

**RLEA
objects
to 11
RS & I
changes**

The following material is an abstract of the exceptions of the Railway Labor Executives' Association to the examiner's recommended report and order (*RS&C Sept. 1964, page 28*) concerning Ex Parte 171 of the ICC's notice of proposed rule making with regard to Rules, Standards and Instructions for installation, maintenance and repair of signal systems. Material in bold face in a rule represents proposed new words and phrases.

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 found that proposed Rule 2 should be adopted. The proposed rule would provide for two new exceptions to the present rule. Each of the new exceptions requires further clarification and thus the rule should be supplemented by an interpretation.

The first proposed exception for Rule 2 concerns single-wire, single-break, signal control circuits with a grounded common return wire. It was clear at the hearing that there exists confusion as to the meaning of the term "common return wires of single-wire, single-break, signal control circuits." Certain circuits were variously referred to as single-wire, single-break, signal control circuits and also as two wire polarized circuits. There was confusion as to whether the proposed exception to this rule would permit the intentional grounding of the two wire polarized circuits.

It is clear from the recommended report that this exception to Rule 2 is proposed solely to permit the continued existence of such signal control circuits on the Southern Pacific. The RLEA again reiterates that it is not necessary to obtain complete revision of this rule to permit the use of a few obsolete systems. The continued use of this system on the Southern Pacific could easily be accomplished through the proper means

of relief from the rule. However, if the rule is to be revised in this manner, an interpretation should be added to clearly limit the scope of the revision. The interpretation should clearly state the present installations which may be continued under this rule and that the revision would not permit the grounding of two wire polarized circuits.

The recommended report would also add another exception to the present rule which would permit the intentional grounding of alternating current power distribution circuits which are grounded in the interest of safety. However, the report did not adopt the further suggestion of the RLEA that would require that a signal circuit fed from a grounded distribution circuit be isolated through the use of transformers or other similar devices. The report indicates that this is an "obvious requirement." If the requirement is obvious it should also be spelled out in the rule to insure that there can be no dispute at any time concerning this matter. This rule should be further clarified by an interpretation which requires that a signal circuit fed from a grounded distribution circuit be isolated through the use of transformers or other similar devices.

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.

As further proposed in Examiner's report:

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.

RLEA excepts to the proposed revision of Rule 11. This important rule should be rewritten to include certain findings of the Examiner.

The proposed rule revision makes two important changes in the rule: (1) a new phrase is inserted—"the proper functioning of which is essential to the safety of train operation," and (2) repairs must be made "without undue delay." The Examiner provides an "admonition" as to the proper interpretation and effect of these changes in the report. However, the intended interpretation of this vital rule must be made abundantly clear through an expansion of the rule.

The addition here proposed from the Examiner's report, by comparison, is specific in its requirements and requires no interpretation. The rule would clearly state the time when repairs must be made. Repairs or adjustments must be made before the next movement is made over the line. No confusion could exist as to the intent and purpose of the rule with this clarifying language. Safety of operations and sound administration of this rule requires that the recommended rule be revised to strengthen the intent of the rule by clearly providing in the rule the specific requirements of the rule.

Accordingly, the rule as presently recommended by the Examiner should be expanded by the inclusion of

the statements of the Examiner in the report. This further part of the rule should provide:

"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 interest of safety, it shall accordingly be included in the changes herein adopted."

The proposed revision of Rule 11, as recommended by the Examiner and proposed by the Bureau, would insert a new test in the rule to severely change the application of the rule. This is the main contested revision. Before a defective component would be required to be replaced or repaired its proper functioning must be "essential to the safety of train operation." This drastic change from the present rule was a major issue at the hearing as to which defects or failures of components of signal systems would be covered by the revised rule. It appears that the Examiner resolved this issue by his statements that such failures that would cause false stop failures should be repaired on normal duty hours "when no movement is to occur over the line until normal duty hours or for some significant time to come." This language should be added to the rule to clarify the requirements as to which signal components are covered by the rule, as follows:

"This rule requires that a defective component, the failure of which would allow a false proceed signal, to be repaired promptly, or at least prior to the next train movement over the involved line. The rule requires the repair of false stop signals or other signal facilities on normal duty hours if no movement is to occur over the line until normal duty hours or for some significant time to come."

The issue can be stated very simply. Does the revised rule apply to failures and defects which would cause false stop signals or does the rule apply *only* to those failures that actually cause false proceed signals? Does the revised rule apply to the more than 20,000 defects and failures reported each year which caused false stop signals or does it just apply to the very few defects which cause false proceed failures? Does the rule require repair of such components as broken bond wires, broken wire in control circuit, switch circuit controller out of adjustment, defective lamp bulbs, defective slide detector fence, and indicator light out on traffic control machine?

The recommended report appears to hold that all defects and failures of signal systems are included within the requirements of the rule. If the report is not so clarified, the rule could be interpreted to mean that the only defects or failures covered by the revised rule would be those causing false proceed signal indications. The Bureau's annual report for the fiscal year ending June 30, 1962, shows that there were only 65 such signal failures, while there were 27,047 failures which caused false restrictive failures. These defects and failures causing false restrictive signals could be ruled not to be subject to the revised rule whether or not trains were operated past the signal. Thus, there would be no requirement that the defects causing such failures need ever be corrected.

A false restrictive signal is one that displays a more restrictive indication than it should display, because of a failure or a defect. There are many causes of such signal failures such as broken bondwire, broken wire in a control circuit, and a switch circuit controller out of adjustment. During the last 10 years the reported false restrictive failures have been over 20,000 each year. Many of these signal failures are subject to the provisions of present Rule 11 and must be repaired promptly now. However, these signal failures, in the opinion of the Bureau's witness, would not be subject to the requirements of the proposed Rule 11.

The proposed rule would not require a colorlight signal that is dark to be repaired since this signal is to be taken as a stop signal. However, in such case there could be no approach signal to warn a train that a stop will be required at the next signal. This was termed "not necessarily" a dangerous situation. But it was admitted "absolutely" that an approach signal is used to provide for the safe and efficient stopping of a train at a stop signal and that some carriers use a special circuit to provide an approach signal when a signal light is burnt out. And yet a dark colorlight signal would not be required to be repaired under the revised Rule 11, no matter how long it existed, since it would not be within the scope of the rule. At the present time such defects are covered by the rule.

A signal interruption, a red stop signal for no apparent reason would not need to be investigated and the signal defect corrected, notwithstanding the fact that the cause of the defect is unknown. The Bureau indicated "In order to be on the safe side I think most railroads would want to call a maintainer to find out what the trouble was," but there is "absolutely not" any requirement of the revised rule to investigate the trouble.

The proposed rule would not require that new rails be promptly bonded, or that defective rail bonds be repaired or replaced. However, it is advisable, if a railroad wants to avoid failures, to apply a bond wire to the rail ends to provide for properly operating track circuit, to insure that the track circuit is in tact and that the track relay properly operates in event of track occupancy, open switch or broken rail. Practically all of the rail in signalled territory is now so bonded. However, a broken bond wire, or the absence of a bond wire, would not be within the scope of the proposed rule. This is true even if a false restrictive signal was caused, which at the present time is found to be a violation of the rule.

The proposed rule would not require that a defective switch circuit controller be corrected. At present the Commission found Rule 11 violated when such defective equipment was left unrepaired overnight. At the present time defective mechanism of a spring switch locking assembly affecting the signal system would be within the scope of Rule 11, but it would not be within the scope of the revised rule.

If this rule is restricted in application to only defects causing false proceed signals, in effect the Commission will have no requirement for the proper repair and maintenance of signal systems. The vast majority of signal defects and failures will not be within the scope of this rule. Thus, the rule would permit the deterioration of signal equipment and signal systems. For all practical purposes there would be no requirement for proper maintenance and repair of components of signal systems. Safety of operations requires that the revised rule clearly states that the rule requires repair and maintenance of all components of a signal system or interlocking.

Therefore, the RLEA requests the Commission to hold that revised Rule 11 requires the repair of defects and failure of all components of signal systems and devices, and that the rule is not limited to just defects causing false proceed signals.

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, the 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 connectors; within the limits of rail-joint bond, appliance or other protective device, which provides a bypath of 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 cross-over. 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.

A new provision for loss of shunt should be adopted

for Rule 51 without further hearing. The recommended report should be corrected to adopt a provision, to provide for protection to train operations for a loss of shunt due to rusty rails or deposits on the rails, without any further proceedings.

The present Rule 51(b) provides that the track circuit and relay be in deenergized position, and thus reflect to the signal system, when a train, locomotive or car occupies any part of the track circuit. Paragraph (b) then provides for a blanket exception from this requirement where sand, rust or other foreign matter on the rail prevents effecting shunting. Thus the present rule does not require effective shunting by a train when occupying a track circuit where sand, rust, dirt, grease or other foreign matter is on the rail. This exception relating to foreign matter on the rail first appeared in the 1950 revision of the rule. The 1939 rules contained no exception whatever relating to sand, rust or other foreign matter.

The Bureau proposed and the Examiner recommended adoption of a revision of Rule 51(b) to provide that:

"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."

The RLEA proposed a different revision for Rule 51(b) requiring signals to be caused to display their most restrictive indication when foreign matter is on the rail. This revision would provide that:

"When the presence of sand, rust, dirt, grease, or other foreign matter on the rail prevents effective shunting of the track circuit, signals shall be caused to display their most restrictive indication to provide protection. The signals shall not be restored to normal operation until it is known effective shunting of track circuit is provided."

The holding of the Examiner in regard to these proposed revisions is unique. The Examiner held that the Bureau's proposal "does not go far enough on this, much less too far as urged by the AAR." However the Examiner, after this finding, merely adopts the Bureau's proposal subject to a further hearing on the matter. In effect, the Examiner did not recommend the adoption of what he found was required, being content only to approve the Bureau's suggestion. It is clear that consistent with the Examiner's finding, the Bureau's proposal does not go far enough on this; the revision suggested by the RLEA should be adopted by the Commission.

Safety of operations requires that Rule 51(b) be revised to provide that signals be caused to display their most restrictive indication when foreign matter is discovered on the rail. In order to obtain proper shunting of a track circuit, it is important that the contact between the rails and the wheels be as good as possible. Usually the weight of the train is sufficient to accomplish this. However, rust, sand, dirt, grease, and other matter may act to insulate the rail from the wheels of the train so as to prevent effective shunting.

Such hazardous conditions can be corrected by promoting effective shunting and providing for adequate

protection to train operations when conditions of loss of shunting exist. Adequate protection to train operations requires that Rule 51(b) contain a similar requirement. The Commission is requested to correct the recommended report by the adoption of the RLEA proposed revision for Rule 51(b).

The RLEA excepts to the Examiner's finding that Rule 51(b) should not be revised without giving the AAR a further opportunity to be heard. There is no practical or legal necessity for a further hearing on this matter. The Commission should adopt the revision of Rule 51(b) requested above without further proceedings.

The RLEA, AAR and the Bureau all presented evidence concerning this part of Rule 51(b) and stated their respective positions on this matter in their briefs.

For Rule 51(b) the recommended report now recognizes that the present requirement is not adequate and that a more restrictive rule is necessary to promote safety of operations. This part of Rule 51(b) was an integral part of the proceeding since the RLEA had proposed a revision to strengthen Rule 51(b) by providing for a more restrictive requirement to promote effective track circuit shunting. This was an issue at the hearing and the AAR was thus well appraised of the proposed revision of Rule 51(b). The AAR had an opportunity and did introduce evidence concerning the issue and discussed it in its brief. The AAR is not now prejudiced by the adoption of a revision for this part of the rule.

A revision of Rule 51 to provide for signal protection for unsafe track should be adopted. The recommended report erroneously failed to adopt the RLEA's suggested revision for this rule to provide for signal protection for unsafe track. The RLEA proposed a revision for paragraph (a) of this rule to provide a new requirement that:

"When broken rail, wide gauge, insecure track, obstruction or other condition which renders the track unsafe for passage of trains is discovered, signals or other controlling devices shall be caused to display their most restrictive indication to provide signal protection. The signals or other controlling devices shall not be restored to normal operation until it is known that track is safe."

The only reason given by the recommended report for the failure to recommend adoption of this proposal was that record was lacking in evidence respecting the inclusion of such a rule in 1939 and the exclusion of it in 1950, and "something more than we have here would be necessary before it should be reinserted."

The 1950 rules were basically developed during conferences between the Commission and interested parties thus removing the necessity for a Commission report detailing the transformation of the 1939 rules into the 1950 rules. If the Commission holds that the reasons for the 1950 revisions are determinative of the issues in this proceeding, then this present proceeding should be reopened for further reception of evidence bearing on that issue.

However, two points are evident on this record which require adoption now of a provision in Rule 51 to provide for signal protection for unsafe track. First, in proposing this revision the RLEA referred to the

presence of similar Rules 8 and 9 in the 1939 rules. As the Examiner noted these 1939 rules, which also concerned failures and defects in equipment, undoubtedly were consolidated into present Rule 11 requiring prompt repair of such failures. Secondly, in regard to Rule 11, the Examiner found that the 1939 rules specifically included track rails but the 1950 rules did not. This did not prevent the Examiner from including track rails in the scope of revised Rule 11.

Moreover, the present record contains convincing evidence requiring the adoption of the revision of this rule to provide signal protection for unsafe track. Neither the present nor the rule recommended by the Examiner contains provisions to guarantee satisfactory alternative manual protection when the signal system does not reflect these unsafe conditions. The RLEA proposal provides that when such unsafe conditions are discovered, action must be taken to insure that signal protection is provided.

Such a requirement was provided in the 1939 rules and is contained in the rules of many carriers now. One typical carrier rule was basically the same as that proposed by the RLEA. This rule requires that if the 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. The purpose of this rule is to utilize the block signal system to provide additional protection in case a broken rail is discovered that does not affect the signal system.

The position that the RLEA's proposal involves an operating rule that should not be placed in these signal rules, is not supported by the facts. The 1939 rules contained such a requirement in almost identical terms to promote the usefulness and safety of the signal systems. Moreover, the present rules contain examples of similar requirements. For example, Rule 526 concerning roadway elements of automatic train-stop, train-control or cab-signal system, requires that when a roadway element is not functioning as intended, the signal associated with such element shall be caused manually to display its most restrictive aspect until such element has been restored to normal operative condition. It is obvious that such requirements are required in the rules to insure proper safeguards for train operations. The Examiner rejected a similar argument in regard to the revision of Rule 11 when he included track rails within the scope of the rule. The Commission should likewise reject the argument here.

The recommended report should be corrected to adopt the RLEA proposed revision for Rule 51(a) to require signal protection for unsafe track.

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.

The recommended report finds that the proposed rule should be adopted. The proposed rule inserts the word "home" in the rule to make the rule applicable only to a home signal. This proposal "merely in the interest of clarification" resulted in great confusion at the hearing concerning this term. The recommended

report recognized this confusion and the possible misunderstanding of this term, but found that "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." A similar change was proposed for Rule 402 and this discussion of "home" signal also applies to that rule.

There should be no doubt upon reading this rule as to the type of signals covered. It is important to determine exactly which signals are included in the requirements of this rule. The signals that are covered by the rule are required to be controlled by track circuits and thus reflect conditions of track occupancy, broken rail and open switches. Those signals that are not subject to the rule would not reflect such information, would disclose either the condition of another signal or could be an inoperative signal that furnishes no information. Although the terms home signal and block are defined in the rules, this does not clarify the point.

This rule should be clarified by the addition of an interpretation. The following language of the Examiner should be included within the interpretation:

The only signals to which the rule would not apply are the first signals approaching automatic block territory not within the territory. Such signals as would be excepted from the rule are those installed just before leaving non-signalled territory, entering signal territory, serving merely to give the engineer notice that he is about to come into signal territory. All signals within an automatic block signal system are installed for the purpose and designated and constructed to display indications that the block is occupied. They are all home signals under the Commission's definition.

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 an electric lock and a derail at the clearance point, either 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.

The Examiner found that this rule should be revised to provide that a signal would not be required at interlockings to govern movements over a hand-operated switch into interlocking limits if the switch is provided with an electric lock and a derail at the clearance point. However, there is a dispute as to what requirements there are in the installation of such an electric lock and the protection that it would be required to provide under the circumstances. First, there is a question as to whether or not Rule 314, which contains requirements for installation of electric locks, would govern in these circumstances. The brief of the

AAR in this proceeding indicated that it would be appropriate for the Examiner to include in his report some express recognition of the fact that electric locks installed under proposed Rule 301 must conform to the time and approach locking requirements of Rule 314. The interpretation should so state.

In addition, there was a dispute as to whether or not the electric locks would be required to provide the protection required under Rules 302 and 308. These rules clearly relate to signal protection and not to requirements of an electric lock. The recommended report noted this uncertainty and spelled out the requirements that would be required for electric locks installed under proposed Rule 301. To be certain that there is no misunderstanding regarding these requirements, the Examiner's discussion should be adopted as an interpretation of this rule. The following language from the report should be adopted as this interpretation with certain changes in the text for positive language:

All electric locks installed under Rule 301 are required 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 electrical circuits must 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 unlocked or the detector circuit occupied, it would be impossible for any signal to clear that would permit the conflicted movement. The same circuits would govern in either case. The same approach or time locking protection would exist under the signal requirements. There will be no lack of coordinated control.

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 trains can simultaneously pass signals displaying proceed aspects and the next signal in advance of each such signal then 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 the 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 both such signals. In absolute permissive block signaling when a train passes a head block signal it shall cause the opposing head block signal to display an aspect requiring a stop.

RLEA excepts to the recommendation that Rule 204 be revised as proposed. The recommended report erroneously recommends the adoption of the proposed revision of Rule 204. Because of the confusion surrounding the Bureau's past interpretations of this rule, the intent and purpose of the revised rule is uncertain. There is confusion as to whether or not the revised rule would permit opposing movements on single track or only certain following movements. The proposed revision should not be adopted to permit such uncertainty for this important rule. There is no justification for the proposed revision of this rule other than the Bureau's past understanding with the AAR that the Bureau will change the clear requirements of the rule.

At the outset, objection must be stated to the purpose given for the proposed revision of this rule. The Bureau requests the revision (1) "to legalize" operation at restricted speed without stopping as encouraged by the AAR, (2) "in order to carry out the policy" of the AAR so that grade and tonnage signals may be passed without stopping, and (3) since the Bureau "has consistently overlooked the literal requirements of the first sentence of this rule." The Examiner finds that the adoption of the first sentence of the rule in 1950 was an "oversight adoption." The change in this rule is requested to legalize the Bureau's past revision of the rule. However, the exact extent of the Bureau's past revision of this rule is not known and does not appear to be as extensive as the requested formal revision of the rule. The RLEA submits that this rule should plainly and clearly state the important requirements for signals on track signalled for movement in both directions. If the present rule as interpreted by the Bureau merely allows for flexibility for following movements and provides positive protection for opposing movements, the revised rule should clearly state this and nothing more.

The Examiner appears to hold that the revised rule would not permit opposing movements. The report states that "it is not remotely intended" by the rule "to authorize the movement of trains toward each other on the same block or within the same area of signal protection. The rule was not written in 1950 for opposing moves and it is not so written now".

The Examiner also appears to hold, consistent with his statement of the Bureau's past interpretations, that the revised rule would permit passing of stop signals at restrictive speed without stopping for following movements as at grade or tonnage signals. He states that "(t)he purpose of the rule is solely to add flexibility for following moves". If this is the sole purpose of the revised rule it should be clearly so worded as to permit such following movement only and not opposing movements.

The revised rule contains an obvious conflict concerning opposing movements. It recognizes the hazards of opposing moves in one type of single track signalling and specifically prohibits this in the last sentence of the rule. The revised rule provides for a stop aspect only for a head block signal in absolute permissive block (APB) territory for opposing trains. In a different type of signalling, overlap signalling, there could be opposing trains entering the same territory between sidings on permissive signals. For opposing movements the APB signalling provides more protection. Through

errors in orders or disregard of orders two trains may enter the same section of single track between sidings in the overlap signalling; in APB signalling this could happen only when one crew disregarded a head block signal at stop or two trains pass head block signal control tripping points simultaneously. However, only for APB signalling, and only for head block signals, would it be required for an opposing train to cause a stop signal. This revision adds a measure of safety only for APB signalling, but there is no reason to require opposing stop signals for this type of block signalling and not for others.

Through improper issuance of train orders causing an overlap of authority of two opposing trains, or through failure to obey a meet order, or through other means, two opposing trains could enter the same block in single track territory. In such cases, the signal system should provide for the protection stated in the present rule that a train shall cause one or more opposing signals immediately ahead of it to display an aspect requiring a stop.

This revision of this rule adopted by the Examiner clearly permits an inherently dangerous and unsafe condition when two opposing trains are permitted in the same block at speeds up to 20 mph each. The positive protection of stop signals for each train, required by the provisions of the present rule, would be abandoned.

The recommended report should be corrected to require that this rule provide for a stop signal indication in all cases for opposing movements in automatic block signal territory on single track signalled for movement in both directions. The rule should require that a train shall cause one or more opposing signals immediately ahead of it to display an aspect requiring a stop. In addition, the rule should clearly state the circumstances in which, on track signalled for movements in both directions, the signals may be controlled to display aspects permitting operation at restricted speed without stopping only for following movements.

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.

The recommended report finds that the word “home” should be inserted before “signal” in the rule, as in Rule 201. For the same reasons as discussed under Rule 201, the term “home signal” is equally subject to uncertainty here. For the same reasons the term “home signal” should be interpreted as suggested under Rule 201.

The recommended report also proposed the substitution of the word “may” in the second sentence of the rule to provide that at control points the signals may be controlled by the control operator. This change was proposed with the intent that it would permit automatic control of control circuits. The recommended report indicates that this change is not intended to give control to any other individual in conflict with the control

operator. However, the proposed rule does not clearly indicate this. The text of the proposed rule would also permit any other individuals other than the control operator at the traffic control machine to also control these signals, subject only to the limitations of the field circuits of the machine.

The recommended report indicates that—“As to apprehension of the RLEA over the 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 in conflict with the control operator.”

This rule should be interpreted to include this explanatory statement of the recommended report. The interpretation should state that the word “may” is used solely to allow for automatic control of signals.

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

The recommended report finds that Rule 404 should be “drastically changed in its wording” to correspond with actual practice and to agree with the application of the rule over the past years. The proposed change was suggested in order to clarify the requirements of Rule 404. It is evident from the record of this proceeding and the recommended report that the present rule as well as the proposed rule is in great need of clarification.

The necessity for specific requirements of the rules is amply illustrated by this rule. In addition, the record concerning this rule shows the confusion surrounding the Bureau’s past attempts to informally revise the rules. The present Rule 404 clearly and plainly states that: “Signals at adjacent controlled points shall be so interconnected that aspects to proceed cannot be displayed simultaneously for conflicting movements.”

The Bureau’s brief indicates that “(t)he rule as presently worded precludes the entering signals at both ends of a controlled siding from simultaneously displaying aspects to proceed at restricted speed into the siding,” and that the present rule does not permit carriers to display proceed at restricted speed aspects at both ends of a siding for entry into such siding. This was the testimony of the Bureau’s witness. In addition, it was indicated that it was the intent of the rule to apply only to main tracks, signalled sidings and not to non-signalled sidings. The revision of the rule was proposed to “clarify the requirements.” The Bureau did not indicate that it has applied the rule as it proposed to revise the rule here. It did not indicate under what circumstances, if any, it has permitted opposing movements under proceed at restricted speed aspects. It only indicated that exception was taken to applying the rule to non-signalled sidings.

However, the ARR believes the present rule now permits the entering signals at both ends of a controlled siding to simultaneously display aspects to proceed at restricted speed into the siding since such installations

(Please turn to page 33)

RLEA OBJECTS TO 11 RS&I CHANGES

(Continued from page 19)

presently exist and the proposed rule states "what the rule has always been interpreted by the Commission to mean." In addition, two Railroad Accident Investigation Reports show head-on collisions on non-signalled sidings where proceed at restricted speed aspects were given for conflicting and opposing moves. Evidently the ARR is correct and the Bureau has in some manner permitted opposing signals on non-signalled sidings despite the clear provisions of the present rule. The all important date, extent and provisions of the Bureau's interpretation of this rule are not known or revealed in the record.

Thus, it is not surprising that the revised rule is also uncertain. Some opposing movements would be permitted, of an unknown extent. The Bureau refers first to only non-signalled sidings, but admits that the revised rule would apply to *any track* that was signalled for restricted speed as the most favorable signal aspect. The AAR and the recommended report indicate that the revised rule would permit conflicting movements "on certain yard tracks and siding." There is no indication that the revised rule would permit conflicting movements on only non-signalled sidings.

It is not clear from the text of the proposed rule exactly what circumstances would permit opposing movements on controlled sidings, signalled sidings, non-signalled sidings, yard tracks, main lines, or any other trackage in traffic controlled territory. The recommended report indicates that entering signals at both controlled ends of a non-signalled siding should be able to simultaneously display aspects to proceed at restricted speed for movements into the siding. Also the recommended report indicates that such movements would be permitted only on "*certain*" yard tracks and sidings, that its application is really rather limited, and conflicting movements would be authorized only on tracks that are so signalled that the maximum authorized speed at any time is restricted speed or less.

The movements authorized under this rule revision should be clearly stated, and the application of the rule should be explicit so that there can be no question as to what conflicting movements are authorized on what tracks and under what circumstances. An interpretation to this rule should be adopted which would clearly restrict the application of the revised rule to permit opposing movements only on non-signalled sidings in traffic control territory where the maximum authorized speed at any time is restricted speed or less.

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.

RLEA excepts to the recommendation that Rule 405 be revised as proposed.

The recommended report adopts a revision of the rule to permit so-called return to train movements. These movements exist in switching operations where an engine, detached from its train, returns to its train after performing switching. However, such moves are safely made now without the change in the rule. Such moves can be authorized by the control operator by verbal permission or by return to train signals as at automatic interlockings in traffic control territory. Since the necessary movement can now be authorized without the loss of traffic locking, the rule should not be revised in such a manner as to remove traffic locking protection from the traffic control territory.

The proposed rule introduces a hazard into train operations in that the effect of the rule would not be limited to engines returning to their own train. The rule applies to single track operation signalled for movement in both directions in traffic control territory where the crews rely solely upon signal indication to tell whether or not it is safe to proceed. The present rule provides positive protection against changing the direction of traffic while the block is occupied by a train. However, the proposed rule presents this hazard: Signals arranged for a movement cannot distinguish between an engine returning to a train or another train. It would be possible for a control operator to reverse direction of traffic and move a train into an occupied block at restricted speed. Neither train would be aware of the other, thus creating a very dangerous condition that could result in a head-on collision.

A fundamental safety factor of traffic control systems is provided by permitting only one direction of traffic between controlled points at one time. Under no circumstances should a train be permitted to enter a block, against the current of traffic, when the block is already occupied by another train moving with the current of traffic. There is no justification for changing the present rule to provide for signal indication to permit an engine to return to its train after performing switching operations. The isolated instances when this may be necessary do not justify the sweeping change in the rule. The practice of receiving permission to pass a red signal to return to train does not normally present any undue hazards unless conflicting movements are a factor.

The rule as revised in the recommended report would have the effect of destroying traffic locking in traffic control territory. The only way in which opposing signals could be permitted to allow return to train movements would be to remove the traffic locking protection. Moreover, the effect of the revision would not be limited to engines returning to their own train. The present rule providing for stop indications for conflicting movements in traffic control territory should be retained. The recommended report should be corrected to deny the proposed revision of this rule.

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

(Please turn to page 38)

Why Pay Extra For Ripple Attenuation?



It's A Standard Feature On All Raytheon 24 V and 50 V Battery Chargers

Raytheon 24 and 50 V battery chargers provide output with ripple voltage below the threshold of audibility as a standard feature, not an extra cost accessory. 24 V chargers are offered with 1, 3, 6, 9, 12, 25 and 50 A outputs. 50 V chargers are offered with 1, 3, 6, 9, 12, 18 and 25 A outputs.

Other features: Full float regulation ($\pm 1\%$ from no load to full load) • Compact size • Single phase input • Competitive prices • Stock delivery • Standard accessories include: Power switch • DC ammeter and voltmeter • Float equalize switch • AC power failure alarm relay • DC power disconnect relay • AC line and DC output fuses • 19", 23", 30" or wall mounting flanges •

For information on 24 and 50 V battery chargers, and the complete line of controlled power products, send for Raytheon's

new 60-page catalog

Write: Industrial Operation, Raytheon Company,
Richards Avenue, South Norwalk, Connecticut

ADVERTISERS IN THIS ISSUE

American Brake Shoe Company	37
Anaconda Wire and Cable Company	30
Armadillo Manufacturing Company	28
Carbone Corporation	6
Cleveland Institute of Electronics	36
Copperweld Steel Company	Cover III
Edison Industries, Thomas A., Primary Battery Division	3
Fansteel Metallurgical Corporation	25
General Railway Signal Company	12
Gould-National Batteries Inc.	11
Kebby Microwave Corporation	26-27
ITT Kellogg	7
Kerite Company, The	Cover I
Lenkurt Electric Company	35
Lynch Communication Systems, Inc.	39
Marquardt Corporation, The	21
Okonite Company, The	8
Osmose Wood Preserving Company of America, Inc. ..	34
Railroad Accessories Corporation	Cover II
Radio Corporation of America	9
Radio Frequency Laboratories, Inc.	24
Raytheon Company	38
Rohn Manufacturing Company	34
Sinclair Radio Laboratories, Inc.	36
Stromberg-Carlson, Division of General Dynamics	4
Sylvania Electric Products, Inc.	29
Trepac Corporation of America	28
Western Railroad Supply Company	Cover IV

RLEA OBJECTS TO 11 RS&I CHANGES

(Continued from page 33)

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.

RLEA excepts to the recommendation that Rule 587 be amended as proposed.

The proposed rule would return to the requirements of the 1939 rules. A departure test would be required either on departure of the locomotive from its initial terminal, or prior to entering equipped territory if the device is cut out between initial terminal and equipped territory, instead of at both places as now required when the equipment is cut out after leaving the initial terminal. In effect, the departure test at initial terminals would not be required.

Under the present rule a second departure test is required only when the device is cut out or fails after leaving the initial terminal where a departure test was made. The departure test establishes the fact that the device is in proper operating condition before the train leaves the initial terminal. If the equipment were found to be inoperative for any reason, the defects may be corrected before departure from the initial terminal.

The recommended report refers to the change over from steam to diesel locomotives as justification for this rule revision. However, when this rule was made more restrictive in 1950, dieselization had already taken place. Vibration is just as much a factor now, if not more so, as it ever was in steam days. After shop forces make incoming tests and inspect the equipment, defects are still discovered on the departure tests. When the departure test is made at an initial terminal, defects can be corrected quickly by shop forces or another engine used. This may not be possible at the point where the train enters equipped territory. Defects in the equipment cannot be corrected by unqualified personnel; special knowledge and tools are necessary.

The revised rule adopted by the recommended report would also permit only one departure test in a 24 hour period "if a locomotive makes more than one trip in any 24-hour period." This revision was advanced to provide for "locomotives and self-propelled passenger cars used in suburban or turn-around service". However, the clear wording of the proposed rule goes far beyond suburban or turn-around service. The revised rule would permit only one departure test in a 24 hour period regardless of the class of service of the locomotive. This part of the revised rule should be rewritten to clearly permit relief from the rule

(Please turn to page 40)

(Continued from page 38)

for only suburban or turn-around service. This exception to the rule should be plainly limited to similar situations to the past relief that has been granted from this rule and which was cited as the reasons for this revision of the rule.

The revised rule also would permit the use of portable test equipment for making departure tests as a "trial for the future." The present rule requires such tests to be made over track elements or test circuits. The recommended report indicated there had been "numerous requests" for relief from the rule for the use of portable test equipment, and the relief was granted. The Bureau did not indicate clearly the actual number of cases of relief for portable test equipment. Only one case could be found. In *Ex Parte 171, Rules, Standards and Instructions*, 280 I.C.C. 648, the Commission granted relief from this rule for the use of portable test equipment. The relief was for only one train at one location where track elements were not available; the special circumstances of the case prompted the relief for the use of portable test equipment to this limited extent. This one relief does not present any justification for the revision of the rule to permit the total use of portable test equipment for all departure tests of every carrier at every location as a "trial for the future."

Only when there is portable test equipment that is properly constructed according to proper specifications and properly maintained and an individual who was properly trained in the use of such equipment would it be satisfactory. However, there are no requirements in the Commission's Rules with respect to portable equipment; such equipment would only meet such specifications and instructions, if any, as each individual carrier would impose.

Safety of operations requires frequent departure tests of train stop and cab signal devices that are dependable tests. There is no justification for the proposed revision in the rule which would drastically lessen the requirements for departure tests. The proposed rule is less restrictive than the present requirements of the rule and would not promote the safety of train operations. The recommended report should be corrected to retain departure tests on departure from the initial terminal over track elements or test circuits.

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.

RLEA excepts to the recommendation that Rule 602 be deleted. The recommended report erroneously recommends the deletion of this entire rule. This would remove from the rules the present requirements that various devices used to provide protection against unusual contingencies in automatic block signal territory be arranged to operate in conjunction with the automatic block signal system.

The recommended report finds for the deletion of

this rule solely so that dragging equipment detectors need not be operated in conjunction with the signal system. However, the present rule covers many important devices in addition to dragging equipment detectors, such as slide detectors, high water detectors and burning bridge detectors. The elimination of Rule 602 would eliminate the requirement that all of these devices be interconnected to the block signal system.

Signals are the basic device for the control of train movements. If a carrier considers that there are dangers great enough to install one of the various special protective devices, these devices should operate in conjunction with the automatic block signal system which has proven for many years to be safe and reliable. Other methods of warning trains of hazards should not be permitted.

The Examiner finds for the deletion of this rule based solely on considerations of dragging equipment detector stating:

"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."

(Emphasis added)

In effect, the Examiner finds that other "possible methods" for notification of dragging equipment should be used along with block signals to provide more specific information. However, the effect of the complete elimination of this rule is to permit dragging equipment detectors to be used only with any other method of notification and not with block signals. There would be no Commission requirement concerning these special devices and the use of any method of stopping a train and notifying the train crew of dragging equipment would be allowed.

Under the present rule the Commission requires that notification of dragging equipment be given to trains by the proven safe and reliable method of block signals. Where relief from the rule is permitted for some other type of notification it must be shown that the method proposed to be used is as safe and reliable as the block signals. With the elimination of the rule any method for stopping a train and notification of dragging equipment would be permitted without any showing that the method used would be safe and reliable.

The only justification for the elimination of the rule is the reference to other methods by which a train could be informed of the presence of dragging equipment than automatic signals. Radio was referred to but the Examiner specifically declined to base his elimination of this rule on the use of radio.

There is no justification for the total elimination of this rule. Greater safety is afforded when the protective devices are arranged to operate in conjunction with the automatic block signal system. The safest and most dependable means of conveying the information of the various protective devices is by means of signal indication. The present rule should be retained to provide the safe and dependable protection to train operations that is required to promote the safety of railroad operations. The recommended report should be corrected to retain Rule 602. RS&C