



Sequences

References

- Kongsberg K-Chief 700 Integrated Control System Product Description, 304844/B
- Kongsberg K-Chief 700 Operator Manual, 332618/B



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Content

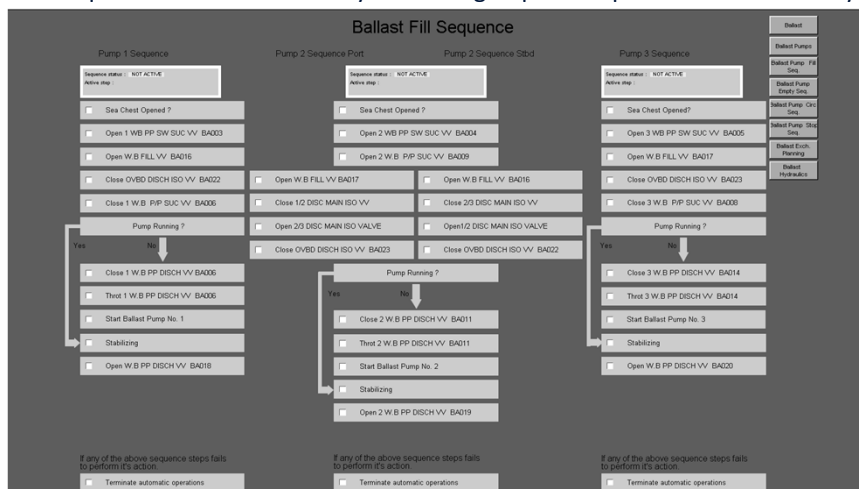
- Recognize sequences
- Describe a sequence
- Different modules used in sequences
- Sequence modules functionality
- Seqstep and Seqrecipe modules
- Operator menu for the Sequence Administrator
- Operate the sequence



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Sequences

- Sequence is a controlled way of running a specific operation automatically





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Sequence Image

Start Cargo Pumps Tank 2

Sequence status : ACTIVE
Active step : Auto Mode

Auto Mode
 Auto Mode

Pump1 Disc Vlv 22%
 Pump 1 Disc Vlv 22% 22

Tank Filling Vlv 100%
 Tank Filling Vlv Opened 97

PMS Power Demand Pump1
 Start Pump1

Close Filling Vlv
 Filling Vlv Closed 3

Release controller 1
 Release controller 1

Release controller 2
 Release controller 2

Pump1 Disc Vlv 15%
 Pump1 Disc Vlv 15% 15

Pump2 Disc Vlv 15%

Manual Mode Pu
 Manual Mode

HOLD & CHIME
 HOLD

Close Liquid Iso
 Close Liquid Iso

Check vlv pos 1
 Check vlv pos 1

Pump1 Disc Vlv

- It is possible to put the Sequence Administration and sequence steps in a sequence Image, where the operator can follow the sequence



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Sequence Image

Cargo Unload Seq 1

Sequence status : NOT ACTIVE
Active step :

4 Step? Yes 8 step?

Check Auto
 Check Auto

First Tank? Yes

Vapour Shore? Yes

Open Vap From Shore Vlv
 Open Vap From Shore Vlv 0

Valve Lineup Enable
 Valve Lineup Enable

Vapour LNG Vapour? Yes

Valve Lineup Enable
 Valve Lineup Enable

Start Pumps CT1
 Pump1 Started
 Pump2 Started

Start Pumps CT2
 Pump1 Started
 Pump2 Started

Start Pumps CT3
 Pump1 Started
 Pump2 Started

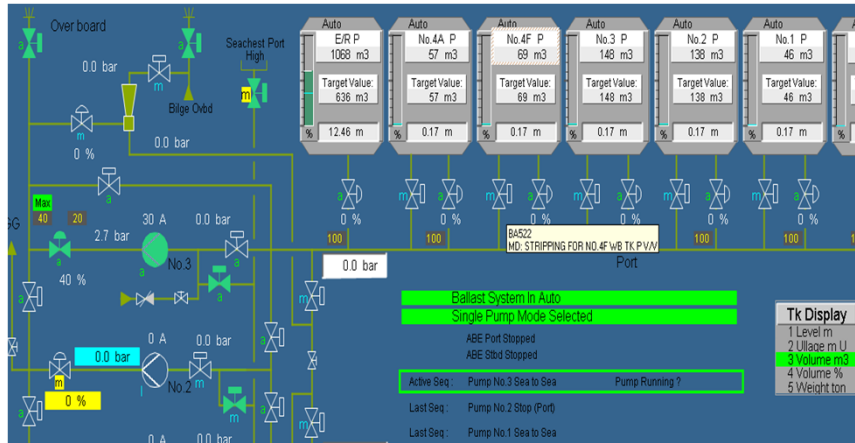
Start Pumps CT4
 Pump1 Started
 Pump2 Started

Cargo Tank
Cargo Loading
Cargo Unloading
Cargo Tank Cookdown
Cargo Confirmed Heater
Cargo Manual Valves
Cargo Manual
Cargo Alarm
Cargo CT5
Cargo ESD
Cargo SBES
Cargo Tank 1
Cargo Tank 2
Cargo Tank 3
Cargo Tank 4
Cargo Tank 1 Temp
Cargo Tank 2 Temp
Cargo Tank 3 Temp
Cargo Tank 4 Temp
Cargo Pump Interface 1
Cargo Pump Interface 2
Cargo Pump Interface 3
Cargo Pump Interface 4



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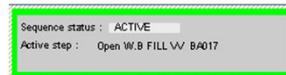
Sequence Image



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Sequence Administrator

- The symbol shows the sequence progress
- The colour of the border will display status:
 - Active: Green
 - Completed: White
 - On hold: Yellow
 - In error: Red
- The name of the active step is indicated

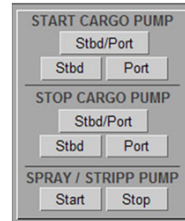




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The Sequence Administrator operation

- The sequence is operated from the operator menu
- A sequence can be started from external buttons



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Sequence administrator Operator menu

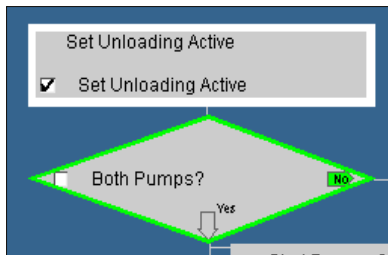
Terminate	Stops the sequence
Start	Starts the sequence from the beginning
Hold	Freeze the sequence at the active step
Continue	Continue the sequence after a hold command
Force Next	Force the module to start the next step
Set jump ID	Jump to the specified step
Jump	Jump to the step ID specified from the button above
Internal	Toggles Internal/External mode



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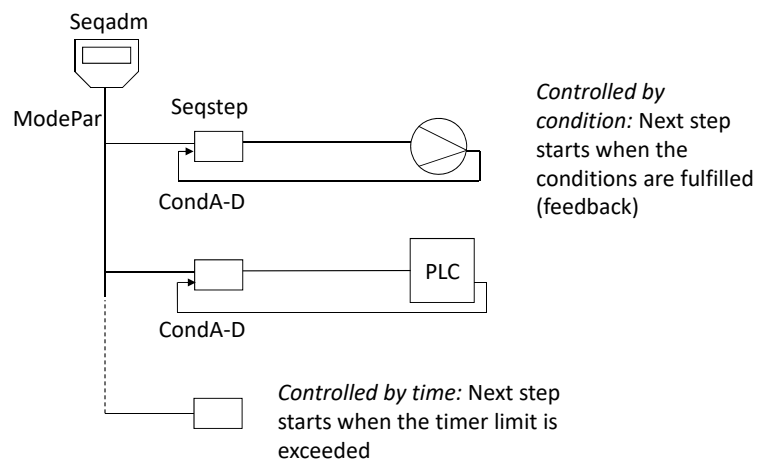
The sequence step (Seqstep) module

- For each operation in a sequence, called a sequence step, there will be a Seqstep module
- The Seqstep module executes an action when activated



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Connection Seqadm-Seqstep

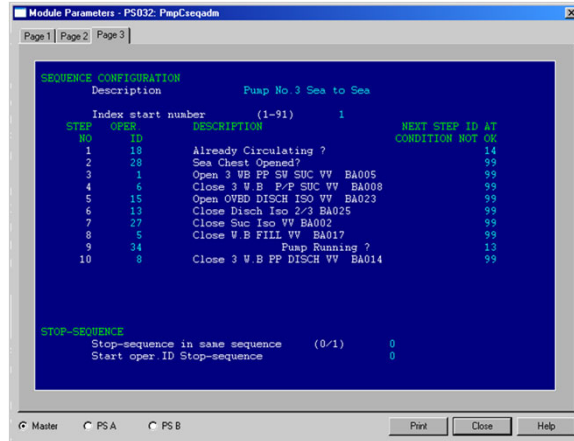




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The sequence recipe (Seqrecip) module

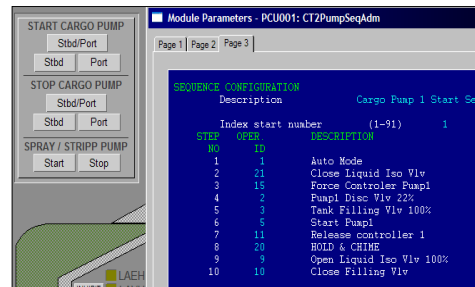
- A sequence is executed by use of a recipe
- Each Seqrecipe module contains one recipe



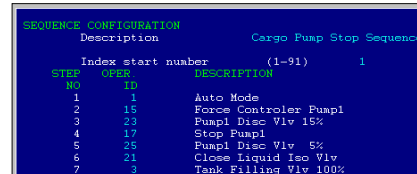
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The sequence recipe (Seqrecip) module

- Selecting a sequence start button sets the correct sequence configuration in the Seqadm module



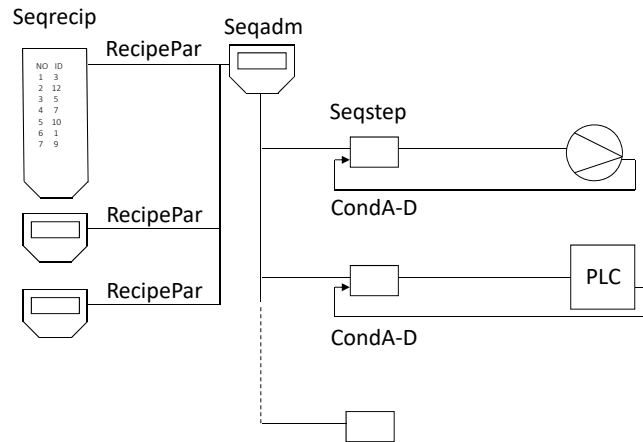
- Stop sequence has another step setup





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Connection seqadm-seqstep-secrecip



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Exercises:

- Sequences



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Learning Objectives

- Recognize sequences
- Describe a sequence
- Identify the different modules used in sequences
- Be able to interpret the sequence modules functionality
- Explain how Sequence Administrator utilizes the Seqstep and Seqrecipe modules
- Explain the operator menu for the Sequence Administrator
- Operate the sequence



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**End of the
presentation**