

TRC 394 C

Multi Purpose HF Receiver

- Frequency range: 100 kHz to 30 MHz
- High stability synthesizer
- Frequency selection via keyboard, with frequency sweep continuous station search.
- Remote control facility.
- 20 stored frequencies.

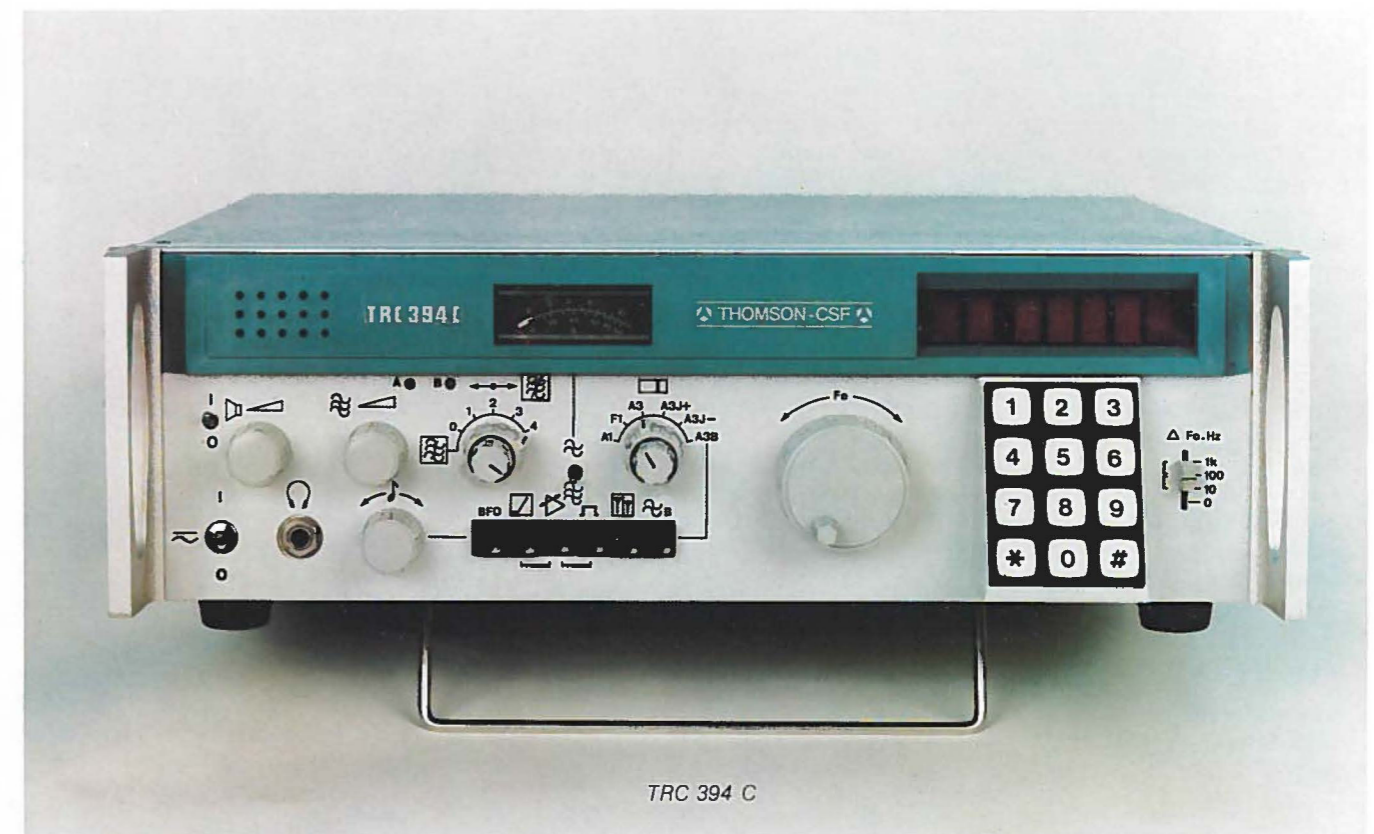
General

Operation of MF/HF professional receivers is becoming more and more specialized according to various operational criteria, which can be broken down into three major categories:

- **Supervision of a frequency range by an operator**
Requirement for quasi-instantaneous accession to any frequency throughout the MF/HF

range, and listening over a more or less extensive range around the selected frequency.

- **Communications on fixed frequencies**
Use of receiver on a certain number of fixed frequencies selected from those available in the synthesizer, most often with the equipment remoted, and with the operator retaining only the essential control functions of the set at his disposal.



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- Supervision and automatic communication, using operator remote controlled or sometimes computer remote controlled receivers.

Integration of both options described above into a single receiver, with all function integral remote control capability, and optional addition of various peripherals, e.g. panoramic adaptor.

Analysis of these trends has led THOMSON-CSF to develop a new receiver which fully responds to user requirements and thus complements the range of MF/HF receivers consisting of the watch receiver TRC 394 A and communications receiver TRC 394 B.

Multi purpose receiver TRC 394 C

The TRC 394 C is used for reception over the 100 kHz to 30 MHz range of radio-telegraph and radio-telephone communications of all types: traffic, local or remote watch, manual or automatic. This receiver associates and amplifies the capabilities of the TRC 394 A and B versions, and therefore represents a synthesis of the qualities and performance expected from professional equipment.

The TRC 394 C enables:

- continuous frequency search, with digital readout at keyboard, and low speed (10/100 Hz) or high speed (100 Hz/1 kHz) frequency sweep. In either position, the sweep speed varies automatically according to the speed at which the knob is rotated; a sweep of 320 kHz per turn can be obtained
- storage of 20 frequencies from those available at the synthesizer

- integral remote control of all functions:

- reception frequency selection
- continuous variation of selected frequency
- choice from stored frequencies
- choice of other operational parameters:
 - traffic mode
 - selectivity
 - antenna attenuation value
 - RF gain
 - AGC
 - BFO.

Except for A3J and A3B, in which it can vary according to the position of the five-position knob, selectivity is independent of the modes used: 6 kHz, 2.7 kHz, and optionally, at user's request, three plug-in filters obtained from the 250 Hz, 500 Hz, 800 Hz or 1 400 Hz bandwidths.

The internal options are the following:

- extended range BFO: ± 3 kHz
- noise rejector filter in the LF band, operating in intermediate frequency in a ± 5 kHz range; attenuation > 26 dB.
- HF interpolator enabling a definition to be obtained at 1 Hz from the reception frequency.
- ISB (A3B mode reception). This option is not compatible with the extended range BFO and rejector filter options.

To increase operational capabilities, the following peripherals can be associated with the receiver:

- Panoramic adaptor TRC 3941
- High-speed synthesizer
- Computer interface
- Tape recorder.
- Console for cyclic scan of stored frequencies.

Technical characteristics

Note: The characteristics are given for the frequency range 1.6-30 MHz.

- Synthesizer frequency stability
 $5 \cdot 10^{-8}$ per day
 $2 \cdot 10^{-7}$ for -20° to $+55^\circ \text{C}$

- RF input: 50 Ω /75 Ω

- Receiver input circuit protection:

The receiver is not damaged subsequent to application of an EMF of 20 V rms to the antenna terminal over a period of five minutes.

Where voltages of more than 20 V rms are to be envisaged at the input, it is possible to insert protection unit AEA 126 between the antenna downlead and the receiver input.

For a maximum permissible input voltage of 100 V rms, the protection unit provides a residual output voltage ≤ 3 V on 50 Ω .

- Sensitivity:

- A3J:
Sensitivity better than 0.4 μV pd/
50 Ω for $\frac{S+N}{N} = 10$ dB

- A3 and A2
for a signal modulated at
1 000 Hz, modulation depth 30%,
sensitivity better than 2.5 μV pd
for $\frac{S+N}{N} = 10$ dB

- narrow band A1 (250 Hz) :
sensitivity better than 0.25 μV pd
for $\frac{S+N}{N} = 10$ dB

- Selectivity at 6 dB

- A3J and 6A3B (other values on request): 300 to 3 000 Hz
 - A3: ≥ 6 kHz
 - A1: 6 kHz, 2.7 kHz and three plug-in filters chosen by user from the following bandwidths: 250 - 500 - 800 - 1 400

- Image frequencies and intermediate frequencies: ≥ 80 dB.

- AF distortion: ≤ 5 %.

- Outputs:
Loudspeaker
 ≥ 0.4 W on built-in microphone
 > 2 W on external loudspeaker output (between 4 and 8 Ω).

- Line:
Output level $-20 + 10$ dBm on 600 Ω .

- Headset: 300 Ω 10 mV.

- B.F.O.:
fixed: 1 000 Hz
variable: AF tone variation of 0 to 2 000 Hz

- Squelch:
in the AGC position, and after adjustment of the RF gain to provide appropriate traffic, the AF amplifier is automatically cut off in the absence of an adequate signal.

- Switchable AGC:
A3J
efficiency: 6 dB for a 1 μV to 100 mV input signal
A3
efficiency: 6 dB for a 10 μV to 100 mV input signal

- Blocking:
For effective signal equal to 100 μV , jamming source offset by more than 30 kHz and with an emf level of 300 mV, produces a variation in output signal of less than 3 dB.

- Cross modulation:
A jamming source of 1 V emf, modulated with a 400 Hz signal at a factor of 30 %, located at more than 100 kHz from an effective signal of emf 1 V produces cross modulation of less than 10 %.

- Intermodulation
For an effective signal of 10 μV at the receiver input, two jamming signals of 10 mV emf, offset by more than 30 kHz from the frequency selected, produce an intermodulation signal of less than 20 dB down from effective signal level.

- Power supply
mains 127 or 220 V ± 10 %
50/60 Hz battery 22 to 28 V, negative to ground.

- Consumption:
mains < 40 VA - battery ≤ 2 A.

- Operating temperature:
operation from -20°C to $+55^\circ \text{C}$.

- Relative humidity: 90 % at 40°C

- Storage: -40°C to $+70^\circ \text{C}$.

Dimensions and weight

Receiver dimensions are as follows:

Height: 132 mm (3 units)
Width: 480 mm with 19 inch standard rack mounting
Depth: 400 mm
Weight: less than 15 kg.

Protection against jammers

Optionally, half octave switchable automatic RF filters can be provided. These attenuate jamming sources by 16 dB and similarly increase protection against image and intermediate frequencies.

Accessories

- shock mount SUP 123
- protection unit AEA 126
- external loudspeaker HPE 101-1
- headset CAT 103-1.