Kunde: **Customer:**	NCC, Bristol, UK			**Servicetechniker:** **Service Technician:**	Grund/ Schwenger
Type: **Type:**	SH-3600-3.6x2.4			**Maschinen-Nr.:** **Machine-No.:**	G/075941-01
Baujahr: **Build year:**	2014			**Auftrags Nr.:** **Contract No:**	309203
Ansprech-partner: **Contact person:**	Paul Stenner			**Datum:** **Date:**	21.04.2026

Pre-inspection actual condition of the press:

Inspection and process check includes a general visual inspection of machine parts and axes.

1.0 General inspection:

Meeting with Customer Paul Stenner, NCC and Markus Grund, Christoph Schwenger Andritz Schuler.

Scope of work:

- Check condition of the machine
- Check position, force, speed, operator modes
- During the pre-inspection, we check how we can loosen the tie-rods. With that information, we plan the next steps together with the customer.

General condition of the machine:

			x	

All in one in good condition.

1.1 Reference dummy Tool:

Check actual condition with dummy tool:

Dummy Tool for maximum press force 36.000KN

Id:

0099

Die Group:

Schuler

Partnumber:

2026

Description:

Check machine condition

Filter: (All)

ID	Group	Partnumber	Description	Last changed	Lock
1	NCC	1	NCC RTM	2019-03-14 09:12:35	
5	Schuler	Test profiles	Test profiles	2016-05-11 10:16:45	
6	NCC	6	NCC SMC	2019-03-14 10:45:55	
10	NCC	10	Subsea 7 - Last Known Good (Cycle 3)	2019-07-17 16:25:22	
11	NCC	11	Small Cannon HP-RTM	2019-08-21 17:15:09	
12	NCC	12	Small Cannon - Simulation Validation	2019-10-24 11:11:04	
88	Schuler	Test profiles (Copy)	Test profiles (Copy)	2023-10-20 13:05:07	
99	Schuler	2026	Check machine condition	2026-04-22 12:02:17	

1.2 Position, Speed, Force, Pressure:

1.2.1 Position slide:

comment	set pos (mm)	act pos (mm)
Slide in tdc max	2800.0	2814.9
Slide in tdc min	--	--
Slide at dummy pos	430.0	430.0

Slide and lower slide under pressure.

Position slide FrLe -B10.1:

comment	set pos (mm)	act pos (mm)	act pos calibrated (mm)
Tdc max	2803.7	2803.4	--
Tdc min	--	--	--
min at dummyplate	560.3	560.1	--
min at distances	--	--	--

Position slide FrRi -B10.2:

comment	set pos (mm)	act pos (mm)	act pos calibrated (mm)
Tdc max	2803.7	2803.3	--
Tdc min	--	--	--
min at dummyplate	560.3	560.5	--
min at distances	--	--	--

Position slide ReLe -B10.3:

comment	set pos (mm)	act pos (mm)	act pos calibrated (mm)
Tdc max	2803.7	2803.5	--
Tdc min	--	--	--
min at dummyplate	560.3	560.4	--
min at distances	--	--	--

Position slide ReRi -B10.4:

comment	set pos (mm)	act pos (mm)	act pos calibrated (mm)
Tdc max	2803.7	2803.6	--
Tdc min	--	--	--
min at dummyplate	560.3	560.2	--
min at distances	--	--	--

Note:

All target positions are reached and approached with precision.

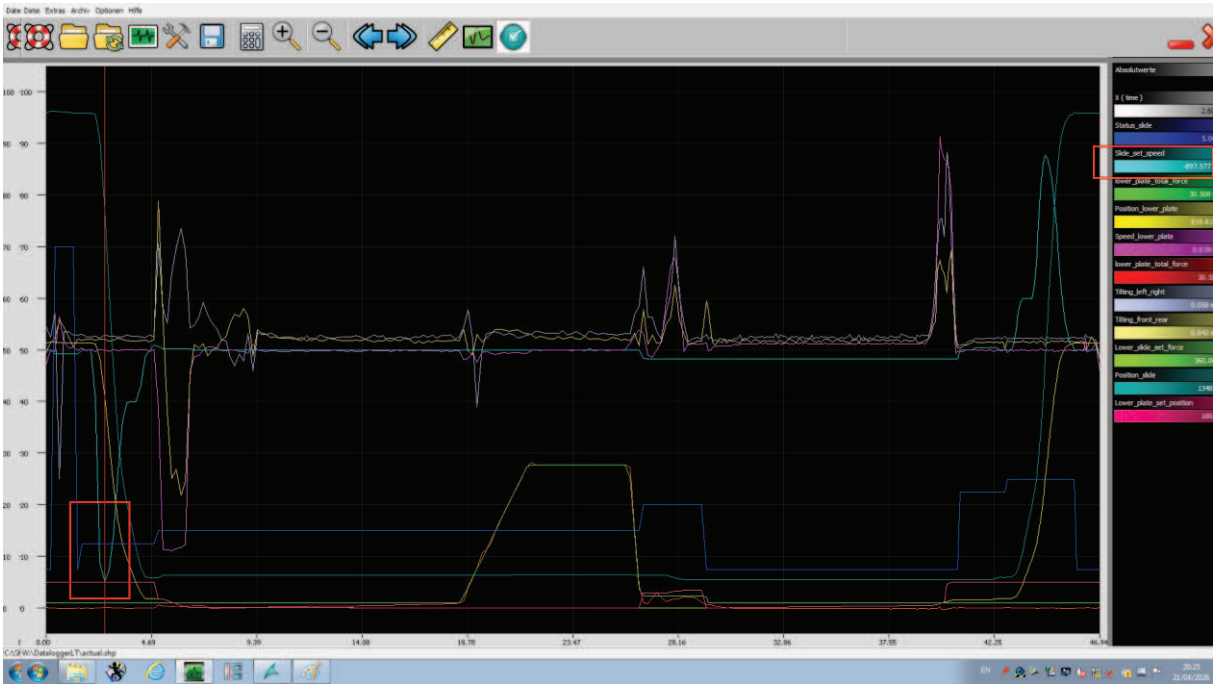
No corrections needed.

After disassembly and reassembly, it is essential to adjust and calibrate the sensors.

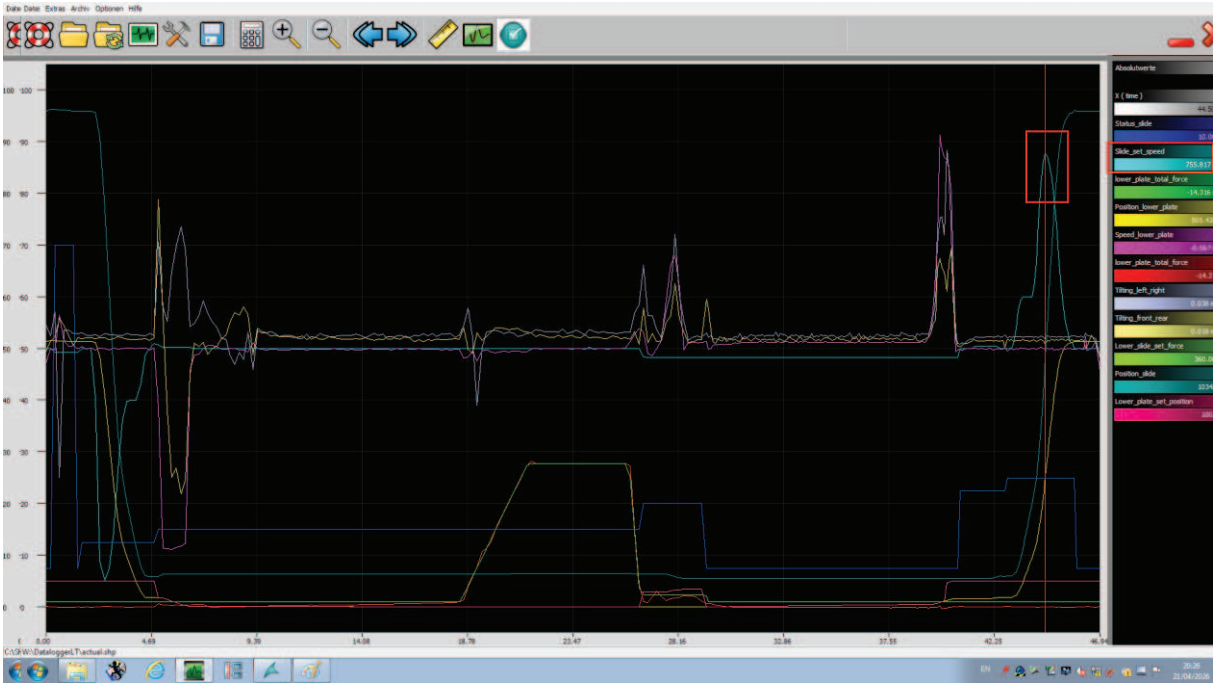
1.2.2 Speed slide:

	set speed (mm/s)	act speed (mm/s)
fast down max	1000.0	897.5
fast down	750.0	701.8
Fast down	500.0	553.1
up max	1000.0	755.0
Setup up	100.0	86.7
Setup down	50.0	53.3

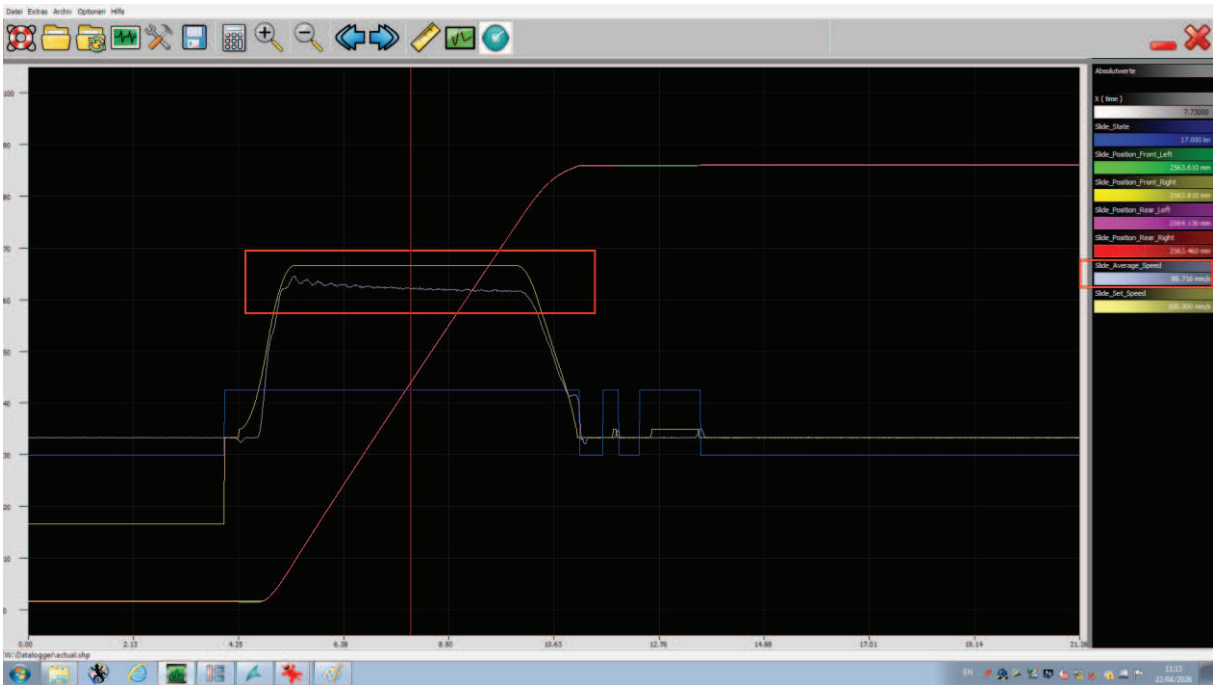
Fast speed down:



Fast speed up:



Slow speed up:



1.2.3 Force slide:

Note:

No force. Only movement up down.

Force was builded up from the lower slide plate against slide.

Spring tool:

Not available in this type of machine.

1.2.4 Position lower slide

Position lower slide front left:

comment	set pos (mm)	act pos (mm)
up max	100.0	
dn min	10.0	

Position lower slide front right:

comment	set pos (mm)	act pos (mm)
up max	100.0	
dn min	10.0	

Position lower slide rear left:

comment	set pos (mm)	act pos (mm)
up max	100.0	
dn min	10.0	

Position lower slide rear right:

comment	set pos (mm)	act pos (mm)
up max	100.0	
dn min	10.0	

1.2.4 Speed lower slide

Speed lower slide:

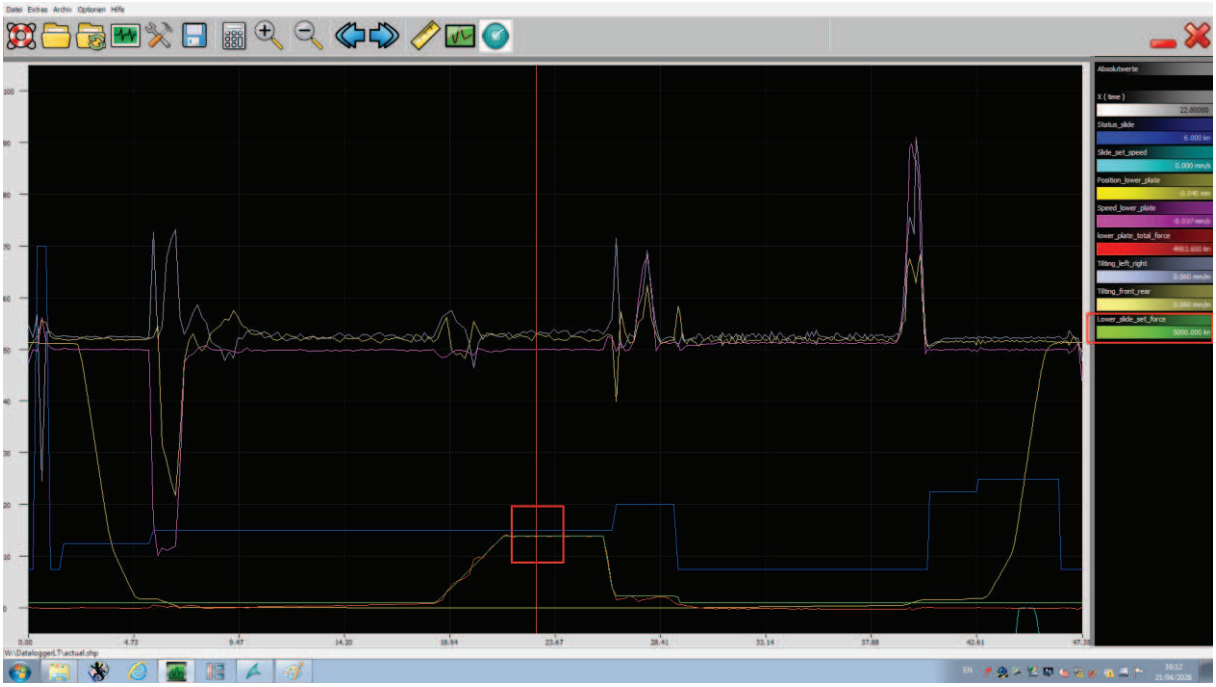
comment	set speed (mm/s)	act speed (mm/s)
up max	40.0	
dn max	100.0	
setup up	20.0	21.0
Setup dn	20.0	21,0

1.2.5 Force lower slide

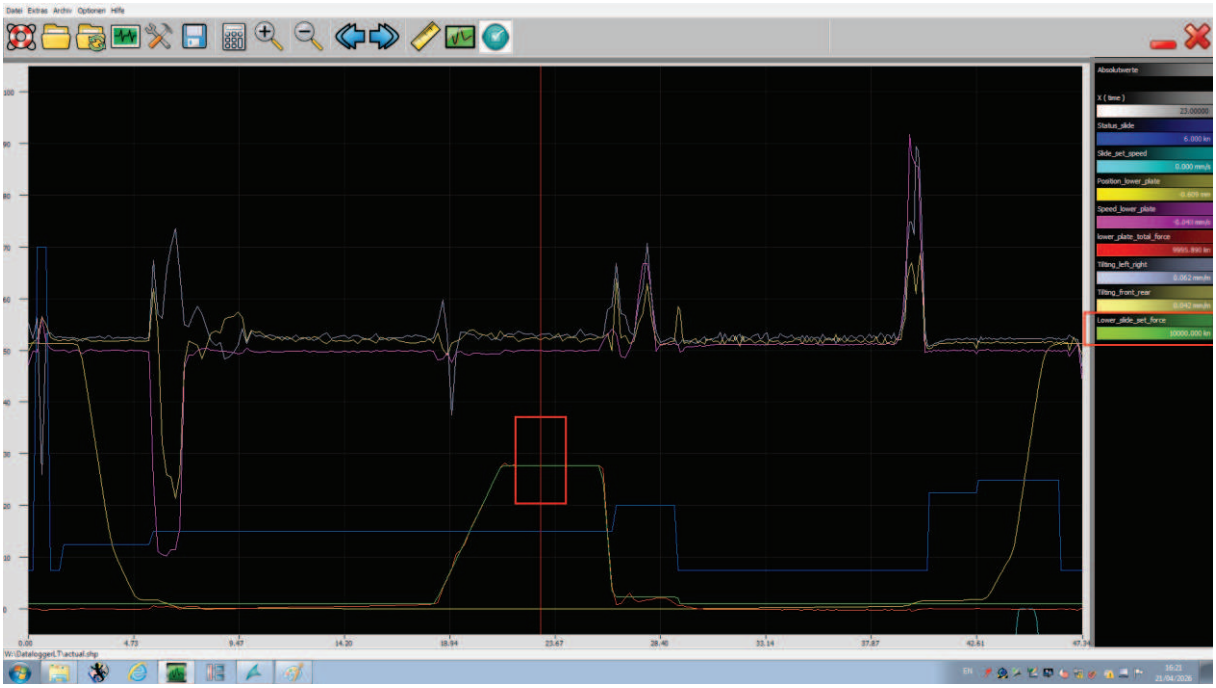
HMI display maximum force:
Maximum force 36.000KN checked.
The force is inside a normal range.

Comment	set force (kn)	act force (kn)	act pressure sec (bar)
min	5000	4992.6	--
Point 2	10000	9995.8	--
Point 3	20000	20006	--
max	36000	36013	--

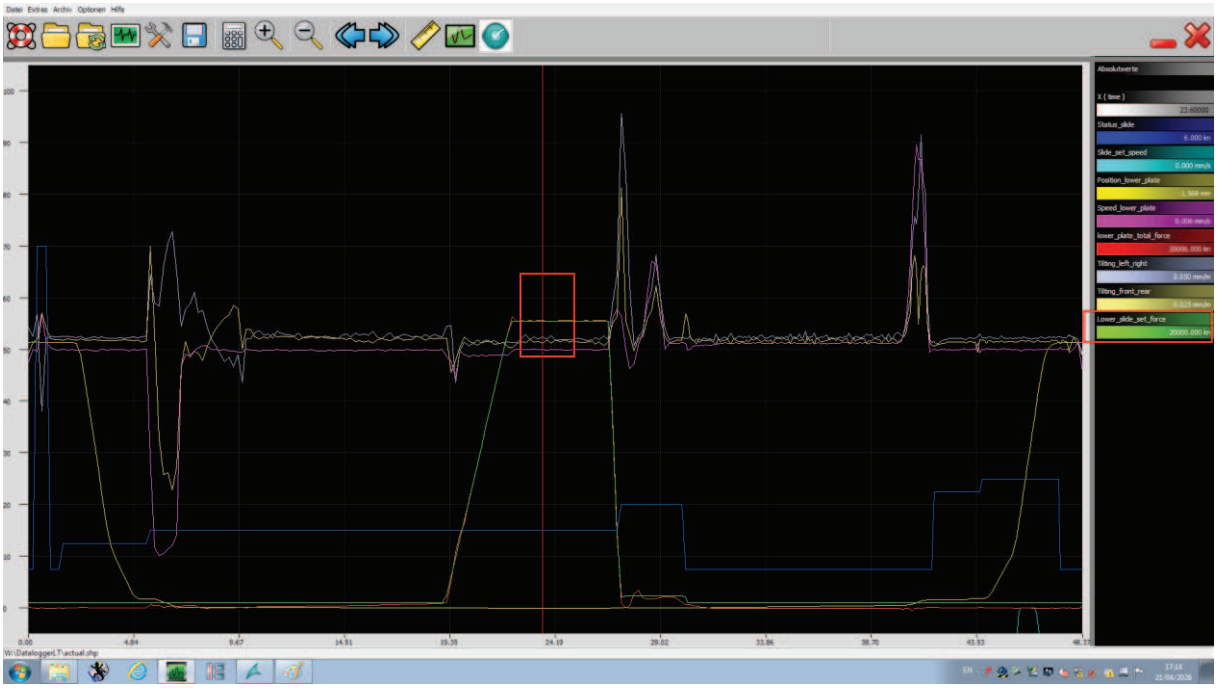
Min set Force 5000KN:



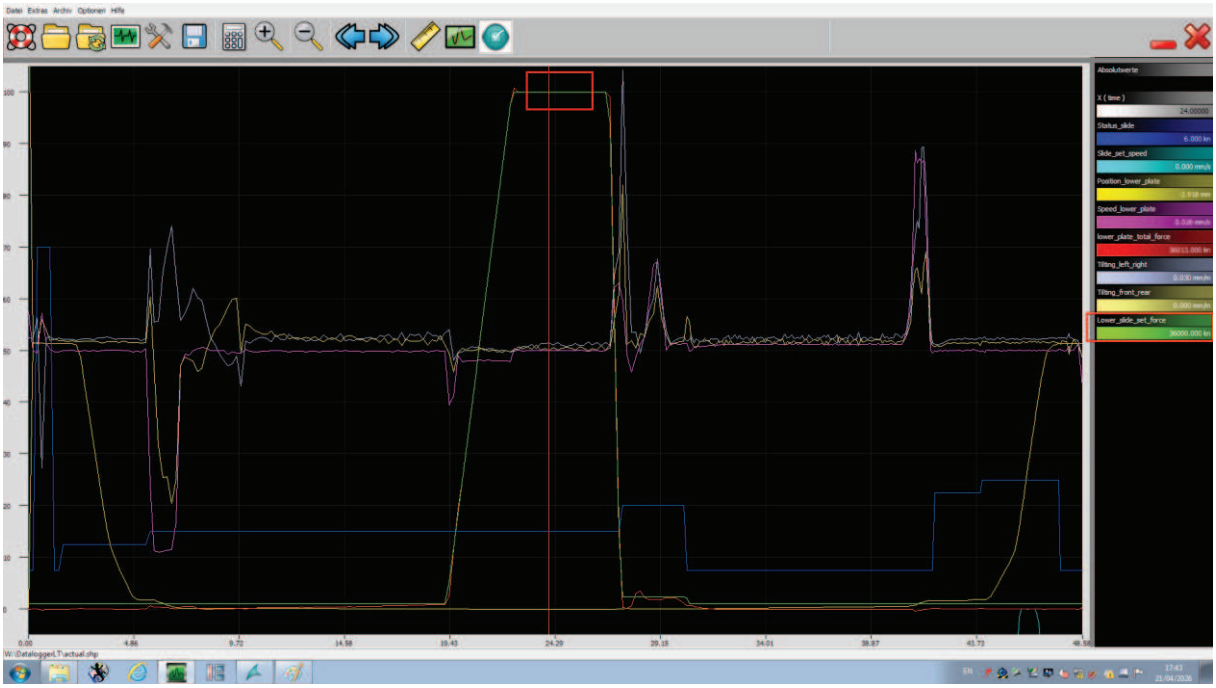
Force 10000KN:



Force 20000KN:



Max set force 360000KN:



Attention:

To release the tie-rods, it needs to modify the plc program to move up the lower slide against the slide under maximum pressure or higher.

The plc must be adjusted temporarily and the machine data params must also be adjusted.

These changes may only be performed by qualified personnel.

1.2.8 Overtravel slide:

Check overtravel safety control

Overtravel measurement										
	1	2	3	4	5	6	7	8	9	10
Dist. mm										
Time ms										

Note:

No measurement. Overrun not required.

Safety area is always in all operator modes completely closed.

1.2.9 Pressure Pumps:
Control of all pumps:

Note:
All pumps working good. All inside there ranges.

1.2.10 Core cylinder:

Note:
Could not tested, because there was no tool.

1.3 Condition of safety devices (electric/mechanic/hydraulic):
The safety-valves are working correctly.
All most in good condition.
Slide secure indicator is working good.

1.4 Condition of slide:

Note:

2.0 Electrical inspection and condition:

2.1 Condition of cables and cable trays:
All cable trays are in good condition.

Remote to HMI and Plc working good.

2.2 Condition of operating devices (2-hand control desk, operating panel, emergency-stops, cell FOL and EOL)
Most operating devices are in good condition, except the emergency-stops.

2.3 Condition of the sensor/actor technology
All in good condition.

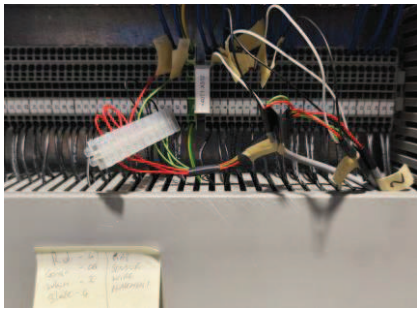
2.4 Condition of electric operator panel:
The electric cabinets all in one are in good condition.

+P1 operator panel:
Almost in good condition.

Attention:
The operator panel is loose on the support arm and wobbles a lot. Risk of falling.

2.5 General condition cabinet/ distributer boxes:
All in good condition.

Distributer box +40T1 floor:
All in good condition.



Various sensors and transducers/amplifiers are wired.

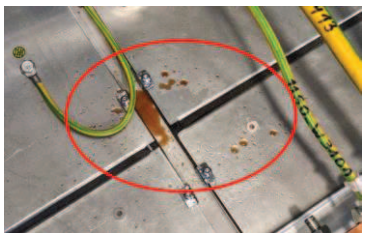
Distributer box +51T1 pit:
All in good condition.
One Beckhoff module was changed.

Distributer box +44T1 tank/hydraulic unit:
All in good condition.

Distributer box +81T1 slide:

All in good condition.

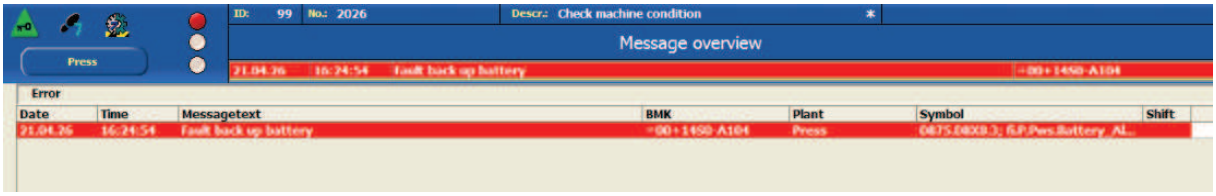
Cabinet +S1:

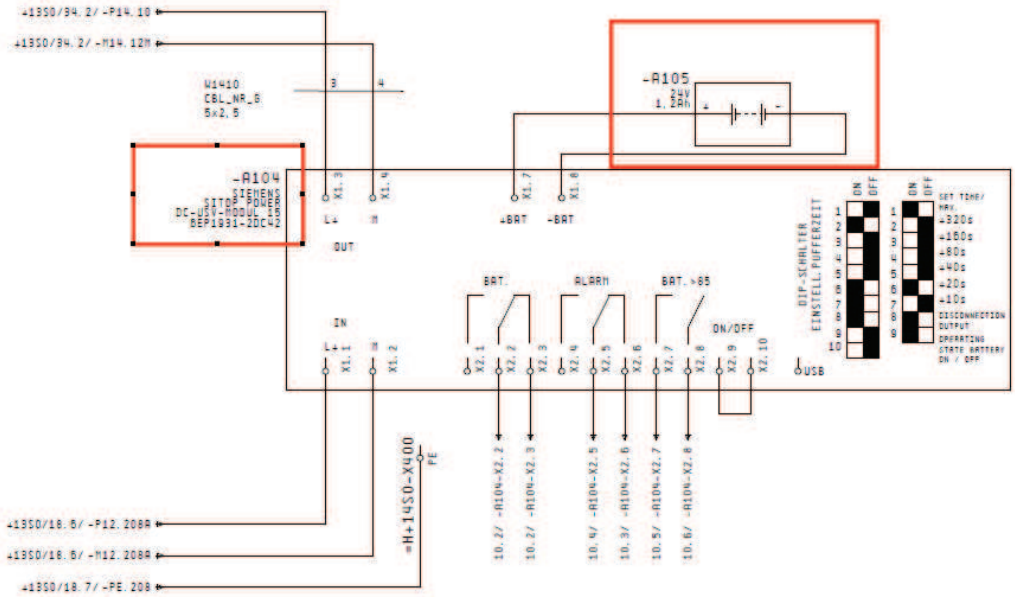


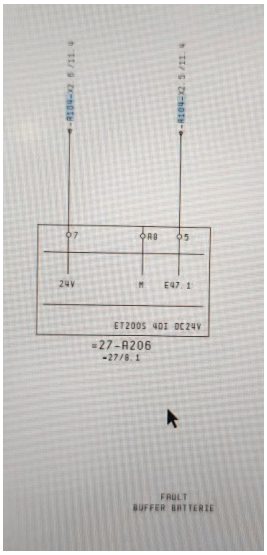
Water-oil-mix is coming down from the valve on the top of cabinet.

Most in Good condition, only one faulty Power supply.

Accupack -A105 is damaged.







Input fault message

2.6 General condition Vizualization IPC/Plc Beckhoff/Plc Siemens

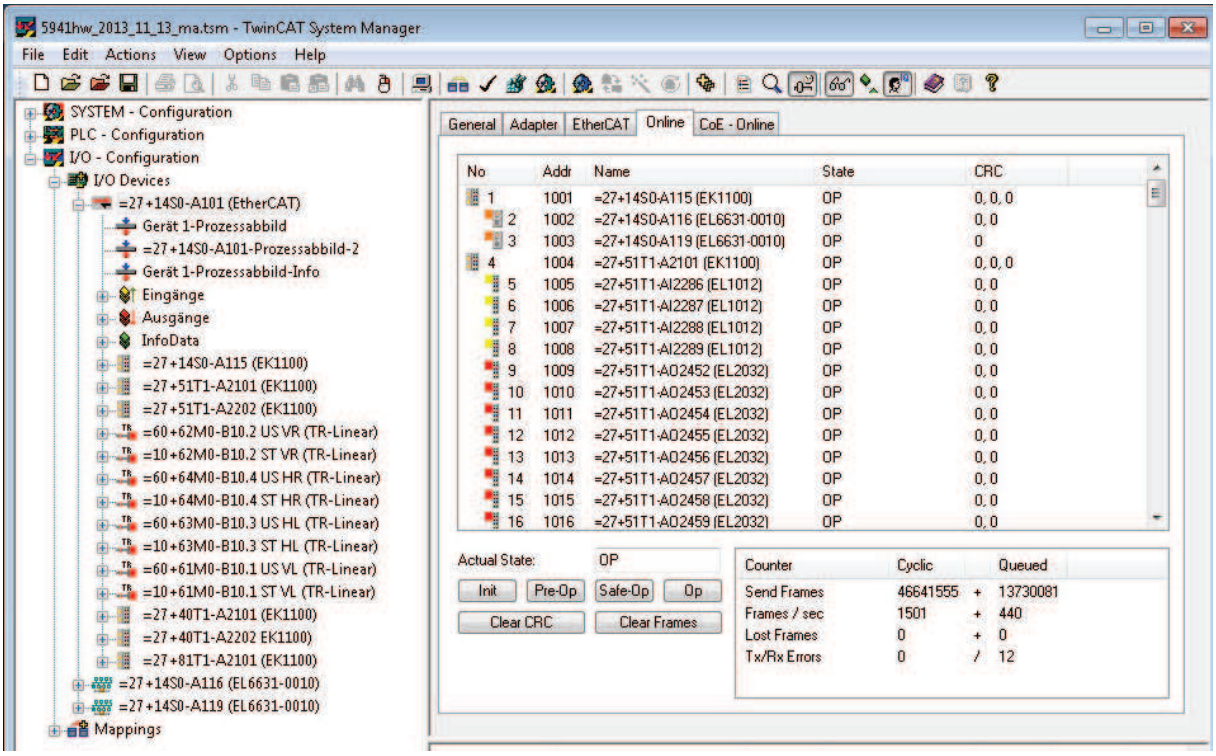
HMI - Schuler Multi View → Run on Siemens Panel + Beckhoff IPC:

Accumulator/Battery/UPS:
State ok. No message.

HMI Panel:
In good condition.

Condition of IPC → Run on Beckhoff IPC:

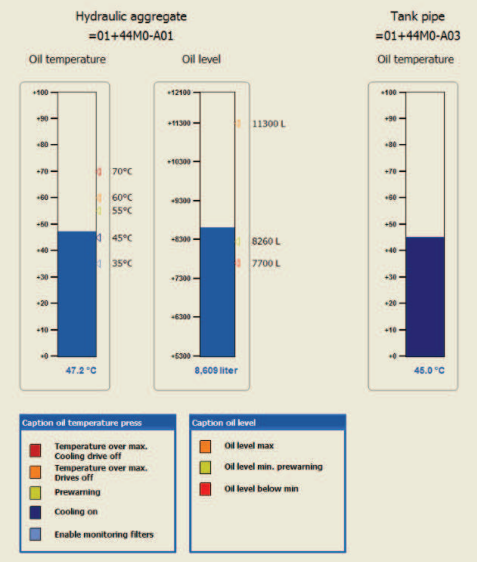
Ethercat Status and condition:
All Modules in OP State. No lost Frames.

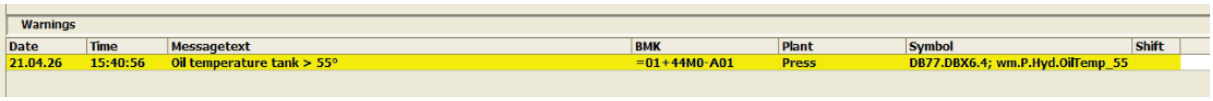


Drives: Control pressure checked:
Sometimes it comes up fault from system pressure.

Diagnostic Oil-level and -temperature:

The oillevel is in a good range (8796 Liter).
The oiltemperatur is in good range (50.9°C).
Ideal oiltemperatur is 50°C.



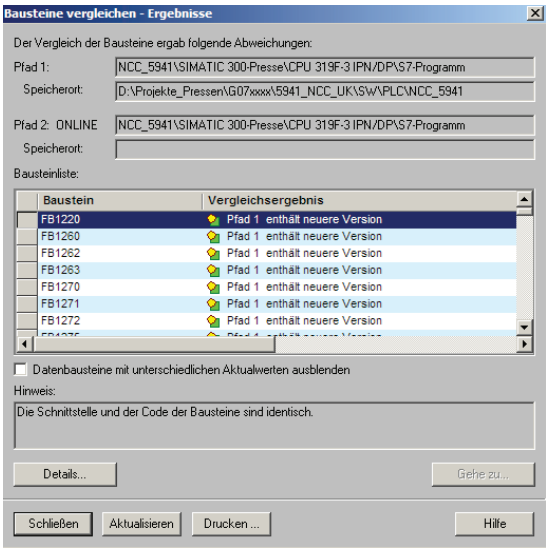


Warnings

Date	Time	Messagetext	BMK	Plant	Symbol	Shift
21.04.26	15:40:56	Oil temperature tank > 55°	=01+44M0-A01	Press	DB77.DBX6.4; wm.P.Hyd.OilTemp_55	

Safety Plc and Standard Plc → Siemens:

All in good condition.
A program comparison was performed. No changes.



2.7 Function of all operator modes

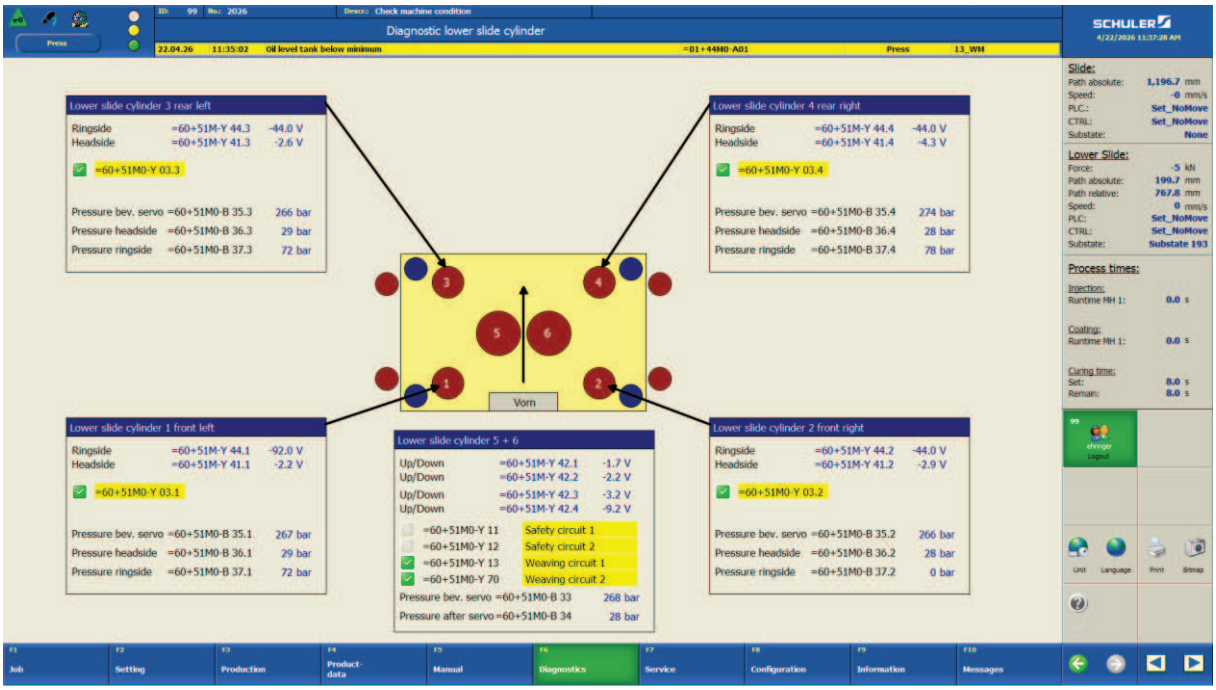
All modes are ok.

2.8 Check of all Encoder

All most in good condition.

Slide position:

Lower slide position:



2.12 Hydraulic drives and tank are outside

All most in good condition.

Accumulator in the basement.

Automation:

- Not available.

3.0 Hydraulic inspection

Function and condition check before dismantling on April 21, 2026

A suitable tool capable of operating at maximum pressing force is no longer available.

NCC improvised and obtained metal plates and two unused tool components, each 430 mm high, for functional testing. The dummy tool measures 2000 x 1200 mm, which, according to the nameplate, is actually insufficient for the maximum force.

To carry out the planned work, a less-than-ideal installation was used.

However, it is absolutely impossible to operate the press at 45,000 kN to loosen the clamping nuts of the columns.

Report on Reconfiguration Week 32 (August 4, 2014)

Columns pre-stressed. As soon as QS arrives on site, the columns will be measured and adjusted. They will then be pre-stressed to 4500t.

Safety regulator for ram cylinders set to 280 bar, according to the diagram.

De-stretching:

The clamping surface of the ram-table must be uniformly, ideally almost completely, fitted with appropriate parallel intermediate supports.

The operating pressures for the lower pistons must be increased accordingly to achieve a force of > 45.000 kN. Then the upper nuts can be loosened.

To record the nut positions for alignment, the position of each nut should be marked before loosening.

The lower nuts must then be removed to dismantle the columns. Marking the nut and column is mandatory.

Tensioning:

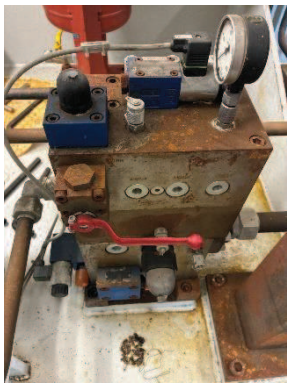
Likewise, with a corresponding increase in operating pressure and monitoring of column elongation. Column elongation is caused by the step locking mechanism and must have the same value on all four columns. The deflection of the ram/table must also be checked and adjusted during recommissioning. A defined, complex procedure must be followed to prevent damage to the system and quality problems with the pressed parts. This work must be carried out by the manufacturer.

Hydraulic Unit Inspection

The hydraulic unit is largely leak-free, and the pumps run smoothly. The pump flow rates and pressures are perfectly fine. The unpainted pipes and control blocks show significant surface corrosion. The seals on the pipes and valves should be replaced due to age. The elastic elements on the pump jaw couplings should also be replaced.

Some of the hoses are also hardened.



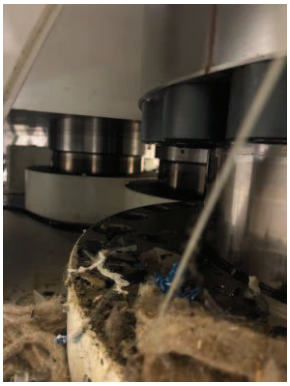
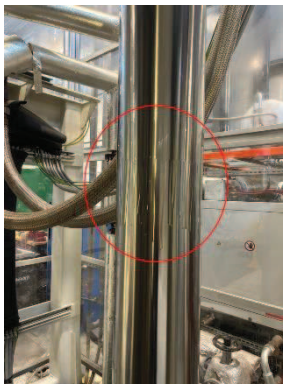



Cylinder Unit Inspection

The front left ram cylinder is now leaking significantly; the remaining cylinder units are seeping at the rod seals. It is recommended to reseal before recommissioning using appropriately modified wipers. Another option is to install bellows to protect the piston rods from resin residue.

The cylinder units on the table are heavily contaminated with resin residue but appear visually sound and leak-free.

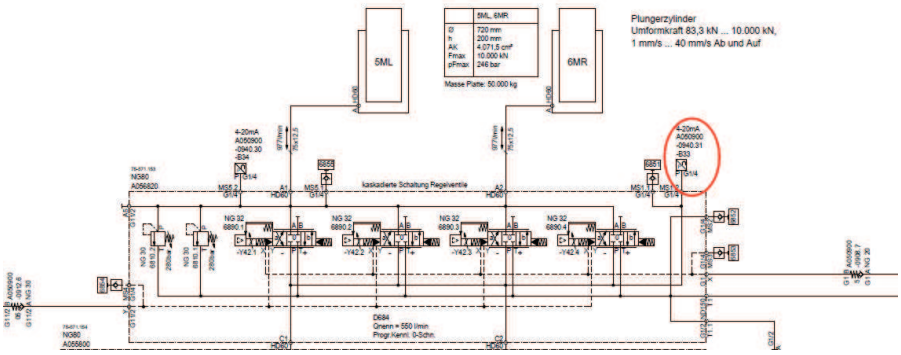
Maximum force is achieved. It can be assumed that the increased pressure required to loosen the nuts on the guide columns can also be achieved.

Control Unit Check

The control units are fully functional. Some of the valve seals show some wear, which is due to their age.

On the control unit lower tappet of the middle cylinder, a pressure sensor is leaking badly and should be replaced along with the fittings.



Important Recommendation:

The Moog servo valves (17 pcs) should be removed during storage and transport.

Prolonged storage causes resin to form inside the valve piston.

The valves can be sealed internally with WD40. The valves should be labeled to prevent confusion.

On the control block side, the flange surface should also be sealed with blanking plates or flushing plates.

Before recommissioning, all servo axes must be flushed to prevent or minimize damage to the valves and any functional impairments.

Moog Valves

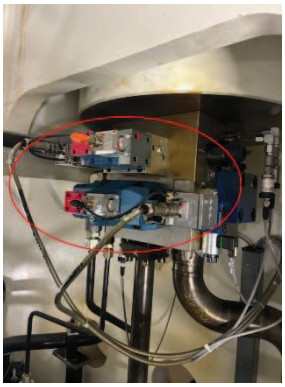
Unterstössel Zusatzzylinder 4x NG 32 Y421,Y422,Y423,Y424

Unterstössel Hauptzylinder 4x NG 10 Y44.1, Y44.2, Y44.3, Y44.4

4x NG 25 Y41.1, Y41.2, Y41.3, Y41.4

Stössel Zylinder 4x NG 25 Y43.1, Y43.2, Y43.3, Y43.4

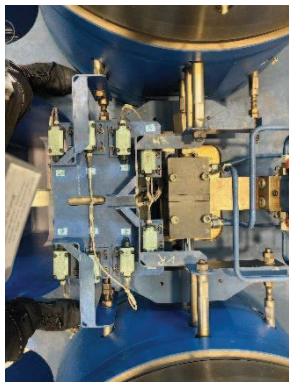
Stössel Steuerung 1x NG 25 Y71



Step Locking Mechanism

The step locking mechanism functions without any limitations.

The contact pattern on the columns is uniform.

Columns/Guides

The guide columns and locking steps are undamaged.RL-side, are some dents without technical significance.

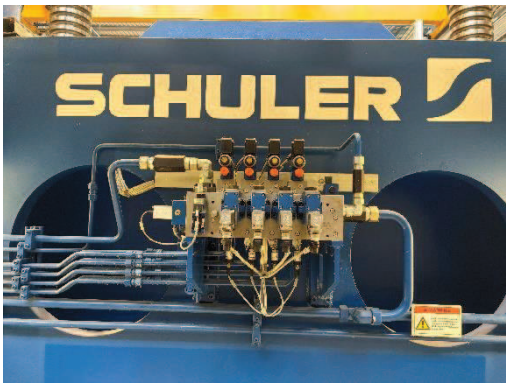
The guideways on the columns show slight wear on the operator side (front left and front right).

The guides have excessive gap at the rear.



Tool Control/Core Pulls

Functionality could not be fully tested because no tool was available.



Hoses

The hose assemblies are mostly from the same year the system was manufactured. The outer skin of the hoses is partially brittle or shows damage to the outer skin.

The recommendation is to replace the hoses due to age and environmental conditions.

Nitrogen-Accumulators

In GB, there is a requirement to inspect pressure equipment (nitrogen accus). It is not known whether this inspection was carried out on time.

How to go on :

Process for loosening the guide columns

To release the tension on the columns, the space between the upper and lower rams must be supported with appropriate rams according to the assembly plan. This requires 38 rams.

The press is then operated with the ram support structure at 45.000 kN / 300 bar.

This requires adjustments to the hydraulic system and software modifications.

Then the spindle nuts can be loosened evenly in increments.

Schuler will prepare a quotation for the assembly assistance and the necessary personnel who will de-stress the tie rods.

Depending on the availability of the necessary equipment, the deployment can take place at short notice.