

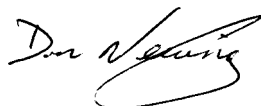
DIS162

Swinging Overlap across a Boundary – Crossover with Separately Numbered Point Ends

Issue 2

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Approved by:

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SSI Signalling Principles Group

Swinging Overlap across a Boundary – Crossover with Separately Numbered Point Ends

1 DOCUMENT STATUS

This document has been prepared for the SSI Signalling Principles Group (SSISPG). Issue 1 was approved at the SSISPG meeting of 21/10/09, subject to minor amendments which have been incorporated in this issue.

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3 PURPOSE

The purpose of this paper is to obtain approval from SSISPG for the data constructs to control the swinging overlap across a boundary with separately numbered point ends between NUNEAST and NUNLEIC interlockings.

4 INTRODUCTION

The SSI Applications Manual Section SSI8003-51D Section 1.9 describes the controls for 'Overlaps through Crossover Points' and SSI8003-65E Section 5 provides an example of 'Swinging an Overlap Across an Interlocking Boundary'. In the example in SSI8003-65E the overlap over the hinge points normal does not need to access the adjacent interlocking. The data ensures that when swinging the hinge points reverse across the boundary the points in the adjacent interlocking are controlled to the correct position before allowing the overlap to swing; if, when the acknowledgement request is processed the overlap point is no longer available to swing they will remain normal maintaining the existing overlap.

This paper provides an example of a swinging overlap across an interlocking boundary where the crossover has separately numbered point ends and an overlap requires either both point ends normal or both point ends reverse. The data strategy is to check the availability of the overlap point end within the interlocking where the route call is initiated, then swing the overlap in the adjacent interlocking before swinging the other end of the crossover (in the initiating interlocking). If, when the acknowledgement request is processed, the overlap is no longer available to swing the point will remain in the existing position (i.e. one end of the crossover controlled normal whilst the other is controlled reverse); in this circumstance the signal in rear will be replaced to danger.

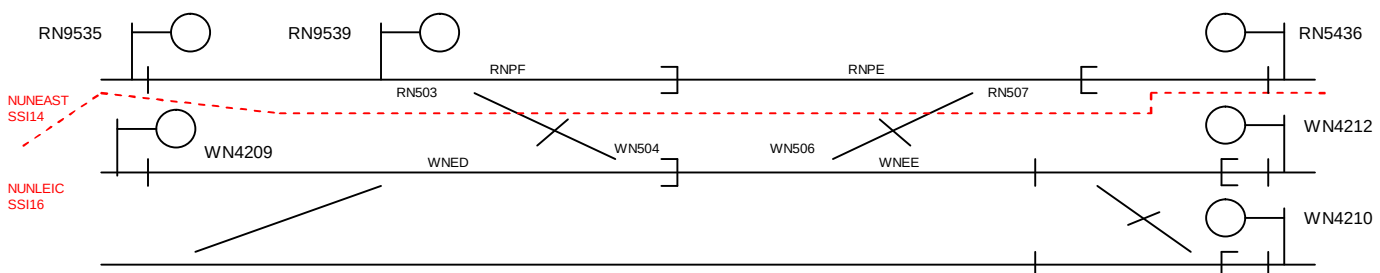
Whilst the data contained in this paper is extrapolated from the Applications Manual there are a number of features that should be considered for inclusion in the manual.

The features include –

- (a) The data is constructed to ensure that when a route is set that swings the overlap, the acknowledgement request sets the overlap points first so that the overlap is maintained, even when the route subsequently fails to set.
- (b) A separate swinging overlap timer is provided for each end of the crossover. See Section 5.3.

5 SWINGING AN OVERLAP ACROSS A BOUNDARY

5.1 Layout



RN503 points are controlled by NUNEAST Interlocking.

WN504 points are controlled by NUNLEIC Interlocking.

RN9535B has a preferred overlap via RN503 normal.

An overlap over RN503 reverse is only permitted with the forward route set. If there is an overlap set over the points normal the overlap can only be swung by a forward route setting, it can not be swung by point key operation. If there is an overlap locked over the points reverse, the overlap may be swung.

Points RN503 and WN504 are both independently auto normalised, although this is inhibited when an overlap is set over them reverse. If RN503/WN504 are left reverse with an overlap set, and the forward route cancelled, then the route lights will flash.

Note: Special sub-routes UZRNP-E-AC/CA, UZRNP-F-AC/CA, UZWNE-D-AB/BA and UZWNE-E-BC/CB are based on 8003-51D 'Boundaries through Crossovers', and are not covered by this document.

5.2 Setting the Swinging Overlap

Route RN9535B sets this overlap. The request for this route originates in NUNEAST Interlocking. If the overlap can be set via points RN503 normal (the preferred position – see SSI8003-65D section 2 'Preferred Overlaps') then, after checking the availability of RN503 to go normal, a request is sent to NUNLEIC Interlocking in order to set the flank points WN504 normal. Note that RN503 are not called normal in NUNEAST until the flank points have been called normal in NUNLEIC. This ensures that the availability of both RN503 and WN504 to go normal is checked before the overlap swinging is initiated.

If RN503 is reverse with the forward route set, then a request is sent to NUNLEIC to set the overlap over WN504 reverse.

This data is based on SSI8003-65E section 5.2..

NUNEAST PRR

```
*RRN9535B      if RRN9535B a
                  @R(RN9535B)A
                  @OLRN503A
                  EG78 stopped
                  then @OLRN503Q
                  \
\
*OLRN503A      if ( PRN503 cnf
                  or PRN503 cr ( RRN9539C(M) s or RRN9539D(M) s )
                  SRN9539 set stick
                  )
                  \
\
*OLRN503Q      ( if PRN503 cnf                /preferred overlap via 503N
                  then EG78 = 0 , G78 = 67    /QOLRN503QN -ORQ to NUNLEIC
                  \
                  or EG78 = 0 , G78 = 68      /non -preferred overlap via 503R
                  )                          /QOLRN503QR -ORQ to NUNLEIC
\
```

In NUNLEIC, the points WN504 are called to their desired position, and the overlap set accordingly. If the points are called normal, and if there is an overlap set over them reverse, the reverse overlap is freed, and a special sub-overlap is locked to lock the points normal (see SSI8003-51D section 1.9).

An acknowledgement is sent to NUNEAST, depending on which direction the overlap is being set.

NUNLEIC PRR

/Swinging overlap for RN9535B
/-----

```
*QOLRN503QN -ORQ
                  if EG78 stopped
                  PWN504 cnf
                  then ORNPF>WNED f , OWNED -CA f
                  PWN504 cn , OZRNP F-CA l
                  EG78 = 9 , G78 = 67          / QOLRN503QN -OAK TO NUNEAST
                  \ .
```

*QOLRN503QR-ORQ

```

if EG78 stopped
  PWN504 cr
then ORNPF>WNED l , OWNED -CA l
  EG78 = 9 , G78 = 68 / QOLRN5 03QR-OAK TO NUNEAST
\ .

```

On receipt of the acknowledgement in NUNEAST, the route for RN9535B is set, via either RN503 normal or RN503 reverse.

If the route is being overset and the preferred overlap is being established, WN504 points will be called normal in NUNLEIC, so to maintain an overlap, RN503 points are called normal before the other tests are carried out in the acknowledgement request (*QOLRN503QN-OAK). Hence, if setting the route subsequently fails, the overlap is set.

NUNEAST PRR

*QOLRN503QN-OAK

```

if LOLRN503QN-OAK xs
then if PRN503 cnf
  tnen @PRN503QN
  \
  if RRN9535B a
    @R(RN9535B)A
    PRN503 cn
    EG78 < 11
  then RRN9535B s
    PRN501 cr
    URNJP-BA l , URNJM-CB l , URNPN-CA l
    URNPJ-BA l , URNPH-BA l
    ORNPF-CA l
    LURNPH-BA s , LRN5432SUP s
    SRN9535 clear bpull
  \
  LOZRPNF-CA xs , EG78 stopped , LOLRN503QN-OAK s
\
EG78AK = 0 .

```

*QOLRN503QR-OAK

```

if LOLRN503QR-OAK xs
then if RRN9535B a
  @R(RN9535B)A
  PRN503 cr
  EG78 < 11
then RRN9535B s
  PRN501 cr
  URNJP-BA l , URNJM-CB l , URNPN-CA l
  URNPJ-BA l , URNPH-BA l
  ORNPF-CB l
  LURNPH-BA s , LRN5432SUP s
  SRN9535 clear bpull
\
LORNPF>WNED xs , EG78 stopped , LOLRN503QR-OAK s
\
EG78AK = 0 .

```

*R(RN9535B)A /Common tests for RN9535B

```
if LSG14 xs , LSGAN xs
  LRN2315RELN s , LRN2315TFC s
  LRN2415RELN s , LRN2415TFC s
  LRN2416RELN s , LRN2416TFC s
  URNJP-AB f , ORNJM-BC f
  PRN501 crf
```

\

```
*PRN503QN if ORNPF-CB l , PRN503 xcn
then ORNPF-CB f , ORNPF-CA l
if PRN503 dr then EPRN503 = 0 \
\
PRN503 cn
```

\

```
*PRN503QR if ORNPF-CA l, PRN503 xcr
then ORNPF-CA f , ORNPF-CB l
if PRN503 dn then EPRN503 = 0 \
\
PRN503 cr
```

\