

3.7. RECEIVER OUTFIT CHC

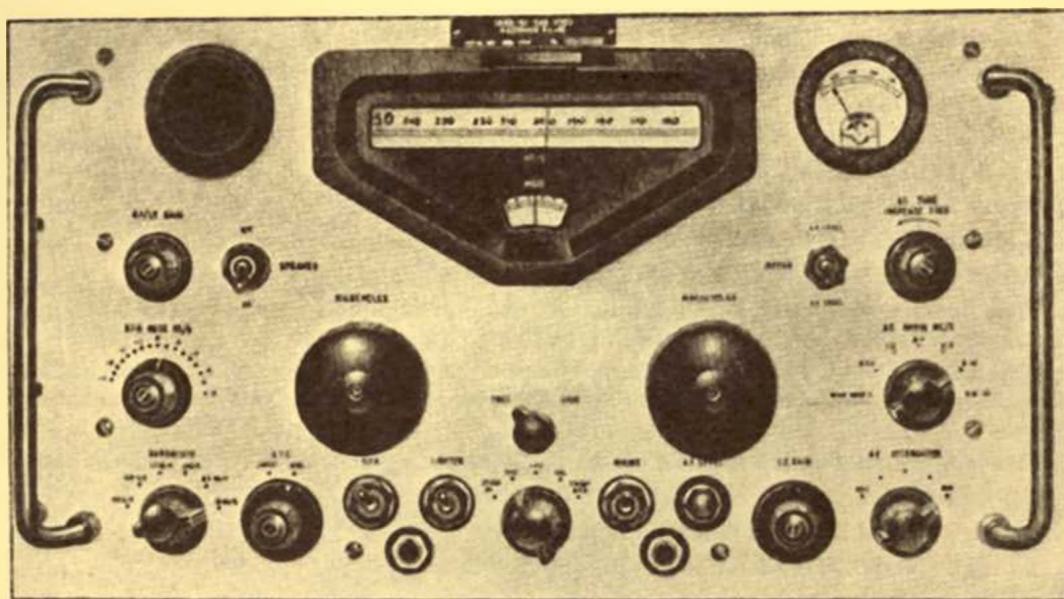


FIG. 1

DATE OF DESIGN	1958
HANDBOOK	BR 1171
E LIST	E 1212
FREQUENCY RANGE	980 kHz to 30 MHz
MAIN INTERMEDIATE FREQUENCY	100 kHz
POWER SUPPLIES	100 - 125V or 200 - 250V 45 - 65Hz
POWER CONSUMPTION	90W
PLANNED MAINTENANCE SCHEDULE	Daily user check schedule not yet formulated

General

1. Outfit CHC is formed by the receiver Racal RA 17, which is a treble superhet employing the Wadley Loop principle. The final intermediate frequency for amplification is 100 kHz. Tuning is accurate to within 500 Hz. The system can either be cabinet or rack mounted. This receiver is currently replacing the CDW/CDY series of receivers.

2. Operating Instructions

- a. Set the mains switch to ON.
- b. Set the AERIAL RANGE selector switch to the desired frequency band.
- c. Set the AERIAL ATTENUATOR switch to MINIMUM.
- d. Set the MHz control to the appropriate number of MHz. (An increase of receiver noise will indicate the correct setting).

- e.* Set the SYSTEM SWITCH to CAL.
- f.* Set the BANDWIDTH selector to 3 kHz.
- g.* A.F. GAIN to mid position.
- h.* Adjust the kHz control to give a zero beat at the 100 kHz frequency nearest to that of the desired operating frequency.
- i.* Adjust the milled cursor slide setting to coincide with this frequency on the kHz dial.
- j.* Switch the BFO to ON.
- k.* Adjust the SYSTEM SWITCH to CHECK BFO.
- l.* Adjust the BFO NOTE control to indicate zero beat.
- m.* Adjust the SYSTEM SWITCH to MANUAL.
- n.* Tune the kHz control to the desired frequency, and on receipt of a signal, critically tune for zero beat, in order to centralise the signal within the passband.
- o.* Adjust the AERIAL TUNE control for maximum signal (or, in the absence of a signal, maximum noise). For optimum CW reception adjust the BFO to produce an acceptable audio note in the headphones.
- p.* Set the A.F. GAIN control to MAX and adjust the output signal level with the I.F. GAIN control.
- q.* For the reception of MCW or DSB VOICE signals switch the BFO to OFF.
- r.* Set the SYSTEM SWITCH to AVC if required.
- s.* Set the BANDWIDTH SWITCH for optimum reception.

3. Use and Protection of the Meter

- a.* With the meter switch in the R.F. level position, the meter reads the signal current. In the A.F. Level position, the A.F. LINE OUTPUT is indicated.
- b.* In order to prevent damage to the meter, it is advisable to operate controls during tuning as follows:
 - (1) With the meter switch set to R.F. Level, before switching the system switch from AVC to MAN, ensure that the IF Gain Control is fully anti-clockwise. Gain may thereafter be increased as required.
 - (2) Similarly, before switching the meter from RF Level to AF Level, ensure that the AF Level control is set to minimum. Gain may then be increased as required.
 - (3) If traffic permits, the A.F. Level control should be set to minimum before operation of the meter switch, after which the A.F. Level may be advanced to the level required.

4. Additional Information

- a.* The BFO is arranged to be exactly on the IF Amplifier response when the BFO control is set to zero beat with the calibrator.
- b.* Aerial Tuning. If maximum sensitivity is not required, the aerial need not be tuned except where strong unwanted signals are present. The presence of very strong signals anywhere within the spectrum may cause cross-modulation unless the aerial is tuned. Under these conditions, care must be taken to avoid tuning the input to the interfering signals instead of the signal required. Familiarity with the tuning controls will obviate this.
- c.* The Aerial Attenuator Control is intended to enable an operator to reduce the level of all incoming signals. This may be desirable when strong unwanted signals are present that cannot be rejected sufficiently by tuning the aerial, or when the required signal is causing overloading in the early stages of the receiver.
- d.* Spurious Channel Interference. If high level unwanted signals cause interference with the desired signal, the spurious response may be eliminated by slight resetting of the MHz control without disturbing the desired signal.

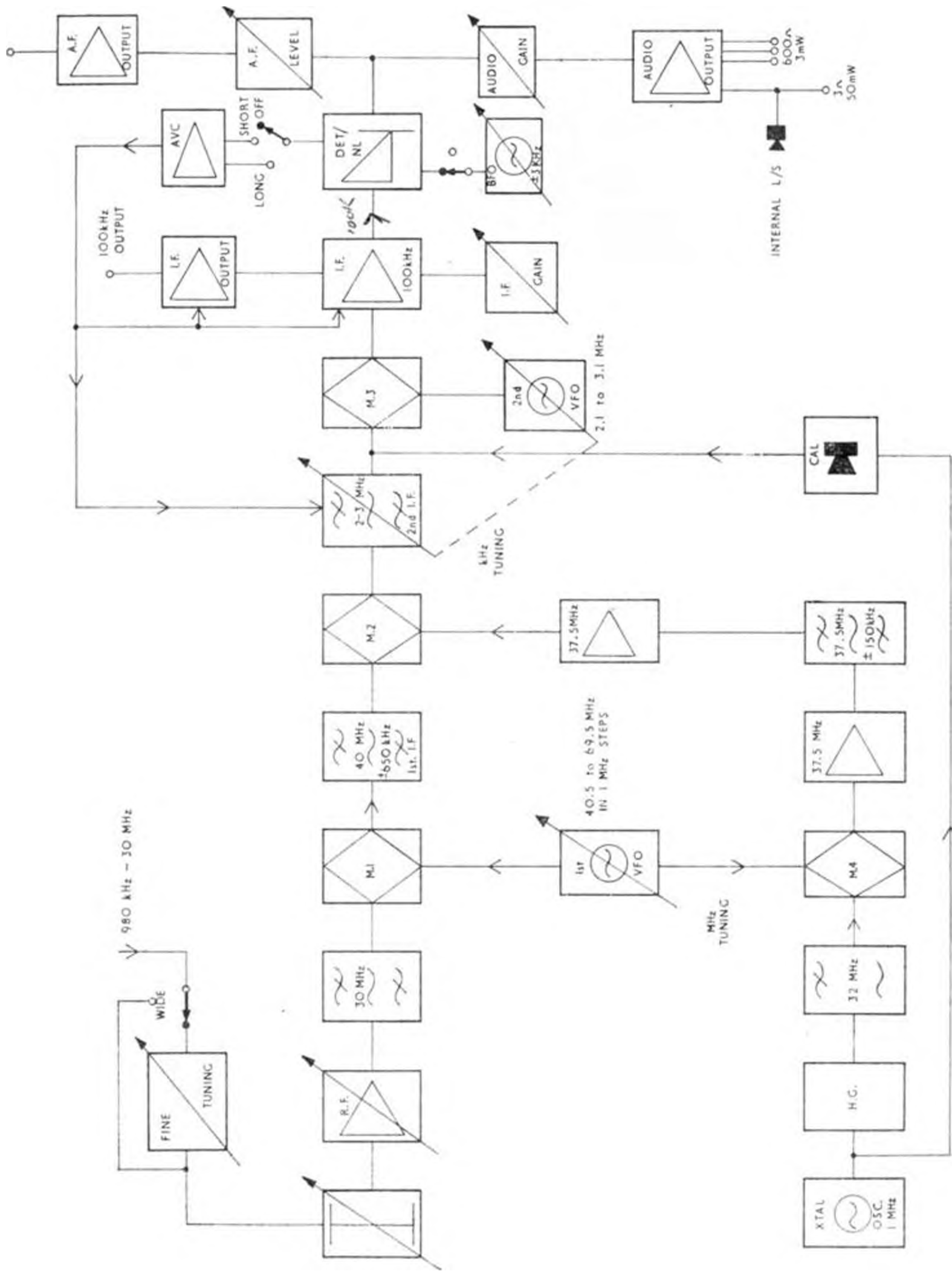


FIG. 2. RECEIVER TYPE RACAL-17(CHC) - BLOCK DIAGRAM

- e.* The MHz Scale should be checked occasionally to ensure that its setting is central with respect to the crystal controlled band in use. This is indicated by a decrease of signal, or noise, each side of the correct setting.
- f.* The calibration of the kHz scale may be checked at 100 kHz intervals by turning the system switch to CAL.
- g.* The overall tuning accuracy of the receiver is better than 500 Hz.
- h.* Stability. The average receiver, after warm-up time of 1 to 2 hours will remain tuned to within 50 Hz of the selected frequency under conditions of constant supply voltage and ambient temperature.
- i.* Indicator Lamp on the front panel indicates that the filaments are on.
- j.* Mains Fuse. One, situated at the rear of the chassis.