

INVERCARGILL CITY TRAMWAY ELECTRIC TRAM No. 15



The Tramway Historical Society Inc presents Invercargill Electric Tram No. 15 as a candidate for the 2014 COTMA Achievement Awards.

Introduction

This restoration project has been a joint venture between the Tramway Historical Society Inc (THS), the owners of the tram, its subsidiary the Heritage Tramways Trust (HTT), the restorers, along with Christchurch Tramway Ltd (CTL), the intended operators. The restoration came about due to the need for additional tramcars to service the about to be expanded Christchurch City Tourist tramway. The brief from the tramway operator was to find a tram suitable for "one-man" (i.e. driver only) operation.

Birney Trams

Tram No. 15, built by JG Brill and Company of Philadelphia in 1921, is a surviving example of the world famous small light weight street car, designed in the USA in 1915 to be an economical means of providing frequent service at a lower infrastructure and labour cost than conventional streetcars. Thousands of these trams were exported all over the world. Nine Birneys were imported into New Zealand, 6 for Invercargill and 3 for New Plymouth, one more than the 8 which later arrived in Australia! However while all but one of the Australian Birneys have survived and are in operable condition, all the New Zealand Birneys were written off and the bodies, minus equipment, disposed of. Only two now remain, the body of New Plymouth No. 8, and the now fully restored and operating Invercargill No. 15.

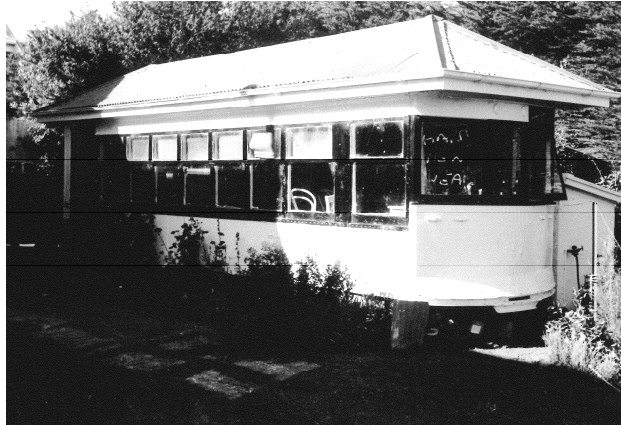
Birney No. 15 commenced operation in the streets of Invercargill on 20 December 1921. Together with the other Invercargill Birneys it had some minor changes made during its service life, including removal of its side window guards, alteration to the end windows, and livery changes including replacement of gold leaf lining and lettering with yellow paint and a simplified City Council crest.

After more than 30 years of faithful service, Birney 15 was the last tram to South Invercargill on 31 May 1952, the most southern tramway in the world. Vandalised by souvenir hunters, this was its last run and it did not survive to see the final Invercargill closure a few months later on 10 September 1952.

The Birney Safety Car has an all steel body with a canvas over wood roof. The controls are interlocked with a dead-man control that applied the brakes including sanding the rails if the driver was unable to keep his hand or foot on the dead-man. The doors and steps are also interlocked preventing the tram from being driven when the doors are open. Trolley retrievers were a standard Birney safety feature. In their day these trams were state of the art.

Acquisition of Birney No. 15 by THS

After being written off the Invercargill tram bodies were sold off for reuse as sheds and sleep outs. Number 15 found her way to a farm at Waimatuku to the west of Invercargill where she became a sleep out for a family with a temporary housing shortage.



Birney 15 at Waimatuku

From the late 1960s the Tramway Historical Society began the search for suitable tram bodies for restoration, its desire (since formalised in its Collection Policy) being to obtain and restore electric trams from each of the South Island cities which had operated them (Christchurch, Dunedin and Invercargill). It had already obtained Invercargill No. 5, built by Boon & Co. in Christchurch in 1912, when in 1970 Birney 15 was discovered. This was in much better condition than other Birney bodies seen. The Society was keen to acquire a Birney, as an example of the pioneer form of one-man safety car in New Zealand and as happened elsewhere, later copied locally. In Christchurch the "St Martins" and "Brill" trams were adapted for one-man operation using the same features as found on the Birneys.

After being gifted to the Society, Birney 15 was finally transported to Ferrymead in December 1985. By that time the body had suffered from the elements with significant rust in the body panels and under frame. The lack of suitable mechanical equipment was a problem so the tram was well down the priority list for restoration.

Restoration of Birney No. 15

In 2009 when the search was on for trams for the Christchurch City tramway extension fleet the Birney became an option. But where were we to get the mechanical equipment to create an authentic restoration? We were unaware of any genuine Brill 79E trucks available, but we did consider the options of using a Brill 21E truck or copying or negotiating the use of the motorless St Louis Birney truck, ex-Melbourne No. 218, obtained by the Wellington Tramway Museum for use under New Plymouth No. 8, and to use non safety car control equipment. However as the proposal started to gain momentum the engineering team from Christchurch Tramway came up with a proposal to build a replica truck using parts from an ex-Melbourne truck and with a set of axle boxes that were available from Bendigo Tramways.

Work commenced on a Conservation Plan and this was further developed as we worked out what could be done and we learnt more about Birneys and their equipment and investigated possibilities for finding replacements for the many missing elements of the tram. The current version of the Plan, now almost complete after documenting No. 15's restoration and return to service, is forwarded as a supporting document to this application. Restoration completion date was set for May 2011, to give some time for running in at Ferrymead before venturing to the city, where the intention was to open the first stage of the extension in time for the Rugby World Cup due to commence in September that year.

With the assistance of COTMA, representation was made to a number of Tramway organisations in Victoria, Australia and following two visits and successful negotiations, we were able to obtain the bulk of the key components needed to complete a very authentic restoration. This included some genuine dead-man equipment surplus from Bendigo and Bylands.

During the later months of 2009 details of the remains of the body of No. 15 were fully documented and it was then stripped of any internal fittings to be restored for reuse.

In discussion with CTL and to meet their needs for a very attractive period finish it was agreed that the restoration would be to the period pre World War II where minor physical modifications had been made whilst still retaining the gold leaf sign writing and colourful crest. As with other restorations for the city there have had to be some compromises to meet modern safety and tourist operation requirements such as stop, tail and turning lights, mirrors, speaker system etc, but these have been achieved with minimal damage to the heritage fabric and are fully reversible. Details of these compromises and the reasons why they have been agreed to have been recorded.

The hulk of the body was sent to Andy Rowe's workshop in early December 2009 where it was dismantled and any recoverable materials were sandblasted and primed prior to reuse. The lower body panels were all rusted beyond salvage as was a lot of the framing.



Where required new framing was fabricated and fitted with the restored pieces. Replacement side panels were also made and temporarily bolted together. These components were then transported back to Ferrymead. The chassis and panels were put together with hot rivets, the same way they had been made in 1921.

With the body back together Andy Rowe turned his skills to fabricating new side frames and cross members for the truck to match the axle boxes from Bendigo. Whilst work continued on a major rebuild of the roof and fitting items to the chassis, the engineering team at Ferrymead assembled the truck using wheel sets and motors from a Melbourne No 1A truck, previously used by THS on a much earlier restoration.

The new truck was almost complete and the body fit out under way when the September 4th Earthquake hit Christchurch. With no damage done at that stage, the project continued on with the body making great progress. Painting was arranged over the Christmas break of 2010. We were on the home straight, or so we thought, as components were being added to make it a workable tram.

Then came the 22 February Earthquake. The tram bounced around as the ground shook underneath but the tram came out unscathed.

City tram operation ceased immediately following the February quake and our income stream from tram rentals dried up as did the contributions from Christchurch Tramway for materials. The HTT battled on for a couple of months fitting components and paying staff from reserves. The aim was to still produce a tram to run in the city.

The opportunity of a contract to restore Roslyn Tram No. 1 for the Otago Settlers Museum saw HTT work on the Birney put on hold. The THS volunteers plugged on with the fit out and tuning control systems to a point where in October 2011 the Birney made its first trial run around the Ferrymead track for testing.

At that point still without finishing and missing all its windows we knew we had a tram that would make the grade. We were very surprised at the quietness and smooth ride compared with what many of us had experienced on similar trams in Bendigo.



With limited funding the restoration continued as volunteer resources were available and funds were found for the components needed to complete the jobs. The decision of the City Council in December 2012 to proceed with reinstating the existing tram loop plus CTL's needs for an economical start up using driver-only trams meant that No. 15 would be on its way to town at last.

Along with repair work undertaken to two other town trams, HTT, THS and CTL efforts saw Birney 15 finally completed and ready for town service. Official opening day for the first part of the loop was the 27th November 2013, and No. 15, proudly displaying its Invercargill heritage, has proven to be a very valuable, reliable and popular member of the city fleet.

This has been one of the most challenging restoration tasks ever attempted by the Society, and with the all up costs, including the contributions from HTT and CTL, estimated to be in the region of \$NZ 525,000.

Acknowledgments

The restoration was led by the Heritage tramways Trust team of Graeme Richardson, Brian Fairbrass and John King. The specialised engineering skills of Andy Rowe from Christchurch Tramway were very important in rebuilding the body and the fabricating the truck frame.

The volunteers from the Tramway Historical Society also provided considerable effort in many aspects of the restoration work as well as involvement in Birney parts acquisition, research and the preparation of the Conservation Plan and in maintaining a detailed photographic record.

We must also acknowledge the Council of Tramway Museums of Australasia. and several Member groups of COTMA who assisted by selling or donating surplus parts and providing information to allow an authentic restoration to be completed. These included the Bendigo Tramways, the Tramway Museum Society of Victoria, Bylands, the Melbourne Tramcar Preservation Society, Haddon, the Ballarat Tramway Museum Society, the Friends of Hawthorn Tram Depot, and the Wellington Tramway Museum. Without their support and co-operation we would not have been able to undertake this restoration.

Lastly we would like to acknowledge Christchurch Tramway Ltd who committed funding for materials and outwork in return for use of the tram for a period on the Christchurch Tourist Tramway. Without that funding the project would have taken many years to progress as we sought funding from other sources.

Documents in Support

Conservation Plan - Invercargill Birney Safety Car Number 15 (Version 16)
Invercargill Birney 15 - A THS/HTT/ ChCh Tramway joint venture (THS ppt)

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