



Technical Data

TYPE 353 VLF RECEIVER

The CER Type 353 Receiver is a newly-developed unit which contains features and engineering refinements not normally found in receivers tuning in the VLF range. The 353 Receiver has an unusually wide tuning range, variable IF bandwidths, and high tuning accuracy. It tunes from 1 kc to 600 kc in a single band, thus spanning the BLF band through the VLF and LF bands into the MF band. A front-panel switch allows the selection of a 150 cps, 1 kc, 3 kc, or 6 kc IF bandwidth. A built-in signal monitor permits viewing signal activity about the frequency to which the receiver is tuned. The signal monitor sweep width is variable from 0 to 50 kc by means of a front-panel control. A calibrated metal tape is used for the tuning dial. The 600-kc tuning range is spread over 25 inches of tape.

The low incidental FM of the local oscillator and extremely versatile BFO section makes the 353 Receiver suitable for FSK and SSB, as well as AM and CW reception. There are five separate beat frequency oscillators. One has a variable frequency which may be shifted 3 kc each side of the 2-mc IF center frequency. The other four oscillators are crystal controlled and provide outputs which zero beat with the IF frequency, give a 1-kc beat note, and give upper or lower sideband reception of SSB signals (depending on the sideband transmitted) when used with the 3-kc IF bandwidth.

This extremely versatile receiver has been designed using solid-state devices exclusively except for the signal monitor CRT. It therefore exhibits high reliability and low power requirements.

PRELIMINARY SPECIFICATIONS

Frequency Range	1 kc to 600 kc (Lower Band limit 500 cps)
Type of Reception	AM, SSB, CW, MCW, and FSK
Noise Figure	Less than 5 db
Sensitivity (50-ohm input impedance and 1-kc IF bandwidth)	CW and FSK, 1 kc to 10 kc: 5 microvolts for 20 db (s plus n)/n CW and FSK, 10 kc to 600 kc: 0.5 micro- volt for 20 db (s plus n)/n MCW and AM, 50 kc to 600 kc: 1 micro- volt for 10 db (s plus n)/n

Input Impedance	50 ohms or 1000 ohms, selectable by rear-panel switch
Input Attenuator	0 db, -20 db, -40 db, or -60 db, selectable by front panel switch
Maximum Input Level	1 volt, rms, with input attenuator in -60 db position
IF Bandwidths	150 cps, 1 kc, 3 kc, or 6 kc, selectable by front-panel switch
Image Rejection	70 db, minimum
MF Rejection	60 db, minimum
Dynamic Range	AGC or Manual: 55 db, minimum
Signal Monitor Sweep Width	Variable 0 to 50 kc
BFO	Five separate BFO's: One variable ± 3 kc by front-panel control and four crystal controlled to provide zero beat with IF frequency, a 1-kc beat note, and upper or lower sideband reception of SSB signals
Incidental FM	Less than 10 cps peak deviation
Outputs	Five: front-panel phone jack (2000 ohms, nominal); rear-apron audio, 6 milliwatts (600 ohms, balanced); local oscillator output; IF output; and AM detector output
Audio Bandwidths	Normal (100 cps to 3 kc) or narrow (825 cps to 1175 cps), selectable by front-panel switch
Input Power	115/230 vac, 50-400 cps, approximately 25 watts
Size	19-inches wide, 3.5-inches high, and 19.5-inches deep
Weight	20 lbs., approximately