Kellfri®

# 21-SV80

# 21-SV90

# GL53/GL63/GLP57

# TIMBER TRAILER

21-SV90/GL63

**CAREFULLY READ THE OPERATING INSTRUCTIONS BEFORE USING THE PRODUCT!**

**OPERATING INSTRUCTIONS TRANSLATED FROM THE ORIGINAL**

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***Certain details are extracted from the "Kör åt skogen rätt och säkert" publication from the Swedish University of Agricultural Sciences***

## 1. INTRODUCTION

Thank you for choosing a product from Kellfri AB. Compliance with the general safety instructions, instruction manual and sound common sense will guarantee many years of enjoyment using the product. Kellfri's equipment and products are aimed at self-employed farmers who have stringent performance demands.

## 2. PRODUCT INFORMATION

Kellfri's timber trailer allows you to load and unload timber. It is particularly suited for use by self-employed farmers working in the agricultural sector. The timber trailer is designed to be connected to a tractor hitch and pulled behind a farm tractor. The valve block can be positioned by the rear window of the tractor. Different tractors require different valve block mounting solutions. In certain cases, the hoses between the valve block and the crane may also need to be adjusted. Kellfri cannot be held liable for any such customisation work.

The trailer is not equipped with lights and is only intended to be used during the day. Otherwise, fit the Timber Trailer with a magnetic rear light.

| Kellfri Timber Trailer | 21-SV80 | 21-SV90 |
|---|---|---|
| Max. load | 8 tonnes | 9 tonnes |
| Reach | 5.3 m / 6.3m | 5.3 m / 6.3 m |
| Winch 35 m | Standard | Standard |
| Wheels | 11.5/80-15.3 | 400/60x15.5 |
| Stabiliser | Standard | Standard |
| Transport case | Standard | Standard |
| Headboard height | 1.25 m | 1.25 m |
| Number of bolsters | 4 | 6 |
| Hydraulic stabilisers | Standard | Standard |
| Grapple (width) | 1.35 m | 1.35 m |
| Gripping area | 0.21 $m^2$ | 0.21 $m^2$ |
| Pendulum brake between the articulated boom and rotator | Standard | Standard |
| Recommended oil flow (l/min) | 25-50 | 25-50 |
| Fully rotating rotator | Standard | Standard |
| System pressure Mpa | 18 | 18 |
| Multi-lever valve block | Standard | Standard |
| Brakes | No | No |
| Central beam | 150x150 mm | 150x150 mm |
| Load width at the trailer bottom | 0.95 m | 0.95 m |
| Load width at the trailer top | 1.62 m | 1.62 m |
| Ground clearance, central beam | 0.5 m | 0.52 m |
| Weight | 2.2 tonnes | 2.3 tonnes |
| Rec. power requirement | 35-65 hp | 40-80 hp |

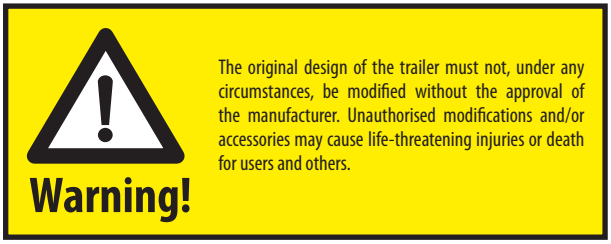
## 3. SAFETY INSTRUCTIONS

Before using the equipment or product, and for the safety of yourself and others, you must read the safety instructions and the instruction manual and understand its contents, Always keep the safety instructions and instruction manual handy for users of the equipment or product. For the safety of both yourself and others, it may be a good idea to read through the safety instructions every now and then. If the safety instructions or instruction manual gets damaged or in any other way cannot be used, new copies may be ordered from:

Kellfri AB, Munkatorpsgatan 6, 532 37 SKARA

Sweden. Tel.: +46 (0)511 242 50 (Pls. contact the retailer)

Do not use the equipment or product if you feel ill, tired or are under the influence of alcohol. Do not use the equipment or product if you are taking prescribed medication or drugs. Always comply with general rules of the road and applicable rules stipulated by the Swedish Protection of Animals Act. People under the age of 15 are not allowed to use the equipment.




## 4.) INSTRUCTIONS FOR EMERGENCY SITUATIONS

In case of emergency, call 112.
Always have a mobile phone or emergency phone available when working alone. A first aid kit and fire extinguisher must be kept in an easily accessible location when carrying out any work, maintenance and service. To perform an emergency stop, turn off the tractor.

## 5. PERSONAL PROTECTION

Always use suitable protection equipment. Do not wear loose clothing or jewellery while working with the equipment. Long hair should be tied up when working equipment that has moving parts. Use protective gloves as there is a risk of burns if any hot surfaces are touched such as exhaust pipes, and avoid getting oil and petrol on skin. Ear defenders must be worn whilst the engine is running. Helmets with ear defenders must be used while working to prevent knocks from the cabin sides and suchlike in uneven terrain. Wear protective boots with anti-slip soles.

## 6. PRODUCT SAFETY INSTRUCTIONS

- Compliance with the safety instructions requires that the timber trailer is only used as described in these instructions. It is the user's responsibility to read through the instructions and comply with them. For equipment connected to tractors, read the tractor's operating manual.
- Always check that the performance of the machine combination to be used with the trailer guarantees safety and functionality.
- Never overload the trailer! **The trailer must not be loaded above the height of the headboard!**
- Never leave the driver's seat until the brakes on the towing vehicle have been applied.
- The risk area is 25 metres. Only the operator is allowed to be within the risk area while the trailer is in use.
- Do not leave a loaded trailer parked unsupervised.
- When unhitching the trailer, it must be empty and on a level surface with the trailer wheels secured using suitable brake blocks.
- To stop trailer movements in the event of an emergency, stop the tractor.
- There is a risk of suspended loads being dropped if the oil supply to the crane is disrupted. First lower the lifting arm, followed by the articulated boom and then unload the grapple.
- The tractor should be fitted with an ABE2 or ABE3 fire extinguisher. Contact your insurance provider.
- The timber trailer is fitted with a 50 mm ball coupling. Regularly check the coupling for wear and tear. The maximum traction load for the ball coupling is 9 tonnes and the maximum pressure is 3 tonnes.
- The trailer's noise level does not exceed 70 dB (A).
- Exercise caution when working with equipment with hydraulic hoses as the oil under pressure can penetrate skin. Immediately seek medical attention if this should occur.
- The trailer is not equipped with lights and is only intended to be used during the day. If necessary, the trailer can be fitted with a magnetic rear light. If the load is wider than the tractor (200 mm at the sides) when it is dark outside, it must be fitted with approved white reflectors at the front.
- An SMV sign must be attached when travelling on public roads.
- EU regulations stipulate how fast a tractor with a non-brake trailer is allowed to go. Comply with these regulations. The maximum speed for a full load is 30 km/h.

Kellfri is not liable for any modifications, changes or rebuilds carried out by customers.

## 7. WARNING DECALS

Make sure warning decals are always visible and clean them when necessary. Do not use a high-pressure washer directly on the warning label. If a decal becomes worn or in any other way unusable, order a new set of decals. An SMV sign must be visible and mounted when travelling on public roads. The trailer is fitted with the following decals:

| SYMBOL | EXPLANATION |
|---|---|
|  | Read the operating manual!<br>Before carrying out work<br>Warning! Before maintenance, servicing, connecting and disconnecting the machine, the tractor must be turned off and the ignition key removed. |
|  | Risk zone 15 m<br>Respect the equipment's risk zone!<br>Warning! Risk of crushing!<br>Do not permit anyone to stand under suspended loads. |
|  | Lever functions |
|  | Max. trailer towbar eye load (9/3 tonnes) |
|  | Greasing after 10 hours of operation<br>Always use stabilisers—loading/unloading<br>Retighten all bolts and connections |
|  | Warning for power lines! |
|  | Max. 400 kg grip<br>Warning—oil jet from hydraulic hoses<br>Warning—moving parts. |
|  | Warning! Keep off the machine!<br>Warning! Accident risk for children!<br>Children are not allowed in the vicinity of the machine |
|  | The product is CE marked |

**8. SURROUNDINGS**

Check that the work area is free from bystanders, children and objects before hitching or using the trailer. There is a risk of serious bodily harm. Be extra careful if there are children in the vicinity of the area where the equipment or product is used or stored. Check that there are no low-hanging electrical cables within the work area. Exercise caution when working on slopes and close to ditches. Always work alone with equipment or products that are made for working alone. Remove all rubbish from your work area. Keep work areas clean. Always respect the equipment risk zone.


**9. STEPS TO TAKE BEFORE USE**

Carefully read the safety instructions and the operating instructions. Make sure that you understand the safety instructions, operating instructions and warning decals. Use common sense when using the product and suitable personal protective equipment. Always check the performance of the machine combination to be used. It is important that these are in harmony and work satisfactorily. This is done to ensure the equipment or product work as expected, and to guarantee the safety of yourself and others. Carry out a visual inspection of the equipment or product before use. Repair or replace damaged or worn parts to reduce the risk of injury.
Grease moving parts and check that all nuts and bolts are tightened. Correct if necessary. Learn and remember the correct working method. Beginners must work slowly until they have learned how the machine or product works. Users/customers are responsible for ensuring users can handle the situation. If users feel that the machine is dangerous to use, it should not be used.

**Warning! Risk of crushing due to moving parts!**


**10. HITCHING THE TRAILER**

- Read through the operating manual in its entirety.
- Check the ball coupling on the trailer. Then hitch on the forestry trailer to the tractor.
- Connect the hydraulic hoses to the tractor's hydraulic system (See 11.1 Connecting equipment).
- Operate and carefully check movements of the equipment. Hoses must not be stretched or rub against sharp edges, etc. Correct if necessary. Tighten leaking connections if there are any leaks. Do not overtighten the connections. They may break if they are overtightened.
- Check the air pressure in the tyres. Max. air pressure 4.9 bar.

## 11. USE

Only those who understand the safety instructions and the operating instructions may use the equipment or product. Exercise caution and care when working with the equipment and only use it in the way described in the operating instructions. There is a risk of crushing when working with equipment that has moving parts. Exercise caution when working with equipment with hydraulic hoses as oil under pressure can penetrate the skin. Immediately seek medical attention if this should occur.

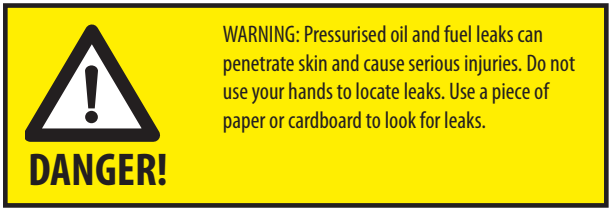
Always work alone with equipment that is made for working alone. Never overload the equipment and respect its risk zone.

### 11.1 Connecting equipment

- It is recommended that the control is positioned close to the tractor. Hydraulic hoses must not be attached inside the cabin.
- Connect the grapple loader valve block pressure and return hoses. Make sure the pressure and return hoses are connected correctly. The valve block may be damaged if the hoses are connected incorrectly.
- Mark the hoses with decals to make it easier to identify which is Pressure and which is Return.
- Connect the hoses to the frame steering, the tractor must be fitted with dual action hydraulic outlets.

## 12. USE AND CARE INSTRUCTIONS

- Check that the equipment is undamaged before connecting it to the vehicle.
- Connect the equipment and lock it in place.
- There is usually air in the system at the start. Carefully extend all cylinders fully a few of times to purge any air from the system.
- Calmly and methodically practise the movement pattern used for loading and unloading timber on the trailer.
- Keep the crane low down when in transit.
- There is less stability when starting to load. Exercise caution!
- Both stabilisers must be lowered when loading and unloading timber. Timber must bit be pulled with the crane when driving the tractor. The tractor must be stationary when using the crane.
- The articulated boom must not be fully closed and then press the lifting arm pressed downward. The crane is designed to lift timber and not pressing down on it. Maximum driving speed is 30 km/h.
- Loads must be spread evenly across the trailer.
- Loads sticking out must be well anchored.



**13. INSTRUCTIONS FOR WINCH USE ON CRANE LIFTING ARM**

- The winch is not approved for lifting. Load the trailer using the crane.
- The winch can be operated either using the hydraulic valve block on the crane foot or by using a radio-controlled electrical valve block Ensure the correct voltage of 12 V is available for electrical installations.
- Direct the lifting arm towards the timber to be winched. Place the grapple on the ground. Use the trailer stabilisers.
- Disengage the winch drum.
- Pull the wire out carefully and tie it around the timber. Grease the wire if it tends to get stuck in the wire drum.
- Be aware of the crush risk when carrying out winching work!

**14. AFTER USE**

Wash down the timber trailer if necessary.

**15. TRANSPORTATION AND STORAGE**

Check that the work area is free from bystanders, children and objects before driving off. Always observe additional caution during transport and moving. Ensure that the equipment or product is well anchored and existing transport lashings are fitted. Always position the load as low as possible. Respect the risk zone even during transport and moving. Do not permit anyone to walk under suspended loads when carrying out lifts. Trailers used for transport should have brakes that work. Always keep the equipment or product on a dry surface, preferably under a roof when not in use. Ensure that the equipment or product is stable and cannot fall over. Never permit children to play at the storage site. Be aware of the tipping risk! NEVER allow anyone to travel on the trailer whilst it is in motion!

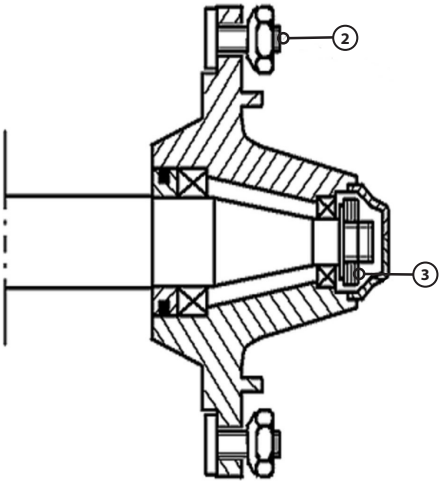
**16. MAINTENANCE AND SERVICE**

Make sure the trailer is stable and cannot tip over when carrying out maintenance and service work. Replace damaged or worn parts to reduce the risk of injuries. Carry out maintenance, service and checks in line with recommendations. Only use spare parts with equal performance to reduce the risk of injuries and breakdowns. All repair work and electrical connections must be carried out by a qualified technician.

- Regularly check the condition of the equipment to prevent breakdowns. If cracks, twists, bends, gaps or fatigue is discovered, stop using the equipment and rectify the fault. Worn parts must be replaced. Grease moving parts regularly.
- Never repair hydraulics before first ensuring that there is no pressure in the system.
- Never work under a suspended load.
- Make sure all connections are tightened after carrying our maintenance and service work. Always test the machine before starting work.
- Check all parts for wear and retighten bolts, connections and hoses if necessary.
- Immediately replace hydraulic hoses if cracks or wear are detected.
- Check that the hoses are not rubbing against sharp edges, Rectify if necessary.
- Tighten leaking connections if there are any leaks. Do not overtighten the connections. They may break if they are tightened too much.
- Turn off the tractor and move the hydraulic levers back and forth to release any pressure that may still be in the oil hoses and pipes before starting any work on them or the hydraulic cylinders.
- It is recommended to use an oil filter with 20 µm filtration.
- Check the system oil flow and pressure on a regular basis.
- Never perform welding on the towbar eye as this may change its durability.

The hydraulic system must only be operated using the appropriate hydraulic oil. (*Oil change intervals: see the tractor's operating manual*). Use gearbox oil SAE 80 (2.5 L) or similar in the slewing housing. All grease points must be lubricated every 25 hours. Retighten all nuts and bolts after several of hours of operation and at the end of a day's work.

| SERVICE | INTERVAL | MEASURE |
|---|---|---|
| Tyres | Before each use | Check the air pressure in the tyres. It must always at least be the recommended pressure (see tyres). |
| Cables and hoses | Before each use | Check that all cables and hoses are intact. |
| Wheel nuts | Perform an initial check after 2-3 hours of operation, and subsequently 2-3 times a year. | Retighten all the wheel nuts, 250 Nm |
| Trailer parts | Regularly, at least 3 times a year | Check by performing a visual inspection of any brakes, lights, SMV signs, towbar eyes, axles, bogie eyes, hinges and turntable bearings (if installed). Replace worn and damaged parts. |
| Trailer | After each use | Wash down with clean water if necessary. |
| Hydraulic oil | Regularly | Always check the quality of the oil in the tractor's hydraulic system. Dirty oil must not be used and must be changed before connecting the trailer to the tractor.<br>Recommended oil flow: 20-40 l/min |




## CARE INSTRUCTIONS

**1.** Do not overload the tractor and trailer!

**2.** After wheel replacement, check that the wheel nuts are tightened and repeat after a stable period of operation. The tightening torque must not exceed 45 kpm. Use a torque wrench if possible.

**3.** Check that the bearing setting is correct to prevent bearing play and abnormal bearing wear. The bearing setting should preferably be too loose than too tight.

## 17. ROTATOR

**17.1 USAGE RESTRICTIONS** (Safety instructions when working)

- Check the rotator's maximum permitted load and the load weight.
- Do not overload the rotator!
- Make sure the hydraulics have reached working temperature.
- Check movement speeds and directions as well as control lever function.
- Lift the load before moving and rotating it.
- Never leave a load unsupervised during lifting.
- When there is no pressure in the rotator, there is no braking torque and the load may rotate due to factors such as wind or imbalance. A counter movement has to be used if this rotation is to be stopped.
- Check that the hydraulic hoses do not touch any obstacles. A broken hose or nipple can cause the load to fall or rotation to continue.
- When in transit or in storage, position the crane so that it is not supported by the rotator. For example, the crane boom must not be allowed to rest against the rotator.

**17.2 WORKING CONDITIONS**

The hydraulic turning device, or rotator, is designed for use on a hydraulic lifting crane, e.g. cranes that handle timber or single items. The rotator axle is fitted to lifting equipment, e.g. a grapple, which grips the load.

The load can be rotated horizontally using the rotator. The hydraulics are connected to the lifting equipment through the rotator axle. The maximum permissible load on the lifting equipment must not exceed the corresponding value for the rotator. When the rotator is in use, the hydraulic oil must be at the correct working temperature and satisfy standard viscosity values.

**17.3 INSTALLATION INSTRUCTIONS**

- Rotator connection to the crane
- The rotator must be connected to the end of the crane boom using a link.
- The rotator must always be suspended freely and vertically in the direction of the axle. The link pins must be locked in place using clip pins.
- The rotator is connected to a bushing on the lifting equipment using a pin that is locked in place with clip pins.

**CONNECTING THE ROTATOR TO THE CRANE HYDRAULIC SYSTEM**

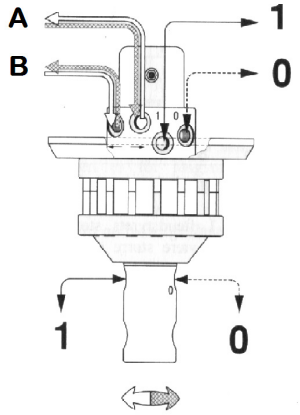
Turning the rotator: The system should be thoroughly cleaned. Once the hydraulic system has reached working temperature, the oil should be circulated to channel any impurities to the filter. The hoses for the rotator's turning unit are connected together using intermediary nipples before the rotator. Oil can circulate in this line for at least 5 minutes. The rotator is connected to the crane's control valve via suitable hoses and pipes. The crane must be equipped with pressure-limiting valves that limit the pressure going to the rotator to a maximum of 200 bar. If a higher pressure is possible, pressure-limiting valves should be installed on the rotator's hydraulic line. The oil flow for rotator rotation is regulated using control nipples. The rotational direction of the rotator and grapple movement must correspond to the markings on the control levers. If rotation is too slow, the rotator's movement speed must be checked. Control nipple openings have been factory-set to a diameter of 1.5 mm. They can be enlarged in 0.1 mm increments.

## 18. ROTATOR LEAD-THROUGH

When connecting the hydraulics, it should be noted that the maximum pressure in the pressure duct is 200 bar and that the marked duct in the rotator's upper cover (upper duct) and the axle must be linked to the opening side of the cylinder on the lifting equipment, e.g. a grapple. When the grapple opens, it should be noted that the cylinder movement does not extend fully to keep the duct under pressure as this pressure is an unnecessary load on the rotator. The crane and equipment must be compliant with the Machinery Directive.

A, B=Rotation

1=Grapple closed




| Technical data | KR07 |
|---|---|
| Turning angle | Unlimited |
| Max. operating pressure | 200 bar |
| Rec. l/min. | 10 |
| Torque (200 bar) | 350 Nm |
| Max. axial force | 20 kN |
| Max. permissible load | 1000 kg |
| Weight | 17 kg |

## 19. OPERATING INSTRUCTIONS

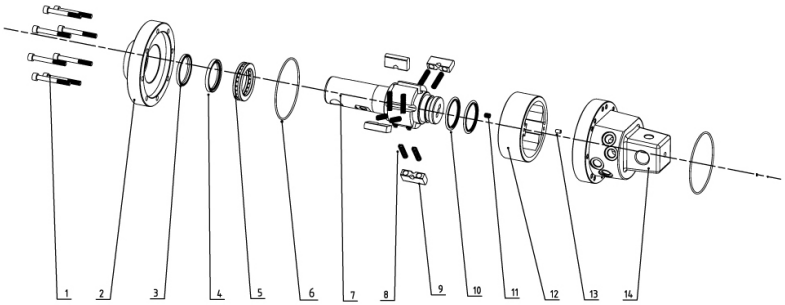
Exercise caution when using the crane and rotator and act in accordance with the crane's safety instructions. Lateral loads on the rotator axle should be avoided. For example, prior to lifting, loads must not be pulled using the crane or the crane's base vehicle. A broken hose or nipple can cause the load to fall or rotational movement to continue. Damage to hoses or devices can cause the release of a high-pressure liquid jet.

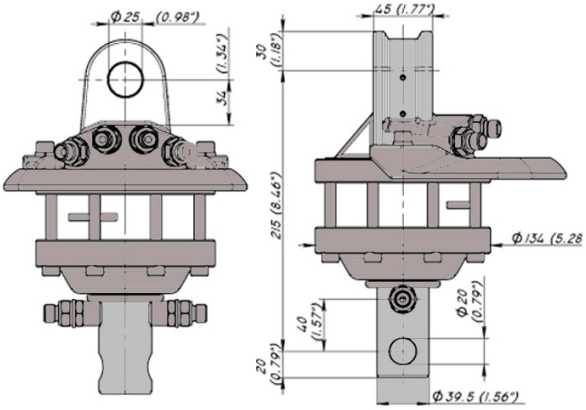
## 20. SERVICE AND MAINTENANCE INSTRUCTIONS

If the rotation of the rotator becomes uneven and sometimes stops, the equipment should be checked. The pins in the upper housing of the rotator should be greased regularly.

The rotator's upper housing, axle, hoses and nipples should be checked every week due to the risk of cracking. Any damage or oil leaks must be rectified immediately. Leaks in the lead-through seals manifest themselves, e.g. by weakening the grapple's closing force or causing the grapple to open. When carrying out the annual crane inspection, the bolt fasteners should checked to ensure that they are correctly tightened. Under no circumstances must the rotator be repaired by welding. Replacement of the rotator's seals and other components must be done in good conditions. Contact your local sales representative for more information.

## 21. EXPLODED DIAGRAM ROTATOR



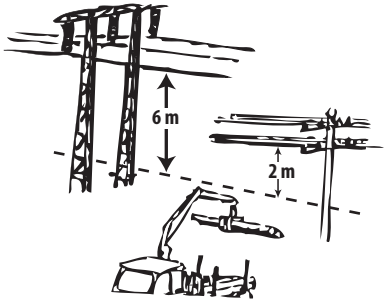




| No. | Designation | Total |
|---|---|---|
| 1 | Bolt | 8 |
| 2 | Lower bearing housing | 1 |
| 3 | Axle seal | 1 |
| 4 | Seal | 1 |
| 5 | Bearing | 1 |
| 6 | O-ring | 2 |
| 7 | Axle diam. 40 | 1 |
| 8 | Spring | 10 |
| 9 | Wing | 5 |
| 10 | Seal | 2 |
| 11 | Plug | 1 |
| 12 | Spacer | 1 |
| 13 | Plug | 1 |
| 14 | Upper housing | 1 |

**22. OPERATION** "*Kör åt skogen rätt och säkert* [Correct and safe forest operations]" published by the Swedish University of Agricultural Sciences"

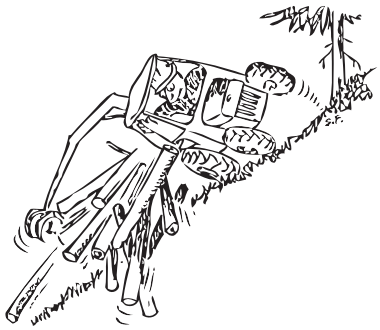
Most accidents occur due to toppling over or if the tractor turns over. The worse the terrain is or the greater the load, the greater the risk of an accident.

- Important advice to reduce the risk of accidents: Keep a safe distance when driving under power lines. No part of the crane may be closer than: In the case of high-voltage power lines 6 metres, and in the case of low-voltage power lines 2 metres




- Drive straight up or down hilly terrain. Do not drive up slopes that are too steep to drive up. As the tractor and trailer's centre of gravity is displaced backwards on a slope, there is a risk that the tractor may tip up. Use additional load weights if necessary. The same gear must be used driving down a slope as used when driving up it. Do not put the tractor into neutral when driving down a slope.

- Minimise the amount of driving across slopes. The more the tractor and trailer tilt, the more the weight is displaced to the point where they can turn over.

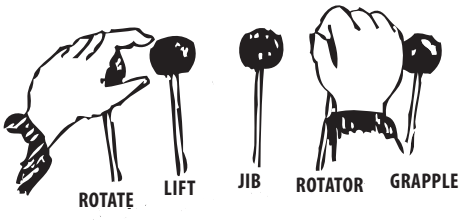


**REMEMBER! It is harder to control a large load than a small one, so do not load the trailer with too much timber!**

## 23. LOADING WORK

**Basic movements**
If you are not accustomed to using a grapple, you should first practice basic crane movements. Exercises that shorten the learning time are set out below. The timber trailer's stabilisers must be used during all loading and unloading work. The ground under the stabilisers must be level and stable as there is a risk of overturning when working on slopes. Therefore, it is very important that the trailer is loaded and unloaded on a level surface.

**PRACTISE STEPS**
**1.** One lever at a time
Begin with one function at a time. Operate the crane using a low and even engine speed. Check which crane movements are suitable for the tractor. The operator must feel completely comfortable with the grapple's movement pattern. Practice starting and stopping each movement smoothly to ensure the grapple does not sway when in operation. Do not run grapple loader functions to their end positions at full speed.



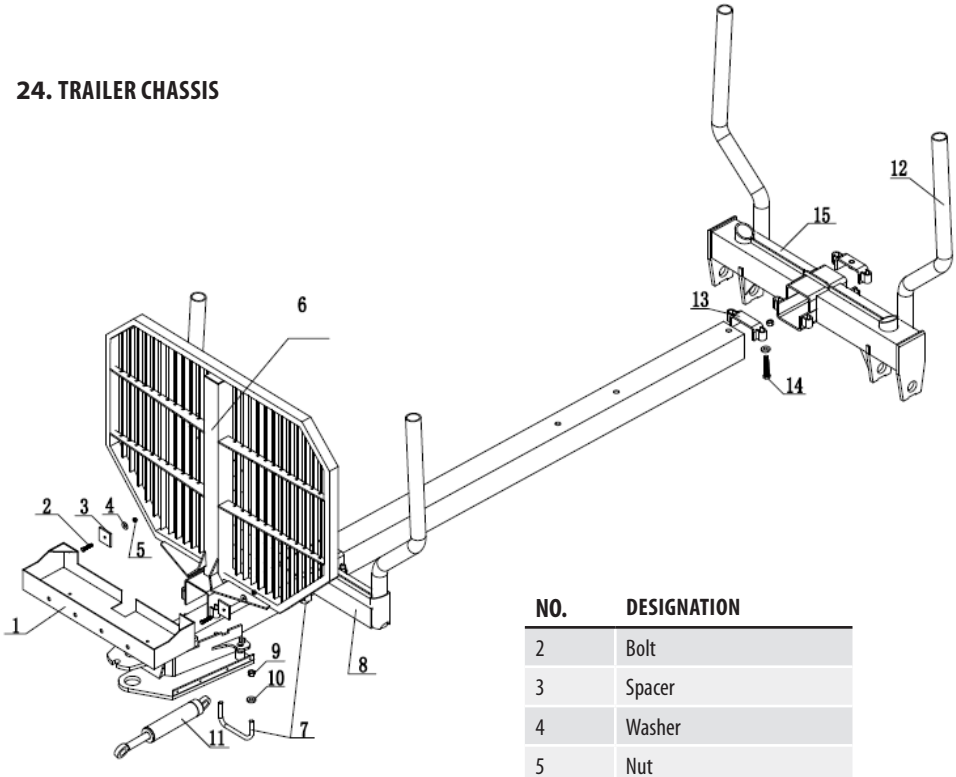

**2. PARALLEL DISPLACEMENT**
Once you have mastered the first exercise, the next one is to place the grapple about 0.5 metres above the ground as far from the trailer as possible with the grapple loader turned 90 degrees to the trailer. Move the grapple back and forth toward the trailer parallel to the ground. The stop and start movements should also be smooth.

**3. LOADING AND UNLOADING**
Set up a reasonably high pile of logs. Grip the pile and place the gripping point so that the lowest point of the timber tilts toward the headboard. Lift the timber in towards the trailer before using any rotating or lifting movements. You are in full control once grapple movements are smooth and there is no swaying. Complying with these instructions means you will not have to retighten the hose connections in the rotator that often. By working calmly and methodically, you learn a movement pattern, which is good in terms of safety. The crane operating techniques take a few weeks/months to learn before you can work at full capacity.

The risk of accidents is greater than normal during the learning phase. Pulling the wrong lever to let the timber slide off the grapple when you least expect it can be happen easily during this process. Therefore, you should leave a good amount of space around you when practicing.

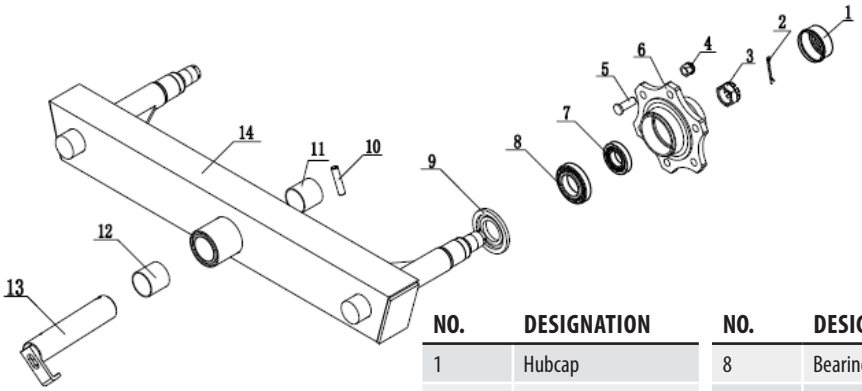
**NOTE!!!**
Do not leave the cabin until:
- The grapple loader is attached and unloaded and the tractor brakes are engaged.
NOTE: There is less stability when starting to load.

## 24. TRAILER CHASSIS



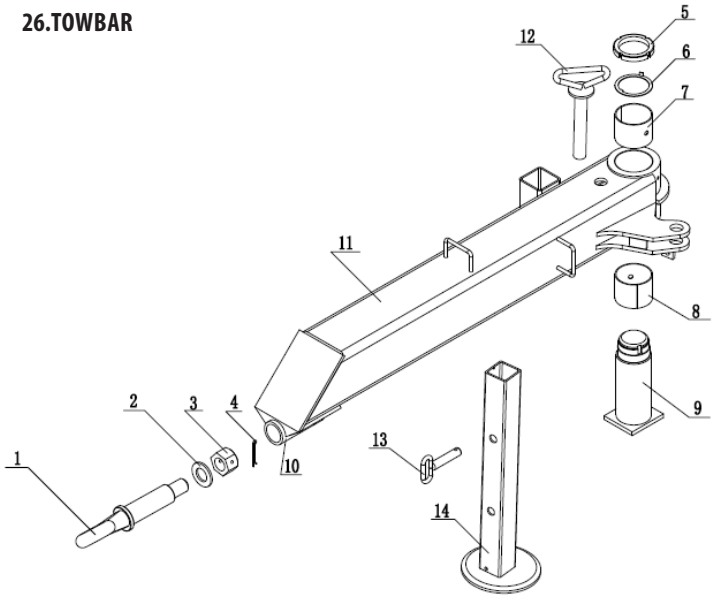

| NO. | DESIGNATION |
|---|---|
| 2 | Bolt |
| 3 | Spacer |
| 4 | Washer |
| 5 | Nut |
| 6 | Headboard |
| 7 | Clamp |
| 8 | Bank |
| 9 | Nut |
| 10 | Washer |
| 11 | Hyd. cyl. rotate |
| 12 | Bolster (SV90 has 6) |
| 13 | U-clamp |
| 14 | Bolt |
| 15 | Bank |

## 25. BOGIE



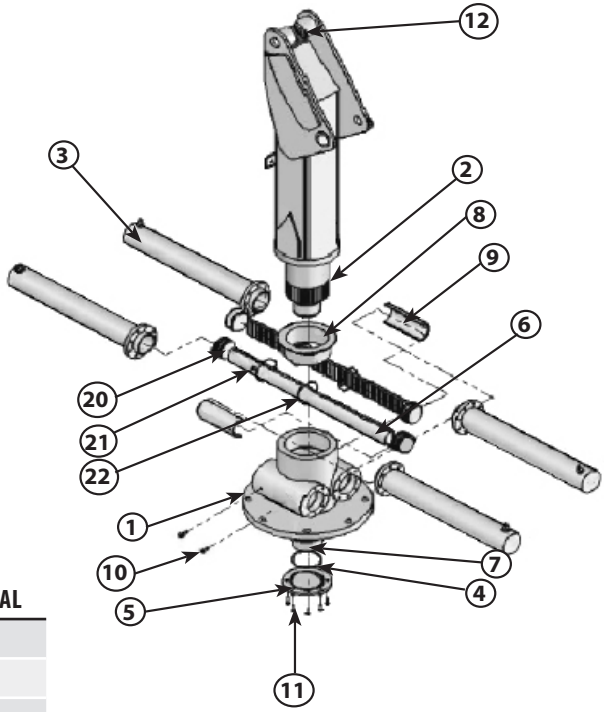

| NO. | DESIGNATION | NO. | DESIGNATION |
|---|---|---|---|
| 1 | Hubcap | 8 | Bearing |
| 2 | Split pin | 9 | Washer |
| 3 | Nut | 10 | Sleeve |
| 4 | Nut | 11 | Towbar |
| 5 | Hub bolt | 12 | Clip |
| 6 | Bearing housing | 13 | Clip |
| 7 | Bearing | 14 | Stabiliser |

## 26.TOWBAR



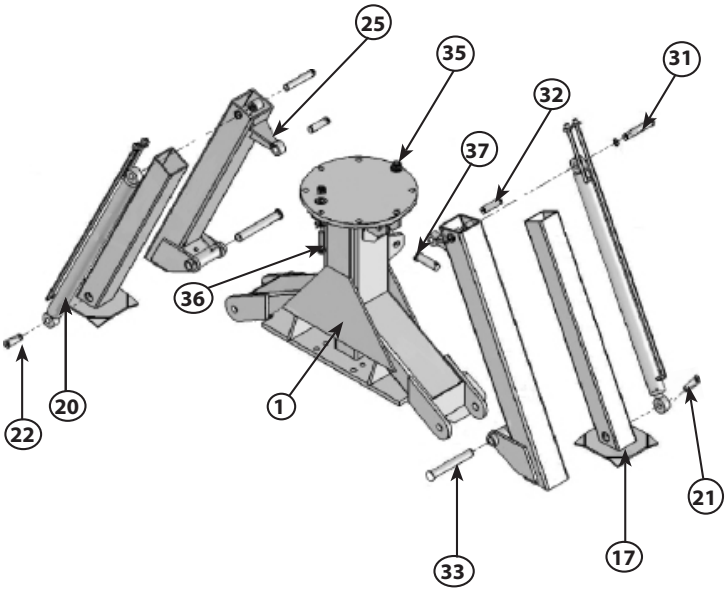

| NO. | DESIGNATION |
|---|---|
| 1 | Towbar eye |
| 2 | Washer |
| 3 | Nut |
| 4 | Split pin |
| 5 | Lock washer |
| 6 | Spacer |
| 7 | Bearing |
| 8 | Bearing |
| 9 | Axle |
| 10 | Sleeve |
| 11 | Towbar |
| 12 | Clip |
| 13 | Clip |
| 14 | Stabiliser |

## 27. SLEWING HOUSE EXPLODED DIAGRAM



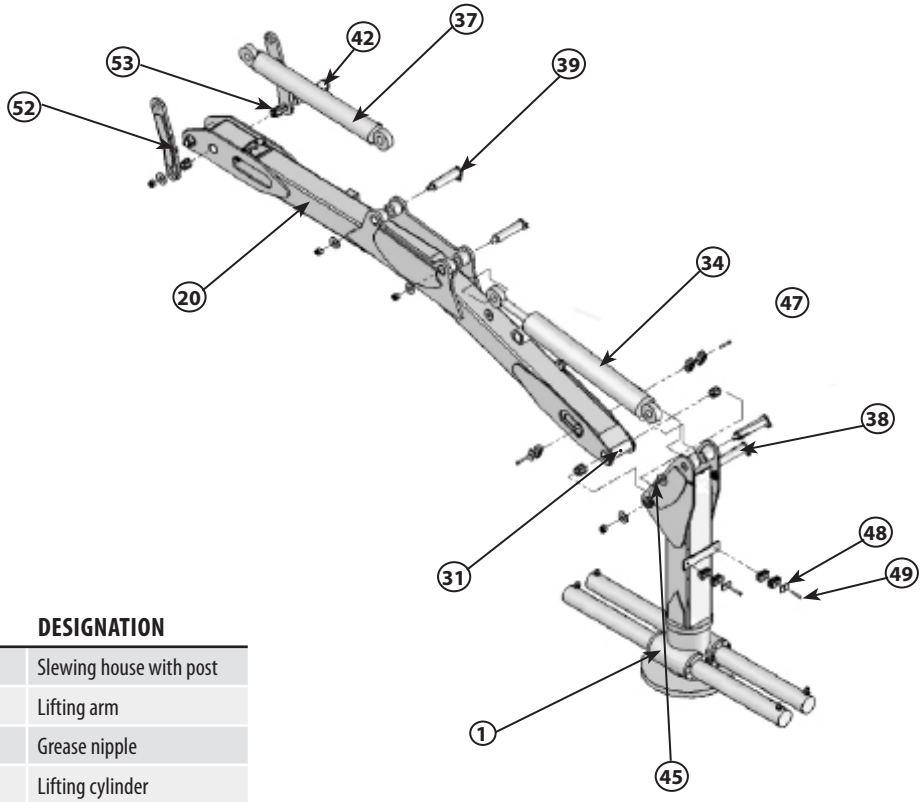

| NO. | DESIGNATION | TOTAL |
|---|---|---|
| 1 | Slewing house casing | 1 |
| 2 | Crane column | 1 |
| 3 | Cylinder barrel | 4 |
| 4 | O-ring | 1 |
| 5 | Bottom plate | 1 |
| 6 | Toothed rack | 2 |
| 7 | Bearing | 1 |
| 8 | Slide bearing | 1 |
| 9 | Bearing support | 2 |
| 10 | Locking bolt | 4 |
| 11 | M8 bolt | 8 |
| 12 | Clip | 1 |
| 20 | Piston gasket | 4 |
| 21 | M10 bolt | 32 |
| 22 | O-ring | 4 |

## 28. THREE-POINT LINKAGE



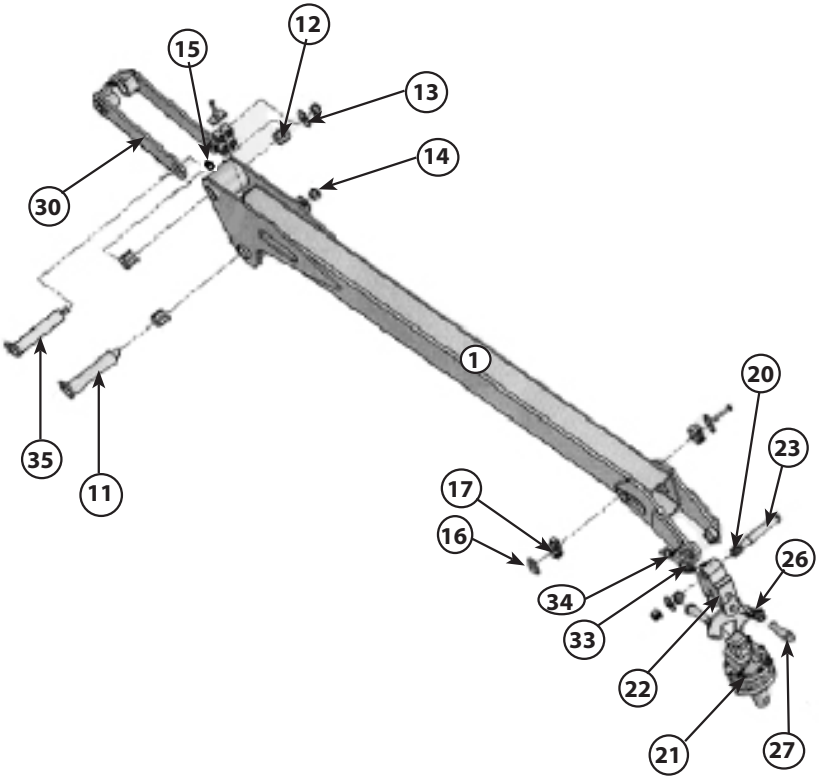

| NO. | DESIGNATION |
|---|---|
| 1 | Main unit, Three-point linkage |
| 17 | Stabilisers |
| 20 | Hydraulic cylinder |
| 21 | Clip |
| 22 | Locking pin |
| 25 | Stabiliser fixture |
| 31 | Clip |
| 32 | Clip |
| 33 | Clip |
| 35 | M20 nut |
| 36 | M20x80 bolt |
| 37 | Clip |

## 29. LIFTING ARM GL53/GL63



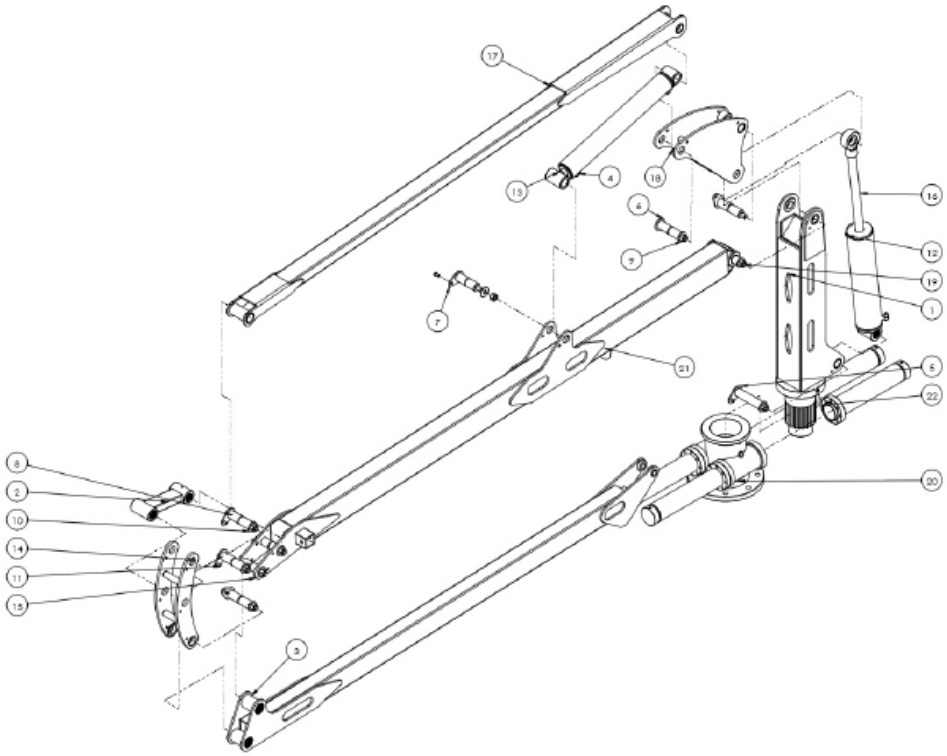

| NO. | DESIGNATION |
|---|---|
| 1 | Slewing house with post |
| 20 | Lifting arm |
| 31 | Grease nipple |
| 34 | Lifting cylinder |
| 37 | Folding cylinder |
| 38 | Clip |
| 39 | Clip |
| 42 | Clip |
| 45 | Nut |
| 47 | Hose bracket |
| 48 | Washer |
| 49 | Bolt |
| 52 | Pivot joint |
| 53 | Bearing |

## 30. ARTICULATED BOOM GL53/GL63




| NO. | DESIGNATION | TOTAL |
|---|---|---|
| 1 | Articulated boom | 1 |
| 11 | Pin joint | 2 |
| 12 | Slide bearing | 4 |
| 13 | Washer | 2 |
| 14 | M20 nut | 4 |
| 15 | Grease nipple M10 | 6 |
| 16 | Washer | 3 |
| 17 | Hose bracket | 4 |
| 20 | Bearing | 2 |
| 21 | Rotator | 1 |

| NO. | DESIGNATION | TOTAL |
|---|---|---|
| 22 | Rotator bracket | 1 |
| 23 | Clip | 1 |
| 24 | Pendulum plate | 1 |
| 25 | M20 washer | 2 |
| 26 | Brake sleeve | 2 |
| 27 | M20x80 bolt | 2 |
| 30 | Pivot joint | 2 |
| 33 | M20 nut | 2 |
| 34 | Clip | 2 |
| 35 | Bolt | 1 |

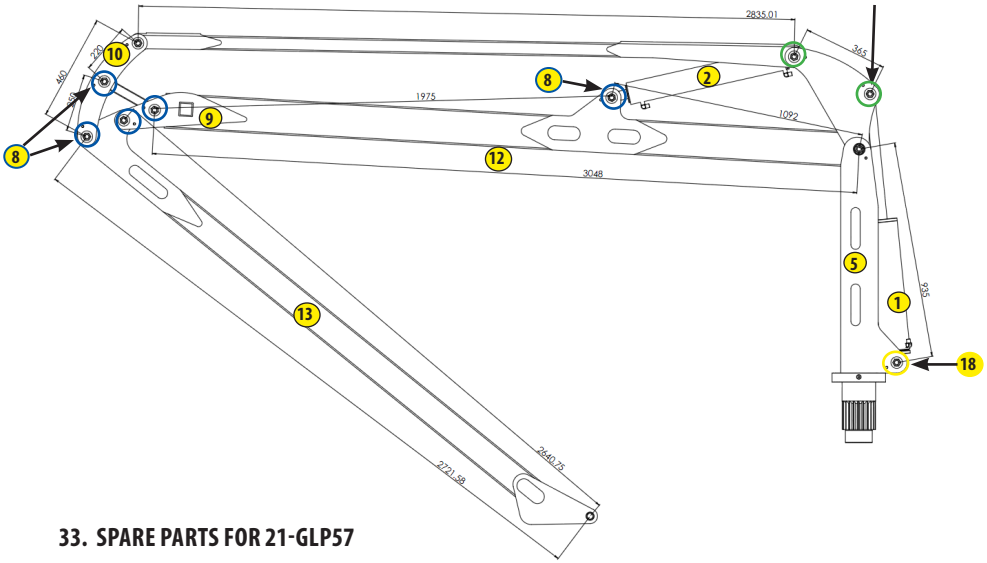


## 31. PARALLEL OPERATED CRANE 21-GLP57

| NO. | DESIGNATION | NO. | DESIGNATION |
|---|---|---|---|
| 1 | Tower | 12 | Lifting cylinder |
| 2 | H-bracket | 13 | Cylinder bracket |
| 3 | Articulated boom | 14 | Outer link |
| 4 | Folding cylinder | 15 | Inner link |
| 5 | Pin 40x20 | 16 | Cylinder rod |
| 6 | Pin 40x178 | 17 | Parallel rod lifting arm |
| 7 | Pin 40x158 | 18 | Lifting yoke |
| 8 | Pin 40x 182 | 19 | Pin |
| 9 | M20 nut | 20 | Slewing house |
| 10 | Washer 20 | 21 | Lifting arm |
| 11 | M10x20 bolt | 22 | Cylinder pipe |

## 32. SPARE PARTS LIST GL53/GL63

| ART. NO. | DESIGNATION |
|---|---|
| R21-GL53.001 | Complete slewing house Gl53/63 |
| R21-GL53.010 | Lifting arm |
| R21-GL53.070 | Boom cylinder |
| R21-GL53.012 | Cylinder, protrusion ø75/40 sl.600 GL53 |
| R21-GL53.074 | Gasket kit, cylinder, stabiliser |
| R21-GL53.075 | Gasket kit, boom cylinder |
| R21-GL53.073 | Cylinder, stabiliser |
| R21-GL53.028 | Stabiliser excluding cylinder |
| R21-GL53.026 | Three-point linkage with hydraulic stabilisers for 5.3 m crane |
| R21-GL53.027 | Complete stabiliser |
| R21-GL53.020 | Articulated boom |
| 21-KR07 | Rotator |
| R21-GL53.021 | Rotator bracket |
| R21-GL63.020 | Complete valve block package GL63 2-lever |
| R21-GL63.001 | Gasket kit, rotating cylinder complete piston rod |
| R21-GL63.018 | Extension cylinder for GL63 crane |
| R21-GL63.020 | Complete valve block package GL63 2-lever |
| R21-GL63.021 | O-ring set for valve pack 2-lever GL63 |



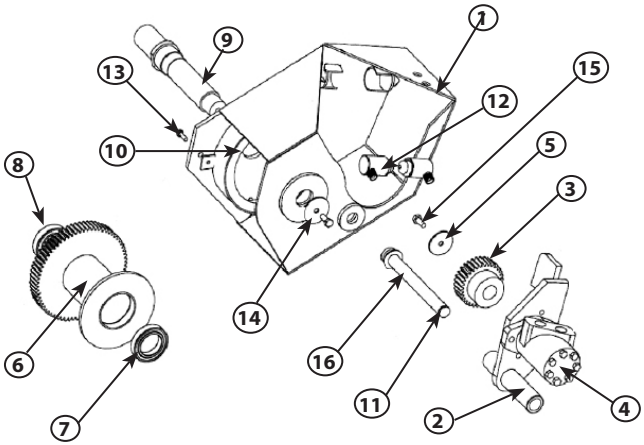

## 33. SPARE PARTS FOR 21-GLP57

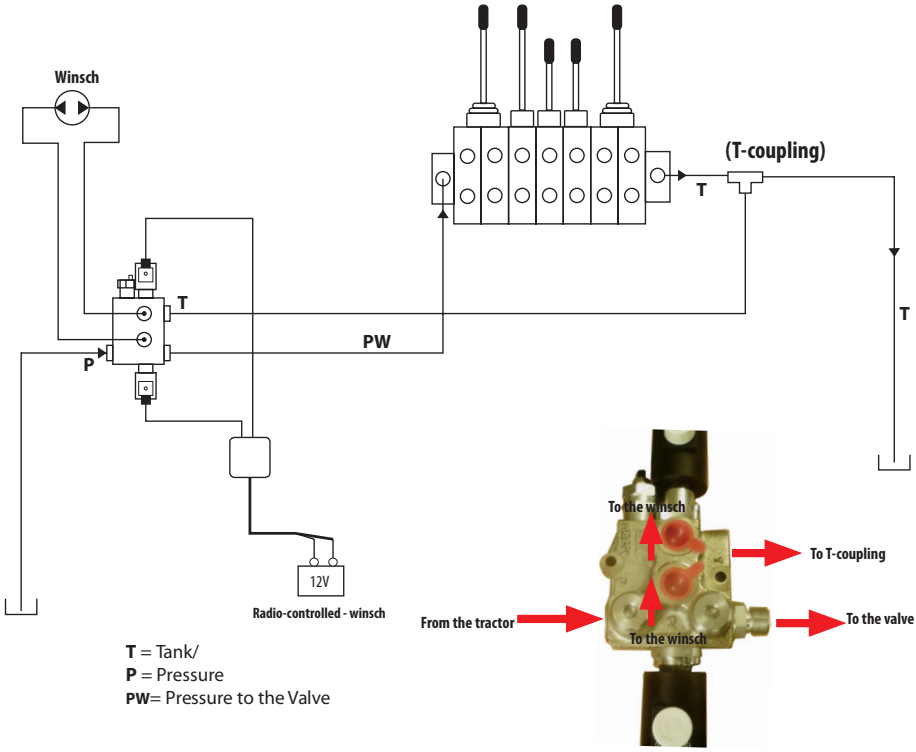
| NO. | DESIGNATION | ITEM NO. |
|---|---|---|
| 1 | R21-GLP57.001 | Cylinder, Lift |
| 2 | R21-GLP57.002 | Cylinder, protrusion |
| 3 | R21-GLP57.003 | Gasket kit, lifting cylinder |
| 4 | R21-GLP57.004 | Gasket kit, fold cylinder |
| 5 | R21-GLP57.005 | Tower |
| 6 | R21-GLP57.006 | Pin, articulated 40x182 |
| 7 | R21-GLP57.007 | Pin, triangular plate 40x178 mm |
| 8 | R21-GLP57.008 | Articulated pin + folding cylinder 40x158 mm |
| 9 | R21-GLP57.009 | Inner link, articulated |
| 10 | R21-GLP57.010 | Outer link, articulated |
| 11 | R21-GLP57.011 | Parallel rod lifting arm |
| 12 | R21-GLP57.012 | Lifting arm |
| 13 | R21-GLP57.013 | Articulated boom |
| 14 | R21-GLP57.014 | Pin Tower/lifting arm 226x40 mm |
| 15 | R21-GLP57.015 | Bushing 40x44x40 |
| 16 | R21-GLP57.016 | Bushing 40x44x30 |
| 17 | R21-GLP57.017 | Stabiliser cylinder |
| 18 | R21-GLP57.018 | Pin Lifting cylinder lower 40x204 mm |

## 34. WINSCH 21-KW1400

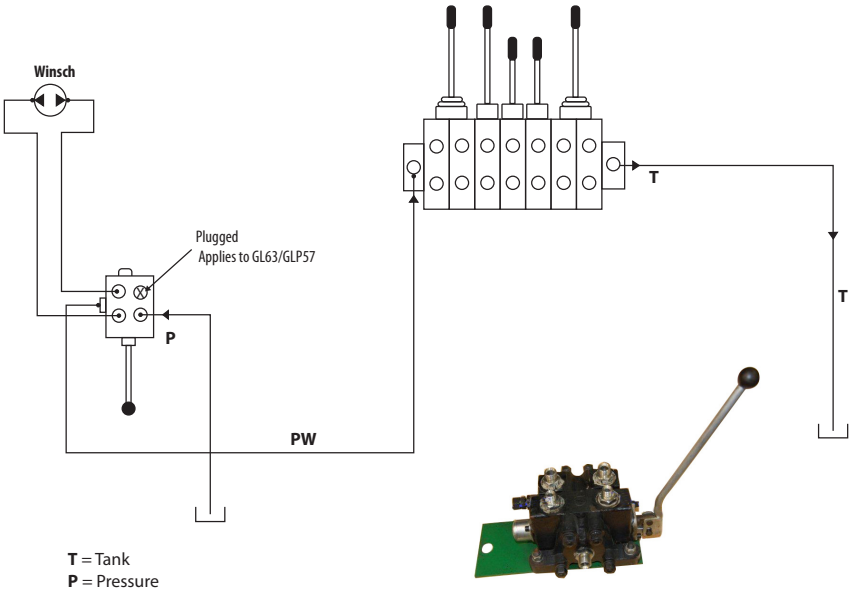
| NO. | DESIGNATION | TOTAL |
|---|---|---|
| 1 | Housing | 1 |
| 2 | Holder | 1 |
| 3 | Gears | 1 |
| 4 | Hydraulic motor | 1 |
| 5 | Washer | 1 |
| 6 | Wire holder | 1 |
| 7 | Bearing | 1 |
| 8 | Bearing | 1 |
| 9 | Winch axle | 1 |
| 10 | Guard | 1 |
| 11 | Lock | 1 |
| 12 | Cylinder | 2 |
| 13 | M8x25 bolt | 3 |
| 14 | Washer | 1 |
| 15 | M10x25 bolt | 1 |
| 16 | Axle | 1 |

**WINCH**






**T** = Tank/
**P** = Pressure
**PW**= Pressure to the Valve




**T** = Tank
**P** = Pressure
**PW**= Pressure to the Valve

## 35. TECHNICAL DATA: PARALLEL OPERATED CRANE GLP57

### PRODUCT DETAILS

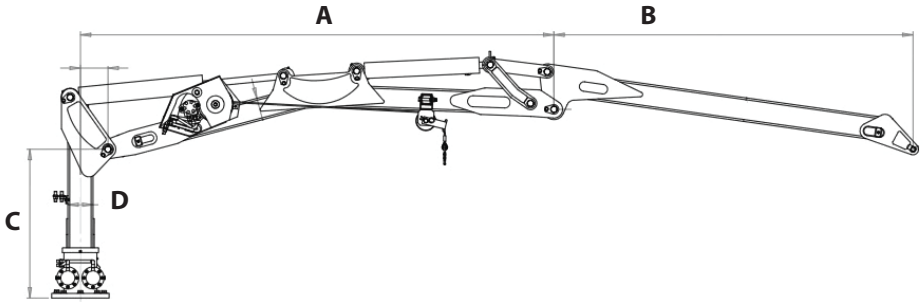
The crane is powerfully dimensioned with the best manoeuvrability and maximum range of movement. Created by our designers to be efficient in the forest without compromising on safety. All hydraulics and hoses are built in and guarded to minimise the risk of damage. Lifting and folding cylinders in protected position. The crane is supplied assembled with oil in the system and having undergone a functional test.

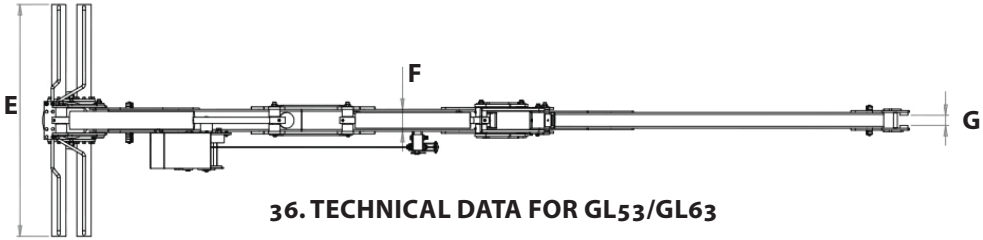
### AREA OF USE

Connect to forestry trailers, timber trailers, forest thinning trailer and in fixed installations. Ideal for both handling timber and a variety of different agricultural activities.

| TECHNICAL DATA | 21-GL57 |
|---|---|
| Crane reach | 5.7 m |
| Lifting capacity at 5.7 m (max reach) | 450 kg |
| Slewing cylinders, slewing house crane | 4 |
| Grapple (width) | 1250 mm |
| Gripping area | 0.21 $m^2$ |
| Pendulum brake between the articulated boom and rotator | standard |
| Fully rotating rotator | standard |
| System pressure | 18 Mpa |
| Multi-lever valve block | yes |
| Rec. oil flow | 25-40 l/m |
| Swing torque | 8 kN |

| Lifting capacity | |
|---|---|
| 3 m | 970 kg |
| 4 m | 700 kg |
| 5 m | 530 kg |
| 5.7 m | 450 kg |



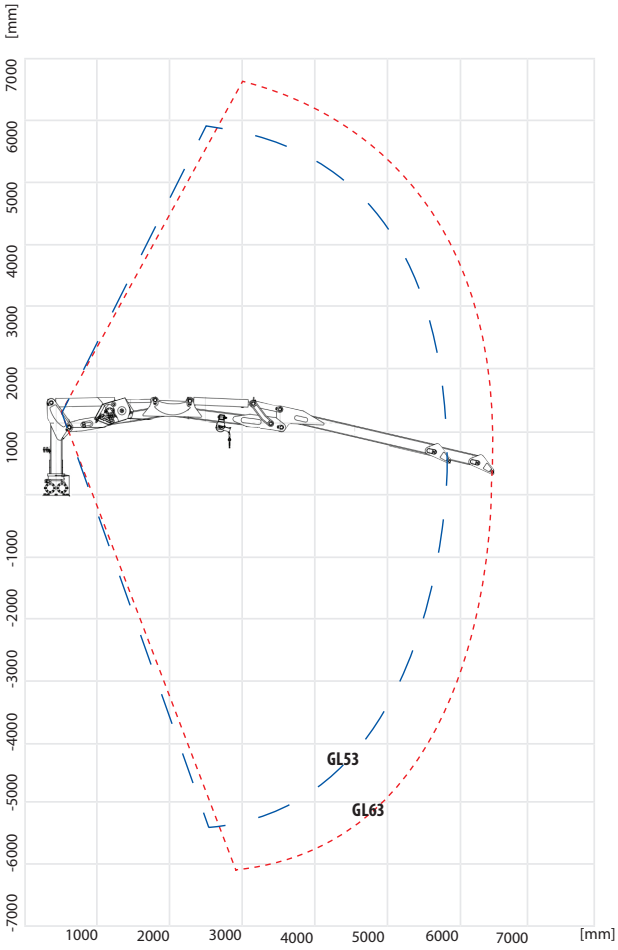




## 36. TECHNICAL DATA FOR GL53/GL63

| MARKING | DESCRIPTION | 21-GL53 [mm] | 21-GL63 [mm] |
|---|---|---|---|
| A | Lifting arm | 3010 | 2840 |
| B | Articulated boom + extension | 2290 | 2566 |
| C | Slewing house - height | 944 | 988 |
| D | Slewing house - Diameter | 160 | 160 |
| E | Rotation cylinder | 1470 | 1208 |
| F | Articulated boom - width | 140 | 166 |
| G | Rotator bracket | 64 | 63 |

| TECHNICAL DATA | 21-GL53 | 21-GL63 |
|---|---|---|
| Crane reach [mm] | 5300 | 6300 |
| Grapple (width) [mm] | 1250 | 1250 |
| Gripping area [$m^2$] | 0.21 | 0.21 |
| Rotator weight [kg] | 10 | 10 |
| Torque [kNm] | 8.9 | 8.9 |
| System pressure [Mpa] | 18 | 19 |
| Recommended pump capacity [l/min] | 25-50 | 25-50 |
| Oil volume - slewing house [l] | 2.5 | 2.5 |
| Crane weight incl. grapple and rotator [kg] | 1280 | 1320 |

## 37. LIFTING GRAPH GL53/GL63



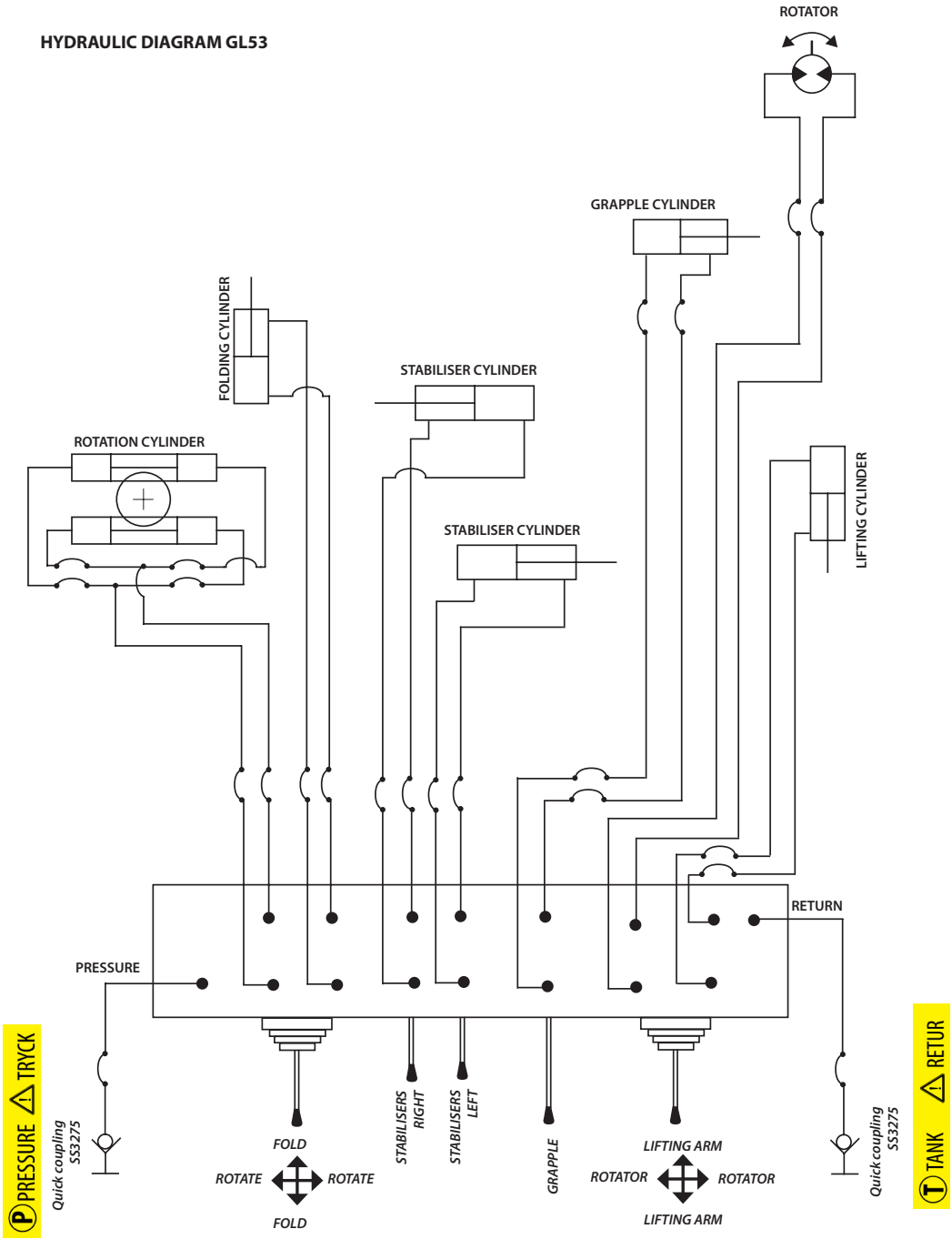

### LIFTING CAPACITY

GL53 — —

GL63 - - - -

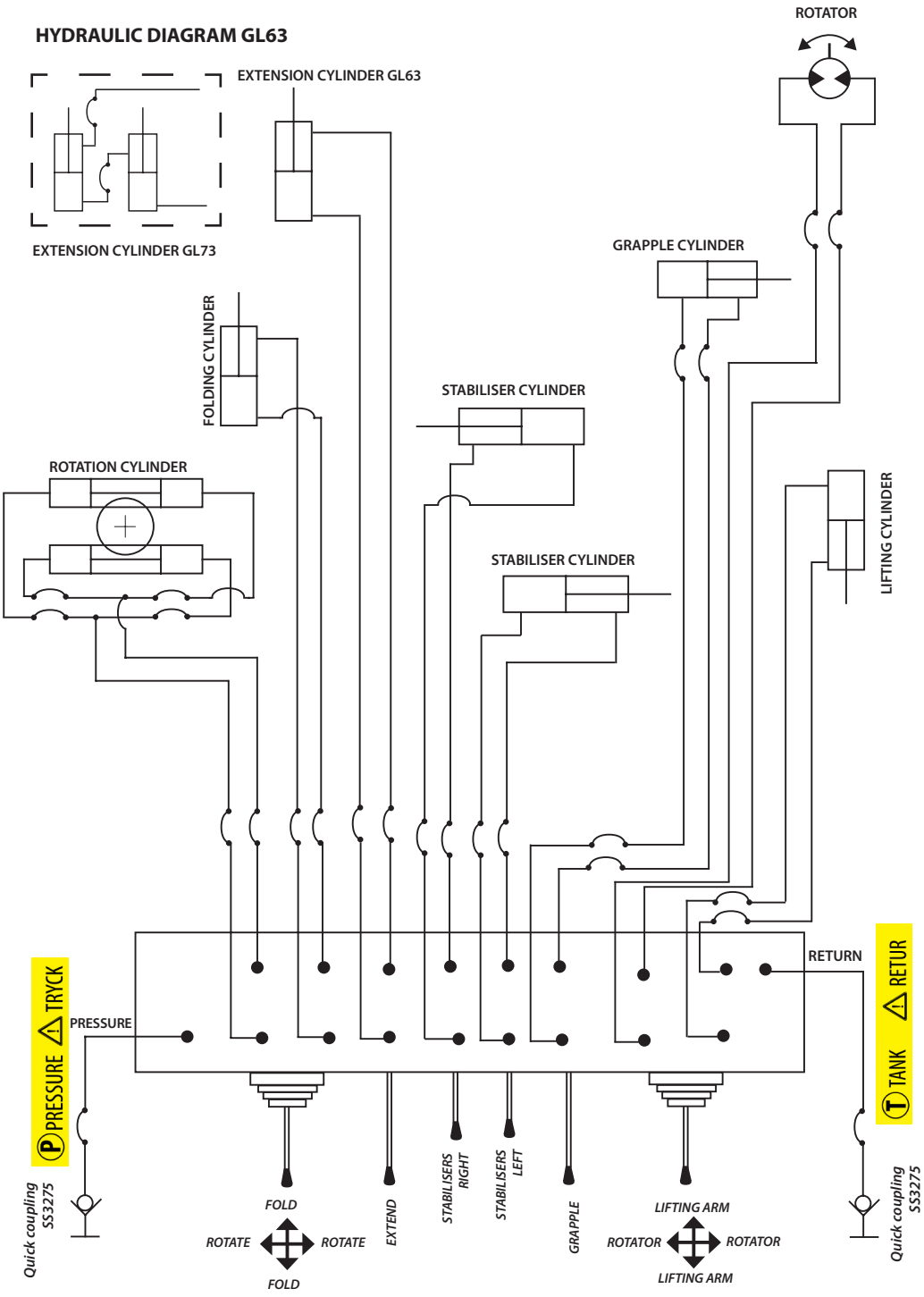
| DISTANCE [mm] | GL53 [kg] | GL63 [kg] |
|---|---|---|
| 2000 | 1060 | 940 |
| 3000 | 707 | 625 |
| 4000 | 530 | 475 |
| 5000 | 424 | 380 |
| 5300 | 400 | 365 |
| 6000 | - | 320 |
| 6300 | - | 300 |

## HYDRAULIC DIAGRAM GL53

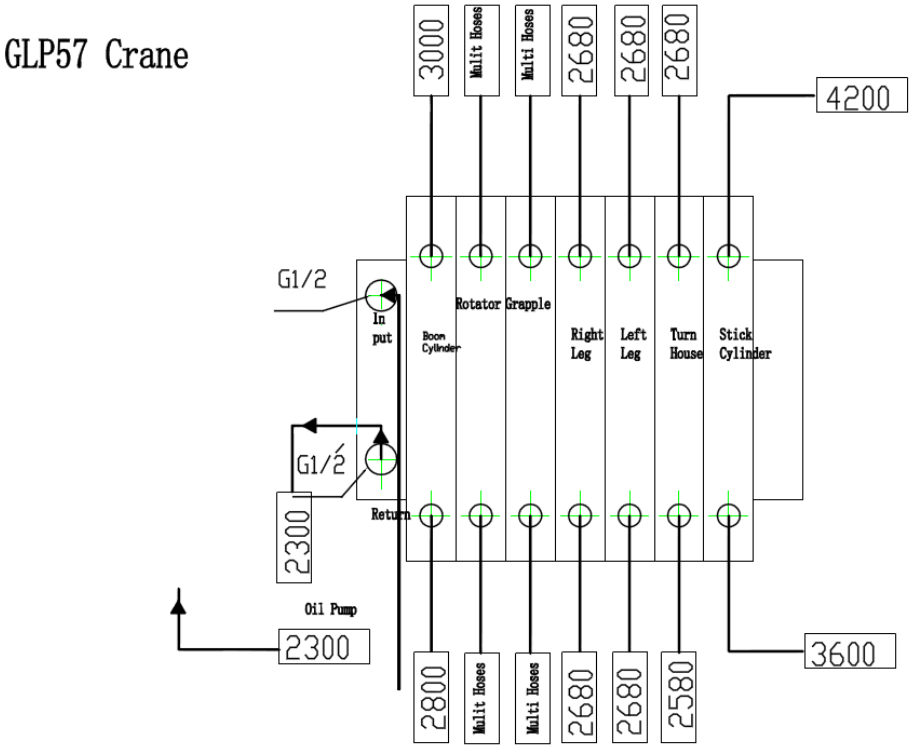



MARK THE HOSES WITH LABELS TO MAKE IT EASIER TO RECOGNISE THE PRESSURE AND RETURN HOSES.

## HYDRAULIC DIAGRAM GL63



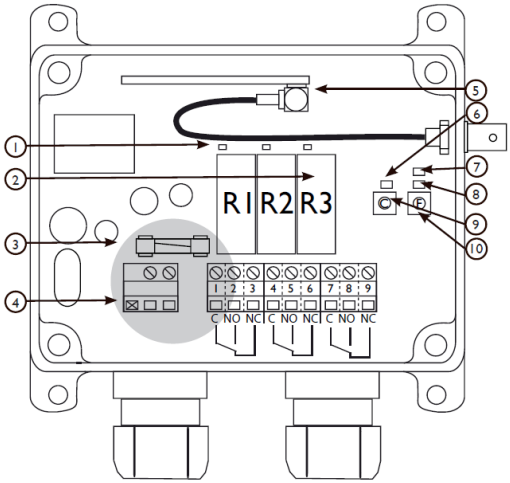
## HYDRAULIC DIAGRAM GLP57



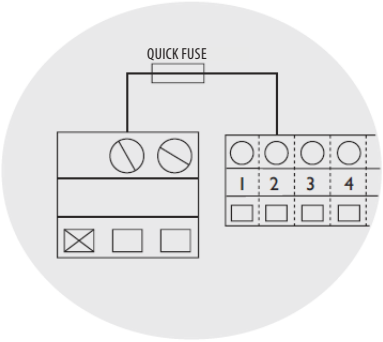

| TRANSMITTER | TX1-A |
|---|---|
| Frequency (MHz) | 433.087- 434.662 |
| Channels | 64 |
| Fixed individual code | - |
| Functions | 2 |
| Inbuilt antenna | - |
| Operating voltage | 3 AA (LR03) |
| Power consumption | ~20 mA |
| IP class | IP65 |

| RECEIVER | RX1 |
|---|---|
| Frequency (MHz) | 433.087- 434.662 |
| Channels | 64 |
| Scans individual codes | - |
| Winch | depending on model |
| Relay outlets | 3 |
| Antenna | External BNC |
| Operating voltage | 6-26 V AC/DC |
| Power consumption | 20-100 mA |
| IP class | IP65 |

## Receiver RX1

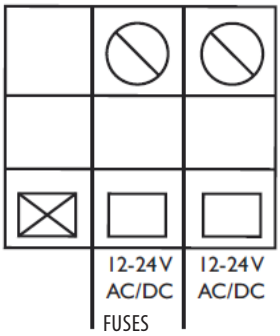



1. Relay LED 1-3
2. Function relay 1-3
3. Quick fuse 10 A
4. Terminal block for voltage
5. Antenna contact
6. Code storage LED (red)
7. Power supply (yellow)
8. Function button
9. Coding button
10. Select button




**3. Options: Quick fuse**
NOTE: With a 10 A fuse fitted and the receiver connected, the operating voltage from the terminal block (12-24 V AC/CD) in the centre is supplied with current from fuse number 1 (terminal block no. 2)

**4. Terminal block**




| Operating voltage | MIN. Power consumption | MAX. Power consumption |
|---|---|---|
| 12 V DC | 25 mA | 100 mA |
| 24 V DC | 15 mA | 50 mA |
| 24 V AC | 15 m A | 50 mA |

**CHANGING FREQUENCY BANK**

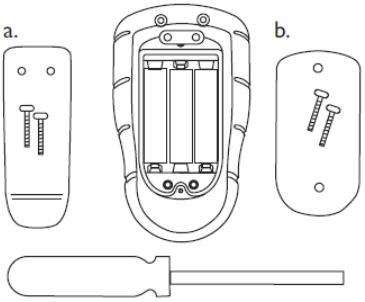
The transmitter is preset in Channel 1 Bank 1

The frequency bank is changed in the transmitter before it is paired with the receiver. If a receiver has already been paired with the transmitter, the receiver must be deleted and the frequency bank changed before the transmitter can be paired again.

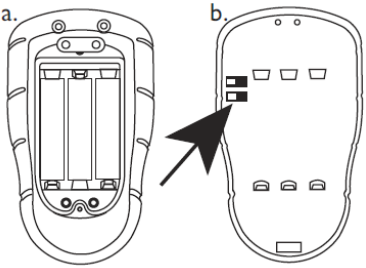
IMPORTANT! The transmitter must be off when switching between banks.

| | | | |
|---|---|---|---|
| Switch 1=OFF | Switch 2=OFF | → | Freq.bank 1 |
| Switch 1=ON | Switch 2=OFF | → | Freq.bank 2 |
| Switch 1=OFF | Switch 2=ON | → | Freq.bank 3 |
| Switch 1=ON | Switch 2=ON | → | Freq.bank 4 |

1. a.) Remove the lock belt clip
   b.) Remove the battery cover

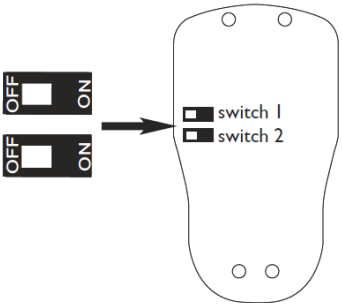



2. a.) Take out the batteries (3) and dismantle the battery casing.
   b.) The frequency buttons are located to the left of the circuit board.




3. Check the frequency table and select the frequency bank you wish to use. Set the buttons (see figure) in the correct position in line with the frequency button table above.

4. Then reassemble all the parts.



**CHANGING FREQUENCY**

1. Start the transmitter
2. Press the OFF button and keep it pressed
3. Within 3 seconds: Press the ON button: Keep both buttons pressed
4. Release both buttons
5. Within 5 seconds:
   a. Press the transmitter's IN button to move up a row in the frequency table (see the frequency table)
   b.) Press the transmitter's OUT button to move down a row in the frequency table (see the frequency table)
6. The red LED light flashes three times when the frequency has changed. The transmitter is turned off automatically.

**NOTE:** If you want to move up or down more than one step in the frequency table: re-start the transmitter and carry out the previous steps one or more times.

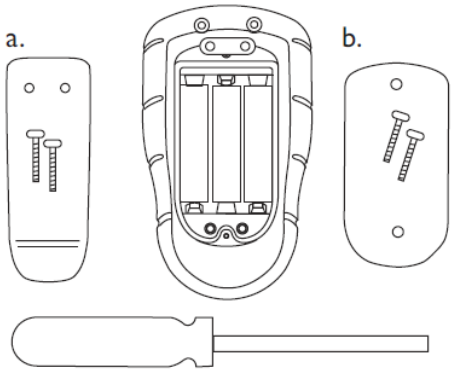
***There may be a slight delay for the transmitter to connect to the receiver when the frequency is changed.***

**FREQUENCY TABLE**

| Channel | Frequency Bank 1 MHz | Channel | Frequency Bank 2 MHz | Channel | Frequency Bank 3 MHz | Channel | Frequency Bank 4 MHz |
|---|---|---|---|---|---|---|---|
| 1 | 433.075 | 1 | 433.100 | 1 | 433.125 | 1 | 433.250 |
| 2 | 433.175 | 2 | 433.200 | 2 | 433.225 | 2 | 433.350 |
| 3 | 433.275 | 3 | 433.300 | 3 | 433.325 | 3 | 433.450 |
| 4 | 433.375 | 4 | 433.400 | 4 | 433.425 | 4 | 433.550 |
| 5 | 433.475 | 5 | 433.500 | 5 | 433.525 | 5 | 433.650 |
| 6 | 433.575 | 6 | 433.600 | 6 | 433.625 | 6 | 433.750 |
| 7 | 433.675 | 7 | 433.700 | 7 | 433.725 | 7 | 433.850 |
| 8 | 433.775 | 8 | 433.800 | 8 | 433.825 | 8 | 433.950 |
| 9 | 433.875 | 9 | 433.900 | 9 | 433.925 | 9 | 434.050 |
| 10 | 433.975 | 10 | 434.000 | 10 | 434.025 | 10 | 434.050 |
| 11 | 434.075 | 11 | 434.100 | 11 | 434.125 | 11 | 434.150 |
| 12 | 434.175 | 12 | 434.200 | 12 | 434.225 | 12 | 434.250 |
| 13 | 434.275 | 13 | 434.300 | 13 | 434.325 | 13 | 434.350 |
| 14 | 434.375 | 14 | 434.400 | 14 | 434.425 | 14 | 434.450 |
| 15 | 434.475 | 15 | 434.500 | 15 | 434.525 | 15 | 434.550 |
| 16 | 434.575 | 16 | 434.600 | 16 | 434.625 | 16 | 434.650 |

**INSTALLING/REPLACING BATTERIES**

1. Remove the lock belt clip (2 screws)
2. Remove the battery cover (2 screws)
3. Insert the batteries (3 x 1.5 V AA)
4. Replace the battery cover and lock the belt clip




**STARTING THE TRANSMITTER**

Press the ON button for at least 1 second until the red LED light turns on
The red LED light flashes when it is on and is constant when transmitting.

**TURNING OFF THE TRANSMITTER**

Press the OFF button
The red LED light flashes quickly before it turns off.

**AUTOMATIC SHUTDOWN**

When any of the buttons have been pressed for 3 minutes, the transmitter turns of automatically.

**PAIRING THE RECEIVER IN THE TRANSMITTER**

The transmitter can only pair one receiver at a time.
If another receiver is paired, it must first be deleted and replaced with the new one.

1. Start the transmitter and receiver in accordance with the instructions above.
2. Press the IN button - Keep it pressed until all the steps have been completed.
3. Press the ***CODE button*** on the receiver. Keep pressed until the LED light for the relay comes on.
4. Release the ***CODE button. The receiver*** will be in ***pairing mode*** for 8-10 seconds.
5. Keep the ***Transmit*** button pressed. When the LED light flashes 3 times, the receiver is paired.
6. Release the button on the transmitter.
7. Fill in the settings document

***Remember, only one receiver can be saved at a time!***

**DELETE THE RECEIVER FROM THE TRANSMITTER**

Press the CODE button on the receiver for at least 6 seconds, and keep it pressed until the LED light goes out.

**DIFFERENT RECEIVER LED INDICATIONS**

| | |
|---|---|
| ***Power LED (yellow)*** | - Lit constantly when the power supply is on.<br>- Does not come on if the supply voltage is too low. |
| ***Code LED (red)*** | - On constantly when the transmitter has been stored in the memory. |
| ***Function LED (green)*** | - On constantly when: interlocking is activated, winch mode II is activated. |
| ***Relay diodes (red)*** | - On when the corresponding relay is activated |

**INTERLOCKING**
When interlocking is activated, only one relay can be activated at a time. If interlocking is not activated, all relays can be activated at the same time. STANDARD: Interlocking deactivated (receiver Function LED = turned off)

**TURNING OFF INTERLOCKING**
1. Start the transmitter and receiver
2. Press the receiver function button
3. The transmitter function LED lights up green when interlocking is activated. Deactivate interlocking by pressing the receiver function button until the LED goes out.

**PRODUCT SAFETY INSTRUCTIONS**
- Read the operating manual carefully before installing and using the product
- Only qualified staff are allowed to install the product
- Turn off the power to the receiver before connecting the equipment
- Check that you have connected the correct terminal block
- Use undamaged cables. Make sure the cables do not hang loose.
- Avoid installing in areas that are exposed to extensive vibrations.
- Place the receiver so that it is well protected from the elements. Cable glands and ventilation plugs must be turned downwards to prevent water getting into them.
- Check that the user is old enough to use the equipment, not under the influence of drugs, alcohol or medication, and that the transmitter is not left unsupervised.
- Only qualified staff may have access to the transmitter and can control the equipment
- Make sure that the user always turns off the transmitter when it is not in use
- Make sure the user has a good view of the work area
- Write down the receiver and transmitter serial numbers/ID codes in the settings document
- Avoid pairing the transmitter with the receiver when it is not in use

***The radio system may only be used for functions such as starting and stopping an application. The radio system must not be a safety-related part of a system.***

**BATTERY WARNINGS**
- There is a risk of explosion if the battery is replaced with an incorrect battery.
- Do not dismantle, deform or heat up the battery. Do not short-circuit the battery
- Never attempt to charge a clearly damaged or frozen battery
- Keep out of view from small children. If a child should swallow a battery, seek medical attention immediately.
- Avoid soldering directly on the battery
- Store in a cool place Avoid high temperatures and humidity
- Do not destroy batteries fire

**USED BATTERIES AND ELECTRONICS**
Incorrectly discarded batteries and electronics damage both the environment and people's health. Batteries and electronic waste may contain toxic heavy metals. If they are disposed of in a rubbish bin, these toxic substances may leak into the ground and pollute seas, lakes and watercourses. Always contact your dealer or local authority for more information about how to recycle electrical products in your area in a responsible manner.

In accordance with the Machinery Directive 2006/42/EC, we recommend that you review the need for a wired emergency stop and other personal injury protection systems.

Kellfri
Lantbrukets varuhus

# Complaint form

We are grateful for your help pointing out any inaccuracies in the Kellfri product delivered to you. Before making a complaint read Kellfris general warranty and sales conditions in our catalog as well as the enclosed User's manual that comes with the machine.

Please fill in the details below and attach photo and other information in order to process your request.

| | |
|---|---|
| **Buyer:** | **Customer number:** |
| **Adress:** | **Invoice number:** |
| **E-mail:** | **Phone nr:** |

| | | |
|---|---|---|
| **When was the product delivered?** | **When was the product taken into operation?** | **Did the product functioned as it should upon the first operation?** |

**Defect product / part:**

.....

**Problem description:**

.....

.....

**Describe the sequence of events:**

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**Other:**

.....

.....

*Submit Complaint form and photo to:*
*Kellfri AB*
*Division of Services : Contact Kellfri retailer*
*Or e-mail service.*
*info@kellfri.se*

| | |
|---|---|
| Signiture: | Date: |

## WARRANTY TERMS AND CONDITIONS

| | |
|---|---|
| Validity of the warranty | - Kelifri's Warranty is valid 12 months from the date of purchase. |
| This warranty replaces | - Compensation for spare parts after acknowledgment that the fault lies on the material or manufaturing deffects. |
| This guarantee do not cover | • Labour costs<br>• Travel expenses<br>• Any modification that the buyer himself has/had made.<br>• Any consequential damages that occured out of damage to the machine.<br>• Damage due to normal deterioration of the machine, inadequate: service, user inexperience or use of spare parts which are not original.<br>• Wear parts such as hoses, seals, oils, and mechanical belts |

## EG-FÖRSÄKRAN OM MASKINENS ÖVERENSTÄMMELSE, ORIGINAL

EC-DECLARATION OF CONFORMITY
According to 2006/42/EC, Annex 2A
Kellfri AB
Munkatorpsgatan 6
532 37 Skara, Sweden

Declares that the machine
Name: 21-SV80, 21-Sv90, 21-Gl53/GL63/GLP57
Type: Timber trailer with crane

Complies with all applicable provisions of the Machinery Directive 2006/42/EC.
Other equipment must meet the hardware requirements of the Directive.

Tina Baudtler, VD

*Kellfri AB is constantly working on further developing their products and therefore reservesthe right to modify, among other things the design and appearance without notice.*

CUSTOMER SERVICE
You are always welcome to give your feedbacks, reviews or ask us about our tools and products.

Kellfri AB
**Phone: +46 (0)511 242 50**
**Fax: +46 (0)511 168 33**
E-mail: info@kellfri.se

Kellfri®

2015-03-17