

Vintage Radio

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The AWA B25/6 Stereogram

Towards the end of the valve era, the local radio industry began producing stereo versions of what used to be (mono) radiograms. These usually had a power output of several watts per channel and their bass response was often curtailed to stop acoustic feedback via the cabinet to the stereo pickup cartridge.

THIS AWA STEREOGRAM is similar in concept to most others of the era. Normal AM radio reception was in mono, with a standard converter and one stage of intermediate frequency (IF) amplification and detection.

From here on, the difference between a mono radiogram and a stereo radiogram is apparent. The audio system is split into two identical amplifiers feeding speakers at the left and

righthand ends of the cabinet to give the stereo effect. Some stereograms used the normal mono radiogram cabinet and put the second speaker into a satellite speaker box. This meant that a better stereo effect could be achieved.

The AWA B25/6 is a single-cabinet stereogram which stands on four splayed legs. There is a 6 x 9-inch oval speaker at either end of the cabinet.

The radio and amplifier chassis is in the lefthand end and the controls are accessed under the lift-up lid above the 4-speed record changer.

To the right of the changer is a small area for storing a few 12-inch records. The righthand end is largely empty space with the second oval speaker situated in it. This was a relatively simple stereogram, designed to cater for the middle to low end of the market.

Removing the chassis

We all hope that the removal and reinstallation of the "works" from a cabinet will be easy and straightforward. While cleaning the dirt and muck off the cabinet, I looked carefully to see how the receiver chassis could be removed from the cabinet.

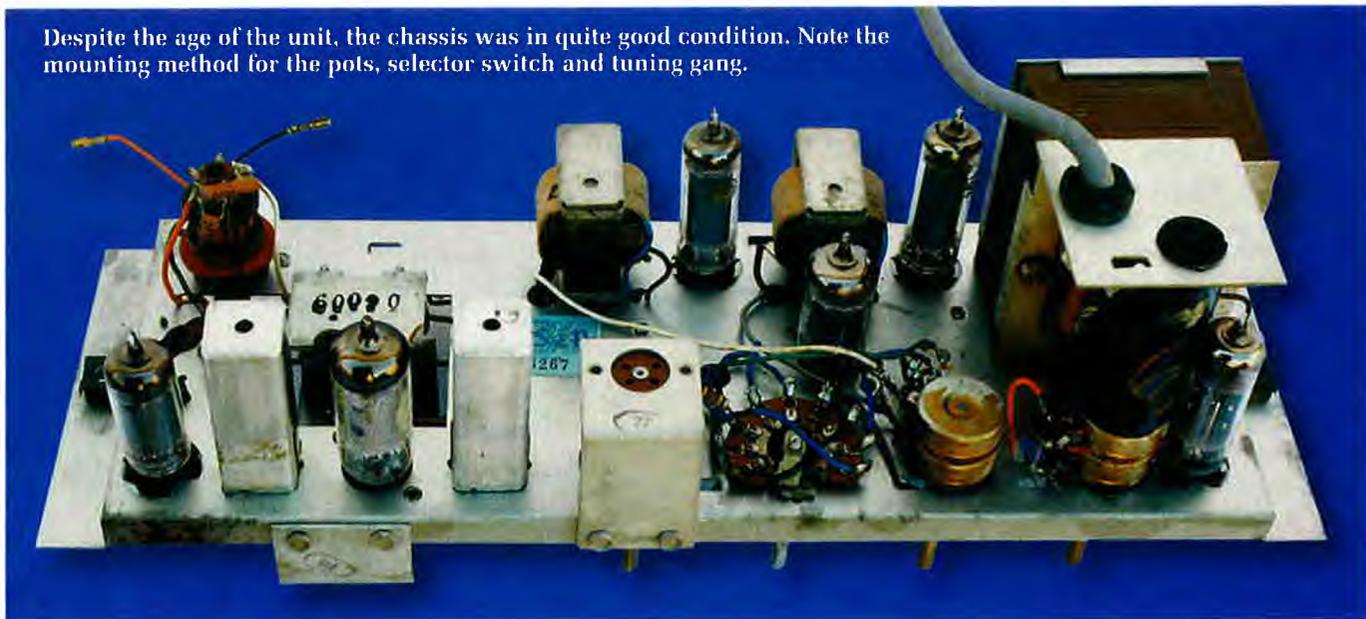
It looked like it could be a challenge. I'd seen the data on how to dismantle some of the slightly earlier models that appeared to be the same, as shown on the technical data sheets. However, close inspection revealed that the layout inside the record changer section was quite different to the ones in the data sheets.

I removed the knobs and could see that the chassis would drop down inside the cabinet if two mounting screws were removed. Before doing this, I placed the cabinet on its lefthand end and looked underneath again to see if access was available from the underside of the cabinet. Well it was. I removed three screws and the cover came off. I looked more carefully to see why only three screws were used on the underside of the cabinet to secure the cover.

The reason soon became quite obvious. The cover originally had been stapled to the underside of the cabinet and when it had to be



Despite the age of the unit, the chassis was in quite good condition. Note the mounting method for the pots, selector switch and tuning gang.



serviced in the past, the serviceman had to lever the staples out to remove the base.

I could now see the chassis and observed that if I removed the two retaining screws, the chassis would fall into the cabinet and probably break some valves. I then got the bright idea that if I removed the record changer I could gain access through the changer cutout and be able to remove the screws and support the chassis at the same time.

It was still a menace to disconnect the cables, as the connections were tight on some miniature spade connectors. With some difficulty, I managed to get the chassis out without damaging anything. After I had overhauled it, there was the job of putting the chassis back into the cabinet. I had to get extra help to do this but I got it back together.

Thinking there had to be a better way of doing this, I noticed four screw heads on the front of the cabinet I hadn't seen before – part of a decorative trim. I removed these and the front baffle with the two speakers on it came away from the cabinet. This would make it much easier to remove the chassis.

Further investigation showed an even better method: lay the cabinet on its right hand end and remove the base panel and the front speaker baffle. Once this is done, the chassis is reasonably easy to get at.

The moral of the story is to explore all possibilities of how to remove the

innards of a set before jumping to the conclusion that the manufacturers had a fiendish delight in making it extremely difficult for servicemen or restorers. I still believe most manufacturers could have used more lateral thinking and come up with a much better means to gain access to the works.

While the chassis and record changer were out of the cabinet, the inside of the cabinet, the chassis and the record changer were cleaned with a brush and later with a kerosene-dampened rag. Mouse dung had to be cleaned out but the only damage was some corrosion on one edge of the chassis. The valves were taken out and cleaned with soapy

water, taking care not to rub the valve type numbers off.

B25/6 circuit details

I'm not sure if the set is a B25 or a B26 as the chassis has no markings on it to indicate the model. However, the circuit appears to be similar to the AWA B20 which is shown as Fig.1 of this article.

The B25/6 is a 6-valve set and is quite conventional. The AM tuner section uses a 6BE6 as a converter and a 6N8 as the 455 kHz IF amplifier/AGC and detector. Each power amplifier uses one half of a 12AX7 twin triode and a 6AQ5 pentode as a single-ended



This view shows how the chassis is mounted vertically inside the cabinet (front speaker panel removed).

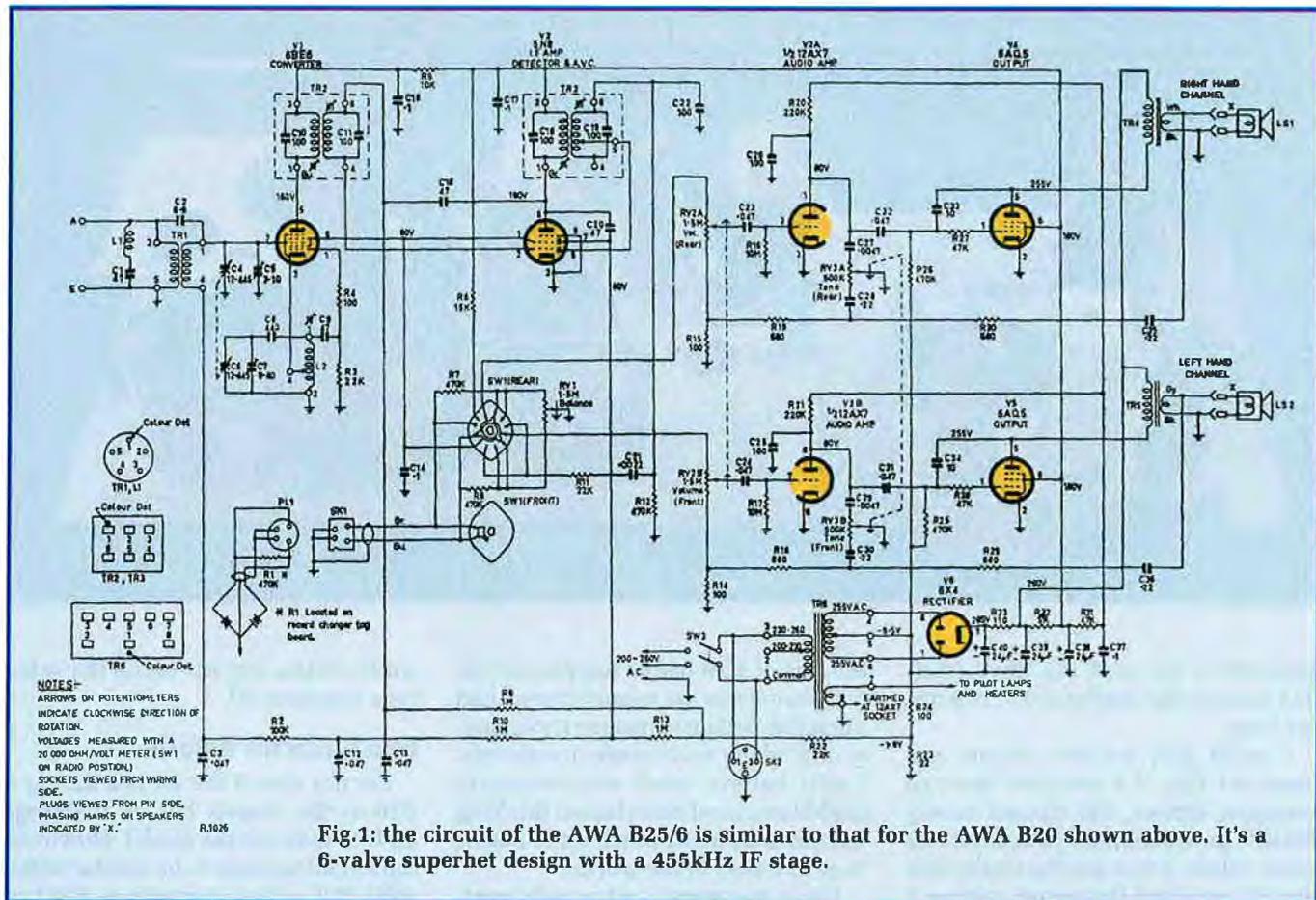


Fig.1: the circuit of the AWA B25/6 is similar to that for the AWA B20 shown above. It's a 6-valve superhet design with a 455kHz IF stage.

class-A output stage. A 6X4 acts as the power supply rectifier.

Before I switch a set on, I always do a number of things to make sure that it is safe to do so. First, I checked that the earth pin of the mains plug was connected via the earth wire to the chassis, which it was. That done, I used my 1000V tester to check that there were no insulation breakdowns between the mains wiring to the chassis and to the secondary winding of the power transformer – all was well. The speaker transformers were then checked for continuity of the primary winding and once again they were in good order.

The next job was to check the resistors and capacitors. The resistors all tested within tolerance or if not, they were only a small amount out. The capacitors were a different matter. Tested at 500V, I found that all the AEE capacitors were much too leaky at 1MΩ to 5MΩ resistance and most of the UCC capacitors were no better.

The other capacitors were all in good condition. Where their leakage resistance would have affected the

circuit's operation, defective capacitors were replaced.

Close inspection of the chassis also revealed a blue lead going through an eyelet on a soldering tag strip. Why this was done I don't know but it means that extreme care is needed to solder anything to the top lug so that the insulation on the blue wire doesn't melt.

The valve sockets and the gram/radio selector switch were given a squirt of Inox cleaner and the control shafts were oiled. With the valves installed, it was time to test the set. With an outside antenna connected and power applied, the set came up very nicely with full high tension voltage and a radio station playing in the background. Good reception was obtained right across the band. The performance was so good that I decided that the alignment was near enough and didn't need any tweaking.

The knobs were all in good condition except for one with a white pointer, which has cracks in the plastic. It appears to be a replacement and, unlike the others, lacks a metal collar.

To strengthen it, I wound three turns of 24-gauge tinned copper wire around it in the same position as the collars on the other knobs. I then twisted the two ends together, quickly soldered them and laid the soldered join down along the knob so that the repaired knob would fit down its escutcheon and onto the control. It worked well and the knob is now much stronger.

The record changer

The BSR Monarch record changer is one of the simplest around but for service it is necessary to remove it from the cabinet. This is done by removing the audio and power leads, then twisting the toggles on the two screws holding the changer in the cabinet so that they will slip through the mounting holes.

I've found this brand of record changer very reliable, requiring little in the way of fault-finding. This unit was no exception. However, as it is between 35 and 40 years old, the lubricants had dried out and needed to be replaced. I mounted the changer onto my servicing jig and then commenced

Photo Gallery: AWA Radiola 240 (1934)



Released by AWA in 1934, the Radiola 240 is a 7-valve superheterodyne console that tunes the medium-wave band and two shortwave bands. An interesting feature of the circuit was the use of two RF amplifier stages ahead of the mixer, with the first stage switched into use only when the higher-frequency shortwave range was selected. The valve line-up was as follows: 6D6 1st RF amplifier; 6D6 2nd RF amplifier; 6A7 frequency changer, 6D6 IF amplifier (460kHz); 6B7 audio amplifier/detector/AVC rectifier; 42 audio output; and 80 rectifier. Photo: Historical Radio Society of Australia, Inc.

removing the platter. This is achieved by removing the circlip in the centre but first the turntable switch should be in the off position (to disengage the idler wheel) and the turntable should rotate easily in a clockwise direction. It should then be possible

to ease the platter off its central shaft but in this case, it was reluctant to move upwards.

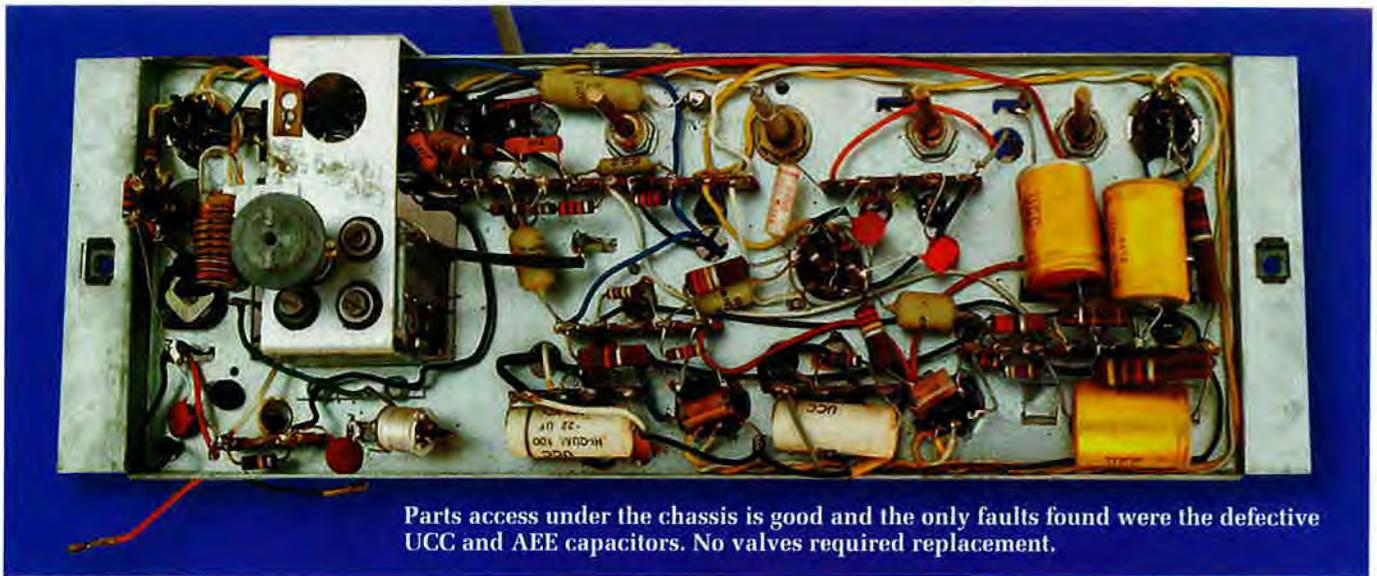
Fortunately, I had some fine hard-drawn steel wire from which I cut two lengths about 150 mm long. I put a hook in one end of both pieces and

used them as a puller on the platter, twisting until it came free.

Like the rest of the mechanism, it needed lubrication. I oiled the central shaft and the idler pulley. The motor is mounted on rubber grommet resilient mounts. Three circlips were removed from the mounts and the motor dropped down under the platform.

Most of these motors can be dismantled by removing two screws. I did this but found that the bearings were not as accessible as in some other models. With some types, you can either lever a cover off the bearings or gain direct access to them. Usually alongside the bronze bearing is a felt wick which can be filled with oil to lubricate the bearing for many years. In this case, I just flooded the bearing and hoped that enough oil got to the wicks.

Oil is used on bearings and shafts and grease is used on many of the sliding surfaces of the changer. The old congealed grease can be cleaned off with a kerosene-soaked rag and general purpose grease applied in its place. This isn't an easy task and it may not always be possible to clean and replace all of the grease. It is just



Parts access under the chassis is good and the only faults found were the defective UCC and AEE capacitors. No valves required replacement.

a matter of doing your best without dismantling the changer.

There are three adjustments on these mechanisms but they seldom require attention. The first is the set-down position of the stylus onto the record and this is accessed under the tone-arm near the pivot (a horizontal screw).

The second adjustment is the height of the tone-arm lift, accessed from the top of the tone-arm at the pivot point. This is adjusted so that the arm lifts high enough to clear a stack of six

records. Mind you, it is not advisable to play a stack of six records on the changer. The weight of the stack on the spindle can easily damage the record centre holes, apart from any damage to the record surfaces from being in contact. Take my advice and play only one record at a time, to minimise any wear and tear.

The third adjustment sets the stylus tracking weight – normally around five or six grams for a piezoelectric cartridge of this type. This involves

adjusting a spring on the underside of the tone-arm and is easily done.

The only other maintenance job is the replacement of the pick-up styli (78 and LP), as they have a fairly short life before becoming worn. A likely source of a suitable stylus for this and other radiograms is WES Components in Ashfield, NSW (phone 02 9797 9866). Purchase a diamond stylus rather than a sapphire one if possible, as they last considerably longer.

Summary

The B25/6 is a fairly basic single unit stereogram. It suited Mr and Mrs Average's lounge-room decor of the era and did a creditable job of reproducing stereo records with pleasing audio quality. The radio performance is better than many receivers and the handspan dial is sufficiently large for accurate tuning. The set is reliable except for the use of the troublesome UCC and AEE capacitors. There was no other fault found and no valves required replacement.

Despite its age the receiver still had its instruction manual. The original instruction books, licences, repair dockets and original carton can all add to the value of a set, historically as well as monetarily.

I question the use of a 6X4 valve as the rectifier, as it is rated at a maximum of 70mA and a single 6AQ5 can draw around 45mA, although the 6AQ5s are drawing well under 45mA each in this set. Even so, I would have used a 6V4 rectifier which is rated at 90mA.

In summary, a nice set and worthy of a place in any collection. **SC**



This simple jig makes it much easier to service record turntables.