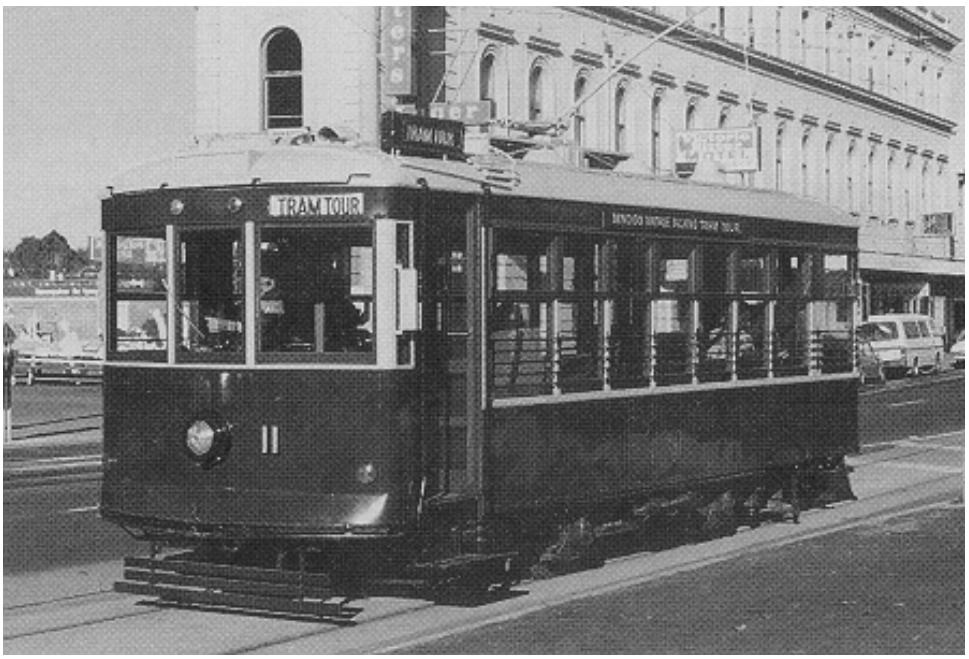
SYDNEY TRAMWAY MUSEUM

BENDIGO TRAMWAYS
BIRNEY TYPE TRAMCAR

Instruction Manual for Car No.11



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2.4	27/05/2016	Change Parking the tram - handbrake

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3. Distribution List

Position	Date	Location of Documents
Rail Safety Manager		Original held on GOOGLE secure Website
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STM Office		STM Office Computer
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SYDNEY TRAMWAY MUSEUM

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SYDNEY TRAMWAY MUSEUM
BENDIGO TRAMWAYS
BIRNEY TYPE SALOON TRAMCAR

INSTRUCTION BOOK FOR
No.11

01 GENERALLY
The Bendigo Tramways car No.11 is a four-wheel saloon vehicle. It has direct power control as well as air and hand brakes. It is also equipped with several auxiliary devices and controls that are sufficiently non-standard to warrant special consideration when compared with most other cars in operation on the Museum system.

Therefore, to avoid damage to the tram, members are directed not to attempt to drive it until they have undergone essential tuition.

While drivers are expected to exercise caution when driving any trams on the Museum's system, it should be noted that particular attention must be taken to avoid damage to No.11. It is on extended loan to the Society under a reciprocal agreement.

02 THE TRAM
It is double ended. Egress doors are fitted to each side towards the front left only, in the direction of travel. The car may be used in normal service on the museum tramway, provided that it is operated by a trained driver

03 CURRENT COLLECTOR
The tram is equipped with one trolley pole fitted with trolley wheel.

04 DRIVER'S EQUIPMENT
The driver requires a reverser key to unlock the power controller. In addition, a detachable controller handle and special air brake controller handle are required.

05 ELECTRICAL SAFETY
Should the tram run onto non-conducting rails or be badly derailed, all metal parts on the tram should be considered "live" until the trolley pole is removed from the overhead wire.

The trolley wire above the tram should be de-energised before any person climbs onto the roof.

06 ROOF ACCESS
The tram is fitted with steps adjacent to the rearmost door pillar.

For access to the roof by Traffic Staff, please see procedure *Climbing Onto Roofs Of Trams Procedur*e STM6018.

07 COUPLINGS
Coupling pockets are provided on each bumper to receive a coupling bar. This is carried on brackets below the right hand side of the tram.

When not in use the coupling must be returned to the brackets and properly secured.

08 LIFEGUARDS

The tram is fitted with standard lifeguards and operating gates. If the lifeguard is dropped it may be reset by depressing a rod that will rise from the floor of the driver's platform to the left of the power controller. It should be noted that the underfloor clearances on this tram are minimal and the lifeguard may be tripped if the tram speed is allowed to become excessive on tracks where dips occur.

09 TRUCK

The tramcar is fitted with a two-axle truck mounted to the underside of the body. Both axles are motored.

Each axle carries a 25 hp motor.

10 AUTO CIRCUIT BREAKERS

An automatic circuit breaker is located on the side wall to the right of the driver at each end. The breaker may be manually opened or closed, or reset, by pushing the control handle projecting below the breaker fully to the left (OPEN) or right (CLOSED) position.

Each breaker only isolates the controller below.

11 POWER CONTROLLER

The tramcar is fitted to run on 600v DC. It is operated through a K-form direct-type controller. The controller handle when rotated from the OFF position will accelerate the tram through normal resistance notches to Full Series. Moved further it will allow the car to accelerate to Full Parallel.

The controller handle is detachable but until the tram is fully restored the doors and auto circuit breaker will not function if the handle is released while the tram is running. It is recommended that the driver always operate with the controller handle depressed in case the equipment is supplied for refitting or another Birney car is delivered.

There are 7 power notches. These are 1-4 (Series) and 5-7(Parallel).

A reverser key is required to unlock the controller. This is inserted on the reverser drum in the normal manner. There are three positions of the reverser barrel: -

NEUTRAL: where the key may be inserted or removed;
CLOCKWISE: (from Neutral): -**FORWARD**
ANTI-CLOCKWISE:(from Neutral): **REVERSE**

When the reverser key is moved to the FORWARD or REVERSE position it will encounter a mechanical stop. The controller handle is then released. With the controller handle in any driving notch the reverser is locked and cannot be moved back towards neutral.

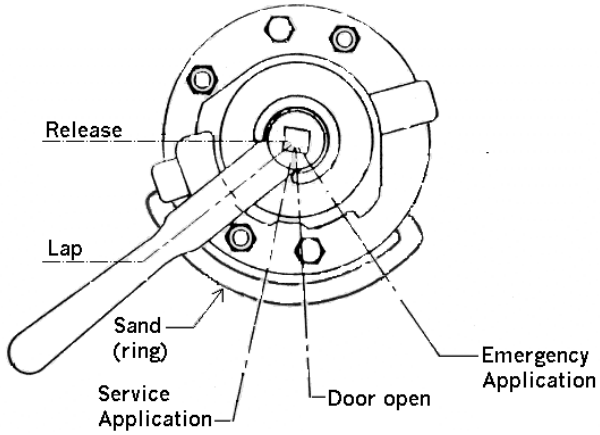
With either motor cut out the controller cannot be operated into the Parallel notches.

12 FOOT GONG

The punch is to the left of the driver behind the power controller and is struck in the same manner as those fitted to Sydney trams.

13 SERVICE BRAKE

High pressure air brakes are provided on the tram, operated by a manual lapping brake valve with sanding and door operation controls added.



BRAKE VALVE DIAGRAM

Until the tram is fully restored the doors are not operated from the air valves. It should be noted that the handle works in the opposite direction to that on Sydney cars and the tram should always be run with the brake handle in full release to ensure that it will only operate towards ON in an emergency situation.

A gauge is provided at each driving end to indicate the pressure in the reservoir.

14 AIR COMPRESSOR

This is located under the car and is controlled from a switch on the No.2 end above the driver's windscreen.

15 EMERGENCY BRAKING

First Emergency consists of an application of the air or hand brake while applying sand to the rails.

Second and Third Emergency braking procedures are also available if required.

It should be noted, however, that the effect of the Third (Electrical) Emergency brake is lost when the tram speed reduces to about 7 km/h (walking pace).

16 PARKING BRAKE

The tram is fitted with a hand brake operated by a lever in the driver's cabin. This must be turned clockwise to apply the brake. There is a free pawl device to lock the hand brake ON. It must be engaged by foot to apply and release the brake.

~~Except w~~When parked ~~on level track~~, the tram must be chocked and the handbrake applied when not under the immediate control of the Driver.

17 SANDING GEAR

The tramcar is fitted with sanding gear that delivers sand under the front wheels. The sand is delivered pneumatically to the left hand side chute by pressure of the hinged brake handle to a sprung metal harp on the air brake controller. A sand punch is located on the driver's platform floor to the right of the air brake pipes. Depressed, this will deliver sand to the right hand rail.

Sand boxes are located under the front seats in the passenger saloon.

18 DOORS

The tram is fitted with a folding door each end of the car. A hinged step is fitted below each door

and will fold up against the car side when the door is closed,.once the mechanical linkage is restored

NOTE: The doors are not interlocked with the power controller or the brakes in any way to prevent the tram operating with a door open. The conductor is to ensure each door is clear of boarding or alighting passengers before giving the "Proceed" signal.

Special conditions may apply to operation of doors when preparing a tram for traffic and when stabling after service.

19 SWITCHES

Generally any of three types of electric switch may be found on the Bendigo car.

TRACTION POWER AUTO SWITCH: located above the driver's right hand side window.

ROTARY SNAP SWITCH: To control compressor and lights.

FOOT BUTTON: (motor car dimmer switch) to control tape mechanism for tram commentary.

20 DRIVER'S SEAT

The driver's seat squab is fixed on the end box that houses the sand hopper and other equipment.

21 WINDSCREEN BLIND

A curtain is provided for night use when it must be drawn across to prevent car interior lights from reflecting off the front window and obscuring the driver's vision.

22 LIGHTS

SALOON LIGHTS, and RED TAIL LIGHT: Controlled together from switch on bulkhead above driver's window - ON, OFF, ON, OFF.

HEADLIGHTS controlled from a switch on bulkhead above driver's window - NO.1 END, NO.2 END, NO.1 END, NO.2 END.

DOORWAY COURTESY LIGHTS: Will glow when doors open and saloon lights are switched on.

TURN INDICATOR: Turn indicators will flash on the end of the tramcar when a switch on Driver's windscreen sill is operated.

DESTINATION BOX LIGHTS: Will glow when car lights are turned on.

23 CONDUCTOR'S SIGNAL

A mechanical bell system is provided that is worked from pull cords suspended from the car ceiling. Pull away from driver to operate.

24 DESTINATION AND ROUTE INDICATORS

A destination box is located above the driver's left front window. It is fitted with an illuminated roller blind adjustable by knob.

An external box is fitted above each entry door, worked by a knob from inside the car.

25 PUBLIC ADDRESS SYSTEM

Although this is still installed in the tram, the system is inoperative. This facility may be made

operable in due course.

26 PREPARING TRAM FOR SERVICE

If the tram has been correctly stabled in accordance with instructions, push one of the entry doors open and latch it in the open position.

Carry out pre-operation checks in accordance with the sign-out sheets

27 STABLING TRAM AT END OF SERVICE

When the tram is correctly positioned the driver will ensure that the air brake is fully released, and the doors are manually closed and steps retracted. There is no roof hook so position the trolley wheel on the edge of the overhead wiring trough. Stow detachable controller handle with the reverser key and air brake handle in the special locker provided for these in the running shed.

28 PASSENGER OPERATION PROCEDURES

Although designed specifically for single operator ("one man") service the tram must be operated with a conductor except when carrying only museum members.

If the driver leaves the doors closed until approaching a stopping place where passengers may require to leave or board the car, then the tram may be restarted from other locations without a special conductor's proceed signal.

NOTES:

CAR DETAILS

Classification:	(ex) Birney Safety Car
Built by:	J.G. Brill Co., Philadelphia, USA
Entered service:	1923 in Geelong
Motors:	2 x 25 hp
Length	8.55m (over bumpers)
Weight:	8 tonnes

Delivered to Loftus 29th April 2003.

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