

ELEVENTH ANNUAL REPORT

OF THE

RAILROAD COMMISSION

OF THE

STATE OF TEXAS

FOR THE YEAR 1902.



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APPENDIX M.

Law, Rules and Regulations Pertaining to Interlocking or Safety Devices, Etc.

RAILWAY CROSSINGS.

Authorizing Railroad Commission to regulate.

S. B. No. 166.]

CHAPTER LXXXIX.

AN ACT to authorize, require and empower the Railroad Commission of the State of Texas to regulate railways crossing each other; to provide for interlocking or other safety appliances or devices of equal security, to prevent trains colliding at such crossings, and to provide a penalty for refusal to comply with the provisions of this act, and to repeal all laws and parts of laws in conflict with this act.

Be it enacted by the Legislature of the State of Texas:

SECTION 1. That where it should become necessary for the track of one railroad company to cross the track of another railroad company, it shall be the duty of the Railroad Commission of the State of Texas to ascertain and define by its decree the mode of such crossings which will occasion the least probable injury upon the rights of the company owning the road which is intended to be crossed; and if it should appear to the said Commission that it is reasonable and practicable to avoid a grade crossing said Commission shall by its order prevent the same.

SEC. 2. That in any case where the tracks of two or more railways cross each other at a common grade in this State it shall be the duty of such railroad company to protect such crossings by interlocking or other safety devices and regulations to be designated by the Railroad Commission of Texas to prevent trains colliding at such crossings; provided, that all railway companies in this State shall have one year after the passage of this bill in which to comply with the provisions hereof.

SEC. 3. In case any railway company shall hereafter seek to cross at grades with its track or tracks the track or tracks of another railroad, the railroad seeking to cross at grade shall be compelled to interlock or protect such crossings by safety devices to be designated by the Railroad Commission and to pay all costs of appliances, together with the expenses of putting them in; provided, that this act shall not apply to crossings of side tracks.

SEC. 4. Whenever interlocking or other safety devices are constructed and maintained in good order to the satisfaction of the Railroad Commission in compliance with Sections 2 and 3 of this act, then and in that case it shall be lawful for the engines and trains of such railroad or railroads to pass over such crossings without stopping.

SEC. 5. Any company, corporation, receiver or person operating any railroad who shall refuse or neglect to comply with any order made by the said Railroad Commission in pursuance with the terms of this act shall forfeit and pay to the State of Texas a penal sum of five hundred dollars per week for each week of such refusal and neglect, which said sum may be recovered in suit or suits to be brought by the Attorney General of the State of Texas in the name of the State of Texas upon duly verified information of such refusal and neglect by any such railway company being lodged with said Attorney General by the said Railroad Commission.

SEC. 6. All laws and parts of laws in conflict with the provisions of this act are hereby repealed. The near approach of the end of the present session and the crowded condition of the calendar creates an emergency and an imperative public necessity that the constitutional rule requiring bills to be read on three several days be suspended and said rule is hereby suspended.

Approved April 15, 1901.

Takes effect 90 days after adjournment.

AUSTIN, TEXAS, November 8, 1901.

The Railroad Commission of Texas having, on July 17, 1901, issued the following general order, viz.:

"It is ordered that notice be, and the same is hereby given, to all persons interested that the Railroad Commission of Texas will, on Tuesday, July 30, 1901, at its office in Austin, take up and consider the adoption of the necessary order or orders providing for the establishment by the railroad companies of the State of such interlocking or other safety devices at crossings, as provided for in Chapter 89, General Laws of the Twenty-seventh Legislature. All persons interested in said matters are requested to present to the Commission, on or before the day of the hearing, their views in regard to the same."

And the hearing on said notice having been continued from time to time until October 15, 1901, when the same was called for final consideration, and when the several railroad companies in this State being present by their representatives, and having submitted for the consideration of the Commission the following statement:

"AUSTIN, TEXAS, October 15, 1901.

"*Maj. Chas. B. Peck, Chairman:*

Your committee beg leave to report that the railways of Texas appear before the Railroad Commission and recommend that the Commission make an order requiring gates at each grade crossing on railroads within the State of Texas at each main line crossing existing at the time of the passage of the law, except where safety devices now exist, within the time prescribed by the act of the Twenty-seventh Legislature, requiring safety devices at crossings, and that the Railroad Commission request the railways of the State to make report as to the condition of the various crossings upon their lines, and as to the practicability or impracticability of separating grades at such crossings and the probable cost of such separation; and that they report also the probable number of trains over crossings at which separation of grades is impracticable, and where the two roads can agree upon the character of safety device to be inserted at such crossings, that they make report thereof. And that such reports be required to be made to the Railroad Commission of Texas within ninety (90) days from the date on which the request therefor is received by the railways. This report and the orders made by the Commission are not intended to affect contracts for interlocking devices at crossings between railways.

"Respectfully submitted,

(Signed)

"L. J. POLK,

"E. B. PERKINS,

"J. W. MAXWELL,

"Committee."

Which was taken under consideration, and it appearing to the Commission that the act of the Legislature of Texas upon this subject went into effect July 9, 1901, and it further appearing to the Commission that the proposition as above made by the railway companies is reasonable and a proper course to pursue, the same is approved and hereby made the order of the Commission. It is further ordered that a copy of this order and decree be at once mailed to the general manager of each of the railroads doing business in this State, and that the general manager of each road in this State be and he is hereby required to make to this Commission the report above required on or before the 1st day of February, 1902, for such further consideration as this Commission may think proper to give to the subject.

SPECIAL ORDER.

(General Hearing, May 21, 1902.)

AUSTIN, TEXAS, June 5, 1902.

In pursuance of an act passed by the Twenty-seventh Legislature of the State of Texas, published as Chapter LXXXIX of its General Laws, and entitled "An Act to authorize, require and empower the Railroad Commission of Texas to regulate railways crossing each other; to provide for interlocking or other

safety appliances," etc., which act became effective July 9, 1901, it is hereby ordered by the Railroad Commission of Texas that there be established at the following grade crossings of railroads in this State standard interlocking devices, which shall be constructed, maintained and operated in accordance with the rules and regulations of this Commission, Circular No. 1597, issued May 31, 1902:

Chicago, Rock Island & Texas Railway:

1. Crossing with G., C. & S. F. Ry. at Saginaw.

Fort Worth & Denver City Railway:

1. Crossing with G., C. & S. F. Ry. at Saginaw.

Galveston, Harrisburg & San Antonio Railway:

1. Crossing with H. & T. C. R. R. at Chaney Junction.
2. Crossing with S. A. & A. P. Ry. at Blodgett.
3. Crossing with G., C. & S. F. Ry. at Rosenberg.
4. Crossing with S. A. & A. P. Ry. at Flatonia.
5. Crossing with S. A. & A. P. Ry. at San Antonio.

Gulf, Beaumont & Kansas City Railway:

1. Crossing with T. & N. O. R. R., main line, Sabine Pass branch and Dallas branch (three crossings), at Beaumont.

Gulf, Colorado & Santa Fe Railway:

1. Crossing with G. H. & S. A. Ry. at Rosenberg.
2. Crossing with I. & G. N. R. R. at Milano.
3. Crossing with M., K. & T. Ry. of Texas at Temple.
4. Crossing with T. & P. Ry. at Fort Worth.
5. Crossing with C., R. I. & T.-F. W. & D. C. Rys. at Saginaw.
6. Crossing with H. & T. C. R. R. at Dallas.
7. Crossing with T. & P. Ry. at Dallas.
8. Crossing with M., K. & T. Ry. of Texas at Dallas.

Houston & Texas Central Railroad:

1. Crossing with G., H. & S. A. Ry. at Chaney Junction.
2. Crossing with M., K. & T. Ry. of Texas at Eureka.
3. Crossing with I. & G. N. R. R. at Hearne.
4. Crossing with T. & P. Ry. at Dallas.
5. Crossing with T. & P. Ry. at Fort Worth.
6. Crossing with M., K. & T. Ry. of T.-St. L. S. W. Ry. of T. at Waco.

International & Great Northern Railroad:

1. Crossing with T. & N. O. R. R. at Houston.
2. Crossing with H. & T. C. R. R. at Hearne.
3. Crossing with G., C. & S. F. Ry. at Milano.
4. Crossing with M., K. & T. Ry. of Texas at Taylor.

Missouri, Kansas & Texas Railway of Texas:

1. Crossing with H. & T. C. R. R. at Eureka.
2. Crossing with I. & G. N. R. R. at Taylor.
3. Crossing with G., C. & S. F. Ry. at Temple.
4. Crossing with H. & T. C. R. R. at Waco.
5. Crossing with T. & P. Ry. at Fort Worth.
6. Crossing with G., C. & S. F. Ry. at Dallas.
7. Crossing with T. & P. Ry. at Dallas.

Orange & Northwestern Railroad:

1. Crossing with T. & N. O. R. R. near Orange.

San Antonio & Aransas Pass Railway:

1. Crossing with G., H. & S. A. Ry. at Blodgett.
2. Crossing with G., H. & S. A. Ry. at Flatonia.
3. Crossing with G., H. & S. A. Ry. at San Antonio.

St. Louis Southwestern Railway of Texas:

1. Crossing with T. & F. S. Ry. at Texarkana.
2. Crossing with T. & P. Ry. at Joint Track.
3. Crossing with H. & T. C. R. R. at Waco.

Texarkana & Fort Smith Railway:

1. Crossing with T. & P. Ry. at Texarkana.
2. Crossing with St. L. S. W. Ry. of Texas at Texarkana.
3. Crossing with T. & N. O. R. R. near Beaumont.

Texas & New Orleans Railroad:

1. Crossing with I. & G. N. R. R. at Houston.
2. Crossing with G. B. & K. C. Ry. (three tracks) at Beaumont.
3. Crossing with T. & F. S. Ry. near Beaumont.
4. Crossing with O. & N. W. R. R. near Orange.

Texas & Pacific Railway:

1. Crossing with T. & F. S. Ry. at Texarkana.
2. Crossing with G., C. & S. F. Ry. at Dallas.
3. Crossing with H. & T. C. R. R. at Dallas.
4. Crossing with M., K. & T. Ry. of Texas at Dallas.
5. Crossing with H. & T. C.-G., C. & S. F.-M., K. & T. of T. at Fort Worth.
6. Crossing with St. L. S. W. Ry. of Texas at Joint Track.

It is further ordered that the interlocking devices at said crossings shall be constructed, inspected by this Commission and put in operation under its permit on or before June 30, 1903.

It is further ordered that the cost of each interlocking device, together with the expense of putting it in, shall be borne equally by the railroad companies party to each crossing, and that the expense of operation and maintenance shall be borne by each company in proportion to the number of levers necessary to operate the tracks of each. Provided, however, that nothing in this order shall have the effect of abrogating any existing contracts or agreements that may have been entered into between railroad companies affecting the division of the expense of installing, operating and maintaining an interlocking device at any railroad crossing.

It is further ordered that at all grade crossings of railroads not protected at this time by interlocking devices approved by this Commission there shall be installed crossing gates of such pattern and design that whenever broken down by the engines or cars of either railroad company it can be at once determined which railroad company's employes were at fault and responsible. Such gates shall be operated under strict rules and regulations by each railroad company. Such gates shall remain in operation at all railroad crossings until such time as they have been protected by interlocking or other safety devices inspected and approved by this Commission. The expense of constructing and maintaining each gate shall be borne equally by each railroad company party to any crossing. At all crossings protected by gates it is further ordered that all trains shall be brought to a full stop before proceeding over such crossing, and shall give the signals prescribed by law when approaching such crossings.

It is further ordered that whenever it has been determined to be practicable to separate the grades at any of the above and foregoing crossings which have been ordered to be interlocked, and the railroad companies parties thereto desire to separate such grades, this order shall be suspended with regard to requiring such crossings interlocked; provided, however, that such separation of grades shall be effected within the time specified by this order.

It is further ordered that each railroad company shall, on or before the 30th day of April, 1903, report to this Commission the average number of trains operated by it per day over each crossing not interlocked or ordered to be interlocked; the location of each crossing where it has been determined and agreed upon by each company that separation of grades is practicable and shall be made before June 30, 1904; all for such future action as this Commission may consider advisable with regard to such other crossings as it may require to be interlocked during the year ending June 30, 1904.

And it is further ordered, considered and hereby expressly understood that this

Commission reserves the right at any time to at once order and require to be interlocked any other railroad crossing whenever in its opinion the dangers and necessities of the situation demand.

This order shall take effect July 1, 1902.

CIRCULAR No. 1597.

RULES AND REGULATIONS GOVERNING THE INSTALLATION, MAINTENANCE AND OPERATION OF INTERLOCKING DEVICES AT GRADE CROSSINGS OF RAILROADS.

(General Hearing May 21, 1902.)

AUSTIN, TEXAS, May 31, 1902.

It is hereby ordered by the Railroad Commission of Texas, that the following rules and regulations be adopted governing the installation, maintenance and operation of standard interlocking devices established at grade crossings of railroads for the protection of same in accordance with the provisions of Chapter LXXXIX of the General Laws of the Twenty-seventh Legislature of the State of Texas, which became effective July 9, 1901:

General Rules.

1. *Plan to be submitted for approval.*

Wherever it has been ordered by the Commission that an interlocking device shall be established at any railroad crossing, or wherever it is desired by railroad companies that same be established, there shall be filed with said Commission, for its approval, a complete plan, in duplicate, of each crossing showing in detail the location of all main tracks; the length and location of all sidings, spurs and switches; the location of all buildings and other obstructions to the view in the vicinity of the crossing; the proposed location of all towers, derails, signals, switch points, detector bars, etc., all of the same to be fixed by measurements indicated by plain figures and to be accurately located on the plan.

At each switch, derail, signal, detector bar, lock, etc., shown on the plan there must be plainly marked the number corresponding to the number of the lever by which same is to be operated.

The plan shall be drawn to a scale not less than 100 feet per inch.

There shall accompany every plan filed a complete profile of each main line of railroad for a distance of not less than one mile on each side of the crossing. Said profile shall be drawn on standard profile paper and shall show, in addition to the ground and grade lines of each railroad, the character and dimensions of all bridges and culverts, the gradients, the alignment and all other features usually shown on profiles of railroads.

2. *Petition for inspection.*

When the plan submitted for an interlocking device at any railroad crossing has been duly approved by the Commission, and same has been constructed and is ready for operation, a petition shall be made to the Commission for an inspection of said device, accompanied by a plan similar to the one specified in Section 1, showing in all things the device as actually constructed. In addition there shall accompany said petition a complete diagram of the locking of said device, together with a manipulation sheet showing the combinations necessary to set up for each of the several routes governed by the signals. A copy of the rules and regulations of each company governing and affecting the operation of its interlocking plants must accompany said petition.

3. *Applications and petitions must be signed.*

The application for the approval of any plan for an interlocking device at any railroad crossing, also the petition for the inspection of same, must be signed by the general manager or general superintendent of each line of railroad party to such crossing.

4. *Inspection will be made.*

When the petition for inspection of any interlocking device at any railroad crossing has been received, a time will be set for its inspection by the Commission

or its duly authorized employe, and due notice will be given to each railroad company that it may be represented at such inspection.

5. *Order authorizing trains to not stop.*

When it has been determined by actual inspection that an interlocking device at any railroad crossing has been constructed in accordance with the plan submitted to and approved by the Commission, and that such device is operated in a thoroughly reliable and safe manner by competent employes, then a permit will be issued authorizing trains to run over said crossing without stopping.

6. *Interlocking devices must be maintained and safely operated.*

Every interlocking device must be properly maintained and efficiently operated under strict rules and regulations by the railroad companies. If at any time it should be determined by the Commission that any interlocking device is not properly maintained and efficiently operated then it shall be the duty of the Commission to cancel its permit approving the operation of such interlocking device, and all trains will be required to stop at such crossing the same as if no interlocking device existed.

7. *Monthly reports required.*

The general manager or general superintendent of each railroad company operating interlocking devices approved by the Commission must make monthly reports on blanks furnished by the Commission with regard to the general condition of said devices, and the conditions under which they are operated and maintained. Detailed reports of accidents which may occur at crossings which are protected by approved interlocking devices must be made at once, stating generally the conditions surrounding such accidents.

Requirements and Recommendations for Guidance in Construction of Interlocking Systems.

8. *Style of signals.*

It is ordered that a uniform system of signals by means of semaphores and lights be adopted by all railroad companies in order that there shall be no confusion at any time with regard to the meaning of such signals. It is further ordered that the red light be used to indicate "Danger, Stop," the green light to indicate "Safety, Proceed," and the yellow light to indicate "Caution."

All signals must be of the semaphore type, and so constructed as to go to the danger position by force of gravity in case the connections between the operating lever and signal are broken. All signals must be provided with a lamp showing front lens properly focused and a back light except as hereinafter provided.

9. *Home signals.*

The home signal must, when practicable, be located on the engineman's side of the track it governs, and must be not less than fifty (50) feet nor more than two hundred (200) feet in advance of the point it governs, except when special conditions exist. The signal must point to the right of the track it governs and must have a square end. When the derail or facing point or crossing is set against the train movements governed by the home signal, the signal must be locked in a *horizontal position*, showing *red* color by night, indicating "Danger, Stop."

When the track it governs is clear and safe for the passage of trains, the signal must be inclined at an angle of about sixty (60) degrees from the horizontal, showing a *green* color by night to an approaching train, indicating "Clear Track, Advance."

In case two signal arms are used on the home signal post, the top arm must in all cases govern main or high speed route and the lower signal the diverging route or routes.

In mechanical interlocking systems the home signal must be worked by pipe connections.

10. *Distant signals.*

The distant signal must be located not less than twelve hundred (1200) feet in advance of the home signal with which it operates except under such special cases as may be approved by the Commission. It must be placed on the same

side of the track with its arm pointing in the same direction as the home signal. It must be distinguished by a notch cut in the end of a semaphore arm. It must be so arranged and connected with the home signal that it will be held in a *horizontal position*, showing *yellow*, or "Caution," color by night to approaching trains when the home signal indicates danger. The distant signal must be worked by two lines of wire.

11. Switch indicators.

Rotating indicators, known as pot or disc signals, must only be used as switch indicators, operated with the switch.

12. Dwarf signals.

Dwarf signals having a small area and suitably adapted as to height must be similar in design and location to the home signal. They must be used to govern movements on secondary tracks or movements against the current of traffic on main tracks where reverse movements become necessary and where necessary in yards.

13. Bracket posts.

Bracket posts must be used in all cases where it is necessary to signal trains on different tracks, operated in the same direction, from the same post; the position of the posts on the bracket to correspond to the position of the track on which movements are to be governed.

14. General arrangement of signals.

The operator in the tower must be able to see the arms and the back lights of all signals; the back lights on the lamps to be made as small as practicable, having regard to efficiency. When the front lights are visible to the operator in the tower, no back lights will be required. If from any unavoidable cause the arm or light of any signal cannot be seen by the operator, a repeater or indicator must be provided in the signal tower.

15. Derails.

The derailing point shall be located on high speed tracks, not less than four hundred (400) feet in advance of the crossing or fouling point which it is intended to protect where the grade is practically level; but in case of a descending grade towards the crossing or fouling point, the derailing point must be located at such a distance from the crossing or fouling point as to give the same measure of protection that is required for level approach.

When, in the opinion of the Commission, the train service and character of traffic on any high speed track is such that the above limit can be varied from, the location of derails will be approved at such distance in advance of the crossing or fouling points as in its judgment will give an equal measure of protection.

Guard rails will be required at all derails, to begin before the derail is reached, and to be of such length as the Commission may approve. They will be required at all points where the Commission will deem necessary for safety and protection of trains.

16. Derail points on secondary tracks.

On all secondary tracks the derail point shall be located so as to give the same measure of safety required for high grade tracks, and in no case less than one hundred and fifty (150) feet from the crossing or fouling point.

17. Derails on spur tracks or sidings.

In case a spur or switch track connects with the main track between the derail and the crossing which it protects, the spur or siding shall be provided with a derail in accordance with the foregoing requirements.

18. Back-up derails on double track.

In case of double track crossings where trains are moved on each track, as a rule, in one direction, a derail shall be provided for back-up movements, and for the further purpose of insuring clearance of crossing before clearance signal can be given on opposing route. The back-up derail must be placed not less than 150 feet nor more than 300 feet from such crossing.

19. *Derails, how worked.*

In mechanical interlocking plants all derails and point switches, whether facing or trailing, must be worked either by iron or steel pipe not less than one inch inside diameter, of standard specifications.

20. *Locks for derails, slip switches and movable point frogs.*

All slip switches, movable point frogs and derails must be locked either by a separate line of connections from those used to move such slip switches, movable point frogs or derails, or by double pointed switch and lock movement of approved pattern. Where the double pointed switch and lock movement is used on high speed tracks, it must be in connection with a bolt lock operated with the home and distant signal, which indicates the position of the facing point.

21. *Switch movements.*

Switch movements must be located on long ties extending a sufficient distance from the rail or on other suitable foundation, and the switch movement must be further connected with the rails by a continuous plate extending under the rails, fitted with special braces to insure accurate adjustment and maintenance of gauge of track. All ties to which lock movements or switch and lock movements are fastened must be firmly strapped to adjacent ties.

22. *Detector bars.*

All derails, facing point switches and other fixtures changing the route or impeding the progress of trains shall be protected by detector bars each at least fifty (50) feet in length. The first interval of the movement of the switch lever which withdraws the locking pin must, at the same time, raise the detector bar above the level of the rail. The final movement of the switch lever must advance the detector bar to its normal position, the level of the rail. If the detector bar is not worked on the switch lever it must be actuated before the switch is moved in either direction.

23. *Detector bars at crossings.*

When, in the opinion of the Commission it is practicable, detector bars or electric locking will be required at each crossing. Crossing bars must be interlocked with the movement that operates the derails to insure a clear crossing before an opposing route can be set or signal given.

24. *Arrangement of levers in mechanical machine.*

In all mechanical interlocking devices, the levers by which points and signals are worked must be grouped in a tower and supported on a suitable foundation. All levers must be pivoted on a common center. So far as may be practicable the levers must be so arranged that those used in any route combination shall be near together, preference being given to combinations most often set up. The levers must be numbered from left to right. The visible parts of the levers above the machine, except the finished part of the handle, should be painted as follows: Switch levers, black; lock levers, blue; switch and lock levers, black and blue; home signal levers, red; distant signal levers, green, and movable point frog levers, yellow.

25. *Preliminary locking.*

The locking must be actuated by the action of the latch rod or by a device performing a similar service in advance of the first movement of the lever. The first act in reversing a lever must lock the levers of all conflicting routes.

26. *Locking of levers.*

The levers must be so arranged that while the signals are in their normal position, *i. e.*, at danger, the levers, operating points, shall be free to move. *Provided, however,* that the preliminary act of reversing any lever shall lock all signal levers controlling opposing routes. The arrangement of locking must be such as to make it impossible for the signalman to lower the signal for the approach of the train until he has first set the points in the proper position for it to pass over the route governed by such signal. The locking must be so devised as to make it impossible for the signalman to exhibit at the same movement any two signals or combination of signals that can lead to a collision.

27. *Signal towers.*

Signal towers must be so placed and of such height as to afford the best possible view of the signals and other parts of the interlocking plant.

28. *Automatic compensation.*

Each line of pipe must be automatically compensated. Such automatic compensators must be located at such intervals in the line as to completely provide for expansion and contraction at various temperatures.

29. *Foundation of pipe compensators and cranks.*

All pipe compensators and cranks must be fixed on suitable foundations.

30. *Changes in systems after permit is issued.*

In case any company desires to make any change in the mechanical construction, arrangement or location of any interlocking system or machine now or hereafter operated under permit of the Railroad Commission, or any of the parts of such system, a new or supplemental application with amended plans shall be filed with the Commission, showing specifically the nature of the changes proposed, and a new permit procured thereon to operate such system as changed or amended, and any change made without a new permit first being procured, in pursuance of this rule, or any change made by any company in the manner of moving cars and engines within the limits of the interlocking system, not contemplated by the Commission when the permit was issued, will be deemed *ipso facto* to work a forfeiture of the permit.

This order shall take effect July 1, 1902.