

 **KENWOOD**

**HF
TRANSCEIVER**

TS-530S



The TS-530S HF transceiver is designed in ac circuit technology, providing wide dynamic rang selectable filters and IF shift, built-in digital dis optimum, yet economical, operation on 160 thro

FEATURES:

160-10 Meter Coverage, Including Three New Bands

The TS-530S transmits and receives on all amateur frequencies between 1.8 and 29.7 MHz, including the new 10, 18, and 24 MHz bands. It also receives WWV on 10 MHz, handy for checking the calibration of the highly accurate digital display. Operating modes include LSB, USB, and CW.

Built-in Digital Display

Frequencies are easy to read on the built-in, large, six-digit, fluorescent-tube display, backed up by an analog subdial. The actual receive and transmit frequencies on all modes and all bands are indicated, by means of a common division of the 10 MHz oscillator frequency for the PLL circuit, calibration circuit, and frequency counter.

Narrow/Wide Filter Combinations

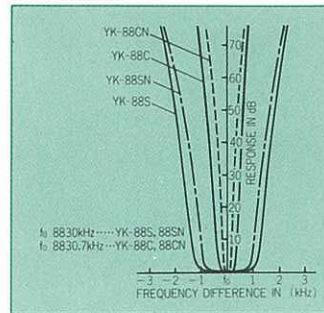
The "NAR" switch allows selection of wide and narrow bandwidths on CW and or SSB, when one or two optional filters are installed. The various filter bandwidth mode combinations are shown in the chart below. (receiving only)

The optional 500 Hz CW filter provides excellent selectivity for general-purpose and contest operation. The 270 Hz filter provides a very narrow passband, ideal for DX chasing under crowded band conditions. The 1.8 kHz SSB filter is especially handy during contests and in DX pileups, when QRM is heavy.

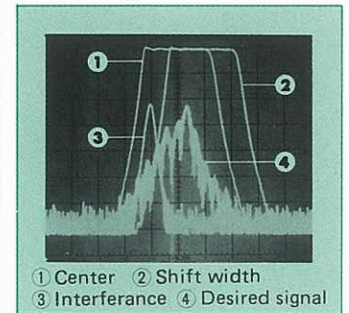
IF Shift Reduces QRM

IF shift is built into the TS-530S to allow the IF passband to be moved around the received signal and away from interfering signals and sideband splatter. Even greater selectivity is achieved when an optional YK-88SN (1.8 kHz), YK-88C (500 Hz), or

Filter Attenuation Characteristics



How IF Shift Eliminates Interference



YK-88CN (270 Hz) filter is installed, to work in combination with the IF shift.

Wide Receiver Dynamic Range

The receiver section exhibits a very wide dynamic range with unusually good IMD rejection characteristics, resulting in greater immunity to strong, local signals. Its MOS FET RF amplifier operates at a low level of amplification, for improved IMD characteristics. A higher level of amplification is not required because of the balanced mixer's low noise figure, produced by junction FETs. A dual resonator is provided for each band. The result is a very sensitive receiver section with excellent dynamic range and a low noise level.

Built-in Speech Processor

The speech processor in the TS-530S combines an audio compression amplifier with change of ALC time constant for extra audio punch and increased average SSB output power, with suppressed sideband splatter.

Two 6146Bs in the Final

With a pair of 6146Bs in the final amplifier, the TS-530S runs 220 W PEP/180 W DC input on all bands.

Advanced Single-Conversion PLL System

The new PLL circuit in the TS-530S eliminates the requirement for a crystal element for each band. As shown in the block diagram, the VCO frequency is generated in the PLL circuit by synthesizing the VFO and CAR frequencies, the 10 MHz reference frequency supplied by the counter, and the divided frequency of 500 kHz. Band changing is accomplished by changing the preset division ratio of the programmable divider in the PLL. Thus, the need for a heterodyne crystal element for each operating band is eliminated, resulting in simplified circuitry and improved overall stability. The single-conversion PLL system also improves transmit and receive spurious characteristics, and provides IF shift operation and monodial indication on any mode.

Adjustable Noise-Blanker Level

Pulse-type (such as ignition) noise is eliminated by the built-in

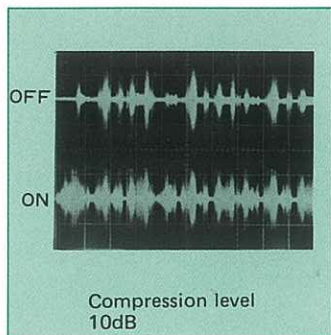
TS-530S OPTIONAL FILTER COMBINATIONS

| MODE OPTIONAL FILTER(S) | SSB | | CW | |
|-------------------------------|---------|----------|---------------------------|---------|
| | WIDE | NARROW | WIDE | NARROW |
| YK-88SN | 2.4 kHz | 1.8 kHz | 2.4 kHz | 1.8 kHz |
| YK-88C | 2.4 kHz | — | 2.4 kHz | 500 Hz |
| YK-88CN | 2.4 kHz | — | 2.4 kHz | 270 Hz |
| YK-88SN + YK-88C | 2.4 kHz | 1.8 kHz | *2.4 kHz or 1.8 kHz | 500 Hz |
| YK-88SN + YK-88CN | 2.4 kHz | 1.8 kHz | *2.4 kHz or 1.8 kHz | 270 Hz |
| YK-88C + YK-88CN | 2.4 kHz | (500 Hz) | 500 Hz | 270 Hz |

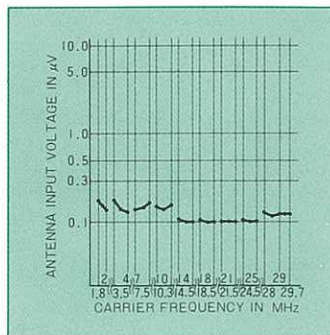
* 2.4 kHz or 1.8 kHz selected by inside jumper.

cordance with Kenwood's latest, most advanced e, high sensitivity, very sharp selectivity with play, speech processor, and other features for ough 10 meters.

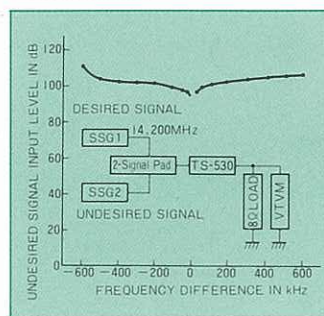
• Speech-Processor Waveform



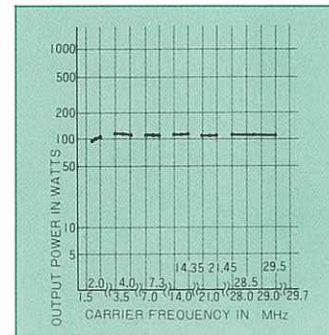
• Receiver Sensitivity



• Sensitivity/Suppression characteristics



• Output Power (CW)



noise blanker. The noise amplifier's threshold level can be adjusted by a front-panel control, to enhance the noise blanker's effectiveness under various noise and signal levels.

RF Attenuator for IMD Rejection

A 20 dB RF attenuator, which can be switched into the receiver's front end, provides optimum rejection of intermodulation distortion from extremely strong signals.

More Flexibility with Optional VFOs

The optional VFO-240 allows split-frequency operation for DX chasing, temporary QSY from and fast return to a net frequency, searching for a clear frequency while maintaining the original frequency, and other applications — making it a valuable station addition at an affordable price. For even greater flexibility, the optional VFO-230 digital VFO operates in 20 Hz steps and includes five memories — ideal for retaining net frequencies or DX stations (especially those working by call areas) for later recall.

Expanded Frequency Coverage

The TS-530S VFO as well as the optional VFO-240 remote VFO cover more than 50 kHz above and below each 500 kHz band. Also, the optional VFO-230 remote digital VFO covers about 100 kHz above and below each band.

Built-in VOX Semi-break-in

A VOX circuit is provided in the TS-530S for optimum SSB operation as well as semi-break-in operation on CW. (with sidetone)

Built-in 25 kHz Marker

The built-in 25 kHz marker, derived from the 10 MHz master oscillator, provides an accurate frequency reference for the TS-530S or any other rig to be calibrated.

RIT/XIT

The front-panel RIT (Receiver Incremental Tuning) control shifts only the receiver frequency, for tuning in stations

slightly off frequency without shifting the transmitter frequency. The front-panel XIT (Transmitter Incremental Tuning) shifts only the transmitter frequency, for calling a DX station that may be listening off frequency.

Attractive Appearance with Rugged Construction

The TS-530S is designed to enhance the appearance of any ham shack, while providing ease of operation with a functional layout of controls. The transceiver, with its front panel of rugged alloy die casting and advanced mechanical engineering throughout, will withstand rough treatment encountered in virtually any operation.

Amplified Type AGC Circuit

The automatic gain control (AGC) is activated by a three-position (OFF/FAST/SLOW) switch to provide optimum receiver operation on CW and SSB under all signal-strength conditions.

Amplified Type ALC Circuit

The amplified type automatic level control (ALC) circuit provides very clean transmit signals.

Built-in AC Power Supply

The TS-530S is a self-contained, compact station with built-in AC power supply. (modifiable to 240V AC operation.)

Final Cooling Fan

A very quiet cooling fan on the rear panel extends tube life in the final amplifier.

LED Indicators

LED indicators on the front panel make operation easier by indicating RIT, XIT, RF attenuator, Calibrator, VFO, and Speech-processor functions.

Tune Function

A TUNE position on the MODE switch is provided for preadjustment of the DRIVE control and final tank circuit. In this position the final screen voltage is reduced approximately 50%, thereby reducing power to prevent damage to the final tubes.

OPTIONAL ACCESSORIES

SM-220 Station Monitor



Based on a wide-frequency-range oscilloscope (up to 10 MHz), the SM-220 station monitor features, in combination with a built-in two-tone generator, a wide variety of waveform-observing capabilities. An optional feature is a unique pan-display capability. The SM-220 provides efficient station operation as it monitors transmitted waveforms, and it also serves as a high-sensitivity, wide-frequency range oscilloscope for various adjustments and experiments.

SPECIFICATIONS

(Transmit Signal Monitor Terminal) • Frequency Range: 1.8–150 MHz • Maximum Power: 1kW (1.8–54 MHz), 50W (150 MHz) • SWR: 1.2:1 or less • Deflection Sensitivity: More than 1 div. at 2W input • Attenuator: 6 steps (Trapezoid Waveform Observation) • Frequency Range: 1.8–30 MHz • Maximum Power at DRIVE TERMINAL: 2–100W • SWR: 1.2:1 or less (Two-Tone Generator) • Oscillator Frequency: 1,000 Hz and 1,575 Hz • Output Voltage: 10mV/50 k Ω (at TWO TONE) (Pan Display Unit) • Input Center Frequency 3.395 MHz (BS-5), 8.830 MHz (BS-8) • IF Frequency: 455 kHz • IF Bandwidth: More than 1 kHz (–6 dB) • Input Sensitivity: More than 10 μ V/div. • Scan Width: \pm 20 kHz, \pm 100 kHz, switchable gain (Horizontal Amplifier) • Deflection Sensitivity: More than 300 mV/div. • Frequency Response: DC-250 kHz or over (EXT GAIN at MAX); DC-40 kHz (EXT GAIN at 1/2) • Input Resistance/Capacitance: 1M Ω (\pm 20%)/35 PF or less (SYNC switch at INT) • Attenuator: Fully Variable to 0 • Max. Input Voltage: 100 Vp-p (Sweep Circuit) • Sweep Frequency: 10 Hz–100 kHz (4 ranges, with fine adjustment) • Sweep Linearity: Better than 5% • Sync System: Synchronized sweep, internal negative sync and external sync • Sync Amplitude: Internal: More than 1 div. on CRT External: More than 2 Vp-p (Vertical Amplifier) • Deflection Sensitivity: More than 20 mV/div. • Frequency Response: 2 Hz–10 MHz (–3 dB) • Input Resistance/Capacitance: 1 M Ω /40 PF • Overshoot: Less than 5% • Attenuator: 1, 1/10, 1/100 and GND/MONITOR (Error between steps: 5% max.) • Max. Input Voltage: 300V (DC + AC peak) or 600 Vp-p • Power Supply: 120/220/240V AC \pm 10%, 50/60 Hz 20W • Dimensions: 215 (8.6)W x 153(6.1)H x 335 (13.4)D mm (inch) • Weight: 5 kg (11 lbs)

OPTIONAL ACCESSORIES

• BS-8 ••• Pan Display for TS-530S/TS-830S/TS-180S/TS-820 series • BS-5 ••• Pan Display for TS-520S/TS-520SE
* Modifications are required for connection to TS-530S.

KB-1 Deluxe VFO Knob Matches: TS-530S, TS-830S, TS-820S, R-820



YK-88C 500 Hz CW filter YK-88CN 270 Hz CW narrow filter YK-88SN 1.8 kHz SSB narrow filter



PC-1 Phone Patch



HS-5 (8 Ω) Deluxe Headphones



HS-4 (8 Ω) Headphones



MC-30S (500 Ω) MC-35S (50 k Ω) Noise Cancelling Hand Microphone



MC-50 (50 k Ω /500 Ω) Desk Microphone



HC-10 Digital World Clock

This clock incorporating a precise quartz and digital display system as well as a built-in microcomputer can also recall and display the starting time of QSO for logging purpose

Power requirements:
120/220/240V
AC 50/60 Hz
Dimensions: 217 (8.7)W x
94 (3.8)H x 117 (4.7) D
mm (inch)
Weight: Approx. 900g
(2.0 lbs)



TS-530S SPECIFICATIONS

(GENERAL)

Frequency Range.....160 m Band 1.8 ~ 2.0 MHz
80 m Band 3.5 ~ 4.0 MHz
40 m Band 7.0 ~ 7.3 MHz
*30 m Band 10.1 ~ 10.15 MHz
(10.0 MHz WWV)
20 m Band 14.0 ~ 14.35 MHz
*17 m Band 18.068 ~ 18.168 MHz
15 m Band 21.0 ~ 21.45 MHz
*12 m Band 24.89 ~ 24.99 MHz
10 m Band 28.0 ~ 29.7 MHz
*Receiving only. (Transmission on these bands is possible with a small modification.)
Mode.....SSB/CW
RF Output Impedance.....50 Ω ~ 75 Ω
Power Requirement.....120/220/240V AC 50/60 Hz
Power Consumption.....Transmit: 295 W
Receive: 27 W (with heater OFF)
Dimensions.....333 (13.3) x 133 (5.3) x 333 (13.3) mm (inch)
Weight.....12.8 kg (28.2 lbs.)

(TRANSMITTER)

Final Power Input.....220 W PEP for SSB operation
180 W DC for CW operation
Carrier Suppression.....Better than 40 dB
Sideband Suppression.....Better than 50 dB
Spurious Radiation.....Better than 60 dB

Harmonic Radiation.....Better than 40 dB
Audio Frequency
Response.....400 to 2,600 Hz, within –6 dB

(RECEIVER)

Sensitivity.....0.25 μ V at 10 dB S+N/N
Image Ratio.....Better than 60 dB
IF Rejection.....Better than 70 dB
Receiver System.....Single Superheterodyne
Intermediate Fre-
quency.....IF 8.83 MHz
Frequency Stability.....Within 100 Hz during any 30 minutes period
after warmup.
Within 1 kHz during the first hour after 1
minute of warmup.
Selectivity.....
SSB/CW WIDE 2.4 kHz (–6 dB), 4.2 kHz (–60 dB)
With YK-88SN (option filter)
SSB NARROW 1.8 kHz (–6 dB), 3.3 kHz (–60 dB)
CW NARROW With YK-88C (option filter)
500 Hz (–6 dB), 1.5 kHz (–60 dB)
CW NARROW With YK-88CN (option filter)
270 Hz (–6 dB), 1.1 kHz (–60 dB)
Audio Output
Impedance.....8 Ω ~ 16 Ω
Audio Output.....1.5 W (8 Ω)

Note: The circuit and ratings may change without notice due to developments in technology.



SP-230



TS-530S



VFO-240



AT-230

VFO-240
Remote VFO



The VFO-240 remote analog VFO is a valuable, yet affordable station addition for split-frequency operation, temporary QSY and fast return to a net frequency, searching for a clear frequency, and other applications.

FEATURES

• T-F SET switch: allows operator to set transmit frequency quickly; reverses transmit and receive frequency momentarily, to prevent transmitting on wrong frequency during split-frequency operation • Cross-operation function switch • RIT control • MAIN and RIT indicators.

SPECIFICATIONS

• Oscillating Frequency: 5.5–6.0 MHz • Oscillator Circuit: Modified clapp • Output Voltage: 0.2 V ± 1 dB • Frequency Stability: Within 100 Hz per 30 minutes after 3 minutes warm-up • Solid-state Complement: FET; 2, Transistor; 2, Diode; 6 • Power Source: From TS-530S • Dimensions: 180 (7.2)W x 133 (5.3)H x 288 (11.5) mm (inch) • Weight: 2.4 kg (5.3 lbs)

VFO-230
Digital Remote VFO



The VFO-230 digital VFO provides maximum efficiency and flexibility for all operating conditions, including split-frequency operation, by combining a 20 Hz step digital VFO with five memories.

FEATURES

• 20 Hz step digital VFO: Provides excellent stability and smooth tuning on CW and SSB • Five Memories: Frequency can be transferred from VFO (transceiver or VFO-230) to memory or from memory to digital VFO (VFO-230) • Built-in digital display: Shows digital VFO or memory frequencies. The display range is selected automatically to cover 900.0–599.9 or 400.0–099.9, according to the band. Backed up by analog subdial with 1 kHz divisions. • Cross-operation flexibility: Easy to operate function switch provides: RECEIVE/TRANSMIT: Main, RMT, Memo (Main: Transceiver VFO or FIX, RMT: VFO-230 digital VFO, MEM: Memory) • T-F SET switch: Allows operator to set transmit frequency quickly. Reverses transmit and receiver frequency momentarily, to prevent transmitting on wrong frequency during split-frequency operation • Expanded frequency coverage: About 100 kHz above and below each 500 kHz band. • Lock switch: To prevent accidental frequency change • MAIN, RMT, and MEMO indicators: LEDs show functions in operation • Capability with TS-530S, TS-830S, TS-130, and TS-120 Series.

SPECIFICATIONS

• Oscillating Frequency: 5.4–6.1 MHz • Frequency Stability: 1×10^{-6} 20 Hz (at normal temperature), 3×10^{-6} 20 Hz (0–50 °C) • Output Voltage: 0.2V +3dB, -1dB • Power Requirement: 120/220/240V AC, 50/60 Hz, 13W • Dimensions: 180 (7.2)W x 133 (5.3)H x 287 (11.5)D mm • Weight: 3.1 kg (6.8 lbs)

AT-230
Antenna Tuner



The AT-230 antenna tuner includes the new three bands and functional features such as a through-line wattmeter, SWR meter and antenna selector switch. The AT-230 greatly adds to the effectiveness of your station.

SPECIFICATIONS

(ANTENNA COUPLER) • Frequency Range: 9 amateur bands from 1.8 to 30.0 MHz • Input Impedance: 50 Ω • Output Impedance: 10 to 500 Ω, unbalanced • Through Power: 200 W max. (WATTMETER) • Type: Through line wattmeter • Frequency Range: 1.8 to 30 MHz • Measurable RF power: Up to 20/200 W switched • Kinds of RF Power: Forward and reflected power, switched • Impedance: 50 Ω • Accuracy: Better than ± 10% of full scale (SWR METER) • SWR detection: Toroidal core directional coupler • Measurable Range: 1.1 to 10 • Min. Power Required: 4 W (GENERAL) • Connectors, INPUT: UHF type, 50 Ω • Connectors, ANT-1: UHF type; ANT-2: UHF type; ANT-3: Wire antenna only; GND • Dimensions: 180 (7.2)W x 133 (5.3)H x 287 (11.5)D mm (inch) • Weight: 3.4 kg (7.5 lbs)

SP-230
External Speaker



The SP-230 external speaker matches the TS-530S HF transceiver. It is a low-distortion speaker with selectable frequency response for high intelligibility in any mode. The frequency response is determined by the built-in audio filters, which are effective in improving signal-to-noise under certain interference conditions, or when receiving weak signals.

On the front panel is a headphone connector, for listening to audio output passed through the filters. Also on the front panel is a switch for selecting either of two audio inputs to the SP-230.

SPECIFICATIONS

• Maximum Input (nominal): 2W • Impedance: 8 Ω • Frequency Response: 300 Hz to 5 kHz • Filter Cut off Frequency: Low = 400 Hz/-3 dB, High 1 = 3 kHz/-3 dB, High 2 = 1.5 kHz/-3 dB, High 1 and High 2 = 1.0 kHz/-3 dB • Filter Attenuation Characteristic: -6 dB/Oct. • Dimensions: 180 (7.2)W x 133 (5.3)H x 287 (11.5)D mm (inch) • Weight: 1.8 kg (4.0 lbs)

TL-922
HF Linear Amplifier



The TL-922 is an HF linear amplifier operating at maximum legal power, and employing a pair of 3-500Z high performance transmitting tubes.

SPECIFICATIONS

• Frequency Range: 160 meter band—1.8 to 2.0 MHz, 80 meter band—3.5 to 4.0 MHz, 40 meter band—7.0 to 7.3 MHz, 20 meter band—14.0 to 14.35 MHz, 15 meter band—21.0 to 21.45 MHz, 10 meter band—28.0 to 29.7 MHz • Mode: SSB, CW, RTTY • Drive power: 80 W or more for full output • RF Input Power: SSB; 2,000 W PEP, CW, RTTY; 1,000 W DC • Circuitry: AB₂ Class Grounded-grid Linear Amplifier • Input Impedance: 50 Ω • Output Impedance: 50 to 75 Ω • Tubes: EIMAC 2x3-500Z (option) • Dimensions: 390 (15.6)W x 190 (7.6)H x 407 (16.3)D mm (inch) • Weight: 31 kg (68 lbs) • Power Requirements: 120/220/240V AC 50/60 Hz

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