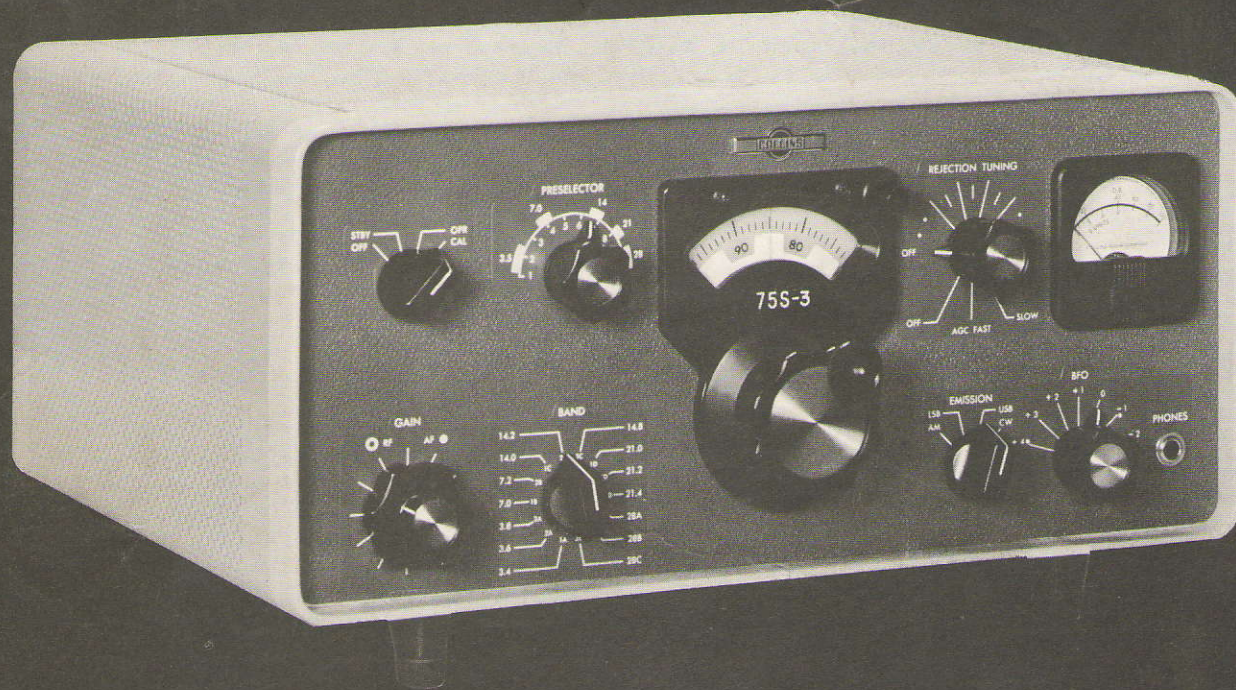


# COLLINS NEW 75S-3 RECEIVER



## Superior Performance for SSB, CW and RTTY

Collins new 75S-3, the latest addition to the famous S/Line of amateur equipment, is a versatile receiver with the sharpest selectivity available to you in any of three modes—SSB, CW and RTTY. AM reception is provided, and may be sharpened, by the installation of an optional 3.1, 4.0 or 6.0 kc Mechanical Filter.

The 75S-3 combines all Collins' proven qualities in design, engineering and workmanship with unexcelled frequency stability and these other features:

- **REJECTION TUNING**—A single control provides 50 db rejection of unwanted heterodynes and carriers.
- **CHOICE OF VARIABLE OR CRYSTAL BFO**—The variable BFO provides additional convenience to CW and RTTY operators. The variable BFO may be utilized in any mode. Inversion of RTTY Mark/Space signals may be accomplished. The fixed frequency crystal BFO is turned on when the BFO knob is pushed in. It is normally used for SSB.
- **200 CPS CRYSTAL FILTER**—This very narrow filter offers the sharpest selectivity for CW operation.
- **2.1 KC MECHANICAL FILTER**—The 2.1 kc filter offers the sharpest bandpass available for SSB use.

Effectively reduces background noise by reducing bandwidth to only that required for communication. It can also be used for CW and RTTY.

- **AGC CONTROL**—The automatic gain control knob allows selection of two AGC decay time constants as well as off. This permits choice of AGC characteristics to suit operating conditions.
- **SPINNER TUNING KNOB**—A finger hole on the edge of this knob allows rapid scanning of the bands and moving from one band edge to the other.
- **CONCENTRIC RF/AF GAIN CONTROLS**—Allows increased operating convenience.

Also available is the 75S-3A, providing extended range coverage. It is identical to the 75S-3 with these exceptions:

The 75S-3A is equipped with an additional HF crystal mounting board on the chassis and a crystal board selector switch is located on the front panel. The standard group of amateur band crystals is mounted in a board on the under side of the chassis; the board for additional crystals is mounted on the top of the chassis so that optional crystals may be easily added.

The 75S-3 is compatible with Collins 32S-1 Transmitter and 312B-4 Station Control to make a completely integrated station. The 75S-3, like the 75S-1, when used with the 32S-1, provides optional transceiver type operation with the receive PTO controlling the transmitting frequency. The 75S-3 may also be conveniently used with other transmitters, including Collins KWS-1, as well as with the Collins KWM-1 or KWM-2 Transceivers.

Coverage outside the amateur bands, or additional 10-meter band coverage, may be obtained by plugging in appropriate crystal into the crystal mounting board.

The 75S-3 contains the normal crystal-controlled BFO and a variable BFO.

Variable pitch for CW reception is accomplished by pulling the BFO knob away from the panel, and adjusting the knob to yield the most pleasing beat note with the desired signal centered in the filter passband. The calibration marks may be used to shift from high mark to low mark when copying RTTY.

When the BFO knob is out and pointing at the 0 reference mark, the BFO frequency is approximately the same as crystal BFO in USB position. With the knob in, the crystal BFO is in operation.

RTTY operation requires conventional converter and printer. Tuning for this mode is done by selecting the variable BFO. The 75S-3 may also be used for AM reception.

Accessory items furnished with the 75S-3 and 75S-3A include two phono-type connectors for external connection; one spare two-ampere fuse; one ac power cord; one ac power plug adapter; one #8 Bristo knob wrench, and two spare type 47 pilot lamps.

## SPECIFICATIONS

**FREQUENCY RANGE:** 3.4-5.0 mc, 6.5-30.0 mc with proper crystal for HF oscillator.

**CRYSTALS PROVIDED FOR FREQUENCY COVERAGE:**

80 meters	3.4-4.0 mc
40 meters	7.0-7.4 mc
20 meters	14.0-14.4 mc
WWV	14.8-15.0 mc
15 meters	21.0-21.6 mc
10 meters	Choice of 3-200 kc portions. 28.5-28.7 mc supplied as standard.

**FREQUENCY STABILITY:** After 30 minutes warm-up, drift during any 10 minute period shall not exceed 100 cps. Normal operation after warm-up is within 1000 cps of indicated dial reading.

**VISUAL DIAL ACCURACY:** 200 cps all bands.

**ELECTRICAL DIAL ACCURACY:** 300 cps all bands.

**CALIBRATOR:** 100 kc crystal.

**BACKLASH:** NMT 50 cps.

**SENSITIVITY:** The CW sensitivity is NMT 0.5 uv (measured with a 50 ohm dummy antenna and a 10 db signal-plus-noise-to-noise ratio within amateur bands).

**IF SELECTIVITY:**

SSB — 2.1 kc, 2:1 shape factor Mechanical Filter (6-60 db).

CW — 200 cps nominal, 4:1 shape factor crystal filter (6-60 db).

AM — 5 kc IF transformer. Provision for installing Mechanical Filter.

**Q MULTIPLIER:** Rejection notch depth 50 db nominal, 40 db minimum.

**VARIABLE BFO:** Tunes 452-458 kc.

**SPURIOUS RESPONSE:** IF rejection not less than 50 db on all bands except 80 meters where it may be not less than 40 db. Image rejection not less than 50 db. Crossover spurious not less than 50 db.

**AUTOMATIC GAIN CONTROL:** Threshold — 1.5-3.0 uv; 1.5 uv nominal. Time constant, fast — Fast attack and fast release 300 milliseconds release time. Fast attack and slow release 600 milliseconds release time. Attack time 0.8 milliseconds in both fast and slow.

**OUTPUT LEVEL:** Not less than 0.25 watt with an AGC threshold AM signal modulated 30% at 1000 cps. 1 watt at 1000 uv input.

**ANTENNA INPUT:** 50 ohms nominal.

**AUDIO OUTPUT CIRCUITS:** 500 ohms  $\pm 20\%$  and 4 ohms  $\pm 20\%$ , using unbalanced winding without centering. Panel phone jack is on load divider off of 500 ohm winding.

**AUDIO RESPONSE:** SSB — 300-2400 cps nominal at 6 db. CW — 1200-1500 cps nominal at 6 db. AM — 200-3000 cps nominal.

**AUDIO NOISE LEVEL:** Not less than 40 db below 1 watt.

**AUDIO DISTORTION:** Not more than 10% at 1 watt.

**MUTING:** Receiver silenced during transmit by opening an external ground on mute terminal.

**CONTROLS:**

Function switch (Off-Standby-Operate-Calibrate)

RF Gain

AF Gain

Preselector Tune

Dial Zero Set

Bandswitch

Tuning Dial

Emission Switch (AM-LSB-USB-CW)

AGC Switch (OFF-FAST-SLOW)

Variable BFO Tune (OFF switch on control)

Rejection Tune (OFF switch on control)

**SIZE:** 14 $\frac{3}{4}$ " W, 6 $\frac{9}{16}$ " H, 11 $\frac{1}{2}$ " D.

**WEIGHT:** 19 lbs.

**AMBIENT TEMPERATURE:** 0°-50° C.

**AMBIENT HUMIDITY:** 0%-90%.

**POWER SOURCE:** 105-125 v ac, 50-60 cps, 85 watts.

**PROTECTIVE DEVICES:** The ac line is fused with a 2a fuse.

**TUBE COMPLEMENT:**

Function	Quantity	Type
Calibrator	1	6DC6
RF Amplifier	1	6DC6
HF Mixer	1/2	6U8A
HF Oscillator	1/2	6U8A
LF Mixer	1/2	6U8A
PTO	1	6AU6
PTO Cath. Fol.	1/2	6U8A
Q Multiplier	1	12AX7
1st IF Amplifier	1	6BA6
2nd IF Amplifier	1	6BA6
Product Detector	1/2	6U8A
AF Detector	1/3	6AT6
AGC Rectifier	1/3	6AT6
Audio Amplifier	1/3	6AT6
AF Output	1	6BF5
Crystal BFO	1/2	6U8A
Variable BFO	1	6DC6

**TRANSCIEVER OPERATION:** The 75S-3 is capable of supplying oscillator injection voltages to the companion 32S-1, 2 Transmitter. The two units are patched together with six cables. A switch on the panel of the 32S-1, 2 allows the choice of either transceiver or separate operations. No auxiliary coupling units or wiring changes are necessary. Muting is also provided by KWM-2, 2A so the 75S-3 may be used with these two equipments also.

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