# Sequential laboratory exercise 1 (hydraulic stand 1 or 4)

## Description of function:

* When operator manually operates directional control valve 1 the load shall be hoisted.
* When operator manually operates directional control valve no 2 the load shall be lowered.
* When the directional control valve is no operated, the system shall stop in the current position.
* The system shall be able hoist and lower at two different velocities, chosen by the operator.
* The load shall be secured against pressure loss (failsafe system)
* Max. system pressure: 80 bar.

1. Draw the hydraulic circuit.
2. Connect the hydraulic system using the necessary components.
3. Set the system so the functionality is as described.

# Sequential laboratory exercise 2 (hydraulic stand 3)

## Description of function:

* When operator manually operates the “dead man switch” (directional control valve no 1) the pipe valve shall close and then the brake shall be released for operation.
* When the “dead man switch” (direction control valve no 1) is not operated the brake shall apply and the pipe valve open.
* When operator manually operates the directional control valve no 2 in position 1 the load shall hoist.
* When operator manually operates the directional control valve no 2 in position 2 the load shall lower.
* When the directional control valve no 2 is no operated, the system shall stop in the current position.
* The load shall be secured against pressure loss (failsafe system)
* Max. system pressure: 85 bar.
* Pipe valve pressure: min. 60 bar max. 80 bar
* Brake pressure: min 60 bar max. 80 bar

1. Draw the hydraulic circuit.
2. Connect the hydraulic system using the necessary components.
3. Set the system so the functionality is as described.

# 2 pump laboratory exercise 3 (hydraulic stand 1 or 4)

## Description of function:

* When operator manually operates the directional control valve no 1 in position 1 the pipe valve shall close.
* When operator manually operates the directional control valve no 1 in position 2 the pipe valve shall open.
* When the directional control valve no 1 is no operated, the pipe valve shall stop in the current position.
* When operator manually operates the directional control valve no 2 in position 1 the load shall hoist.
* When operator manually operates the directional control valve no 2 in position 2 the load shall lower.
* When the directional control valve no 2 is no operated, the load shall stop in the current position.
* Directional control valve no 1 shall be supplied from pump no 1.
* Max system pressure: 60 bar.
* Directional control valve no 2 shall be supplied from pump no 2.
* Max system pressure: 60 bar.
* The load shall be secured against pressure loss (failsafe system)
* Max. System pressure: 60 bar.
* Pipe valve shall be fully opened in order to be able to raise the load.

1. Draw the hydraulic circuit.
2. Connect the hydraulic system using the necessary components.
3. Set the system so the functionality is as described.