KENWOOD

HF TRANSCEIVER

# TS-530SP

# The TS-530SP HF transceiver designed in accordance with KENWOO latest, most advanced circuit technolog providing wide dynamic range, hig sensitivity, very sharp selectivity wi

## FEATURES

### 160-10 Meter Coverage, Including Three New Bands

The TS-530SP 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 large, built-in, six-degit, 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 commondivision 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.

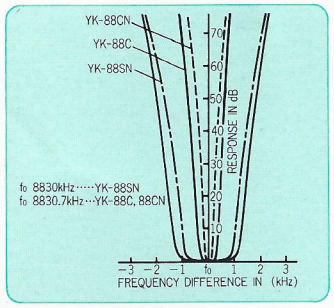
### IF Shift Reduces QRM

IF shift is built into the TS-530SP 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 YK-88CN (270 Hz) filter is installed, to work in combination with the IF shift.

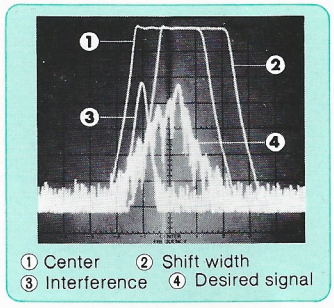
TS-530SP OPTIONAL FILTER COMBINATIONS

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

*2.4kHz or 1.8kHz selected by inside jumper.



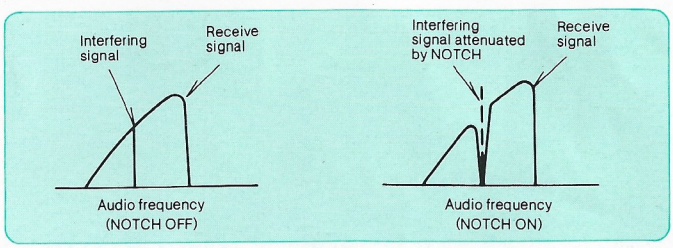

● Filter Attenuation Characteristics




● How IF Shift Eliminates Interference

### Tuneable Notch Filter built-in

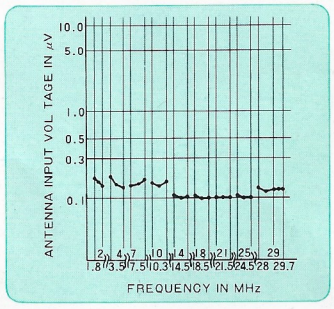
A sharp notch filter is built into the audio circuit, tuneable, to permit adjustment of system for best interference rejection.



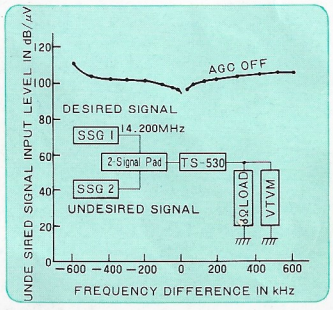

● Notch Control

### 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.



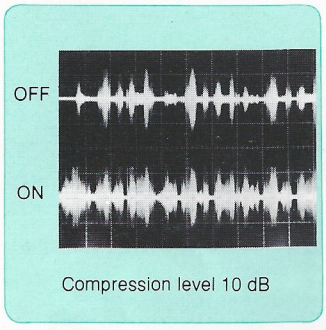

● Receiver Sensitivity



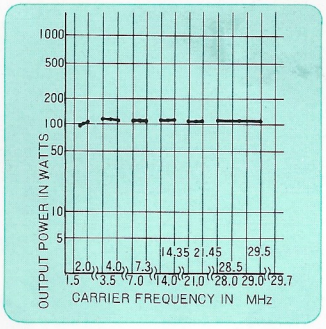

● Sensitivity/Suppression characteristics


## Built-in Speech Processor

The speech processor in the TS-530SP 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.




● Speech-Processor Waveform




● Output Power (CW)

## Two S2001A's or 6146B's in the Final

With a pair of S2001A or 6146B's in the final amplifier, the TS-530SP runs 220W PEP/180 W DC input on all bands.
*USA version 2×6146B

## Advanced Single-Conversion PLL System

The new PLL circuit in the TS-530SP 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 noise (such as ignition) is eliminated by the built-in 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-530SP 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-530SP for optimum SSB operation as well as semi break-in operation on CW. (with side-tone)

## 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-530SP 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-530SP 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.

# ectable filters and IF shift, NOTCH filter, lt-in digital display, speech processor, d other features for optimum, yet onomical, operation on 160 through meters.

### Built-in-AC Power Supply

The TS-530SP is a self-contained, compact station with built-in AC power supply.

### 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, NOTCH, VFO, and Speech-processor functions.

### Tune Function

A TUNE position on the MODE switch is provided for pre-adjustment 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.

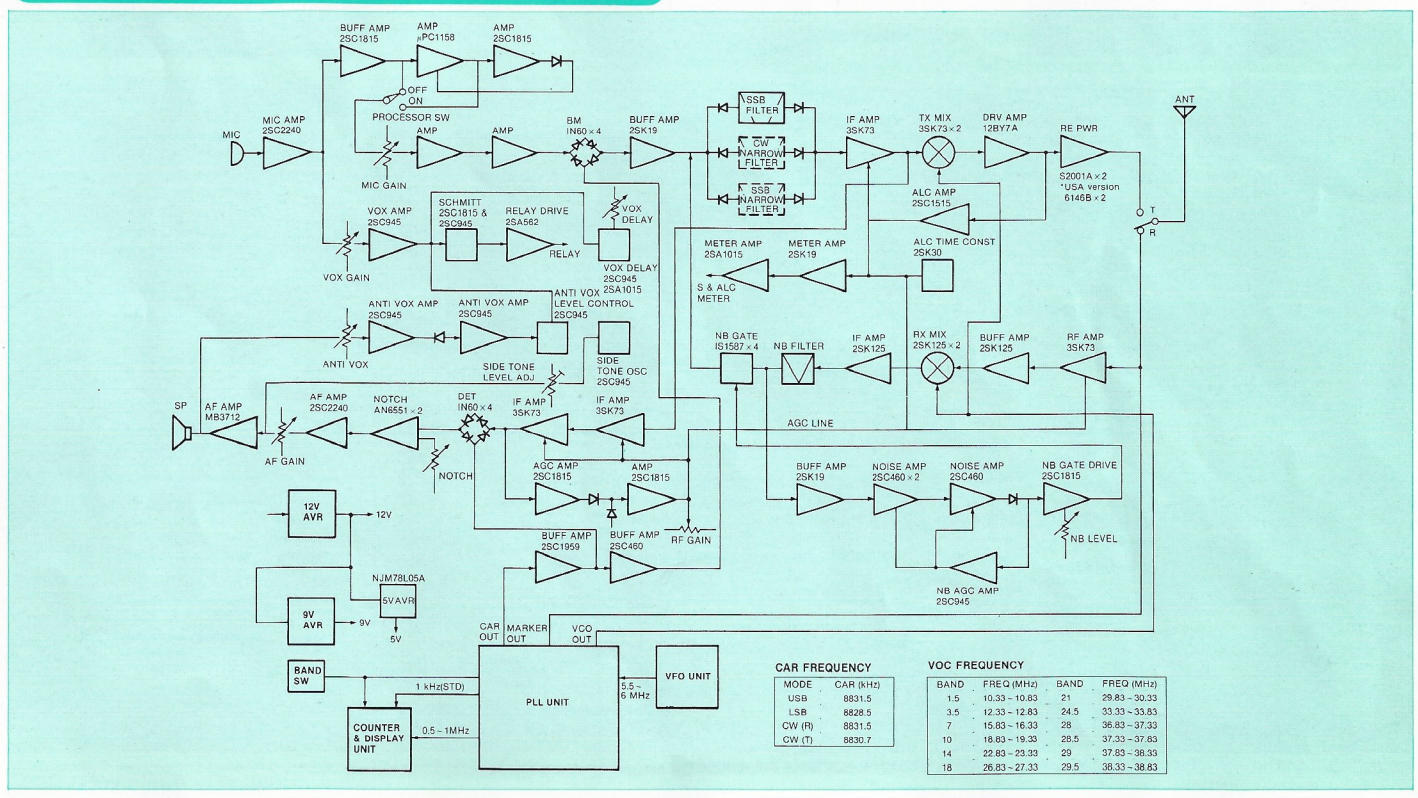
### Multifunction Meter

The meter switch selects ALC current, final plate current, relative RF output, and high voltage readings.

### Other Versatile Features

- Built-in CW zero-beat function
- Carrier level control
- Microphone gain control
- Heater switch (for driver and final tube filaments)
- Screen-grid switch (on rear panel, for switching off screen voltage on final amplifier when neutralizing)
- Remote terminal (on rear panel, for linear amplifier switching)
- Built-in speaker
- Carrying handle

## TS-530SP BLOCK DIAGRAM



# 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

•Frequency Range: 1.8 – 150 MHz •Maximum Power: 1 kW (1.8 ~ 54 MHz), 50W (150 MHz) •Deflection Sensitivity: More than 1 div. at 2W input •Attenuator: 6 steps •Power Supply: 120/220/240 V AC, 50/60 Hz, 21 W •Dimensions: 215 (8.6)W x 153 (6.1)H x 355 (13.4)D mm (inch) •Weight: 5 kg (1.1 lbs.)

Pan Display Unit

BC-5 adaptor (for TS-520), BS-8 adaptor (for TS-530SP, TS-830 S/M and TS-180)
Input center frequency: 3.395 MHz (BS-5), 8.830 MHz (BS-8)

•Modifications are required for connection to TS-530SP.

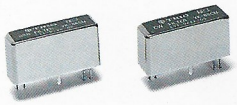
## HS-4 (8Ω)
Headphones

## HS-6 (4 ~ 26Ω)
Light-weight Headphones

## HS-5 (8Ω)
Deluxe Headphones

## HS-7 (16Ω)
Micro Headphones

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

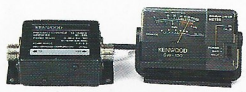


## KB-1
Deluxe VFO knob
•Matches: TS-830S, TS-530SP, TS-820X, R-820, VFO-240

## PC-1A
Phone Patch
(Available only where phone patch operation is legal.)

## 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.

## SW-100A/B
SWR/POWER meter
A: 1.8—150 MHz
B: 140—450 MHz
(0 ~ 150 W)



## SW-200A/B, 2000
SWR/POWER meter
(supplied a coupler)
200A: 1.8—150 MHz
200B: 140—450 MHz
(0 ~ 20/200W)
2000: 1.8—54 MHz
(0 ~ 200/2000W)

## MC-60 (N4) (50kΩ/500Ω)
Deluxe Desk-top Microphone (4 pin)

## MC-50 (50kΩ/500Ω)
Desk-top Microphone (4 pin)

## MC-30S (500Ω)
## MC-35S (50kΩ)
Noise Cancelling Hand Microphone (4 pin)

## MC-60A (500Ω/900Ω)
Deluxe Desk-top Microphone with built-in Preamplifier (8 pin)

## MC-80 (700Ω)
Desk-top UP/DOWN Microphone with built-in Preamplifier (8 pin)
(Electret condenser microphone)

## MC-85 (700Ω)
Deluxe Desk-Top UP/DOWN Microphone with built-in Audio Level Compensation (8 pin)
(Electret condenser microphone)

Use **MJ-84** adapter
(8 pin-4 pin)

# TS-530SP SPECIFICATIONS

## (GENERAL)

| | |
|---|---|
| Frequency Range | 160 m Band 1.8 ~ 2.0 MHz<br>80 m Band 3.5 ~ 4.0 MHz<br>40 m Band 7.0 ~ 7.3 MHz<br>30 m Band 10.1 ~ 10.15 MHz<br>(10.0 MHz WWV)<br>20 m Band 14.0 ~ 14.35 MHz<br>17 m Band 18.068 ~ 18.168 MHz<br>15 m Band 21.0 ~ 21.45 MHz<br>12 m Band 24.89 ~ 24.99 MHz<br>10 m Band 28.0 ~ 29.7 MHz<br>(1) U.S.A. version, diode protected on the new 17 AND 12 meter band to prevent accidental transmission before government amateur authorization.<br>(2) Some of the new WARC bands may be transmitted, depending on the regulations of each specific country. |
| Mode | SSB/CW |
| RF Output Impedance | 50Ω ~ 75Ω |
| Power Requirement | 120/220/240V AC, 50/60 Hz |
| Power Consumption | Transmit: 295 W<br>Receive: 27 W (with heater OFF) |
| Dimensions | 333(13.3)W x 133(5.3)H x 333(13.3)D mm (inch) |
| Weight | 12.8 kg (28.2 lbs.) |

## (TRANSMITTER)

| | |
|---|---|
| Final Power Input | 220 W PEP for SSB operation<br>180 W DC for CW operation |
| Carrier Suppression | Better than 40 dB |
| Unwanted 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 μV at 10 dB S+N/N |
| Image Ratio | Better than 60 dB |
| IF Rejection | Better than 70 dB |
| Circuitry | Single Superheterodyne |
| Intermediate Frequency | IF 8.83 MHz |
| Frequency Stability | Within 100 Hz during any 30 minutes period after warmup.<br>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) |
| SSB NARROW | With YK-88SN (option filter)<br>1.8 kHz (– 6 dB), 3.3 kHz (– 60 dB) |
| CW NARROW | With YK-88C (option filter)<br>500 Hz (– 6 dB), 1.5 kHz (– 60 dB) |
| CW NARROW | With YK-88CN (option filter)<br>270 Hz (– 6 dB), 1.1 kHz (– 60 dB) |
| Audio Output Impedance | 8Ω ~ 16Ω |
| Audio Output | 1.5 W (8Ω) |

Note: Circuit and ratings subject to change without notice due to developments in technology.