

RULES AND REGULATIONS
FOR THE
GOVERNMENT OF OPERATING
OFFICERS and TRAINMEN
OF THE
ILLINOIS TRACTION SYSTEM

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No. 110



Taking Effect April 1st, 1911

AUTOMATIC BLOCK SIGNALS.

122. Automatic Block Signals, controlled by a track circuit in the rails, will be installed on different sections of the System, and as the various sections are ready for operation, bulletins to that effect will be issued and posted for the information of the employes concerned.

There will be two kinds of protection afforded by these automatic signals: First, the continuous protection or blocking between sidings; second, the local or curve protection for dangerous curves and other points where the view is obstructed.

It shall be the duty of all trainmen to familiarize themselves with the following rules as well as the location of the different signals, the meaning of the different indications shown, and the extent of the protection afforded.

DEFINITIONS.

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

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

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

126. **Distant Block Signal:** A fixed signal used in connection with the home block signal to regulate the approach to said home block signal.

127. **Block System:** A series of consecutive blocks.

128. **Automatic Block System:** A block system in which the signals are operated by electric current actuated by a train or by certain other conditions affecting the use of a block.

129. The apparatus is so constructed that the failure of any part controlling the home block signal will cause it to indicate "Stop" and the distant block signal to indicate "Caution."

130. The normal indication of the home and distant signals is clear.

131. The distant signal being so controlled that if the home signal indicates "Stop" the distant signal will indicate "Caution."

BLOCK SIGNAL RULES.

132. All automatic block signals are distinguished by numbers, the even numbered

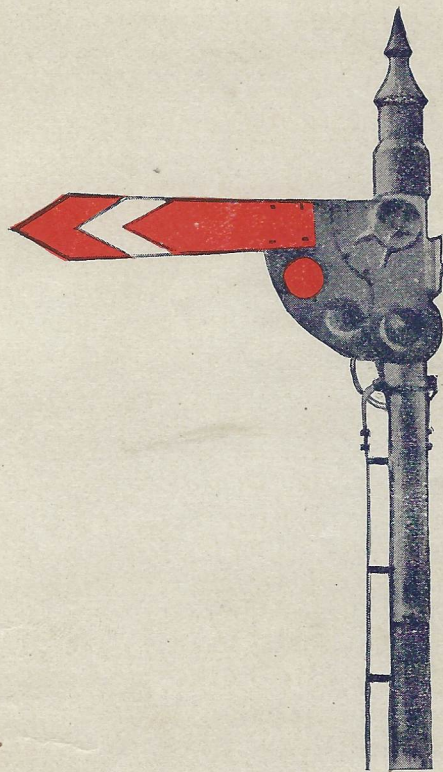


Fig. 1

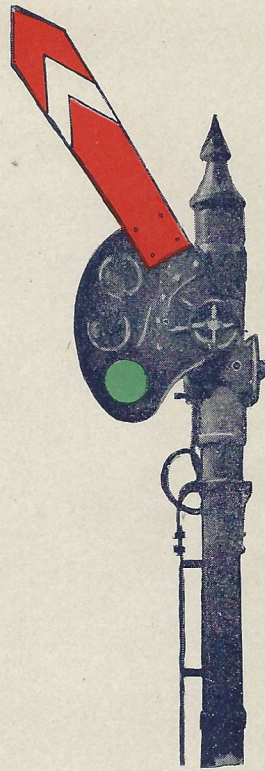


Fig. 2

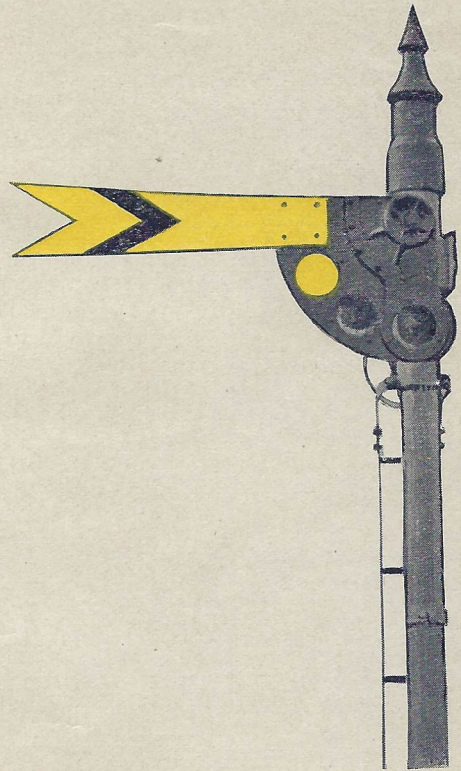


Fig. 3

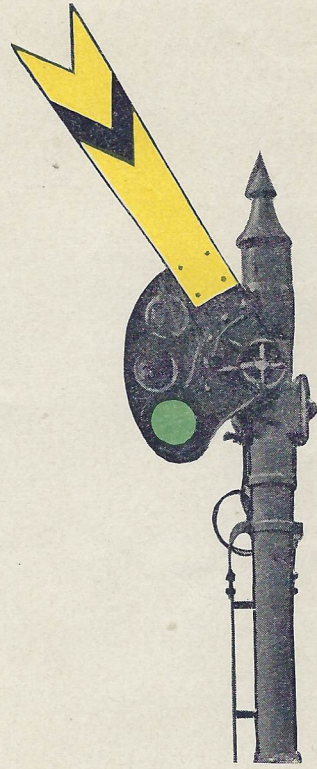


Fig. 4

signals controlling north and east bound trains and the odd numbered signals the south and west bound trains.

133. Block signals control the use of the blocks, but unless otherwise provided, do not affect the movement of trains under the time card or train rules, nor dispense with the use or observance of other signals whenever and wherever they may be required. This system 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.

134. Block signals apply only to trains running in the established direction, and are displayed on the right hand side of the track, movement over which they govern.

135. Automatic signals are of the semaphore type and, unless otherwise designated, are positive signals.

136. Indications are given by not more than two positions of the arm operating in the upper left hand quadrant, and in addition, by lights of prescribed color.

137. On automatic block signals the arms that govern are displayed to the left of the post as seen from an approaching train.

138. The arm of the home automatic block signal has a pointed end and is painted red with a white band near the end (See Figure 1).

139. On automatic block signals the arm of the home signal in the horizontal position by day and a red light by night, indicates "Stop" (See Figure 1).

140. The arm of the home automatic block signal at an angle of 60 degrees above the horizontal by day and a green light by night, indicates "Proceed" (See Figure 2).

141. The arm of the distant automatic block signal in the horizontal position by day and a yellow light by night, indicates "Caution"—be prepared to stop at the home signal." (See Figure 3.)

142. The arm of the distant automatic block signal at an angle of 60 degrees above the horizontal by day and a green light by night, indicates "Proceed," except as noted in Rule 151. (See Figure 4.)

143. A signal improperly displayed, a white light by night displayed on a signal, or the absence of a signal at a place where a signal is usually shown, must be regarded as a "Stop" signal and the fact reported to the dispatcher.

144. When a train is stopped by a block signal that is evidently out of order, after waiting two minutes the motorman must call up the dispatcher and proceed only after the dispatcher has given the authority for so doing on the form used for a regular order.

145. Reports of detentions to trains by signals must be made by the motorman to the dispatcher by telephone, at once, and a written report sent to the dispatcher and signal engineer on the form provided, upon arriving at the end of the run.

146. In reporting a signal the number of the signal as indicated on the signal itself must be used.

147. Motormen before reporting the cause of the stop "Unknown" must, if possible, ascertain if such stop was caused by a train in the block, an open switch, a broken rail, or some other obstruction.

148. Switches in or leading to the main track are provided with switch boxes so connected to the switch points that opening the switch in any block will cause the home signals governing that block to indicate "Stop" and the distant signals to indicate "Caution," until the switch is again closed.

149. Cars taking the siding must be stopped clear of the fouling point and insulated track joints, as otherwise the signal for the block in which the siding is located will indicate "Stop."

150. Block signals are absolute except as per Rule No. 144, and that north-bound trains may run past a "Stop" signal at a meeting point in order to take the siding.

151. North-bound trains approaching a meeting point, and finding the distant signal at the meeting point clear, must stop, and, after waiting one minute, call the dispatcher. In case the orders are not changed the train must wait until the distant signal goes to "Caution" before proceeding to the siding. This rule applies only to north-bound trains at the time card or train order meeting points.

152. A train having entered the siding and cleared the main line at a meeting point, the conductor must leave the switch set for the siding and remain at the switch until he sees the other train approaching, and knows that it has passed the distant signal. He may then close the switch and give the other train the signal to proceed.

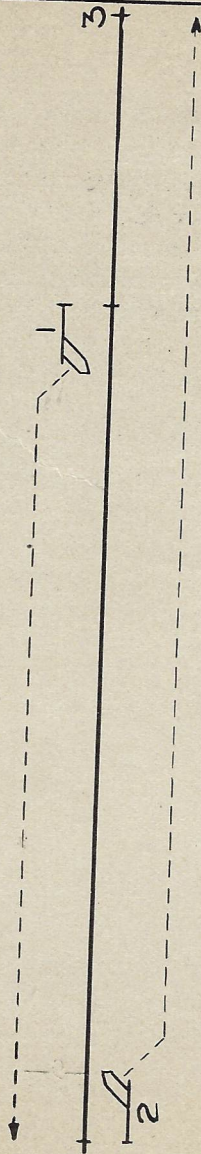
153. Trains taking a siding must in every case back out of said siding.

154. Any train entering the main line from a siding, except in the case of a regular time card or train order meet, must protect his rear end by flag, the flagman going back a sufficient distance to insure full protection.

155. Trackmen and other employes will report promptly to the Dispatcher and Signal Engineer by telephone all defects noticed in the block signal system.

The following is a description of the operation of the signals for both the curve and siding protection.

CURVE PROTECTION



CURVE PROTECTION.

Figure 5 shows a typical arrangement of curve protection signals, the dangerous curve being between Signals Nos. 1 and 2. Whenever it is possible, these signals are placed about 2,000 feet from the beginning of the curve. The dotted lines show the limits of control of the signals, or the point to which the signal is controlled. Point 3 is called the preliminary and is usually about 1,500 feet from Signal No. 1. The operation of the signals is as follows:

A train approaching from the right passes Point 3; as soon as the first truck is past this point, Signal No. 2 goes to the "Stop" position, and any train approaching from the left will be stopped by Signal No. 2. The first train continues past Signal No. 1, which is in the clear position, and runs on around the curve knowing that if Signal No. 1 is clear there is no train between the two signals. The fact that Signal No. 1 is clear, however, does not mean that the track is clear to the next siding, and in going around a protected curve a motorman must always expect to find another train standing at the opposing signal, and be under such

control that he can stop before reaching it.

When a train is running from left to right and passes Signal No. 2 while it is clear, which shows that the other train has not passed Point 3, because No. 2 is controlled to Point 3, Signal No. 1 will go to danger and stop any train running from right to left.

Should two following trains approach a dangerous curve close together, the second train would be stopped by the signal until the first section had passed beyond the limits of control of that signal.

SIDING PROTECTION.

Referring to Figure 6, A, B and C are three sidings with the usual arrangement of signals at each. North is on the right-hand side of the page as distinguished by the Signal Numbers (See Rule 132).

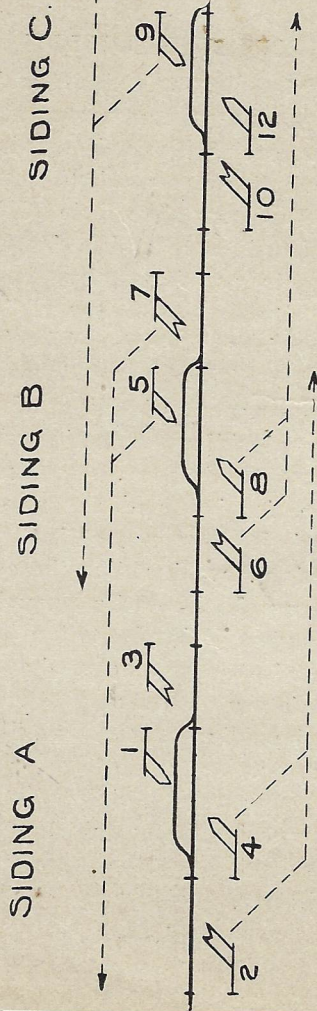
Signals Nos. 2, 6, 10 and 3, 7, and 11 are distant signals as shown by the slotted blade, and Signals Nos. 4, 8 and 12 and 1, 5, and 9 are home signals. The limits of control of the different signals are shown in the same manner as in Figure 5.

One pair of siding protection signals is almost exactly similar to a set of curve signals. Take, for instance, the two Signals Nos. 4 and 5. These are two opposing home signals placed just like the curve signals in Figure 5, the preliminary being on the south end at Point 2. Other home and distant signals on the plan tend to confuse, but if the theory of the curve protection is mastered, the siding protection will be readily understood.

A train approaching siding C from the north passes Signal 11; this has no effect on Signals Nos. 6 and 8, as they are controlled only to Signal No. 9. A train pass-

Fig. 6

SIDING PROTECTION.



ing Signal No. 9, however, will block the opposing train at Signal No. 8 because this signal goes to the "Stop" position as soon as Signal No. 9 is passed.

In the other direction, a train passing Signal No. 6, which is the preliminary for Signal No. 9, will cause Signal No. 9 to go to the "Stop" position as in the curve protection described above.

Now considering that Siding B is a meeting point and the south-bound train is late, should the north-bound train pass Signal No. 6 while it is clear, which shows that there is no train between that signal and Signal 9, it might stop the south-bound train at Signal No. 9 until the north-bound train reaches the siding. In this case the train in the siding would have to wait for the south-bound train to run from Signal 9 to the Siding B before it could proceed north. If the north-bound train waited at Signal No. 6 until it went to "Caution," which indicates that the south-bound train had passed Signal No. 9 (see Rule No. 151); the north-bound train could then proceed to the siding and get into clear without blocking the south-bound train and neither train would be greatly delayed.

In the case of a south-bound train ap-

proceeding the meeting point at B before Signal No. 7 goes to "Caution," it can proceed at once to the siding and get into clear, for the reason that Signal No. 4 is controlled only up to Signal No. 5, and not beyond it to Signal No. 7.

For ordinary meets when both trains are on time and arrive at the meeting point together, the first train, when possible, takes the siding, the other train stopping at the home signal at the far end of the siding until this signal clears.

INTERLOCKING SIGNALS.

Definitions.

156. **Interlocking:** An arrangement of switch, lock and signal appliances so interconnected that their movements must succeed one another in a predetermined order.

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

158. **Interlocking Station:** A place from which an interlocking plant is operated.

159. **Interlocking Signals:** The fixed signals of an interlocking plant.

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

161. **Distant Signal:** A fixed signal used in connection with a home signal to regulate the approach thereto.

162. **Home Drawbridge Signal:** A fixed signal protecting a drawbridge, located at the point at which trains are required to stop when the route is not clear.

163. **Dwarf Signal:** A low, fixed signal of semaphore type.

PRINCIPLES OF LOCATION.

164. Signals, if practicable, will be located upon the right of and adjoining the track upon which trains are governed by them.

165. Wherever the space between tracks is not sufficient for signal posts to be located next the track to which they refer, the posts carrying the arms will be located either on a signal bridge, bracket post or on a post to the left of the track.

166. The number of poles on a bracket post correspond with the number of tracks between the post and the furthestmost track governed.

167. Where there is an unsignaled track between the bracket post and the track which it is to govern, an unsignaled pole is

used on the bracket post to designate the unsignaled track.

168. Reverse movements from the established direction and movements on or from sidings may be governed by dwarf signals placed, whenever possible, to the right of the movements governed.

169. Diverging movements from any running track in the established direction are governed by home signals located one above the other on the same post. The upper home signal will govern the main or superior route, and the lower home signal inferior, diverging routes. The middle home signal, if any, will govern any important branch or connection.

RULES.

170. Interlocking signals, unless otherwise provided, do not affect the movement of trains under the time-table or train rules; nor dispense with the use or observance of other signals whenever or wherever they may be required.

171. **Normal Indication of Signals:** The normal indication of interlocking signals is "Stop," except the distant, which is "Caution—Be prepared to Stop at the Home Signal."

172. Indications are given by two positions of the arms, and in addition by lights of prescribed color, at night.

173. The arms of home and dwarf signals have a square end, and are painted red with a white band near the end.

174. **Home Signal:** The arm of the home signal in the horizontal position by day, and in addition, a red light by night, indicates "Stop."

175. When in the "Stop" position, home and dwarf signals must not be passed until authority to do so is given by train order or by the towerman or some one in authority.

176. The arm of the home signal, at an angle of 60 degrees below or above the horizontal by day, and in addition, a green light by night, indicates "Proceed."

177. **Distant Signal:** The arm of the distant signal has a forked end and is painted yellow with a black band near the end.

178. The arm of the distant signal in the horizontal position by day, and in addition a yellow light by night, indicates "Caution—Be prepared to Stop at the Home Signal."

179. The arm of the distant signal, at an angle of 60 degrees below or above the hori-

zontal by day, and in addition a green light by night, indicates "Proceed."

180. The arm of the dwarf signal at an angle of 60 degrees below or above the horizontal by day, and in addition a green light by night, indicates "Proceed."

181. A signal improperly displayed, a white light by night, displayed on any signal, or the absence of a signal at a place where a signal is usually shown, must be regarded as a stop signal and the fact reported to the dispatcher.

182. Motor crews should, wherever possible, observe the position of all semaphore arms at night to see that they correspond with the indications given by the lights.

183. Motormen must know the indication of all fixed signals before passing them. When interlocking signals are obscured, the motorman must bring his train under immediate control and run cautiously until he can positively distinguish the signals.

184. When backing, or when cars are pushed ahead of an engine, the conductor of the train will observe all signals and repeat their indication by hand signals.

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

186. If a clear signal is changed to a

stop signal before it is reached the train must be stopped at once. Such occurrences must be reported to the Dispatcher and Signal Engineer.

187. Where fixed signals are in use, trainmen must not give "Proceed" hand signals as against the indications of the fixed signals, except as provided in Rule 189.

188. Home signals, protecting drawbridges, while at "Stop," must not be passed by an engine or train until a "Proceed" card is received by the motorman or engineman from the drawbridge foreman, indicating that the signal is out of order and that the derails, bridge rails and locks are in proper position for the safe movement of the train. Motorman or engineman receiving a "Proceed" card to pass a home drawbridge signal at stop, will proceed with the train under full control and must observe that derails and bridge rails are in proper position before passing over them.

189. Motormen will not accept "Proceed" hand signals as against the fixed signal of an interlocking plant until they have brought their train or engine to a stop, and have obtained from the signalman full information regarding the situation. After having made sure that they are fully pro-

tected, they may accept hand signals authorized by the signalman for switching movements, when same are given from the ground, on the track on which the movement is to be made, and in such a way that there can be no misunderstanding as to the train or engine for which the hand signals are intended.

190. Trains or engines stopped in making a movement through an interlocking plant must not move in either direction until they receive the proper signals from the signalman.

191. Motormen of all trains must report to the Dispatcher any unusual detention at interlocking plants.

MAINTAINERS.

192. The maintainers report to and receive instructions from the Signal Engineer. They are responsible for the inspection, adjustment and proper maintenance of all interlocking, block signals and other appliances assigned to their care, and for the proper execution of any construction work of which they may be put in charge.

193. All glass in signals must be kept clean and any cracked or broken ones promptly renewed. If a glass in any signal

is broken at night, remove the lamp at once and do not replace it until a new glass has been put in. No hand lamp must be used by men working on signal posts.

August 1934

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