

Lackawanna  
Railroad

INSTRUCTIONS

GOVERNING  
THE USE OF

AUTOMATIC BLOCK AND INTERLOCKING  
SIGNALS

THE DELAWARE, LACKAWANNA &  
WESTERN RAILROAD COMPANY

TO BE STRICTLY OBSERVED UNLESS OTHERWISE  
PROVIDED IN TIME TABLES OR SPECIAL BULLETINS

EFFECTIVE DEC. 16, 1900

SUPERSEDING BOOK OF RULES M. & E. DIVISION, DATED JULY, 1894,  
AND N. Y., L. E. & W. R. R. AND D. L. & W. R. R. RULES  
FOR GRADE CROSSINGS, ISSUED IN 1888

FORM S. E. 7.

11-13.



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**FORM S. E. 7.**

11-13.

**GENERAL RULES**  
**FOR**  
**ENGINEMEN AND TRAINMEN**



1. Fixed signals are located over or at the right of the track they protect as viewed from the train governed, except as noted in special instructions.

2. The absence of a semaphore signal or signal light from its proper location or an improperly displayed disc or light, indicates—**Danger, Stop.**

3. Distant and home signals apply only to trains and engines running in the proper direction, and do not give any rights or protection to trains or engines moving in the opposite direction.

4. Enginemen finding a distant signal at "Caution" must immediately bring their trains under control and be prepared to stop before reaching the home signal.

5. The use of the fixed signals does not relieve enginemen, conductors or trainmen from protecting their trains as provided in time table rules.

6. In foggy or stormy weather, enginemen must approach both distant and home signals with great care, and have train under control. This applies to both automatic block and interlocking. See time table rules.

7. Both enginemen and firemen must watch signals carefully, as frequently the first view can be had from the fireman's side.



8. All trainmen must be sure to set cars back in sidings beyond the wooden insulating joints back of the clearance points, as otherwise the signal protecting that block will remain at danger and cause detention to following trains.

9. A switch must not be opened until flagmen have been sent out as prescribed in the rules.

10. Each switch is provided with a switch instrument, connected to its points in such a manner that the opening of any switch will hold the home signal of that block at danger until the switch is again closed. The opening of a switch at either end of a main track crossover will hold the signals on both tracks at danger in the same manner. Neither switch of a crossover must, therefore, be opened until the movement of the train is to be made.

11. This system of signals does not affect flagging rules, and none of the usual precautions are to be omitted, and rules must be carried out at all times and places in the same manner as if the block signals did not exist. Block, or interlocking signals do not dispense nor interfere with the use of other signals whenever and wherever they may be required to protect drawbridges or for other purposes. The block signal system is intended for additional safety to trains and to prevent the admission of a second train or engine into any block until the first train has passed out or has cleared the main track by taking a siding.

12. Bulletins will be issued when new signals are put in service. Arms will not be put on semaphore signals nor discs placed in banjos until they are in service. After being so placed they must

be regarded as in service whether bulletin notice has been issued or not.

13. All automatic block signals are designated by numbers indicating the distance in tenths of miles from Hoboken. Signals governing westbound trains have odd numbers, and signals governing eastbound trains have even numbers. Interlocking signals are not numbered. If a block signal is out of order, the letter "C" indicating "Caution," will be displayed in place of the number.

14. When a train is stopped by a signal which is evidently out of order, the conductor must report the fact to the Superintendent, from the next regular stopping place at which there is an open telegraph office, giving the signal number. Interlocking signals must be reported by giving the location or number of the signal cabin. Enginemen will also report in detail all delays at signals, except those where the letter "C" is displayed, on Form SE-22, at end of every trip.

## BLOCK SIGNALING



### DEFINITIONS.

**Block.**—A length of track of defined limits, the use of which by trains is controlled by block signals.

**Block Station.**—A place from which block signals are operated.

**Block Signal.**—A fixed signal controlling the use of a block.

**Home Block Signal.**—A fixed signal at the entrance of a block to control trains in entering and using said block.

**Distant Block Signal.**—A fixed signal used in connection with a home block signal to regulate the approach thereto.

**Advance Block Signal.**—A fixed signal used in connection with a home block signal to subdivide the block in advance.

**Block System.**—A series of consecutive blocks.

## AUTOMATIC BLOCK SYSTEM.

A series of consecutive blocks controlled by block signals operated by electric, pneumatic or other agency, actuated by a train or by certain conditions affecting the use of a block.

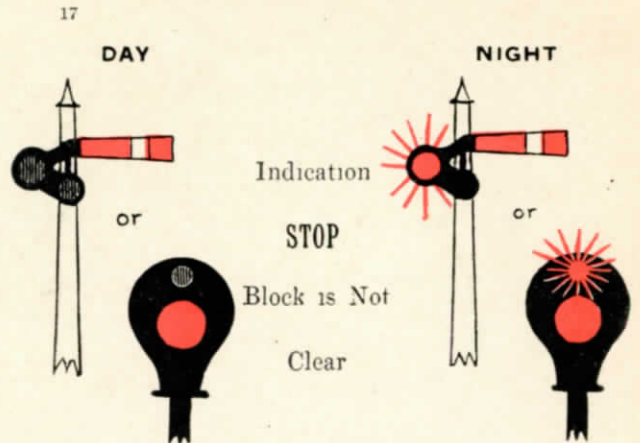
### REQUISITES OF INSTALLATION.

- 1.—Signals of prescribed form, the indication given by two positions; and in addition, at night by lights of prescribed color.
- 2.—The apparatus so constructed that the failure of any part controlling the home block signal will cause it to indicate—**Stop**.
- 3.—Signals, if practicable, either over or upon the right of and adjoining the track upon which trains are governed by them.
- 4.—Semaphore arms that govern, displayed to the right of a signal mast as seen from an approaching train.
- 5.—Switches in the main track so connected with the block signals that the home block signal in the direction of approaching trains will indicate stop when the switch is not set for the main track.
- 6.—Signal connections and operating mechanism so arranged that a home block signal will indicate stop after the head of a train shall have passed it.

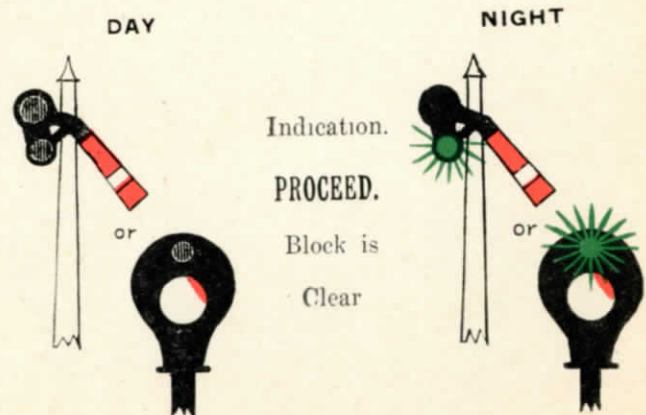
## ADJUNCTS.

The following may be used:

- A.—Distant block signals connected with corresponding home block signals, and so constructed that the failure of any part controlling the signal shall cause it to indicate —**Caution.**
- B.—Track circuits.
- C.—Indicators at main track switches.

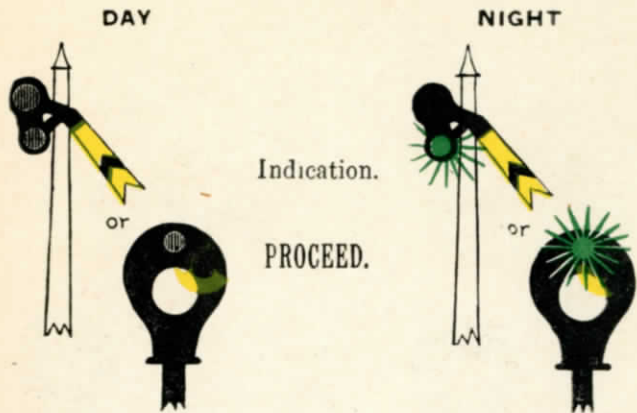
BLOCK SIGNAL RULES FOR ENGINEMEN  
AND TRAINMEN

NAME—STOP SIGNAL.



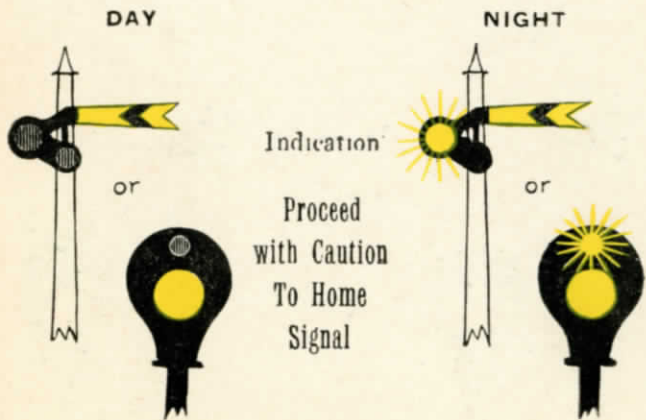
NAME—CLEAR SIGNAL.





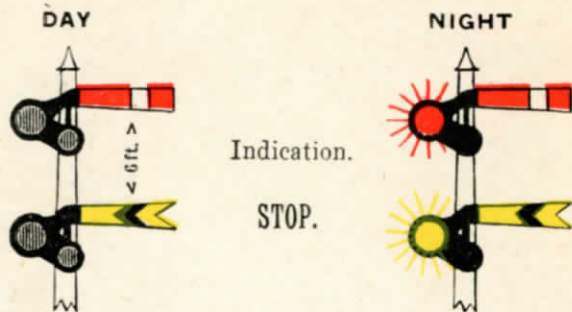
Indication.  
PROCEED.

NAME—CLEAR SIGNAL.

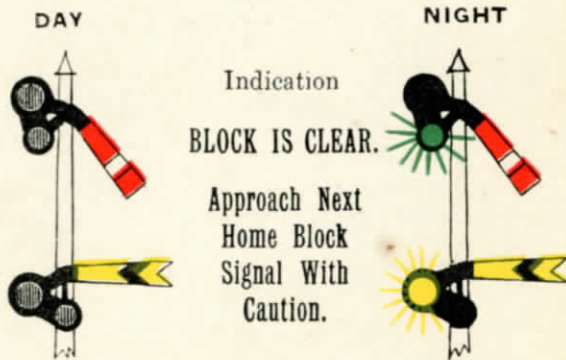


Indication  
Proceed  
with Caution  
To Home  
Signal

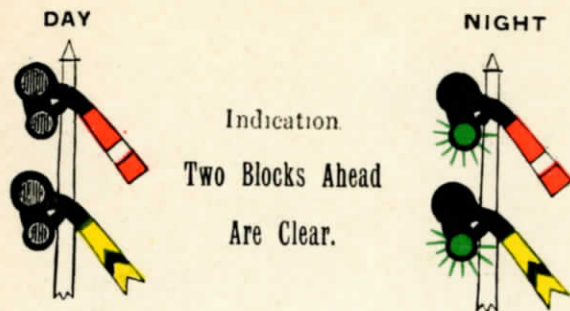
NAME—CAUTION SIGNAL



Indication.  
STOP.



Indication  
BLOCK IS CLEAR.  
Approach Next  
Home Block  
Signal With  
Caution.



NOTE.—All semaphore arms that govern are displayed to the right of signal mast as seen from an approaching train.

18. Stop signal will be displayed when block is not clear. Caution signal will be displayed when home signal shows stop or when track is obstructed between home and distant signal. The normal indication of all block signals is clear.

19. Block signals control the use of the blocks, but, unless otherwise provided, do not affect the movements of trains under the time table or train rules; nor dispense with the use or the observance of other signals whenever or wherever they may be required.

20. Block signals apply only to trains running in the established direction.

21. When a train is stopped by a block signal it may proceed when the signal is cleared. Or it may proceed after waiting one minute, and then running under control to the next home signal, or it may proceed under control without stopping when the letter "C" is displayed instead of the number.

22. Engineman of any train entering a block, as provided by these rules, will be held responsible in case of an accident caused by overtaking the preceding train.

## INTERLOCKING



### DEFINITIONS.

**Interlocking.**—An arrangement of switch, lock and signal appliances so interconnected that their movement must succeed each other in a predetermined order.

**Interlocking Plant.**—An assemblage of switch, lock and signal appliances interlocked.

**Interlocking Cabin.**—A building from which an interlocking plant is operated.

**Interlocking Signals.**—The fixed signals of an interlocking plant.

**Home Signal.**—A fixed signal at the point at which trains are required to stop when the route is not clear.

**Distant Signal.**—A fixed signal of distinctive character used in connection with a home signal to regulate the approach thereto.

**Dwarf Signal.**—A low fixed signal.

**Pot Signal.**—A revolving disc signal used as a substitute for a dwarf signal.



## REQUISITES OF INSTALLATION.

- 1.—The interlocking of signals with switches, locks, railroad crossings, or drawbridges, so that a clear signal cannot be given unless the route to be used is clear and stop signals displayed for all conflicting routes.
- 2.—The interlocking of switches, locks, railroad crossings, drawbridges and signals through levers, or their equivalent.
- 3.—Interlocked levers, or their equivalent, by which switches, locks and signals are operated.
- 4.—Signals of prescribed form, the indications given by two positions, and in addition at night by lights of prescribed color.
- 5.—The apparatus so constructed that the failure of any part directly controlling a signal will cause it to give the normal indication.
- 6.—Signals, if practicable, either over, or upon the right of and adjoining the track to which they refer.
- 7.—Semaphore arms, that govern, displayed to the right of the signal mast as seen from an approaching train.
- 8.—The normal indication of home signals—**Stop**; of distant signals—**Caution**.
- 9.—The apparatus so constructed that the failure of any part directly controlling a switch or lock will prevent the display of a clear signal.
- 10.—Facing point locks, for all facing point switches in the main routes.

- 11.—Detector bars or their equivalent, for all facing point switches in main routes.
- 12.—Pipe, or its equivalent, compensated for changes in temperature, for connecting levers, in mechanical interlocking, with switches and locks.
- 13.—Latch locking, or its equivalent.
- 14.—The established order of interlocking such that: A clear home signal cannot be displayed until derails or diverging switches, if any, in conflicting routes are in their normal position, and the switches for the required route are set and locked. The display of a clear home signal shall lock all switches and locks in the route as far as the point to which such signal gives permission to proceed, locking all opposing or conflicting signals and releasing the corresponding distant signal, where such signal is used. Where distant signals are used, the display of a clear distant signal shall lock the home signal in the clear position.
- 15.—Interlocking and block signals, interconnected, where both are operated from the same cabin.

## ADJUNCTS.

The following may be used if desired:

- A.—Dwarf signals.
- B.—Distant signals.
- C.—Bolt locking of switches, or its equivalent, by signal connections.

- D.—Derails, or diverging switches, for railroad crossings, drawbridges, junctions, and in sidings connected with the running tracks; Normal position—**Open**.
- E.—Electric locking of derails, facing point switches and drawbridges so that they cannot be opened after a train has passed the clear distant signal until the train has passed over them.
- F.—Detector bars, or their equivalent, at railroad crossings and junctions.
- G.—Repeaters or audible signals to indicate the position of signals to the signalmen operating them.
- H.—Annunciators indicating the approach of a train, or for other purposes.
- J.—Route indicators.
- K.—Torpedo placers.

# RULES

FOR THE

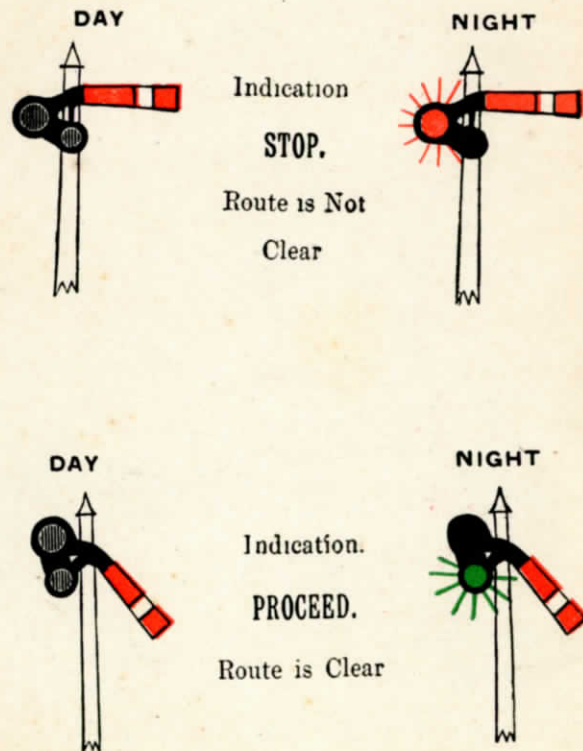
## OPERATION AND MAINTENANCE

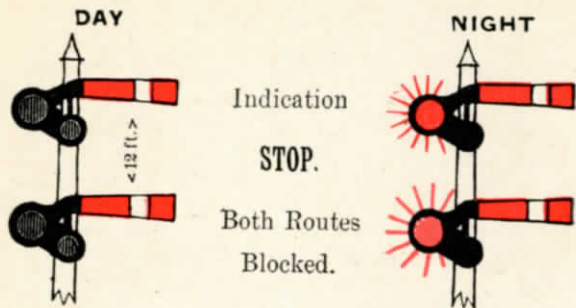
OF

### INTERLOCKING PLANTS

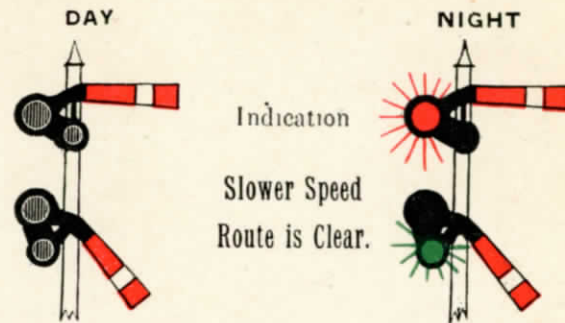
#### ENGINEMEN AND TRAINMEN

23.

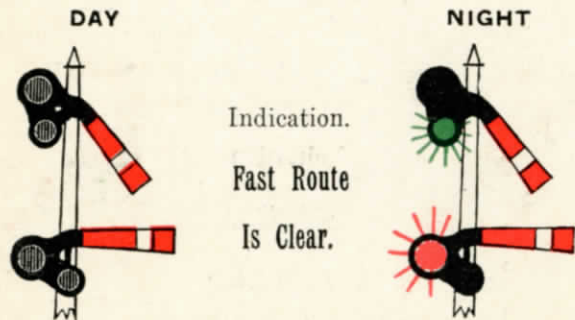




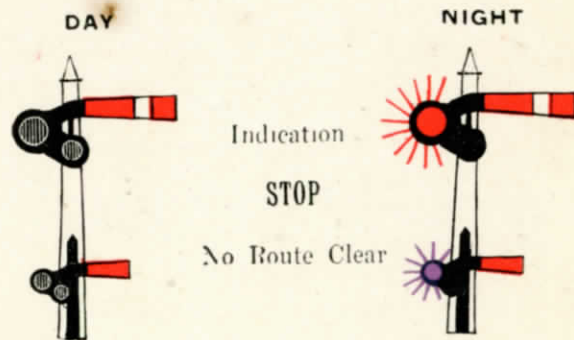
USED FOR TWO FAST SPEED DIVERGING ROUTES.



USED FOR TWO FAST SPEED DIVERGING ROUTES.



USED FOR TWO FAST SPEED DIVERGING ROUTES.





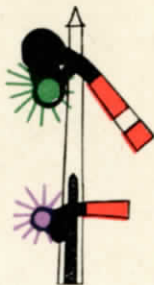
DAY



Indication.

**PROCEED.**Main Line Route  
Is Clear

NIGHT



DAY



Indication

**STOP.**

Route Not Clear

NIGHT



DAY



Indication

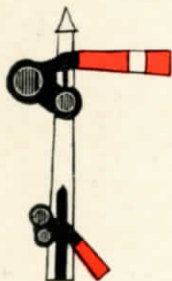
**PROCEED.**Slow Speed or Switch-  
ing Route Is Clear

NIGHT



USED FOR SWITCHING AND REVERSE MOVEMENTS

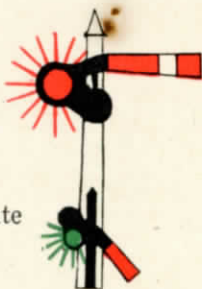
DAY



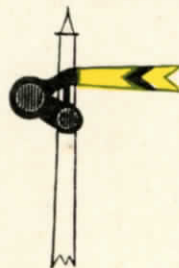
Indication

Proceed With  
**Caution.**Low Speed Route  
Is Clear.

NIGHT

USED FOR DIVERGING ROUTES, ONE OR MORE BEING  
SLOW MOVEMENTS INTO SIDINGS, YARDS, ETC.

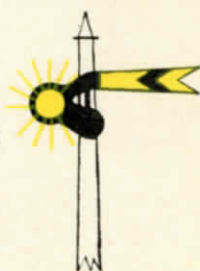
DAY



Indication

Proceed With  
**Caution to**  
Home Signal.

NIGHT



NAME—CAUTION SIGNAL



Indication.

PROCEED.



NAME—CLEAR SIGNAL.

NOTE.—All semaphore arms that govern are displayed to the right of signal mast as seen from an approaching train.

24. Interlocking signals, unless otherwise provided, do not affect the rights of trains under the time table, or train rules, and do not dispense with the use or the observance of other signals.

25. Trains or engines must be run to, but not beyond a signal indicating "Stop."

26. If a clear signal is changed to a stop signal before it is reached, the stop must be made at once. Such occurrences must be reported to the Superintendent.

27. Enginemen and trainmen must not accept clear hand signals against fixed signals, unless fixed signals are out of order, and then only when fully informed of the situation and knowing that they are protected.

28. The engineman of a train which has parted, on approaching an interlocking cabin, must sound the whistle signal for "train parted."

29. An engineman receiving a "train parted" signal from the signalman must answer by the whistle signal for "train parted." When the train has been recoupled the signalman must be notified.

30. Sand must not be used, nor water wasted, nor cylinder cocks opened over movable parts of an interlocking plant.

31. Enginemen are required to keep trains and engines clear of detector bars at interlocking plants.

32. Trains or engines stopped within the limits of an interlocking plant, must not move in either direction until they have received proper signal from the signalman.

33. Where dwarf or pot signals are provided they govern all movements from main tracks to spur tracks, from sidings to sidings or main tracks, and on main tracks against the established direction. Where these signals are not provided, a train or engine must not move in the wrong direction without proper signal from the signalman, and then only under protection of flagman.

34. In case of unusual detention at an interlocking home signal, the engineman will sound his whistle, and if necessary a trainman will notify the signalman of the position of the train. Such detention must be reported to the Superintendent.

## SIGNALMEN.

35. The normal indication of home signals is —**Stop**, of distant signals—**Caution**.

36. Levers, or other operating appliances must be used only by those charged with the duty and as directed by the rules.

37. Signal levers must be kept in the position giving normal indication, except when signals are to be cleared for an immediate train or engine movement.

38. When the route is clear the home and distant signals must be cleared sufficiently in advance of approaching trains to avoid delay.

39. Signals must be restored to normal position as soon as the train or engine for which they were cleared has passed.

40. If necessary to change any route for which the signals have been cleared for an approaching train or engine, switches must not be changed nor signals cleared for any conflicting route until the train or engine for which the signals were first cleared has stopped.

41. No attempt must be made to move a switch or facing point lock when any portion of a train or an engine is standing on or closely approaching the switch or detector bar, unless the moving of such a switch or derail will lessen the liability of accident.

42. Levers must be operated carefully and with uniform movement. If any irregularity indicating disarranged connections, be detected in their working, the signals must be restored to normal indication, and the connections examined. Levers must never be forced. Levermen will be held responsible for any damage occasioned by rough handling.

43. Signalmen must observe, as far as practicable, whether the indication of the signals corresponds with position of the levers.

44. During the night, signals must be observed frequently to ascertain whether lights are properly displayed. In case a signal light is extinguished, said signal must be kept at danger until train has been stopped, when arm may be lowered. The lamp must be relighted at the first opportunity.

45. If any signal fails to work properly its operation must be discontinued and the signal secured so as to give the normal indication until repaired.

46. If necessary to discontinue the use of any fixed signal, hand signals must be used and the Superintendent notified.

47. If there is a derailment or if a switch is run through, or if any damage occur to the track or interlocking plant, the signals must be restored to normal indication, and no train or switching movement allowed until all parts of the interlocking plant and track liable to consequent injury have been examined and are known to be in a safe condition, and in such case trains that are to move over conflicting routes must be stopped before home signal is cleared for them.



48. If necessary to disconnect a switch from interlocking apparatus the switch must be securely fastened.

49. During storms or drifting snow, special care must be used in operating switches. If the force whose duty it is to keep the switches clear is not on hand promptly when required the fact must be reported to the Superintendent.

50. During cold weather the levers must be moved as often as may be necessary to keep connections from freezing.

51. If any electrical or mechanical appliance fails to work properly the Signal Engineer must be notified and only duly authorized persons allowed to make repairs.

52. Signalmen will be held responsible for the care of the cabin, lamps and supplies; and of the interlocking plant, unless provided for otherwise.

53. Signalmen must not make any unauthorized alterations or additions to the plant.

54. When switches or signals are undergoing repairs, signals must not be given for any movement which may be affected by such repairs unless it has been ascertained from repairmen that the switches are properly set for such movements.

55. Night signals must be displayed from sunset to sunrise. When weather or other conditions obscure day signals, night signals must be used in addition.

56. Signalmen must have the proper appliances for hand signaling ready for immediate use. These must be used when the proper indication cannot be given by a fixed signal.

**NOTE.—Hand signaling includes the use of lamp, flag, torpedo and fusee signals.**

57. Hand signals must not be used when fixed signals are in proper working order. When hand signals are authorized, they must be given from such a point and in such a way that there can be no misunderstanding on the part of enginemen or trainmen as to the signals displayed, or as to the train or engine for which they are given.

58. If any train or engine passes a stop signal, the fact, with the number of train or engine, must be reported to the Superintendent.

59. If a signalman has information that an approaching train has parted, he must, if possible, stop trains or engines on conflicting routes, clear the route for the parted train and give the "train parted" signal to the engineman.

60. Signalmen must observe all passing trains and note whether they are complete and in order and the markers properly displayed.

61. Only those whose duties require it must be allowed in the cabin.

62. Passenger trains must be given precedence over freight trains, but after clearing the signals for an approaching train they must not be changed until after the rear of such train has passed them unless that train shall have stopped outside the stop signal, except as prescribed in rule 64.

63. Signals may be taken away from a train at any time, provided anything is discovered that might endanger its safety, and every effort must be made to avoid accident.

64. When a route is signaled in one direction only, and a movement is necessary in the opposite direction over that route, the signal lever governing the route must be unlatched to make sure that the route is set; said lever must then be set in normal position and the train flagged through limits of the interlocking. This practice of unlatching lever to make sure that route is properly set should be followed wherever possible, where hand signals are necessary.

65. When there is a defect in the machine or locking, making it possible to clear a signal with a switch, derail or lock in the wrong position, or a conflicting signal clear, the signal or signals affected must be kept in normal position, and the train must not be flagged past such signal or signals until leverman is sure that the route is set.

66. Enginemen using sand or wasting water within the home signal limits of the interlocking must be reported to the Superintendent.

67. During the day if an arm is removed from a mast, trains that are affected by such signal must be stopped by a flagman placed in advance of the signal affected, and flagged through the limits of the interlocking in accordance with instructions from the leverman.

68. At night if the red glass in a signal is broken, the arm must be kept in normal position, and a red lantern substituted for the regular

lamp. A train stopped by such signal must be flagged through the limits of the interlocking.

69. At night if the caution glass in a distant signal is broken, the arm must be kept in normal position, and a yellow lantern substituted for the regular lamp.

70. Signalmen on duty must not leave the tower except in case of absolute necessity.

71. Switches may be operated upon request of section men or signal repairmen, whenever it is safe to do so.

**NOTE.—Failure to understand the foregoing rules or neglect to examine bulletins will not be accepted as an excuse for their violation.**

E. M. RINE, General Superintendent.

**REPAIRMEN.**

72. Repairmen are responsible for the inspection, adjustment, and proper maintenance of all the interlocking plants assigned to their care.

73. Where the condition of switches or track does not admit of the proper operation or maintenance of the interlocking plant, the fact must be reported to the signalman and to the Signal Engineer.

74. When any part of an interlocking plant is to be repaired a thorough understanding must be had with the signalman, in order to secure the safe movements of trains and engines during repairs. The signalman must be notified when the repairs are completed.

75. If necessary to disconnect any switch, it must be securely fastened before any train or engine is permitted to pass over it.

76. No alterations or additions to an interlocking plant must be made unless authorized by the Signal Engineer.

77. Repairmen when on duty, or subject to call, must keep the Superintendent advised as to where they can be found, and respond promptly when called.

78. Track foremen and other road department employes will report promptly by wire to the General Roadmaster any defects noticed in signals, wires, or other appurtenances.

G. J. RAY, Chief Engineer.



