Engineering Instruction Track	EI T 19-02
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This Engineering Instruction includes urgent engineering information. Adherence to the information in this Instruction is **MANDATORY**.

Balises for ATP - Track and Civil Requirements

Audience – Civil/Track:

- Maintenance Operation Managers
- Engineering Managers
- Asset Management Engineers
- Major Works Engineers
- Regional / Territory Track Engineers
- Civil / Track Team Managers
- Civil / Track Team Leaders
- Project Engineers, Managers
- Civil/Track staff ICON Infrastructure
- Possession Coordinator

Main Points:

- Balises must not be disturbed or damaged.
- Any damage must be reported to ICON.

Primary Affected Document: Track Maintenance Procedures and Manuals

Scope

This Engineering Instruction provides information on Automatic Train Protection (ATP) and Automatic Selective Door Operation (ASDO) balises being progressively installed in the four foot at locations across the heavy rail electrified network. The purpose of these balises is to send information to passing trains as they travel over them.

Description

ATP balises are of a fibreglass construction and are normally fitted to the track by means of Vortok fiberglass beams. Some balises may be bolted directly to the sleepers or slab. A rectangular location ID plate is fixed to the top of the sleeper adjacent to each balise and has the same ID description as the circular balise ID plate fitted on the balise. ATP balises are generally light grey in colour when new.

ATP Fixed Balise

Engineering Instruction

Some balises are connected to a trackside junction box via a surface laid cable in a flexible orange conduit and these are known as 'controlled' balises. Some balises do not have a cable and these are known as 'fixed' balises.

Trackside Junction Box

Typically a pair of balises (usually one 'fixed' and one 'controlled' balise) will be installed before some signals, but balises will also be found at other locations between signals.

In addition to ATP balises, some fixed balises are marked as ASDO (Automatic Selective Door Operation) and their position is crucial for correct opening of New Intercity Fleet (NIF) train doors at platforms. These balises and associated mounting equipment such as Vortok beams, are a signalling asset, and signalling staff are required to disconnect and reconnect.

Any damage, disturbance or removal of balises, will cause operational delays to trains. The position of each balise along the track and alignment of the balise relative to the track is important, and any damage, including knocking a balise out-of-square must be reported. In particular, care must be taken not to damage the cable or cable connection point at a 'controlled' balise or the adjacent trackside junction box.

Trackwork Precautions

Prior to commencement of ballast ploughing, re-sleepering, ballast cleaning or where there is a high risk of damage, ATP balises and their cables will need to be removed from the track to a safe place and re-fitted, after the works have concluded by signalling persons. Any track work which may impact on balises, balise cables or their junction boxes should be first discussed with the relevant signalling representative, to determine work strategies.

Do not:

- Drag a rail in the four foot, over or past a balise fitted on the track.
- Run over a balise with vehicle wheels
- Step on a balise cable plug
- Dump ballast on a balise

When storing rails in the four foot, do not:

- Store more than two rails side-by-side (only applying to ATP controlled areas). Refer note below.
- Encroach within 1m of a balise.
- Allow the ends of a pair of stored rails to overlap by more than 10m. Refer note below.
- Overlap with guard rails or check rails by more than 10m. Refer note below.

  Note: the additional metal mass may be detected by the on-board ATP system resulting in a fault alarm and subsequent train braking application requiring a lengthy restart of the on-board ATP systems.

Balises, balise fixings (such as Vortok beams) and their cables are required to be removed from the track prior to the following track maintenance activities:

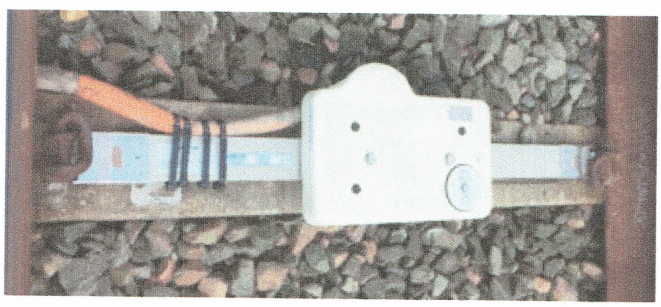
- Where a ballast plough is to be used,
- Resurfacing,
- Re-sleepering,
- Ballast cleaning,
- Re-railing,
- Plant movements in the 4 foot, or on the ballast shoulder where cables can be driven over,
- Ballast brushing/brooming. Note: before passing over a balise, a rotating brush shall be raised or the rotation stopped,
- Track Reconstruction,
- Turnout Renewals/Refurbishment,
- Transoms,

- Track Reconditioning,
- CWR Adjustment,
- Rail Fastening Renewal,
- Rail welding less than 1.5m away

Balises, balise fixings and their cables may remain on the track during the following track maintenance activities as long as they have been clearly identified and notified to the machine operators:

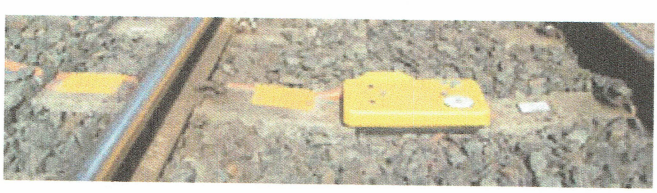
- Mechanical Tamping. A balise mounted between sleepers (Universal Vortok beam) will prevent tamping at this location,
- Hand tamping with Kango's and measured shovel packing is acceptable with the balise in situ,
- Dynamic Stabilising at <40Bar compression,
- Rail Grinding, providing that a concentration of sparks will not cause damage to the balise plug, cable or balise socket cap

Balise Types

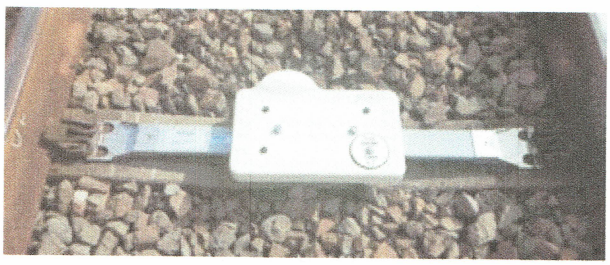


Example of a balise on an (on-sleeper) eClip style Vortok beam.
Note the cable connected to the 'controlled' balise

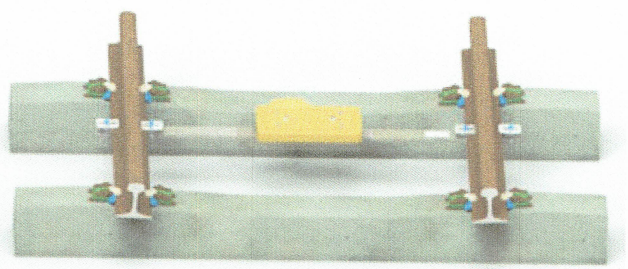
Example of a pair of Balises between guard rails.
Note the cable connected to the 'controlled' balise in the background



Example of a direct fixed balise.
Note the cable connected to the 'controlled' balise



Example of a balise on a (on-sleeper) FastClip style Vortok beam



Example of a balise on a (between sleeper) Universal style Vortok beam

Action Required

- For planned track and civil activities requiring balises to be removed, signalling support shall be required and be made available prior to the works. **Note:** Track and Civil activities requiring removal of balises shall be scheduled well in advance in order to ensure appropriate signalling and track resources are made available.
- Emergency track activities requiring removal of balises, shall be reported to ICON Infrastructure to arrange for signalling resources.
- Any damage to balises observed during track activities shall be reported to ICON Infrastructure.
- Under no circumstance shall staff, other than signalling, remove or reinstall the balise.

Contact

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