

## Control system for ABAB FELLING HEAD

“Tilt up” gives signal out on “tilt up” until “flow mode” or “tilt down” is activated.

“Tilt down” gives signal during the time the button for “tilt down” is activated.

When pressing button for “cutting function” grapple and accumulator arms are closed.

After time 1 “cutting function” goes out.

The signal for “cutting out” is closed with a signal when cutting sensor hits bottom.

Cut to bottom also closes the signal for “grapple close” and activates “grapple open”.

There is a maximum time for cutting out of 10 seconds. If the sensor is not activated at this time, the cutting function goes back.

Press “cutting button” when accumulator arms are closed and the “grapple close” will be activated. After time 2 the accumulator arms open during time 3, after time 3 the “accumulator arms close” and after time 1 the “cutting function” goes out and cuts next tree.

When pressing “flow mode tilt”, the tilt passes on to “flow mode” if “tilt up” is activated.

Time 4 starts with pressure on “flow mode tilt”, and when that time is out the grapple and accumulating arms open.

If you press “grapple open” or “close” during “cutting function”, they should open or close grapple but the accumulator arms should keep closed.

**F0:** (all Fx-LED is off) displays the measured length from measuring wheel. 2. function: (red and black button pressed until the display turns off, then blinking display). Inmätt length is longer than 300 cm, calibrated with increases or reductions in length with the red and the black button to övernstäma with the actual length of the stem. Reduce the displayed length with black buttons and rise with a red button. Basic calibration is 2 pulses per cm and it can be adjusted max. +/-20%. The new values are saved and used directly after each adjustment stage.

### **Function buttons**

Use yellow button to step between F1 and F8. A lamp is lit on every function. At operation mode lamps for F1 and F8 are off.

**F1 and F2** are tree counters, function 1 counts to 999 and function 2 is thousands. Function 2 counts up one step every time function 1 passes 999. Function 1 starts over again on 1 after passing 999. If the counter says 554 on function 1 and 4 on function 4 you have cut 4554 trees.

To zero out the tree counter – go to F1 and press button for “down” in 5 seconds and the counter for F1 will start over again on zero. Do the same procedure on F2.

**F3** Time 1 - is time out for “cutting function out” after “grapple in” when pressing cutting button to get the grapples to hold the tree before cutting. Approx 200.

**F4** Time 2 - delays start of open accumulator arms after “grapple close” when accumulating trees. Approx 65.

**F5** Time 3 - time to open accumulator arms so the accumulator arms will open as far out as possible to be able to fetch the latest cut tree that is held by the grapple arms. After time 3 the accumulator arms are closed. Approx 100.

**F7** Time 5 - starts after pressing “grapple open”. If pressing “grapple in” during the time that time 5 is on, you activate “tilt up”.

**F8** Function for “sakea” joysticks “Z”. 0= no function. 1= upper tilt crane tilt. 2= grapple out and cut.

**F9** Light F1 and F2 on. At zero the pump pressure is active during the whole work cycle of the head. During time on this function the signal to the pump is high for as long time as programmed after activating a button.

**F10** F1 and F3 Led lit. Max klipptid if not the sensor for the clips to the bottom not interrupting the clips. (250),

**F11** F1 and F4 Led lit. Setting the pump pressure. 0 – 100. (0).

**F12** Led F1 and F5 lit. My power feed forward. (33)

**F13** Led F1 and F6 lit. Max power feed forward. (60)

**F14** Led F1 and F7 lit. My power feed-back or rotator. (45)

**F15** Led F1 and F8, lit. Max power feed-back. (60)

**F16** Led F2 and F3 lit. Barring feed for clips to the knife will come to home mode.(50),

**F17** Led F2 and F4. Opening of knives when starting feed. (60)

**F-18** Led F2 and F5. 0 = cutters, 1 = Driving cutters. 2 = Driving cutters with tilt down during feeding. (1).

**F19** Led F2 and F6. Time clip button, press the clip button longer than set time so close the feed roller. (0).

**F20** will Led F2 and F7 Length 1

**F21** Led F2 and F8 Length 2

## Connections

P1	In signal buttons	Computer
1	GND	Ground
2	Grapple open	V7
3	Manual tree countingt	V5
4	Tilt up lower	V3
5	Tilt up upper	V1
6		
7	Cut	V8
8	Grapple close	V6
9	Tilt down lower	V4
10	Tilt down upper	V2
11		
12		

### **P2 In signals**

1	GND	
2	Shift to feed Z flip-flop	V9
3	Cut sensor	IN1
4	Accumulerings arms sensor	IN2
5	Length of a sensor NPN	IN3
6	Analog REF. 1 according to F8	
7	Analog signal 2 according to F8	
8	24 Volt	
9	Feed roller close	V10
10		
11		
12	Length 1	D2A
13	Length 2	D2B
14	24 Volt	

<b>P3</b>	<b>Exits</b>	
1	Ground	
2	Ground	
3	Ground	
4	Ground	
5	Ground	
6	Ground	
7	Ground	
8	Ground	
9	Ground	
10	Ground	
11	Ground	
12	Ground	
13	Tilt crane	OUT 1
14	Tilt crane	OUT 2
15	Tilt up lower	OUT 3
16	Tilt down lower	OUT 4
17	Accumulating close	OUT 5
18	Feed roller close	OUT 6
19	Grapple open	OUT 7
20	Grapple close	OUT 8
21	Cut out	OUT 9
22	Pump pressure	OUT 10
23	Feed forward	OUT 11
24	Feed back	OUT 12

### **Connection description**

#### **Feed**

- 1 24 volt over fuse 7,5 A
- 2 Ground

#### **Pump**

- 1 Plus to pump steering
- 2 Ground to pump steering

## **Connections head**

- 1 Tilt crane
- 2 Tilt crane
- 3 Tilt up lower
- 4 Tilt down lower
- 5 Accumulator close
- 6 Feed roller close
- 7 Grapple open
- 8 Grapple close
- 9 Cut out
- 10 Signal sensor
- 11 24volt sensor
- 12 Ground
- 13 Feed forward
- 14 Feed back
- 15 Accumulerings arms sensor
- 16
- 17 Length A
- 18 Length B