

3rd edition, June 2002

Translation

I

Combination of track circuits and treadles

Combinaison de circuits de voie et de pédales

Verbindung von Gleisstromkreisen mit Schienenkontakten



UNION INTERNATIONALE DES CHEMINS DE FER
INTERNATIONALER EISENBAHNVERBAND
INTERNATIONAL UNION OF RAILWAYS

Leaflet to be classified in Volumes :

IV - Operating

VII - Way and Works

Application :

With effect from 1 January 1980

All members of the International Union of Railways

Record of updates

2nd edition, January 1980

3rd edition, June 2002

Retyped in FrameMaker.

Important: the articles (points) in this leaflet have been renumbered in the new edition. The first digit of each point has been increased by one (i.e. 0 becomes 1, 1 becomes 2, and so on). Please take account of this when using cross-references from other leaflets.

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Printed by the International Union of Railways (UIC)

16, rue Jean Rey 75015 Paris - France, June 2002

Dépôt Légal June 2002

ISBN 2-7461-0424-5 (French version)

ISBN 2-7461-0425-3 (German version)

ISBN 2-7461-0426-1 (English version)

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Summary

The leaflet recapitulates on the features of track circuits and treadles. It goes on to point out the benefits of using a combination of track circuits and treadles to detect that a railway vehicle is present at or is passing over a given point, both in the interests of safety and of operations.

1 - General

1.1 - In signalling installations, the passage of a railway vehicle at a specified point can reliably be recognised by the combined use of a track circuit and a treadle. The practice is to use the track circuit working with the current "off" and the treadle working with the current "on".

Each of these two types of equipment has its own characteristics.

1.2 - The track circuit can be used to identify the presence of one or several railway vehicle axles over a certain length of track limited by insulating connections or other types of separation (e.g. the "electrical separation point" in the case of voice frequency track circuits). The length of track circuits may vary between a minimum value (compulsorily exceeding the maximum distance between axles) and a maximum value determined by the electric stresses. The energised track relay indicates that the track circuit is free of railway traffic. In the de-energised position, the track relay indicates the presence of a railway vehicle or a disturbance in the track circuit.

1.3 - The treadle is only actuated discretely when a wheel passes over it. This action may be of short or long duration. In the first case, the treadle returns to its initial position immediately after being actuated; in the second case, this action is prolonged with the help of various auxiliary means and the treadle returns to its initial position only after several seconds. This may happen between two consecutive actuations in the case of a slow movement or when a series of axles pass in a shorter time period than the selected timer period.

1.4 - Whereas track circuits indicate the occupation or non-occupation of a specified stretch of track, treadles only indicate the passage of axles at the points where they are situated.

2 - Advisability of the combined use of track circuits and treadles

2.1 - A combination of track circuits and treadles should be used whenever it is necessary to detect the presence of a railway vehicle in a specified area (track circuit) and its passage at a given point (point where the treadle is positioned).

2.2 - If track circuits working with the current "off" are used alone, various disturbances (short interruption of voltage, intermittent contact at the insulating connection) may give the impression that a railway vehicle is present.

2.3 - If treadles working with the current "on" are used alone, contact may not be made for various reasons (lack of voltage, etc.), with the result that a railway vehicle is not detected.

2.4 - The combined use of track circuits and treadles increases safety, because the simultaneous failure of both items of equipment is not to be envisaged. Thus it records the passage of a railway vehicle in a safe way.

Example:

- cancellation of routes,
- release of the electric lock blocking the route,
- disactivation of flashing lights only when the level crossing is indeed free of traffic following a normal halt on the level crossing.

2.5 - If no railway vehicle is passing or if an incorrect shunt of the track circuit occurs, the combined use of track circuit and treadle makes it possible to avoid some operating disturbances (untimely closing of signals, untimely cancellation of routes or switching off of level crossing installations).

2.6 - It is recommended that track relay and treadle combinations should be laid out in such a manner as to detect a failure, by watching the working position and the return to the initial position.

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