



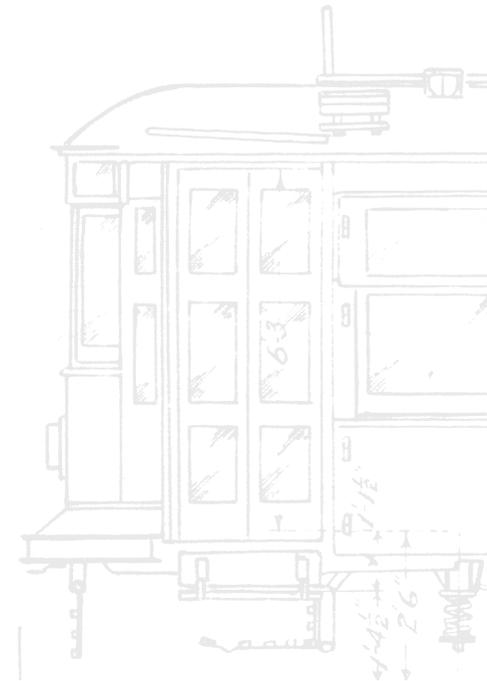
# Heritage Tram Restoration Specialists





# *Why choose us for your next heritage tram restoration project?*

- ❖ *We have a unique skills-set and offer specialised experience in heritage rail vehicle restorations focusing on pre-1960s for all types and classes of tram cars and railway carriages.*
- ❖ *We own and operate our own fleet, so we intricately understand the needs and challenges faced by heritage tram operators. We appreciate that attention to detail – and excellence in finishing and workmanship – is of paramount importance.*
- ❖ *We have been restoring heritage trams for 40 years and have an extensive range of patterns and documentation for almost all tram cars.*
- ❖ *We offer a one stop shop and are able to work to your specific requirements in order to deliver a custom solution according to your needs ... no “one size fits all” approach; expect personal attention.*
- ❖ *Our facilities are modern, secure and fire protected even though they are housed on a heritage site.*
- ❖ *We will work out a project timeline to suit your needs.*
- ❖ *We are a provider of local employment and use local suppliers in a regional area. The Bendigo Tramways Depot and Workshop is owned and supported by the City of Greater Bendigo and the business is managed by The Bendigo Trust.*





*One of the battery trams which operated in Bendigo in 1890, but soon proved unsuitable for Bendigo's hilly terrain.*



*Steam trams proved more reliable than battery trams and ran in Bendigo between 1892-1902.*

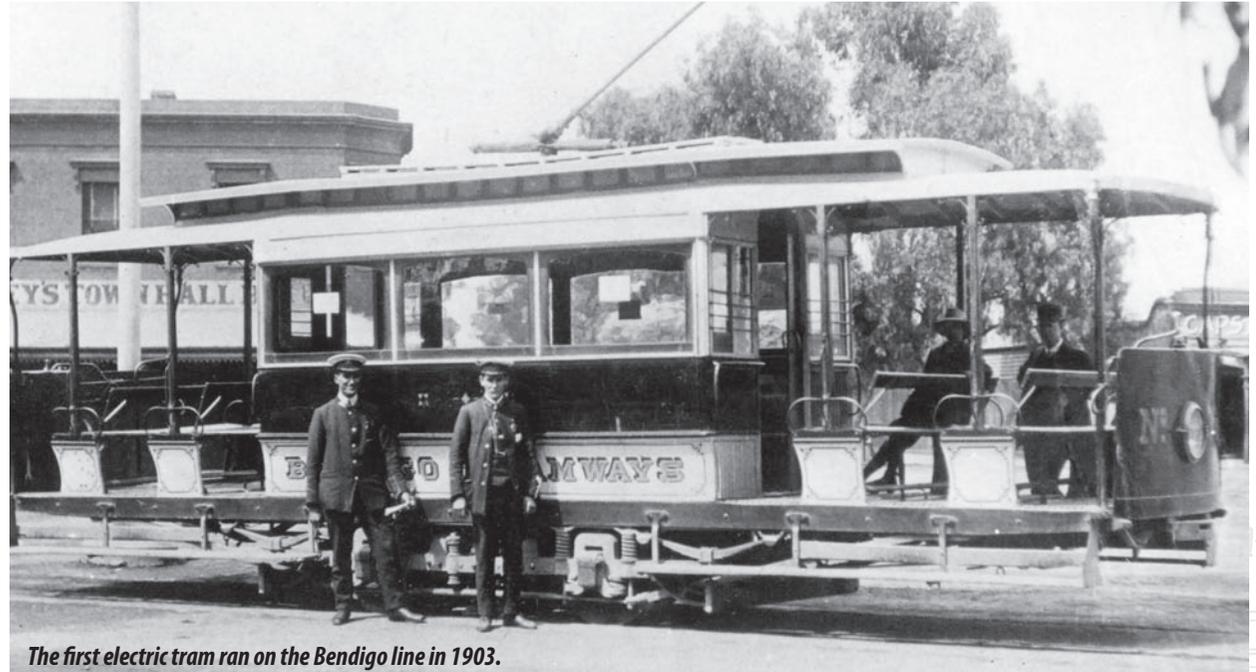
# History

Since June 1890, trams have been operating in Bendigo. The first tramway used battery-powered trams and ran from the Bendigo Railway Station out to the nearby Borough of Eaglehawk, a distance of four miles.

Since then, Bendigo Tramways has been owned by four other operators. However on 16 October 2010, The Bendigo Trust celebrated becoming the longest serving custodian of Bendigo Tramways, having operated its Vintage 'Talking' Tram Tour service for nearly 38 years.

Keeping the "Talking Tram" fleet on the road has meant that the specialised skills required to restore and maintain heritage trams, has had to be maintained and passed on to successive workshop staff over the years.

Forty years on, Bendigo Tramways is now one of the few places in Australia (and the world) with such extensive knowledge of heritage trams. This often makes us the first port-of-call for tramway museums and heritage tram operators wishing to restore trams in their collections.





*"In 2010/11 the Bendigo Tramways Depot and Workshop underwent major upgrades, transforming the workshop into a safe and thriving workplace that can take on large external heritage rail restoration projects."*

# About Us

The Bendigo Tramways Heritage Rail Workshop is located at the Bendigo Tram Depot, which was first opened in 1903 and is the oldest operating Tram Depot in Australia.

Jos Duivenvoorden, Manager of Bendigo Tramways, has over 30 years of experience in business management and since joining the company in 2010, has transformed the Bendigo Tramways business systems to provide a more professional service to our workshop clients from initial enquiries all the way through to final delivery.

In 2010/11 the Bendigo Tramways Depot and Workshop underwent major upgrades thanks to joint funding from national, state and local government. Besides making the depot a much more appealing tourism site with well-preserved heritage features, the renovations have transformed the workshop into a safe and thriving workplace that can take on large external heritage rail restoration projects.





*"Our combination of traditional trade skills and our extensive documentary and pattern collection are your assurance of quality work and a historically accurate result."*

# Maintaining our skills-base

Our workshop team has a broad range of skills ...

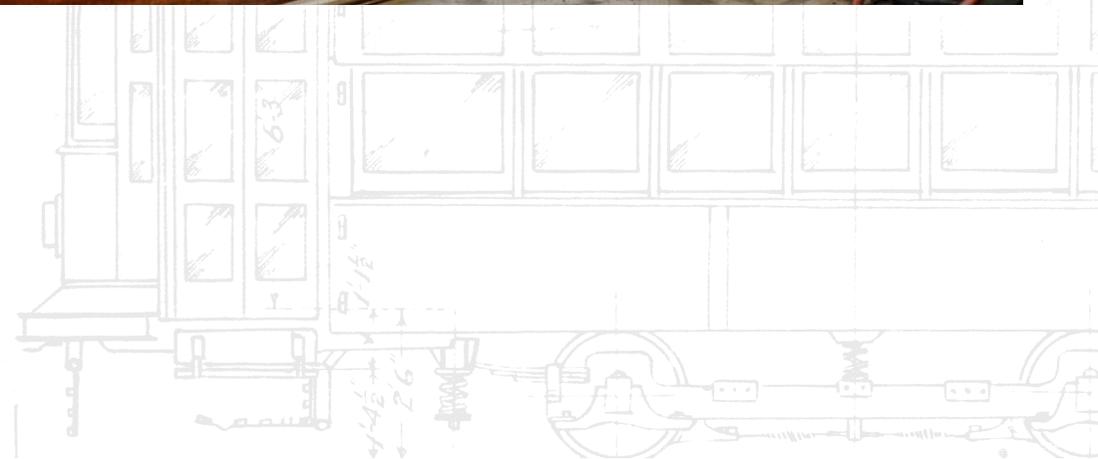
## Coach building

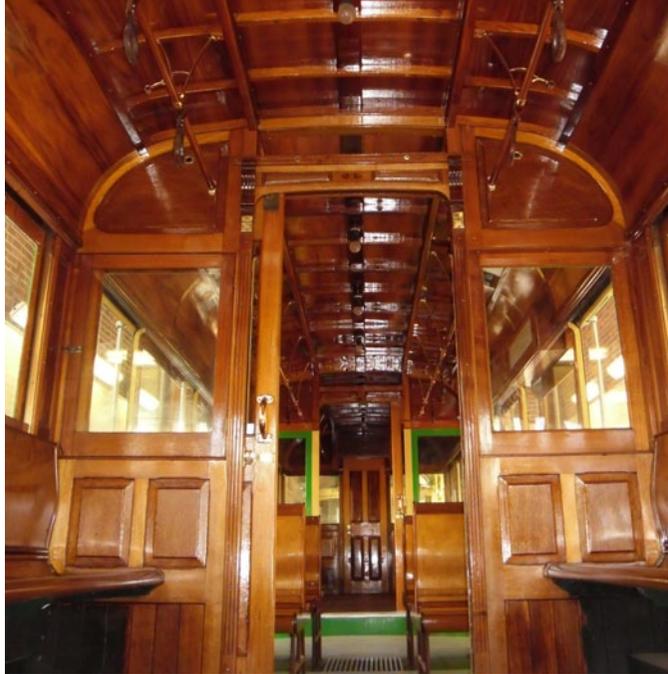
The skills of the coachbuilding team include: woodworking, cabinet making, wood turning and fitting, painting, upholstery and glazing, as well as the finer elements of traditional furniture making, such as French polishing. Our combination of traditional trade skills and our extensive documentary and pattern collection are your assurance of quality work and a historically accurate result.

## Engineering

The engineering team has electrical, pneumatic and general mechanical engineering skills with years of experience specifically relating to tram maintenance. The team has access to patterns and drawings which enables the manufacture and machining of replacement parts for all types of trams.

In order to preserve the specialised skills required to carry out heritage tram restoration, Bendigo Tramways is working with the Victorian and Federal governments, to develop a comprehensive training and apprenticeship program to ensure that these scarce skills are passed on, while at the same time guaranteeing the future viability of the business.





# Coachbuilding services ...

<b>COACH BUILDING</b>			
<b>ROOF</b>	<ul style="list-style-type: none"> <li>● Repairs</li> <li>● Guttering and drip rails</li> <li>● Recovering and sealing</li> </ul>	<b>FITTINGS AND FURNISHINGS</b>	<ul style="list-style-type: none"> <li>● Brass, copper, iron and timber</li> </ul>
<b>EXTERNAL BODY (INCLUDING BUT NOT LIMITED TO)</b>	<ul style="list-style-type: none"> <li>● Body framing and chassis</li> <li>● External doors</li> <li>● Panels, aprons and skirting</li> <li>● Weather blinds/concertina blinds</li> <li>● Steps</li> </ul>	<b>PAINTING AND VARNISHING</b>	<ul style="list-style-type: none"> <li>● From priming to final gloss coats of paints to French polishing of natural timbers</li> </ul>
<b>INTERNAL BODY (INCLUDING BUT NOT LIMITED TO)</b>	<ul style="list-style-type: none"> <li>● Timber panelling</li> <li>● Beadings, mouldings and other details</li> <li>● Internal doors</li> <li>● Ceiling</li> <li>● Bulkheads</li> <li>● Flooring</li> <li>● Sashes</li> <li>● Destination boxes</li> </ul>	<b>UPHOLSTERY/TRIMMING</b>	<ul style="list-style-type: none"> <li>● Seating and all leather straps, strap hangers and other materials</li> </ul>
		<b>GLAZING</b>	<ul style="list-style-type: none"> <li>● Leadlight, stained or etched glass</li> <li>● Other glazing</li> <li>● Safety glazing for Public Transport</li> </ul>



# Engineering services ...

## TRUCKS AND BOGIES

### ELECTRICAL

- High and low voltage
- Controllers
- Sound systems
- Traction wiring
- Motors refurbished, carbon brushes, bearings
- Current collectors (poles or pantographs) new or refurbished and carbon inserts
- Switches
- Traction light fittings (high or low voltage)
- Indicator and marker light systems
- Line breakers
- Compressor governors
- Resistor grids
- Contactors
- Lightning arrestors and choke coils

### ENGINEERING & MECHANICAL

- Trucks / Bogies made new or refurbished
- Wheel and axles
- Bearings / white metaling (Babbitt)
- Brass castings of tram parts
- Steel and iron casting of tram parts
- Axle boxes, gear cases, brake rods
- Life trays and gates
- Springs, coil and leaf new or restored

### PNEUMATIC

- Braking systems
- Brake valves and handles
- Brake pistons and seals
- Door actuators, seals and control valves
- Compressors refurbished or rebuilt
- Air tanks (receivers) safety valves
- Relay valves, double check valves new or refurbished
- Sander valves and venturi



*“The Bendigo Tramways Vintage ‘Talking’ Tram Tour has been running since 1972 and over the years we have become well-versed in the logistical, financial, infrastructure and maintenance needs of a heritage tramway.”*

# Other products and services

## Consulting services

As operators of a busy tourist service, Bendigo Tramways has a solid understanding of the many challenges involved in keeping a working fleet on the rails 364 days of the year.

Bendigo Tramways Vintage 'Talking' Tram Tour has been running since 1972 and over the years we have become well-versed in the logistical, financial, infrastructure and maintenance needs of a heritage tramway.

## Tram parts and components

Bendigo Tramways have been manufacturing and restoring tram parts and components to suit various tram types and rail gauges since 2001. We hold an extensive library of patterns, plans and drawings. The workshop has a range of tram parts available for purchase and can also manufacture parts to order. These parts and components can range from electrical to mechanical, pneumatics and fittings.

## Tram sales and leasing

Bendigo Tramways have a large fleet of trams, some of which are in excess of our regular service needs. If you are looking to lease a tram, we may be able to help.

We are currently leasing a tram to Auckland who have recently introduced a new tourist tram service in their city.



*In 2011 Bendigo Tramways leased a tram to the brand new Auckland Waterfront tourist tramway. Before sending the tram to New Zealand, it was serviced and repainted, to ensure that it was delivered in mint condition and ready to go.*



## RESTORING MELBOURNE'S ICONIC CITY CIRCLE FLEET



**Our biggest project to date, and only recently commenced, is the restoration of Melbourne's historic W Class trams to serve in the City Circle fleet.**

This fleet of about 40 W-Class trams is being totally overhauled and refurbished. Works include both a complete coach overhaul and modernising the engineering side of the trams to bring them up to current safety standards.

The newly refurbished trams, nominally classed as W8s will be suitable for public use on an ongoing sustainable basis – hopefully forever!

Bendigo Tramways was selected as the primary contractor to carry out all the body works. Bendigo Tramways will also assemble the mechanical and electrical components in order to satisfy the customers specifications.

The initial road testing will be carried out prior to handing the trams back to Yarra Trams, Melbourne, where they will continue to be the face of one of the most liveable cities on Earth.

*To date the Bendigo Tramways has taken delivery of two historic Melbourne Trams ... Tram No. 959 from Newport (top left) and City Circle Tram No. 957 (bottom right). Thus far, both trams have been stripped. Tram No. 959's body frame (centre) has been extensively tested and repairs and improvements have been implemented to ensure that it meets stringent safety standards. The body of the tram (bottom left) has also been refurbished and works have begun on restoring the roof (top right).*

## OTHER WORKS IN PROGRESS



### Tram No. 8

Built for Bendigo by Duncan and Fraser in Adelaide, No. 8 is the last of two surviving 1903 Brill cars to operate on a regular basis for Bendigo Tramways and was decommissioned in 1947. Restoration of this tram back to its 1903 configuration commenced in 2001 and since 2004 has relied on donations. It is expected to be finished by 9 December 2012, in time for the 40<sup>th</sup> Anniversary of Bendigo's Vintage 'Talking' Tram Tour Service.



*Above: Thanks to recent donations, the restoration of No. 8 is progressing well. Inset: Due to the decrepit state of the tram, the coach has had to be recreated from scratch.*



### Tram No. 14

The workshop is currently working with the Sydney Tramway Museum to refurbish Launceston Tram No. 14, including building a new bogie, replacing the floor and refurbishing the roof. This tram first took to the streets in June 1912 and to ran on narrow gauge track. It was built as a trailer by J&T Gunn (Launceston), then modified to be self-propelled.

## WORKS COMPLETED TO DATE



### Tram No. 663

This tram is a Melbourne W3 Class built in 1933 and was restored for the Melbourne Tramcar Preservation Association at Haddon. Works were completed in December 2011 and included roof works, interior sand back and varnish and an exterior paint.



### Tram No. 32

This maximum traction tram was built for the Hawthorn Tramways Trust by Duncan and Fraser of Adelaide. It was sold to the SECV Bendigo Tramways in 1945 and became No. 24. The tram was returned by the Bendigo Tramways workshop to its original Hawthorn livery as part of a *Work for the Dole* project. It is now on long term loan to the Hawthorn Tramway Museum (and is on permanent display).

### Tram No. VR41

Built in 1923 by Newport Workshops, this tram spent its entire running life on the St. Kilda to Brighton Beach line until it was decommissioned in 1958. It became a backyard tool shed and was acquired by the Melbourne Tramcar Preservation Association (Haddon) in 1977. Bendigo Tramways worked with MTPA to completely restore the vehicle from 2002 until March 2005, when it was recommissioned and is now an important part of their collection.



## Tram No. 675

This Sydney J Class was built in 1914 by Meadowbank Manufacturing Company in Sydney. The tram was in tatters when it arrived at the workshop, but left as good as new to travel back to Sydney in February 2009. It was launched to much fanfare on 22 February by the Sydney Tramways Museum.

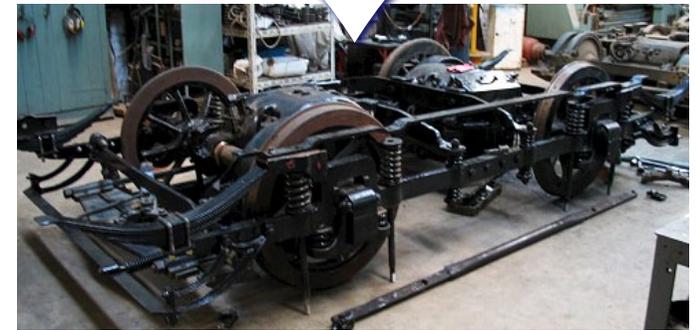
## Tram No. 17

This tram was built by Duncan and Fraser in Adelaide for Bendigo as one of two 'Summer trams' which ran from 1913 until 1953. It was restored for the 2001 Federation Centenary Parade in Melbourne ... it was painted black and had all its seats removed to accommodate a band. It has more recently been restored for Bendigo Tramways Vintage 'Talking' Tram Service in December 2010.

## Tram No. 302

This Birney tram was built by J. G. Brill & Co, Philadelphia, USA in 1925 for the Municipal Tramways Trust in Adelaide, but also operated in Geelong and then Bendigo until 1972. Previously Bendigo Tram No. 29, it was restored to its Adelaide livery in 1981 and has been a regular in the Vintage 'Talking' Tram Service fleet ever since. It was recently restored and refreshed and will also be a feature at the 40<sup>th</sup> Anniversary celebrations on 9 December 2012.

## CASE STUDY: TRAM NO. 84



### History of Tram No. 84

Dating back to 1917, Tram No. 84 was originally built for the Prahran and Malvern Tramways Trust, later becoming Melbourne and Metropolitan Tramways Board B class No. 84. It was then sold to the Electric Supply Company of Victoria in 1931 and became Bendigo No.16. It was converted to a one-man configuration in 1935.

The restoration of Tram No. 84 was initiated to help celebrate the Centenary of the Malvern Depot on 30 May 2010.

Restored back to its original operating configuration as a drop-end open California combination car and painted in its original livery of Indian Red and Rich Cream, Tram No. 84 is an absolute credit to everyone who has worked on it.

Tram No. 84's restoration was completed within eight months and it took pride of place at the Malvern Depot Centenary before making its return journey to Bendigo to join the Vintage 'Talking' Tram fleet.



## Restoration Process

The restoration of No. 84 was a dramatic process. Both the coach and trucks of the tram were completely dismantled to ensure that the rebuild would result in every single part of the tram being properly restored.

The coach was stripped back to frame and then rebuilt to its original specifications with only the addition of steel bracing to strengthen the carriage and ensure its longevity. It was also completely rewired and all the electrical, mechanical and

pneumatic parts were overhauled. The trucks were inspected piece-by-piece, new tyres were fitted and all the bearings were replaced.

The painting and finishing of Tram No. 84 revealed a finished product that went beyond everyone's expectations. The French polished interior, beautifully reproduced brass work and attractive stained glass windows make for a luxurious look, while the exterior paint work draws admiring glances as it travels along the street.

# Notes:

Give Bendigo Tramways a  
call on (03) 5442 2821.