

21MHz amateur bands at the main reception following the first IF frequency 11.374MHz * down method adopted. After the 1st Mixer roofing filter (BW6kHz) improved performance in close-NB, also received close to determine the characteristics of the Post Amp after the roofing filter 2nd and BW500Hz MCF standard 6 pole 2.7kHz. The conventional method is the up-close achieved excellent dynamic characteristics accomplished. Even closer to the disturbance frequency is received, maintaining the dynamic properties of nearly flat. In such a situation becomes a problem receiving a strong signal of the proximity interference, you can catch a clear signal.

* 1.8 / 3 .5/7/14/21MHz band amateur bands, CW / FSK / SSB mode when it receives 2 .7 kHz bandwidth of the final pass is automatically selected when the following.

The first local oscillator, a conventional PLL / VCO system instead, DDS (direct digital synthesizer) directly supplied to the mixer output. Because when you get down lower than the system oscillation frequency upconversion, and even C / N output and excellent performance has earned good Receiver characteristics.

Receiver

Given frequency signal generator output frequency away from the receiver output level Variable-interference (noise) can detect and measure the level of an. Less unwanted noise signals close this number is higher, allowing a quiet reception. Even IF stage DSP. The first TS-870 DSP unit in Amateur achieved by Kenwood IF AGC control. In the TS-590 DSP technology is developed further, IF AGC has developed a unique control scheme. IF roofing filters and final gap also exists for the signal passband width, the optimum level of AGC control can be performed. Without any knowledge of the roofing filter bandwidth can be optimized to operate at all times. The final IF passband (receive band) greatly improved performance in the desired signal gain control. Comparable to high-end band IMD (distortion) characteristics are achieved. You can receive the new generation of Kenwood and comfortable tone.

Variable IF filter bandwidth

Variable-DSP bandwidth filters, you can use contextual interference rejection. SSB / AM / FM Suropuchun mode, CW / FSK / SSB-DATA communication mode WIDTH / SHIFT features works.

Initial choice of modes (default is bold)

* SSB mode

LOW CUT: 0,50,100,200,300,400,500,600,700,800,900,1000 Hz

HI CUT: 1.0,1.2,1.4,1.6,1.8,2.0,2.2,2.4,2.6,2.8,3.0,3.4,4.0,5.0 kHz

* CW mode

WIDTH: 50,80,100,150,200,250,300,400,500,600,1000,1500,2000,2500 Hz

SHIFT: 300Hz ~ 1kHz (50Hz steps)

* SSB-DATA communication mode

WIDTH: 50,80,100,150,200,250,300,400,500,600,1000,1500,2000,2500 Hz

SHIFT: 1000,1100,1200,1300,1400,1500,1600,1700,1800,1900,2000,2100,2210 Hz

* AM mode (CUT LOW the AF filter)

LOW CUT: 0,100,200,300 Hz

HI CUT: 2.5,3.0,4.0,5.0 kHz

* FSK mode

WIDTH: 250,500,1000,1500 Hz

* FM mode (AF filter)

LOW CUT: 0,50,100,200,300,400,500,600,700,800,900,1000 Hz

HI CUT: 1.0,1.2,1.4,1.6,1.8,2.0,2.2,2.4,2.6,2.8,3.0,3.4,4.0,5.0 kHz

IF filter A / B switch touch

For example, wide-band filter characteristics A, B filters pre-set narrow band filter characteristics. CW when looking at the other station communication A wide operational characteristics of selected filters, the filter characteristics when communicating to select small and B, two types of preset DSP filters, and switching operations depending on the situation is.

IF Auto Notch function * Manual Notch function **

TS-590 features auto-notch, with manual IF notch. Notch signals by removing the strong interference, allowing weak signals to highlight the desired behavior. IF

Auto Notch automatic adjustment following the beat frequency notch frequency. Band notch characteristic sharp manual adjustment too. The manual notch can be varied manually with a notch so you can also switch between normal and wide attenuation range, can be operated according to interference conditions.

* SSB mode only works

** SSB / CW / FSK mode

Digital / analog functions NB filter with two methods (NB1/NB2)

Analogowy Noise Blanker have a reputation for weak noise effect (NB1), as well as newly developed Digital Noise Blanker (NB2) also features. According to the type of reception conditions and the noise, you can choose NB with perfect effect. NB1, the roofing filter on 1st down (NB filter) through the noise to be supplied to the NB circuit noise can be stable independent of the received bandwidth. NB2 envelope follower is a newly developed method, the noise that can not be effective against the analog NB follow.

DSP noise reduction features (NR1/NR2)

NR1/NR2 traditional methods in addition to two types of noise reduction, NR1 noise reduction with spectral subtraction scheme focused on the newly developed noise reduction system with voice mode. Noise reduction method is applied for each incoming mode.

NR1

SSB focus on improving the clarity of weak signal reception, the newly developed spectral subtraction type of noise reduction.

32bit floating point DSP utilize the computing power of this advanced technology, you can highlight a desired signal embedded in noise without degradation of sound quality. The non-voice (CW / FSK) receiver mode, the noise reduction system works well-established traditional reduction. Reduction effect can be varied smoothly Both methods

NR2 (SPAC method)

Periodic signals to extract the original sound received by the noise reduction system works Kenwood SPAC. SPAC method to suppress the noise of the same frequency as the target signal is also effective in CW operation. Correlation time is 2ms ~ 20ms to 2ms 10-step selection stage. (NR2 is running on non-FM)

Beat cancel function (BC1/BC2)

IF is effective against the strong beat one notch Auto Beat Cancel is more effective in relatively weak beat. BC1 is effective and continuous beat to beat weak, BC2 has the effect of the CW beat signals, such as intermittent. IF Auto Notch can also be used at the same time, enabling more effective elimination beat. (SSB / AM / FM works.)

Heavy duty 100W

The same size as previous models with two 60mm fans square highly-bearing adopted. To obtain sufficient low-speed air flow by using two fans are also great for quietness. The fan and motor noise as well as, special care in the intake and exhaust port shape and size, has achieved a total quietness. In addition, a large heat sink was made to spread the heat efficiently, and minimizes temperature rise during the final part of continuous transmission. Long hard contest and operation, heavy duty design to withstand harsh environments in full.

Built Autotuner

ATU can a quick, built in presetting autotuner runnable on receipt. Transmission frequency changes, the antenna tuner circuit is set to remember every band antenna, the antenna tuner to the best matching state quickly without re-tune.

Additional frequency stabilisation

With standard TCXO, $\pm 0.5\text{ppm}$ high frequency stability

TCXO (temperature compensated crystal oscillator) by a standard feature, $-10^{\circ}\text{C} \sim +50^{\circ}\text{C} \pm 0.5\text{ppm}$ in a wide temperature range has earned a high stability.

Drive output support (135kHz including band)

Transmission drive output (about 0dBm) output to the external drive can extract

(DRV) terminal equipment. Barter not only useful when connecting the transformer, the antenna terminal body can not support 135kHz band transmission, allowing use this terminal. It is even more useful when combined with receive-only antenna terminal.

Note: For the transmission frequency and the body is not supported when connecting to a separate application is required ancillary equipment.

Speech Processor function (SSB / AM / FM)

Modulation depth on the average, to increase the intelligibility of the other station. Adjustment as well as tone control, soft-handed condition / hard and you can switch.

Send variable bandwidth filter (SSB / AM)

Filter bandwidth can be switched transmission. Since the cut-off switch between the independent low and high frequency side, you can set granular.

Send equalization (SSB / AM / FM)

Equalizer is flat (the default), Highpass (class 2), Lowpass, bass boost (2 types), conventional and user settings (ARCP-590 uses) can choose from, according to the characteristics of the talker and microphone voice It is possible to adjust the frequency response.

Transmission monitoring capabilities

Will transmit audio from the speaker output, you can check the transmission quality.

Other Transmission Features

- * VOX function (gain adjustment, set delay)
- * Transmit power output adjustment
- * MIC gain adjustment
- * Carrier level adjustment

CW autotune

At CW operation, automatically zero in the press of a button while the other station receives the signal. RIT RIT tuning during operation frequencies.

Terminal equipped with two keys back

Electronic keyer (internal), terminal equipment for independent external keyer paddle for the terminal. PC can be connected together and paddle keying.

Other CW features

- * Full break-in / support Semi break-in (semi break-in time 50ms ~ 1000ms)
- * Memory function (for up to 4 channel)
- * Pitch control (300 ~ 1000Hz)
- * 10 steps volume by setting monitor
- * Electronic keyer (KEY speed settings, A / B mode selection)
- * Manual keyer
- * CW Reverse KEY
- * SSB just down mode automatically switches to the CW CW automatic transmission function

Easy to use menu, great usability

The TS-590 features 87 types of menus. The menu keys and key combinations cross, is intuitive.

Menu mode main display area. View sub-area is scroll through the guidance of its contents. Various details can be operated.

Choose from a large two-color LED backlight display

Under all circumstances, exert a large display of excellent visibility. LED backlight will be switched to amber and green colors of the two.

Direct frequency selection and band stack.

Numeric keypad, and are band-stack. Each band has three memory, you can immediately call frequencies used to. The keys were laid out in consideration of the operation to ensure the operation accepts, you can do is comfort.

Can control the PC via USB

In addition to the traditional COM terminal, newly equipped with a USB connector

that, USB PC can be controlled via a single cable. Also, you can send and receive voice connections.

□ USB audio in principle there is a delay. Applications are affected by time lag is not available.

TS-590 remote control from PC

ARCP-590 (radio control program) provides almost all functions are controlled by your PC. Setting and memory channel management as well as various functions available from the PC.

□ related free software is scheduled to begin after the date of product launch for download.

Audio tours, recording function (optional)

VGS-1 voice guide & storage unit in the mounting frequency, keystrokes and various settings such as audio guides, message recording / playback is possible. Add audio guide to the manual mode only when you press the voice button. Voice guide language can be selected from English and Japanese.

* Up to 4 Memory Voice: CH1, 2 to 30 seconds each, CH3, 4 can record 15 seconds each.

* 1-channel receiver continuously recorded for 30 seconds

Easy to determine the status beeps

Tested in addition to the traditional sound, features and OFF setting mode when a beep to sound different, so separate, you can determine the status intuitively.

Features programmable function (PF A / PF B)

In TS-590 has two programmable function available. From the specified features, you can choose to assign frequently used functions.

Memory / scanning

□ Easy to use memory

Name for the memory frequency up to 110 memory (including memory section definition) can be up to the channel. Also, changing the operating frequency, memory and scrolling memory contents can be checked, copy between memory channels can be copied to another channel memory contents, Repeater lockout, memory, memory shift, what memory / frequency also employs variable temporarily. * 10 channels with one-touch memory that features quick memory. What is possible and memory shift temporary variable in memory.

* Number of channels can be set from 3/5/10 channels.

Various Scan

As the program scans the memory scanning, memory scan, group scan, subtone scan, CTCSS scan and with a lot. Programmed scan also supports scan to automatically slow down near the frequency you want to check more carefully.

Receive function

* Receive equalization

* ATT, preamplifier

* RF gain adjustment, AF gain control, SQL level setting

FSK capability

* RTTY operation Preferences (polarity keying shift width, HI / LO tone, Reverse)

FM function

* Corresponding to the received FM wide / Narrow switch

* Tone Operation Sub Repita

* FM signaling (CTCSS, Black Stone)

Features DATA

* SSB-DATA/FM-DATA Independent Mode

* PSK31/AFSK operation corresponding to the IF filter selection

* DATA modulation / demodulation level variable

* DATA line select modulation (ACC2/USB)

* DATA VOX function

Other connections

Operation corresponding to the packet * ACC2 connector

* REMOTE socket compatible connector (internal tube linear amplifier control relay can be set to send ALC)

Interfacing to external devices

* Support for external antenna tuner (AT-300 *)
* Packetsend function (TM-D710/TH-D72 ** connections)

Other

Call emergency contact feature set frequency *

* External antenna tuner tuning TX
* Open message (power, you can display any number or letter of 8 characters.)
* COM pin of split data transfer function, TL-933

General specification

160m band frequency range of 1.810 ~ 1.825MHz, 1.9075 ~ 1.9125MHz

80m band 3.500 ~ 3.575MHz, 3.599 ~ 3.612MHz, 3.680 ~ 3.687MHz, 3.702 ~ 3.716MHz, 3.745 ~ 3.770MHz, 3.791 ~ 3.805MHz

Emergency contact set frequency 4,630 kHz

40m band 7.0 ~ 7.2MHz

30m band 10.1 ~ 10.15MHz

20m band 14.0 ~ 14.35MHz

17m band 18.068 ~ 18.168MHz

15m band 21.0 ~ 21.45MHz

12m band 24.89 ~ 24.99MHz

10m band 28.0 ~ 29.7MHz

6m band 50.0 ~ 54.0MHz

Receive frequency range 0.13 ~ 30MHz, 50 ~ 54MHz

(VFO will operate continuously 30kHz ~ 60MHz)

Radio Model A1A (CW), A3E (AM), J3E (SSB), F3E (FM)

Frequency stability of -10 μ ~ +50 μ , \pm 0.5ppm within

Antenna 50 Ω

Antenna Tuner Matching Range 16.7 ~ 150 Ω

DC13.8V \pm 15% supply voltage range

20.5A maximum current consumption during transmission below (TS-590S/TS-590D),

12A below (TS-590V)

Reception (at no signal) 1.5A below

Temperature Range -10 $^{\circ}$ ~ +50 $^{\circ}$

Dimensions excluding protrusions W270 \times H96 \times D291mm

W280 \times H107 \times D335mm including projection

weight 7.4kg

Transmitter

Transmit power

In () AM TS-590S 100W (25W)

TS-590D 50W (25W)

TS-590V 10W (5W)

Modulation SSB: Balanced modulation FM: Modulation reactance AM: Low power modulation

Maximum frequency deviation (FM) wide: \pm 5kHz less narrow: \pm 2.5kHz below

Sending spurious HF:-50dB below

50MHz band:-63dB below (TS-590S), -60dB below (TS-590D, TS-590V)

Carrier suppression ratio over 50dB

No more than 50dB sideband suppression measure

Send Frequency 400 ~ 2,600 Hz:-6dB less

Microphone impedance 600 Ω

XIT Variable Range \pm 9.999kHz

Receiver

RX1 1 \square RX2 2 \square receiving system

double-superheterodine, triple-superheterodine

Intermediate frequency of 1IF 11.374MHz 73.095MHz

First 2IF 24kHz 10.695MHz

First 3IF - 24kHz (FM non) / 455kHz (FM)

Receive Sensitivity SSB / CW / FSK

(S / N 10dB)-6dB μ (0.5 μ V) below (0.13 ~ 0.522MHz)

12dB μ (4 μ V) less (0.522 ~ 1.705MHz)

-14dB μ (0.2 μ V) less (1.705 ~ 24.5MHz)

-18dB μ (0.13 μ V) less (24.5 ~ 30MHz)

-18dB μ (0.13 μ V) less (50 ~ 54MHz)

AM
 (S / N 10dB) 16dBμ (6.3μV) below (0.13 ~ 0.522MHz)
 30dBμ (32μV) less (0.522 ~ 1.705MHz)
 6dBμ (2μV) less (1.705 ~ 24.5MHz)
 2dBμ (1.3μV) less (24.5 ~ 30MHz)
 2dBμ (1.3μV) less (50 ~ 54MHz)
 FM
 (12dB SINAD)-13dBμ (0.22μV) less (28 ~ 30MHz)
 -13dBμ (0.22μV) less (50 ~ 54MHz)
 Squelch Sensitivity SSB / CW / FSK / AM 15dBμ (5.6μV) below (0.13 ~ 0.522MHz)
 25dBμ (18μV) less (0.522 ~ 1.705MHz)
 5dBμ (1.8μV) less (1.705 ~ 30MHz)
 1dBμ (1.1μV) less (50 ~ 54MHz)
 FM-14dBμ (0.2μV) less (28 ~ 30MHz)
 -14dBμ (0.2μV) less (50 ~ 54MHz)
 Image interference ratio over 70dB
 Interference ratio of 70dB or more intermediate frequency
 Selectivity over SSB 2.2kHz (-6dB) 4.4kHz less (-60dB)
 CW / FSK 500Hz over (-6dB) 1.2kHz or (-60dB)
 AM 6kHz or more (-6dB) 12kHz less (-50dB)
 FM 12kHz over (-6dB) 25kHz less (-50dB)
 RIT variable range ± 9.999kHz
 More than 60dB attenuation notch filter (Auto), 70dB or more (Manual)
 Beat Cancel 40dB attenuation over
 Low-frequency output than 1.5W (8Ω)