 6-ft. leads and male plugs. Dimensions: 4" wide, 4⅜" high, 4¼" deep. Shipping Weight: 4 lbs.

Cat. No. 250-37 Directional Coupler, wired and tested ..... **$11.75 Amateur Net**

Cat. No. 250-38 Indicator, wired and tested ..... **$25.00 Amateur Net**

T-R SWITCH — Provides instantaneous high-efficiency electronic antenna switching. Exclusive double-gated circuitry with 6BL7 dual triode for excellent receiver isolation. Gain: 2 db. at 30 mcs; 6 db. at 3.5 mcs. Handles peak power capability of linear amplifiers — rated at 4,000 watts peak power. Instantaneous break-in on SSB, DSB, CW or AM. Will not affect transmission line SWR and provides effective impedance match to most receivers through 3 to 30 mc. range. Tip jack facilitates connection to internal RF probe to drive oscilloscope or other monitoring device. With SO-239 coaxial fittings. Dimensions: 4¼" wide, 4⅜" high, 5⅜" deep. Net Weight: 4 lbs. Shipping Weight: 5 lbs.

Cat. No. 250-39 T-R Switch, wired and tested with tube and power supply ..... **$29.95 Amateur Net**

"ELIMINOISE" IGNITION SHIELDING KIT — Suppresses both conducted and radiated interference — places an effective noise blanketing shield around the source of electric noise to increase two-way operating range and improve performance. Easy to install using ordinary hand tools. May be transferred from one vehicle to another with same number of cylinders. Contains easy to follow instructions; chrome-plated spark plug shields; distributor cap shield and coil shield with integral filter capacitor; spark plug cable shielding; and all necessary hardware. Shipping Weight: 4 lbs.

Cat. No. 250-821-1 (Model 60) 6 Cylinder Kit ..... **$29.95 Amateur Net**

Cat. No. 250-821-2 (Model 80) 8 Cylinder Kit ..... **$38.50 Amateur Net**

ALTERNATOR-GENERATOR/REGULATOR SUPPRESSION KIT — Designed as supplement to the "Eliminoise" Kit for especially noisy vehicles. Contains illustrated instructions and all necessary capacitors, grounding straps, shielded cable harness and hardware. Shipping Weight: 2 lbs.

Cat. No. 250-801-2 Alternator-Generator/Regulator Suppression Kit ..... **$11.60 Amateur Net**

6 and 2 Meter Accessories



"6N2" VFO — This compact variable frequency oscillator replaces 8 to 9 mc. crystals in frequency multiplying 6 and 2 meter transmitters — including types using overtone oscillators. Temperature compensated and exceptionally stable . . . 6BH6 series tuned oscillator; OA2 voltage regulator. Rigid, double-bearing ceramic insulated tuning capacitor; ceramic insulated air dielectric trimmers and ceramic coil form. Output Freq. Range: 7.995 to 9.010 mc. Edge-lighted plexiglas dial calibrated from 144 to 148; 50 to 51.5; 51.5 to 53; and 53 to 54 mc. for maximum bandspread. Power Requirements: 6.3 VAC at .3 amps and 250 to 300 VDC at 10 ma — easily obtained from transmitter with power cable and plug furnished. Available wired and tested or as easy-to-assemble kit. Heavy aluminum cabinet finished in attractive maroon and grey with green nomenclature. Dimensions: 4" wide, 5" high, 4½" deep. Net Weight: 2 lbs. Shipping Weight: 3 lbs.

Cat. No. 240-133-1 "6N2" VFO kit with tubes, pre-calibrated dial, and detailed assembly and operating instructions. **$34.95 Amateur Net**

Cat. No. 240-133-2 "6N2" VFO Wired and Tested, with tubes and pre-calibrated dial. . . . . **$54.95 Amateur Net**



"6N2" Converter — Excellent image and I.F. rejection due to double-tuned, over-coupled, interstage circuits. Instant front panel bandswitching from "normal" receiver operation to 6 or 2 meters. Compact . . . excellent stability . . . maximum sensitivity and low noise figure. Cascode RF amplifier circuit utilizes 6ES8 dual triode with "Frame Grid". Fused, built-in transformer-type power supply. Available wired and tested or as easy-to-assemble kit. Cabinet finished in attractive maroon and grey with green nomenclature. Dimensions: 2¾" wide, 5" high, 12" deep. Net Weight: 2 lbs. Shipping Weight: 5 lbs.

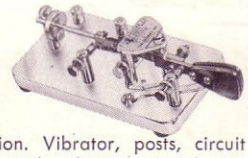
"6N2" Converter Kit with tubes . . . . . **$59.95 Amateur Net**

Cat. No.	Range	Cat. No.	Range
250-43-1	26 to 30 mcs.	250-43-3	14 to 18 mcs.
250-43-2	28 to 30 mcs.	250-43-4	30.5 to 34.5 mcs.

"6N2" Converter, Wired and Tested with tubes . **$89.95 Amateur Net**

Cat. No.	Range	Cat. No.	Range
250-43-12	26 to 30 mcs.	250-43-32	14 to 18 mcs.
250-43-22	28 to 30 mcs.	250-43-42	30.5 to 34.5 mcs.

Keys and Practice Sets



DELUXE SEMI-AUTOMATIC KEYS

Adjustable from lowest to highest speeds, this handsomely finished semi-automatic key has a smooth, easy action. Vibrator, posts, circuit closing switch, and all machine parts heavily chrome plated. Five adjustments with lock nuts — molded plastic paddles adjust separately to best height. Steel base 6¼" x 3½" x ½" — complete with adjustable weight and rubber feet.

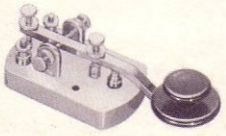
Cat. No.		Net Price
114-500	⅛" contacts, black wrinkle base	$20.30
114-501	¼" contacts, polished chrome base	25.50



SPECIAL SEMI-AUTOMATIC KEY

Many operating features — attractively finished, black wrinkle enamel base. All hardware and vibrator heavily chrome plated. Same vibrator as on deluxe key. Easy action, adjustable from lowest to highest speeds. ⅛" coin silver contacts — circuit closing switch — rubber mounting feet.

114-520	Special Model, Semi-Automatic	$17.75



HEAVY DUTY KEYS

Heavy die cast base, chrome plated key arm. Well insulated for heavy duty service. Large ¼" coin silver contacts. Improved Navy-type knob. Adjustable steel bearings and spring design give light keying touch.

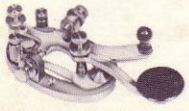
114-320	Black wrinkle enamel base	$4.95
114-321	Polished chrome plated base	5.85



STANDARD KEYS

Heavy die cast base. Smooth adjustable bearings. New Johnson "cushion-contact" design provides smooth keying action. Provision for plugging in semi-automatic keys. ⅛" coin silver contacts. A high quality key at a low cost.

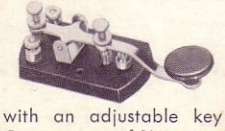
114-310	Black wrinkle, no switch	$3.50
114-310-3	Black wrinkle with switch	4.25
114-311	Chrome plated, no switch	5.50
114-311-3	Chrome plated with switch	6.50



HIGH SPEED STANDARD KEYS

Fully adjustable spring tension, contact spacing and bearings. Brass base and binding posts — instrument lacquer finish. .072" platinor contacts.

114-100	R48 Key, satin brass, no switch	$6.95
114-100-3	M100 Key, satin brass with switch	7.95



PRACTICE KEY

An inexpensive practice key — perfect in design for the average beginner. All the metal parts are nickel plated. Furnished with an adjustable key arm, spring and smooth action bearings. Contacts are of ⅛" coin silver.

114-300	Molded phenolic base	$2.40



PHENOLIC BASE KEYS

High quality key with adjustable bearings. Improved spring-pigtail connection. ⅛" coin silver contacts — nickel plated metal parts.

Cat. No.		Net Price
114-301	Molded phenolic base, no switch	$2.50



CORD AND WEDGE

Cord and wedge for easy attachment of semi-automatic key across circuit - closing switch of a standard hand key. Used almost universally by railroad telegraphers — ideal for amateur service where both hand key and semi-automatic are used.

114-380	Cord and wedge	$1.15



PRACTICE SET

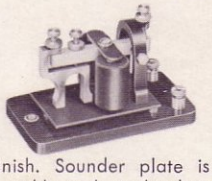
Constant frequency buzzer and key on a 4" x 6" molded bakelite base. Buzzer tone is fully adjustable. Coin silver contacts. Uses two dry cells or "C" battery. Connect singly or in pairs for code practice.

114-450	Practice Set	$5.25



Buzzer only as used on set above.

114-400	Buzzer	$1.85



TELEGRAPH SOUNDER

Designed for instant response, brass sounder provides clear, resonant tone. Steel bar frame, black enamel finish. Brass bridge and adjustment screws, instrument lacquer finish. Sounder plate is black lacquered steel. Mahogany finished wood base, brass binding posts and rubber mounting feet.

114-112	Sounder (4 ohms)	$11.50
114-113	Sounder (20 ohms)	11.95



LEARNER SET

Telegraph practice set. Bar frame steel, brass bridge and adjustment screws. Brass lacquer finish. Brass sounding bar — black lacquered steel sounder plate. Adjustable, brass finished key arm. Mahogany finished wood base, brass binding posts, rubber feet.

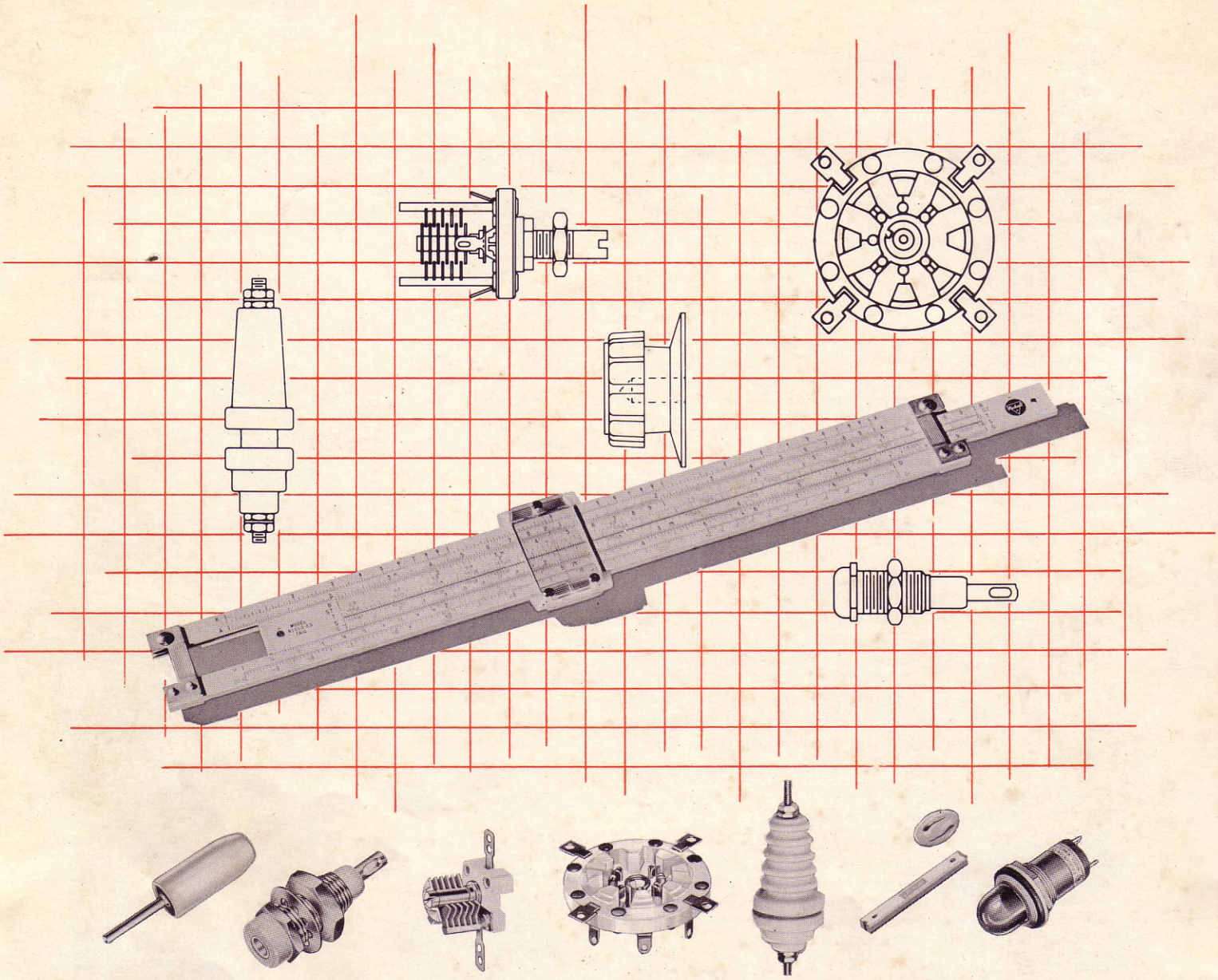
114-110	(4 ohms)	$15.50
114-111	(20 ohms)	15.50



PONY RELAY

Polished, plated steel armature — all other metal parts brass with lacquer finish. Heavy duty magnets. Mahogany finished wood subbase — cast iron black enamel base.

114-105	(20 ohms)	$17.50



Time after time amateurs choose Johnson components

The E. F. Johnson Company also manufactures a complete line of electronic components for those of you who prefer to design and build your own transmitting equipment and accessories.
A wide range of inductors is available for all bands from 160 to 6 meters. Continuously variable inductors in 3 sizes are made for a variety of applications.

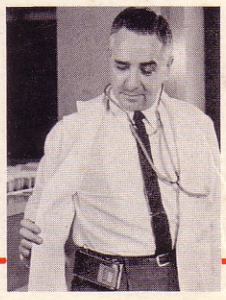
Variable capacitors, from the diminutive "U" sizes to the rugged "C" capacitors offer the designer a complete line to choose from.
Tube sockets, nylon connectors, insulators and hardware are also available . . . all built to the standards which have made the E. F. Johnson Company a leader in component manufacture.

free catalog

For pricing and descriptive information on the complete Johnson line of electronic components, write for your free copy of our latest general products catalog







CIVIL DEFENSE CERTIFICATION

The Johnson amateur equipment on the preceding pages marked "CD CERTIFICATION – See back cover," will qualify for matching funds, having been certified by the E. F. Johnson Company as meeting OCDM specifications on factory wired and tested models for crystal controlled operation. Copies of the official description of necessary accessories and certification are available on request.

OTHER JOHNSON EQUIPMENT

In addition to the "Viking" Amateur Radio line, the E. F. Johnson Company manufactures Industrial Radio Equipment; Citizens Radio Equipment; and Selective Radio Paging Equipment. For full details – contact your Johnson distributor.

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E. F. JOHNSON COMPANY
WASECA, MINNESOTA, U.S.A.

Catalog No. 965 A Form No. 965M065 Printed in U.S.A.

Note: The E. F. Johnson Company reserves the right to change prices or specifications without notice and without incurring obligation.