
	<b>Service Crane 2T</b> <b>Open Day Test Procedure</b>			
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## Functional and performance test

### 1. Normal operation - without load

#### 1.1 Slewing

Rotate the crane in both directions and observe:

- all slew mechanisms work smoothly;
- the limit switch stops the mechanism in both end positions.

#### 1.2 Luffing

Full luffing range is 17-83° referring to the ground.

Move the crane boom with luffing cylinder in both directions, up (luffing in) and down (luffing out) and observe:

- the luffing mechanism works smoothly;
- the limit switch stops the mechanism in both end positions.

#### 1.3 Hoisting

Move the crane hook block in both directions, up and down, using the hoisting mechanism and observe:

- the hoisting mechanism works smoothly;
- the mechanism changes its speed from main mode 36m/min to slow mode 6m/min;
- the limit switch slows down and stops the mechanism in the top end position.

#### 1.4 Hoisting + slewing

Move the crane hoisting mechanism in both directions together with the slewing mechanism, observe:

- the mechanism works smoothly

#### 1.5 Hoisting + boom luffing

Move the crane hoisting mechanism in both directions together with the luffing mechanism, observe:

- the mechanism works smoothly

### 2. Normal operation - under 100% SWL

All mechanisms to be checked under 100% SWL.

The luffing range is to be checked with the limited range (to avoid collision between the crane and load)

#### 2.1 Slewing



Rotate the crane in both directions and observe:

- all slew mechanisms work smoothly;
- the limit switch stops the mechanism in both end positions.

#### 2.2 Luffing

Move the crane boom with the luffing cylinder in both directions, up (luffing in) and down (luffing out) and observe:

- the luffing mechanism works smoothly;
- the limit switch slows down and stops the mechanism in both end positions.

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### 2.3 Hoisting

Move the crane hook block in both directions, up and down, using the hoisting mechanism and observe:

- The hoisting mechanism works smoothly;
- The limit switch slows down and stops mechanism in top end position.

Check the accuracy of the load indicator.

Lift the load using the winch about 0,5m over the ground level.

### 3. Functional tests – emergency operation

Emergency functions should be tested with use of a nominal load.

Before any operation the power supply must be switched off and afterwards, the emergency operation should be activated.

#### 3.1 Gravity lowering

The luffing mechanism is to be checked under a maximum load of 2mT.

Lift the load with use of the luffing mechanism to the luffing range of 65°(radius 4m), then switch off the electrical main switch.

Activate the emergency boom lowering mode.

Lower the load to the ground only with use of the emergency gravity luffing function.

#### 3.2 Manual emergency slewing

The slewing mechanism is to be checked under a maximum load of 2mT at radius approximately R=4m.

Switch off the electrical main switch.

Start slewing the crane manually to see the crane movement.

### 4. Functional tests – safety systems

#### 4.1 Emergency stops

The crane is equipped with several emergency stop buttons.

When working with any of the crane mechanisms, activate the emergency stop button.

Observe if all movements are stopped in a controlled manner (all drives shall stop immediately and all brakes shall be activated).

#### 4.2 Overload limiting device (on-board mode)

Try to lift the load above 110% of SWL (proposed load value is 3mT) and observe if the load limiter is working properly (it is not possible to lift the load).

#### 4.3 AOPS

The AOPS system shall be activated when the load exceeds 150% of SWL (3mT).



After activation, the rope should be paid out with tension equal to 150% of SWL (3mT).

In case when the load decreases 110% of SWL (2.2mT), the AOPS system shall be deactivated.

Testing is to be performed to check the setting of activation points of the AOPS system.

Testing will be done with the following conditions of the crane and its control system:

- Radius= 4÷8m;

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- Activation point = 3mT;
- Holding force = 3mT;
- Deactivation point = 2.2mT

In case of unexpected overloads, the work must be stopped immediately.

#### 4.4 MOPS

After activating the MOPS system, the rope should be pay out with a retaining force corresponding to 20% SWL (400kg).

When the load is below this value, the system should not work.

In order to check the correct activation, the tests will be carried out for loads below and above the set point.

The forklift will be used for the MOPS system test.

In case of unexpected overloads, the work must be stopped immediately.

Check the MOPS operational zone signalization. Check the MOPS working.

Set the hoist with the hook directly over the prepared test load.

Lower the hook and attach it to the test load **200kg** (below retaining force value).

Lift the load above the ground approximately 0,5m.

Activate the MOPS from the control panel.

Observe the winch drum flange and the load.

The load should be lifted and the rope should not be paid out of the drum.

Lower the load back to the ground and deactivate the MOPS.

Increase the test load up to **500kg** (above retaining force value) and connect it to the hook the same way as previously.

Lift the load by means of the fork lift and activate the MOPS from the control panel.

Lower the fork lift.

Observe the winch drum flange.

The load should lower along with the fork lift and the rope should be paid out of the drum.