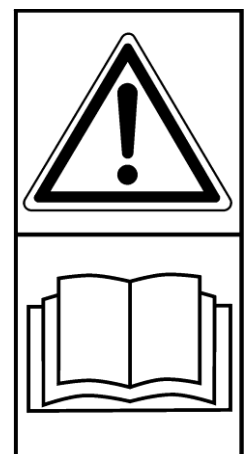




Instructions for Use and Maintenance

V-plough VP150-VP320



Note! Read instructions before use.



TREJON AB
Företagsvägen 9
SE-911 35 VÄNNÄSBY
SWEDEN
Tel: + 46 (0)935 39 900
Fax: + 46 (0)935 39 919



SAFETY SYMBOLS

Note! This warning symbol is used throughout this instruction manual to call attention to safety precautions that you, your employees or any other people that may come near the implement must read and understand. Failure to follow these instructions may result in serious injury or even death.

This symbol means:



WARNING!
CAUTION!
YOUR SAFETY IS
ENDANGERED!

A word of advice

Pay special attention to the words **WARNING!**, **CAUTION!** and **NOTE!** in the safety instructions. The words have been chosen from of the following:



WARNING! This safety sign is used to identify potential hazards that can lead to serious injury or even death. These hazards include situations that may occur when the safety equipment and/or the safety shields are removed. Signal words can also be used to alert about dangerous use.



CAUTION! Failure to observe this warning sign could result in light personal injuries. The sign is also used to indicate that the disregarding of these instructions may cause damage to the implement.

Dear Customer,

You have made a good choice. We congratulate you to your selection of an OPTIMAL product that offers quality and performance with reliable service.

By reading the manual and following its recommendations you will ensure the long and effective use of the equipment.

We have produced this manual for you to get a good understanding of the functioning of the equipment and what safety and maintenance instructions to follow when working with it. If any question should arise when using the equipment or when reading this manual, you are welcome to contact us for further information.

TREJON AB
Företagsvägen 9
SE-911 35 Vännäsby
Sweden

Tfn: + 46 (0)935 39 900
Fax: + 46 (0)935 39 919,
Repair parts, Fax: +46 (0)935 20241
Email: info@trejon.se
Website: www.trejonindustries.se

Honoured retailer,

in order for the guarantee to be valid and to fulfill all legal requirements, we ask you to fill out the guarantee form together with the customer and register at trejon.se

The guarantee is valid from the day the equipment is handed over to the customer.

Delivery checklist:



| | |
|---|--|
| Check for damages caused in transporting. Inform the transporting company. | |
| Check that all packing material has been taken away. Dispose packing material in an environmentally friendly way | |
| Check that the machine is lubricated, see section "Service and maintenance". | |
| Check that all screws are properly tightened, see section "Service and maintenance". | |
| Make a function test. | |
| Having gone through and explained to the customer, with the help of the manual, the startup, use and maintenance of the equipment and it's accessories. | |
| Fill out the guarantee form with the customer and register at trejon.se It can be found as an attachment to this manual and as a copy on the last page. | |
| Instruction manual given to the customer. | |

| | |
|---|------|
| Enter the serialnumber of the equipment to the right. | S/N: |
|---|------|

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1 Introduction

We strongly recommend that you read the user's manual and the safety instructions carefully. The operator must be familiar with the V-plough in order to ensure safe usage.

1.1 Description of V-plough

This appliance is designed for snowploughing streets, car parks and other areas.

The appliance is intended for mounting onto an available attachment on farm tractors, bucket loaders and compact tractors. The OPTIMAL V-plough can be equipped with a quick coupling for mounting onto most tractor models. The standard V-plough is equipped with an electric hydraulic power unit.

The V-plough can be set to three different positions depending on the type of work to be done. POINTED SNOW PLOUGH for conventional snowploughing, Y- PLOUGH for pavements, street crossings and other areas where the collecting and removing of snow is desirable, DIAGONAL SNOW PLOUGH for car parks, streets etc. The scraper steels are spring-loaded and reversible. The outer scraper steels have bent-over edges (scraper steels for pavements) which reduce the risk of damage when an obstacle is encountered. The OPTIMAL V-plough has a hinged suspension, which enables the implement to follow uneven surfaces.

The larger ploughs is as standard equipped with a so-called diagonal valve, which make it possible to operate the wings individual or both together parallel (when one wing moves in the other one moves out). With a diagonal valve the plough can be used in the same convenient way as a traditional diagonal scraper blade.

2 Safety instructions

Safety precautions



This plough is intended for snowploughing.



Keep individuals, animals and vehicles out of the working area.



Be careful not to hit kerbs and traffic islands.



The machine can catch stones or other hidden objects and then discharge them during snowploughing.



CRUSH HAZARD! Be aware of the risk of being caught between the plough wings and the central piece. KEEP CLEAR of the working area when the tractor is running.



Never reverse the tractor when the plough is lowered (wrong direction).



Always turn off the tractor's engine when maintaining and repairing the implement.



CAUTION! WARNING! CRUSH HAZARD!

Avoid getting caught between central piece and the plough wings

3 Technical description

The wings of the V-plough can be individually adjusted to pivot forwards and backwards: 30° with model 150, 180 and 210. And models 240, 280 and 320 can move 35°.

Thanks to this, the plough can be used in a pointed, diagonal, or Y position:

3.1 Attachment

The attachment is articulated for a horizontal tilt of up to 8°.

With normal driving the tilt can be 8°. Always supply details of the type of mounting system or the suspension of the vehicle onto which the plough is to be installed when ordering a V-plough.

3.2 Skid shoes

The V-plough is equipped with two skid shoes which can be set to different heights, see figure 1, pos.10. During the season's first ploughing, it is most suitable to set the skid shoes to a lower position in order to avoid unnecessary wear on the scraper steels. After that the skid shoes should be set to the same height as the scraper steels.

3.3 Scraper steels

The scraper steels are reversible. Each mouldboard is spring-loaded thus reducing the risk of damage when an obstacle is hit.

The plough is delivered with scraper steels with bent-over edges (plough blades for pavements) that reduce the risk of damage if a kerb is hit. These scraper steels can be reversed by shifting the left to right mouldboard.

3.4 Hydraulics

The V-plough is powered by a double-acting hydraulic outlet connected to the tractor's hydraulic unit or the third or fourth hydraulic function of the loader.

Models with diagonal valve: Are equipped with an electric/hydraulic diagonal valve which make it possible to operate the wings individual or both together parallel (in diagonal mode). The electric/hydraulic diagonal valve is operated by a hand unit in tractor's cabin.

Models with electrical valve: Are equipped with an electro-hydraulic solenoid valve, which means that you operate one plow wing at a time. The electro-hydraulic solenoid valve is operated via a switch in tractor cab.

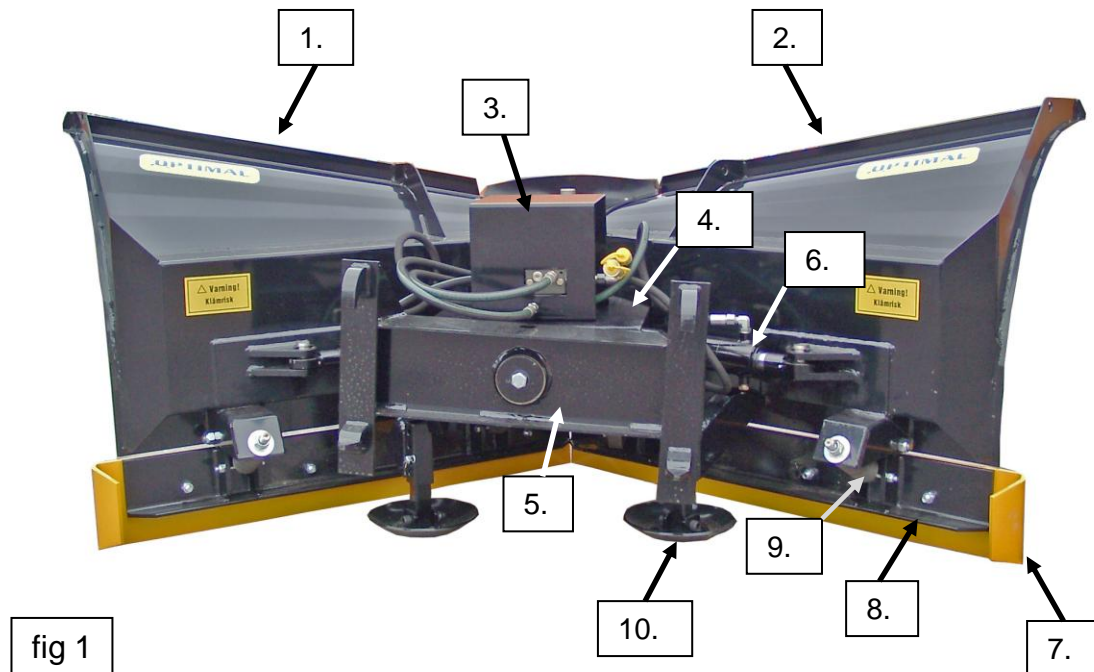
4 Technical data

| Part.No/Model | VP150 | VP150D | VP180 | VP180D | VP210 | VP210D |
|----------------------------------|----------|-----------|----------|-----------|----------|-----------|
| Connecting frame | Option | Option | Option | Option | Option | Option |
| Height, cm | 84 | 84 | 84 | 84 | 86 | 86 |
| Width straight, cm | 159 | 159 | 189 | 189 | 219 | 219 |
| Width diagonal, cm | 141 | 141 | 167 | 167 | 193 | 193 |
| Width V-position, cm | 138 | 138 | 164 | 164 | 190 | 190 |
| Weight, kg | 240 | 245 | 250 | 255 | 265 | 270 |
| Actuation | Hydr./El | Hydr./El | Hydr./El | Hydr./El | Hydr./El | Hydr./El |
| Control valve | Electric | Diagonalv | Electric | Diagonalv | Electric | Diagonalv |
| Lighting | Option | Option | Option | Option | Option | Option |
| Angulation of the wings, degrees | 30 | 30 | 30 | 30 | 30 | 30 |

| Part.No/Model | VP240 | VP280 | VP320 |
|----------------------------------|------------|------------|------------|
| Connecting frame | Option | Option | Option |
| Height, cm | 99 | 99 | 99 |
| Width straight, cm | 257 | 288 | 328 |
| Width diagonal, cm | 203 | 237 | 270 |
| Width V-position, cm | 230 | 262 | 295 |
| Weight, kg | 470 | 580 | 660 |
| Actuation | Hydr./El | Hydr./El | Hydr./El |
| Control valve | Diagonalv. | Diagonalv. | Diagonalv. |
| Lighting | Option | Option | Option |
| Angulation of the wings, degrees | 35 | 35 | 35 |

The plough is delivered with a 12-volt coil, which can be replaced with a 24-volt coil.

5 Detailed description



| | | | |
|----|---------------------------------|-----|-------------------------------------|
| 1. | Plough wing left | 7. | Scraper steel |
| 2. | Plough wing right | 8. | Scraper steel holder |
| 3. | Valve | 9. | Spring |
| 4. | Central piece | 10. | Support disc (adjustable in height) |
| 5. | Connection frame (Option) | | |
| 6. | Cylinder for operating of wings | | |

6 Installation

6.1 Lifting instructions

The V-plough is delivered strapped onto a Euro pallet. There are two ways of lifting the plough from the pallet.

- Directly onto the tractor's attachment
- By a lifting tool such as a chain. Attach the lifting tool to the plough wings via the holes on the supports, pos. A as well as around the hooks on the implement's attachment arm, pos. B.

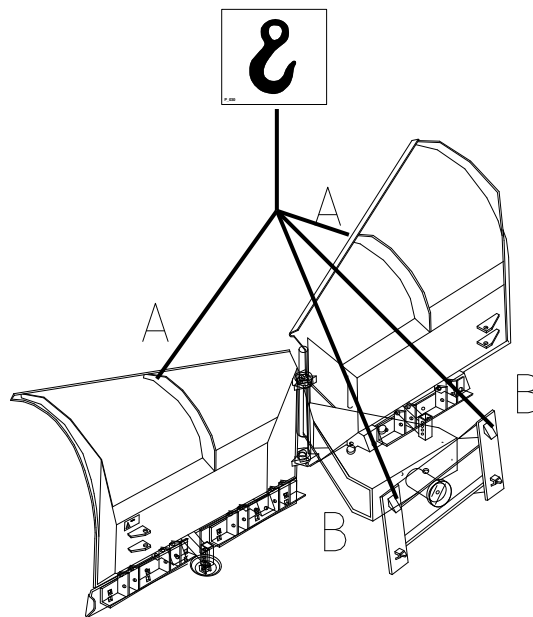


Fig.2



CAUTION! ENSURE THAT NO ONE IS IN THE RISK ZONE DURING LIFTING.

6.2 Attaching the plough to the vehicle

The V-plough's attachment arm fits the system of which details you supplied when ordering the plough.

Mount the V-plough onto the tractor's attachment as described in the tractor's manual.

Ensure that the plough moves freely out of the tractor when attaching the plough.

6.3 Hydraulics

The V-plough is equipped with two 1.5-metre pressure hoses for attaching to the loader's third hydraulic function or to another double-acting outlet on the tractor.

When in doubt about how to install the hydraulics, contact the tractor's supplier.

Models with Diagonal valve: The valves have a built-in shock function. If the hydraulic pressure inside the positive side of the cylinder exceeds the set limits, the shock valve opens, releasing surplus pressure in an accumulator.



Warning!

Modifications at ploughs hydraulic system and its connections will result in damages at machine it hitting any firm obstacle.

6.4 Electricity

Models with Diagonal valve

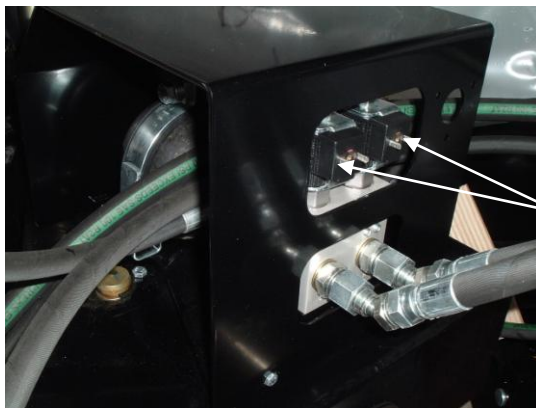


Fig. 3

Check that rated voltage at coils agree with voltage from tractor.
Machine at photo is equipped with diagonal valve.

The V-plough is delivered with a hand unit and cable loom for connection to the plough and for power supply (position lights is an option). Hand unit will be mounted in tractor's cabin in a way that makes it easy to operate.

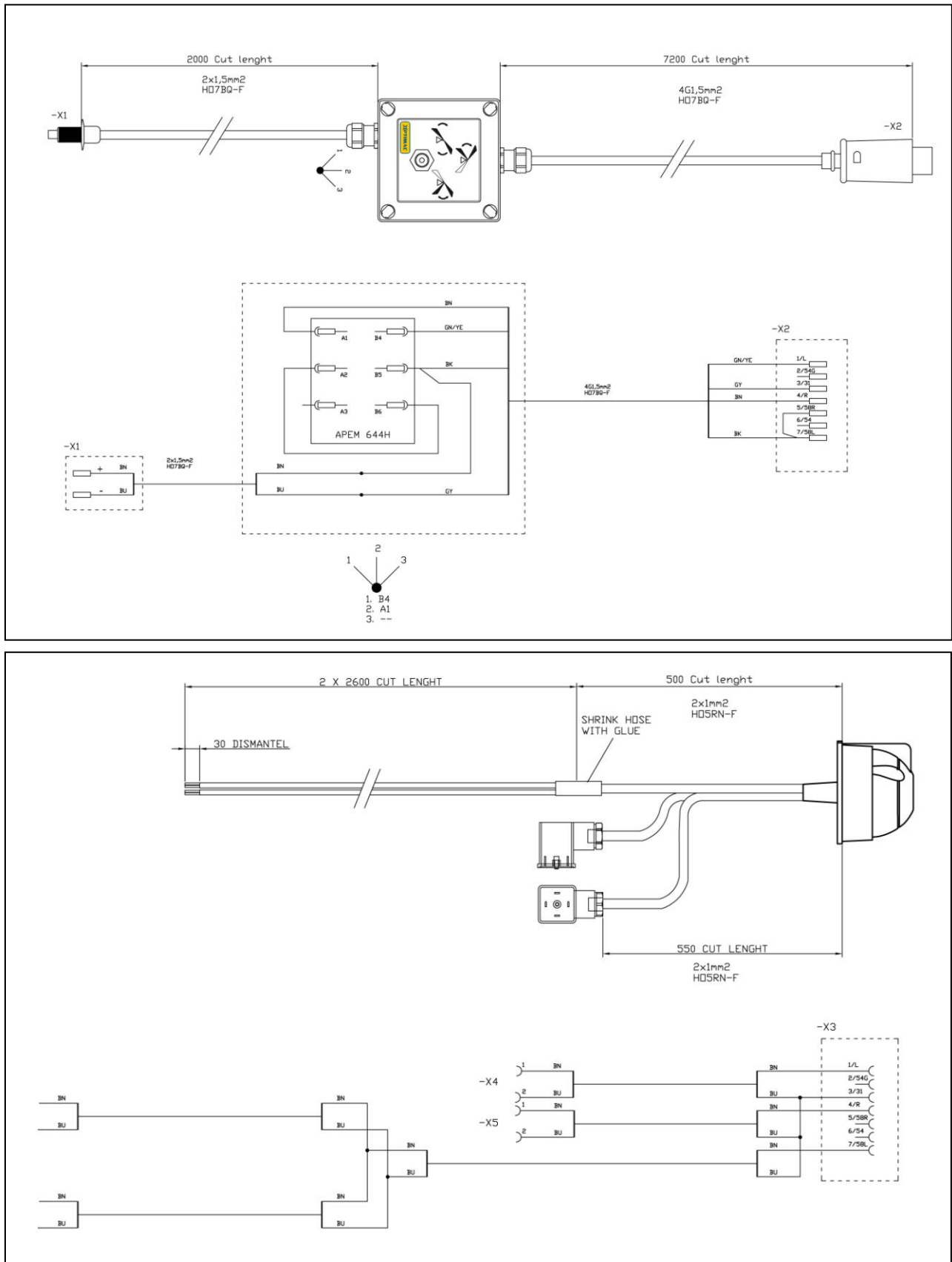


Fig.4 Electric diagram for models with Diagonal valve

Models with Electric valve

With V-plow supplied, switch, male-female power plug, cables and clutch shoes, for connection of the control current to the electro-hydraulic selector valve. The switch is mounted in the cab, so it can be easily operated. Connection is shown in Figure 5.

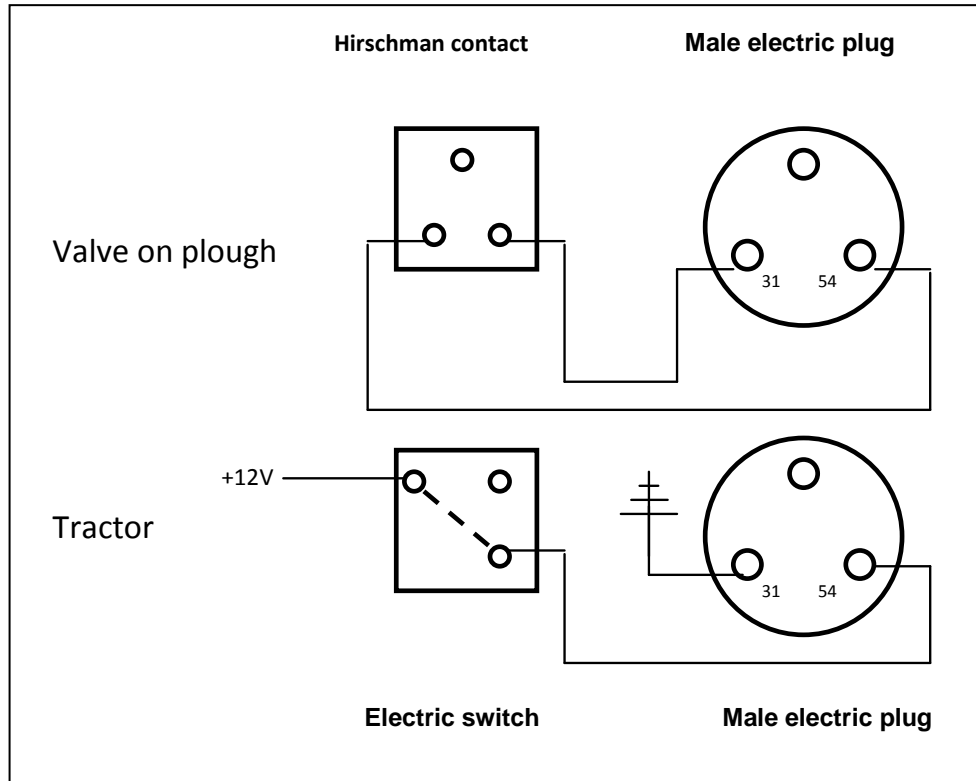


Fig.5

6.5 Hand unit

Models with Diagonal valve

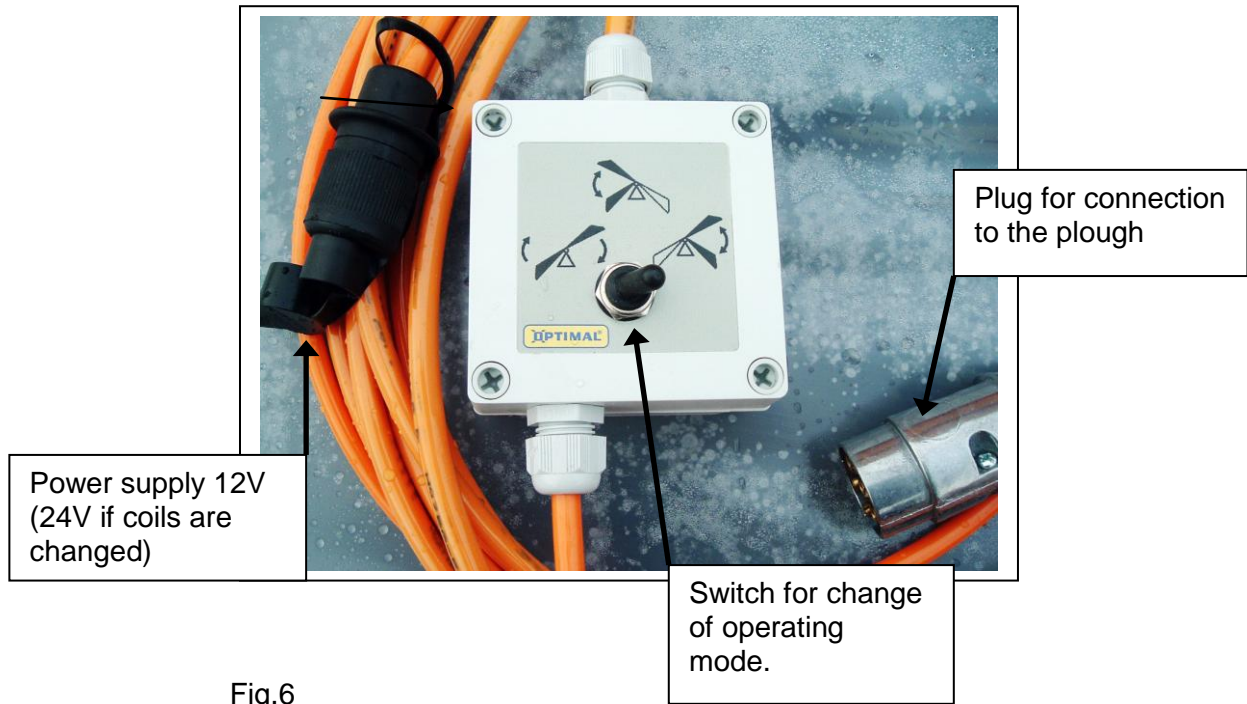


Fig.6

Depending on the position of the switch at hand unit, plough is operated in following way with the double acting hydraulic connection from tractor.

| | |
|--|---|
| | <p>Right wing</p> |
| | <p>Left wing</p> |
| | <p>Diagonal mode, -left and right wing are moved simultaneously in different direction.</p> |

Fig.7

Models with Electric valve

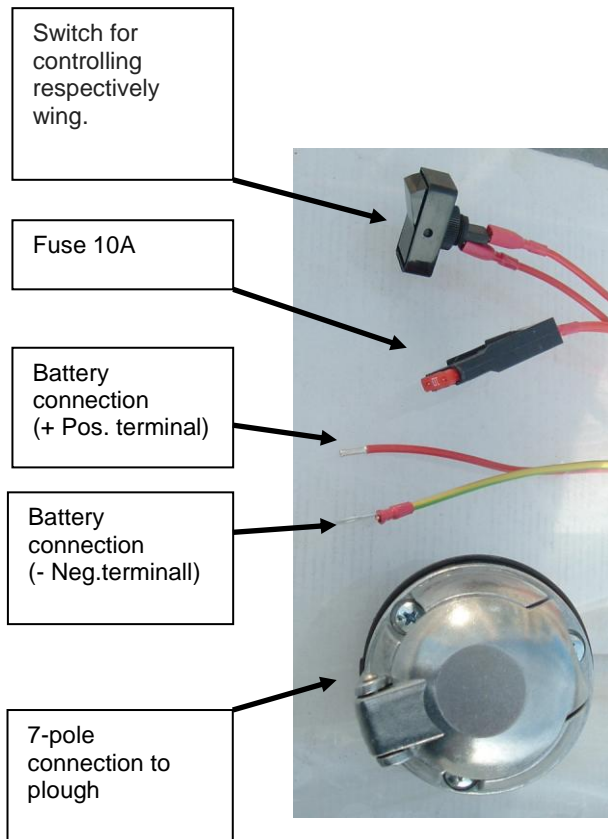


Fig.8 Tractor part

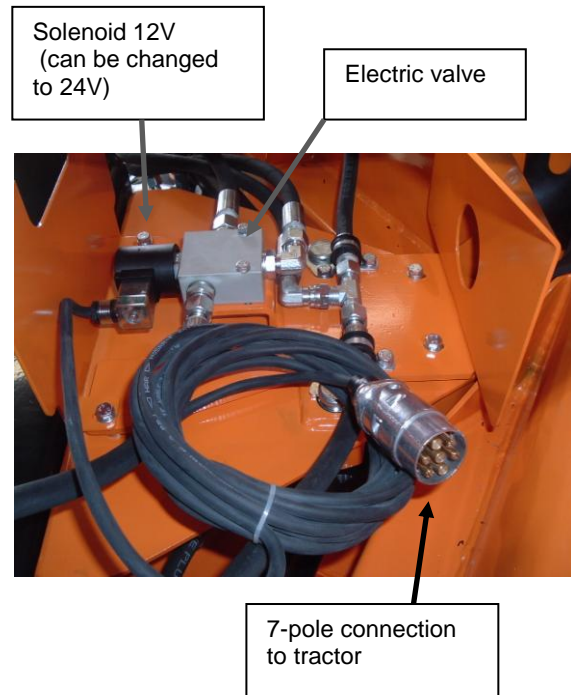


Fig.9 Maschine part

7 Assemble



Caution!

Check that rated voltage at solenoid agrees with voltage from tractor before use.

Valve is delivered with hand unit/switch and cable loom for connection to the plough and for power supply. Hand unit/switch will be mounted in tractor's cabin in a way that makes it easy to operate.

- Mount hand unit/switch in a safe and easy operated place in tractor's cabin.
- Fix the cable loom in a safe way along front loader/tractor.
- After connecting the plough, connect the plug from hand unit to plough. Wind remaining cable, and fix it in a safe way.
- Connect power supply plug to outlet in tractor.

8 Driving instructions



The OPTIMAL V-plough is intended for the ploughing of snow.

The plough can be used as:

- ✓ A POINTED PLOUGH for conventional ploughing.
- ✓ A Y-PLOUGH for pavements, street crossings and other areas where the collecting and removing of snow is desirable.
- ✓ A DIAGONAL PLOUGH for the snowploughing of car parks, streets etc.

The V-plough is equipped with two skid shoes which can be set to different heights. Take care that this skid shoes is clean and can move free. Skid shoes must be levelled to ground before lowering plough, all to avoid damages on attachment device.

Models with Diagonal valve

By means of position of the switch at hand unit, the driver chooses which wing to move (left, right or both in the diagonal mode) and also commands the hydraulic oil flow via a double-acting outlet.



When ploughing in a pointed plough position, don't drive with the cylinders close to bottom. (The accumulators cease to function if the cylinders are very close to bottom). Avoid running into posts, railings etc. The plough is equipped with a shock valve that allows oil from the positive side of the cylinder to flow to the accumulator in case of collision. A collision brings about increased strain on the plough. When the cylinder reaches its lowest mechanical position there is no collision protection and the plough's frame can easier be damaged.

Models with Electric valve

By means of position of the switch at hand unit, the driver chooses which wing to move (left or right) by commands the hydraulic oil flow via a double-acting outlet.



Note that for models with electric valve has **NO** hydraulic collision protection in the form of accumulator or pressure valves. Avoid driving on poles, railings and more. Careful not to hit kerbs and traffic islands.



NEVER DRIVE THE LOADER IN THE FLOATING POSITION!!
Don't push the plough down as this puts unnecessary strain
on the implement and increases wear.

NEVER REVERSE WHEN THE PLOUGH IS LOWERED!!

9 Service and maintenance



ENSURE THAT THE ENGINE IS TURNED OFF WHEN PERFORMING MAINTENANCE

9.1 General maintenance

Check the screw joints every week.

Check the hydraulic hoses and hydraulic couplings at least once a week. If the components are worn or cracked, they need to be replaced.

The hydraulic cylinder packing should only be changed by qualified personnel from the distributor network.

9.2 Lubrication

The lubricant nipples, 10 pieces, should be lubricated once or twice during the season. Use NLGI 2 oil with high EP characteristics.

9.3 Scraper steels

Turn the scraper steels before they start wearing out the plough's chassis. In order to turn the outer scraper steels, shift right and left. Replace scraper steels when they are worn out.



Be careful not to get caught between the scraper steels and the ground when replacing the scraper steels.

9.4 Long term storage

Lubricate all lubricant nipples (10 pieces) with consistent grease.

The skid shoes should be lubricated with spray oil.

Check all hoses, couplings and screw joints for wear and cracks. Replace damaged components. Place the end caps on the hydraulic couplings.

10 Spare parts

10.1 Use original spare parts

Your choice is between “original” or “copies”!

Price is often the deciding factor. A “cheap” choice may well be an expensive one in the end.

Some reasons to choose TREJON spare parts:

- Quality and fit.
- Reliability
- Longer service life and therefore better economics
- Guaranteed availability through the TREJON sales partners

The TREJON original spare parts are specifically made for this equipment. The fitting and/or use of non-original parts and accessories may change the technical qualities of your equipment in a negative way. The manufacturer does not give any guarantee for damages caused by using non-original parts or accessories.

The guarantee does not cover arbitrary changes made on the equipment.



Contact the authorised dealer where you purchased the machine when you wish to order spare parts or need other assistance.

When you are ordering spare parts, make sure you know the model, type and serial number of the machine. See the plate on the chassis.



EC-Certificate of Conformity

conforming to EEC Directions 2006/42/EG

We **TREJON FÖRSÄLJNING AB**
(name of supplier)

SE – 911 35 Vännäsby, Företagsvägen 9

.....
(full address of company – where this concerns authorized agents within the Common Market, also state the company name and manufacturer)

declare in sole responsibility, that the product

V-plough
OPTIMAL VP150, OPTIMAL VP180, OPTIMAL VP210
OPTIMAL VP150D, OPTIMAL VP180D, OPTIMAL VP210D
OPTIMAL VP240, OPTIMAL VP280, OPTIMAL VP320

.....
(make, model)

to which this certificate applies, conforms to the basic safety and health requirements of EEC Directions 2006/42/EG,
(if applicable)
and to the other relevant EEC Directions.

— — —

.....
(title and/or number and date of issue of the other EEC Directions)

(if applicable)
To effect correct application of the safety and health requirements stated in the EEC Directions, the following standards and/or technical specifications were consulted:

EN ISO 12100-1 : 2003 EN ISO 12100-2 : 2003

.....
(title and/or number and date of issue of standards and/or specifications)



Håkan Johansson
Managing Director

Vännäsby, 01.01.2013

.....
(Place and date of issue)

.....
(Name and job function of authorized person)

Guarantee- /assignment certificate

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

ATTENTION!

The guarantee shall enter into force provided that the machine GUARANTEE/ ASSIGNMENT CERTIFICATE has been fully completed and signed by both parties (seller, buyer), and a copy sent in to Trejon AB no later than 14 days from date of sale (the seller is responsible for this happening).

Assignment certificate:

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

PLEASE FILL IN!



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

TREJON AB reserves the right to change or to improve shown models using technical or commercial reasons, without demands to carry out the same improvements on equipment already delivered. Pictures in the manual do not necessarily show the equipment as delivered.

Technical data, weights and measures are without obligation. Reservation for faults.

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TREJON AB
Företagsvägen 9
SE-911 35 VÄNNÄSBY
SWEDEN
Tel: + 46 (0)935 39 900
Fax: + 46 (0)935 39 919

