the

200V

BROAD BAND
EXCITER / TRANSMITTER

ONLY ONE TUNING CONTROL - THE VFO

by

THE PIONEER IN AMATEUR SSB

Central Electronics

subsidiary of

ZENITH

THE HEART OF THE 200V

(And its ONLY Tuning Control)

No expense has been spared in the design and construction of the 200V VFO. The patented two tube circuit inherently compensates for the effect of tube aging and line voltage fluctuations. The circuit is permeability tuned by a precision machined stainless steel lead-screw, mounted in pre-loaded ball bearings. Solid, heavy-duty construction provides extreme frequency stability. Drift is LESS THAN 25 CYCLES in any ten minute interval after a five minute warmup.

Megacycle scales in the slide rule window change with the band switch and are calibrated linearly every 100 KC. ALL BAND SCALES READ IN THE SAME DIRECTION. THERE ARE NO REVERSE READING SCALES ON THE 200V! Frequency is read directly in 1 KC increments by the circular KC dial with NO INTERPOLATION NECESSARY. Effective bandspread is approximately 12 feet on each band. The husky two-speed tuning knob is a completely new design by Central Electronics and provides fast tuning at 100 KC per turn and slow tuning at approximately 5 KC per turn. Action is positive and smooth as silk. CALIBRATION ACCURACY is BETTER THAN 1 KC. Re-calibration, should it ever become necessary, is easily performed right at your operating position. Separate adjustable screws provide zero beat calibration at each 50 KC point.

BROADBAND CIRCUITRY

Thanks to exclusive CENTRAL ELECTRONICS broadband circuitry, load impedances of 52-72 ohms for coaxial cable are inherently matched without the need of tuning or loading controls. Power output is essentially constant across each band.

FREQUENCY COVERAGE

80 Meters — 3.5 to 4.5 MC.
40 Meters — 6.5 to 7.5 MC.
20 Meters — 13.5 to 14.5 MC.
15 Meters — 20.5 to 21.5 MC.
10 Meters — 27.7 to 29.7 MC.

PLUS — A spare position to permit factory installation of broadband coils for 1.75 to 2 MC., 2 to 2.5 MC., or any 1 MC. portion of the spectrum between 2.5 and 25.5 MC. not already covered by amateur bands. For example: 2.5 to 3.5 MC. 4.5 to 5.5 MC. 5.5 to 6.5 MC. etc. (Note that these portions must begin and end at .5 MC. points only) OR: the 2 MC. portion 25.6 to 27.6 MC. not covered by the 10 meter band position (at additional cost).

NOTE the generous overlap beyond the amateur bands, for MARS, CAP or COMMERCIAL applications. Even beyond that, the VFO has 50 KC. of overtravel (100 KC. above 25.6 MC.) at each end of the scales. Calibration accuracy and linearity of this overtravel is not guaranteed — But it's there in case you need it.

SIX OPERATING MODES

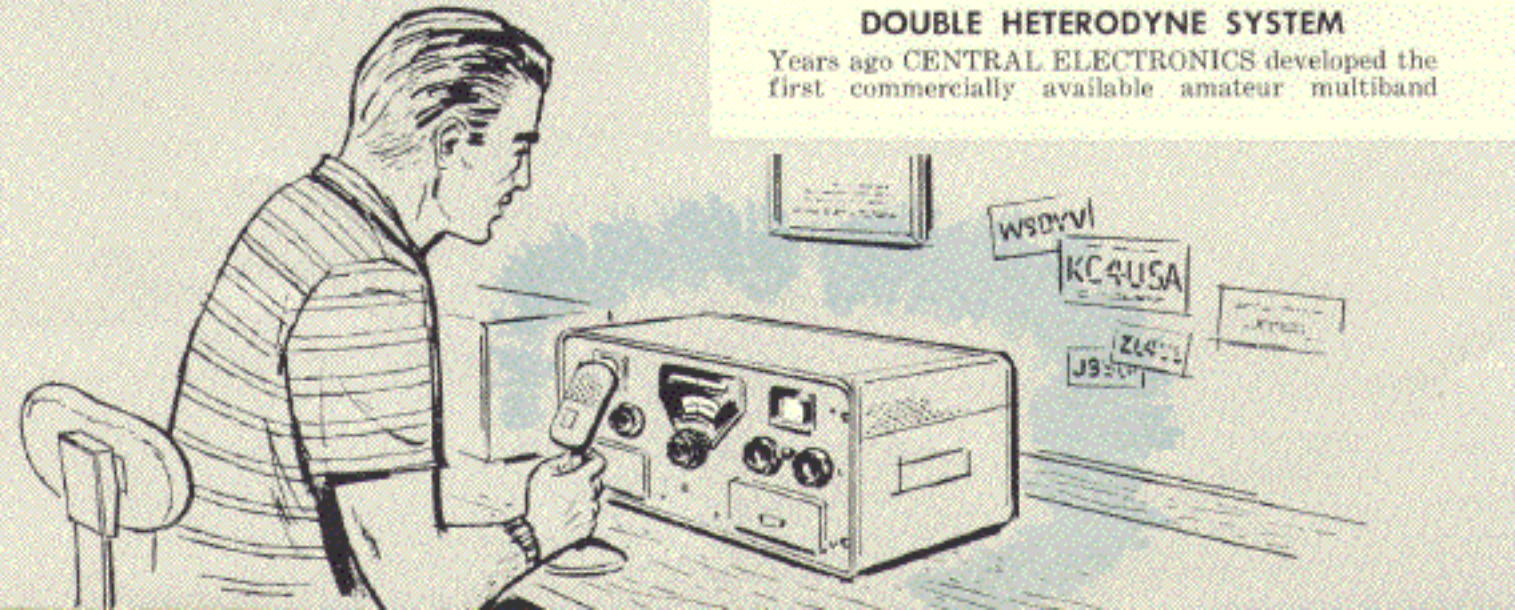
LSB Lower sideband suppressed carrier.
USB Upper sideband suppressed carrier.
AM Double sideband with pre-set carrier.
PM Phase modulation with pre-set carrier.
CW Four methods of keying with pre-set carrier.
FSK Frequency-shift teletype with pre-set carrier and adjustable deviation.

Power input 200 watts PEP on SSB; 100 watts on AM; 175 watts on PM, CW and FSK.

TELEVISION INTERFERENCE: Conventional AM equipment utilizes Class C amplifiers that distort the RF output waveform, causing severe harmonic TVI. Since the output stage in the 200V operates in Class AB1 in all modes of transmission, excellent linearity and extremely low harmonic output is obtained.

DOUBLE HETERODYNE SYSTEM

Years ago CENTRAL ELECTRONICS developed the first commercially available amateur multiband



transmitter in which the sideband signal is generated at a fixed crystal controlled frequency and thereafter heterodyned to different bands. This feature eliminates the necessity of rebalancing the sideband generator when changing from band to band. In the 200V a NEW DOUBLE HETERODYNE system insures extreme stability. The VFO tunes from 5 to 6 MC. Sideband generation is crystal controlled at 8 MC. All Heterodyne oscillators run continuously, are crystal controlled and temperature compensated for high stability. Blocked grid keying of mixers and linear amplifier results in essentially clickless chirp free break-in operation.

INVERSE AUDIO LIMITER

Audio clipping allows an increase in the level of the weaker speech passages giving your signal that extra "punch" required for increased readability under adverse conditions. It maintains maximum speech level and prevents overloading of the balanced modulator, mixers and RF amplifier stages. In the past, most clipping systems have contributed objectionable distortion to the output signal. In the 200V a new circuit utilizes the clipped waves as inverse feedback to cancel an appreciable amount of distortion. We have called this improved clipper the "Inverse Limiter". In combination with the new 200V Audio Filter, this revolutionary system allows 10 DB. of limiting with minimum effect on the speech quality. With about 3 DB. of speech limiting the front panel Limiter Indicator begins to flash. The amount of limiting may be determined by the 6 DB. calibrations of the Speech Level control. No matter how loud you talk into the microphone or how far you turn up the Speech control, the peaks will not increase beyond approximately 1 DB above the pre-set level.

PERFECTED AUDIO FILTER

The 200V filter is composed entirely of RC elements, yet has the steep side response and rejection characteristics of a toroid filter. Since it is a degenerative RC bandpass (200-3800 cycles) type, it overcomes the harsh, ringing characteristics of conventional filters. It precedes the phase-shift network and will maintain 50 DB. unwanted sideband suppression even beyond the bandpass limits of the new PS-2 phase shift network.

PHASE SHIFT NETWORK

The new PS-2 is a ten element type unit constructed of heat cycled components matched to .1% accuracy. In combination with its associated circuitry and the fact that 35 DB. of inverse feedback is applied around the modulator, it will maintain 50 DB. unwanted sideband suppression. This novel approach means that even the modulator tubes may be changed WITHOUT AFFECTING SIDEBAND SUPPRESSION. The RF phaseshift network is a new non-critical, low impedance, wide band type having extreme stability.

POWER OUTPUT CONTROL

In the 200V the power output may be adjusted to any level between 10 watts and full output. This new circuit eliminates the need for power consuming dissipative networks when driving linear amplifiers with lower drive requirements. The power output control does not affect the output load impedance of 52-72 ohms. A matching network will be required for grounded grid amplifiers having an input impedance above 100 ohms.

POWER OUTPUT TUBES

The broadband output circuit of the 200V uses a pair of 6550 tubes that are rated for continuous commercial service in ultra-linear HiFi applications. Our tests, have shown that the linearity of 6550's is far superior to that of the commonly used 6146's at the power output level of 100 watts PLUS. Plate dissipation is 35 watts per tube and a pair will deliver OVER 100 WATTS of single tone power, even on ten meters, without grid current flow! Two tone third order distortion products are down in excess of 40 DB.

NEW POWER SUPPLY

Conventional rectifier tubes have been replaced in the 200V with SILICON RECTIFIERS. The result is considerably less heat and higher voltage output. The new power supply has extremely good regulation even under the higher input levels used in the 200V output stage.

2" MONITORING SCOPE

Gives an instantaneous visual trapezoid check on non-linearity or flat-topping resulting from improper loading. Also indicates correct setting of pre-set carrier level control for 100% AM modulation.

LOAD MIS-MATCH PROTECTION

In the event that an improper load causes excessive screen current in the power amplifier, an overcurrent relay in the 200V applies protective bias and flashes the front panel MISMATCH neon indicator.

METER

The illuminated meter indicates final amplifier DC power input on a 0-200 watt scale.

SET AND FORGET CONTROLS

Behind the two magnetic doors on the front panel are all the seldom used controls which are normally adjusted when first putting the 200V on the air. They include: Speech Level; VOX trip level; Anti-trip (QT) level; VOX release time; FSK deviation; carrier null; pre-set AM carrier and DSB switch; pre-set CW carrier; CW monitor level; VFO-XTAL switch and Power output control.

OTHER OPERATING CONTROLS

CALIBRATE LEVEL: Adjusts strength of calibrate signal to suit band conditions or individual installations.

FUNCTION SWITCH: Power Off; Standby; VOX; Voice calibrate; Carrier calibrate; PTT; and Manual.

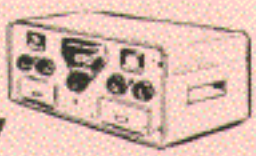
BAND SWITCH: Selects 80, 40, 20, 15, 10 and X position for special frequencies.

EMISSION SWITCH: Selects LSB, USB, AM (DSB), PM, CW or FSK.

NEW MIXER CIRCUITRY

New FRAME GRID tubes (6EH7-6EJ7) are used in the new 200V. They have extremely high gain, run cool and their use assures that unwanted mixer products are down in excess of 50 DB.

SPECIFICATIONS



200V

$795.00 *

POWER INPUT: 200 watts PEP on SSB.
175 watts on CW, FSK and PM.
100 watts on AM.
CARRIER SUPPRESSION: At least 50 DB.
SIDEBAND SUPPRESSION: 50 DB.
CALIBRATION ACCURACY: 1 KC.
UNWANTED MIXER PRODUCTS: Down in excess of 50 DB.
AUDIO INPUT: High impedance. NEW PREAMPLIFIER compensates for weaker voices or low gain microphones.
AUDIO FREQUENCY RESPONSE: Approx. 200-3800 cycles.

PHYSICAL DATA

Built-in Silicon rectifier power supply. 115 volt 60 cycle. Spare SPDT contacts on VOX relay to furnish 115 VAC for antenna relay or for keying other equipment. Terminates at rear apron socket. Cabinet: Grey wrinkle with smooth grey panel. Cabinet size 9" X 19¼" X 15" deep. Panel size 8¾" X 19" (Standard rack size). Panel also available with black or grey wrinkle finish on special order. Shipping weight: approx. 90 lbs.

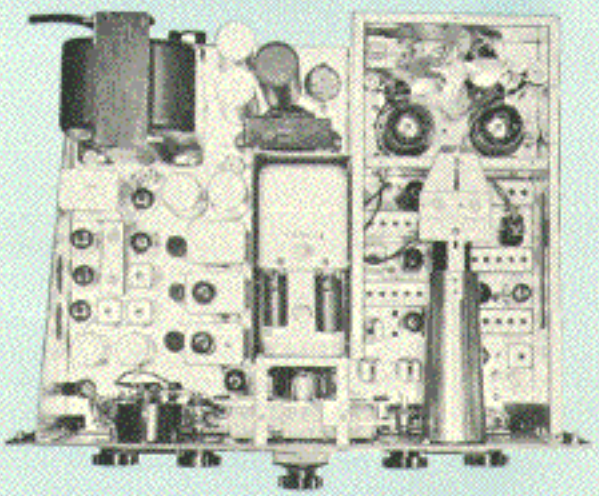
SPECIAL COMMERCIAL MODELS

For commercial applications where extremely stable, fixed frequency operation is needed, CENTRAL ELECTRONICS has developed the 200X, which allows the use of HF plug-in crystal ovens in lieu of the tuneable VFO. Up to 12 separate channels may be selected by a front panel switch. For extremely rugged operating conditions, heavy-duty, continuous operation type transformers and silicon rectifiers are available for the 200X on special order. Write for information, stating channel frequencies and specifications desired.

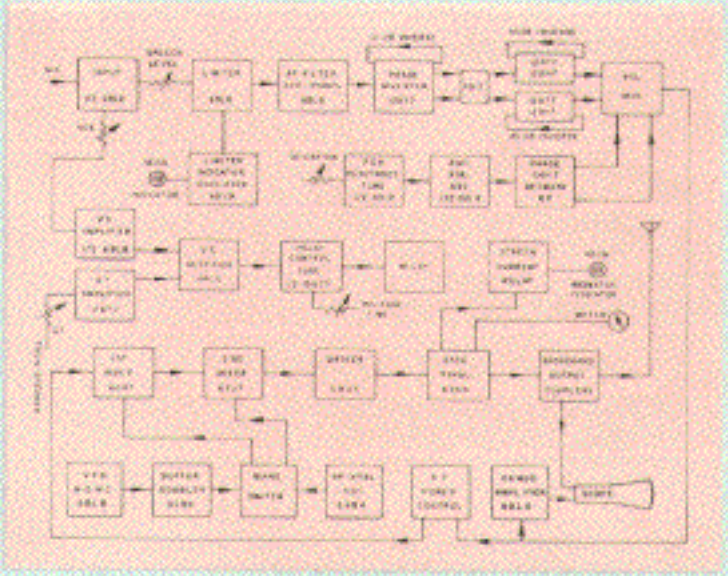
OTHER CENTRAL ELECTRONICS PRODUCTS

Model 20A Bandswitching SSB Exciter
Model 10B Multiband SSB Exciter
Model MM-2 RF Analyzer Scope
Model GC-1 Gated Compression Audio Amplifier

SOLD BY



CHASSIS VIEW - 200V



BLOCK DIAGRAM - 200V

* Manufacturers suggested amateur price. Prices and specifications subject to change without notice.

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A subsidiary of
ZENITH RADIO CORPORATION

Form No. 1 — March 1, 1961 Printed in U.S.A.