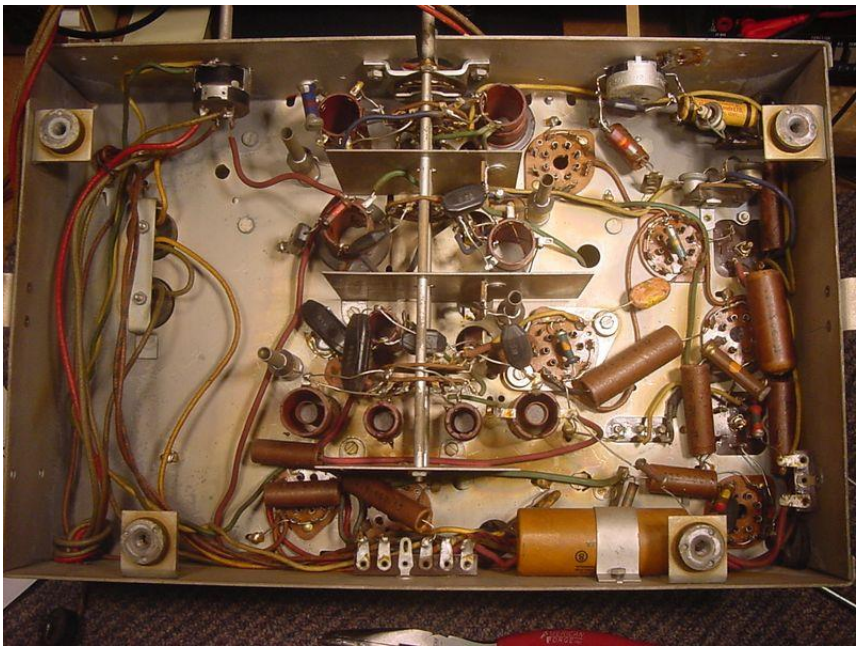
Restoring a Large Farm Set – RCA-Victor Model 97BK Console - Gerry O'Hara

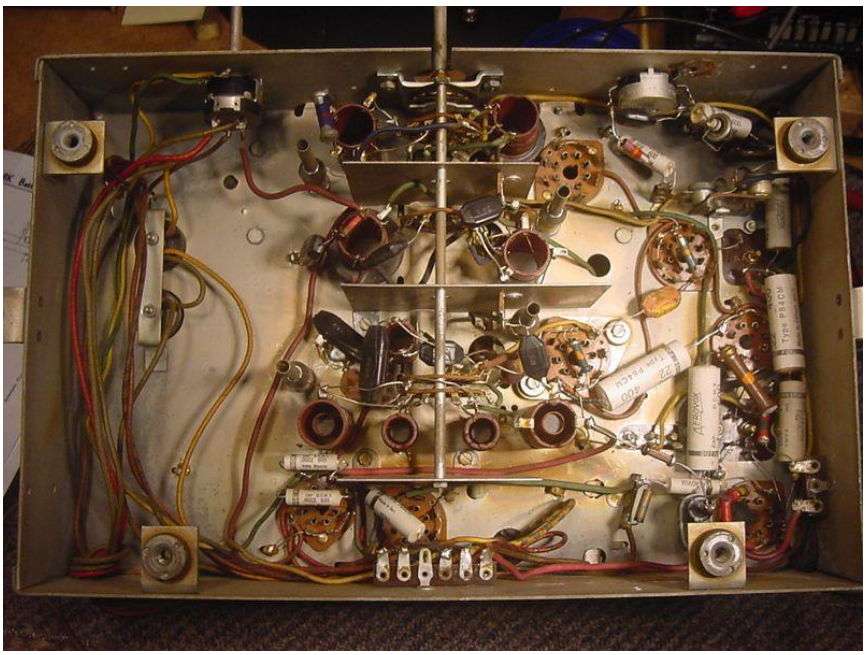
This set was given to Gerry by some nice folks out at Maple Ridge who used to have it in their '1930's period decor' room, but it had since been relegated to the garage - now they needed the space and wanted the set to go to a 'good home'. It's a 7 tube set (no rectifier of course) with an RF stage and push-pull output to a large permanent magnet speaker, so it is quite a 'potent' performer for a 'Farm Set' (so-called because they were bought for use in areas where there was no mains power supply - like many remote rural areas on the Prairies and elsewhere until after WWII).

The cabinet was in a rather distressed state on arrival and after removing the chassis and speaker it was taken into the SPARC museum cabinet workshop for some 'TLC'. After evaluating the overall condition, it was decided not to completely strip it all: only the top was stripped to the bare wood and completely re-finished (it had the usual 'aspidistra' marks) - the sides and front were just touched-up with furniture stain pens and carefully rubbed smooth with fine steel wool, leaving the original lacquer finish intact where it was still adhering well to the wood. The sides of the cabinet (which are not seen too much anyway) were given several coats of dark-tinted lacquer (to hide some of the imperfections), as were the base, speaker uprights and the edge of the cabinet top to act as contrasting highlights. The front was then given a couple of slightly-tinted coats of lacquer and the top sufficient to tone the colour with the front panels. The entire cabinet was then given several coats of clear matt-finish lacquer (this tends to be more 'accommodating' to a slightly imperfect underlying finish than semi-gloss). The result is quite a nice-looking radio that still has some of its more minor 'age lines' - just enough to say 'hey, take care with me - I am 70 years old you know!'... This chassis has several bias batteries fitted - needed in addition to the filament (2V) and plate supply (135V) batteries. If you look at

the chassis photo you can see a pack of 6 × AA cells at the right hand side providing 4.5V and 9V bias for the audio stages - these are a 'modern' replacement for two 4.5 volt cells originally fitted to the two chassis-mounted plugs (you can see wires connected near the new battery pack). Underneath the chassis there are 4 button-cell replacements for the original bias cells supplying delayed-AGC and first audio tube grid bias - see photos. These and the AA cells will last for several years as there is virtually zero current draw on them. So, this set needed a total of 10 batteries fitted to make it work! The original 'bias cells' under the chassis would have been 1 volt each, so the pack of three of these was replaced with only two modern 1.5v alkaline 'button' cells to give the desired 3 volts, with another 'button' cell replacing the single bias cell in the grid of the first audio stage. The set is now working very well after re-capping (all paper capacitors and electrolytics replaced) and the new bias cells fitted - no tubes needed replacing.



Mechanical work undertaken on the chassis included freeing the tuning mechanism, which was seized completely - using WD40 to free/clean it and then a light application of thin machine oil to the mechanism to keep it running smoothly. This chassis is one of the more complex battery sets, as most cover only the Broadcast Band plus (maybe) one short wave band. By the time this set was manufactured (around 1938) most sizeable communities in North America had mains power, so there was little need for such sets. Canada was almost alone in manufacturing large battery sets like this one - still having a market on the Prairies and in more remote/smaller communities until after WWII, however, most battery sets being produced from that time onwards were 'portable' ones - the iPods of their day I guess (see the Zenith 5G500 article). Also, you tend to find that large battery sets were



not used as much as their mains-powered equivalents due to the expense/inconvenience of buying batteries (ie. they were switched off when folks were not actually listening to the radio as opposed to just being left playing in the background) and therefore can tend to be in better condition - sometimes with the original tubes fitted - being set aside as soon as mains power was available and a mains-powered set purchased (maybe only a few years). So this model is a bit of a 'last bastion' for its genre.

Now, not liking the idea of all those batteries, a neat little mains power supply was designed and built for this radio (and which is suitable for other battery sets). Many power supplies designed for this type of service are designed for smaller radios with 1.5v filaments and a 90 volt plate supply and so are unsuitable. The supply for this set was built to provide the following:

- Filament Supply: switchable pre-set 1.5V, pre-set 2.0V and adjustable 1.2V to 5.5V regulated DC (ripple virtually undetectable) at up to 1.5A, current limited and thermal protected, plus 6.3V AC (unstabilized) at 1.5A.
- Plate Supply: choke/capacitor filter-smoothed at 175V un-stabilized (up to 140mA), plus nominal 135V, 90V, 45V and 22V outputs (can all be used simultaneously, eg. for those sets that need a lower plate supply to the detector tube) at up to 50mA on zener-stabilized outputs (actual voltages depends on zener diode voltages used). The total zener diode voltage should add up to around 135V for the series resistor used (820 ohm) and the zener diodes must be 5 Watt or higher dissipation. The zener string is mounted externally under the plate supply connector block so you can easily change the zener values to any combo you want up to 170V or so without any soldering (just a screwdriver). This arrangement also keeps some heat out of the plastic chassis box when no plate supply load is connected. Further details of this power supply may be found at Canadian Vintage Radio.