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SSI Applications Manual

SSI Data Preparation Route Class Selection and Overlap Releasing

Endorsement, Authorisation and Issue Record

For endorsement, authorisation and issue record of this document, please refer to the SSI Applications Manual Contents, NR/L2/SIG/17002.

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1 Introduction

A common requirement in signalling a station area is for different classes of routes from a signal over the same line to a common destination.

Main route: Full overlap is provided, main aspect clears with normal approach release conditions if required.

Warning route: Restricted overlap or no overlap is provided, main aspect clears with restricted approach release conditions.

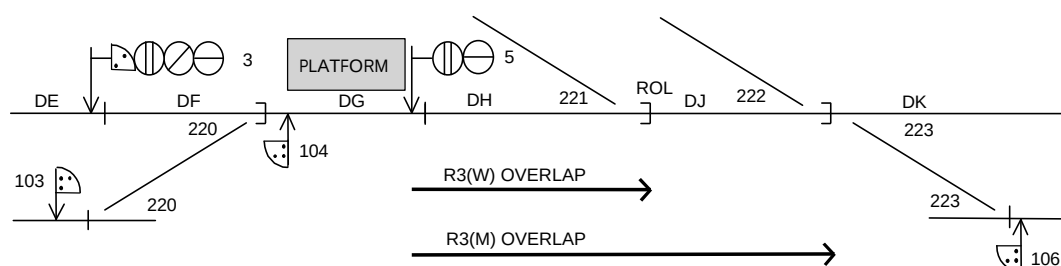
Call-on route: No overlap is provided, the associated position light aspect clears with restricted approach release conditions.

On the Signaller's Panel, the main and warning routes share a common red entrance button and the main and call-on routes share a common red exit button. To allow the Signaller to select the required class of route, an additional exit button, coloured yellow, is provided for the warning route, and an additional entrance button, coloured yellow, is provided for the call-on route. (Previous practice was for the main and call-on routes to both use the red exit button with the class of route selected depending on the state of the exit signal's berth track section - see Section 3.6 and SSI8003-83 for more details.)

Alternative methods of selecting warning routes by overlap availability, rather than by separate button, are covered by SSI8003-79 Section 6.

After a warning route has been set, there are certain circumstances in which it may be allowed to "step-up" to a main route. This occurs if a forward route over the overlap for the main route has been set and the overlap track sections are clear and points detected, and the signal is still being held at red by the approach release conditions for the lower class of route.

The remainder of this supplement describes the principles for preparation of data in these circumstances, and gives examples related to the following signalling layout:



2 Identities and Panel Processor Data

2.1 Panel Identities

In addition to the usual BUT and IND file identities for button contacts and lights at the signals shown (see SSI8003-20), the second entrance button at signal 3 and the second exit button at signal 5 will also require identities, with suffixes

reflecting their function added to the button number to differentiate them from the first button.

B3F	B3FM	
B3(C)F	B3(C)FM	
B5F	B5FM	B5(W)F
I3PB	I3(C)PB	
I5PB		

2.2 Interlocking Identities

A separate route identity is required for each class of route:

R3(M)	R3(C)	R3(W)
-------	-------	-------

Each class of route has a separate panel request:

QR3(M)	QR3(C)	QR3(W)
--------	--------	--------

Sub-route and sub-overlap identities are shared by the various route classes. The sub-routes and sub-overlaps for routes from signal 3 in the example will be:

UDF-CA	UDG-BA	ODH-BA	ODJ-BA
--------	--------	--------	--------

2.3 Panel Processor Data

In the PBK file (see SSI8003-20C Section 5), the F contact identities for the two entrance buttons will each be included in the First Button/Switch List, each with a "Continue At" data type pointing to its Subsequent Button List.

Also, the FM contact identities for the two entrance buttons will each be included in the First Button/Switch List, each with the same "Set Panel Request" data type to generate a panel request for initiating the release of any route from the associated signal.

Examples of these entries in First Button/Switch List follow:

B3F s	^L3F
B3FM s	=QXS3
B3(C)F s	^L3(C)F
B3(C)FM s	=QXS3

The Subsequent Button List for the red entrance button F contact will have a Panel Indicator Command to flash this button light. There will be two items in the list, one each for the red and yellow exit button F contacts which will generate panel requests for the main and warning routes respectively.

The Subsequent Button List for the yellow entrance button F contact will have a Panel Indicator Command to flash this button light. There will only be one item

in the list, that for the red exit button F contact, which will generate a panel request for the call-on route.

Examples of these Subsequent Button Lists follow:

```
*L3F          I3PB sf          2
  B5F s          =QR3(M)
  B5(W)F s      =QR3(W)
$
```

```
*L3(C)F       I3(C)PB sf       1
  B5F s          =QR3(C)
$
```

In the POD file, the data that is required to illuminate entrance buttons (see SSI8003-20C Section 4.1) has to be expanded to cover the extra entrance button. Which button is lit depends on which class of route has been set.

```
if S3 clear bpull ( R3(M) s or R3(W) s )
then I3PB s
else I3PB xs
\ .
```

```
if S3 clear bpull , R3(C) s
then I3(C)PB s
else I3(C)PB xs
\ .
```

Also in the POD file (see SSI8003-20C Section 4.3.3), the data that is required to continually monitor the state of entrance button FM contacts has to be expanded to cover the extra entrance button. The resulting panel request has to be generated whenever the Interlocking is not registering that either button's FM contact is broken.

```
if ( B3FM xs or B3(C)FM xs ) S3 clear bpull then =QXS3 \ .
```

3 Panel Request Data

3.1 Principles

In addition to the usual availability checks, point calling and the locking of the appropriate route, the panel request data in the PRR file must ensure that:

- (i) Only one of the three classes of route from the signal is set at any given time.
- (ii) The opposing route locking and overlap locking conditions appropriate to the class of route are checked.

The full overlap is required for the main route, a reduced overlap for the warning route and no overlap for the call-on route.

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For the main and warning routes, any opposing route and overlap locking between the start and ends of the route (including the appropriate overlap) must be free. This also applies to the call-on route (except for the special conditions in the next paragraph), but additionally, at least one of the one or more berth track sections at the exit signal has to be proved occupied.

Special opposing route locking release conditions are applied to the call-on route (for passenger train working, additional conditions are required to satisfy GK/RT0044 (ref. 1) - see SSI8003-83). These conditions allow the call-on route to be set when a train on the opposing route has come to a stand on the berth track section.

In the examples below this is achieved by checking for the berth track section occupied for 90 seconds and the opposing route released; this allows the call-on route to be set even if the rear of a long train extends beyond the berth track section. If there is a requirement to check that the whole train is on the berth track section, the last opposing sub-route before the berth track section would be tested instead of the opposing route (thus in the example below, "UDH-AB f" would be tested instead of "R106A xs").

3.2 Data Example

The panel request data for the route from signal 3 in the example layout above is shown below. In order to aid data comparison, the differences in data between the routes are shown in **bold**.

```
*QR3(M)
  if R3(M) a , R3(W) xs , R3(C) xs
    UDF-AC f , UDG-AB f
    P220 cnf , P221 cnf , P222 cnf
  then R3(M) s
    P220 cn , P221 cn , P222 cn
    UDF-CA l , UDG-BA l , ODH-BA l , ODJ-BA l
    S3 clear bpull
\ . / Panel request for main route
```

```
*QR3(C)
  if R3(C) a , R3(W) xs , R3(M) xs , TDG o
    UDF-AC f , R106A xs
    ( UDG-AB f or TDG o > 90 )
    P220 cnf
  then R3(C) s
    P220 cn
    UDF-CA l , UDG-BA l
    S3 clear bpull
\ . / Panel request for call-on route
```