

- **Operating temperature:** operation from  $-20\text{ }^{\circ}\text{C}$  to  $+55\text{ }^{\circ}\text{C}$ .
- **Relative humidity:** 90 % at  $40\text{ }^{\circ}\text{C}$
- **Storage:**  $-40\text{ }^{\circ}\text{C}$  to  $+70\text{ }^{\circ}\text{C}$

#### Dimensions and weight

Receiver dimensions are as follows:

Height: 132 mm (3 units)  
 Width: 480 mm with 19 inch standard rack mounting  
 Depth: 470 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.

**THOMSON-CSF**

# TRC 394 A and B

## Family of MF/HF Receivers

- **Frequency range:** 400 kHz to 30 MHz.
- **High stability synthesizer.**
- **Frequency selection via keyboard, with frequency sweep continuous station search for version A.**
- **Stored frequencies and remote-control for version B.**

#### General

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



TRC 394 A

THIS LEAFLET CANNOT BE CONSIDERED AS A CONTRACT SPECIFICATION.

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Analysis of these trends has led THOMSON-CSF to develop a range of MF/HF receivers which fully responds to user requirements. It consists of two receivers which differ in use, but which are technologically similar, the TRC 394 A and TRC 394 B.

### Watch receiver TRC 394 A

The synthesizer equipped TRC394A receiver is used for reception of radio-telegraph and radio-telephone communications of all types throughout the 400 kHz to 30 MHz range.

It has been specially designed to meet the requirements of civil and military authorities who require almost instantaneous access to all frequencies of the MF/HF spectrum to perform a radio watch around the selected frequencies or a given band of frequencies. In particular, this receiver has been designed for MF and HF coastal station watch services.

Digital selection of the frequency on the digital keyboard enables the communications frequency desired to be obtained immediately. A rotary knob varies the frequencies around that selected on the keyboard, either at low speed, every 10 Hz, or at a higher speed, every 100 Hz, or every 1 000 Hz, depending on the permanent setting of an internal selector switch. The frequency at which the watch

is maintained is permanently displayed by means of a digital LED display.

The TRC 394 A is designed for local operation. The various front panel controls enable it to be used in all usual configurations. In addition to the Morse telegraphy and A3 and SSB telephony modes, reception of F1 transmission is rendered possible via an external telegraph converter.

Optionally, the use of a special card in the receiver enables independent sideband reception.

For A1/A2 telegraphy, selectivity is selected between two filter widths, A1, narrow to 250 Hz, standard value, and A1 wide to 2 700 Hz. Optionally, 500 Hz, 800 Hz or 1 400 Hz filters can be substituted for the standard filters.

A battery built into the receiver stores the last watch frequency before the set was switched off for a period of 24 hours. This frequency reappears instantaneously when the receiver is switched on again.

### Communications receiver TRC 394 B

Similarly to the TRC 394 A, the TRC 394 B receiver covers the 400 kHz to 30 MHz range.

Basically, this receiver is designed to provide communications on fixed frequencies. This service is

imperative where users such as press agencies, civil aviation, post and telecommunications authorities, public works authorities and private companies use only a few allotted frequencies.

Frequency selection is obtained by means of a 6-thumbwheel switch bank, providing steps of 100 Hz.

Storage of 1 to 12 frequencies out of those available at the synthesizer is controlled instantaneously from the receiver front panel; these frequencies are stored in the set accumulator, and selected by means of a 12-position selector switch.

In addition, a selector switch interpolator is used to tune to the corresponding station if the station frequency is offset.

These switches enable an interpolation of  $\pm 450$  Hz in steps of 10 Hz around the selected frequency.

The reception modes and selectivity range are identical to those of the TRC 394 A.

The TRC 394 B is designed for remote control. The operator's remote control console enables selection of one out of the 12 frequencies stored, interpolation in steps of 10 Hz, and selection of the traffic mode. In general, the remote control is operated over a 600  $\Omega$  high quality line (meeting the CCITT Geneva 1976 requirements), also enabling transmission of one AF channel.

### TRC 394 specifications

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

- **Synthesizer frequency stability**  
10<sup>-7</sup> per day  
2.10<sup>-7</sup> for - 20° to + 55 °C

- **HF input:** 50  $\Omega$ /75  $\Omega$ .

- **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  $\leq 3$  V on 50  $\Omega$ .

- **Sensitivity:**

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

- narrow band A1 (250 Hz):  
sensitivity better than 0.25  $\mu$ V 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:  $\geq 6$  kHz

- A1: two plug-in filters chosen by user from the following bandwidths: 250 - 500 - 800 - 1 400 - 2 700 Hz

- **Image frequencies and intermediate frequencies:**  $\geq 80$  dB.

- **AF distortion:**  $\leq 5$  %.

- **Outputs:**

Loudspeaker  
 $\geq 0.4$  W on built-in loudspeaker  
 $> 2$  W on external loudspeaker  
output (between 4 and 8  $\Omega$ ).

- **Line:**

Output level — 20 + 10 dBm on 600  $\Omega$ .

- **Headset:** 300  $\Omega$  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  $\mu$ V to 100 mV input signal

A3  
efficiency: 6 dB for a 10  $\mu$ V to 100 mV input signal

- **Blocking:**

For an effective signal equal to 100  $\mu$ V, a 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 1 kHz signal at a factor of 30 %, located at more than 100 kHz from an effective signal of emf 1 mV produces cross modulation of less than 10 %.

- **Intermodulation**

For an effective signal of 10  $\mu$ V 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  $\pm 10$  % 50/60 Hz.

- battery 22 to 28 V, negative to ground.

- **Consumption:**

mains  $< 40$  VA - battery  $\leq 2$  A.



TRC 394 B



Remote control console of the TRC 394 B