

VINTAGE RADIO

By RODNEY CHAMPNESS, VK3UG



The 1935 Tasma M290 Console

In the 1920s, 30s & 40s, console radios graced the lounges of many homes in Australia. They were beautiful pieces of furniture and were the centre of attraction in whatever setting they were placed. And they poured forth beautiful music, the news and serials, forming the entertainment focus for the household.

Thom and Smith Limited of Sydney were a moderate-sized manufacturer of radio and other electronic equipment throughout the 1930s. As a result of their versatility and product quality, they were engaged by the Government during WWII to produce medium-power radio communications transmitters and other ancillary equipment for the services.

Many of the transmitters saw service after the war in communications networks such as the Flying Doctor Service.

By 1935, most manufacturers had changed over from the tricky autodyne converter valve to the triode hexode converter or other purpose designed converter/mixer valves. The Tasma M290 had one of the new European

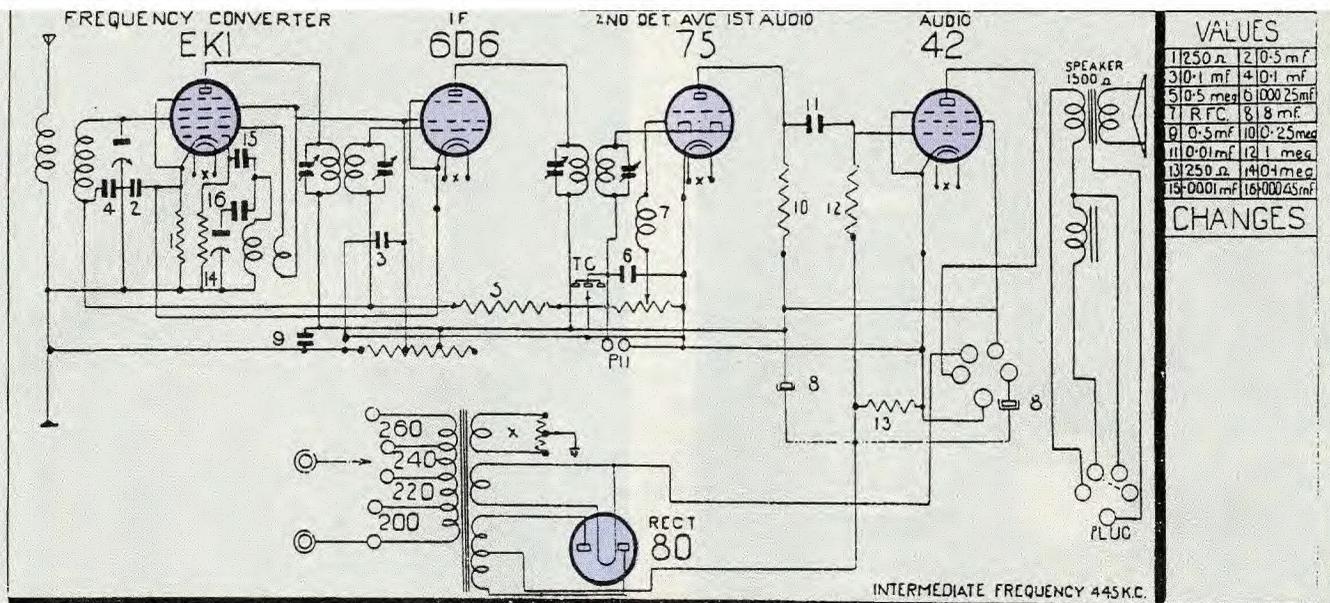
EK1 converter valves, which was followed by a 6D6 as an IF amplifier, a 75 as a detector, AGC diode and audio amplifier, followed finally by a 42 as the audio output.

The circuit of four valves and a rectifier became almost the generic standard for broadcast domestic entertainment receivers throughout the rest of the valve radio era.

On looking at the circuit, it appears to be quite normal for the era. There is a large tapped voltage divider, near capacitor 9, used to select the voltage for the screens of the converter and IF amplifier stages. It is the large green resistor shown in the under chassis view. Tasma were one of the few manufacturers who woke up to the fact that local oscillators work best if the paddler (16) is placed in the circuit as shown,



The Tasma M290 console has a rather boxy cabinet but quite an ornate dial. As shown above, this dial is attached to the chassis, making service and alignment that much easier.



THOM & SMITH L^{td}
55-57 DOWLING ST
SYDNEY N.S.W.

Tasma SUPERHETERODYNE M290
ALL ELECTRIC 4 VALVES & RECTIFIER

DRN BY C Katoch 4-33
CHD BY J Tanker 8-3-33
APD BY J Hon 8-3-33
DRAWING N° 133

Fig.1: the circuit of four valves and a rectifier was typical for a 1930s radio receiver. Note that this circuit has a number of errors which are referred to in the text.

rather than in series with the earth end of the oscillator tuning coil.

The IF transformers are tuned by trimmer capacitors which was the common method at that time. The intermediate frequency (IF) is a little lower than usual, at 445kHz, although at that stage 455kHz was not anywhere near universal. The detector and audio stages are quite conventional. The power transformer is tapped so that input voltages of between 200 and 260VAC can be used.

For some reason or other, the selection of the voltages is via a switch on the back of the chassis. It seems hardly necessary to have a switch when a soldered fly lead could select the appropriate tapping. It wasn't as if radios, particularly consoles, were shifted regularly from area to area where different mains voltages were in use.

Close inspection of the circuit diagram reveals some errors, as the 75 would be destroyed if they were correct. "TC" is the tone control, shown with one capacitor on a 3-position switch. However, inspection of the set reveals that the it switches various capacitors and the moving arm (wiper) goes to earth. In the circuit as drawn, high tension (HT) is applied to the

detector/AGC diode which would destroy the valve and maybe also the IF transformer.

The volume control is the load for the diode detector/AGC diodes. As the strength of the signal increases,

the negative voltage across the volume control would increase as needed for the automatic volume control (AVC/AGC) action. As the volume control is rotated to increase the volume, the bias on the 75 would also increase,



This rear view of the chassis shows a conventional layout. The chassis-mount electrolytics are now dummies, having been replaced by modern capacitors under the chassis.



Access under the chassis is only average, with the tag-board obscuring the valve sockets. Note the replacement pigtail electrolytics near the transformer.



This rear view of the console shows the sloping shelf for the chassis, made necessary by the sloping front of the cabinet.

tending to cut the valve off. In fact, that definitely happens and results in no audio.

It seems that a DC blocking capacitor and a resistor are missing from this part of the circuit. The use of an RF choke (7) to filter out any remaining IF energy on the signal to the audio amplifier is uncommon. If it has an inductance of around 2.5 millihenry (a common value) the reactance (RF resistance at 445kHz) would be around 9k Ω . Most manufacturers found it was more effective and cheaper to use a resistor of around 50k Ω to act as an intermediate frequency filter element.

The speaker is shown as 1500 Ω . Perhaps the field coil is 1500 Ω as the 42 requires a plate load impedance of around 7k Ω .

We've come to expect that circuit diagrams are accurate. As can be seen in this case, they are often inaccurate despite being drawn, checked and approved by people familiar with the design. They would probably be more

accurate if the original drawings were laid out just a bit more logically with better spacing between parts of the diagram which are currently crowded. But Thom and Smith were not the only ones who allowed errors to creep into their circuits.

Dealing with the cabinet

The cabinet is rectangular with no curved edges, which makes it look rather "boxy". The cabinet was in reasonable condition when obtained. It responded well to the use of paint stripper to remove the original finish. The black trims were painted and the cabinet was finished with satin/semi-gloss clear pre-catalysed lacquer spray (Mirotone). The excellent result of this work can be seen in the photographs.

The yellowed celluloid dial protection was replaced with a piece of acetate sheet from a shirt packet and now the dial looks like new. Acetate sheet can also be obtained from art and craft shops. The dial mechanism

itself is dual speed with a "band-spread" dial at the bottom; quite handy for accurate tuning.

The controls on the set follow a logical sequence, with the lefthand one being volume, the centre one being tuning and the righthand one a tone control. All in all, it is quite an attractive set.

Gaining access to the chassis

The front of the set where the controls are is sloped, which means that the shelf the chassis sits on is also at an angle. To remove the chassis from the cabinet requires the removal of the three control knobs, the speaker plug and finally, four nuts and bolts which secure the chassis to its mounting shelf. These nuts and bolts are awkward to remove or reinstall.

The chassis was a bit scrappy so it was cleaned down, primed and finally painted with brown gloss spray paint. Some of the parts were removed from the chassis while others were

very carefully masked to ensure a quality paint job. The owner of the set is renowned for the quality of his workmanship, which is very obvious in the photographs.

Inspection of the chassis electronics revealed that the EK1 had been replaced by a 6A8G at some stage in the past. This also required replacement of the valve socket. Most of the paper capacitors and electrolytic capacitors were replaced. The large chassis-mount electrolytic capacitors were left in-situ to keep the set looking as authentic as practical. The replacement capacitors can be seen in the under-chassis view near the power transformer. A few out of tolerance resistors required replacement too.

The electrodynamic speaker was defective and was replaced with a permanent magnet unit while the field coil was replaced with a 2.5k Ω 20W wirewound resistor.

A number of perished wires and the power cord were replaced. The original cord would have been a twin-conductor cord in a brown fabric sheath. Burton Cables have made modern 3-core cable with a brown fabric sheath. However, I am unsure whether

that is still available. As has been common over the years, the power lead has been knotted. The current official practice is for power leads to be restrained within an appliance by a clamp, with the earth lead going to a crimped or soldered lug which is bolted to the frame.

Manufacturers of the era tended to put most components on tagstrip boards. Thom and Smith were no exception. They, like many others, put these boards over the top of other components or valve sockets which often made access and troubleshooting a slow job.

Having done all this work, the set was aligned and the performance was quite good. These old sets can put in quite a creditable performance.

Summary

The Tasma M290 console receiver was produced at a time when much experimentation and improvement in design and style was taking place. It may not be the most elegant console around but it is a good honest set. The manufacturers could have made access for service easier under the chassis and they should hang their heads



This dial is almost in mint condition. Note the smaller bandspread dial for fine tuning.

in shame over the circuit diagram inaccuracies.

These criticisms aside, it is a good performer that gave the owner no unpleasant surprises during the restoration. It is a set well worth having in any collection – if you have the room. This is why I think few collections have more than one or two consoles. They are a beautiful piece of furniture and the tonal quality of the better units is good even by today's standards. **SC**