HAND SIGNALS.

46. (*a*) These signals will be made with Flags by day, and with Lamps by night or in foggy weather. A Red Light or a Red Flag is a signal of "Danger," i.e., "Stop"; in the absence of a Red Light, any light waved violently denotes Danger.

(i) Except where they are employed for the purpose of marking the actual point of obstruction, Hand Lamps and Flags, when used as signals, must always be held in the hand, and not placed upon, or stuck into, the ground, or fixed elsewhere.

(ii) Hand Signal Lamps and Flags must be kept clean and ready for use. Flags which have become so worn or soiled as not to be readily distinguished at a proper distance, must be replaced.

47. (*a*) In the absence of a Red Flag, the Hand Signal shown on the margin hereof may be used by employés when engaged in the working of Cars :—

(i) Both arms raised above the head denote "Danger—Stop!" thus :—

(*b*) Carmen must keep themselves conversant with, and strictly observe, all signals displayed by members of the Police Force or other authorised officials regulating traffic at intersections or elsewhere; authorised illustrations of the signals and the instructions applicable must be always exhibited in the Rooms and Order Books provided for Motormen and Conductors.

USE OF SIGNALS DURING OBSTRUCTION OR DEFECT ON, AND REPAIRS OR ALTERATIONS TO PERMANENT WAY OR OVERHEAD EQUIPMENT.

48. (*a*) In the event of the track or overhead equipment being obstructed by repair work or when it is necessary to carry out work involving an obstruction to traffic, the employé in charge of such work must, before permitting any such obstruction, see that a Red Danger Signal is plainly exhibited at a sufficient distance from the obstruction until the track and overhead are again safe for traffic; on a Single Line, or where both tracks of a Double Line are affected, the Danger Signal must be exhibited as prescribed above in both directions.

(*b*) If, owing to defect or obstruction in the overhead equipment, it should become necessary for a Car to be run with the Trolley-pole lowered when passing over a portion of the track, the Danger Signal must be exhibited as prescribed in clause (*a*) hereof, and the Motorman must be informed of the circumstances.

(*c*) If, however, in the case of a defect or repair work on the track or overhead equipment, the conditions permit of, and require, Cars to pass over a portion of the track at reduced speed, a Green Flag or Light must be exhibited on the track or on the overhead equipment as the circumstances may require.

(*d*) Unless otherwise arranged, Permanent Way Signals must be displayed by hand.

49. (*a*) A Red Flag or Light exhibited on or near the track or on the overhead equipment indicates that the Motormen must stop clear of the point at which the signal is exhibited.

(*b*) Where as prescribed in clause (*b*) of Instruction 48, it is necessary for a Car to be run with the

Trolley-pole lowered over a portion of the track the Motorman must, before starting, have a clear understanding with his Conductor in regard to the portion of track over which the car is run with the Trolley-pole lowered.

The Motorman must, before starting, see that no passenger is about to alight from or board the Car, and the Conductor must request passengers to keep their seats. After having attained the rate of speed required for coasting, the Motorman must give the "Lower the Trolley" signal, by one beat on the Gong, and, on receipt of such signal, the Conductor must lower the Trolley-wheel and hold it clear of the overhead equipment according to the requirements; when the Car has reached the point of clearance the Motorman must stop the Car to enable the Conductor to replace the Trolley-wheel on the Contact Wire.

50. A Green Signal attached to the overhead equipment indicates a point at which the speed of the car must not exceed a rate of four (4) miles per hour or such other rate as may be prescribed by Special Instructions.

51. When owing to a defect or to urgent repair work, the track or overhead equipment is likely to become obstructed, the provisions of Instruction 48 must be promptly carried out; but where such repair work is not of an immediately urgent character, or in the case of alterations to tracks, Points, or overhead equipment, and the performance of such work or alterations may incur serious interruption to the Car Service, the Ganger must, unless the work has been previously arranged for between the Branches concerned, and the necessary notice issued by the General Superintendent of Transportation, communicate with the Officer-in-Charge of the Depot, who will make any special arrangements that may be necessary in connection with the working of the traffic during the time such repairs or alterations are being effected.

Except in cases of urgency, the ordinary working of the Points must not be altered, unless by previous arrangement with the General Superintendent of Transportation.

WORKING OF CARS.

52. (*a*) Motormen and Conductors must be with their Cars at such times previous to their starting as are appointed, and they must satisfy themselves that their Cars are in proper working order.

(*b*) Motormen, Conductors, and other employés connected with the running of Cars, must, before commencing their day's work, examine the Car Run List and Roster, and also before running additional trips, must, when practicable, ascertain from the Notices posted for their guidance whether there is anything requiring their special attention on those parts of the Line over which they have to travel, and, when practicable, before going off duty, ascertain the time at which they are again required to resume duty.

53. (*a*) Only men certified as competent by the authorised officers of the Rolling Stock and Transportation Branches must be allowed to drive Cars on any part of the Running Lines or Sidings or in the Car Shed; they are required to run their Car personally, and under no circumstances must they allow any unauthorised person to operate it.

(i) In order that certain qualified employés who are not regular Motormen may keep in touch with or learn the duties of a Motorman, such employés may, where specially authorised, accompany a Motorman, and

under his supervision, drive the Car. In every such case the regular Motorman will be responsible for exercising such supervision as will ensure the movements of the Car being regulated in conformity with Instructions, and, if circumstances require it, he must at once take full control of his Car; if a recruit should refuse to comply with the Motorman's directions, the Motorman must take control of the Car and report the circumstances.

(ii) If for any purpose the Motorman should require to leave his compartment, he must take with him and retain his Controller handle.

(iii) Employés practising as above under the supervision of the regular Motorman are not relieved of responsibility for observance of Instructions.

(iv) The Conductor in charge must render every possible assistance to any person authorised in writing by the Officer-in-Charge to learn the duties of a Conductor, and must instruct him, particularly as to the names of the streets, fare sections, issue of tickets, receiving and remitting cash and tickets, keeping the Running and Revenue Journals, lighting the Car, attending to the Trolley-pole, Brakes, and cleanliness of Car, etc.

(v) The Motorman or the Conductor must furnish a written report respecting the competency and general behaviour of each recruit under his supervision.

54. (*a*) The Motorman, when on duty, must carry, or see that his Car is equipped with, the undermentioned articles, viz.:—

(i) A copy of this Book of Instructions, a copy of the current Time-table and Run Book, three Witness Cards, a Running Sheet, a Hand Lamp, a Point Bar, a Hand Scotch, a Lifting Jack or Jacks (see clause (*e*), Instruction 90), an Insulated Grounding Wire, and the specified number of the Forms mentioned hereunder, viz.:—

(ii) *On Double Lines*—Three Wrong Line Orders.

(iii) *On Single Lines*—Three copies of prescribed Form for Suspension of Staff and Ticket Working, and Three Emergency Relief Orders.

(*b*) The Motorman must produce all (or any) of the above-mentioned articles to the proper officer when required, and he must always have the Hand Lamp, which comprises part of the Car equipment, available and ready for immediate use.

55. (*a*) The Conductor, whilst on duty, must have with him the undermentioned articles, viz.:—

A copy of this Book of Instructions, a Revenue Journal, Running Journal, Relief Slips, Refund of Fare Forms, Witness Cards, a Ticket Punch, and such other articles or requisites as may be ordered; see Instructions *re* Fares System.

(*b*) He must, whenever required, present all (or any) articles supplied to him, for inspection by the proper officer, and afford any information or assistance that such officer may require in regard thereto.

56. When taking any Car into service the Carmen must see that their respective Kits are complete, and unless otherwise ordered, observe the order shown on the Car Run List.

57. Preparing Car for Service.—(*a*) The Motorman is responsible for the correct manipulation of the equipment, and must see that the Car in his charge is in a fit condition for safe running. Before leaving the Shed he must examine his Car and see that everything

is in order, and preparatory to going into running he must carry out the following tests in the order mentioned, viz.:—

(i) Put the handles of the Controller and Reverser in their respective positions on the Driving Controller at the Driving end, and see that the handle of the Controller is at the Off position.

(ii) Close the Circuit Breakers.

(iii) See that the Trolley-wheel is placed in position on the proper Contact Wire.

(iv) Ascertain whether current is available by closing the Car-light Switch.

(v) Operate both Controllers and see that they are in working order, and that all motors are in running order.

(vi) Test the Car Gongs.

(vii) Test the Air Brake Apparatus as prescribed by, and in the order shown, in Instruction 110, under Air Brake Orders; see also clause (*e*) hereof.

(viii) Test the Hand Brakes from both ends of the Car, and see that the Car-fender is in order.

(ix) See that there is a sufficient supply of sand in the boxes, and that the sand gear works properly.

(x) Secure the Car by the Brake from the front and exchange signals with the Conductor for the release of the Hand Brake at the rear end of the Car.

(xi) See that the Head and Tail Lamps are in proper order and ready for use.

(xii) Obtain, from the authorised shed employé, permission to take the Car out of the shed, and exchange the necessary signal with the Conductor; see that the Points are properly set and that all Roads are clear; then drive the Car, cautiously, out of the Shed, keeping a good look-out for vehicular and pedestrian traffic.

(*b*) If, during the process of testing, the Motorman find any defect, he must at once report the particulars to the Shedman for attention, and, before going off duty, must confirm such report in writing.

(*c*) The Conductor must place the Trolley-pole in position on the Contact Wire and assist the Motorman to take the Car from the Shed, and, before giving the Motorman the signal to proceed from the Shed, he must test the Conductor's Brake Cock by opening the valve and noting that the Brakes apply satisfactorily; he must also see that the interior of the Car is clean, that the footboard guard bars are in their proper positions, and he must maintain them in such positions whilst the Car is in service.

If the Car or any fittings be in an unsatisfactory condition, the Conductor must call the attention of the Shedman thereto, and must enter the particulars into the Daily Report Book.

(*d*) Before moving a Car under any circumstances, the Motorman must sound the Car Gong to give notice.

(*e*) When a Car has been taken into Service, the Motorman on the first trip must again test the Air Brake and Rheostatic Brake at the points specified hereunder:—

BRIGHTON LINE.—Before reaching Ormond-road on St. Kilda side, or before reaching Cole-street on Brighton side.

BEAUMARIS LINE.—Between the Car Shed and Sandringham Station, or before reaching North Fern Hill-road.

When testing the Brakes as laid down above, the speed of the Car must not exceed a rate of 10 miles per hour.

(*f*) No Car must be taken out for a trial trip unless a qualified Motorman is in charge of it, and, as far as traffic will permit, every trial trip must be scheduled to suit Car Shed requirements.

58. (*a*) After sunset or in foggy weather, every Car on a Running Line must carry the necessary Head Lights, and, when running alone, a Red Tail Light also; if one or more trailing vehicles are attached the Red Tail Light must be carried on the rear of the last vehicle.

(*b*) Every Car must carry an oil Head Lamp (White), and also an oil Tail Lamp (Red);

(*c*) The Motorman must see that the proper lamps are placed in their respective positions on the Car, and must test all Car-lights before 4 p.m. daily. The Motorman is responsible for seeing that the Head Lights and Destination Signs are showing properly, and the Conductor must see that the Red Tail Light is, where necessary, kept properly exhibited; the Conductor must frequently look to the Red Tail Light, and must examine the lamp before leaving any terminus.

The Conductor must, whenever it becomes necessary, light or request the Motorman to light all lamps in the Car.

In any instance in which the power fails, or in which it is necessary to stop the Car on the Running Line after dark and lower the Trolley-pole, or to extinguish the lights for any purpose, the Conductor in charge must see that the oil lamp at each end of the Car is showing properly and be on the alert to protect the Car.

(*d*) Only the authorised fuse or lamp must be used in any electric circuit on a Car, and when any lighting circuit fuse is blown, the Conductor must report the matter and insert a note, stating the number of the Car, in the Repairs Book; every used, damaged or blown fuse must be handed to the authorised shed employé.

Every burnt-out lamp, together with the number of the Car and the name of the Motorman, must be handed to the Officer-in-Charge.

(*e*) The lamps on any empty Car running to the shed after dark must not be extinguished until the Car is inside the shed.

59. **Working of Trolley-pole.**—(*a*) Except as prescribed hereunder and in Instruction 49 or where specially authorised, no Car must be run with the Trolley-pole off the Contact Wire. In the event of the Trolley-wheel leaving the Contact Wire the Conductor must at once Signal to the Motorman to stop, and by means of the Trolley-cord keep the Trolley-pole and wheel clear of all overhead equipment until it can be replaced on the Contact Wire.

The attention of Motormen and Conductors is directed to Instructions 48, 49, *and* 50 *respecting the working of Trolley-poles during repairs to the overhead electrical equipment.*

(*b*) Under normal conditions when the Car is in traffic the Conductor must secure the Trolley-cord in the Cord-guide or canopy hook. The slack of the Trolley-cord must not be such as to permit of the cord passing under the handle of the Brake; the cord must not be fastened to the Dash ring and, except as otherwise provided, its play must be such that if the Trolley-wheel be displaced it shall not rise higher than eighteen (18) inches above the Contact Wire.

(*c*) The Motorman must not attempt to apply power unless the Trolley-wheel is on the proper Contact Wire, and whenever he becomes aware that the Trolley-wheel has left the Contact Wire he must at once place the Controller handle to the Off position and apply the Brake to stop the Car. In every instance in which the Trolley-wheel leaves the Contact Wire, the Motorman must make an entry of the circumstances in the Repairs Book and indicate the locality at which the incident occurred; if frequent

or unusual slipping or sparking occur at the Trolley, the Motorman must communicate the particulars to the Depot as soon as practicable.

In any instance where the Trolley-pole or cord fouls the Overhead, or wires of any corporation, full particulars with the date, time and location of the incident must be forwarded, in writing, to the Officer in Charge as soon as possible. Any employé noticing telephone or electric light or power wires sagging so that they are liable to come in contact with the Overhead, must report the matter without delay; no such wire passing above the Overhead construction of a Street Railway should be lower than the minimum height of 22 feet above the rail.

(*d*) In order that the Motorman shall maintain full control of the Car, the Trolley-wheel must be kept on the Contact Wire when descending any gradient.

(*e*) The Conductor must see that the Trolley-wheel is on the proper Contact Wire; if, however, the Trolley-wheel be observed to be on a wrong Contact Wire whilst the Car is on a falling gradient, the change must not be effected until the Car has been stopped or it has reached an approximately level portion of the track.

The Conductor must be on the alert and hold the Trolley-cord securely, when passing around a curve or under an overhead frog, so that in the event of the Trolley-wheel being displaced it shall not foul any portion of the overhead equipment.

(*f*) It is the duty of the Conductor to place the Trolley on the Contact Wire and assist the Motorman when the Car is to be taken from the Shed. The Conductor must also reverse the Trolley-pole at each terminus; after sunset he must not remove the Trolley-wheel from the Contact Wire until all passengers have alighted.

(*g*) If two Trolley-poles are provided on the Car the trailing Trolley, alone, must be used. When reversing the Trolley-poles, the trailing pole must be placed on

the Contact Wire by the Motorman before changing ends; before changing ends the Conductor must lower the leading Trolley-pole, which he must place in the hook provided for that purpose and secure it in that position by means of the Trolley-cord.

(*h*) No Car must be run with a Trolley-pole in the facing position except in a case of emergency for a short distance to avoid an obstruction where the track is straight, and in every such case the Conductor must hold the Trolley-cord taut.

(*i*) When reversing the Trolley-pole, the Conductor must exercise care to avoid damaging any light cluster, business sign, etc., or striking the pole violently against the roof of the Car; to avoid straining the springs, he must not pull the Trolley-pole below a space of two (2) feet from the roof.

(*j*) In the event of its being necessary to adjust the trolley tension when the Car is in traffic, the Conductor must enter the particulars in the Daily Report Book.

(i) The Trolley-pole or its base must not be touched unless the Trolley-wheel is removed from and secured clear of all overhead electrical conductors, otherwise a serious shock may be received.

(ii) No unauthorised person shall be permitted to interfere with a Trolley-pole.

(*k*) The Conductor must be on the alert to promptly signal, or to call out, to the Motorman to stop any Car which is being shunted, in the event of the Trolley-wheel leaving the Contact Wire.

(*l*) Unless otherwise provided a Trolley or Trolley-pole must not be left in contact with the Contact Wire or with any metal when in the shed.

(*m*) When from any cause the Trolley has been removed from the Contact Wire, the Car must be stopped to permit of the Conductor replacing the Trolley.

60. The Circuit Breaker.—(*a*) This is a single-pole switch fixed above the Controller at each end of the

Car, and when closed it supplies current to the Controller. The Circuit Breaker is provided with an operating handle and the alternate positions ("Open" and "Closed") are marked on the apparatus; when the Car is in Service the normal position of the Circuit Breaker is "Closed."

(*b*) The Circuit Breaker may be opened by hand according to requirements, but in the event of excess current which may be caused by a "short circuit," the Circuit Breaker opens automatically and thus protects the electrical apparatus of the Car.

In the event of the Circuit Breaker opening automatically more than twice during the course of a round trip, the Motorman must report the fact on the first occasion that he arrives at the Depot.

(*c*) Before closing the Circuit Breaker the Motorman must, under all circumstances, see that the handle of the Controller is at the "Off" position; Carmen must not interfere with the adjustment of the Circuit Breaker.

(*d*) The Circuit Breaker at each end of the Car must be kept closed except when the Car is stabled in the Car Shed, or when in case of a defect or other emergency it becomes necessary to examine or adjust the contacts of the Controller, or to inspect the undergear of the Car; before attempting any such work or inspection the Motorman must open the Circuit Breaker. See clause (*h*), Instruction 62.

61. The Controller.—(*a*) The Controller regulates the supply of current to, and the connections of, the motors. One Controller is fitted in each of the driving compartments at the ends of the Car.

It consists, essentially, of a vertical spindle, rotated by the Controller handle; to this spindle a number of contact strips is fixed; when the spindle is rotated these contact strips connect with spring contacts (called fingers) on the stationary portion of the Controller.

It must be borne in mind that the internal parts of the Controller are alive when the Circuit Breaker is closed; see clause (a), Instruction 60. The interior of the Controller is normally covered by a movable shield called the Controller Apron, and in no circumstances must this apron be removed from its normal position unless the Circuit Breaker is open.

(*b*) Two handles are fixed on the top of the Driving Apparatus, viz.:—The Controller Handle and the Reverser Handle.

(i) The larger handle, which is the handle of the Controller, is for the purpose of starting or regulating the speed of the Car by controlling the supply of power from the Circuit Breaker to the motors; eight notches are marked on the top of the apparatus to indicate the various positions to which the Controller Handle may be placed to start or regulate the movement of the Car.

(ii) The smaller handle (on the right-hand side) is the handle of the Reverser; it is provided for reversing the direction of current through the motors—thus reversing the direction of the motion of the Car. The handle of the Reverser has three positions, viz.:—

For Forward Running.—The handle turned towards the front of the Car.

For Reverse Running.—The handle turned towards the interior of the Car.

Neutral or Off Position.—The handle placed midway between the Forward Running position and the Reverse Running position.

When the handle of the Reverser is in the Off position the circuit is open, which prevents current passing from the Controller to the motors.

(*c*) There are two types of Controllers in use, viz.:—The "B18 Controller" and the "K35 Y2 Controller," the differences in construction being as shown in sub-clauses (i) and (ii) hereunder:—

(i) "B18 CONTROLLER."—On this type of Controller there are eight Power notches on the left-hand side of the handle of the Controller and six Brake notches on the right-hand side; these Power notches are arranged in two groups, viz., Series and Parallel, each group containing four notches. The first three notches of the First or Series Group and the first three notches of the Second or Parallel Group are Resistance Notches; these notches are only for the purposes of acceleration and must not be used as Running positions on this type of Controller.

The Fourth Series and Fourth Parallel notches are the only Running positions on the "B18" type of Controller, and with the Controller handle in these notches the steady running speeds that a Car with a normal load will attain on a straight level track are approximately thirteen (13) and twenty-two (22) miles per hour, respectively.

(ii) "K35 Y2 CONTROLLER."—On this type also there are eight power notches, but no Brake notch is provided. The Power notches are divided into two groups, viz:—Five Series and three Parallel with a space between each group. The first four notches in the First or Series group and the first two notches in the Second or Parallel group are Resistance notches; these notches are only for the purposes of acceleration, and must not be used as Running Positions on the "K35 Y2" type of Controller.

(*d*) The handle of the Controller is so interlocked with the handle of the Reverser that the former cannot be moved whilst the latter is at the "Neutral" position; and the handle of the Reverser cannot be moved unless the handle of the Controller is at the "Off" position.

(*e*) When starting the Car, and before moving the handle of the Controller from the Off position, the Motorman must see that the Circuit Breaker is closed and that the handle of the Reverser is set in the required position. The handle of the Controller must then be turned over the Power notches, and the finger of the handle must be allowed to rest at each notch until the Car has attained the speed that the motors can develop under the conditions of the load and grade; if the handle be too rapidly advanced from one notch to the next, the acceleration will be jerky and power will be wasted—unskilful manipulation of the Controller may cause the Circuit Breaker to open automatically, involving loss of time. The Motorman must, however, move the handle smartly between one notch and the succeeding one; a slow hesitating movement between notches tends to draw an arc between the fingers and segments in, and seriously affect the working of, the Controller.

For general description of the Air Brake and Rheostatic Brake, and Air Brake Orders, see Instructions 105 *to* 111.

(*f*) The handle of the Controller must not be allowed to remain between the Series and Parallel positions when applying or shutting off power; nor must the handle be kept longer than is necessary at the Resistance or Acceleration notches, otherwise time may be lost, power will be wasted, and the equipment may be damaged. If, however, it be necessary to operate a Car with portion of the motor equipment cut out, the handle of the Controller should be allowed to rest a little longer than is usual at each notch, but in such case, the handle must not be advanced beyond the full Series position.

(*g*) After starting the Car the Motorman must apply power gradually, and when stopping, he must, for smooth working, slightly release the Brakes, after the Car has been brought nearly to a stand. The Motorman must not, however, apply power to start the Car on a descending grade if the Car will start without it; if the Brakes are too tightly adjusted to permit of a coasting start, he must report the matter with a view to changing the Car. See clause (*j*), Instruction 62.

(*h*) The handle of the Controller must not, in any circumstances, be turned backward from one notch to a preceding one; if the Motorman should require to run on an earlier notch than that on which he is operating, he must place the handle to the Off position by a quick movement and then advance it to the required notch as if he were starting.

(*i*) The handle of the Controller or Reverser must not be used for any other than its regular and authorised purpose.

62. Faults Likely to Arise in Electrical Equipment.—(*a*) In the event of a Car failing to start when the handle of the Controller is operated in a proper manner, the Motorman must follow the procedure set out hereunder:—

(i) See that the Trolley-wheel makes contact with the Contact Wire.

(ii) See that the Circuit Breaker is closed.

(iii) Ascertain whether power is on the overhead conductors by switching on the Car lights; if the lights do not appear the Motorman must instruct the Conductor to effect a good electrical contact between the Car wheel and the rail by means of the Motorman's Insulated Ground Wire. If the lights then appear the Motorman must operate the Controller in the ordinary manner, and if the Car should still fail to move, it must be regarded as disabled and dealt with accordingly; if, however, the lights do not appear, it may be assumed that power is off the overhead Conductors, and the Motorman must allow the Lighting Switch to remain On and wait until the power is restored.

(*b*) A defective motor or Controller may cause the Circuit Breaker to open. A "short circuit" on No. 1 motor of a Single-truck Car, or on No. 1 group of motors on a Bogie Car, will open the Circuit Breaker before the last Series position of the Controller is reached, but a "short circuit," on No. 2 motor on a Single-truck Car or on No. 2 group of motors or of a Bogie Car may not open the Circuit Breaker until after the first Parallel notch of the Controller is passed; if, due to this cause, the Motorman cannot move the Car, he must proceed to locate and cut out the defective motor, or group of motors, or Controller, as follows:—

(i) See that the Controller is at the Off position.

(ii) Open the Circuit Breaker.

(iii) Open the Controller apron and cut out the motor or group of motors that are considered defective.

(iv) Close the Controller apron and the Circuit Breaker and try to start the Car in the usual manner.

(*c*) If, after the above procedure, the fault should still exist, the Motorman must again connect the motor or group of motors in circuit, and then proceed as before to cut out the other motor, or group of motors, and again try to start the Car. If the fault remain, it is probably in the Controller, and the Motorman must endeavour to start the Car from the Controller at the rear end of the Car. See clause (*g*). If, however, the fault still remain, try each motor or group of motors separately with the rear Controller; if the Car will not then start it must be considered as disabled, and dealt with accordingly.

(*d*) **Power off Overhead.**—In the event of the power failing or its being cut off, the Motorman must place

the Controller handle to the Off position, stop the Car, switch on the Lighting Circuit, and watch for the lights to appear.

(*e*) When power is restored, the Motorman must make every endeavour to avoid throwing too great a load upon the generators, as this may cut the power off again and cause further delays. With a view to avoiding this liability, Motormen of Up Cars only may take power at once; Motormen of Down Cars must wait thirty (30) seconds before starting.

(*f*) **Defective Controller.**—If the handle of the Controller should become jammed in any attempt to place it to the Off position, the Motorman must at once open the Circuit Breaker and apply the Brake to stop the Car; he must then open the apron of the Controller and the Arc Shield, and search for, and remedy any loose finger, loose segment, or loose screw that may be found, and before closing the Circuit Breaker the Motorman must replace the Apron of the Controller, and see that the Controller is at the Off position. See clause (*a*), Instruction 60.

(*g*) In the event of the front Controller becoming defective the Motorman must turn the handles of this Controller and Reverser to the Off position, open the Circuit Breaker at that end, and, after seeing that the Circuit Breaker at the opposite end of the Car is closed, place the Reverser to the Reverse position and proceed to drive from the Controller at that end of the Car.

In every case in which it becomes necessary to drive a Car from the rear Controller the Motorman must first arrange for the Conductor to ride in the front Cab, and the Conductor must protect traffic by ringing the Gong as prescribed for the Motorman, and transmit the necessary signals to the Motorman; the speed of the Car must not exceed a rate of ten (10) miles per hour.

(*h*) **Thunderstorms.**—Where a Thunderstorm is in proximity to the track the Motorman must, if the electric lamps are not alight, close the Lighting Switch in order to minimise risk of damage to the Car or Equipment.

Except in a case of extreme urgency the Circuit Breaker must not be opened by hand when in the vicinity of a thunderstorm, and in the event of the Circuit Breaker opening automatically, the Motorman must at once close it.

(*i*) In the event of the Car becoming temporarily charged owing to a dirty rail, no passenger must be permitted to alight until it has safely passed over such such rail, and steps must be taken to prevent intending passengers or others from touching any portion of the Car, as an Electric Shock may be received. If the Car has become permanently charged, the Trolley-pole must be at once lowered, and secured clear of the overhead equipment; the passengers must then be requested to proceed by a following Car, and the empty Car must be returned to the Car Shed as soon as possible.

When a Car is being stabled, the Motorman must, before leaving, test the lights to see that the contact with the rail is good.

(*j*) In any instance in which it is necessary, for any reason, to change over a defective Car, a telephone message must be sent to the Depot stating fully the particulars of failure, the number of the run, and the name of the Motorman.

(*k*) The Motorman must report each day, in the Book provided for the purpose, the condition of each Car that has been under his control, and must furnish particulars of every defect.

(*l*) When being relieved from duty the Motorman must inform the employé relieving him of any defect or anything unusual in connection with the Car.

63. Bell Signals.—(*a*) The Motorman must obey all signals relating to the movements of the Car, which may be given by the Conductor or other qualified person.

(*b*) Except in the case of the Emergency Stop signal, the Motorman must acknowledge each Bell Signal—on receipt of the Emergency Stop Signal, the Motorman must, as quickly as possible, stop the car.

(*c*) All Signals given by the Motorman or Conductor must be correctly and clearly sounded.

(*d*) The Signal Code for the Motorman and the Conductor is as specified hereunder:—

SIGNAL.	Beats on Gong or Bell.	How to be given.
By Motorman—		
Before moving the Car under any circumstances	2	This Signal must be given by two consecutive beats, and must be continued or repeated as circumstances may require; but the Motorman must be prepared to stop the Car if his Warning Signals are not obeyed, or if he should have reason to apprehend danger
When meeting another Car and when passing a standing Car		
When passing around a Street Corner		
When approaching any Street where the view is obscured by buildings or structures		
To Warn employés or other persons, or drivers of vehicles on or close to the Line; or to drive animals clear of the Line		
When ready to leave St. Kilda terminus; see clause (*e*), Instruction 66		
Motorman to Conductor—		
For Conductor to come through	1*	
Apply Hand Brake ..	6	3, pause, 3
Release Hand Brake ..	3	Consecutively
Attend to Trolley-pole ..	4	Consecutively
Lower the Trolley-pole ..	1	
By Conductor to Motorman—		
Stop at next Stopping-Place	1	
Proceed	2†	Consecutively
Stop for over-carried Passenger	2	1, pause, 1
Danger Stop (Emergency Stop signal)	3	Consecutively
Car full. Do not Stop to pick up Passengers	4	2, pause, 2

* This signal, by the Motorman, must be given by means of the Conductor's Bell.

† See sub-clause (i) clause (f), instruction 66.

(*e*) Except in the case of the signal for the Conductor to come through, all signals by the Motorman must be given on the Gong. The signals by the Conductor to the Motorman must be given on the front Bell. The use of any unauthorised communication by the Bells is strictly forbidden.

(*f*) When for any purpose the Car has been brought to a stand on a Running Line, whether at an authorised Stopping Place or elsewhere, the Motorman must not move the Car until he receives the Proceed Signal from the Conductor or other authorised person; if such signal be not given distinctly, the Motorman must not start until the signal is repeated clearly. Before starting, he must see that all is clear by looking in each direction, and where a Signalman is stationed he must not start unless the proper signal is displayed by the Signalman. In every case the Motorman must, before starting, give two sharp and distinct strokes on the foot gong. Before acting on a Proceed Signal the Motorman must make sure that the signal refers to his Car.

(*g*) The Motorman, after slowing down, must not increase the speed of the Car without first receiving a Proceed Signal from the Conductor, and before giving any such Signal, the Conductor must see that no person is about to board or alight from the Car.

(*h*) In any instance in which on receipt of the Bell Signal the Motorman does not promptly proceed, he must, before starting, look back and await a repetition of the Proceed Signal.

(*i*) The Motorman must sound the foot gong when approaching any street corner, or before crossing any side or cross street at which the view is obstructed, or when approaching any stopping place, or when approaching any other Car; he must, however, avoid unnecessary sounding of the gong, particularly when passing any place where Divine Service is being held.

(*j*) When starting from any terminus or Stop Mark and, whenever practicable at other places, the Conductor must, except in the case of Bogie Cars, give the Proceed Signal from the rear of the Car; in the case of a Bogie Car the Proceed Signal must be given from the centre of the Car.

(*k*) The Conductor must allow each passenger sufficient time to join, or alight from, the Car; he must not accept a signal from the Motorman, but must himself see that each passenger enters or leaves safely. He must not ring the Bell for the purpose of hurrying up any intending passenger, but must respectfully call out, "Hurry on, please!" He must not touch the bell-strap until he is satisfied that each passenger has entered or alighted from the Car, and that any aged or infirm person, or lady with a child in her arms, is seated.

64. Speed of Cars.—(*a*) The Motorman must regulate the running of the Car so as to maintain the Time Table, and as far as practicable he must avoid extremes in speed.

(*b*) The maximum rate of Speed, i.e., the highest rate of speed allowed for any Car on the Electric Street Railways or on any mile or portion of a mile thereof, is 25 miles per hour; but at the localities mentioned hereunder the speed must not exceed the rate specified for each particular place.

Locality.	Maximum Rate of Speed.
On any Line—	
When entering or leaving the Car Shed	5
When entering, leaving, or on, any Crossing Loop, Turnout or Cross-over road	5
When passing over any Tramway intersection ..	5
When passing over Points in the vicinity of the Car Shed	5
When testing the Brakes on taking a Car into Service; see clause (*e*) Instruction 57	10

The maximum rate of speed, &c.—*continued.*

Locality.	Maximum Rate of Speed.
St. Kilda-Brighton Line—	
When passing in either direction around the following curves, viz.:—	
Grey-street and Barkley-street	10
Barkley-street and Mitford-street	10
Mitford-street and "Broadway"	10
"Broadway"–Ormond-road	10
Ormond-road–St. Kilda-street	10
Between Young-street and Grosvenor-street on St. Kilda-street, and on Down side of Canterbury-street	10
On any curve not specified above	15
When descending the grades on—	
Grey-street, between Fitzroy and Inkerman streets; Esplanade, between Wellington and Park streets, and between Gould and Dendy streets	8
Sandringham-Beaumaris Line—	
When passing around any curve	8

(*c*) The Motorman must not take his Car within 100 yards of a preceding Car, unless the speed of his Car be such as to enable him to stop clear of the preceding Car by means of the Hand Brake only.

(*d*) The Motorman must approach every Tramway Intersection, Crossing Loop or Terminus at such a rate of speed as will enable him, if necessary, to stop at the proper place by means of the Hand Brake only.

(*e*) When ascending the grade in Grey-street, the Conductor on the trailer, if a trailer be coupled, must be ready to apply the Hand Brake if necessary; and in all cases when descending this grade he must station himself on the front platform with his hand on the brake handle, in readiness to apply it, until the Car has stopped at, or passed, the bottom of the grade.

(*f*) During and after heavy wind or rain the Motorman must be on the look out for Stones, Gravel, Sand,

etc., which may have drifted on the the track and must reduce speed where necessary to ensure safe and smooth running; where the Car has to pass over water or slush, the speed must be reduced in order to avoid splashing the electrical gear, which may cause a short circuit. If it is practicable to coast at such places the Motorman must cut off power.

(*g*) During foggy weather when the Motorman cannot clearly see a safe distance ahead, the Car must be run at such a rate of speed as will enable him to stop clear of any obstruction; the Head and Tail Signals must be lighted and kept burning.

65. Compulsory and Conditional Stopping Places.—(*a*) Compulsory Stopping Places.—A Compulsory Stopping Place is one at which every Car must be brought to a stand, irrespective of whether passengers require to board, or alight from, the Car.

(*b*) Conditional Stopping Place.—A Conditional Stopping Place is one at which, provided the Line be clear, the Motorman must not stop except when necessary to pick up or set down passengers.

(*c*) Compulsory and Conditional Stopping Places are indicated by Printed Signs or by coloured lights; the respective indications are as follow:—

(i) Compulsory Stopping Place.—By a Sign lettered—"Cars Stop Here," or by a Red Light.

(ii) Conditional Stopping Place.—By a Sign lettered—"Hail Cars Here," or by a Green Light.

Unless special instructions are issued to the contrary, where a Stopping Place (Compulsory or Conditional) is located at an intersection of public roadways the Motorman must (except as provided in clause (*b*) hereof) bring the Car to a stand in line with the buildings on the approach side of such intersection. Tramway Intersections are provided with Stop Marks which consist of a Ground Mark formed across the Line

on the approach side of the intersection and parallel to the building line. Motormen, when stopping, must not overrun the Stop Mark.

(*d*) Under ordinary circumstances, a Car must be stopped for passengers at an authorised Stopping Place only, but it must be stopped at any time or place if necessary to prevent accident. If the Car be running on time it may be stopped at any safe place to pick up an aged or infirm person, or (in wet weather) to pick up any lady except on a curve or an ascending grade. The Motorman must not slow down to allow any passenger to board or alight from the Car between Stopping Places.

A Car must not be stopped to pick up or set down a passenger at any point at which the track or roadway is broken or disturbed, or at which any obstruction is near the track, nor at any other place where the conditions appear to be unsafe.

(*e*) The Motorman must be careful not to overrun, or stop short of any Stopping Place; in determining when to shut off power and apply the Brakes, he must take into consideration the grade, the state of the weather, the condition of the rails, and the load. When approaching any Stopping Place occupied by the preceding Car the Motorman must regulate the speed of his Car so as to enable it to arrive at the vicinity of the Stopping Place as the preceding Car moves away, or to be stopped clear of such Car as the circumstances may require.

In foggy weather or when from any cause a good view cannot be obtained the Motorman must always expect the preceding Car to be standing at the Stopping Place, and he must have his Car under control and be prepared to stop clear of the obstruction.

(*f*) When approaching any Conditional Stopping Place the Motorman must keep a good look-out for intending passengers; he must, however, be on the alert

to stop if required and bring the Car to a stand-still so that the vacant portion will be opposite the point at which intending passengers are waiting.

(*g*) Before reaching a Conditional Stopping Place, the Conductor must ascertain whether any passenger wishes to alight; if so, he must give the Motorman the "Stop at next Stopping Place" Signal when not less than two pole-spans from such Stopping Place; the Conductor must announce, distinctly, the name of each Stopping Place, not only when approaching it, but also when the Car has stopped. When necessary the destination of the Car also must be announced.

Passengers may be allowed to ring one beat on the Bell for the purpose of having the Car stopped at any Conditional Stopping Place, or for any reasonable cause. The Conductor must, however, be on the alert to observe any request by a passenger to stop the Car, and to cancel any improper Bell Signal given by a passenger; he must assist any lady with children or carrying luggage, and any old and infirm person or cripple to get on or off the Car.

(*h*) When a Car is so fully loaded that it cannot accommodate more passengers, the Conductor in charge may by giving the prescribed Bell signal (4 beats; given thus—2 pause 2) authorise the Motorman to run past Conditional Stopping Places; but the Conductor must exercise care to see that no passenger is over-carried; in any instance in which such course is necessary the Motorman must sound his foot-gong and the Conductor must call out, Full Car, when passing Conditional Stopping Places. The Motorman must promptly report every case of unusually heavy loading, so that, if necessary, arrangements may be made for dealing with the extra traffic.

(*i*) Except in the case of a "Through" Car the Conductor must announce distinctly the name of each street and the end of each Fare Section, and immediately after a Street has been passed, he must announce the name of the street next in advance. In the case of a

"Through" Car that is scheduled to run through a Conditional Stopping Place, the Conductor must, on the occasion of each stoppage, announce where the next ordinary stop will be made.

66. Tramway Intersections.—(*a*) When approaching any intersection at which the Line crosses a Tramway track the Motorman must exercise due care to avoid over-running the Stop Mark on the approach side of the intersection.

(*b*) When a Railway Car and a Tramway Car arrive at an intersection at or about the same time, precedence must be given to the Car that is first ready to pass over the intersection; the Motorman, however, must not attempt to start from the Stop Mark unless the proper signal is exhibited for his Car to proceed.

(*c*) Where a Hand Signalman is appointed to regulate the movements of Cars, no Car must be allowed to pass on to, or foul the intersection, unless the proper Hand Signal is exhibited by the Signalman.

The Hand Signal to authorise the respective Motormen to proceed over the intersection must be displayed as specified in sub-sections (i) and (ii) hereunder:—

(i) To the Motorman of an Electric Street Railway Car	A Green Flag or Green Light waved slowly Up and Down.
(ii) The Motorman of a Tramway Car	A White Flag or White Light waved slowly Up and Down.

(*d*) The Motorman must shut power off whilst the Car is passing under the overhead Section Insulator on each side of the crossing. See also clause (*e*), Instruction 74.

(*e*) If when approaching an intersection the Car should, from any cause, be stopped before reaching the Stop Mark, the Motorman, on receipt of the Conductor's