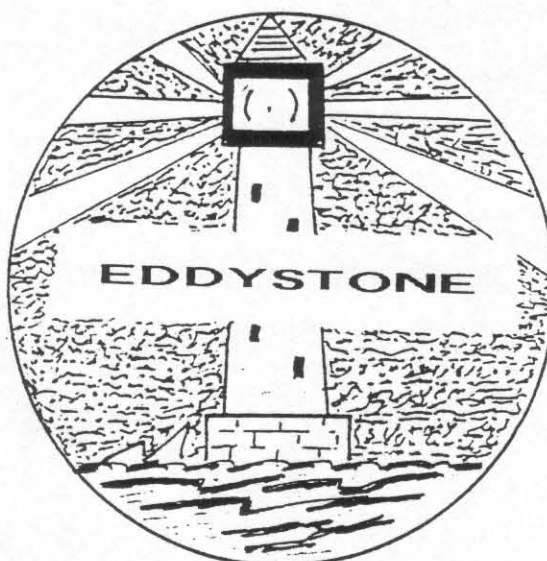


SPHINX

15

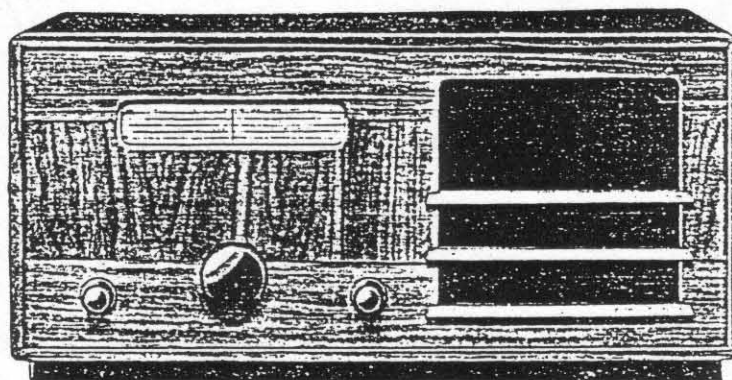
Eddystone User Group



Newsletter

Issue No.-15.

Featured Model,- Sphinx.



- A NON PROFIT NEWSLETTER FOR EDDYSTONE USERS.
- INFORMATION QUOTED FROM EDDYSTONE LITERATURE BY KIND PERMISSION OF CHRIS PETTITT, MANAGING DIRECTOR OF EDDYSTONE RADIO LIMITED.,
- PLEASE ADDRESS ALL MAIL:- W.E.Moore. Moore Cottage.
112 Edgeside Lane. Waterfoot.
ROSSENDALE. Lancs; BB4 9TR.

- Issue 15. -

- Another issue another model, this time a broadcast type but one which was designed for use overseas, as the ad puts it, 'for listening to the Empire Service of the BBC.' The apparent market was the vast number of 'expats' who lived and worked in Africa or the Far East. The robust construction practices employed in this early model are continued right up through the years in all the later models produced by Eddystone. I have listened to one of these 4 valve battery model 'sphinx' radios and the results even today are quite fantastic. When you think that in the year that this was marketed there were other manufacturers who had 12 or 17 valve models for sale, I can hardly see what more could have been received on these multi-valved sets than was 'hearable on the 'sphinx'. The fact that several members of the EUG have this model in their collections was the reason for putting it as the featured model. Next month we get back to more modern stuff with the 960. This has been called a transistorised 940, well not quite but it is still a good set.

- There have been comments in a members letter as to why we do not feature other makes such as the Marconi or Redifon models that were made by Eddystone but badged for the marketing company. Well if there is a direct Eddystone equivalent then we do. But if not then we will continue to leave those models 'OUT'. This is anyway an Eddystone Group. If anybody wants to start a Marconi Group they're welcome, I will probably join myself !

- SFERICS. -

- Tim in Luton has come up with a 556 which has been stored for many years, this was the battery / broadcast version of the S.504 communications receiver. It came out in 1946 and is a rare model these days. His description of the 'innards' tells me that a lot of TLC is going to be needed before this set is back on the air, wiring to be replaced and components to be replaced after testing.

- As far back as 1932 some American makers were offering 17 valve superhets covering 15 to 550 metres, and this was a domestic model not a super comms type. At forty dollars with four to the Pound, say £10 including the valves, at a time when all British sets came without valves, these had to be bought separately due to the Marconi patents. It came with switched coil pack, inter station muting, AVC, magic eye, class B push pull output stage,

two large speakers, no less than eighteen tuned circuits, a mix of triode, screened grid, and pentode valves. The rectifier was a mercury vapour type, and a choice of cabinet styles ! What did open my eyes was that in the same ad the maker offered smaller battery operated types which ran on the 'new type air cell battery' which so it was claimed 'never needs recharging'. Was this the wireless equivalent of the 'everlasting match' ?

- An 840A with a habit of blowing valves, or rather the same valve three times in two years. ??? This one was/is a real poser, checks on other valves heater kathode insulation, wiring etc; have not helped. Since the valve in question is the V2, a UAF42, tests on V7 & V5 were done , they were then replaced with valves from another receiver, still some 5 months later V2 went again ! A heater kathode short in V7 could have been the cause , no fault showed up on the Avo valve tester on this UY41, it was still working well in the other receiver when the V2 blew again recently. The third UAF42 was fitted just 6 weeks ago and has gone open circuit heater in the last few days. HELP, does any member have any ideas on this, c/o EUG.

- A 940 not used for some weeks was powered up , dial lights on, valve heaters glowing, but no output, not even hum from the speaker. Opened up on the bench a start was made on voltage checks as per the instruction sheet. This was done using an AVO 7. First check was the three HT lines, HT1 being direct from the choke, at 240 volts, next was HT2 at 220 volts, fed from HT1 via a 10 Kilohm resistor. Last was the stabilised HT3 from the VR150/30. Since all were missing a check was made on the top of C109, again no volts, since the GZ34 seemed healthy enough a check on pin 8 should have given about 250 volts DC, it did not. Nor was there any 265 volts AC on the anodes of this valve, both the wirewound resistors feeding the anodes were found to be open circuit. These are green vitreous 140 ohms resistors rated at 6 watts. From past experience it is known that these types are prone to fail if the set has been in a humid atmosphere for any length of time. For replacements I used 150 ohms , 10 watt ceramic types and I was careful to make a good mechanical joint before soldering them in place. Just to tag on resistors which are liable to run hot is a recipe for disaster. Properly done such a joint will last the life of the component.

EDDYSTONE

SPHINX

RECEIVER



POWER *and* **DIGNITY**

SPHINX^{4/} RECEIVER

SHORT WAVE AND BROADCAST RECEPTION

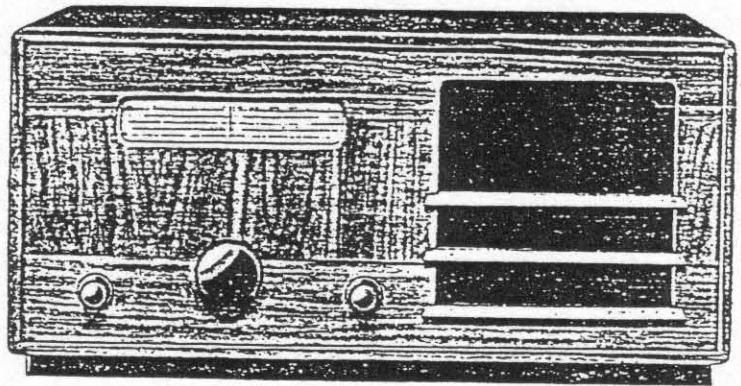
THE EDDYSTONE SPHINX receiver is a British production built for use overseas. It is an individually produced set and only the finest components are used in its manufacture. Reliability and freedom from breakdown are assured as well as a first class performance. The thrill of listening to stations thousands of miles away can be enjoyed by every owner of the SPHINX receiver, since it is designed to receive the Empire short wave programmes from any part of the world, in addition to the reception of local broadcast. One knob tuning and switched coils give simplicity of control.

The receiver employs four highly efficient valve stages, which give an ample supply of power with a marked freedom from internal noise and atmospheric interference. The increased clarity is very noticeable when the SPHINX receiver is contrasted with sets employing a larger number of individually less efficient valve stages.

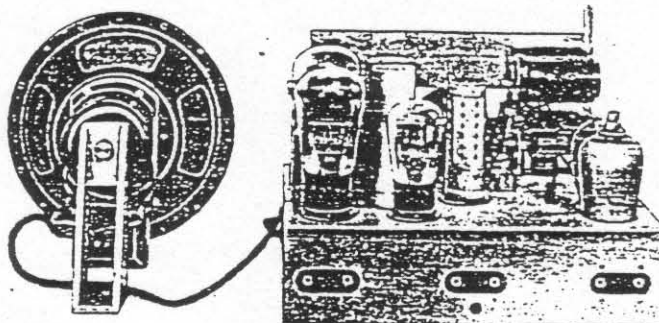
The receiver chassis with loud speaker unit is contained in a simple but dignified cabinet of modern design which will harmonise with most forms of household decoration.

The external appearance of the 'Sphinx' receiver is quiet and dignified. The front controls and open vision tuning indicator are here clearly shown.

Size of cabinet:
23½" long x 10½" wide x 11½" high.
Weight of battery model (without
packing) 25 lbs.
Weight of A.C. model (without
packing) 29 lbs.



EDDYSTONE^{5/}



This photograph shows the finished chassis and loud speaker assembly removed from the cabinet. The terminals at the back are for aerial and earth, gramophone pick-up input and output for additional external loud speaker if required.

EDDYSTONE 'SPHINX' MAINS RECEIVER.

Five-valve chassis for all-electric operation from A.C. mains. Wave-range 13.3/90 metres and 150/600 metres with switched coils. Large open tuning indicator marked in wave-lengths, one knob control. Complete in modern style cabinet with energised moving coil loud speaker and valves. Full specification overleaf.

Model AC/1 for 200/250 volt, 40/100 cycle current supply.	Code: INXO	...	£27 10 0
Model AC/2 for 100/125 volt, 40/100 cycle current supply.	Code: INXI...	...	£27 10 0
SET OF SPARE VALVES	Code: INVAX	...	£3 18 0

EDDYSTONE 'SPHINX' BATTERY RECEIVER.

Four-valve chassis for operation from batteries. Wave-range 13.4/85 metres and 150/580 metres, with switched coils. Large open vision tuning dial marked in wave-lengths, with one knob control. Complete with valves and permanent magnet moving coil loud speaker in modern style cabinet.

Model B	Code: BINXT	...	£23 0 0
SET OF SPARE VALVES	Code: INVAL	...	£2 1 0

The following accessories are needed to form a complete installation for the battery model receiver:

- 1 EDDYSTONE 135-volt triple capacity high tension supply, comprising three 45-volt block units. This battery is made to our specification by Messrs. Hellesens Ltd., for use overseas. Code: ALBAS ... £2 2 0
- 1 Exide Accumulator, type CZG8, 80 amp. hour capacity. (This battery will give 3 hours' use daily for 50 days before re-charge is necessary). Code: ALCU ... £1 2 0

Supplementary equipment for receiver:

- 1 Aerial and earth equipment, suitable for short wave and tropical requirements—comprising 75 ft. coil single strand enamelled copper aerial, insulated earth wire, 2 pulleys, 2 'Steatite' insulators, EDDYSTONE glass lead-in tube, lead-in wire, hoisting wire, copper earth tube and automatic lightning arrestor. Code: AERIA ... £1 0 0
- 1 B.T.H. Gramophone Pick-up, complete with tone arm and volume control. Code: BEPIC ... £2 0 0



Brand Name	Model	Price £ s. d.	Valve Combination							Pick-up Terminals	Extension Loud-speaker	Dial Calibration	Power Supply	
			H.F.	Det.	Osc.	I.F.	Det.	L.F.	Power Rectifier					
Dynatron Cont.	*E1712 ..	136 10 0	3	1	-	-	-	11	2	V	-	Yes	WN†	A.C.
Eddystone ..	All-world 4	22 10 0	1	1	-	-	-	1	1	-	Yes	Ext	D	Batteries
	Sphinx ..	23 0 0	1	1	-	-	-	1	1	-	Yes	Yes	W	Batteries
	Sphinx A.C.	27 10 0	1	1	-	-	-	1	1	V	Yes	Yes	W	A.C. 100-125v. and 200-250v.
Ekco ..	B54 ..	10 10 0	1	1	-	-	-	1	1	-	Yes	-	WN	Batteries
	AD65 ..	11 6 0	-	C	-	1	1	-	-	V	-	-	WN	A.C./D.C. 200-250v.
	B85 ..	13 2 6	-	C	-	1	1	-	1	-	Yes	Yes	WN	Batteries
	AC85 ..	13 2 6	-	C	-	1	1	1	1	V	Yes	Yes	WN	A.C. 100-130v. and 200-250v.
	BT95 ..	15 15 0	1	C	-	1	1	-	1	-	-	-	WN	Batteries
	ADT95 ..	15 15 0	1	C	-	1	1	1	1	V	-	-	WN	A.C./D.C. 200-250v.
Eldeco ..	2P7C ..	17 0 0	1	C	-	1	1	-	1	-	-	-	WD	Batteries
	QP75 ..	19 0 0	1	C	-	1	1	-	1	-	-	-	WD	Batteries
	ES1 ..	25 0 0	1	1	1	1	1	-	1	V	Yes	Yes	WD†	A.C.
Ferranti ..	Lancastria ..	12 12 0	-	C	-	1	1	-	-	V	Yes	Yes	WN†	A.C. 200-250v.
	Universal ..	14 14 0	-	C	-	1	1	-	1	V	-	-	WN†	A.C./D.C. 200-250v.
	Consolette ..	15 15 0	-	C	-	1	1	1	1	-	Yes	Yes	WN†	Batteries
	Arcadia ..	15 15 0	-	C	-	1	1	-	1	V	Yes	Yes	WN†	A.C. 200-250v.
	Portable ..	16 16 0	1	C	-	1	1	1	1	-	Yes	Yes	WN†	Batteries
	Gloria ..	23 2 0	1	C	-	1	1	1	1	V	Yes	Yes	WN†	A.C. 200-250v.
	*Arcadiagram	31 10 0	-	C	-	1	1	-	1	V	Yes	Yes	WN†	A.C. 200-250v.
G.E.C. ..	BC3536 ..	5 17 6	-	1	-	-	-	1	1	-	Yes	Yes	D	Batteries
	BC3520 ..	7 15 0	-	1	-	-	-	-	1	V	-	-	D	A.C./D.C. 200-250v.
	BC3546 ..	9 17 6	1	1	-	-	-	1	1	-	Yes	Yes	W	Batteries
	BC3545 ..	13 13 0	-	C	-	1	1	-	1	-	Yes	Yes	WN	D.C. 200-250v.
	BC3540 ..	14 14 0	-	C	-	1	1	-	1	V	Yes	Yes	WN	A.C. 190-250v.
	BC3544 ..	17 17 0	-	C	-	1	1	-	1	V	Yes	Yes	WN	A.C. 190-250v.
	BC3548 ..	23 2 0	-	C	-	1	1	-	1	V	-	Yes	WN	A.C. 190-250v.
	BC3460 ..	25 4 0	1	1	1	1	1	-	1	V	Yes	Yes	F	A.C. 100-150v. and 190-250v.
Halycon ..	301.. ..	8 19 6†	1	1	-	-	-	1	-	-	Yes	Yes	W	Batteries
	401.. ..	11 11 0†	1	1	-	-	-	1	1	-	Yes	Yes	W	Batteries
	4501 ..	14 14 0	1	C	-	1	1	-	1	M	Yes	Yes	W†	A.C./D.C. 200-260v.
	6701 ..	19 19 0	1	C	-	1	1	1	1	V	Yes	Yes	W†	A.C. 200-260v.
	6701C ..	22 1 0	1	C	-	1	1	1	1	V	Yes	Yes	W†	A.C. 200-260v.
	*4501G ..	22 1 0	-	C	-	1	1	-	1	M	-	Yes	W†	A.C./D.C. 200-260v.
	*6701G ..	31 10 0	1	C	-	1	1	1	1	V	-	Yes	W†	A.C. 100-110v. and 200-260v.
Halford ..	2SW ..	4 4 0	-	1	-	-	-	1	-	-	-	H	D	Batteries
	U7.. ..	16 16 0	-	C	-	1	1	1	1	V	Yes	Yes	DN	A.C./D.C.
	All-wave 10	34 13 0	1	C	-	1	1	1	2	V	Yes	Yes	N†	A.C./D.C.
	*8-v. R/G ..	42 0 0	1	C	-	1	1	1	2	V	-	Yes	N†	A.C./D.C.
	*Empyrean ..	105 0 0	1	C	-	1	1	1	2	V	-	Yes	N†	A.C./D.C.
Harken ..	S.W. Super	20 0 0	1	C	-	1	1	-	-	V	Yes	Yes	D	A.C.
	S.W. Super	22 0 0	1	C	-	1	1	-	1	-	Yes	Yes	D	Batteries
	S.W. & Med.	24 15 0	1	C	-	1	1	-	1	-	Yes	Yes	D	Batteries
Hartley Turner	S7	28 10 0	1	1	-	-	-	1	2	V	Yes	-	WD†	A.C.
	S12	30 10 0	1	1	-	-	-	1	2	V	Yes	-	WD†	A.C.
	M12	40 19 0	2	1	-	-	-	1	2	V	Yes	-	D†	A.C.
	*RGS12 ..	63 0 0	1	1	-	-	-	1	2	V	-	-	WD†	A.C.
	*RGM12 ..	73 10 0	2	1	-	-	-	1	2	V	-	-	D†	A.C.

71 EDDYSTONE SPHINX RECEIVER

Battery and All-Electric Models

SPECIFICATION:

CHASSIS AND COMPONENTS:

The chassis is a one-piece aluminium die-casting giving a rigid and strong assembly and complete freedom from noise due to loose metal parts. Cellulose finished battle-rim grey inside and out. The components are made from first-class materials and are constructed to withstand tropical conditions.

CIRCUIT.

Both receivers employ a screened grid high-frequency stage, using the new vari-mu high-frequency pentode valve. This valve is coupled to the detector by means of a high-frequency transformer and reaction is obtained by coupling a reaction coil in the plate circuit of the detector valve to the grid coil of the high-frequency transformer. The detector valve in both instances is followed by two low-frequency stages with pentode output. The battery model has one stage of resistance coupling and one Ferranti L.F. transformer coupling while the A.C. model has two stages of resistance coupling. The A.C. model has an additional full wave rectifying valve.

VALVES.

A.C. Model. Mullard VP4 7-pin Metallized H.F.
Osram MH4 'Catkin' Detector.
Mullard 354V Plain L.F.
Mullard PM24M Pentode Output.
Mullard DW3 Rectifier.
Battery Model. Osram VP21 7-pin Metallized H.F.
Mazda HL2 Metallized Detector.
Mazda HL210 Clear L.F.
Mullard PM22 Pentode Output.

LOUD SPEAKER.

In both cases, the loud speaker is of the moving coil type, with tropically finished windings and cone. In the battery receiver, a permanent magnet construction is employed, while in the A.C. set, an energised type of speaker is used, the field winding of which is utilized as a smoothing choke.

WAVE-RANGE.

Five separate wave-ranges with switched coils are available. The battery set covers from 13.4/85 metres and 150/590 metres, while the A.C. set covers from 13.8/90 metres and 150/600 metres. The tuning dial is calibrated directly in wave-lengths.

STATION RANGE.

On the short wave-lengths, the set has an unlimited range, it being possible to receive the more powerful of the short wave broadcasting stations anywhere in the world. The range decreases as the wave-length increases, on the medium wave-band, figures vary greatly according to locality and station power, but a 1000 mile range on powerful stations is usually obtained and we have regular reports from Northern India and the West Coast of Africa, of reception of European medium wave stations, the range in these instances being greatly in excess of the figure given.

CONTROLS.

Tuning is by one knob only with slow motion gear, ratio 22:1. The motion is delightfully smooth, without trace of back-lash. The wave-length scale is of the large open vision type, with travelling pointer and indicator to show the wave-length on which the station is operating. A wave-change switch knob is fitted at the side of the cabinet. Reaction control by means of a slow motion condenser and a volume and selectivity device complete the controls.

GRAMOPHONE PICK-UP.

Terminals for using a gramophone pick-up are fitted at the back of the receiver.

BATTERY SUPPLY.

The battery model requires at least 135 volts high tension and triple capacity units are recommended. Up to 165 volts high tension may be used, but if dry batteries are employed, this considerably increases the current drain. With a D.C. eliminator or accumulator high tension, the higher voltage can be profitably employed. Grid bias is automatically obtained from the high tension supply and the bias voltage adjusts itself for any high tension voltage in use. A 2-volt low tension accumulator is needed for the valve filaments.

CURRENT CONSUMPTION.

Battery Model. From H.T. source: 14 m/Amps at 135 volts or 18 m/Amps at 150 volts.
Filament Supply: .6 amps. at 2 volts
A.C. Model. 45 watts at 230 volts.

CABINET.

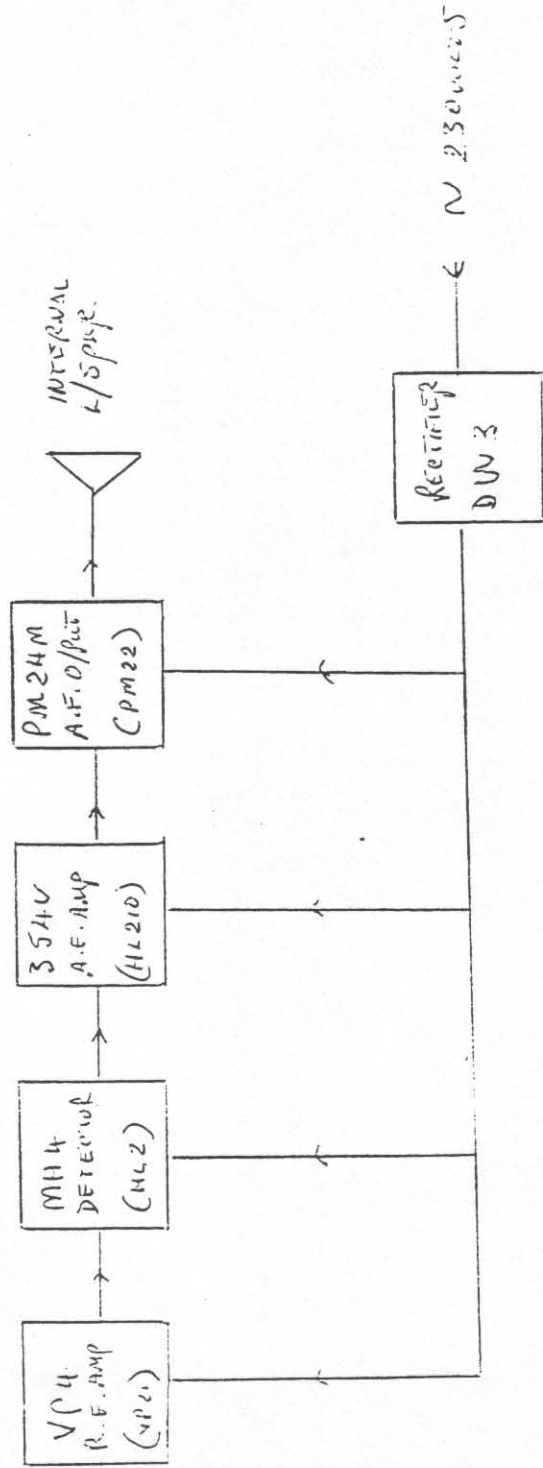
The cabinet is of attractive design in a simple but modern style and is strongly constructed from teak. A nicely marked wood is employed, finished in a light shade, and relief is afforded by the dark maroon finish of the control knobs, loud speaker fret material and suitable portions of the cabinet, which harmonize and add to the appearance.

Further details can be obtained from the official EddyStone Agents:

Sole Manufacturers: STRATTON & CO. LTD., EDDYSTONE WORKS, BROMSGROVE STREET, BIRMINGHAM, 5, ENGLAND

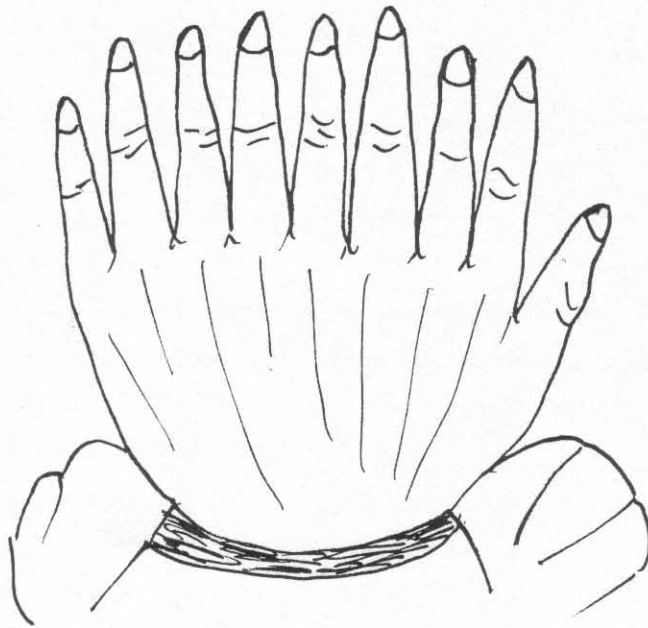
PRINTED IN ENGLAND

(BATTERY VALUES IN BRACKETS)



* SPAINY 5 VALVE MAINS MODEL - BATTERY MODEL 4 VALVES 9 SIMILAR CIRCUIT.

ALIEN HAND
AS NEEDED
FOR "HANDLING"
MODERN "ALL-
SINGING ALL-
DANCING"
RECEIVERS!



I HAVE BEEN
TAKEN TO TASK
BY ONE MEMBER
FOR REFERRING
TO OTHER MAKES
AS "ALIEN"
MAKES, SORRY!

- About the above, I had not realised that my referring to members other makes of receiver as 'aliens' might upset them. Let me put it right by admitting that I myself have a Trio R2000 & R600 plus a 2m. multimode. That in my collection figure Marconi, National and Pye as well as many other lesser known makes. My reference to alien was no more than a way of designating non Eddystone receivers not likely to figure in this newsletter. Mea Culpa.

- In its time the 750 was a popular model and yet today very few are in the hands of our members, several have said that they would like to have one but they are rarely seen for sale. Dennis wants to know if any member knows of a reason for this lack of 750s ?

- Immaculate 740 Receiver.-

- This 740 had been in a carton on top of a wardrobe for more than twenty years, looked to be in fantastic condition except for a mains lead which fell to pieces when touched. The rubber insulation was crumbling to powder. As the asking price was £25 I took a chance and became only its second owner since new. The owner was a silent key, ex G3 plus 3 and it was now being disposed of as his family were selling the house and contents. I got with the receiver the original receipt for purchase and a copy of the Eddystone booklet 'Making the most of your receiver.' Little did I know what was in store for me as the 'stored in a warm dry place' 740 was opened up. Old rubber insulated wiring has the nasty habit of disintegrating with age, that is one thing but then if any damp whatever gets onto the powdered

10/

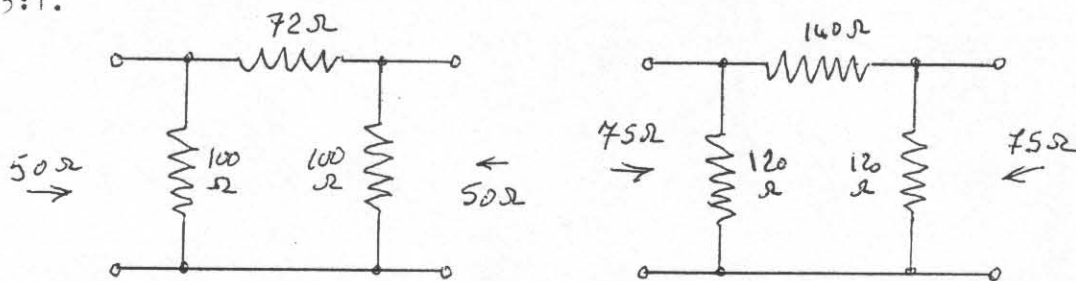
rubber remains this will turn into a gooey conducting medium. After getting the 740 it had spent a week in storage in my garage ! Do I need to say more ? After several days of finding leaky wiring I came to the conclusion that there was but one thing to do, renew all the wiring harness and all the lengths of insulated wiring in the 740. It may sound drastic but I could see no other solution. The main wiring harness which ran along the length of the chassis was opened out but left in place. A count was made of the number of wires it contained and the colour used, a straight line bundle of the correct colour and number but with excess length was made up and laced along the straight line section. A table was drawn up of the colours of these wires and where they terminated at each end. The 740 harness was then cut near its centre, about the centre of the front panel. The various coloured wires were then pushed aside to right and left of the chassis, the new harness was put in position and fixed there. Starting on the left side of the 740 each wire was, in turn matched to the same colour in the new harness, the old was unsoldered and the new soldered in its place, not as difficult as it sounds, in fact no problems cropped up and the next task were the various other lengths of wiring, all were replaced with the exception of uninsulated lengths of tinned copper wire. Where a wire went to a paper type decoupling condenser a new component was fitted at the time. All thirteen paper types were in fact swapped for tubular polyester types. The 30 mF, C49 in the bias circuit of V4 was also swapped since these electrolytics are almost certain to have gone either leaky or low in capacity over the years. This whole re-wire took me several weeks but I thought it worth the time and when tried on power the 740 came on after the usual warm up delay. Next stage was a voltage check following the table in the instruction booklet. Several were off and the cause traced and in most cases this was resistors gone high in value. An exception was R28 which not only measured 350 ohms but was so marked ! Orange body a green end and a brown blob. It was an original component no doubt of it but the schematic still called for a 400 ohm resistor. I put in a 390 ohm as a compromise. At this point the anode volts on V4 was still low at 27 volts, since I was reading nearly 20 volts on pin 6 of V5 it was clear that the mica coupling condenser was at fault, this was replaced with a polyester type. Lack of use over so many years had allowed an insulating patina to build up on the range switch contacts and these were cleaned with liberal doses of switch cleaner. By now only realignment remained, this was a quick job as little but touch ups were needed. the 740 is once more in a

11/

state bordering on 'as new'. No work was needed on the case besides a polish over with black boot polish as suggested by another EUG member. It is now in place as my favoured receiver for SWL work, having taken the place of my PCR2 and CR100 receivers. ALAN.

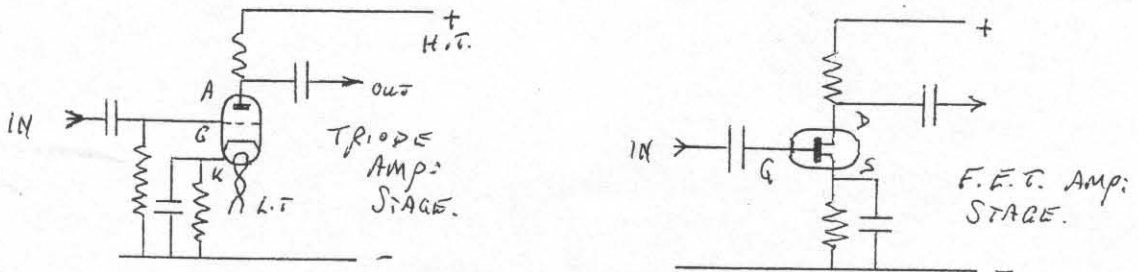
 - Test Attenuators. -

- Paul Burnett has made up two test 10 db attenuators to help in his servicing work, these come handy when the output of his signal generator can no longer be reduced sufficiently to permit him to continue alignment. One is a 50 ohm in and out the other a 75 ohm in and out, input is a plug on a flying lead (coax) and output a socket mounted on the diecast box in which the attenuator is housed. The 50 ohm version uses a TV type coax plug and output is a BNC socket, for the 75 ohm type TV types are used at both ends. Values are as given below. The input to output voltage ratio is approx; 3:1.



 - A 1960s Fad, not recommended. -

- Substituting transistors for voltage and current hungry valves was the in thing in the early sixties. Let me say that I have never seen a successfully converted valve receiver, not with anything like the same performance spec; as the original valves. Most magazines at one time or another featured mod articles on this theme, some being in general terms whilst some picked on a particular make and model.



The basic equivalent circuit of a triode amplifying stage and its FET equivalent are as above. Stage gains can rarely be made equal and circuit impedances do not match, transformers thus need to be changed or modified. All this was brought back to mind recently when I was offered a 'free - if you will collect it', a 670A. It was said to be unused since an incomplete rebuild many years ago.

Just how true that statement was I came to find out when the 670A was out of its box on the table in my shack. No valves at all but in each socket was a 'tufnol' type plug from the wiring pin end of which was soldered an old type 'top-hat' transistor, those in tin cans. As if that was not enough a look under the chassis showed an abysmal state of butchery and cannibalism with components either missing altogether or one end chopped off and the item left hanging. None of the stage mods had been completed, whether enthusiasm ran out or technical expertise was insufficient I know not but I nearly lost all my enthusiasm at seeing the job in front of me. What decided me was the nice external condition of the set and the fact that apart missing resistors and condensers the main larger items such as IF transfos and dropper resistor were still in place. I began by listing all resistors and condensers from the circuit diagram. Drawing up a table and indicating whether each item was existing or not. A list of components missing was made and these were either bought or taken from my scrap box. A full set of valves were found too, not new any of them but allworkers as checked in other sets. One item missing still was a thermistor but this was got from Birketts. All the funny little tin cans and tufnol plugs were removed and dumped into my scrap box, a start was made on the rectifier valve circuit which had been removed completely, this was quite easy and no problems came up. The various stages were then rebuilt and tested one by one as has been described in various issues of the newsletter, this is a standard construction practice anyway. any components going to earth went to the nearest earth tag all leads were kept short and direct. I am sure that in many places the wiring and placing of components is not as when the 670A was first built but cannot find anybody with one to check from. One happy fact was that little had been done to the part of the circuitry in the central box containing the coils and switch wafers, but there were signs of 'twiddling' on both coils and trimmers. Now if de-bugging a receiver I tend to concentrate on having each stage functioning albeit poorly and then as a final job going onto a voltage and gain check with any necessary alignments done at this last stage. I did find one or two incorrectly wired components and even wrong values but eventually all voltages were near to the quoted figures. Then the IF transfos were set up as per the notes in Eddystones instruction sheet. The RF stages were the hardest part of all since all appeared to have been twiddled to some extent and a couple of weekends were spent getting the ranges to track correctly. Finally the set appeared to be working okay and as near to spec as my limited test gear allowed. I decided to leave it on, with gain turned down for a full Saturday, a further check the next day showed

that some burning in had taken place and it was necessary to retrim both range one and two at the HF ends. The set is now in what I can call very good working order and in almost daily use. No problems have arisen in the five weeks since my rebuild but I am looking for a replacement loudspeaker or shall have this one reconed. In all 17 resistors and 21 condensers were replaced. If I had to do the job again I would make just one change in my procedure. Before starting the rewire I would try to get a photo of the under chassis layout of all components, this would have saved me considerable time and my temper would not have suffered so. About 35 hours of labour went into this job but the 670A was & is again a very nice receiver. Billie.

- Members Queries on the 840. -

- Several members query the fifth, unmarked, position on the range switch. This is for use when the input AF sockets are in use, to avoid any RF breakthrough the tuned circuits are disconnected in this position.

- No, the amateur and broadcast bands as marked in blue and red will not tally with today's bands, broadcast bands especially have expanded considerably since the fifties. The newer amateur bands are not marked on at all. These markings were relative to the 1947 Atlantic City conference.

- The chassis is not at earth, or ground, potential but the case is ! As in many AC/DC sets if the live and neutral lines are reversed the chassis will be at full mains voltage above earth. SO BEWARE if working on this model.

- Yes, if you intend to play safe and run this model from a double wound mains isolation transfo do use it on 110 volts, this will reduce consumption, allow cooler running, permit use of a smaller transfo, and what is more important in many cases this will reduce mains borne QRM. Consumption will be down from about 65 to about 30 watts.

- Your 840 can resolve SSB ! If you learn how to drive it properly. It will be more satisfactory if you first do the mod to the BFO as on page 5 of issue 6, remembering to check and reset the BFO control to zero beat with the white spot on the knob at 12 'o' clock. AVC will be off with the BFO on so set the AF pot to maximum and do all gain adjustments with the RF pot. Tune to maximum loudness on the SSB signal, turn the BFO knob to right or left as the case may be for upper or lower sideband, and fine adjust for intelligibility, thats it.

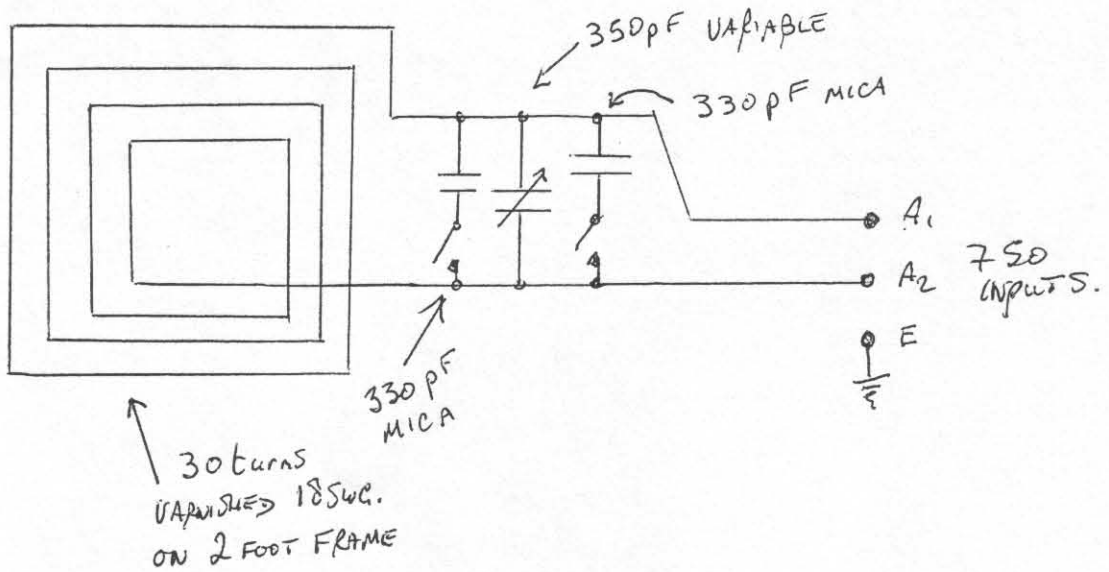
14/
- A Cabin Receiver. -

- The original 670 was not meant as a communications model , it was sold as a 'cabin' receiver , that is a broadcast model but with higher than usual performance and far better construction quality enabling its use in all extremes of temperature on all the usual AC or DC mains supplies as found on shore or aboard ship. Eddystone advertised it as ideal for shipboard use , with but four controls on the front panel it is quite basic, no BFO, no NL. Mine was purchased from Eddystones retail outlet Webbs of Birmingham, in July 1949 and has had but two valve valve swops since new. A new rectifier valve was fitted in the late seventies and a new mixer/oscillator was fitted in the last Xmas holiday period when it refused to oscillate on SW. There have been two owners from new and a full history of it is available including the original invoice. With a random wire of some forty feet wound around the loft the 670 performs well and is frequently in use to listen to my favourite SW and MW stations, VOA, RCI and RFI being the most listened to. No repairs have been needed so far and I am at present listening to Radio Tirana in English spouting forth the usual tirade. The fact that -as advertised - all components are tropicalised and conservatively rated is I believe the reason for the long and reliable life of the 670. I have no doubt but that a session on the bench would show up some faulty components, not do I doubt that its performance has fallen off from new. The point is that I am happy with it as it is, whilst working. At a price of £40 new and the cost of two new valves this has really been inexpensive listening, such as one cannot buy today. - Bert Swannley.

- Transatlantic DX, easy. ? -

- A point mentioned by Stewart Dodd is that the US and Canadian Dx stations on the MW band use frequencies channelised in tens of Kc/s and not in nines as we do over here. This does help considerably when he is using his 750 for MW Dx-ing. With a balanced and tuned 4 foot loop he has had considerable success and sends in a list of over twenty transatlantic MW stations from whom he has had either QSL cards or letters. It is quite often possible to use the narrow selectivity of the double superhet 750 and sit in the gap between two european signals waiting for the DX to come up out of the noise. His loop system is used fed into the balanced doublet input sockets and he uses a separate earth lead to a galvanised pipe buried in what is almost permanently boggy ground. Having mounted the loop on a ballbearing swivel he can rotate it to minimise QRM from the co-channel signals. A schematic of the arrangement used is shown in this issue.

- Tuned Loop circuit for use with a 750. -

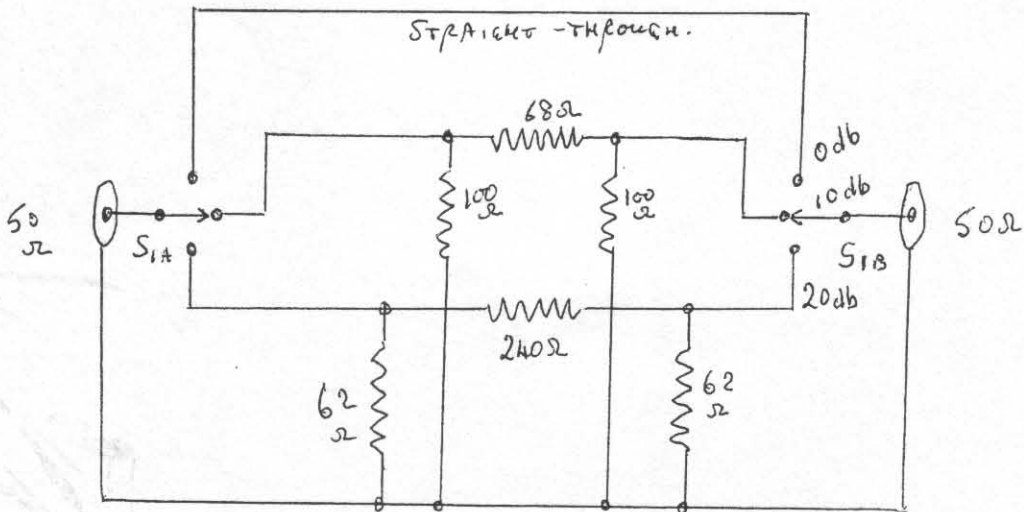


- Two Stage Attenuator for use with Active Aerial. -

- John uses an ARA900 active aerial with his 770U mark II and has need of an inline attenuator since he has a nearby VHF local radio transmitter mast and several public utility masts too. The feed from the AA is a 50 ohm coax line and so the attenuator as shown has been built in a small diecast box fitted with two BNC sockets. Other values can of course be fitted if desired and some values for alternative levels .

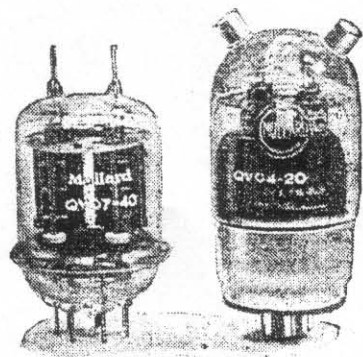
- 5 db , R1 & 3 = 180 ohms, R2 = 33 ohms.
- 15 db , .. = 68 .. R2 = 140 ..
- 40 db , .. = 47 .. R2 = 2700 ohms.

S_{1A,B} = 3WAY
2POLE.



rated at 7.5 watts anode dissipation and can be used up to 200 Mc/s. There was also the KT8C, a replacement for the well-known 807, the DET18 triode replacing the 35T, the DA41, substitute for the TZ40 and the DET19 double triode, an equivalent to the RK34. Mercury vapour and hard vacuum rectifiers were also shown.

Mullard had a very comprehensive range of valves in both transmitting and receiving types. The popular EF50 with its companion V.H.F. types EF54 (RL7), EC52 (RL16) were shown together with a new valve, the EF55, for use in wide-band amplifiers and having a slope of 12 mA/V. A special non-microphonic pentode for use in early stages of modulation amplifiers has been

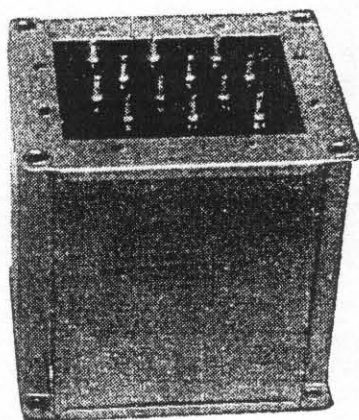


Mullard VHF double tetrodes; the QVO7-40 and the QVO4-20.

developed and is given the type number EF37.

Among the Mullard transmitting valves is the QVO4-7, a tetrode suitable for use as crystal oscillator, doubler or tripler up to 150 Mc/s. It operates at 300 volts H.T. and its anode dissipation is 7.5 watts. Other Mullard types are the QVO5-25, a direct equivalent of the 807, and two double R.F. tetrodes, the

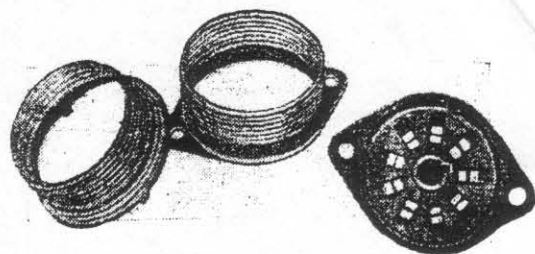
QVO4-20, equivalent to the 815, and the QVO7-40, equivalent to the 829B. The former will give a C.W. output of 40 watts and functions up to 200 Mc/s, while the latter's output is 60 watts with a limit frequency of 250 Mc/s. A feature of the QVO7-40 is the inclusion of a built-in screen by-pass capacitor. For high-power operation, where



Woden Multi-Match modulation transformer, type UM2, rated to handle 60 watts of audio.

an 813 might be used, Mullard have an equivalent in the QY2-100, giving 260 watts output up to 120 Mc/s. In addition there is a comprehensive range of audio-frequency amplifying valves and mains rectifiers of the mercury vapour type.

Aerial equipment was shown by Antiference, Belling and Lee, and Eddystone, with co-axial and flat-twin feeders by the Telegraph Construction and Maintenance Co. Belling and Lee showed



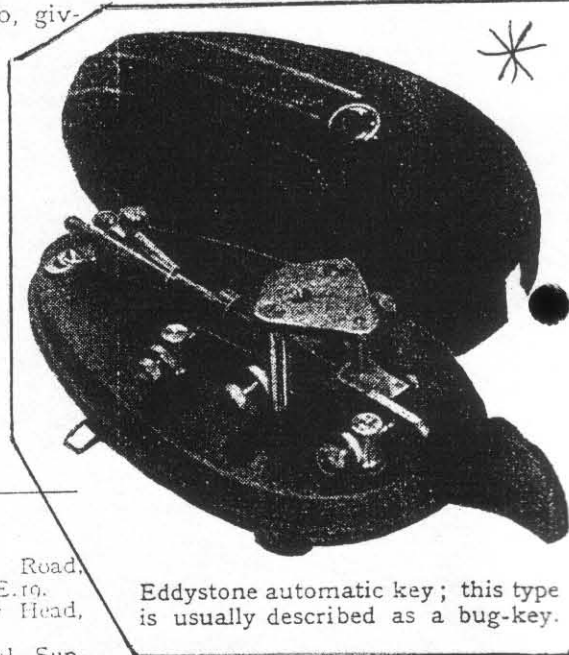
Belling-Lee EF50-type valve holder and valve retaining ring.

a wide range of co-axial plugs and sockets also a new EF50-type valve holder and valve retaining ring.

Some well-made coil turrets were seen on Labgear's stand together with plain and split-stator condensers, also a special wide-band R.F. coupling unit for transmitter and receiver stages. Denco showed a coil turret for use in receivers and many coils and components with polystyrene insulation.

A new range of transmitting condensers with ceramic insulation was seen on Eddystone's stand; where, among other items of interest, was a new automatic key, more familiarly known as a "Bug," which is priced at £3 17s 6d.

Meters of various kinds from single-range pointer instruments to



Eddystone automatic key; this type is usually described as a bug-key.

multi-range test sets were shown by Taylor and Pullin.

Mains and modulation transformers, the latter potted and filled with pitch to prevent "chatter," were seen on Woden's stand, while a range of components for receivers and transmitters was exhibited by Odeon Radio, Radiocraft, Radiomart, and Eddystone.

List of Exhibitors

- Antiference, Ltd., 57, Bryanston Street, London, W.1.
- Belling and Lee, Ltd., Cambridge Arterial Road, Enfield, Middlesex.
- Denco (Clacton), Ltd., 355-359, Old Road, Clacton-on-Sea, Essex.
- E.M.I. Sales and Service, Ltd., Sheraton Works, Hayes, Middlesex.
- Labgear, Willow Place, Fair Street, Cambridge.
- Measuring Instruments (Pullin), Ltd., Winchester Street, Acton, London, W.3.
- The Mullard Wireless Service Co., Ltd., Century House, Shaftesbury Avenue, London, W.C.2.
- Odeon Radio, 50, College Road, Harrow, Middlesex.

- Radiocraft, Ltd., 11, Church Road, Upper Norwood, London, S.E.19.
- Radiomart, Ltd., 48, Holloway Head, Birmingham.
- Southern Radio and Electrical Supplies, 85, Fisherton Street, Salisbury, Wiltshire.
- Stratton and Co., Ltd., Eddystone Works, Alvechurch Road, West Heath, Birmingham.
- Taylor Electrical Instruments, Ltd., 419-424, Montrose Avenue, Slough, Bucks.
- The Telegraph Construction and Maintenance Co., Ltd., 22, Old Broad Street, London, E.C.2.
- Woden Transformer Co., Ltd., Moxley Road, Bilston, Staffs.

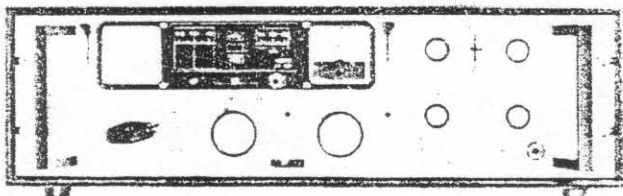
- In many cases DX, or weak signal, reception is limited by locally generated noise. This is especially so in built up urban or industrial areas, even on board ship. For best results it is necessary to ensure first that the incoming power supply is as noise free as possible. As a first step short the aerial and earth sockets on your receiver, power it up and with the gain well advanced listen for any sporadic or intermittent noise, apart that is from the normal receiver background noise. If any is heard then a mains filter is necessary and can be bought or made up. A good start is an ex-tranny ferrite rod of say 6 inches long and wind on this for its full length the mains input lead of your receiver. Mains type filters built into 13 amp plugs can be bought from people like Bulgin, Belling Lee, Cirkit. Next is the aerial this should not be just any piece of wire, but a good length, mounted as high as possible and outside. If the source of the QRM is known or suspected then try to get your aerial as far away from this as possible. Maybe even a screened downlead will help eliminate QRM generated 'in house' or nearby. Sources of QRM are legion, Fluorescent lights, electric clocks, computers, modern hi-tech telephones, street lights, washing machines, fridges, sewing machines, TV and videos, almost any electric appliance can be responsible. If the source can be identified then it is best to suppress the QRM there before it is radiated into free space. New appliances should in theory be interference free but they rarely are ! If Your wanted DX comes from one direction, say west for stateside DX, then a long^swire running from the receiver downlead to the west will favour your wanted DX. A selective aerial, a dipole for the band you listen to most will help, especially so if a screened or balanced downlead is used. This can be something as simple as a twisted pair of insulated wires which will carry to the receiver all that is picked up on the aerial whilst cancelling out any pick up on the down lead itself. This is the 'doublet' type of aerial and the balanced input sockets on most models of Eddystone will further help here. A good low resistance earthing system will usually help but if none is available you may get better reception with none ! Beware especially of the mains earth system which is a prolific source of interference of many kinds, from cracks and hisses to actual data tones from computer systems. It is in fact used to transmit control signals for the remote operation of many devices.

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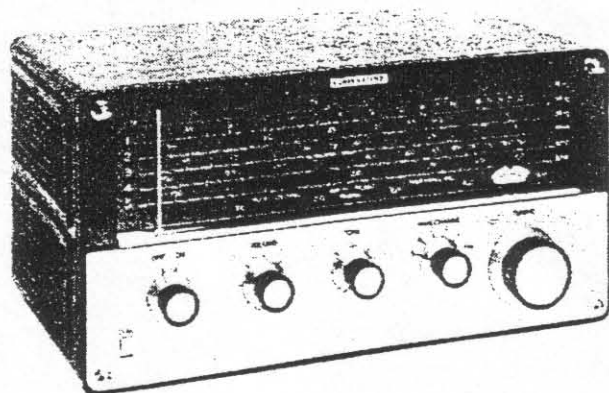
LTD ED99

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