

EXAMINER REPORTS ON RS&I CHANGES

The following is an abstract from Examiner Robert R. Boyd's report of July 17, 1964 on Interstate Commerce Commission Ex Parte 171 hearing on proposed changes to the Rules, Standards and Instructions for installation, inspection, maintenance and repair of automatic block signal systems, interlocking, traffic control systems, automatic trainstop, train control and cab signal systems and other similar appliances, methods and systems. Material in bold face in a rule represents proposed new words and phrases.

Of the 26 rules proposed for revisions eight are acceptable as they would be revised, to all parties herein. They are rules numbered: 136.6, 136.302, 136.311, 136.312, 136.314, 136.328, 136.407 and 136.408.

In addition, there is no opposition to the proposed revision of the following numbered rules: 136.339 and 136.564.

Also, of general interest, and of importance equal to that of the changes in the rules, it was agreed to by all the parties to this proceeding that the following footnote now appended to certain rules, should be eliminated:

NOTE.—Relief from the requirements of this section will be granted upon an adequate showing by an individual carrier. Relief heretofore granted to any carrier by order of the Commission shall constitute relief to the same extent from the requirements of this part.

And, that the same footnote, or one of similar import, should be made applicable to all the Rules, Standards and Instructions. This shall be done. The Association of American Railroads affirmatively supported the remaining rules, except for a part of proposed Rule 136.303 as later discussed. The Railway Labor Executives Association, hereinafter sometimes called RLEA, or protestant(s) actively opposes the contemplated revision of the rules, except to the extent just indicated above.

136.2 Grounds.—Each circuit, the functioning of which affects the safety of train operation, shall be kept free of any ground or combination of grounds which will permit a flow of current equal to or in excess of 75 percent of the release value of any relay or other electromagnetic device in the circuit, except circuits which include any track rail and except the common return wires of single-wire, single-break, signal control circuits using a grounded common, and alternating current power distribution circuits which are grounded in the interest of safety.

The Examiner agrees with the Bureau [of Safety and Service] that the thousands of miles of existing signaling coming under the terms of proposed exception (2) may properly be allowed to remain in service at the carrier's discretion.

(2) except the common return wires of single-wire, single-break, signal control circuits, using a grounded common.

The passage of the exception would merely clarify what has already been in existence under color of right for many years. The fact that the exception may become surplus in years to come, because of the fast obsolescence of the type, is no reason to cause a problem over it now. Its safety is satisfactorily shown. Respecting exception (3) it is clear that this proposed change is in consonance with accepted practice in the electrical field and that it should be approved.

(3) except alternating current power distribution circuits which are grounded in the interest of safety.

It would make no difference were the transformer requirement added, as suggested by the RLEA, but there is no good reason to spell out an obvious requirement such as this. The Examiner finds that adequate safety and protection would be continued under proposed rule 136.2 that its enactment would be in the interest of safety and in the public interest, and that it should be adopted.

136.6 Hand-operated switch equipped with switch circuit controller.—Hand-operated switch equipped with switch circuit controller connected to the point, or with facing-point lock and circuit controller, shall be so maintained that when point is open one-fourth inch or more on facing-point switch and three-eighths inch or more on trailing-point switch, track or control circuits will be opened or shunted or both, and if equipped with facing-point lock with circuit controller, switch cannot be locked. On such hand-operated switch, switch circuit controllers, facing-point locks, switch-and-lock movements, and their connections shall be securely fastened in place, and contacts maintained with an opening of not less than one-sixteenth inch when open.

In its administration of this rule the Bureau has found that the last sentence of the rule is sometimes misinterpreted by some as applying to interlocked switches. This occurs despite the clearly stated title of the section. To make it assuredly clear, the words "On such hand-operated switch" are added. All the parties herein agree with this change, and the Examiner accordingly finds for its adoption.

136.11 Adjustment, repair, or replacement of component.—When any component of a system or interlocking, except track rails, the proper functioning of which is essential to the safety of train operation, fails to perform its intended function, it shall be adjusted, repaired or replaced without undue delay.

The first of the four changes proposed in this rule, that

is changing "apparatus" to "component," makes it broader and more comprehensive and no serious objection is directed against it. In the circumstances, and since clarity of administration will be enhanced, it will be adopted.

The next proposed change is another matter entirely. Track rail is, of course, a most essential component of a signal system. It is almost illogical on its face to repeatedly stress the safe movement of trains, signal-wise, on the one hand, while affirmatively excluding track rails, a conductor of the signal circuit and also the most fundamental of all things for the movement of trains, on the other. The question of who repairs the track rails, whether signal forces, or maintenance of way forces, has nothing to do with the Commission's jurisdiction or responsibility in this matter. The practical problem exists, true, but it is not a remover of jurisdiction, nor a justifiable basis upon which to avoid responsibility. Moreover, it is interesting to note that track rails were specifically included in the 1939 rules under precisely the same jurisdiction and responsibility that we have now, that they were not treated specifically, either way, in 1950, but that here we have a complete about face and now they are to be specifically excluded. At the same time, the record is completely and fatally silent on why they were included in 1939 and handled silently in 1950. The evolution of this type of rule is important not only for understanding but for the evaluation of experiences of the industry, and the Bureau, under the respectively different requirements. The Examiner finds that the record fails to support this part of the changes proposed.

The whole theme of the Signal Act and the Commission's rules and regulations thereunder, is to promote the safety of train operations. There is no intention to interfere with carrier management and descretion except where or when it is necessary to assure the safety of railroad operations. Therefore, the insertion here proposed "the proper functioning of which is essential to train operation" is squarely in consonance with the true purpose and objective of the Signal Act and our rules and regulations thereunder. The fact that a false stop or false restrictive signal may cause great inconvenience and expense seems to require its prompt repair as a matter of efficient management but on this record it does not appear to pose a safety problem. Engineering-wise, it is indicated on this record as "conceivable" that a false restrictive signal might develop into a false proceed but based on the hypothetical illustrations given the false proceed would be immediately obvious and then bring the rule into timely play. The Examiner finds that this change should be adopted.

Stated very simply the main purpose of the change substituting "without undue delay" in place of "promptly" is to clarify the situation respecting repair of signals at overtime rates during other than normal duty hours, particularly on weekends and at night time. Stated with equal simplicity, it is the intent of this part of the rule that repairs or adjustments be made before the next movement is made over the line. Should movement times require night time or weekend repairs, then they must be made. On the other hand, should the defect occur on Friday night and there is to be no movement on the line until Monday at 11:00 a.m., then repairs made at anytime prior to the movement at 11:00 a.m. on Monday would be made without undue delay. With the admonition that the phrase "without undue delay" be interpreted and given the effect above indicated it is found to be in the best interest of our administration of this rule and in the best interests of safety, it shall accordingly be included in the changes herein adopted.

Consolidating the changes considered in this rule, it is found, in the interest of safety and clear administration,

that rule 136.11 should be adopted as follows:

136.11 Adjustment, repair, or replacement of Component.—When any component of a system or interlocking, the proper functioning of which is essential to the safety of train operation, fails to perform its intended function, it shall be adjusted, repaired or replaced without undue delay.

136.51 Track circuit requirements.—Track relay shall be in deenergized position whenever any of the following conditions exists, and the track circuit of an automatic train-stop, train-control, or cab-signal system shall be deenergized in the rear of the point where any of the following conditions exists:

(a) When a rail is broken or a rail or switch-frog is removed except when a rail is broken or removed in the shunt fouling circuit of a turnout or crossover, provided, however, that shunt fouling circuit may not be used in a turnout through which permissible speed is greater than 45 miles per hour. It shall not be a violation of this requirement if a track circuit is energized: (1) When a break occurs **between the end of rail and track circuit connector; within the limits of rail-joint bond, appliance or other protective device, which provides a bypath for the electric current,** or (2) As result of leakage current or foreign current in the rear of a point where a break occurs or a rail is removed.

(b) When a train, locomotive, or car occupies any part of the track circuit, including fouling section of turnout except turnouts of hand-operated main track crossover. It shall not be a violation of this requirement where the presence of sand, rust, dirt, grease, or other foreign matter prevents effective shunting, **except that where such conditions are known to exist adequate measures for insuring safety of train operation must be taken.**

- (c) Where switch shunting circuit is used:
1. Switch point is not closed in normal position.
 2. A switch is not locked where facing-point lock with circuit controller is used.
 3. An independently operated fouling-point derail equipped with switch circuit controller is not in derailing position.

It is generally agreed that Part (a) of this rule should be revised to except "normal devices" including tieplates, rail joint bars, guard rails, and other named devices. The real problems in issue on this part of the rule are (1) whether only named devices should be excepted, rather than all protective devices, and (2) whether the manner of application of these devices should be prescribed so as to prevent abuses, as suggested by the RLEA. As seen the latter point is certainly deserving of further scrutiny if, in fact, the nation's railroads are guilty of abusing the latitude given them in this respect; however, this record does not so indict them, and on the contrary it appears not to have been a noteworthy problem until now. The industry is admonished, nevertheless, that the suggestion of the RLEA in this connection may at any time be renewed or reconsidered on the Commission's own motion. The issue of specific devices, rather than a general term covering them all as suggested by the Bureau, appears to solve itself by the mere fact that other and improved devices may come into use constantly, as a matter of routine engineering progress, and the overall provisions of the rule, taken in proper context, make clear the intent and purpose of the rule so that no problem is posed by the use of the broader term.

The other affirmative suggestions of the RLEA are noted, in particular its suggestion for a provision here similar to rule 417 on the Illinois Central.

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Rule 417 "Unsafe Track. If track is found to be unsafe for trains due to broken rail or other cause signals must be secured to display their most restrictive indication and immediate steps taken to protect trains by flag. If a switch is found to be in an unsafe operating condition it must be spiked in a safe position and the section foreman, dispatcher and supervisor of signals notified at once."

But again the record is lacking in evidence respecting the inclusion of such a rule in 1939 and the exclusion of it in 1950. Since it was most pointedly taken out in 1950, something more than we have here would be necessary before it should be reinserted.

On the question of loss of shunt due to rusty rails or deposits of sand, grease, or dirt on the rails, the 1939 rules contained nothing excusing the deenergizing requirement merely because of rust or other foreign matter on the rail. However, in 1950 it was specifically provided that failure to shunt because of rusty rail or other foreign matter would not constitute a violation. The question now is should a carrier be excused in this respect if it knows the rust or foreign matter on its rails is such as to prevent shunting and thus, in turn, prevent track occupancy from being reflected in its signal system. As seen, the answer is obviously no. The fact that the problem may be difficult, is no reason why it should be avoided here, and in any event, the recent suggestion of the Bureau does not come into play until the condition is known to exist. In the Examiner's opinion the Bureau does not go far enough on this, much less too far as urged by the AAR.

In summation on this rule, the Examiner finds that in the public interest and in the interest of safety this rule should be revised as proposed herein at the time of the hearing and that in addition the last sentence of part (b) should be changed to read as suggested by the Bureau in its brief [see rule] provided however, that any party desiring to be heard on the change suggested in the Bureau's brief is entitled to be heard thereon and that a petition seeking such a hearing filed within the usual period should be granted and also should stay the execution of said finding.

136.201 Track-circuit control of signals.—The control circuits for home signal aspects with indications more favorable than "proceed at restricted speed" shall be controlled automatically by track circuits extending through the entire block.

As seen, the apprehension of the protestants about the insertion of the qualifying term "home" in front of "signal" is based on confusion as to the meaning of the term. But such confusion should be cleared up by now, as it is clear on this record that the insertion of the term does not in fact remove any signals from the rule except inoperative approach signals and some others of the same practical no-need for track circuits. The other question here presented is more difficult of understanding and solution but the fact remains that the actual application of the rule has been as now proposed for over 10 years and there has been no adverse result. In the circumstances it shall be revised as proposed.

136.204 Track signaled for movements in both directions, requirements.—On track signaled for movements in both directions, a train shall cause one or more opposing signals immediately ahead of it to display the most restrictive aspect, the indication of which shall be not more favorable than "proceed at restricted speed". Signals

shall be so arranged and controlled that if opposing signals can simultaneously pass signals displaying aspects and the next signal in advance of each such signal displays an aspect requiring a stop, or its most restrictive aspect the distance between opposing signals displaying such aspects shall not be less than the aggregate of stopping distances for movements in each direction. Where such opposing signals are spaced stopping distance apart for movements in one direction only, signals arranged to display restrictive aspects shall be provided in approach to at least one of the signals. Where such opposing signals are spaced less than stopping distance apart for movements in one direction, signals arranged to display restrictive aspects shall be provided in approach to such signals. In absolute permissive block signaling where a train passes a head block signal it shall cause the opposing head block signal to display an aspect requiring a stop.

The only statement in this rule in controversy is its first sentence. At the outset, in considering the sentence, it must be understood that it is not intended by it to authorize the movement of trains toward each other on the same block or within the area of signal protection. The rule was not written in 1939 for opposing moves and it is not so written now. The purpose of the rule is solely to add flexibility for following moves. However, it is inherent in the type of signal system here involved that track occupancy be reflected by adjoining signals, regardless of the direction of the movement, and in order to allow the flexibility intended by following movements the rule must be established in the manner here proposed. It is merely incidental to this that the possibility of opposing moves arises, but this is not the purpose of the rule. On the contrary, the rule is framed with the fact clearly in mind that opposing movements on these lines are authorized only on time tables and orders and never by signals alone. What this rule does is to make clearly valid what has always continued, in the color of the Bureau's practical interpretation, ever since the oversight adoption of a literally-to-the-contrary requirement in 1950. The Examiner finds that this rule should be revised as last proposed.

136.301 Where signals shall be provided.—Signals shall be provided to govern train movements into and through interlocking limits, except that a signal shall not be required to govern movements over a hand-operated switch into interlocking limits if the switch is provided with electric lock and a derail at the clearance point, electrically pipe-connected to the switch or independently locked electrically.

NOTE.—Relief from the requirements of this section will be granted upon an adequate showing by an individual carrier. Relief heretofore granted to any carrier by order of the Commission shall constitute relief to the same extent from the requirements of this part.

It should be noted, regarding the apprehensions of the protestants, that all electric locks installed under the proposed rule .301 would have to provide all of the locking protection required by rules 136.302 and 136.308. That is, rule .302 requires track circuits and route locking, and rule 308 requires that mechanical or electric circuits should be installed to prevent signals from displaying aspects which would permit conflicting movements. Therefore, if an electric lock is provided in lieu of the signal, (1) the switch equipped with the electric lock could not be opened if a signal for conflicting movement through the interlocking had been cleared, and (2) once the switch had been

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unlocked or the detector circuit occupied, it would be impossible for any signal to clear that would permit a conflicting movement. The same circuits would govern in either case. Virtually, the same approach or time locking protection would exist under the proposed rule as does exist under the present signal requiring rule. There will be no lack of coordinated control. It is found that this rule should be revised as proposed.

136.302 Track circuits and route locking.—Track circuits and route locking shall be provided. **Route locking shall be effective when the first pair of wheels of a locomotive or car passes a point not more than 13 feet in advance of the signal governing its movement.**

NOTE 2.—Existing installations on each railroad, which do not conform to the requirements of this section shall be brought into conformity within 5 years of the effective date of this rule.

It is clear that the practicalities of this matter justify the leeway proposed for the location of insulated joints. The RLEA expresses doubt as to the 5 years allowed for conformity with this rule but, as seen, this is reasonable in the light of all the circumstances involved. The examiner finds that this rule should be revised as proposed.

136.303 Control circuits for signals, selection through circuit controller operated by switch points or by switch locking mechanism.—The control circuit for each aspect with indication more favorable than "proceed at restricted speed" of power-operated signal governing movements over switches, movable-point frogs and derails shall be selected through circuit controller operated directly by switch points or by switch locking mechanism, or through relay controlled by such circuit controller, for each switch, movable-point frog, and derail in the routes governed by such signal. Circuits shall be arranged so that such signal can display an aspect more favorable than "proceed at restricted speed," only when each switch, movable-point frog, and derail in the route is in proper position.

NOTE.—Relief from the requirements of this section will be granted upon an adequate showing by an individual carrier. Relief heretofore granted to any carrier by order of the Commission shall constitute relief to the same extent from the requirements of this part.

Note. Existing installations on each railroad, which do not conform to the requirements of the section shall be brought into conformity therewith on or before December 31, 1969.

The RLEA opposes the proposed rule mainly because it does not like the present rule. It urges control circuits for each aspect with indication more favorable than "stop" but adduced no evidence showing poor experience with the present higher-than-restricted-speed requirement. On the contrary, the record shows the present rule to have been adequate except to the extent indicated by the Bureau, all of which would be corrected by the revision. The AAR is reasonable in urging a non-retroactive provision but the Bureau is equally right in insisting that the many old and obsolete interlockings should be brought into full conformity when they are modernized, as they are likely to be in the next few years. In the circumstances a 5 year provision would appear to allow sufficient time for their conformance but in any event in special cases the time might be extended upon proper petition. The rule

shall be revised as proposed in the Notice, except that 5 years will be allowed within which to bring existing interlockings in conformity respecting trailing point switches, movable point frogs and derails not presently so equipped.

136.305 Approach or time locking.—Approach or time locking shall be provided in connection with signals displaying aspects with indications more favorable than "proceed at restricted speed."

The RLEA really objects to the present rule, not the proposed which in no way relaxes the present one. The same comments applicable to rule .303 apply here. In addition, as pointed out by the Bureau, the very definition of restricted speed requires that the train be operated so as to permit stopping short of another train or obstruction. It follows that the apprehension of the RLEA concerning the inability of the train to stop in the face of a red aspect being displayed suddenly on the home signal, is without basis. To assume that one particular signal is not to be obeyed is to assume that any and all may not be obeyed. This would, of course, create a hazard regardless of what we may do here but fortunately the assumption is groundless. The rule shall be revised as proposed.

136.311 Signal control circuits, selection through track relays, and through signal mechanism contacts and time releases at automatic interlocking.—The control circuit for aspects with indications more favorable than "proceed at restricted speed" shall be selected through track relays for all track circuits in the route governed, or through repeating relays for such track relays. At automatic interlocking, signal control circuit shall be selected (1) through track relays for all track circuits in the route governed and in all conflicting routes within interlocking limits, or through repeating relays for such track relays; (2) through signal mechanism contacts or relay contacts closed when signals for such conflicting routes display stop aspects; and (3) through normal contacts of time releases for such conflicting routes or contacts of relays repeating the normal position of contacts of such time releases.

NOTE.—Relief heretofore granted to any carrier by order of the Commission shall constitute relief to the same extent from the requirements of this part.

The bold faced footnote is new. By Section 136.401 this rule is made applicable to traffic control systems as well as to interlockings. Since the only new matter in this rule, as now suggested, is the footnote, and in view of the concurrence of all parties in adoption of a relief-giving footnote to all rules, as before discussed, there is no real issue remaining respecting this rule. Accordingly it shall be retained as last suggested without the unnecessary footnote. It would be surplusage even without the other note.

136.312 Movable bridge, interlocking of signal appliances with bridge devices.—When movable bridge is protected by interlocking the signal appliances shall be so interlocked with bridge devices that before a signal governing movements over the bridge can display an aspect to proceed the bridge must be locked and the track aligned with the bridge locking members within one inch of their proper positions and with the track rail on the movable span within three-eighths inch of correct surface and alignment with rail seating device on bridge abutment or fixed span.

In the Bureau's administration of this rule it has been found that in the more modern drawbridge installations

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the track is not locked by means of plunger locks or some other types of mechanical lock, such as were found in older drawbridge interlockings. The seating of these locks in such cases insured that the track was alined. However, in modern drawbridges such rail locks are not provided but the alinement of the track is insured and checked by circuit controllers or other types of electric devices. It is believed that these devices are just as reliable, if not more so, than the old mechanical locks to insure correct alinement of the track rails, and in any event these rail locks did not possess sufficient mechanical strength to prevent the bridge from moving in case the bridge locking device failed. Accordingly, since the present rule requires that the track be alined and locked, in order to conform to modern developments in drawbridge interlocking practice the requirements that the track be locked has been omitted from the revised rule, which requires that the bridge only be locked and the track alined. All parties to this proceeding concur in the revision of this rule as last set forth above. In the circumstances it shall be so revised.

136.314 Electric lock for hand-operated switch or derail.

—Electric lock shall be provided for each hand-operated switch or derail within interlocking limits, except where train movements are made at not exceeding 20 miles per hour. At manually operated interlocking it shall be controlled by operator of the machine and shall be unlocked only after signals governing movements over such switch or derail display aspects indicating stop. Approach or time locking shall be provided.

NOTE.—Relief heretofore granted to any carrier by order of the Commission shall constitute relief to the same extent from the requirements of this part.

Since this rule is not to be changed in its substance and since all parties to this proceeding concur in the inclusion of a general provision, applicable to all the rules, to the effect that individual relief may be granted upon an adequate showing, there is no real area of disagreement on this rule. Accordingly it shall be continued as suggested without the first sentence of the footnote.

136.328 Plunger of facing-point lock.—Plunger of lever operated facing-point lock shall have at least 8-inch stroke. When lock lever is in **unlocked position** the end of the plunger shall clear the lock rod not more than one inch.

In the Bureau's observations and dealings with the industry since 1939 it has now come to the conclusion that the 1939 rule is preferable to the 1950 rule, and so it decided to propose revision to the original rule with minor changes. The original rule required that the end of the plunger should clear the lock rod by exactly one inch, but since it is not practicable to maintain this distance so accurately this requirement has been changed from exactly one inch to not more than one inch. The rule as presently proposed omits all reference to the lever in reverse position, as in the present rule, and like the original rule is concerned only with the lever in normal or unlocked position, which is a more practicable way of stating the requirements. All parties to this proceeding concur in the proposed revision of this rule. It appears in the best interest of all concerned as well as in the interest of safety, and accordingly it shall be revised as proposed.

136.339 Mechanical locking, maintenance requirements.

—Locking and connections shall be maintained so that when a lever or latch is mechanically locked, the following will be prevented:

(a) Mechanical machine.

(1) Latch-operated locking. Raising lever latch block so that bottom thereof is within three-eighths inch of top of quadrant.

(2) Lever-operated locking. Moving lever latch block more than three-eighths inch on top of quadrant.

(b) Electromechanical machine.

(1) Lever moving in horizontal plane. Moving lever more than five-sixteenths inch when in normal position or more than nine-sixteenths inch when in reverse position.

(2) Lever moving in arc. Moving lever more than 5

(c) Power machine.

(1) Latch-operated locking. Raising lever latch block so that bottom thereof is within seven thirty-seconds inch of top of quadrant.

(2) Lever moving in horizontal plane. Moving lever more than five-sixteenths inch when in normal position or more than nine-sixteenths inch when in reverse position.

(3) Lever moving in arc. Moving lever more than 5

The only change in the proposed rule is that the allowable motion in (b)(1) would be raised to $\frac{5}{16}$ and $\frac{1}{8}$ inch, respectively, and there is no need to restate it. These changes have been suggested in order to make the requirements for the electric levers of an electromechanical interlocking machine moving in a horizontal plane, the same as those for the levers of a power machine, which operate in the same manner. There appears to be no reason why the requirements for the same type of levers should not be identical, whether they are in an electromechanical machine or a power machine. The RLEA does not support this change, but neither does it oppose the revision. It shall be revised as suggested.

136.402 Signals controlled by track circuits and control operator.—The control circuits for home signal aspects with indications more favorable than "proceed at restricted speed" shall be controlled by track circuits extending through entire block. Also in addition, at controlled point they may be controlled by control operator, and, at manually operated interlocking, they shall be controlled manually in cooperation with control operator.

Respecting the insertion of the qualifying term "home" in front of "signal" the same comments apply here as were made concerning rule 136.201. As to the apprehension of the RLEA over use of the word "may" instead of "shall" it is understood here, and the rule shall be so applied, that the word "may" is used solely to allow for automatic control of signals. It is not and will not be authority for the giving of control to any individual or position in opposition to or conflict with the control operator. In this connection it should be kept in mind as ably pointed out by expert engineers testifying in this matter, that the circuit design of traffic control systems would prevent dual conflicting controls such as referred to by the RLEA. It is found that this rule should be revised as now proposed by the Bureau.

136.404 Signals at adjacent controlled points.—Signals at adjacent controlled points shall be so interconnected that aspects to proceed on tracks signaled for movements at greater than restricted speed cannot be displayed simultaneously for conflicting movements.

This rule is being drastically changed in its wording but its application over the past 13 plus years has been

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the same as here proposed. That is, restricted-speed-conflicting operations into the siding, from each end, will be allowed, and literally so, not just tacitly as now. Experience has indicated nothing in the years since 1950 to require changing the actual interpretation and application of the rule, and in the circumstances the examiner finds for its revision as last shown above to correspond with actual practice.

136.405 Track signaled for movements in both directions, change of direction of traffic.—On track signaled for movements in both directions occupancy of the track between opposing signals at adjacent controlled points shall prevent changing the direction of traffic from that which obtained at the time the track became occupied, except that when a train having left one controlled point reaches a section of track immediately adjacent to the next controlled point at which switching is to be performed, an aspect permitting movement at not exceeding restricted speed may be displayed into the occupied block.

The RLEA is apprehensive about the dissipation of traffic locking through the revision here proposed. However, as seen, the rule is clear in excepting the traffic-locking requirement only in instances when a train is left on the main track while its engine and/or cars moves or move into an adjacent siding for switching purposes, and must, in returning to its train, reverse its direction for a short distance. In allowing this return-to-train movement to be made with a signal instead of in violation of a signal as at present poses no threat to safety, insofar as this record has shown; in fact, on the contrary, it offers correction of a safety hazard. The Examiner finds that this rule should be revised as last proposed.

136.407 Approach or time locking.—Approach or time locking shall be provided for all controlled signals.

The only real change in this section is deletion from the present rule of the phrase "and for all electrical locks on hand operated switches". The reason is that when section 136.410 was revised the requirement that approach or time locking be provided for electric locks on hand-operated switches was there included, and the thought is that it be retained there instead of here. Accordingly, it is now proposed to be deleted from the present rule. This change is agreed to by all the parties to this proceeding, it is obviously proper, and the Examiner finds its approval.

136.408 Route locking.—Route locking shall be provided where switches are powered-operated. Route locking shall be effective when the first pair of wheels of a locomotive or car passes point not more than 13 feet in advance of the signal governing its movement.

Note 1.—Relief from the requirements of this section will be granted upon adequate showing by an individual carrier. Relief heretofore granted to any carrier by order of the Commission shall constitute relief to the same extent from the requirements of this part.

Note 2.—Existing installations on each railroad, which do not conform to the requirements of this section shall be brought into conformity within 5 years of the effective date of this rule.

In traffic-control systems power-operated switches are generally found at controlled points, and controlled points

are essentially interlockings. Accordingly, to make this section consistent with Section 136.302 which requires route locking at interlocking, it was agreed at the Pre-hearing conference that revision of this section should be considered to make it consistent with section 136.302 as revised and all of the reasons before advanced by the Bureau for modifying section 136.302 apply equally to section 136.408 as proposed. All parties concur in the proposed revision of this rule. Footnote 1 need not be inserted as proposed for the reason stated several times before, that such a relief giving provision is being made applicable to all the rules. With this exception the rule will be revised as proposed.

136.502 Automatic brake application, initiation by restrictive block conditions stopping distance in advance.—An automatic train-stop or train-control system shall operate to initiate an automatic brake application at least stopping distance from the entrance to a block, where any condition described in 136.205 obtains, and at each main track signal requiring a reduction in speed.

The only change in this section is the insertion of the words "main track" before the word "signal" in the last phrase of the rule. The present rule has never been construed by the Bureau as requiring the initiation of an automatic brake application at signals governing movements on other than main track such as sidings or yard tracks. This proposed rule would simply clarify its intent.

An additional point, it has been suggested that the term "main track" be defined, and one of the proposed definitions is the same as the definition in the Standard Code of Operating Rules of the Association of American Railroads. That definition reads as follows:

"Main Track—A track extending through yards and between stations, upon which trains are operated by timetable or train order, or both, or the use of which is governed by block signals."

However, this AAR definition conflicts with the intended purpose of revising the rule, since under this definition a siding, which is signaled, is a main track, and the intent of the revision, as above stated, is to exclude such tracks as sidings and yard tracks. In order to overcome this conflict it is now proposed to define "main track" and "siding" as follows:

Main track—A track other than an auxiliary track extending through yards and between stations, upon which trains are operated by timetable or train orders or both, or the use of which is governed by block signals.

Siding—An auxiliary track for meeting or passing trains.

The adoption of these just given definitions will carry out the intent of the proposed revision of the rule, which is to exclude auxiliary tracks as sidings and yard tracks from the requirements of the rule.

The above definitions are to be controlling definitions of what is a main track and what is a siding for the purposes of this rule. A carrier's designation of a track to the contrary is to have no application here.

The RLEA gave no evidence in opposition to this revised rule, though it still opposes it.

The Examiner finds that the rule should be revised as now proposed and that the last proposed definition of main track and siding also be officially adopted.

136.504 Operation interconnected with automatic block signal system.—An automatic train-stop or train-control system shall operate in connection with an automatic block signal system and shall be so interconnected with

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the signal system as to perform its intended function in event of failure of the engineman to obey a main track signal requiring a reduction in speed.

As in section 136.502, the only change in this rule is the insertion of the words "main track" before the word "signal" in the last part of the rule, and for the same reason. Also it is believed that insertion of the definitions for main track and siding, as given before, will help to clarify this rule.

The RLEA does not support the proposed revision of this rule, but neither did it adduce any evidence against it. The Examiner finds that this proposed revision should be approved.

136.553 Seal, where required.—Seal shall be maintained on any device other than brake-pipe cut-out cock (double heading cock), by means of which the operation of the pneumatic portion of automatic train-stop or train-control apparatus can be cut out.

There is some merit to the position of the RLEA that the seal would tend to deter or slow down the temptation to tamper with the brake-pipe cut-out cock here involved, however, the requirement was only inadvertently ever inserted in the rules and experience to date, at least as far as can be determined on this record, shows no compelling need for it. In the circumstances the Examiner is not quite convinced that the seal is necessary and finds that the revision should be approved. Should the future show one necessary or advisable in the interest of safety, the Commission may easily reconsider this requirement.

136.564 Acknowledging time.—Acknowledging time of intermittent automatic train-stop device shall be not more than 30 seconds.

In intermittent inductive automatic train-stop systems an acknowledgment device is provided by means of which an automatic brake application is prevented if the acknowledging device is operated as the locomotive receiver is passing over an inductor or magnet in stop condition. In order to preclude the possibility of the handle of the acknowledging device being left inadvertently in acknowledging position or being intentionally secured in that position at all times, means are provided to initiate an automatic brake application if the handle of the device remains in acknowledging position for longer than a predetermined period, usually of from 15 to 20 seconds. This insures that the engineman is given sufficient time upon approaching a restrictive signal to operate the handle of the acknowledging device before passing the signal, so that the acknowledging contact will be closed when the receiver passes over the track element, but at the same time prevents him from securing the handle in the acknowledging position or from inadvertently allowing it to remain in that position, since after the expiration of this predetermined time either an automatic brake application will occur, or subsequent acknowledgment will not be effective.

In one type of intermittent inductive automatic train-stop device, a pneumatic relay, operated by air at main reservoir pressure from a small reservoir, is used to effect acknowledgment. The acknowledging time is determined by the period of time required to exhaust the air in this reservoir through a restricted orifice in the diaphragm chamber of the pneumatic relay, the air being admitted

to the relay by operating the handle of a small valve called the acknowledging valve. The time during which the contacts of this relay remain closed during acknowledgment varies, therefore, with the main reservoir pressure, all other conditions being equal, it being longer on those engines where higher main reservoir pressure is carried than on those engines with a lower main reservoir pressure.

There has been a tendency to increase main reservoir pressures, especially on passenger locomotives, so that today, the operating time of this relay may be as long as 25 or 30 seconds. Since safety is not adversely affected by lengthening the acknowledging time the rule has been revised to increase the prescribed time from 20 to 30 seconds, in order to provide for the variation in time resulting from increased main reservoir pressures.

The acknowledging time has no effect whatsoever on stopping distance, in the event of an automatic brake application initiated by the automatic train-stop device.

While the RLEA does not support the change in this rule, it does not oppose it and adduced no evidence against it. The Examiner finds for its approval.

136.576 Roadway element.—Roadway elements, including those for test purposes, shall be checked monthly for height and alignment, and shall be tested at least every 6 months.

The purpose of this revision is to exempt track circuits from the requirements of testing roadway elements. The automatic train-stop, train-control, and cab-signal systems because it was not the intent of the rule, and it has been so interpreted, to require track circuits to be tested every 6 months. The Commission's definition for roadway element includes electric circuit, and since a track circuit is an electric circuit the rule, as presently in effect, should be interpreted to require that track circuits shall be tested at least every six months, and as above stated, it was intended that track circuits be so tested. The result is that a track circuit, like most other components of a signaling system, operates on the closed-circuit or fail-safe principle, meaning that failure of any part of the circuit will result in a restrictive operation of the system of which the track circuit is a part. In the case of a continuous inductive automatic train-stop, train-control or cab-signal system failure of the track circuit will result in a restrictive signal indication on a locomotive, and in a train-control system initiation of an automatic brake application.

On the other hand, intermittent inductive automatic train-stop systems which employ roadway elements consisting of inert inductors do not operate on the closed-circuit or fail-safe principle, and accordingly are not subject to checking, like a track circuit. A short-circuit in the internal winding of an inductor or a cross or combination of grounds in its external controlling circuit, could result in a false-proceed condition of the inductor which would not be detected by the locomotive equipment as in the case of a continuous inductive device employing track circuits. Consequently, when an equipped locomotive passes over an inductor in such condition, if the signal were displaying a restrictive aspect, an automatic brake application would not be initiated, resulting in a false-proceed operation of the system. Accordingly, in order to minimize the probability of such failures, the inductors and their controlling circuits must be frequently checked and Section 136.576 requires that these tests be made at least once every six months.

Again, the RLEA does not concur in the proposed revision, but it offered no opposing evidence on it. The Examiner finds that this rule should be revised as proposed.

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136.587 Departure test.—A test of the automatic train-stop, train-control, or cab-signal apparatus on each locomotive, except locomotive and multiple-unit cars equipped with mechanical trip stop only, shall be made over track elements or test circuits or with portable test equipment, either on departure of locomotive from its initial terminal or, if locomotive apparatus is cut out between initial terminal and equipped territory, prior to entering equipped territory, to determine if such apparatus is in service and is functioning properly. If a locomotive makes more than one trip in any 24-hour period only one departure test shall be required in such 24-hour period. If departure test is made by an employee other than engineman, the engineman shall be informed of the results of such test and a record kept thereof.

The first issue in this rule is whether a departure test either on departure from initial terminal or prior to entering equipped territory if cut out between initial terminal and equipped territory, instead of at both places if cut out, would retain adequate protection and safety. As seen, the changes that have taken place since the railroads of the nation have given up the steam locomotive are so great as to remove the need for the double testing once required. This is a return to the 1939 requirements, but experience has indicated the either/or requirement to be sufficient. Moreover, rule 136.567 gives additional protection for good measure. Regarding the once-every-24 hours issue, the same comments apply to that issue as to the

either/or requirement.

The only real apprehension on this record about the use of portable test equipment is in respect to whether the portable equipment is properly constructed, maintained and used only by properly trained personnel. As seen, there is no sound reason to doubt managerial judgment in the construction and use of this equipment. Experience with it today has been entirely satisfactory, and the Examiner is persuaded that it is worth a trial for the future.

All things considered the Examiner finds that this rule should be revised as proposed.

136.602 Operation in conjunction with automatic block-signal system.—Where these devices are in use in automatic block-signal territory they shall be arranged to operate in conjunction with the automatic block-signal system.

The instant proposal is to delete this rule in its entirety.

The record on this rule is abundantly persuasive that its deletion would not reduce safety; in fact it is convincing that safety would be enhanced by this proposed deletion. The train crews in the preponderance of situations would receive the warning more promptly under other methods of notification than by the block signal notification only, and they would have much more specific information on which to act. As to the reliability of the radio method of notification, this is only one of the possible methods and in any event indications are that the radios used in this type of transmission are strong enough and of sufficient reliability to assure proper transmission to the crews, under all conditions.

The Examiner finds that this rule may be deleted without reducing safety and that it should be so deleted. **RS&C**

NEWS BRIEFS

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ation requirements are examined for possible beneficial application." The frequency utilization and administration group "will consider licensing procedures, frequency coordination procedures, form and availability of station assignment records, and generally the manner in which assignable spectrum space is to be made available to users."

● **LEHIGH VALLEY** has ordered type D CTC equipment to be installed between Aldene and Newark, N.J., 5.5 miles. Type D CTC is a high-speed, relay-electronic coding system using frequency shift carrier made by GRS.

● **MILWAUKEE ROAD** has received ICC approval to install a traffic control system replacing existing automatic block signal system on two main tracks between Sturtevant, Wis. and Wadsworth and Rondout, Ill., 30 miles.

● **MISSOURI PACIFIC** has awarded a contract to General Railway Signal Co. for \$500,000 for type E2 CTC equipment to be installed between Little Rock, Ark. and Alexandria, La., 293 miles. Type E2 uses relays and electronics to send controls to field locations, and solid state units to transmit indications from field locations to the control office.

● **SOUTHERN** has placed a \$150,000 contract with General Railway Signal Co. for type K2 CTC equipment to be installed between Berwin and Brice, Ga.

Railroad Personnel

● **LOUISVILLE & NASHVILLE:** Philip P. Ash, superintendent communications and signals, has retired. Mr. Ash was born in Louisville, Ky., on Oct. 22, 1897. Following U.S. Naval Reserve Force service during World War I, Mr. Ash joined the L&N as a signal wireman in July 1918. A year later, he was appointed a signalman, and in 1921 promoted to signal maintainer. In 1924, Mr. Ash was appointed signal draftsman, and later promoted to chief draftsman. In 1941, he was appointed assistant signal engineer, and promoted to signal engineer in 1953.

He was appointed superintendent communications and signals in 1957.

J. W. Webb, assistant signal supervisor, Birmingham, Ala., has retired. He is succeeded by W. C. Wainscott, who was assistant signal supervisor at Athens, Ala. Roy K. Newton, signal draftsman at Louisville, has been promoted to assistant signal supervisor to replace Mr. Wainscott at Athens.

● **PENNSYLVANIA:** C. W. Bodley has been appointed assistant supervisor communications and signals at Trenton, N.J.

● **SANTA FE:** J. Y. Scarlett, assistant supervisor automatic train control and train stop equipment has been promoted to general supervisor ATC&TS equipment with headquarters at Topeka, Kan. He succeeds Stuart H. Dean, system supervisor ATC&TS equipment, who has retired. T. Sprott, assistant supervisor ATC&TS equipment at Cleburne, Texas has been appointed supervisor ATC&TS equipment at Argentine, Kan.

Supply Trade News

● **COPPERWELD STEEL CO.:** George W. Blanchard will represent the wire and cable division in the Chicago office. His territory will in-

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Philip P. Ash



G. W. Blanchard