

Connecting Collections

Introduction

So you have a collection of telephones which you display and admire. Why not go one step further and create a working collection? There are many options available – some straight forward, some not so straightforward. So as not to create an insurmountable problem, let's concentrate on single line telephones that were used on the public telephone network. It is of course possible to get any telephone to work but some will require lots of hardware to be procured or created before any bells will ring.

There are three basic types of telephone to consider; magneto, CB and automatic or dial.

Magneto Telephones

Magneto telephones can be connected together in parallel to form a party line. Although this is easy to do, it does lack some authenticity. In most cases, to make a call from a magneto telephone, one would crank the magneto, lift the handset or receiver and wait for the operator to ask for the number to be called. If the called subscriber answers the operator's call, he or she will connect the call. When the call is complete, put the receiver on hook and crank the magneto (ring off). To be realistic, one also needs to be able to place a trunk call.

I'll look at implementing realistic magneto operation later in the series but for the moment, to connect magneto telephones, the simplest option is to use a local party line.

Common Battery (CB) Telephones

These telephones are conceptually simpler than magneto telephones but they are more difficult to connect together. Making a call uses the same procedure as for magneto telephones except that there is no magneto to crank. Like the magneto case, an operator and a method to make trunk calls is needed.

I'll look at implementing CB operation later in the series but for the moment, to connect CB telephones, the simplest option is to connect it to an auto telephone line and use it to answer calls.

Dial Telephones

Almost all dial telephones that were used on the public network from about 1908 onwards will work on a modern landline – as long as the landline is connected to a traditional telephone exchange that accepts pulse dialling. Many telephone services

today, including that provided by the NBN, don't support pulse dialling.

The simplest way to get started is to focus on dial telephones. Once they are connected and working, I'll work backwards and get the magneto and CB telephones working realistically as well.

Connecting Dial Telephones

A small collection can simply be connected to your landline but some problems may arise. Older telephones will load the line more than modern telephones so some might not ring properly or at all. The combined load might also cause an immediate ring trip so that you never hear a phone ring. If they do all ring, you will probably wish they didn't.

What if you don't have a landline?

If you don't have a landline but you do have a broadband connection you can subscribe to a VoIP telephone service. There are many providers and although charges can be quite modest, there is a charge.



If you want to use pulse dialling, make sure you have an analogue telephone adaptor (ATA) that supports it.



The Grandstream HT-502 is a two (telephone) port ATA that supports pulse dialling.

<http://www.grandstream.com/products/gateways-and-atas/analog-telephone-adaptors/product/handy-tone-502>



If you don't have a landline or a broadband connection but you do have a mobile phone with Bluetooth there are other options.

For example the XLink BT is a device that allows you to make calls via your mobile phone and it supports pulse dialling.

<http://www.myxlink.com/>

What if your landline doesn't support pulse dialling?

There are several pulse to tone converters available that will enable you to use your rotary dial telephones on a tone only telephone service; one is a device called DialGizmo. It connects between the telephone and the line and after each digit is dialled, the device sends the equivalent DTMF code. It can be configured for use with reverse dials from New Zealand or Oslo, Norway.

<http://www.dialgizmo.com/>



Using a Hybrid PABX

If more than just a few telephones are to be connected together it is worth considering the use of a hybrid PBX such as a Panasonic KX-TA308 or KX-TA824. These PBXs support single line telephones, pulse dialling and will allow you to call from extension to extension. They will automatically convert from pulse to DTMF when calling via an exchange line. The exchange lines can be connected to the PSTN, to a VoIP service via an ATA as discussed above or to a device like the XLink BT to make calls via a mobile phone.



There are some drawbacks; the call progress tones and ring cadence are not what we are used to and the numbering scheme is fixed by the PBX. It would be better if we could use our favourite telephone numbers and hear the progress tones of old.

Summary

I have pointed out several ways to get your collection working together but so far, without specifics. There is one more option to cover and after that it's time for the details. This will be the subject of the next installment.