MELBOURNE AND METROPOLITAN TRAMWAYS BOARD

R.C.1 AND R.C.2 REMOTE CONTROL UNIT BOXES MAINTENANCE - ELECTRICAL MECHANIC'S PROCEDURE.

ROSTERED DAY-IN SERVICE.

1. Before commencing any work on unit boxes, the trolley pole must be removed from the overhead, and placed under the hook, danger discs attached to both trolley ropes, and both Control switches placed in the off position.

2. Check the unit box mounting bolts for looseness, and the insulators for material failure, and see that the locking clips are in good condition.

3. Remove the unit covers and examine the asbestos on the inside of the cover and repair or replace if damaged.

4. Check all wiring cables for signs of burning, loose connections or damaged insulation on all cables feeding the units and interlocks. If the connections show signs of burning where they are attached, remove the set screw and clean the contact faces, and if necessary resolder the wiring lug to the cable; renew the set screw and washers, then tighten firmly.

5. Release the spring clips and remove all arc chutes. Remove all copper deposits from the top and sides of the chutes with the end of a flat file, replace any plates or spacing pieces that are broken, or plates that have a crater burnt in them deeper than $\frac{1}{8}$", check all set screws for tightness. Replace the spring locking washer under any loose set screw and tighten securely; Check flat spring catch for material failure, and if defective, replace.

6. Check all operating coils for burns, deterioration of insulation or string bindings, loose terminals, or looseness on mounting fixtures and if defective repair or replace.

7. Check coil core post for looseness and ensure that the anti-residual plate is tightly riveted; if the plate is loose, replace the rivets and tighten securely.

8. Check the armature for free rotation on its axle by gently exerting an upward pressure under the contact carrier; if any signs of stiffness are apparent, the unit must be replaced. Ensure that when pressure is released the armature drops open smartly. If defective, replace unit.

9. Check the contact carrier for free rotation on its axle. Check the pressure spring for deformity or material failure; if defective, replace.

10. Check the copper shunt for fraying, discoloration, or looseness or signs of burning on the clamping set screws; if the shunt is defective or clamping set screws are loose or burnt, replace the shunt, clean the contact faces and renew the clamping set screws and the spring washers, and tighten securely.

11. Check main contact set screws for looseness or material failure of the spring washers or burnt head on the set screws. At all times when it is necessary to tighten or renew the set screws, the spring locking washer must be renewed.

12. Check the burning tips and arcing horns and if badly burnt or broken, replace.

Note: Spring locking washer must be renewed every time an arcing horn or burning tip is replaced.

13. Check arcing throat for burns and if badly burnt replace the unit.

14. Check the blowout connection to the arcing throat for tightness or signs of burning; if loose, renew the spring washer before tightening; if burnt, replace the unit.

15. Check the main contacts for burns, wear, or not making flat contact on the heel of the contact.

(a) All burns and blisters must be smoothed down using an 8" bastard file.

(b) Contact tips must be changed in pairs when badly ridged or worn to half the original contact thickness, or cannot be adjusted to make flat contact on the heel of the contacts.

Note: The spring locking washer must be removed every time a finger contact is renewed.

16. Check the interlock mounting brackets for loose mounting set screws; if loose, replace the spring locking washers and tighten securely. Check the contact reels spindle for wear or defective cotter pins or lock nut; if the spindle is badly worn, renew.

17. Check the interlock fingers and contact reels for wear, burns, and ensure that the fingers are making flat contact on the contact reels. Contact reels must be cleaned using only 0 grade glass paper.

Fingers and contacts must be changed.

(a) When badly burnt on the contact face.

(b) When worn to ½ the original thickness.

(c) When the finger is distorted.

(d) When the contact reel is badly ridged or the copper sleeve is loose on the insulation.

18. Fitting and adjusting interlock finger:

Use a smooth file to slightly round the four sides of the finger nib, assemble the pressure spring, alignment plate, and spring retainer cups, and insert and open the cotter pin. Position the finger on the mounting bracket and check for lift which should not exceed ⅛". Both fingers must make contact simultaneously and make flat contact on the contact reel. When it is necessary to bend the finger to get the correct adjustment, it must not be bent in position but must be removed from the mounting brackets; then grasp the finger with a narrow jawed pair of pliers between the hole and the angle bend, and use another pair of pliers to set the finger in the required direction. Replace the finger on the mounting bracket and test the lift. If necessary repeat the above operation until the correct adjustment is obtained.

19. Check the unit insulators for signs of burning or material failure and ensure that the frame and unit mounting nuts are tight. If the insulators are defective change the unit complete. If any nuts are loose, renew the spring locking washer and tighten securely.

20. Replace the arc chutes and latch securely. Check that the moving armature does not foul the arc chutes.

21. Replace the unit box covers and clip securely.
Check that on LS1, LS2, JR, G, the moving contact does not foul the arc chute. This is done by inserting a screw-driver in the throat of the extended arc chute and lifting the moving contact up and down.

22. A sequence test on all trams equipped with remote control equipment must be made before being released to traffic. The following method must be carried out:-

Remove the trolley pole from the overhead wire, and place it under the hook. The main switch which is located on the saloon bulkhead in the No. 2 end motorman's cabin must be placed in the open position; open the lid on the wooden switch box, grasp the switch blade by the insulated handle and place it in the open position, then close the lid on the switch box. Check that the reverse key is off the water cap and on the top of the controller and replace the trolley pole on the overhead wire. The Tradesman's Assistant takes up position alongside the controller and the Electrical Mechanic stands in the pit in front of the remote control unit boxes. The Electrical Mechanic then instructs the Tradesman's Assistant to place the Linebreaker switch in the "on" position, place the reverse key in the forward position and then cut each notch as instructed until the full parallel position is reached.

At the same time the Electrical Mechanic observes and listens to ensure that each unit operates in sequence. He then instructs the Tradesman's Assistant to place the controller in the off position, place the reverse key on the top of the controller and place the Linebreaker switch in the off position. The Electrical Mechanic then removes the trolley pole and places it under the hook, replaces the main switch to the on position observing all safety precautions previously outlined, then replaces the trolley pole on the overhead wire.

Note: It is the Electrical Mechanic's responsibility to ensure that the Tradesman's Assistant cleans the equipment thoroughly.

EVERY 4TH ROSTERED DAY-IN SERVICE:

Remote unit boxes must be blown out with compressed air.