NAVTEX, the international maritime service that provides navigational and meteorological information via RTTY (radio teletype) on 518 kHz, makes use of FECTOR. This is a system in which the information is transmitted twice, with a particular interval between the first character and the repeat. FECTOR is decoded automatically by a microprocessor that is coupled to the ship's medium wave receiver.

It is, of course, not desirable that the decoder is taking up the medium wave receiver continuously. On the other hand, navigational officers, and many amateur radio listeners, do not want to miss one iota of NAVTEX information. Obviously, a second receiver is the answer, and this can, of course, be coupled to the decoder night and day. Since only one frequency, 518 kHz, and one type of transmission, FSK (frequency shift keying), needs to be received, the circuit can be kept quite simple.

The circuit is based on a type TCA440. The AGC (automatic gain control) provided by this IC is not used because the IF amplifier, due to its internal symmetry, is already an excellent limiter for FSK signals.

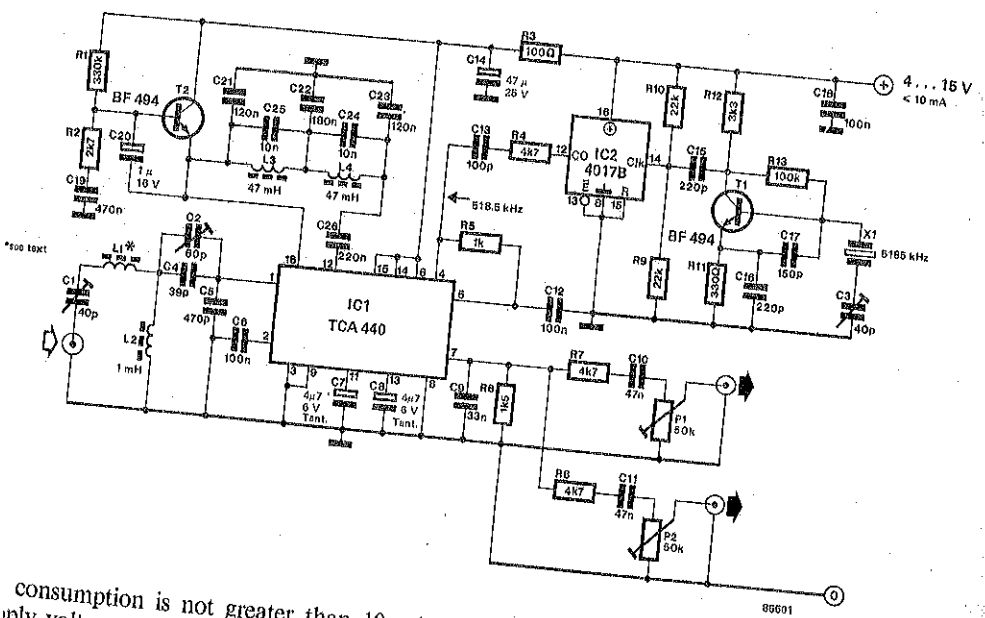
The internal oscillator is not used either: it is replaced by a crystal oscillator, T_1, operating on 5185 kHz, that is followed by a decade scaler, IC_2. The exact frequency of the crystal depends on the requirements of the decoder; trimmer C_3 enables it to be varied by a few kHz, i.e., a few hundreds of Hertz at the output.

Thanks to the TCA440, the remainder of the receiver is fairly simple without the need of special components. Standard chokes can be used in the $L_2 \ldots L_4$ positions; L_1 consists of 6 turns enamelled copper wire of 0.3 mm dia. on a ferrite bead.

Sensitivity of the receiver is good at a few μV.

Calibration is very simple: adjust input trimmers C_1 and C_2 for maximum output, and then turn C_3 until the output frequency matches the decoder.

The crystal should be suitable for parallel resonance with a capacitance of 30 pF.



consumption is not greater than 10 mA. ply voltage may be 4 . . . 15 V. course, a fairly simple matter to make the receiver suitable for use on other maritime medium wavelengths.