Workshop Manual

KRONE

Pick-up

EasyFlow 3001
EasyFlow 3801

(from serial no.: 700 001)

Order no.: 150 353 717 01 en

1 General aspects

This Workshop Manual for the Pickup EasyFlow 3001 and EasyFlow 3801 supplements the Workshop Manual “BiG X”.

All information, illustrations and technical data in this Workshop Manual correspond to the latest state at the time of publication.
We reserve the right to make design changes at any time and without notification of reasons.

1.1 Machine overview

Front view

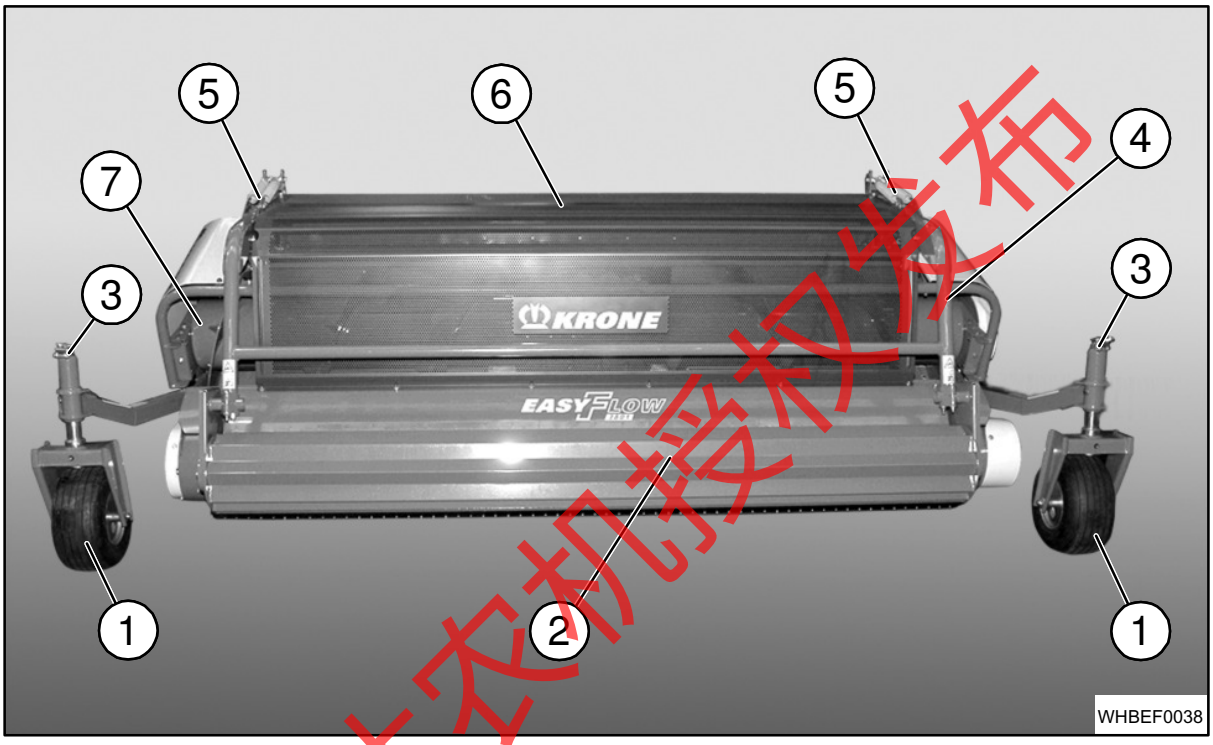


Fig. 1:

(1) Guide wheel
(2) Roller crop guide
(3) Height adjustment
(4) Tubular frame for roller crop guide
(5) Tension springs
(6) Protective cover
(7) Auger conveyor

Rear view

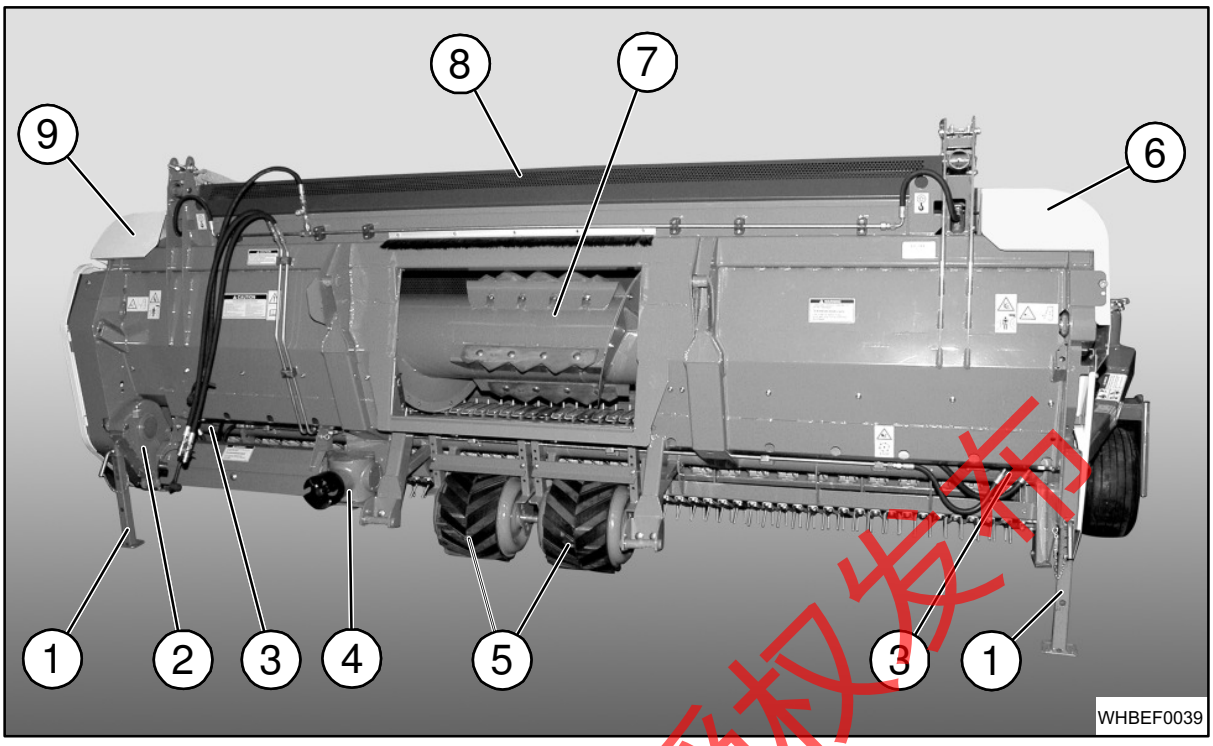


Fig. 2:

(1) Parking support
(2) Spur wheel gearbox
(3) Folding cylinder for guide wheel
(4) Angular gearbox
(5) Supporting wheel
(6) Right hand cover plate
(7) Auger conveyor
(8) Protective cover
(9) Left hand cover plate

1.2 Technical data

Type	EasyFlow 3001	EasyFlow 3801
Length [mm]	1400	1400
Height in working position [mm]	1650	1650
Total width in working position [mm]	3700	4500
Working width [mm]	3000	3800
Width in transport position [mm]	3000	3800
Weight [kg]	1180	1380
Drive speed [min^{-1}]	300...700	300...700
Max. permissible operating pressure [bar]	200	200
Hydraulic connections	1x EW* / 1x DW**	1x EW* / 1x DW**

*) EW= Single-action control unit

**) DW= Double-action control unit

1.3 Stop points

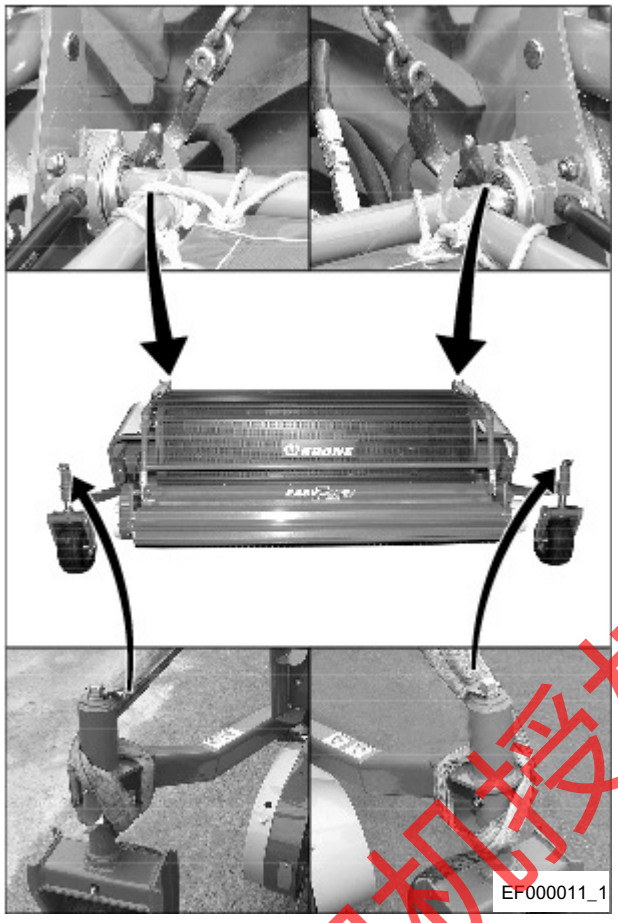


Fig. 3

DANGER! – Crashing down machine

Danger to life!

- Use only transportation equipment of suitable dimensions (crane, ropes)!

- For transporting from one internal place to another onsite, (e.g. Loading) brace the lifting tool against the illustrated points.

1.4 Parking the machine

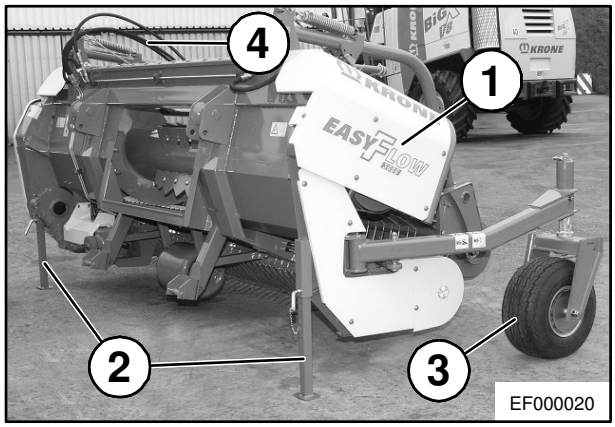


Fig. 4

- Set the Pickup (1) down with the parking supports (2) extended and the supporting wheels (3) unfolded on a solid and level surface and park it in a dry and clean place.

Warning! - Risk of stumbling over scattered hydraulic hoses.

Accidents and damage to parts of the machine can occur.

When parking place the hydraulic hoses (4) on the Pickup (1).

2 Mechanical drives

2.1 Removing and installing the spur wheel gearbox

Removal

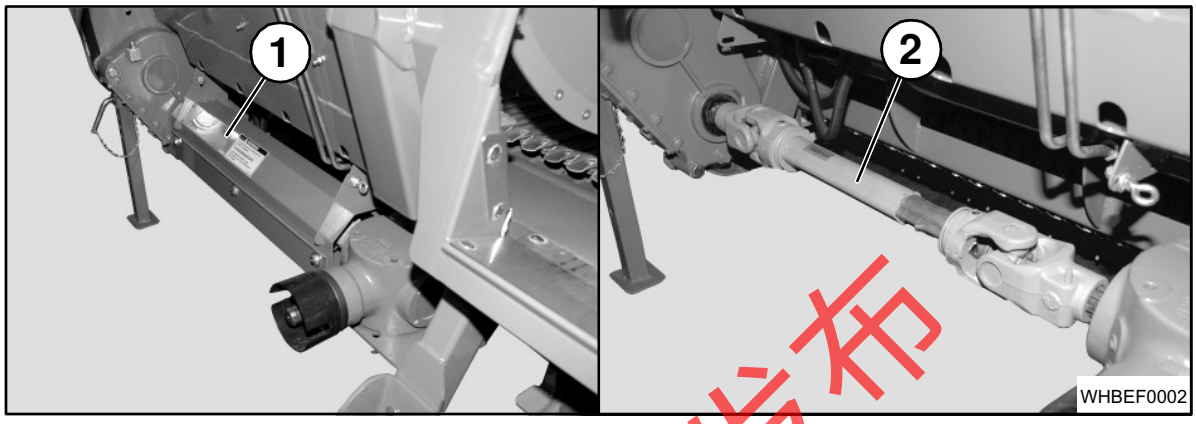


Fig. 5

- Remove PTO shaft guard (1).
- Remove PTO shaft (2).
- Release the tension of the drive chain of the auger conveyor, refer to chapter “Maintenance”, section “Checking and adjusting the chain tension of the drive chains.
- Open and remove drive chain on chain lock.
- Release the tension of the drive chain of the Pickup roller, refer to chapter “Maintenance”, section “Checking and adjusting the chain tension of the drive chains.
- Open and remove drive chain on chain lock.

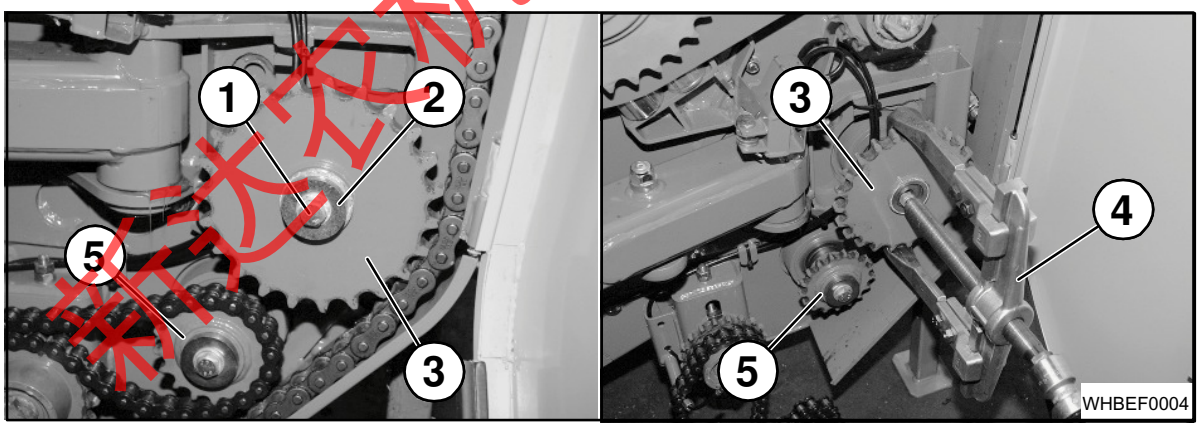


Fig. 6

- Remove hexagonal head screw (1) and washer (2).
- Remove sprocket wheel (3) from the gear shaft using a suitable extractor (4).
- If required, remove sprocket wheel (5) as described above (not essential for removal).

Note

Screws (1) and (5) are glued in with liquid thread lock.

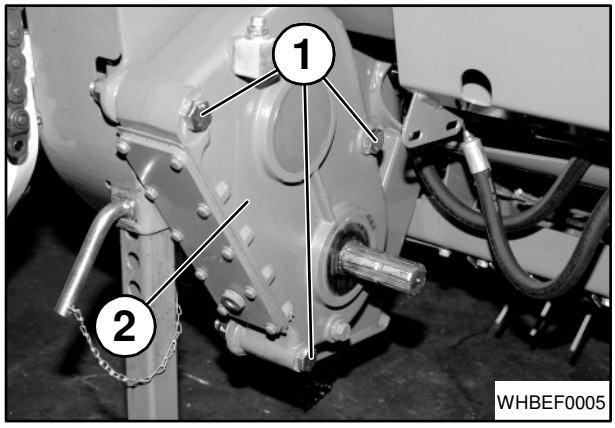
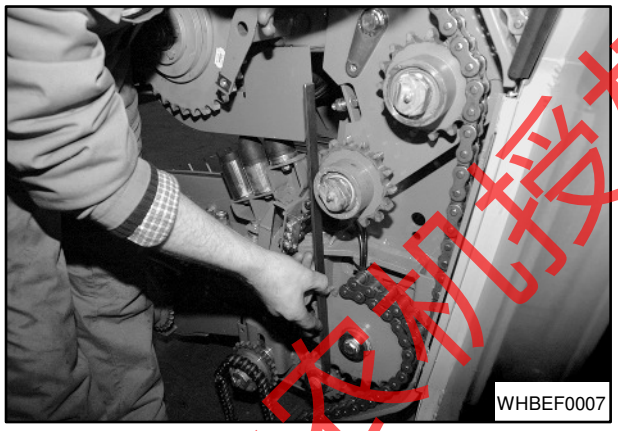


Fig. 7

- Remove the hexagonal head screws (1), then take off the gearbox (2).

Installation

Installation is in reverse order to removal.



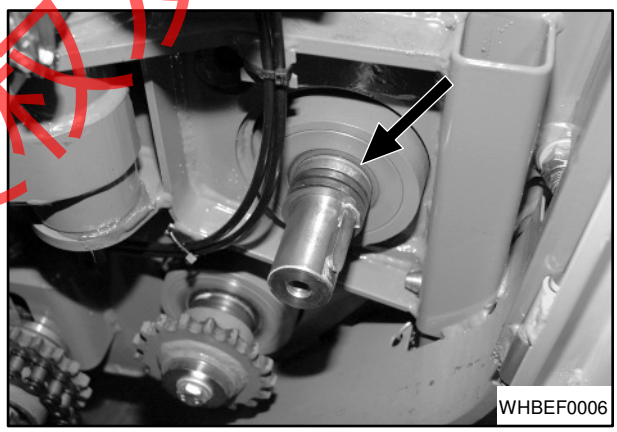


Fig. 8

- Check alignment of the sprocket wheels; if required counterbalance the offset by packing with shim rings.
- Secure screws of the sprocket wheels with medium strength liquid thread lock.
- Check oil level of the gearbox after installation of the gearbox and refill if necessary. Please refer to chapter “Maintenance”, section “Checking the oil level and changing the oil”.

2.2 Removing and installing the main angular gearbox

Removal

Fig. 9

- Remove PTO shaft guard (1).
- Remove PTO shaft (2).

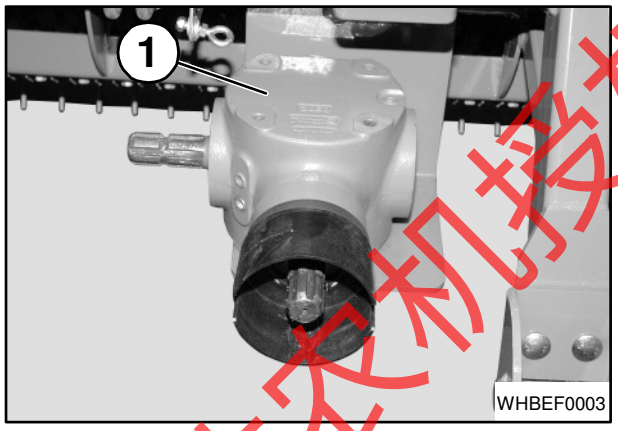


Fig. 10

- Unscrew hexagonal head screws (3 pieces) on the bottom of the gearbox and remove the gearbox (1).

Installation

Installation is in reverse order to removal.

- Check oil level of the gearbox after installation of the gearbox and refill if necessary. Please refer to chapter “Maintenance”, section “Checking the oil level and changing the oil”.

2.3 Removing and installing the overload coupling on the auger conveyor

Removal

- Remove the gear case
- Release the tension of the drive chain of the auger conveyor, refer to chapter “Maintenance”, section “Checking and adjusting the chain tension of the drive chains.
- Open and remove drive chain on chain lock.

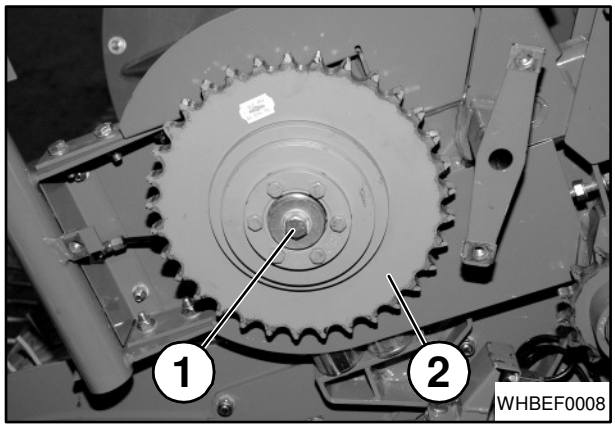


Fig. 11

- Unscrew the hexagonal head screw (1) and remove the coupling (2).

Installation

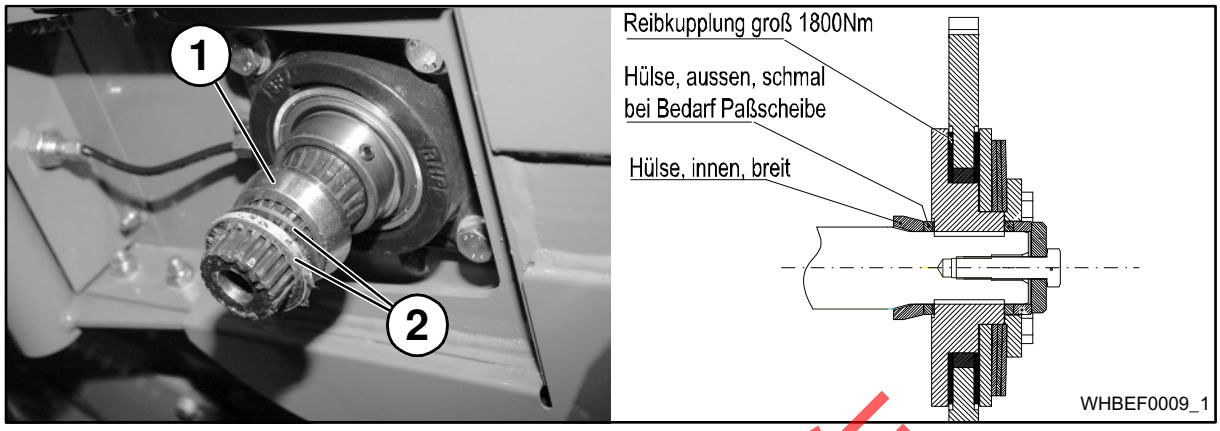


Fig. 12

- Grease shaft intermeshing.
- Ensure that the conical ring (1) is behind the shim rings (2).

The remainder of the installation is in reverse order to removal.

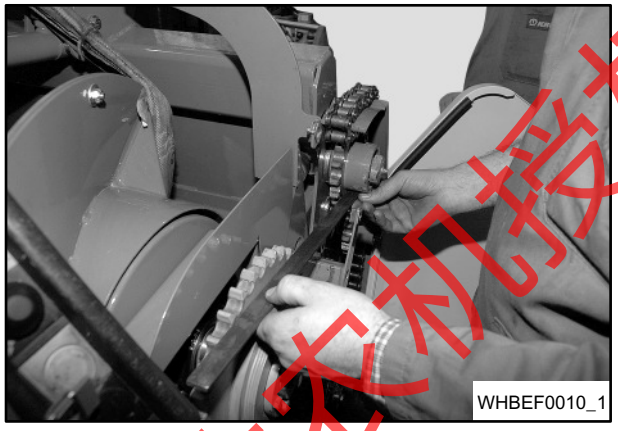


Fig. 13

- Check alignment of the sprocket wheels; if required counterbalance the offset by packing with shim rings.
- Secure screws of the sprocket wheels with medium strength liquid thread lock.

2.3.1 Changing the linings of the overload coupling

Removal

WARNING! – Spring-loaded screws.

There is a risk of injury!

- Gradually loosen the spring-loaded screws crosswise until they are unstressed.

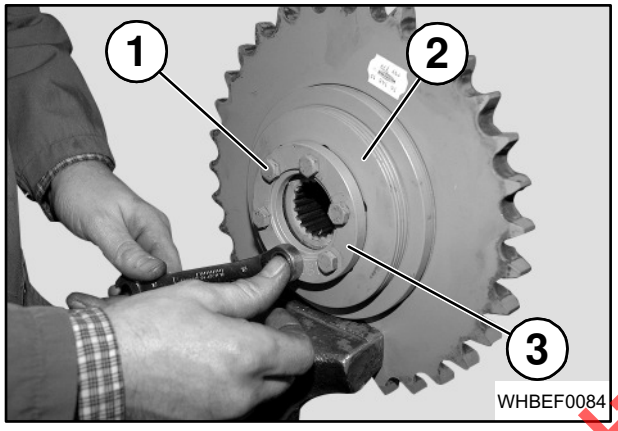


Fig. 14

The hexagonal head screws (1) on the coupling are stressed by the disc spring package (2).

- Gradually loosen the hexagonal head screws crosswise until they are unstressed, then unscrew them completely.
- Remove cover (3) and disc spring package.

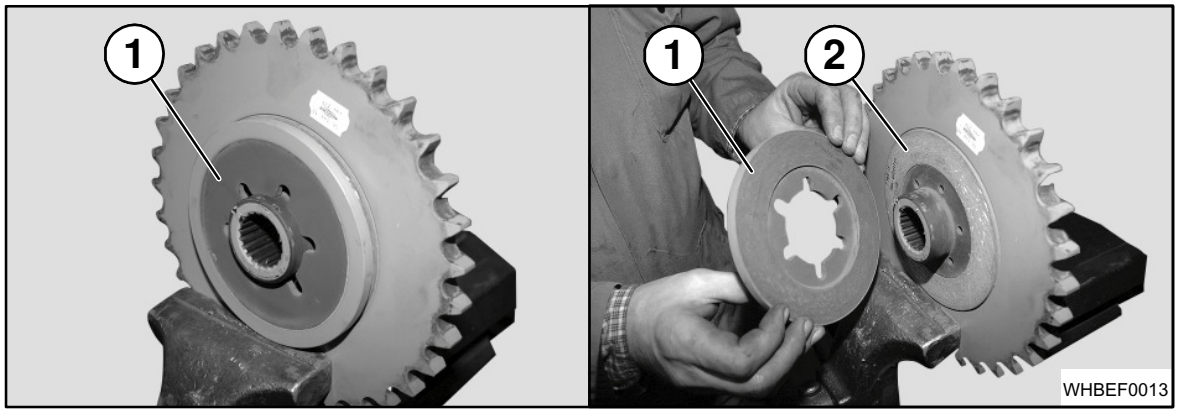


Fig. 15

- Pull off the pressure plate (1) and remove the coupling disc (2).

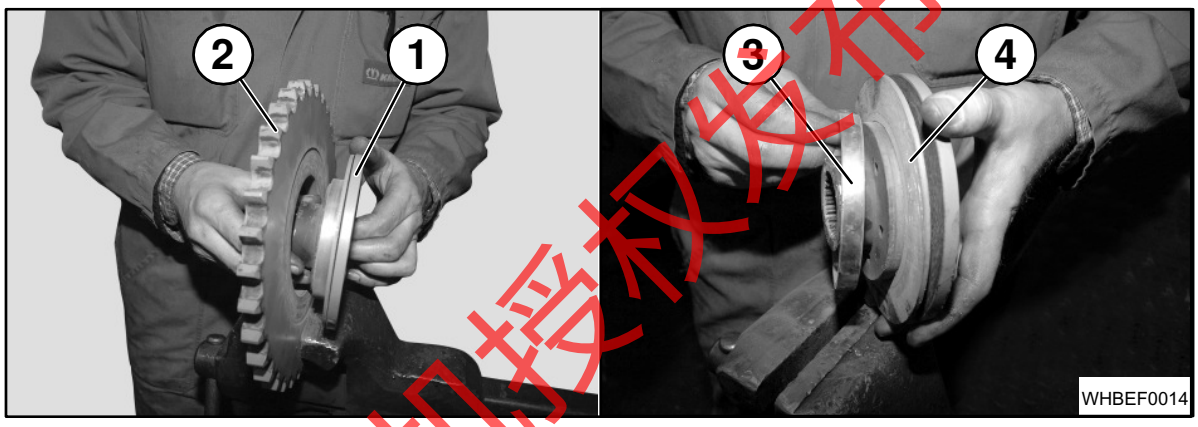


Fig. 16

- Press hub (1) out of the sprocket wheel (2).
- Remove race (3) and remove clutch disc (4) from the hub.

Installation

Installation is in reverse order to removal.

Ensure correct installation position of the pressure plate (4). The groove (5) must face inwards towards the sprocket wheel.

Ensure correct installation position of the cover (3). The groove (6) must face outwards.

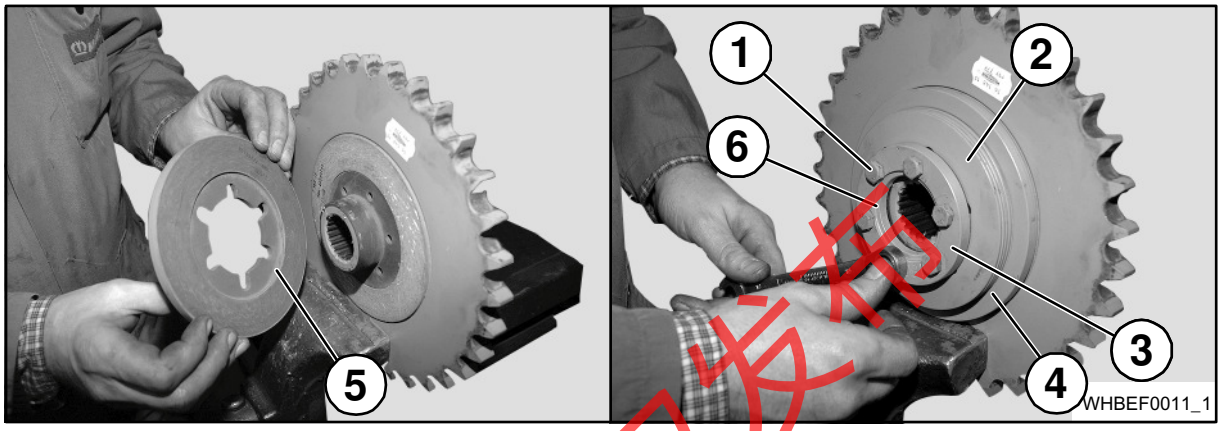


Fig. 17

Note

Observe the tightening torque!

Gradually tighten the hexagonal head screws (1) crosswise hand-tight.

Retighten several times consecutively clockwise with **25 Nm** until the disc spring package (2) is properly pre-tightened and all hexagonal head screws are tightened with **25 Nm**.

CAUTION!

Before initial commissioning and once a year before harvest, the friction clutch must be bled.

Bleed friction clutch, see maintenance chapter, section “Friction clutch”.

2.4 Removing and installing the overload coupling on the Pickup

Removal

- Release the tension of the drive chain of the Pickup roller, refer to chapter “Maintenance”, section “Checking and adjusting the chain tension of the drive chains.
- Open and remove drive chain on chain lock.

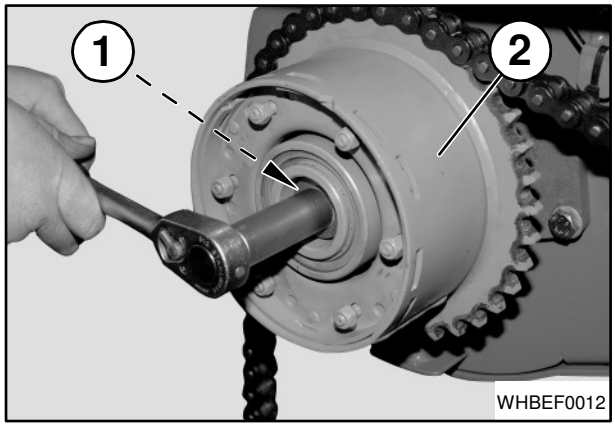


Fig. 18

- Unscrew the hexagonal head screw (1) and remove the coupling (2).

Installation

- Grease shaft intermeshing, push on shim rings and coupling
- Check alignment of the sprocket wheels; if required counterbalance the offset by packing/removing shim rings.
- Secure hexagonal head screw of the sprocket wheel with medium strength thread lock.

CAUTION!

Before initial commissioning and once a year before harvest, the friction clutch must be bled.

Bleed friction clutch, see maintenance chapter, section “Friction clutch”.

2.4.1 Friction Freewheel Clutch

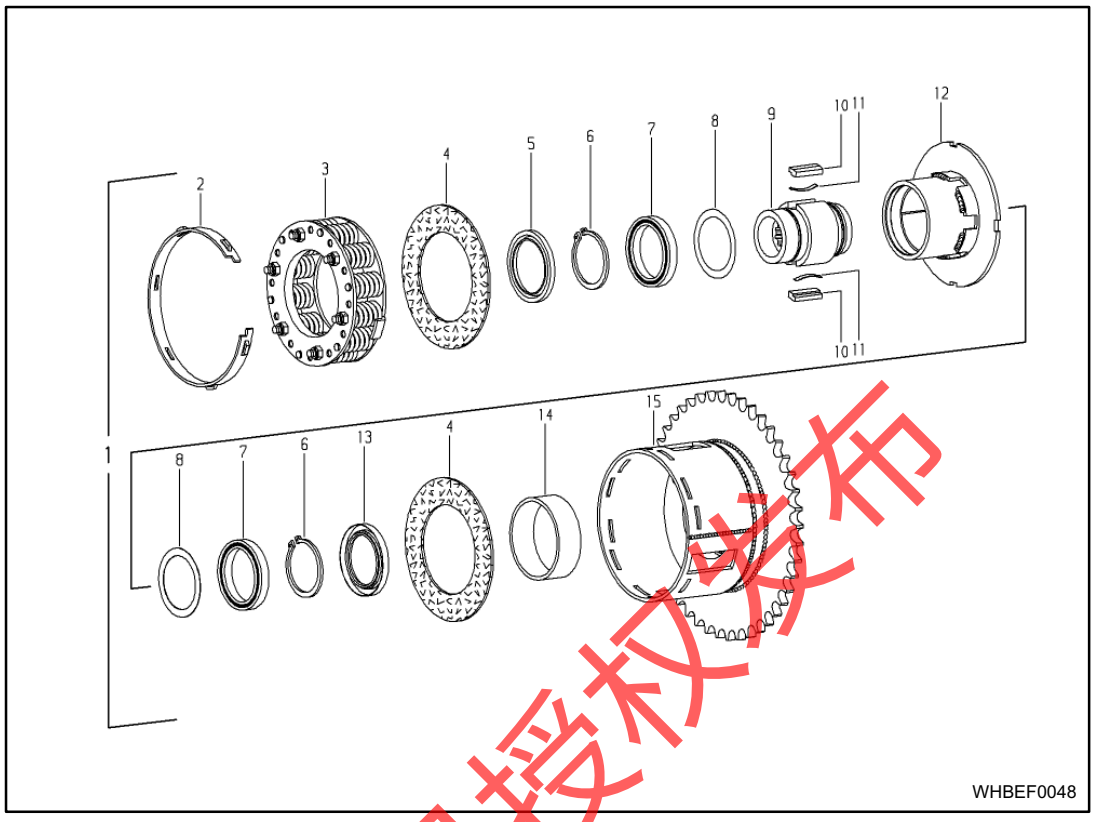


Fig. 19

Removal

Fig. 20

Relieve the setting ring gauge by alternately tightening (one revolution) the six nuts on the spring assembly.

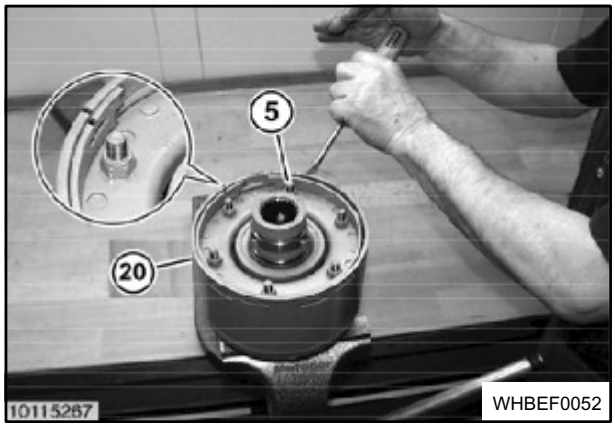


Fig. 21

Mark the installation position of the setting ring gauge (5) with respect to the housing (20). Press the lug at the beginning of the setting ring gauge out of the slot in the clutch housing.

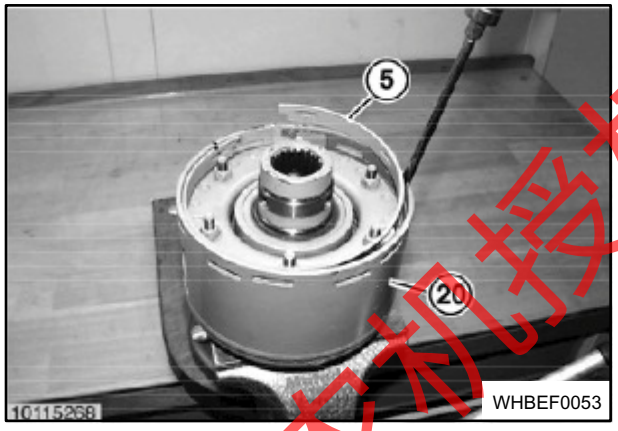


Fig. 22

Carefully lever the setting ring gauge (5) out of the clutch housing (20).

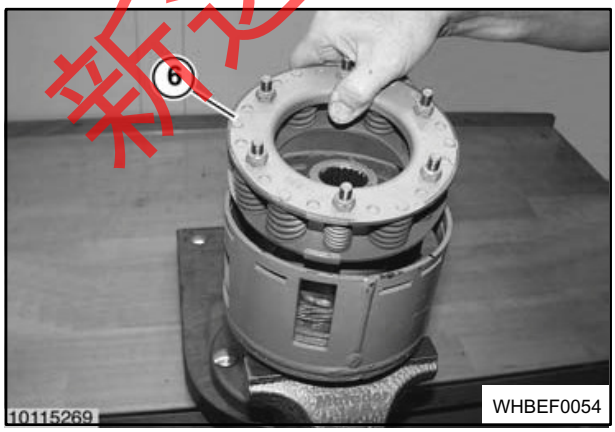


Fig. 23

Take the spring assembly (6) out of the housing.

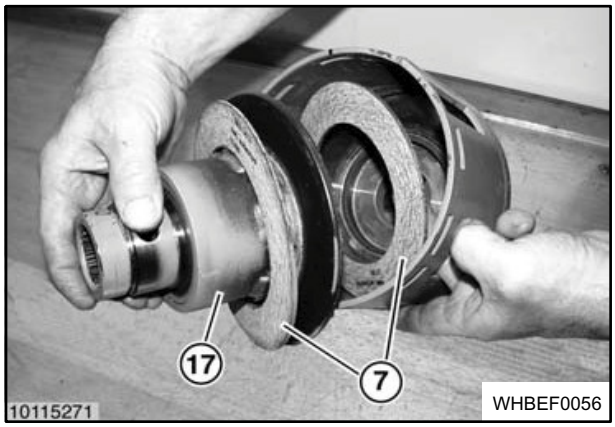


Fig. 24

Take out the flanged hub (17) including friction discs (7).

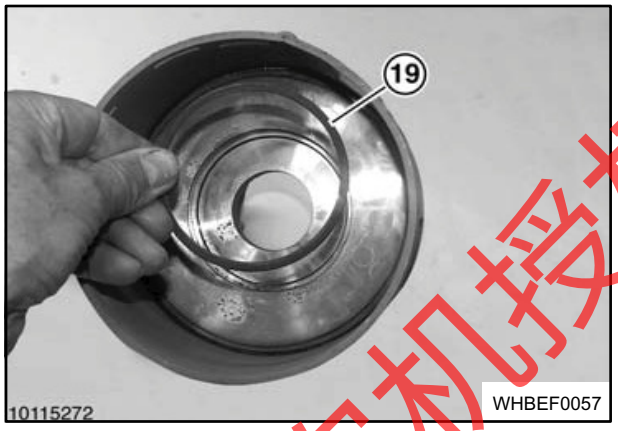


Fig. 25

If required, press raceway (19) out of the clutch housing.

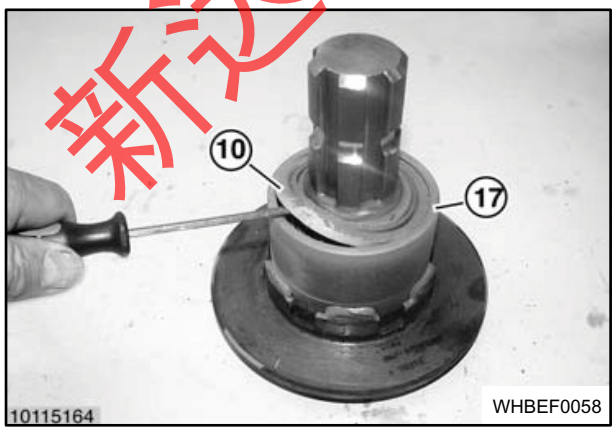


Fig. 26

Lever sealing ring (10) out of the driver (17).

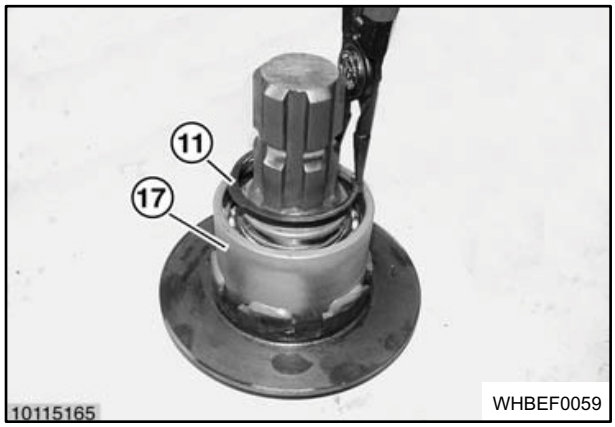


Fig. 27

Lever retaining ring (11) out of the driver (17).

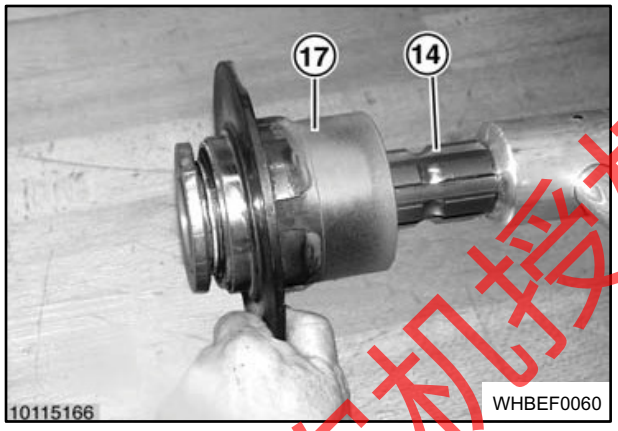


Fig. 28

Drive hub (14) out of the driver (17). Check blocking wedges and leaf springs, change defective parts.

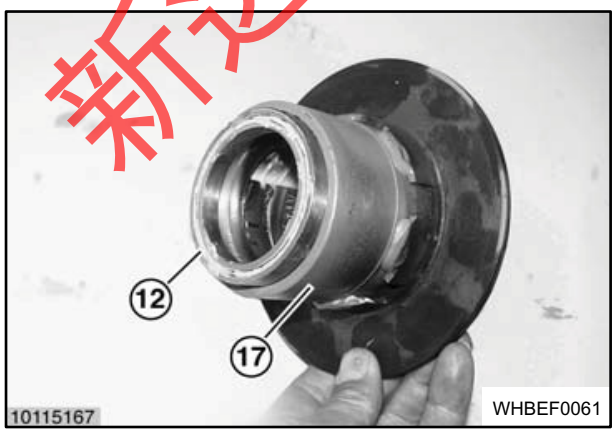


Fig. 29

Drive grooved ball bearing (12) out of the driver (17).

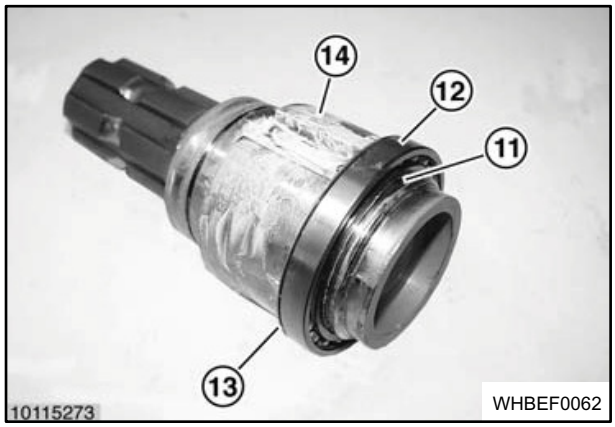


Fig. 30

Installation

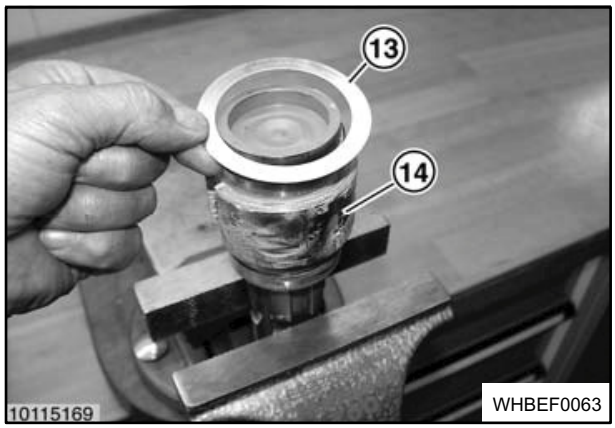


Fig. 31

Place disc (13) on the hub (14).

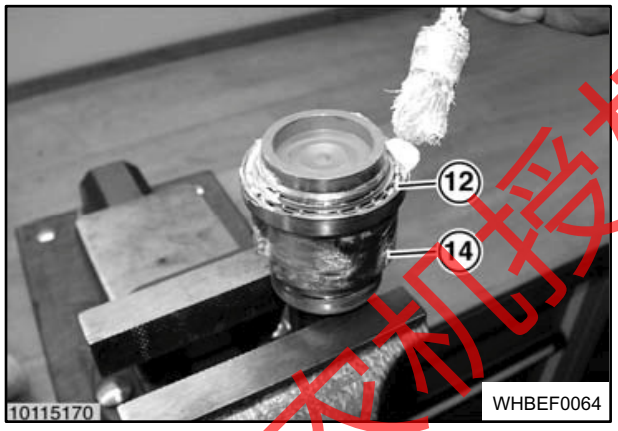


Fig. 32

Press grooved ball bearing (12) all the way onto the hub (14). Grease grooved ball bearing.

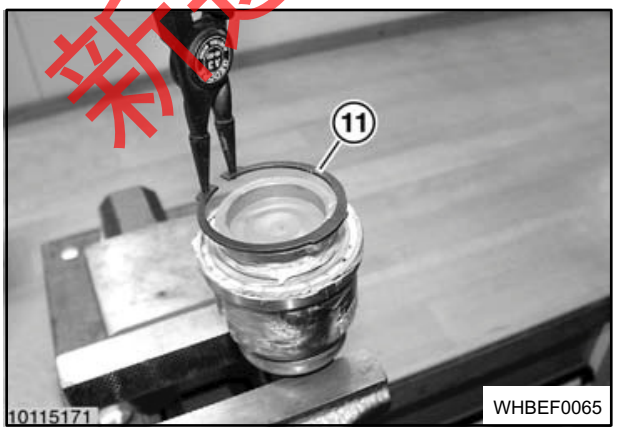


Fig. 33

Install the retaining ring (11).

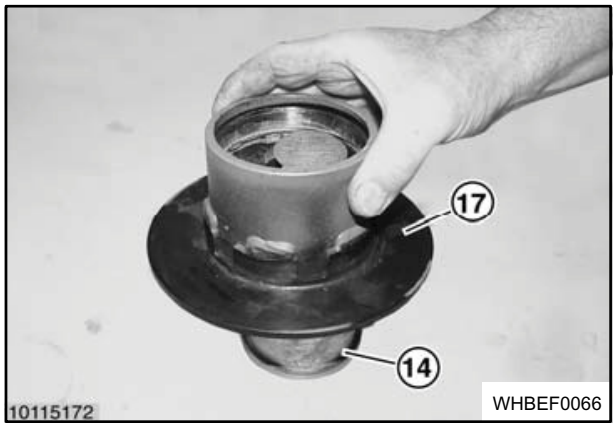
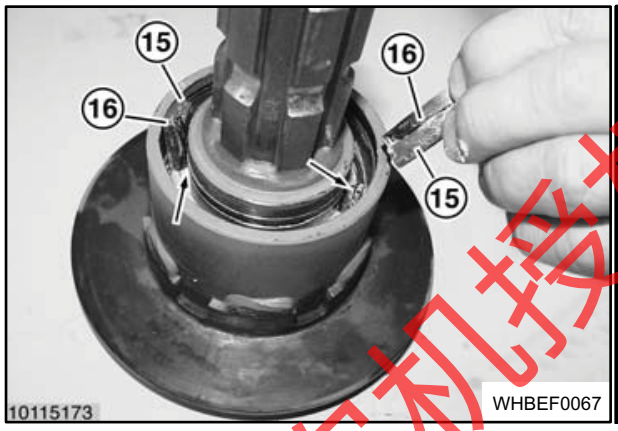


Fig. 34

Grease outside of hub and inside of driver. Push driver (17) over the hub (14).



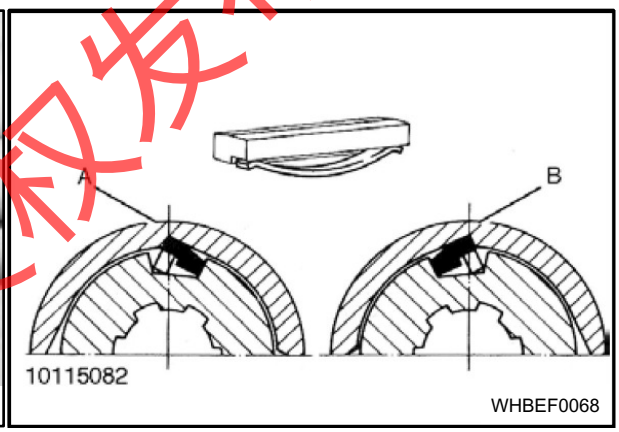


Fig. 35

Insert leaf springs (16) and blocking wedges (15) into the holders (arrows).

CAUTION!

Note position of the blocking wedges and the leaf springs (viewed from above)!

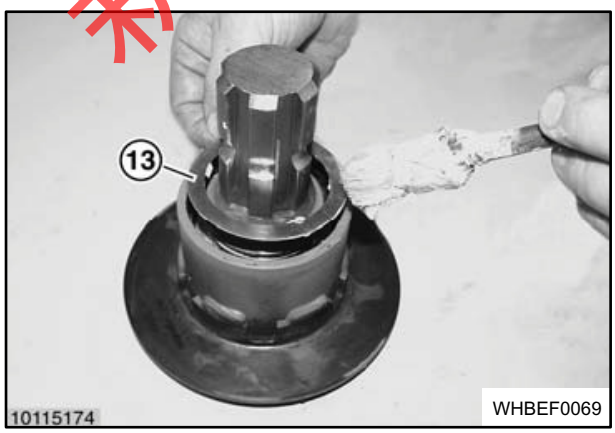


Fig. 36

Insert disc (13) greased on both sides.

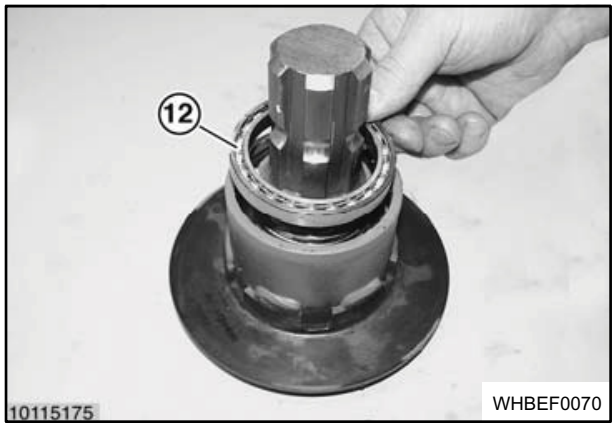


Fig. 37

Put on greased grooved ball bearing (12) and drive in all the way.

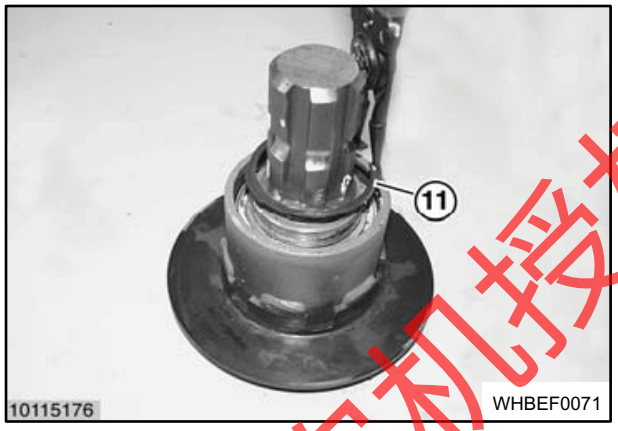


Fig. 38

Install the retaining ring (11).

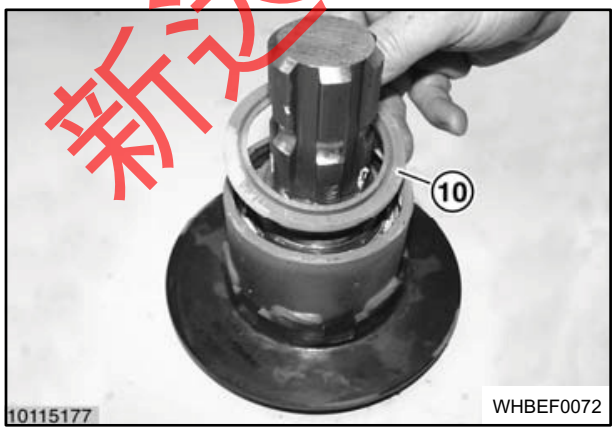


Fig. 39

Drive new sealing ring (10) into the driver.

Fig. 40

Drive in new shaft sealing ring (18) flush.

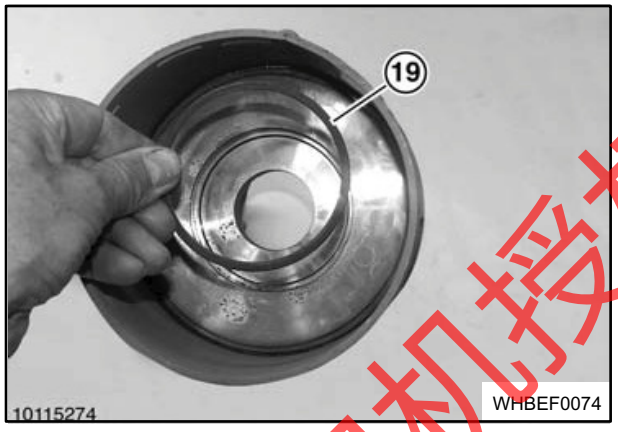


Fig. 41

Install raceway (19) in the clutch housing.

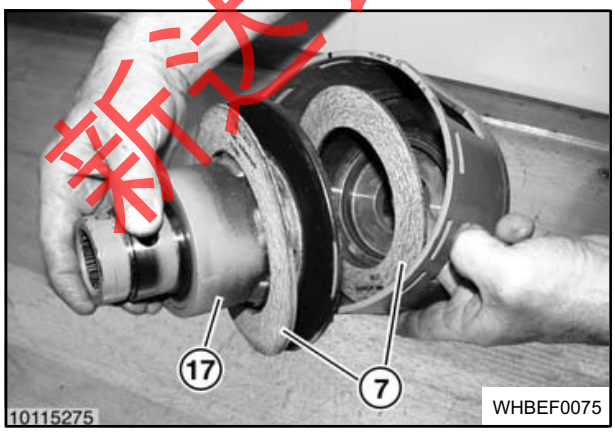


Fig. 42

Insert flanged hub (17) including friction discs (7).

Note

The friction surfaces must be clean and free of grease.

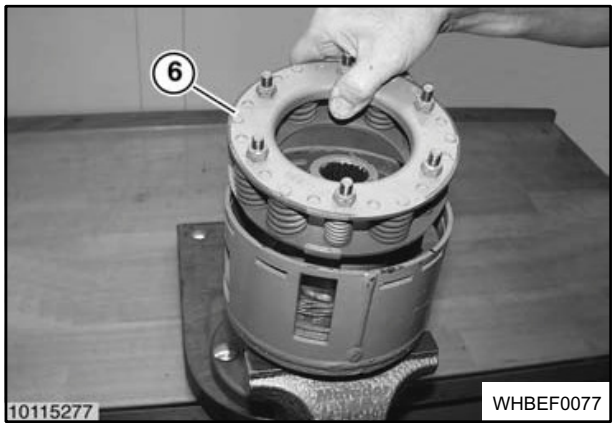


Fig. 43

Install spring assembly (6) in the housing.

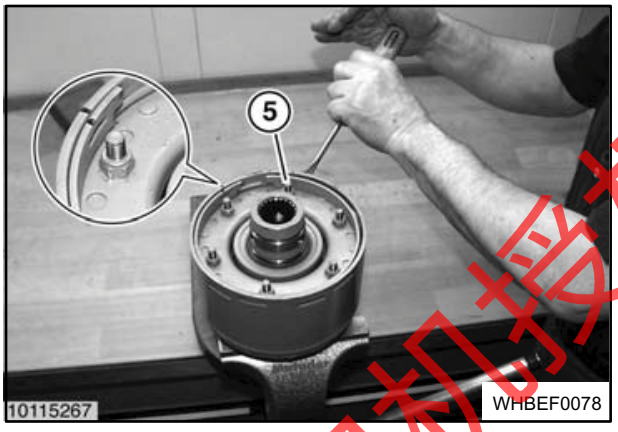


Fig. 44

Carefully install setting ring gauge (5) according to the marking (arrow).

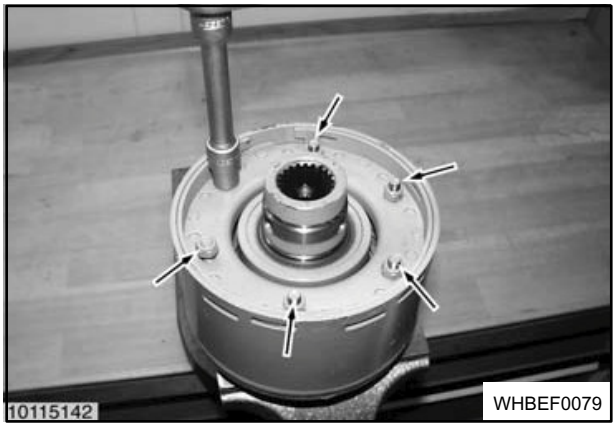


Fig. 45

Turn back each of the six nuts in alternation (arrows) on the spring assembly (one revolution each) as far as the thread run out. The coupling is now ready for use.

CAUTION!

Before initial commissioning and once a year before harvest, the friction clutch must be bled.

Bleed friction clutch, see maintenance chapter, section “Friction clutch”.

3 Components for Crop Flow

3.1 Removing and installing the auger conveyor

Removal

- Remove roller crop guide completely, refer to chapter “Components for crop flow”, section “Removing and installing the roller crop guide completey”.
- Release the tension of the drive chain of the auger conveyor, refer to chapter “Maintenance”, section “Checking and adjusting the chain tension of the drive chains.
- Open and remove drive chain on chain lock.

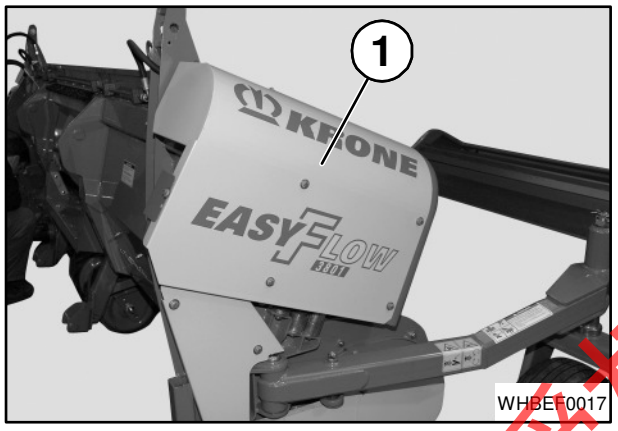


Fig. 46

- Remove cover plate (1) on right and left.

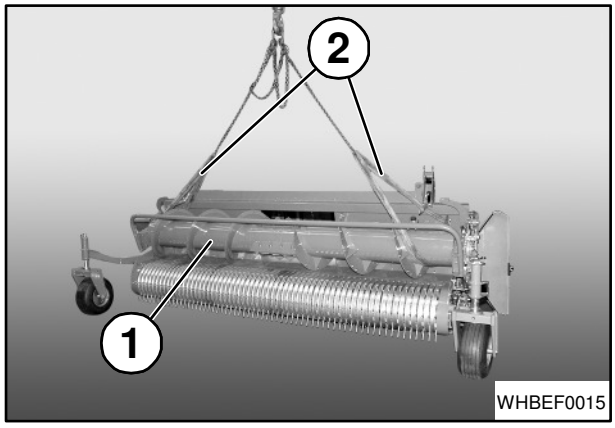


Fig. 47

- Attach the auger conveyor (1) into suitable lifting gear (2).

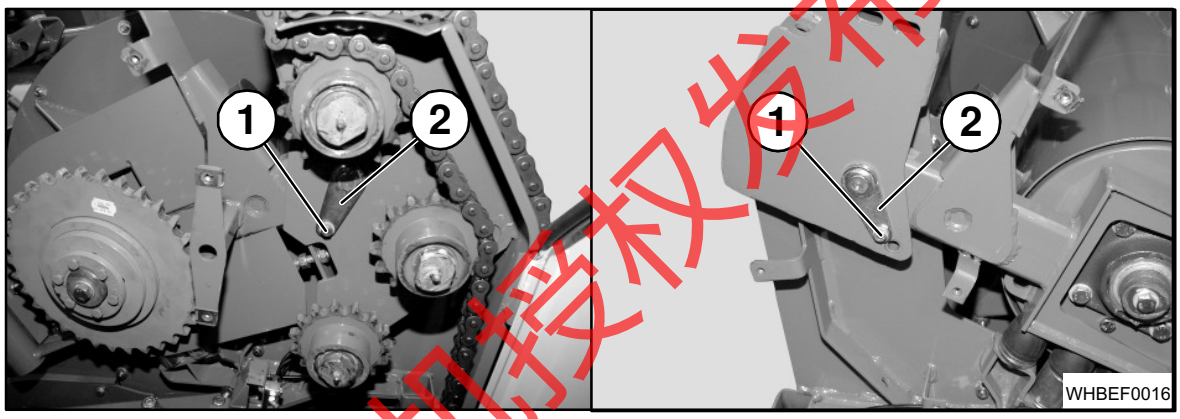


Fig. 48

- Unscrew the hexagonal head screws (1) and remove bolt (2). If necessary, lift the auger conveyor a little in order to relieve the bolts.

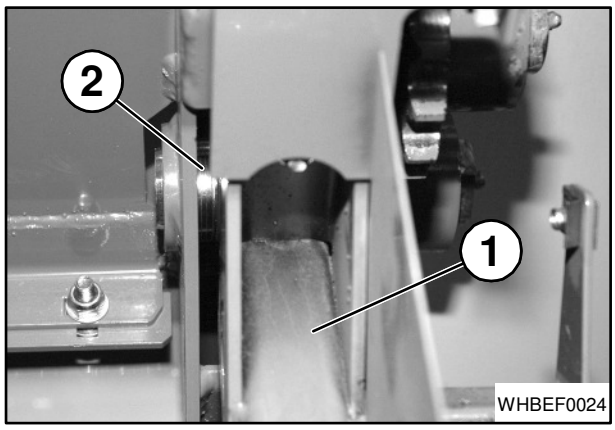


Fig. 49

Note

Observe the installation position of the shim rings.

The support arm (1) on the gearbox side is centered on the frame by shim rings (2).

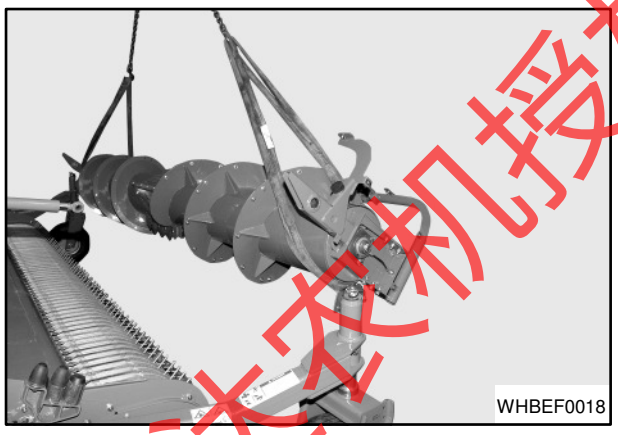


Fig. 50

- Lift the auger conveyor completely to the front out of the machine.

Installation

Installation is in reverse order to removal.

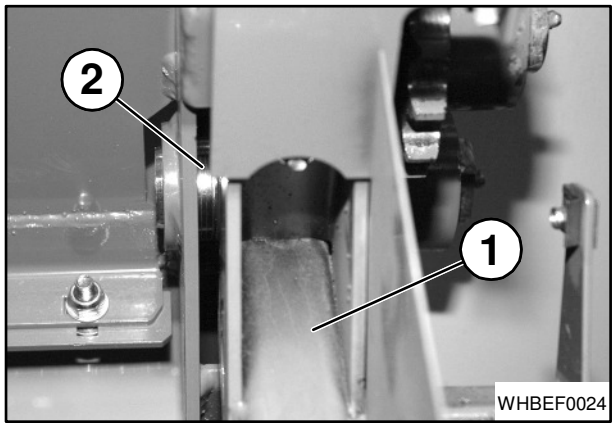


Fig. 51

Note

Observe the installation position of the shim rings.

The support arm (1) on the gearbox side is centered on the frame by shim rings (2).

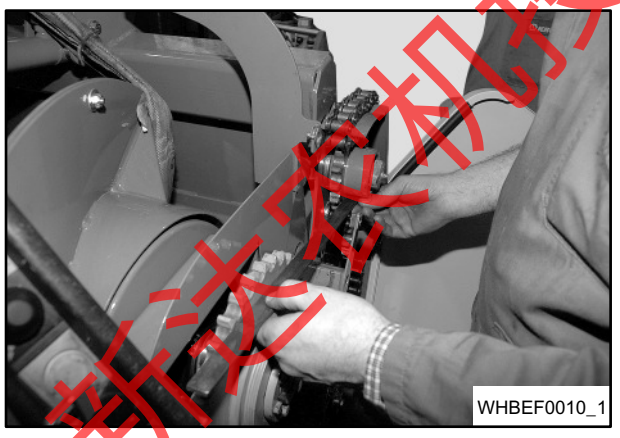


Fig. 52

- Check alignment of the sprocket wheels; if required counterbalance the offset by packing with shim rings.

3.1.1 Adjusting the distance between the scraper bars and the auger conveyor

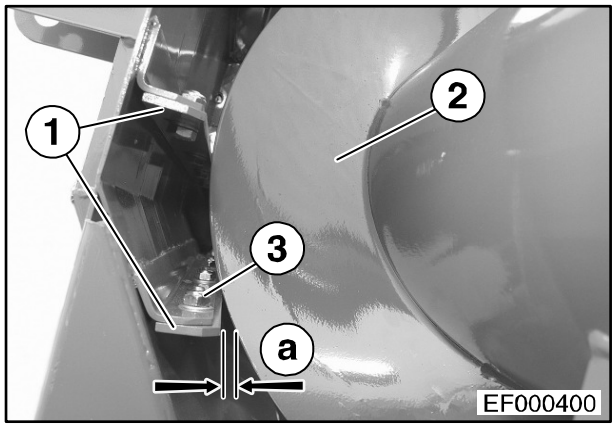


Fig. 53

On the right and left of the transfer opening the trough has two scrapers (1) which can be adjusted via oblong holes.
The distance between the scrapers (1) and the outer jacket of the auger (2) should be "**a = 5 ± 2 mm**". The auger (2) must be located on the end position dampers.

- Loosen screw connections (3) and set the distance of the scrapers (1).

3.1.2 Setting Working Height of the Auger

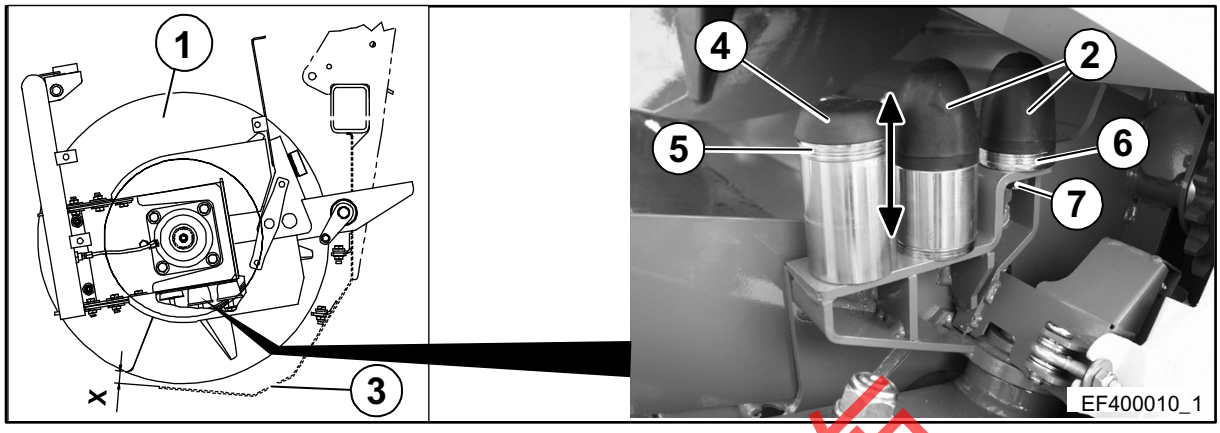


Fig. 54

The parabola buffers (2) compensate for the impacts of the auger (1).

To protect the auger (1) and the auger trough (3) from damage, the clearance “X” must be checked at least 1x year and, if required, adjusted.

When the auger (1) is placed on the parabola buffers (2), the clearance “X” with respect to the auger trough (3) must be between 6 and 10 mm.

If this is not the case:

- Raise the auger (1)
- Remove parabola buffers (2) (right and left sides of the machine).
- Place auger on the rubber buffer (4).
- **The clearance x must now be 3 to 5 mm.**

If this is not the case:

- Raise the auger
- Adjust rubber buffer (4) by adding or removing spacers (5) until the clearance “X” is 3 to 5 mm. Adjust rubber buffer the same on both sides.
- Turn the auger by hand. The auger must not touch the auger trough in any position!

Then:

- To adjust the parabola buffers (2), the auger (1) must be raised.
- Adjust parabola buffers (2) by adding or removing spacers (6) until the clearance “X” is 6 to 10 mm. Adjust parabola buffers the same on both sides.
- Tighten hexagonal nut (7).

3.1.3 Changing the infeed plates

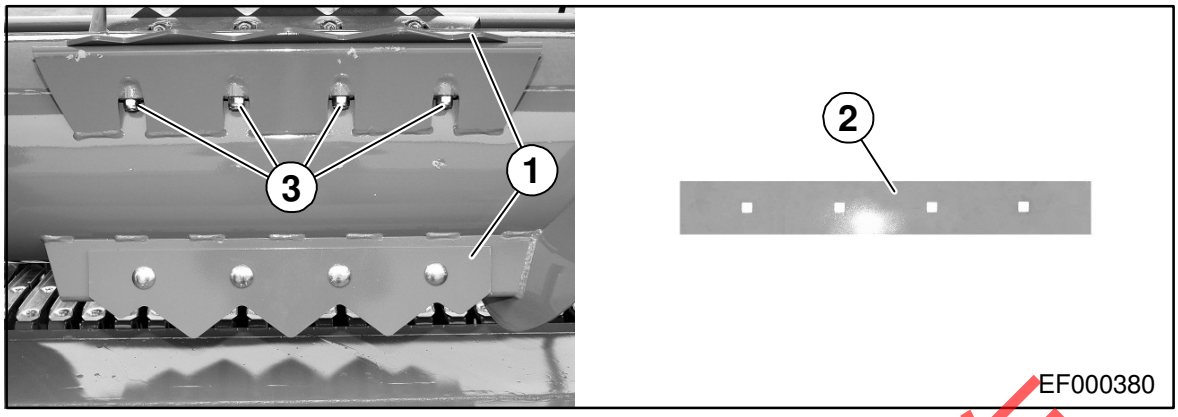


Fig. 55:

If the crop gets wrapped around the serrated infeed plates (1) while it is being brought in you can mount smooth infeed plates (2).

- Loosen the screw connections (3) and remove the serrated infeed plate (1).
- Mount smooth infeed plates (2) on the auger conveyor with the screw connections (3).

3.2 Removing and installing the roller crop guide completely

Removal

- Lower roller crop guide completely.
- Release the pressure from the hydraulic system.

DANGER! – Distortion of the frame due to incorrect attaching!

Material damages occur!

- The roller crop guide must only be attached to the outer tube frame and not to the cross brace.

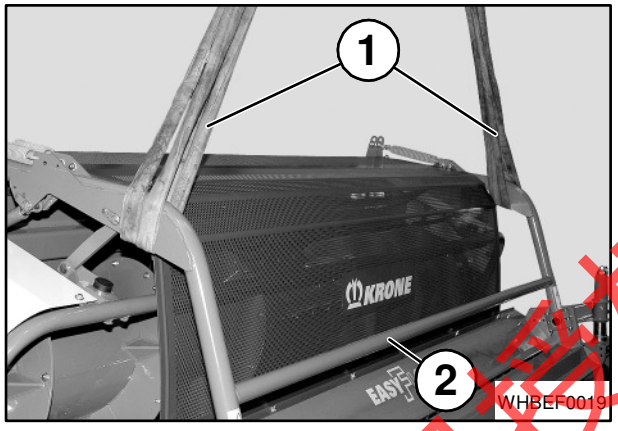


Fig. 56

- Take roller crop guide in suitable lifting gear (1) as shown; do not lift on cross brace (2).

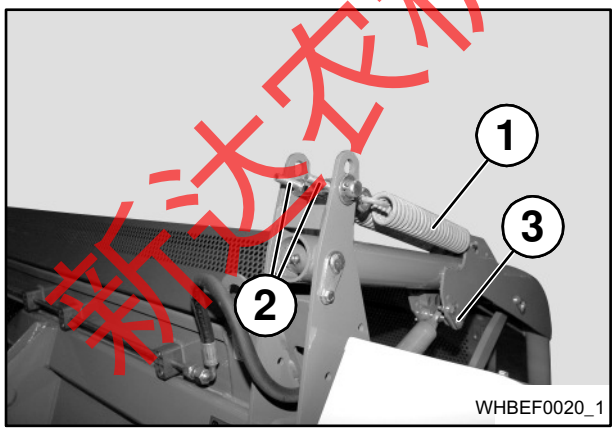


Fig. 57

- Remove bolts (3) from both sides
- Raise the roller crop guide at the front until the springs (1) are relieved
- Unscrew hexagonal nuts (2) on both sides

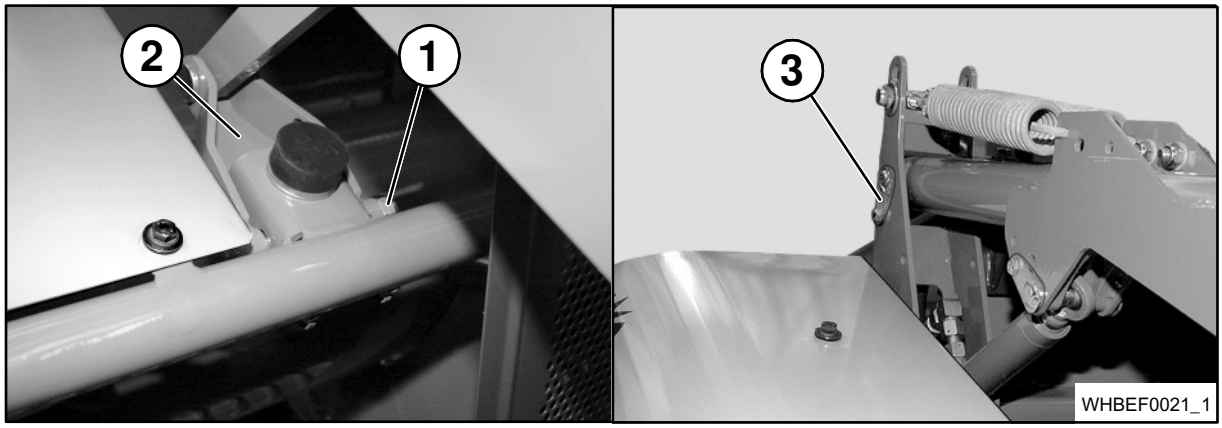


Fig. 58

- Unscrew the hexagonal nut (1) and pull the screw out of the reversing lever (2).
- Remove bolts (3) on both sides.

Fig. 59

- Lift the roller crop guide completely out of the machine.

Installation

Installation is in reverse order to removal.

- Adjust after attaching to the spring compensation, refer to chapter “Components for crop flow”, section “Adjusting the roller crop guide and the swath guide plate”.

3.2.1 Adjusting the roller crop guide and the swath guide plate

Position of the Roller Crop Guide – Holder Tine Track

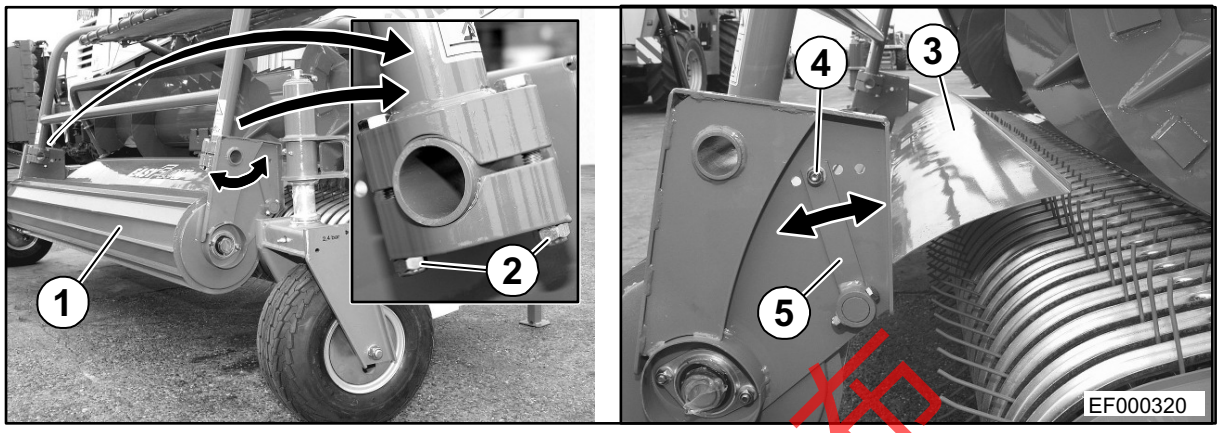


Fig. 60

- Loosen clamping connection (2) on both sides and swivel roller crop guide (1) into the required position with respect to the holder tine track.

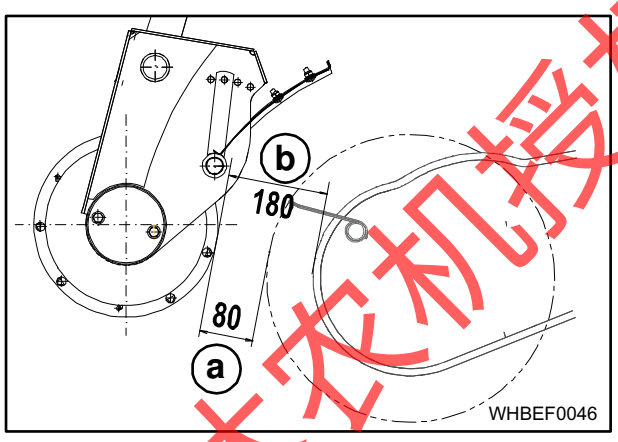


Fig. 61

Setting Dimension for Roller Crop Guide:
Between the outer diameter of the roller and base of the scraper plate “b” = 180 mm or
Between the outer diameter of the roller and tip of the tines **“a” = 80 mm**

- Tighten the clamping connections (2) again.
- Loosen screw connection (4) on both sides and swivel swath guide plate (3) with lever (5) into the required position.
- Fix position with screw connections (4) in the perforated bars.

Spring Compensation Roller Crop Guide

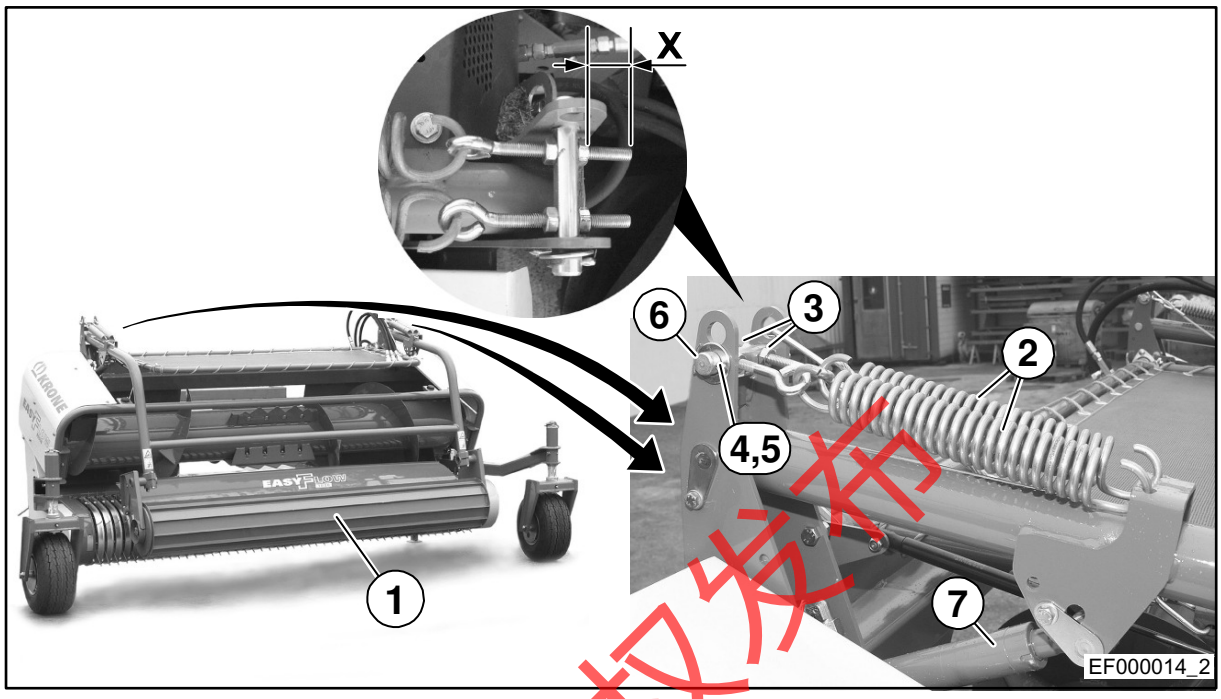


Fig. 62

The spring compensation of the roller crop guide (1) can be set via the pre-tension of the tension springs (2) and/or via the perforated bar in the bearing assembly.

Coarse Setting via the Perforated Bar:

Note

Bearing point of the tension springs above - more tension released
Bearing point of the tension springs below – less tension released

- Unscrew rear hexagonal nuts (3) and remove tension springs (2) with eyebolts.
- Remove cotter pin (4) and washer (5). Pull out bolts (6) and insert them in the selected position. Install tension springs (2) identically on both sides of the machine.

Installation is in reverse order to the removal procedure.

Note

Danger due to the springs contracting when the nut is being removed! If required, relieve the springs by raising the roller crop guide over the lifting cylinders (7).

Fine Adjustment by Pre-Tensioning the Tension Springs (2):

- Adjust hexagonal nuts of the tension springs until the required relief is obtained. (EasyFlow 3001 **X = min. 40 mm** / **EasyFlow 3801 X = min. 45 mm**) pre-tension the tension springs (2) identically on both sides.

Setting the Roller Crop Guide Height

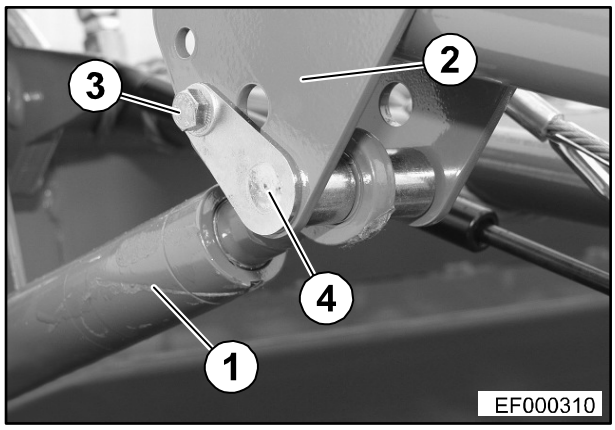


Fig. 63

The minimum working height of the roller crop guide can be set via the bearing point (2) of the lifting cylinders (1).

Note

Lower bearing point – roller crop guide higher
Upper bearing point – roller crop guide lower

- Relieve roller crop guide using suitable lifting equipment.
- Loosen screw connection (3), pull out bolt (4).
- Install lifting cylinder (1) with bolt (4) in the selected bore of the bearing assembly (2), secure bolt (4) with screw connection (3).
  Setting must be identical on both sides.

3.3 Removing and installing the Pickup completely

Removal

- Release the tension of the drive chain of the Pickup roller, refer to chapter “Maintenance”, section “Checking and adjusting the chain tension of the drive chains.
- Open and remove drive chain on chain lock.
- Remove all scrapers, refer to chapter “Maintenance”, section “Changing the tines”.

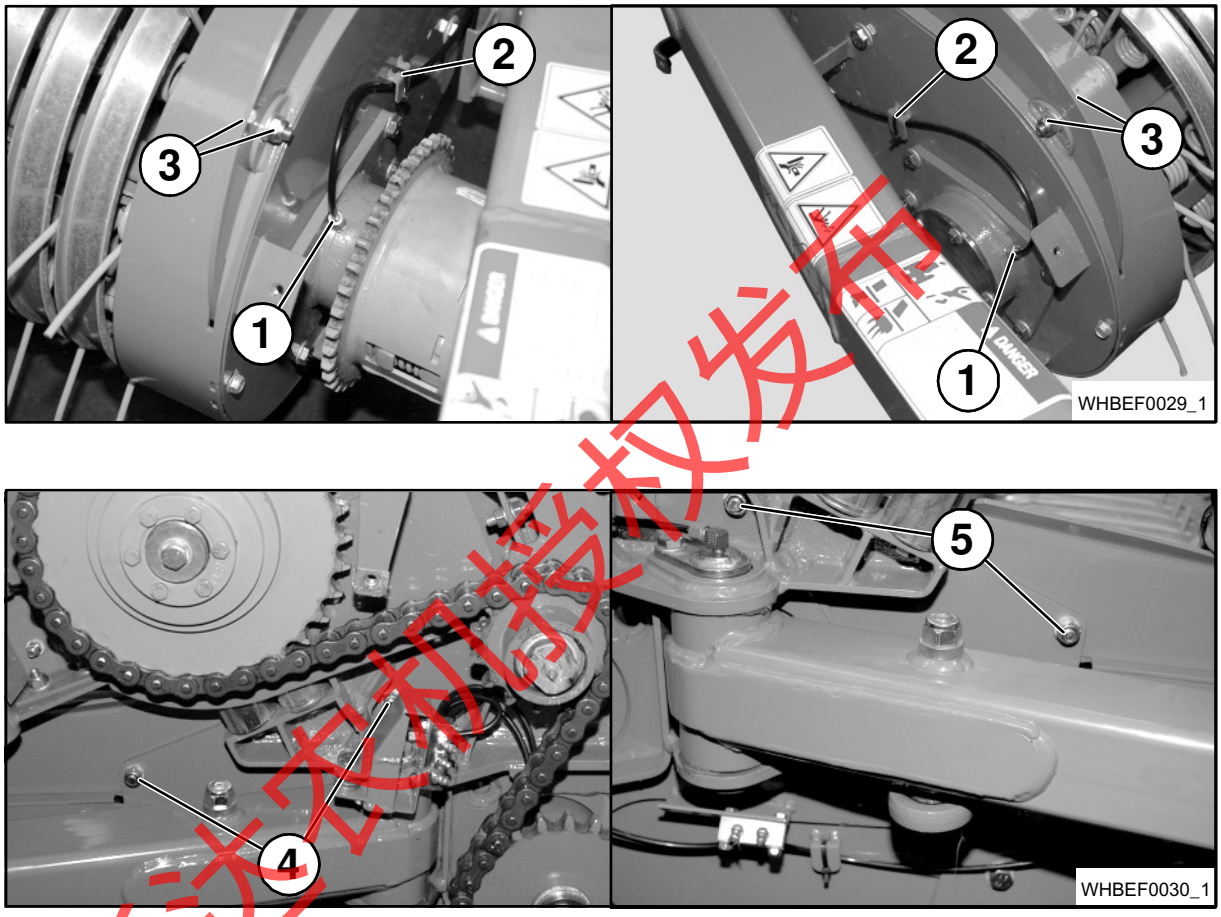


Fig. 64

- Remove lubrication lines (1) and sever cable ties (2) on the guides.
- Unscrew hexagonal head screws (3), (4) and (5) and remove swath guide plates.

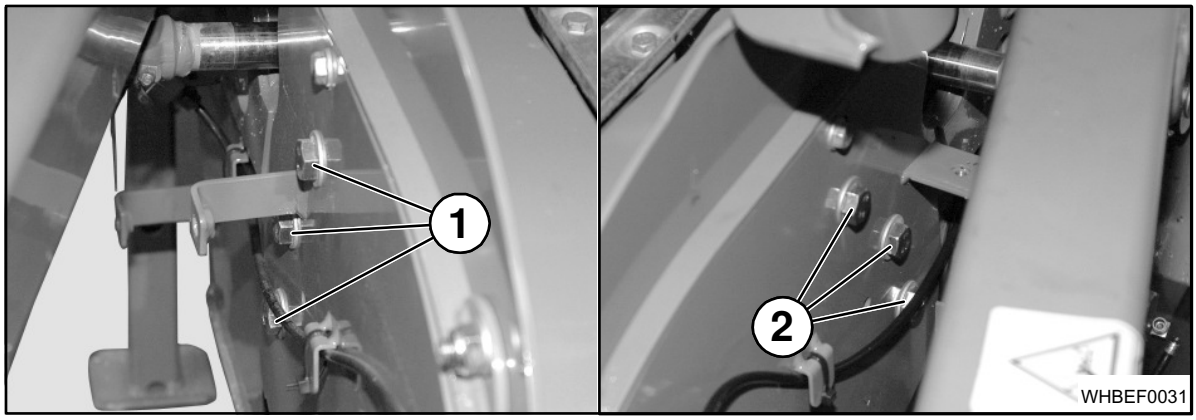


Fig. 65

- Unscrew hexagonal head screws (1 and 2) and take pick-up forwards out of the machine.

Installation

Installation is in reverse order to removal.

3.3.1 Removing and installing the Pickup

- Remove Pickup completely (1), refer to chapter “Components for crop flow”, section “Removing and installing the Pickup completely”.

Removal

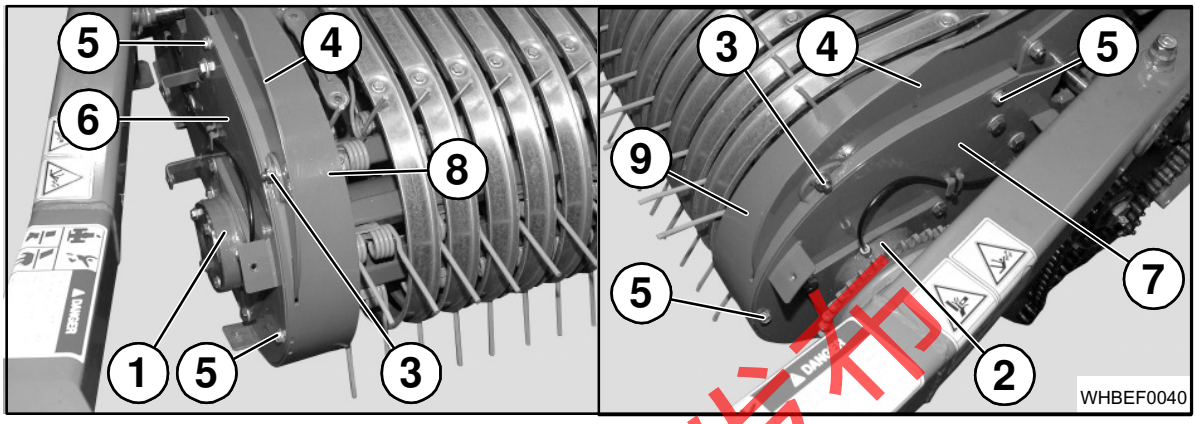


Fig. 66

- Remove both bearing housings (1 and 2) of the pick-up roller, see chapter Components for Crop Flow, section “Changing bearings on the pick-up”.
- Unscrew hexagonal head screws (5) and remove side part from the left and right (6 and 7) as well as outer guard from the left and right (8 and 9).
- Remove all tines from rotor, refer to chapter “Maintenance”, section “Changing the tines”.

Installation

Installation is in reverse order to the removal procedure.

3.3.2 Pickup, component overview

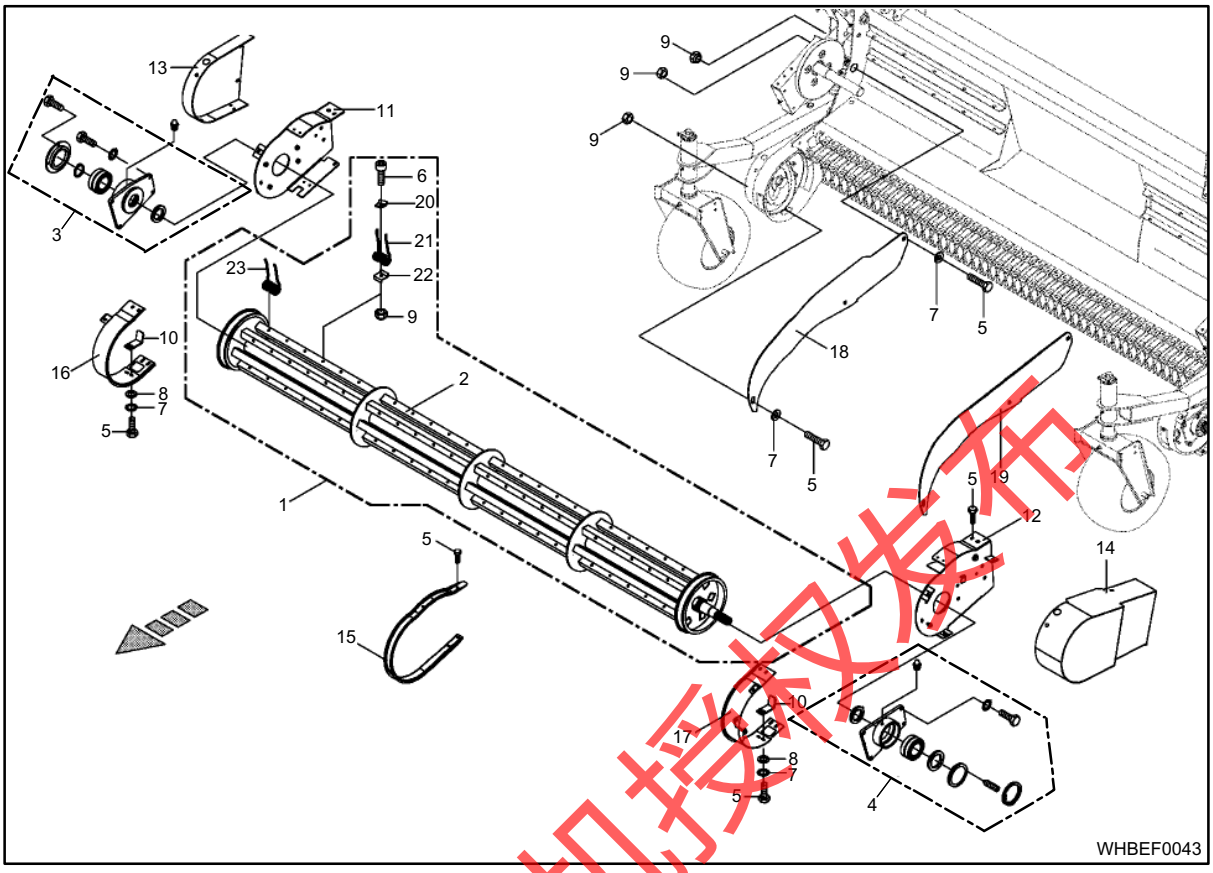


Fig. 67:

(1) Rotor cpl.
(2) Rotor
(3) Bearing housing cpl. right
(4) Bearing housing cpl. left
(5) Hexagonal head screw
(6) Hexagonal socket head screw
(7) Detent edged washer
(8) Washer
(9) Locknut
(10) Scraper
(11) Side part right
(12) Side part left
(13) Chain guard right
(14) Chain guard left
(15) Scraper
(16) Outer guard right
(17) Outer guard left
(18) Swath guide plate right
(19) Swath guide plate left
(20) Pressure plate
(21) Spring tine inside
(22) Spring saddle
(23) Spring tine outside

3.4 Changing the bearings

3.4.1 Changing the bearings on the Pickup

3.4.1.1 Bearing, component overview

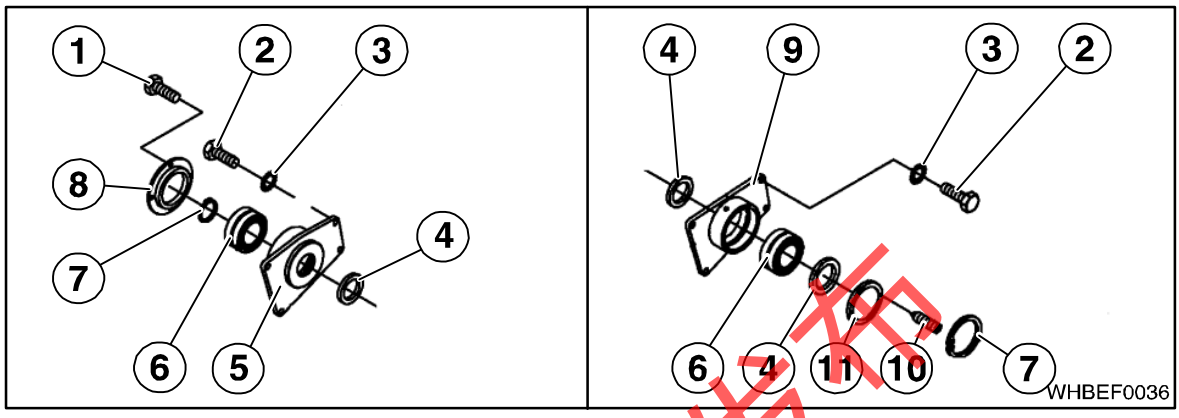


Fig. 68

(1) Hexagonal head screw cpl. M8x20
(2) Hexagonal head screw M10x30
(3) Detent edge disc
(4) Shaft sealing ring
(5) Bearing housing, on left (floating bearing)
(6) Spherical roller bearing
(7) Retaining ring
(8) End disc
(9) Bearing housing, on right (fixed bearing)
(10) Threaded pin
(11) Ring

Note

The diagram on the left shows the fixed bearing (direction of travel on right), the diagram on the right shows the floating bearing (direction of travel on left).

3.4.1.2 Changing the fixed bearing

Removal

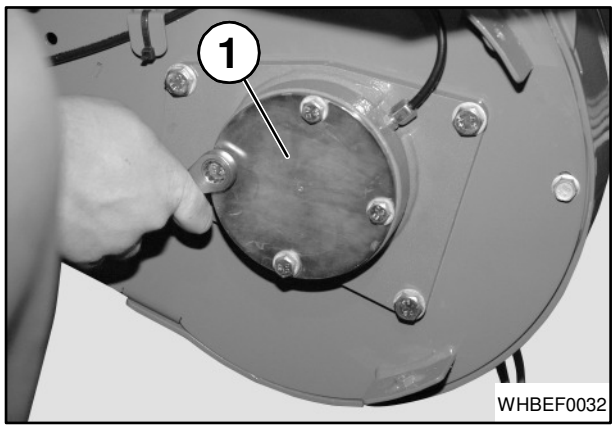


Fig. 69

- Remove the end plate (1).

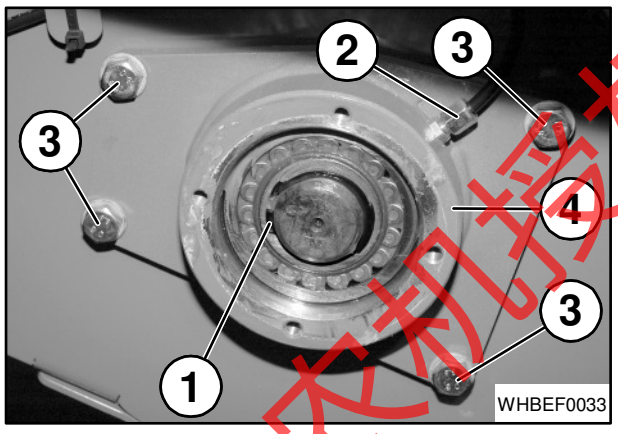


Fig. 70

- Remove the retaining ring (1).
- Remove the lubrication line (2), screw out hexagonal head screw and take off bearing housing (4).
- Press bearing and shaft sealing ring out of the bearing housing.

Installation

Installation is in reverse order to removal.

3.4.1.3 Changing the floating bearing

Removal

- Remove the overload coupling on the Pickup, refer to chapter “Mechanical drives”, section “Removing and installing the overload coupling on the Pickup”.

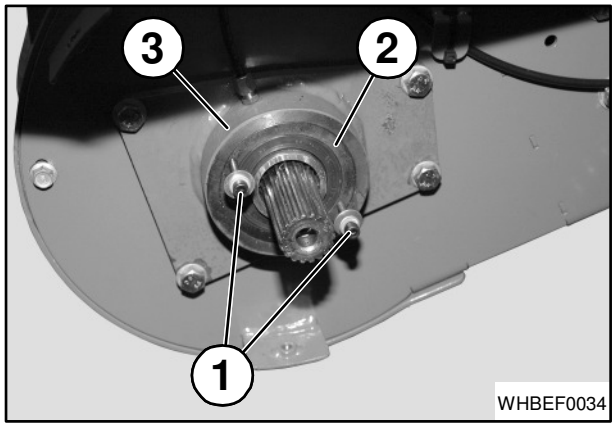


Fig. 71

- Screw screws (1) into the cover (2) (remove threaded pins beforehand) and press the cover out of the bearing housing (3) by reciprocally tightening the screws.

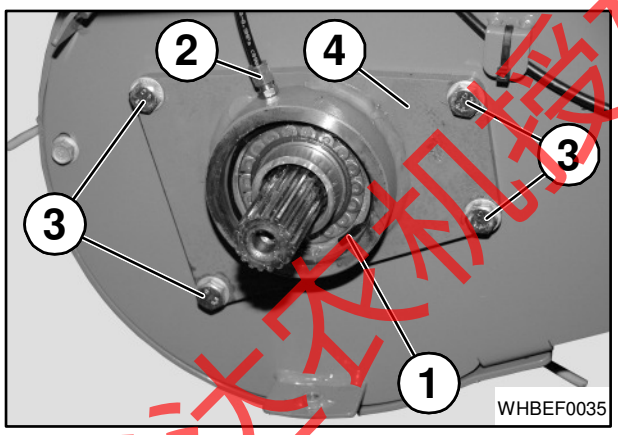


Fig. 72

- Remove the retaining ring (1).
- Remove the lubrication line (2), screw out hexagonal head screw and take off bearing housing (4).
- Press bearing and shaft sealing ring out of the bearing housing.

Installation

Installation is in reverse order to removal.

3.4.2 Changing the bearing on the auger conveyor

The changing of the bearing on the side of the drive is described in the following, the changing of the bearing on the other side of the machine is similar.

Removal

- Remove the overload coupling on the auger conveyor, refer to chapter “Mechanical drives”, section “Removing and installing the overload coupling on the auger conveyor”.
- Remove roller crop guide completely, refer to chapter “Components for crop flow”, section “Removing and installing the roller crop guide completey”.

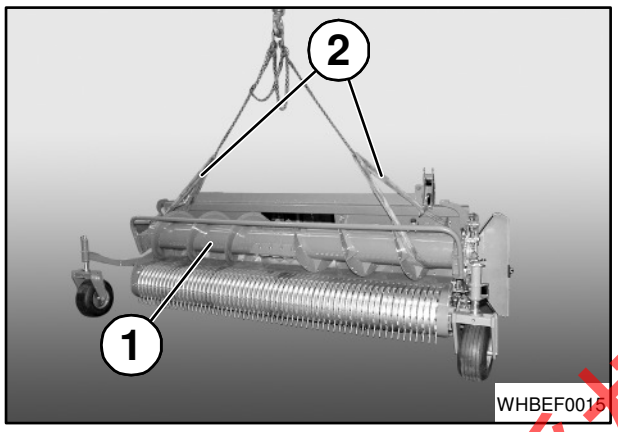


Fig. 73

- Attach the auger conveyor (1) into suitable lifting gear (2).

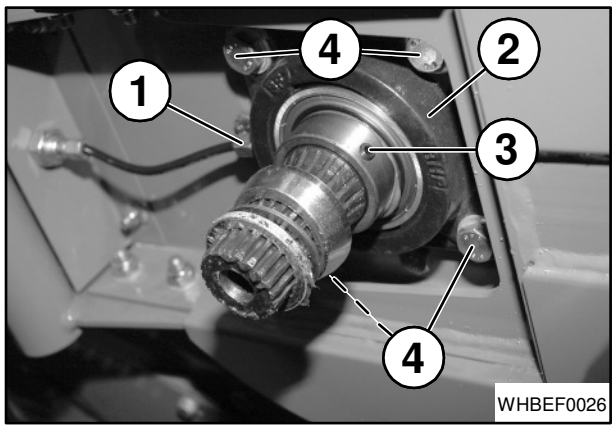


Fig. 74

- Remove lubrication line (1) on the flange bearing (2).
- Loosen hexagonal socket head screw (3) in the inner rolling bearing ring .
- Unscrew hexagonal head screw (4) and take flange bearing off.

Installation

Installation is in reverse order to removal.

3.4.3 Changing the bearing on the holding-down device roller

Removal

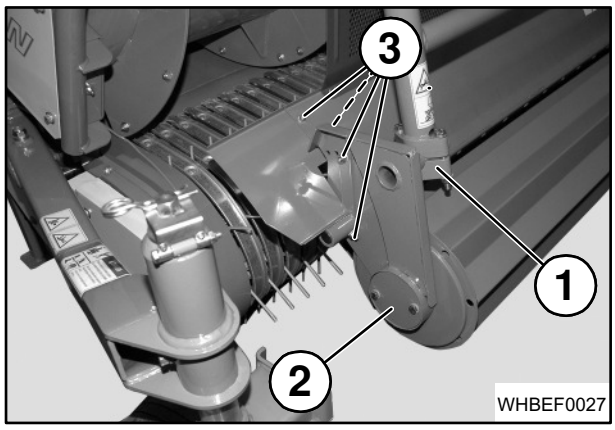


Fig. 75

- Remove clamp (1) from both sides and remove presser roller.
- Remove hexagonal head screws (3) and remove swivel lever.
- Remove the cover (2).

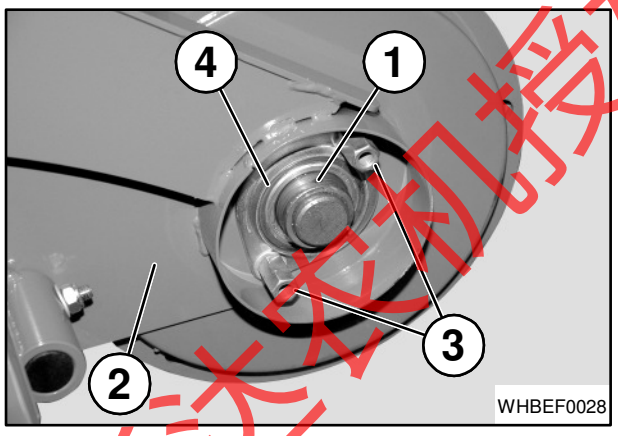


Fig. 76

- Loosen hexagonal socket head screw (1) in the insert bearing inner race and remove bearing assembly (2).
- Unscrew nuts (3) and remove insert bearing (4) together with the bearing assembly (2) from the presser roller.

Installation

Installation is in reverse order to removal.

4 Work hydraulics

4.1 Removing and installing the folding cylinders for the guide wheels

Removal

- Release the pressure from the hydraulic system.

WARNING!

Before working on the hydraulic system, depressurise it.

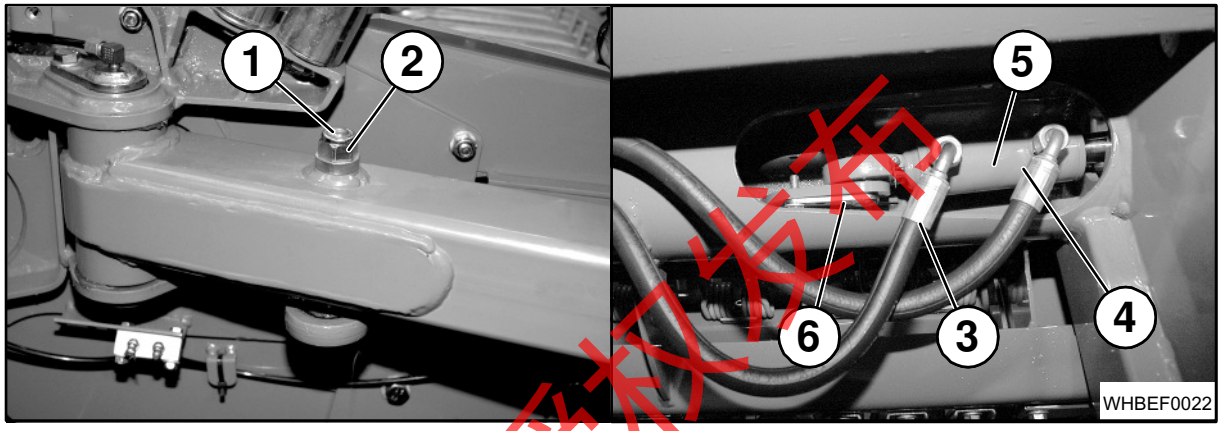


Fig. 77

- Unscrew nut (1) and remove bolt (2) downwards.
- Remove hydraulic lines (3 and 4) from the pivot cylinder (5).
  Collect escaping oil in a suitable container. Identify hydraulic lines (installation position).
- Remove bolt (6) and take pivot cylinder (5) out of the machine.

Installation

Installation is in reverse order to removal.

4.2 Removing and installing the hydraulic cylinder for roller crop guide

Removal

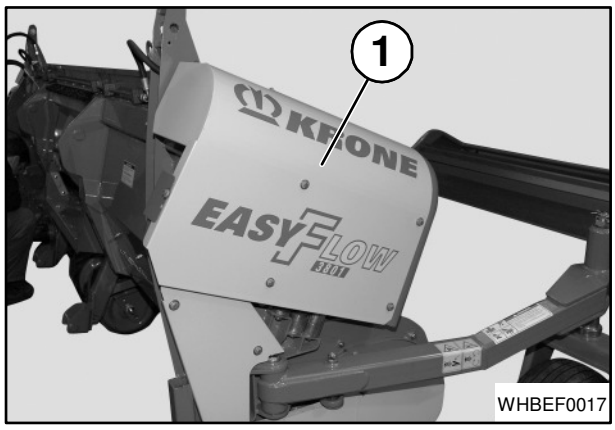


Fig. 78

- Remove cover plate (1) on right and left.
- Release the pressure from the hydraulic system.

DANGER! – Distortion of the frame due to incorrect attaching!

Material damages occur!

- The roller crop guide must only be attached to the outer tube frame and not to the cross brace.

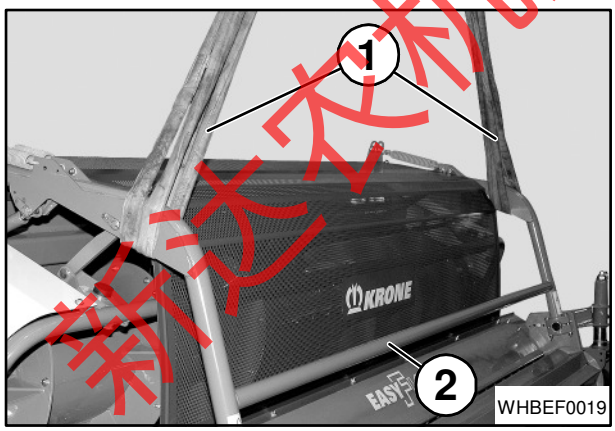


Fig. 79

- Take roller crop guide in suitable lifting gear (1) as shown; do not lift on cross brace (2).

- Lift roller crop guide in front until the hydraulic cylinders are relieved.

WARNING!

Before working on the hydraulic system, depressurise it.

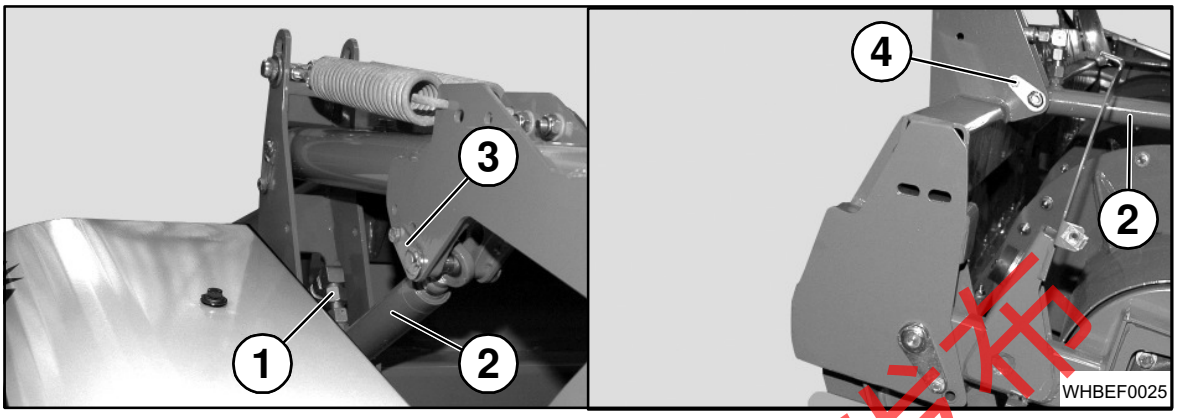


Fig. 80:

- Remove the hydraulic line (1) from the hydraulic cylinder (2). Collect oil in a suitable container.
- Remove the bolts (3 and 4) and take the hydraulic cylinder (2) out of the machine.

Installation

Installation is in reverse order to removal.

4.2.1 Adjusting the lifting speed of the roller crop guide

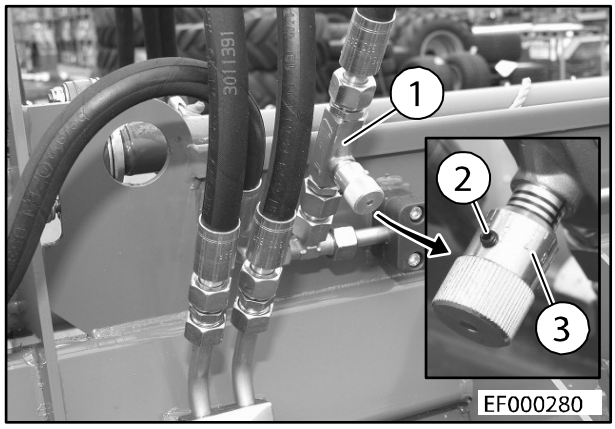


Fig. 81:

You can adjust the lifting speed of the roller crop guide with the throttle return valve (1).

Throttle clockwise = slower
Throttle counter clockwise = faster

- Loosen the hexagonal socket head screw (2) and turn the adjusting screw (3).
- After the adjustment of the hexagonal socket head screw (2) is complete, tighten it again.

5 Driving hydraulics

This chapter was left blank deliberately, since no accordant component has been installed in the machine.

6 Engine

This chapter was left blank deliberately, since no accordant component has been installed in the machine.

7 Electrical system

This chapter was left blank deliberately, since no accordant component has been installed in the machine.

8 Maintenance

8.1 Filling Quantities and Lubrication Designations for Gearboxes

Gearboxes	Filling Quantity (Litres)	Type of Oil	Bio-Degradable Lubricants
Main angular gearbox	1.6	Gearbox oil API GL4 SAE 90	On request
Spur wheel gearbox	1.5		

8.2 Checking the oil level and changing the oil

8.2.1 Oil Level Check and Oil Change Intervals (Gearboxes)

- Unless otherwise indicated, change oil in all gearboxes 1x year.
- Before use, always check all gearboxes for leaks, if required check oil level.

8.2.2 Checking the Oil Level and Changing the Oil on the Main Angular Gearbox

Note

Perform oil level check and change the oil while the machine is in a horizontal position!

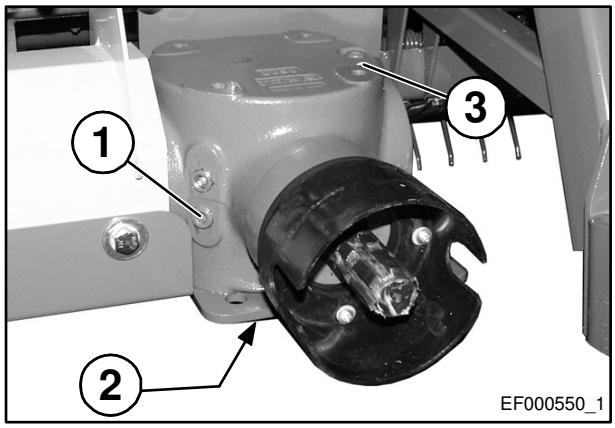


Fig. 82

Oil level check

- For time intervals, see Chapter "Oil Level Check and Oil Change Intervals (Gearboxes)".
- Unscrew the inspection screw (1).
- The oil level must reach up to the control hole (1). Refill oil if necessary
- Screw in the inspection screw (1).

Oil Change

- Intervals see chapter “Intervals for Checking and Changing Oil in the Gearboxes”
- Unscrew oil drain plug (2) on the gearbox. Drain waste oil into a suitable container.
- Screw in the oil drain plug (2) again.
- Unscrew inspection screw (1) and filler screw (3) from the gearbox, refill with oil (oil level up to inspection hole (1))
- Screw inspection screw (1) and filler screw (3) back in again.

Note

For filling quantities and type of oil refer to chapter “Maintenance”, section “Lubricant quantities and designations for gearboxes”.

Note

The used oil must be disposed of under the terms of the valid regulations.

8.2.3 Checking the oil level and changing the oil on the spur wheel gearbox

Note

Perform oil level check and change the oil while the machine is in a horizontal position!

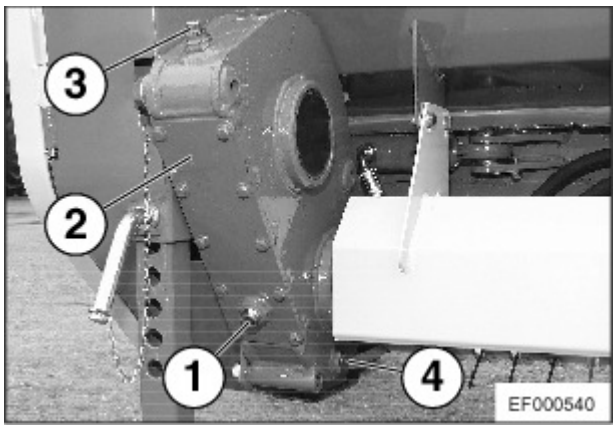


Fig. 83

Oil level check

- Unscrew the oil level control screw (1) on the gearbox (2).
- The oil level must reach up to the control hole. Refill oil if necessary.
- Screw in the oil level control screw (1) again.

Oil change

- Unscrew the oil drain plug (4) on the gearbox (2). Collect the used oil in a suitable container.
- Screw in the oil drain plug (4) again.
- Unscrew the inspection screw (1) and locking screw with ventilation filter (3) on gearbox, top up oil (oil level up to control hole (1)).
- Screw in the control screw and locking screw again.

Note

For filling quantities and type of oil refer to chapter “Maintenance”, section “Lubricant quantities and designations for gearboxes”.

Note

The used oil must be disposed of under the terms of the valid regulations.

8.3 Checking and adjusting the chain tension of the drive chains

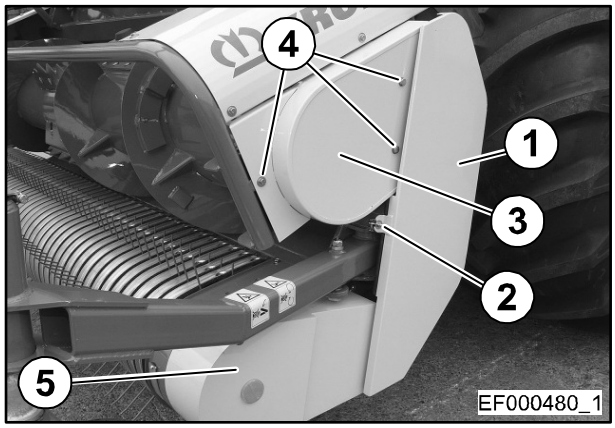


Fig. 84

- Open the protective cover (1) on the lock (2).
- Unscrew the hexagonal head screws (4) and remove the guard plate (3).
- Remove the guard plate (5).

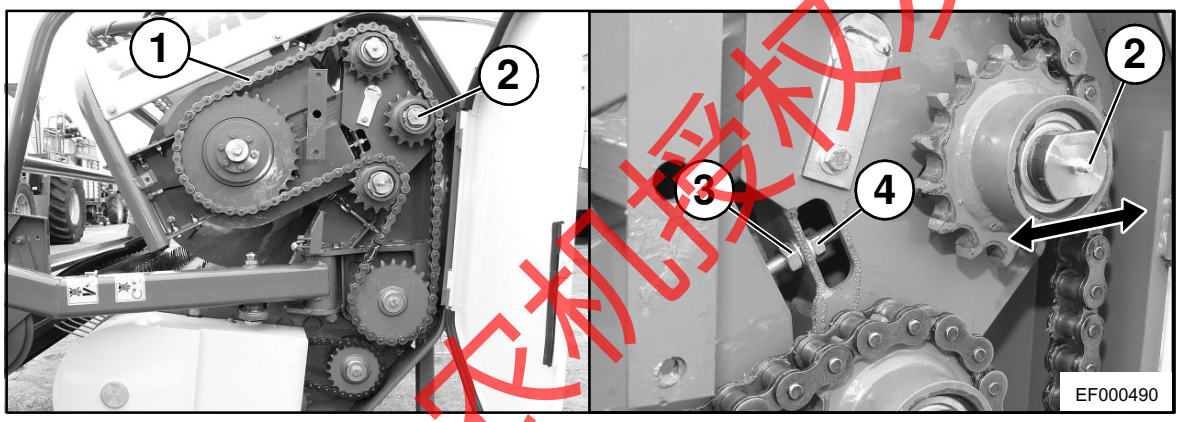


Fig. 85:

- Loosen the axle bolt (2) (left-hand thread).
- Loosen the counter nut (3) and correct the pre-tension of the chain (1) by turning the hexagonal nut (4).
- Tighten the counter nut (3) and axle bolt (2).

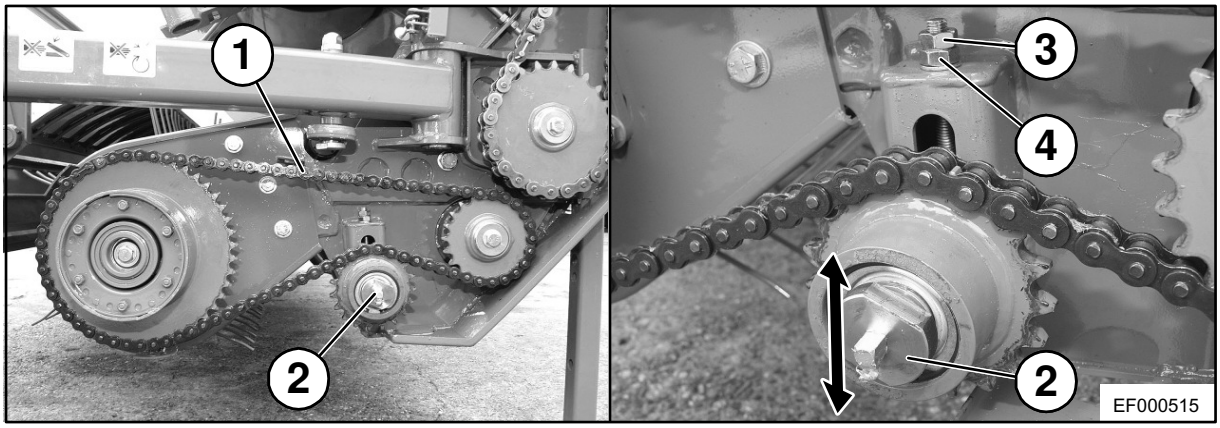


Fig. 86

- Remove lubrication line from axle bolt.
- Loosen the axle bolt (2) (left-hand thread).
- Loosen the counter nut (3) and correct the pre-tension of the chain (1) by turning the hexagonal nut (4).
- Tighten the counter nut (3) and axle bolt (2).
- Mount and close all protective coverings.

8.4 Changing the tines

Removal

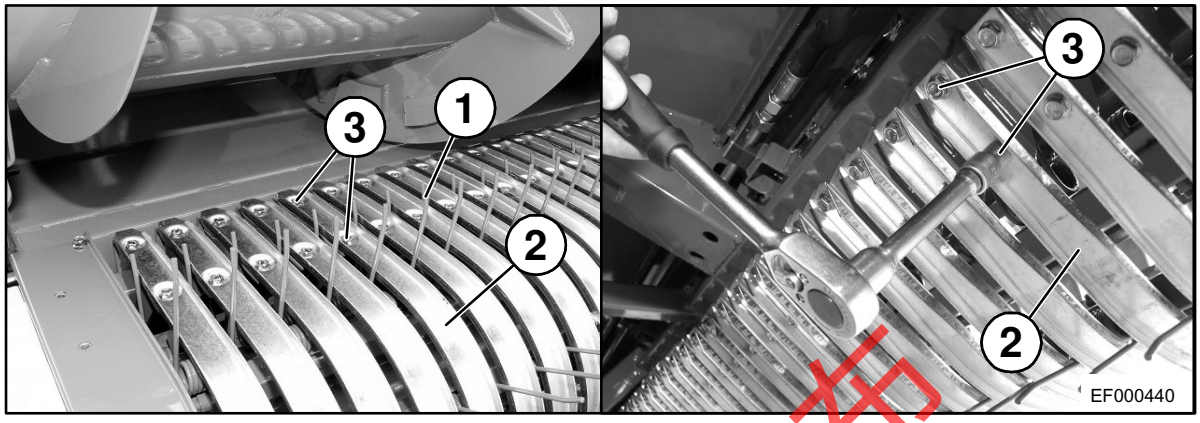


Fig. 87

- Unscrew the four fastening bolts (3) and remove the scraper (2) forwards.

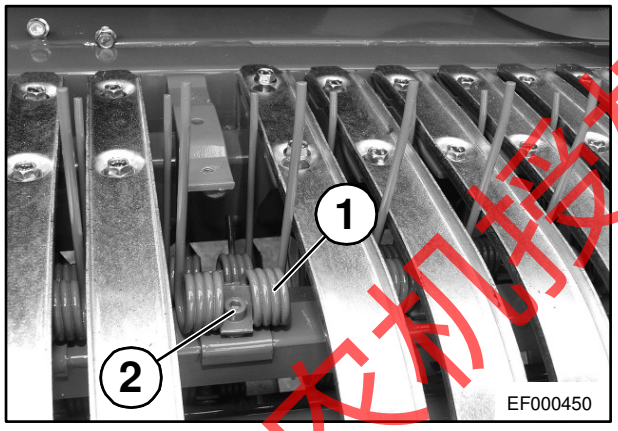


Fig. 88

- Loosen the screw connection (2) and remove the tines with the pressure plate and spring saddle (1).

Note

During the mounting process, make certain the installation position of the tines, pressure plate and spring saddle are correct.

Installation

Installation is in reverse order to removal.

8.5 Adjusting the guide wheels

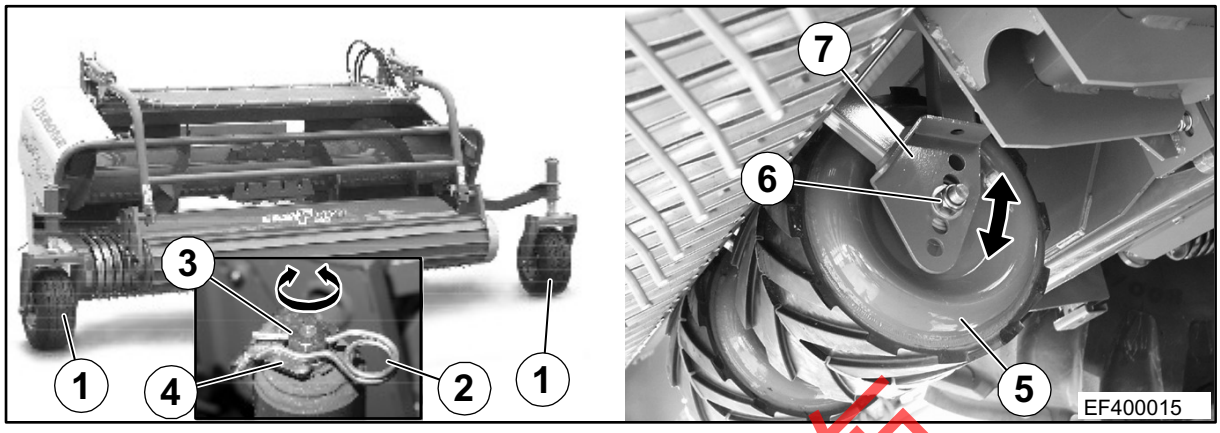


Fig. 89

The working height of the pick-up is set via the supporting wheels (1). The distance between the tines and ground should be 20–30 mm.

- Remove spring cotter pin (2), fold up anti-twist device (4) and retract or extend supporting wheels (1) by turning the screw spindle (3). Setting must be identical on both sides.
- After making the setting, fold down anti-twist device (4) and secure with spring cotter pin (2).

The distance between the centre supporting wheel (5) and the ground should be approx. 10–30 mm.

- Unscrew hexagonal nut (6), pull axle out of the supporting wheel. Position supporting wheel at the appropriate height and insert axle. Fit hexagonal nut.

8.6 Friction Clutch

Caution! - Manipulation of the friction clutch

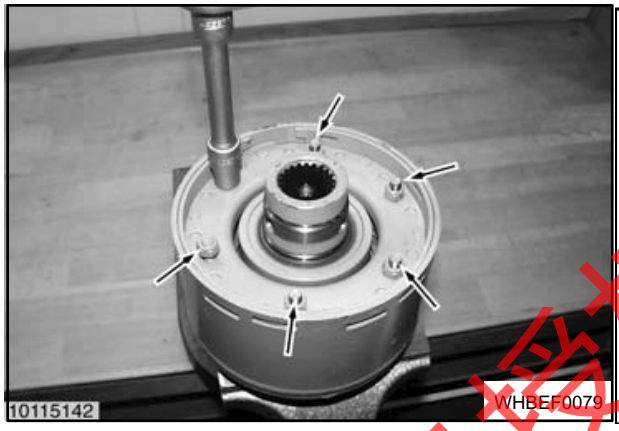
Effect: Serious damage to the machine

- Manipulation of the overload protection changes the slip torque. This will lead to a loss of warranty claims! Original KRONE spare parts only may be used.

Note - Friction Clutch

Effect: Functionality maintained and increased service life

- Before initial commissioning and once a year before harvest, the friction clutch must be bled.



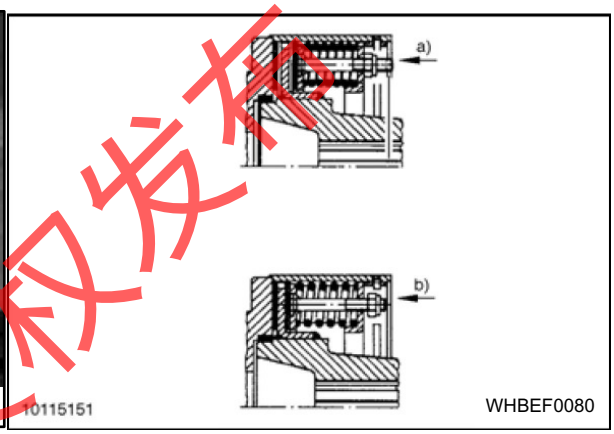


Fig. 90

Bleeding the Friction Clutch

a) Tighten the six nuts (arrows). Friction discs are relieved. Turn coupling.

b) Turn back each of the nuts in alternation (arrows) (one revolution each) as far as the thread run out. The coupling is now ready for use.

8.7 Lubrication

8.7.1 Lubrication Chart

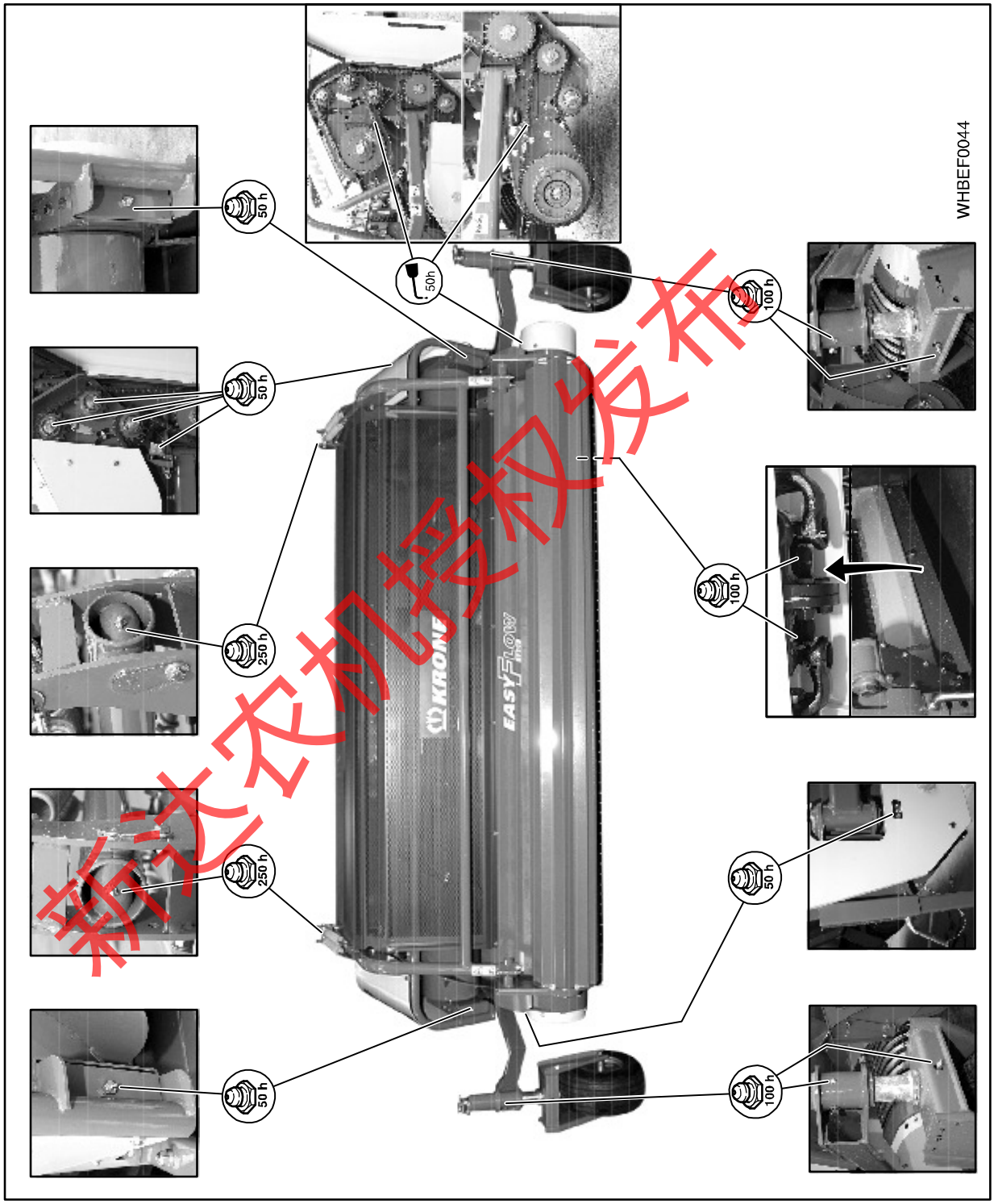


Fig. 91

8.8 Wintercheck

General aspects on placing the machine in storage:

- Thoroughly clean the inside and outside of the machine.
  Dirt adducts humidity and causes corrosion. When cleaning with high-pressure washing devices, do not point the stream of water at the bearing.
- Check movable parts (joints, etc.) to make certain they move easily. If necessary, dismount them, clean them and check them for wear. If necessary, replace with new parts!
- Oil all joint points!
- Lubricate the machine thoroughly.
- Grease the protective tubes of the PTO shafts to prevent freezing up.
- Repair places with worn paint and preserve all bear places thoroughly with rust protection agent.
- Park the machine in a dry place. Do not store it in the vicinity of artificial fertilisers.

The following works need to be accomplished during winter:

Inspection characteristic	Measure to be taken						
	Complete / present / firm seat	Filling level / pressure / temperature	Wear / damage	Tightness	Function	Setting / play	Measurement / reading
Main frame	☒	☐	☒	☐	☒	☒	☐
Check rubber pad on auger conveyor	☒	☐	☒	☐	☒	☒	☐
Scraper on the main frame	☒	☐	☒	☐	☒	☒	☐
Wear plates on main frame (left, middle, right; clockwise) if available	☒	☐	☒	☐	☒	☒	☐
Guide wheels lateral (tyre, hose, bearing, bearing housing, pivot point, wheel arm)	☒	☒	☒	☐	☒	☒	☐
Supporting wheel (wheel incl. rubber coat, axle, bearing, scraper)	☒	☐	☒	☐	☒	☒	☐
Parking jack (with bolts & chain)	☒	☐	☒	☐	☒	☒	☐
Pick-up complete (rotor, scraper, spring tine, bearing, covers)	☒	☐	☒	☐	☒	☒	☐
Swath guide plate left and right	☒	☐	☒	☐	☒	☐	☐
Auger conveyor complete (auger, wear plate if available, feed plates, tubular bar)	☒	☐	☒	☐	☒	☒	☐
Bearing und bearing housing on the auger conveyor	☐	☐	☒	☐	☒	☐	☐
Angular gearbox (incl. bearings and gaskets) / oil change	☒	☒	☒	☒	☒	☐	☐
Transfer gearbox (incl. bearings and gaskets) / oil change	☒	☒	☒	☒	☒	☐	☐
Pick-up drive (chain, gear wheels, bearing, gaskets, friction clutch, check free-wheel)	☒	☐	☒	☐	☒	☒	☐
Auger drive (chain, gear wheels, bearing, gaskets, friction clutch)	☒	☐	☒	☐	☒	☒	☐

Inspection characteristic	Measure to be taken						
	Complete / present / firm seat	Filling level / pressure / temperature	Wear / damage	Tightness	Function	Setting / play	Measurement / reading
Supporting frame for holding-down device	☒	☐	☒	☐	☒	☐	☐
Holding-down device roller	☒	☐	☒	☐	☒	☒	☐
Deflector plates behind the roller crop guides	☒	☐	☒	☐	☒	☒	☐
Check gards on the Pickup completely	☒	☐	☒	☐	☒	☒	☐
Hydraulic system (cylinders, hoses, tubes, screw connections, plugs)	☐	☐	☒	☒	☒	☐	☐
PTO shafts / drive shaft / couplings	☒	☐	☒	☐	☒	☐	☐
Check lubrication lines	☒	☐	☒	☒	☒	☐	☐
Lubricate all manual lubricating points on the front attachment	☐	☒	☒	☐	☒	☐	☐

Note

The checklists are available at the KRONE customer service.

9 Other work

9.1 Removing and installing the guide wheels completely

Removal

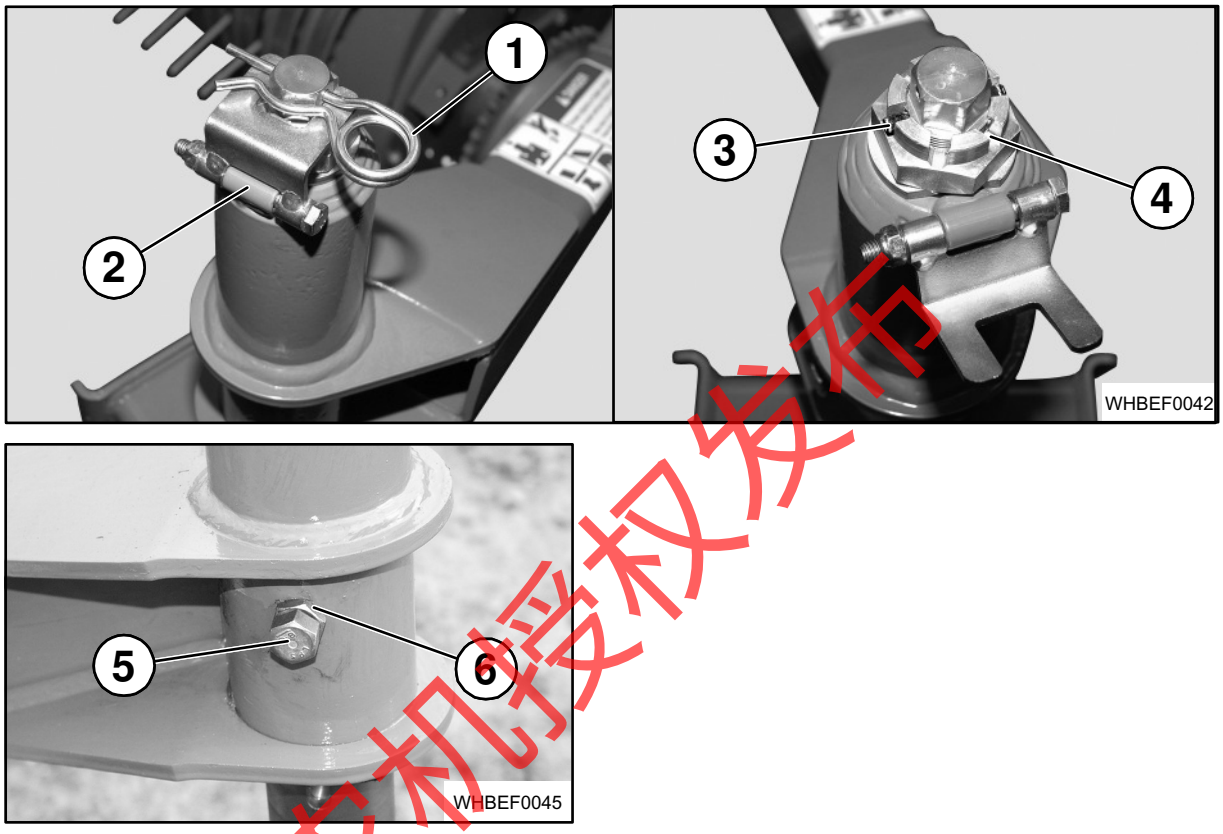


Fig. 92

- Pull out spring cotter pin (1) and fold up anti-twist device (2).
- Drive out dowel pin (3) and unscrew castle nut (4).
- Remove side bolt (5) and counter nut (6).
- Raise the Pickup and remove guide wheel cpl. with yoke downwards.

Installation

Installation is in reverse order to removal.

9.1.1 Changing the guide wheels

Removal

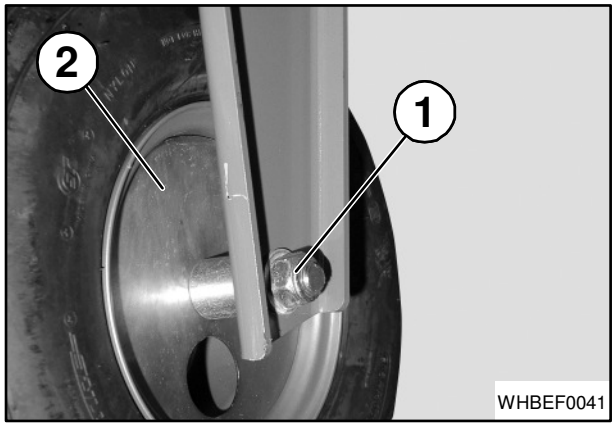


Fig. 93

- Unscrew the hexagonal nut (1) and pull the axle out of the wheel (2).

Installation

Installation is in reverse order to removal.

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. . . konsequent, kompetent

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