




TECHNICAL DESCRIPTION, ENGINEERING OF WORK AREAS IN INTERLOCKING TYPE NSI-63

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1 INTRODUCTION

1.1 Purpose and Scope

The purpose of this document is to give engineering guidelines when introducing Work areas in interlocking type NSI-63. This document does not give a complete overview of the requirements, but is meant to give a short description of the WA functionality in NSI-63. Chapter 2 of this document briefly describes the changes on the most important drawings and schematics.

This document is based on interlocking type NSI-63 with a PLC based NxOC.

2 SCHEMATICS

2.1 Drawing “Skjematisk plan og forriglingstabell”

This drawing is a schematic drawing of the station and it also includes a table that defines the interlocking rules for this particular station.

The schematic drawing shall outline the different WA on the station. The interlocking table shall specify the requirements for the locking of each WA and the dependency between the different train routes and WA.

2.2 Drawing “Plan og kabelplan”

This drawing shall show the placing of each key cabinet and the necessary cables for the cabinets.

2.3 Schematics for Work area (WA)

This schematic shows the interface between the interlocking/NxOC and key cabinets and WA relay (Fr.arb.).

Releasing of the key in the key cabinet is done from the NxOC (active for 15 seconds) and is only carried out if the corresponding WA is locked, see red ellipse in *Figure 1*. The key is supervised in the key cabinet and connected to relay “Arb.omr.”.

Locking the WA is done from the NxOC if certain requirements are fulfilled, as described in the interlocking table in “Skjematisk plan og forriglingstabell”, see blue ellipse in *Figure 2*. The “Fr.arb.” relay is a relay with two coils, in order to “remember” the current state in case of a power failure. The WA (“Fr.arb.” relay) can not be unlocked when the key is removed from the key cabinet, see red ellipse in *Figure 2*.

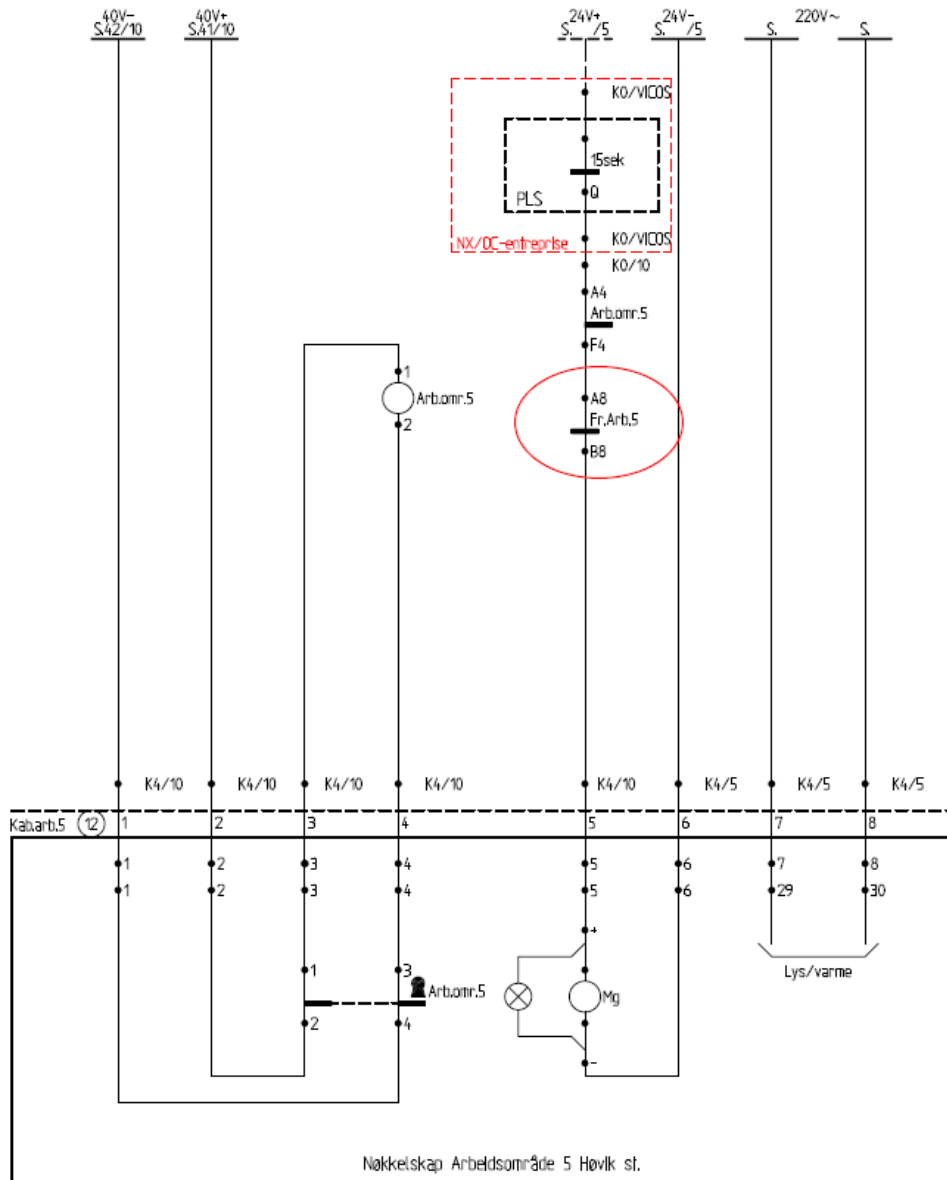


Figure 1: Interface between a key cabinet (nøkkelskap) and interlocking / NxOC.

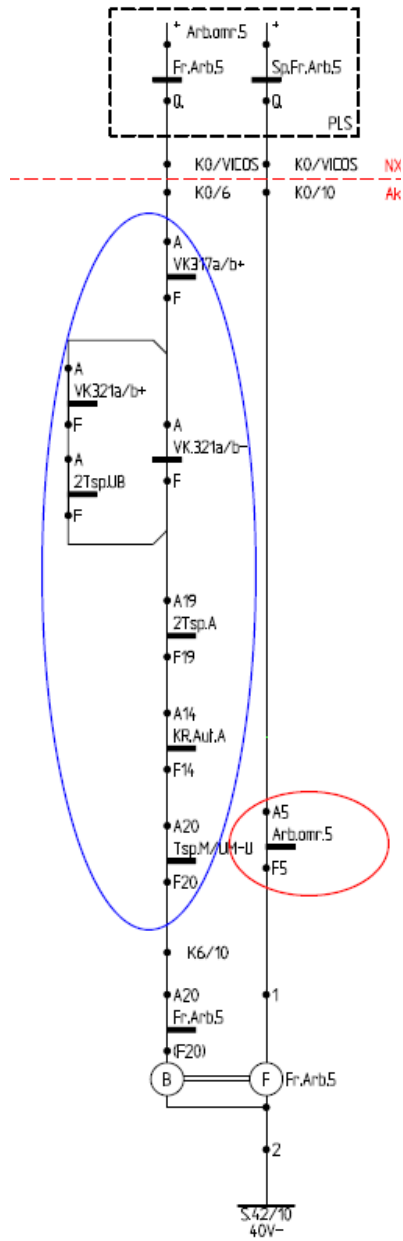


Figure 2: Interface between WA (Fr.arb.) relay and interlocking / NxOC.



2.5 Schematics for point (Sporveksel XXX)

Some points must be locked when WA is locked. This applies to points that are located outside the WA. The interlocking table in "Skjematisk plan og forringlingstabel" shall specify which points that are locked for the different WA. Points inside the WA are released for local operation using the local control box – please note that the local areas are not released. Local areas, in which the coupled points are present, will bypass the WA dependency. If coupled points are located in the WA border both WA must be locked before the coupled points are released.

Blue ellipse in *Figure 4* shows the function of Lok. and WA relays in the circuit for the manouver relays (Mk.xxx).

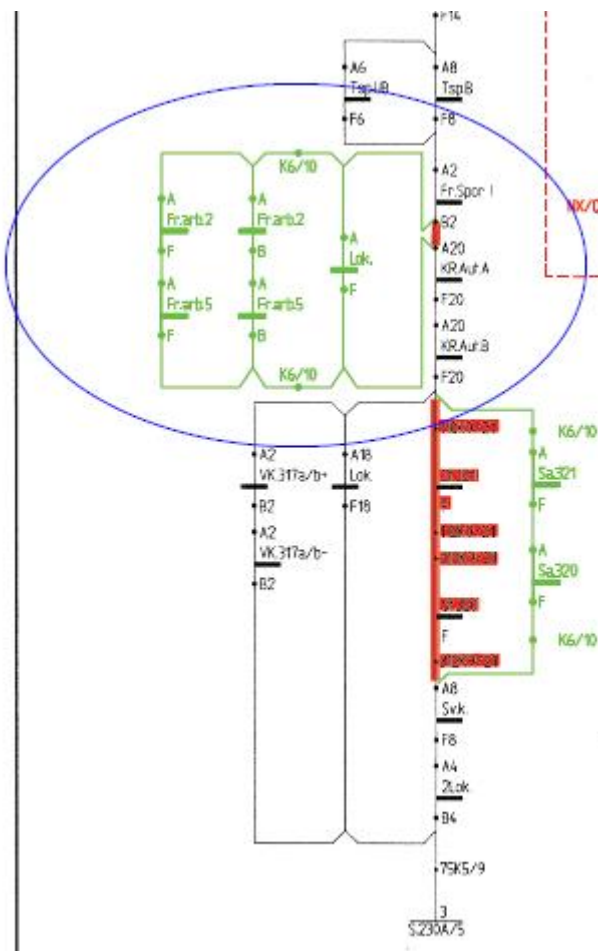


Figure 4: WA relay contacts in point circuit



When a point is released for local operation the local control box is energised. How this is done is shown in *Figure 5*. As this figure shows the local control box is energised when two working areas are locked (Fr.arb.) and the corresponding keys are removed from the key cabinet (Arb.omr.).

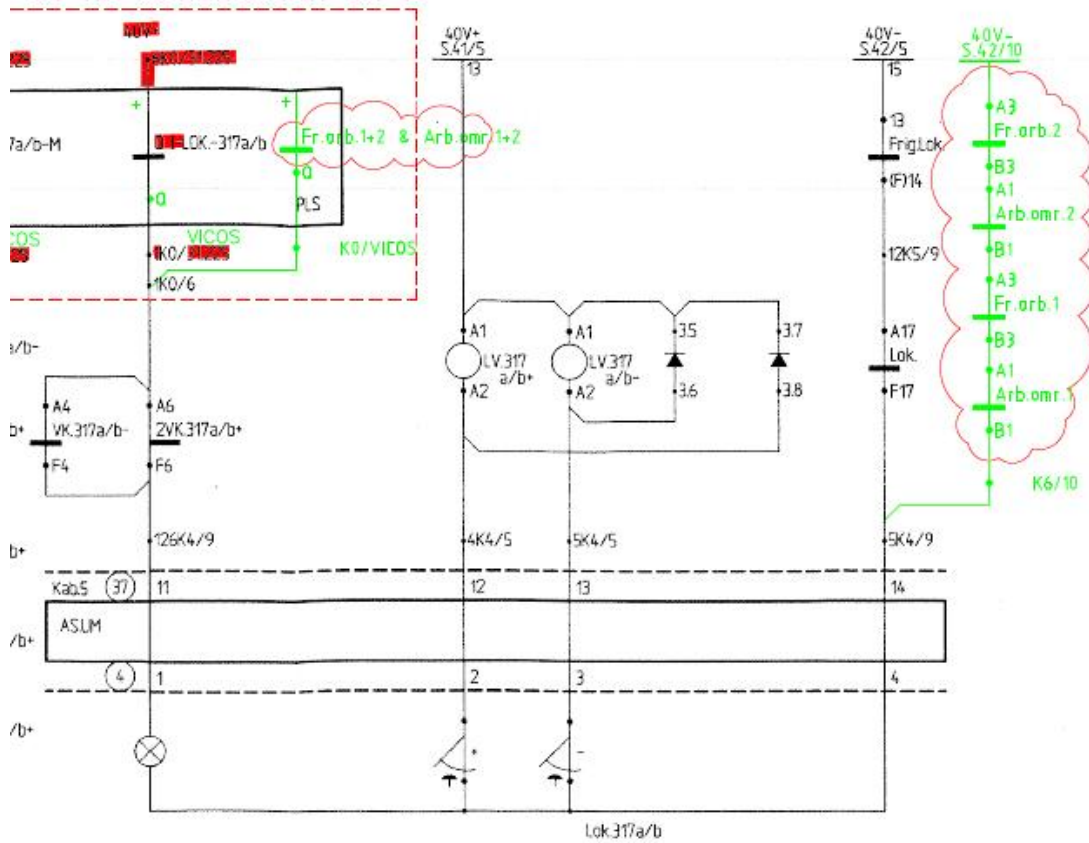


Figure 5: Interface to local control box



2.6 Schematics for local area (Lokalstillingsrele)

In order to prevent the release a local area after a WA is locked, the Fr.arb. relay contacts must prevent the energising of relay Lok., see *Figure 6*.

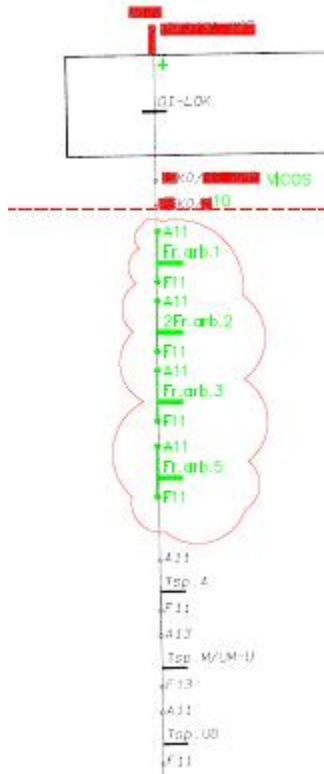


Figure 6: Interface to relay Lok.



3 REFERENCES

4 HISTORY

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