Operating Instruction and Spare Parts List

Reversible Ploughs

CRANE A, CRANE AVANT A

Series 5

For ordering spare parts pls. read rear cover.

RABEWERK

EC Declaration of Conformity

according to Directive 89/392/EEC

We **RABEWERK GmbH+Co.**

Am Rabewerk, D-49152 Bad Essen

declare under our sole responsibility, that the product

Reversible Plough CRANE A and CRANE AVANT A

to which this declaration relates corresponds to the relevant basic safety and health requirements of the Directive 89/392/EEC.
"The Supply of Machinery (Safety) Regulations 1992 as amended" have been respected.

For the relevant implementation of the safety and health requirements mentioned in the Directive, the standard EN 292 has been respected.

Bad Essen, 24.11.94

i.V. Michael Bruse

Michael Bruse,
Service-Manager

No. 106-09-89 GB

RABE WERK

Operating Instruction

for semi-mounted reversible ploughs

CRANE & CRANE-AVANT 160A

Before Use

Ensure operators have read, and are familiar with the instructions contained in this manual, and the plough is not operated by untrained persons.

The reversible plough is an implement mounted in the 3-point-hydraulic linkage of a tractor and is designed for normal agricultural work. Use the plough only for the purpose for which it was designed and tested and in accordance with the instructions contained in this handbook.

Caution. Warranty will be invalid if the machine is improperly used, arbitrary changes are made, the HP. limits are exceeded, or non-genuine parts are fitted.

Damage resulting from misuse or above mentioned reasons cannot be claimed for under warranty.

Only authorized and skilled RABE dealer technicians, national distributors or our own factory service engineers are allowed to undertake repairs under warranty.

Safety Precautions

Warning. Ensure that the plough is standing on firm, level ground with the parking stand in lowered position and the work area is clear of bystanders.

Preparing for Work (Fig. 1)

Consult the tractor manufacturer's manual for instructions on mounting implements and safe working methods.

Warning. Never leave the tractor seat or carry out work unless the plough is fully lowered to the ground, the gear shift in neutral, the hand brake applied, the engine stopped and the ignition key removed.

The plough is suitable for attachment to tractors with Cat. II Or Cat. III three point linkage.
Ensure that corresponding category of link pins are fitted to the plough.

Adjust tractor tyre pressure to the manufacturers recommendations and ensure the wheel setting is correct. The inside of the front and rear tyres should be in the same width.

Adjust the two lower links to the same height and connect the plough to the tractor.
Adjust the length of the tractors toplink until the plough's headstock is in a vertical position.

Warning. Secure the lower links and toplinks with proper lynch pins.

Hydraulic Connections and Adjustments

The plough is equipped with double acting (2 hoses) turnover and single acting (1 hose) control of the rear land/transport wheel.
Another double acting connection (2 hoses) is required if the plough is equipped (optional) with hydraulic front furrow width adjustment.
If applicable seperate single acting (1 hose) will be necessary for operating the hydraulic disconnecting device on the pick-up arm (Fig. 11).

Testing Turnover (Fig. 2, 3 & 4)

The parking stand (C/C1 Fig. 3 & 4) has to be raised and the transport valve (B Fig. 3 & 5) be opened.

Testing operation on headland (Fig. 2, 3 & 4)

To avoid colliding of the plough with the tractor during the turnover sequence while turning on headlands or driving on roads the stopplates (A Fig. 2 & 3) have to be adjusted. Drive narrow bends to left and right hand side against stopplate (A Fig. 2 & 3) and reverse the plough during this test. Take care of sufficient clearance between plough and mud-guards and rearwheels. Adjust stopplate (A Fig. 2 & 3) accordingly to limit the turning radius.

Check Chains or Stabilizers on Tractor Linkage

They should be adjusted so that they are rigid when the plough is in work with the link arms fixed in a central position (both sides same distance away from the inside of the tyres). But it is also possible to work with the stabilizers in loose position.

Operation

Warning. Never allow people to stand or sit on the plough during operation. The areas of operation must be clear of bystanders.

Working Depth (Fig. 5)

Select **"Mixed Control"** or **"Position"** on the hydraulic system and choose desired working depth with hydraulic lever.
To limit the working depth there is an adjuster screw provided on the rear landwheel (**D** Fig. 5).

Plough inclination (Fig. 4 & 8)

Each side of the plough can be seperately adjusted by means of the adjustment screws (E Fig. 4). The surface of the ground and the plough legs should be approximately 90° to each other (Fig. 8).

Draught Alignment (Fig. 5)

Appearance of side draught resulting in crabbing of tractor indicates a wrong setting. The tractor linkage should stay approximately central between rear wheels as well as the toplink.
Alignment has to be carried out by means of shifting the console of the rear landwheel (5 Fig. F) either to the front or the rear. For example, if tractor tries to run towards the ploughed land, shift the landwheel console rearwards by means of turning the threaded rod (F 1 Fig. 5).
Shift the console in the opposite direction if sidedraught appears to the unploughed land.

Front Furrow Width Adjustment (Fig. 4)

Optional equipment of the plough is an hydraulic ram (G Fig. 4) in lieu of an adjustable turnbuckle for altering the front furrow width.
Shorten turnbuckle (or hydr. ram) - Front furrow wider
Lengthen turnbuckle (or hydr. ram) - Front furrow smaller

If equipped with hydraulic ram the front furrow width can be adapted during work which can be of advantage when ploughing on slopes.

Turning on headlands (Fig. 7)

In normal ploughing conditions the plough does not need to be raised out of work neither at the front or rear. Approaching the headlands turn the plough during work out of the furrow until the half turned position and drive with the plough in the same half turned position until the tractor enters the last furrow. Only then the full turnover sequence is to be completed to put the plough in working position. Refer to Fig. 7.
Caution. Whenever the plough is out of work driven on headlands or in transport carry the plough in the half turned position. If it is being reversed during work always lift the plough.

Skim coulters (Fig. 9)

Positive ratched locks on skim (9 Fig. M/M1) and beam locating position eliminates movement even in heavy stoney conditions.

The distance of the skimmers to the plough bodies can be changed by reversing the holder and/or by turning the cranked stalk.

In all cases they should be set only deep enough to ensure that all trash is buried.

Disc coulters (Fig. 10)

The depth is adjusted by locating the notched segments (10 Fig. N1) allowing a minimum clearance between disc bearing and ground of approx. 5 cm (2 inch) to avoid excessive wear to the bearings.

They should also be set so that there is clearance (2 - 4 cm) between their cut and the landside shin.

The lateral movement should be restricted by adjusting the collar (10 Fig. N) allowing unrestricted movement of approx. 5 degrees in each direction.

Caution. Take care that the collars (10 Fig. N) are always kept tight, especially when plough is in horizontal transport position.

Pick-up Arm for Furrow Presses (Fig. 11 & 12)

Fix the connection rod (11 Fig. H2) so, that the pick-up arm (11 Fig. H) is in a rightangle position to the working direction.

For transport move the arm rearwards to the beam and lock securely.

On Auto-Reset model **"Avant"** swing the outer end of the arm (12 Fig. H) rearwards and lock in position with pin (12 Fig. H1).

On the arm of the Hydraulic Disconnecting Device the set of holding pins (11 Fig. H3) can be fitted on both ends of the hook, to pull the furrow press around obstacles with the plough lifted out of work.

Transport (Fig. 13 & 14)

Internal check chains or stabilizers on tractor linkage should be in a rigid position. Lift the plough at the front and rear end also the parking stands (14 Fig. C & C1). If fitted move the pick-up arm rearwards and lock as described under "Pick-up Arm".
Then engage the special Transport lock (K Fig. 4 & 13) and turn the plough slowly until it locks automatically in the half turned position. Lower the plough then at the front and rear end up to sufficient ground clearance and close finally transport valve (B Fig. 13).

Reconverting into Work Position (Fig. 14)

Open valve (14 Fig. B) and raise the plough. Disengage the transport lock and turn the plough back into working position.

Storage of Plough (Fig. 14)

For long periods always rest the plough on right hand bodies with parking on stands (14 Fig. C & C1) down and valve closed (14 Fig. B). For shorter periods the plough can be stored in a transport position. Protect all wearing surfaces against rust with grease on plough bodies.

Grease Nipples (Fig. 14)

All moving parts with grease nipples must be greased regularly (every 8 hours) such as on all hydraulic cylinder pivots, turnover shaft and vertical adjustment screws (14 Fig. 4). Also disc coulters and other optional equipment.

Optional: Subsoilers (Fig. 16)

Due to stability problems it is not permitted to store the plough resting on subsoiler units (if fitted).

Remove shearbolts (16 Fig. U) and turn subsoiler rearwards out of way. The use of subsoilers is not permitted in stoney conditions or on AVANT ploughs.

Reducing number of furrows (Fig. 15)

The plough can be reduced by the number of bolt-on furrow extensions. If necessary refit the landside wearing plates (O Fig. 15) to the last body. The land/transport wheel can also be repositioned forward by shortening the stabilizer bar including hydraulic pipes (P Fig. 15) and shifting the console (F 2 Fig. 13) forward in steps of 100 cm (interbody clearance).

Warning. Support plough parts securely for safety during work.

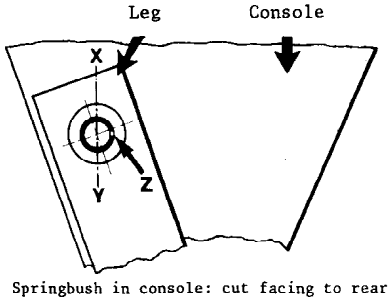
Trashboards (Fig. 16)

The trashboards (optional) are supported from the rear by adjustable bolts (Fig. 16) which should always be resting against the plough leg.

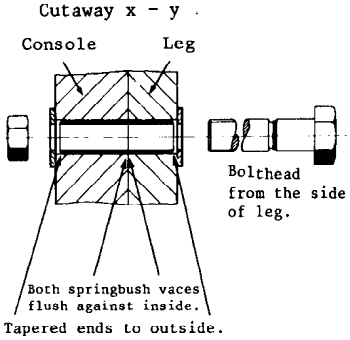
Shearbolt overload protection

All plough models are standard with shearbolts. Also the **"Avant"** automatic reset versions. The shearbolt is provided in the mounting of the plough legs. They are fitted in spring bushes and are of **necked** design. Due to that the shearbolt must be fitted always from the side of the leg. By repeated placement of shearbolts it is also necessary to exchange the spring bushes from time to time as described below.

Note: Tighten shearbolts carefully again and check periodically.
Use only genuine RABE shearbolts .



Springbush in console: cut facing to rear
Springbush in leg: cut facing to front



Tapered ends to outside.

"AVANT" Automatic Reset System (Fig. 17)

The reset system is already correctly adjusted in the factory. The reset force can either be in- or decreased by turning the adjuster bolt (Fig. 17 Fig. T).

Turn bolt (17 Fig. T) clockwise - less reset force
Turn bolt (17 Fig. T) anti-clockwise - more reset force

Note: It is important that the kneelever (17 Fig. R) or bolt (17 Fig. T1) has a minimum of 1 mm clearance (17 Fig. S) against the frame section.

Under very heavy but stone free conditions the reset system can be blocked totally by fitting a special locking device (17 Fig. **l**) which is an optional extra.

Avant Automatic Reset System

In stoney conditions the pivot pins must be greased daily.

Warning. The reset system works under strong spring tension. The built-in compression spring is pretensioned by the factory.

Dismantling of the reset system can be carried out only by trained RABE personnel by using special tools.

Bolt-on Points (on shares)

To achieve maximum service life the bolt-on points are mostly designed with three fixing position holes.

First turn the point around and after both sides are worn adjust forward.

Tyre pressures

Model 160 -		- 1,5 bar
Model 180 -	tyre 19.0/45-17	- 2,0 bar
	tyre 400/55-22.5	- 1,5 bar

Maintenance

Warning. Never allow work to be carried out on plough in the raised position unless the plough is supported. Work on hydraulic system of plough only if the plough is lowered and the system is not under pressure.

All hardware should be checked for tightness, especially during the first hours of operation. The bolts on the mouldboards requiring a torque setting of 80 Nm (60 lbs ft).

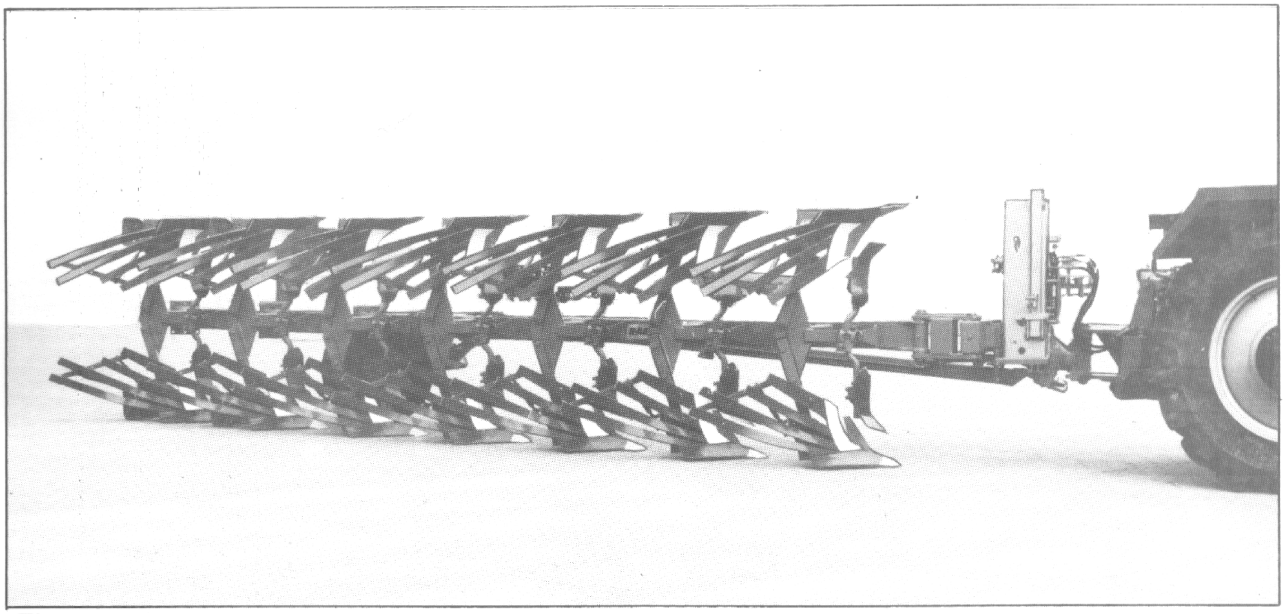
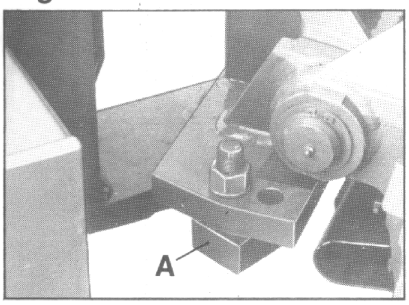


Fig.1



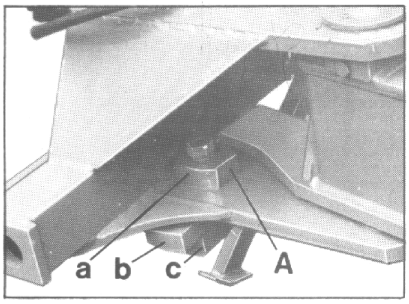


Fig.2

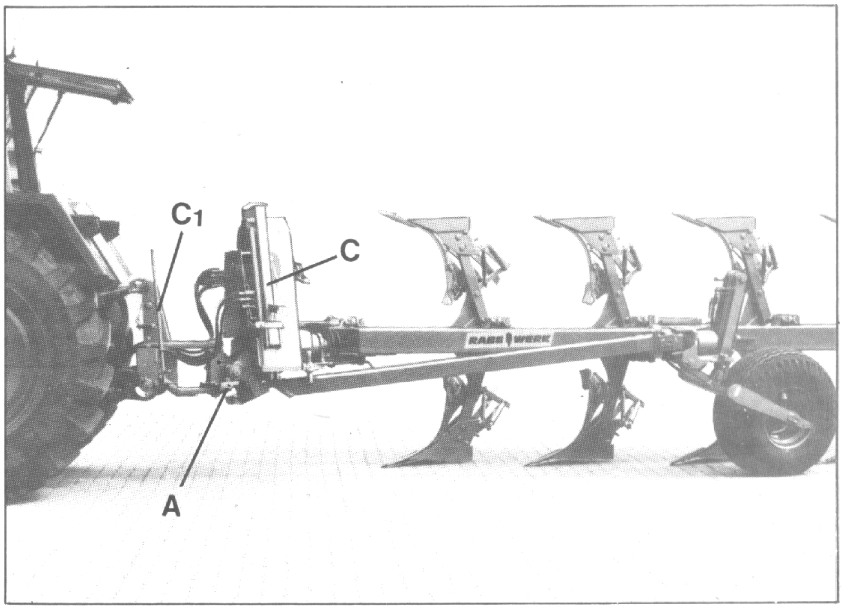


Fig.3

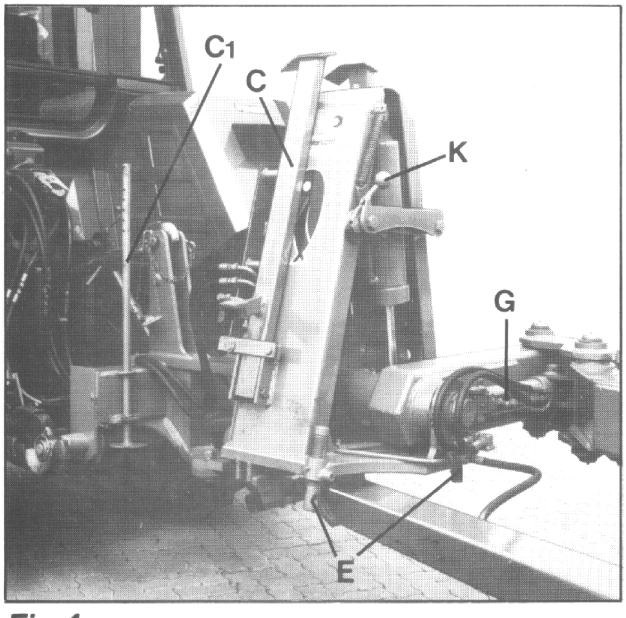


Fig.4

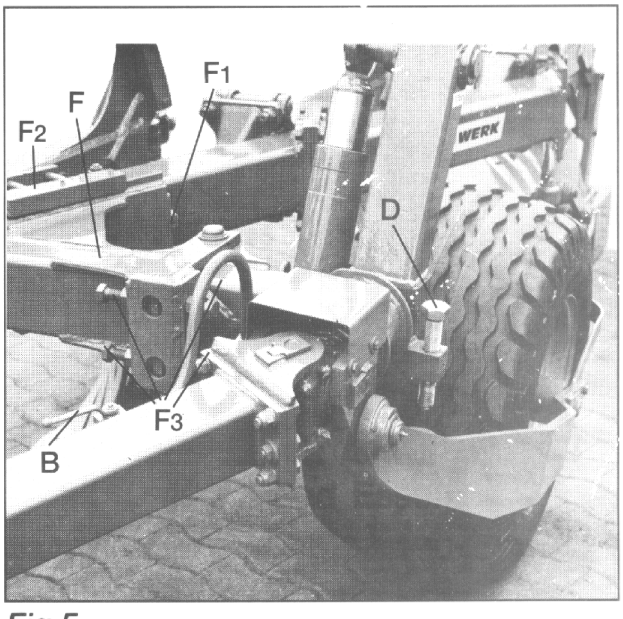


Fig.5

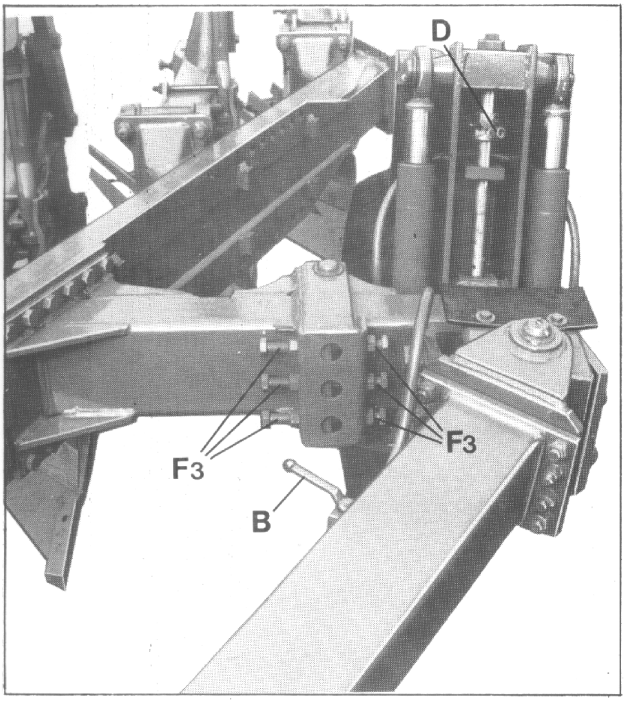


Fig.6

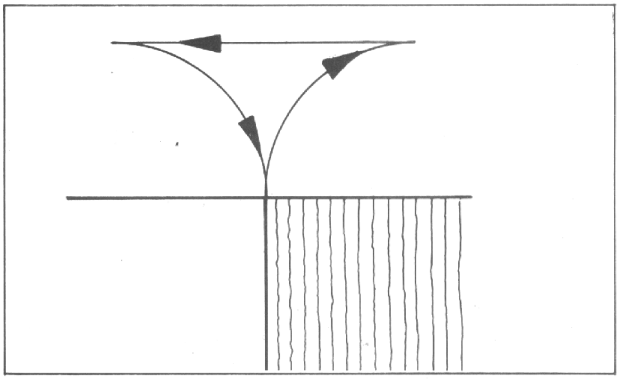


Fig.7

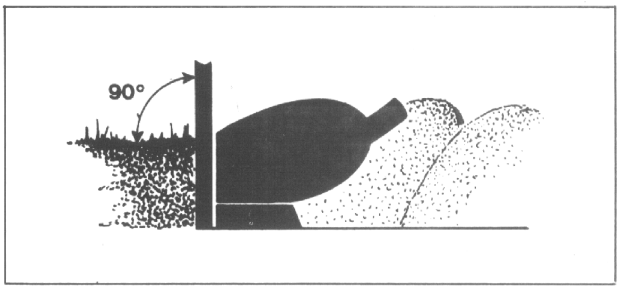


Fig.8

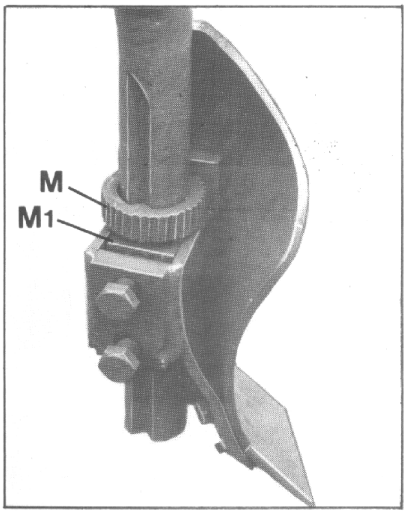


Fig.9

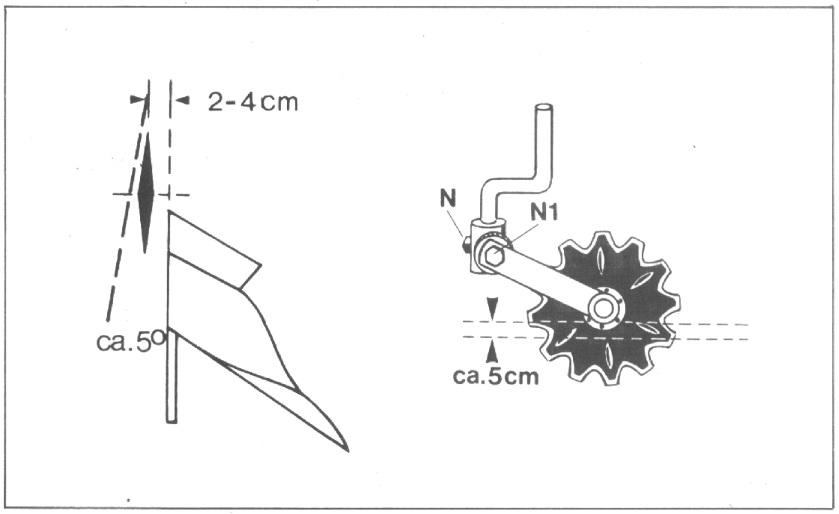


Fig.10

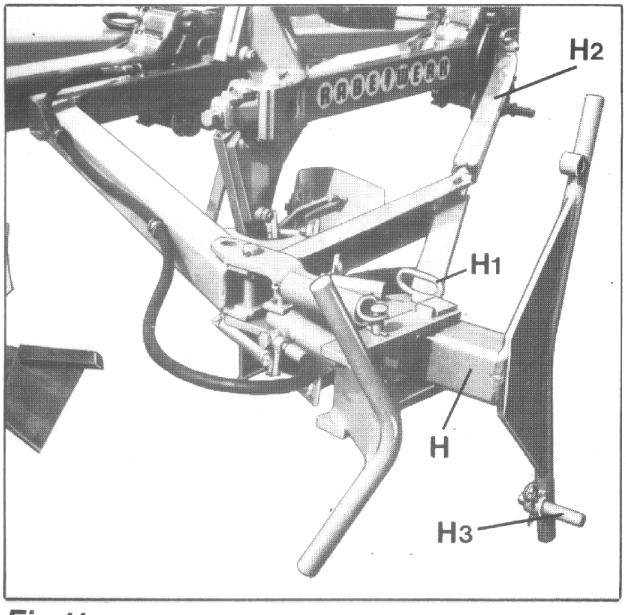


Fig.11

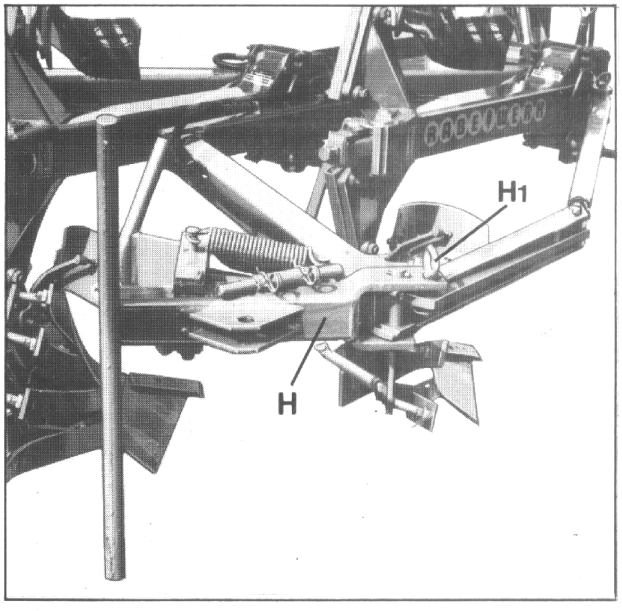


Fig.12

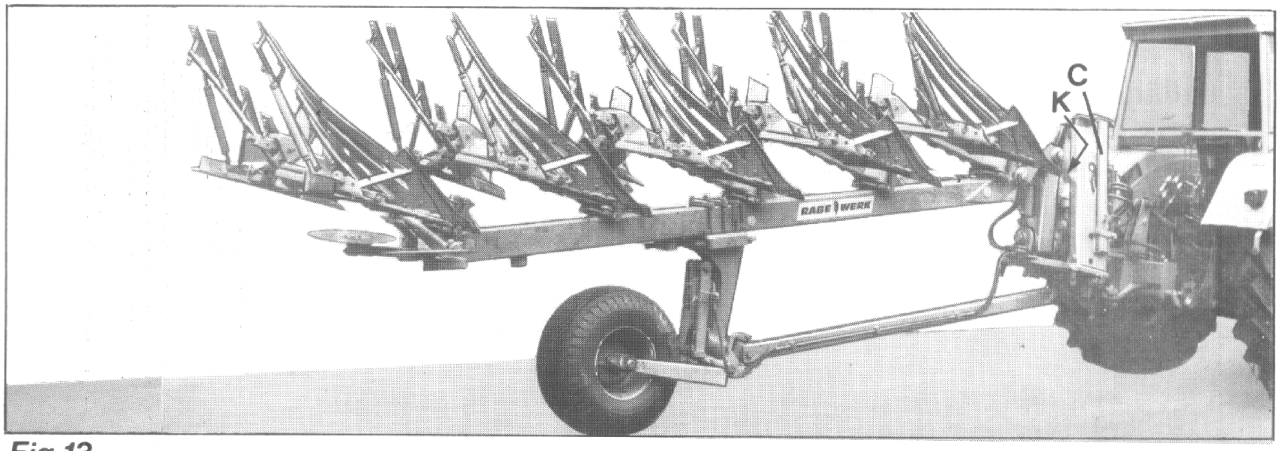


Fig.13

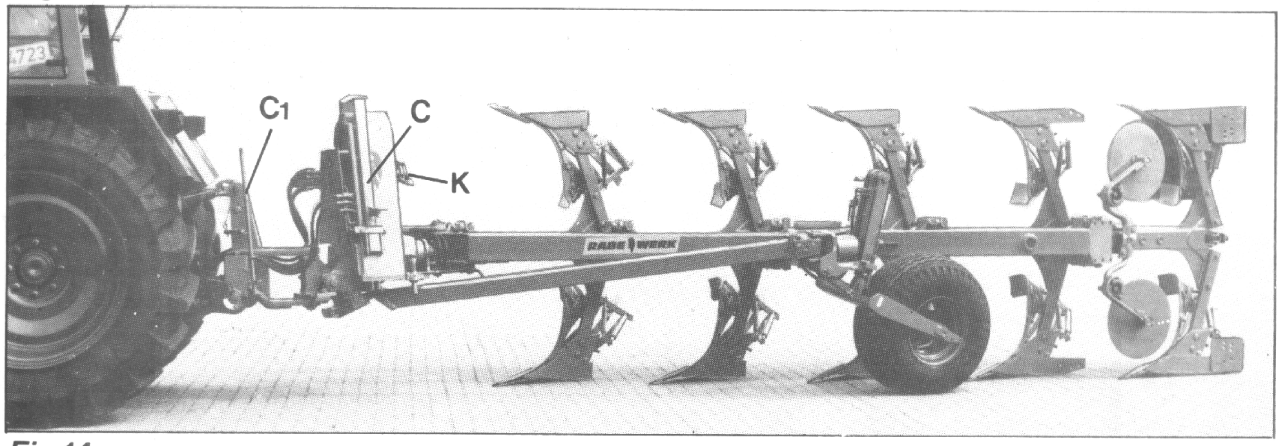


Fig.14

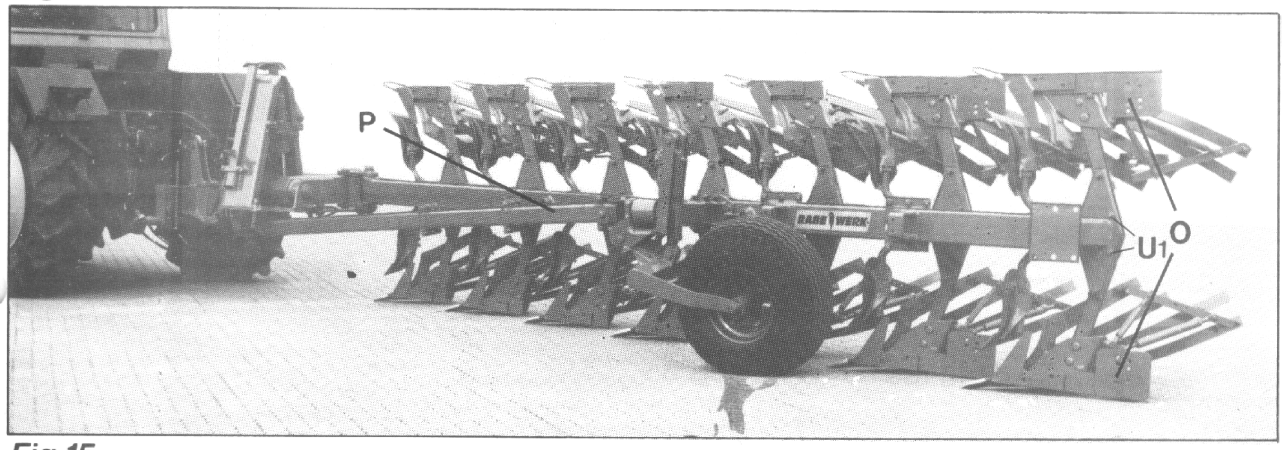


Fig.15

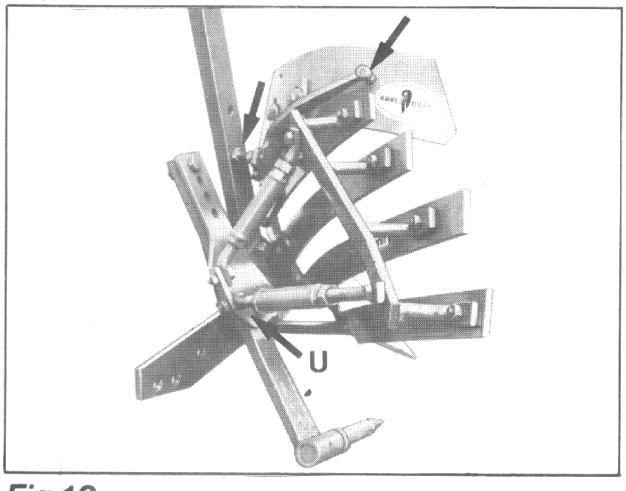


Fig.16

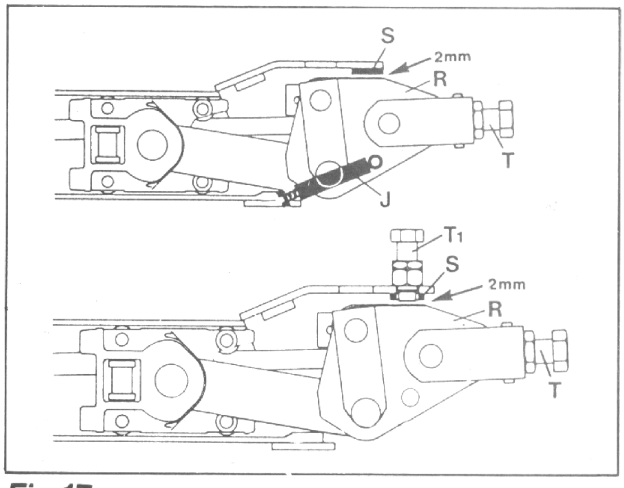


Fig.17

Vital Points For Ordering Spare Parts

Please give the following information whenever you order spare parts:

1. Indicate model (stamped on identification plate)
2. Serial number (stamped on identification plate and frame)

▲

Identification Plate

3. Part number or, if none is shown, the stock number together with the specifications.
   If a complete assembly is required please mention the underlined part number.
4. Don't forget to specify the quantity required!

RABEWERK

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