

TS-590SG

HF/ 50MHz TRANSCEIVER

Kenwood introduces new HF/50MHz Transceiver

Four years ago we launched our best-selling TS-590S transceiver into the mid-range HF market. Technology has moved on, so now it is a pleasure to announce the updated TS-590SG model, which replaces the TS-590S in production.



PRODUCT SCHEDULE:

MODEL	TYPE	TITLE	MP	PRESS RELEASE	LAUNCH
TS-590SG	E	HF/50MHz TRANSCEIVER	Oct. 2014	2 nd .Oct. 2014	Nov. 2014
ARCP-590G		RADIO CONTROL PROGLAM	Freeware (Download Only)		
ARHP-590G		RADIO HOST PROGLAM			

TS-590SG Incremental changes help performance and function to evolve

1. Equipped with 500 Hz/ 2.7 kHz Roofing Filter as standard

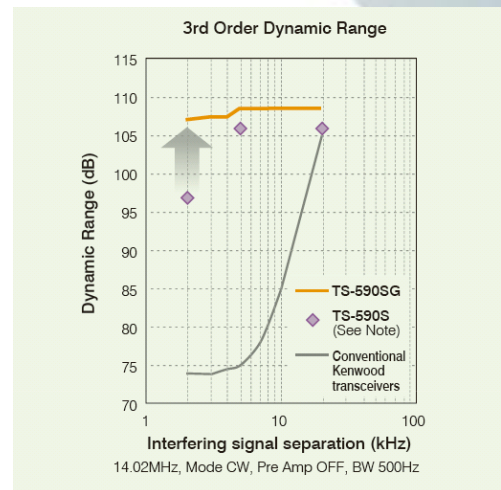
1st IF frequency (11.374 MHz) down conversion*2 is employed when receiving on 15, 20, 40, 80 or 160 meter bands. Included as standard directly after the 1st Mixer and Post Amp that compensates for conversion loss is a BW 500 Hz and 2.7 kHz 6-pole MCF, which determines adjacent receptivity realizing superb dynamic range performance that was not possible using up conversion. Even when an interfering signal approaches the reception frequency, a virtually flat dynamic range is maintained. You can capture a clear signal even in reception conditions where strong adjacent interfering signals become problematic.

*2: Down conversion is selected automatically when receiving in CW/ FSK/ SSB modes if the final passband is 2.7 kHz or less.

This graph shows what happens when the frequencies of two interference signals for measuring the dynamic range are converted from +2kHz to +20kHz from the reception frequency. For example, at the point where separation is 10kHz, the interference signals are 14.03MHz and 14.04MHz. It can be seen that the TS-590SG achieves virtually flat characteristics even in the 3rd Order Dynamic Range measurement method implemented by ARRL*3.

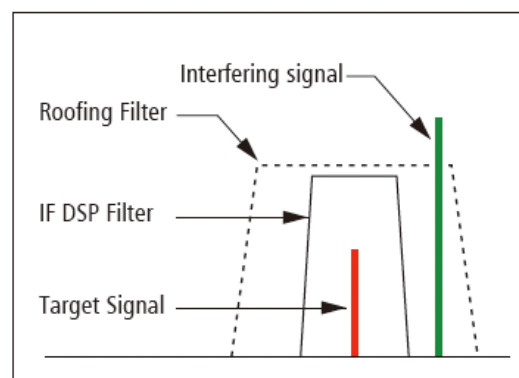
Note: TS-590S measurement values from QST® May 2011 PRODUCT REVIEW Kenwood TS-590S HF and 6 Meter Transceiver published by ARRL (reprinted with permission of ARRL)

*3: The American Radio Relay League (ARRL) is the national association for amateur radio.



2. Advanced AGC control through digital signal processing from the IF stage onward

It would be no exaggeration to say that Kenwood's receive audio, which enjoys a reputation for being non-tiring even in long contests, is determined by IF AGC control based on unique DSP algorithms. This series features all of the IF DSP AGC technology developed with the TS-990S. A remodeling of the AGC circuitry has realized superb AGC performance covering from small to large inputs. Even if interference signals slip between the Roofing Filter and the IF DSP filter that determines the final selection, level optimized AGC control enables operation without the need for awareness of Roofing Filter bandwidth.



OUT BAND AGC CONTROL

3. Morse code decoder function

Received morse code displayable*4 by scrolling on 13-segment display unit. Moreover, characters are shown*4 in a dedicated window on the ARCP-590G (freeware).

*4: Proper decoding may not be available due to reception conditions, etc.

4. Programmable functions

Frequently used and special functions can be assigned to the programmable function (PF) keys. With the TS-590SG, in addition to the PF keys, functions can also be assigned to the MULTI/CH knob's Push SW. Quick settings are made possible by assigning level setting functions such as keying speed. The RIT/XIT/CL keys can also be used as programmable function keys.

5. New Split function enabling quick setting

In addition to conventional split frequency setting methods, the TS-990's proven split setting functionality has been included. A long press of the SPLIT key, when making a 2 kHz upsetting, will enable quick setting by pressing "2" on the keypad. Furthermore, in simplex operation with just XIT on, the XIT frequency can be changed with TF-SET. The keypad keys are band-direct keys. Each band has 3 memories, enabling quick call-up of usually-used frequencies.

6. Other features

Antenna output function (shared with DRV connector)

- LED backlight with selectable color tone
- FIL A/B configurable independently with VFO A/B (convenient during Split operation)
- Front or rear PTT selectable for Data PTT
- Switching from HI CUT/ LO CUT to WIDTH/ SHIFT possible for reception bandwidth changing in SSB mode
- Interference/noise removal features
- Heavy-duty design is capable of withstanding grueling conditions typical of contests or long hours of hard operation with two of 60mm fan cooling system
- Built-in preset-type high speed operation automatic antenna tuner

7. Notice

- It is not possible to upgrade previous TS-590S models.
- Current PC Application Software, ARCP-590 and ARHP-590, do not work with "G" models – please download the latest ARCP-590G and ARHP-590G programs.
- Both ARCP-590 and ARCP-590G may be installed on the same PC.

8. Firmware update

* We are to offer some of the new TS-590SG's functions to owners of our current TS-590S models via a free firmware download as "TS-590S Ver.2.0 update".(Please see here for details.

http://www.kenwood.com/i/products/info/amateur/ts_590/ts590v2_e.html)

9. Optional Accessories

- | | |
|-------------|----------------------------------|
| ■ MC-90 | Deluxe Desktop Microphone |
| ■ MC-60A | Desktop Microphone |
| ■ MC-47 | Hand Microphone (4 PF Buttons) |
| ■ MC-43 | Hand Microphone |
| ■ HS-6 | Headphone |
| ■ HS-5 | De-luxe Headphone |
| ■ PG-20 | DC Cable (7 metres) |
| ■ SO-3 | TCXO |
| ■ MB-430 | Mobile Bracket |
| ■ PS-60 | Heavy-duty Power Supply (22.5A) |
| ■ KES-3S | External Speaker |
| ■ SP-23 | External Speaker |
| ■ VGS-1 | Voice Guide & Storage Unit |
| ■ ARCP-590G | Radio Control Program (Freeware) |
| ■ ARHP-590G | Radio Host Program (Freeware) |

10. Specifications

(All specifications subject to change without prior notice)

General		
Frequency range (Transmitter)	160m band 80m band 60m band *1 40m band 30m band 20m band 17m band 15m band 12m band 10m band 6m band	1.81 ~ 2.0 MHz 3.5 ~ 3.8 MHz 5.25 ~ 5.45 MHz 7.0 ~ 7.2 MHz 10.1 ~ 10.15 MHz 14.0 ~ 14.35 MHz 18.068 ~ 18.168 MHz 21.0 ~ 21.45 MHz 24.89 ~ 24.99 MHz 28.0 ~ 29.7 MHz 50.0 ~ 52.0 MHz
Frequency range (Receiver)		0.13 ~ 30 MHz, 50 ~ 54 MHz VFO: Continuous 30 kHz ~ 60 MHz
Mode		A1A(CW), A3E(AM), J3E(SSB), F3E(FM), F1B(FSK)
Frequency stability		±5 ppm, -10 °C ~ +50 °C with SO-3: ±0.5 ppm, -10 °C ~ +50 °C
Antenna impedance		50 Ω
Antenna tuner load range		16.7 Ω ~ 150 Ω
Supply voltage		DC 13.8 V ±15 %
Ground		Negative ground
Current Drain	TX RX (No signal)	20.5 A or less 1.5 A or less
Operating Temperature		-10 °C ~ +50 °C
Dimensions	Without projections With projections	W270 × H96 × D291 mm W280 × H107 × D335 mm
Weight		Approx. 7.4 kg
Transmitter		
Output Power (AM)		Max 100 W / Min 5 W, (Max 25 W / Min 5 W)
Modulation		SSB: Balanced, AM: Low Power, FM: Reactance
Maximum frequency deviation (FM)		wide: ±5 kHz or less, narrow: ±2.5 kHz or less
Spurious emissions		HF: -50 dB or less 50 MHz: -63 dB or less
Carrier suppression		50 dB or more
Unwanted sideband suppression		50 dB or more
Transmit frequency response		Within -6 dB (400 ~ 2600 Hz)
Microphone impedance		600 Ω
XIT variable range		±9.999 kHz

Receiver			
Circuit type		Double Superheterodyne ^{*2}	Triple Superheterodyne ^{*3}
Intermediate frequency	1st IF	11.374 MHz	73.095 MHz
	2nd IF	24 kHz	10.695 MHz
	3rd IF	-	24 kHz (except FM) 455 kHz (FM)
Sensitivity (TYP)	SSB / CW / FSK (S/N 10 dB)	0.5 μ V (0.13 ~ 0.522 MHz)	
		4 μ V (0.522 ~ 1.705 MHz)	
		0.2 μ V (1.705 ~ 24.5 MHz)	
0.13 μ V (24.5 ~ 30 MHz)			
0.13 μ V (50 ~ 54 MHz)			
	AM (S/N 10 dB)	6.3 μ V (0.13 ~ 0.522 MHz)	
		31.6 μ V (0.522 ~ 1.705 MHz)	
		2 μ V (1.705 ~ 24.5 MHz)	
		1.3 μ V (24.5 ~ 30 MHz)	
		1.3 μ V (50 ~ 54 MHz)	
	FM (12 dB SINAD)	0.22 μ V (28 ~ 30 MHz)	
		0.22 μ V (50 ~ 54 MHz)	
Squelch Sensitivity	SSB / CW / FSK / AM	5.6 μ V or less (0.13 ~ 0.522 MHz)	
		18 μ V or less (0.522 ~ 1.705 MHz)	
1.8 μ V or less (1.705 ~ 30 MHz)			
1.1 μ V or less (50 ~ 54 MHz)			
	FM	0.2 μ V or less (28 ~ 30 MHz)	
		0.2 μ V or less (50 ~ 54 MHz)	
Image Rejection Ratio		70 dB or more	
IF Rejection Ratio		70 dB or more	
Selectivity	SSB	2.2 kHz or more (-6 dB)	
		4.4 kHz or less (-60 dB)	
	CW / FSK	500 Hz or more (-6 dB)	
		1.2 kHz or less (-60 dB)	
AM	6.0 kHz or more (-6 dB)		
		12 kHz or less (-50 dB)	
	FM	12 kHz or more (-6 dB)	
		25 kHz or less (-50 dB)	
RIT variable range		\pm 9.999 kHz	
Notch filter attenuation		60 dB or more (Auto), 70 dB or more (Manual)	
Beat cancel attenuation		40 dB or more	
Audio output		1.5 W or more (8 Ω)	
Audio output impedance		4 Ω ~ 8 Ω	

*1 60 m band: Refer to applicable Amateur Radio regulations to your country.

*2 In 160 m/ 80 m/ 40 m/ 20 m/ 15 m Amateur bands, IF band width 2.7 kHz or less (SSB, CW, FSK,)

*3 Except in above *2