Operating Instructions and Spare Parts List

Semi- mounted ploughs

C R A N E

For ordering spare parts pls. read rear cover

RABE WERK

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No. 106-8-96 GB

Semi- mounted rev. plough CRANE

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RABEWERK

Operating Instruction

SEMI - MOUNTED REVERSIBLE PLOUGHS 'C R A N E'

SERIES C

Before use

Ensure operators have read and are familiar with the instructions contained in this manual and the seed drill is not operated by untrained persons.
This reversible plough is a semi- mounted implement fixed to the 3- point hydraulic linkage of the 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 or non-genuine parts or any other parts or components are fitted which are not released by RABEWERK.

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

RABEWERK accept no liability for consequential demages or losses of any kind.

Safety precautions

Warning. Make certain that all guards, covers, warning labels and safety devices are correctly fitted and operative.
Ensure the plough is always standing on firm, level ground with the parking stands in lowered position and the work area is clear of bystanders.

Preparing for work

Warning. Select 'Position Control' on the tractor hydraulic before mounting or disconnecting machine.
Take care that sufficient front end weights are fitted on tractor to compensate the rear mounted implement.

Hydraulic connections and adjustments

The plough is equipped with

* 2 hoses (double acting) for turnover
* 1 hose (single acting) for the control of the transport wheel
* 2 hoses (optional) for the control of the hydr. front furrow width adjustment
* 1 hose (optional) to operate the hydr. disconnecting device on the pick- up arm for the furrow press.

Transport position (Fig. 2, 3, 4, 5)

The tractor lower link arms should be in raised position, fixed for transport, not to swing sideways.
The parking stands (3 Fig. C/ C1) have to be raised and the transport locking lever (3 & 4 Fig. K) on the headstock must be shifted into the engaged transport position.

Now the plough can be turned halfway in a butterfly position until it locks automatically.

As an extra safety measurement close the shut- off valve (2 Fig. B) also.
Lower the front section of the plough so far that sufficient ground clearance is provided.

Working position and testing turnover (Fig. 2, 3 & 4)

Open shut- off valve (2 Fig. B), raise the support stands (4 Fig. C & C1) and lift the front and rear end of the plough.
Disengage the transport locking lever (3 & 4 Fig. K). In case lever cannot be released start turning the plough for a second.

Storage of plough (Fig. 2 & 4)

When the plough is not in use it can be left in transport postion for short periods but to relieve the tyres for longer periods let the plough rest in working position on the r.h. bodies.
In transport position: Lower plough at the rear and close shut- off valve (2 Fig. B) and rest the plough on the parking stands (4 Fig. C & C1) at the front.
On right hand bodies: Close shut- off valve (2 Fig. B) and rest plough on parking stands (4 Fig. C & C1).

Check chains or stabilizer brackets on tractor linkage

It is recommended to keep the link arms free when the plough is in work. Only when ploughing hill sides it might be necessary to work with fixed stabilizers.

Operation

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

Front furrow width adjustment (Fig. 3)

The front furrow must have the same width as the other furrows which are fixed. The width may need to be altered depending from the wheel setting or the tyre size.
To alter use the turnbuckle (3 Fig. G) or the hydraulic ram (option), if fitted.

The fitment of an hydr. ram can be of advantage when ploughing on hillsides or in changing soil conditions.

* Shorten turnbuckle or decrease hydr. ram: Front furrow wider
* Lengthen turnbuckle or increase hydr. ram: Front furrow smaller

Working depth (Fig. 5)

For hillside ploughing select 'Mixed Control' on the hydraulic system: For level fields the plough can be operated in 'Position Control'.
To limit the depth of the rear section there is a adjuster screw provided (5 Fig. D).

Note: Make sure that the plough rests during work completely on the adjuster screw.

Extreme wide wheel setting of tractor (Fig. 5)

In case the range of the front furrow width adjustment is not sufficient (as described above) the wheel carrier bracket can be repositioned in steps of one hole in either direction.
To do so let the plough rest on the right hand bodies and lift the wheel section by means of a crane or frontend- loader and lift only slightely.
Shifting the carrier bracket (5 Fig. F)

forward will widen the front furrow width
rearwards will narrow the front furrow width.

But do not remove all bolts. There are always two bolts working on a slotted hole and only required to be slackened:

Bolts (5 Fig. 2 & 4) for the forward shift
Bolts (5 Fig. 3 & 5) for the rearward shift

All bolts must be tightened afterwards again with a torque of 640 Nm.

Travelling direction of depth / transport wheel (Fig. 5 & 6)

The correct position is straight in line with the travelling direction. The guidance and also the degree of landside pressure can be influenced by the running direction of the wheel. Multi- furrow ploughs tend to have low landside pressure in light soil conditions. By changing the travelling direction of the wheel towards the unploughed ground the guidance can be improved.
To adjust turn screw (5 Fig. F 1) on carrier bracket (5 Fig. F).
On older models this was carried out with releasing and tightening 3 adj. bolts (6 Fig. F2).

Turning on headlands (Fig. 7)

Warning. Do not reverse the plough when driving narrow bends and the tractor rear wheels are in danger of colliding with the plough headstock. Take care of sufficiant distance between the mudguards or tyres of the tractor and the first plough body. This applies specifically when backing-up with the tractor.

Note:
Due to the unique CRANE plough design does it is **not required** to lift the plough at all out of work neither at the front or the rear.
At the end of the furrows when approaching the headland turn the plough out of work just by operating the double acting spool valve for turning.

This unique ' one lever' concept is a great benefit to ease the work of the operator. To drive a narrow bend on the headland turn the plough more or less half to allow the wheel to steer. Drive with the plough in the same half turned position until the tractor enters again the last furrow. Only then the full turnover sequence should be completed (Fig. 7).

Plough inclination (Fig. 8)

Each side of the plough can be individually adjusted to cope with uneven and hillside conditions.
By means of altering the inclination the plough legs must stay always in 90° angle to the ground surface (Fig. 8) and the plough beam level.
There are two srews for each side (8 Fig. E) provided.
Precise adjustment is very important on large multi- furrow ploughs!

Complains about too wide front furrow is in most cases the result of wrong adjustment

* of the plough inclination
  or
* draught alignment of 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 condition.
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. N 1) 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 appox. 5 ° in each direction.

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

Trashboards (Fig 11)

The trashboards (optional) are supported from the rear by adjustable bolts (Fig. 11 V) which should always be resting against the plough leg.

Shearbolt overload protection (11 Fig.)

All plough models are standard with shearbolts (11 Fig. U1). Also the „Avant" automatic reset models. The shearbolt is provided in the mounting of the plough legs. The shearbolt must be fitted always from the side of the leg. Check spare parts list whether a washer is required.

Note: Tighten shearbolts carefully again and check periodically.
Use genuine shearbolts only (refer to spare parts list)

Pick-up arm for furrow presses (Fig. 14 & 16)

Fix the connection rod (13, 14 16 Fig. H & H2) so, that the pick-up arm is in an rectangular position to the working direction.
For transport move the arm rearwards to the beam and lock securely. Strut (13 Fig. H2) at fixing point (13 Fig. H 4) respectively on auto reset models AVANT engage and secure arm (14 & 16 Fig. H) with pin (14 & 16 Fig. H 1).

On the arm of the Hydraulic Disconnecting Device the set of holding pins (13 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.
To operate the disconnecting device move hydr. control lever in the direction as when reversing the plough.

AVANT Automatic Reset System (Fig. 15)

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. 15 Fig. T).

Standard AVANT reset system (2100 kp reset force):

Turn bolt (15 Fig. T) clockwise - less reset force
Turn bolt (15 Fig. T) anti-clockwise - more reset force

It is important that between the knee- lever body (15 Fig. R) and (15 Fig. S) a small gap of apprx. 1 mm is left.

Extra h.d. AVANT reset system (2400 kp reset force):

Turn adj. bolt (15 Fig. T1) to shift knee- lever body away from boxed beam section for required min. clearance of 1 mm. Then turn adj. bolt (15 Fig. T) tight and counterlock nut. Now the bolt (15 Fig. T1) can be released again and counterlocked.

Under very heavy but stone-free conditions the reset system can be blocked by fitting a special locking device (15 Fig. J) which is optionally available.

Warning. The reset system works under strong spring tension. The built-in compression spring is pre- tensioned by the factory. Dismantling of the reset system must be carried out only by trained RABE personnel using special tools which can be ordered from the manufacturer.

Maintenance

Warning. Never allow work to be carried out on plough in 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, particularly during the first hours of operation.

Torque settings for bolts:

Mouldboards:	80 Nm (60 lbs ft)
Wheel nuts:	260 Nm

Trip Fork and Pilot Peg on Reversing System (Fig. 12)

Both trip forks (12 Fig. Z) and the pilot pegs should be checked from time to time for correct function. The trip fork must engage every time in its final position by means of a spring tensioned ball. During the turnover sequence when the plough is turned halfway, the pilot peg must be caught exactly by the trip fork. To align the pilot peg (12 Fig. Z) to the correct position it is adjustable in height.

Grease Nipples (Fig. 3)

All moving parts with grease nipples must be greased regularly (daily) such as on wheel carrier, turnover ram, turnover shaft, vertical adjustment screws, front furrow adjusters, sliding rail, centre pins (3 Fig. X1) and turnbuckles. Also disc coulters and rear landwheel.

Replacement of Bushes (Fig 7 & 19)

There are bushes fitted which need replacement when worn.
For example: adj. base plate, universals on headstock, beam- and wheel carrier pivots.

Avant Automatic Reset System

In stoney conditions the bearings must be greased daily.

Bolt-on Points (on shares)

To achieve maximum service life the bolt-on points are designed with three fixing position holes.
First turn the point around and after both sides are worn adjust forward.

Tyre Pressure

Transport wheel - 2.5 bar