E.R.O. 52090

LONDON MIDLAND AND SCOTTISH RAILWAY COMPANY

INSTRUCTIONS

RESPECTING

THE WORKING OF

AUTOMATIC TRAIN CONTROL

ON THE

LONDON–SOUTHEND SECTION

COMMENCING DECEMBER 1st, 1947

FOR THE INFORMATION OF THE COMPANY'S SERVANTS ONLY

S. H. FISHER,
Chief Operating Manager

Working Time Table Reprints

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AUTOMATIC TRAIN CONTROL

COMMENCING AT 12.01 A.M. ON MONDAY, 1st DECEMBER, AUTOMATIC TRAIN CONTROL WILL BE BROUGHT INTO USE ON THE UP AND DOWN MAIN LINES BETWEEN CAMPBELL ROAD JUNCTION AND SHOEBURYNESS VIA UPMINSTER AND THE WHOLE OF THE FOGSIGNALMEN AT PRESENT EMPLOYED ON THESE LINES WITHDRAWN.

THE INSTRUCTIONS ON PAGE 288 OF THE MIDLAND DIVISION SECTIONAL APPENDIX (PAGES 75 AND 76 OF SUPPLEMENT No. 4 AND PAGE 56 OF SUPPLEMENTARY OPERATING INSTRUCTIONS) UNDER HEADING "AUTOMATIC TRAIN CONTROL" WILL BE CANCELLED AND THE FOLLOWING INSTRUCTIONS WILL APPLY :—

The object of this system is to give audible warning on the engine when a train is approaching a distant signal and when the distant signal is at "caution" to apply the brakes automatically so as to ensure the train being pulled up before it reaches the home signal.

This automatic indication in connection with the distant signals does not in any way absolve the driver from the responsibility of observing the signals in accordance with Rule 127 (iv).

This apparatus is in use in connection with all distant signals for the up and down through lines between Campbell Road Junction and Upminster and the up and down main lines between Upminster and Shoeburyness, with the exception of the following :—

DOWN LINE	UP LINE
East Ham No. 1 inner distant.	Southend Sidings inner distant.
Barking East inner distants.	Upminster West inner distant 1.
Pitsea East intermediate block inner distant.	East Ham No. 2 inner distant.
Southchurch intermediate block inner distant.	East Ham No. 1 inner distant.
	Upton Park inner distant.
	Bromley inner distant 1.
	Bromley inner distant 2.
	Campbell Road Junction inner distant.

FOGSIGNALMEN WILL NOT BE EMPLOYED AT ANY DISTANT OR STOP SIGNAL ON THESE LINES.

NO ENGINE MAY WORK OVER THESE LINES UNLESS FITTED WITH AUTOMATIC TRAIN CONTROL APPARATUS IN WORKING ORDER OR IS COUPLED TO AN ENGINE SO FITTED (EXCEPT IN CASE OF FAILURE WHEN THE INSTRUCTIONS SHEWN BELOW WILL APPLY).

The track apparatus which is fixed between the rails about 200 yards on the approach side of the distant signal to which it applies consists of a permanent magnet (or first inductor) and except in the instances referred to in the following paragraph, an electro magnet (or second inductor) spaced about 10—15 yards apart.

A permanent magnet (first inductor) only is provided for the down High Street intermediate block distant signal and the down distant signal for Shoeburyness Station Box.

The apparatus fitted to engines consists of a receiver for picking up the magnetism, a valve which applies the vacuum brake, a horn and cancelling lever. An indicator is also provided.

The action of the apparatus is as follows :—

DISTANT SIGNAL IN "CLEAR" POSITION.

A train approaching a distant signal in the "Clear" position is given a "Clear" indication by the momentary sounding of the horn in the locomotive cab.

No action will be required on the part of the driver.

DISTANT SIGNAL IN "CAUTION" POSITION.

A train approaching a distant signal in the "Caution" position is given a "Caution" indication by the continuous sounding of the horn in the locomotive cab and a partial application of the brake will occur.

This caution indication must be acknowledged by the driver pulling the cancelling lever which is provided in the locomotive cab. This stops the horn, releases the brake and causes the indicator to show yellow spokes until the horn sounds at the inductors for the next signal, when it is restored to an "All Black" aspect.

Where an assisting engine is attached in front, the Driver of the train engine must also cancel any caution indication received ; in the case of an engine attached in rear of a train the Driver of such engine must also cancel the caution indication.

NOTE—As the inductors are placed 10—15 yards apart and the time taken to pass over them will vary according to the speed of the train, the driver should not pull the cancelling lever until he is confident that he has passed over the second inductor.

At junction or diverging points where a distant signal is provided under a stop signal for one route but a stop signal only is provided for the diverging line, a "Clear" indication will be given on the engine when the stop signal for the diverging line is "Clear," providing the starting signal ahead is also "Clear," and a "Caution" indication will be given on the engine if the starting signal ahead is at Danger. Where there is not a starting signal, a "Clear" indication will be given on the engine when the stop signal for the diverging line is "Clear" unless this signal applies to a bay line, goods yard or other limited speed movement, when a "Caution" indication will be given on the engine.

As the second inductor takes an appreciable time to become fully magnetised after the electric circuit is completed there is a possibility, if the distant signal is placed to the clear position immediately prior to the engine arriving at the Inductors, that the second inductor will not be strong enough to restore the receiver on the engine to its normal position and a caution indication may be given instead of a clear indication, in which case the driver must act as in the case of a caution indication unless he sees the signal arm actually pass from the caution to the clear position.

Except as shewn in the previous paragraph, should a failure occur so that a "Caution" indication is given on the engine whilst the distant signal concerned is in the "Clear" position, or vice versa, drivers must in all cases act as in the case of a "Caution" indication.

In the case of any irregularity such as might be caused by striking an object on the permanent way which might cause the horn to sound, it should be silenced by pulling the cancelling lever.

Should the operation of the cancelling lever fail to cancel the brake application or the sounding of the horn the A.T.C. apparatus must be isolated.

To do this, the screw-down plug on the brake valve and the isolating cock on the horn valve must be closed, after first breaking the seals.

When the isolating cock has been closed, the automatic train control device will be out of action, and the failure must be reported by the driver concerned at the next signal box open and the Signalman must report the circumstances to Fenchurch Street Control Office.

As the Automatic Train Control Apparatus is controlled by vacuum, it is essential that engines fitted with A.T.C. apparatus should have the small ejector kept continuously in operation whilst the engine is in service. Failure to observe this instruction will render the A.T.C. apparatus inoperative.

When a train is drawn by two engines, or two or more engines are coupled together without a train, the small ejector on each engine must be kept in continuous operation (irrespective as to whether or not each engine is fitted with A.T.C. apparatus) and not that of the leading engine only as laid down in Rule 135 (a), Page 12 (Supplement No. 4 to the General Appendix).

ACTION TO BE TAKEN IN THE CASE OF FAILURE OR IRREGULAR OPERATION OF APPARATUS.

If a clear indication is given in the cab with the relative signal in the " on " position,

or

If the horn fails to sound or the brake is not applied with the relative signal in the " on " position,

or

If the horn fails to sound with the relative signal in the " off " position,

or

If the Driver has isolated the apparatus.

In such circumstances the driver must stop at the next signal box open, or if that box is too close to the point at which the failure occurs to avoid the train being brought to a stand with a severe application of the brake, the driver must stop at the next signal box that is open and report the circumstances to the signalman. It must be assumed that both the engine and track aparatus have failed, until proof to the contrary is obtained.

The apparatus must be isolated by the driver unless he is instructed by the signalman not to isolate for the purpose of making a test or it is known that the track apparatus only has failed.

In the case of failure of the A.T.C. apparatus on an engine the train may, on the instructions of the signalman, be allowed to work forward to the nearest point at which the engine can be taken out of traffic or at which a second engine, on which the A.T.C. apparatus is in working order, can be attached.

A printed form (ERO.52035) is provided for the purpose of enabling Drivers to record any irregularity in the working of A.T.C. apparatus and this should be properly filled up as occasion requires and handed in when booking off duty.

The attention of enginemen is drawn to the necessity for making an examination of the A.T.C. equipment on those locomotives so fitted immediately such locomotives have been derailed or have been in contact with an obstruction in the ' four-foot ' which may have caused damage to the A.T.C. apparatus.

Any damage found as a result of examination should be immediately reported to the District Locomotive Superintendent, and the locomotive must not be used on any section of the line where A.T.C. is in operation.

The Signalman must make a note of the circumstances (including engine number, Train, From — To — Signal at which failure occurred) in his train register book and report the circumstances immediately to the Fenchurch Street Control Office, and the latter must advise all concerned as in the case of accident.

Single Line Working.

During single line working Drivers of trains travelling over the single line in the wrong direction may receive a " Clear " indication when passing over an inductor and in such circumstances this must not be treated as an alright indication nor need any action be taken.

" Test Inductors " on Shed roads.

" Test Inductors " are provided on the outgoing roads at the following Locomotive Sheds for the purpose of testing the Automatic Train Control equipment on engines before going into traffic :—

Shoeburyness, Tilbury, Plaistow, Kentish Town, Cricklewood, Devons Road, Willesden, and St. Albans.

In the event of no indication being received on the engine when passing over an inductor on leaving the shed, the Driver must report the circumstances to the Signalman controlling the exit from the Shed if the outlet signal has been taken off or if the engine has been rung out from the Shed. In all such cases the Signalman must immediately advise the Control Office.

Staffords, Netherfield