A TALE OF THREE EKCOs

BY JOHN W. STOKES

To have two 'round' Ekco sets, an AC76 and an AD75, in the workshop at the same time is certainly not an everyday occurrence, even though in this case they both belonged to the same owner, but to have a third pre-war Ekco, albeit not a round one, in on the same day must surely rate as an extreme coincidence. It was while the first two sets were still on the bench that another (unknown) owner of another Ekco rang to enquire whether I would consent to have a look at his set. No, it wasn't an SW86 either, but an SH25! How about that? Bearing in mind that the name Ekco was was unknown in this part of the world before the SW86 was marketed in N.Z. in 1936, the liklihood of three such early sets arriving on the same spot at the same time was extremely remote, wouldn't you say?

It is probably true to say that, to most collectors, the greatest appeal of Ekco sets, especially the round ones, lies in their appearance rather than in their performance, though that doesn't imply any criticism of the latter aspect. It is the bakelite cabinets and the shapes thereof, coupled with the unusual dials, which rate so highly nowadays; perhaps the same was true when the sets were new. In the case of the SH25, for example, there are probably more Ekco lovers who know the name of the cabinet designer than are aware that this model was Ekco's first superhet. Because so little has been written about the technical side of Ekco receivers, a few words on the innards of this model may be of interest.

At the time when the SH25 (SH= superhet, what else?) was announced towards the end of 1932 Ekco had joined the ranks of other major British manufacturers who had also produced their first superhets in that year. As can be seen fro the accompanying diagram, the SH25 was a 5-valve model with no RF stage and for this reason great care was taken in the band-pass circuitry to avoid second-channel interference. The input (mixer) stage consisted of a sharp cutoff SG valve directly coupled to a triode oscillator. A vari-mu SG valve in the IF stage had a manual volume control in its cathode circuit. It was followed by a triode grid-leak detector which was coupled via a shunt- fed audio transformer to the output pentode. Following common British practice of the day, a Westinghouse "metal" (copper oxide) rectifier used in the also common voltage doubler mode, provided a filtered 250 volts of HT.
The large ring shaped tuning dial whic surrounds the inbuilt loudspeaker, an 8" Magnavox or Rola, was very much of a novelty at the time as, apart from its shape it was the first in any receiver to have station names inscribed on it. Incidentally, no form of dial illumination was provided.

It was interesting to have the opportunity of working on this particular receiver if for no other reason than that it was likely to be the only one of its kind in the country. Both the chassis and cabinet were in a remarkably good state of preservation and gave the impression that the set had not been used very much by its original owner. The only evidence of any repair being done in the past was the presence of a couple of Philips replacement valves which had obviously been there for a long time. For many years the set had stood unused before passing into the hands of its present owner and now the time had come to revitalise it.

Surprisingly or otherwise, the set was still in working order, but only just. What little sound emerged from the speaker was weak, muffled and distorted. A initial check revealed the HT voltage to be well below normal, a condition which pointed to a weak rectifier, but after fitting a couple of 1000 V silicon diodes (complete with surge limiting resistors) there was little increase and no improvement in performance. Obviously the trouble lay elsewhere.

Further checking revealed that the output pentode was not getting any bias, while the voltage drop across the back-bias resistor was higher than normal. This condition was traced to an open grid circuit resulting from the secondary of the coupling transformer being o/c. Replacement of the defective item posed something of a problem as the transformer was of diminutive size and was buried in an inaccessible positionamidst the under chassis wiring. In this case, because it was the secondary rather than the primary winding which was defective, the age old trick of shunt feeding the secondary could not be used. By disconnecting the transformer and fitting a 470K resistor in the grid circuit the coupling was changed to straight RCC without losing too much gain, in spite of the fact that that the transformer appeared to have a high stepup ratio, judging from the listed DC resistance of the windings - 460:5000 ohms.

Now that the o/p valve's bias had been restored its formerly excessive plate current (the main cause of the low HT voltage) returned to normal and the HT rose accordingly; in fact it rose a bit too much. The greater efficiency of the silicon diodes resulted in an expected higher output voltage and this necessitated the fitting of a suitable series resistor to reduce the filtered HT to the required level. Incidentally, as can be seen from the photo, the Westinghouse rectifier was left in situ for cosmetic reasons.

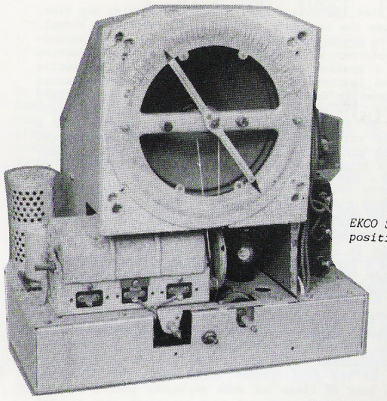
Further work consisted of the replacement of three valves and the fitting of three separate electrolytic capacitors to replace the the potted ones in the power supply section. In addition all capacitors with any voltage on them were replaced as a precaution. The job was completed by an alignment check and the recentring of the Rola speaker voice coil. The latter is a tricky operation at the best of times not made anyeasier when a 62 year speaker is involved. However, a prolonged soak test extending over several days proved that the adjustment was holding constant and the set's general performance left no cause for complaint.

The still remains another story to be told, this time about the AC76, but that will have to wait.

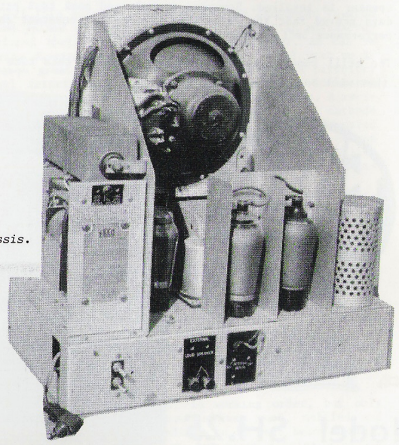
EKCO
ALL-ELECTRIC
RADIO

EKCO

Model SH.25



EKCO SH25 chassis showing dial scale positioned around periphy of speaker.



Rear view of EKCO SH25 chassis.

SERVICE NOTES

Valves.

V1 = Cossor MSG/LA (Met.).
V2 = Mullard 354V.
V3 = Cossor MVSG, Mullard VM4V (Met.).
V4 = Mazda AC/HL, Mullard 354V.
V5 = Cossor PT41, Marconi PT4, Mullard PM24M.

Mains Input.

200/250 V., 40/100 c.p.s.

Intermediate Frequency = 110 kc/s.

Second Channel Trimmer.

A trimmer device is provided for reducing second channel interference to a minimum. The necessary adjustment can be carried out with the aid of two local oscillators separated in frequency by twice the intermediate frequency, i.e. by 220 kc/s., or with the aid of a single oscillator and the local station signals. In localities where the London and North Regional stations are both well received, these two stations may be used for adjustment, their frequency difference being approx. 220 kc/s. Adjust trimmer for minimum interference.

Voltage Readings.

V1 Anode	...	140/160 & 190/210 V.*
V1 Screen	...	55/65 & 70/80 V.*
V2 Anode	...	M.W. = 20/30 V.
	...	L.W. = 20/60 V.
V2 G.B.	...	M.W. = 2.0 V.,
	...	L.W. = 1.7 V.
V3 Anode		as V. 1.
V3 Screen		
V4 Anode	...	radio = 65/85 V.
		gram = 70/100 V.
V5 Anode	...	250 V.
V5 Screen	...	245/260 V.
V5 G.B.	...	17/19 V.†

* The two sets of readings refer to two models issued at different times.

† Resistance of meter = 50,000 ohms. For all other voltage readings meter resistance is 500,000 ohms. Total H.T. current is 45/55 mA.

Coil Resistances, etc., (in ohms).

Aerial filter	... ...	9.5.
B.p. coils, M.W.	...	p. = 2.0, s. = 7.5/3.0.
,, ,, L.W.	...	p. = 9/10, s. = 13/14.
Osc. coils, anode	...	4.2.
,, ,, grid	...	3.5.
I.F. coils	... ...	150 each.
L.F. transformer	...	p. = 460, s. = 5,000.
L.F. filter choke	...	340.
Output transformer	...	p. = 490.
Mains transformer	...	p. = 29, 32, 35, s. = 75
Switch contacts	...	not to exceed 1.0.
Hum control	...	50/60.
Speaker field coil		2,250 Ω.

Oscillator Valve Test.

When the grid coil of the oscillator valve is short-circuited the grid bias of the valve is reduced by approx. 1.0 V. on M.W. and by approx. 0.2 V. on L.W.