

OPERATING MANUAL 28.04.2014

170 018

DEXTER 17 ZA

OPERATING MANUAL

DEXTER 17 ZA



CHAPTER 0

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- Chapter 0. General information
 Manufacture certification
- Chapter 1. Technical information
- Chapter 2. Functions
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 instructions
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THIS OPERATING MANUAL SHALL BE
STORED IN THE DOCUMENT CASE
PROVIDED ON THE WORK PLATFORM.

READ CAREFULLY THIS OPERATING
MANUAL AND OTHER OPERATING
INSTRUCTIONS BEFORE PUTTING THE
WORK PLATFORM IN OPERATION.



CHAPTER 0

OPERATING MANUAL 28.04.2014

DEXTER 17 ZA**DEXTER 17 ZA TRAILER MOUNTED WORK PLATFORM****MANUFACTURER CERTIFICATE**

Manufacturer: **JJ - ASENNUS OY**
 Lehtimäenkatu 1
 37150 NOKIA FINLAND
 Tel. +358 3 3422 005
 fax 358 3 3421 006
 e-mail dexter@jj-asennus.fi

Serial number:

469170018E0139218

Date of manufacture:

25.09.2014

Equipment:

Propelling unit	<input checked="" type="checkbox"/>
Propelling unit, HONDA	<input type="checkbox"/>
Generator set	<input type="checkbox"/>
Special colour	<input type="checkbox"/>
Proportional controls	<input type="checkbox"/>
Telescope brushes	<input checked="" type="checkbox"/>
Bracket for ground plates	<input type="checkbox"/>
_____	<input type="checkbox"/>
_____	<input type="checkbox"/>

Inspector / Supplier:




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TECHNICAL INFORMATION

DEXTER 17 ZA**TECHNICAL INFORMATION**

CHAPTER 1

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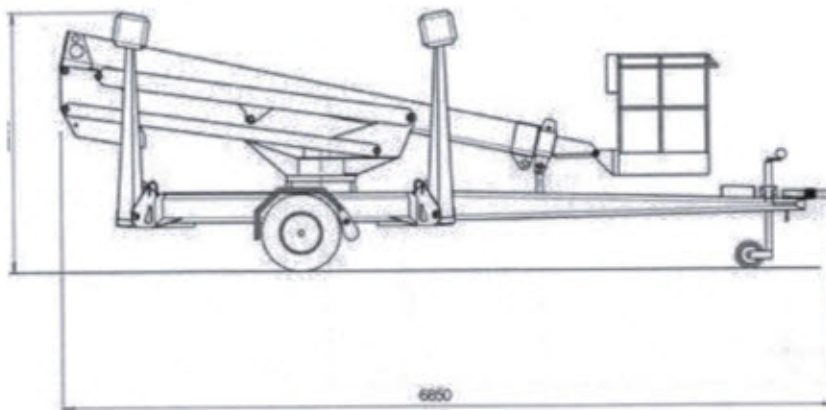
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1. TECHNICAL INFORMATION
- 1.1 BASIC TECHNICAL INFORMATION
- 1.1.1 TRANSPORT POSITION DRAWING

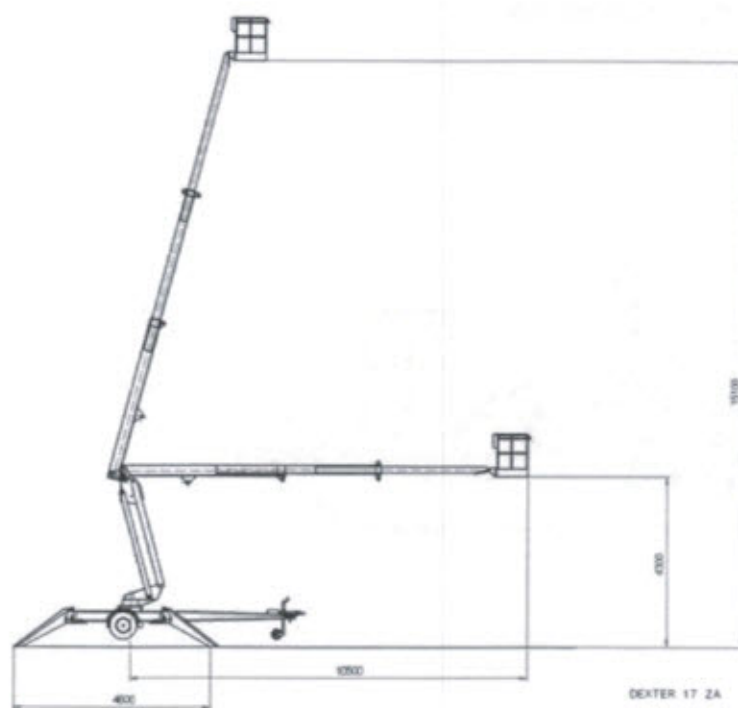


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1.1.2 OPERATING POSITION DRAWING



CHAPTER 1

1.1.3	Transport dimensions and weight	
	Length	6,85 m
	Width	2,05 m
	Height	2,35 m
	Weight	2200 kg
1.1.4	OPERATIONAL DIMENSIONS AND WEIGHTS	
	Working height, max	17,2 m
	Platform dimensions max	15,2 m
	Outreach, max	11 m / 80 kg 9,5 m / 120 kg 7,5 m / 215 kg
	Slewing	360°
	Platform capacity, max	215 kg
	- 2 persons + additional load	55 kg or
	- 1 person + additional load	135 kg
	Platform dimension:	
	- width	1,25 m
	- depth	0,8 m
	- height	1,1 m
	Platform rotation	+/- 40°
	Stabilizing dimensions, longitudinal	4,3 m
	transversal	4,6 m
	Outrigger force, max	12.000 N (1200 kg)
1.1.5	OPERATING CONDITIONS	
	Manual force, max	400 N
	Wind speed, max	12,5 m/s
	Operating temperature, min.	- 25 °C
	Ground gradient, max	5 °
	Allowable inclination of chassis, max	0,3 °

1.1.6 HYDRAULIC SYSTEM

Hydraulic flow, nominal	approx. 5,0 l / min
System pressure	200 bar
Hydraulic oil tank capacity	approx. 18 litres
Return filter	10 μ
Control valves:	- outrigger control valve: monoblock directional valve with direct manual control - boom valves: electric directional valves with proportional function; telescoping ON-OFF

1.1.7 ELECTRIC SYSTEM

Electric motor, single phase	1,9 kW / 230V, 3000 1/min
Control circuit voltage	24 V
Emergency lowering battery	2 x 12 V/6,5 Ah
Wiring and double sockets at platform	230 V

1.1.8 HYDRAULIC DRIVE UNIT

Gradeability	approx. 15 %
Speed	approx. 0,7 m / s
Power source	- hydraulic power pack of machine
Equipment	- hydraulic cylinder, 2 pcs
	- hydraulic motor, 2 pcs
Valves	- monoblock directional valves

1.2 STRUCTURAL DESCRIPTION

GENERAL

DEXTER 17ZA is a telescopic trailer mounted work platform with a 17.2 m max. working height and 215 kg platform capacity.

All load carrying structural components are made of special reinforced sheet metal steel. Outside finishing is mainly painting, inside finishing is made with anti-rust agent.

Power source is a hydraulic unit powered by 230 V/ 1,9 kW electric motor.

Hydraulic outrigger controls are manual and boom hydraulics controls are electric.

1.2.1 CHASSIS AND OUTRIGGERS

Chassis is a framed structure consisting of a welded profile and box girder assembly. It is at the same time the trailer body and the work platform chassis. Outriggers have a box girder structure, they are hydraulically operated and can level a great ground unevenness.

Large outrigger support pads reduce surface pressure and allow setting up the machine in a horizontal position on uneven ground.

Outrigger cylinders are protected by the chassis beams. In addition, the cylinder piston rods are covered when in support position.

Outrigger bearings are self-lubricating slide bearings.

Cylinder eyes are equipped with articulation bearings.

All bearings can be lubricated through grease nipples.

1.2.2 BOOMS

The booms consist of two base parts: the base boom and the telescoping main boom, both of which can be controlled individually.

The base boom consists of four beams, with which the joint can be lifted approximately 4.5m into the air.

The main boom is a three-part telescoping boom, which can be tilted with the boom lifting cylinder and extended using the telescoping cylinder and chains.

1.2.3 HYDRAULIC SYSTEM

Hydraulic system is powered by a 230 V / 1,9 kW single phase electric motor. In addition, the hydraulic unit consists of a gear pump, suction filter, oil tank, connecting piece, couplings, pressure relief valve and return oil filter.

System valves control the flow to either outriggers or booms and they bring about the 2speed boom movement system as well. Control valves are ON-OFF electric directional valves.

Outriggers are controlled with outrigger control valves, which are manually operated monoblock directional valves.

Outrigger cylinders are double acting and equipped with pilot operated check valves (lock valves) mounted on the piston side.

Hydraulic lead-through enables continuous slewing (rotation) of booms. (Notice cable twist)

Slewing worm gear and slewing ring are powered by a hydraulic motor, which makes the booms to slew (rotate). Hydraulic motor is a gerotor motor with double pressure relief valve, which is in the slewing valve unit together with the slewing ON-OFF electric directional valve.

Boom lifting cylinder is double acting and equipped with load holding valves on both piston and piston rod side as well as with emergency lowering valve.

Lower platform levelling cylinder is double acting and connected to the same size upper platform levelling cylinder in a way which creates a closed hydraulic circuit .

Upper levelling cylinder is equipped with load holding valves on both sides.

Telescoping cylinder is double acting and has a load holding valve mounted on the piston side.

The ON-OFF electric directional valves of boom lifting, telescoping and platform levelling as well as levelling system load holding valves and emergency lowering system check valves are located in the boom valve unit.

Hydraulic hoses are steel reinforced high pressure hoses intended for low temperature as well. Cable carrying chain protects the hoses when telescoping the booms.

The hydraulic drive unit uses the machine's hydraulic power pack as a power source. Cylinders are double functional and equipped with lock valves on both sides.

Gerotor type hydraulic motors rotate drive unit's reels. Drive unit will be controlled with monoblock directional valves.

1.2.4 ELECTRIC SYSTEM

The components in connection box at chassis are: automatic fuse, thermal overload relay, fuses 24V, residual current circuit breaker, contactor, relays, outrigger indicator lamp, hour meter, transformer, rectifier, capacitors, stop button, start button, two-way switch.

There is a limit switch for each outrigger which indicates that the outriggers are deployed.

The components in lower controls box at pedestal are: the 1 speed switches of boom controls, emergency stop button, key switch, emergency lowering button, voltmeter for emergency lowering batteries, fuses, capacitors, relays.

Boom limit switches consist of outreach control limit switch and its reserve switch, transport position limit switch as well as limit switch of telescope.

Emergency lowering system battery, which are 2 pcs 12V / 6,5 Ah gelatine batteries, is well protected by the pedestal structure.

Signal horn is located beside the lower controls box and its button is at the platform (upper controls).

The components in upper controls box at platform are: boom control levers, 2 speed switch, emergency stop button, start button, stop button, platform rotation control, platform levelling control, emergency lowering button, signal horn button, outreach indicator lamp and spare lamp.

Platform rotation from centered position to both directions is performed by an electric cylinder. Electric cylinder is self-holding and located under the platform, well protected by the platform structure.

On the platform is a 230 V double socket for electric tools.

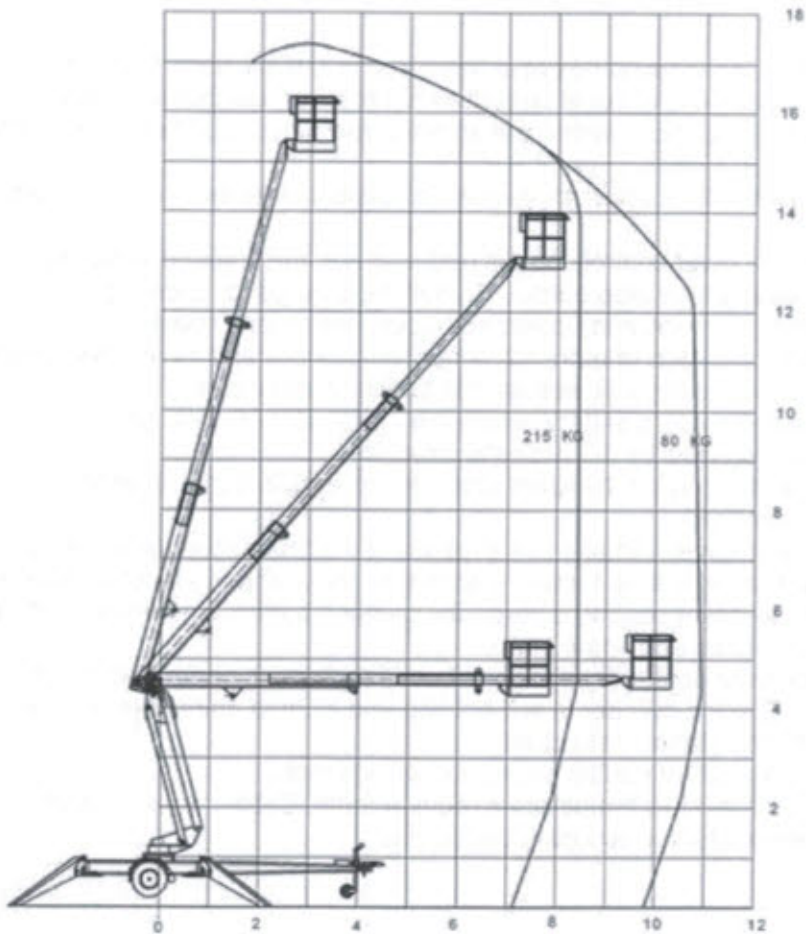
All electric cables meet low temperature requirements. Cable carrying chain protects the cables when telescoping the booms.

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1.3 OUTREACH DIAGRAM

**DO NOT TAKE ADDITIONAL LOAD AT WORK PLATFORM!**

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DEXTER 17 ZA**1.4 LOAD TEST CERTIFICATE**

Mark and type

DEXTER 17 ZA

Serial no and year of manufacture

469170018E0139218 / 2014

Test place / date

NOKIA 24.09.2014

Test performed by (signature)

Test load $G + G_1$

215 kg + 55 kg = 270 kg

Load distance R

 $R_1 = 8,0 \text{ m}$ $R_2 = 7,8 \text{ m}$ Angle of booms α $\alpha_1 = 0^\circ$ $\alpha_2 = 35^\circ$

Supporting width A

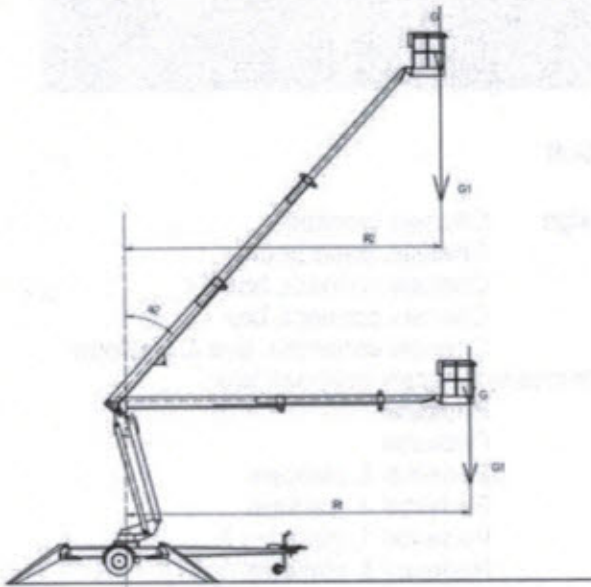
4,6 m x 4,3 m

Ground inclination

0,3°

Test loading should be made by rotating booms 360° on both positions.

Test loading with overload (270 kg) will be performed only by manufacturer.



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3.	Outrigger controls	Chassis connect. box	1
4.	Max. supporting force	Chassis connect. box	1
5.	Ensure bracing	Chassis connect. box & platform	2
6.	Outrigger operating instructions	Chassis connect. box	1
7.	Machine / CE marking	Pedestal	1
8.	Cable twisting warning	Pedestal	1
9.	General information	Pedestal & platform	2
10.	Daily inspection	Pedestal & platform	2
11.	Rated load sign	Pedestal 1, platform 2	3
12.	General warning sign	Pedestal & platform	2
13.	Lowest usable temperature	Pedestal	1
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2. FUNCTIONS**2.1 Trailer axle system**

The machine is equipped with rubber-sprung axle and mechanical overrunning brake system. The overrunning brake system engages trailer wheel brakes as the towing vehicle brakes.

When reversing the automatic reversing system releases the brakes.

The "hand brake ON" function is spring-loaded. Hand brake does not necessarily hold backwards, so the immobility of the work platform must be secured e.g. by putting stops behind the wheels.

Front jockey wheel facilitates short transports and it also helps with coupling and uncoupling to the towing vehicle.

Jockey wheel has a two phase function: when turning the handle the wheel first turns down & locks and after that moves straight down or up – this way the height of the ball coupler can be adjusted.

Ball coupler function has two phases: lifting the coupler handle releases locking and turning the handle opens the coupler.

Safety cable engages the hand brake in case the ball coupler for some reason is uncoupled from the coupling ball during towing.

By connecting the light plug to vehicle outlet the work platform tail lights will work.

2.2 Putting the work platform in operation

The feeding cable plug is located under the chassis cover plate, at chassis connection box.

The plug shall be connected to a 230 V / 16 A grounded outlet.

The electric circuit of the unit is secured by B-type 16 A automatic fuse which shall not be changed. When using an engine-generator, size needs to be approximately 4.6 kV / 230VAC.

The electric motor will start by pushing the start button at chassis connection box.

2.3 Outriggers

The work platform is equipped with four hydraulic deployable outriggers. Their control valves are located beside the chassis connection box. When operating the outriggers the two-way selector switch shall be in "outrigger operation" position.

If the switch is in "boom operation" position the outriggers cannot be operated, and lifting of the booms is impossible as well because the outriggers are not deployed.

Always deploy front outriggers first and lift jockey wheel off of the ground, then deploy back outriggers and level the machine.

Outrigger cylinders are equipped with lock valves, which guarantees safe set up – outriggers do not give in.

Outriggers are equipped with mechanical limit switches, which indicates that outriggers are sufficiently deployed and the green light at chassis connection box will indicate. Red indicator lights on the cover of the chassis connection box indicate which outrigger's limit switch is not on. If the outriggers are not sufficiently deployed, lifting of booms cannot be operated.

Retracting of outriggers happens in reverse order. Outriggers cannot be retracted if the booms are not down on transport support. In booms joint, on the right side, is mechanical limit switch which indicates when the booms are on the transport support.

Outriggers remain in transport position (retracted) without supporting, there are lock valves on outrigger cylinder piston rod side.

2.4 Slewing

Continuous slewing of the booms in both directions is possible, because the machine is fitted with a hydraulic lead-through. Notice the rotation of electric cables at the swivel, when slewing the booms. The cable should be unwinded regularly by rotating in reverse. Slewing system consists of a hydraulic motor, worm gear, gearwheel and slewing ring.

Worm gear is mounted on the pedestal and slewing ring gearing to the chassis. Hydraulic motor is connected to the primary axle of the worm gear, the gearwheel to the secondary axle, and the slewing ring gearing and gearwheel are interlocked.

Worm gear transmission ratio is so high that the gear is self-holding and therefore acts as a slewing brake. Slewing control valve is an ON-OFF electric directional valve with a proportional function.

Hydraulic motor has overload protection through double pressure relief valve. These valves are mounted on the same subplate on the right side of the pedestal .

Slewing can be controlled at either lower or upper controls. There is a two-way selector switch at lower controls for selecting operation at either lower or upper controls.

The selector switch at chassis connection box must be in "boom operation" position and booms lifted up of the transport support. If the outriggers are not correctly deployed, booms cannot be lifted.

Emergency operation of slewing happens by connecting a special crank handle, which is on the protective plate of the slewing hydraulic valve, to the worm gear primary axle and turning the crank handle.

2.5 Outreach control

Outreach control device prevents lowering of booms and extending of telescope in case the moment caused by load is too great. This is indicated by a yellow indicator light at upper controls. In this case the telescope must be retracted or booms lifted until the indicator goes out in order to continue operation.

One end of the control device moment lever is mounted to the pedestal.

Boom lifting cylinder is mounted to the moment lever close to the lever pivoting point.

There is a pressure spring at the other end of the moment lever which gets compressed if the force from boom lifting cylinder to moment lever is too great.

Two mechanical limit switches have been fastened to the movement lever – one is the actual limit switch, the other a reserve switch. The red indicator light on the upper control panel shows that the security switch is activated.

2.6 Lifting of booms

Lifting and lowering of booms happens with the boom lifting cylinder. The elevation and lowering of both the base boom and the main boom can be conducted individually. Boom lifting cylinder is fitted with load holding valves on both piston and piston rod side to prevent unintended boom movements in case of hose failure or equivalent hydraulic system malfunction. In addition, there is an emergency lowering valve cartridge mounted on the cylinder subplate.

Movement control of the main boom is stepless. The base boom lifting valve is an ON-OFF electric directional valve.

Boom movements can be operated, like slewing, at either lower or upper controls. All movement speeds can be adjusted at lower controls using the speed adjustment switch.

2.7 Extension of booms

Extension and retraction of booms happens with telescoping cylinder and chains. Telescoping cylinder is mounted under the 1st boom and the cylinder piston rod eye to the lower end of the 2nd boom. Telescoping cylinder pushes the 2nd boom out from inside the 1st boom.

The extension chains, 2 pcs, are fastened inside the booms to the end of the 3rd boom on one end and the other end to the upper outside end of the 1st boom.

Chains go via the chain pulleys at the end of the 2nd boom, which causes the chains to pull out the 3rd boom as the 2nd boom is extended, the same distance. One end of the boom retraction chain is fastened inside the back end of the 3rd boom and the other end to the upper inside end of the 1st boom. Inside the booms the retraction chain goes over the chain pulley at the back end of the 2nd boom which causes the chain to pull in the 3rd boom in the same way as the 2nd boom moves.

Slide pieces direct the boom as they move within each other. Slide pieces are located at the upper end of the 1st boom, at the lower and upper end of the 2nd boom, and at the lower end of the 3rd boom.

There is a load holding valve (safety valve) on the piston side of the telescoping cylinder. In order to increase telescoping cylinder speed the return oil is directed to cylinder piston side when extending the booms.

Telescoping cylinder control valve is an ON-OFF electric directional valve, located at the boom valve unit.

2.8 Platform levelling

Platform levelling system is a closed hydraulic circuit. Lower levelling cylinder is mounted between pedestal and 1st boom.

Upper levelling cylinder is mounted between 3rd and platform holder.

Cylinders have similar dimensions and they have been connected to each other in a way which creates a closed hydraulic circuit, i.e. when lifting or lowering the booms the upper levelling cylinder maintains horizontal position of platform.

There are no safety valves in the lower levelling cylinder. Upper levelling cylinder is fitted with load holding valves on both piston and piston rod side.

The ON-OFF electric directional valve of levelling system as well as the load holding valve are located at the boom valve unit. The closed circuit can be adjusted with the valves, which can adjust the horizontal position of the platform if necessary.

Levelling system control lever is at upper controls.

2.9 Platform rotation

Platform can be rotated 40° in both directions with the electric cylinder. Electric cylinder is a self-holding screw jack.

Electric cylinder is linked to platform holder and platform bottom.

Platform rotation control lever is at upper controls.

2.10 Energy transfer to platform

As the work platform has telescopic booms the hoses and cables cannot be fastened directly to the booms.

There is an energy transfer line on the left side of the booms, which consists of a supporting channel, a cable carrying chain and a supporting tube.

Platform levelling system hoses and electric cables are conducted inside the cable carrying chain and supporting tube to enable telescopic boom movements.

One end of the cable carrying chain is fastened to the supporting channel, the other end is fastened to the supporting tube.

2.11 Emergency lowering system

If the boom movements do not work for some reason, the booms can be lowered by using the emergency lowering system. There are two yellow emergency lowering buttons: one at lower controls and the other at upper controls. When this button is pressed telescope will retract and booms lower.

The base and main booms can be lowered individually.

The main boom's emergency lowering button will switch the emergency lowering cylinder and the telescope control valve on so that the lifting cylinder's piston side hydraulic oil will

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flow to the telescoping cylinder's piston rod side. If the booms are not extended or telescoping cylinder is completely retracted before boom lifting cylinder is completely lowered, the limit switch at the inside back end of 1st boom will switch the telescoping cylinder control valve in a way which stops the oil flow to telescoping cylinder piston rod side – the oil flows to tank instead.

There are two check valves fitted on the boom valve unit to correctly direct the emergency lowering oil flow.

Emergency lowering system is powered by a gelatine battery located at the pedestal. The battery is well protected by the pedestal structure.

2.12 Hydraulic drive unit

In the drive unit the hydraulic cylinder presses the drive system's reel against the tyre and the hydraulic motor rotates the reel which pulls the tyre's coating.

The machine's hydraulic power pack works as a power source.

Both tyres have their own cylinder and hydraulic drive, which can be used separately.

The cylinder's lock valve ensures that the reel stays on the tyre or in the driving position.

Drive units steering operates with monoblock directional valves which are located at the inner side of the right drive shaft tow bar.

Cylinders have one shared control valve. Motors have separate control valves which are used either separately or at the same time.

Selection switch in a connection box at chassis should be in a position "outrigger operation".

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SAFETY INSTRUCTIONS

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3. SAFETY INSTRUCTIONS**3.1 GENERAL INSTRUCTIONS
ALWAYS READ OPERATING INSTRUCTIONS CAREFULLY BEFORE STARTING OPERATION**

Keep operating instructions in the document case at the work platform.
 Make sure that every operator, including casual operators, reads operating instructions before starting operation.
 Before lifting person make sure, that all four outriggers are in a steady supporting base.

WATCH OUT FOR OVERHEAD POWER LINES / CABLES

- Maintain the regulated minimum distances from overhead lines / cables.

OPERATION AT BUSY DISTRICTS

- Put barriers around the operating zone – keep a sufficient margin.
 - Use blink lights to indicate the operating zone.
 - Follow traffic regulations and codes.

WEATHER CONDITIONS

- MAX allowed wind speed 12,5 m/s
WATCH OUT FOR GUSTS ! Wind gusts can cause the wind to exceed the max. allowed speed
 - MIN. operating temperature - 25°C
 - Remove snow and ice from fairways, from platform and from structures which could be damaged by snow and ice.

DO NOT OVERLOAD THE WORK PLATFORM**DO NOT USE THE WORK PLATFORMS AS A CRANE - IT IS INTENDED FOR LIFTING OF PERSONS ONLY****DO NOT TRANSPORT PERSONS OR EQUIPMENTS AT PLATFORM FROM ONE BUILDING FLOOR TO ANOTHER**

NEVER PUT A DEFECTIVE WORK PLATFORM IN OPERATION Inform of the faults and defects

DO NOT TAKE RISKS DURING OPERATION

USE THE WORK PLATFORM WITH JUDGEMENT AND WITH CARE

DO NOT INCREASE OUTREACH OR WORKING HEIGHT BY USING STEPS, LADDERS ETC. AT PLATFORM

DO NOT CLIMB THE PLATFORM GUARDRAIL

DO NOT THROW OBJECTS FROM PLATFORM

DO NOT LEAVE THE PLATFORM UNGUARDED E.G. OVER NIGHT PLATFORM BEING IN A UPPER POSITION

FOLLOW EXAMINATION AND MAINTENANCE INSTRUCTIONS AND INTERVALS GIVEN BY THE MANUFACTURER

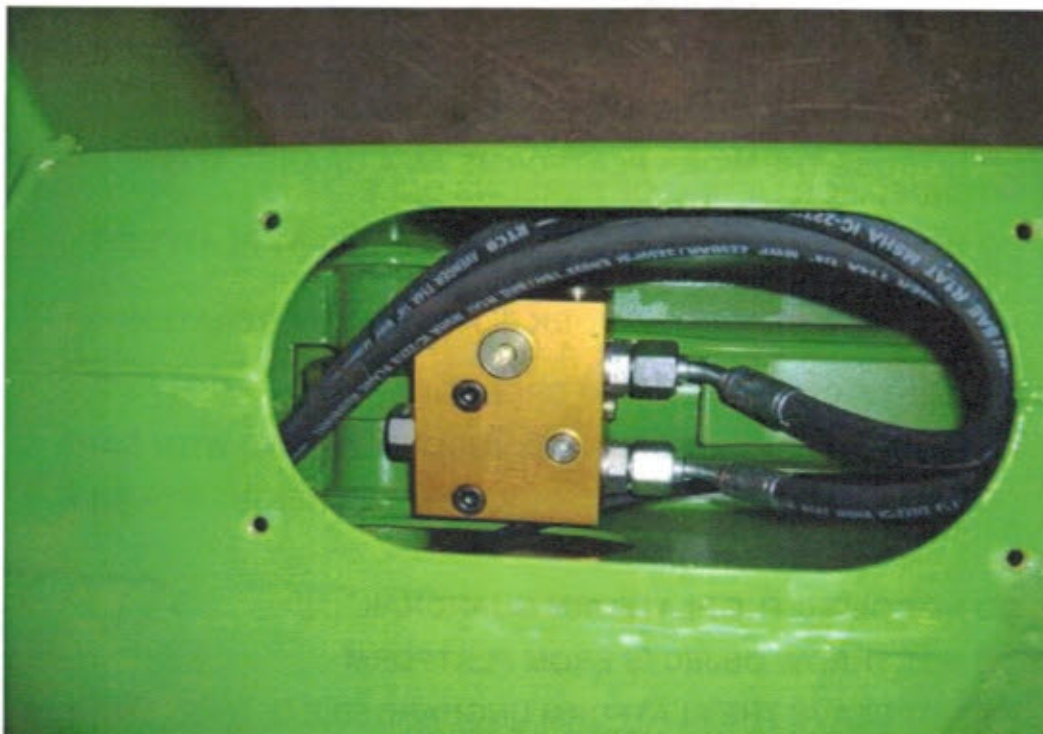
3.2 SAFETY DEVICES

3.2.1 SAFETY DEVICES, HYDRAULIC SYSTEM

3.2.1.1 Lock valve, outrigger cylinder

Outrigger cylinders are equipped with a lock valve on the piston side, which in normal use locks the cylinder every time outrigger operation is finished and in case of failure, e.g. hose rupture, motor failure etc.

Lock valve is screwed in the cylinder subplate, which is mounted with screws directly into the cylinder with no fittings or hoses in between. Lock valve is a pilot operated check valve that requires a specific opening pressure in order to open.



3.2.1.2 Pressure relief valve, slewing hydraulic motor

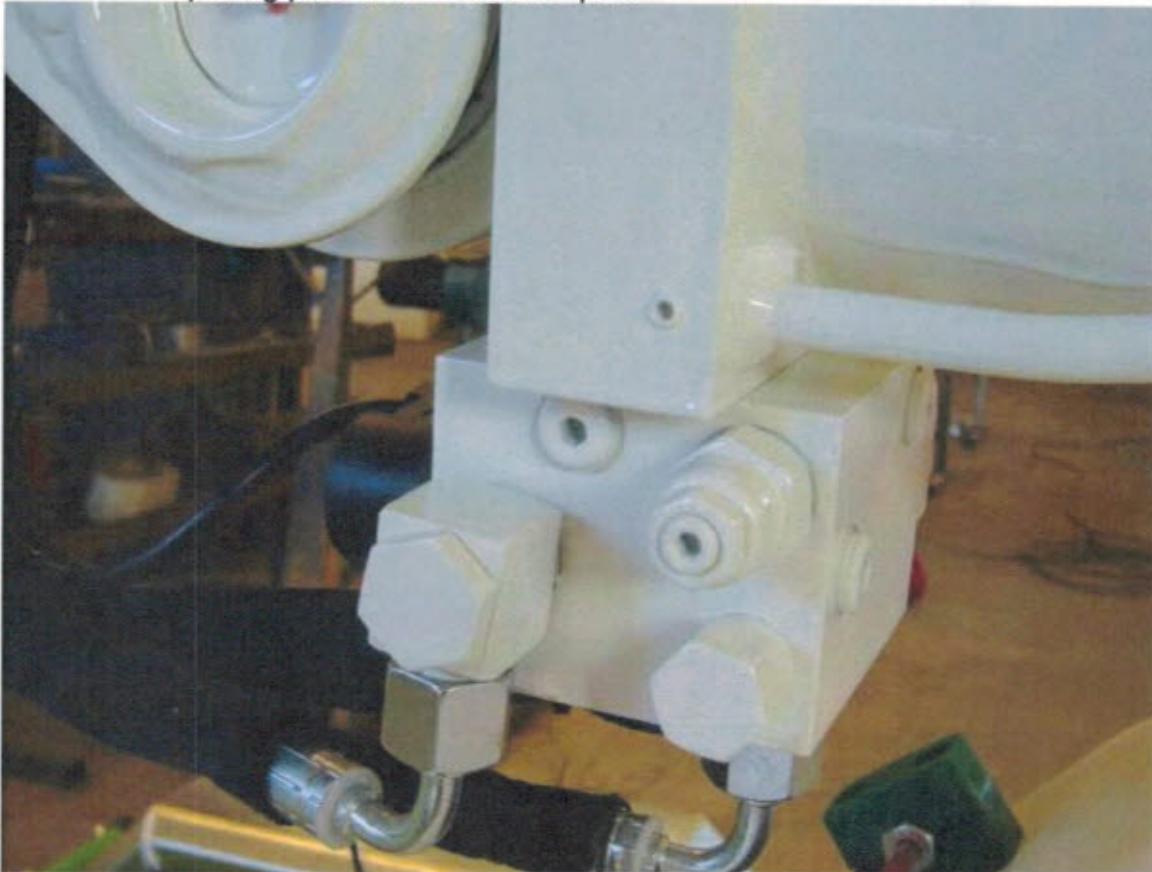
Slewing hydraulic motor is equipped with a double pressure relief valve, which reduces the slewing hydraulic pressure so that it is lower than the system pressure. This way the power of the slewing system is smaller, which prevents the platform from damaging surrounding objects or the work platform itself, and slewing can be stopped with manual power. Pressure relief valve also acts as hydraulic motor overload protection. Adjusting the pressure relief valve against manufacturer's instructions is prohibited.



3.2.1.3 Load holding valves, boom lifting cylinder

Boom lifting cylinder is fitted with load holding valves on cylinder piston and piston rod side. They lock the cylinder in normal use every time the operation is finished so that booms cannot rise or go down.

In case of failure, e.g. hose failure, load holding valves work as mentioned above and lock the cylinder, but in case of overload the valves start to leak slowly and this way protect the booms and other load carrying components. Load holding valve is screwed in the cylinder subplate, which is mounted with screws directly to the cylinder. Load holding valve requires a specific opening pressure in order to open.



3.2.1.4 Load holding valve, telescoping cylinder

Telescoping cylinder is fitted with a load holding valve on cylinder piston side. This valve has the same protective characteristics and functions as the boom lifting cylinder load holding valves.

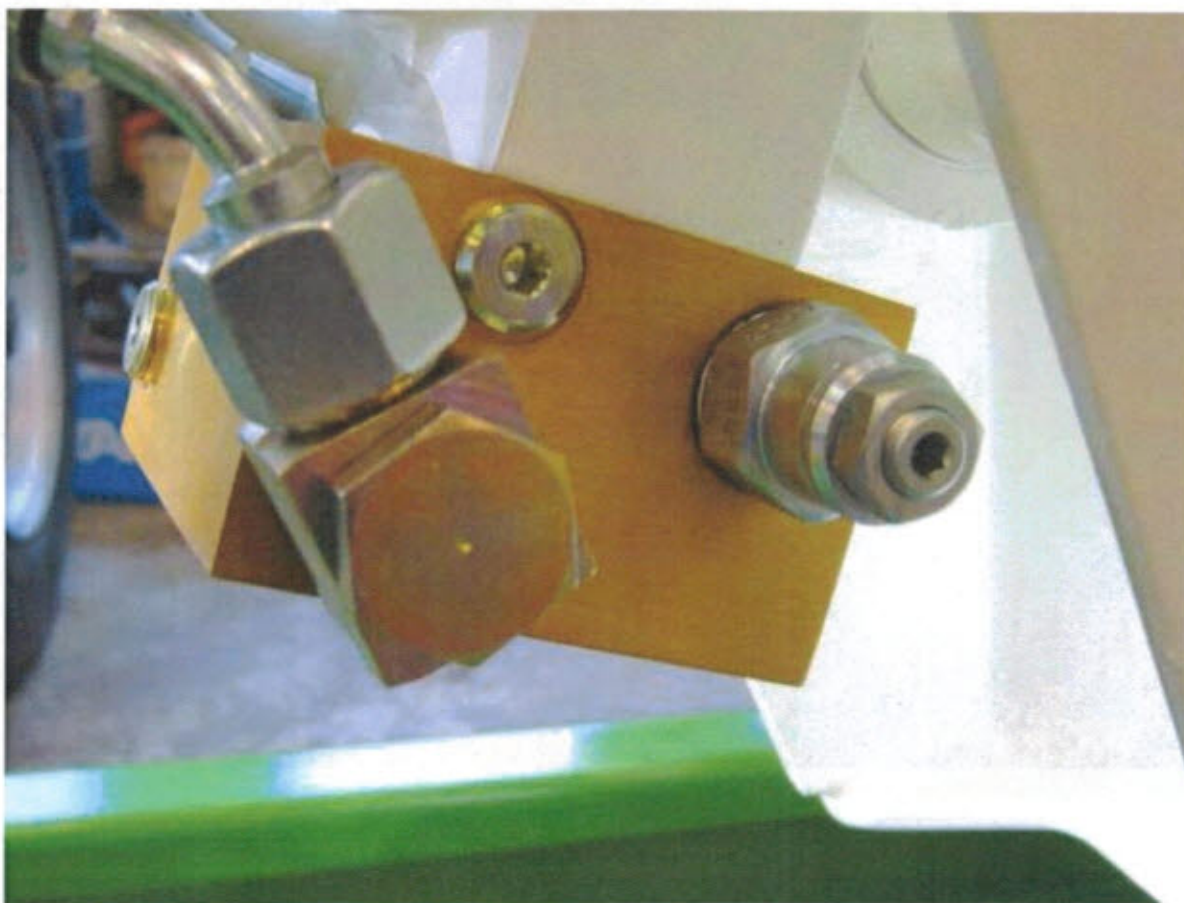
Load holding valve is located in the cylinder subplate which is mounted with screws to the cylinder.



3.2.1.5 Safety valves, platform levelling system

Upper platform levelling cylinder is equipped with load holding valves on both cylinder piston and piston rod sides. These valves have the same protective characteristics and functions as the load holding valves mentioned above. Load holding valves are located in the cylinder subplate which is mounted with screws to the cylinder.

Load holding valves are not needed in the lower platform levelling cylinder, because the load rests on the upper levelling cylinder.



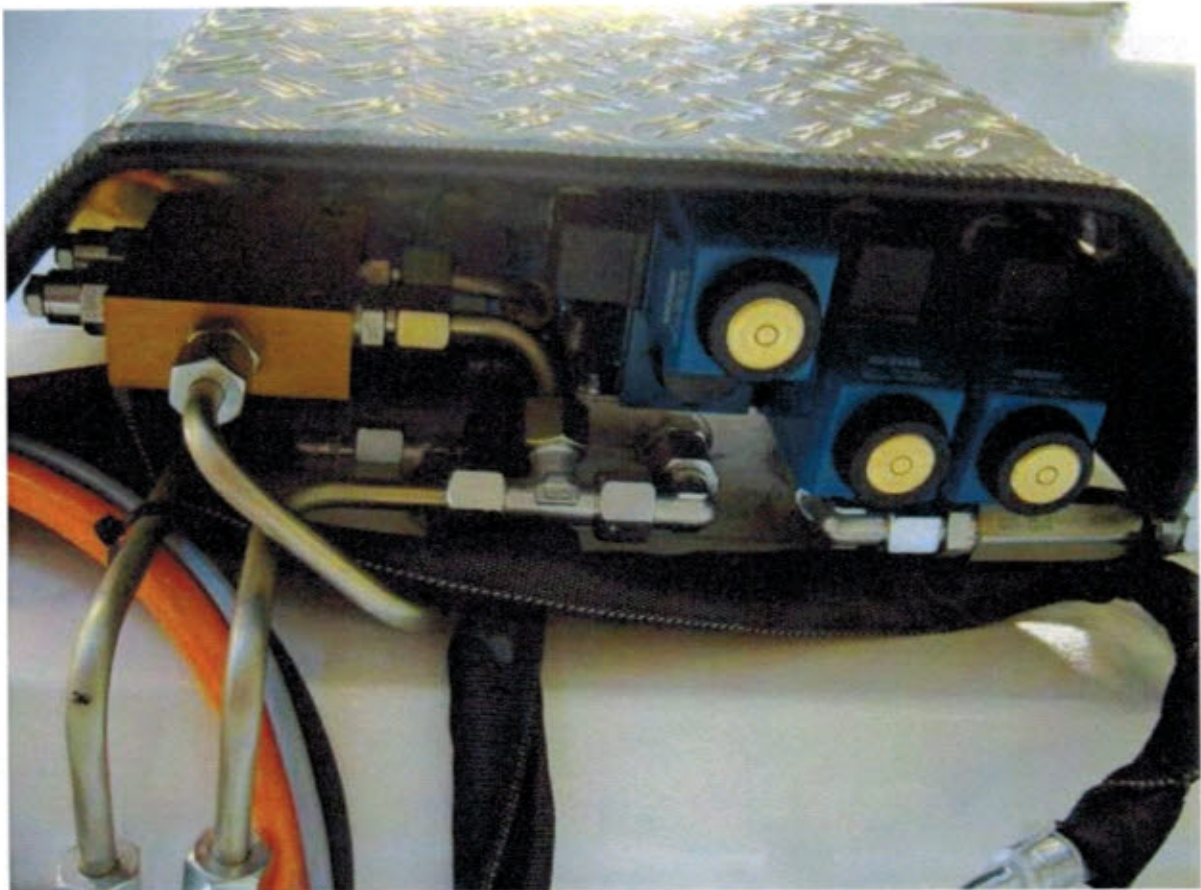
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Levelling system valves in boom valve unit are fitted with a double lock valve and a double load holding valve.

The double lock valve will preserve tightness of the closed hydraulic circuit so that the platform remains in unchanged horizontal position in each and every situation. In case it happens that the platform is not level and the booms are operated, there is a considerable structural damage risk. In order to prevent these damages the system is fitted with load holding valves, which start to leak slowly in case there is extensive pressure in the system.



3.2.2 SAFETY DEVICES, CONTROLS

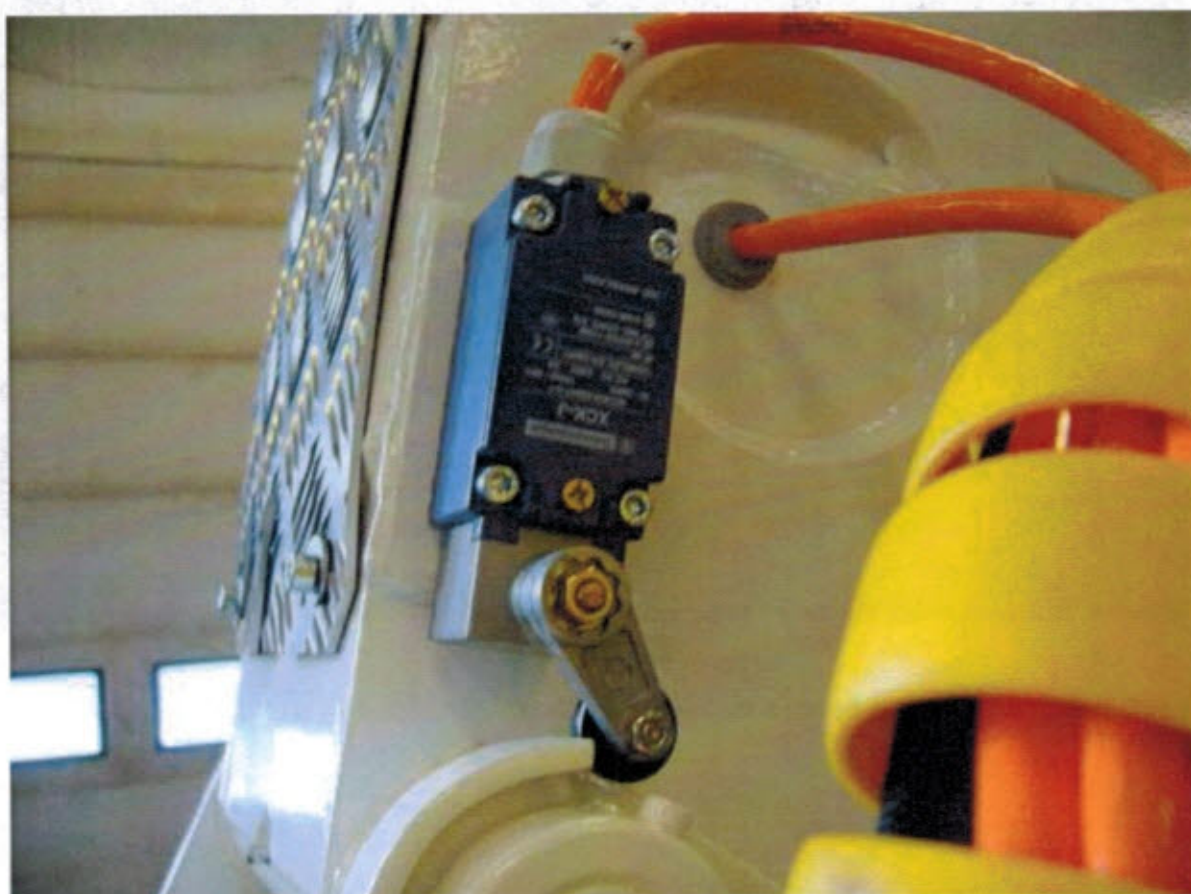
3.2.2.1 Outrigger limit switch

Every outrigger is equipped with a limit switch, which prevents lifting of the booms if the outriggers are not deployed correctly. The green indicator lamp in lower controls will indicate when all outriggers are deployed. Limit switches are located at the outrigger pivot points.



3.2.2.2 Limit switch at boom transport support

Limit switch at boom transport support prevents operation of outriggers if the booms are not down on transport support. The limit switch is located on the right side at the joint of booms.



Limit switch of the main boom's transport position.

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DEXTER 17 ZA



Limit switch of the base boom's transport position.

CHAPTER 3

3.2.2.3 Load control system limit switch

Load control system limit switch prevents extension of telescope and lowering of booms if the moment caused by load exceeds the max. allowed value. This is indicated by a yellow indicator light at upper controls.

The limit switch is doubled by reserve switch, which will function in case the actual limit switch fails. The red indicator lamp at upper controls at platform indicates the function of reserve switch.

These limit switches are located in the middle of pedestal, at the front end of the load control moment lever, under it.



3.2.2.4 Signal horn

Signal horn is located beside lower controls at pedestal. Signal horn button is at upper controls at platform.

3.2.3 Emergency lowering system

The work platform is equipped with an emergency lowering system, which is a safety system to lower the booms in case the machine power supply fails.

Emergency lowering system is powered by a gelatine battery located inside the pedestal structure.

There are two yellow emergency lowering buttons, one at lower controls and the other at upper controls. By pushing the button for the base boom it will lower. By pushing the button for the main boom, the telescope will retract and lower at the same time.

In terms of hydraulics the emergency lowering system works as follows: when pressed the emergency lowering button causes the boom emergency lowering valve and the telescope control valve to open in a way that forces the hydraulic oil in boom lifting cylinder piston side to flow to telescoping cylinder piston rod side.

If the booms are not extended or telescoping cylinder is completely retracted before boom lifting cylinder is completely lowered, the limit switch at the inside back end of 1st boom will switch the telescoping cylinder control valve in a way which stops the oil flow to telescoping cylinder piston rod side – the oil flows to tank instead.

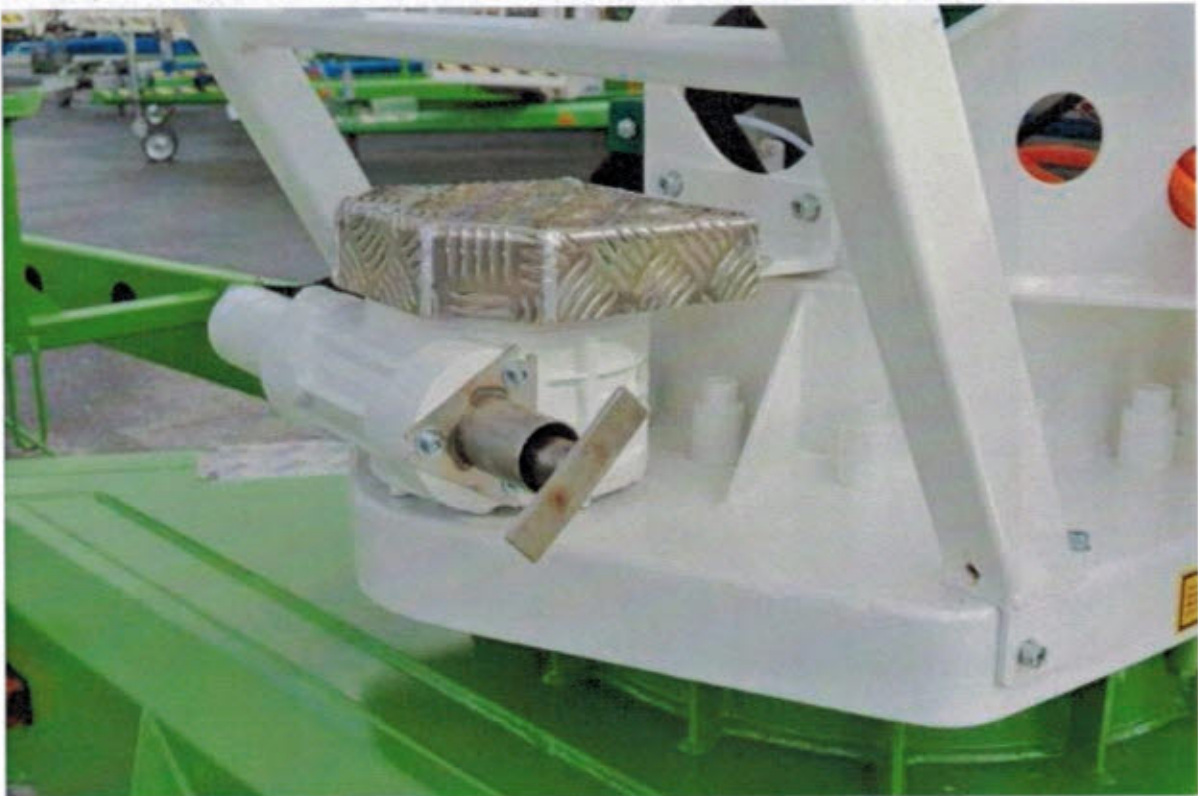


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In a cover case of slewing valve unit is a tool for emergency operation of slewing. The tool is to be used on a worm gear secondary axle by turning it to get the booms into the wanted direction for a secure lowering. Manual operation push button of directional valve in valve unit should be pressed when slewing.

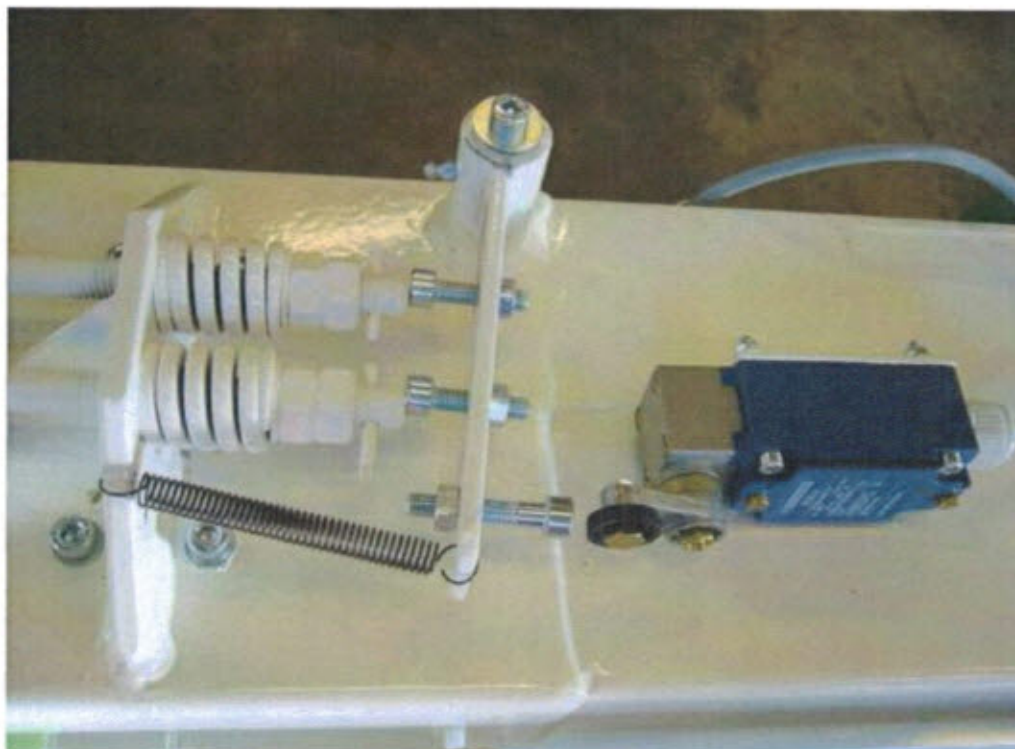


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DEXTER 17 ZA**3.2.4 Chain limit switch**

Chain limit switch prevents extension of telescope, if chain is loose or broken. The limit switch is located on the 1st and 2nd boom, inside the cover case. Red light at lower controls indicates the function of limit switch.



3.2.5 Operating and fastening of personal lanyards

It is advisable to use personal lanyards when working on the platform.

Such lanyards are for example *safety harness, lifeline equipped with adjustable absorber or reeling arrester.*



Fastening point for lanyard in **DEXTER-** work platforms.

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SAFETY INSTRUCTIONS

DEXTER 17 ZA**3.2.6 Indicators of operating at outrigger limit switch**

Since 2009, the chassis connection box cover has been fitted with indicative lamps, which indicate when the outrigger limit switch is on.



The red light goes off on each outrigger, when outrigger limit switch switches on . When all four red indicator lamps go off, the outrigger's green indicator lamp will switch on and platform lifting is made possible.

NOTICE: Outrigger limit switches only indicate that outriggers are deployed with sufficient support width.

Always check that all outriggers are steadily on a solid base, the tyres are off of the ground and the machine is stable according to a spirit level, before lifting.

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4. OPERATION

4.1 GENERAL OPERATING INSTRUCTIONS

- The operator must be at least 18 years old
- The operator must receive sufficient operating instructions
- Read operating instructions carefully before starting operation
- Read and understand all safety instructions
- Follow all instructions given by the manufacturer, e.g. regarding pre-operation examinations
- If possible, start the operation with your authorized dealer
- Never allow unauthorized persons to enter the work area

4.2 TRAILER AXLE**4.2.1 Coupling the vehicle**

Before coupling the machine to a vehicle the work platform must be in transport position, 230V feeding cable disconnected, jockey wheel down and hand brake engaged.

- Adjust the correct ball coupler height with the jockey wheel
- Make sure that the towing vehicle is allowed to tow a 2.200 kg trailer
- Drive the vehicle to the work platform so that the coupling ball is exactly under the ball coupler. Engage the vehicle hand brake.

NOTICE ! DRIVE CAREFULLY – REMEMBER ACCIDENT AND DAMAGE RISK

- Lower the ball coupler to the ball by using the jockey wheel

NOTICE ! MAKE SURE THAT THE BALL COUPLER LOCKS IN THE BALL

- Connect the tail light plug to vehicle outlet
- Connect the safety cable
- Release hand brake
- Check light functions
- Check tyre pressures visually
- Check transport position of outriggers and booms
- Make sure that there are no persons or load on the platform
- Lift up the jockey wheel to transport position

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NOTICE ! REMEMBER TO LIFT AND LOCK THE JOCKEY WHEEL TO TRANSPORT POSITION

4.2.2 Uncoupling

Engage vehicle hand brake

- Engage work platform hand brake

NOTICE ! SECURE MACHINE IMMOBILITY – HAND BRAKE DOES NOT HOLD SO WELL BACKWARDS

- Put down the jockey wheel
- Disconnect the safety cable
- Disconnect the tail light plug

NOTICE ! REMEMBER TO DISCONNECT THE SAFETY CABLE AND TAIL LIGHT PLUG

- Disconnect the ball coupler from the ball. Ball locking is released by lifting the coupler handle and by turning the handle the coupler opens
- Lift up the jockey wheel by turning the crank handle so that the vehicle can be taken away

4.3 STARTING THE OPERATION

- Connect the feeding cable into platforms outlet



- Connect the feeder cables other end into **grounded 230 V / 16 A** outlet
- Extension cord must have a diameter of **at least 3 x 2,5 mm²** and length of **max. 50 m**

NOTICE ! MAKE SURE THAT THE EXTENSION CORDS ARE GROUND PROTECTED

NOTICE ! CHECK CONDITION OF FEEDER AND EXTENSION CORDS

NOTICE ! MAKE SURE THAT THE EXTENSION CORD DOES NOT GO OVER FAIRWAYS OR GET DAMAGED DURING OPERATION

- Start the motor by pressing the "START" button at chassis connection box.

?

If the motor does not start, check:

- feeder cable connections
- outlet fuse
- automatic fuse at chassis
- thermal relay of contactor

4.4 OUTRIGGER OPERATION**4.4.1 Setting up the machine to horizontal position by deploying the outriggers**

- Ensure that there is sufficient distance to correctly deploy the outriggers, remove all foreign objects and level the ground if necessary
- Make sure that the ground will support the machine, use additional ground supports (500 mm x 500 mm) if necessary

NOTICE ! MAKE SURE THAT THE FEEDING CABLE OR EXTENSION CORD DOES NOT GET UNDER THE OUTRIGGERS OR DANGEROUSLY TIGHTEN WHEN DEPLOYING THE OUTRIGGERS

- Turn the two-way selector switch at chassis connection box to "outrigger operation"

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- Lower all outriggers close to the ground.
 - lift with front outriggers first
 - deploy back outriggers
 - Adjust the horizontal position with help of the spirit level, tyres off of the ground, green light at chassis connection box must indicate

NOTICE ! TYRES MUST BE OFF OF THE GROUND WHEN LIFTING MACHINE

NOTICE ! ALWAYS DEPLOY FRONT OUTRIGGERS FIRST – OTHERWISE THE JOCKEY WHEEL WILL GET DAMAGED

NOTICE ! LIFTING OF BOOMS IS ALLOWED ONLY IN CASE OUTRIGGERS ARE CORRECTLY DEPLOYED AND MACHINE IS IN HORIZONTAL POSITION

4.4.2 Retracting the outriggers

- Turn the two-way selector switch at chassis connection box to "outrigger operation"
- Make sure that the jockey wheel is down

NOTICE ! MAKE SURE THAT OUTRIGGERS CAN BE RETRACTED SAFELY

- Retract back outriggers a little

?

If retracting of outriggers does not work, check:

- that the booms are down on the transport support function of transport support limit switch
- Retract front outriggers a little
- Retract back outriggers completely
- Retract front outriggers with care, in order not to damage the jockey wheel
- Make sure that all outriggers and booms are in transport position

NOTICE ! ALWAYS RETRACT BACK OUTRIGGERS FIRST – OTHERWISE THE JOCKEY WHEEL WILL GET DAMAGED**4.5 BOOM OPERATION****4.5.1 Lifting the booms to operating position**

- Turn the two-way selector switch at chassis connection box to "boom operation"
- Green "outriggers" indicator lamp should light at chassis connection box

?

Indicator lamp does not light:

- check that all outriggers are correctly deployed
- check function of outrigger limit switches

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- NOTICE !** LIFTING OF BOOMS IS ALLOWED ONLY IN CASE OUTRIGGERS ARE CORRECTLY DEPLOYED AND MACHINE IS IN HORIZONTAL
- Select operation – lower or upper controls – with key switch at lower controls



- **Lift up the booms from transport support**
- ?** Lifting does not work:
 - check the indicator lamp at chassis connection box
 - check operation place selection
 - check platform load

NOTICE ! ALWAYS LIFT THE BOOMS FIRST – ONLY AFTER LIFTING EXTEND THE TELESCOPE

NOTICE ! NEVER EXCEED MAX. PLATFORM CAPACITY

- Lifting or lowering the base boom is not restricted
- **Telescope** can be extended until load control device stops extension – load control limit switch prevents boom extension and lowering
- This is indicated by a yellow indicator at upper controls

- Lift the booms or retract the telescope in order to continue operation

?

Telescope movements do not work:

- check indicator at chassis connection box
- check operation place selection
- check platform load
- check load control indicator
- check load control switches

STOP MACHINES ELECTRIC MOTOR WHILE WORKING IN THE PLATFORM

NOTICE ! IF ALSO RED LAMP INDICATES IN UPPER CONTROLS, YOU ARE ON THE RESERVE SWITCH ⇒ **RETRACT TELESCOPE IMMEDIATELY**

NOTICE ! IF **ONLY RED LAMP** INDICATES IN UPPER CONTROLS, LIMIT SWITCH DOES NOT WORK ⇒ **OPERATE MACHINE IMMEDIATELY TO TRANSPORT POSITION** ⇒ MUST REPAIR BEFORE USE

NOTICE ! DO NOT PUT ANY ADDITIONAL LOAD, PERSONS OR EQUIPMENT, ON THE PLATFORM WHEN WORKING WITH MAX. OUTREACH ⇒ **OVERTURNING RISK !**

NOTICE ! WORK PLATFORM MUST NOT BE USED AS A CRANE ⇒ LEVELLING SYSTEM WILL GET DAMAGED FIRST

- **Slewing** can be operated in both directions, try however always to slew **the same amount of rounds back**, because otherwise the cables will get twisted as they are not conducted through the lead-through

?

Slewing does not work:

- check indicator at chassis connection box
- check operation place selection

NOTICE ! NEVER OPERATE SLEWING WHEN BOOMS ARE DOWN ON TRANSPORT SUPPORT

NOTICE ! DO NOT DIRECT EXTERNAL LOADING TO SLEWING SYSTEM – IT WILL DAMAGE THE WORM GEAR

4.5.2 Upper controls

1. Lifting, lowering and slewing of the main boom, proportional controls
2. Lifting and lowering of the base boom
3. Telescope boom
4. Rotation of platform
5. Emergency stop
6. Horizontal adjustment of the work platform, when adjusted you must also keep pressing the button beside it.
7. Electric motor start
8. Electric motor stop
9. Signal horn
10. Automatic fuse of platform rotation
11. Emergency lowering of the main boom
12. Emergency lowering of the base boom
13. Indicator of maximum reach
14. Indicator of limit switch

4.5.3 Lowering the booms to transport position

Retract the telescope completely

NOTICE ! TELESCOPE MUST BE COMPLETELY RETRACTED IN ORDER NOT TO DAMAGE TELESCOPING CYLINDER

- Lower the base boom to transport support
- Slew the booms so that they are exactly in line with chassis over the transport support

NOTICE ! BEFORE LOWERING THE BOOMS TO THE TRANSPORT SUPPORT THEY MUST BE EXACTLY IN LINE WITH THE CHASSIS – IF NOT => BOOMS AND SLEWING SYSTEM WILL GET DAMAGED

- Lower the main boom to transport support

?

Lowering does not work:

- check platform load
- check load control indicator
- Check horizontal position of platform, correct if necessary

NOTICE ! BOOMS MUST BE FIRMLY ON THE TRANSPORT SUPPORT, LIMIT SWITCH ENERGIZED - OTHERWISE OUTRIGGERS CANNOT BE OPERATED

NOTICE ! THE ROTATION OF CONTROL CABLE AT THE SWIVEL MUST BE CHECKED DAILY (UNDER THE CHASSIS). IF THE CABLE IS ROTATED, UNWIND THE CABLE BY TURNING THE BOOMS TO THE OPPOSITE DIRECTION.

4.5.4 Platform levelling system

- If the platform is not in horizontal position, rectify by using "platform levelling"- switch in upper controls, pressing at the same time "dead man's" -switch.

NOTICE ! HOLD ON TO RAILING WHEN CORRECTING PLATFORM POSITION, MOVEMENT CAN BE SUDDEN.

NOTICE ! PLATFORM MUST BE IN HORIZONTAL POSITION – IF NOT => STRUCTURAL DAMAGES, HAZARDOUS OPERATION

4.5.5 Emergency lowering system

- If boom/outrigger movements do not work, lower the booms by using the emergency lowering system
- Make sure that the booms can be lowered safely (no obstacles)
- Press the yellow emergency lowering button for the main boom => booms retract and come down
- Lower the base boom first, if possible

?

Emergency lowering does not work:

- check function of each emergency lowering button
- check the charge of the emergency lowering batteries on a meter by the lower controls by pressing the button for the main boom for 30 sec. with the feeder cable disconnected, the voltage of the emergency lowering battery must not go below 22 V.

NOTICE ! ALWAYS PERFORM EMERGENCY LOWERING VERY CAREFULLY – MAKE SURE THAT BOOMS ARE COMPLETELY RETRACTED

- In case of power failure, slewing can be operated in both directions by connecting a turning crank handle to the worm

gear axle

- First push the manual operated push button of slewing control valve in, then set the tool to primary axle and turn to wanted direction.

4.6 Drive unit operation

- The machine must be on transport position, jockey wheel lowered, outriggers on transport position and booms on the transport support.
- Take care that the power supply cable will not be damaged or get run over by a wheel.
- Drive reels in contact with the tyres by monoblock directional valve of drive unit's valve unit, until the cylinders have finished striking.



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?

Driving unit does not work;

- check that the booms are down on the transport support
- check that selection switch at chassis connection box is on "outriggers"-position

- Release parking brake
- If you want to drive directly forwards or backwards, turn both joysticks equally.
- If you want to turn, turn other joystick less or to different direction

NOTICE ! ESPECIALLY NOTICE FEEDER LINE**NOTICE ! TAKE CARE NOT TO COLLIDE WITH PEOPLE OR OBJECTS****NOTICE ! REMEMBER TO UNCONNECT PARKING BRAKE BEFORE DRIVING****NOTICE ! REMEMBER TO CONNECT PARKING BRAKE AFTER DRIVING**

BE ESPECIALLY CAREFUL ON INCLINED PLANES !
HOLDING CAPACITY OF PARKING BRAKE IS BAD BACKWARDS !

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SERVICE AND MAINTENANCE

DEXTER 17 ZA

SERVICE AND MAINTENANCE

CHAPTER 5

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5. SERVICE AND MAINTENANCE INSTRUCTIONS**5.1 General maintenance instructions**

- Perform service operations and examinations in accordance with manufacturer's instructions; read operating and maintenance instructions carefully
- Familiarise yourself with functions of hydraulic and electric system as well as limit devices prior to any maintenance operations or examinations
- If demanding repair operations are necessary, use professional and trained personnel or contact the importer or manufacturer
- Making of alterations, without manufacturer's approval, which affect stability, strength or performance of the work platform **is prohibited**
- Damages or faults which influence safety must always be repaired before next use
- Use manufacturer approved replacement parts only
- Keep the machine clean, especially the platform
- Prior to any maintenance operation or examination wash the work platform with a high pressure washer and, if necessary, remove dirt and grease by using solvent
- Clean in particular the following critical points in order to find out eventual defects, deterioration and corrosion damages :
 - interface of chassis front beam and actual chassis
 - boom transport support
 - trailer axle fastening
 - outrigger fastening and pivot points
 - outriggers
 - outrigger plates and their fastening
 - slewing ring fastening in chassis
 - slewing ring fastening bolts and nuts
 - hydraulic lead-through fastening
 - pedestal
 - worm gear fastenings
 - load control device
 - mounting eyes of booms
 - fastenings and pivot points of booms and platform
 - fastenings and pivot points of every cylinder
 - chain fastenings and chain pulley pivot points
 - platform
- Never let hydraulic oil flow on the ground

5.2 PERIODIC MAINTENANCE AND EXAMINATIONS

5.2.1 WEEKLY MAINTENANCE (40 hours or seven days interval)

Following checks and maintenance operations shall be performed:

- Tyres and tyre pressures (4,0 bar)
- Hydraulic oil level
- Condition of electric cables
- Condition and tightness of hydraulic hoses, pipings and fittings
- Function and tightness of cylinder lock valves and load holding valves
- Fastening and lockings of telescope chains
- Platform fastening and function of platform levelling system
- Condition of steel structures, especially outriggers and booms
- Condition of controls and function of operating movements
- Function of limit switches
- Condition and function of emergency lowering system

5.2.2 MONTHLY MAINTENANCE (160 hours or one month interval)

Following checks and maintenance operations shall be performed:

All points of **weekly** maintenance, **plus** :

- Clean the machine, especially hydraulic and electric components
- Fastenings of wheels, trailer axle, overrunning brake device and jockey wheel
- Worm gear (slewing) fastening and clearance
- Check all joints, bearings, axle lockings and screw fastenings approximately
- Energy transfer systems condition and function
- Function of brakes and lights
- Greasing according to greasing diagram
- Instruction - and warning signs

5.2.3 ANNUAL MAINTENANCE (1500 hours or one year interval)

Following checks and maintenance operations shall be performed:

All points of **monthly** maintenance, **plus**:

- Hydraulic oil change (approx. 40 litres)
- Return oil filter change in hydraulic system
- Tightness check of slewing ring fastening bolts
 - Bolt M12, tightening moment 101 Nm
 - Bolt M 16, tightening moment 260 Nm
- Brake adjustment and wheel bearings check & adjustment
- Check of telescope chain tightness, tightening if necessary
- Check of telescope slide piece fastening and wear
- Check of condition of hydraulic hoses especially at joints
- Check of condition of hydraulic cylinders outside structure and condition of piston rod
- Check of condition of directional valves and monoblock directional valve
- Hydraulic pressure checking, 200 bar
- Washing the machine
- Checking and repairing of finishing

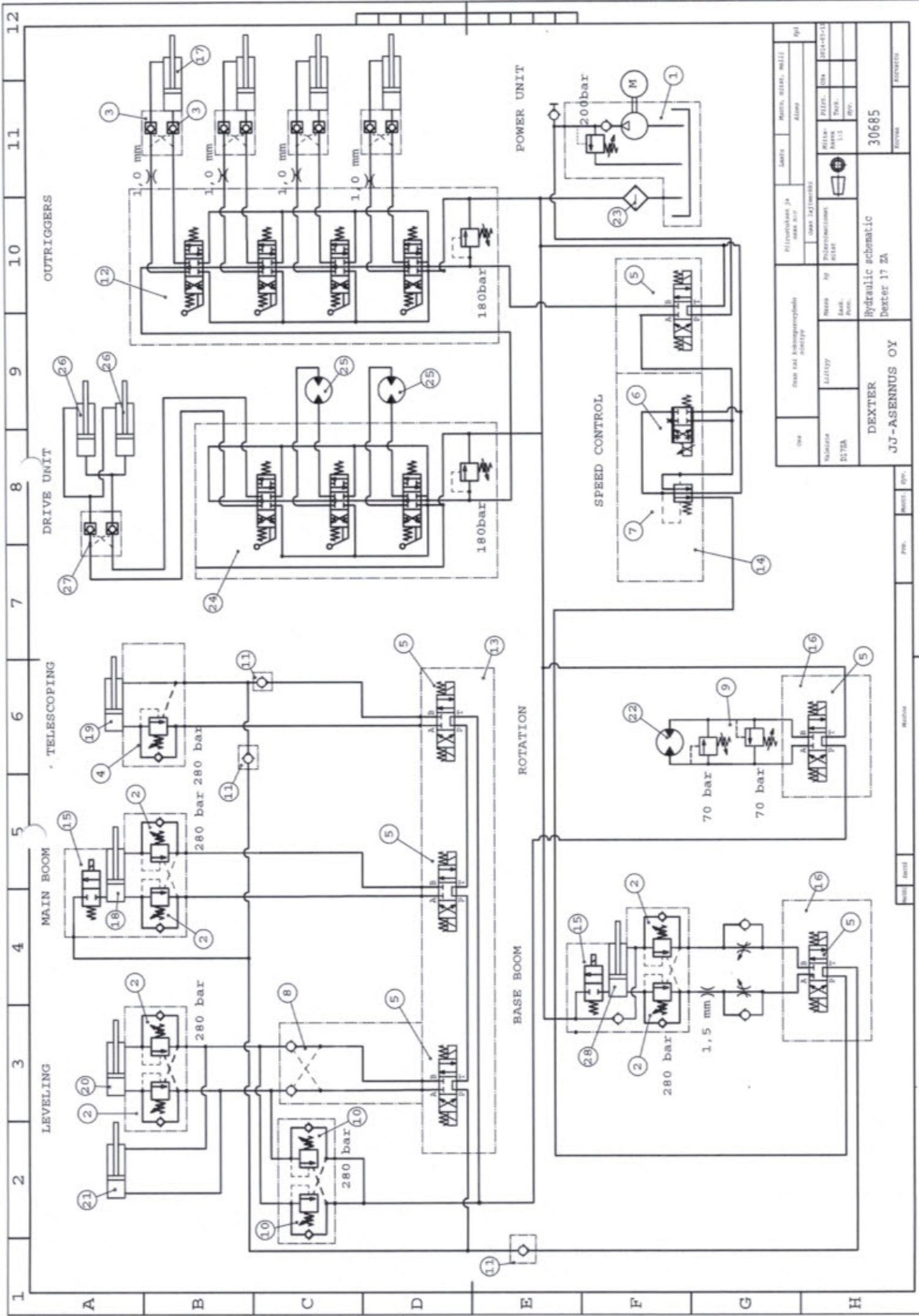
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SERVICE AND MAINTENANCE

DEXTER 17 ZA

5.3 HYDRAULIC SYSTEM MAINTENANCE

5.3.1 HYDRAULIC DIAGRAM



№	описание	количество	зам.	мат. часть, шлиц
1	насос	1		Алмаз
2	клапан	1		
3	клапан	1		
4	клапан	1		
5	клапан	1		
6	клапан	1		
7	клапан	1		
8	клапан	1		
9	клапан	1		
10	клапан	1		
11	клапан	1		
12	клапан	1		
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22	клапан	1		
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24	клапан	1		
25	клапан	1		
26	клапан	1		
27	клапан	1		
28	клапан	1		
M	двигатель	1		

30685

DEXTER JJ-ASENNUS OY
Hydraulic schematic
Dexter 17 ZA

№: 30685
Дата: 11.11.87
Исполнитель: ДИТЕА
Проверил: А.С.С.

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SERVICE AND MAINTENANCE

DEXTER 17 ZA**HYDRAULIC DIAGRAM 30685 PARTS LIST**

Part. no	Description	Type	Pcs
1.	Hydraulic unit	UP10- 1,7-18L	1
2.	Load holding valve	SUN CBBG-LJN	6
3.	Lock valve	SUN CKCD-XCN	8
4.	Load holding valve	SUN CBCH-LCN	1
5.	Directional valve	DG4V3-8C	6
6.	Proportional valve	KTG4V3-2B	1
7.	Hydrostat	PCS4-10	1
8.	Double lock valve	DGMPC3-ABK-BAK	1
9.	Double pressure relief	DGMC2-3-ABBW-BABW	1
10.	Load holding valve	SUN CBBG-LJN	2
11.	Check valve	VUC 3/8	3
12.	Monoblock directional valve	Valvoil SD5/4	1
13.	Subplate	NS6/3S	1
14.	Subplate	NS6/2R	1
15.	Directional valve	SV08-20-U-N 24DG	2
16.	Subplate	NS6-38SL	2
17.	Cylinder	ø63/40x445	4
18.	Cylinder	ø80/50x910	1
19.	Cylinder	ø63/50x3400	1
20.	Cylinder	ø50/32x180	1
21.	Cylinder	ø50/32x190	1
22.	Hydraulic motor	BGM 32 C 16	1
23.	Return filter - filter element	MPS 050-R-P10-AGS CS 050-P10	1
24.	Directional valve	Valvoil SD 5/3	1
25.	Hydraulic motor	TEO 130 CW	2
26.	Cylinder	ø32/20x100	2
27.	Double lock valve	VRDE 38	1
28.	Cylinder	ø80/50x445	1

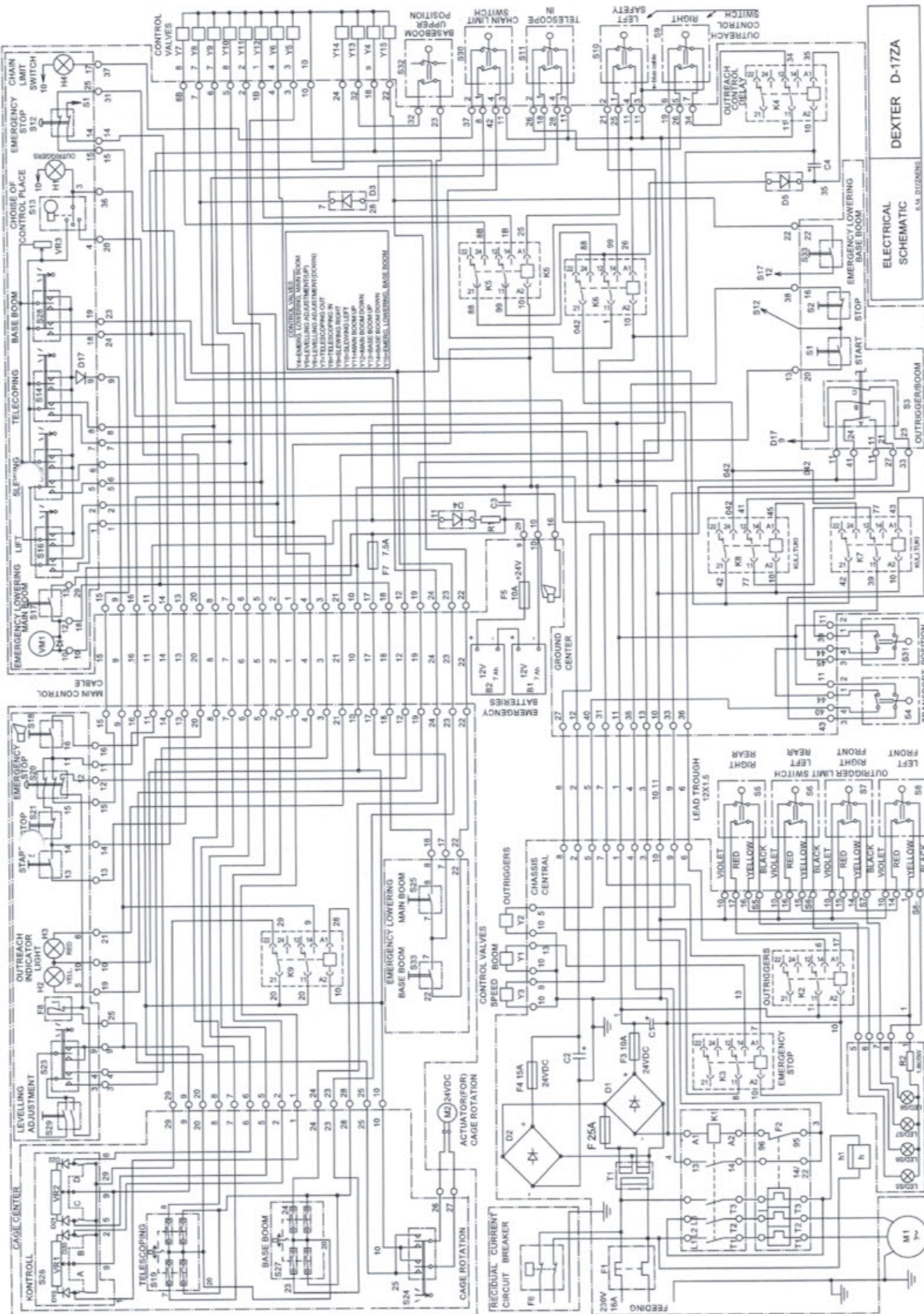
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SERVICE AND MAINTENANCE

DEXTER 17 ZA

- 5.4 ELECTRIC SYSTEM MAINTENANCE
- 5.4.1 ELECTRIC DIAGRAM

	CHAPTER 5
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DEXTER D-17ZA

ELECTRICAL SCHEMATIC

E.S. BIZIMING

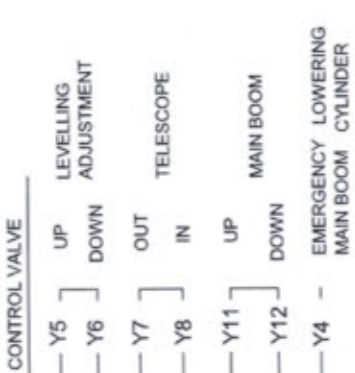
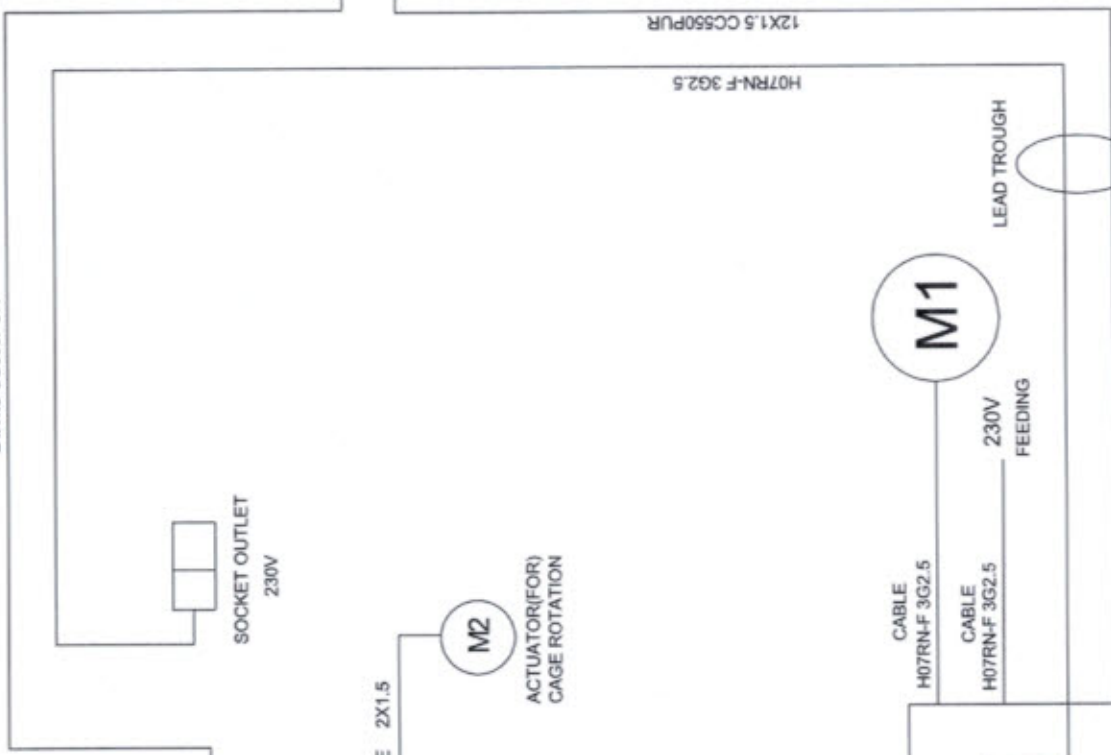
CAGE CENTER



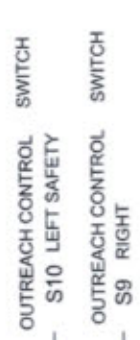
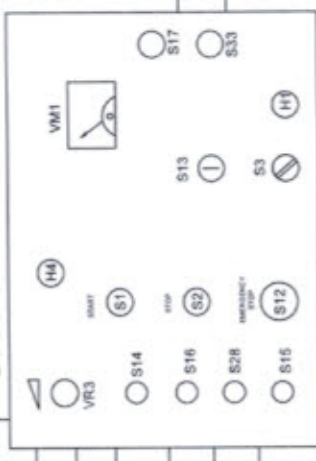
SERIAL NUMBER 1-14
TRANSPORT POSITION SWITCH
MAIN BOOM S4

IDENTIFICATION
SERIAL NUMBER 15-
TRANSPORT POSITION SWITCH
MAIN BOOM S4

24X1.5 CC550PUR



GROUND CENTER



CHASSIS CENTRAL

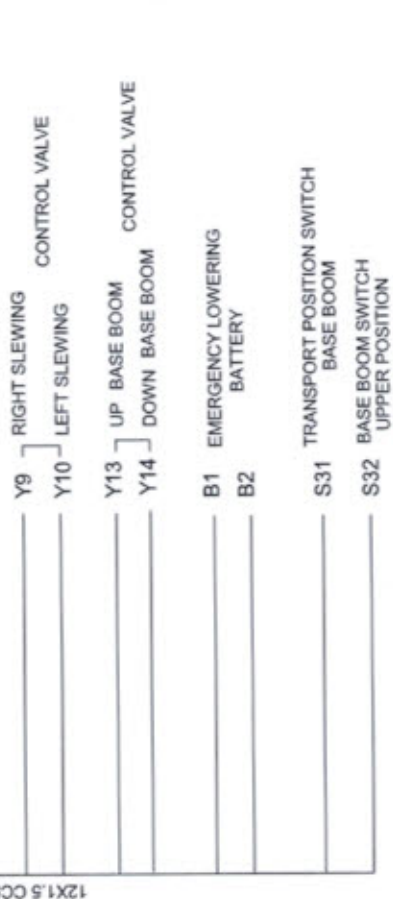
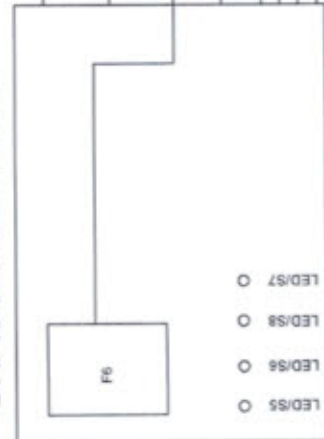


DIAGRAM
DEXTER D-17ZA
D17ZA714YK

S5,6,7,8
OUTRIGGER LIMIT SWITCH

Y1, Y2, Y3 3X0.75S

LEAD TROUGH

M1

M2

ACTUATOR(FOR)
CAGE ROTATION

SOCKET OUTLET
230V

12X1.5 CC550PUR

12X1.5 CC550PUR

7X1.5 CC550PUR

2X1.0

2X1.0

CONTROL VALVE
EMERGENCY LOWERING,
BASE BOOM

OUTREACH CONTROL SWITCH
S10 LEFT SAFETY

OUTREACH CONTROL SWITCH
S9 RIGHT

CONTROL VALVE
RIGHT SLEWING

CONTROL VALVE
LEFT SLEWING

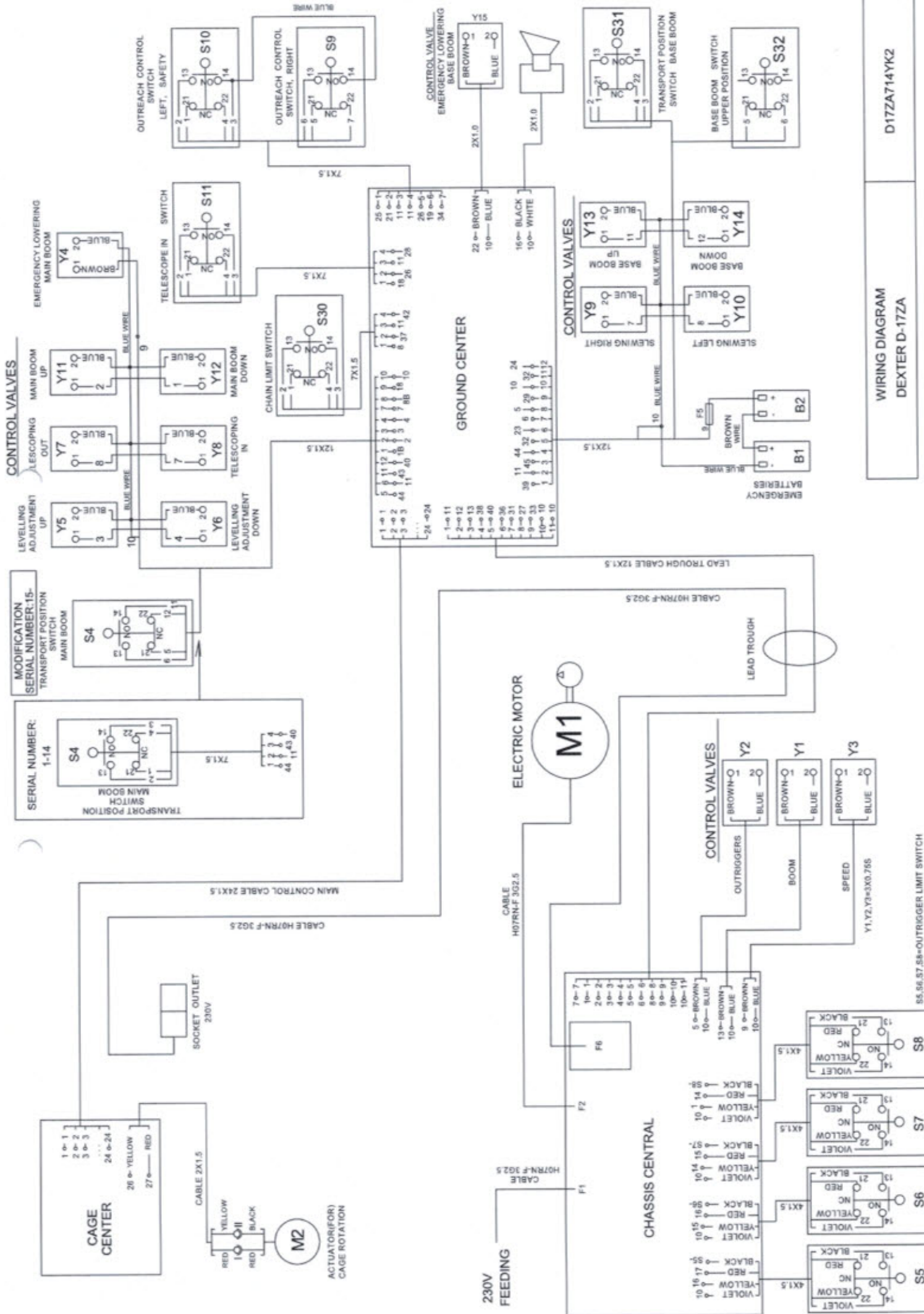
UP BASE BOOM

DOWN BASE BOOM

EMERGENCY LOWERING
BATTERY

TRANSPORT POSITION SWITCH
BASE BOOM

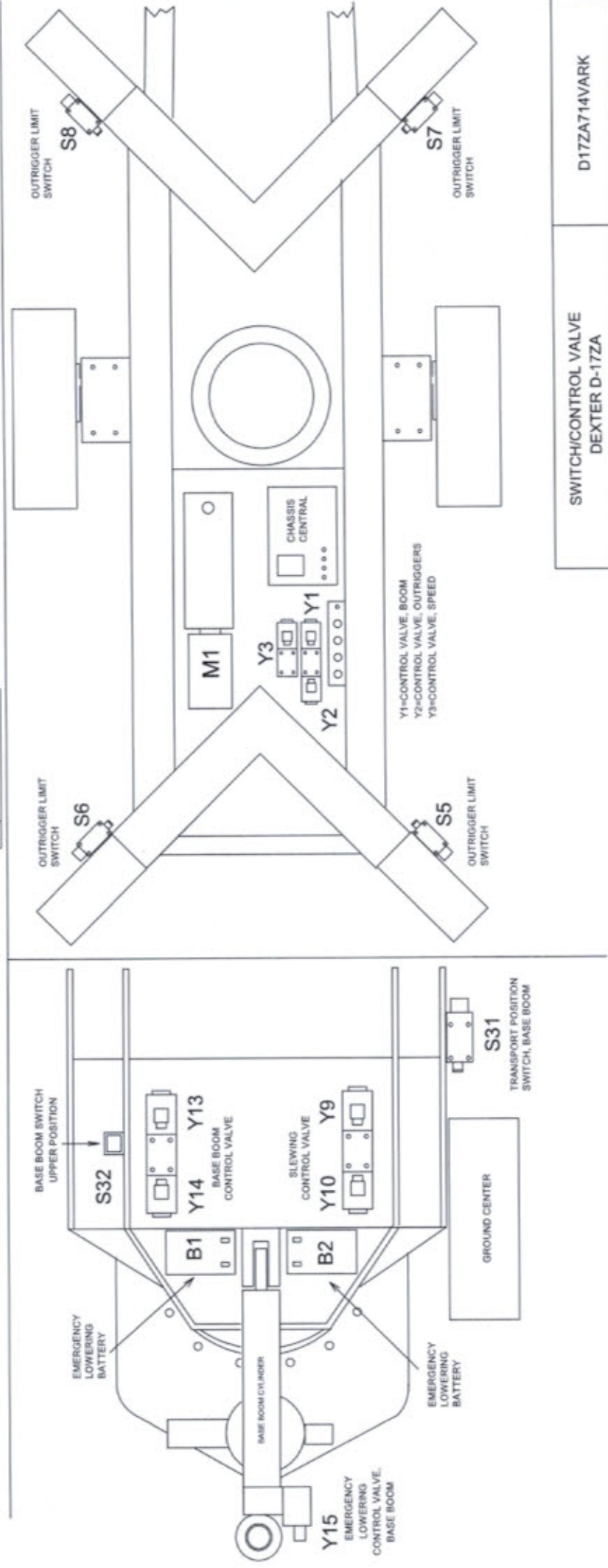
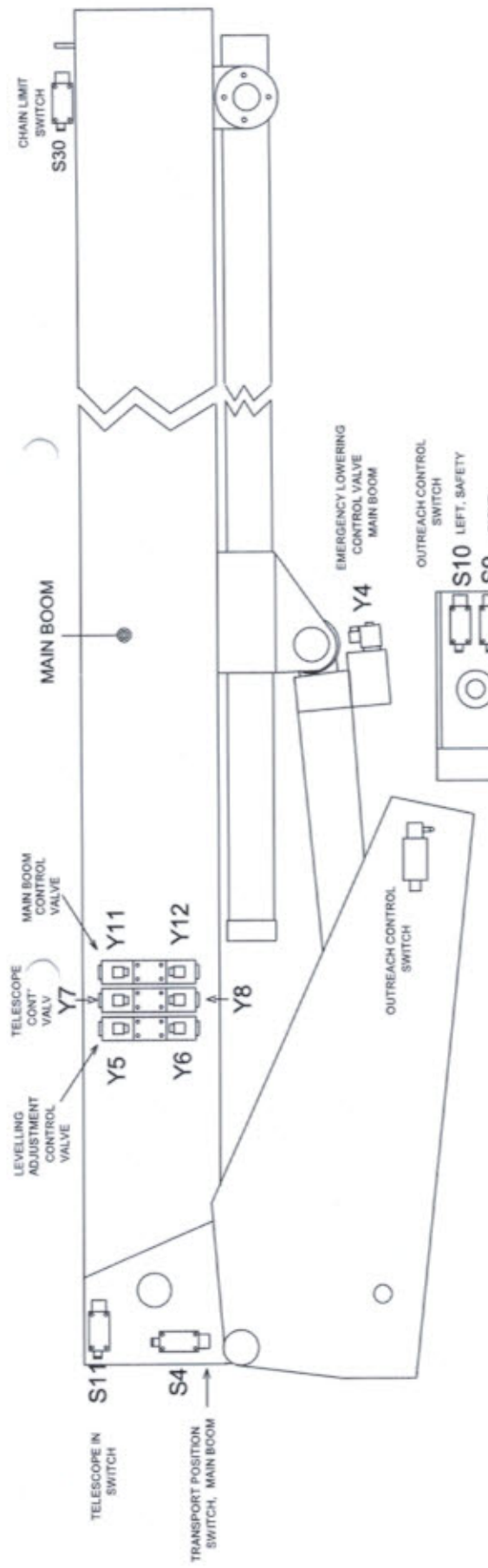
BASE BOOM SWITCH
UPPER POSITION



D17ZA714YK2

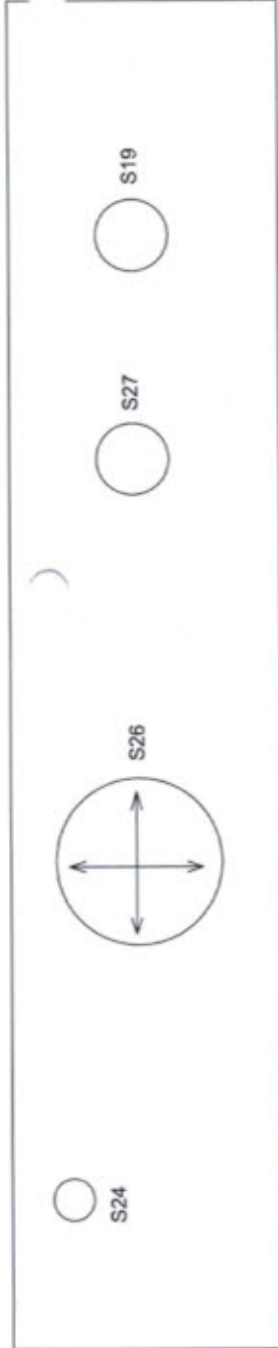
WIRING DIAGRAM
DEXTER D-17ZA

55,56,57,58-OUTRIGGER LIMIT SWITCH

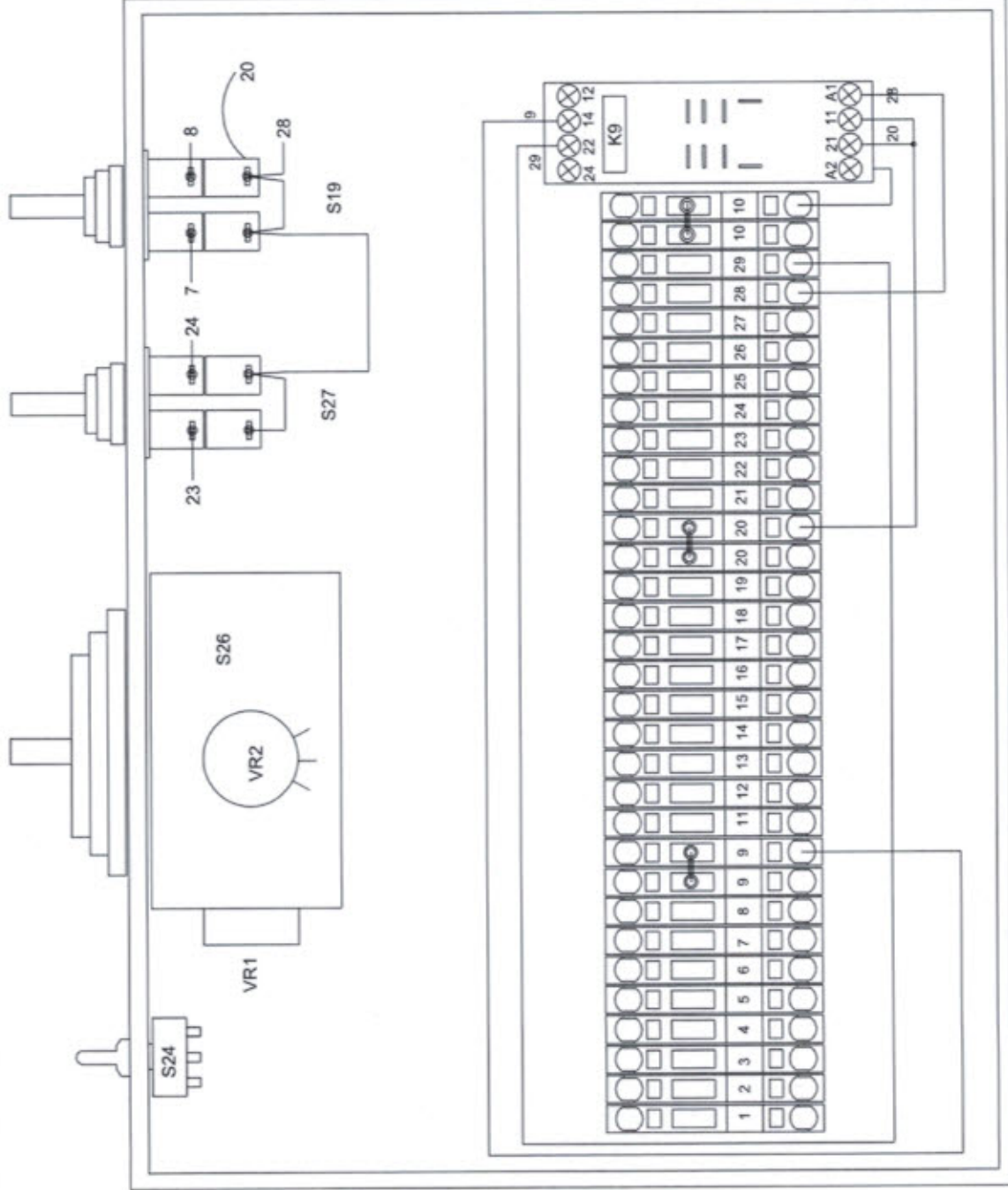
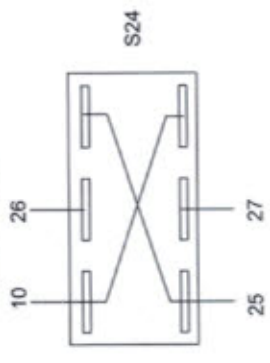


SWITCH/CONTROL VALVE
DEXTER D-17ZA

D17ZA714VARK

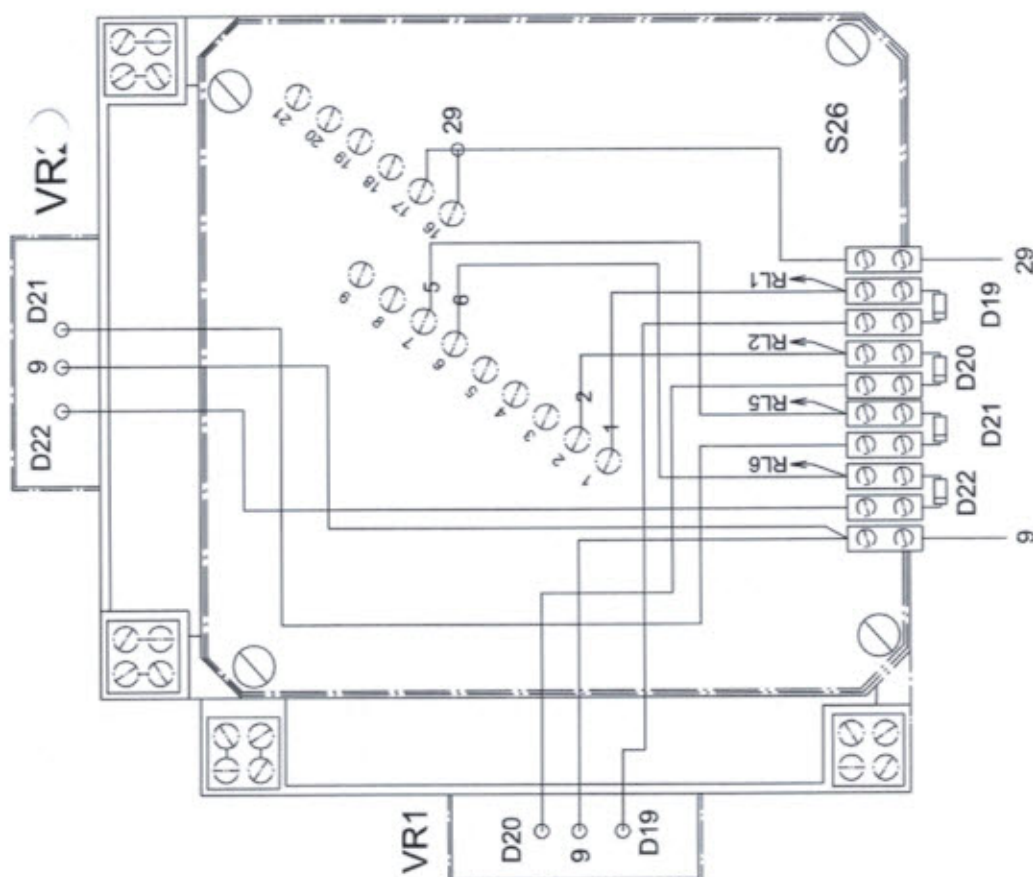


FRONT SIDE



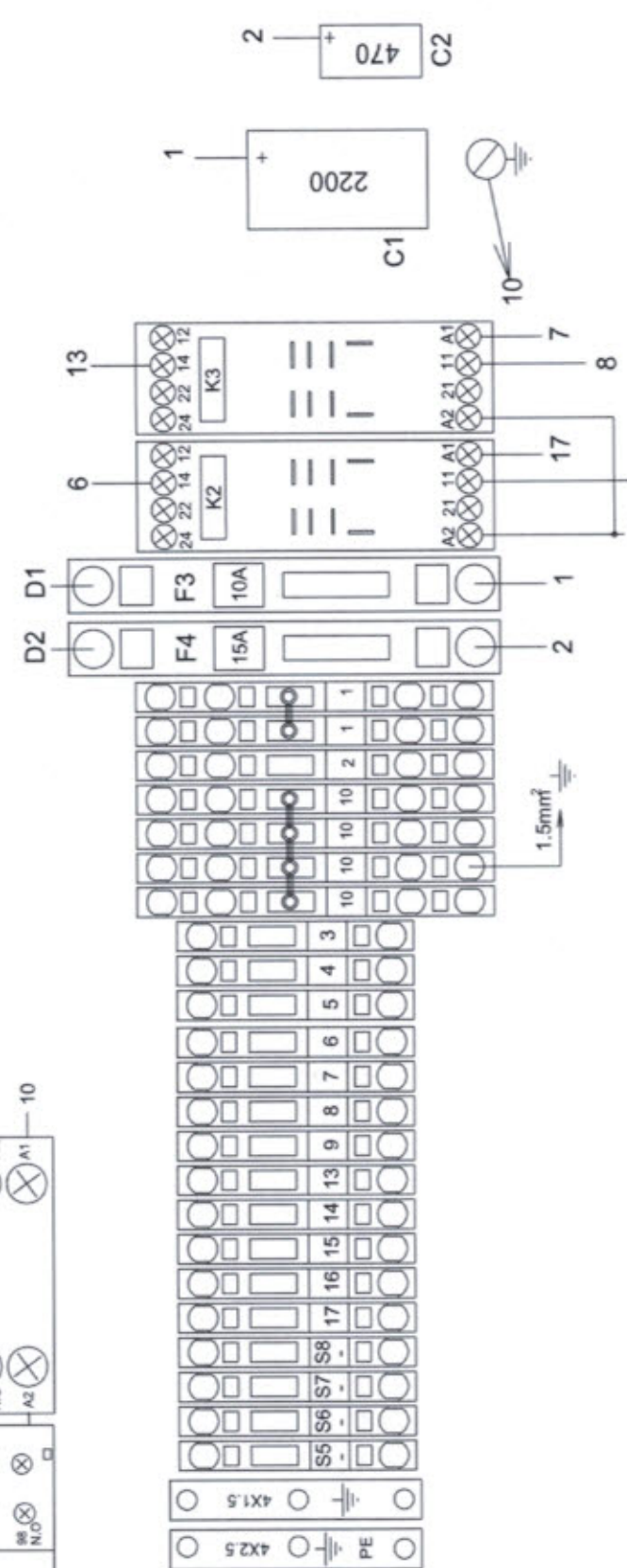
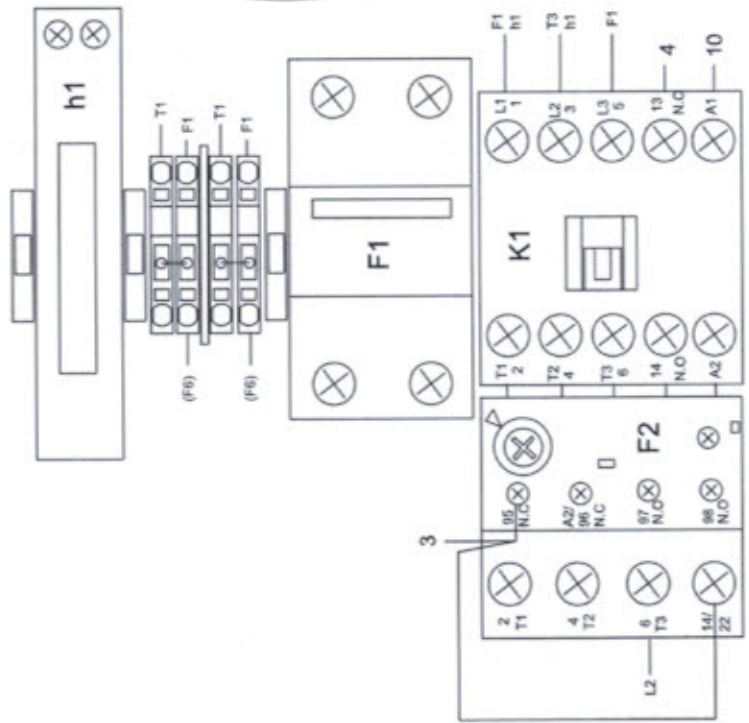
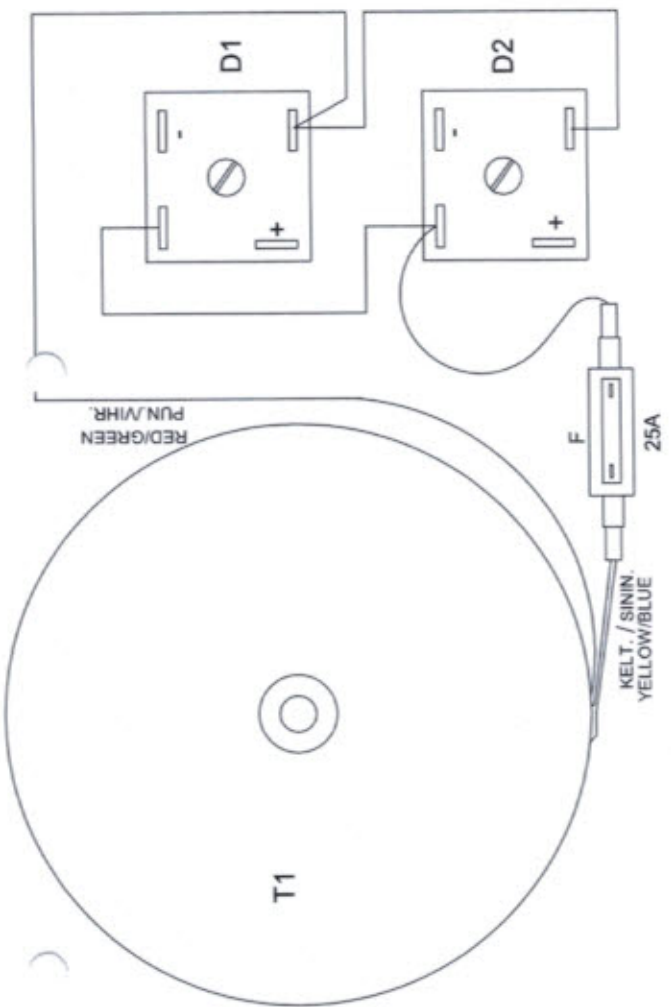
CAGE CENTER
DEXTER D-17ZA

D17ZA714T



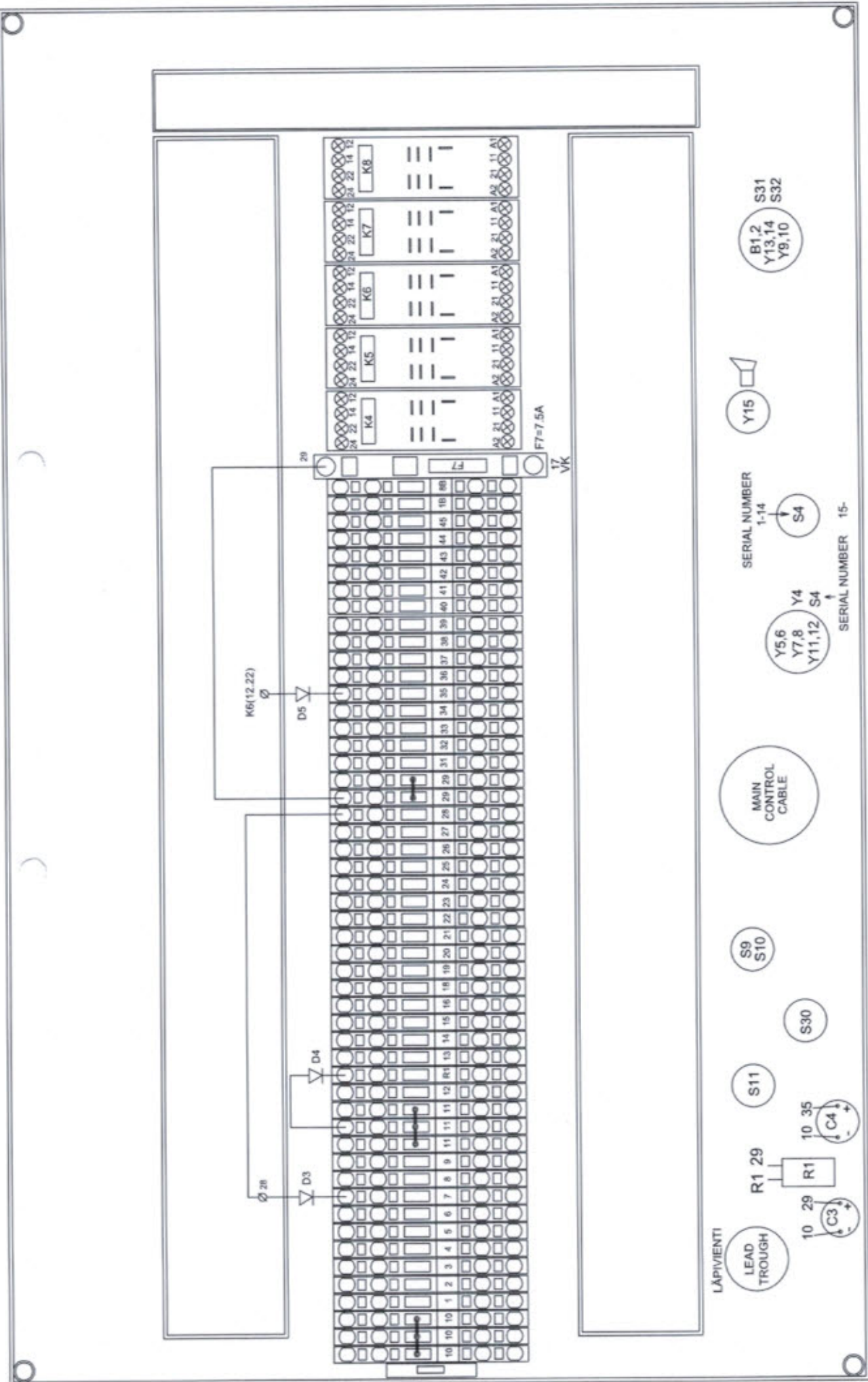
D19=LIFT DOWN
 D20=LIFT UP
 D21=SLEWING LEFT
 D22=SLEWING RIGHT
 VR1=LIFT POTENTIOMETER
 VR2=SLEWING POTENTIOMETER
 9=SPEED CONTROL VALVE
 29=INPUT +24VDC

JOYSTICK
 DEXTER D-17ZA
 D17ZA714TJ



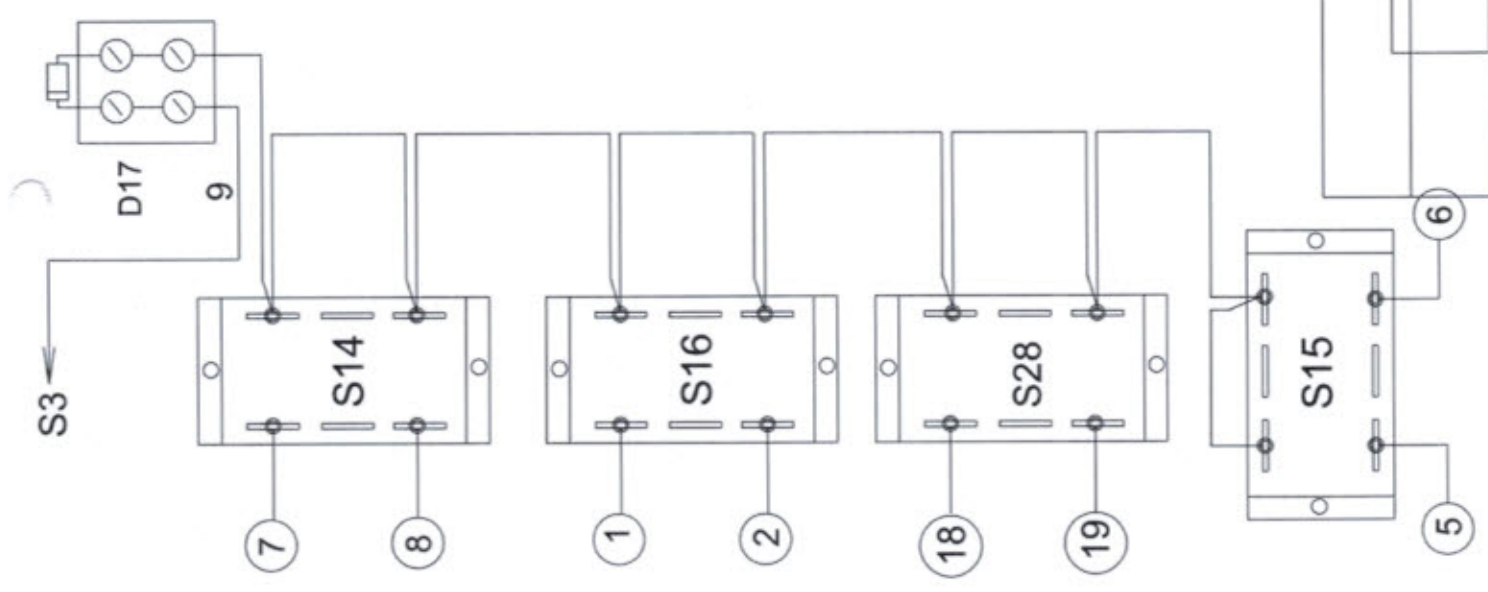
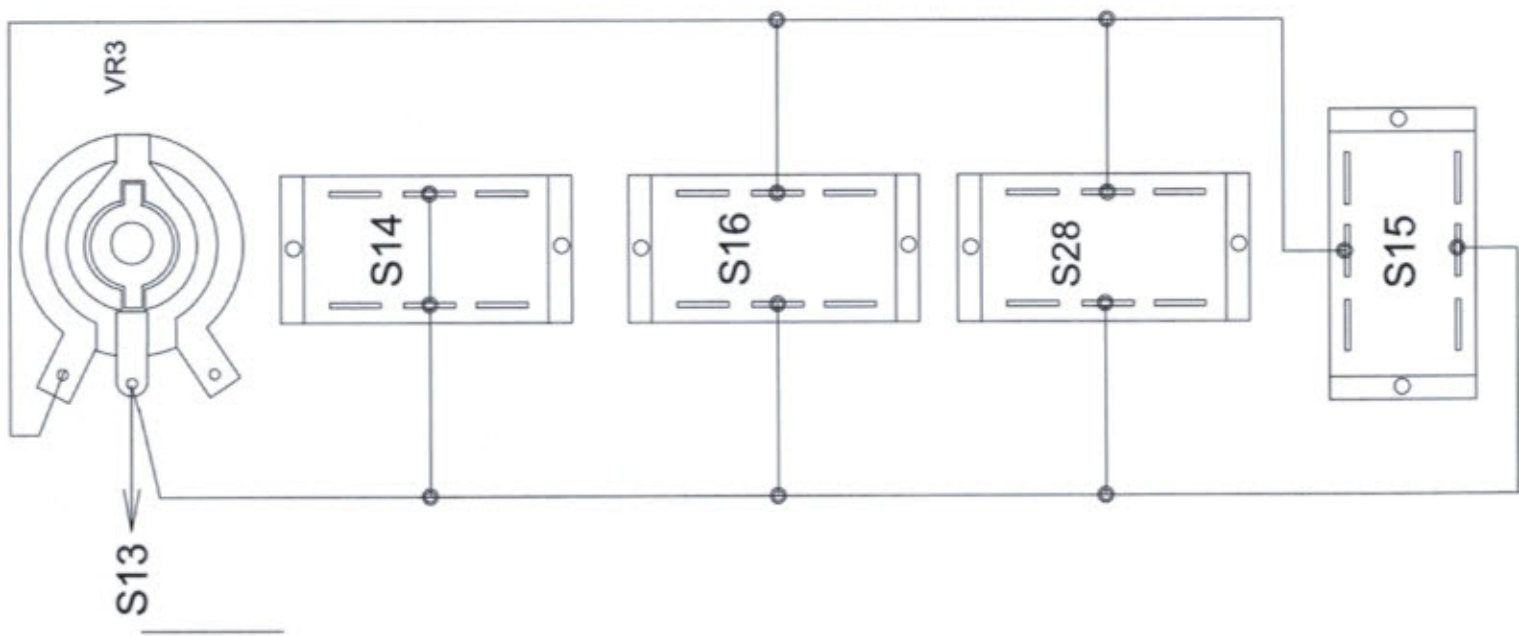
CHASSIS CENTRAL
DEXTER D-17ZA

D17ZA714R



GROUND CENTER
DEXTER D-17ZA

D17ZA714 JK



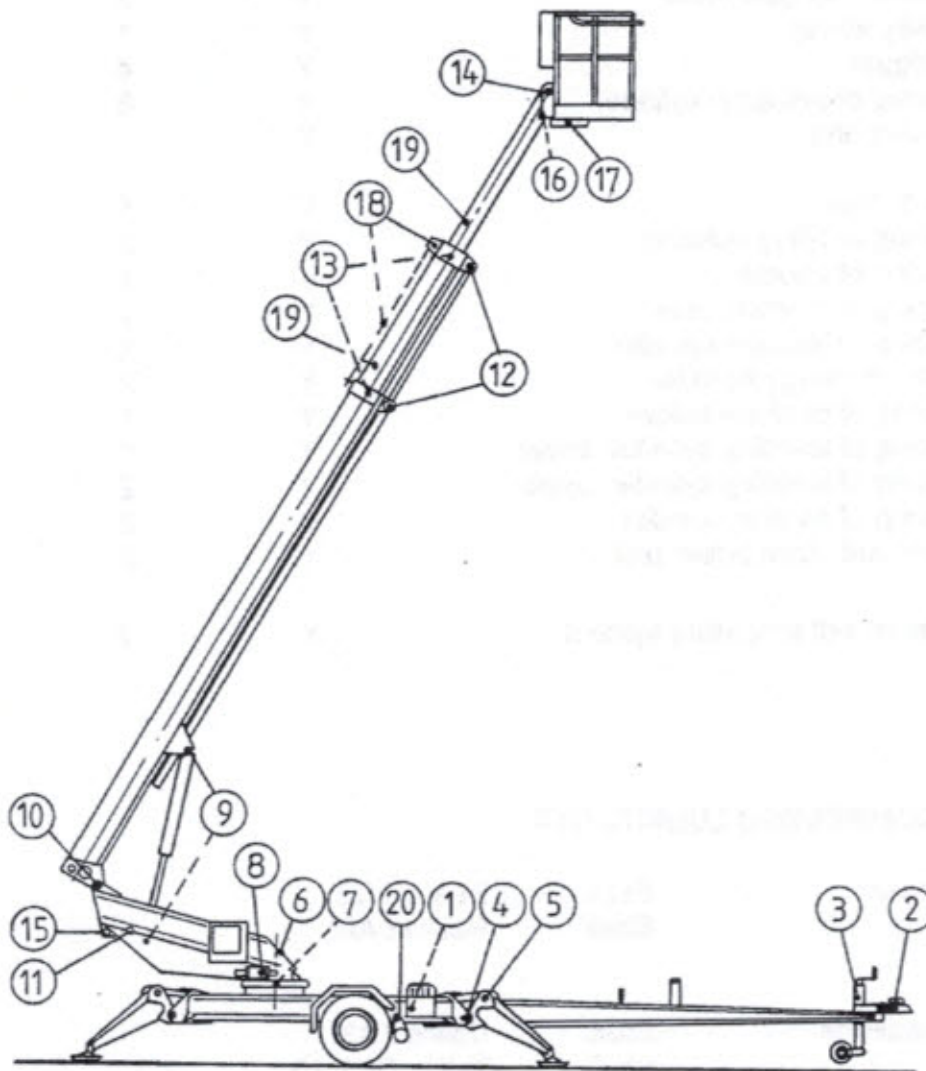
PIIRT.	
TARK.	
HTV.	
PIRUSTUS NRO.	D17ZA714JB
GROUND CENTER DEXTER D-17ZA	

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SERVICE AND MAINTENANCE

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5.5 LUBRICATION INSTRUCTIONS
5.5.1 LUBRICATION DIAGRAM AND OBJECTS LIST



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SERVICE AND MAINTENANCE

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OBJECTS LIST			
Part	Description	Lubricant	Pcs
1	Hydraulic oil, 40 l	H	1
2	Overrunning type brake	Y	2
3	Jockey wheel	Y	1
4	Outrigger	Y	4
5	Bearing of outrigger cylinder	Y	8
6	Slewing ring	Y	1
8	Worm gear	Y	1
9	Bearing or lifting cylinder	Y	2
10	Bearing of booms	Y	1
11	Bearing of moment lever	Y	1
12	Joints of telescope cylinder	Y	2
13	Roller of energy transfer	Y	2
14	Bearing of platform holder	Y	1
15	Bearing of levelling cylinder, lower	Y	2
16	Bearing of levelling cylinder, upper	Y	2
17	Bearing of electric cylinder	Y	2
18	Chain and chain pulley unit	Y	3
20	Roller of self propelling system	Y	2

5.5.2 RECOMMENDED LUBRICANTS

Y	Lubricant	Esso Shell	Beacon Q2 Retinax AM
H	Hydraulic oil	Esso Shell	Univis J 13 Tellus Oil T 15

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EXAMINATION INSTRUCTIONS

DEXTER 17 ZA**EXAMINATION INSTRUCTIONS**

CHAPTER 6

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6. EXAMINATION INSTRUCTIONS**6.1 FIRST (pre-delivery) EXAMINATION**

First examination is performed by the manufacturer prior to delivery to the customer. First examination consists of load tests and functional tests. Examination reports are supplied with the operating manual.

6.2 DAILY AND PRE-OPERATION EXAMINATION

The operator must perform these examinations every time prior to starting operation. Following examinations shall be made:

1. Check that the ground is capable of supporting the work platform – max. outrigger force is 12.000 N
2. Check set-up
3. Check condition of spirit level
4. Check function of "EMERGENCY STOP" buttons (at lower and upper controls)
5. Check function of emergency lowering system and charging current of emergency lowering batteries :
 - start machine from lower controls and lift booms approx. 30° angle
 - drive telescope out approx. 3 m
 - turn off the motor
 - push the emergency button of pedestal connection box and check, that the booms get down and the telescope goes in
 - during emergency lowering; voltage of batteries should be over 20 V (indicator at lower controls)
 - also check the function of emergency stop button at upper controls
6. Check function of signal horn (at upper controls)
7. Check warning and indicator lights:
 - 7.1 outrigger limit switches / chassis connection box green indicator
 - deploy outriggers and balance the machine
 - the green light at chassis controls will indicate
 - drive each outrigger carefully up, in turns, green indicator light should go off
 - if the outriggers are not on the ground properly and if the green indicator light is not on, lifting of booms must not work
 - 7.2 Check function of transport support limit switch
 - deploy outriggers and balance the machine
 - lift booms up from transport support
 - function of outriggers must not work

- 7.3 Load control systems limit switches / platforms yellow and red indicator light
- set 120 kg load on the platform
 - lift booms horizontally
 - drive telescope out until operation stops
 - yellow indicator lamp at upper controls should be on and extension of boom should be between the area marked with outreach marks on the II-boom
 - set approx. 30 kg load on the platform, and then the red lamp at upper controls should light up, and so, outreach controls limit switch works
 - if only the yellow indicator lamp lights up, control limit switch does not work
 - if only the red indicator lamp lights up, actual limit switch for outreach does not work
- 7.4 Checking the function of limit switch of telescope
- lift booms approx. 30° angle
 - drive telescope out a little and turn off the machine
 - press emergency lowering button, the booms must come down and telescope go in
 - lowering must continue even if telescope is completely in, if lowering stops limit switch does not work
8. Check condition of controls and function of each boom and outrigger movement
9. Check condition of platform and function of platform levelling system
10. Check the rotation of cable at the machines swivel
- unwind if the cables are rotated
11. Make sure that there are no oil leaks
12. Prior to transport check:
- function of brakes
 - function of lights and reflectors
13. Read again Chapter 3, SAFETY INSTRUCTIONS

6.3 MONTHLY I.E. MAINTENANCE EXAMINATION

This examination shall be performed by a person who knows the machine well.
Following examinations shall be made:

1. **All daily** examination checks.
2. Boom and platform fastenings, pivot points, lockings
3. Function, condition and locking of platform levelling system
4. Visual examination of load carrying components and their condition
 - chassis
 - outriggers
 - pedestal
 - booms
 - platforms
5. Lock valves and load holding valves
 - 5.1 Tightness of lockvalves in outrigger cylinders:
 - deploy all outriggers and balance the machine
 - set 215 kg test load on the platform
 - lift the booms horizontally, turn to the right front outrigger direction and drive telescope out as long as outreach control device stops the operation
 - lift left front outrigger carefully up so that the machine is resting on the right front outrigger and turn off the machine
 - deflect the control valve of right front outrigger and check if outrigger is getting up
 - check all outriggers in turns
 - 5.2 Tightness of load holding valves in boom lifting cylinder:
 - set 215 kg test load on the platform
 - lift booms to approx. 30° angle and turn off the machine
 - deflect the shank of control valve of boom lifting cylinder on the piston control side and check if the booms are going down
 - start the machine, drive booms to the transport support and turn off the machine
 - deflect the shank of control valve of boom lifting cylinder from the cylinder piston control side and check if tension of booms will release against transport support
 - 5.3 Tightness of load holding valves in telescoping cylinder:
 - set 215 kg test load on the platform
 - lift the booms upright position, stretch telescope out few meters and turn off the machine
 - deflect the shank of control valve of extensions from the piston control side and check that the telescope is coming in

- 5.4 Tightness of load holding valve in platform levelling cylinder:
- set the 215 kg test load on the platform
 - lift the booms to a horizontal position and turn off the machine
 - deflect the shank of control valve of levelling cylinder from the piston control side and check if platform gravitates
6. Hydraulic oil level
7. Slewing worm gear fastening and gear clearance
8. Condition and fastening of hydraulic hoses and pipings
9. Condition and fastening of electric cables
10. Tyres and tyre pressures, correct tyre pressure (4,0 bar)
11. Existence, condition and cleanliness of plates, signs, decals and warning stripes
12. Cleanness of the machine

6.4 ANNUAL I.E. BASIC EXAMINATION (periodical examination)

This examination can be performed by an authorized person / body only.
 Pay special attention to steel structures, safety devices and controls .
 Results of the examination shall be recorded in the annual examination report.
 Following examinations shall be made:

1. **All monthly** examination checks
2. Control of all operating movements
 - no jerking movements
3. Hydraulic system check:
 - 3.1 Function of hydraulic pump; nominal pressure will be measured (200 bar)
 - 3.2 Lock valves and load holding valves; look monthly examination
 - 3.3 Directional valves; tightness, condition and function
 - 3.4 Pressure relief valves; pressure will be measured
 - main pressure relief valve 200 bar
 - slewing 70 bar
 - cylinders and motors; tightness, condition and function
 - hoses, pipes and connectors; tightness and condition
 - hydraulic lead-through; tightness
4. Electric system check:
 - cleanliness and dryness of enclosures (connection box, lower and upper controls boxes)

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- condition of cable connections
 - condition of limit switch contacts
5. Boom and cylinder fastenings and pivot points
 6. Outriggers and support plates
 - structures, weldings
 - transport positions
 7. Visual examination of all screw joints
 8. Condition of chains, chain fasteners and chain pulleys
 - tightness and adjustment of chains
 - condition and lubrication of chains
 - condition of end bolts, nuts and springs
 - condition of chain pulleys and bearings
 9. Condition of slewing system
 - slewing gear; fastening, condition and protections
 - slewing ring; gear ring, plays and lubrication
 - condition of slewing rings screws and torque; M12 = 101 Nm, M16 = 260 Nm
 - gearwheel and axle; wear and fastenings
 10. Condition of platform rotation device
 11. Check in particularly if there are visible deformations, abrasions, dents or corrosion damages in :
 - outriggers
 - chassis
 - booms
 - platform
 - pedestal
 - slewing ring
 - cylinders
 12. General examination of trailer axle system
 - tyres, rims
 - axle and its fastening
 - overrunning brake system and its fastening
 13. Examination of platform and transport position of booms
 14. Operational test and outreach control shall be made, as well as examination of moment control device function and adjustment

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6.5 Special examination

This examination shall be performed in case the work platform is damaged and there is doubt that the structural integrity or other safety features may have deteriorated.

1. Examination of the work platform in accordance with the annual examination
2. Stability test and load test shall be carried out
3. Examination report shall be written
4. Examination is performed by the manufacturer or by a person who knows the machine well