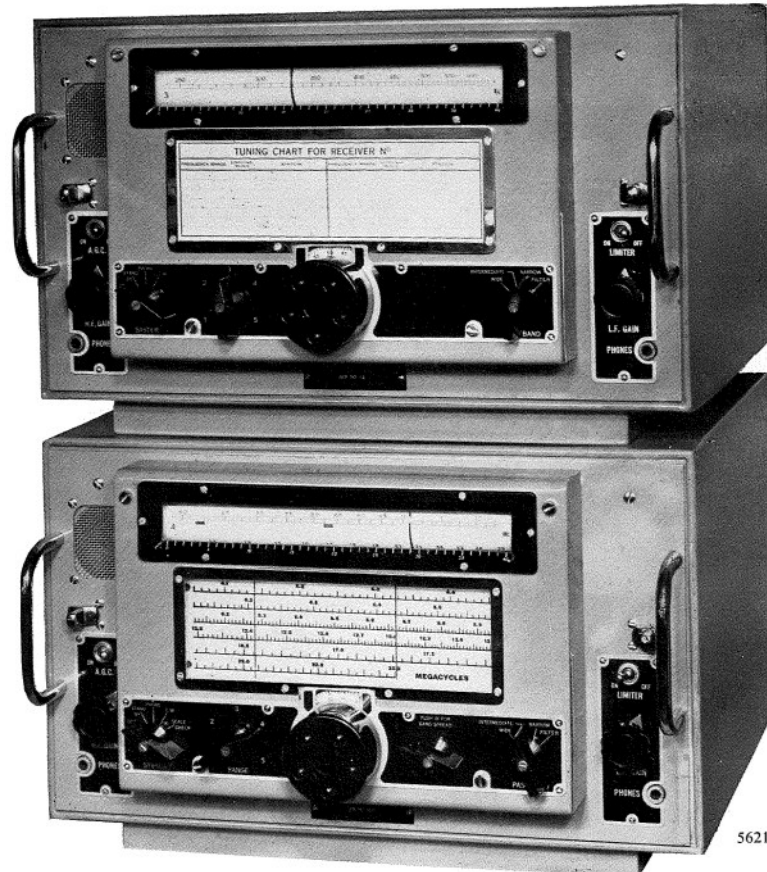




Receivers *Types RS 601 and RS 301* 'Mercury' and 'Electra'



The 'Mercury' (top) and 'Electra' receivers mounted as one unit.

BUILT UP as complementary receivers, the Types RS 601 and RS 301 (well known as the Marconi International Marine Communication Company's 'Mercury' and 'Electra' receivers), provide for operation in the LF, MF and HF bands. Their applications, therefore, are manifold, and they can be widely adapted to meet both marine and general purpose requirements.

Although they differ in circuit design, the receivers are very similar in mechanical features and are of all steel construction. They are suitable for bench mounting, but may also be mounted one on top of the other. Slide fasteners allow the front panels and chassis to be withdrawn quickly and easily, thereby facilitating servicing.

FEATURES

- Stabilised voltage supplies and temperature compensating elements give a high degree of electrical and thermal stability.
- High discrimination logging scale and calibrating oscillator.
- Non-slip control switches.
- Inclusion of an automatically-controlled pulse limiter.
- High-speed relays afford protection against possible damage from an associated transmitter.

CIRCUITS

Protection of the RF circuits from excessive voltages is afforded by interposing two desensitising relays between them and the aerial. Rejector circuits enable the intermodulation requirements set out in GPO specifications to be met.

The Type RS 601 has two triode-hexode fre-

quency changers and functions as a double super-heterodyne. A temperature compensator is fitted to the first oscillator. Two stages of IF amplification at 85 kc/s are normally used, but on the two highest frequency ranges a further stage operating at 4.5 Mc/s is included. The final IF tuned circuit feeds into a double-diode valve functioning as a balanced demodulator on CW reception; one diode only being used on MCW. A triode-hexode serves as the beat frequency oscillator.

The final detector is followed by a pulse noise limiter consisting of two diodes in series feeding into the output amplifier.

The Type RS 301 differs essentially in its frequency changer and IF circuits. Only one frequency changer is employed and the oscillator is a separate triode; the triode portion of the triode-hexode not being used. An IF of 690 kc/s is used throughout and a twin crystal gate circuit gives narrow passband conditions.

DATA SUMMARY

Frequency ranges:

Type RS 601: 15 kc/s–40 kc/s and 100 kc/s–4 Mc/s in four bands.

Type RS 301: 250 kc/s–520 kc/s and 1.5 Mc/s–25 Mc/s in four bands.

Outputs:

30 mW into loudspeaker.

10 mW into headphones.

Input: Suitable for aerials of maximum total capacity (including feeder) of up to 600 $\mu\mu\text{F}$. Above 4 Mc/s, 75 Ω unbalanced.

Selectivity: IF bandwidths of 8 kc/s, 3 kc/s and 1 kc/s for 6 db attenuation.

Sensitivity:

Type RS 601: For a signal-to-noise ratio of 10 db, 1–4 μV in the range 100 kc/s–4 Mc/s; 3.5–20 μV from 15–40 Mc/s.

Type RS 301: For a signal-to-noise ratio of 20 db, 1–2 μV in the range 1.5–25 Mc/s; 15 μV from 259–500 kc/s.

Valves

	Type	Type
	RS 601	RS 301
1st RF amplifier	KTW 61	KTW 61
2nd RF amplifier	KTW 61	KTW 61
1st frequency changer	X 61M	X 61M
1st frequency-change oscillator		L 63
2nd frequency changer	X 61M	—
1st IF amplifier	KTW 61	KTW 61
2nd IF amplifier	KTW 61	KTW 61
Balanced detector	D 63	D 63
Beat frequency oscillator	X 61M	X 61M
Noise limiter	D 63	D 63
1st LF amplifier	DH 63	DH 63
Output amplifier	L 63	L 63
Stabiliser	VR 150/30	VR 150/30
Calibrating oscillator	—	KTW 61

Power supplies: 65 W from 24, 110, 220 V DC or 230 V, 50 c/s AC mains.

Dimensions:

Height	Width	Depth	Weight
10 in.	17 $\frac{3}{4}$ in.	15 $\frac{1}{2}$ in.	55 lb
(25.4 cm)	(45 cm)	(40 cm)	(25 kg)

Marconi

MARCONI'S WIRELESS TELEGRAPH COMPANY LIMITED

Head Office: Marconi House, Chelmsford

Telephone: Chelmsford 3221. Telegraphic Address: Expanse, Chelmsford