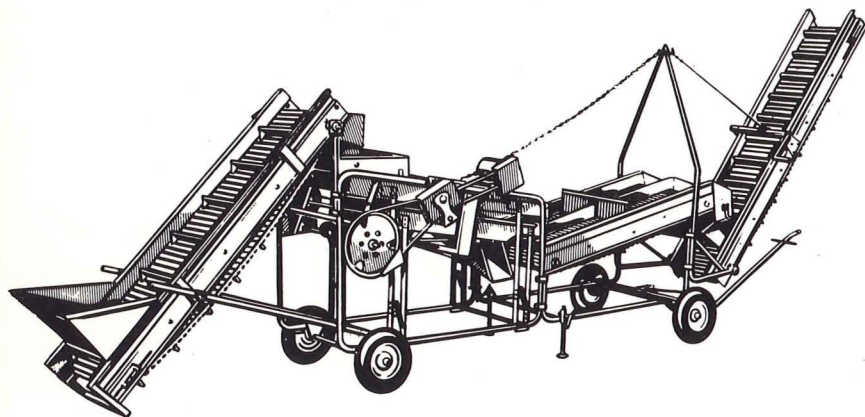


OPERATION AND ASSEMBLY MANUAL of

AMAZONE

Potato Grader BK 3 · Potato Sorting Table VK 3 Potato Grading and Sorting Plant Fortschritt III (Progress III)



Please read these instructions carefully and work your potato grader and sorter accordingly. You will then have more satisfaction with your new "AMAZONE".

AMAZONEN-WERKE H.DREYER



Factories in W.-Germany:
D-4507 Hasbergen-Gaste

Tel.: Hasbergen (0 54 05) *6 43 (*10 43)
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Factory in France:

AMAZONE - Machines Agricoles S.A.

F-57602 FORBACH - Rue de la Verrerie
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Factories for: Mineral-fertilizer spreaders, seed drills, reciprocating harrows, potato grading-machines, fertilizer silos, conveyors universal sprayers, fertilizer containers

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Whenever in the following text reference is being made to numbers, for example Fig. 3/2, the first part of the number is giving the figure and the second number marks a certain item within this figure.

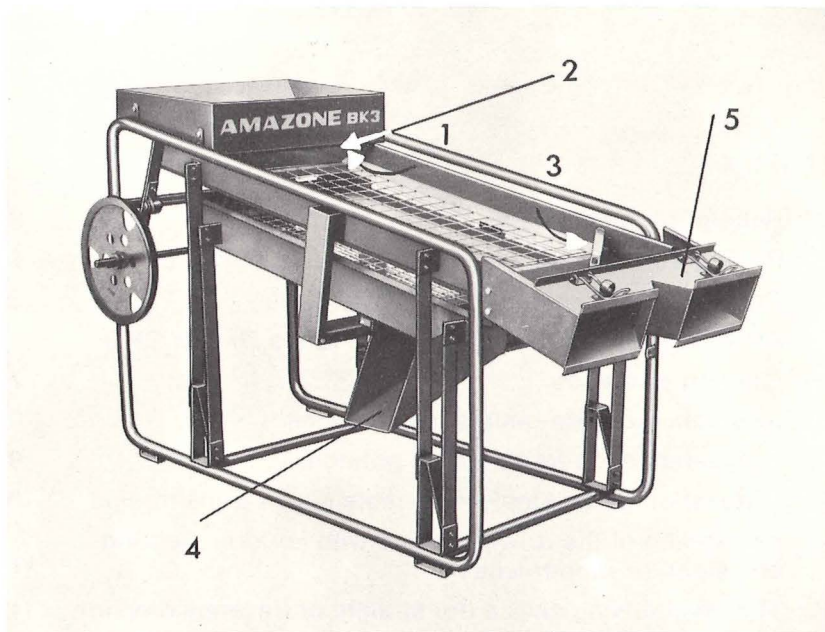


Figure 1

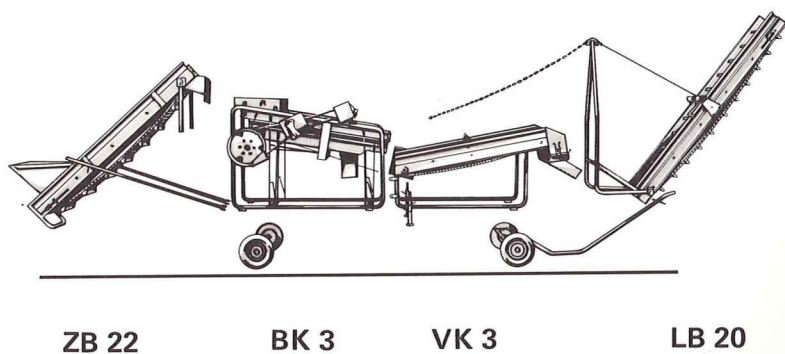


Figure 1a

A) RECEIPT OF THE MACHINE:

Up on receipt of your potato grader and -sorter make sure that the machine has not been damaged in transit or that any damage sustained is notified to your AMAZONE-agent immediately in writing. Check your delivery note to be sure that all parts and ancillary equipment advised have been received by you.

B) PUTTING INTO OPERATION:

Before putting your machine into operation remove the packing including all wires entirely and check that it is greased properly. As standard the AMAZONE BK 3 or Fortschritt III is supplied with 3 grading riddles of 35 mm, 45 mm and 60 mm mesh width. In the standard equipment the riddle boxes hold only 2 riddles, thus the riddle, which has been supplied on top of the upper riddle, which may be used as an exchange riddle for grading different sizes, must be taken out.

By shortly switching on and off the motor or by turning a few times the handcrank, convince yourself that the machine runs freely and silent. Rattling riddles will stop rattling after the machine has been put to work.

C) PRINCIPAL OF WORKING

The AMAZONE BK 3 and **Fortschritt III** is a so-called flat-riddle grader having 2 to 4 riddles one up on another. The grading of the potato sizes is determined by the mesh width of the exchangeable riddles. A large variety of riddles including rubber-covered riddles (for early potatoes with a tender skin) is available. The mesh width of the available optional riddles ranges from 20 mm to 80 mm.

Exchanging of the riddles is done as follows:

1. Lift the riddle on the filling side.
2. Push the riddle in direction of the arrow (Fig. 1/1) underneath the filling chute (Fig. 1/2).
3. Now lift the lower part of the riddle.
4. Pull out the riddle upward in direction of the outlet (Fig. 1/3).

For the filling of the potatoes into sacks make sure they are fixed to the chutes properly. This is done as follows:

Put the sack from underneath around the chute (Fig. 1/5) with both hands, pull at the free end until tight, fold it around the clamping block and push down the clamp (on top of the chute) until the sack fits tightly.

Side Outlet for small feed potatoes:

The outlet for small feed potatoes (Fig. 1/4) may be attached to the grader BK 3 either showing to the left or to the right side. These small potatoes may be collected in baskets.

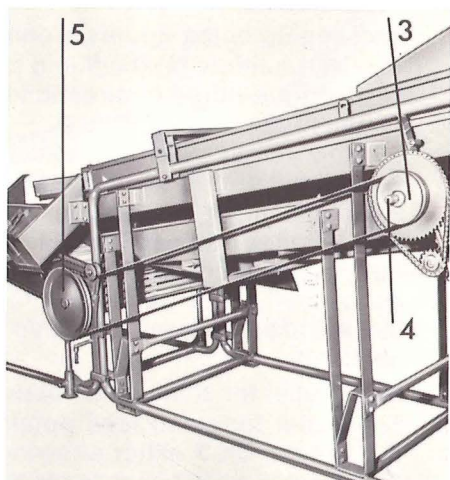
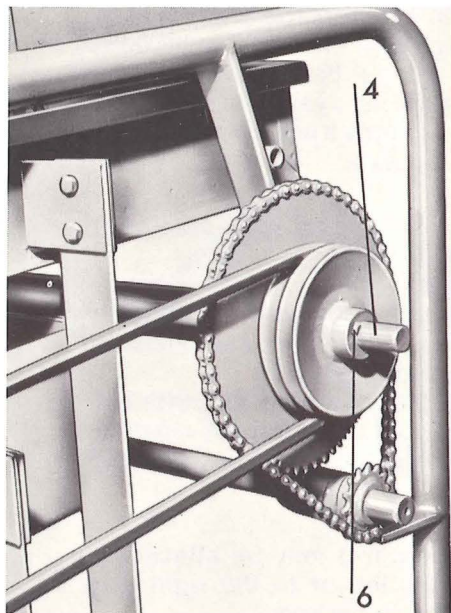
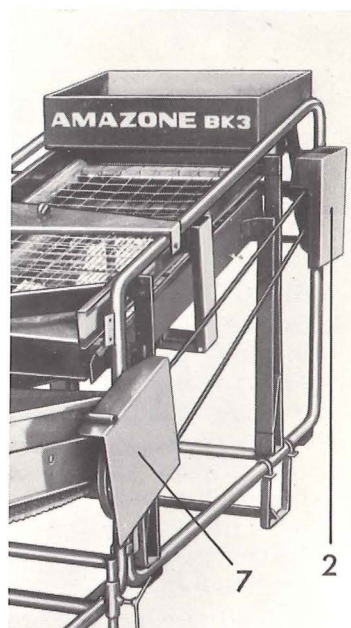
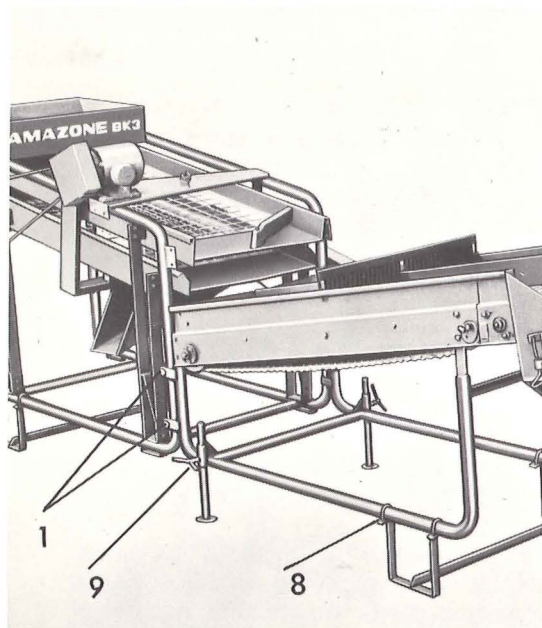


Figure 2

D) ATTACHING OF THE SORTING TABLE VK 3 TO THE GRADER BK 3

The AMAZONE potato grader BK 3 has been designed to be the basic machine to which all other accessories offered may be attached consecutively lateron (Fig. 1a). The AMAZONE BK 3 can be converted into a AMAZONE Fortschritt III (Progress III) by simply attaching the sorting table VK 3 to the grader BK 3 as explained in the following:

1. Remove the sack filling chutes on the lower end of the grader BK 3 (Fig. 1/5).
2. Remove the 4 bolts on the sorting table VK 3 (Fig. 2/1) and bolt the VK 3 to the BK 3 as shown.
3. Remove the protection hood (Fig. 2/2) from the grader BK 3.
4. The supplied double V-Belt pulley (Fig. 2/3) has to be pushed onto the shaft (Fig. 2/4) and aligned with the pulley (Fig. 2/5). Thereafter secure the double V-belt pulley with keys as shown in Fig. 2/6 and put on the V-belts.
5. Reinstall the protective hood (Fig. 2/2) which had been taken off before and put on the hood (Fig. 2/7).
6. **Installation of the supporting legs:**
 - a) Remove the nuts of the supporting legs.
 - b) Lift the machine, push the U-bolts around the tube of the frame (Fig. 2/8) and tighten nuts firmly.
 - c) To give the machine during operation a better standing lower the center support down to the ground by loosening the wing bolts (Fig. 2/9) and by retightening them after the center supports have reached the desired position. Should the machine be equipped with a driving device the center supports have to be lifted and fixed before driving!

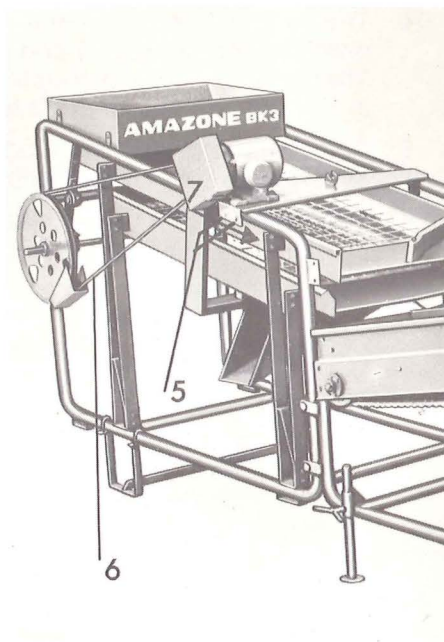
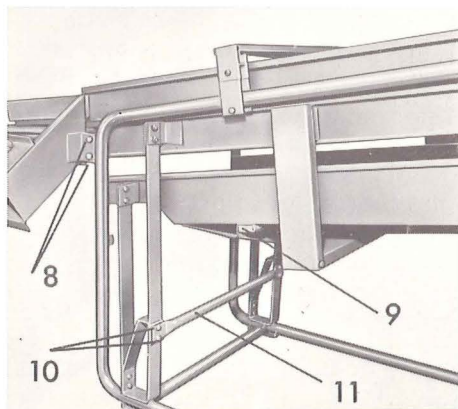
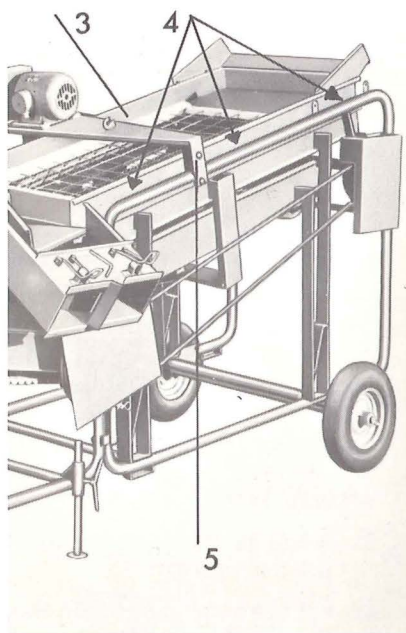
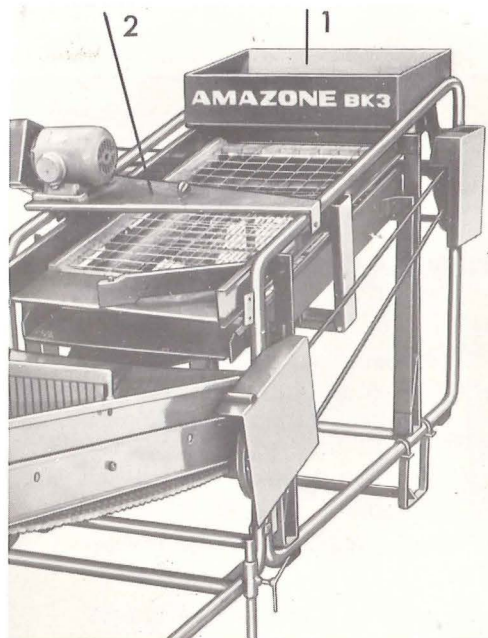


Figure 3

E) GRADING TO 4 SIZES

1. Unbolt filling chute (Fig. 3/1) and motor console (Fig. 3/2) (if existing).
2. Lay optional riddle box (Fig. 3/3) on to the upper riddle box and fix it with bolts (Fig. 3/4).
3. Should the BK 3 had been equipped with a motor before, the motor console extension has to be bolted underneath the motor console. This together has to be bolted to the frame Fig. 3/5) loosely. Now put on the V-belts (Fig. 3/6) and tighten the V-belts by pulling backward the motor-console in direction of the arrow (Fig. 3/7). Thereafter tighten bolts (Fig. 3/5) firmly.
4. The side-outlet for the grading to 4 sizes has to be bolted with the bracket (Fig. 3/8) to the frame of the BK 3.
5. Unbolt the push rod holder (wood) Fig. 3/9 and replace it with the supplied iron counter balance.
6. Take off bolts of the leaf springs (Fig. 3/10) of the upper riddle box, and install the leaf spring reinforcement (Fig. 3/11) horizontally.

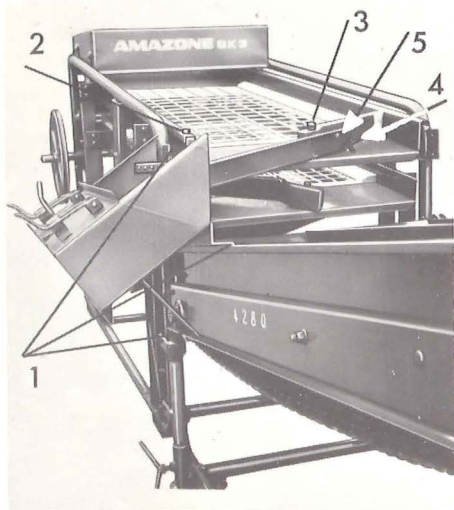


Figure 4

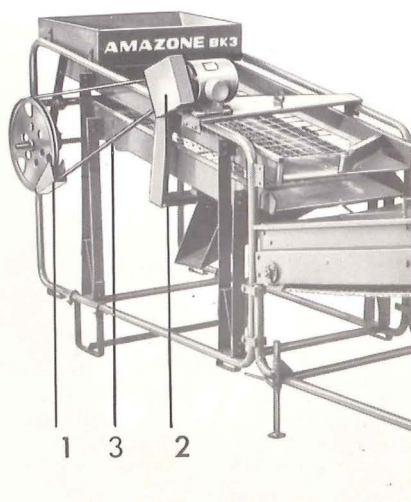


Figure 5

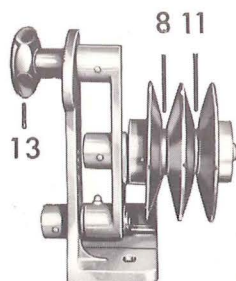
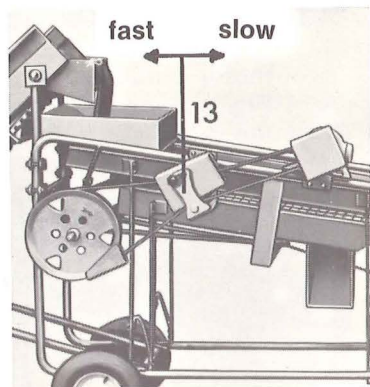
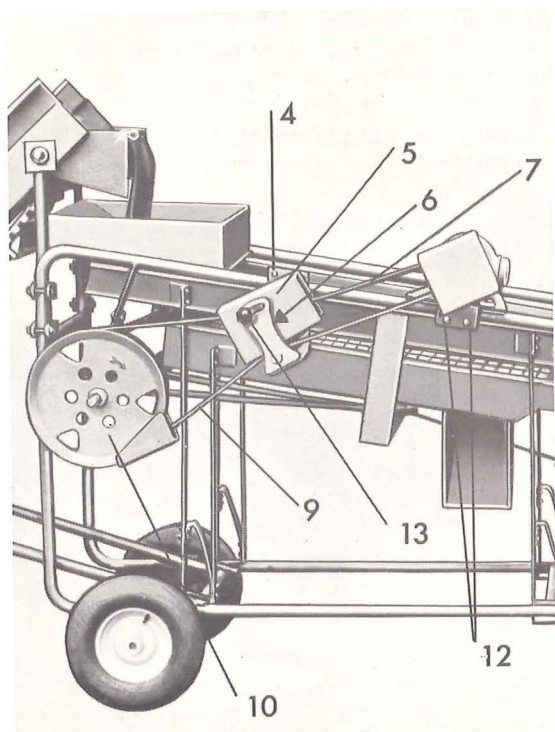


Figure 5

F) INSTALLATION OF SIDE OUTLET FOR OVER SIZES

1. Hang in the outlet for oversizes as shown in Fig. 4/1.
2. Bolt loosely the riddle box outlet to the riddle box (Fig. 4/2).
3. Unbolt the potato guide board, place guide board extension with its fixing hole underneath the guide board as shown on Fig. 4/4 and retighten the hinge bolt again.
4. Drill a hole through both the guide board and the guide board extension and bolt them together (Fig. 4/5).
5. Now the bolt (Fig. 4/2) on the riddle box may be tightened firmly.

G) INSTALLATION OF OUTLET FOR ROTTEN POTATOES

The outlet to select the rotten potatoes by hand can be hooked on to any place of the side of the sorting table.

H) INSTALLATION OF THE STEPLESS VARIABLE SPEED TRANSMISSION

1. Remove protection hoods (Fig. 5/1) and (Fig. 5/2).
2. Take off the V-belt (Fig. 5/3) from the grader BK 3.
3. Attach the stepless variable speed transmission with the 2 U-bolts (Fig. 5/4) to the grader BK 3.
4. Take off protective hood (Fig. 5/5) by loosening the bolt (Fig. 5/6).
5. Put on the supplied V-belts, so that the shorter V-belt (Fig. 5/7) (from the motor to the variable speed transmission) lays between the outer pulley discs (Fig. 5/8) and the longer V-belt (Fig. 5/9) (from the flywheel pulley Fig. 5/10 to the variable speed transmission) lays between the inner pulley discs (Fig. 5/11).
6. Tension the V-belt (Fig. 5/9) by pulling backward the variable speed transmission and fix it with the aid of the U-bolts (Fig. 5/4), tighten the nuts firmly.
7. Tension the V-belt (Fig. 5/7) by pulling backward the motor console. Herefore the bolts (Fig. 5/12) may have to be loosened and retightened again firmly afterwards.
8. The speed of the movement of the potato riddles and sorting table belt can be varied by the setting of the star grip (Fig. 5/13) according to the requirements in direction of the arrows (left = fast – right = slow).

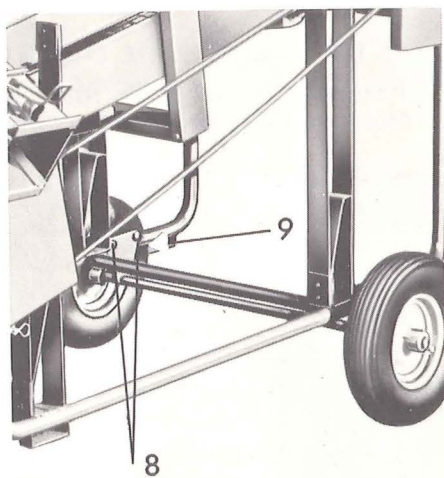
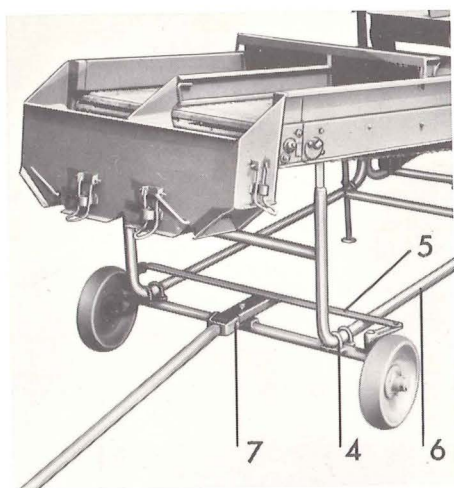
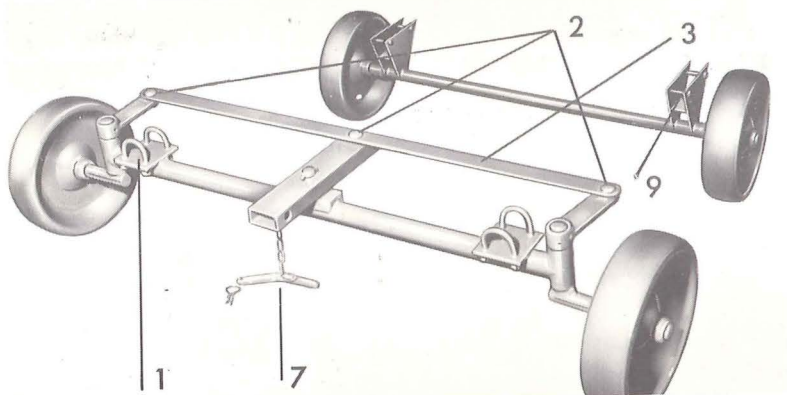


Figure 6

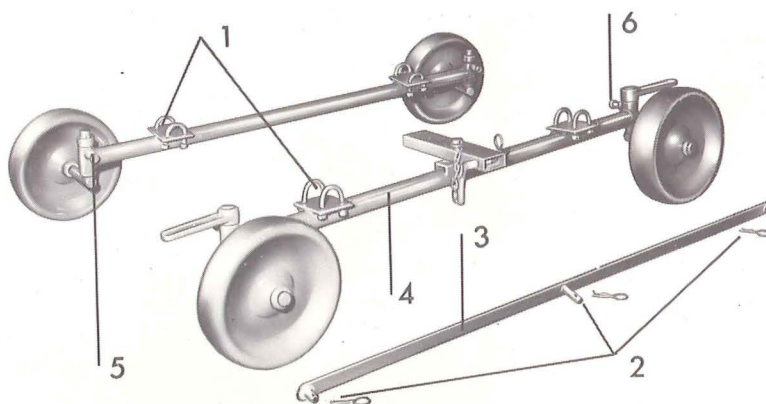


Figure 7

I) INSTALLATION OF THE DRIVING DEVICE WITH KNUCKLE STEERING AND STEEL- OR RUBBER WHEELS

1. Unbolt the U-bolts (Fig. 6/1) of the front axle. Pull out the 3 spring pins (Fig. 6/2) and remove the track rod (Fig. 6/3).
2. Lift the machine, push front axle underneath and bolt it with the U-bolts (Fig. 6/4) to the frame.
3. Replace the track rod (Fig. 6/5) so it is positioned above the frame tube (Fig. 6/6) and secure it by inserting the spring pins.
4. Hook on the drawbar, fasten it with pin (Fig. 6/7) and secure the latter with the spring pin.
5. Take the rear axle and remove the bolts (Fig. 6/8) of the frame supports (Fig. 6/9).
6. Now lift the rear end of the machine and place the rear axle underneath in such a way that the tubular frame (Fig. 6/6) is placed between the support brackets (Fig. 6/9). Thereafter reinsert the bolts (Fig. 6/8) and tighten nuts firmly.
7. When putting the machine into operation lower the center supports as explained under chapter D), position 6.

K) TRAVERSAL DRIVING DEVICE (FOR STRAIGHT OR TRAVERSAL DRIVING)

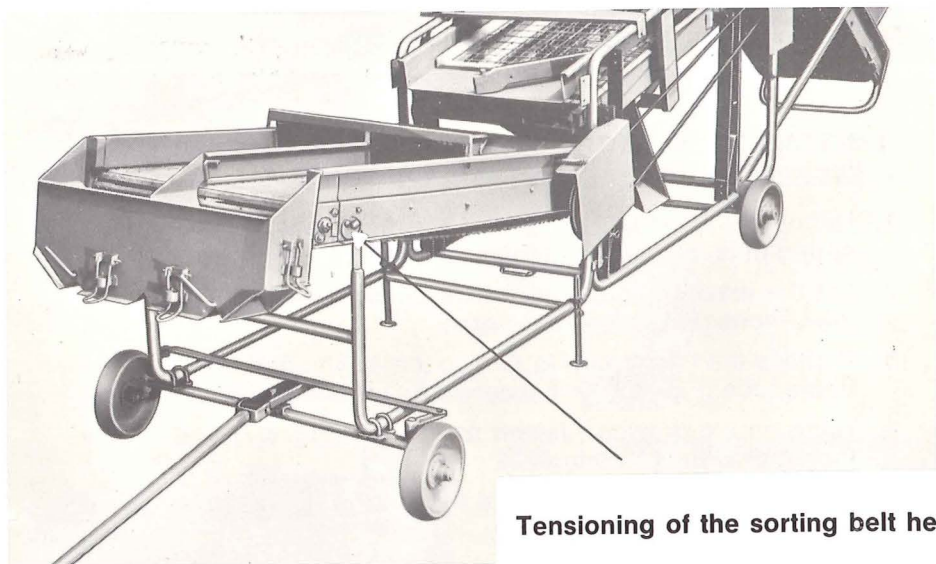
1. Assembly for straight pulling of the machine:

Remove the wing bolts (Fig. 7/1) and the 3 spring pins (Fig. 7/2). Lift off track rod (Fig. 7/3), raise the machine to push underneath the front axle (Fig. 7/4) and fasten the latter to the tubular frame by means of the U-bolts. Now place the track rod above the frame tube (Fig. 6/6) and secure it with the 3 spring pins.

2. Preparing the machine for traversal movement:

Loosen the fixing bolt (Fig. 7/5). Remove the 3 spring pins (Fig. 7/2) and lift off the front axle, the track rod (Fig. 7/3). Now swivel all 4 wheels 90° sideways and tighten all 4 fixing bolts (Fig. 7/5 and Fig. 7/6).

Attention! Keep the track rod (Fig. 7/3) for changing the machine later on again for straight driving.



Tensioning of the sorting belt here

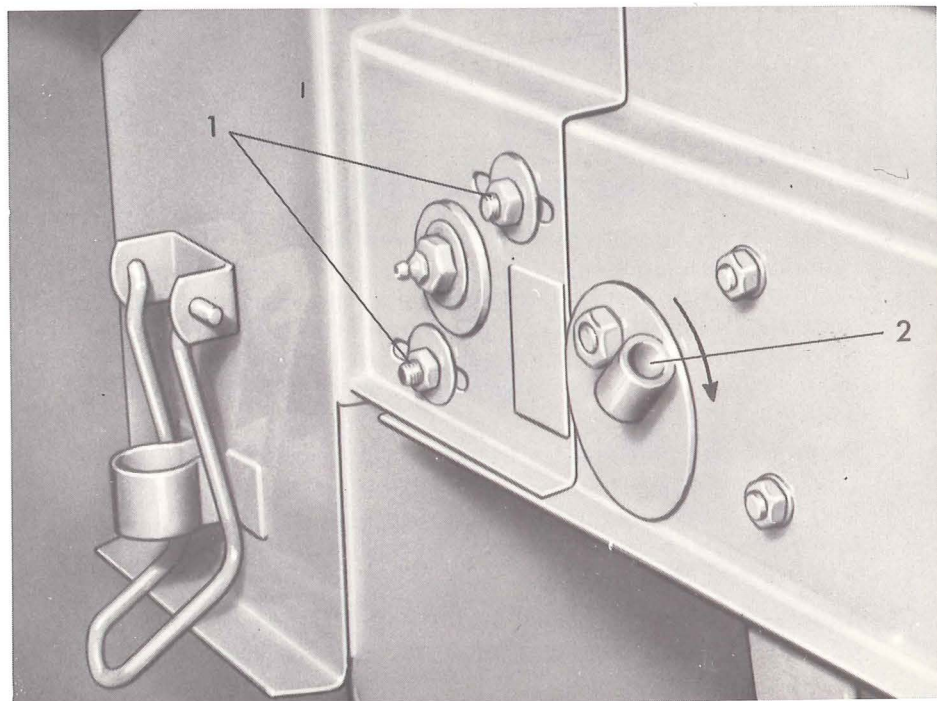


Figure 8

L) TENSIONING OF THE SORTING BELT

Loosen bolts (Fig. 8/1) on both sides. Insert a pin or a screw-driver into the tube (Fig. 8/2) and turn the tensioning disc clockwise (this way the tensioning belt will be tensioned). If the desired tensioning has been achieved hold the tensioning disc with the screw driver in the desired position and tighten the bolts (Fig. 8/1) again firmly. Please watch that both sides are tensioned by the same amount, otherwise the belt might travel to one side. Should the belt travel to one side always tension it on that side toward which the belt was moving.

M) REPLACEMENT OF THE SORTING BELT

1. Let the sorting belt run so far that the connecting hinge is centrally positioned underneath the sorting table.
2. Detension the sorting belt entirely.
3. Remove the belts hinge pins and pull out the old sorting belt. Now insert the new belt again, so that the connecting points will again be underneath the sorting table. Insert pins again.
4. Tension sorting belt as described under chapter L).

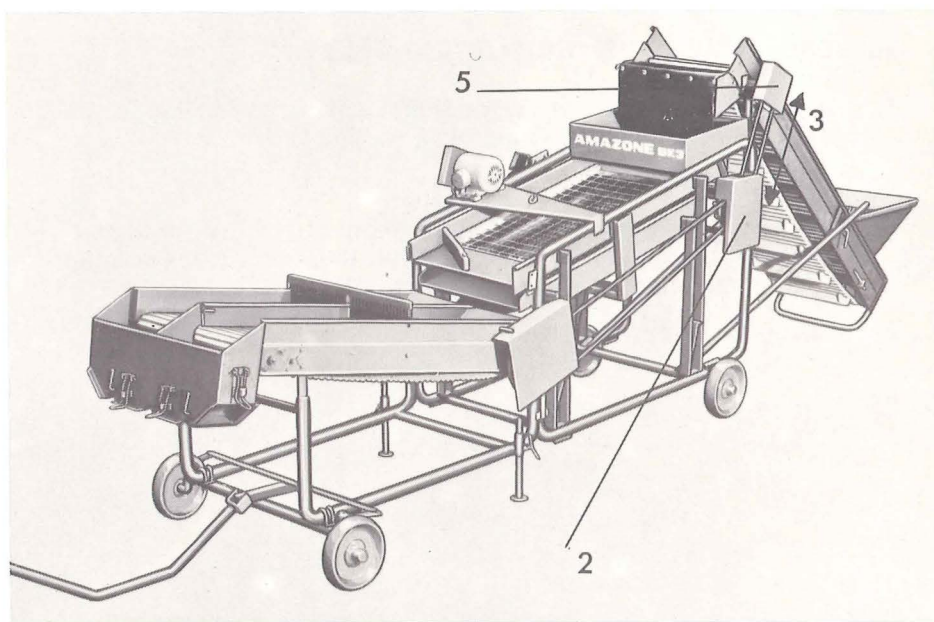
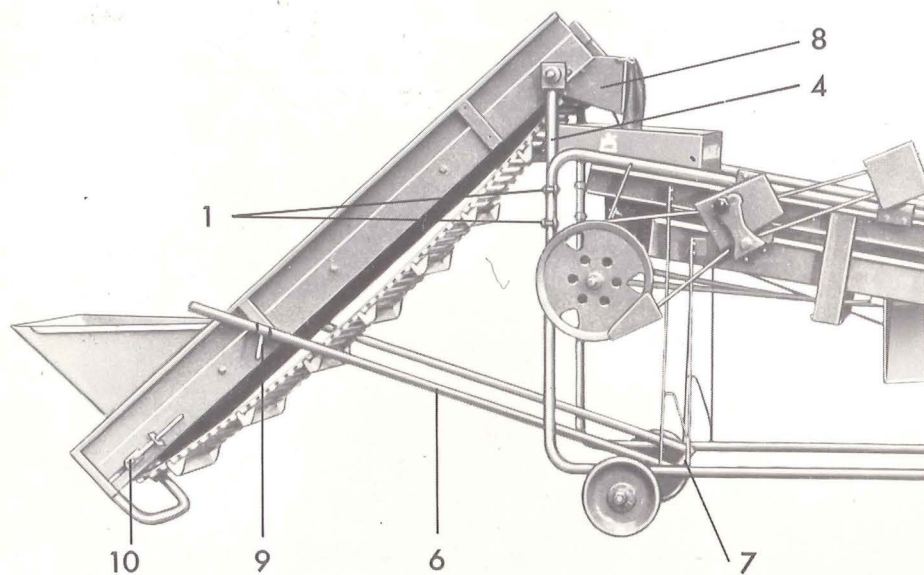


Figure 9

N) FEEDING BELT ZB 22

1. Fix upper support (Fig. 9/1) of the feeding belt to the tubular frame of the BK 3.
2. Take off protective hood (Fig. 9/2) from the grader BK 3.
3. Align the V-belt pulley of the feeding belt with the double V-belt pulley of the grader BK 3 (Fig. 9/3). Now tighten the fixing bolt of the feeding belts V-belt pulley firmly.
4. Put on V-belt. This V-belt will be tensioned by pulling upward the feeding belts supports (Fig. 9/4).
5. Replace protective hood (Fig. 9/2), secure it with spring pins and bolt on protective hood (Fig. 9/5).
6. Put on the supplied support bars (Fig. 9/6) with their fork-like end onto the traversal member (Fig. 9/7) of the BK 3 and secure it with spring pin.
7. Bolt the guide (Fig. 9/8) to the feeding belt.
8. The filling height of the feeding belt can be adjusted by lifting the feeding belt ZB 22 and fixing it in the desired position by tightening the lever bolt (Fig. 9/9).
9. Retensioning of the feeding belts will be done at the tensioning bolts (Fig. 9/10). Should the belt run to one side the tensioning has to be increased on that side to which the belt is running.
10. The replacement of the feeding belt will be done in the same manner as described under chapter M).

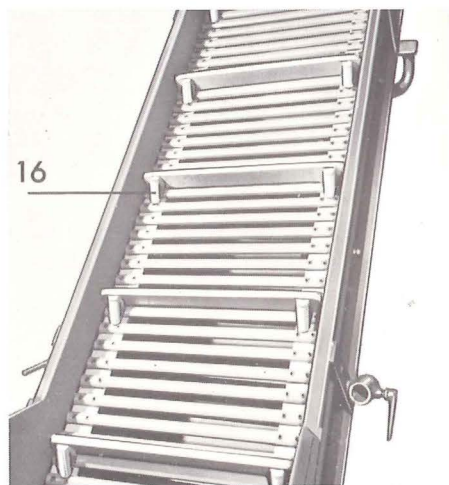
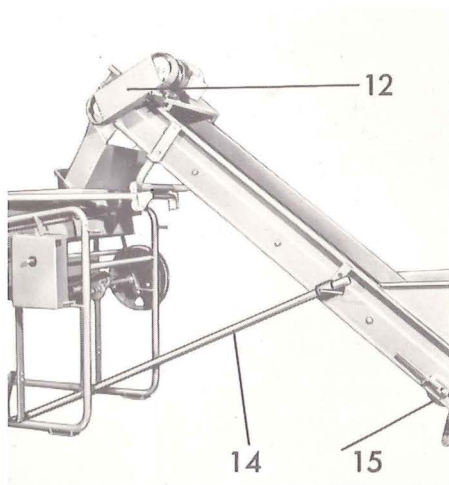
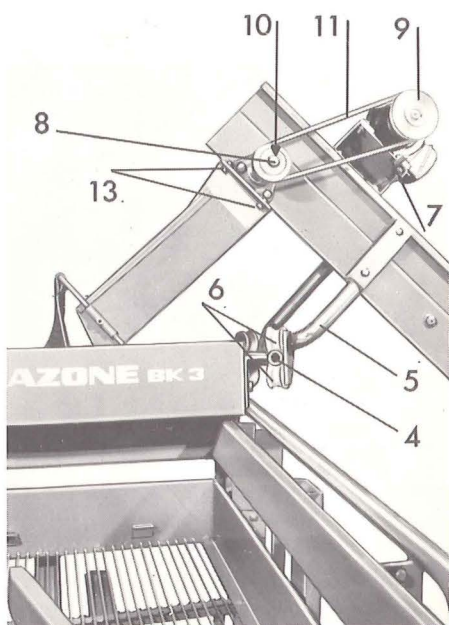
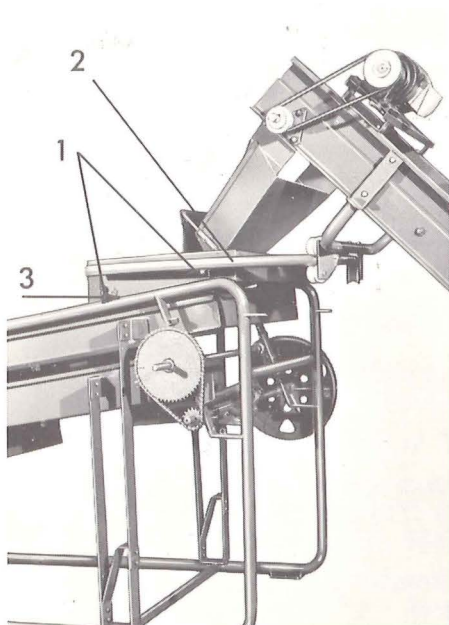


Figure 10

P) FEEDING BELT ZBS 22, 180° SWIVELLING

1. Remove the 4 bolts (Fig. 10/1) of the input box of the grader BK 3.
2. Take the swivel rail tube (Fig. 10/2) and put the 4 bolts (Fig. 10/1), which had been taken off before, through the guide rail tubes supports (Fig. 10/3) and tighten them again.
3. The swivelling feeding belt (Fig. 10/5) will be put in such a manner onto the swivel guide rail tube (Fig. 10/4) that from the side the rollers (Fig. 10/6) will be pushed over the swivel rail tube (Fig. 10/4).
4. Install motor console with motor (Fig. 10/7).
5. Put the smaller supplied V-belt pulley onto the swivelling feeding belts input shaft (Fig. 10/8), align it with the motors V-belt pulley (Fig. 10/9) and secure both pulleys with the supplied keys (Fig. 10/10).
6. Put on V-belt and tension it by pulling downward the motor console (Fig. 10/7) and fix it in the desired position.
7. Put on protective hood (Fig. 10/12) and secure it with spring pins.
8. Attach the swivelling feeding belts chute to the side members (Fig. 10/13) with bolts.
9. For transportation the supplied supports have to be fixed to the machine according to Fig. 10/14.
10. The tensioning of the belt is done at the tensioning bolts (Fig. 10/15). Should the belt be running to one side always tension the belt on that side to which the belt is travelling.
11. Replacement of the belt will be done in the same manner as described under chapter M).

P) CATCHING LEDGES FOR FEEDING BELT ZB 22 AND ZBS 22

The feeding quantity of the feeding belts can be increased or reduced by simply attaching or removing some catching ledges (conveying boards) to or from the belt.

The catching ledges are fixed to the belts with a toggle, which is reaching through the slits of the belts and twisted 90° on the rear side of the belt. If some catching ledges have to be removed just twist the toggles 90° and pull them off. When inserting catching ledges please watch that the supports (Fig. 10/16) are showing opposite to the moving direction of the feeding belt (showing downward).

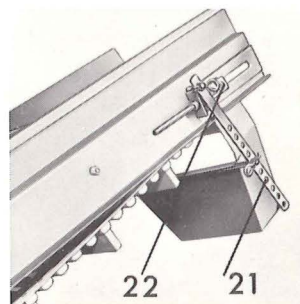
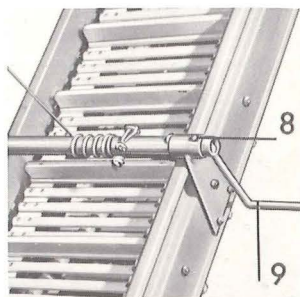
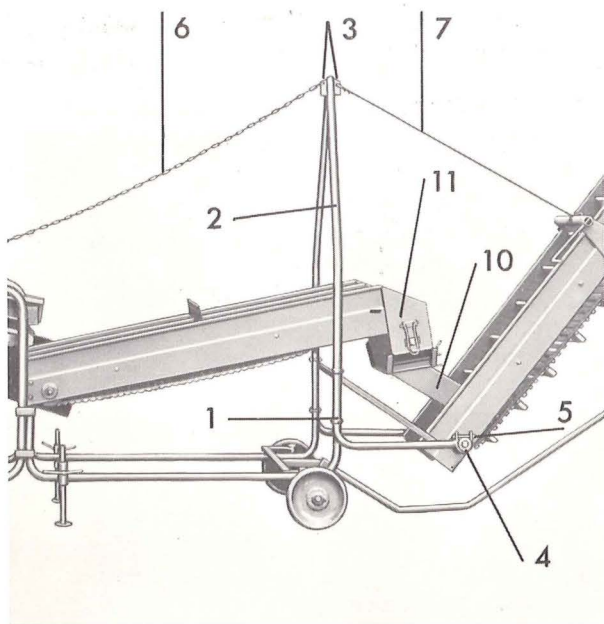


Figure 11

Q) LOADING BELT LB 20

1. Connect the loading belts carrying beam (Fig. 11/2) with the aid of the clamps (Fig. 11/1) to the sorting table.
2. Bolt together the two chain carriers (Fig. 11/3).
3. Hang the loading belt LB 20 into the carriers (Fig. 11/4) and secure it with bolts (Fig. 11/5).
4. Connect chain (Fig. 11/6) and the cable (Fig. 11/7) with the chain carriers (Fig. 11/3). The other end of the chain (Fig. 11/6) has to be fixed to the hook on the motor console.
5. The loading belt is height-adjustable. For changing the height pull out the securing pin (Fig. 11/8), turn the crank (Fig. 11/9) until the loading belt has the desired position. Thereafter insert the securing pin again.
6. Attach the chute (Fig. 11/10) and the bounce reducing curtain to the outlet (Fig. 11/11).
7. Remove protective hood (Fig. 11/12 and 11/12a, 11/12b) from the sorting table.

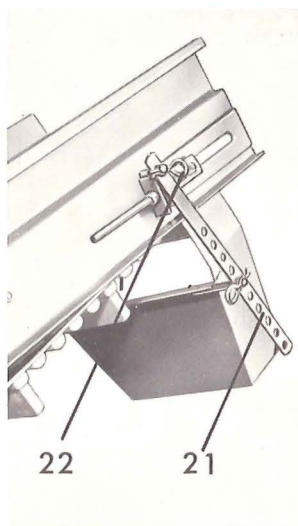
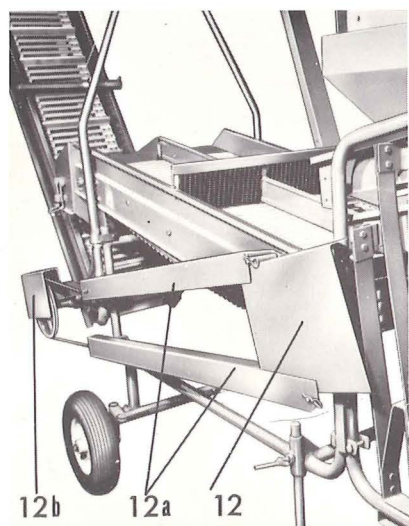
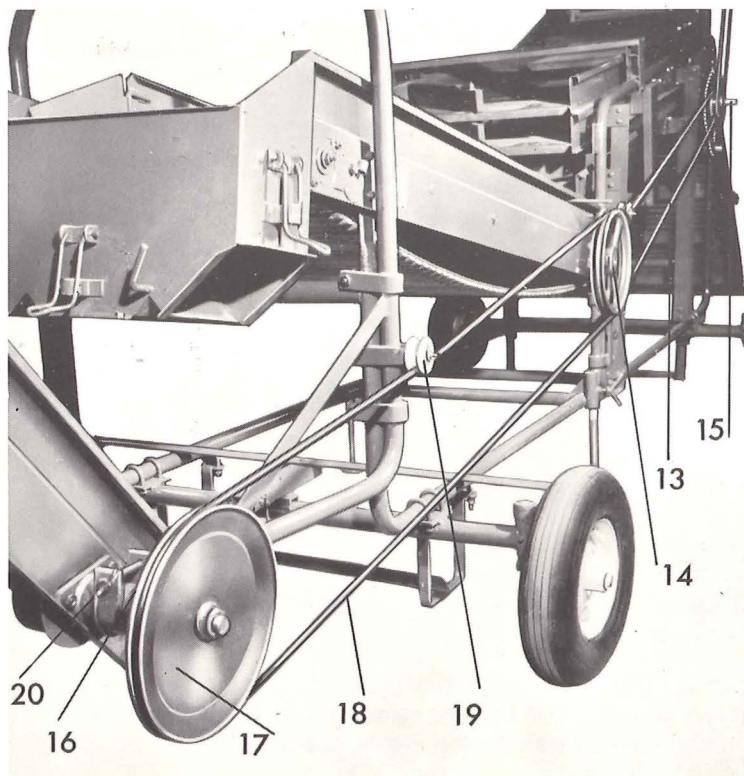


Figure 11

-
8. Remove V-belts (Fig. 11/13) and single V-belt pulley.
 9. Put on double V-belt pulley (Fig. 11/14) and align it with the driving V-belt pulley (Fig. 11/15) at the grader BK 3, secure it with keys and put on V-belt (Fig. 11/13) again.
 10. Put on shaft extension (Fig. 11/16) onto the loading belts drive shaft and tighten bolts.
 11. Put on the supplied V-belt pulley (Fig. 11/17) onto the drive shaft extension, align it with the double V-belt pulley (Fig. 11/14) and secure it with keys.
 12. Put on V-belts (Fig. 11/18).
 13. Install the supplied belt tensioners according to Fig. 11/9.
 14. Reinstall protective hoods (Fig. 11/12, 11/12a, 11/12b) onto the sorting table and secure them with spring pins. The protective box of the loading belt has to be put onto the U-support and to be bolted (Fig. 11/20).
 15. The adjustment of the angle of the loading belt chute is done at the hole plate (Fig. 11/21).
 16. The tensioning of the loading belt will be done at the tensioning bolts (Fig. 11/22). If the loading belt is running to one side, always tension it on that side to which it is running.
 17. Replacement of the belt will be done in the same manner as described under chapter M).
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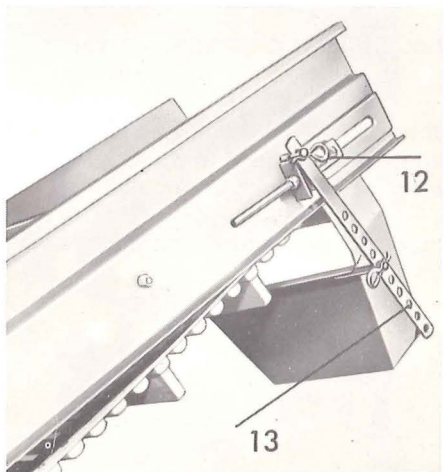
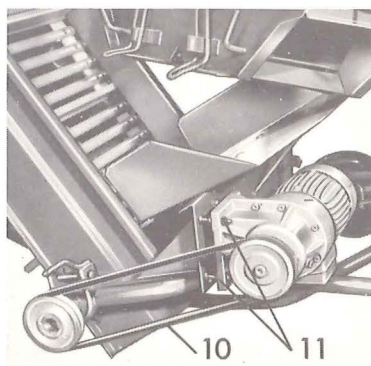
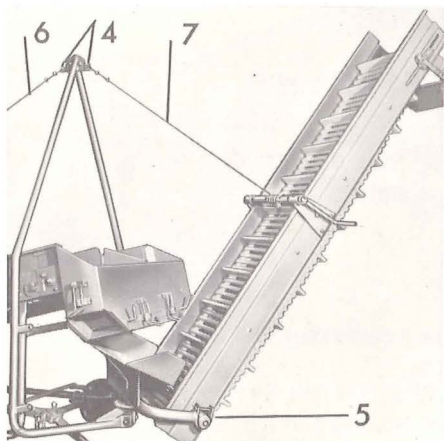
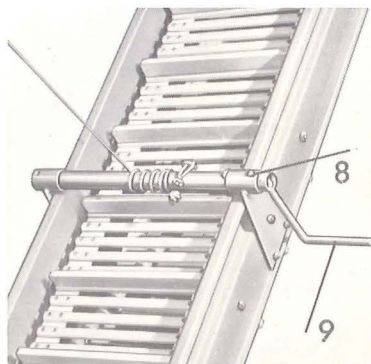
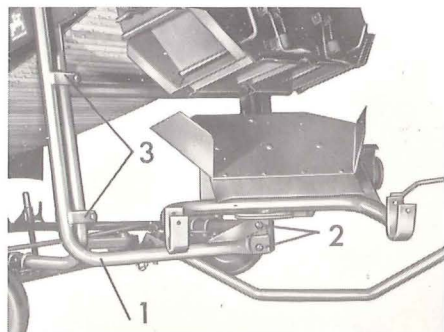
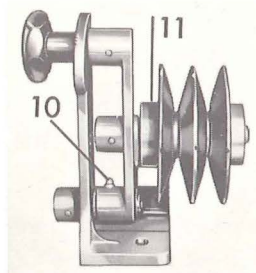
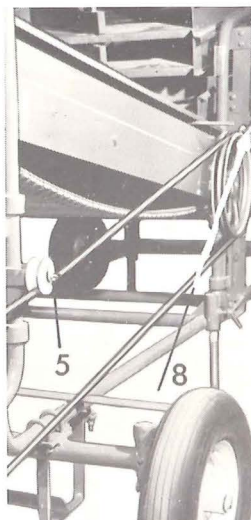
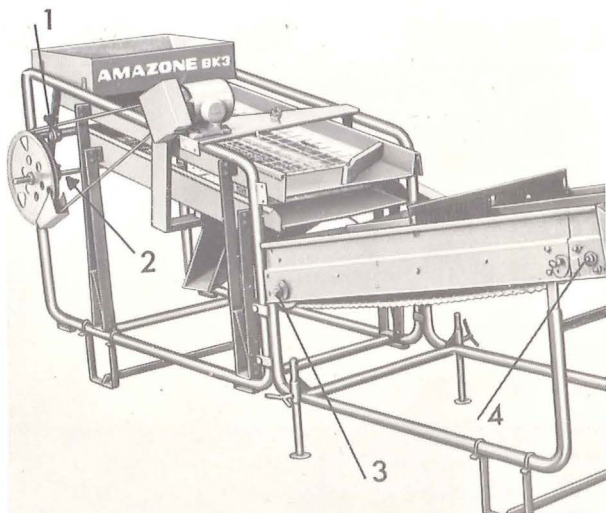


Figure 12

R) LOADING BELT LBS 20, 180° SWIVELLING

1. Bolt the turning racer (Fig. 12/2) to one of the two loading belt carriers (Fig. 12/1).
2. Now bolt the loading belt carrier to the frame of the sorting table as shown in Fig. 12/3.
3. Now bolt also the other loading belt carrier to the frame of the sorting table and to the turning racer. The two loading belt carriers have to be bolted together with the chain fixing plate (Fig. 12/4).
4. Now insert the loading belt LBS 20 into the retainers (Fig. 12/5).
5. Hang in the chain (Fig. 12/6) and the cable (Fig. 12/7) into the chain fixing plate (Fig. 12/4). The other end of the chain (Fig. 12/6) has to be fixed to the hook of the motor console.
6. The swivelling loading belt is also height adjustable. To adjust the height pull out securing pin (Fig. 12/8) and turn crank (Fig. 12/9) until the swivelling loading belt has reached the required position. Now fix crank again with the securing pin!
7. Put on V-belt (Fig. 12/10) and protective hood and secure the latter with spring pins.
8. The tensioning of the V-belt (Fig. 12/10) may be obtained by equal turning of all nuts of the motor fixing flange (Fig. 12/11).
9. The retensioning of the LBS 20 belt may be done at the tensioning bolts (Fig. 12/12). If the belt is running to one side always tension the belt on that side to which the belt is running.
10. The angling of the chute may be adjusted with the hole plate (Fig. 12/13) to any position required.
11. Replacement of the loading belt may be done in the same manner as described under chapter M).



Position of grease nipples
(see page 25)

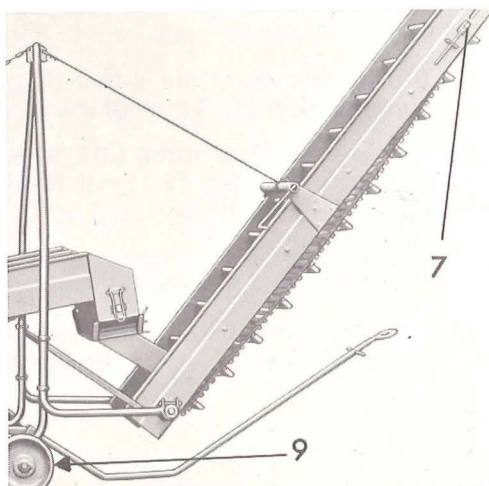
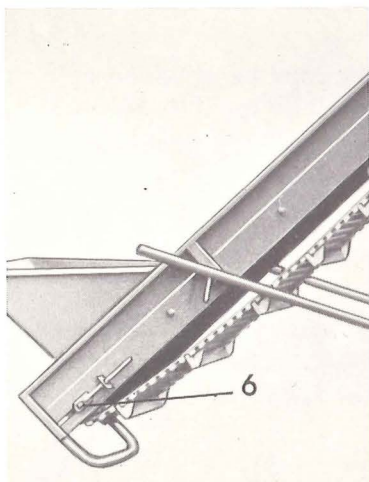


Figure 13

S) MAINTENANCE

Clean the machine and its accessories after every use and grease it with a good lubricant.

Figure 13 Position	Description of Part	Number of grease nipples
1	Counter shaft	2
2	Crankshaft-end bearings (only in execution with plain bearings)	2
3	Driveshaft, sorting table	2
4	Turning shaft of sorting table	2
5	V-belt tensioner	1
6	Turning shaft, feeding-belt	2
7	Turning shaft, loading-belt	2
8	V-belt tensioner	1
9	Steering knuckle	2
without illustration	Steering knuckle f. traversal driving device	4
10	Stepless variable transmission	1
11	Oil Stepless variable transmission a little	1 hole

T) GENERAL HINTS

1. Keep hands off running and moving parts! (Danger of injury!)
2. Store machine after use under a roof!
3. Order genuine AMAZONE spare parts, ask for spare parts book.
4. Check periodically all bolts and nuts for tightness.
5. The graders AMAZONE BK 3 and AMAZONE Fortschritt III may be used for grading and sorting also other crops, like carrots, onions, beets, beans etc.