



MULTIFOREST

Instruction Manual and Maintenance Directions

S-Line Tilt Crane



Important!
Read the Instruction Manual
thoroughly before use



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SAFETY SYMBOLS

NB! You will find this general warning symbol throughout this Instruction Manual to make you aware of safety instructions concerning yourself, your employees and other persons coming into contact with the machine. Neglecting these instructions may lead to serious injury and even death.

This symbol has the following meaning:



WARNING!
LOOK OUT!
YOU ARE IN DANGER!

Warning Labels

Be aware of the warning labels **WARNING!** and **NB!** (NOTE!) in safety texts. These words have been chosen based on the following guidelines:



Warning!

Warns of dangerous situations which, unless avoided, could lead to serious injury or even death. This also includes dangers that can occur when protective equipment and/or protective screens are removed. Warning labels can also be used to warn of hazardous use.



NB!

Warns of risky situations where light or minor personal injuries may result unless they are avoided. Used also to warn of machine damage that can arise if the directions are not followed.

Dear customer,

Thank you for choosing a MULTIFOREST product and we hope you will be pleased.

Reading this manual and following its recommendations will ensure you get the longest possible service life and an efficient use of the machine.

We have produced this manual to give you a good overview of how the machine works and what safety and maintenance directions that must be followed when working with it.

If any questions should arise in its use or when reading this manual, you are always welcome to contact us.

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Dear Dealer,

For the warranty to come into force and all legal requirements to be met, we would like you to complete the warranty certificate/proof of transfer together with the customer and register on **trejon.se**

The warranty will come into force on the same day as the machine is transferred to the customer.



Delivery inspection checklist:

Check for any transport damage. Report to carriers	
Inspect the equipment thoroughly before use and make sure all packing has been removed. Dispose of all packing materials in an environmentally responsible manner.	
Check that all deliveries are complete in accordance with the machine order/packing note.	
Make sure the machine has been lubricated as described under "Service and Maintenance"	
Check oil level in turret housing	
Check tightness of all screw unions.	
With the assistance of the Instruction Manual, run through and explain commissioning, use and maintenance of the machine with accessories for the customer.	
Carry out a function check.	
Explain the switch between working mode and transport mode.	
EHC and radio-controlled valves must be calibrated by the dealer with the crane coupled to the customer's tractor.	
Instruction Manual handed over to customer.	
Complete the warranty certificate/proof of transfer together with the customer and register on trejon.se	

Enter the type and serial number of the machine into the box on the right	Type:
	S/N:

1 Introduction

1.1 Getting Started

Thank you for choosing this MULTIFOREST product. We have concentrated on making a powerful and good machine that will serve you for many years. As the service life of the machine does not wholly depend on us, but also you, the user, we have compiled an instruction manual in which we describe its correct care and use. So read through these directions thoroughly. Always get in touch with the dealership where you bought your machine when ordering spares or other service. The dealer is your natural service partner. When ordering spares, always specify the correct model, type and serial number found on the name plate on the chassis.

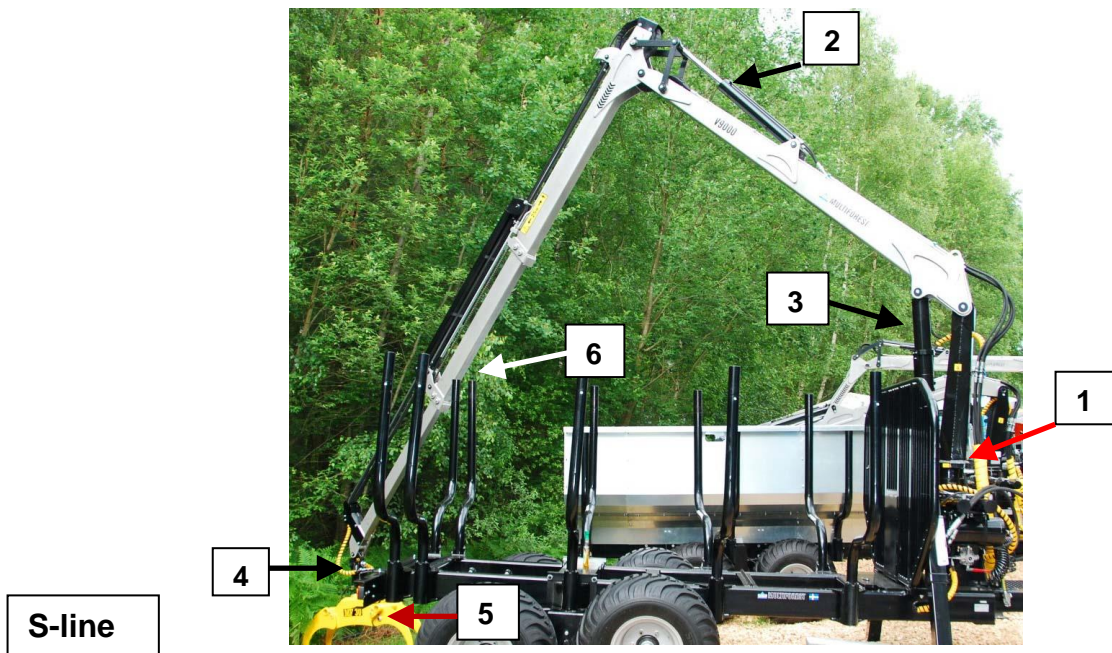
1.2 Description

This MULTIFOREST product is an all-round crane for forestry use when flexible and robust lifting machinery is required.

The crane is supplied with suitable flow and pressure from an external hydraulic system (see Technical Specifications).

It is available as a separate machine or mounted on a MULTIFOREST trailer. When mounting a separate crane, it is the responsibility of **the buyer** to make sure the carrying vehicle is of a suitable size and stability. This is to avoid tipping the machine or in any other way putting people or nearby equipment in harm's way. It is also the **buyer's responsibility** that the coupling to the carrier vehicle is dimensioned with good safety margins so it can handle the stresses involved.

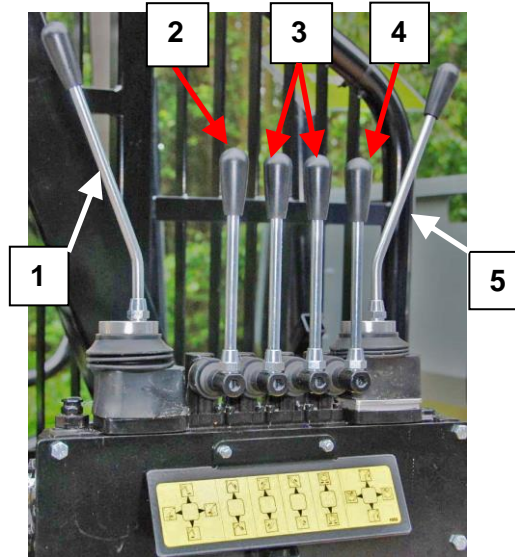
1.3 Detailed Description



S-line

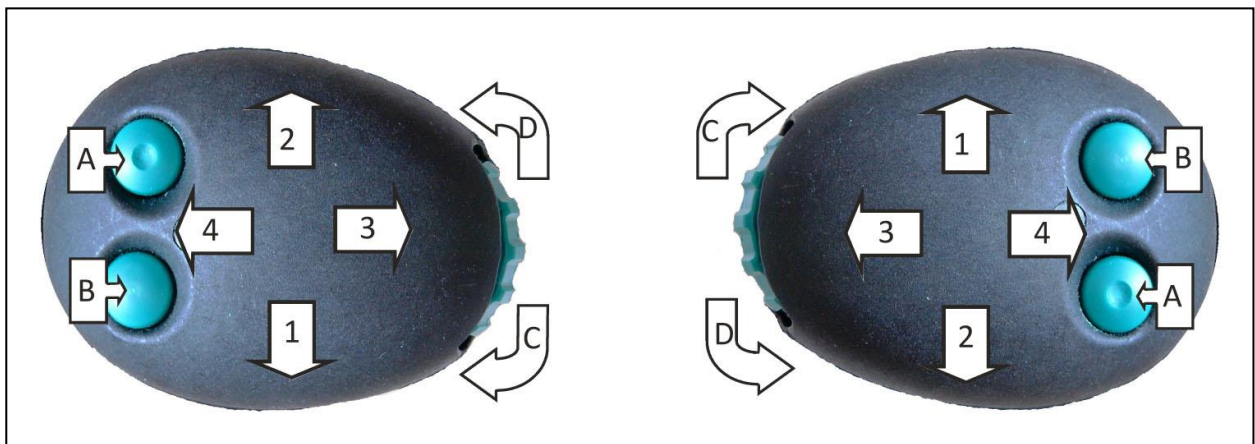
1. Crane slew turret housing	4. Rotator for grapple
2. Boom cylinder	5. Grapple (grapple cylinder)
3. Lift cylinder	6. Boom extension

Controls



Manual set

1. Crane slew and boom cylinder lever	4. Grapple cylinder lever
2. Telescope lever	5. Rotator and lift cylinder lever
3. Left and right support leg lever (if equipped)	



EHC – ERGO DigiStick

Left lever	Right lever
1. Articulated arm towards operator	1. Lift arm lowered
2. Articulated arm away from operator	2. Lift arm raised
3. Crane slew right	3. Rotator anticlockwise
4. Crane slew left	4. Rotator clockwise
A. Left support leg down	A. Right support leg up
B. Left support leg up	B. Right support leg down
C. Telescope in	C. Close grapple
D. Telescope out	D. Grapple open

1.4 Technical Specifications

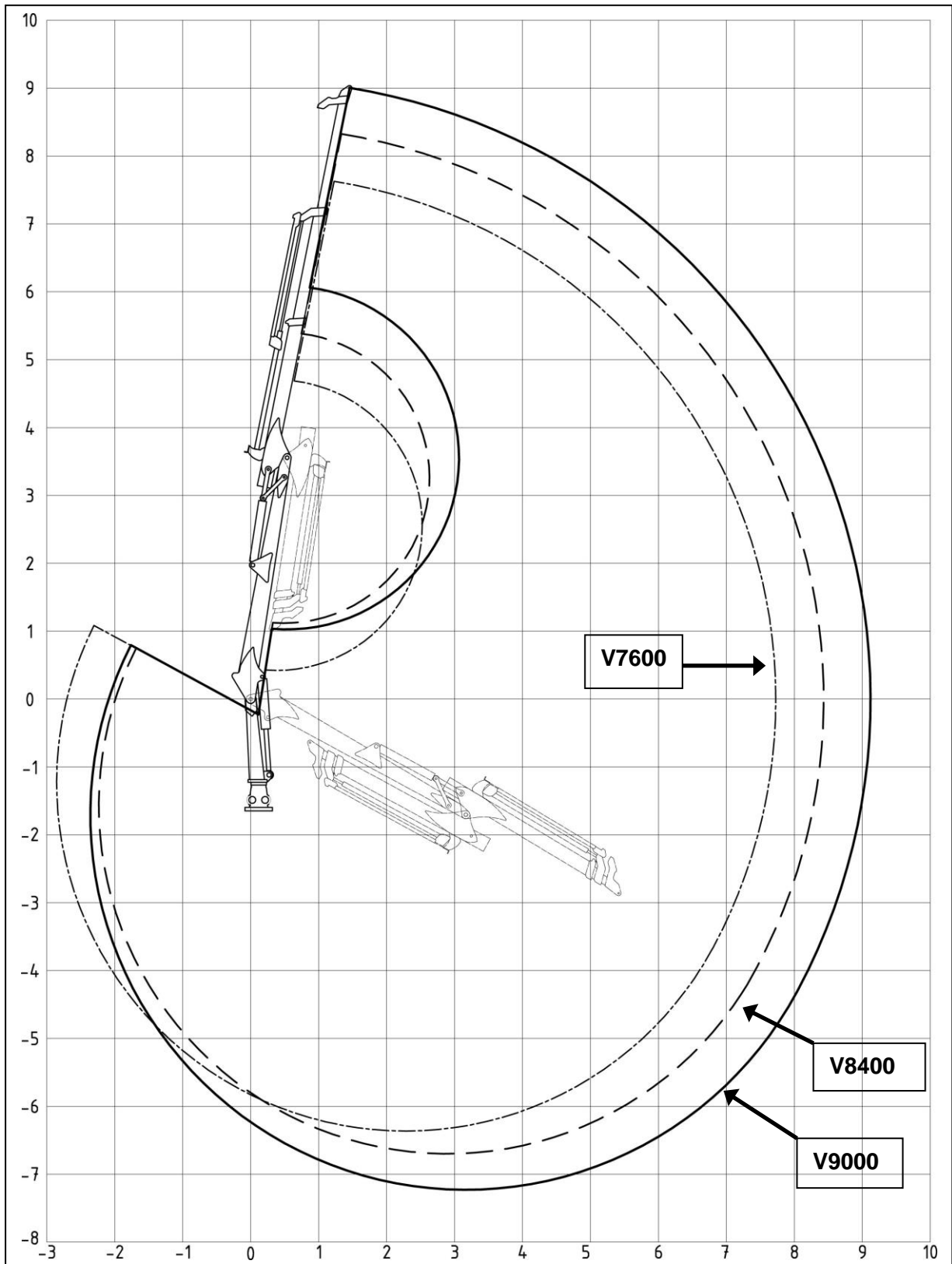
Specifications/Model	V7600	V8400	V9000	
Range (m)	7.6	8.4	9.0	
Hydraulic extension (m)	2x1.5	2x1.5	2x1.5	
Max. operating pressure (bar)	175	175	175	
Rec. pump capacity (litres/min)	55-90	55-90	55-90	
Slew radius (degrees)	390	390	390	
Slew cylinder (qty)	4	4	4	
Torque (kNm)	15	15	15	
Max. lift at 4 m (without grapple and rotator) (kg)	1305	1185	1100	
Max. lift, max. extension (without grapple and rotator) (kg)	560	450	380	
Rotator	Accessories	Accessories	Accessories	
Grapple	Accessories	Accessories	Accessories	
Valve pack - number of functions	4+3	4+4	4+4	
Valve pack - number of functions (mounted on trailer with support legs)	4+3	4+4	4+4	
Unladen weight of crane (kg)	1100	1165	1195	

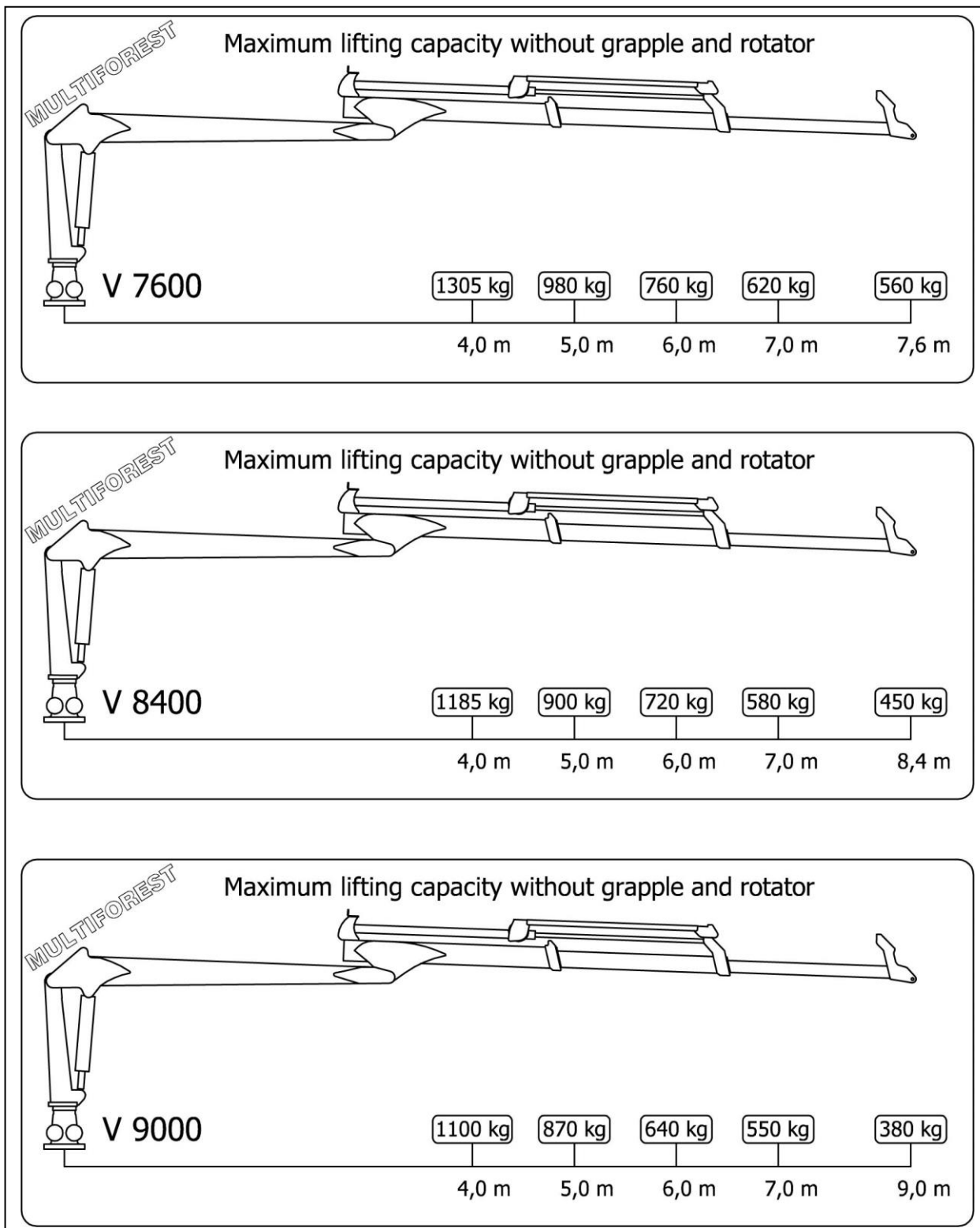
Due to a policy of continuous development, the technical data specified in our document is not binding and may be changed without prior notice. Information specified in the table above may also show equipment that is not standard. The equipment level may vary depending on user country.

1.5 Right and Left Hand

In this Instruction Manual, the terms right and left hand apply as looking toward the rear of the tractor, i.e. seen from behind in the direction of machine travel.

1.6 Lift diagram





Max. lifting capacity (kg)

2 Safety Instructions



2.1 Safety Regulations

Read the manual. All machine operators should read and understand the entire contents of this manual and the safety regulations so there is no uncertainty as to the use of the machine/tool before it is taken into service. Get in touch with your dealer if you have any questions. Use of the machine is strictly forbidden if the operator is not aware of the risks involved in conjunction with the use of the machine and cannot act correctly if a risk situation should arise.

Read, observe and understand the meaning of all safety, operating, warning and positioning decals on the machine and in the manual.

Actions may occur when using this equipment that cannot be prevented in its design or with the use of mechanical protection.

Unfortunately, human carelessness may cancel the function of our integrated safety features. Accordingly, the prevention of accidents and operating safety features are dependent on the responsible use of the equipment and its integrated safety features. Only trained personnel should use this equipment.

The machine is intended for outdoor use only.

Operation. Learn and practise the machine's working methods and controls before it is used.

Coupling the Machine. Connect the machine in the correct manner and keep away from the area between the tractor and the machine when coupling. Make sure the equipment is correctly mounted, adjusted and in working order.

Safe Work Area. Keep unauthorized persons, especially children, away from the working zone of the machine or when it is being repaired.

Observe the risk of injury from material that can be thrown from the machine while work is in progress and clear away any stones, twigs and other foreign objects in the work zone that may cause personal injury or damage to property.

Moving parts of this equipment are designed and tested to handle tough use but driving on heavy, solid objects may damage the machine. To avoid any material damage, personal injury and even death, make sure never to drive over such obstructions.

The Machine's Safety Equipment. The machine may only be used if all the manufacturer's original safety equipment for moving mechanisms are positioned correctly and in working order.

Ensure all safety and operating decals are in good order and affixed in the correct manner and replace them if necessary. Included the model and serial number when ordering new decals.

Moving Parts. Keep arms, legs and other body parts as well as clothing away from any moving parts of the machine. Do not wear loose fitting clothes. Leave the machine to work on its own and do not insert hands or fingers in an attempt to give assistance.

Power Take-Off. When changing tractors, always check the length of the power take-off shaft. If too long, it may damage both tractor and machine.

The use of incorrect power take-off shafts that do not meet with specifications is strictly forbidden.

Ensure power take-off guards are correctly mounted and in good order and firmly fixed to the tractor.

The use of damaged or defective power take-off guards is strictly forbidden

Purchase a new power take-off guard if the old one is defective.

Stability. The machine must not be operated with a tractor that does not weigh enough over the front/rear axle so that tractor stability is affected. At least 20% of tractor weight shall rest on the front axle to ensure tractor steering and braking ability.

Mount ballast weights if necessary, see tractor instruction manual.

Apply the support legs when working with the grapple loader (consider retrofitting if not mounted) and first load the smallest and closest logs so that the trailer attains good stability before starting to load the heaviest logs.

Operating the Machine. Take great care when working on uneven ground conditions, close to ditches and fences, look out for hidden dangers and adapt your working rate.

Great care should be observed when working on steep slopes:

Try to drive in the same direction as the incline and not across it.

Avoid fast starts and heavy braking when driving the machine up and down inclines.

If it is absolutely necessary to drive across steep inclines then reduce your speed and watch out for unevenness, avoid sudden turns and be aware of the shift in centre of gravity that occurs when lifting mounted tools.

Hold onto the steering wheel tightly if the tractor should overturn.

Operating at Night. The work area must be illuminated when working in the dark.

Driver. Operators who are tired, intoxicated, drugged or under the influence in any other way so that they cannot control their movements must not use the machine.

The machine may only be operated by one person sitting in the tractor, no passengers are allowed.

Personal Protective Equipment. Protective equipment such as helmets, protective goggles, protective shoes and gloves are recommended for personnel during assembly, operation, adjustment and maintenance. Keep the tractor door and windows closed when working in dusty conditions. Under certain conditions, noise levels may rise above 90dB so keep tractor doors and windows closed, use hearing protection.

Protective Cab. The machine should only be driven by a tractor equipped with an approved protective cab. Keep doors and windows close while working.

All moving parts, including engine, must be stationary and the handbrake applied before the tractor driver leaves the cab. The rear window and the rear side windows of the cab must be made of safety glass or be equipped with protective bars when working with a grapple loader.

Maintenance. Inspect, adjust and maintain the machine according to the directions.

Regular Inspection. Inspect the entire machine regularly. Locate any loose, worn and damaged components and leaks.

Safety During Maintenance and Service. The machine must stand on a compact and even surface for maintenance and adjustment.

The tractor engine must be shut off, all moving parts stationary, the machine lowered to the ground and the handbrake applied during all cleaning, inspection, adjustment, maintenance and repair.

Clean the machine thoroughly before repair and storage.

Bearing and hydraulic components should not be cleaned with high-pressure jets.

If high pressure is used for general cleaning, it may damage the paint.

After cleaning, the machine must be lubricated according to the lubrication schedule and a short test run carried out.

Vibration. If any vibration should occur in the machine, it must be shut down immediately and the cause located. Change any damaged parts.

Emergency Stop. Stop the machine immediately if it should hit an obstruction. Shut off the engine, remove the key, check for and repair any damage before recommencing work. Make yourself aware of how emergency stops work on the tractor and the tool, and be prepared of how they work in an emergency situation.

Hydraulic Hoses. Hydraulic hoses on the machine contain oil at very high pressure. Do not touch hoses and hydraulic components if the system is pressurised. In case of leaks, oil at high pressure may penetrate the skin and cause serious injury. In case of an accident take immediate contact with a doctor.

Check the condition of hydraulic hoses with respect to damage. Chafed and leaking hoses should be replaced immediately with new that meet the manufacturer's technical requirements. When changing tractor, always check the length of hoses. Hoses that are too long or too short may be damaged.

The use of incorrect hydraulic hoses that do not meet with specifications is strictly forbidden. Hydraulic motors and hoses can get extremely hot while in operation with risk for burn injuries. Do not loosen hoses while the oil is hot, wait for it to cool down.

Welding. Protect bearings, hydraulics and electronic components if welding is being carried out.

Before welding commences, electronic components must be disconnected and the welder's ground clamp placed as close to the welding site as possible.

Fire Risk. If overheating of machine parts should occur, the cause must be located and the machine shut down. Forest residue is very flammable, remove wood remains and dirty oil. Keeping a fire extinguisher nearby is recommended. Smoking in the vicinity of the machine is forbidden.

Electrical Lines. Take great care when working close to electrical lines, maintain a safe distance with good margin.

If an accident should occur and the crane comes into contact with power lines.

- Keep calm, act rationally so as not to worsen the situation and do not touch any metal parts.
- Warn people in the vicinity and make sure they stay outside the risk zone.

Radio control. If you are using the crane with remote control, you must follow the regulations and instruction given in the radio control user instructions. You can use the crane only from the tractor cab in this case, or from outside at a minimum distance of 10 m from the machine.

Spare Parts. Use only original spare parts on the machine.

If you should have any questions concerning the machine or its function, please get in touch with your dealer or Trejon AB

2.2 Safety Symbols

All warning decals must be clean and legible.

Lost or damaged decals must be replaced. Order new decals from your dealer.

Position of decals on crane



The symbol on the right shows the following:

	<p>Warning!</p> <p>1. Do not stand in the vicinity of the crane, maintain a distance of at least 25 m from the machine when it is running. The operator must also maintain a good view of the area while the machine is working.</p>	
	<p>Warning !</p> <p>2. Forbidden lifting point.</p>	
	<p>Warning !</p> <p>3. Decal on crane post showing maximum lifting capacity at different lengths.</p>	
	<p>4. Machine name plate with CE marking. This includes the machine's serial number, weight and model number.</p>	

3 Using the Machine

3.1 Assembly



Warning!

Crush risk. Do not stand between machine and tractor when coupling. Always apply the brake on the tractor when leaving the cab during all coupling and uncoupling.

The machine may only be coupled to a tractor/trailer with sufficient weight over the front and rear axle respectively so that steering and brakes are in working order when the machine is coupled. Use ballast weights as necessary, see the tractor's instruction manual. When working with a grapple loader, use the support legs (consider retrofitting if not mounted).

The temperature of the hydraulic oil must be checked during operation. If the temperature rises too high, the reason should be located immediately to avoid serious damage.

If the crane's valve package is to be mounted inside the tractor cab, protection must be installed to prevent oil at high pressure reaching the operator, e.g. after a hose rupture.



NB!

Ensure no-one is inside the risk area when lifting.

Take care with straps and wires when they are removed as they are tensioned very hard. They can also be very sharp.

The hydraulic system to which the crane is coupled must be unconditionally fitted with an efficient filter on the return side.

Trouble-free operation presumes the hydraulic system to be in good condition and that maintenance has been carried out as recommended.

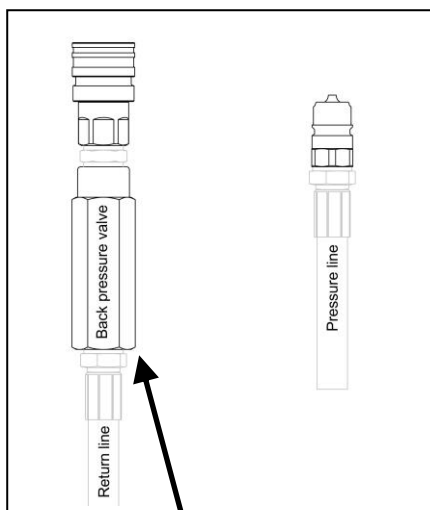
The crane is normally function tested before delivery. The cylinders may therefore contain some test oil.

Delivery and return hoses must not be coupled to double-acting outlet. Instead, the return hose shall be coupled to a separate pressure-free return outlet.

The crane is normally supplied completely assembled (with hydraulic package), either loose or mounted on a forestry trailer. When mounting the crane on its own trailer or other equipment, the following points should be observed.

- Mount the crane on a fixing plate in accordance with our recommendations. The fixing plate shall be flat and thoroughly clean. Oil in the mounting bolts lightly and tighten them in stages. Final tightening is to be done crosswise with a torque wrench. Tightening torque according to the table in "Care and Maintenance" (mount the crane so that its slewing range is adapted to the work area).
- Make sure the coupled hydraulic system is a circulatory pumping system and has sufficient capacity. (If the crane is coupled to a constant pressure system, supplementary equipment to the valve will be required. Contact the manufacturer)

- Make sure the hydraulic hoses coupled to the valve package as below.
- Check the oil level in the turret housing (see section 4.6). If the turret housing is not full, the pistons must first be applied to the gear racks by slewing the crane from right to left for a short time. Then the turret housing can be filled with transmission fluid SAE 80W/90. Oil capacity is 3.5 litres.
- Mount the grapple and rotator if not already mounted. If the grapple is incorrectly coupled, an excess of pressure will build up in the rotator that could cause a sealing failure.
- Always couple the hydraulic package's **return hose** first (with female connector) to a pressure-free return outlet and then the delivery hose to the hydraulic system's pressure outlet (that must be depressurised while coupling). Uncouple in reverse order, i.e. first uncouple the **delivery hose** and then the return hose. Ensure the couplings are cleaned well before connecting.
- For cranes equipped with lightweight packages, EHC, PCL and radio control, the crane's three pole plug is connected to the corresponding outlet on the tractor. The outlet must be protected with a 15 A fuse and should supply 12 V with a 15 A load.



The return hose can be identified by its non-return valve.



The crane's three-pole plug is connected to the outlet on the tractor (must be fused with 15 A). (Applies to cranes with lightweight package, EHC, PCL and radio control)

3.2 Before starting the machine



Warning!

Cracks or other damage that can cause burst hoses during operation must unconditionally be rectified before the crane is taken into operation.

Loose screws and bolts may shear while loading. Defective lubrication and low oil level can result in costly damage to the crane.



NB!

Leaking hydraulic cylinders shall be replaced or fitted with new seals.

Take care when operating the crane slewing function. If the slew cylinders have not been filled with oil, the crane may swing in an uncontrolled manner on sloping terrain.

The following points on the machine must be checked before it is taken into use (applies both before start **and after down time**):

- All screws and nuts must be tight (check and retighten screws and nuts after the first 4 hours of operation and then after every 40 hours). Refer to the table in Service and Maintenance for correct tightening torques.
- Lubricate the machine (see also “Service and Maintenance”).
- Check for any visible cracking or damage to equipment.
- Couple to the hydraulic system, make sure that all hydraulic hoses and couplings are tight (retighten if necessary).
- Bleed the system by carefully operating one function at a time. Check that the correct lever sequence applies.
- Have the pressure limiting valve operate on bypass for a couple of seconds at each end position.
- Make sure all hoses are drawn correctly and tension free as well as free from chafing.
- Ensure all guards are in place.
- Check that all moving parts are free from foreign objects (snow, ice, branches, dirt, etc.)
- Check/top up the fluid level in the hydraulic system.

3.3 Adjustments



Warning!

Never rely on the tractor’s lifting arrangement, support the tool properly on axle stands or the like so that the machine does not fall.

EHC and radio-controlled valves must be calibrated by the dealer with the crane coupled to the customer’s tractor before being taken into use.

3.4 Operating the Machine



Warning!

Under no circumstances leave the driver's position before the equipment has come to a complete stop.

The machine must **NOT** be cleaned while in operation. Ensure no-one is present in the vicinity of the machine.

When working with the crane in the vicinity of electric lines, electricity can jump over to the equipment if any machine part should come too close or in direct contact with a conductor.

No persons or animals may approach closer than 25 m from the machine when in operation. Maintain a good overview of the risk zone when working with the crane. The machine and the tractor may overturn if the crane is not used correctly. It is strictly forbidden to lift people with the crane.

Wet or icy logs must be handled with extreme caution. It is forbidden to stand under a raised load.

Never drag a load that has got stuck and cannot be freed with the crane's own hydraulic power by gripping the load and pulling with the vehicle, i.e. do not exceed the crane's maximum lifting capacity. This will cause the crane's protective equipment to malfunction, which may result in a fractured boom and uncontrolled movement.



NB!

The crane's hydraulic package is equipped with pressure limiting and check valves to protect equipment from overloading. These must not be interfered with.

The warranty does not apply to faults caused by incorrect operation.

A doubling of the work rate means the tool is exerted to 4x the stress. Do not operate the machine faster than is necessary.

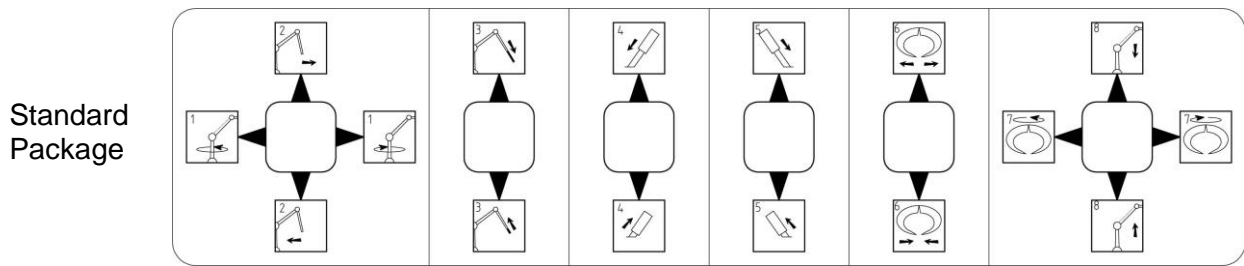
The crane must not be exerted to loads on longer boom lengths than the maximum crane length corresponding to the weight of the load in question.

Ensure hydraulic hoses and pipes do not fasten on trailer or branches.

Only in exceptional cases may the crane be used in temperatures lower than -20°C.

There should be an emergency stop placed close to the crane's control levers (the hydraulic power supply to the crane should be cut immediately the emergency stop is triggered).

Operation



- 1 – Crane slew: Lever to left = Slew anticlockwise
 Lever to right = Slew clockwise
- 2 – Tilt cylinder: Lever toward operator = crane tip toward operator,
 Lever away from operator = crane tip away from operator
- 3 – Extension. Lever toward operator = Extension In
 Lever away from operator = Extension Out
- 4 – Left support leg: Lever toward operator = Support leg In
 Lever away from operator = Support leg Out
- 5 – Right support leg: Lever toward operator = Support leg In
 Lever away from operator = Support leg Out
- 6 – Grapple: Lever toward operator = Close grapple
 Lever away from operator = Open grapple
- 7 – Rotator slew: Lever to left = Slew anticlockwise
 Lever to right = Slew clockwise
- 8 – Lift cylinder: Lever toward operator = Raise
 Lever away from operator = Lower

* Unless notified otherwise, the operating instructions for the lightweight package will also apply for the EHC and PCL packages.

Radio control. If you are using the crane with remote control, you must follow the regulations and instruction given in the radio control user instructions. You can use the crane only from the tractor cab in this case, or from outside at a minimum distance of 10 m from the machine.

MULTIFOREST – cranes are equipped with control valves with five or more functions as standard. The directions of movement of the crane are shown on the symbols above. The system is equipped with proportional valves that give a direct link between the position of the control lever and the rate of motion.

Stability Test

Information concerning the performance of your tractor and its compatibility with trailer and crane is available from your dealer. The table below taken from sales information shows what crane and trailer combinations are recommended:

Rec. crane for forestry trailer	MF60	MF80E	MF80	MF90	MF105	MF120	MF140
V7600						X	X
V8400						X	X
V9000						X	X

A stability test must be performed to ensure the trailer, crane and basic vehicle are compatible and that it is safe to work with the crane with respect to its performance properties. The stability test also gives the user a chance to get acquainted with the limits of the combination. The basic vehicle, crane and trailer combination is stable when a lift can be performed of a weight corresponding to the maximum load plus 10 % without any of the trailer supports lifting from the ground. Lateral stability can be increased by widening the track width and/or increasing the weight of the rear axle, e.g. with wheel weights.

Example:

The normal condition of the basic vehicle during the test is unladen with a 5° incline in the direction of fall. The surface must be able to bear the wheel weight or greater loads originating from another support point.

The test is performed at maximum range with 10 % overload. The test is performed under normal conditions but requires special attention. The 5° incline of the basic vehicle can be attained by adding a lifting component to one of the rear wheels (when mounting the crane on the tractor's three-point hitch) or the trailer's wheel when mounting on a trailer. The height can be calculated in the following way:

h = necessary height of lifting component

z = basic vehicle width, wheel centre to wheel centre of vehicle.

$h = 0.087 \times z$

Example:

$z = 120 \text{ cm}$

$h = 0.087 \times 120 \text{ cm} = 15 \text{ cm}$

The specified equations and calculation examples in this Instruction Manual are based on the SFS 4677 standard.



Warning!

If the stability test indicates the vehicle combination cannot be classed as stable, great care must be observed, especially while working with the crane on an empty trailer.

Operating Instructions

In freezing conditions, make sure the valve package is in working order when the tractor is started. Ensure the levers return to their neutral positions when released. If the valves are stiff due to the cold, allow the oil to circulate in the crane long enough for the valve block to become warm.

When test operating the crane, run all the functions carefully.

Start using the crane at low tractor revs as the crane movements will then be slow. As you become more acquainted with the equipment, you can increase the speed.

Avoid rapid and jerky movements. Rapid and jerky movement should be avoided when working the crane. Strive to start and stop each movement smoothly. Smoother operation can be obtained by running several movements at once (start a new movement while the previous one is still in motion). Jerky movements increase wear, shorten service life and increase the risk of accidents.

Apply the parking brake when using the crane.

Always use the support legs (if equipped) but they should not raise the trailer, only stabilise it. The combination is less stable when loading starts and does not always enable a full grip. In order to reduce the risk of tipping over, always strive to lift from short range on a firm surface. Move the timber toward the trailer first by contracting the extension* (if equipped) and then using the tilt until there is sufficient stability and lifting power to get the load on the trailer. Always grip the log being lifted around its entire circumference. Choose a gripping point so that the whole bundle so that it slopes toward the grate. Be extremely careful when slewing the crane with a heavy load in the grapple.

Pile the load on the trailer so it has a concave profile, i.e. higher at the edges.

When the trailer is full and loading finished, secure the grapple in the lowest possible position on the load.

When unloading, lower the timber to the ground as soon as the stays have been passed to minimise the risk of overturning.

It is easiest to fill the grapple when unloading if the timber is taken from the edges close to the stays, i.e. maintaining the convex load profile.

Drive straight up and down inclined terrain.

Do not drive down slopes that are so steep that it is not possible to drive up them.

Avoid loading on slopes.

* Always load with the extension contracted. Never lift a load at full extension.

3.5 Transporting and Uncoupling



Warning!

If the crane is not properly lowered and secured, the crane boom may swing out during transport. This can be a risk for other traffic and risks damaging the equipment.

If the grapple is secured to the trailer during transport while the crane base is not mounted on the trailer, the necessary transport modes must be used.



NB!

Ensure the transport height of the crane is well below the permitted load height and that it is within the outer contours of the trailer.

After completed loading, the crane must be parked in its lowest possible position and the tip of the crane secured by fastening the grapple to the load or the vehicle so that the combination can pass through, e.g., road tunnels and under electric lines (no part of the crane should be more than 20 cm above the forestry trailer).

When driving on public roads, the trailer must be equipped according to current traffic regulations with SMV sign, reflectors, lighting, etc. During the dark, dusk, dawn or in bad weather, no part of the grapple loader may be more than 40 cm outside the outermost light on the forestry trailer.

Prepare the crane for the next use by removing any foreign objects (snow, ice, mud, etc.) on moving parts.

Lubricate the machine in accordance with the maintenance schedule.

If the machine is to stand outdoors for a long period, the piston rod must be cleaned and then greased for protection.

Parking and Storing the Machine

Park the machine on a flat, even surface.
Preferably, the machine should be kept under cover.

4 Service and Maintenance



Warning!

When some form of cleaning, maintenance, repair or service is to be carried out on the machine, make sure the machine has been lowered to the ground and the tractor engine turned off. Remove the key from the ignition switch. Release all hydraulic pressure and ensure no-one touches the machine's hydraulic controls.

Never rely on the crane's lifting arrangement, support the tool properly on axle stands or the like so that it does not fall. Always use protective equipment such as goggles and gloves when carrying out maintenance.

To prevent personal injury, never use your fingers to explore narrow openings.

It is absolutely necessary to renew worn and damaged protective details (e.g. protective guards) in good time.

Make sure there is nobody in the vicinity that can be injured.

Welding or holing in structural parts may under no circumstances be carried out with Trejon's consent.

Worn bolts and screws risk shearing when under load. If cracks should appear, stop operation immediately. There is risk of shearing and resulting personal injury.

4.1 General

Carefully maintain the machine to obtain a cost-efficient operation, long service life and retained machine value. Use only top quality and effective lubricants. All work being performed under a raised machine must be done after securing the machine with axle stands. Use only effective hand tools. Keep the machine clean under the chassis for good function and to prevent corrosion. Never use high-pressure jets when cleaning bearings, electronics and hydraulic components. After cleaning, lubricate the machine according to the lubrication schedule and test run for a brief period.

Use the table below to see the correct tightening torques for screw unions on the machine.

Table 1 - Tightening torques for screw unions

Diameter	Quality 8.8		Quality 10.9	
	Nm	lb.ft.	Nm	lb.ft.
M8	25	18	35	26
M10	50	37	70	52
M12	90	66	125	92
M14	140	103	200	148
M16	215	155	305	225
M18	295	217	420	309
M20	420	302	590	438
M24	730	530	1020	745
M30	1430	1040	2000	1480

Increase tightening torque 5 % when a lock nut is used.

4.2 Maintenance Schedule

Daily inspection:

- Make sure there are no oil leaks.
- Clean away foreign objects such as twigs, mud, snow and ice.
- Check that bolts and screws are securely tightened and there are no cracks in structural parts.

Service point	Interval	Lubrication	*Action	Lubricant	Remark
Inspection	8th hr	-	A/C/CI	-	See daily inspection
Crane lubrication	8th hr	Yes	C	NLGI 2 grease	See lubr. schedule.
Grapple lubrication	8th hr	Yes	C	NLGI 2 grease	See lubr. schedule.
Screw unions	40th hr	-	C/A		Special screw unions at crane foot should be checked extra thoroughly.
Clean entire crane	1x/month	Yes	CI		
Replace filter insert	Indicator or 1x/year		R		See section 4.5
Check the oil level in the turret housing and the fluid in the tractor's hydraulic system.	1x/month	-	C		
Oil in turret housing	1x/year		R	3.5 litres Transmission fluid 80W/90	See fig. in section 4.6.

***Action codes: A=Adjust, C=Check, CI=Clean, R=Replace**

Use NLGI 2 grease with EP features of good quality and which can withstand low temperatures for lubrication. Do not use graphite grease on ball bearings. Compressed air driven grease guns must not be used to lubricate sealed bearing as the seal may come loose or be damaged. Clean the grease nipples before applying the grease gun.

These intervals apply to normal operation, continuous operation requires more frequent lubrication. Always lubricate after cleaning with water.

4.3 Before Season Start

All the above points shall be performed. If the machine is serviced well, it will have a considerably longer service life and more carefree use.

4.4 At End of Season

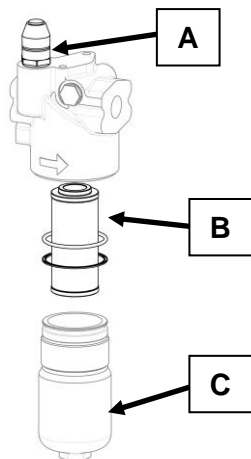
The machine must be thoroughly cleaned and then lubricated and serviced (the turret housing must NOT be cleaned with high-pressure jets). Replace worn or damaged parts. When dry, we recommend applying a thin coat of oil to places on the machine where the paint has been worn away. If the machine is to stand outdoors for a long period, the piston rods must be cleaned and then greased for protection. Store the machine in a dry space.

4.5 Hydraulic System

The crane hydraulics do not require any specific service but an interference-free operation does require the basic machine's hydraulics to be in good order and that its maintenance is performed according to recommendations.

Hydraulic Oil

If any work is performed on the hydraulic system components, the greatest possible cleanliness must be observed to prevent dirt from entering the system. Do not use cotton waste to clean components. Change hydraulic fluid before the cold season starts (August/September). The crane has been tested at the factory using **Shell Donax TD** (UTTO) universal oil. This oil is also used on trailers with dedicated hydraulic systems.



Filter

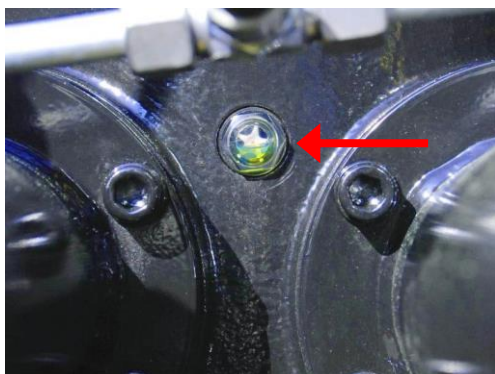
The hydraulic system is equipped with a filter. The filter insert (B) should be replaced when indicator (A) colour changes from green to red or at least once a year.

To change the filter insert, unscrew the filter housing (C).

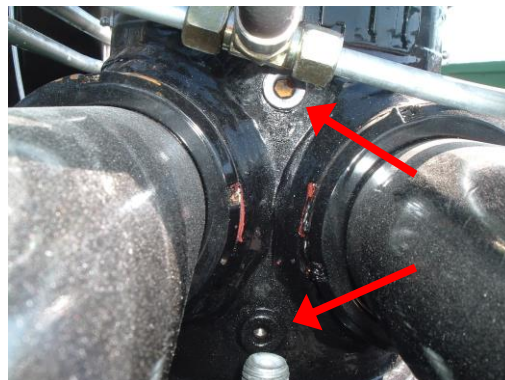
Filter insert part number: **CHP421F10XN**

4.6 Turret

Check and change oil in the crane's turret housing according to the maintenance schedule.



Turret housing level glass. The oil level should cover half the level glass.

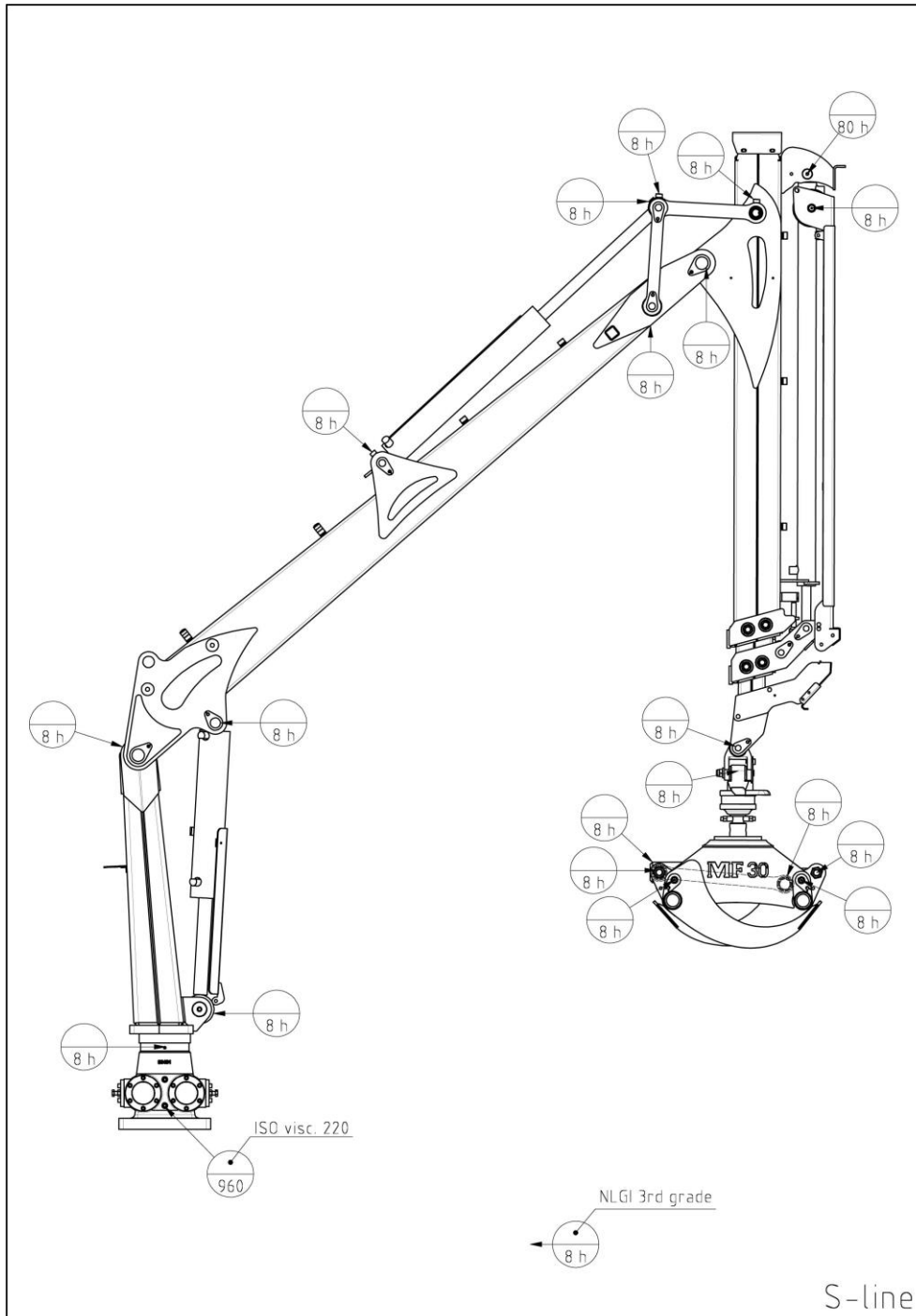


Turret fill and drain plugs.

4.7 Rotator

Refer to the separate rotator manual for its maintenance instructions.

4.8 Lubrication Schedule



Lubrication schedule for S-Line

The crane post must be relieved by placing the grapple on the ground/trailer when lubricating the turret housing.

5 Fault Finding

Problem	Probable cause	Action
Crane stationary or operates slowly on all functions.	Make sure fluid is getting through. Contaminants in pressure limiting valve. Defective pressure limiting valve.	Check the fluid level, hydraulic filter and hydraulic pump. Dismantle and clean the valve. Change valve.
Several crane functions weak. One crane function weak.	Low hydraulic pressure Faulty check valve, valve slide or worn cylinder seals.	Check pressure with a pressure gauge (can be due to defective pressure limiting valve or pump) Temporarily switch hoses with an adjacent function. If fault persists = faulty cylinder (otherwise valve package). If fault in cylinder, check condition (scoring, bumps, etc.), if OK=change set of seals.
Grapple and/or rotator not working.	If the grapple opens in normal use and the rotator is the revolving type, the fault may be due to the rotator's swivel seal.	Check by temporarily coupling the hose from the crane tip to the grapple. If the grapple works then the fault lies in the rotator's swivel seal.
Revolving rotators rotate only in one direction	Contaminants in the one-way restrictor valve in the rotator's hydraulic connection. Contaminants in hydraulic fluid.	Dismantle the one-way restrictor valve and clean. Temporarily couple together the rotator hoses and operate the function for a while so the oil can return to the return filter and be cleaned.
Revolving rotator runs unevenly or stops after a while in operation.	Check hose connections between rotor shaft and grapple cylinder.	Hose marked for connecting to shaft should be coupled to the grapple cylinder's piston rod side (grapple open).



When some form of cleaning, maintenance, repair or service is to be carried out on the machine, make sure the machine has been lowered to the ground and the tractor engine turned off. Remove the key from the ignition switch.

6 Accessories

7 Spare Parts

7.1 Use original spare parts

You are faced with the choice of “original” and “copy”!

The choice often depends on the price. A “cheap” purchase can often end up being expensive.

Some reasons to choose TREJON's original spare parts:

- Quality and fit
- Reliable function
- Longer life and thereby better economy
- Guaranteed availability through TREJON's sales partners

TREJON original spare parts and accessories are designed especially for these machines. The fitting and/or use of non-original spare parts and accessories can negatively change the technical features of your machine. The manufacturer's warranty will not apply to any damage caused using non-original spare parts or accessories.

The warranty does not apply to arbitrary modifications that have been made to the machine.



Get in touch with the dealership where you bought your machine when ordering spares or other service.

When ordering spares, always specify the correct model, type and serial number found on the name plate on the chassis.



EC certificate of conformity

according to EC standard 2006/42/EC

We **TREJON FÖRSÄLJNING AB**
(tenderer's name).....

SE – 911 35 Vännäsby, Företagsvägen 9

(Full Company Address - In case of affiliated partners with registered office within the EC, the manufacturer's company name and address are also stated)

declare with sole responsibility that the following product,

**Articulated Jib Crane
V7600, V8400, V9000**

.....
(make, type)

for which this certificate applies, complies with the current basic safety and health protection regulations in accordance with EC Standard 2006/42 / EC, (if applicable) and also meets the requirements of other applicable EC standards.

— — —
.....
(title and / or number and publication date of other EC standards)

(if applicable)

The following standard(s) and/or technical specification(s) have provided the basis for the professional introduction of the safety and health regulations set out in the EC standards:

EN ISO 12100:2010 EN ISO 4413:2010 EN 60204-1

.....
(title and/or number as well as publication date of standard(s) and/or technical specification(s))



**Håkan Johansson
CEO**

Vännäsby, 01.01.2016

.....
Issued (place/date)

.....
(Name, position and signature of authorised employee)



TREJON AB
Företagsvägen 9
SE – 911 35 Vännäsby

Guarantee- /assignment certificate

Guarantee terms	- Valid between retailer (Trejon AB dealer) and machine purchaser.
General about guarantee	- In order to obtain valid guarantee terms set forth below, and the specific guarantee terms set by each provider. These are attached to the user manual for each machine, as appropriate.
Validity of guarantee	- The guarantee is 12 months from date of purchase. In some cases, the guarantee can be limited by running time.
The guarantee covers	- Damaged parts, which have broken down because of defective production operations of materials in course of <u>normal use of the machine</u> . - Only the labor cost for replacement of defective warranted part.
The guarantee does <u>not</u> cover	- Transport costs applicable to the machine or the parts. - Travel costs. - Any resulting costs incurred as a result of damage to the machine. - If the machine has been modified by the owner. - Damage due to normal wear and tear of the machine – Not related to manufacturing defects, poor service, user inexperience or use of spare parts that are not original. - Excessive or inappropriate use of the machine. - The guarantee is not applicable to parts which are subject to wear, for example hoses, sealing, oil, belts, batteries, chains, knives etc. - The guarantee period for replaced parts during the guarantee period expires with the machine's guarantee. - Normal adjustments, maintenance or supervision
Guarantee procedures	- Contact place of purchase as soon as any damage or malfunction is detected. Do not use the machine if the damage can be worse. - Guarantee repairs must be performed by Trejon AB approved workshop.

ATTENTION! The guarantee shall enter into force provided that the machine **GUARANTEE/ ASSIGNMENT CERTIFICATE** has been fully completed and signed by both parties (archived by the seller), and recorded on the Trejon web portal no later than 14 days from date of sale (the seller is responsible for this happening).

Assignment certificate:

Machine Buyer shall confirm with his signature that he had received manual containing operating instructions, and received information about the operating, security and maintenance requirements described in this and made the final inspection of the machine.

PLEASE FILL IN!



Product: _____	Serialno. _____
Salesman: _____	Company: _____
Signature of salesman: _____	Date of purchase: _____
Name of buyer: _____	Telephone: _____
E-mail: _____	
Address: _____	Zipcode: _____
City: _____	Country: _____
Date: _____	Signature of buyer: _____

TREJON AB reserves the right to modify or improve shown models with technical or commercial motivations without the requirement to carry out the same modifications on machines already delivered. Illustrations in this Instruction Manual do not necessarily show the machine that has been delivered.

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