

(h) The Motorman must, as far as possible, avoid waste of electrical energy, but this economy must always be subordinate in importance to Safety and Dispatch.

- (i) Coasting on any falling grade is prohibited, unless power from the Contact Wire is at the same time available.

When coasting, the Trolley-wheel must, except as prescribed in Instruction 48, be kept on the Contact Wire; the handle of the Controller must not be removed from the Controller, but must be held at the Off position by the Motorman.

- (ii) With a view to economy in the Consumption of current, the Motorman must, subject to sub-clause (i) take advantage of opportunities for coasting; and to minimise unnecessary wear in the running gear and Brakes, he should, if time permit, when stopping for passengers shut power off as far as possible from, and coast to, the Stopping Place. He must not apply power to Start if the Car may be started by gravitation, and if the Brakes are so tightly adjusted as to prevent this, he must report the circumstances with a view to changing over the Car.

70. When approaching any vehicle that is near or foul of the track, the Motorman must sound his gong repeatedly; he must however avoid all risk and must not run nearer to the vehicle than 50 feet, unless it has moved well clear of the track. If the driver of the vehicle should neglect to move clear of the track his name and address should be taken with that of witnesses and if he persist in obstructing the track the nearest police constable must be informed of the cir-

cumstances and requested to take action; in every such case the particulars must as soon as possible be reported in writing to the Officer-in-Charge at the Depot.

71. Where any person is on, or approaching, the track or any employé at work on, or near, the track or overhead wires, the Motorman must make use of his gong; the gong must be also sounded repeatedly when passing any school or play-ground which children may be entering or leaving, or when any person is seen to be improperly standing on the footboard or step of an approaching Car, or where an animal is on, or near, the track. The Motorman must not, however, depend entirely on the persons or animals keeping clear of the track on his sounding the Gong, but must be prepared to make an emergency stop if circumstances should render that course necessary.

72. (a) Where a public procession of civilians, troops or vehicles is proceeding parallel to the track the Motorman must not attempt to run the Car alongside or pass the procession unless the persons or vehicles forming it are a sufficient distance from the track to ensure safety. Where there is sufficient space for the procession to move away from the track the Motorman must sound his gong to draw attention to his desire to pass, but he must wait until all are clear and safely away from the track before passing any section of the procession.

(b) Unless Special Instructions are issued to the Contrary, where a procession is crossing the track the Motorman must stop and wait until the procession has passed, unless the procession has been stopped and the Motorman has been authorised by a police officer to proceed; the Motorman must not, however, proceed until he receives the signal to start from the Conductor.

73. The Motorman must exercise due care to avoid injuring any animal on or near the track. Where horses are crossing the track the Motorman must stop

until all are clear; where cattle, sheep or pigs are crossing the Motorman may, where the track is straight, proceed cautiously at low speed, but he must not enter on to any curve until the track is quite clear.

74. (a) If the Motorman should observe any object close to the track, such as a trestle, barrel, posts, etc., he must satisfy himself that such object is well clear, even if such a course involve delay; if he be not certain that the object can be passed with safety, he must not attempt to pass the obstruction, but must stop and ring for the Conductor to come forward to remove it.

(b) The Conductor must promptly report every instance in which any person other than a member of the Permanent-Way Staff excavates in, along, across, or under the track.

(c) The Motorman must be on the look-out for articles falling from vehicles, and if he observe any such article on or close to the track on which he is travelling or on an adjacent track, he must, if it be likely to form an obstruction, Stop and arrange for the Conductor to remove it.

(d) If the Motorman or Conductor observe, or have reason to believe, that any portion of the overhead equipment or of its connections has become disarranged and has fallen on, or is hanging near, the Running Line, he must stop and keep his Car clear of the disarranged structure or wires until he has ascertained that the Car can proceed with safety. If there be reason to believe that an adjoining Line is obstructed or unsafe, steps must also be taken to stop any Car from approaching on that Line. Care must be taken to avoid coming in contact with the disarranged wires, and arrangements must be made as quickly as possible to have the current switched off. See also clause (d) Instruction 24.

(e) The Motorman must shut off power when passing under an overhead frog or any place marked by a Cut-off Sign. See also clause (d), Instruction 66.

75. (a) The Motorman must watch diligently for any sign of defective equipment in the Car, such as may be indicated by unusual noises and the smell of heated insulation, and must take such steps as may be required to prevent damage to equipment.

(b) If any indication of fire be observed on the Car in traffic the Trolley-pole must be at once lowered and secured clear of the Contact Wire; the Car must be stopped, all passengers must be removed, and prompt action must be taken to deal with the outbreak. Water must not be directed on any wire or electrical apparatus whilst current is On.

(c) The Motorman must not stop the Car in front of or near to a burning building or other structure. The Motorman must stop when requested to do so by a Fireman; if traffic is suspended the nearest Car must be kept at least 100 yards away from the fire or crowd, and the Officer-in-Charge of the Depot must be immediately notified by the Conductor of the first Car stopped at the fire.

76. If side-barriers are provided on the Car it will be the Conductor's duty to see that they are kept down on the "Off" side when the Car is running; unauthorised persons must not be allowed to alter the position of a side barrier.

77. The Conductor must not allow any truck, bicycle, or other vehicle or any animal to be attached to or drawn behind or at the side of the Car.

78 (a) When due to an accident in connection with the Car, any person is injured, the nearest doctor must be summoned if one be required, and the injured person or persons must be conveyed on the Car if medical attention can be more quickly obtained thereby.

(b) The injured persons must be rendered every assistance or service possible, and if seriously injured or if unconscious or otherwise unable to take care of themselves and have no relative, friend, or Police Constable to take charge of them, they should be removed

on the Car (or such other suitable vehicle as can be engaged) to the nearest hospital, Doctor, or Chemist, but if the circumstances permit they should always be removed to a hospital in preference to a Doctor, or to a Doctor in preference to a Chemist.

(c) The full names and addresses of all injured persons should, if possible, be obtained and furnished with the report, but if in a serious condition an injured person must not be pressed for such particulars.

(d) In case of injury or sudden illness necessitating the removal of a passenger from a Car, the Conductor must ascertain the names and addresses of the relatives of the person so removed, and promptly communicate the particulars to the Officer-in-Charge, and the latter must, by the most expeditious means, inform the relative or relatives accordingly.

(e) In any case of sudden illness or where any person may sustain an injury by his or her own act (such as by alighting from or attempting to join a Car in motion, or from any similar cause not in any way arising from the fault of the Department), and the services of a medical man may be required, the Conductor in charge must be particular in such case to previously inform the medical man called in that his services are called for and on behalf of the injured passenger, and that he must look to the passenger, and not to the Railway Department for his fee.

(f) Full reports of the circumstances must be furnished on the proper Form by the Motorman and the Conductor.

(g) Ambulance boxes and stretchers are provided at the Depot for use when and where required, and must be kept complete, in good order, and always ready for use; the Ambulance boxes and stretchers at the St. Kilda, Brighton Beach or Sandringham Railway Stations may also be obtained if necessary.

(h) When any conveyance is engaged for an injured person, its number, description and, if possible, the name of the driver and owner must be obtained and

furnished with the report; the driver must be referred to the Officer-in-Charge of the Depot for payment, and the conveyance must be dismissed as soon as its services can be dispensed with.

79. (a) Whenever an accident occurs to any passenger or property, or the Car collides with any person, animal or vehicle—other than another Railway Car, for which see clause (d)—the Car must be stopped at once and, however unimportant the case may then appear, all the facts connected therewith and the full names and addresses of as many witnesses as possible (both on and off the Car) one a policeman if possible, must be obtained. Should a Car collide with a vehicle, the direction in which the latter was travelling must be reported, and if the collision occur after sunset employes must note, particularly, whether the vehicle concerned carried a light and, if not, must direct the attention of another person to the fact and feel the lamp to ascertain whether it has been recently extinguished. The report must also give the names and addresses of both the driver and the owner, and the registered number and any name shown on the vehicle concerned in the collision; if a horse be injured, the colour and (if possible) the brands must be stated in the report. In any instance in which an animal is killed, the Motorman must stop, and inform the first Permanent-way employé whom he meets.

(b) Witnesses, as to which particular persons, if any, are injured and to what extent, will be needed, and a few of those who are best able to give such evidence should be politely requested to give their names and addresses, in order that their statements may afterwards be obtained by the authorised officials of the department.

Sometimes people in the vicinity say that they did not see the occurrence, merely to avoid giving their names; their names should nevertheless be obtained. Even if they did not see, they may be able to give the officials the names of another or others who did see

the accident, and whose name may not have been obtained. The names and addresses of drivers and owners of vehicles and registered numbers, if any, of the vehicles should be noted.

(c) If a horse fall or any vehicle should break down on the track, or an accident of any kind on another Car be seen, the circumstances must be reported by the Motorman or Conductor observing it, and witnesses on their Car must be obtained, if possible.

(d) In the case of one Railway Car colliding with another, or a sudden stoppage—due to a sudden application of the Brakes or other circumstance in which cases no passenger is at fault, the Conductor must be cautious in making inquiries not to attract particular attention of passengers to the occurrence. If, however, the sudden stoppage or similar occurrence be due to the driver of any vehicle fouling the track or to any person falling from the Car or being in danger of injury, the names and addresses of such persons and witnesses must be obtained.

After an accident, employés should keep their own counsel and communicate with departmental officers only; representatives of newspapers, solicitors' clerks, and members of the Police Department should be referred to the Officer-in-Charge at the Depot or to the Head Office.

(e) In the case of an accident, Carmen and other employés must always be on their guard against making any remark admitting they are in fault, or blaming each other, or to the effect that the accident is due to any defect in the Car, track or Brakes, or to a wrong Signal.

(f) No employé must visit any person injured by a departmental accident at such person's home or other place, after removal, unless specially authorised.

(g) If any witnesses object to giving their names they should be courteously informed that their statements may be required if the employés in charge of

the Car are blamed for the occurrence, and that in the majority of such cases written statements of the facts only, are required.

(h) Each witness must be given a Witness Card and requested to fill in the desired particulars, and on collecting these cards the employé concerned must see that the questions are legibly replied to. Each such card must be counter-signed and attached to the accident report form; and if witnesses are not obtainable the fact must be stated in the report.

The district, street, and number and name or location of house should be ascertained in obtaining any address; and the name and number of any Police Constable present should also be ascertained.

80. (a) Every accident or derailment (however unimportant it may appear) must be reported by the Carmen to the first Inspector or other Officer met with, and in serious cases the Conductor (or Motorman) must as soon as possible communicate the circumstances by telephone to the Officer-in-Charge of the Depot, and the latter must promptly communicate the particulars to the Head Office in accordance with the Instructions under the heading of Reporting Accidents, in the General Appendix to the Book of Rules and Regulations.

Accidents to employé, however trivial, must be immediately reported to the Officer-in-Charge by employés witnessing them, and the names of other witnesses should be furnished with the report.

(b) When reporting an accident the employé must state whether he witnessed the occurrence or is reporting on information received; in the latter case he must give the name of the informant, the time, place (i.e., locality of spot measured from the nearest stop mark), trip, and Car number, and, in any instance in which medical attention has been necessary, the name of the Doctor in attendance, or of the Hospital (if any) to which the injured were taken.

(c) Every irregularity must be reported by the Motorman and Conductor concerned. Even a seemingly most trivial irregularity may develop into a serious matter; therefore every such occurrence should be reported and every effort should be made to obtain and furnish correct particulars.

81. (a) In the event of any Car being from any cause delayed more than three (3) minutes, the circumstances must be reported in writing, and the cause of the delay must be fully stated in the report. In any instance in which a Car is delayed at a Crossing Loop or Terminal awaiting the Car Staff, the Conductor must open the telephone-box and remain in attendance thereat; if, however, the delay is of an unusual duration, he must communicate the circumstances to the Officer-in-Charge.

(i) Fire Brigades, Fires, etc.—The Motorman must give the right-of-way to Fire Engines or other Fire-fighting conveyances or apparatus. See clause (c) Instruction 75.

(ii) Funerals.—Where a funeral which has to cross the track is closely approaching, the Motorman must stop to permit the Hearse and Mourning Coaches to pass.

(iii) The Governors' Cars.—The Motorman must stop, when necessary, to give precedence to the Cars of the Governor-General, the State Governor, and their escorts.

(b) The Motorman must stop the Car promptly when directed to do so by a Police Constable; he must not start again until authorised by the Constable, nor until he receives the Proceed Signal from the Conductor.

(c) In any instance of an unusual Stop, passengers wishing to alight may be allowed to do so, but in order to prevent misunderstanding, the Conductor must inform them that the Car is not at the next intended Stopping Place.

82. The Motorman must furnish a Statement of Running, daily, on which he must fully enter the required particulars in every detail, and furnish information thereon as to any delay, the state of the weather, and any special circumstances affecting the traffic. He must show the time and place each Car worked by him was taken into or out of running or changed over, so that the mileage run by each Car daily may be correctly recorded.

83. (a) The Motorman must not receive any fare which it is possible for the Conductor to collect, but may collect fares (during a stoppage only) in a case of emergency, and in such event he must promptly hand to the Conductor all fares which he has collected, and obtain in exchange, and destroy, equivalent cash fare tickets.

(b) Except in a case of urgency the Motorman or the Conductor whilst on duty, must not call out to any other employé or to any person; in the event of the Motorman or Conductor of passing cars requiring to give any important official information to one another, they must stop their Cars, walk up to each other and deliver the information quietly, but with reasonable despatch.

(c) The Conductor must devote proper attention to the care and convenience of passengers, and the collection of the due fares. He must direct intending passengers to those portions of the Car in which seats are available, and, if necessary, must politely request sitting passengers to "Make room, please," in order that the seating accommodation may be properly and fully utilised. Passengers must not be allowed to loiter in the gangways, and the Conductor must see that delay due to this cause shall not occur.

(d) The Conductor must keep drawn up, the blind that screens the Motorman's rear cabin from view of passengers while the Car is in traffic; and when any passenger is travelling in the rear portion of the Car,

that Conductor must occasionally glance through the cabin window to satisfy himself that the controlling mechanism is free from interference.

(e) The Conductor must see that the doors, windows, sunshades, ventilators, and seats of the Car are arranged as may be necessary for the comfort of the passengers, and when closing any door, must do so carefully, so as not to injure any passenger or clothing.

(f) The Conductors must carry out their duties in such a manner as to avoid undue delay or loss of time.

84. (a) The Assistant Conductor is under the control of the Conductor-in-charge, and the latter will be held responsible for the proper performance of the duties of the Assistant. The Assistant Conductor must inform the Conductor-in-charge of any dispute (however unimportant) with a passenger as to fares, or of any accident or other unusual incident and the Conductor-in-charge must personally investigate such occurrence.

(b) When Cars are to run coupled, the Conductor-in-charge must work on the trailer Car, and whilst not engaged in collecting fares, must stand within reach of the trailer Car hand Brake. The Conductor-in-charge must give the starting signal from the rear of the trailer, and the Assistant Conductor must repeat such signal to the Motorman from the front Car. At every stopping place, the Assistant Conductor must notify the Conductor-in-charge when all is clear in the Car in which he is working by calling out distinctly the words, "Right here."

(c) The Motorman must exercise due care not to start until he receives the Bell Signal from the Assistant Conductor.

(d) Conductors and Assistant Conductors are responsible for the cleanliness and care of the Cars in their charge, and as far as possible must keep such Cars free from dust and dirt; dusters and waste, when not in use, must be kept out of sight.

85. No person must be allowed to ride or stand on the footboard, step, roof or dash rail of any Car, and if any person declines to move from such a position he must be removed without unnecessary force; if necessary, the assistance of the nearest Constable must be obtained.

86. (a) A young child, unaccompanied by an adult, must not be allowed to ride on any outside seat, nor must any child be allowed to stand on any Car seat, or play about any Car at a terminus.

(b) The Conductor must not take possession of, or in any way assume responsibility for, any child or any package or article which a passenger may bring on to the Car.

(c) The Conductor must not allow any passenger to take on the Car any goods which are of a dangerous nature, such as Benzine, Petrol, Acid, etc., or a plate of glass, saws, an open pot of paint, etc., which are liable to injure the fittings of the Car or the clothing of any passenger. He must not permit any passenger or employé to bring into the Car any large parcel or other article that would encroach on the space required for, or which may be objectionable to, passengers.

(d) In passing through the Car the Conductor must be careful not to damage any article belonging to a passenger, and must politely request the owner to remove any article that obstructs any passage.

87. (a) The Conductor must not allow smoking on the Car except in the portion especially set apart for that purpose, and, when necessary, he must request passengers to refrain from placing their feet on the seats or expectorating in the Car.

(b) He must not allow any intoxicated person to board or to remain on the Car.

(c) The Conductor must not allow, on the Car, the playing of any musical instrument, the solicitation of

alms, the collection for charities, the selling or sorting of newspapers or the distribution or posting of advertising notices or cards, and if any such offence be committed while he is off the Car, the Conductor must warn the offender, and report particulars to the Officer-in-charge.

(d) The Conductor must not allow any dog (except a small dog carried on the lap of the passenger) to travel on the Car.

88. (a) The Conductor must not permit any person to behave in a disorderly manner on the Car, and must furnish a full report of every occurrence of disorderly conduct. In the event of any passenger being disorderly, annoying another passenger, the Conductor or other authorised employé must take action as follows:—

(i) The offender must be requested to cease the annoyance, and warned that he is liable to incur a penalty and to be removed from the Car.

(ii) If the offender still persists in the annoyance, he must be requested to leave, and if he refuse to do so, he must be removed, without unnecessary force, but before taking such action the Conductor must confer with the Motorman. If the aid of the Police can be readily obtained, a Constable must be called in to render assistance or to take any charge that it may be necessary to prefer.

(iii) The Conductor must obtain the name and address of each offender and of the person or persons complaining (if any), and also of two or more witnesses.

(b) The Conductor must, as far as practicable, prevent any passenger from damaging the Car. In the event of any window, or lamp of the Car being accidentally broken, the Conductor must collect, from the

person responsible for the breakage, the amount specified in the list of charges for such breakages; if payment for such damage be refused, or if the damage be extensive, the Conductor must obtain the name and address of each passenger concerned and of two or more witnesses, and report the occurrence to the Officer-in-Charge at the Depot.

A list specifying the amount to be collected for damage of this character must be exhibited in each Car.

(c) It must be understood that payment is only to be accepted when it is quite clear that the damage has been accidental. In any case in which it appears to have been of a wilful or malicious character, the name and address in full of the person concerned, and, if possible, witnesses, must be obtained; special precaution must be taken to verify by means of the person's card, or an addressed envelope which has passed through the post, the correctness of the name and address furnished.

(d) Compensation for damage to departmental property other than that above specified will be assessed by the Head of the Branch concerned.

89. (a) The Conductor must refix any advertisement that may become displaced in the Car, or, if he be unable to do so, must hand the advertisement to the Officer-in-Charge and inform him of the number of the Car from which it is removed.

(b) An unauthorised employé must not be allowed to fix, or interfere with, any advertisement in the Car.

(c) No Car must be decorated with bushes, sketches, or flags, or in any other way without special authority.

90. Car Stopped by Accident, etc.—(a) Should an accident cause a Car to foul, or to be dangerously close to any adjacent Line, immediate steps must be taken by the Motorman to have such Line protected by sending a competent employé forward at least 150 yards to stop the first Car approaching on such Line.

(b) When an accident occurs the senior employé present at the scene must send a "Flash" report of the occurrence to the Depot by the most expeditious means available; the Flash message should state concisely the character and locality, and whether any injuries or damage have been caused.

Reports relating to derailments must state the number of the Car, the time, place, speed, cause of derailment (if possible), whether No. 1 or No. 2 end of the Car was first derailed, whether leading or trailing, whether on a curve or at Points, and the extent of damage, if any, caused to rolling-stock.

The employé receiving a Flash message must at once communicate the particulars to the Officer-in-Charge, and as soon as possible the particulars available must be sent to the Metropolitan Superintendent, District Engineer, Overhead Superintendent, Block and Signal Inspector, and (as laid down in the General Appendix Instructions for Reporting Accidents) to the Head Office. The Officer-in-Charge must proceed to the scene of accident by the most expeditious means and supervise arrangements.

(c) In any instance in which a Car is disabled or unsafe to run, the passengers (if any) must be removed and transferred to another Car as circumstances permit. Any Car which has been derailed must be changed over for examination as soon as convenient.

(d) Two Lifting Jacks, with the necessary blocks, are provided on each Bogie Car, and one on each Single-truck Car, for use as may be required in case of accident or emergency.

The jacks, which are portion of Car equipment, are numbered to correspond to the distinguishing number of the Car to which they are allotted, and, immediately

after use, must be replaced on their proper Car. Each Motorman must inspect, daily, the jacks on his Car, and report any shortage or defect.

No time must be lost in re-railing a derailed Car, but jacks must not be used if the Car can be drawn or worked, without damage, on to the track.

(e) **Emergency Tool Boxes—**

(i) A set of tools, comprising 2 lifting jacks (complete), 1 hand-saw, 1 tomahawk, 1 dozen wedges, 2 tommy-bars, trolley-tongs, piece of rope, and 2 re-railing plates, is kept in each of the Emergency Tool Boxes (marked "Emergency Tool Box") located at several points on the side of the public roadway; these tools are available for emergency use in case of accident, and the boxes containing them can be opened with the special key with which each Motorman is supplied and must have with him when on duty.

(ii) In any instance in which the emergency tools are used the Motorman must furnish a report stating the purpose for which they are required. The Motorman using the tools is responsible for their prompt return to the Emergency Tool Box when no longer required; if any of the tools are in an unsatisfactory condition, the Motorman must furnish a report stating the particulars.

(iii) A list specifying the positions of Emergency Tool Boxes must be exhibited in each Car, and Carmen must keep themselves conversant with them.

(f) Every employé who is available, whether on or off duty, must render prompt assistance in the event of an accident. In any case in which a Car is derailed or disabled, the Officer-in-Charge must make the necessary arrangements regarding relief of employés.

(g) In the event of a Car becoming disabled on a Double Line and requiring the assistance of another Car from the rear, the Motorman must instruct his Conductor to stop such Car and verbally instruct the Motorman thereof to proceed to the disabled Car and push it to the nearest Depot or other place where it can be shunted out of the way; the speed must not exceed 10 miles per hour while the Car is being pushed. The Motorman of the disabled Car must ride in front of his Car and exhibit the necessary Hand Signals to the Motorman of the assisting Car.

(h) If Relief can be more readily obtained from the advance, the Motorman of the disabled Car must fill in a "Wrong Line Order," Form (as per specimen at end of this instruction), and hand it to his Conductor, with instructions to proceed to the first cross-over road in advance and hand the "Wrong Line Order" to the Motorman of the Car which is to be used for Relief purposes, and to accompany such Motorman to the point at which the disabled Car is standing. The Motorman of the Relief Car must travel at reduced speed, keeping a good look-out for the disabled Car, and carry a Red Head Light at night.

The "Wrong Line Order," when properly filled in, is sufficient authority for a Motorman to run his Car in the Wrong direction from the nearest cross-over ahead of the disabled Car for Relief purposes.

The Motorman of the disabled Car must see that, at night, a Red light is exhibited on the front and rear of his Car.

(i) The Motorman of the disabled Car must not allow his Car to be moved until the Relief Car arrives, unless satisfactory arrangements have been made to prevent the Relief Car from coming to his assistance, and when a written order has been issued, until the man to whom the order was given has returned and handed the order back to the Motorman.

Specimen Wrong Line Order Form referred to in clause (h) of Instruction 90.

ELECTRIC STREET RAILWAYS.

MOTORMAN'S WRONG LINE ORDER.

To the Motorman of Car at.....

My Car is disabled at.....and
I require your Car to come to my assistance on the Wrong Line. I will not allow my Car to be moved until the arrival of your Relief Car.

(Signed).....Motorman of Disabled Car.

Car Number.....

(Date).....19 . (Time issued).....

Countersigned.....Motorman of Relief Car.

Date.....Time Order Received.....

WORKING TRAFFIC OF A DOUBLE LINE OVER A SINGLE LINE OF RAILS DURING REPAIRS OR OBSTRUCTION.

91. (a) When it is necessary during repairs or owing to an obstruction of any kind, to work the traffic in both directions over a Single Line, the Officer-in-Charge will institute and supervise the Single Line Working in accordance with the directions shown in the Book of Rules and Regulations. The Forms referred to in such Regulations, altered, in ink, as required, may be used for the Electric Street Railways; a sufficient supply of such Forms and a Pilotman's Badge must be kept on hand at the Depot by the Officer-in-Charge.

WORKING OF SINGLE LINES OF RAILWAY BY CAR STAFF AND TICKET SYSTEM.

92. (a) The object of the Car Staff and Ticket System is to prevent Cars travelling in opposite directions on any Section of any Single Line at the same time,

(b) The whole of the Single Line may form one Staff section or may be divided into a series of such Sections; in the case of there being two or more Staff Sections, they are numbered consecutively, No. 1 being at the Up end (the Melbourne end) of the Single Line.

(c) A Car Staff, which consists of a metal symbol, is provided for each Staff Section, and except as shown in clause (b), Instruction 93 or Instructions 97, 101, 103, and 104 no Car is allowed to enter on any Staff Section unless the Motorman is in possession of the Staff for such Section; each Staff is stamped with a distinguishing number corresponding to the number of the particular Section for which it is provided.

(d) Unless otherwise ordered Staff Tickets are provided for the Section, in order that, where necessary, two or more Cars may run in the same direction on, or through, the Section before a Car travels in the opposite direction; in such case the Motorman of each of the Cars, except the last, shall carry a Staff Ticket and the Motorman of the last of the series of Cars shall carry the Staff and on its arrival at the other end of the Section, the Staff or Staff Tickets will be available for one or more Cars to enter the Section from that end.

93. (a) **Crossing Places.**—Crossing Places which are situate between Staff Sections, consist of a short length of double track on which Cars travelling in opposite directions may pass each other.

(b) When entering a Crossing Place, the Motorman must, unless otherwise ordered, travel on the left-hand road in the direction the Car is travelling.

(i.) When Cars that have to pass each other, are approaching a Crossing Place at, or about, the same time, the Car that is proceeding in the Up direction must have precedence, and the Motorman of the Down Car must not pass over the Facing Points at the

entrance to the Crossing Place until he has seen that the Up Car has been brought to a stand clear of the fouling point at each end on the proper road.

During a fog or when from any similar cause the Motorman cannot clearly see a distance of 100 yards ahead, the Motorman of an Up or a Down Car must before entering a Crossing Place send his Conductor forward to see that the fouling points are clear and to prevent any Car from entering at the opposite end, until his own Car has been drawn in and is standing clear of the fouling point at each end on the proper road. If the Conductor of each Car meet at the Crossing Place precedence must be given to the Car proceeding in the Up direction, and the Conductor of the Down Car must take measures to prevent his Motorman from entering until the Up Car is standing clear on the proper road.

- (ii) A Motorman must always be prepared to find a preceding Car standing outside a Crossing Place, and have his Car under such control as to enable him to stop clear of the obstruction.
- (iii) Except as prescribed in section (iv) hereof no Car must be allowed to foul the Single Line by passing outside the fouling point from any Crossing Place or Terminal unless the Motorman be in possession of the Staff.
- (iv) Should it become necessary for a Motorman to foul the Single Line for Shunting purposes, in the absence of the Staff, he must first arrange for, and see that the Conductor or some other competent employé is stationed a sufficient distance out, to stop any Car which may approach on the Line about to be obstructed.

94. (a) At the entrance to each Section, a Staff-box in which the Staff and Staff Tickets are secured, is fixed on a post designated the Staff Post. The Staff-box contains two drawers in which the Staff Tickets are placed. The Staff-box is fitted with a Special Lock of which each Motorman is provided with a key; the Staff forms the key for opening the drawer containing the Staff Tickets, so that a Ticket shall not be available unless the proper Staff for the Section is in the Staff-box.

(b) Unless specially authorised the Ticket-drawer must not be opened by any Key, instrument, or means, other than by the Staff for the Section to which the Tickets apply, and a Motorman must not use any Ticket as authority to enter any Section except one withdrawn by himself in the regular way by means of the proper Staff; the Ticket-drawer must be locked after each ticket is taken out.

(c) Staff Tickets must be detached and used in the order of their progressive numbers and only one Ticket must be taken from the Ticket-drawer at one and the same time. The Motorman must at once fill in and initial the Staff Ticket when he obtains it from the Staff-box; if a Ticket be taken out and not used it must be cancelled, marked with the words "Not used," and attached to a report explaining the circumstances to the Officer-in-Charge who must forward it with other Cancelled Tickets to the Block and Signal Inspector.

95. (a) Unless otherwise specially arranged the Motorman is responsible for Staff and Ticket Working, and in every instance of irregularity he must immediately communicate with the Officer-in-Charge on the Telephone and await instructions; if, however, he is unable to notify the Officer-in-Charge he must act as laid down in these Instructions.

(b) Except where Special Instructions are issued to the contrary, the Motorman is the sole person authorised to deal with the Staff and Staff Tickets, or open any Staff-box or Ticket-drawer.

(c) The Motorman must in every instance consult his Run Book and ascertain whether he should travel on the Staff or on a Staff Ticket.

96. (a) When a Car is ready to proceed into a Section and no other Car is intended to follow before the Staff will be required for a Car in the opposite direction on that Section, the Motorman must obtain the Staff for the Section and keep it under his observation on the Car bulkhead, until he arrives at the Crossing Place next in advance and except as shown in sub-sections (i) and (ii) hereof he must lock the Staff in the Staff-box at that end of the Section.

- (i) If when the Motorman arrives at the other end of the Section the Staff is immediately required by the Motorman of a Car about to proceed in the opposite direction, the Motorman arriving with the Staff may hand it to the Motorman of the other Car, but this will not relieve the latter of responsibility for compliance with clause (c) of Instruction 95.
- (ii) Before disposing of the Staff as laid down above, the Motorman must see that the full number of vehicles (if one or more trailers should be attached) comprising his load has arrived complete.
- (iii) The Motorman of the last Car to pass over any Section at night, must not leave the Staff for such Section in the Staff-box, but must deposit it in the authorised receptacle at the Depot for safe custody overnight; the Motorman of the first Car in the morning must distribute the various Staffs properly, with due regard to the proper running of Cars.

97. (a) If a Car is to be followed over the Section by another Car before the Staff can be returned, the Motorman must carry a Staff Ticket (see Specimen Form at end of this Instruction) indicating that the

Staff is following, but before entering the Section he must see that the Staff applicable to such Section is in the Staff-box; he must then replace and lock the Ticket Book in its proper drawer, and securely lock the Staff in the Staff-box. On arrival at the Crossing Place next in advance the Motorman must at once cancel the Ticket by writing the word "Cancelled" across the face, and attach the Cancelled Ticket to his Run Sheet.

(i.) A Staff Ticket must not be used for any Section or direction other than that printed thereon, nor for more than one journey.

(ii.) Motorman must observe whether the supply of Tickets for any Section is likely to become exhausted, and, if so, must immediately communicate the circumstances to the Officer-in-Charge.

(b) The Officer-in-Charge must see that all such Staff Tickets are checked with the schedules, and forward them to the Block and Signal Inspector daily.

(Specimen Form of Staff Ticket referred to in Clause (a) of Instruction 97.)

Down. Progressive No.....

ELECTRIC STREET RAILWAYS.

STAFF TICKET.

Sandringham to No. 1 Staff Post.

No. 1 SectionDown.

Date Time Run No.

Motorman's Initials

This Ticket must not be used for any Section or direction other than that printed hereon, and must be cancelled by the Motorman and attached to his Run Sheet immediately after use.

98. (a) The Motorman must not overcarry the Staff beyond the Staff Post at which, ordinarily, it should be left, and any breach of this Instruction will be considered as serious neglect.

(b) In the event of a Motorman overcarrying a Staff beyond the Staff Post at which, ordinarily, it should have been left, he must communicate with the Officer-in-Charge for instructions immediately on arrival at the Staff Post in advance; if, however, he is unable to gain the attention of the Officer-in-Charge, he may hand the overcarried Staff to the Motorman of a Car proceeding in the opposite direction (who, however, must be in possession of the proper Staff or Ticket for the Section he is about to enter) and draw special attention to the overcarried Staff before handing it over, and both Motormen must report the circumstances.

The Motorman in whose charge the overcarried Staff has been placed must not enter the Section to which the overcarried Staff applies, until instructed to do so by the Officer-in-Charge.

99. If, after having passed into a Section, the Motorman should find that he omitted to obtain the Staff for the Section, or that he is in possession of another Staff, he must exercise due care for the protection of his Car in the advance direction, and instruct his Conductor to do likewise in the rear; the Motorman may, however, drive the Car towards the Crossing Place in advance or in the rear according to his schedule or as may be advisable, but he must travel cautiously, making frequent use of his Gong, and send his Conductor to precede the Car when approaching or passing around any curve at which his view of the Line ahead is obscured.

In the event of the Motorman having a wrong Staff, he must, as soon as possible, arrange for it to be despatched to its proper Staff Post. See Instruction 98.

100. If on arrival at a Crossing Place the Motorman should find that the Staff for the Section in advance is not at the Staff Post when, according to the Schedules, the Staff should be available for his Car, or should he find a Staff for another Section at such Staff Post, he must at once communicate with the Officer-in-Charge. See Instruction 104.

101. (a) **Car Staff Lost or Damaged.**—If the Staff for the Section should be lost, arrangements must be made to work the traffic over the Section by Pilotman. The Officer-in-Charge will institute and supervise the Working by Pilotman in accordance with the directions contained in Rule 14 of Appendix II., Book of Rules and Regulations; the Forms referred to in such Rule, altered, in ink, as required, may be used for the Electric Street Railways. A sufficient supply of such Forms must be kept on hand at the Depot by the Officer-in-Charge.

102. **Disabled Car.**—(a) In the event of a Car that is carrying the Staff breaking down between the Staff Posts, the Motorman must (if the disabled Car can be moved by another Car) hand the Staff to his Conductor and instruct him to take it in the direction whence Relief can most expeditiously be obtained. The Conductor must fully explain the circumstances to the Motorman of the Relief Car, hand him the Staff, and ride with him to the point at which the disabled Car is standing.

(b) If the Motorman of the disabled Car be in possession of a Staff Ticket, he must, unless Relief can be more readily obtained in advance, arrange Relief by sending his Conductor back to stop the next following Car; the Conductor must fully explain the circumstances to the Motorman of such Car, and ride with him to the point at which the disabled Car is standing.

If, however, Relief can be more readily obtained from the Staff Post in advance, the Motorman of the disabled Car must fill in an "Emergency Relief Order" (see Specimen of Form at end of clause (c)

hereof) and hand it to his Conductor with instructions to proceed to the Crossing Place in advance and deliver it to the Motorman of the Car which is to be used for Relief purposes; the Conductor of the disabled Car must ride with the Motorman of the Relief Car to the point at which the disabled Car is standing.

The "Emergency Relief Order" is sufficient authority (when filled in) for the Motorman of the Relief Car to enter the Section for Relief purposes—

- (i) In the cases referred to in clauses (a) and (b) of this Instruction the Motorman of the Relief Car, when proceeding on the obstructed Section, must proceed cautiously, and, if starting from a Crossing Place, he must first communicate the circumstances to the Officer-in-Charge and receive instructions as to the disposal of the disabled Car.
- (ii) At night or during foggy weather the Motorman of the disabled Car must see that a Red Light is showing on the front and rear of his Car.
- (iii) The Emergency Relief Order must be retained by the Motorman of the Relief Car until the obstruction has been removed and the Section is clear, after which he must write the word "Cancelled" and his signature across the face of the Order, and attach it to his Run Sheet with a report to the Officer-in-Charge, who, after investigating the circumstances, must forward the Order and reports to the Block and Signal Inspector.
- (iv) The Motorman of the disabled Car must not allow his Car to be moved until the Relief Car arrives, unless satisfactory arrangements have been made to prevent the Relief Car from coming to his assistance, and when a written order has been issued, until

the man to whom the order was given has returned and handed the order back to the Motorman.

(c) The disabled Car must be dealt with as expeditiously as possible, consistent with these Instructions, but unless the Motorman be in possession of the Staff, or otherwise arranged by the Officer-in-Charge, the disabled Car must be taken to the Crossing Place in advance.

(Form referred to in clause (b) of Instruction 102.)

ELECTRIC STREET RAILWAYS.

EMERGENCY RELIEF ORDER.

Date Time

To Motorman of Car at Staff Post.

You are hereby authorised, as per clause (b), Instruction 102, to enter Section No.

for the purpose of Relieving Car No.

which is travelling on Staff Ticket from

Staff Post to Staff Post, and which

is disabled and stationary near

street. I will not allow my Car to be moved until

the arrival of your Relief Car.

Signed

Motorman of Disabled Car No.

Countersigned

Motorman of Relief Car No.

103. Section Obstructed.—(a) If, due to an accident, repairs, or obstruction, traffic is likely to be stopped for a considerable time, special arrangements must be made for working Cars to and from the Staff Post on each side of the point of obstruction; the Staff must be obtained to work Cars between the point of obstruction and the Staff Post on one side, and, on the other side, the traffic must be conducted by Pilotman. The Officer-in-Charge will institute and supervise the

working of traffic on each side of the obstruction in accordance with the directions contained in Rule 18 of Appendix II., Book of Rules and Regulations; the Forms referred to in such Rule, altered, in ink, as required, may be used for Single Lines on the Electric Street Railways. A sufficient supply of these Forms must be kept on hand at the Depot by the Officer-in-Charge.

(b) During any period of darkness or fog, the person in charge of the obstruction must see that a Red Light is exhibited on each side of the obstruction.

104. "Suspension of Staff Order."—(a) In any instance in which the Staff for a Section is at the opposite end to that from which a Car is required to be despatched, and there are no means of transferring the Staff in time to avoid serious delay, the Officer-in-Charge may suspend Staff and Ticket Working for one Car, in accordance with the following instructions:—

(i) The Motorman of the Car that requires to be so despatched must inform the Officer-in-Charge of the circumstances, and give his name, the number of the Car, and the trip (Up or Down) as contained in the Run Book, and the Officer in Charge will personally instruct the Motorman as to what course to pursue, according to the circumstances.

(ii) In the event of the Officer-in-Charge deciding to suspend the Staff and Ticket Working by the issue of a "Suspension of Staff Order," he must first communicate personally with the Motorman or other responsible employé at the end of the Section opposite to that from which the Car is to be permitted to proceed, and definitely ascertain that the Car Staff for the Section is locked in the Staff Box at that end. He must then prepare the "Suspension of Staff Order" (See Specimen Form at end

of this Instruction), have it countersigned by another official at the Depot, and issue it either by personally handing the Order to the Motorman, or by telephoning it to him. In the event of the order being telephoned the Motorman must fill in a copy of the Order and repeat the message back to the Officer-in-Charge, after which both the Motorman and the Conductor must sign the Order in the space at the bottom of the Form. The other official at the Depot and the Conductor must each listen to the messages, and if necessary have them corrected before countersigning. The Motorman may then run the Car through the Section at a reduced speed, and at every curve or other place where the view is obscured, he must arrange for the Conductor to go forward before signalling the Car ahead.

(b) In any instance in which a "Suspension of Staff Order" is issued, the Staff for the Section must not be released until the Car travelling on the authority of the Order has reached the Staff Post, at which the Staff is secured, and on arrival at such Staff Post the Motorman must cancel the "Suspension of Staff Order" by writing the word "cancelled," together with the date and time, over the face, signing his name, and obtaining the signature of the Conductor under the word "Cancelled." The Motorman of the first Car waiting to proceed in the opposite direction must see the cancelled "Suspension of Staff Order" before releasing the Staff, subject to the exception that if the Car travelling on the "Suspension of Staff Order" become disabled on the Section and require assistance from the front, the Motorman of the disabled Car may issue an "Emergency Relief Order" and send it forward by the Conductor to the Motorman of the Car at the Staff Post in advance; the latter may then release the Staff and give the necessary assistance. The

Conductor of the disabled Car must ride with the Motorman of the Relief Car and point out where the disabled Car is located.

(c) Unless the "Suspension of Staff Order" is issued, the ordinary Instructions must be adhered to; failure to obtain communication with the Officer-in-Charge or to obtain a satisfactory reply will not justify any departure from the ordinary Instructions.

(Specimen of Form referred to in section (ii) clause (a) of Instruction 104.)

**ELECTRIC STREET RAILWAYS.
CAR STAFF AND TICKET SYSTEM.**

SUSPENSION OF STAFF ORDER.

Date Time
To Motorman
at Staff Post.

The Staff for the Section No. is locked away in the Staff-box at Staff Post and I hereby suspend Staff and Ticket Working for Staff Section No. in order that you may proceed over that Section on the authority of this Order and in accordance with Instruction 104. On arrival of your Car at Staff Post, the Staff and Ticket Working must be resumed.

Signed Officer-in-Charge.
Countersigned Depot Witness.
Signatures of Motorman Motorman.
and Conductor

Receiving this Order Conductor.
..... Time received.

On completing the journey over the Section the Motorman must write the word "Cancelled" on the face of this Order, and both he and the conductor must sign their names underneath.

Every Motorman must carry three of these Forms when on duty.

AIR BRAKE ORDERS.

105. (a) **General Description of and Instructions Relating to the Air Brake Apparatus.**—The arrangement of this Air Brake equipment is shown on diagram No. 1. The chief appliances are specified hereunder:—

Compressor Cut-out Switch and Fuse.

Air Governor.

Compressor Motor.

Air Compressor.

Reservoir.

Reservoir Safety Valve.

Pressure Gauge.

Motorman's Brake Valve.

Conductor's Brake Valve.

Brake Cylinder.

(b) **Compressor Cut-out Switch and Fuse.**—This is a single-pole switch connected in the power circuit on the Trolley side of the Circuit Breaker, and, when closed, it supplies power to the Compressor Motor, provided the contacts of the Air Governor are closed.

The Fuse is provided for the protection of the electrical equipment of the Compressor Circuit in the event of a short circuit or an excessive overload. Under normal Conditions the Compressor Cut-out Switch must be kept closed.

(c) **Air Governor, Compressor Motor, Compressor and Reservoir.**—The Air Governor is an air-operated switch connected between the Compressor Cut-out Switch and the Compressor Motor; the Air Governor automatically controls the operations of the Compressor Motor, and thus governs the working of the Air Compressor. When owing to an application of the Brake or due to leakage the Air-pressure in the Reservoir falls below a predetermined limit (60 lb. per square inch) the contacts of the Air Governor are closed automatically, which completes the circuit through the Compressor Motor and starts the Air Compressor. When by the operations of the Air Compressor the pressure in the Reservoir is increased to

70 lb. per square inch, the contacts of the Air Governor are automatically opened, the Compressor Motor is de-energised and the Air Compressor stops.

(d) **The Reservoir Safety Valve.**—The function of the Safety Valve is to prevent the pressure in the Reservoir from exceeding a predetermined maximum in the event of the Air Governor or Motor Compressor failing to automatically cut-out. The Safety Valve is provided with means for adjustment in order that the Blow-off pressure may be varied according to requirements; under normal conditions the adjustment is set so that when the pressure exceeds 70 lb. the Safety Valve will open, and thus limit the pressure in the Reservoir.

(e) **Pressure Gauge.**—The Pressure Gauge, one of which is fixed in each Driving Compartment, indicates to the Motorman the pressure of air in the Reservoir.

(f) **Motorman's Brake Valve.**—The operating handle of this Valve has four separate positions, viz:—
(i) Service Application; (ii) Emergency Application; (iii) Neutral Position and (iv) Release Position.

(i) **Service Position.**—When the handle is in the Service position, a small Air port admits air from the Reservoir to the Brake Cylinder, producing a gradual application of the Brake for an ordinary stop. See clause (b), Instruction 111.

(ii) **Emergency Position.**—When the handle is placed to the Emergency Application Position, a large port is opened, and the air passing from the Reservoir to the Cylinder applies the Brake almost immediately. For other forms of Emergency Braking, see Instruction 106.

(iii) **Neutral Position.**—When the handle is at Neutral Position all air ports are closed, and any air then in the Cylinder is retained therein and the Brake is thus held on.

(iv) **Release Position.**—When the handle is placed to this position a port is opened through which the compressed air exhausts from the Brake Cylinder to atmosphere, and the Brake is thus released. This is the normal position whilst running.

(g) **Conductor's Brake Valve.**—The Conductor's Valve is provided on Bogie Cars only. By opening this Valve an Emergency application is produced; it must not be opened whilst the Car is in motion except the Conductor become aware that the Motorman is from any cause incapacitated, or any similar case of emergency.

106. Emergency Braking.—(a) There are various forms of Emergency Braking, some of which may be actuated independent of air pressure or power from the overhead conductors—

(i) On Bogie Cars, there are two separate forms of Emergency Braking. See Instruction 107.

(ii) On Single-truck Cars, there are four distinct forms of Emergency Braking. See Instruction 108.

(b) In the event of failure of the First Emergency Brake the Motorman must operate the Second; if the Second fail he must (on a Single-truck Car) apply the Third and if the Third fail he must adopt the Fourth method. If all the Motorman's methods of Emergency Braking fail he must signal to the Conductor to open the Conductor's Brake Valve.

107. Bogie Cars.—(a) In the Bogie Car equipment the separate forms of Braking are as shown hereunder:—

(i) **Service Brake.**—By an ordinary application of the Air Brake or (if the Air Brake be inoperative) Hand Brake. See clause (b).

(ii) **First Emergency Brake.**—By Air Emergency Application. See clause (c).

(iii) **Second Emergency Brake.**—By using the Motors as Generators. See clause (d).

(b) **Service Brake.**—This application, which is used for general purposes, consists of an ordinary application of the Air Brake Apparatus. To apply the Brake the Motorman, after placing the Controller to the Off position, must place the handle of the Brake Valve to the Service Application position, and when the desired effect has been produced, he must place the handle to the Neutral position; if the Motorman finds that his application is insufficient he must make another, but lighter, application, and again turn the handle to the Neutral position. These operations must be repeated until sufficient pressure has been applied to gradually bring the Car to a stand; the Air Brake must be released before the Car is actually stopped. See also clause (b), Instruction 111.

(c) **First Emergency Brake.**—The Emergency Air Brake is applied by placing the handle of the Brake Valve to the Emergency Application position, and applying sand to the rail.

(d) **Second Emergency.**—The Second Emergency Brake can only be applied by means of the "K35 Y2" type of Controller. The Motorman must place the handle of the Controller to the Off position and then place the handle of the Reverser to the position in which an application of power will oppose the motion of the Car; the handles must be left in above-mentioned reversed positions until the Car has been stopped.

This application is not dependent on the supply of power from the Trolley, and, as it is likely to damage the electrical equipment, must not be used except in cases of extreme urgency.

108. Single-truck Cars.—(a) In the Single-truck Car equipment the separate methods of braking are as shown hereunder:—

(i) **Service Brake.**—By an ordinary application of the Air Brake or (if the Air Brake be inoperative) Hand Brake.

- (ii) **First Emergency Brake.**—By Air Emergency Application.
- (iii) **Second Emergency Brake.**—By Rheostatic.
- (iv) **Third Emergency Brake.**—By Reversing.
- (v) **Fourth Emergency Brake.**—By using the Motors as generators.

(b) **Service Brake.**—This application consists of an ordinary application of the Air Brake Apparatus, and, except as shown in section (i) hereunder, is used for general purposes. The Motorman, after placing the Controller to the Off position, must turn the handle of the Brake Valve to the Service Application position, and, when the desired effect has been produced, he must turn it to the Neutral position; if the Motorman find that his application is insufficient, he must make another, but lighter, application and again place the handle to the Neutral position. These operations must be repeated until sufficient pressure has been applied to gradually bring the Car to a stand; the Brake must be released before the Car is actually stopped. See also clause (b), Instruction 111.

(c) **First Emergency Brake.**—The First Emergency Air Brake is applied by placing the handle of the Brake Valve to the Emergency application position, and applying sand to the rail.

(d) **Second Emergency.**—To use the Second Emergency (the Rheostatic Brake) the handle of the Controller must be turned backwards from the Off position to bring the braking notches into action; the movement of the handle of the Controller to the first braking notch couples the motors so as to act as generators and short circuits them through the Rheostats, which are gradually cut out by the handle being moved to the full braking notch. This produces a considerable braking effect whilst the Car is moving rapidly. This application is not dependent on power from the Trolley, and may, therefore, be used even if the Trolley-pole be lowered, and it will operate (though

less effectively) when one motor is cut out. When applying this Brake, the same care must be exercised when passing over Brake Notches as when passing over the Power Notches, and the handle of the Reverser must be set for the direction in which the Car is running; the handle of the Controller must not, however, be moved too rapidly, as such a course may cause damage to the equipment, or skid the wheels.

(e) **Third Emergency.**—To apply the Third Emergency Brake, the Motorman must perform, in the order named, the following operations:—

- (i) Place the handle of the Controller to the Off position.
- (ii) Place the handle of the Reverser to the position at which an application of power will oppose the motion of the Car; and
- (iii) Turn the handle of the Controller to First Series, and, if necessary, to (but not beyond) the Second Series notch.

If the Controller be turned beyond Second Series the Motors may lose their braking power, and the equipment may be damaged.

This application, whilst dependent for its action on power from the Trolley, will operate (though less effectively) when one Motor is cut out.

(f) **Fourth Emergency.**—To apply the Fourth Emergency Brake the Motorman must perform, in the order named, the operations specified hereunder:—

- (i) Place the handle of the Controller to the Off position.
- (ii) Place the handle of the Reverser to the position at which an application of power will oppose the motion of the Car; open the Circuit Breaker; and
- (iii) Turn the handle of the Controller to the Full Parallel position, and hold it at such position until the Car has been stopped.

This Application is not dependent on power from the Trolley; nevertheless its action is likely to cause serious damage to the electrical equipment, and it must not be used except in a case of extreme emergency.

109. (a) Use of Sand.—The Motorman must frequently stir up the sand in the boxes, see that the sand gear works properly, and keep a sufficient supply of sand in the boxes whilst the Car is in traffic. Any defect of the sand gear must be noted in the Repairs Book; baskets, cans, etc., must not be carried in the sand boxes. In any instance in which it is necessary to use sand for Emergency Braking purposes, the Motorman must start the sand before applying the Brakes.

The Motorman must not use sand on or near any points unless such a course be necessary to avoid an accident.

(b) Hand Brakes.—The Motorman must Signal the Conductor to apply the Hand Brake where necessary when the Car is in motion. Except as provided in clause (e) of Instruction 64, or to prevent accident, the Conductor must not apply the Hand Brake unless he receive the signal from the Motorman to do so.

110. (a) Preparing Car for Service.—Before taking a Car into Service, the Motorman must perform, in the order named, the testing operations specified hereunder. He must—

- (i) See that the Trolley-wheel is on the proper Contact Wire, that the Circuit Breaker and the Compressor Cut-out Switch are closed.
- (ii) Ascertain the pressure-reading on each Pressure Gauge, and, if the pressure indicated is less than the maximum, see that the Air Compressor is working and that it produces the required pressure of 70 lb. per square inch.
- (iii) Apply the Air Brake from No. 1 end of the Car by placing the handle of the Brake Valve to the Service application position;

then place the handle to the Neutral position and examine the Brakes to see whether they have applied satisfactorily; and, if so,

- (iv) Proceed to No. 2 end of the Car and release the Air Brake by placing the handle of the Brake Valve at that end to the Release position, and see that the Brake Blocks are released.
- (v) Apply the Brake from No. 2 end by placing the handle of the Brake Valve to the Emergency Application position; see that the Brake applies satisfactorily; note whether the Air Compressor operates; and, if so, place the handle to the Neutral position.
- (vi) Return to No. 1 end and release the Brake; and
- (vii) Apply the Brake from the Conductor's Brake Valve, if one be provided.

(b) If the Air Compressor should fail to operate satisfactorily, or the Brakes fail to apply and release in the respective tests, the Car must be regarded as unfit for Service, and the Motorman must at once notify the Depot. See also clause (b), Instruction 57.

111. (a) General.—The Motorman must devote attention to the condition of the Air Brake, and at once investigate any indication of defect in any portion of the Apparatus. He must, by means of the Hand Brake, counteract unsteadiness due to defective Rheostats, but must not, otherwise, start the Car whilst the Brake is on.

(b) Service Braking.—Due care must be exercised in operating the Service Brake, which, for an ordinary stop, must be applied gradually and released. To avoid causing discomfort to passengers, and unnecessary strain on the equipment or needless loss of compressed air, a light application should be made at a sufficient distance

before reaching the stopping place; when the Car has been brought nearly to a stand the Air Brake should be released, and, where necessary, the Hand Brake must then be applied.

The Motorman must exercise due care to avoid wasting compressed air due to heavy application of the Brake for a Service Stop.

- (i) When from any cause the Air Brake is inoperative, the speed of the Car must be limited to a rate at which the Car may be controlled, or, where necessary, stopped by means of the Hand Brake alone; in such circumstances the Hand Brake will form the Service Brake, but in cases of emergency the Motorman must make use of the Emergency Brake. See clause (b), Instruction 106.
 - (ii) The handle of the Controller must always be at the Off position when a Service Brake is applied.
 - (iii) The Air Brake must not be relied on to secure a Car on any gradient.
 - (iv) In order that the Hand Brake shall be thoroughly effective, it must be fully applied immediately after the Air Brake has been released.
- (c) **Emergency Braking.**—When an Emergency Brake is used, the Hand Brake must not be applied until the Car has almost stopped; excessive braking causes the wheels to skid, which defeats the object in braking.
- (i) An Emergency Brake may not stop a Car on a gradient, but it will reduce the speed of the Car to a low rate. If the Hand Brake is defective, the Motorman must take the necessary steps to scotch the wheels, or arrange for his Conductor to do so, where it is desired to bring the Car to a stand.

- (ii) The Motorman must furnish a report to the Officer-in-Charge as soon as possible in every instance in which he uses an Emergency Brake. This clause will not, however, apply to the testing operations prescribed in clause (e) of Instruction 57.

(d) **Falling Gradients.**—When descending on any gradient the speed of the Car should be controlled by applying and retaining sufficient air in the Cylinder to prevent the Car from accelerating beyond the prescribed rates of speed; see Instruction 64.

For Special precautions when ascending or descending the gradient in Grey-street, St. Kilda, see clause (e), Instruction 64.

(e) **Skidding.**—The Motorman must endeavour to avoid skidding the wheels of the Car; the best effect in checking the speed is produced by retarding the rotation of the wheels without skidding. If the wheels skid whilst power from the overhead is applied, the Motorman must place the Controller to the Off position and apply power again in the regular way; if the wheels skid whilst the Brake is applied, he must apply sand to the rail, release the Brake sufficiently to allow the wheels to revolve, and again apply the Brake in such a way as to avoid skidding.

If, when the Conductor applies the Hand Brake, the wheels skid, he must release the Brake and, if necessary, apply it again.

(f) **Defects.**—In the event of any defect in the Air Brake or Hand Brake equipment, the particulars must be communicated to the Officer-in-Charge as soon as possible. If the Brakes on any Car in traffic are un-serviceable, the Motorman must inform the Conductor, and the latter must arrange for all passengers to alight and to proceed to their destination by the next following Car; the defective Car must be run empty to the Car Shed.