Restoring a Patterson Model 308 – Gerry O'Hara for SPARC

Introduction

The SPARC Museum in Coquitlam, BC, Canada is an interesting place to be on a Sunday – there are usually a few 'drop ins' every week – folks that turn up at the museum with an interesting set to ask us about – usually questions like "can you get it to work?", "can you identify this set/how old is it?", "what's it worth?", or " do you have a tube for this?". Folks also want to donate sets to the Museum – which is great, but in recent years the Museum has been running out of space. This has meant two things – we have had to introduce a program of 'de-acquisition' for things that are 'peripheral' to radio/the mission of the Museum, that the Museum has duplicates of, or items that are not rare and are in poor shape. The second 'triage factor' is the country of origin – the name of the Museum is a clue here – with a primary focus on items of Canadian origin. However, there are many radios not manufactured in Canada that the museum is also interested in – especially those manufactured in Europe and the USA. Radios from the latter were widely sold across Canada and/or were imported across the USA/Canada border, and from the former by European immigrants bringing their radios with them and/or through a network of Canadian distributors for sets of European manufacture, especially from the UK.

SPARC
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As a result, sets manufactured in the USA are very common in Canada, especially those from the larger manufacturers of the day. For the 1930s this included General Electric, RCA-Victor, Philco and Stromberg-Carlson. However, there were also a large number of much smaller and/or short-lived manufacturers operating in the USA in the pre-WWII years, including the Patterson Radio Corporation, also known as Patterson Radio Company, which traded under the names of Patterson, Sierra and Supreme.

The Patterson Radio Corporation

Emmitt Patterson started the Patterson Electric Corp. in 1919, located in Los Angeles[1], reportedly manufacturing radio receivers from 1920-1939. The chief engineer in the early days of the company was Ray Gudie who also designed the Breting receivers. Ray Gudie left Patterson during the design of a communications receiver, the PR-12, and a Karl Pierson joining the company in 1934, was instrumental in the design of the PR-15 and PR-16 communications receivers in 1935. The Patterson communication receivers were high-end receivers with large tube counts, chrome-plated chassis, crystal filters and many other

[1] 1320 S. Los Angeles Ave., Los Angeles, Calif. USA.

features not available on Hallicrafters and National radios of the same vintage. All the Patterson radio chassis' were manufactured in the Gilfillan radio plants.

The 1936 Patterson Model PR-16 featured parallel RF amplifier tubes (2-6D6s) which, in theory, increased the gain and reduced thermal noise. This feature also allowed the receiver to be advertised as having two RF amplifiers, even though there was only one set of RF coils per band and the receiver was essentially a single pre-selection front-end set. Although its three (6D6) IF tubes provided high sensitivity and selectivity (aided by a crystal filter), image response on the higher short waves would be an issue. Impressively though, the audio section of the PR-16 sported three stages of Push-Pull audio using a 6A6 dual triode, two #76 triodes and two #42 output tubes supplying 18 watts of low distortion audio power[2]. Buyers received a chrome-plated chassis, band-in-use dial masking, illuminated S-meter, crystal filter and two-speed tuning - all for the price of $101.70 (1936 price). Even though the parallel RF amplifiers are unconventional and, arguably, no other manufacturers ever tried to market such a configuration, the PR-16C is reputed to be an excellent performer with good sensitivity, nice mechanical bandspread and powerhouse audio. Guess what? – we have the chassis of one of these beauties in a showcase at the SPARC museum – see the photo, right (no cabinet though). A SPARC member picked it up for a mere $50 in California several years ago – one day we will check it out...

Karl Pierson left Patterson in 1937, purchasing all of Patterson's communications receiver manufacturing business. Pierson continued to build the Patterson PR-15 under the Pierson-De Lane Inc. name, also in Los Angeles[3]. Emmitt Patterson himself went out of business in 1939.

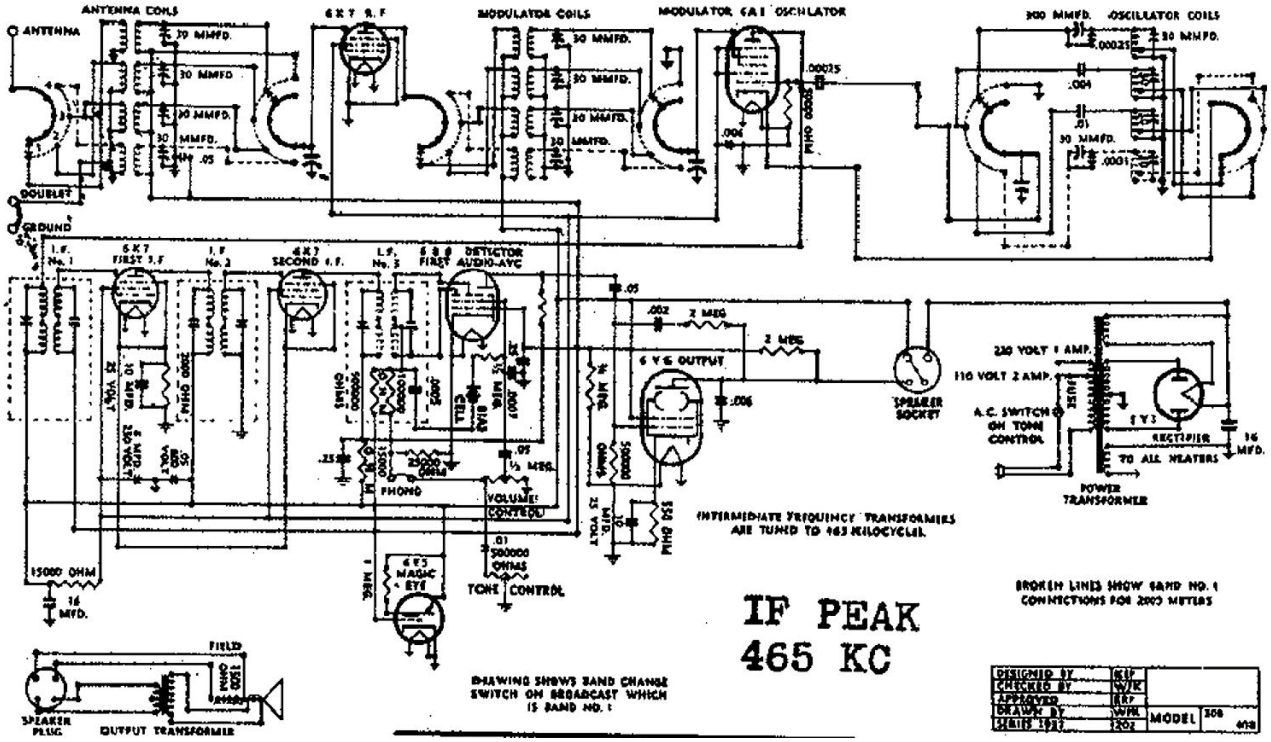
Patterson also manufactured a range of receivers for the domestic market during the 1920s and 1930s, including eight, ten and twelve-tube chassis models. The www.radiomuseum.org website lists over 100 Patterson models in total (domestic and communication receivers).

The Patterson Model 308

The Model 308 was one of the lowest-specified in the Patterson domestic receiver line-up, having only eight tubes and was manufactured in the 1937 model year. Others in the range at that time included two other eight-tube chassis models, the 208 and 408, as well as 3 ten and 3 twelve-tube chassis models, the 210, 310 and 410, and 212, 312 and 412 respectively. Very little information is available on the various models (and even what has survived is somewhat confusing – discussed below).

[2] www.radiomuseum.org lists the R16 tube line-up as 5 x 6D6, 3 x 6C6, 1 x 6F7, 3 x 76, 2 x 6A6, 2 x 6A3 and a 5Z3

[3] 2345 West Washington Blv'd., Los Angeles, Calif. USA.



The schematic for the eight-tube chassis as used in the Model 308 (shown above) indicates that it has an RF amplifier stage (6K7), pentagrid converter stage (6A8), two IF stages (2 x 6K7) operating at 465kHz with a total of three double-tuned IF transformers, a combined detector/AGC/1st audio stage (6B8), audio output stage (6V6), 'magic eye' tuning indicator (6E5) and a 5Y3 rectifier. The set covers 550kHz – 1750kHz on Band 1 ('Broadcast Band'), 1.7MHz – 6.2MHz on Band 2 ('Police Band') and 6MHz – 18MHz on Band 3 ('Shortwave Band'). Also indicated on the schematic is an option for 'Band X' – termed a 'Long Wave' or 'Weather Band'. This particular set was not fitted with this fourth waveband, although the bandswitch has a fourth position marked 'X'. It also has some significant (factory) departures from the above schematic, discussed later in this article.

There are four controls on the Model 308 front panel – tuning, bandswitch, volume and tone/on-off. The tuning control is fitted with a dual-speed drive operated by two concentric knobs, and the dial is a combination of a large calibrated tuning scale and a numeric logging scale beneath. The single dial light is projected through a translucent film that has slots that highlight the tuned frequency on the scale. The rear panel, as described in the Riders information, provides facility via screw terminals/jumper wires for connecting a 'doublet' or 'standard' (long wire) antenna, as well as for connecting a phono pickup - a 'standard high-impedance' type being specified. Intriguingly, this particular set also sports two pre-set potentiometers and a toggle switch present on the rear panel (more on this later).

The schematic for the ten-tube chassis could not be located, however, information on the http://www.radiomuseum.org/ website indicates a 4 x #35, 3x #27, 2 x #47 and 1 x #80 tube line-up. Use of this older tube line-up would tend to indicate this model predated the '8 and '12 series chassis by up to 5 years.

The schematic for the twelve-tube chassis shows several notable refinements over the eight tube chassis - here the 6A8 serves as a mixer, with a separate oscillator tube (6K6), it swaps the 6B8 for a 6Q7, and adds a 6C5 acting as a beat frequency oscillator ('BFO'), a 'silent tuning' (muting) circuit (6J7), as well as a second 6V6 for push-pull audio output – in all, quite a sophisticated receiver. Interestingly some of these differences had been included in this particular Model 308 (discussed later).

A review of other pages in Riders however, where voltage tables are provided for each of the 8, 10 and 12 tube sets, showed discrepancies in tube assignments, suggesting either modified circuitry or substitution – a combination of the two seems most likely based on experience with this set.

The Set on Arrival

The Patterson Model 308 arrived at SPARC in an extremely dilapidated condition (photos below and right). The cabinet was literally falling apart at the seams with little of its

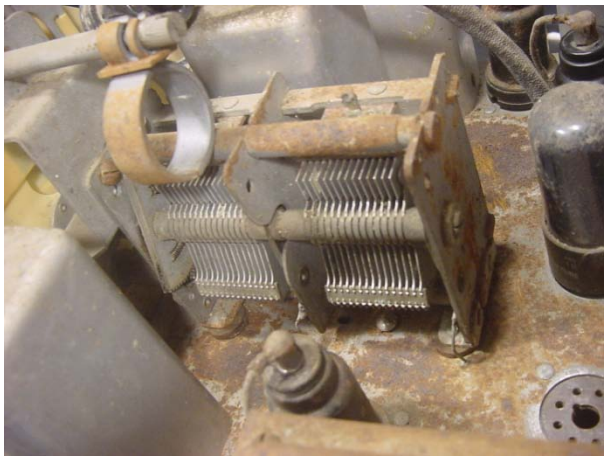
original finish remaining – so, did someone get a bargain at the marked price of $5?... The chassis was very badly corroded and was covered in a thick layer of spider webs, mouse droppings and what looked like rotted straw. Removal of the chassis bottom plate revealed why – it had played host to a family of mice for a number of years: the inside of the chassis was littered with straw and other nesting materials,

mouse droppings and more rusty metal – mouse urine had taken its toll on the inside of the chassis also, but not to the same extent as the chassis top. The tubes that were present, all metal envelope types bar one, were mostly equally as corroded, as was the power transformer. The dial scales were so warped as to prevent the tuning mechanism acting at all – not helped by the slow-motion dial being almost seized solid.

Restoration

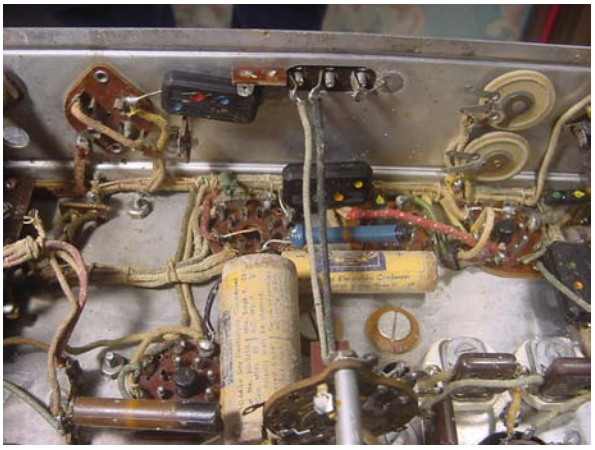
Chassis

The compact chassis is of plated steel construction with separate, tightly-fitting top and bottom panels, these being screwed to the side panels, all with rounded corners and a strengthening ridge at the top and bottom. Ground points for the tube sockets and for grounded component leads are soldered directly to the chassis with the grounded component leads passing through holes in the chassis at the point of soldering – very neat.



Chassis Inspection

Inspection of the underside of the cleaned-up chassis (photos below and on next page) showed that some thought and care went into its construction and layout, with most wiring being contained in a loom skirting around the edge of the chassis.

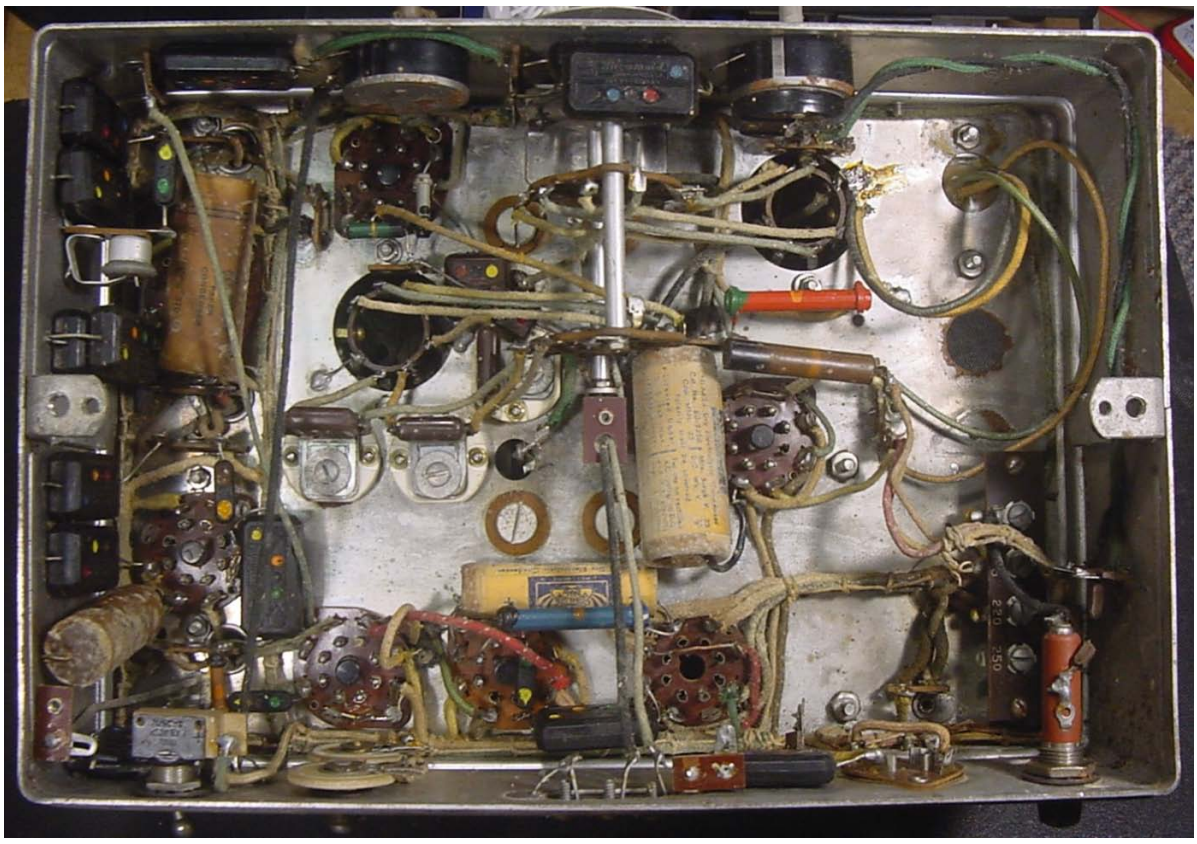


Unfortunately, most of the paper capacitors that Patterson (Gilfillan) used in this set were of the 'Micamold' variety – a type not noted for their longevity. These are arranged in a rather regimental way around the edge/across the base of the chassis.

Some historic repair work was evident, including replacement of the two 16uF 450vw tubular can electrolytic capacitors with a dual 16uF 450vw part, unfortunately with the original two tubular can capacitors having being removed from the chassis, thus

leaving two gaping holes (ideal for mouse doors!). Further inspection revealed some clipped wires, including a green wire emerging from the wiring loom at the front and rear of the chassis, running to a tagstrip near the front of the chassis. Also noted on this initial inspection was that there were two wirewound pre-set potentiometers and a switch mounted on the rear panel that were not shown on the Model 308 schematic.

It was also noted that the tuning gang fitted was only a two-gang part, whereas the schematic calls for a three-gang part, i.e. one section for the antenna coils, one for the converter (mixer grid) and one for the converter (oscillator). After some head scratching and circuit-tracing, it seemed that the 6K7 'RF' tube (a 6J7 was actually fitted when the set arrived at SPARC) was a dummy – it apparently did nothing useful in the circuit. This tube had its anode and screen grid tied together to HT through a resistor, the grid coupled directly to the AGC line and the heater connected – but no connections to the antenna or to the converter tube, and likely never were, with the antenna being coupled to the converter (grid) tuned circuits with what looks like all-original wiring. All the wiring around the converter tube also looked original, as did the two-gang tuning capacitor (and matching connection holes in the chassis) and wiring to the various coils. We were not



sure why this Model 308 was wired this way – thinking that perhaps there were revisions to the design for economic reasons (odd that the 'RF' tube would have been fitted though if this was the case), component supply issues (e.g. lack of three-gang tuning capacitors), or an unknown technical reason(s). Answers to some of these intriguing questions were to be revealed only during further inspection and testing once the set was up and running.

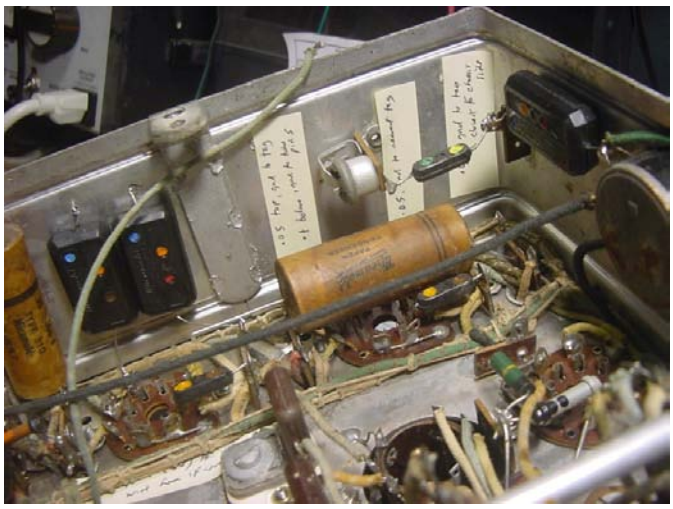
Inspection of the pre-set potentiometers, both 1Kohm wirewound parts, revealed that each had only a single tag connected to the circuit and seemingly performed no function. This was put down as yet another mystery at this stage as these also look like original fitment, including being wired into the loom. We left checking where the single connections went to the testing stage – there was much more work to do before that...

The AGC line to the mixer tube was not connected – instead, someone had grounded the 'cold' end of the converter grid coils and removed the AGC bypass capacitor. An original 500Kohm resistor, one end connected to the AGC line, was still in place that was positioned in the chassis such that it looked like it should connect to the 'cold' end of the converter grid coils, though as noted above, the decoupling capacitor on the coil side of this had been removed - however, there was evidence there had been a capacitor fitted in the past, evidenced by a clipped-off wire soldered to the chassis exactly one 'Micamold' capacitor length away.

It was also noted that a 6F6 had been installed in place of the 6V6 and 6Q7 in place of the 6B8. Altogether quite a mystery radio from the initial inspection...

Chassis Restoration

The chassis was in such a poor state that it was originally thought that the only way to restore it was to strip everything off, sandblast it and rebuild the radio from scratch. However, this is not the preferred solution if it can be avoided as what you have in the end is a rebuilt radio, not a restored radio. So, instead, a partial strip-down was undertaken, with the tuning gang and mechanism being removed from above the chassis, along with all the Micamold, tubular paper and electrolytic capacitors (temporary labels being placed in the chassis – photo, left), the switch and pre-set potentiometers from below the chassis. With these parts removed, along with the twin16uF 450vw capacitor, itself a service



replacement, the rust was removed from the chassis and transformer using wire brush/sandpaper and then neutralized with 'Naval Jelly' before masking the remaining parts, priming and spraying with metallic-finish paint. The IF cans were cleaned and polished and the power transformer painted black. The badly-corroded tuning gang was then painstakingly cleaned, re-assembled, lubricated and re-installed on the chassis.

Two matching tubular can capacitors were found in the SPARC stock and these were re-stuffed with new 16uF 450vw electrolytic capacitors, and fitted to the chassis in the holes previously occupied by the originals. Reproduction labels were made (Cornell-Dubilier) based on their 1936 catalogue illustrations and fitted to the capacitor cans. The re-stuffed tubular can electrolytics (photos, below and end of article) were then wired into the circuit.

While this work was ongoing, the Micamold capacitors – which were acting as resistors rather than capacitors - were reproduced by moulding reproduction parts with

Steps used to Reproduce 'MicaMold' Capacitors

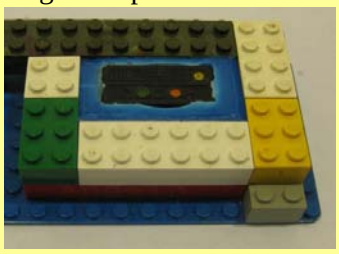
- cut the leads off the original capacitor

- using Lego blocks build an enclosure slightly larger than the original capacitor

- place a thin layer of contact cement on one side of the original capacitor

- lay the original capacitor in the base of the enclosure using the cemented side to affix to the Lego blocks

- pour Smooth-On Mold Star 30 material over the original capacitor



- let dry over night and remove the original capacitor

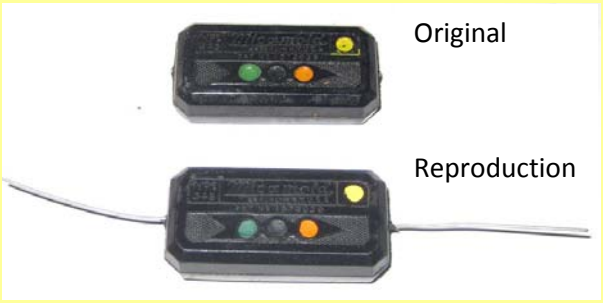
- place the replacement capacitor in the mold

- ensure that no sides of the replacement capacitor touch the walls of the mold

- pour Alumilite Casting Resin (dyed black) into the mold

- after 15 minutes remove the reproduction capacitor

- turn it over and fill the dimples with latex hobby paint, matching the colours to those of the original capacitor



new 630vw poly film capacitors embedded in the mould (sidebar, previous page). These replacement parts (13 in all) were then installed in the original locations, maintaining the original orientations, paint markings and lead dressing. An extra Micamold capacitor reproduction was manufactured to serve as the converter stage AGC bypass capacitor that had been removed from the circuit sometime in the past.

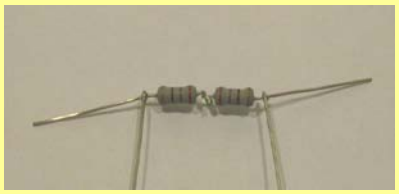
The two tubular paper capacitors were re-stuffed, as were the two tubular electrolytics (photo, below) located under the chassis.

All resistors tested within tolerance (20%) – even though several were of Micamold manufacture – except the cathode resistor of the audio output stage, which had drifted from 600 Ohm (per its markings) to over 1.5Kohm. The schematic shows a 550 Ohm part - yet another mystery – but probably an availability issue at the time of manufacture. This resistor is a 'dog bone' type and a reproduction was made – sidebar, right.

The bias cell was replaced with a 1.5 volt button cell adapted to fit with the correct polarity into the

Steps Used to Reproduce 'Dog Bone' Resistors

- Cut a narrow fibreglass tent rod down to the length of the original resistor. Cut two short slots in the ends to take the bus-wire – photo, below left

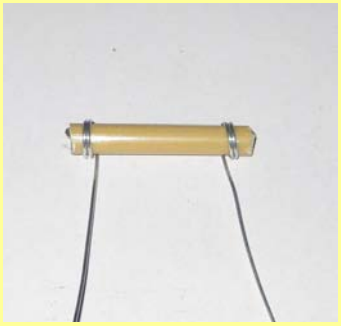


- Attached 2 modern one watt resistors in series totalling a similar value to original (within original tolerance) – photo, above right. The resistors dissipate a total of 0.3W in this circuit - the over-rating (2W total) is to compensate for the insulating effect of the tent rod sleeve

- Extend resistor leads using 20 gauge bus wire

- Drill out/file the tent rod if needed

- Stuff the resistors into the rod



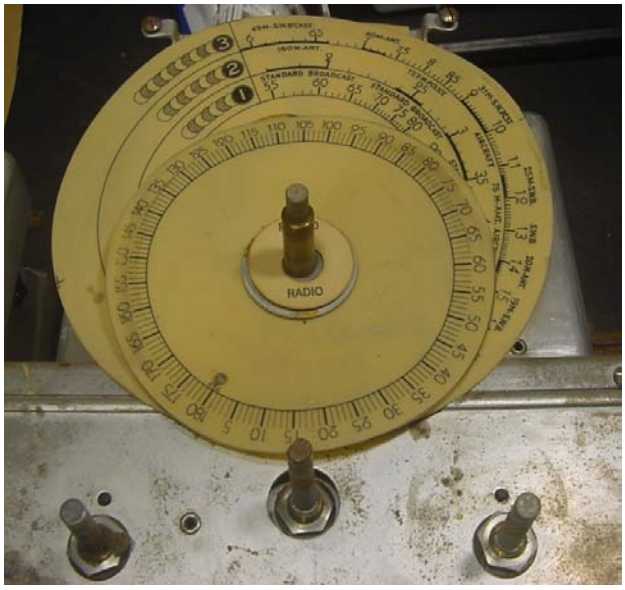
- Wrap the bus wire on each end – photo, above left

- Seal the ends with epoxy putty

- Use latex paint to match original colour codes (below: original shown on left, reproduction on the right)

- Check value with a multimeter

original holder.



Tracing the green clipped wires in the loom showed that they served no purpose, so the clipped wires were tucked neatly into the wiring loom.

A new (reproduction) cloth-covered line cord was fitted, and the fuse checked – a 20 Amp (!) automotive fuse was replaced with a 2 Amp part, and the transformer primary voltage tap adjusted from the 110 volt to the 125 volt setting to give the set a bit of a less stressful life on modern line voltages. The speaker wires were replaced with new cloth-covered wire.

The plastic dial scales were flattened by heating in an oven at 200C for a couple of hours, pressed between 12" ceramic floor tiles. Scans were made of each dial with the hardware removed in case any reproduction was needed in the future. A reproduction Patterson model label was also made for the rear-panel as the original was faded and badly scuffed.

Testing

The chassis was initially tested with the 'cold' end of the converter (grid) coils connected to ground as it was wired when received. However, this resulted in the set overloading on strong signals. Connecting the cold end of the converter coils to the AGC via the 500Kohm resistor noted above and bypassing with a 0.1uF capacitor (a reproduction Micamold part) resulted in the AGC working as it should, i.e. on the first IF and converter, with no overloading, even on very strong signals. It was also found that the set occasionally 'motorboated' ('put-put' sound), depending on the strength of the received signal. This problem was traced to instability in the RF stages, being the result of a 0.25uF bypass capacitor being reconnected as it was

when the set was received – however, it became evident on circuit tracing that this was incorrect as it had been connected to an adjacent tag and therefore not doing its job of bypassing the converter screen grid – yet another mystery, though this part could have been replaced at some time and connected to the wrong tag in error at that time. It was also noted that the 0.006uF capacitor from the plate of the output tube to ground had been connected to a tag that did not connect to ground – this was also corrected.

During an initial soak test, the set started to crackle intermittently. This was traced to the 1st IF transformer – moving the grid wire emerging from the top of the transformer can started or stopped the noise, accompanied by a change in the set's sensitivity. The screening can was removed and the fault was identified as a dry joint where the grid lead joins to the trimmer/transformer secondary winding (photo, right). This joint was cleaned and re-soldered to effect a cure. It was noted that this IF can also housed two resistors not shown on the schematic (perhaps not surprisingly given the other variations found in the circuit...).

As noted above, the output tube fitted on arrival was a 6F6 (should be a 6V6 per the schematic). The 6F6 draws more current and thus generated 35v on its cathode and ran very hot, with the audio becoming distorted after a few minutes. The 6F6 was replaced with a 6V6 and the audio then worked well, with around 13 volts on the 6V6 cathode (close to the 15 volts specified in the Riders information) with no audible distortion.

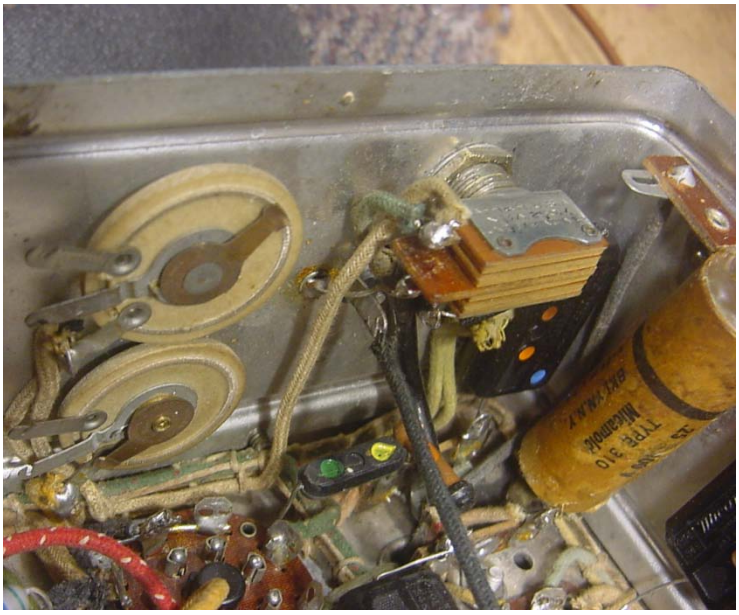
The detector/AGC/first audio tube is marked as a 6B8 on the schematic and the tube fitted was not marked. However, a NOS 6B8 did not work. After checking the tube socket wiring, it was determined that it was actually wired for a 6Q7 – so a 6Q7 was fitted and worked well.

The 1Mohm resistor located in the Magic Eye tube socket was open circuit (as is usual) and this was replaced. On subsequent testing, the AGC voltage, reaching over 20 volts on a very strong signal, is too strong for the 6E5 indicated on the schematic, so a 6U5 (variable mu-triode section) was fitted and found to work as it should, with the eye just closing on the strongest signals.

Close scrutiny of the Riders tube voltage information (not the schematic) actually identifies the eight-tube chassis as having a 6Q7 (not the 6B8 as in the schematic), a 6F6 in place of a 6V6 and a 6G5 (6U5) in place of the 6E5. This, plus the 'dummy' RF stage and the various wiring discrepancies indicate some changes had likely occurred in the eight-tube circuit during its production run, either by way of experimentation, adaptation or improvement, and in the case of this particular set, likely also some well-meaning re-work by a former owner or repairman at some time(s) in its service life.

Mystery Circuits

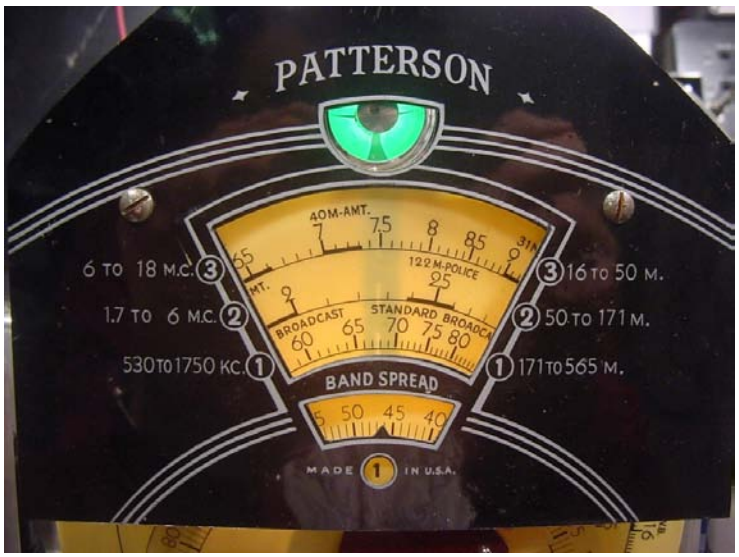
Now it was time to try to resolve some of the mysteries. Someone at the Museum noted that the pre-set potentiometers (photo, below) may have grounded wiper arms (grounded through the chassis mounting thread). This was checked and was indeed the case – so they were probably performing a function after all. The wires from the upper potentiometer were traced – not that easy, as they are in a loom and the insulation colours have faded. However, after some careful checking with an ohmmeter set on its lowest range, it was found that it was connected to the switch on the rear panel (the other side of the switch being grounded), as well as to the cathode of the previously-thought 'dummy RF tube' and the cathode of the first audio tube (6Q7) via a connection into the third IF can. Checking the schematic for the twelve-tube model, it was noted that the wiring was similar (though not the same) as the 'silent tuning' tube in that model (6J7), although there was no variable adjustment or override switch shown on the twelve-tube schematic. With the set switched on, sure-enough, the potentiometer adjusted what signal strength was needed to mute the receiver. The switch was meant to override this by grounding the 6Q7 cathode – but did not as the switch was found to be open circuit. Replacing the switch with the correctly-working period part cured this issue and the circuit now worked well: the AGC varies the current through the 6J7 tube, which develops a positive voltage across the 1Kohm potentiometer. With the 6J7 and 6Q7 tube cathodes being connected, this in turn biases the 6Q7 off until a strong-enough signal allows the tube to operate. This function probably also explains the use of a 6J7 instead of a 6K7 in this application (sharp cut-off vs. variable-mu), though a 6K7 was found to work best and was left in the set. First mystery solved...



The wires from the second potentiometer were then traced and found to be part of a voltage divider from the screen grids of the two IF tubes and ground (via the

potentiometer slider). Varying the value of this potentiometer adjusts the bias voltage of these tubes and hence varies their gain – the control therefore effectively acting as an IF gain control. The control was left in the maximum gain position (slider shorted to ground).

All of this is rather intriguing but was somewhat time-consuming to sort out. The remaining mysteries are why this set, clearly marked as a Model 308, was wired this way? Maybe it was a redesign made especially for markets where signal strengths were high – Los Angeles itself perhaps, where the sets were made – hence the need for reduced sensitivity (and ability to control it) by adding an IF gain control, and removing the RF stage and replacing it with a 'silent tuning' feature. Also, what was the purpose of the green wire that had been clipped-off in the wiring loom and runs to a tag (with no components attached) near the front of the set? – perhaps this was a remnant of the loom being made for the circuit per the schematic and not the circuit that this particular set had been built to? – we will likely never know the truth.



Finishing-Up

Following the above restoration work, a full IF/RF alignment was undertaken – with most of the tuned circuits found to be close to optimal adjustment, with the set having good sensitivity and selectivity combined with plentiful audio of good quality – especially considering the small size of the loudspeaker. The chassis after restoration can be seen operating here.

Cabinet

The cabinet came apart quite easily – in fact it virtually fell apart! – photo, left.

The first job was to clean the filth off the inside and then re-glue the plywood where it had delaminated – several operations were needed to complete this. Next the front, bottom and top of the cabinet were reunited and glued/pinned firmly together.

Minor filling of imperfections was

undertaken using wood putty prior to being sanded down with 600-grit 'wet and dry' emery paper lubricated with lemon oil, grain-filled, and then finished in tinted lacquers, starting with the darker trim, the remainder of the cabinet being masked-off in stages until the desired contrasting tones were achieved. The entire cabinet was then given several coats of clear semi-gloss lacquer.

The knobs were stripped of the old lacquer and refinished with fresh lacquer in keeping with the cabinet tones.

The dial cover glass, metal escutcheon and reproduction speaker cloth were then fitted to complete the cabinet restoration work prior to reinstallation of the restored chassis and speaker into their rightful places and, finally, fitting the refinished knobs. The completely restored set can be seen and heard operating here. Several additional photos follow the end of this article text, along with further details of some components of the restoration work.

Closure

The Patterson Model 308, at least this version, is quite a sophisticated receiver for an eight tube chassis, with advanced features such as two IF stages, adjustable IF gain, 'silent tuning' (muting), dual speed tuning with logging scale and a 'Magic Eye' tuning indicator - the contemporary Patterson communication receiver heritage is clearly evident in the design. The extensive use of 'Micamold' paper capacitors is its Achilles' heel in the longevity department – these now behaving more like 80Kohm resistors than capacitors after almost 80 years. Still, it unlikely that Patterson (or Micamold) anticipated that folks 80 years hence would be using them!

The cabinetry on this model is very simple (and cheap to make!), and being of the 'tombstone' style, was becoming a bit of an anachronism when the set was produced in 1937/8. This probably did not help sales of this (now quite rare) radio, and failure to move with current fashions likely assisted in the decline of the company in the late-1930s.

Nevertheless, the set is not a bad 'looker' and its performance is certainly on a par with other eight-tube designs of the mid-1930s – actually better than many, with increased sensitivity and selectivity afforded by the dual IF stages, combined with the very functional 'silent tuning' feature and convenient switched over-ride for times when listening to/for weaker stations, especially on the shortwave bands. The audio is quite powerful – attesting to the use of a 6V6 output stage, and the quality acceptable for a small (5") speaker, though a slightly larger cone would have enhanced bass reproduction significantly.

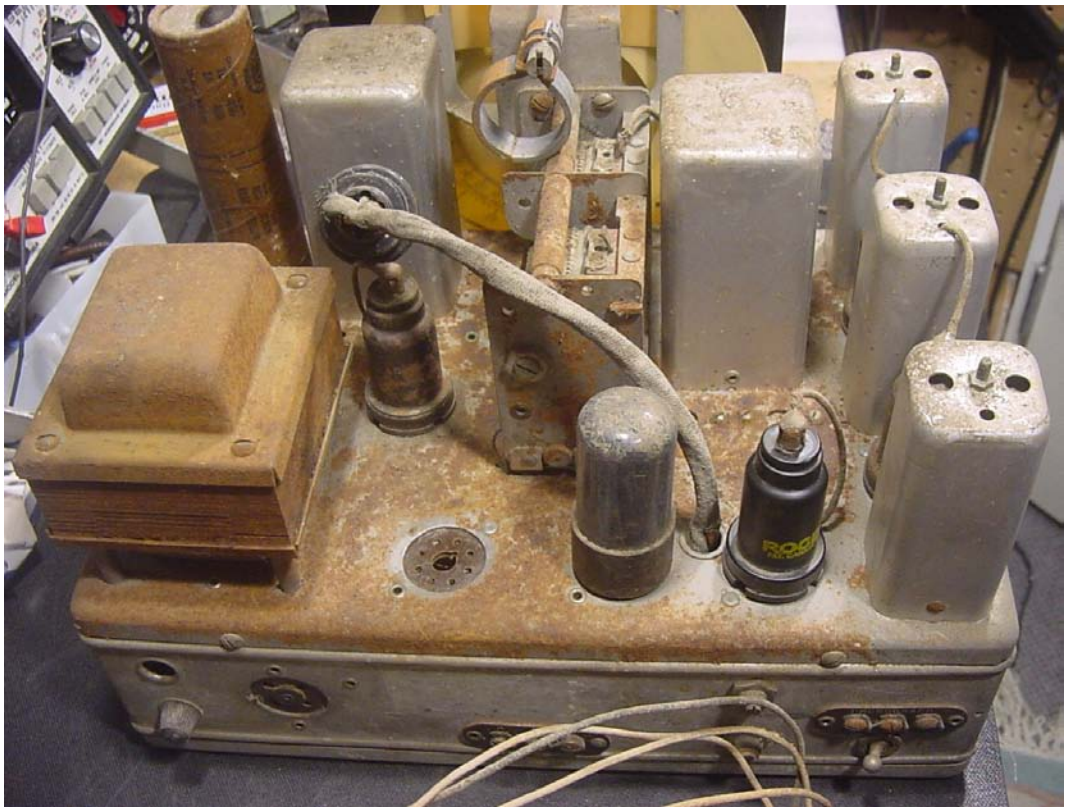
So, altogether a very satisfying, if at times very frustrating, restoration project. While it is not unusual to find minor variations to a set's schematic on a radio, due to production improvements and/or parts availability issues, it is unusual to find such radical departures as are evident in this particular Model 308. Nevertheless, a great set and a very worthwhile addition to the SPARC Museum's collection.

Acknowledgements

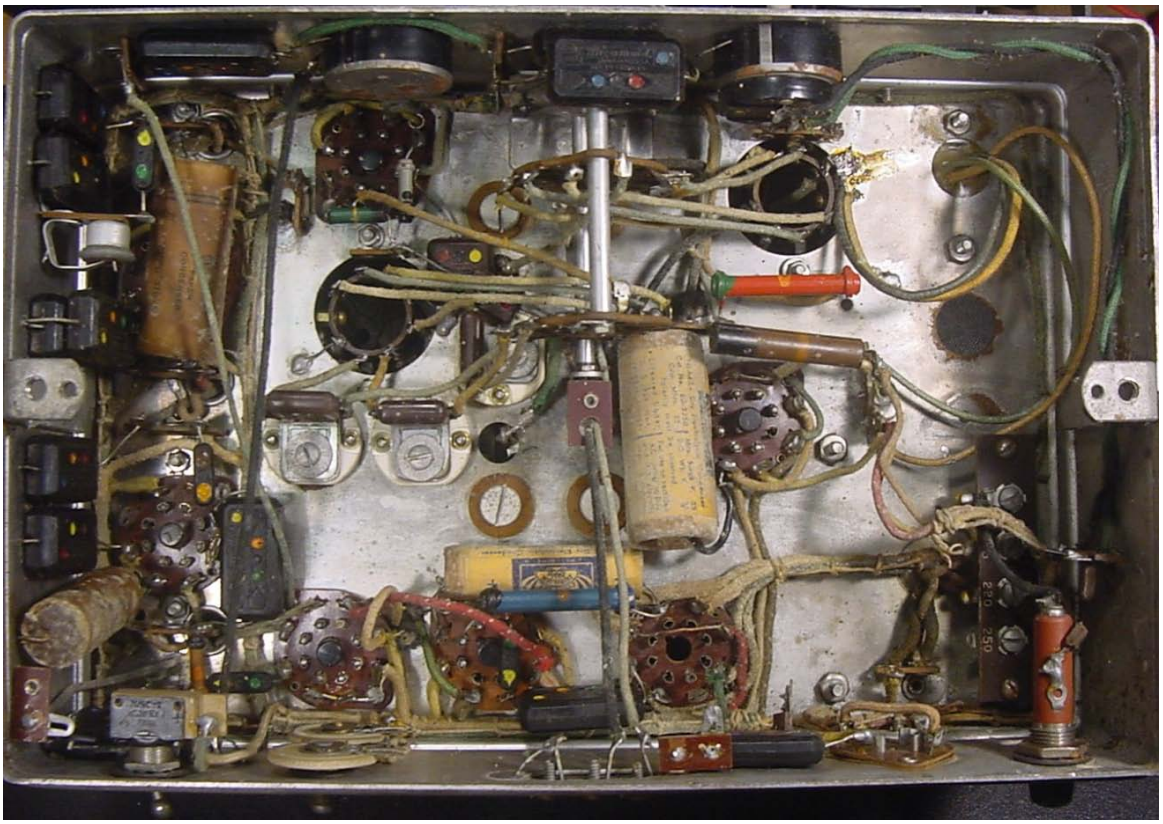
Thanks to the following SPARC volunteers involved with the Patterson Model 308 restoration project:

- Pat Jones: cabinet restoration.
- Craig Marston: labels, Micamold capacitor and dog bone resistor reproduction.
- Gerry O'Hara: chassis restoration, article/video preparation, parts donation.

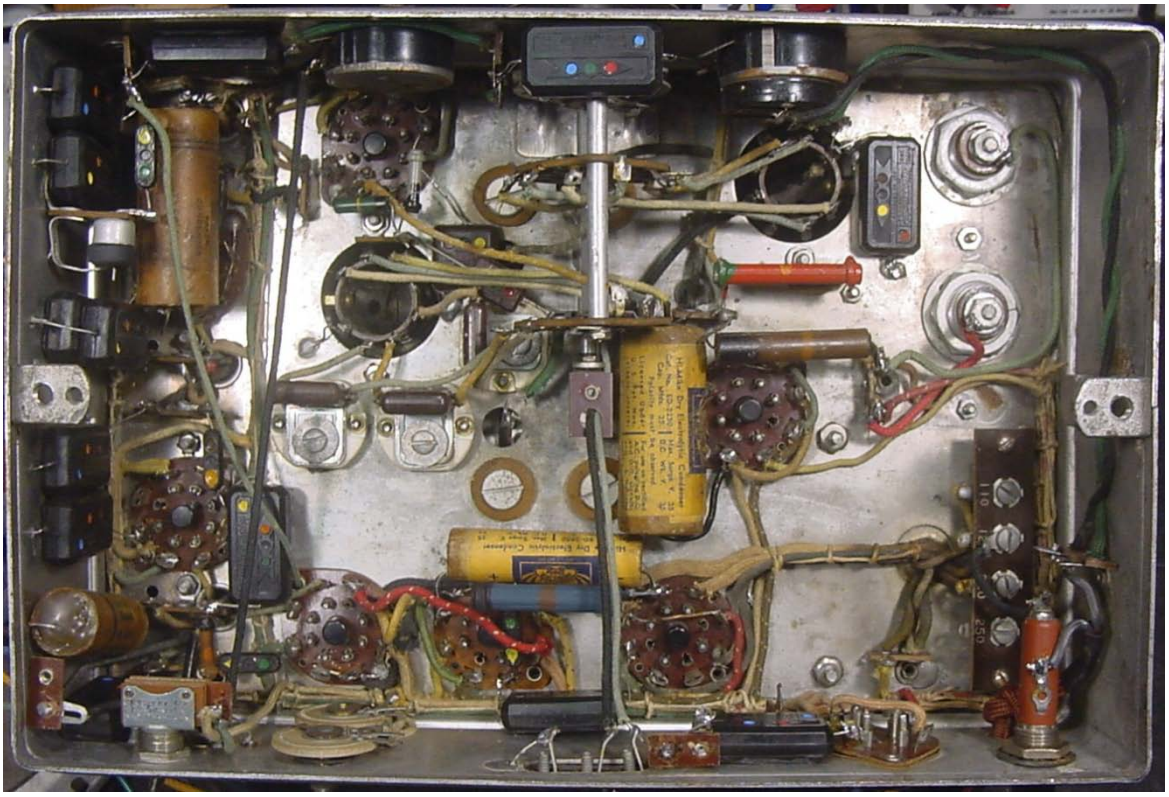
The cabinet on arrival at SPARC was only just holding together. Re-finishing proved a challenge as the veneer – beautiful as it is – kept wanting to part company with the underlying plywood. A reaction of the original glue used and solvents in the lacquer or the lemon oil treatment is suspected. Careful attention to this eventually proved successful, with the cabinet finally realizing its full potential.



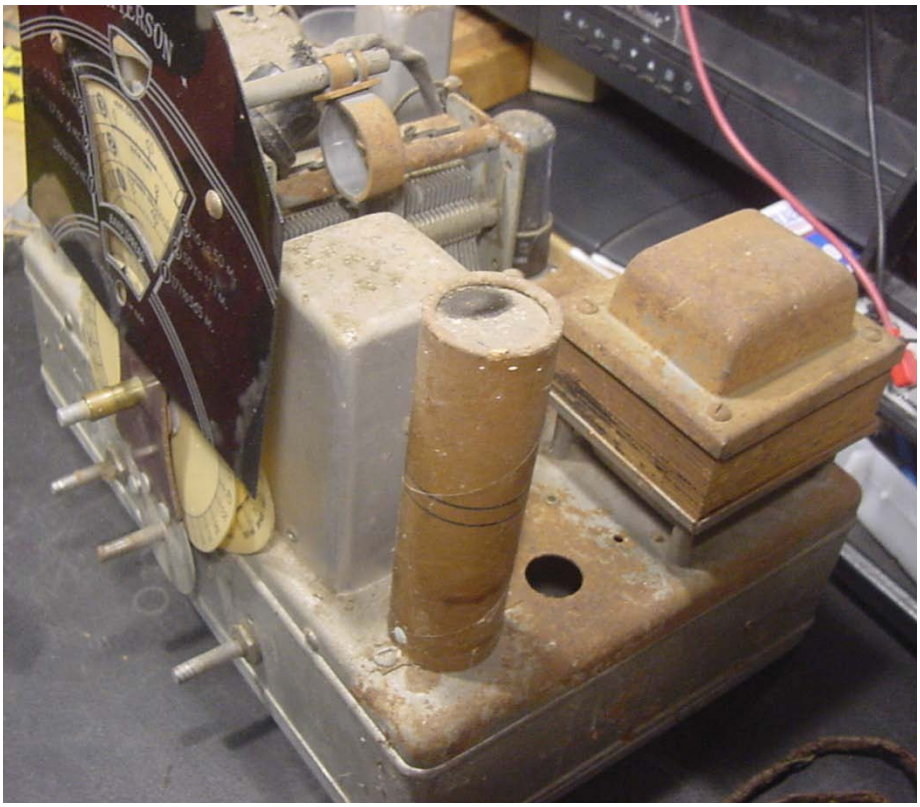
Top of chassis (rear) – Above: as-found, Below: after restoration work completed



Underside of chassis – Above: as-found (less mouse nest), Below: after restoration work

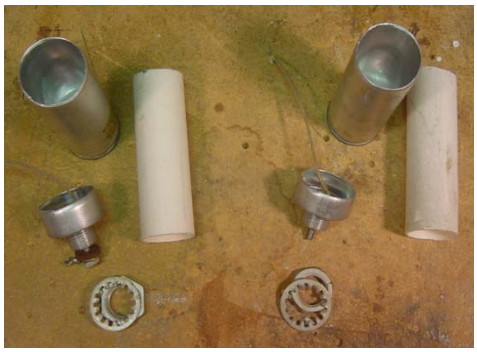


Above: chassis bottom plate as-found/restored, Below: chassis rear plate as-found/restored

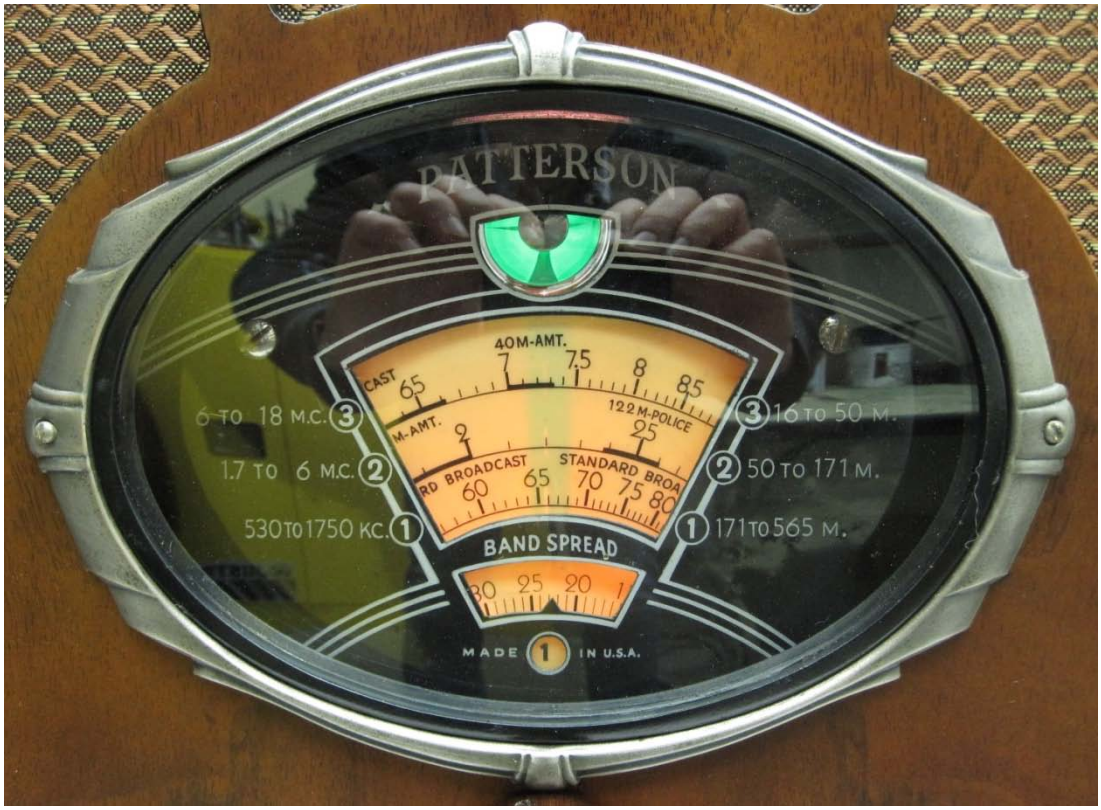


Top of chassis (front) – Above: as-found, Below: after restoration work

Step-by-step photos of can-type electrolytic stuffing: the original can electrolytics were missing from the chassis, so a suitable pair of can capacitors were selected from SPARC stock. These turned out to be high-voltage 2uF oil-filled paper types as can be seen in the photos. A plastic sleeve (PVC plumbing pipe) was epoxied into the top of the can and is a push-fit into the base - this adds rigidity to the assembly as well as insulation. The last photo shows a couple of label mock-ups.



Above: chassis bottom plate re-fitted before installation of the chassis in the refinished cabinet,
Below: the distinctive, functional, yet beautiful Patterson 308 dial – tuning eye glowing nicely



Above: restored chassis installed in the re-finished cabinet


BAND SPREAD
16 TO 50 M.
50 TO 171 M.
171 TO 565 M.


BAND SPREAD