

Vintage Radio

By Lindsay George



The evolution of those magnificent Kriesler Multisonic stereograms

Built into handsome timber cabinets, Kriesler's top-of-the-range 11-95, 11-102 & 11-103 valve stereograms were beautifully made, featured carefully-designed audio stages with multiple speakers and even included electrostatic tweeters.



The Kriesler model 11-102 stereogram boasted six speakers, bass, treble & balance controls and pushbutton selector switches. The 11-103 is similar but had glass dividers around the turntable and brushed aluminium inner walls.

THE ARTICLE by Rodney Champness on the HMV R53A radiogram in July 2014 brought back memories for me of the time when, as a 16-year-old lad in country NSW, I first sighted the Kriesler model 11-77 stereogram. It was at the Kriesler agent's store in Cowra (230kms west of Sydney) and the year was 1959!

To put all this in context, stereo sound had just been introduced in Australia. I haunted Suttons Radio

after school each day and eventually persuaded the owner's son to allow me to give the first public demonstration of stereophonic sound in the Presbyterian church hall. The reaction to a steam train virtually crossing the stage during one of the first demonstration recordings is still vivid in my memory.

Now Suttons had the AWA agency and our demonstration unit was a mono radio/record player cabinet (with a stereo cartridge), with an added

amplifier and speaker to create stereo. By contrast, the Kriesler 11-77 was a quantum leap in one-piece design, with beautiful walnut cabinetry and an endearing high-frequency response. It still clung onto a round dial and featured separate volume and tone controls, with the knobs flashed with gold trim. It was fitted with a plate aerial and a Garrard GCS 10 turntable and understandably, I was rather envious.

Four years later, I had moved to

Sydney, paid off my first block of land, married and built a house. We moved in with sheets for curtains, no carpet and my first Kriesler Multisonic, a model 11-95. This again was a departure from the norm by the Kriesler designers and featured top-mounted controls with stylish gold embellishments, a Garrard Lab AT6 turntable with a detachable headshell and a complement of six speakers – two 12-inch woofers, two midranges and two Magnavox E3.5 electrostatic speakers.

Incidentally, a word of warning here. **The electrostatic speakers have HT applied to them via a 1MΩ resistor and this polarising voltage can give you a very nasty shock.** The electrostatics themselves are driven from the plates of 6BQ5 valve output stages via two series capacitors.

In the 11-95, a switch allows the signals to the electrostatics to be shorted to ground, so that they can effectively be disabled for scratchy records or if there is a lot of high-frequency noise. This switch also further reduces the treble fed to the midrange and woofer speakers (which are connected in parallel) due to the extra loading.

Magnavox stated that the electrostatics were capable of producing sound from 5kHz to well above the audible hearing range. In practice, they certainly enhanced all stringed, reed and percussive instruments. It's worth noting that the March and October 1964 issues of *Radio, TV & Hobbies* featured Playmaster designs that also used these quite revolutionary tweeters.

The set didn't have separate tone controls for each channel but it did sport inputs for a dynamic microphone (supplied). This allowed users to sing along or announce on one channel (I don't think the word "karaoke" had been invented at that time). There were also headphone and extension speaker outlets and the set included provision for recording and playback.

A highlight of the Kriesler 11-95 was its handsome honey-coloured, strip-maple, piano-finished cabinet, manufactured by Blandford and West Pty Ltd. It was available in teak, walnut or rosewood as well and it boasted an illuminated turntable bay and a friction-controlled self-lowering lid. Its circuitry had been changed from the single-ended 6M5 valve output stages in the 11-77 series (ie, one valve in each channel) to 6BQ5 output stages. And although it still used a standard



A BSR UA15 record changer was standard on the 11-102 but this can easily be upgraded to a Garrard AT6 as shown here. Note the microphone clipped to the underside of the hinged lid.

superheterodyne AM radio circuit, this now had a ferrite core antenna for added selectivity and sensitivity while still catering for an external aerial in country areas.

Best of all, this stereo valve set was powerful and it was capable of producing true hifi (for the time) through its Australian-made Magnavox speakers which were mounted on a substantial baffle board. In fact, some care was needed to prevent acoustic feedback from intruding into the turntable via the Sonotone 9TA ceramic cartridge, particularly at high volume levels when there was lots of bass in the recording.

Following on from the successful 11-95, the design was completely revamped for the 11-102 and 11-103 series. The chassis now departed from the usual "L" type and instead was now a long, narrow design which accommodated full treble and bass controls and a substantial push-pull output stage using the renowned 6GW8 triode/pentode valves. An EM84 "magic-eye" tuning indicator was also incorporated into the 102, while a stereo balance/tuning meter indicator was used in the 103 model.

Both sets retained the pushbutton selector switches, while the savings in chassis space allowed a tape player and records to be stored in two top compartments.

In addition, the 11-102 and 11-103 designs both had a separate power



The 11-102 included two 12-inch woofers, two midrange drivers and two Magnavox E3.5 electrostatic speakers. The 11-103 used an extra pair of midrange speakers, bringing the total speaker count to eight.

supply which was mounted away from the main chassis in the lower part of the cabinet. This not only left valuable chassis space for the RF and audio circuitry but also contributed to reducing the hum level. In fact, the Kriesler designers paid great attention to keeping hum levels low. For

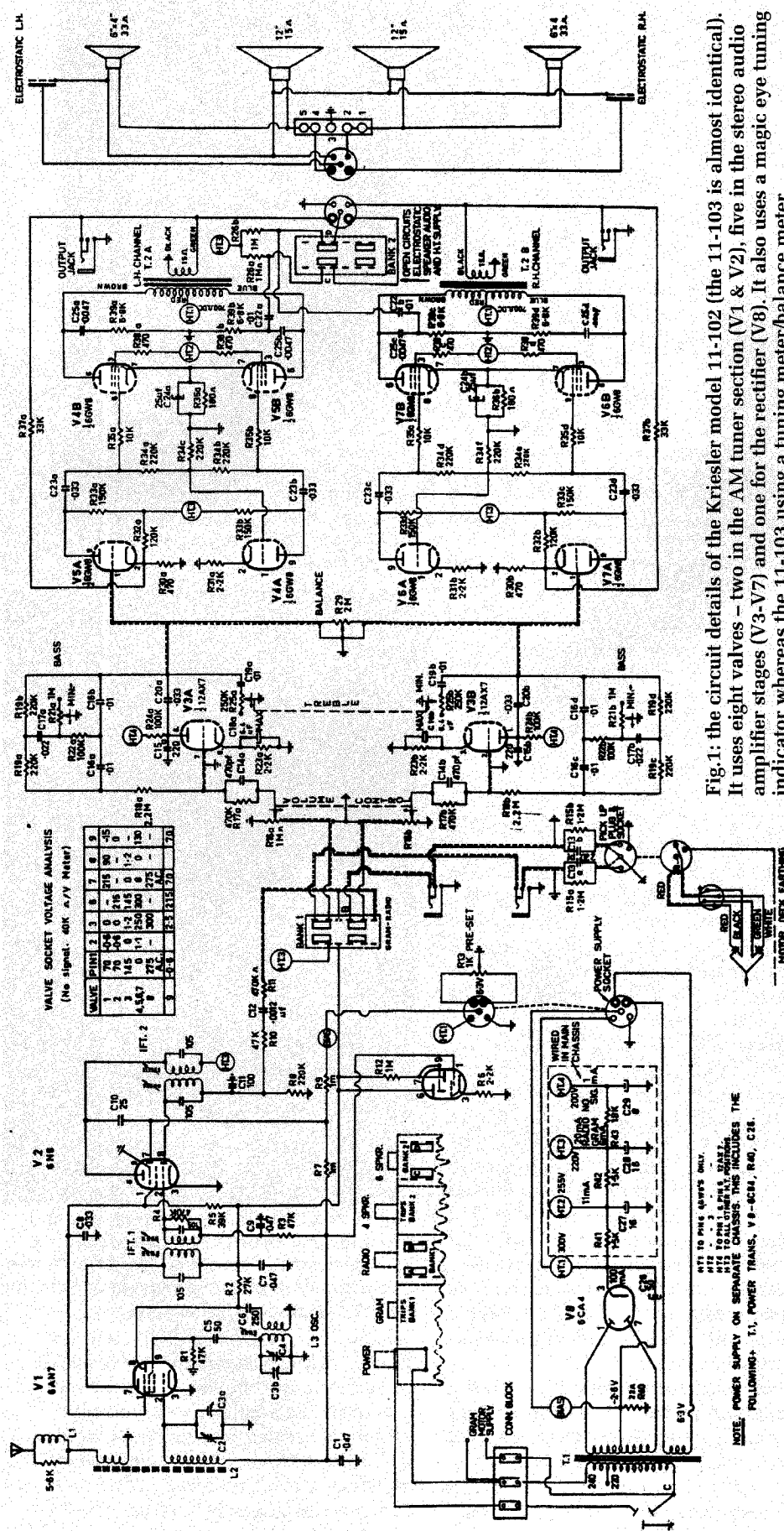


Fig. 1: the circuit details of the Kriesler model 11-102 (the 11-103 is almost identical). It uses eight valves – two in the AM tuner section (V1 & V2), five in the stereo audio amplifier stages (V3-V7) and one for the rectifier (V8). It also uses a magic eye tuning indicator whereas the 11-103 uses a tuning meter/balance meter.

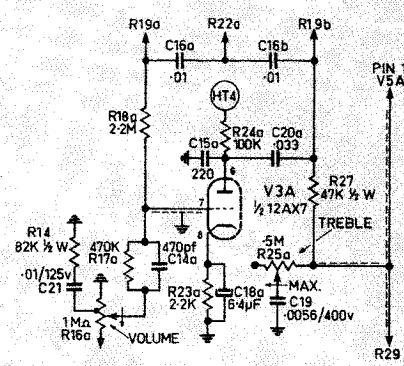


Fig. 2: this circuit shows the changes that were made around V3A & V3B in the model 11-103 during the course of the set's production (see "Running Factory Modifications" panel).

example, an adjustable hum-bucking resistor was fitted across the filament winding, while an earthed shield was fitted to the turntable to prevent induced motor hum. Another shield was used adjacent to the power supply.

The 11-102 was apparently a "poor man's" version of the 11-103. It basically retained the identical circuit but did away with many of the embellishments of the 11-103. A cheaper BSR UA15 changer was also fitted but this can be easily upgraded to a Garrard AT6.

The Mastersonic version, which is the model 11-103, has two additional midrange 64SIC speakers, bringing the total speaker count to eight. This deluxe model also boasted fancy plate glass dividers around the turntable, while the inner side walls of the top compartments were finished in brushed aluminium. Its considerable dimensions were 119 x 77 x 44cm (W x H x D), which meant that its top was at a comfortable height for the user.

11-102/103 circuit details

Fig. 1 shows the circuit details of the Kriesler model 11-102 which is almost identical to the 11-103. It uses eight valves in all – two in the AM tuner section (V1 & V2), five in the stereo audio amplifier stages (V3-V7) and one for the rectifier (V8). As previously stated, a magic eye tuning indicator was used in the 11-102, whereas the 11-103 used a tuning meter/balance meter.

As shown, the AM radio section uses a 6AN7 (V1) as a self-oscillating mixer. This feeds a 455kHz IF stage, with a 6N8 (V2) serving as an IF amplifier/rectifier/AGC stage. Its output

is then fed to a pushbutton switch assembly (labelled "Bank 1") which selects between the AM radio and the turntable (record changer) and feeds the selected signal to the audio amplifier stages via stereo volume control potentiometer R16a & R16b.

The output from each volume control wiper is fed to one half of a 12AX7 dual triode valve (V3a & V3b) which serves as an audio preamplifier. These preamp stages then drive two ½6GW8 triode stages which operate as phase splitters and in turn drive two ½6GW8 output pentode stages operating in push-pull mode. Their outputs drive the woofer and midrange loudspeakers via speaker transformers T2A and T2B, while the electrostatic speakers are driven from the plates of the output valves via .01µF capacitors (C22a & C22b).

On this set, the signal and HT drive to the electrostatic speakers can be open-circuited using Bank 2 of the pushbutton switch assembly (eg, to reduce high-frequency noise). This arrangement differs from that used in the 11-95, whereby the signal drive was shorted to ground.

11-95 amplifier circuit

By way of comparison, Fig.3 shows the audio amplifier details for the 11-95 (the AM tuner and power supply stages are virtually identical to those used in the 11-103). As can be seen, the selected audio signal is fed to one half of a 12AX7 twin-triode preamplifier in each channel (V3A & V3B) and this then drives a second ½12AX7 triode (V4A/V4b) via stereo volume control R19A/R19B. V4A & V4B in turn drive 6BQ5 single-ended output stages (V5 & V6).

Servicing the changers

The changers in these units are now 50 years old which means they need to be serviced before being used again. This involves removing the changer from the cabinet, dismantling it and cleaning away all the old, congealed grease from the automatic mechanism hub and slides. These parts are then lubricated sparingly with LMM light graphite-impregnated grease.

All pivots, including the arm mechanism pivot, should be lubricated with light machine oil (use baby oil, which is far more refined and cheaper than ordinary oil). Garrard recommended using oil only for the platter bear-

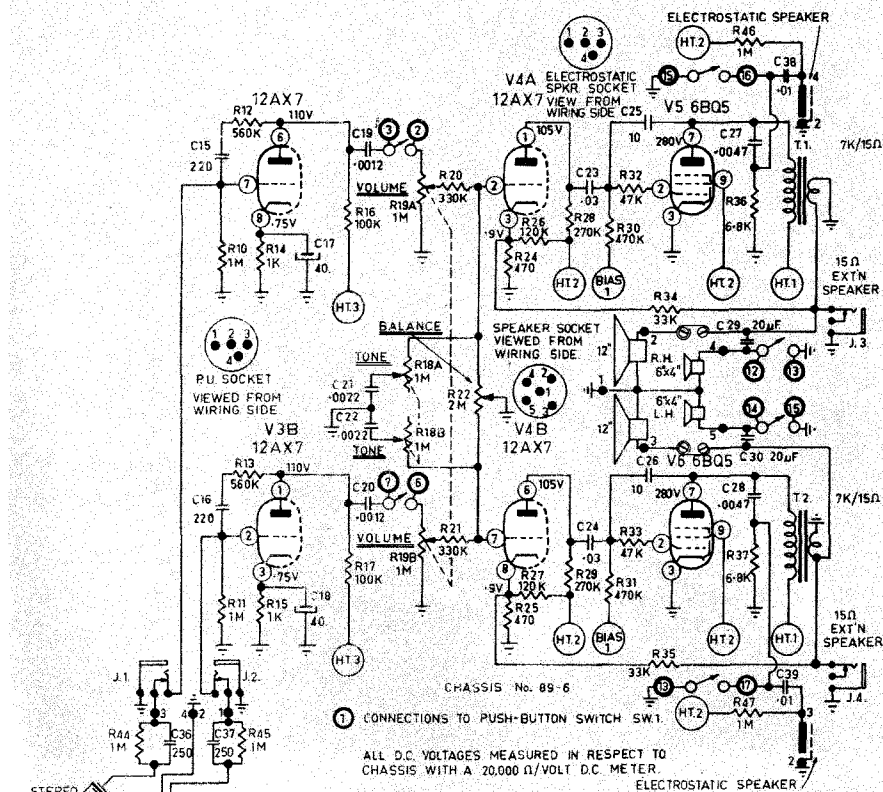


Fig.3: the audio amplifier details for the 11-95. The selected audio signal is fed to one half of a 12AX7 twin-triode preamplifier in each channel (V3A & V3B) and this then drives a second ½12AX7 triode (V4A/V4b) via stereo volume control R19A/R19B. V4A & V4B in turn drive 6BQ5 single-ended output stages (V5 & V6).

ings and spindle (not grease) plus an occasional drop on the lower motor bearing.

Next, the idler wheel needs to be cleaned. If the rubber is still pliable but shiny (and not a sticky, unsalvageable mess), clean it using a little lacquer thinner, then scuff the drive surface with 400 wet-and-dry paper. This scuffing should be done using a circular motion around the wheel, so that you don't get flat spots!

The idler spindle should then be cleaned and lightly oiled, after which the idler wheel can be reinstalled. Once it's in place, check that it rotates easily, then check the spring tension. Retension the spring if necessary to ensure the idler wheel makes firm contact with the rim of the platter. It may also be necessary to clean the inner rim of the platter to ensure smooth operation.

If the idler wheel is beyond repair, it shouldn't be too difficult to source a replacement via the net.

The next step is to check the cartridge. If it's a Sonotone 9TA, chances

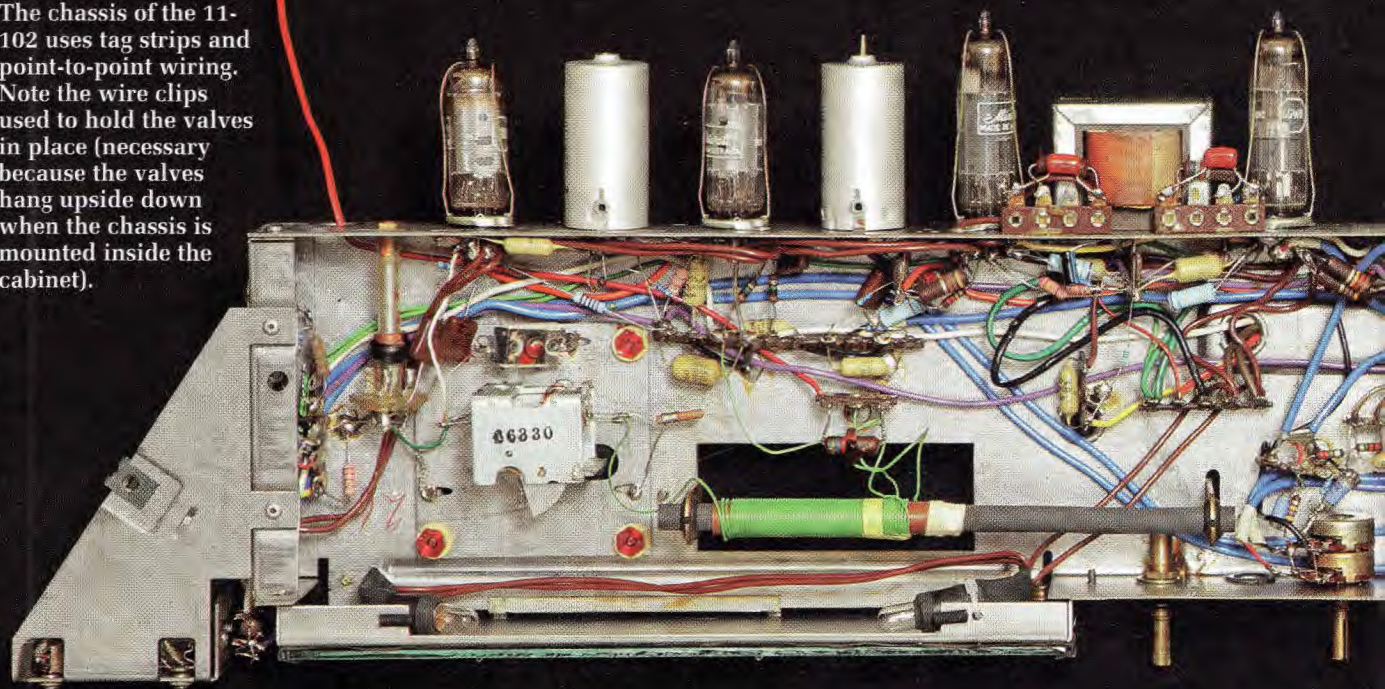
are that the silver-plated contacts on the rear plug that goes into the cartridge body are tarnished. If so, these should be cleaned with silver dip and allowed to dry before re-installation. Check that the cartridge weight after reassembly is at six grams on the LP disc.

The muting switch in series with the fine leads from the changer arm should also be checked and cleaned with contact cleaner. After all these years, secondhand 9TA NOS ceramic cartridges are often not worth buying. That's because the glue used to attach the needle bridge to the ceramic bars lets go unless the unit has been sealed from the elements or housed in a dry environment. One option is to replace the ceramic cartridge with a similar new one from WES Components in Ashfield NSW (Part No. PC06 – see www.wagneronline.com.au/pc06/9/).

Circuit repairs

A few circuit repairs and modifications are also necessary to ensure

The chassis of the 11-102 uses tag strips and point-to-point wiring. Note the wire clips used to hold the valves in place (necessary because the valves hang upside down when the chassis is mounted inside the cabinet).



Running Factory Modifications

Kriesler made several running factory modifications to the models 11-102 and 11-103 during the course of their production. These were as follows:

Model 11-102

- (1) Change C25a, C25b, C25c & C25D to 2000V polyester capacitors (up from 400V).
- (2) Fit a 22Ω 0.5W resistor in the cathode output lead from the 6CA4 rectifier to protect the power transformer in the event of a short circuit.
- (3) Change C19a, C19b from .01μF to .033μF.
- (4) Change R15c and R15b from 1.2MΩ to 1.5MΩ to improve frequency response.

Model 11-103 Master Multisonic

- (1) Some dial lamps were found to be noisy (I had never encountered this before), affecting both gramophone and radio reproduction.
- (2) Volume control changed to 1MΩ tapped pot with an 82kΩ resistor and series 0.01μF/400V polyester capacitor fitted between the tap and ground (essentially a loudness facility).
- (3) R27 (47kΩ) added between pin 1 of V5A and the junction of C20, C16 & R19.
- (4) C19 and connection to C20 deleted.
- (5) A .0056μF/400V polyester capacitor wired in series between the moving contact of R25 and ground.
- (6) R25 reconnected to junction of the added R27 above and pin 1 of V5A (applies to both channels) – see circuit diagram (Fig.2).
- (7) A Sonotone type 21T cartridge was substituted because of its more robust construction, higher compliance and drop-proof design.

The dial lamps, turntable bay lamps and the power-on lamp are usually 300mA types and these can be replaced with 150mA types. This will reduce the current consumption and reduce the initial switch-on surge current from the transformer. If no valves light up, suspect a burnt out fuse-wire. This fuse-wire is inconspicuously soldered across a tag strip in line with the filament supply on the separate power supply chassis. The initial filament current can briefly peak at 8A or more before settling back, so standard light fuse-wire just won't hack it!

After 50 years, it also pays to remove and check the speakers for dust build up and for silverfish, moth or rodent damage. Repair and refit them if possible. Alternatively, Etone Australia has a good repair service or they can supply good-quality replacement loudspeakers.

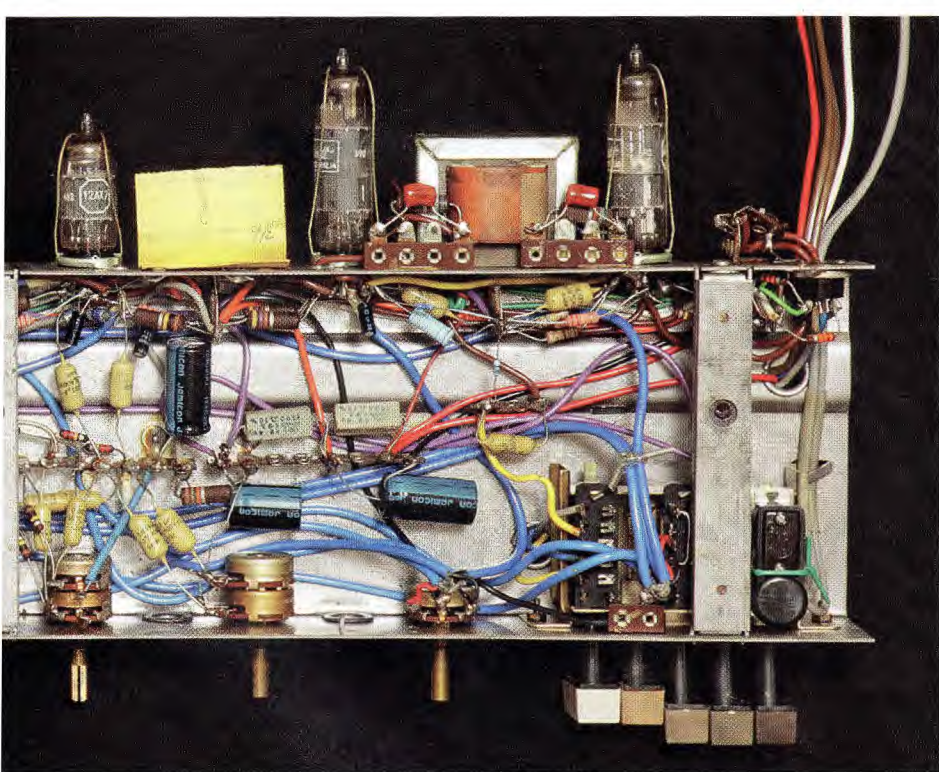
If hum is abnormally intrusive, try adjusting the hum bucking resistor (R13) for minimum hum.

Owned by Philips

Philips purchased Kriesler in the 1950s and apparently allowed their engineers free reign to create such marvels as the 11-102 and 11-103 stereograms for us to enjoy. As far as I know, the Mastersonic was the last of the valve designs although Kriesler did go on to produce a three-piece transis-

reliability and to improve the sound production from these superb, now sought-after designs. First, all electrolytic and wax paper capacitors

should be replaced. Strangely, the mustard-coloured Mullard/Philips capacitors seem to hold up and these will generally be OK.



torised Multisonic stereogram design.

This solid-state unit was designated the model 11-118 and it utilised large fully-sealed speaker cabinets aptly called “Custom 15”. That name was used because they housed the magnifi-

cent curvilinear 15-inch cast Magnavox speaker with a 3-inch tweeter in a 2-way system.

I modified the ones I have with additional damping material and by fitting a quarter section (ie, 6dB/oct-

tave) crossover network. To this day, they are driven by my prized SILICON CHIP amplifier and an EA control unit from December 1996. I must admit to now lusting after the superior Majestic loudspeaker recently described in SILICON CHIP.

Perhaps the Majestics should be my next “ultimate upgrade” for my 11-102 Multisonic?

Original service bulletin

Finally, if any reader would like a copy of the parts lists or a copy of the original manufacturer’s service bulletins for the above models, I would be happy to email these (lgeorge3@bigpond.com). The Historical Radio Society of Australia (HRSa) is another great source of information. They have a great selection of circuit diagrams for valve related gear and a valve bank! Email ron.soutter@dimensiondata.com for membership details.

Another source of reasonably-priced valves is Joe Oust – see oost@pacific.net.au

Footnote: thanks to Peter Calleja of the Historical Radio Society of Australia for supplying the factory-approved modifications and to Kevin Poulter for his photographic expertise. **SC**



The controls, input/output sockets and the tuning dial are all mounted on the top of the cabinet to make them easy to see and reach. Two dial pointers are used, so that the stations for all states could be spread out on a long narrow dial (rather than a large rectangular one) while keeping the pointer travel reasonable.