



BAUER

FOR A GREEN WORLD

OPERATING MANUAL

for

Rainstar

Model E 61



Version November 2003

Rainstar
E 61
ENGL



Introduction

Thank you for buying BAUER Rainstar !

The present **manual** is a very important document that describes how to operate and **BAUER Rainstar E**.

This manual describes the system as detailed as possible. If you need still more information, please contact your dealer or turn directly to **BAUER** in Voitsberg/Austria.

Please note that the content of this manual neither constitutes part of nor alters in any way any previous or existing agreement, promise or legal relationship. **BAUER's** commitment is based solely on the respective purchase contract which also contains the complete and only valid warranty agreement. Said contractual warranty is neither extended nor limited by the content of this manual.

All information contained in the present manual is based on the latest product details available at the time of printing.

BAUER reserves the right to change without notice without assuming any liability!

BAUER RAINSTAR E is designed for highest performance safety and reliability provided it is operated in accordance with the present operating instructions.

Therefore you should study this manual thoroughly before starting your **BAUER RAINSTAR E** !

Strictly observe all instructions pertaining to system handling, operation and service!

On this condition, **BAUER RAINSTAR E** will operate to your satisfaction for many years!



Non-observance of this manual may cause personal injury or damage the equipment!

This manual is to be considered an integral part of **BAUER RAINSTAR E**. Suppliers of both new and used systems are advised to put down in writing that they delivered the manual together with the system.

Please make this manual available to your staff. State the pump type and serial number of your **BAUER RAINSTAR E** in all inquiries, correspondence, warranty problems, or parts orders.

We wish you a lot of success with BAUER RAINSTAR !



Product details

Type designation: Rainstar

Type number: Model E 61

Serial number¹:

Dealer:

Name:

Address:

Phone/Fax:

Date of delivery:

Manufacturer:

Röhren- und Pumpenwerk **BAUER** Ges.m.b.H.

Kowaldstr. 2

A - 8570 Voitsberg

Phone: +43 3142 200 - 0

Fax: +43 3142 200 -320 /-340

www.bauer-at.com

e-mail: sales@bauer-at.com

Owner or user:

Name:

Address:

Phone/Fax:

Note: Please make a note of the type and serial number of your Rainstar and its accessories! Be sure to state these details every time you contact your dealer.

¹ It is very important to indicate the complete serial number group, including all letters of the machine as well as of all relevant elements, in all correspondence concerning warranty cases or any other correspondence. This point indeed is very important.



General safety instructions

Symbols and definitions



The **CE symbol** that has to be affixed on the machine by the manufacturer outwardly demonstrates compliance of the machine with the directives for machines and other relevant EU directives.

**WARNING!**

This “Warning” symbol refers to important safety instructions in this manual. Whenever see this symbol be aware of possible injury hazards. Read the note following the symbol carefully and inform the other operators accordingly.

CAUTION!

Non-observance of this instruction may damage or destroy the machine or individual components.

NOTE!

It is very important to observe this note or instruction carefully!

Qualified operators: These are persons who on behalf of their training, experience and instruction as well as their knowledge of relevant standards, rules, precautions to be taken for accident prevention, and prevailing operating conditions, have been authorised by the person in charge of plant safety to perform the respective tasks required, and in doing so are able to recognise and avoid potential hazards. Among other things, knowledge of first-aid procedures is also required.

Product liability

According to the product liability law every farmer is an entrepreneur!

According to §9 PHG (Product Liability Law), liability for damage to corporeal things caused by defective products is expressly excluded. This exclusion of liability also applies to parts not manufactured by **BAUER** itself but purchased from external suppliers.

Duty to furnish information

Even if he passes on the machine to a new owner later-on, the customer is obliged to hand on the operating manual to the new owner, too. The receiver of the machine must be instructed with reference to the mentioned regulations.

Intended use

- BAUER Rainstar has been constructed exclusively for use in normal agricultural irrigation (intended use).
- Any employment beyond this normal use is considered non-conforming. The manufacturer is not liable for damage resulting from such non-conforming use; the sole liability for damage from non-conforming use is with the user.
- Intended use also includes compliance with manufacturer’s operating, maintenance and service instructions.
- BAUER Rainstar may be used and operated only by persons who are familiar with the system and aware of the hazards involved.
- All relevant rules for accident prevention as well as any other generally accepted specifications and regulations relating to safety, work medicine and traffic law must be strictly observed.

Unauthorised modifications on the machine release the manufacturer from liability for damage resulting there from.



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1 General safety instructions and rules for prevention of accidents

The operational reliability of the machine has to be checked preoperational.

1. Apart from the notices in these operating instructions, please observe also general safety instructions and rules for prevention of accidents!
2. The warning and indication stickers on the machine give very important instructions for safe operation. Observing them is essential to your own personal safety!
3. Never put the machine into operation unless all guards and safety devices are completely mounted in their proper working position!
4. Acquaint yourself with all controls and functions of the machine before you start to work with it. It's too late when the system is already running!
5. The operator has to wear close-fitting clothing. Avoid loose-fitting clothing!
6. While handling with liquid manure, you have to pay attention that all generating gases are extremely toxic and explosive if combined with oxygen. Therefore, any open fire, light test, sparks and smoking is forbidden!
7. Pay attention to generating gases during storing and counter storing processes within the area of the open slider at the pit of the main container or the transverse waterways. Additional attention has to be paid at agitator and ballast pit while agitator or pump are connected!
8. While handling with liquid manure, ensure that area is sufficiently ventilated!
9. In order to avoid fire hazard, keep the machine clean!

Machines driven by traction engines

1. Before operation, check immediate surroundings (children)! Pay attention to sufficient visibility!
2. It is forbidden to take passengers while transporting the machine!
3. Connect machines in accordance with regulations and only at specified devices!
4. Pay special attention during connection and disconnection of the machine with the tractor!
5. During mounting and dismounting, place landing gear in correct position (stability)!
6. Always place weight at provided fastening points in accordance with regulations!
7. Respect permissible axle load, total weight and transport dimensions!
8. Check and mount transport equipment, for example lighting, warning signs and eventually protective gear.
9. Performance, guidance and braking abilities are influenced by mounted or coupled machines or ballast weights. Ensure sufficient guidance and braking ability!
10. Be careful in curves and consider the wide radius and/or the centrifugal mass of the machine!
11. While working, keep off the working range!
12. Keep off the slewing and swivelling range of the machine.
13. Do only operate hydraulic folding frames if there are no persons in the swivelling range!
14. All power driven parts (for example hydraulic driven ones) have pinch and shear spots!
15. It is forbidden to stay between tractor and machine unless the vehicle is secured by means of parking brake and/or wheel chocks that prevent machine from rolling.
16. Before transportation on public roads, swivel and fix collapsible support elements!
17. Protect machine and tractor from rolling away!

Mounted implements

1. Before mounting and dismounting of implements at three-point suspension, take operating equipment in a position where unintentional lifting or lowering is impossible!
2. A three-point mounting requires exact tuning control of the mounting categories of tractor and implement!
3. Be aware of possible injury hazards (pinch and shear spots) in the zone of the three-point gear!
4. While applying the outer operation of the three-point mounting, do not step between tractor and implement!
5. While the implement is in transport position, ensure that the tractors three-point gear is sufficiently fixed lateral!



6. When driving the lifted implement on public roads, the operating handle has to be locked to prevent any lowering!

Coupled machines

1. In case of drawbar trailers, make sure that there is enough mobility at the couple point.

Power take-off operation (only for machines with power-take-off gear)

1. Only propeller shafts fixed by the manufacturers specification are to be used!
2. Protecting tube and funnel of the propeller shafts as well as power take-off shaft protection (also on the machine side) have to be mounted and must be in accordance with regulations!
3. Ensure that propeller shafts are equipped with pipe covers according to specification! This is not only important for the transport position but also for the working position!
4. Mounting and dismounting of propeller shafts is only to be done when power take-off shaft and motor are switched off and ignition key has been removed!
5. Always pay attention that propeller shaft is correctly assembled and secured!
6. The propeller shaft has to be protected from revolving by hanging up the chains!
7. Before you switch on power take-off shaft you have to ensure that chosen rotational speed of power take-off shaft of tractor is in accordance with permissible rotational speed of the machine!
8. Ensure that there are no persons in the danger zone of the machine, before power take-off shaft is switched on!
9. Never switch on power take-off shaft while motor is switched off or the implement is in transport position!
10. During all works on the power take-off shaft, it has to be ensured that there are no persons in the zone of the turning power take-off or propeller shaft!
11. Be careful when power take-off shaft has been switched off! Danger of follow-on centrifugal mass! During this period, do not stand too close to the implement. It is only allowed to work in this zone, when machine has come to complete stop!
12. Cleaning, greasing or setting of power take-off driven machine or propeller shaft is only allowed while power take-off shaft and motor are switched off and ignition key has been removed!
13. Place uncoupled propeller shaft on holding device provided!
14. After dismounting the propeller shaft, pin up protective covering on stump of power take-off shaft!
15. In case of damage, remove it, before you restart operation!

Hydraulic system

1. Hydraulic system is under high pressure!
2. When connecting hydraulic cylinders and motors ensure that hydraulic hoses are connected according to specifications!
3. When coupling the hydraulic hoses with the tractor's hydraulic system make sure that the entire hydraulic system is pressureless both on the tractor and implement side!
4. Inspect the hydraulic lines at regular intervals and replace them immediately in case of defects or ageing! Replacement hoses must comply with machine manufacturer's technical specifications!
5. When searching for leakage places, be sure to use appropriate devices in order to avoid possible injury hazards!
6. Liquids emerging under high pressure (hydraulic oil) may penetrate the skin and cause serious injuries! An injured person must see a doctor immediately! Danger of infection!
7. Always depressurise the system before you work on the hydraulic system and switch off motor!

Electrical driven machines

1. All work that exceeds the maintenance functions of the implement, are only to be done by an expert!
2. Damaged or devasted plug-in devices are only to be replaced by experts trained on electrical operations!
3. It is prohibited to unplug connectors with a loose cable from the socket!
4. Extension cable for current supply is only to be used for momentary operation. These cables must not be used constantly or replace necessary fix installations!
5. Loose cables that are placed in practicable areas of agricultural estates have to be suspending in a height of minimum 5 m!
6. Cut power supply while working on the machine!
7. Check electrical cables for visible damage before operation. Replace defective cables before operating the machine again!



8. It is only allowed to use electrically driven machines in humid or inflammable areas, if they are sufficiently secured against humidity and dust!
9. When electric motors are covered, heat accumulation and high temperature may occur. This may lead to destruction of operating material or fire!

**Machines driven by hand (slider)**

1. Due to generated ferment gases, all closed lines have to be free of liquid manure – danger of burst!
2. Place conduits with sufficient slope and chose lock sequence of slider in such a way that all conduits may drain off!
3. Protect slider against unauthorised use!
4. If slider binds, do not use force! Only use operation lever provided by the manufacturer!
5. Pay attention to permissible working pressure of slider and pipes while using pumps!
6. Maintenance work is only to be effected when receivers are empty!

Maintenance

1. Never service, maintain, clean or repair the machine unless the engine is turned off!
2. Check nuts and screws at regular intervals if they are tight and tighten them if necessary!
3. When maintenance work is done while implement is lifted, always protect it by means of support elements.
4. When replacing working tools always use appropriate tools and gloves.
5. Dispose of oil, grease and filters according to local laws and regulations!
6. Before working on the electrical installation, always disconnect the power supply!
7. Before electric welding on the tractor and coupled implements, always disconnect the cables of generator and battery!
8. Spare parts must meet manufacturer's minimum technical specifications! This is the case with original spare parts!

2 GENERAL

BAUER products have been designed and manufactured carefully, subject to a system of continuous quality control. BAUER Rainstar model E 61 is a turbine-driven machine designed for fully mechanised and labour-saving irrigation. System set-up, repositioning, and operation are all done with the tractor, handling required by the operator is restricted to only a few manipulations.

BAUER Rainstar is a universal machine capable of covering fields of varying lengths and widths. There is no need for supervision while the system is operating.

Strict observance of all operating and service instructions in this manual is the basic prerequisite for many years of trouble-free operation. Therefore please make sure that all operators on your staff are familiar with the instructions given in this manual.

The model number as well as the serial number is stamped into the nameplate. In addition, the serial number is stamped into the frame of the undercarriage. Please state these data in all your inquiries, correspondence, warranty matters and parts orders.

We warrant for this Rainstar according to our General Terms of Sale.



3 SAFETY INSTRUCTIONS FOR THE RAINSTAR E 61

1. Read this manual before you put the system into operation.
2. Do not handle the PE-pipe near the machine or the machine itself during pull-off and retraction.
3. Ensure right position of shift lever when you wind up PE-pipe with the tractors take-off shaft or when you draw out PE-pipe. Always respect the maximum permissible speed.
- 4.

**WARNING!**

Danger if not operated according specification!

5. Führen Sie niemals Einstellungs- oder Servicearbeiten (ausgenommen Geschwindigkeitseinstellung) bei laufendem Gerät durch.
6. Halten Sie Abstand von allen beweglichen Teilen.
7. Legen Sie keine beweglichen Teile durch Entfernen eventueller Schutzvorrichtungen frei.
8. Halten Sie einen entsprechenden Sicherheitsabstand vom Regner während des Betriebes ein.
9. Vorsicht bei hohen Anschlußdrücken!
10. Geben Sie acht, daß der Wasserstrahl des Regners nicht auf öffentliche Fahrbahnen auftrifft.
11. Der Rainstar ist nur für den landwirtschaftlichen Transport zugelassen. Wird ein Transport auf öffentlichen Straßen durchgeführt, so müssen die entsprechenden Verkehrsvorschriften eingehalten werden.
- 12.

**WARNING!**

Due to safety reasons it is prohibited to transport the machine with a forked drawbar and tractor linkage drawbar!

13. When you transport the Rainstar or load it on a trailer, always take into account that remaining water in the PE-pipe shifts the machine's centre of gravity upward.
14. Be careful in curves! The eccentricity of centre of gravity reduces the maximum permissible speed extremely!
15. Always ensure that locks and stops are secured according to the machine's general conditions of transport.
16. Keep a safe operating distance from electric power lines (depending on nozzle size and water jet). Consult your local power supply company regarding safe distances that have to be allowed.
17. Maximum permissible speed: 10 km/h.

4 DESCRIPTION

The Rainstar is a universal irrigation machine designed and constructed for labour-saving irrigation of varying lengths and widths of fields with the greatest variety of crops.

The main components of the machine are: a four-wheel undercarriage that can be lowered and with a turntable on which the pipe reel can be swivelled through 360°, a cart and special PE-pipe, a multifunctional drive system with TVR 60 full-flow turbine as well as a special cart that is especially applicable for high-grown plantations, and a sprinkler cart with the BAUER wide-range sprinkler.

The special composition of materials of the PE-pipe (polyethylene) has been purpose-designed for the Rainstar's range of applications. At the end of the pipe, a reel drum is fixed and connected with the supply of water by its axle. The other end is connected with the special cart. The carts track is continuously adjustable (see technical data).

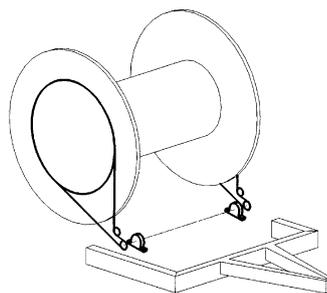
TVR 60, the heart of the system, is a full-flow turbine mounted in a flow-promoting position. It is largely insensitive against contaminated water and has an optimum efficiency. The propeller shaft is made of stainless materials. The control cam inside the turbines is covered with a rubber coating resistant to wear.

The sealing positioned opposite the propeller shaft with its lasting lubrication, is done with an axial face seal that is maintenance-free.

The turbine TVR 60 is suitable for water quantities from 25 to over 100 m³/h and shows a large range of adjustment. The rotational speed of the rotor disk is between 100 and 500 l/min.

The retraction speed can be continuously adjusted by means of the ECO-STAR. The retraction speed can be read at the ECO-STAR and can be between 8 and 150 m/h, dependant on water quantity and infeed pressure. Never exceed the maximum permissible infeed pressure of 11 bar.

Power is transmitted from the turbine by a V-belt drive to the gearbox. It is also transmitted by a chain drive onto the intermediate shaft by means of a band brake. Power is transmitted from the intermediate shaft by two chain gears on both sides of the reel



A band brake on the gearbox ensures that the reel neither turns back in the shut-off position nor continues to turn after the pipe pull-off!

The band brake on the intermediate shaft ensures that the PE-pipe placed on the reel does not get loose during the extraction process.

Due to safety reasons the drive is equipped with an emergency stop device as well as a back pedal brake. The drive can be interrupted manually by an emergency stop device.

**WARNING!**

Remove drive protection only after water infeed to the machine has been closed and the stretched PE-pipe is released.

To slacken a stretched PE-pipe, push the gearshift lever down carefully (see proper procedure as described on page 14).

The mechanical pipe reeling device (driven by a helically grooved spindle) ensures trouble-free winding of the PE-pipe on all layers. ECOSTAR, the electronically speed control system, maintains the retraction speed constant on all levels independent of the length of the laid down PE-pipe length.

The automatic drive shut-off is activated by a system of rods, positioned at the end of the irrigation strip.

If the machine is equipped with an electric shut-off valve, water supply to the machine is closed simultaneously.

After shut-off, the cart is lifted automatically to transport position and locked. Lifting both wheel supports does this. The machine is placed on the turntable. After repeated extension of the wheel supports to the transport position, the all-automatic collapsing mechanism folds up the machines' supports. In this position, the Rainstar can be transported to its next setting-up position immediately. The Rainstar can be laid down again, the PE-pipe can be pulled off, the water supply can be opened, and the machine is ready for the next run.

When driving on public roads, the PE-pipe has to be completely wind off and the cart has to be lifted. The tractor drawbar support must be withdrawn to its uppermost position.

When driving on public roads, the tractor drawbar has to be secured at the drawbar coupling of the towing vehicle. Safe for an official permit, 10 km/h is the maximum permissible driving speed. For increased safety against overturning in curves, we recommend to drain off the PE-pipe by means of the blow off device.

Requirements upon tractor hydraulic system:

For operating the wheel supports (machine supports) and the jack by means of the hydraulic system, the hydraulic systems must meet following requirements.

1. Pressure burden of minimum 160 bar
2. Control system for double-action hydraulic cylinders, i.e. the tractor must have two connections, a power take-off and a free reverse-motion.
3. For tractors without differential hydraulic for power take-off and reverse-motion pipe, the hoses to raise or draw out the cylinders have to be uncoupled and coupled in reverse position.



5 PUTTING INTO OPERATION

Before and during the first putting into operation, all bearings, chains and guiding parts of the winding device are to be filled with grease. You should use commercial ball bearing grease for bearings with lubricator nipples. For chains, guide rods and joints, use tenacious and well adhering grease.

You also have to check the tightening wheel nuts as well tire pressure (see technical data), the tightening of the connecting bolts, the side part of the mounting underpart, the ball race and turntable of the mounting underpart as well as the trailer coupling ring according the table „Maintenance and service“.

5.1 WORK THAT HAS TO BE EFFECTED ONCE OR FROM CASE TO CASE

Adjust the demanded track for the special cart according to the crop.

Charge the cart pendulum with the necessary amount of loading weights.

The number of necessary loading weights depends on the set cart track, the width of the nozzles and the nozzle pressure.

5.2 TABLE FOR NECESSARY NUMBER OF CART WEIGHTS FOR SYMMETRIC CARTS

Düsen Ø in mm	Stativspur in mm																			
	1500				1800				2000				2400				2800			
	Düsendruck in bar																			
	3,0	4,0	5,0	6,0	3,0	4,0	5,0	6,0	3,0	4,0	5,0	6,0	3,0	4,0	5,0	6,0	3,0	4,0	5,0	6,0
26	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
28	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
30	2	2	2	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
32	2	2	4	6	2	2	2	4	2	2	2	2	2	2	2	2	2	2	2	2
34	2	2	4	6	2	2	4	4	2	2	2	4	2	2	2	2	2	2	2	2
36	2	2	6	6	2	2	4	6	2	2	2	4	2	2	2	2	2	2	2	2

Cart track in mm

Nozzle in mm

Nozzle pressure in bar

Set sector for wide-range sprinkler (approx. 220° for whole strip width). For further information, see separate operating manual of sprinkler. The WINDING can be adjusted to prevailing wind conditions by adjusting the stream elevation angle



5.3 OPERATING MODE I: PE-PIPE PULL-OFF

5.3.1 MACHINE TRANSPORT TO SETTING-UP POSITION

When transporting the machine, the cart has to be mounted to the lift frame in lifting position. The machine supports are fold up and the tractor jack is completely drawn-in.

The operating handle for the automatic lifting and the transport guards has to be in upright position and locked by the positioning pin. The pull ring of the shaft must be coupled with the drawbar coupling and not with the tractor linkage drawbar!

Drive the Rainstar to mounting place. When placing the Rainstar, ensure that the vertical turntable is locked between the irrigation lane and two crop rows.

Couple the two hydraulic hoses with the hydraulic system of the tractor.

Necessary hydraulic system Pressure burden of minimum 160 bar
Control system for double-action hydraulic cylinders

Lower the jack by operating the marked control lever (for 4 and 3 valve blocks). Uncouple it and move the tractor slightly forward.

Lift the implement to its uppermost position (draw out cylinders completely) by operating the control lever for hydraulic cylinders of the wheel supports.

Unlock the operating lever of the transport guards and turn it 90° to the right. By this, the transport guards are unlocked.

Lower the Rainstar slowly to the turntable by means of marked control levers (constantly from right and left side in order to avoid sloping position).

**WARNING!**

In case of sloping ground, operating lever of hillside is to be operated first.

Bring jack and both wheel supports in their uppermost final position. By bringing up the wheel supports, the cart supports are relieved by means of telescopic bars. Both supports are pushed forward by a spring.

The Rainstar is now placed on the turntable and can be turned to the driving lane either manually or hydraulic (OPTIONAL rotating mechanism). The hydraulic hoses stay connected with the tractor.

IMPORTANT!

Holding devices for hydraulic hoses are placed on the mounting supports on the backside of the Rainstar. Therefore, damage during rotating process is avoided.

Operate the hydraulic control again, i.e. constantly draw out hydraulic cylinders of wheel supports on left and right side. Arrange the jack of the Rainstar in vertical position. The turntable is most favourably placed, when placed approx. 10 cm above the ground.

When hydraulic cylinders are extended, the cart lowers automatically to the position "PE-pipe pull-out". If the supports do not dig into the ground sufficiently on hard soil in spite of the sharp shields, holes must be provided in the soil into which the supports are lowered.



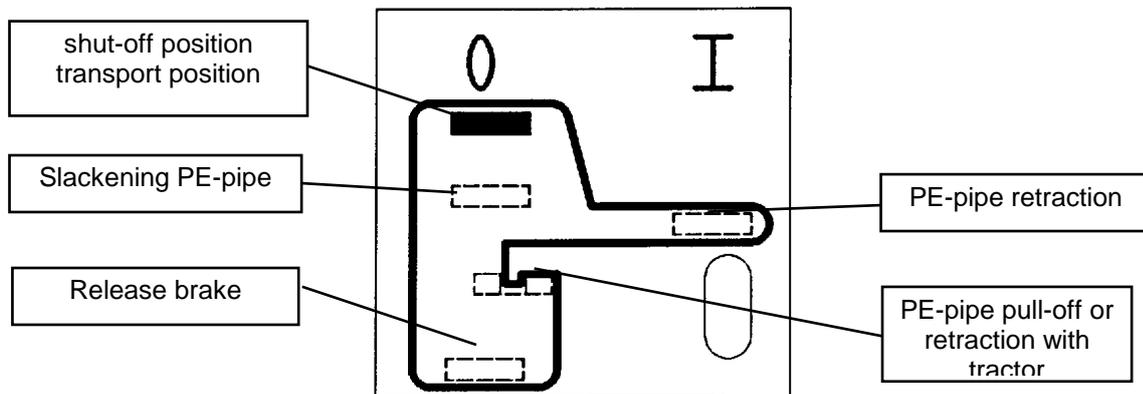
Afterwards, the tractors' hydraulic system has to be depressurised and the hydraulic hoses have to be uncoupled.



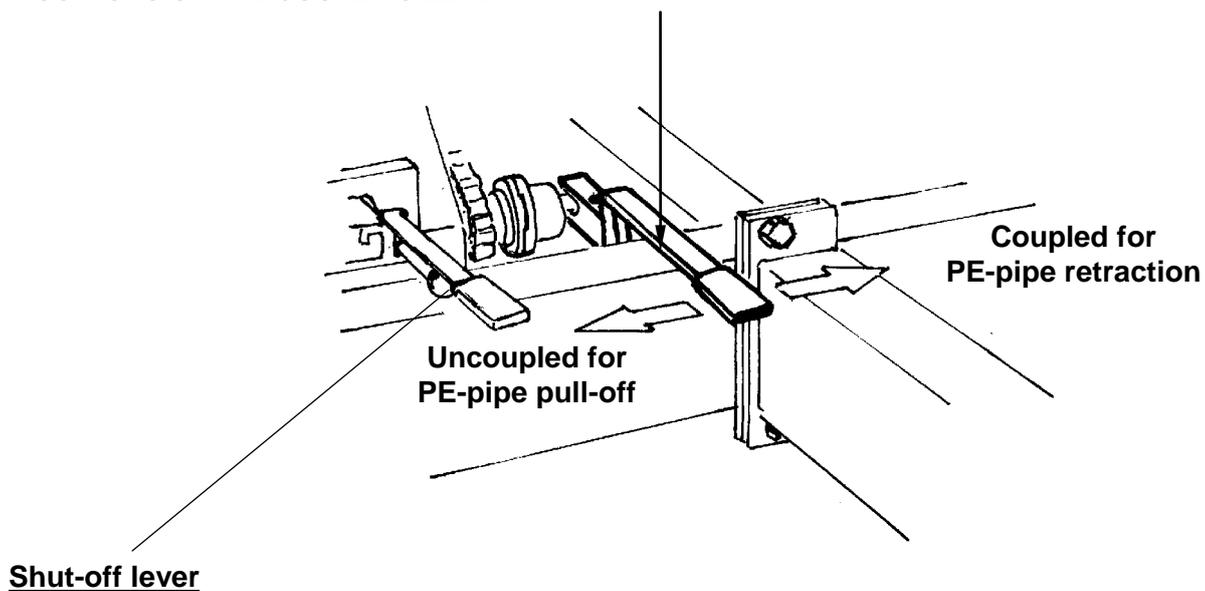
IMPORTANT!

Due to safety reasons, always operate hydraulic system with special care. From operating place, the supports placed on the backside and the cart zone cannot be seen directly. Therefore ensure, that there is nobody in the close area of the machine!

POSITIONS OF THE GEAR SHIFT LEVER



POSITIONS OF THE COUPLING LEVER

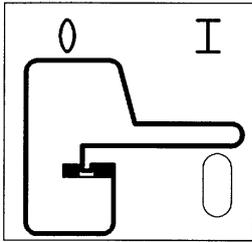


5.3.2 PE-PIPE PULL-OFF

Bring gearshift lever and coupling lever in “PE-pipe draw-off” position (see drawing).

In this position, the coupling lever is locked with the locking bracket!

The gear shaft lever (shut-off lever) is pushed upwards by means of a spring and it is locked.



Pick up the draw-out hook with the toolbar and pull off the pipe with the cart.

The standard or asymmetric wheel cart need not be lifted for pull-off. Pull-off speed: Maximum 5 km/h!

Do not stop abruptly. In case of intermediate stop or at the end of pull-off process, slow down speed gradually. Stop pipe pull-off when the white marking line becomes visible on the reel – the end of the pipe is reached.

IMPORTANT!

If it is necessary to pull off the PE-pipe with a large bent movement, you have to ensure that first of all the PE-pipe is pulled off approx. 80 – 100 m straight (90° to reel) and only then with a bent movement.

**WARNING!**

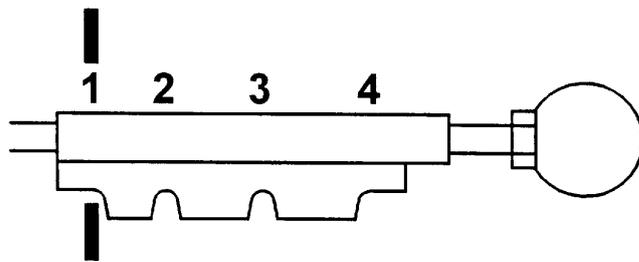
If the PE-pipe has been exposed to the sun for a longer time or if its surface temperature rises above 35 °C for some other reason, you must let water run through the pipe for several minutes to cool it off before pull-off or retraction.

Connect the delivery hose. Open the water supply.

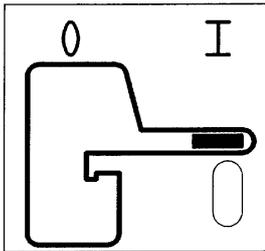
Bring gear shaft lever in correct operating position.

TVR 60

1	8	--	20	m / h
2	16	--	32	m / h
3	28	--	50	m / h
4	> 45			m / h



Bring gear shift lever in position "PE-pipe retraction" as soon as operating pressure is reached and only water without inclusion of air penetrates from wide-range sprinkler (closed jet).



IN CASE THAT FALSE GEAR HAS BEEN CHOSEN:

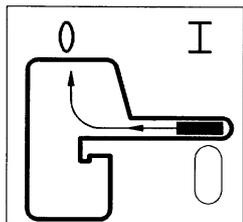


WARNING!

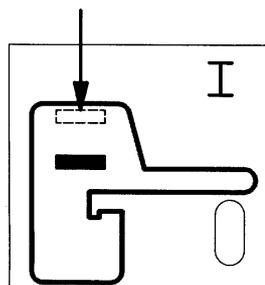
Changing gears: When the PE-pipe is under tensile stress, RELIEVE !

Correct proceeding:

Pull shut-off lever in shut-off position



... and relieve PE-pipe by pressing down shut-off lever carefully and well dosed.



**IMPORTANT!****Switching between gears 1 to 4 can only be done while turbine is rotating!**

Move the gearshift lever to desired position and the shut-off lever in “PE-pipe retraction” position.

The reel starts to retract the PE-pipe.



5.3.3 SETTING OF RETRACTION SPEED CONTROL

The setting of retraction speed control is done with the standard ECO-STAR that is built-on.
See operating manual ECO – STAR.

Please follow instructions below:

IMPORTANT!

Only set the retraction speed when PE-pipe has been wind off (half winding) or it is under tensile stress.

When irrigation processed is finished, the drive is shut-off by rods.

Water supply is stopped by the option "Pressure burden cut-off valve" or "Minimum pressure – cut-off valve".
The aggregate is shut-off by means of a push switch.

After pipe retraction, the wheel supports are lift to their uppermost final position by means of the tractors' hydraulic system. The Rainstar can now be turned into desired position (for example, coupling with tractor).

Turn the operating lever of the cart lift lock to the left front side and lock the locking bolt.

Draw out hydraulic cylinders of the wheel supports until they reach their final position (constantly on left and right side). Because of this, the Rainstar stands on the wheels and the transport guards lock self-maintained (audible).

Slightly retract the hydraulic cylinders of the wheel supports until the Rainstar weight is placed on the transport guards and the hydraulic cylinders are relieved.

Couple the Rainstar with the tractor and insert jack.

IMPORTANT!

In case that the Rainstar setting position changes during the PE-pipe retraction process or the Rainstar moves to a sloping position, it has to be re-adjusted. Therefore, it is necessary that the PE-pipe be relieved first.

Correct proceeding:

1. Shut-off the Rainstar's water supply. The PE-pipe partly relieves self-maintained by the turbine, which operates as hydraulic brake.
2. Pull the shut-off lever in shut-off position and **relieve PE-pipe** by slowly pushing it down. (See page 16 "correct proceeding").
3. Re-adjust machine and support it sufficiently.
4. Re-open water supply.

5. Bring gearshift lever in desired position.
6. PE-pipe retraction is continued.

5.3.4 FUNCTIONAL CHARACTERISTICS

5.3.4.1 ACTUATION – FULL-FLOW TURBINE

The full-flow turbine TVR 60 is an especially designed actuating turbine with a high flow section and modest pressure drop. Therefore, high retraction speed with low water quantities is achievable. The turbine is constructed in a flow-promoting way and delivers the necessary energy for the PE-pipe retraction. The rotational speed is taken directly from the impeller shaft and transferred by a V-belt drive to the BAUER-gearbox.

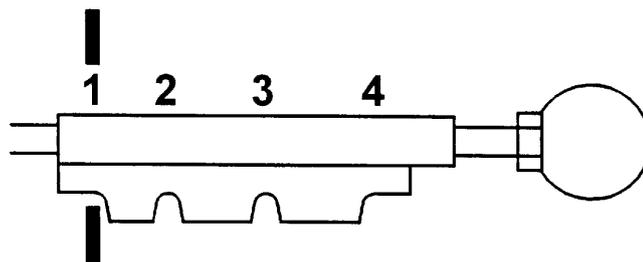
The BAUER-gearbox reduces the rotational speed of the turbine according to the set turbine rotational speed. The gearbox is equipped with 4 gear switch steps. Uncoupling the denture clutch ensures the stop of the reel drive at the end of the irrigation strip.

The four-speed-gear system enables an exact adjustment to prevailing conditions. Therefore, following retraction speeds [m/h] can be achieved.

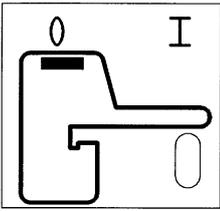
SELECTION OF GEAR SHIFT

TVR 60

1	8	--	20	m / h
2	16	--	32	m / h
3	28	--	50	m / h
4	> 45			m / h

**WARNING!**

For servicing, remove drive protection only after water supply to the machine has been closed and the stretched PE-pipe released! Bring the shut-off lever in shut-off position! This shut-off position is also necessary when transporting the machine on public roads!

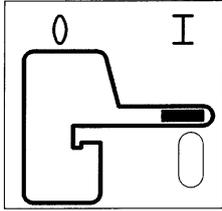


Switching gears between gear 1 and 4 can easily be done by means of gearshift while turbine is rotating.

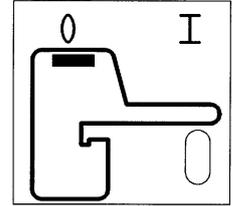
Please follow instructions below:

If the shut-off lever is in position “PE-pipe retraction”, the gearshift lever will be locked and cannot be switched.

If the shut-off lever is in position “PE-pipe pull-off”



or in shut-off position,

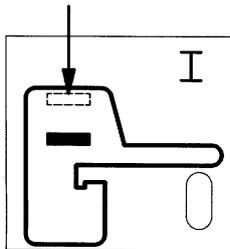


gears can be switched between steps 1 and 4.

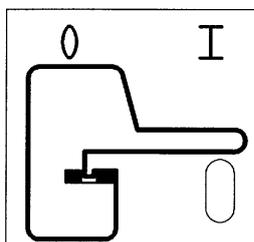
**WARNING!**

Before switching gears, relieve PE-pipe!

When shut-off lever is in shut-off position, the band brake is released (by slightly pushing down) and the PE-pipe is relieved (also see page 14).

**5.3.5 ACTUATION BY PROPELLER SHAFT:**

If necessary, the PE-pipe can be wound up with the tractor and a propeller shaft. For this purpose, move the shut-off lever to the “PE-pipe pull-off” position.



The gearshift lever is pushed by a spring to locking stop. In this position the band brake is released and has no braking power while winding up.

Propeller shaft rewind is needed when irrigation with the machine no longer needs to be continued due to natural rainfall or if the PE-pipe has been pulled off for draining before winterisation.

**WARNING!**

- Retract the pipe at the lowest possible PTO speed - start slowly and smoothly and avoid jerks
- Operate with minimum drive shaft bending angles in order to avoid excessive stresses.
- If the PE-pipe is covered with mud it should be loosened and lifted from the ground to reduce the tensile forces.
- Lifting and loosening from the ground can be done by means of a hemp or cloth rope that is looped around the PE-pipe.
- If the soil is deep and heavy, PE-pipe rewind must be slower in order that the permissible loads on PE-pipe and the machine are not exceeded.
- If you disengage the tractor's PTO shaft during PE-pipe rewind, make sure that the pipe reel stands still when you re-engage the PTO shaft (relieve PE-pipe!). Double motion can severely damage the equipment!
- During propeller shaft drive the automatic final shut-off system is inactive. Therefore you must stop the propeller shaft in time and wind up the last piece of PE-pipe with the hand wheel. This way you prevent damage to cart, shut-off system, gearbox, etc.

6 CONTROL

Control of retraction speed is done automatically by means of the ECO-STAR.

6.1 SPEEDOMETER

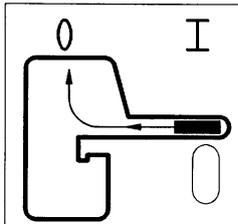
The retraction speed of the sprinkler cart is shown on the ECO-STAR display.

It can be seen on the irrigation table according to machine infeed pressure, nozzle size and rainfall.

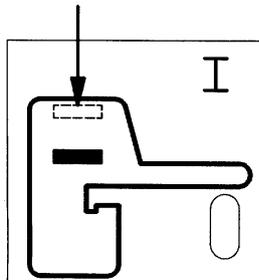
7 EMERGENCY SHUT-DOWN

In case of an unexpected incident, the pipe retraction can be instantaneously stopped. You can stop PE-pipe retraction by hand during system operation. For this purpose you push the shut-off lever from the operating position to shut-off position with your open hand (do not hold the lever tight or let go immediately!). The gearbox is uncoupled.

The lever is jerkily pushed upwards by a spring (shut-off position) and the band brake prevents a quick return of the PE-pipe or the reel.



To relieve the pipe, push down gearshift lever carefully.



8 WINDING MECHANISM

The winding mechanism operates synchronously with the winding or unwinding of the PE-pipe. Starting from the reel it is operated through a chain and the helically grooved spindle transporting the winding carriage of the PE-pipe. The winding mechanism ensures that the PE-pipe is properly guided winding for winding. When you put the machine into operation for the first time, pull off the full length of the PE-pipe to let it take a circular shape under pressure. This step is essential for trouble-free operation of the winding mechanism.

9 SHUT-OFF AND SAFETY EQUIPMENT

Unattended performance of the Rainstar is made possible by a final and safety shut-off. The final shut-off is actuated when the sprinkler cart presses against the shut-off frame, which in turn operates the shut-off lever through a linkage. This way the drive is stopped. To avoid troubles caused by faulty windings of the PE-pipe on the reel, shut-off is also activated by the shut-off frame when faulty pipe windings build up on the reel.

10 CART

High construction of both symmetric and asymmetric wheel carts provides maximum crop protection (asymmetric wheel cart OPTIONAL). With infinitely variable track width you can adapt the carts to crop row spacing of every size. The holding device does adjustment symmetrically.

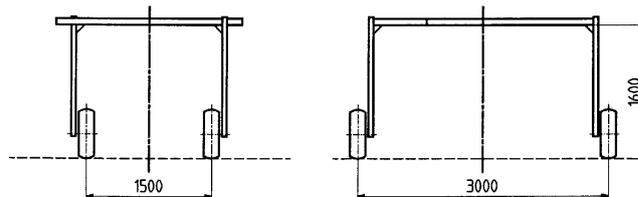


For easier pulling of the PE-pipe, the cart is fitted with a drawing-out hook.

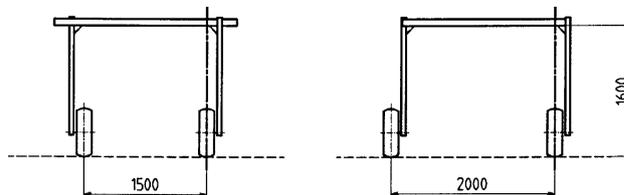
You pick up the cart at this hook with the tractor's toolbar and pull off the PE-pipe. For turning the pipe reel and placing the Rainstar in a new setting-up position, the cart must be in its end position (retracted).

Depending on the type of sprinkler, the nozzle height of the sprinkler is approx. 1960 - 2120mm. At the end of retraction the cart is lifted on the PE-pipe side. Owing to its pendulous mounting the sprinkler is not tilted but always remains in the optimum position (automatic pendulum alignment) regarding distance of throw and distribution uniformity. This pendulous mounting assembly compensates also slopes in the terrain in longitudinal direction.

Wheel cart symmetric



Wheel cart asymmetric



11 OVERPRESSURE SHUT-OFF VALVE (OPTIONAL)

With the overpressure shut-off valve, water supply to the machine is turned off completely at the end of the irrigation run. When the shut-off valve locks, the pressure of the supply pipe rises.

Therefore it is only to be used in connection with an automatic pump shut-off device or a supply system.

12 MINIMUM OR LOW-PRESSURE SHUT-OFF VALVE (OPTIONAL)

With the low-pressure-shut-off valve, the supply line at the end of the irrigation process is opened and a considerable quantity of water is let off. This reduces the prevailing pressure of the pressure pipe (approx. half of it). By this pressure drop, the pump aggregate is shut-off by a push switch and the water draining is stopped. Therefore it can only be used in connection with a push switch for automatic pump shut-off device.

IMPORTANT!

The low-pressure-shut-off valve can only be used if the irrigation machine is fed by the pump aggregate. When several irrigation machines are fed by one pump aggregate, the minimum or low-pressure-shut-off cannot be used!



13 WINTERIZATION – DRAINING

In areas where frost is likely in winter after the irrigation season, the machine must be drained in time. A compressor with a minimum air capacity of 800 l/min at 2.5 bar overpressure is best suited for this purpose. Connect the compressor to the inlet of the machine. For blowing out the water, the PE-pipe should not be pulled off. It can stay on the reel. Otherwise, winding up the pressureless PE-pipe would cause extreme ovality and proper winding would become impossible. Before the blowout procedure, uncouple the sprinkler connecting hose. The small amount of water remaining in the PE-pipe after the draining (approx. 30 – 50 % of the volume) will not do any harm.

Turn out the drain plug at the bottom of the TVR 60 turbine. We recommend turning this plug in again only when you start up the machine at the beginning of the next season. Clean the Rainstar and grease all appropriate points again. Store the machine preferably in a roofed shelter where it is protected from direct exposure to the weather.

Discharge screw for gear oil.

Oil or grease jack.

13.1 DRAINING OF PE-PIPE

WITH BAUER BLOW OUT DEVICE AND COMPRESSOR

In order to guarantee a secure functioning of the blowout device, you have to observe following rules:

1. Blow out has to be effected immediately after shut-off of machine in order that there is no PE-pipe retraction. When machine stands still for more than 5 to 10 minutes, the RAINSTAR has to be pressurized before blow out is started.

IMPORTANT!

If PE-pipe is drained off or if there are air bubbles in the PE-pipe, the blow out function does not work!

2. In case of electrical shut-off valve, push menu bottom "START" in order to open valve.
3. Connect a drain-off pipe for the water inside the PE-pipe. This avoids humidity at the machines' location.

IMPORTANT!

When machine connection hose (7) is used for drain-off, ensure that hose is free of bend and a troublefree water drain-off is guaranteed.

**PROCEDURE:**

The PE-pipe is reeled, the cart is in closefitting shut-off position, take off shut-off valve (with thread and impact plate) at „garage“ (1).

Push the plastic ball placed in the “garage” manually or by means of a piece of wood until the ball comes to a stop at the straight lower part of the cart (2) at the exit of the sprinkler.

Close the shut-off valve (3) of the sprinkler.

Couple the quadrant pipe 90° (4) with the coupling-„garage“ (1) and the compressor hose (5) with the quadrant pipe (4) and compressor (6).

The PE-pipe can be blown out by means of the compressor.

Technical requirements upon the compressor:

- Operating pressure: 1.5 bar is sufficient
- Output: minimum 5000 litres, air performance 1.5 bar

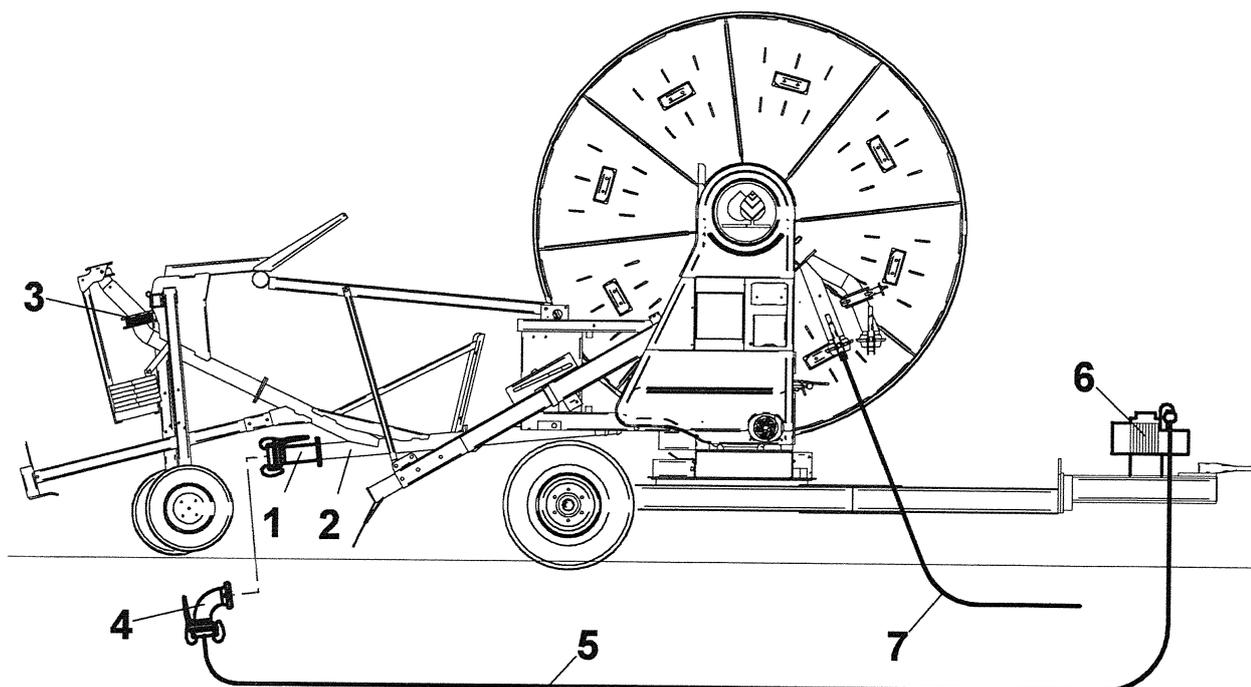
To blow out a PE-pipe, 5 to 8 minutes are needed. If the blow out procedure takes longer, there are air bubbles in the pipe that prevent a further blow out. *dura más tiempo, se forman burbujas de aire en el tubo por lo cual se impide la continuación del vaciado.*

**WARNING!**

When blow out process is finished, i.e. before opening of the coupling, the valve (3) has to be opened in order to let escape the pressure of the PE-pipe!

Remove connecting fittings by hose and mount shut-off valve with impact plate.

The blowout ball is situated at the inlet bow of the reel and is let through the PE-pipe to the “garage” (with water) at the beginning of the irrigation process (at the end of the cart lower part).







13.1.1 TROUBLE SHOOTING DURING BLOW OUT OF PE-PIPE BY MEANS OF COMPRESSOR

Malfunction	Corrective action
PE-pipes are drained off	Re-pressurise the motion machine until the sprinkler only penetrates water without air bubbles
Drain-off line of turbine is buckled	Pipe hose straight, without bend or couple a pipe
Shut-off valve is closed	Open shut-off valve
Plastic ball in wrong position.	Push plastic ball sufficiently down until it comes to a stop at the straight lower part of the cart
Wrong diameter of plastic ball.	Necessary ball diameter: For PE-pipe \varnothing 100mm: Ball \varnothing : 100mm 110mm : : 100mm 120mm : : 110mm 125mm : : 120mm
Damaged plastic ball	Ball has to be round and free of damage
Deficient compressor performance	Check performance data of compressor. Check emergency valve.

IMPORTANT!

The final flap positioned at the connecting piece of the carts' lower part („garage“ for the plastic ball) has to be equipped with a vent thread. This thread effects the ventilation while the ball is pressed by water pressure from the turbine towards the cart.

By doing this, the plastic ball is correctly parked in the “garage” during the irrigation process. When this vent thread is missing, the plastic ball stays during irrigation in the area of the horizontal pipe and may cause a dramatic pressure drop by contradiction.



13.2 SERVICE AND MAINTENANCE

We cannot emphasise often enough that proper service is essential for the operating reliability and service life of a machine. At the end of every irrigation season the Rainstar should be thoroughly checked and cleaned, and all parts re-greased carefully.

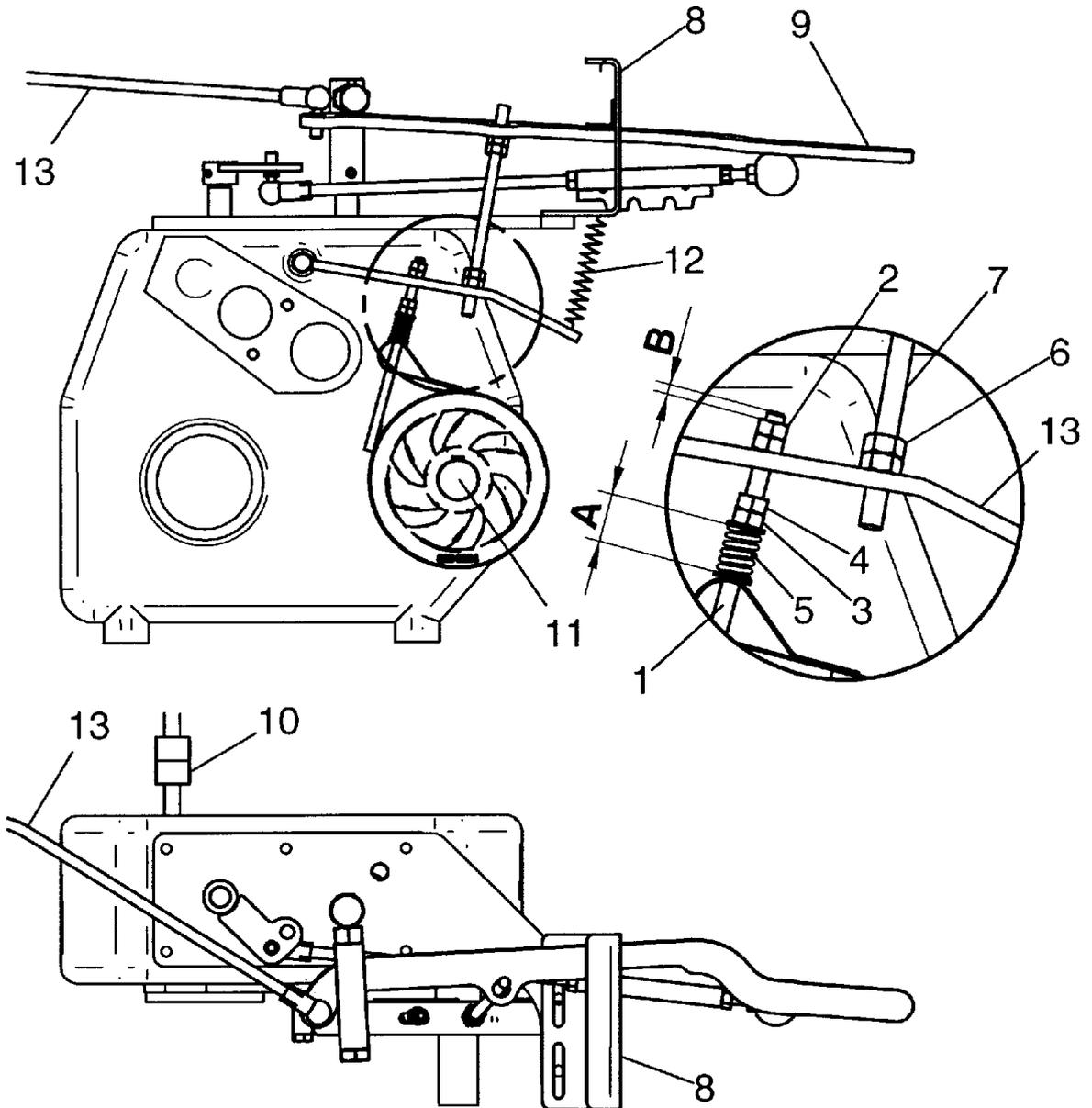
Machine part	Service interval	Lubricant, grease, oil
1. Helically grooved spindle of the winding mechanism	Every 250 hours	Alvania Grease 3
2. Drive chain of winding mechanism	Every 250 hours or as required	Alvania Grease 3
3. Mitnehmer (Spindelmutter) für Wickelvorrichtung	alle 250 Betriebsstunden Austauschempfehlung nach 2500 Betriebsstunden	Alvania Grease 3
4. Intermediate shaft – sliding surface - mounting	Every 250 hours	Alvania Grease 3
5. Driving chain	Every 250 hours or as required	Alvania Grease 3
6. Turbine	Every 500 to 800 hours	Alvania Grease 3
7. Gearbox	Change oil for first time after 500 service hours and then every 500 to 800 hours or at least once a year	6,0 l Oil SAE 90 EP
8. Ball race	Every 500 hours	Through grease nipple Alvania Grease 3
9. Jack	As required	Oil SAE 20, Alvania Grease3 through grease nipple
10. Machine support (sliding pieces)	As required	Alvania Grease
11. Screwed joints	Preoperational, after 50 hours	Starting torque
Wheel nuts		300 Nm
Turntable side frame		210 Nm
Ball race on turntable and undercarriage		85 Nm
Trailer coupling		240 Nm
Pull ring		210 Nm



14 TROUBLE SHOOTING

FAULT	CAUSE	REMEDY
PE-pipe cannot be pulled off	Gear shift lever in wrong position	Move to pull-off position
	Brake band sticking on the brake drum	Loosen brake band
PE-pipe retraction stops before final shut-off activated	Turbine blocked by foreign object	Remove foreign object
	Pressure drop in supply line	Check pumping station and water connection at the hydrant
	Overwinding PE-pipe actuates the safety shut-off	Adjust the winding mechanism Repair broken winding chain
Final shut-off activated but the shut-off valve does not close	Values set for shut-off are not correct	Adjust setting according to instructions
The reel overwinds during pull-off or the PE-pipe windings become loose	Tractor stopped abruptly	Slow down gradually
	No oil in change-speed gearbox	Refill oil
The desired retraction speed is not reached	Incorrect transmission	Select correct transmission of V-belt and gearbox
	Sprinkler nozzle blocked	Remove foreign object
	General: compare supply pressure and water flow with performance chart values	

15 SETTING INSTRUCTIONS FOR GEARBOX G 4

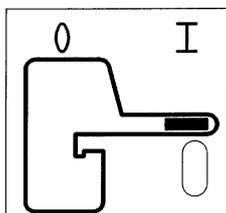


15.1 SETTING OF SHIFTING GATE

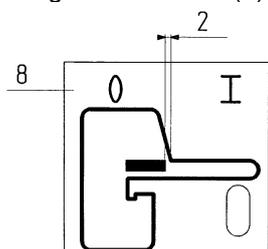
Set shifting gate (8) to gear shut-off point.

Procedure:

Bring shut-off lever (9) in position "PE-pipe retraction".



Actuate clutch shaft (10) – power take-off shaft (11) follows turning!
 Bring shut-off lever (9) slowly in position "0".



Shut-off point is reached when power take-off shaft stops rotating.
 In this position, adjust shifting gate plate (8) according to drawing (2 mm)!

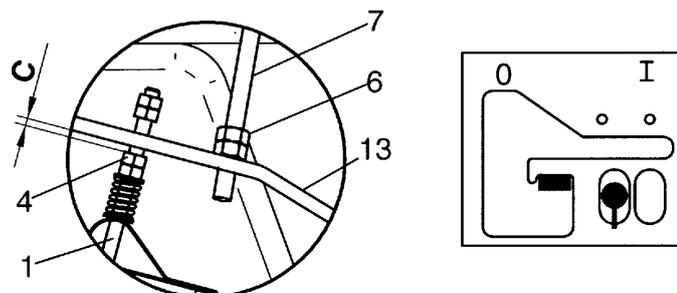
Shut-off lever (9) is pushed up (along the inclined side of the shifting gate) by means of a spring (12) as well as the gear lock device of the gearbox.

15.2 SETTING OF BAND BRAKE ON THE GEARBOX

Tighten the hexagon nuts (2) of the band brake until the male thread of the brake band (1) is swelling by **B = 13 mm**. Fix hexagonal nuts (2) by a locknut.
 Tighten the hexagonal nut (3) until the spring (5) is preload by **A = 22 mm** and fix nut (4) by a locknut.

15.3 SETTING OF THREADED ROD

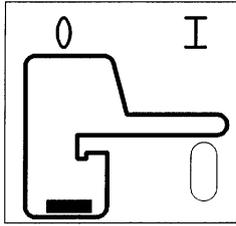
Bring shut-off lever in PE-pipe pull-off position.



Screw apart the hexagon nuts (6) on the threaded rod (7) until the distance between brake lever (13) and nut (4) is **C = 2 mm**.
 Fix hexagonal nuts (6) by a locknut.

15.4 CHECK BAND BRAKE IN ORDER TO RELEASE BRAKE BAND

Bring shut-off lever (9) in position "release".



In this position, the brake band has to be slightly lifted from the brake disk. This prevents the brake band from sticking to the brake disk!

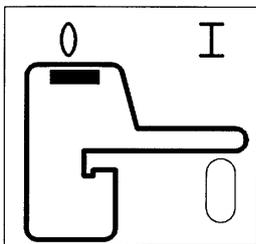
IMPORTANT!

After a longer period of standstill or after winterisation, the brake band may stick. Therefore, it has to be loosened before machine is operated again! Turning the power take-off shaft to the left and right by means of the hand wheel can loosen it. Disregard may lead to fracture of gearbox!

15.5 EINSTELLUNG DER GETRIEBEABSCHALTUNG

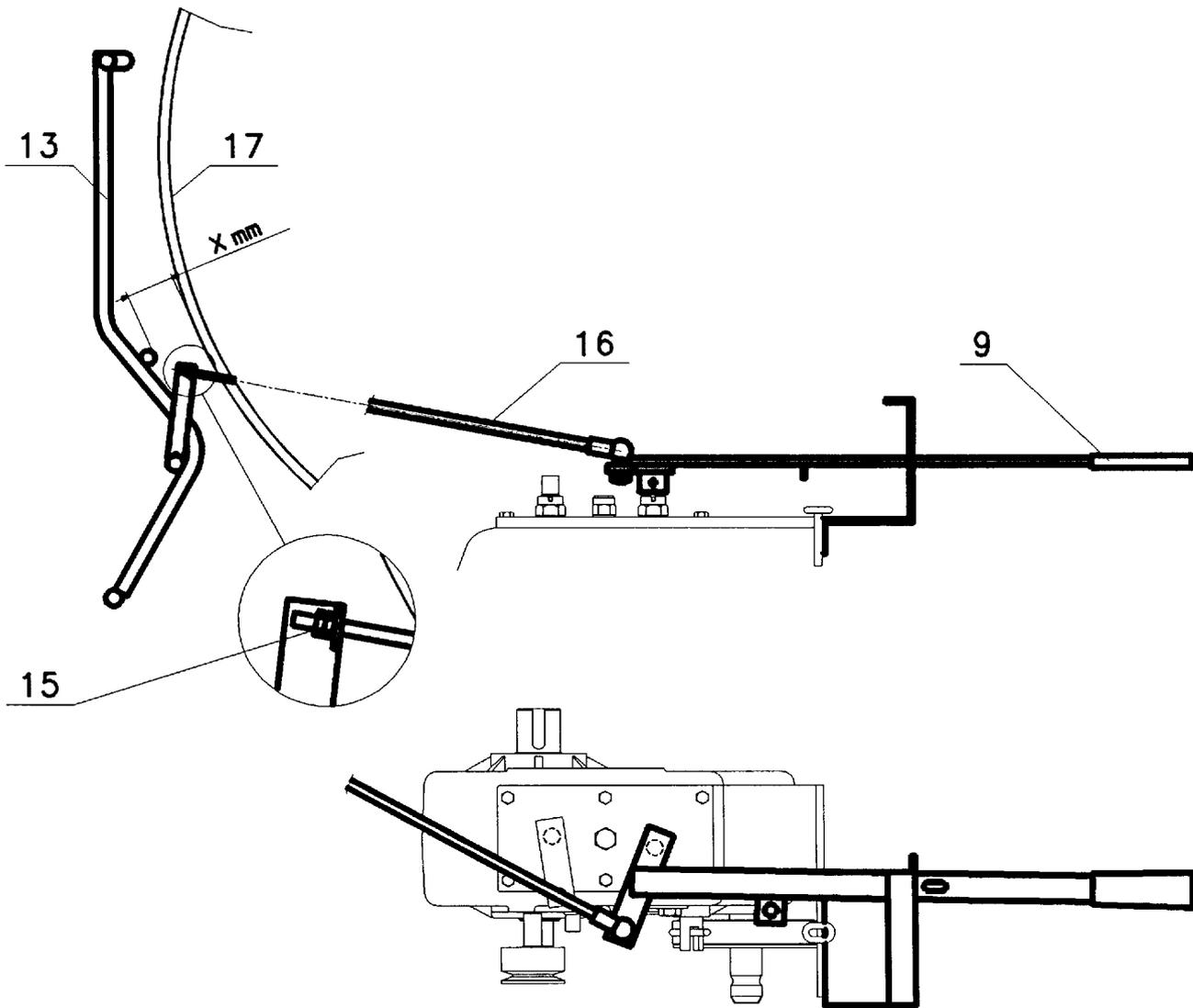
Set the feeling frame (13) with X towards the reel (17) (see table).

Bring the shut-off lever (9) in shut-off position.



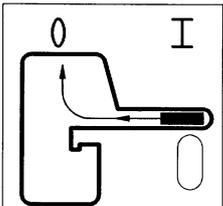
Place the hexagon nut (15) of the sliding selector shaft (16) to the lever (14) of the feeling frame. Fix nut by a locknut.

Pipe \varnothing	X mm - E61H	X mm - E61S
110	85	75
120	85	75
125	85	75

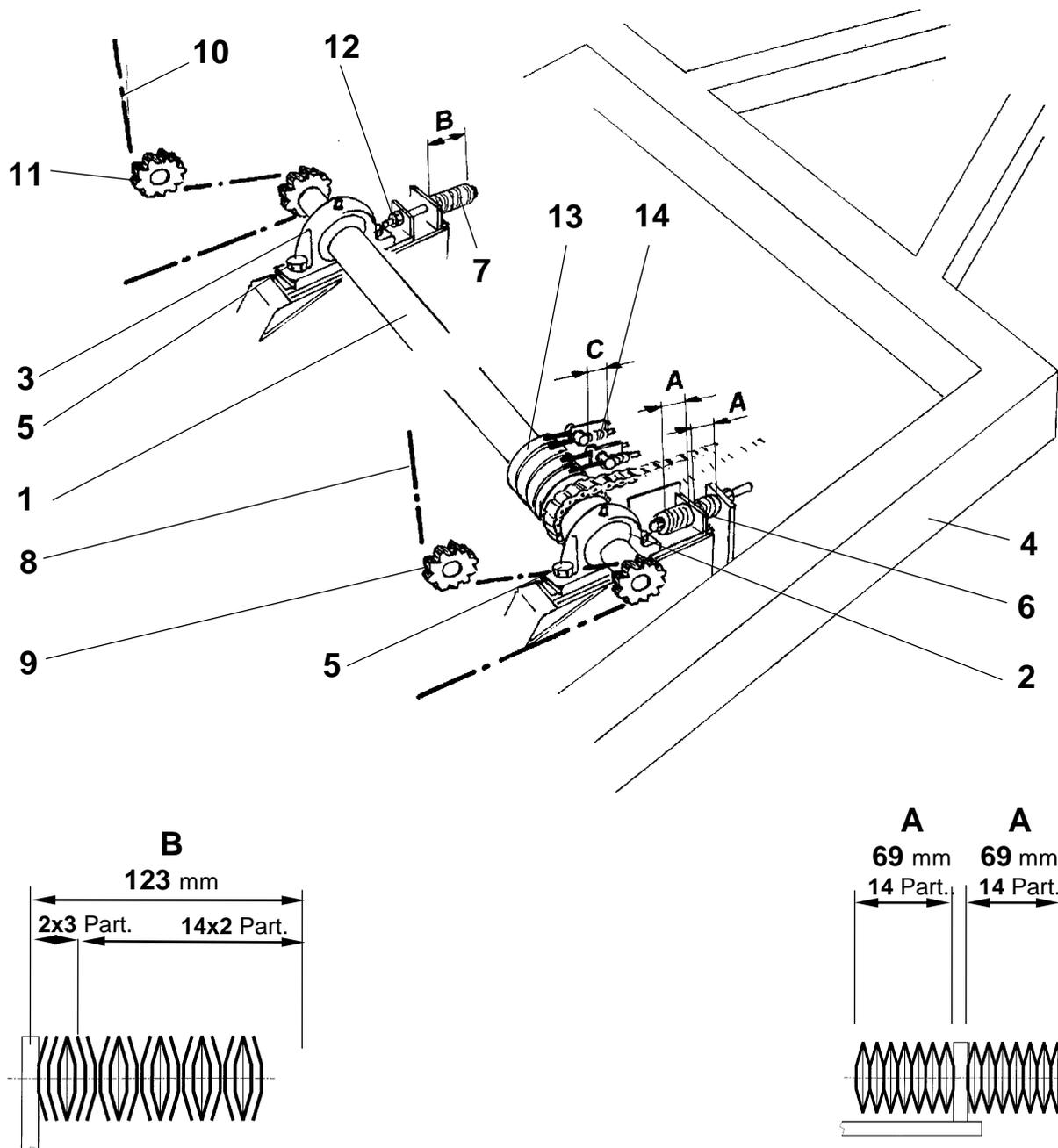


15.6 CHECK SHUT-OFF:

Set up feeling frame (13) to PE-pipe (last winding).
Bring shut-off lever (9) in position "PE-pipe retraction".
Pull feeling frame (13) to shut-off position (= X mm from reel).
Shut-off lever must leap in shut-off position!



15.7 SETTING OF INTERMEDIATE SHAFT FOR REEL CHAIN



Screw the intermediate shaft (1) to the frame (4) with bearings on the right (2) and left (3).
Screw the fixing screws (5) of the bearings (2) and (3) with an axial play of approx. 0.5 mm.

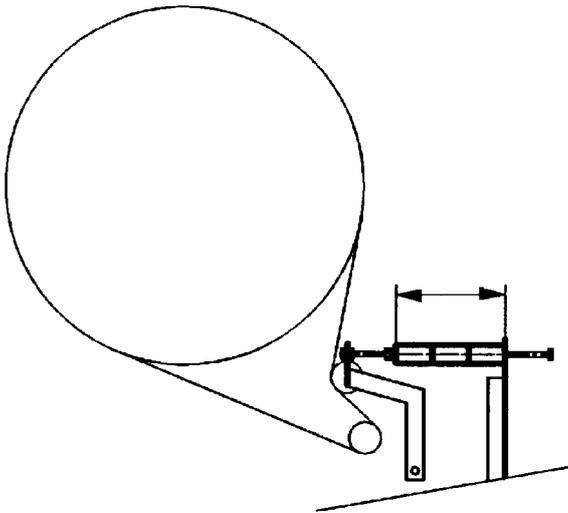
**IMPORTANT!**

The intermediate shaft balances the driving power of the reel (by a spring assembly) and it must have enough room to slide on the frame. Therefore, the fixing screws (5) must not be tightened!

Prestress the spring assembly on the right (6) and left (7) side according drawing (“A” = 69 mm [6] and “B” = 123 mm [7]).

Mount the right driving chain (8) and the chain adjuster (9).

The loaded length of spring for the chain adjuster (9) on the reel is „D“ = 242 mm

**D**

The lower part of the chain is stretched now.

Mount the left driving chain (10).

The lower part of the chain is loose.

By means of hexagonal nut (12) push intermediate shaft (1) with bearing (3) forward until the lower chain part is stretched.

Mount chain adjuster (11).

The loaded length of spring for the chain adjuster (11) on the reel is „D“ = 242 mm.

Tighten hexagon nut (12) by another 7 mm. Because of that, the spring assembly (7) is slightly pressed.

15.8 SETTING OF THE BAND BRAKE ON INTERMEDIATE SHAFT

The band brake is mounted on the shaft by 4 brake bands (13) and prevents the PE-pipe placed on the reel from loosening during the pull-off process.

The springs (14) of the band brake are continuously prestressed, with “C” = 55 mm each (see page 30).

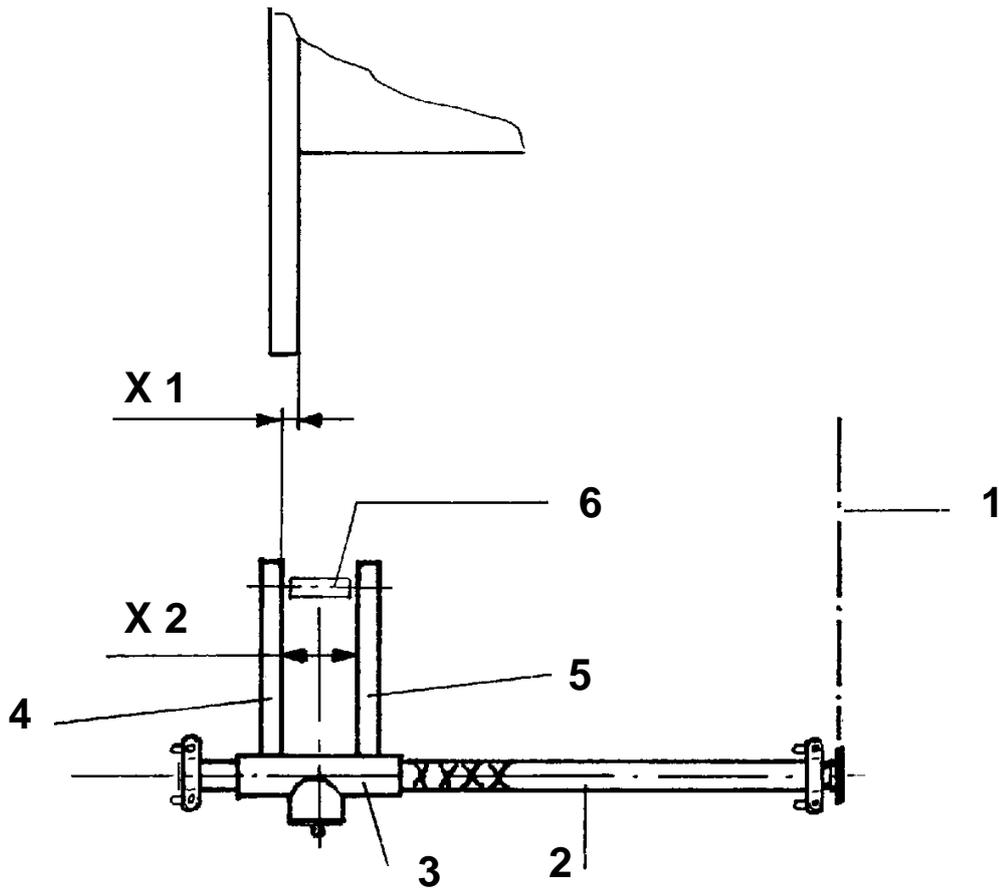
15.9 EINSTELLEN DER WICKELVORRICHTUNG

Loosen the winding driving chain (1) between reel and helically grooved spindle.

The helically grooved spindle (2) with the plummer blocks is placed in the mounting holes that are placed on the right and left side of the cheek.

The guiding part (3) of the winding slide is brought to the most ultimate left return point of the nut by turning the helically groove spindle.

Place the left guide piece (4) of the winding slide according to drawing (Dimension X 1 towards reel cheek) and fix on guiding piece (3).



PE – Pipe Ø	X 1	X 2
110	12	135
120	17	145
125	30	160
140	20	165

Adjust right guiding piece (5) according to guiding width X 2 and fix it.



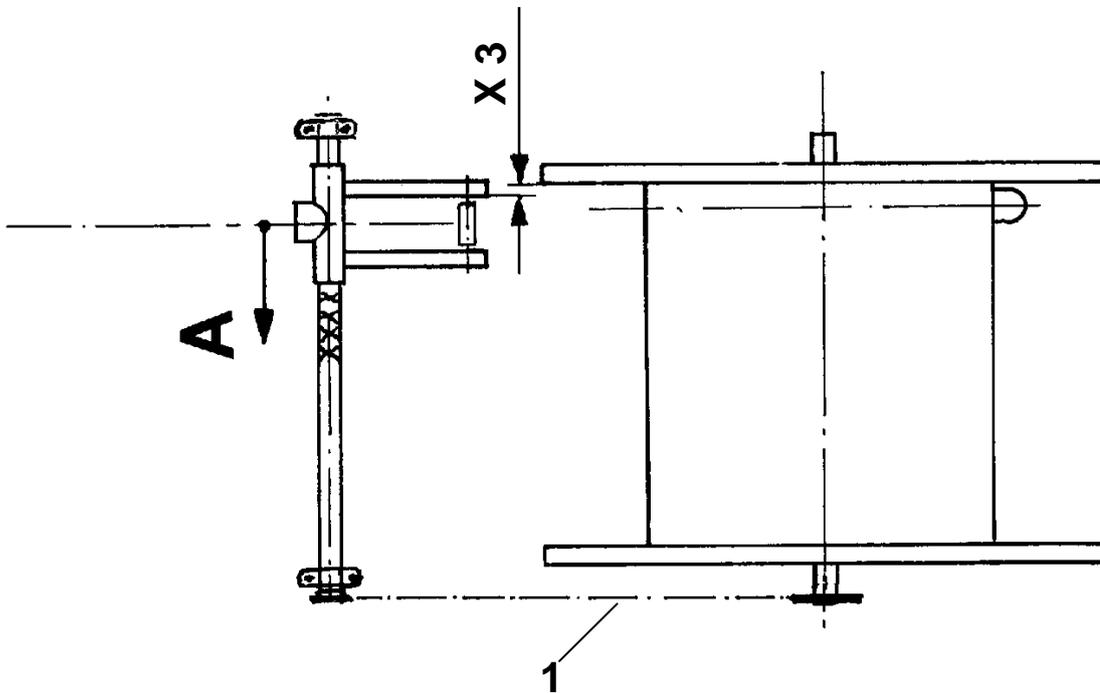
WARNING!

When using a PE-pipe repair coupling, the guiding width X 2 has to be symmetrically enlarged by 15 – 20 mm!

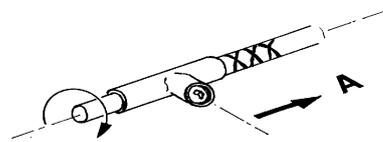
Mount pulley carrier (6) with roll.



By turning the helically groove spindle, place the left guiding piece to inner cheek of reel (X 3).

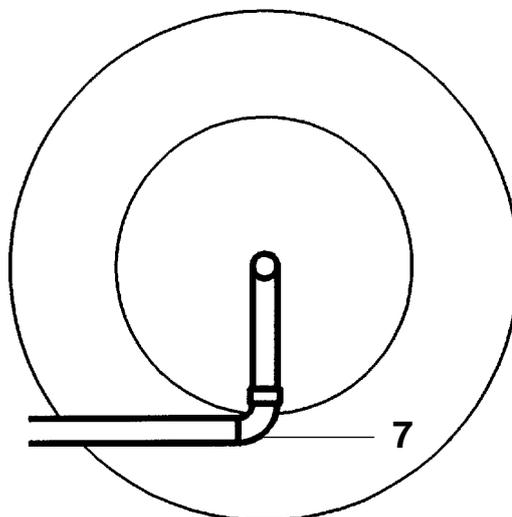


PE - Pipe \varnothing	X 3
110	25
120	25
125	25
140	25



	WARNING!	At the same time, turn spindle according to winding process (clock-wise, see drawing).
		In so doing, the winding slide is moving to the right side (direction A), starting from return point.

The inlet bow (7) on the PE-pipe is directed vertically down.





Mount winding driving chain (1).

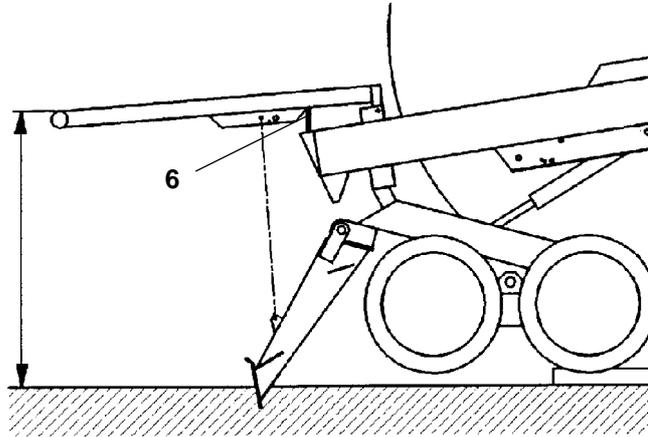
15.10 SETTING OF CART LIFT

The machine E 61 H is lowered on the turntable.

The machine E 61 S is placed on wheels.

Set cart lift with adjusting screw (6).

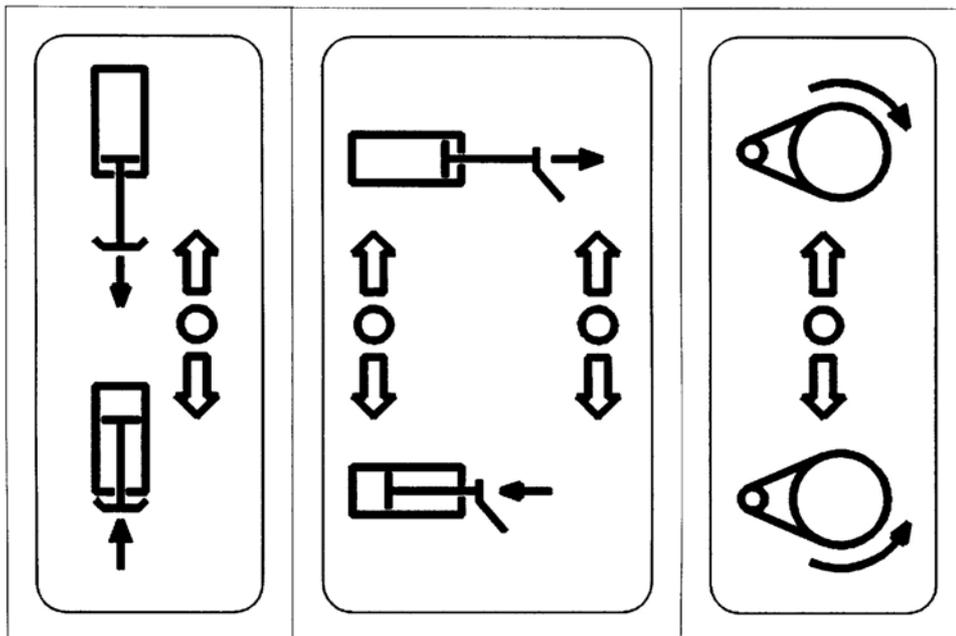
E 61 H = 1700 mm
E 61 S = 1820 mm



15.11 DESCRIPTION OF HYDRAULIC SYSTEM – MODEL E 61 H

The standard Rainstar is equipped with a hydraulic support, a hydraulic jack, a hydraulic slewing mechanism and a quadruple guiding valve block.

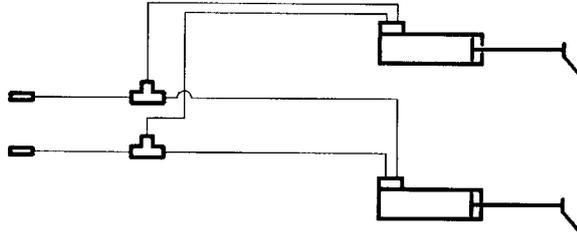
Check hydraulic system and stickers. Replace the hydraulic hoses as soon as opposite cylinder movements occur!



Jack

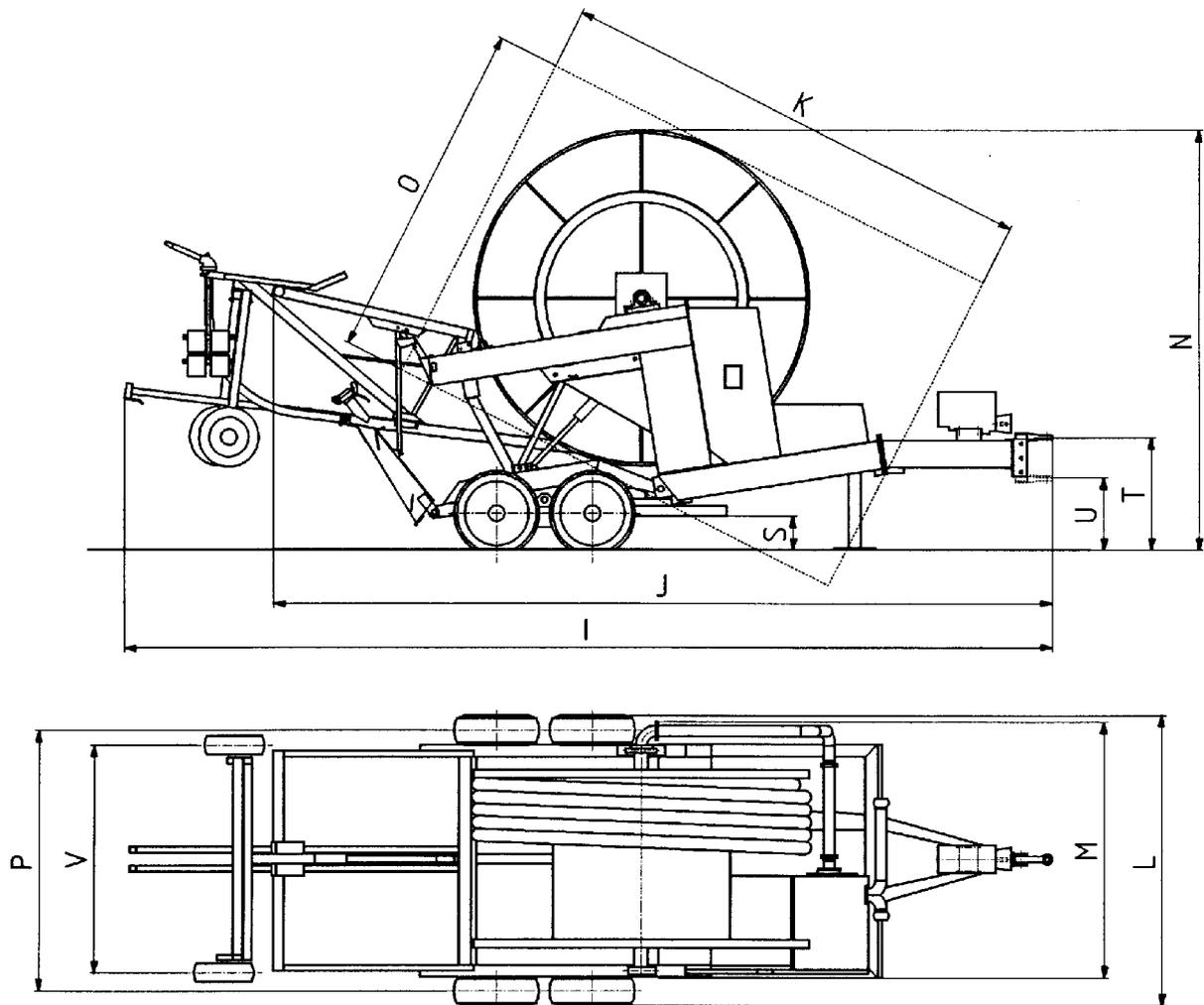
Support

Slewing mechanism



IMPORTANT!

Due to safety reasons, always operate hydraulic system with special care. From operating place, the support placed on the right backside and the cart zone cannot be seen directly. Therefore ensure, that there is nobody in the close area of the machine!



- | | | | |
|----------|-------------------------------|----------|-----------------------------------|
| A | PE-pipe diameter x length | M | Dispatch width |
| B | Maximum strip length | N | Total height |
| C | Turbine | O | Dispatch height |
| D | Blower output | P | Wheel gauge undercarriage |
| E | Infeed pressure | Q | Tire equipment undercarriage |
| F | Nozzle zone | R | Tire pressure undercarriage |
| G | Weight PE-pipe with water* | S | Free passage height |
| H | Weight PE-pipe without water* | T | Height pull ring - standard |
| I | Total length with cart | U | Height pull ring – lower coupling |
| J | Total length without cart | V | Wheel gauge cart |
| K | Dispatch length | W | Tire equipment cart |
| L | Maximum width | X | Tire pressure cart |

* Total weight with cart, sprinkler and 4 cart weights.



Typ		E 61 H (E 61 S 2000) [E 61 S 2500]										
		110-700	110-750	120-650	120-690	120-730	125-550	125-590	125-650	125-700	140-430	140-480
A	mm x m	110x700	110x750	120 x 650	120 x 690	120 x 730	125 x 550	125 x 590	125 x 650	125 x 700	140 x 430	140 x 480
B	m	750	800	700	740	780	600	640	700	750	480	530
C		TVR 60										
D	m ³ / h											
E	bar	3,5 - 11										
F	mm	18 - 26		22 - 32	22 - 30			24 - 34				
G	kg	12 370	12 845	12 845	13 615	14 065	12 465	12 960	13 700	14 440	12 430	13 200
H	kg	8 435	8 635	8 575	9 145	9 430	8 185	8 500	8 960	9 700	8 140	8 450
I	mm	9180										
J	mm	7710										
K	mm	4730										
L	mm	2870 (2580 u. 2670) [2820 u. 3070] **										
M	mm	2580										
N	mm	4155 (4190) [4020]										
O	mm	3365										
P	mm	2580 (2000 u. 2250) [2500 u. 2750]										
Q	bar	11,5 / 80 - 15,3 ([12,5 / 80 - 15,3])										
R	mm	5,5										
S	mm	340 ([400])										
T	mm	1115 (1150) [980]										
U	mm	720 (755) [585]										
V	mm	1500 - 3000										
W	bar	165 / 70 R13										
X	bar	2,2										

** Dimensions depend on track (P)



16 CONFORMITY CERTIFICATE

EC Declaration of Conformity according to EC Directive 2006/42/EC

The manufacturer

Röhren- und Pumpenwerk BAUER Gesellschaft m.b.H.
Kowaldstraße 2, 8570 Voitsberg, Austria
phone +43 3142 200-0; fax: +43 3142 200-320/-340

herewith confirms that the machine mentioned below

Designation of machine	RAINSTAR
Machine type / basic units	E 61
Consists of	Irrigation machine with cart

corresponds analogously to the requirements of the Machinery Directive 2006/42/EC.
In case of a modification of the machine not accorded with FAN GmbH, this declaration will cease to be valid.

The following standards as amended have been applied analogously:

DIN EN ISO 12100-1	Safety of machines – Basic concepts, general principles for design, Part 1: Basic terminology, methodology
DIN EN ISO 12100-2	Safety of machines – Basic concepts, general principles for design, Part 2: Technical principles and specifications
DIN EN 60204-1	Safety of machines - Electrical equipment of machines, Part 1: General requirements
EN ISO 14121-1	Safety of machines – Risk assessment

Norms related to products

DIN EN 908	Irrigation machine with hard hose reel
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Person in charge of documentation: Thomas Theissl, Kowaldstraße 2, 8570 Voitsberg, Austria,

Technical Designer in Charge

Röhren- und Pumpenwerk
BAUER
Gesellschaft m.b.H.
A-8570 Voitsberg / Austria

Commercial Manager

Voitsberg, 26. 6. 2013