LEMKEN

Instruction book

Semi-mounted reversible ploughs

EuroTitan
and
EuroTitan X

- EN -

CE Safety is our concern

Part No.: 175 3508
EN-1/11.00

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Dear customer!

We would like to thank you for the confidence in buying this implement.

The advantages of this implement will be shown, only, when operated and used with due care and attention.

When handing over this implement your dealer has already instructed you with regard to operation, adjustment and maintenance. But this short introduction requires an additional detailed study of the instruction book.

Therefore read this instruction book carefully before the first use. Please pay attention to the safety instructions mentioned in this instruction book.

Any changes and modifications carried out not being mentioned expressly in this instruction book, may only be carried out with a written agreement of the manufacturer.

Ordering spare-parts

When ordering spare-parts please state type and serial No. of the implement. This information will be found on the identification plate.

Put down this data on the following table so that it is always available.

Type of implement:
No.:

Only use genuine Lemken spare-parts. Spurious parts negatively influence the function of the implement, show a shorter lifetime and increase in nearly all cases additional maintenance.

We trust that you will understand that LEMKEN is unable to guarantee poor operation and damage caused by using spurious parts!

DEFINED USE

- Please familiarise yourself with the LEMKEN Vari-Opal and its operations before putting the implement to work. Therefore use this instruction book with the „General Health- and Safety precautions“!
- The LEMKEN Euro-Titan have been designed purely for the agricultural use!
  Any use beyond the one stipulated above is no longer considered as defined use!
  Under „defined use“ the manufacturer’s prescribed operation-, maintenance- and repair conditions are to be adhered to!
- The LEMKEN Euro-Titan may only be operated, maintained and repaired by such persons who have been made acquainted with it and who have been advised about the dangers!
- The applicable accident prevention advice as well as the generally accepted safety technical, working, medical and road traffic rules should be adhered to!

BRAKE RETARDATION / DEAD WEIGHT OF THE TRACTOR

- The Euro-Titan may only be used on the field, if the combination (tractor with coupled Euro-Titan) is able to reach the prescribed braking effect.
- The tractor dead weight must never be less than 10.000 kg.
- The Euro-Titan must only be parked on absolutely level and firm ground.

CONTENTS

1 LIST OF VARIANTS

Type of mouldboards:	DURAL-bodies
Plough control:	SVT-R 360
Working width per body:	33, 38,44 and 50 cm
Overload Safety Device:	TAMDEM overload safety device*
Skimmer adjustment:	rigid angle adjustment
Skimmers:	D0 D1 M2 M3
Trashboards:	E4
Lower link connection:	L3 Z3 K 700- linkage
Top link connection:	Cat. III Extension for K 700
Disc coulter:	D 500 G D 500 G, sprung*
Looseners:	Subsoilers
Depth wheels, front:	400/60-15.5
Depth wheel, rear:	10.0/75-15.32
Wide furrow cutter:	BFM (in F-operation, only)
Sword coulter:	AS2
Light carrier:	according to DIN 11027
Warning boards with lighting equipment:	according to DIN 11030
Light bridge:	with warning flash light and working spot light

* with Euro-Titan 10 X

2 SAFETY INSTRUCTIONS

General Safety Instructions

- Before using the machine, always check both it and the tractor for roadworthiness and operational safety!
- As well as the notes in these instructions the operator is advised to comply with the generally applicable safety at work regulations and those relating to use of the public highway!
- The implement may only be operated, maintained and repaired by such persons who have been made acquainted with it and who have been advised about the dangers!
- When driving on public roads with a raised machine the lifting control lever should be locked against unintentional lowering!
- The fitted warning and advisory plates give important information for safe operation; adhering to these increases your own security!
- When using public roads adhere to applicable traffic rules!
- The operator should familiarise him-/herself with all controls and their functions before starting work. During work could be too late!
- The clothing of the operator should fit tight. Avoid wearing any loose clothing!
- To avoid danger of fire keep the implement clean!
- Before beginning to drive check surroundings area (children)!
- Sitting or standing on the implement during operation or during transport is not permissible.
- Attach implements as advised and only to the stipulated positions!
- Special care should be taken when the implement is coupled to or uncoupled from the tractor.
- When coupling or uncoupling the implement bring the supporting stands into the corresponding position (standing safety)!
- Fit weights only to the fixing points provided for that purposes!
- Adhere to the maximum permissible axle loads, total weights and transport width!
- Fit and check transport gear, road lights and warning guards!
- The release ropes for quick coupler latches should hang freely and in the lowered position must not release the quick coupling by themselves.
- Never leave the driver's seat whilst in motion!
- Handling behaviour, steerability and braking are influenced by mounted implements, trailers and ballast weights. Check for sufficient steerability and braking!
- When driving round bends note the width of the machine and/or changing centre of gravity of the implement.
- Put implement into operation only when all guards are fixed in position!
- Never stay or allow anyone to stay within the operating area!
- Never stay in the turning and slew area of the implement!
- Do not operate any hydraulic controls while anybody is in the operating area!

- On all pivoting parts actuated by power assistance (e.g. hydraulics) exists danger of injury by bruising and crushing!
- Before leaving the tractor lower the machine to the ground. Apply the parking brake, stop the engine and remove the ignition key!
- Do not allow anybody between the tractor and implement if the parking brakes are not applied!

Attached implements

- Before mounting or dismounting implements on/from the three-point linkage, move the raise / lower control to the position at which accidental raising or lowering cannot take place!
- In the case of three-point linkage mounting, ensure that the tractor balls and the mounting pins of the implement are of the same category!
- There is the risk of injury from pinch and shear points in the three-point linkage area!
- When operating the external lift controls for the three-point linkage, do not stand between the tractor and implement!
- Always ensure sufficient lateral limitation for the three-point linkage of the tractor in the transport position of the implement!
- When driving on roads with the implement raised, the raise/lower control must be locked to prevent lowering!

Hydraulic equipment

- The hydraulic pipes are under pressure!
- When connecting hydraulic rams, the pipes must be connected as directed!
- Always release hydraulic pressure from both tractor and implement before coupling!
- When connecting hydraulic pipes to the tractor ensure that incorrect use is avoided. If the connections are reversed, the opposite function is carried out (e.g. raising/lowering) and there is a risk of accidents!
- Regularly check the hydraulic pipes and replace them in the event of damage or signs of ageing. The replacement pipes must comply with the technical specification as laid down by Lemken!
- When searching for leaks appropriate aids should be used because of the danger of injury!
- Hydraulic oil escaping at high pressure can penetrate the skin and cause serious injury! When injured see a doctor immediately! Danger of infection!
- Before working on any hydraulic equipment - lower all implements/attachments, release hydraulic pressure where possible and switch off the tractor engine!

Tyres

- When working on the tyres make sure that the implement has been placed on the ground safely and that it is secured by chocks against unintentional rolling!
- Fitting tyres requires knowledge and special tools!
- Repair work on tyres may only be conducted by trained staff and with suitable tools!
- Check air pressure regularly and adhere to the advised air pressure!

Maintenance

- Repair-, maintenance- and cleaning operations as well as adjustments and remedy of function faults should principally be conducted with engine stopped and brakes applied. Remove ignition key!
- Check and tighten nuts and bolts regularly!
- When conducting maintenance work on a lifted implement always place suitable supports underneath!
- For replacing any tools with cutting edges always use suitable tools and gloves!
- Dispose of old oils, grease and filters as prescribed by law.
- Before working on the electric gear disconnect battery cables!
- When conducting electrical welding operations on the tractor or on the mounted implement remove cable from the generator and the battery!
- Any spare parts fitted must meet with the implement manufacturer's fixed technical standards! This is for example ensured by using genuine spare parts!

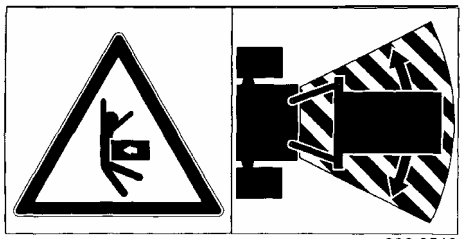
3 WARNING STICKERS

3.1 General Instructions

The LEMKEN Euro-Titan is equipped with all features to ensure safe operation. Where potential danger areas of the implement can not be fully safeguarded, warning stickers are fitted which draw attention to these. Damaged, lost or unreadable warning stickers must be replaced immediately. The stated numbers are used as order numbers.

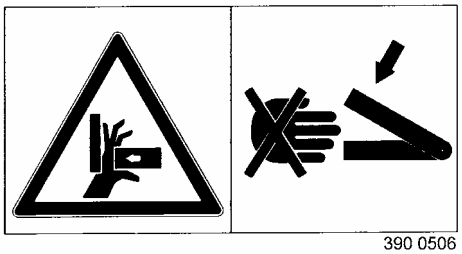
3.2 Meaning of the stickers

Familiarise with the meaning of the stickers. The following descriptions inform about them in detail.



390 0510

WARNING: KEEP WELL CLEAR OF THE WORKING AND SWINGING AREA OF THE IMPLEMENT!



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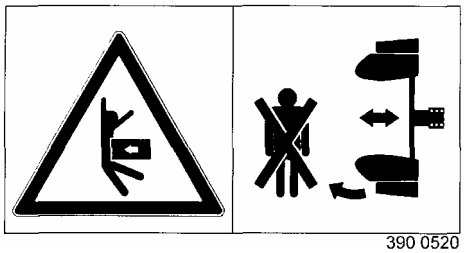
WARNING: PINCH POINT!



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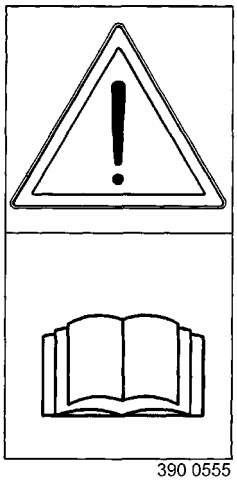
WARNING: KEEP WELL CLEAR OF THE TURNING AND SWINGING AREA OF THE IMPLEMENT!



390 0555

WARNING: READ AND ADHERE TO THIS INSTRUCTION BOOK AND THESE „GENERAL HEALTH- AND SAFETY PRECAUTIONS„ BEFORE PUTTING THE IMPLEMENT TO WORK!

4 PREPARATION OF TRACTOR

4.1 Three point linkage

The three point linkage must be strong enough when working with the plough. The maximum torque acting on the three point linkage is approximately 47.000 Nm (4.700 kpm) during turnover operation.
Adjust lift rods to equal length. (See manufacturer's instructions.)

4.2 Check Chains or Sway Blocks

Check chains or sway blocks MUST be adjusted so that the lower links are fixed in their middle position.

4.3 Hydraulics

The lift hydraulics must be set to 'Position control' during work.

4.4 Socket

For the electrical uses the following sockets must be available at the tractor:

	Volt	**Socket**
Lighting equipment	12	according to DIN-ISO 1724
Control box for electrical control valve	12	according to DIN 9680

4.5 Hydraulic equipment

All hydraulic functions will be controlled by the electronic plough control SVT-R 360 and the hydraulic control valve L8S.
For the operation of the control block the tractor must be equipped with a constant flow-system, a constant pressure-system or a Load-Sensing-System.

4.5.1 Hydraulic assembly with constant flow-system

	Double acting spool valve	**Implement sided colour marking**
Electric control valve	x	red

4.5.2 Hydraulic assembly with constant pressure-system/Load-Sensing-System

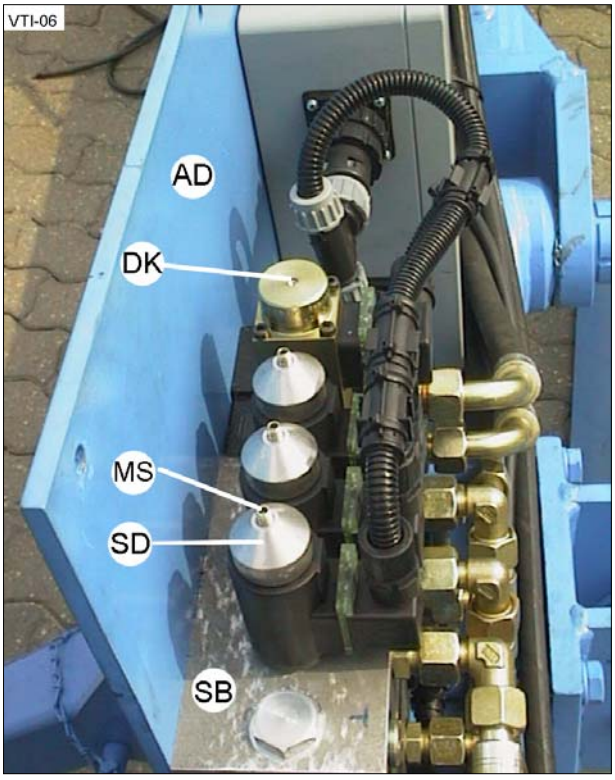
		Implement sided colour marking
Electric control valve	Pressure connection Return pipe connection Load-Sense-connection	Flow = red Return flow = red LS-pipe = red

The hydraulic assembly must have an operating pressure of minimum 160 bar. An oil flow of at least 30 l/min is a precondition for a quick turnover operation.

4.6 OF-use

For the use in the furrow = F-operation and for On-land use = O-operation the Euro-Titan can be converted. For O-operation tractors and crawlers with a width of 3,6 m can be used. The distance of the tractor and the crawler to the furrow wall is then approx. 15 cm.

5 ELECTRONIC PLOUGH CONTROL



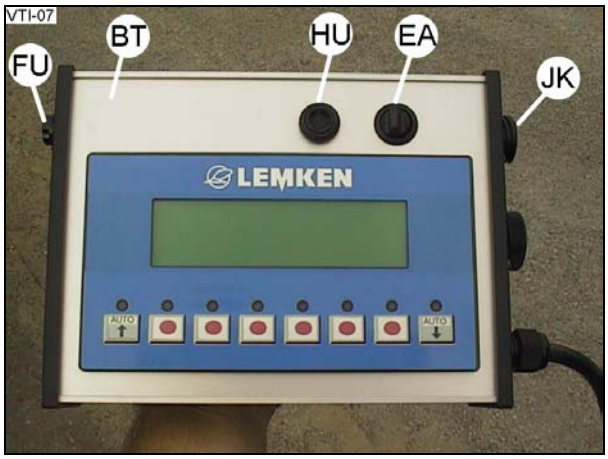
The turnover device, the trailer hydraulic and the locking and lifting procedure of the rear plough frame are controlled automatically via the electronic plough control SVT-R 360.

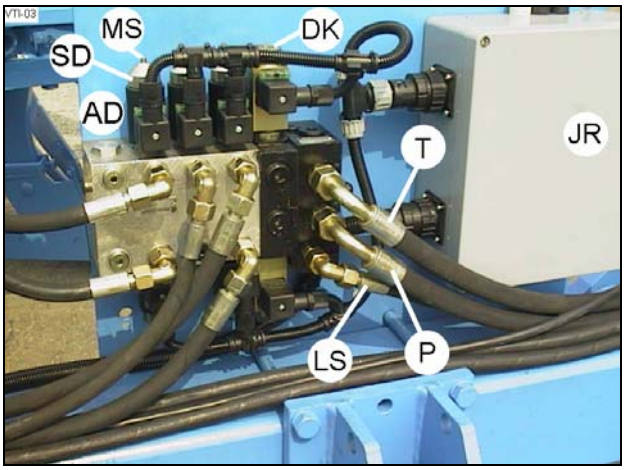
The plough control consists of a job computer (JR) and an operator terminal (BT). The job computer is placed at the plough and the operator terminal in the tractor cabin.

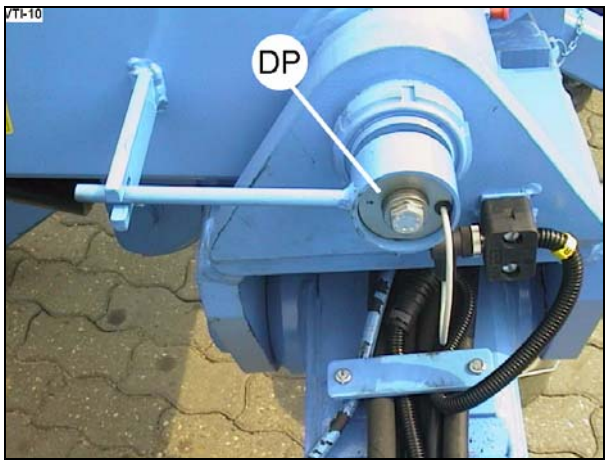
The hydraulic control valve (SB) will be operated via the plough control, which activates the hydraulic rams as required.

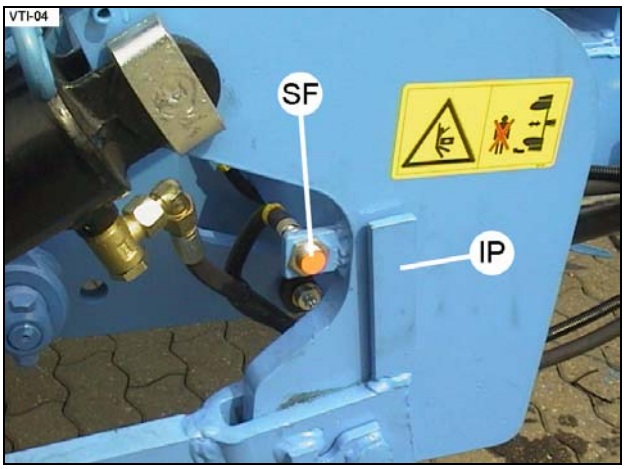
Via sensors, a rotary potentiometer the automatic sequence will be controlled.

Detailed information about the operation of the plough control SVT-R 360 can be found in the instruction book concerned. Please read the instructions to become familiar with the operation of the plough control.



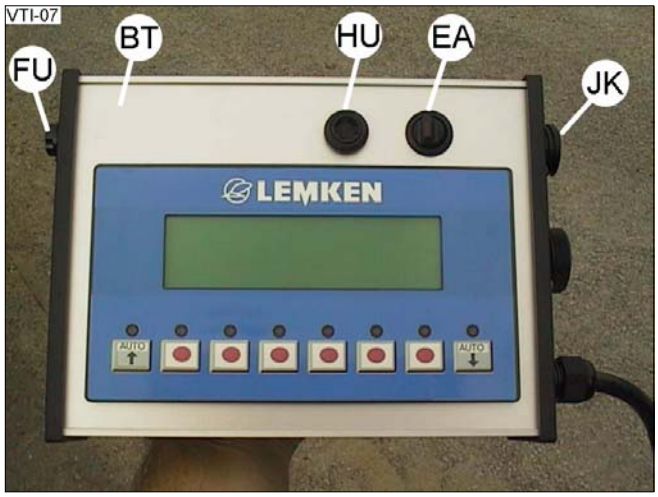






5.1 Operator terminal

The operator terminal (BT) is connected to the job calculator (JR) via the plug (JK) and the connection cable .
After operating the switch (EA) and connecting the connection cables to the ploug according to DIN 9680 the plough is ready to work.
EA = ON- OFF switch
HU = Horn for warning information
FU = Fuse



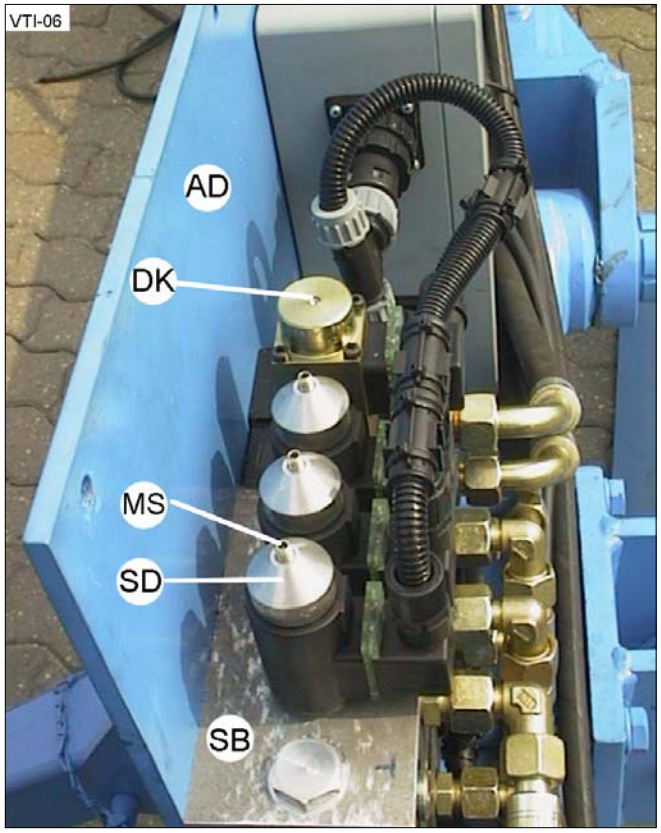
5.2 Job calculator and control valve

At the front of the plough the job computer (JR) and the control valve (SB) are placed behind the cover (AD).
Below the control valve in front there is a set wheel which must be adjusted as follows:

- With tractors with constant flow-system turn-out the set wheel until its stop.
- With tractors with constant-pressure-system, close-center-system or load-sensing-system with load sensing pipe turn-in the set wheel until its stop.

The control valve will be connected to the tractor hydraulic assembly by means of the hydraulic pipes (P) = pressure, (T) = return flow and (LS) = load sensing pipe.
The LS-pipe is required only with a Load-Sensing-System.
If there is a malfunction in the electronic control, the plough frame can be set to transport position by means of the spool valve (SB). This occurs by means of the screwing in the screw (MS) of the corresponding valve and following pressing-in of the knob (DK).

The knob (DK) will be activated strongly by means of a sharp pin. Which valve must be operated can be learned from the instruction book for the plough control SVT-R 360.

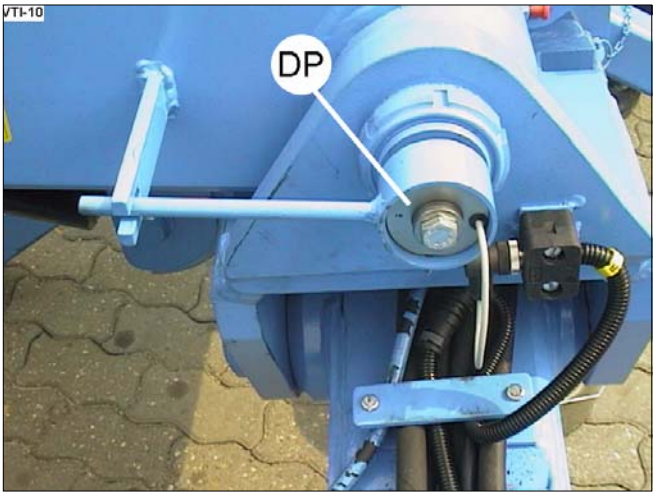


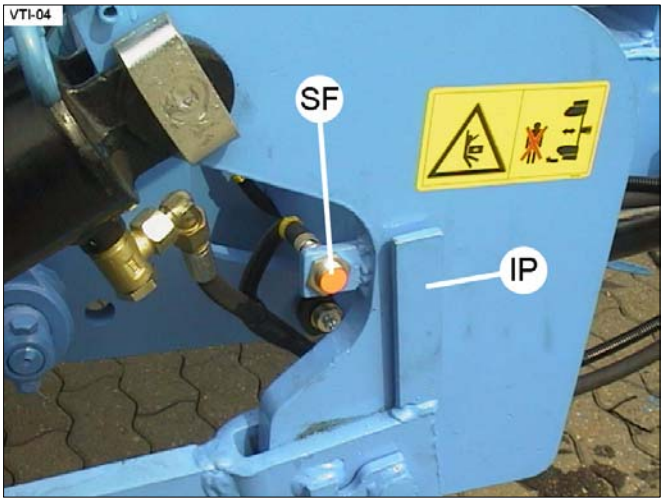
5.3 Rotary potentiometer and sensors

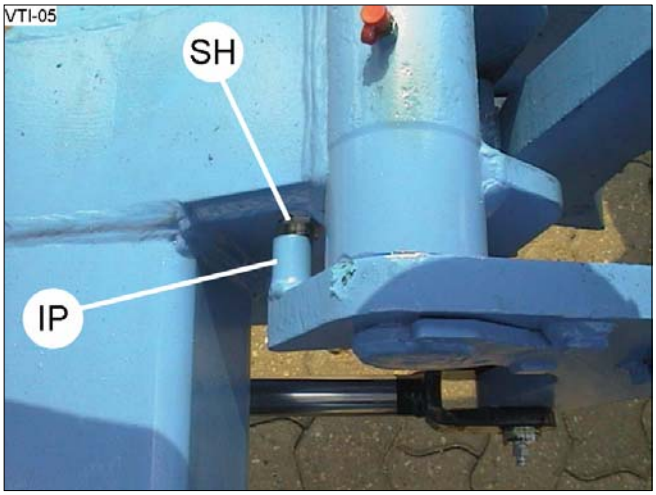
In order to ensure a troublefree handling of the plough on the headland, each hydraulic function will be controlled by the rotary potentiometer (DP) and sensors (SF) and (SH).

The rotary potentiometer is placed behind the turnover mechanism and the sensors in the area of the trailer.

The plough frame can be turned, only, when the sensor (SH) and the sensor (SF) are activated by the pulse generator (IP).



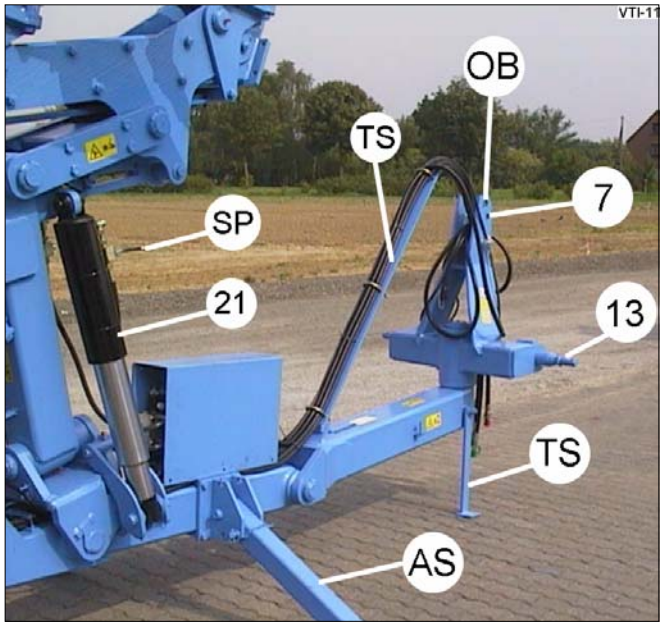




6 ATTACHING AND DETACHING THE PLOUGH

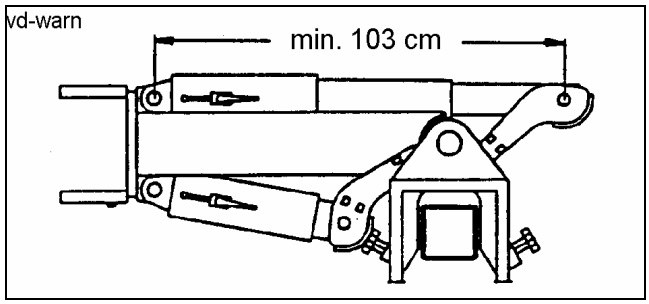
6.1 Attaching to the Tractor

Attach the plough which must be parked in half-turned working position as follows:



- Set tractor hydraulics to 'Position Control'.
- Turn headstock so that drawbar (13) is parallel to the ground.
- Attach lower links to the drawbar (13) and secure.
- Fix lower links by means of the check chains or sway blocks.
- Fit top link and adjust its length so that the headstock axle of the headstock (7) is vertically in working position.
- Lift lower links until the headstock support (TS) and the stands (AS) are unloaded.
- Raise stands (AS) and headstock support (TS) and secure.
- Fit hydraulic hoses and electric cables.
- Fit warning boards and lighting equipment, if the plough has to be transported on public roads.
- For transport the plough must be lifted completely in front and after that the plough frame turned in half-turned position by means of the plough control!
- After that the lock valves (SP) of both rams (21) must be locked!

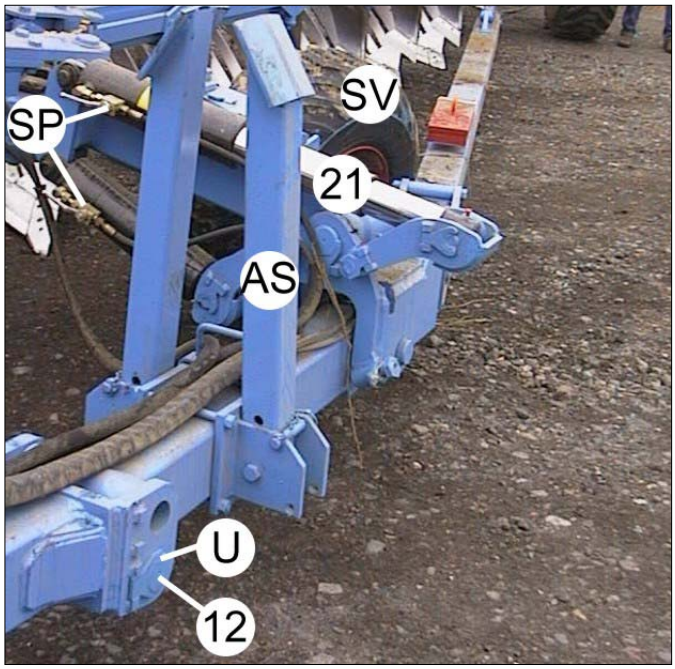
Warning: After attaching it must be checked whether, with fully lifted power lift, sufficient clearance between lower links and headstock will be kept. Furthermore it must be checked, if it is possible to angle the tractor to the plough by 90°.



- Before the first turnover operation the upper hydraulic ram must be completely extended! The hydraulic ram is completely extended when the distance between the centre of the mounting pins is approx. 103 cm!

6.2 Detaching from the Tractor

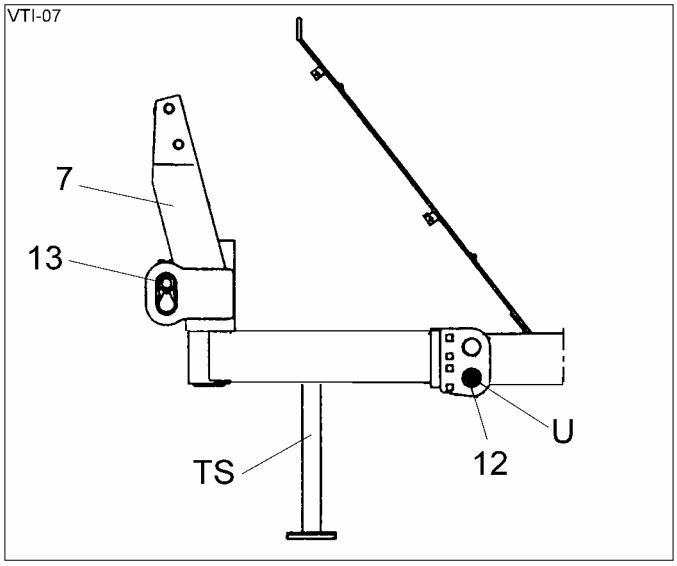
The plough must always be parked in middle position and on level and firm ground.



- Set tractor hydraulics to 'Position Control'.
- Turn plough frame into the middle position (see instruction book for the electronic plough control SVT-R 360).
- Close lock valves (SP).
- Stop tractor engine and move the auxiliary spool valve levers (for the oil supply of the electronic control valve, the working width adjustment and the OF-conversion) to and fro to relieve the oil.
- Remove hydraulic hoses and fit protective caps.
- Swing stands (AS) and headstock support (TS) down and secure.
- Lower the lower link until the headstock support (TS) and the stands (AS) touch the ground.
- Remove top link from headstock.
- Remove the lower links from the drawbar (13).

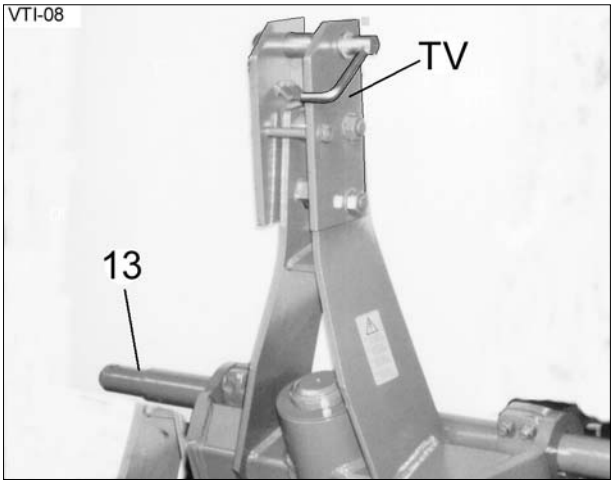
6.3 Drawbar

With the Euro-Titan ploughs the drawbar (13) is connected to the headstock (7) by slotted holes.
The drawbar (13) must always be fitted in the upper position of the slotted hole.
The pivot pin (12) must always be fitted in the lower position (U).



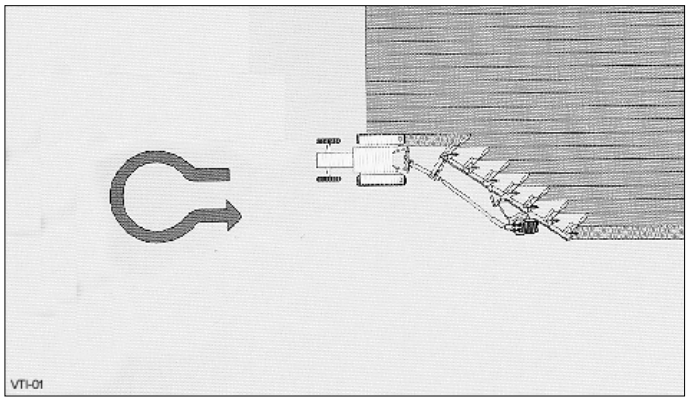
6.4 Hitch frame

The headstock (7) of the Euro-Titan ploughs can be equipped with a headstock extension (TV) with suited drawbar, when the plough shall be fitted to a tractor with Hitch frame. The headstock extension (TV) with top link pin will be fitted to the headstock (7) as shown in the picture. Tighten bolts carefully after fitment.

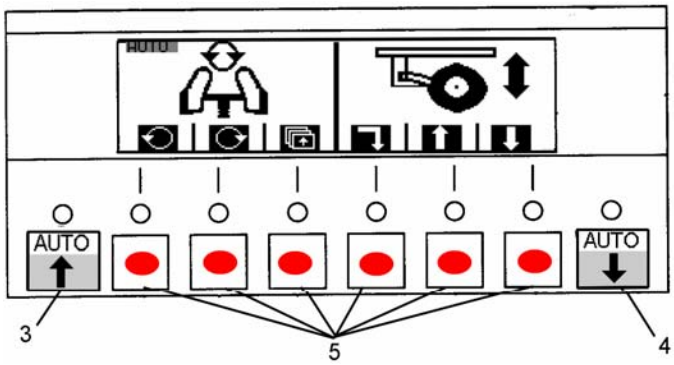


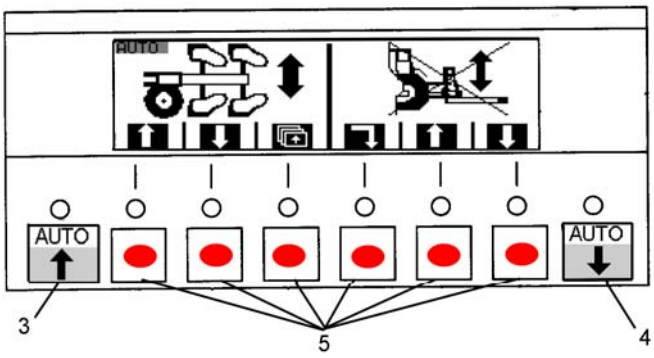
- Read and adhere to these „General Safety Instructions“ as well as to the Instructions ‘Attached Implements’!
- As the Euro-Titan in 11- and 12-furrow version is longer than 14 m, it may only be transported on public roads with a special permission!
- The stands (AS) must always be swung down and secured for parking the Euro-Titan! Without swung down stands the plough tips over!

7 TURNING ON HEADLANDS



When the headland – which should be 20 m to 25 m wide depending on the tractor and the No. of furrows of the plough – is reached, the tractor will be steered to the ploughed land, the front plough frame lifted in front and then the left Auto-button (3) pressed. Now the front plough frame will be lifted at the rear automatically and after that the rear plough frame lifted and locked. Now the plough frame will be turned over the dead position.
Then the tractor will be steered to the unploughed land and describes therewith a loop. Therewith the tractor is positioned in an angle of 90° to the plough frame.



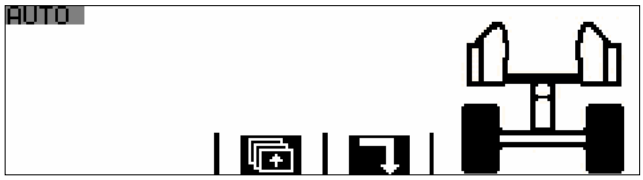


For the next entering into the furrow the front plough frame will be lowered in front first and then the right hand Auto-key (4) pressed. Now the turning operation of the front plough frame will be completed, the rear of the front plough frame lowered and the rear plough frame unlocked and lowered (see instruction book for the plough control SVT-R 360).

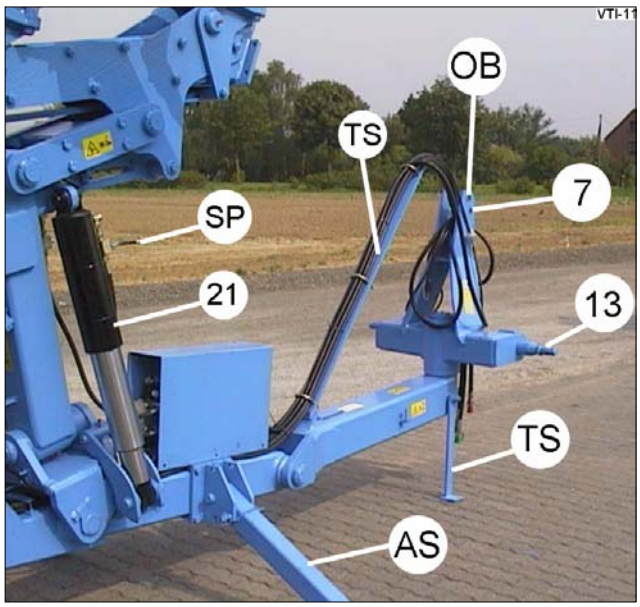
- Read and adhere to the General Safety Instructions as well as to the Safety Instruction ‘Hydraulic equipment’!

8 TRANSPORT

For transport the front plough frame will be lifted in front and then in the operation menu transport of the SVT-R 360 the left hand Auto-button (3) pressed.



Now the front plough frame will be lifted in the rear first and then the rear plough frame and locked automatically. Then the plough frame will be turned automatically into the half-turned position = middle position.
After that lock both lock valves (SP) of the turnover ram (21)
Fit marker boards and lighting equipment when using public roads.
Do not lift the plough fully in front. (The distance between the drawbar and the ground must be in the range of 95 cm to 100 cm). Set the control levers of the spool valves in such a position that unintentional operation is impossible.



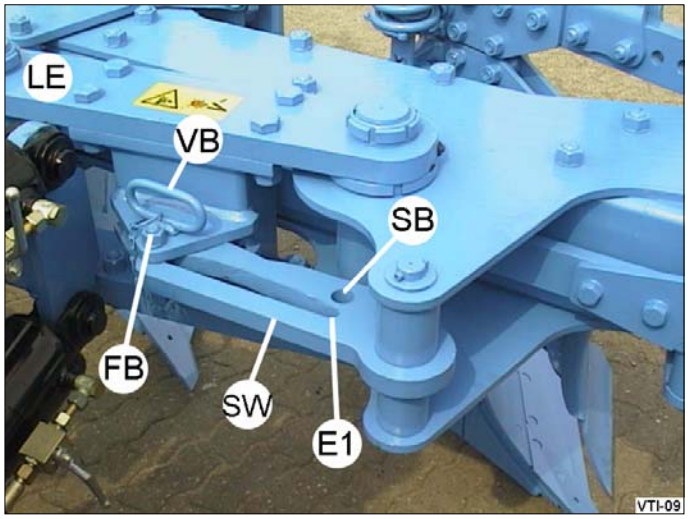
The maximum allowed transport speed is 30 km/h. If using bad roads reduce transport speed accordingly. (See also the instruction book of the plough control SVT-R 360).

- Read and adhere to the General Safety Instructions as well as to the Instructions ‘Hydraulic equipment’!
- As the Euro-Titan in 11- and 12-furrow version is longer than 14 m. Special care must be taken when driving curves or crossing rods.

9 OF-CONVERSION

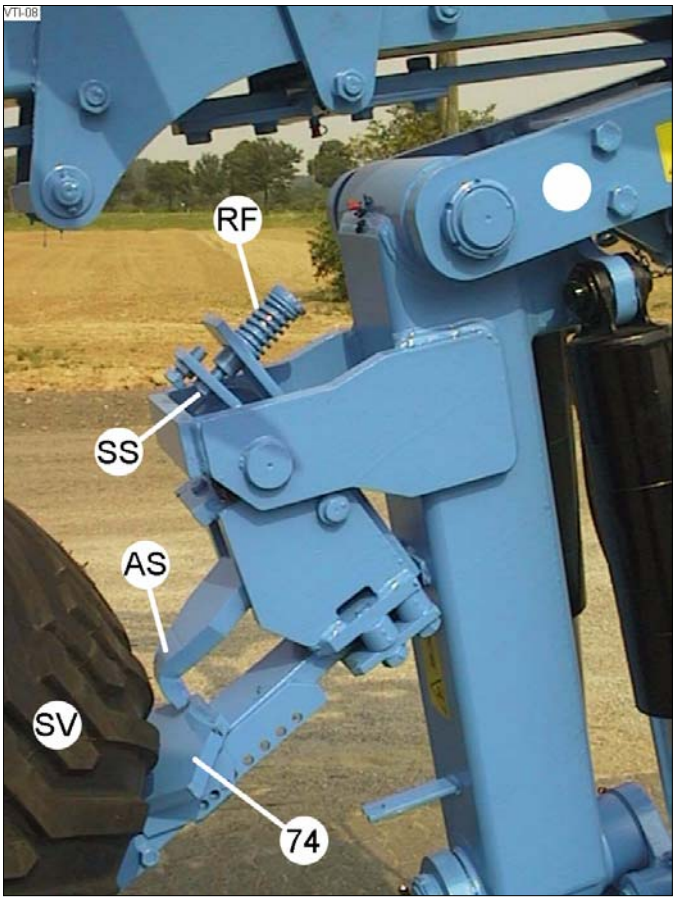
The OF-conversion will be done with plough fitted to the tractor.

9.1 From F-operation to O-operation



- Lift the front and the rear plough frame completely and turn to working position.
- Set tractor in an angle of 90° to the plough frame and lower plough frame in front and rear.
- Unlock and remove securing pin (VB).
- Drive the tractor forward a little; now the link (LE) swings over completely. The guiding pin (FB) inside the slotted hole slides to the first stop (E1).
- In this position the securing pin (VB) will be fitted and secured again. Therefore the pin will be fitted through the bores of the link (LE) and the bore (SB) of the swing arm (SW).
- Fit depth wheel (SV) and check whether the depth wheel can swing-over without problems.

9.2 From O-operation to F-operation



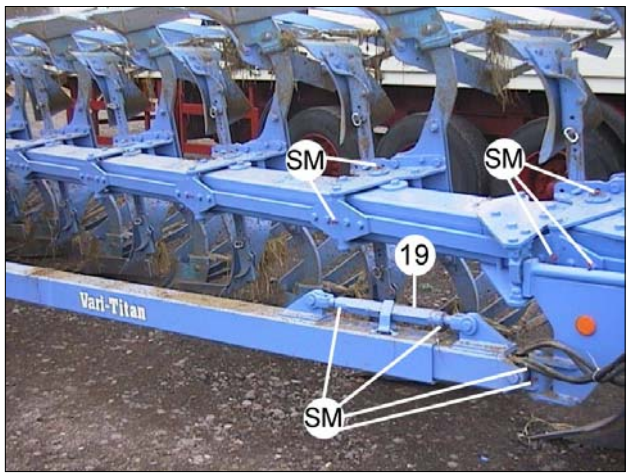
- Lift the front and the rear plough frame completely and turn to working position.
- Detach depth wheel (SV).
- Set tractor in an angle of 90° to the plough frame and lower plough frame in front and rear.
- Unlock and remove securing pin (VB).
- Drive the tractor a little backwards; now the link (LE) swings-in completely. The guiding pin (FB) inside the slotted hole slides to the second stop.
- In this position the securing pin (VB) will be fitted and secured again. Therefore the pin will be fitted through the corresponding bores of the link and the swing arm (SW).

10 ADJUSTMENTS

10.1 Distance between tractor and furrow wall in O-operation

During work the distance between tractor and furrow wall will be adjusted by means of the turnbuckle (19).

- Turnbuckle longer
  = wider distance
- Turnbuckle shorter
  = narrower distance

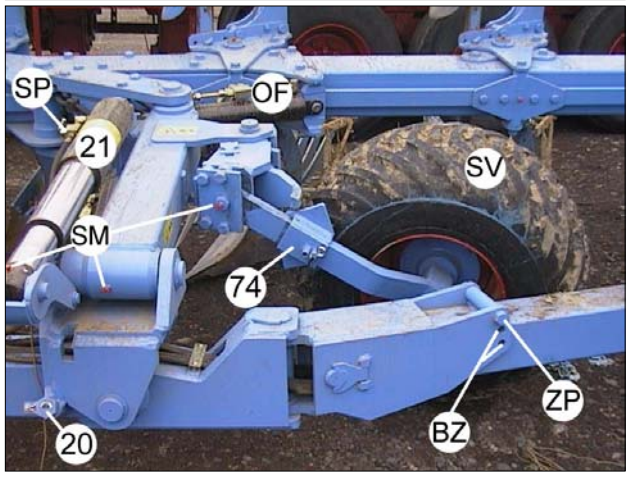


10.2 Front furrow width in F-operation

The front furrow width will be adjusted by means of the turnbuckle (19).

Front furrow width too narrow
=> lengthen turnbuckle (19).

Front furrow width too wide
=> shorten turnbuckle (19).



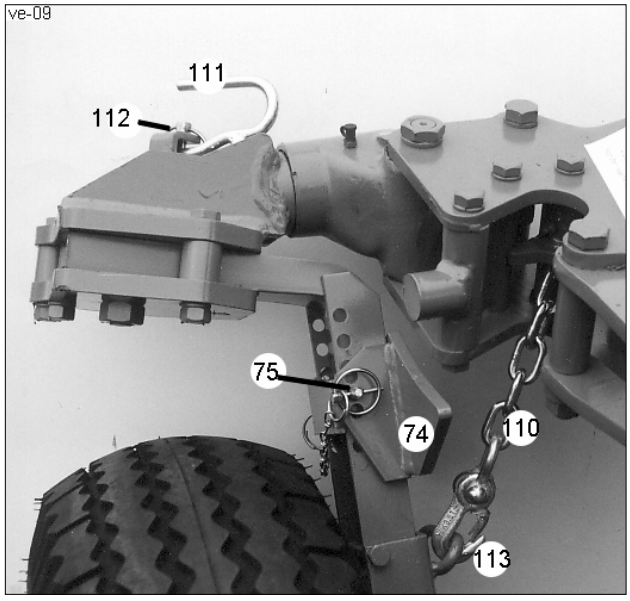
10.3 Working depth

The working depth will be adjusted via the front depth wheel (SV), the trailer (FW) and the rear depth wheel (SH).
The trailer is provided with a pin adjuster on the right and left side, which must be adjusted identically.

Operate the hydraulic rams (30) to unload the adjuster pins (ST) before adjustment.

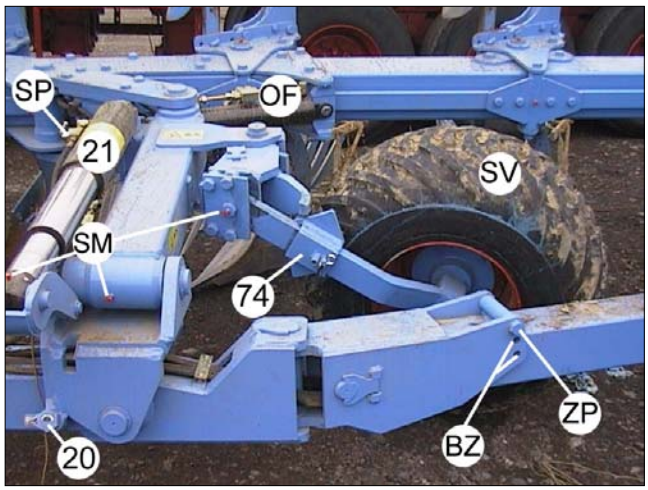
The hydraulic rams will be activated by means of the electronic plough control.

The depth adjustment of the depth wheels will be carried out by moving the stop (74), after the pin has been unsecured and removed.



10.4 Pull-point adjustment

By means of changing the position of bolt (ZP) the vertical pull-point can be adjusted:



Fit bolt (ZP) in a higher hole (BZ)
=> higher pull point.

Fit bolt (ZP) in a deeper (BZ)
=> deeper pull point.

After each adjustment the pins must be fitted again and secured.

If during work too much slippage occurs, it can be reduced by moving the pull-point to the top. If the front axle during work is too much unloaded, it can be increased by moving the pull-point down.

The adjustment of the pull-point may only be done with plough turned to working position, supported and fitted to a tractor. After changing the hole position the bolt (12) must be secured carefully.

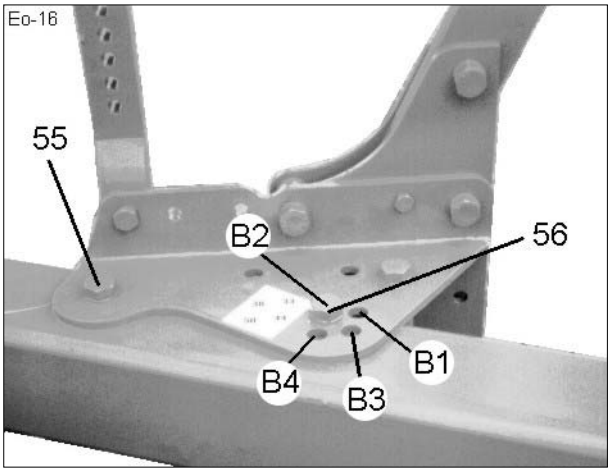
10.5 Angle adjustment

With the plough in work at its required depth, the legs should be approx. vertical when viewed from the rear. This adjustment is achieved by use of the vertical adjuster screws (20).

Adjust the angle as required, using the 46 mm spanner supplied.

10.6 Working width

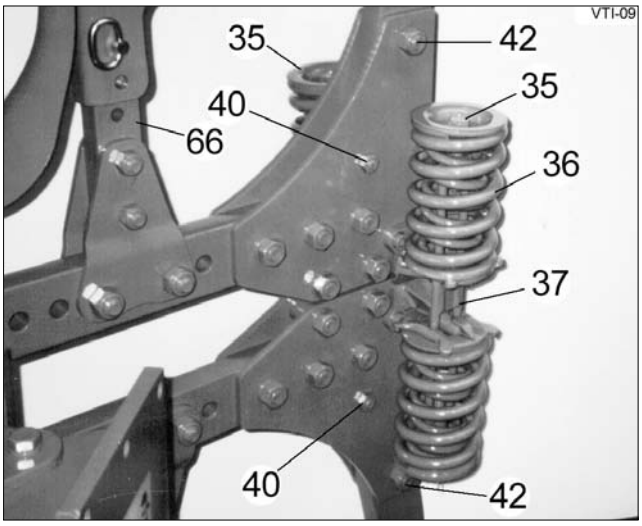
After loosening the central bolt (55) and changing the adjuster bolt (56) it is possible to adjust 4 different working widths. The stated working widths are approximate ones.

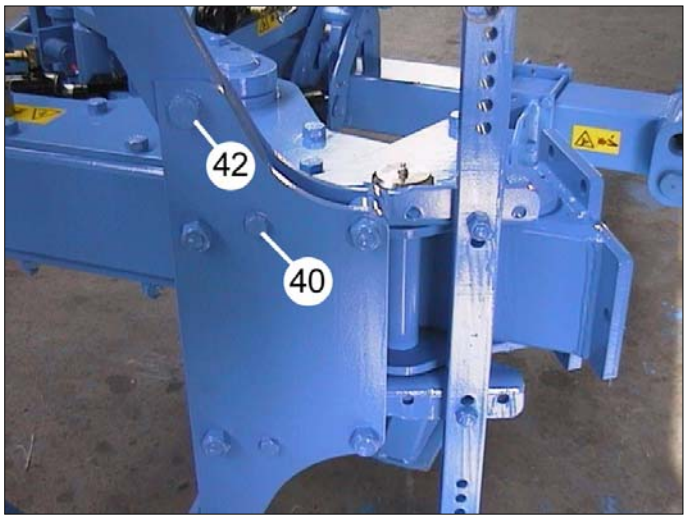


Hole		Working width / body (cm)
B1	=	33
B2	=	38
B3	=	44
B4	=	50

When changing the working width per body the turnbuckles (X) and (Y) must be adjusted counter-rotating by the same amount so that first the trailer is aligned parallel to the working direction and second the front furrow width of the rear plough frame corresponds to the other plough bodies.

11 SHEARBOLTS





All Euro-Titan and Euro-Titan X ploughs are fitted with shearbolts (40) as standard.
IMPORTANT: Only genuine LEMKEN shearbolts should be used. There is a serious risk of damage if other bolts are used and any warranty will be void.
Be very careful of the guillotine effect of a pivoting leg assembly and its support plates.
To replace a broken shearbolt proceed as follows:

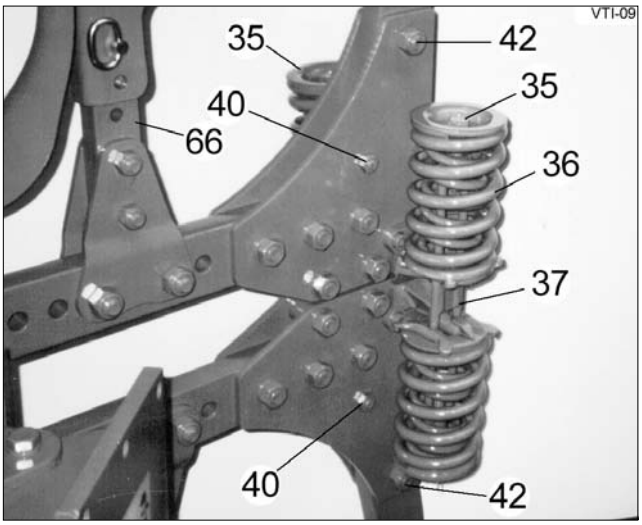
Raise plough a little and slacken pivot bolt (42).
Remove broken sections of old shearbolt (40).
Swing body back into position.
Fit new shearbolt of correct type and tighten securely.
Securely tighten pivot bolt (42).

NOTE: In conditions where frequent failure of the shearbolt is experienced:
Ensure that both shearbolt and pivot bolt are securely tightened.
After a number of shearings, it will be found an advantage to replace the pivot bolt (42).

	Shearbolt		Pivot bolt	
Plough Model	**Part No.**	**Dimension**	**Part No.**	**Dimension**
Euro-Titan	301 3607	M14X85X20/10.9	301 4607	M20X90LS60X25/12.9
Euro-Titan X	301 3595	M14X70X15/10.9	301 4606	M20X80LS50X25/10.9

- Read and adhere to the General Safety Instructions!
- In the shearing area are pinch points. Keep distance!
- Sitting or standing on the implement during operation is not permissible!
- The body trips upwards when a shear bolt shears. Keep distance!

12 AUTOMATIC NON-STOP OVERLOAD SAFETY DEVICE



The automatic overload safety device protects the plough from damage when an obstacle is encountered. The mechanism breaks back upon impact and automatically returns the body to the working position once the obstacle has been passed. Additionally, each leg is fitted with a shearbolt (40) for protection when the body 'hooks' an obstacle.
The preload on the breakback springs (36) is set at the factory for average conditions. In heavy conditions, this can be adjusted so that the legs only break back when an obstacle is encountered rather than through normal ploughing loads.

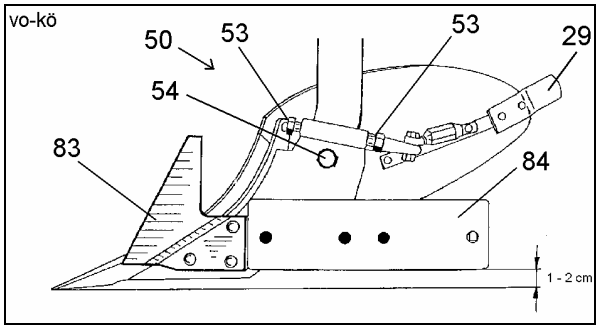
Adjust the mechanism as follows:
Tighten screws (35) 2 - 4 turns. This should prove adequate.
Should the mechanism still trip without touching an obstacle, tighten screws (35) a further 2 - 3 turns.

IMPORTANT: It is essential that all 4 screws on each leg assembly are adjusted equally to ensure operation.

- Read and adhere to the General Safety Instructions!
- The body trips upwards when a shear bolt shears. Keep distance!

13 BODIES

13.1 Penetration angle



The basic adjustment has been carried through in the factory. But after each change of shares or mouldboards the adjustment must be checked. Therefore lift the plough a few centimetres. After that check whether the distance between the point and the plough frame is equal with all bodies. The distance is correct when the measurement from plough frame to underside of new point is 1 to 2 cm larger than the distance between frame and the end of the landslide (84).
This setting is for average conditions.
To improve penetration, increase pitch by a small amount on each body. Slacken bolt (54) and adjust setscrews (53). Tighten bolt (54).
Excessive pitch will increase draft and effect depth control.
Having set one body as required, note measurement from point to beam and adjust remainder to the same measurement.
Finally check alignment of all points and make any minor adjustments necessary.

13.2 Tail pieces

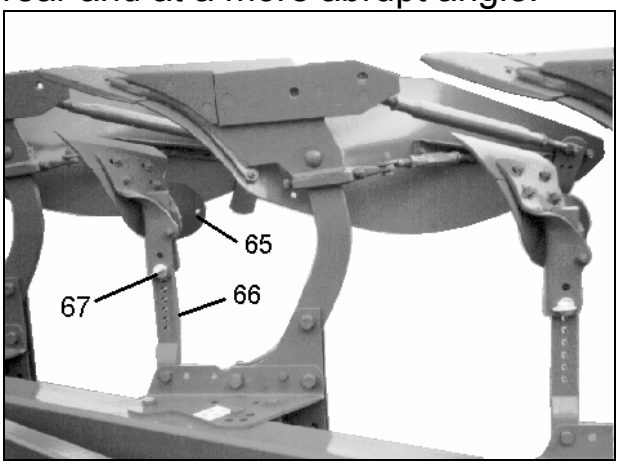
The tail pieces should be adjusted so that they help to turn the furrow slice.
Set too low, they can cause soil to fall back into the furrow.

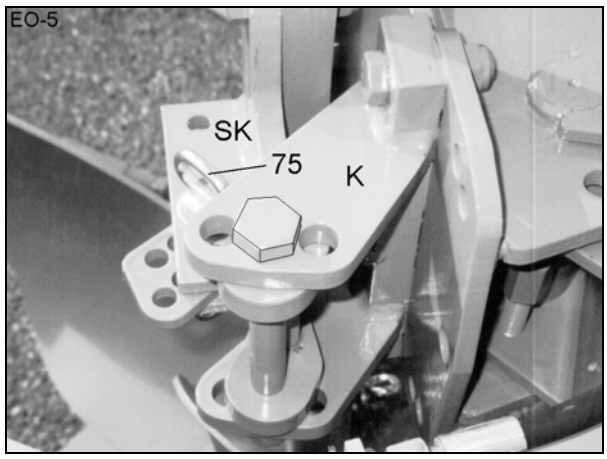
Warning: When worn, they can be extremely sharp.

14 SKIM COULTERS

14.1 General instructions

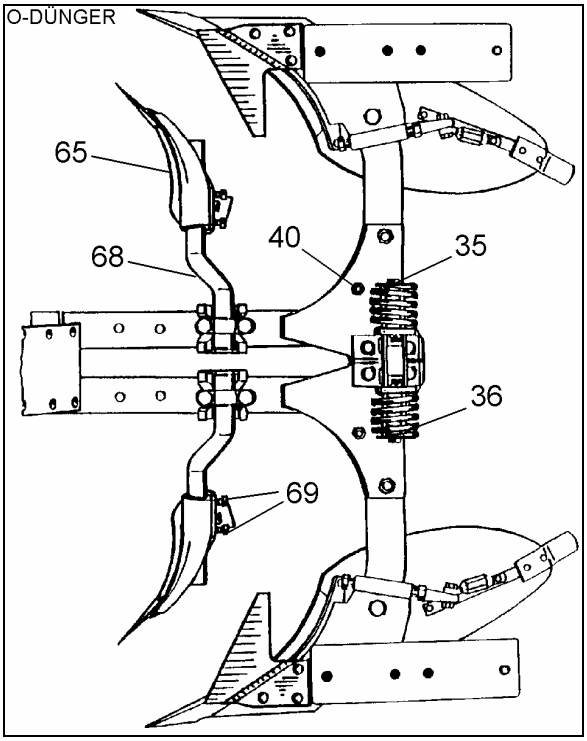
The skim coulters (65) should be finally set when the plough is operating at the required depth and speed. The skim point should be set to a depth between 5 and 10 cm (2 - 4 in) and the tip of the point set to run 2 - 3 cm (3/4 - 1 1/4 in) to the landslide of the body. The skimmed slice should be seen to fall cleanly into the furrow bottom before the main furrow slice is turned by the plough body. The skim point should normally be positioned beside or just behind the plough point, but in conditions where large quantities of trash exist, the skim should be set more to the rear and at a more abrupt angle.

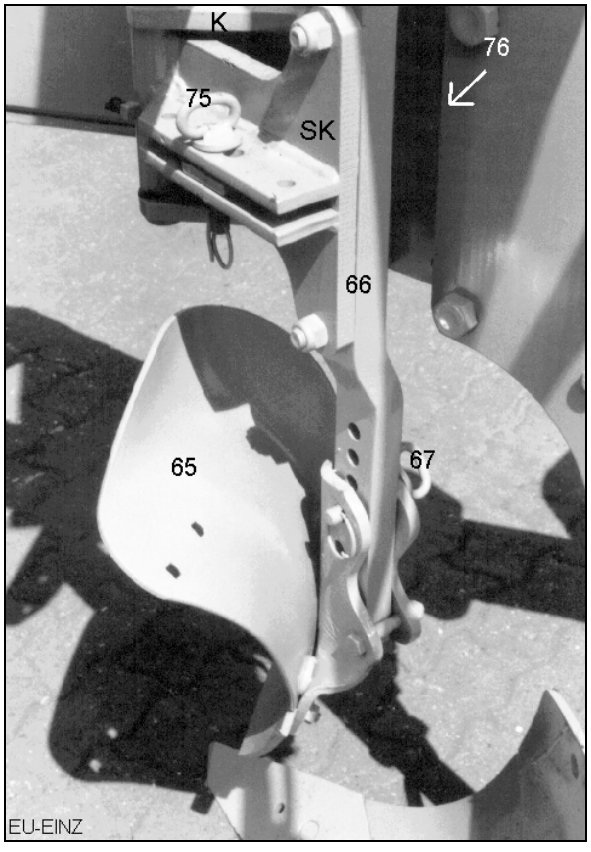




14.2 Depth Adjustment

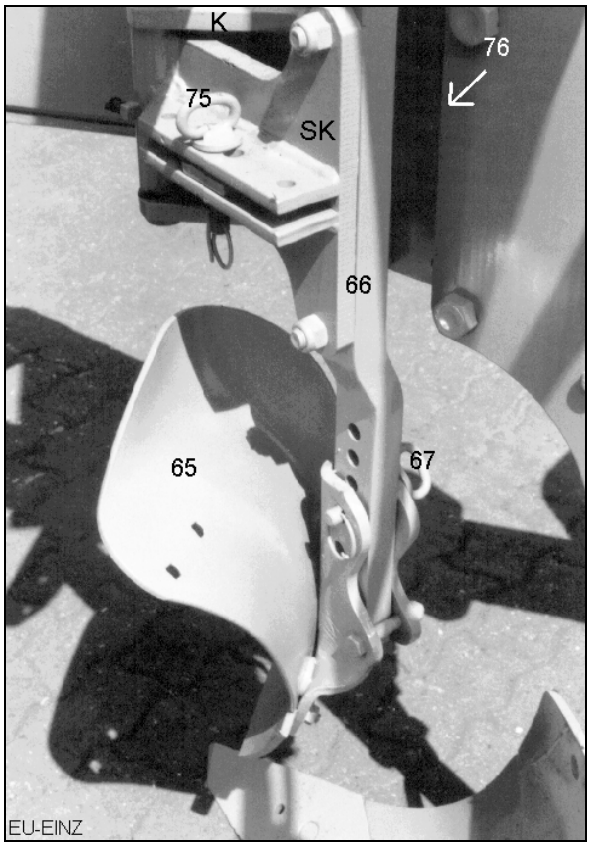
Adjust the depth adjustment of the skimmers with flat skims (66) by means of the adjuster pin (67). The depth adjustment of skimmers with round stalks (68) will be adjusted by means of the setscrews (69). After each adjustment the adjuster pin and the setscrews must be secured.





14.3 Angle adjustment

Adjust the depth of flat stalk skims (66) by means of the adjuster pins (67). Use clamping screw (69) for depth adjustment with skimmer having a round stalk (68). The angle is not adjustable with those skimmers which have their flat stalk fitted directly to the leg bracket. Otherwise the angle is steplessly adjustable by means of the clamping bolts (69) for skimmers with round stalks (68) or step controlled by means of the adjuster pins (75) with skimmers having flat stalks (66) and angle adjuster (76).



- Read and adhere to the General Safety Instructions!

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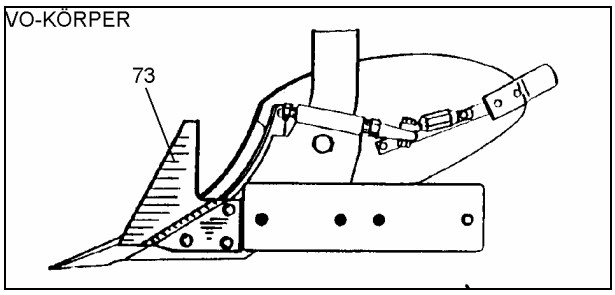
15 COULTERS

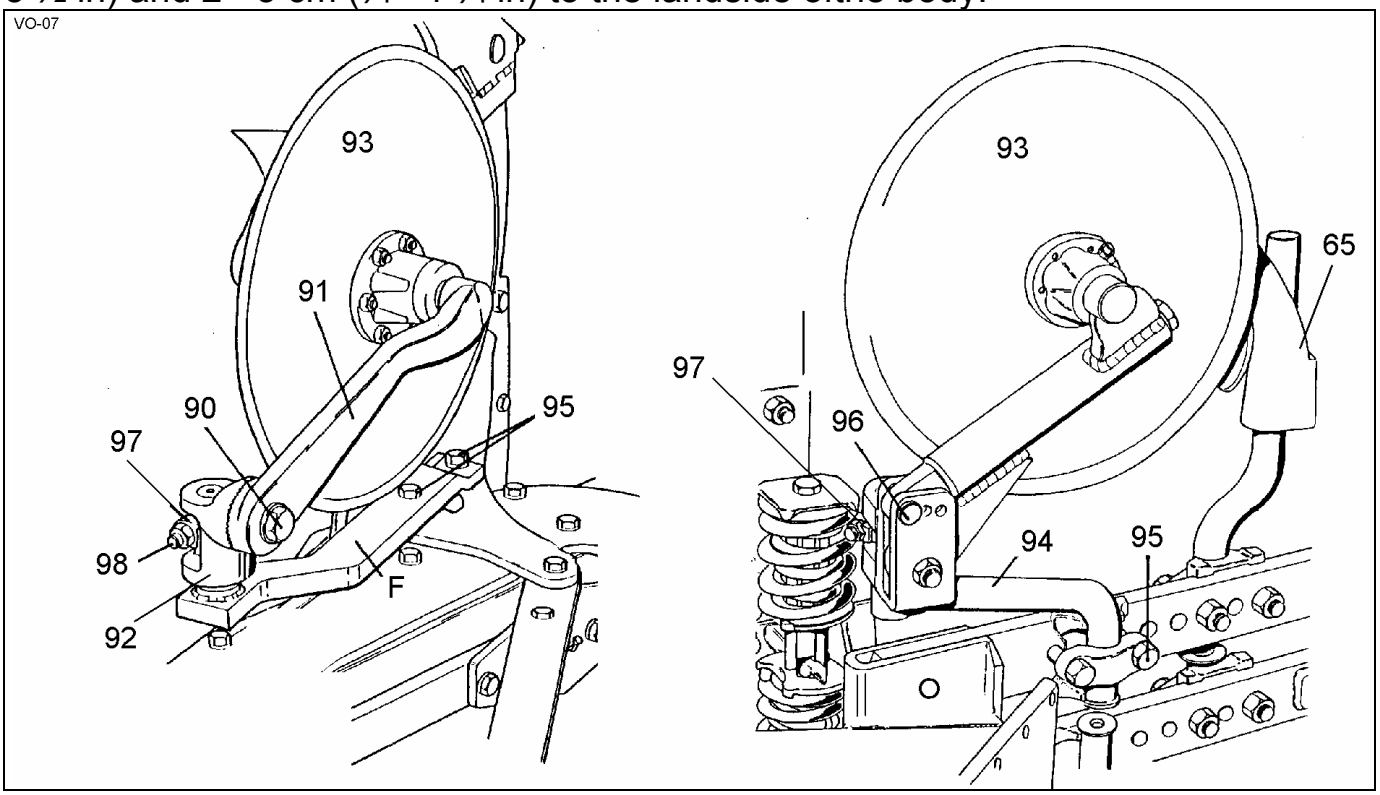


15.1 Sword Coulters

Sword coulters (73) are available. They are recommended for tough and heavy conditions.

15.2 Disc coulters

When fitted, disc coulters (93) should be set to a working depth of 7 - 9 cm (2 ¾ - 3 ½ in) and 2 - 3 cm (¾ - 1 ¼ in) to the landside ofthe body.

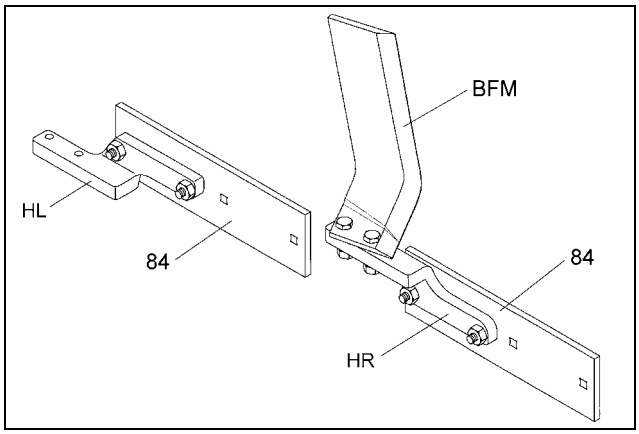


Adjust depth by slackening setscrew (90), move arm (91) as required, after checking that serrations of bracket (92) and arm (91) mesh correctly, securely tighten setscrew (90). Use pin (96) to adjust the depth of the spring loaded disc coulters (Euro-Titan X ploughs only). For lateral adjustment, slacken setscrew (95) and swing arm (F) or (94) to give required setting. Securely tighten setscrews (95). Use clamp with clamp bolt (98) to limit the castor effect.

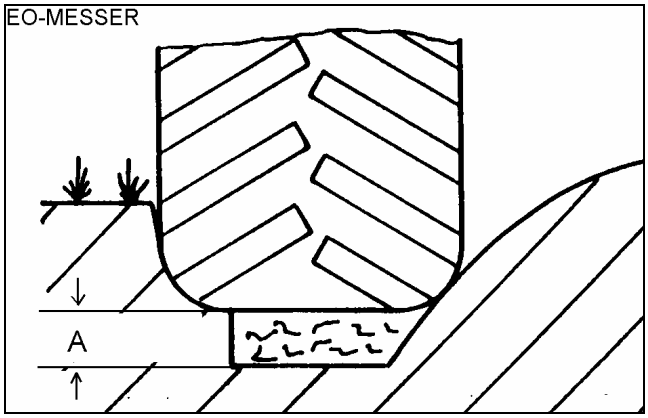
IMPORTANT: All locking setscrews should be **very tight** after adjustment.

- Read and adhere to the General Safety Instructions1

16 WIDE FURROW CUTTERS (in F-operation, only)



If the tractor is equipped with wide tyres, it is recommendable to use a wide furrow cutter (BFM). This wide furrow cutter must be fitted to the landslide (84) of the rear body.
If the plough is equipped with C-bodies, to the rear body the landslide 340 1450 must be fitted so that the holder (HL) or (HR) of the wide furrow cutter can be fitted. Two free bores must be available at the rear landslide.

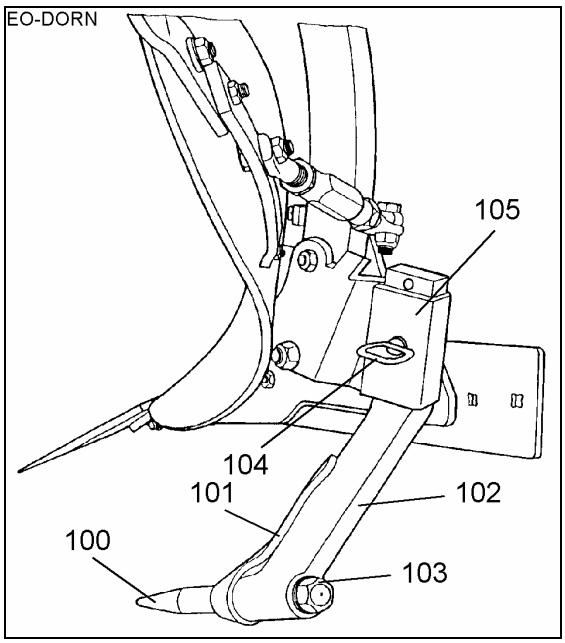


The wide furrow cutter increases the furrow of the rear bodies. It can be used in light and medium soil conditions. The wide furrow cutter provides a 15 cm wider but less deep furrow. It influences the height and width of a furrow which will look - especially in heavy soils - unequal. After a qualified seedbed preparation or after a natural re-consolidation period, the land is level again.

17 SUBSOILERS

The subsoiler UD6 will be fitted as shown in the sketch. By means of displacing the stalk (102) the working depth of the subsoiler can be adjusted.
Maximum working depth = 20 cm
Minimum working depth = 14 cm

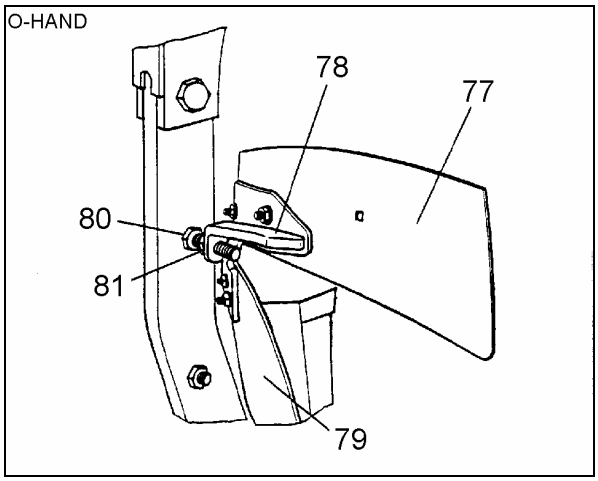
For the adjustment of the working depth the pin (104) must be unlocked and pulled out and the stalk (102) removed accordingly in the bracket (105). After the adjustment the the stalk (102) must be fitted again and secured. The stalk (102) is protected by shin (101). Also the shin (101) and the tine (100) can be replaced when worn after removal of nut (103).



- When a plough is parked with subsoilers, the subsoilers of the lower side of the plough must be pulled out and removed after unlocking the pins (104) in order to secure the stability of the plough!
- For transport the subsoiler must be removed and placed in the tractor cabin!

18 TRASHBOARDS

Bolt carrier (78) of the trashboard (77) to the holes provided in the top of the mouldboard (79). Fit trashboard (77) to the carrier and adjust for optimum trash 'mix'. Adjust support-bolt (80) so that it touches the leg. Secure bolt (80) by means of locknut (81).



19 TYRES

The recommended maximum or minimum allowed pressures are listed below.

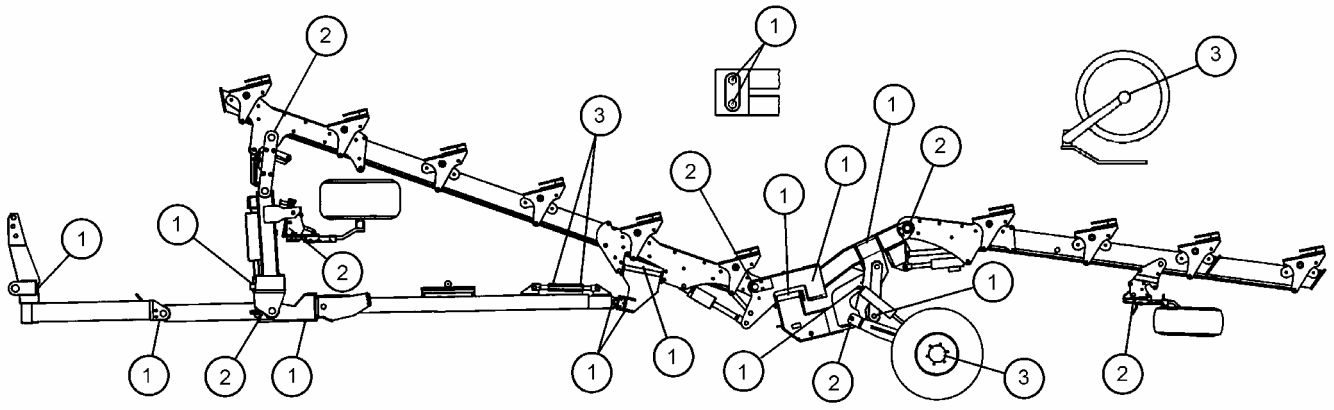
Wheel	Profile	Ply-rating (PR)	min. pressure (bar)	max. pressure (bar)
10.0/75-15.3	AW	14	3,0	5,5
38x20.00-16.1	STG	8	2,5	2,8
405/70R20	M27	12	2,5	3,5
400/60-15.5	T-404	8	1,5	2,8

Do not work with more and less pressure than stated as maximum and minimum allowed air pressure, in order to prevent an overload of the tyres and subsequent damage.

- Read and adhere to the General Safety Instructions as well as the Instructions ‘Tyres’!

20 MAINTENANCE

The Euro-Titan plough requires a little maintenance, only. All pivot points must be greased regularly with an environmentally friendly grease according to the following table. For a long operation break all shiny areas of wearing parts, exposed areas of ram rods, pins and adjusting devices must be greased.



Lubrication position	each 10 hours of use	each 50 hours of use	each 100 hours of use	Before and after a long Winter break
1		x		x
2	x			x
3	x			x

All bolts and nuts, especially the wheel bolts, must be checked regularly and tightened if required.

At least 6 years after the date stated on the high pressure hose the high pressure hoses must be replaced. Porous or defective high pressure hoses must be replaced immediately.

Worn shares, mouldboard edges, mouldboards, landslides and so on must be replaced on time, so that supporting parts will not be damaged.

IMPORTANT: Do not clean this implement with a Pressure Washer during the first 6 weeks. After this time a minimum nozzle distance of 60 cm must be observed with a maximum 100 bar and 50 ° C temperature!

- Read and adhere to the General Safety Instructions as well as to the Instructions ‘Maintenance’!

21 FAILURES, REASONS AND REMEDY

21.1 Plough control

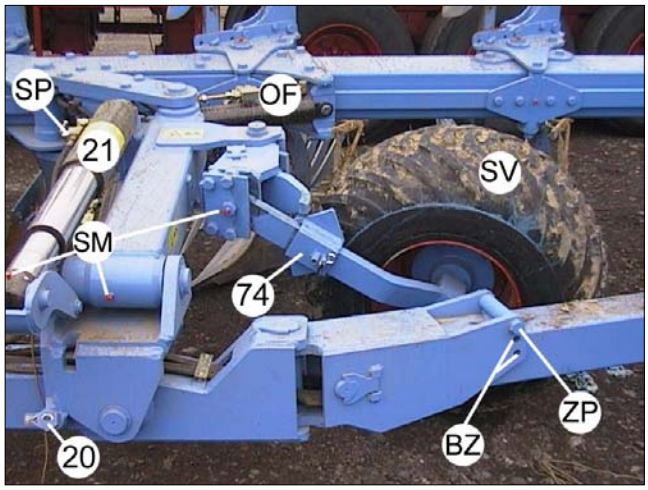
Failure: The plough control does not operate.
Reason: See instruction book of the plough control SVT-R 360.
Remedy: See instruction book of the plough control SVT-R 360.

21.2 Penetration and Depth Guiding of the Plough, Slippage

Failure: Plough does not stay in the ground.

Reason: a) Penetration force too low.
b) Points are blunt.
c) Bolt (ZP) is fitted too high.

Remedy: a) Increase distance between point and frame (not more than 2 cm).
b) Use genuine Lemken hard-faced points.
c) Fit bolt (ZP) in the lower bore (BZ).



Failure: Plough does not penetrate into the ground

Reason: a) Penetration angle is too small.
b) Points are blunt.
c) Bolt (ZP) is fitted too high.

Remedy: a) Increase distance between point and frame (not more than 2 cm).
b) Use genuine Lemken hardfaced points.
c) Fit bolt (ZP) into a lower bore (U).

Failure: Plough is heavy to pull

Reason: a) Penetration angle is too large.
b) Working width per body is too wide.

Remedy: a) Decrease distance between point and frame (not more than 2 cm).
b) Decrease working width per body.

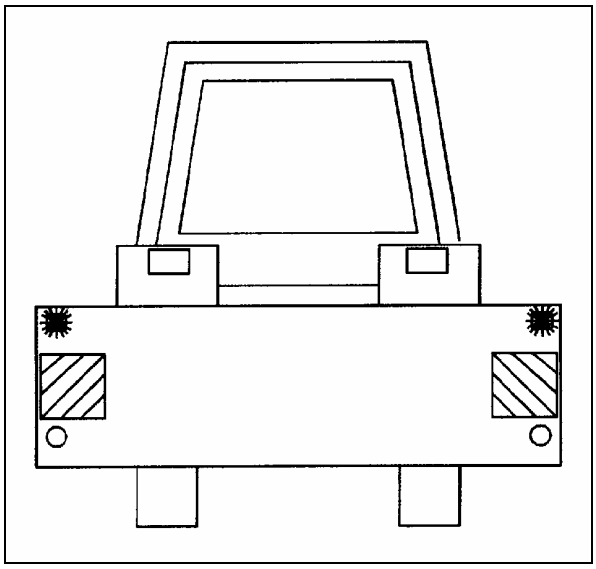
21.3 Shearbolt device

Failure: Shearbolt of the body shears often.

Reason: Incorrect shearbolt has been fitted.

Remedy: Use genuine shearbolts. Fit the shearbolts from the ploughed land side of the plough.

22 TRANSPORT ON PUBLIC ROADS



The general traffic rules have to be adhered to!
The max. allowed transport speed is 20 miles per hour. On bad roads the speed must be reduced accordingly.

Above the trailer there is a warning flash light, which must be switched on during transport on public roads.

Attention: During work the lighting equipment and warning boards must be removed, in order to prevent damage.

As the Euro-Titan in 11- and 12-furrow version is longer than 14 m, special care must be taken when driving curves or crossing public roads!

23 TECHNICAL DATA

	No. of furrows	Working width (ca. m)	Weight (ca. cm)	Axle load (ca. kg)
EuroTitan 10 6+3 L 100	9	297 - 450	4.593	3.600
EuroTitan 10 6+3+1 L 100	10	330 - 500	4.790	4.100
EuroTitan 10 7+3 L 100	10	330 - 500	4.810	3.650
EuroTitan 10 7+3+1 L 100	11	363 - 550	5.007	4.150
EuroTitan 10 8+3 L 100	11	363 - 550	5.027	3.700
EuroTitan 10 8+3+1 L 100	12	396 - 600	5.224	4.200
EuroTitan 10 X 6+3 L 100	9	297 - 450	5.178	3.900
EuroTitan 10 X 6+3+1 L 100	10	330 - 500	5.440	4.500
EuroTitan 10 X 7+3 L 100	10	330 - 500	5.460	3.950
EuroTitan 10 X 7+3+1 L 100	11	363 - 550	5.722	4.550
EuroTitan 10 X 8+3 L 100	11	363 - 550	5.742	4.000
EuroTitan 10 X 8+3+1 L 100	12	396 - 600	6.004	4.600

24 NOTES

As the version of equipment is depending from the order, the equipment of your implement and its description concerned may deviate in some cases. To ensure a continuously updating of the technical features, we reserve the right to modify the design, equipment and technique.

25 NOISE, AIRBORNE SOUND

The noise level of the Euro-Titan and Euro-Titan X ploughs does not exceed 70 dB (A) during work.

26 PRODUCT REGISTRATION / GUARANTEE

We would like to point out that the guarantee period starts, only when the completely filled-in and signed product registration has been returned to us .