

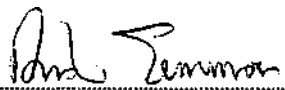
|       |                 |
|-------|-----------------|
| Ref   | NR/GN/SIG/19800 |
| Issue | 1               |
| Date  | Feb 2006        |

# Business Process Document

## Bedford - Bletchley: Control and Use of VHLC Local Panels

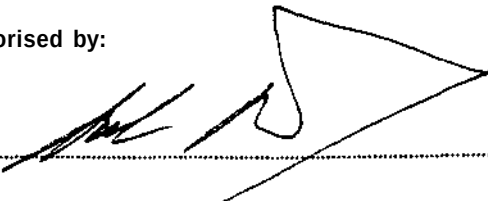
### Endorsement & Authorisation

Endorsed by:



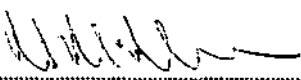
A Simmons, Head of Signal Engineering

Authorised by:



A McNaughton, Chief Engineer

Accepted for issue by:



M McManus, National Standards Manager

This document is the property of Network Rail. It shall not be reproduced in whole or part nor disclosed to a third party without the written permission of the Standard Owner.

© Copyright 2006 Network Rail

Uncontrolled copy once printed from its electronic source.

Published & Issued by: Network Rail 40 Melton Street, London NW1 2EE



|        |                        |
|--------|------------------------|
| Ref:   | <b>NR/GN/SIG/19800</b> |
| Issue: | I                      |
| Date:  | Feb 2006               |

## Issue record

| Issue | Date     | Comments    |
|-------|----------|-------------|
| I     | Feb 2006 | First Issue |

## Disclaimer

In issuing this document for its stated purpose, Network Rail makes no warranties, express or implied, that compliance with all or any documents it issues is sufficient on its own to ensure safe systems of work or operation. Users are reminded of their own duties under health and safety legislation.

## Supply

Copies of documents are available electronically, within Network Rail's organisation. Hard copies of this document will be available to Network Rail employees on request to the Document Controller and to other organisations from IHS Technical Indexes (01344 404409)

|        |                        |
|--------|------------------------|
| Ref:   | <b>NR/GN/SIG/19800</b> |
| Issue: | I                      |
| Date:  | Feb 2006               |

## Contents

|            |                                                          |    |
|------------|----------------------------------------------------------|----|
| I          | Purpose                                                  | 4  |
| 2          | Scope                                                    | 4  |
| 3          | Reference documentation                                  | 4  |
| 4          | Definitions                                              | 4  |
| 5          | VHLC Local Control Panel (LCP) – description and purpose | 5  |
| 6          | Operation of the LCP                                     | 6  |
| Appendix A | Procedure for use of the LCP for maintenance purposes    | 9  |
| Appendix B | LCP controls and indications                             | 11 |

## 1 Purpose

This document describes the control and operating principles of the Vital Harmon Logic Controller (VHLC) Local Control Panels (LCPs).

## 2 Scope

This document covers the VHLC LCPs in use on the Bedford to Bletchley route, which interface with an MCS System, and that are provided with key switch route, signal and point control facilities.

## 3 Reference documentation

[GE/RT8000](#) Rule Book

## 4 Definitions

It is assumed that the reader has a general understanding of the operation of both the VHLC and the Modular Control System (MCS) and is conversant with conventional operating panel terminology, controls and indications.

The following abbreviations have been used throughout this document:

|             |                                            |
|-------------|--------------------------------------------|
| <b>AHBC</b> | Automatic Half Barrier (level) Crossing    |
| <b>CCTV</b> | Closed Circuit Television (Level Crossing) |
| <b>GPL</b>  | Ground Position Light (Signal)             |
| <b>LCP</b>  | Local Control Panel                        |
| <b>LCU</b>  | Local Control Unit                         |
| <b>MCS</b>  | Modular Control System                     |
| <b>REB</b>  | Relocatable Equipment Building             |
| <b>TRB</b>  | Train Register Book                        |
| <b>VHLC</b> | Vital Harmon Logic Controller              |

**NOTE:** Where standard signalling alphabet nomenclature is used in this document, the equivalent function description is also provided for clarity as appropriate.

|        |                        |
|--------|------------------------|
| Ref:   | <b>NR/GN/SIG/19800</b> |
| Issue: | I                      |
| Date:  | Feb 2006               |

## 5 VHLC Local Control Panel (LCP) – description and purpose

### 5.1 Overview

With the exception of Stewartby Green Lane, a Local Control Panel (LCP) is provided within the Operator's room in each interlocking REB on the Bedford to Bletchley route. The scope of use of the LCP is limited to use by Signalling Maintenance staff only.

Using a subset of the controls provided on the panel, the LCP allows a Maintainer to take local control of the VHLC interlocking under certain controlled conditions.

Maintainer control of the LCP shall only be implemented in conjunction with the Signaller and by use of the procedures provided in Appendix A of this document.

A telephone is contained in the Operator's room at the REB connected to the Signallers concentrator by direct line. Where there is a level crossing associated with the REB, the direct line telephone shares the same line as the LCU telephone.

### 5.2 Description

The LCP provides a diagrammatic representation of the area of railway under the control of the VHLC interlocking. This includes the identification of signal, track circuit and point equipment, as well as level crossings where present. Ancillary details, such as positions of station platforms and REBs, are also provided.

Route or line names, with directional arrows where applicable, are depicted. "Bletchley" and "Bedford" with directional arrows as appropriate are also depicted on the left and right hand extremities of the LCP, respectively.

Control switches, in the form of either toggle or two position key switches, are provided to facilitate maintainer use of the panel. Similarly, LED indications are provided to inform the maintainer about the current state of the railway and associated equipment under the control of the VHLC interlocking.

The LCP only displays indications that are sent to the MCS from the local VHLC interlocking.

Level crossing barriers cannot be controlled from the LCP; these can only be raised or lowered by using the LCU at the crossing.

As part of the procedural restrictions associated with the use of the LCP, there is a clear distinction between the controls that the Maintainer may use and those that they may not use.

A full description of each of the LCP controls and indications is provided in Appendix B to this document.

The categories of controls and indications that are provided on the LCP can be said to fall into one of the following categories:

- General panel control functions and indication;  
(See Appendix B1 and B2)
- Signal and point setting controls and indications associated with the diagrammatic representation of the railway control area;  
(See Appendix B3 and B4)
- Level Crossing related controls and indications;  
(See Appendix B5 and B6)
- Principal Maintenance (engineering) controls and indications.  
(See Appendix B7 and B8)
- Supplementary Maintenance (engineering) controls and indications.  
(See Appendix B9)

## 6 Operation of the LCP

### 6.1 Overview

The LCP may be utilised to function the VHLC interlocking for maintenance purposes without requiring the continuous co-operation of the Signaller. However, the Maintainer must obtain permission from the Signaller before operating the panel.

Two key switches are provided on the LCP and the use of these two-position key switches controls the activation of the panel.

### 6.2 LOCAL/REMOTE key switch

The primary key switch is the 'LOCAL/REMOTE' switch; this is used by the Maintenance Technician to take local control of the LCP. The action of switching the LCP to LOCAL control will be indicated to the Signaller via the MCS as a text alarm message and an audible warning that requires cancellation by the Signaller.

When in REMOTE mode, the key switch is set in the horizontal position, whilst in LOCAL mode the key switch is set in the vertical position. It should be noted that the key is captive in the LOCAL position.

|        |                        |
|--------|------------------------|
| Ref:   | <b>NR/GN/SIG/19800</b> |
| Issue: | I                      |
| Date:  | Feb 2006               |

When this key switch is in the LOCAL position, the Signaller will no longer have control of the VHLC interlocking. In addition, the Signaller cannot override the operation of the 'LOCAL/REMOTE' key switch, but correct indications will still be displayed to the signaller via the MCS (see 6.3).

### 6.3 READ/EXECUTE key switch

The secondary key switch is the 'READ/EXECUTE' switch; this is used by the Maintenance Technician to apply restrictions to the interlocking. Restrictions that can be applied include barring of point controls and signal routes and the application of temporary approach control to a signal.

When in EXECUTE mode, the key switch is set in the horizontal position, whilst in READ mode the key switch is set in the vertical position. It should be noted that the key is captive in the READ position.

### 6.4 Other functions

Additional maintenance functions to clear first filament and lamp failure associated with signal aspects are provided on the LCP, however, these do not require the co-operative use of the 'READ/EXECUTE' key switch or 'LOCAL/REMOTE' key switch.

A TEST LAMP switch is also provided to test all LED indications on the LCP, and should be operated before commencing any work to prove all LEDs are functioning. At some larger interlockings the LCP LEDs may be illuminated in two groups and there may be a short delay before all the LEDs are illuminated. The switch should continue to be held in the 'operated' position until all LEDs, excluding those that may have genuinely failed, are successfully illuminated.

Due to the nature of controls and restrictions that can be applied via the LCP, signalling maintenance technicians should not use the LCP unless they are deemed competent to do so by their manager.

Note: The keys that are used for both the 'LOCAL/REMOTE' and 'READ/EXECUTE' key switches for all sites are identical.

All keys provided for the use of the LCP should remain in the custody of the local Maintenance Manager. Suitable measures should be put in place to control the distribution and security of keys to Maintenance Technicians.

### 6.5 Operating procedure

The Operating Procedure for the use of the LCP is provided in full in Appendix A to this document.