GRAIN CORN HARVESTING EQUIPMENT SET
KOK-6-2

Operation Guide

KZK-12-0500000OG

2025

Supply Set Basic Information

Manufacturer	"GZLiN" OJSC
Trade Mark	
Registered address of the manufacturer	246010, Gomel, Mogilevskaya str., 16 Republic of Belarus
Contact numbers	tel: (0232) 59 61 31 fax: (0232) 59 42 03
Grain Corn Harvesting Equipment Set	KOK-6-2 _____ supply set designation
Month and year of manufacture	_____
Serial number	_____ (corresponds to the number of the supply set)
State registration number	_____

Basic information is filled in manually or stamped according to the supply contract.

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FOR THE ATTENTION OF THE MANAGERS OF OPERATING ORGANIZATIONS AND OPERATORS!

This operation guide is intended for the operators (combine operators) who operate and service grain combine harvesters integrated with KOK-6-2 grain corn harvesting equipment set.

The combine harvester with this set may only be operated by persons who have been trained (retrained) in this equipment set operation by an authorized dealer, who have read this Operation Guide against their signature on page 5, and who have been instructed in occupational safety.

This operation guide is in accordance with the technical documentation.

This Operation Guide contains important information necessary for the safe operation of the combine harvester integrated with the equipment set, requirements and recommendations for its operation, the procedure for making necessary adjustments and maintenance, it should be kept in an accessible place during the operation the combine harvester integrated with the equipment set.

CAUTION: Only use the equipment set for its intended purpose as part of a combine harvester for harvesting the appropriate crops!

The manufacturer is not liable for malfunctions resulting from any inappropriate use!

Intended use also includes compliance with the operating, care and maintenance requirements specified by the manufacturer.

CAUTION: Do not use parts that are not the original manufacturer's parts as spare or replacement parts, as this has a negative effect on the functional properties of the equipment set as well as working and driving safety. If non-original parts are used, the manufacturer does not bear any liability!

The manufacturer is constantly striving to improve the equipment set design which may result in changes in the design of individual assemblies and parts that are not reflected in this Operation Guide. Some technical data and drawings may differ from the actual figures, dimensions and weights are for reference only.

The manufacturer is not obligated to make any changes in the design of the equipment sold, and excludes liability for damages resulting from unauthorized modifications.

Abbreviations and symbols:

OG - operation guide;
OM – operation manual;
equipment set – KOK-6-2, KOK-6-2-01 grain corn harvesting equipment set
combine harvester – self-propelled grain combine harvester;
SPK – spare parts kit;
PAU – part, assembly unit;
TM – technical maintenance;
on the left, on the right – relative to the course of forward movement of the combine harvester.

In this OG, all items relating to operator and equipment set safety are marked with a special symbol:



ATTENTION!
CAUTION!
NOT ALLOWED / Do NOT
Indication of instructions, non-compliance with which poses a risk to the health and life of the combine harvester operator and others or damage to the equipment set.

Conforms to the requirements of the technical regulations of the Customs Union "On safety of machines and equipment" (TR CU 010/2011)



 **ATTENTION:** Timely completion of all sections of the Operation Guide is a prerequisite for claims against the manufacturer.

Operation Guide
read and understood_____ _____
signature (printed name)

Safety Requirements

 **CAUTION:** For safe operation of the combine harvester with the equipment set and prevention of accidents, in addition to compliance with the requirements of this OM, OG of the combine harvester, follow the generally accepted safety and accident prevention regulations!

 **ATTENTION:** Only specially trained and qualified persons are allowed to operate the combine harvester integrated with the equipment set!

 **ATTENTION**: Observe Traffic Regulations while driving combine harvester on public roads!

 **CAUTION:** Drive in accordance with the Traffic Regulations, not exceeding the established speed of transportation, which is 20 km/h!

 **ATTENTION**: When driving on public roads, the header should be mounted and secured to the header trailer attached to the combine harvester!

Do **NOT** transport the header on the trailer by other vehicles.

 **CAUTION:** To prevent damage to the header components due to foreign objects, the corn stalk cutting height should be at least 200 mm when operating on weedy fields!

Set the cutting height of the header when the combine harvester is running with the equipment set, using the hydraulic cylinders of the feeder housing.

 **ATTENTION**: All procedures related to repairs, adjustments and maintenance of the set products should be performed with the header drive disengaged and the combine harvester engine turned off!

 It is **NOT ALLOWED** for people to be in the vicinity of the operating header.

 Do **NOT** stand between the header and combine harvester while the engine is running.

 Do **NOT** operate Cardan shafts of the header without protective cowling or with damaged cowling.

 Do **NOT** open or remove guardrails while the combine harvester engine is running.

 Do **NOT** operate the header with worn or damaged knives or clamp bushings. The knife should be replaced if its play on the bushing exceeds 1 mm. Both knives and both bushings of one rotor should be replaced at the same time.

 **CAUTION:** When operating the combine harvester integrated with the equipment set, in order to avoid damage to the rotor of the chopper, the chopper drive must be turned off, the shutter should be set in the position for forming plant matter into a windrow!

 **ATTENTION**: Keep unauthorized persons out of the loading and unloading area of the header and other parts of the equipment set!

 Do **NOT** drive on public roads if the header trailer has defective lighting and signalling equipment.

 **ATTENTION:** Carefully connect the Cardan shafts of the header drive. Cardan shaft forks should be securely fastened in their connections with other shafts, Cardan shaft cowling should be secured with chains fixed with their loose ends in the holes of the header frame!

 **INTEGRATION** of header with self-propelled thresher should be performed on hard level surface. The integration process can be performed with he header placed on the ground or on the header trailer.

After integration with the thresher, check the idling performance of the header.

 Do **NOT** a header that has any malfunctions.

 **ATTENTION:** If you hear unusual noises during operation of the combine harvester with the equipment set, stop the combine harvester and turn off the engine. Resume operation only after the causes of the unusual sounds have been eliminated!

 **ATTENTION:** Before starting technical maintenance and repair work, switch off the combine harvester engine, remove the starter key, apply the handbrake and place chocks under the combine harvester's driving wheels!

 **ATTENTION**: Only perform repair, maintenance and lubrication work on the header when the engine is off!

 **ATTENTION**: The tools and appliances for maintenance and repair should be in good condition!

 **ATTENTION:** Before welding work on the header, the header and the area around it should be thoroughly cleaned of plant matter!

 **ATTENTION**: Do not leave tools or other objects on the header after repairs and adjustments, they can cause an accident, if they get into the actuating elements!

Personnel should be provided with aprons, gloves, and goggles when washing and applying corrosion-resistant lubricants.

Keep the header clean, once per shift clean the chain drive areas and the joints of the Cardan shafts and other shafts from crop residue.

 **ATTENTION**: Do not allow oil to leak out of the header reducing gears!

Do **NOT** to make fires, perform welding works and use any kind of open flames on the harvested areas.

The place where welding or other work involving open flame is carried out should be equipped with fire-fighting equipment.

ATTENTION: If a fire breaks out, report the fire to the fire department, cover the seat of fire with sand or sacking, tarpaulin or other thick cloth, and use a fire extinguisher installed on the combine harvester!

Do **NOT** extinguish burning fuel with water.

Hydraulic oil is a flammable liquid. In case of an oil fire, the following extinguishing agents are applicable: sprayed water, foam; in case of total flooding - carbon dioxide, composition SZh6, composition "3.5" and water vapour.

CAUTION: In case of blocked row units and slipping of Cardan shaft couplings, immediately switch off the header drive, because friction safety couplings allow single slipping for not more than 5 s. In this case, interrupt work for 5 to 10 minutes to allow the coupling to cool down!

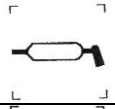
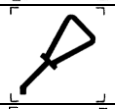
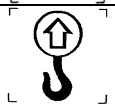
CAUTION: Do not slip friction safety couplings for more than 5 seconds!

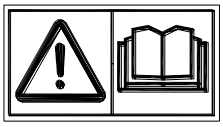
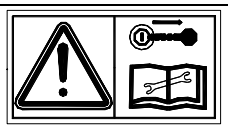
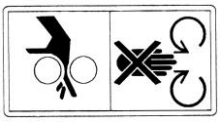
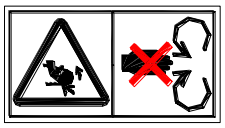
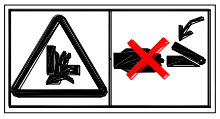
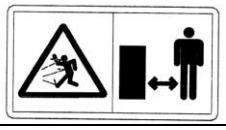
Safety Symbols

The header is marked with warning and safety signs (symbols and icons), which contain important safety guidelines, and instructions for the efficient use of the header.

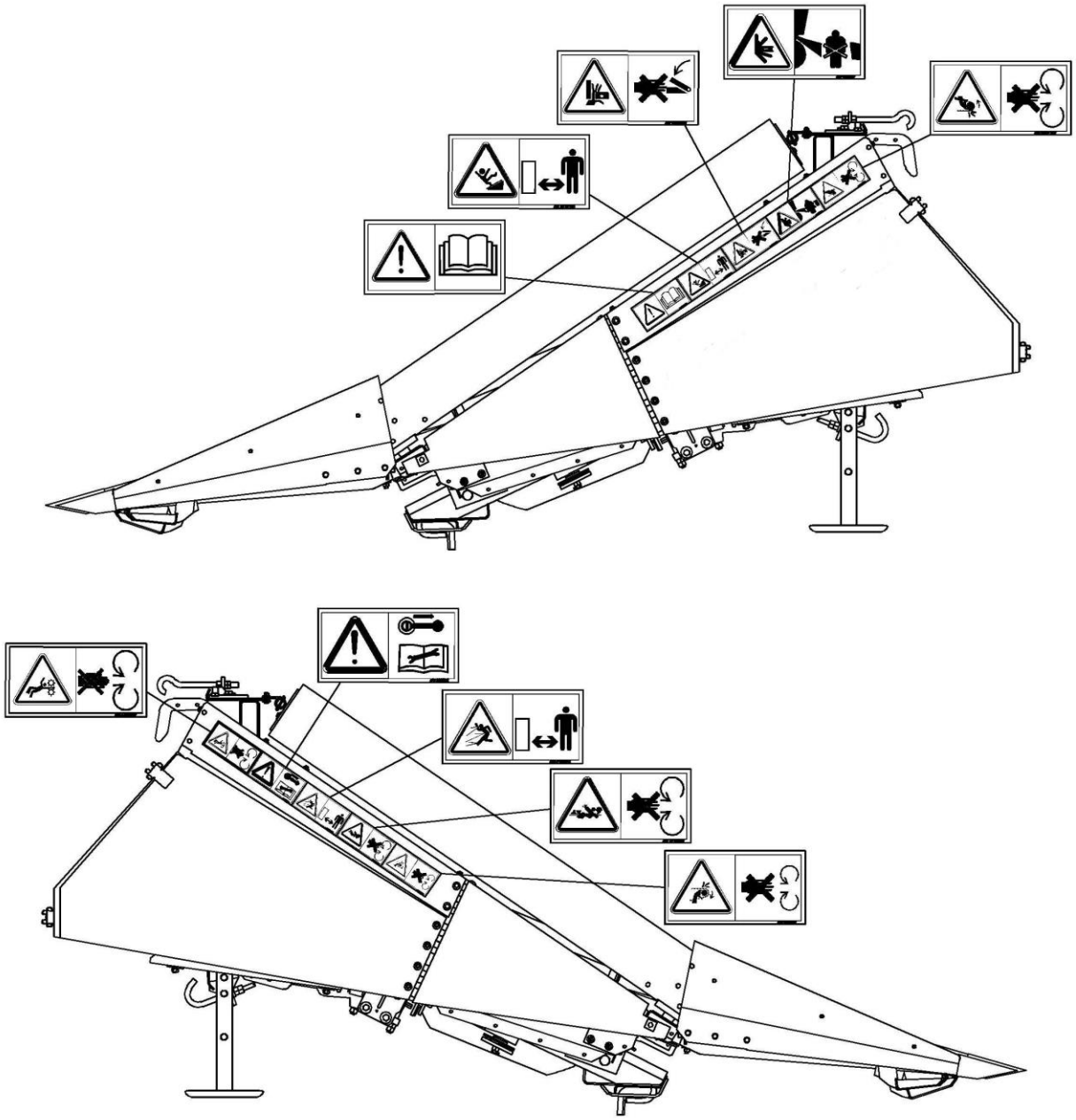
Safety signs should be kept clean at all times. If they are damaged, they should be replaced. If products with the symbols and icons are changed during operation, make sure that the new products are marked with the corresponding symbols and icons.

The signs (symbols and icons) placed on the header and their meanings are shown in the tables below:

	- grease lubrication point
	- liquid lubrication point
	- slinging point
	- safety symbol. (Sections of the OG marked with this symbol contain special instructions for safe and accident-free operation.)
	- operator's OG (the operator should learn it and observe the requirements set forth in the OG)

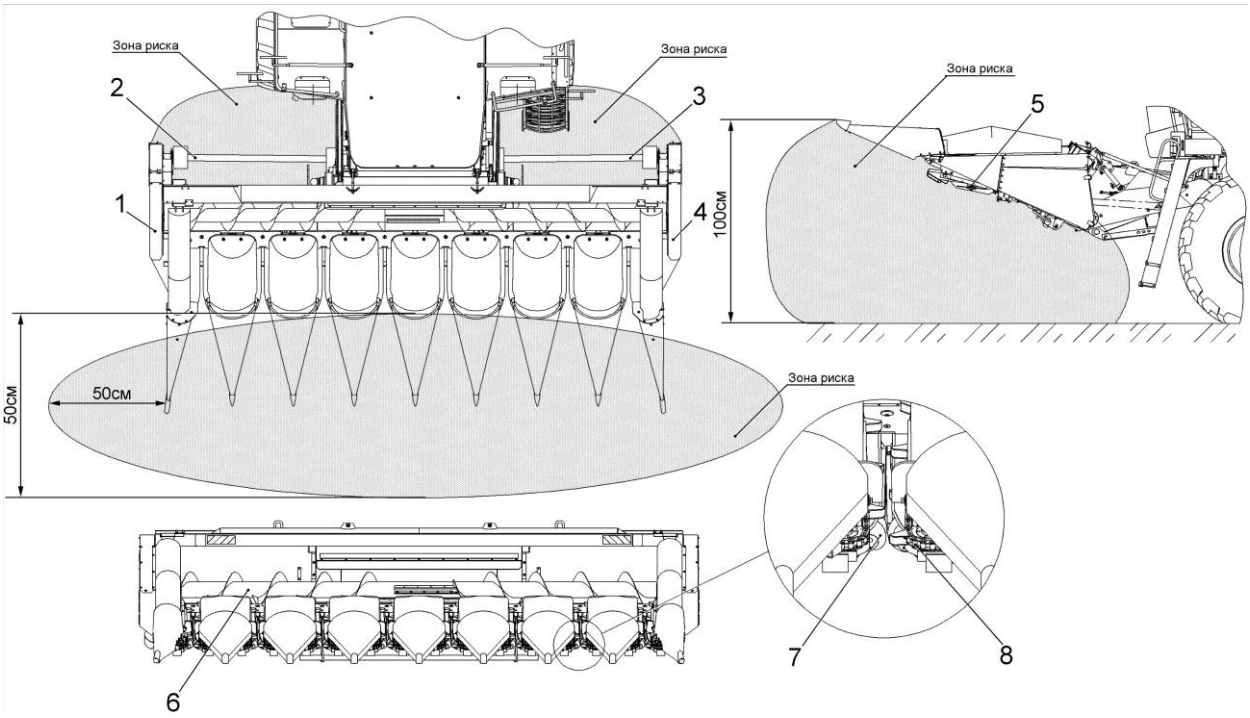
Icons on the header	Meaning of the icons
	Read the operation guide before working
	Turn off the combine harvester engine and remove the ignition key before maintenance or repairs.
	Before entering the danger zone, ensure safety by locking the hydraulic lift cylinder of the combine harvester feeder housing.
	Danger of being caught by feeder chains and header stalk rolls. Stay away from the operating header. Turn the engine off and remove the starter key before servicing, repairing the header, or before clearing a blockage in the header
	Exercise caution in the danger zone. Avoid contact of any part of your body or clothing with moving parts of the header
	Do not open or remove guardrails while the combine harvester engine is running. Avoid contact of any part of your body or clothing with moving parts of the machine
	Avoid contact of any part of your body or clothing with the Cardan shafts when the header is running.
	Do not open safety guardrails and do not approach the danger zone with your hands until all rotating parts have come to a complete standstill after the engine has been switched off and the combine harvester engine is running
	Do not enter the danger zone between the header and the feeder housing when the engine is running.
	Danger of solid objects being thrown out of the header row units. Stay away from the operating header

The location of the warning and safety signs and markings on the header is shown in the following Figures:



Header (left and right views)

The following Figure and Table show the danger zones and types of hazards during header operation.



1, 4 – chain drives behind side guardrails;
2, 3 – Cardan shafts;
5 - cutting and chopping devices;
6 – auger;
7 – snapping rollers;
8 – feeder chains;

Hazard-posing equipment and machine elements	**Hazard**
Snapping rollers, feeder chains	Danger of catching, twisting
Auger	Danger of cutting and twisting
Side upholstery	Danger of bruising, crushing
Side chain drives	Danger of catching, twisting
Cardan shafts	Danger of twisting
Space between combine harvester and header	Danger of crushing, pushing
Cutting and chopping devices	Danger of injury from thrown stones, chopped stalks
Upholstery and dividers	Danger of slipping and tripping
Raised header	Danger of bruising, crushing in case of emergency self-lowering of the header

1 Description and Operation

1.1 Purpose

KOK-6-2, KOK-6-2-01 grain corn harvesting equipment sets are intended for harvesting row crop corn with row spacing of 70 cm in integrations with combine harvester.

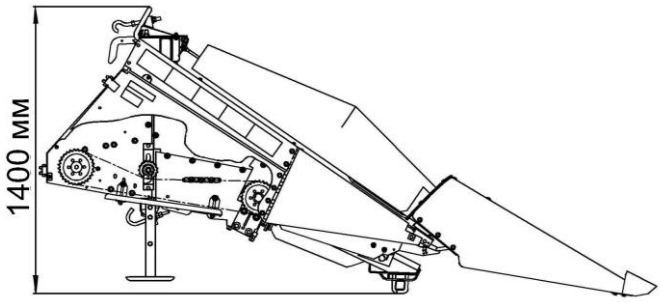
1.2 Specifications

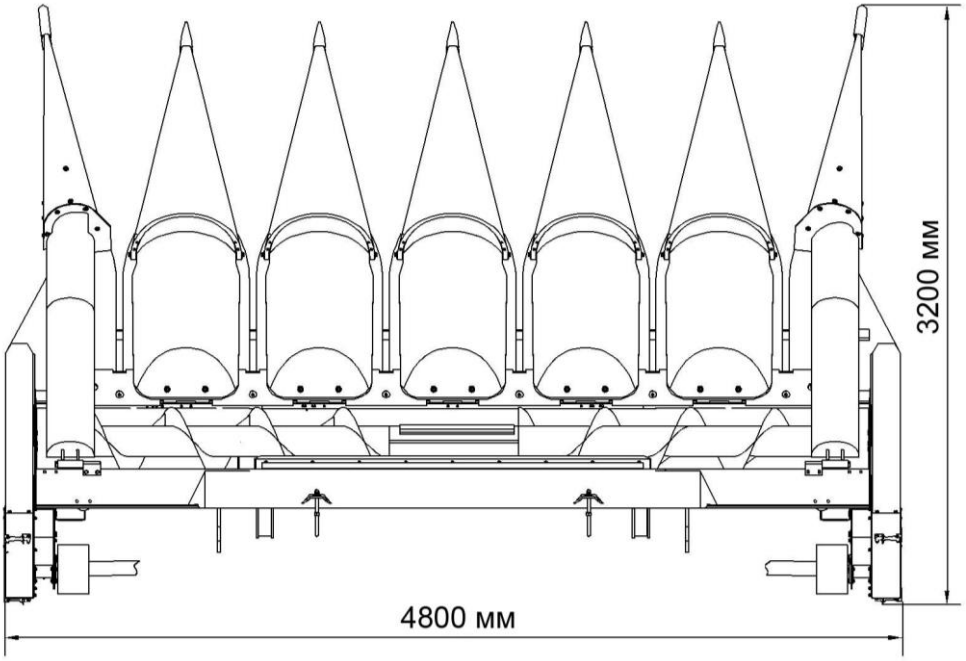
The basic parameters and technical data of the equipment set are given in Table 1.1

Table 1.1 – Technical data

Parameter Name	Value	
Brand	KOK-6-2	KOK-6-2-01
Header working width, m	4.2±0.05	4.2±0.05
Number of harvested rows, pcs	6	6
Row spacing, cm	70	70
Header dimensions in harvesting mode, mm: - length - width - height	 3200 4800 1400	 3200 4800 1400
Header dimensions on the header trailer, mm, (the dividers are set to the road mode): - length - width - height	 11500 2650 2300	 11500 2650 2300
Motional speed of combine harvester integrated with the equipment set, km/h - harvesting - road	 up to 10 up to 20	 up to 10 up to 20
Design weight, kg: - header - equipment set	 2300±50 2700±70	 2300±50 2800±70
Service life, years	8	8

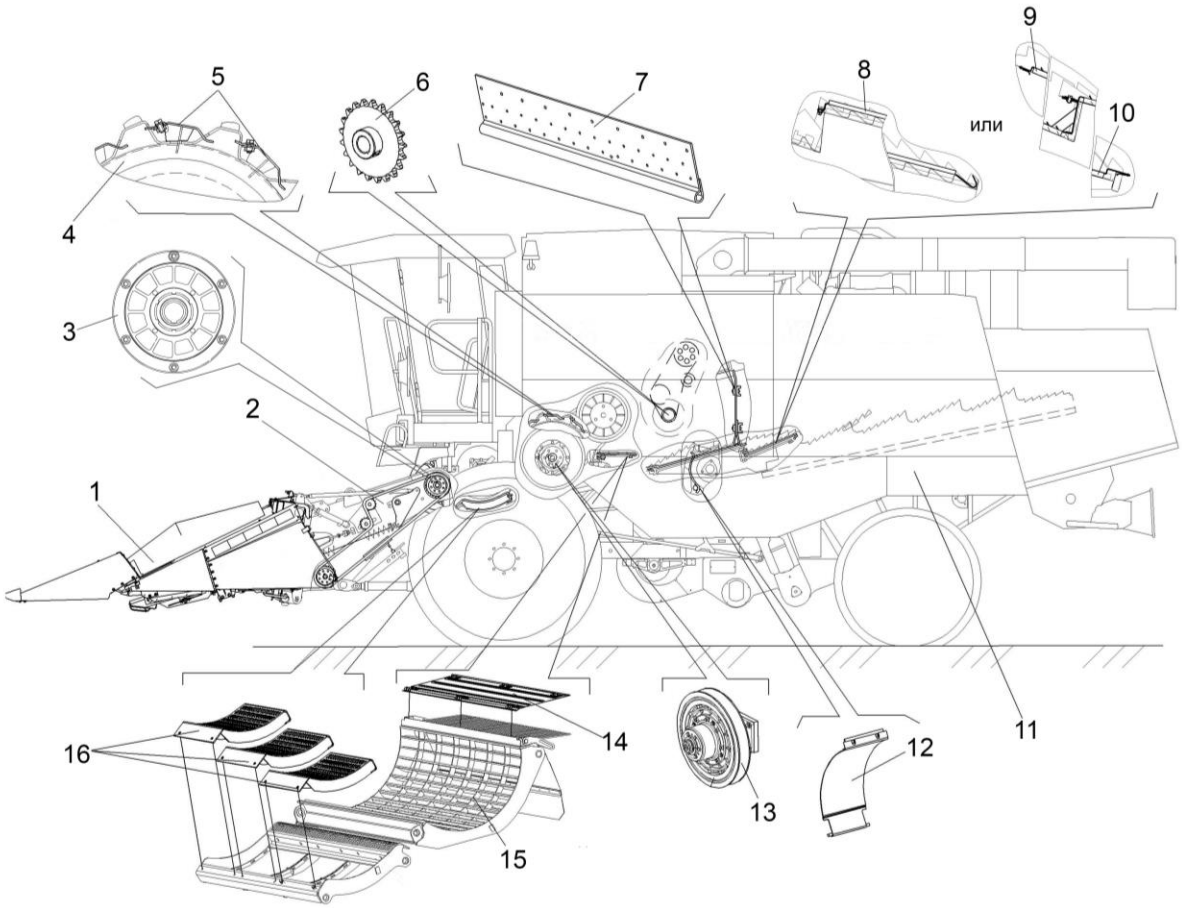
1.3 Overall Dimensions of the Header





1.4 Structure and operation

General view of the combine harvester integrated with the equipment set is shown in Figure 1.1.



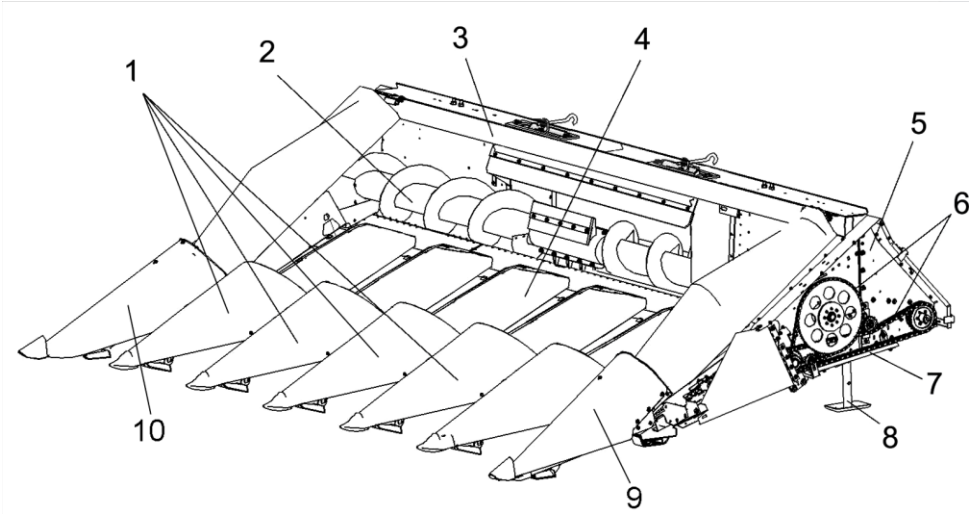
1 – header;
2 - feeder housing;
3 - safety coupling;
4 - threshing drum;
5 - side-shields between the threshing drum beater bars;
6 – replaceable sprocket;
7 – replaceable straw walker check board;
8, 9, 10 - side-shields between straw walker racks;
11 - combine;
12 - replaceable pulverizer cover;
13 - reducing gearbox;
14 - side-shields of concave finger grate;
15 - concave;
16 - replaceable deck plates of accelerating drum

Figure 1.1 – KZS-1218 self-propelled grain combine harvester integrated with KOK-6-2 grain corn harvesting equipment set

1.4.1 The set includes:
- six-row header with snapping, cutting and chopping devices;
- replaceable front concave deck plates;
- side-shields of threshing drum beater bars;
- side-shields of straw walker racks;
- replaceable straw walker check board;
- replaceable pulverizer cover;
- replaceable sprocket for the chain drive of grain-conveying elements;
- products for re-equipment of feeder housing
- products for re-equipment of grain header trailer into grain-corm header trailer
- reducing gearbox of threshing drum drive (is part of the KOK-6-2-01 set).

1.4.2 The header is designed for separating the cobs from the stalks and feeding them to the conveyor belt of the combine feeder housing, chopping and spreading the leafy mass over the field.

Frame 3 (Figure 1.2) has six row units 4, auger 2, dividers 1, nose bars 9, 10 and the drive mechanisms of the actuating elements.



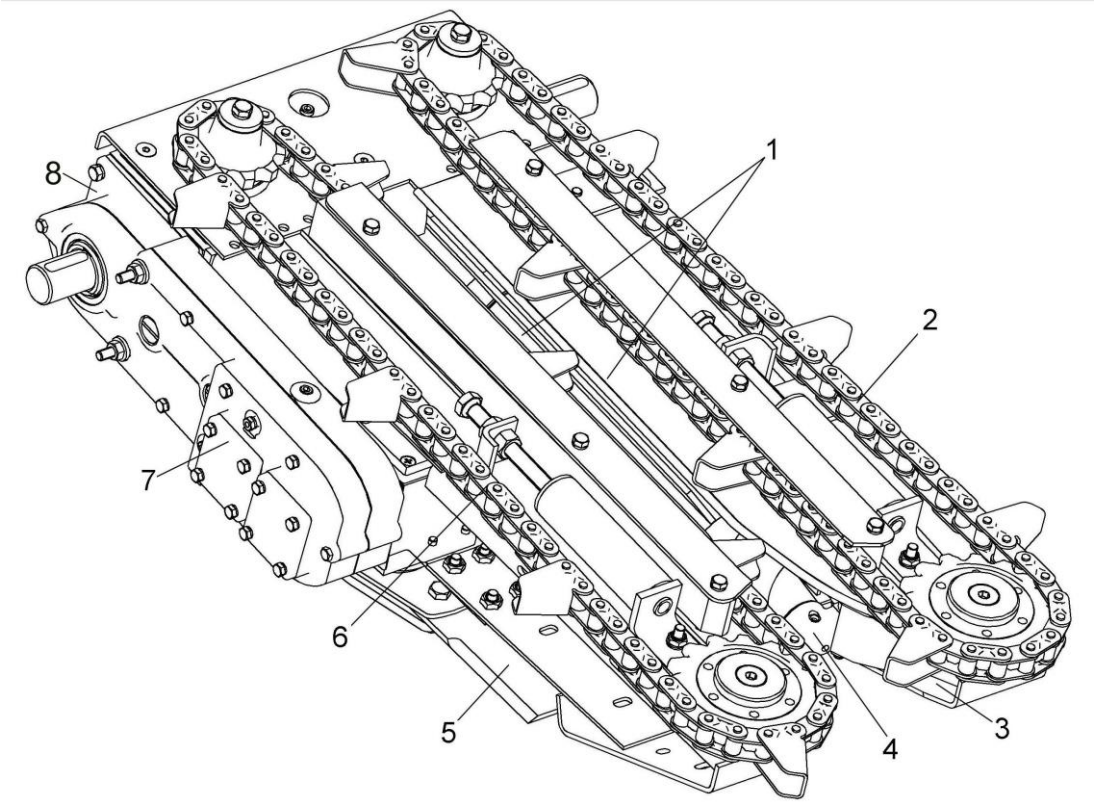
1 – dividers;
2 – auger;
3 - frame;
4 – row units;
5 - side member;
6 - chain drives;
7 - surge damper;
8 - parking support;
9, 10 – lateral nose bars

Figure 1.2 – Header

Row units 4 (Figure 1.2) are located in the front part of the header. The row units are used to separate the cobs from the stalks and feed them to the auger, chop and spread the stalk matter with the rotors.

Auger 2 is installed behind the feeder chains of row units 4 and is designed to move the cobs to the discharge window of the header and their further feed to the conveyor of the feeder housing.

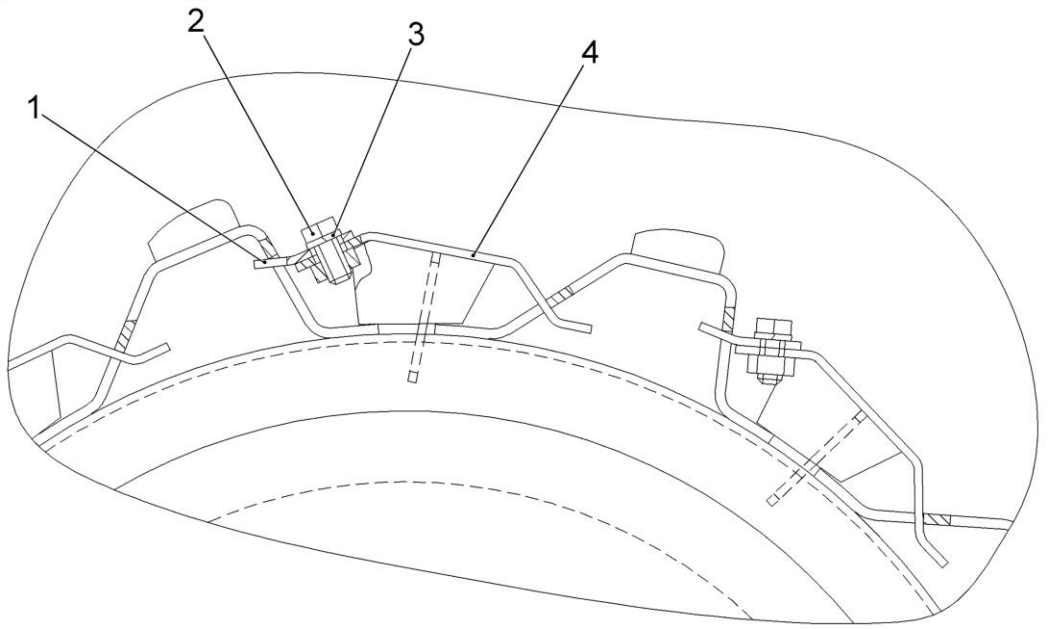
Dividers 1 are designed to separate the plant matter and direct the stalks to the working area of row units 4. The dividers are mounted at the front of the header between the row units.



1 – stripper plates;
2, 6 – feeder chains with grippers;
3 – row unit frame;
4 – stalking rollers;
5 – knife rotor;
7 - rotor drive speed increaser;
8 - roller and chain drive reducing gear

Figure 1.3 – Row unit

1.4.3 Installation of side-shields of the combine harvester threshing drum beater bars spacing is made according to the Figure 1.4.



1 – stop bar;
2 – bolt;
3 – washer;
4 – drum side-shield

Figure 1.4 – Drum side-shields assembly

Shields are designed to fill the space between the threshing drum beater bars in order to improve the quality of corn cobs threshing and reduce the damage of grains.

The drum shields are used in a set of 10 pieces. The set includes five pairs of shields with a weight difference of no more than 20 g in each pair. The number of the weight pair (No.1...No.5) is marked on the inner surface of the shields.

Shields with the same weight are delivered packed in pairs. When installing the shields from each pair are installed strictly one opposite another on different sides of the drum (diametrically opposite) in order not to disturb the balance of the drum.

1.4.4 Replaceable front concave deck plates (Figure 1.5)

Replaceable deck plates with punched (perforated) oval 19x40 mm holes are installed in the threshing device of the combine harvester instead of the original ones and are designed for threshing grain corn.

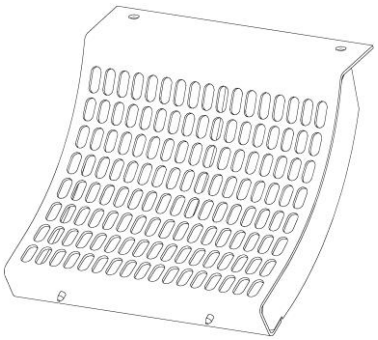
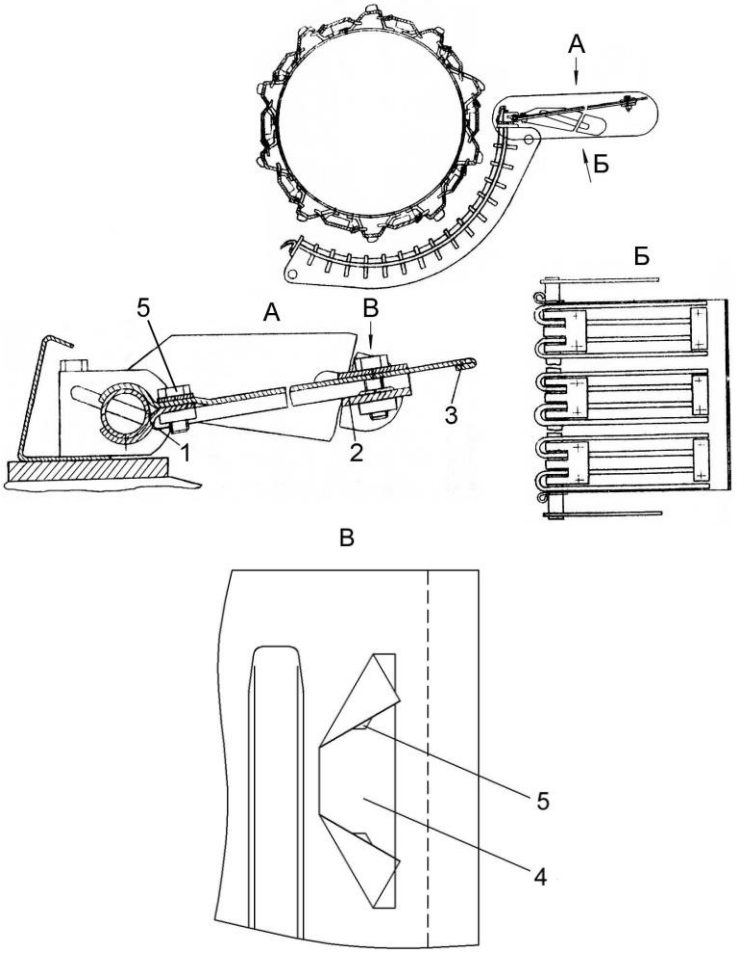


Figure 1.5 – Front concave deck plate

Install the side-shields of the concave finger grate, designed to prevent damage of the top sieve louvres by threshing products, according to Figure 1.6. Bolts 5 that fasten the shield to the finger grate should be locked with lock plates 4.

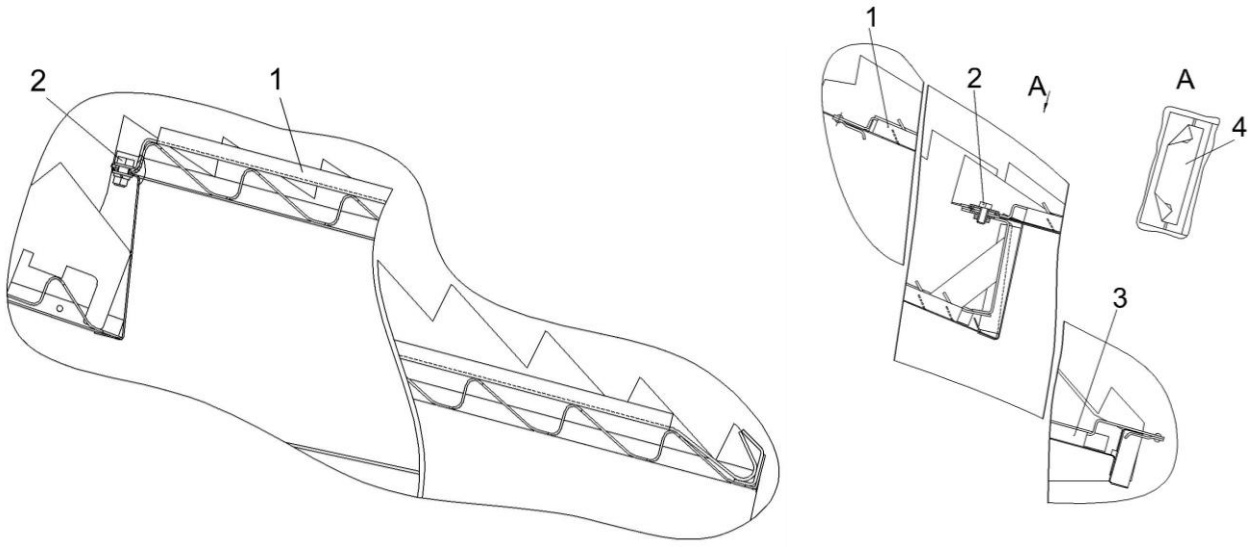


1 – fork;
2 – bar;
3 – shield;
4 - lock plate;
5 - bolt

Figure 1.6 – Finger grate side-shield assembly

1.4.5 Set of five straw walker rack side-shields

The shield set (Figure 1.7) is designed to prevent damage to the first cascade of the straw walker racks by threshing products during the combine harvester operation in corn harvesting. Depending on the set of racks, the straw walker racks are equipped with the side-shields according to Figure 1.6 a) or Figure 1.6 b).



a) b)

1, 3 - shield,
2 – bolt
4 - plate

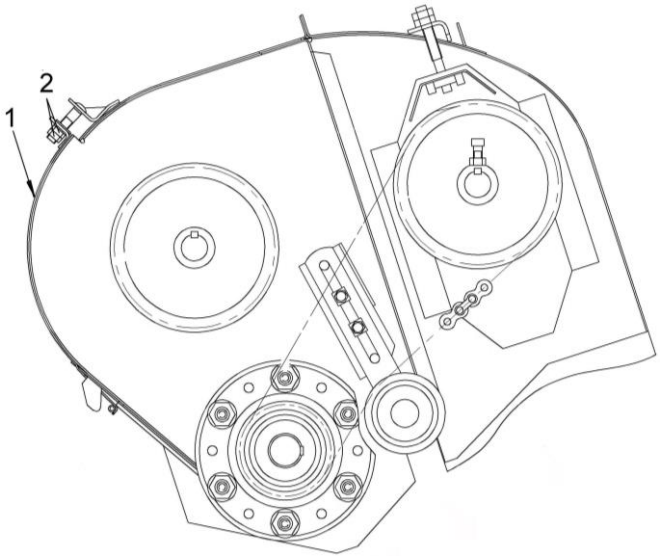
Figure 1.6 – Straw walker racks side-shield assembly

1.4.6 Replaceable straw walker check board

Replaceable reinforced straw walker check board is installed instead of the basic check board.

1.4.7 Replaceable pulverizer cover

The replaceable cover is installed in the pulverizer instead of the deck cover in order to reduce corn crushing.



1 – cover;
2 – nuts

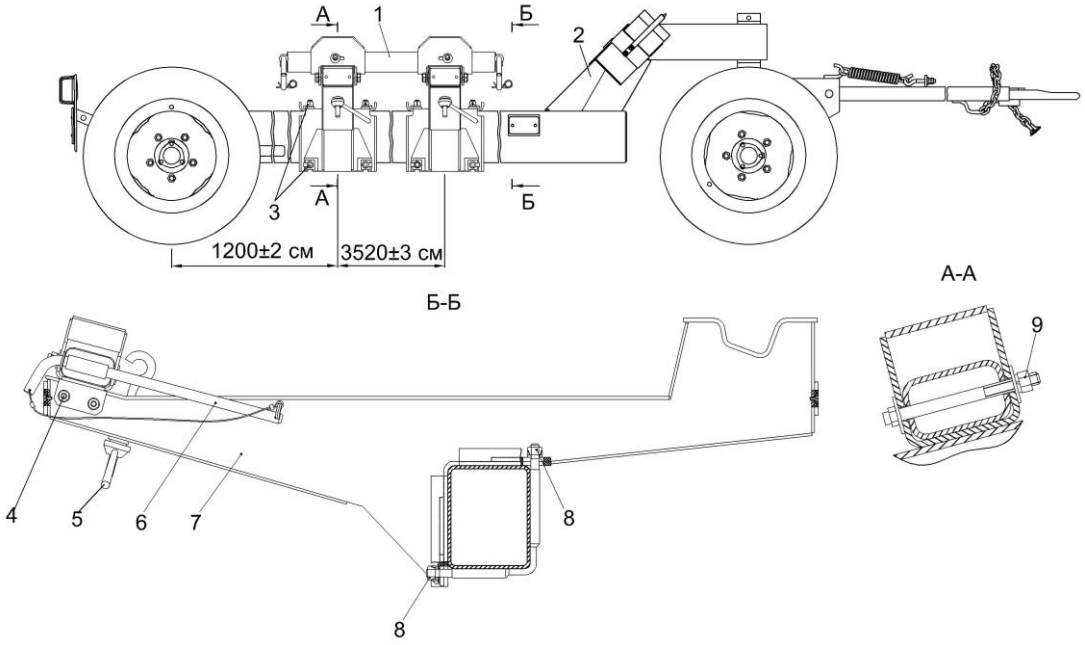
Figure 1.8 – Pulverizer drive

1.4.8 Replaceable sprocket of chain drive of grain-conveying actuating elements

Replaceable chain drive sprocket with the number of teeth z=21 is designed to increase the performance of grain-conveying actuating elements and is installed instead of the main sprocket (z=17). If necessary, you should add one or two transition links to the drive chain that are included in the set.

1.4.9 Header trailer re-equipment

When driving on public roads, the header should be carried on a grain-equipped header trailer. It is necessary to remove the grain header from the header trailer and set it on a level horizontal surface, put wooden bars under the front beam and the rear pipe (at the sides members). It is necessary to remove the longerons from the header trailer and install support assemblies 7 and beam 1 according to Figure 1.9.



1 – beam;
2 – header;
3 – nut, M16 (т = 180…220 N· m);
4, 9 – nut, M12 (т = 80…100 N· m);
5 – latch;
6 – detent;
7 – support assembly;
8 – nut

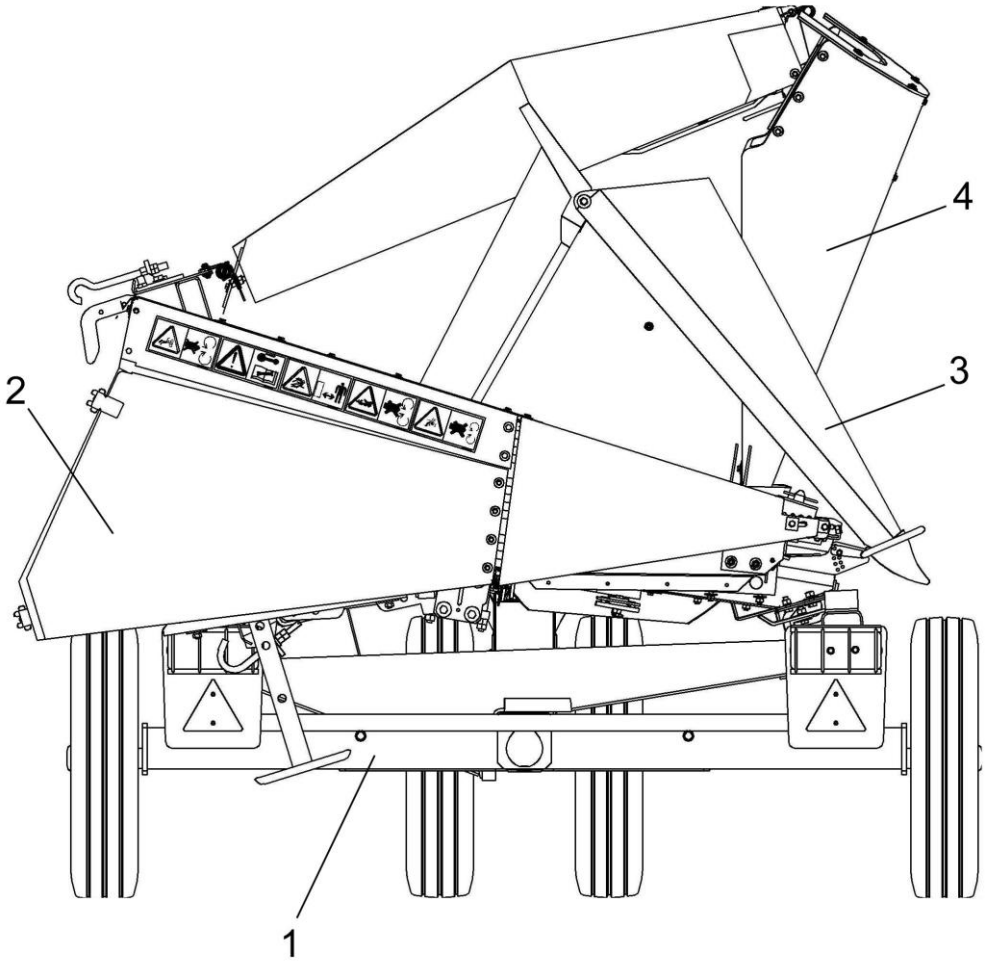
Figure 1.9 – Header trailer re-equipment

By lowering the feeder housing, the header is set by the lower pipe of its frame in the recesses of the support assemblies 7, with the supports of the header row units resting on the beam 1. To fix the header on the trailer, insert detents 6 in the openings in the supports of the outermost row units and fix the detents with quick-release split pins, connected to the detents with ropes. Threaded latches 5 are thrown on the installed detents. Use handles on latches 5 to tighten them.

After fixing the header on the trailer, move dividers 4 and side nose bars 3 (Figure 1.10) to the road position.

After attaching the trailer with the header to the thresher of the combine harvester, connect the electrical connectors of the trailer and thresher of the combine harvester and check the performance of the trailer lighting equipment.

⚠ **ATTENTION:** In order to avoid damage to when the electric plug of the header trailer is not connected, it should be mounted on the trailer hitch tongue bracket!

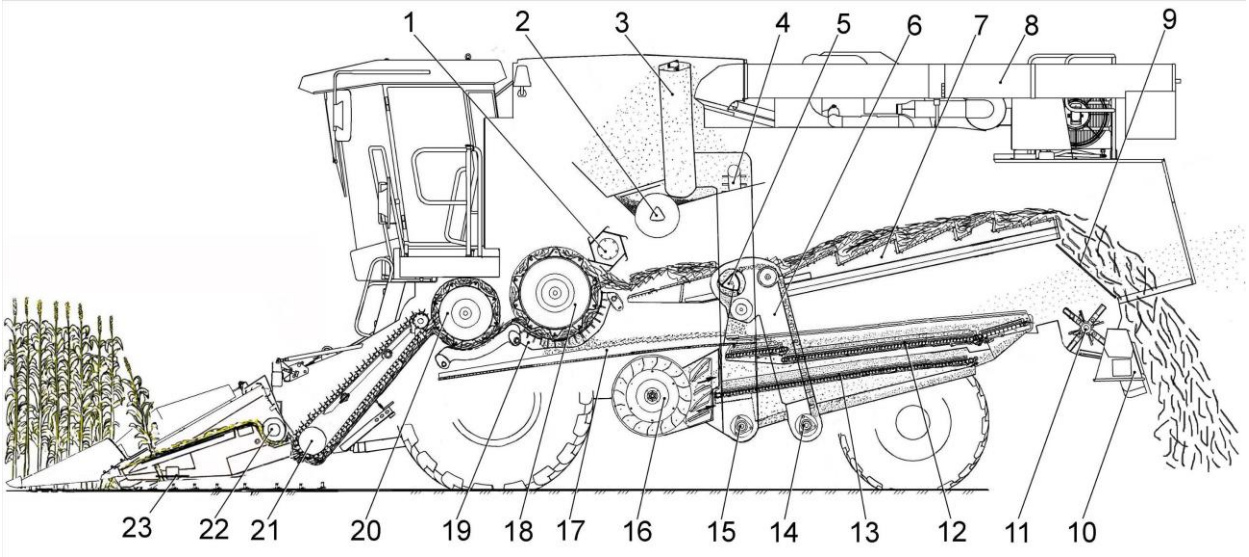


1 – trailer;
2 - header;
3 – side nose bar;
4 – dividers

Figure 1.10 – Header mounted on the trailer

1.5 Combine harvester operation work flow during grain corn harvesting

Diagram of the technological process of combine harvester with the equipment set is shown in Figure 1.11.



1 – rear beater;
2 - horizontal auger;
3 - loading auger;
4 – grain elevator;
5 - pulverizer;
6 – tailings elevator;
7 – straw walker;
8 - unloading auger;
9 – shutter;
10 - deflector;
11 - straw chopper;
12 - top sieve pan;
13 - bottom sieve pan;
14 - tailings auger;
15 - grain auger;
16 - fan;
17 - preparation pan;
18 - threshing drum;
19 - concaves;
20 - accelerating drum;
21 - feeder housing conveyor;
22 – auger;
23 - cutting and chopping device

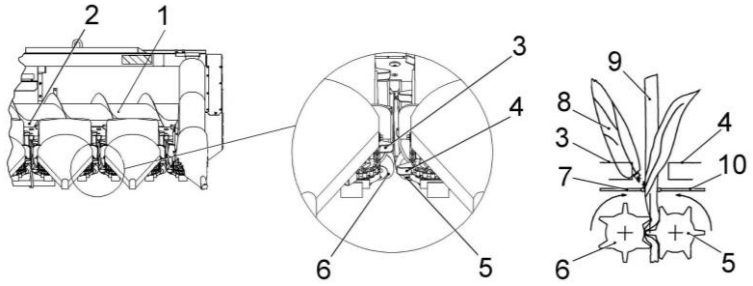
Figure 1.11 – Technological fork flow of combine harvester integrated with the equipment set

When harvesting grain corn (Figure 1.11) combine harvester moves along the rows. Corn stalks 9 (Figure 1.12) are directed by the dividers to the row units of the header, captured by feeder chains 3, 4, entered into the snapping units and pulled through the working slot between the stripper plates 7, 10, where cobs 8 are separated, and stalks 9 are cut and chopped by cutting and chopping device 23 (Figure 1.11). Separated cobs 8 (Figure 1.12) are fed to auger 22 (Figure 1.11) by chains with grippers 3 and 4, blades that feed them to feeder housing conveyor 21 through the header discharge window.

Feeder housing conveyor 21 feeds the plant matter into the threshing device toward accelerating drum of the threshing device. Accelerating drum 20 then feeds the matter to threshing drum 18. During cob threshing, up to 90% of the grain and small particles of plant matter fall through the grates of two concaves 19 onto the preparation pan 17, which transports them to top sieve pan 12. The rest of the threshing products are thrown by rear beater 1 on the racks of straw walker 7, where further separation of the grain from the plant matter takes place. Separated matter falls from the racks on shutter 9 and then to the field, forming a windrow. As the layer of threshing products moves along preparation pan 17, it is pre-separated into fractions with the movement of grain to the lower part of the layer, and the remaining particles - to the top. In the zone where the layer passes between the preparation pan 17 finger grate and top sieve pan 12, the layer is loosened and blown through with air flow created by extractor fan 16. The non-grain part of the plant matter is blown out of the combine.

After sifting the crop through the cells of the additional, top and bottom sieves, the grain falls on the chute board, from which it is conveyed to the grain auger. Then the auger transports the grain to the grain elevator, and then the loading auger transports the grain to the tank.

The technological product coming down from the bottom sieve is transported by tailings auger 14 to the tailings elevator spike. Then the grain elevator feeds the technological product through pulverizer 5 to the distribution auger, which spreads the product on the preparation pan to resume the process of grain separation. After filling the tank, grain is unloaded into a vehicle using unloading augers unit 8, with a unloading sweep auger should be set in the harvesting position.



1 – auger;
2 - collecting chute;
3, 4 - feeder chains;
5, 6 - snapping rollers;
7, 10 - stripper plates;
8 - corn cob;
9 - corn stalk

Figure 1.12 – Header functional operation diagram

2 Intended Usage

2.1 Operation Limitations

The field should be free of slopes (over 8°) and irregularities that can damage the actuating elements of the combine harvester and the equipment set. Foreign objects in the header can cause an operational failure or an accident.

To ensure uninterrupted and efficient operation, follow the operating instructions set forth in the OM and in this OG, and:

- regularly check the cutting height;
- make sure that the header dividers are not buried in the soil. When moving, set the position of the dividers with the lifting hydraulic cylinders of the feeder housing;
- start driving in a stint only at full engine shaft speed;
- rotate the machine for 0.5-1 min before stopping to remove all technological product from the actuating elements;
- carefully monitor the operation of all header mechanisms. Do not allow the actuating elements to become blocked, because untimely stopping of the header when it is clogged leads to increased crop losses and breakdowns.

2.2 Equipment set pre-operation procedure

2.2.1 When preparing a new equipment set for use, dealership specialists perform pre-sales preparation, which includes the following types of service:

- checking the completeness of the equipment supply set;
- de-preservation;
- final assembly and run-in;
- troubleshooting;
- instructing machine operators on the rules of operation, maintenance and storage of the equipment set.

2.2.2 When preparing the equipment set for use after a long period of storage, the following operations should be constitutes a type of performed:

- check the availability of the set products;
- check the condition of the dismantled assemblies, parts and fixing elements, and repair any PAU defects found before installing them on the combine harvester;
- de-preserve the equipment set items that have been preserved for long-term storage (point 5.2.2);
- perform final assembly of the components of the equipment set that were removed for storage;
- perform maintenance before the start of the operating season (TM-O) (point 3.1).

2.3 Re-equipment

2.3.1 Feeder housing re-equipment

To re-equip the feeder housing, you need to:

1) dismantle:

- on the left side of the feeder housing: chain gear guardrails of the adapter drive, single-row chain 12 (Figure 2.1) of the adapter drive, sprockets 4, 5, 6, 13 of the chain gear, chain surge damper 11;
- on the right side, dismantle from the upper shaft of the feeder housing: safety coupling 8, set to a torque of (630±30) N·m. Remove pulley 7 from the safety coupling 8.

2) adjust the clearance between the conveyor tine arms and the bottom of the frame inside the feeder housing:

- pull out split pins 1 on both sides of the feeder housing;
- to ensure free rotation of limit stops 2, loosen nuts 3 on both sides of the feeder housing;
- raise the lower shaft of the feeder housing up to the stop;
- turn up limit stops 2 by 90° on both sides of the feeder housing;
- lower the lower shaft of the feeder housing;
- check the support of the lower shaft levers on limit stops 2 on both sides;
- tighten nuts 3 with τ = 200...250 N· m and split pins on both sides of the feeder housing.

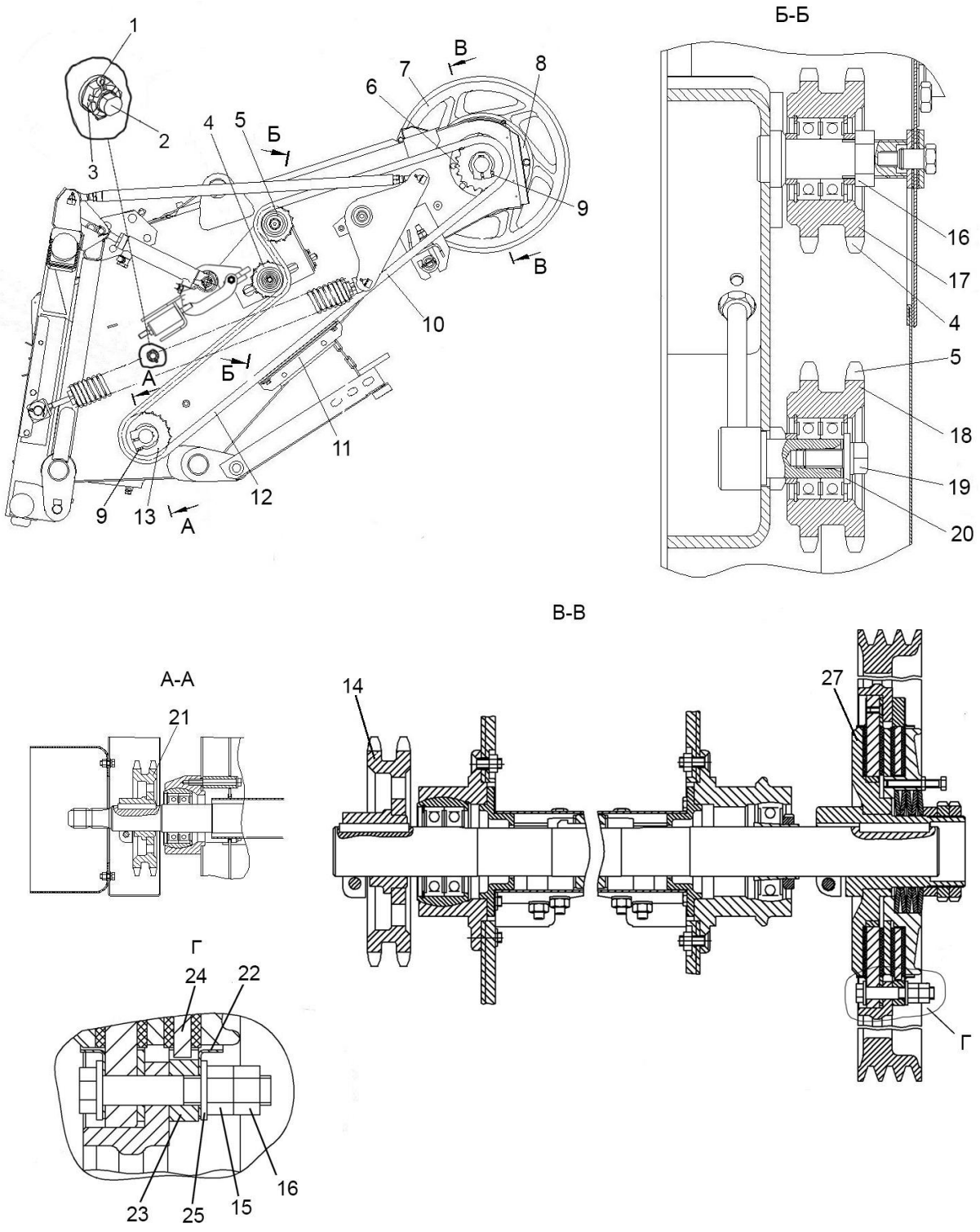
3) install the following parts from the installation set on the feeder housing:

- safety coupling 27. Before installation, remove nuts 26, 15, washers 25, cowling 22 and housing 23 from the coupling. Install removed pulley 7, then the housing 23 on the coupling, ensuring alignment of slots in the housing with the protrusions of disc 24, and cowling 22. The coupling is set to a tripping torque of (1675±25) N·m. Tighten nuts 15 with τ=80...100 N·m. Turn nuts 26 relative to nuts 15 by 1/8...1/6 of a turn;
- sprockets 21 and 14. Fix the sprockets on the shafts with bolts 9 with τ=80 ... 100 N·m;
- sprockets 4, 5. Secure sprocket 17 with dismantled nut 16 and a washer. Tighten the nut with a torque of 80 to 100 N· m. Secure the sprocket 18 with dismantled bolt 19 with washer 20. Final tightening of bolt 19 should be done with a torque of 80 to 100 N· m after adjusting the chain tension;
- double-row chain 10. Locks (or split pins) of the transition link and connecting link should be on the front side of the chain;
- surge damper 11. The chain surge damper bars should touch the chain rollers when the chain is under tension. Adjustment should be made by moving the angle of the surge damper along the oval slots in the frame bracket;

Sag of branch 10 at a force of (160+10) N should be (25+5) mm. Adjust by repositioning tension sprocket 5. Deviation from flatness of sprocket crowns 4, 5, 21, 14 should not exceed 2 mm.

⚠**ATTENTION:** The chain should not be tensioned by repositioning of the chain surge damper!

- the previously dismantled chain gear guardrails.



1 – split pin;
2 - limit stop;
3, 15, 16, 26 - nuts;
4, 5, 6, 13, 14, 17, 18, 21 - sprockets;
7 - pulley;
8, 27 - safety coupling;
9, 19 – bolts;
10 - chain;
11 - surge damper;
12 - single-row chain;
20, 25 – washer;
22 – cowling;
23 – housing;
24 – disc

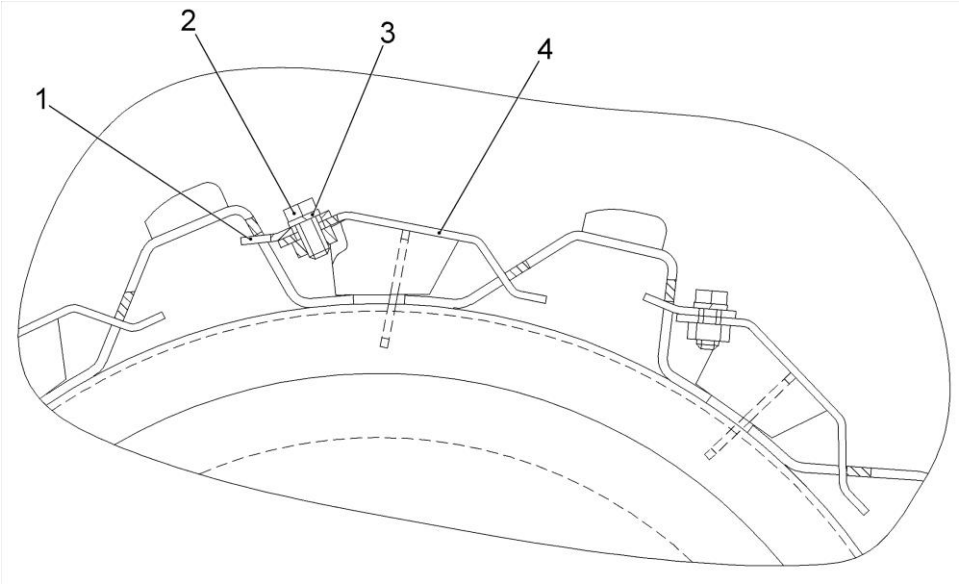
Figure 2.1 – Feeder housing

2.3.2 Threshing device re-equipment

To prepare the threshing device:

- thoroughly clean the inside of the threshing drum of dust and crop residues;
- install a special corn threshing concave instead of the spiked-crop concave;
- install the beater bar side-shields.

Shields 4 (Figure 2.2) are mounted between the beater bars so that its protrusions along the long side, entered into the openings of the drum's sub-beaterbars. The shields are fixed with stop bars 1, the protrusions of which are inserted into the openings of the adjacent sub-beaters, and are attached to shields 4 with bolts 2. Tighten bolts 2 with a torque of 48 to 60 N· m. The drum shields and beater bars should be checked periodically to make sure they are securely fastened.



1 – stop bar;
2 – bolt;
3 – washer;
4 – drum side-shield

Figure 2.2 – Beater bar side shields assembly

Replaceable deck plates assembly:

Three replaceable deck plates are installed in place of the basic bar-plate deck plates using the same fasteners.

Assembly of side-shields of straw walker racks.

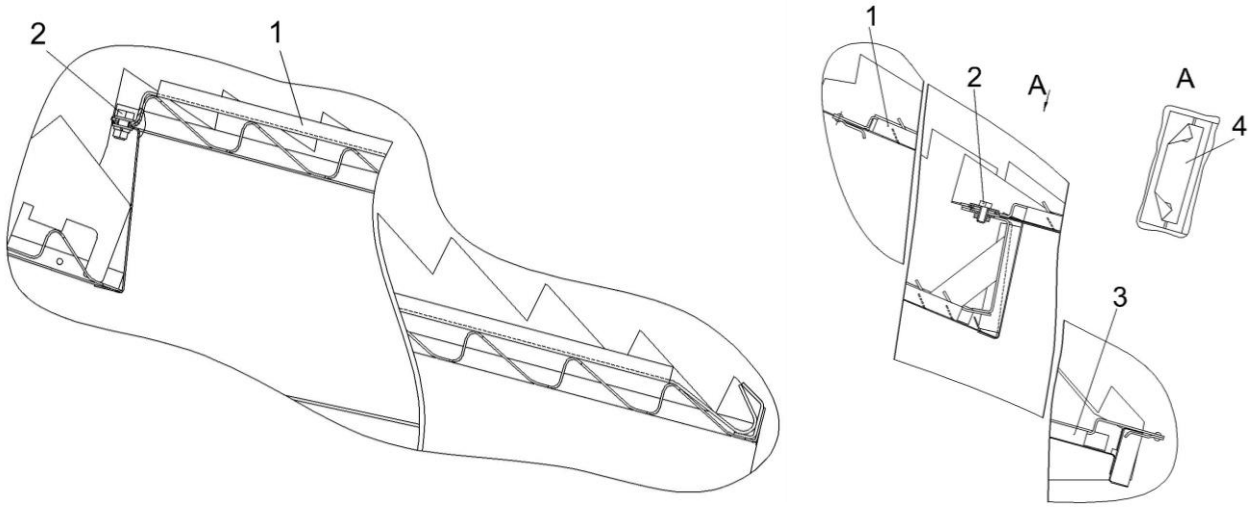
To prevent breakage of the straw walker by threshing products during combine harvester operation, when harvesting corn, the first cascade of the racks should be covered by shields 1, 3. Depending on the type of racks installed on the combine harvester, perform the procedure of shield installation according to Figure 2.3 a) or Figure 2.3 b):

1) for KZK-12-0212030(-01) combine harvesters with racks (Figure 2.3 a):

- insert shield 1 into the recess of the front wall of the first rack cascade;
- fasten the shields in the required position with the fasteners from the installation parts set, tighten bolts 2 with τ=22 ... 25 N· m;

2) for RSM 10.01.38.260A(-01) or KZK-12A-0212030 (-01) combine harvesters with racks (Figure 2.3 b):

- install shields 1 and 3 on the first and second rack cascades of the straw walker;
- tighten nuts 2 with τ = 22...25 N· m.
- lock bolts 2 with plates 4.



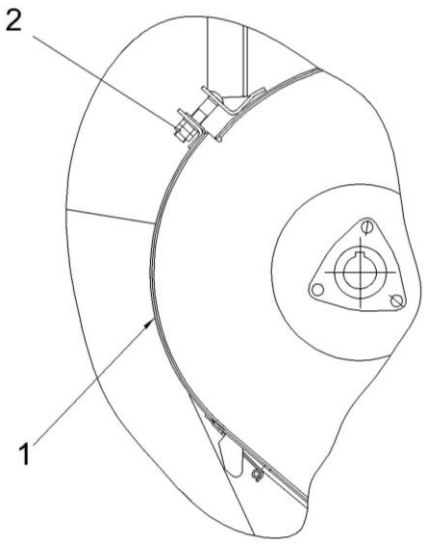
a) b)

1, 3 - shield,
2 – bolt
4 - plate

Figure 2.3 – Straw walker racks side-shields assembly

Then install:

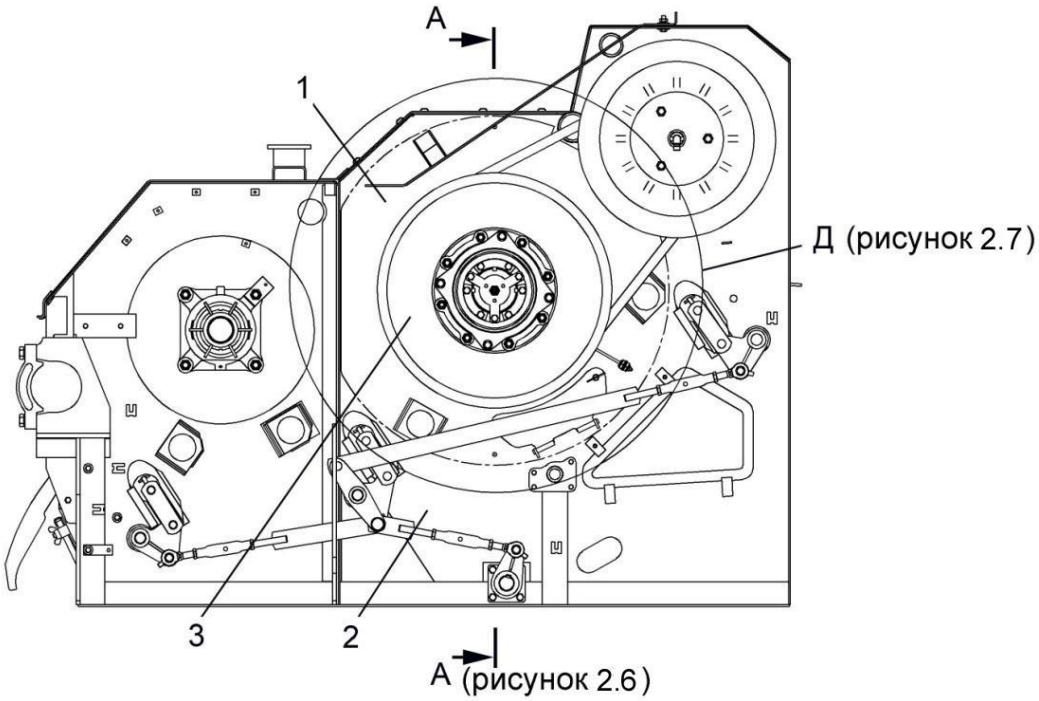
- replaceable cover (Figure 2.4) on pulverizer housing, instead of the deck cover;
- replaceable chain drive sprocket (z=21) of grain-conveying actuating elements, instead of the installed driving sprocket (z=17). If necessary, add one or two transition links to the drive chain;
- replaceable reinforced straw walker check board, instead of the installed.



1 - cover;
2 – nut

Figure 2.4 – Pulverizer housing replaceable cover assembly

2.3.3 Re-equipment of threshing drum drive



1 – flange;
2 – threshing device;
3 – drum variator

Figure 2.5 – Threshing device

To install the reduction gearbox, which is a part of the KOK-6-2-01 set:

1) dismantle left driving wheel;
2) dismantle driving pulley of threshing drum drive variator;
3) dismantle support 20 with the bearing;
4) remove king journal 22 (Figure 2.6) from the KZK-12-0104613 threshing drum, and install king journal 14 instead (KZK-12-0104615), apply a torque of 280 to 300 N· m to bolts 21;
5) install support 20 with the bearing, tighten the bearing nut with a torque of 525 to 575 N· m;
6) fix reducing gear 13 on king journal 14 with bolt 10, washer 11, and Grower washer 12. tighten bolt 10 with τ = 280...320 N· m. Tighten bolt 10 with “Fiksator-11” or LOCTITE-270 thread-locking adhesive sealant;
7) install cover 8 and secure it with lock ring 6;
8) fill up the reducing gear with transmission oil TM-5-18 in an amount of 1.7 L (up to the lower edge of the hole L under control plug 5) through the hole K (Figure 2.7). The reducing gear should be set in the position according to Figure 2.7. After refilling the reducing gear, tighten plugs 4 and 5 with a torque of 20 to 25 N· m;
9) when installing variator 2 (Figure 2.6) align the hub hole of the reducing gear, marked F in Figure 2.6, with the variator stud located on the symmetry plane E under brackets 17;
10) ensure that size D=(104±1) mm between the stationary variator 2 discs by selecting the thickness of the package of shim washers 3, 4, 5. The maximum thickness of the package should not exceed 8 mm;
11) Install insert 7 by securing it to the hub of the variator with limit stop 9 and the appropriate fasteners;
12) fix reduction gearbox 13 in brackets 17, which are fixed on variator 2, with two lock screws 18, by screwing them into the threaded holes on the reducing gear flanges.

Lock screw 18 in Figure 2.6 is set in the reducign gear lock position. If it is necessary to reduce the threshing drum rpm, unlock the reducing gear. To do this:

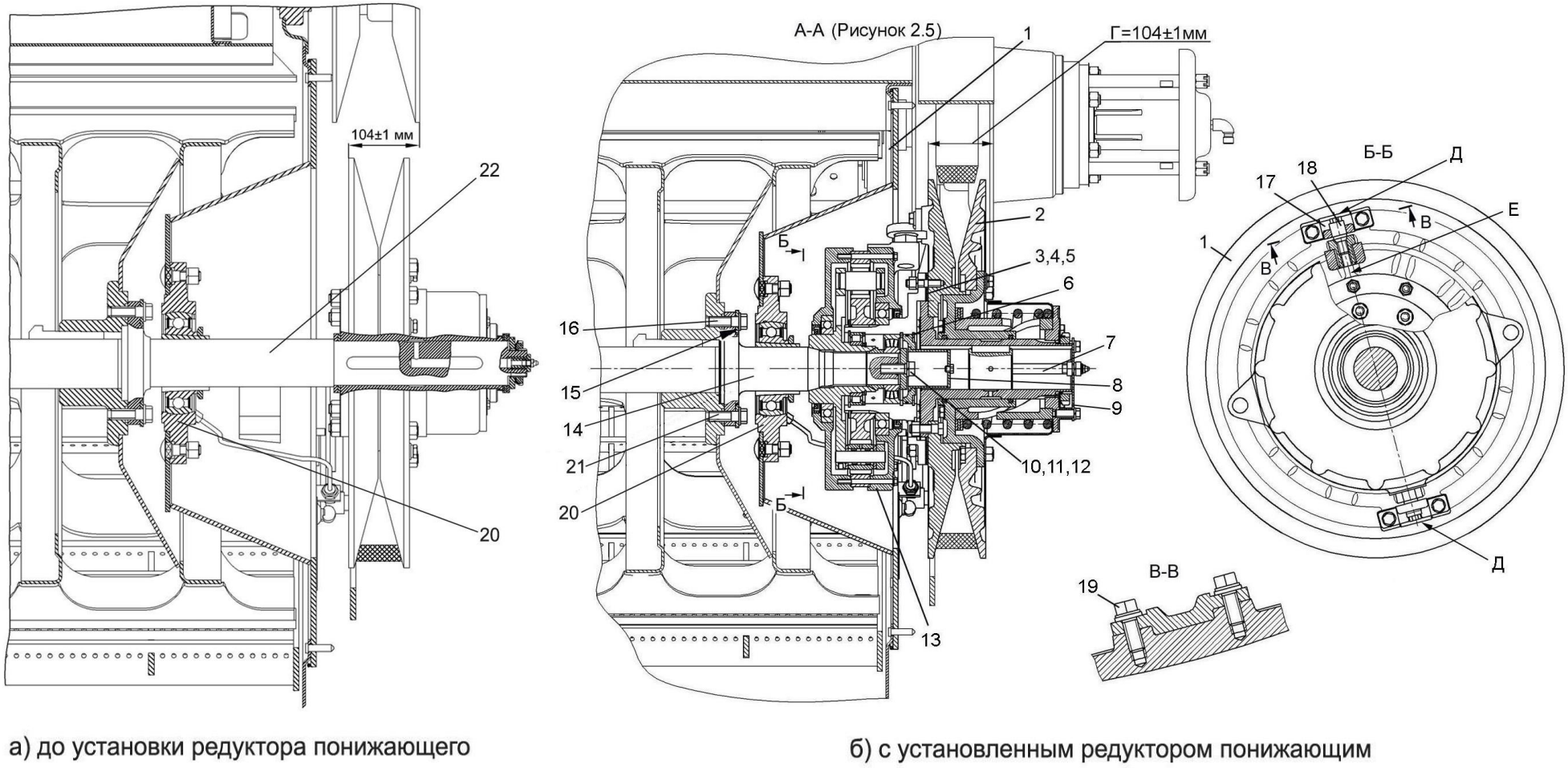
- remove lock screw 18 from the gear flanges;
- turn reducing gear housing 1 (Figure 2.7) until holes G in the reducing gear housing are aligned with threaded holes I in flange spacers 3, screw lock screws 2 into them and tighten them with a torque of 180 to 200 N· m.

⚠ **ATTENTION:** When moving the reduction gear to the working position, it is permissible to install one fixing screw in any of the two threaded holes!

- remove brackets 17 (Figure 2.6) from the variator pulley and put them in the spare parts kit.

⚠ **ATTENTION:** Do not switch on the threshing device with brackets 17 in place!

13) check the adjustment of the threshing device, if necessary, adjust the threshing device according to the OM of the combine harvester.

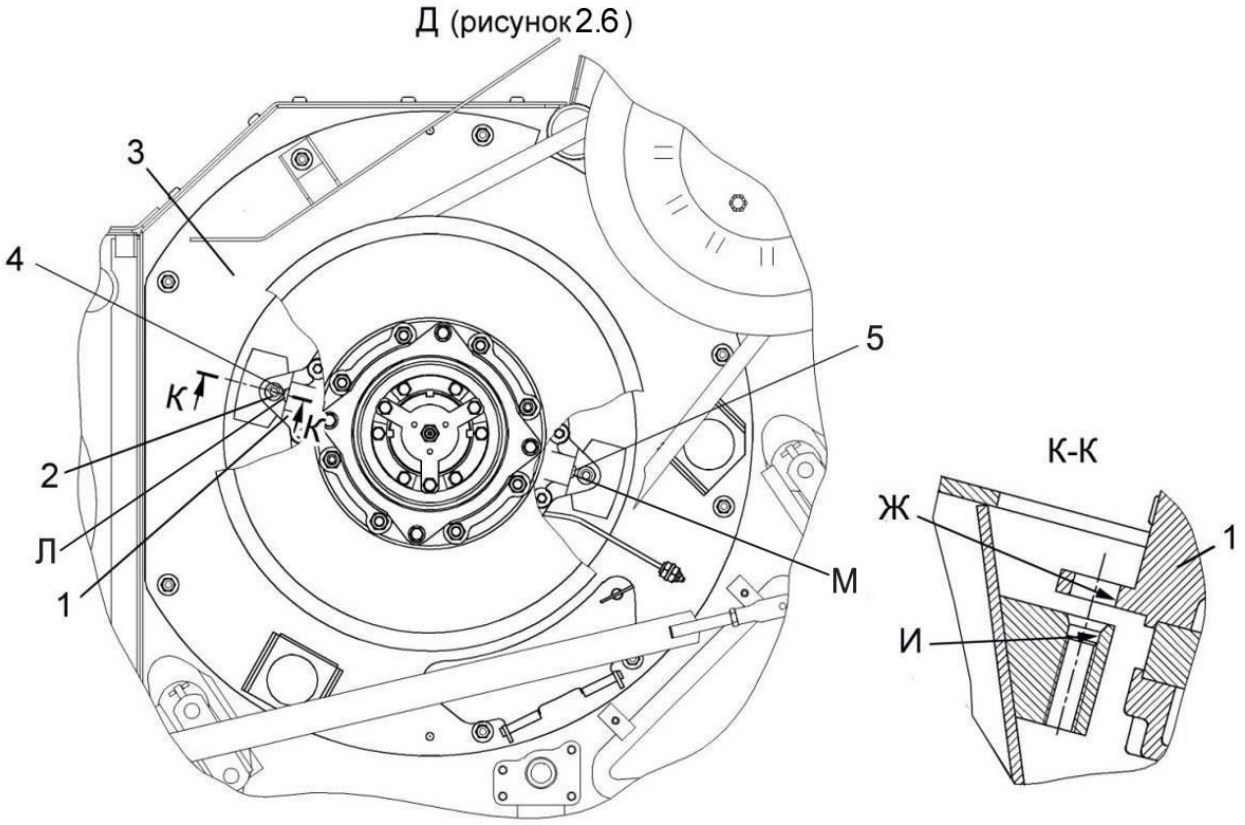


а) до установки редуктора понижающего

б) с установленным редуктором понижающим

1 – flange;
2 – drum variator;
3, 4, 5 – shim washers;
6 – lock ring;
7 – insert;
8 – cover;
9 – limit stop;
10, 16, 19, 21 – bolts;
11, 12, 15 – washers;
13 – reduction gearbox;
14, 22 – king journals;
17 – bracket;
18 – lock screw;
20 - support

Figure 2.6 – Reduction gearbox assembly



1 – reduction gearbox;
2 – lock screw;
3 – flange;
4, 5 - plugs

Figure 2.7 – Unlocking of reduction gearbox

2.4 Integration

The header and combine can be integrated if the header is positioned on the header trailer or on a platform.

In both cases, the surface should be level.

⚠ **ATTENTION:** In order to avoid damage to when the electric plug of the header trailer is not connected, it should be mounted on the trailer hitch tongue bracket!

When the header is lifted off the platform, the header parking supports should be secured with a lock pin in the upper hole of the parking support.

Drive up to the header so that the top beam of the adapter frame fits smoothly into the header catches. Gently raise the feeder housing so that the weight of the header makes the bearing surfaces of the adapter frame fit into the mating parts of the header frame. Secure the header with its lower threaded latches. Then connect the brackets on the upper beam of the header frame to the clevises at the front of the feeder housing frame with two threaded latches.

Install the right and left Cardan shafts of the header. The end of the Cardan shaft with integrated safety coupling is mounted on the header input shaft and the other end - on the header drive shaft located on the combine harvester's feeder housing. Secure the Cardan shafts cowling with chains.

Lift the parking supports, the lock pin should be in place and secured in the bottom hole of the support.

2.5 Run-in

Run-in is a mandatory procedure before the equipment set is put into operation.

Make sure there are no people in danger areas near the combine harvester.

Run-in of the equipment set

Check the operation of the combine harvester and the equipment set at idle speed for 2 minutes with the heaer input shafts rotational speed of 200 rpm, and for 5 minutes at 500 rpm.

If you hear unusual noises, stop the combine harvester immediately, identify the source of the sound and eliminate the cause of the sound.

Run-in should be carried out within 6 - 8 hours at a speed of 4-5 km/h and the rated engine shaft speed.

After the first 10 hours in the field, check and tighten the header drive and feeder chains if necessary.

After completion of the run-in period, carry out TM-1 (according to Section 3).

2.6 Adjustment

2.6.1 Before operation:

1) set the clearance between the threshing drum beaters and the concave - at the input 35 ... 45 mm, at the output - 18 ... 25 mm;

2) set the clearance between the louvre plates of the combine extractor sieve:

- additional - 16 mm;
- top - 14 mm;
- extension - 0 mm;
- bottom - 10 mm;

3) set rotational speed of extractor fan - 720...850 rpm depending on humidity of grain;

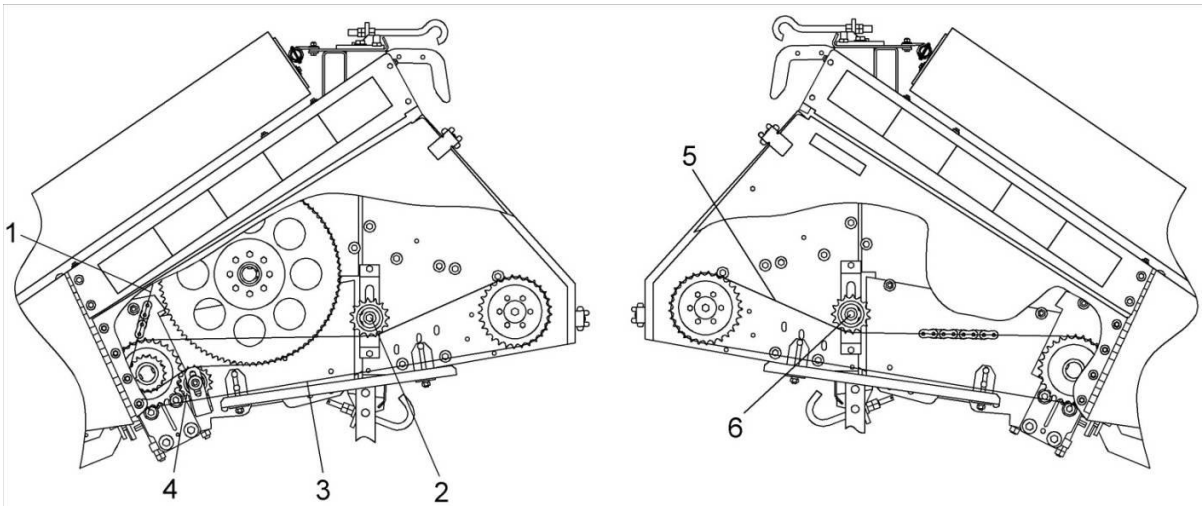
4) set rotational speed of threshing drum to 350 ... 368 rpm with reduction gearbox engaged and corn humidity up to 25%. If humidity is more than 25%, turn off the gearbox and harvest corn at the threshing drum rotational speed of 441...460 rpm;

5) set the corn stalk cutting height to 100...150 mm (on weedy fields - not less than 200 mm). Install with lifting hydraulic cylinders of feeder housing.

Make final adjustments and settings based on specific harvesting conditions.

2.6.2 Header chain gear adjustment

Adjust the chain gears 1, 3, 5 (Figure 2.8) by moving tension sprockets 4, 2, 6 along the oval grooves respectively. Sag of driven branch at a force of (150 ... 170) N should be: for chain 1 - 10...15 mm; for chains 3 and 5 - 30...40 mm.



1, 3, 5 – chain gears;
2, 4, 6 – tension sprockets

Figure 2.8 – Chain gear adjustment

⚠ Do **NOT** remove the safety locks from the drive guardrails. The locks on the side guardrails are opened with a screwdriver (Figure 2.9).

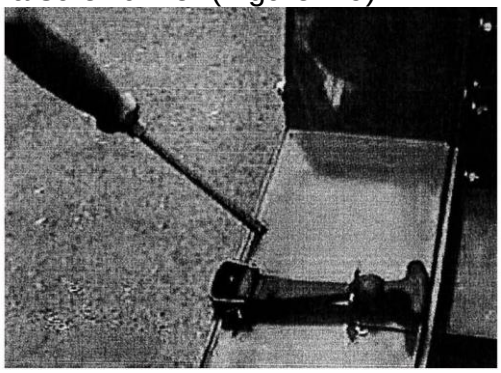


Figure 2.9 – Side guardrail

2.6.3 Adjusting the cutting height and the position of the header dividers:

When harvesting upright corn, lower the header to adjust the cutting height so that the distance from the shoes at the front of the snapping units to the ground is 80...150 mm. With the header in this position, the properly mounted dividers touch the ground with their nose bars. Next, set the header to the harvesting position visually by lowering it to a position where the nose bars of the dividers touch the ground. When working on fields with uneven terrain, to prevent breakage, the position of the dividers should be adjusted so that the distance from the nose bars of the dividers to the ground is 50 ... 70 mm.

Check the cutting height, you can be guided by the height of the corn stubble remaining after the working pass of the machine. The height of the stubble should be within (100-150) mm. The maximum cutting height is determined by the location of the cobs on the corn stalks.

When harvesting in weedy fields, the stalk cutting height should be at least 200 mm.

2.6.4 Header auger adjustment

A friction coupling is installed on the left king journal of the auger to prevent breakdowns in case of emergency. The coupling is set to a tripping torque of 400±10 N·m.

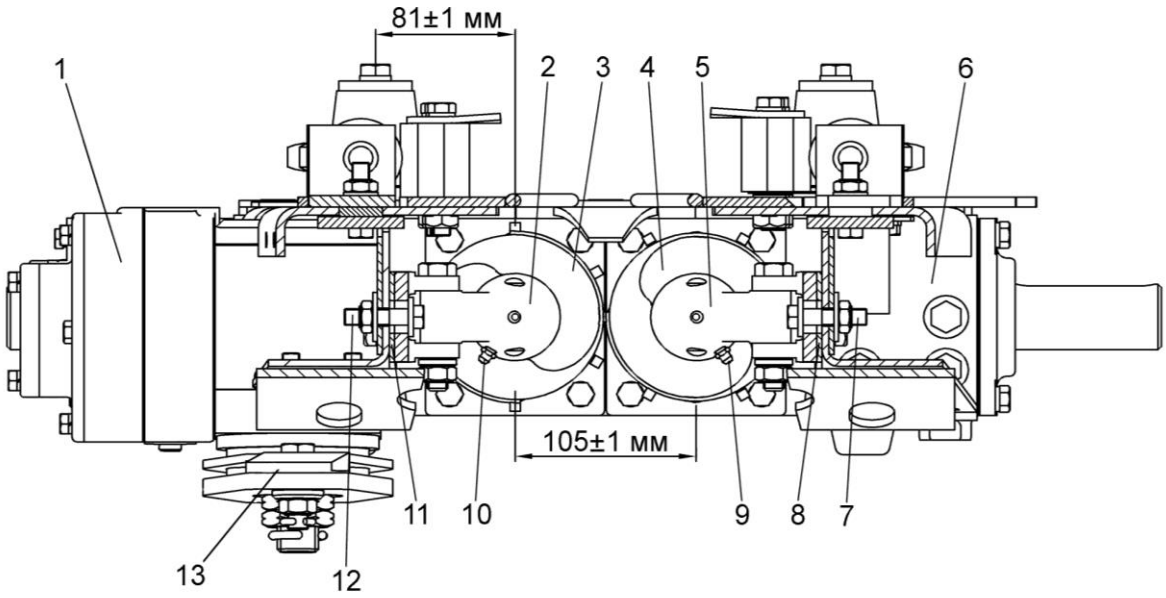
2.6.5 Positional adjustment of snapping unit rollers

The axes of rollers 3,4 (Figure 2.10) should be parallel. The distance between the centre holes of front supports 2, 5 of the rollers should be (105±1) mm.

Adjustment is made by changing the number of shim washers 8,11 between supports 2,5 and row unit frame 6.

If the rollers are worn, it is allowed to reduce the distance between the centre holes to 100 mm.

The axes of the rollers should lie in one plane (Figure 2.11) and be parallel to the upper plane of frame 6 (Figure 2.10). It is necessary to check periodically and if necessary to adjust the position of the rollers by moving supports 2 on the oval slots, with bolts 7, 12 nuts released. When the adjustment is complete, tighten the bolt nuts.



1 – speed increaser;
2, 5 – supports;
3, 4 – rollers;
6 – row unit frame;
8.11 – gaskets;
9, 10 – oiler;
13 – knife rotor

Figure 2.10 - Roller axes distance adjustment

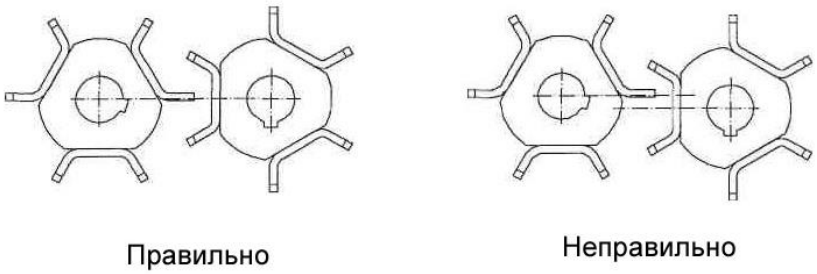


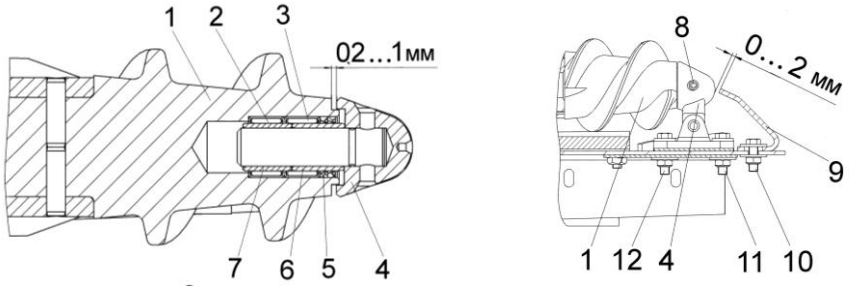
Figure 2.11 - Position of roller axes

Labyrinth sealing adjustment

To protect the needle bearings of feed roller screw 1 (Figure 2.12), collar seal 5 and labyrinth seal are used.

To ensure normal operation, the distance between the ends of front support 4 and roller 1 should be (0.2...1) mm. Adjustment is carried out by moving front support 4 in the slots, with bolts 11,12 nuts released. When the adjustment is complete, tighten the nuts.

The needle bearings need to be lubricated daily. Lubrication is carried out through oiler 8, located on the front supports of the rollers. The lubricant is filled before it appears in the labyrinth seal.



1 – roller;
2, 3 – needle bearings;
4 – front support;
5 – collar seal;
6, 7 – bushings;
8 – oiler;
9 – guide;
10, 11, 12 – bolts

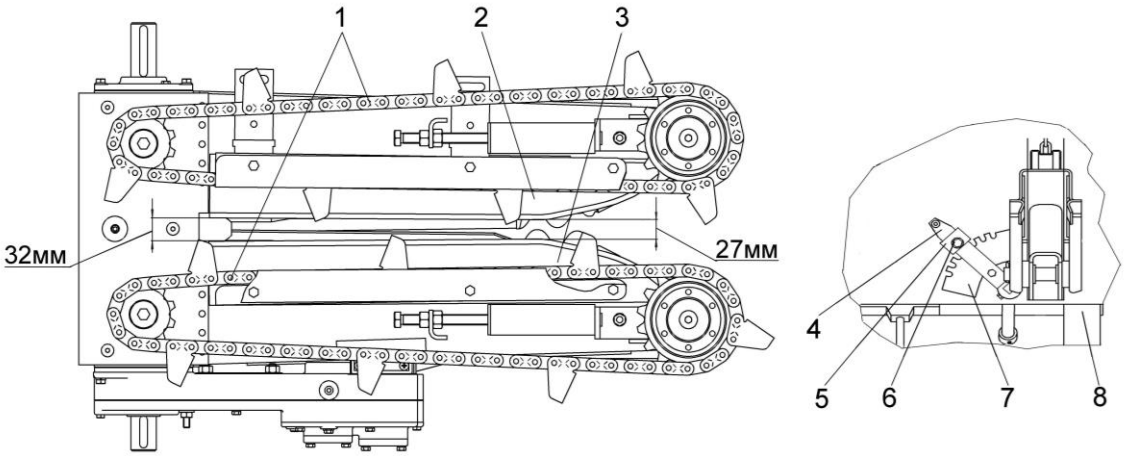
Figure 2.12 – Labyrinth sealing adjustment

2.6.6 Adjustment of stripper plates

Minimum distance between stripper plates 2, 3 (Figure 2.13) in each row unit: front part - 21 mm, rear part - 26 mm, maximum - 37 mm and 42 mm respectively.

The distances between the stripper plates are factory-set to 27 mm at the front (roller feed screw side) and 32 mm at the rear (drive side). The difference in the distances should be 5 mm.

If necessary, to change the distance between the stripper plates, unscrew bolt 6, which secures lever 4, located on the right side, on the frame 8 of the header. Lift support 5 and move lever 4 along sector 7 in the appropriate direction: to increase the distance - to the left, to decrease - to the right. Lower support 5 and tighten bolt 6. Distance changes are interlinking for all row units.



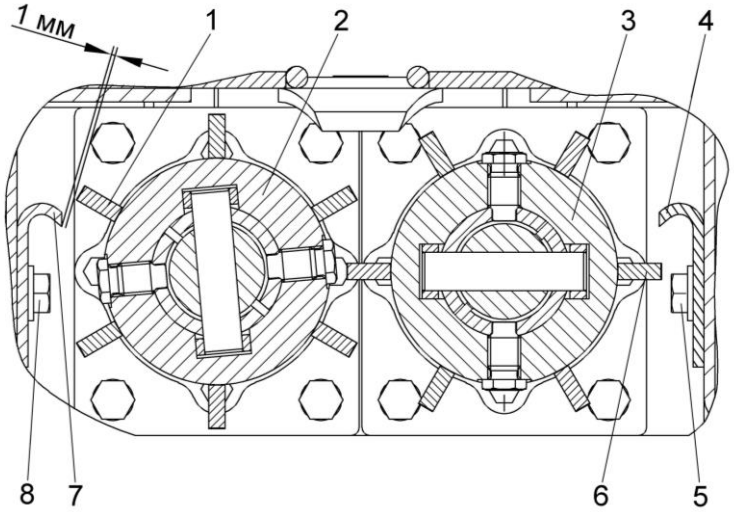
1 – feeder chains;
2, 3 – stripper plates;
4 – lever;
5 – support;
6 – bolt;
7 – sector;
8 – header frame

Figure 2.13 – Positional adjustment of stripper plates

2.6.7 Adjustment of clearance between wipers and roller fish backs

Wipers 4, 7 (Figure 2.14) are designed to prevent the plants from winding on the rollers.

The recommended maximum clearance between the wipers and the fish backs of the rollers is 1 mm. It is enough to set the clearance for one fish back of each roller of the row unit and rotate to check that the other combs are not caught. Adjust the clearance with loose bolts 5, 8 that fix the wipers. After the adjustment, tighten the bolt.



1, 6 – roller fish backs;
2, 3 – rollers;
4, 7 – wipers;
5, 8 – bolts

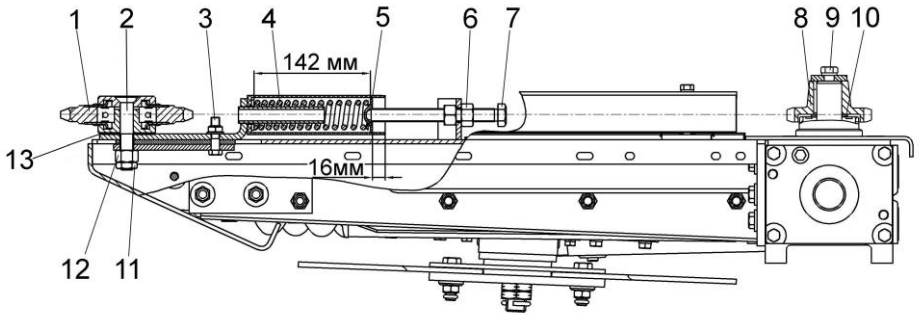
Figure 2.14 – Roller wipers assembly

2.6.8 Adjustment of tension of feeder chains and sprockets

After every 200 hours of operation, check and, if necessary, adjust the tension of feeder chains 1 (Figure 2.15) of the row units. The size of 142 mm is measured by the distance from the end of the safety cowling to pressure washer 5. This value should equal to 16 mm.

Adjust by turning tension bolt 7, with nut 6 released. When the adjustment is complete, tighten nut 6.

Tension sprocket 1 and drive sprocket 8 should lie in one plane. Tolerable non-flatness should not exceed 1 mm. Adjust by selecting washers 10, 13.



1 – tension sprocket;
2 – axle;
10, 13 – washers;
3, 9 – bolts;
4 – spring;
5 – pressure washer;
6,11,12 – nuts;
7 – tension bolt;
8 – drive sprocket;

Figure 2.15 – Tension adjustment of feeder chains and sprockets

2.6.9 Setting the position of the keys on the header roller drive shafts

To prevent collision of the roller ribs as they rotate, set the mutual position of the keys on the rollers drive shafts, as shown in Figure 2.16. The angle of 15° indicated in the Figure is set visually. The absence of rib collision is checked by turning the rollers.

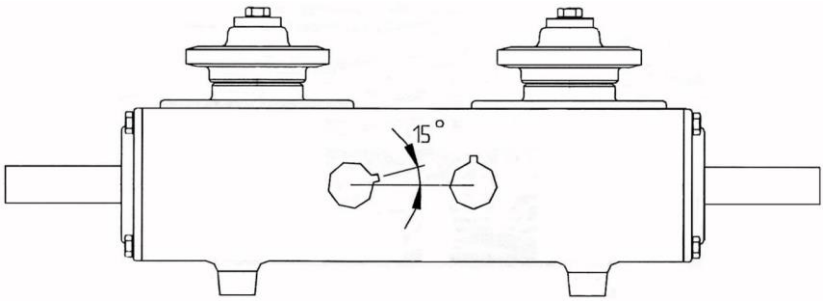
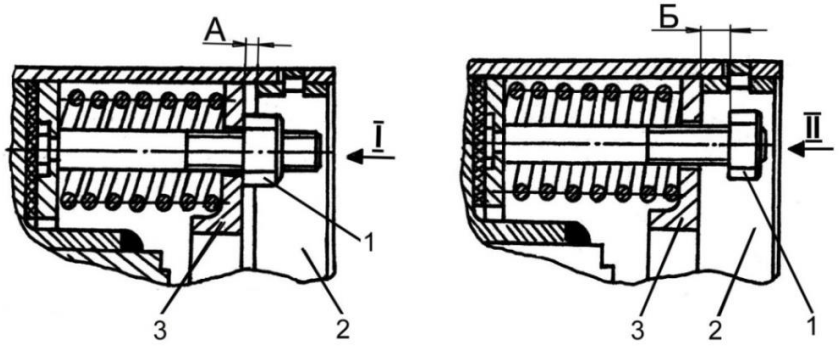


Figure 2.16– Positional setting of keys on the header roller drive shafts

2.6.10 Cranking of friction safety couplings

When running the new header in, or at the first start-up, or after long storage, it is necessary to crank the friction safety couplings of the Cardan drive shafts to eliminate sticking of the coupling discs. For this purpose:

- remove the Cardan drive shafts;
- note the position of the nuts on the coupling studs;
- tighten nuts 1 till they contact limit disc 3 (Figure 2.17, I), and additional two even turns by 2...2.5 rounds, to get a clearance between limit disc 3 and lock 2 (clearance A). This relieves the coupling disks and the lock so that the stuck disks can be released;



1 – nut;
2 – lock;
3 – limit disc

Figure 2.17 – Positional setting of keys on the header roller drive shafts

- install the removed Cardan drive shafts on the header;
- crank at rated rpm for 30 to 60 seconds;
- remove the Cardan drive shafts;
- unscrew nuts 1 (evenly around) to the previous position on the studs, so that there is a guaranteed clearance (B=2...3mm) between nuts 1 and limit disc 3, and so that limit disc 3 rests lock 2 (Figure 2.17, II). This will ensure that the coupling elements are closed. The coupling is ready for operation.

⚠ **ATTENTION:** The coupling is ready for operation when there is clearance between the limit disc and the nuts!

⚠ **CAUTION:** Do not slip friction safety couplings for more than 5 seconds!

Cranking of the friction safety coupling of the feeder housing drive

When first starting up and after long-term storage of the combine harvester, to eliminate sticking of coupling friction pads, it is necessary to crank the safety coupling of the feeder housing drive.

For this purpose:

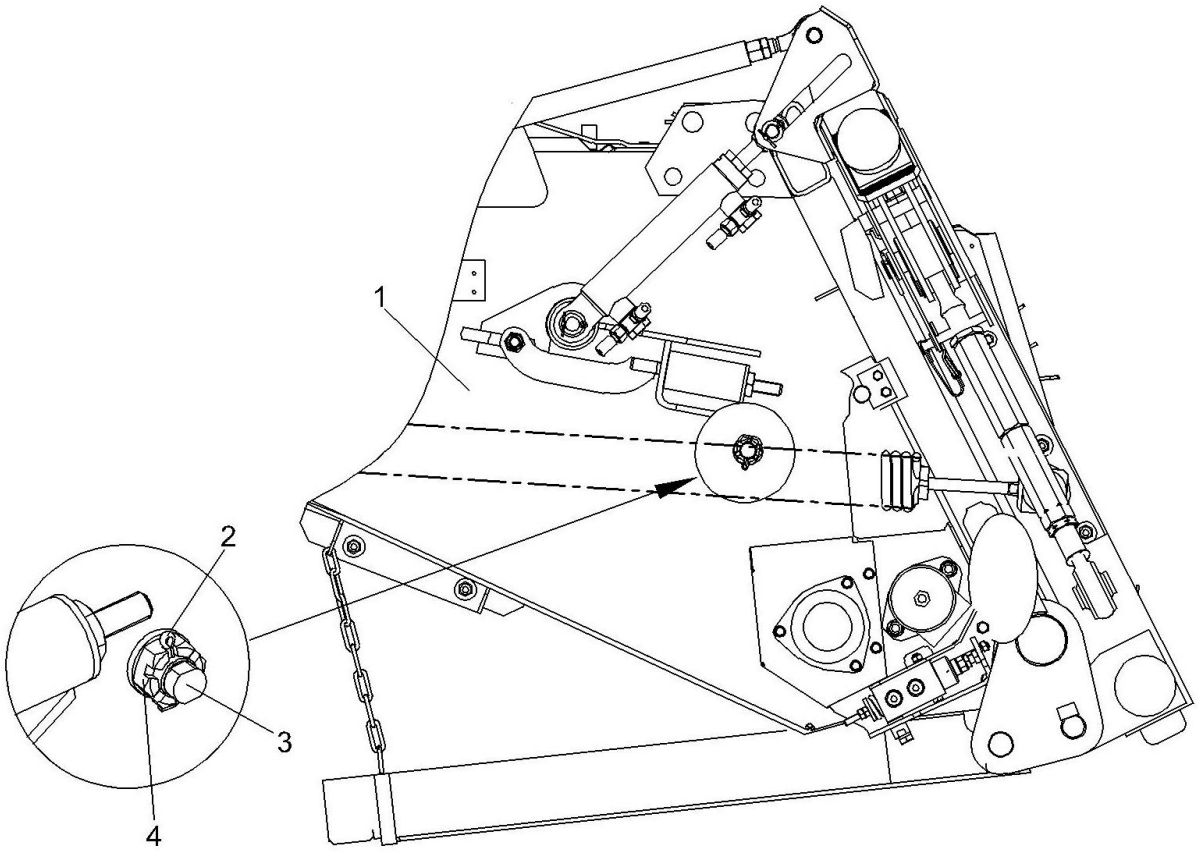
- unscrew three jam nuts of the coupling release bolts;
- screw three bolts all the way into the coupling hub and turn one or two more revolutions to loosen the spring pack;
- turn on the feeder housing drive for a few minutes at reduced engine speed with the feeder housing conveyor not running;
- turn off the feeder housing drive, unscrew the release bolts to their original position and secure them with jam nuts.

The coupling is set by the manufacturer to a torque of 1675±25 N· m.

2.6.11 Adjustment of clearance between the conveyor tine arms and the frame bottom of the feeder housing.

To adjust the clearance:

- pull out split pins 2 (Figure 2.18) on both sides of the feeder housing;
- to ensure free rotation of limit stops 3, loosen nuts 4 on both sides of the feeder housing;
- raise the lower shaft of the feeder housing up to the stop;
- turn up limit stops 3 by 90° on both sides of the feeder housing;
- lower the lower shaft of the feeder housing;
- check the support of the lower shaft levers on limit stops 3 on both sides;
- tighten nuts 4 with τ = 200...250 N· m and split pins on both sides of the feeder housing.



1 – feeder housing;
2 – split pin;
3 – limit stop;
4 – nut

Figure 2.18 - Adjustment of clearance between the conveyor tine arms and the frame bottom

3 Maintenance

3.1 Types and Frequency of Maintenance

Maintenance of the combine harvester with the equipment set should be performed in accordance with the "Maintenance" section of the combine harvester OM and this OG.

All technical maintenance procedures: STM, TM-1 and routine maintenance should be carried out regularly at intervals depending on the number of hours of header operation in accordance with Table 3.1 and in compliance with the requirements of the generally accepted maintenance strategy.

Types and frequency of header maintenance are set forth in Table 3.1.

Depending on working conditions, a deviation from the actual frequency of TM-1 (advance or late) up to 10% of the established standard is allowed.

In all cases of failure of fixing or adjustment of mechanisms, or noise, eliminate the flaws before the next TM.

Table 3.1- Types and frequency of maintenance

Maintenance types	**Frequency, hours**
Run-in maintenance	Before operating a new header
Shift technical maintenance (STM)	10
First technical maintenance (TM-1)	60
Pre-season technical maintenance (TM-O)	Before the start of the header operation season
Storage maintenance	If stored indoors - every 2 months, if stored outdoors under a shed - every month

3.2 List of operations by type of maintenance

3.2.1 Maintenance of header in preparation for run-in During technical maintenance:

- inspect and clean the header components from dust, dirt and preservative grease;
- start the engine of the combine harvester and check the performance and interaction of all mechanisms of the equipment set;
- lubricate the header according to the lubrication chart (point 3.3).

3.2.2 Maintenance of header during run-in period (within 6…8 hours).

Perform the STM during run-in period.

3.2.3 Maintenance at the end of run-in period

At the end of run-in period perform STM and additionally

- inspect and, if necessary, adjust the tension of the chain gears.

3.2.4 Shift technical maintenance (STM)

Perform the following procedures during STM:

- inspect and clean the header components from dust, dirt and plant matter residues;
- inspect and, if necessary, tighten the connections of mechanisms and guardrails of the header;
- inspect and, if necessary, eliminate any oil leaks;
- lubricate the header according to the lubrication chart (point 3.3).

3.2.5 First technical maintenance (TM-1).

Perform the following procedures during TM-1:

- inspect and clean the header components from dust, dirt and plant matter residues;
- inspect and, if necessary, tighten the connections of mechanisms and guardrails of the header;
- inspect and, if necessary, eliminate any oil leaks;

The oil level should be approximately 20 mm when the reducing gear is in the horizontal position. The oil level in the reducing gear of the cutting and chopping device should reach the level of the control plug.

- check the condition of components and parts subject to periodic replacement and, if necessary, replace them. The list of components and parts subject to periodic replacement is presented in Table 9.1.
- inspect and, if necessary, adjust the tension of the chain gears;
- lubricate the header according to the lubrication chart.

3.2.6 Pre-season maintenance of the header (TM-O)

During TM-O, perform operations of TM-1 and additionally:

- install the dismantled parts removed for storage of the equipment set;
- lubricate the header according to the lubrication charts (point 3.3).

3.2.7 List of Maintenance Procedures during Storage

During storage, check the following:

- the correct installation of the header on the shoes;
- completeness of the equipment set
- reliability of hermetic sealing;
- condition of safety devices and anti-corrosion coatings. Detected faults should be eliminated.

3.3 Lubrication

The service life and trouble-free operation of the set depend largely on proper and timely lubrication.

Lubricate only with lubricants and oils recommended by the manufacturer.

Lubricants should be clean and free of foreign mechanical impurities and water. Before lubricating, wipe off dust and dirt from the oilers and filler ports.

Lubricate the header in accordance with Table 3.2 and lubrication chart (Figure 3.1)

Table 3.2 – Header lubrication chart

No. position on the lubrication chart	Name of lubrication points	Name and brand of lubricant in operation and storage	Quantity lubrication points
Lubrication period – 10 hours			
1, 5	Cardan shafts bearings	158M Grease	4
2, 4	Bearings of Cardan shafts cowling	Lithol-24	4
3	Telescopic Cardan shaft elements	Same	2
6	Single-row drive chain	"	1
7	Double-row drive chain	"	2
8	Feeder chain	"	12
11	Front supports of the snapping rollers (oilers are located under the supports)	"	12
Lubrication period – 60 hours			
13	Chain coupling in the drives of the snapping units	Lithol-24	6
Lubrication period – 240 hours			
12	Counter drive bearings	Lithol-24	2
9	Row unit rotor drive speed increaser	TM 5-18 oil	6
10	Snapping units drive reducing gear	Same	6

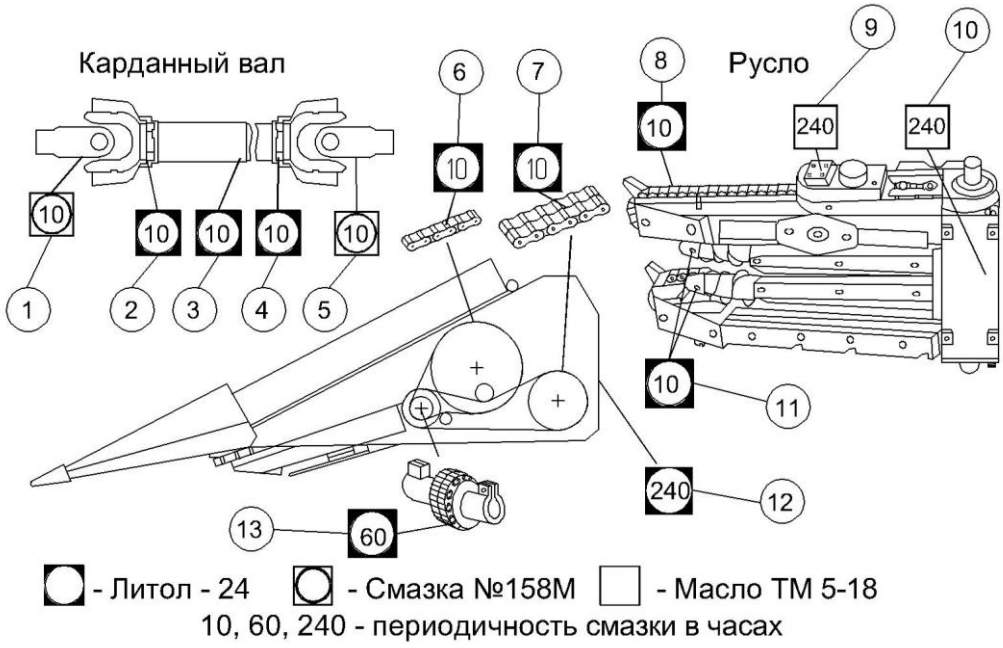


Figure 3.1 – Header lubrication chart

4 Routine Maintenance

4.1 Safety Precautions

CAUTION: When carrying out routine maintenance, in addition to observing the requirements of this OG, observe the generally accepted safety requirements!

ATTENTION: All procedures related to repairs, adjustments and maintenance of the set products should be performed with the header drive disengaged and the combine harvester engine turned off!

ATTENTION: Before welding work on the header, the header and the area around it should be thoroughly cleaned of plant matter!

Do **NOT** stand between the header and combine harvester while the engine is running.

Do **NOT** open or remove guardrails while the combine harvester engine is running.

ATTENTION: Before starting technical maintenance and repair work, switch off the combine harvester engine, remove the starter key, apply the handbrake and place chocks under the combine harvester's driving wheels!

4.2 Possible mistakes made by the operator leading to an incident or accident

1 De-preservation of the header in a room that is not equipped with supply and exhaust ventilation and fire extinguishing equipment.

2 Smoking, storing food or eating in areas where the de-preservation takes place

3 Switching on the header drive without checking for people (especially children) present in the danger zone around the combine harvester

4 Transportation speed limit of 20 km/h is exceeded.

5 Light and signalling equipment of the header trailer is not connected before driving on public roads.

6 Transporting passengers and goods on the header trailer in addition to the header.

7 Operation of the header with worn or damaged knives or clamp bushings.

8 Operation of Cardan shafts of the header without protective cowling or with damaged cowling.

9 Performance of procedures related to repairs, adjustments and maintenance of the set products with the header drive engaged and the combine harvester engine running.

10 Tools left behind after repairs and adjustments have entered the actuating elements.

11 Carrying out welding and other work using open flame in places not equipped with fire extinguishing equipment.

12 Pouring water on the burning fuel.

4.3 Actions of the operator in case of an incident, critical failure or accident

1 In the event of an emergency or critical failure, turn off the main counter drive, turn off the engine, remove the ignition key, leave the self-propelled combine cabin and call for emergency service.

2 If a fire occurs, take measures to remove the combine harvester from the field, shut off the engine and disconnect the battery. Call the fire department and proceed to extinguish the fire with the available means (fire extinguisher located on the combine harvester, water, soil).

4.4 Equipment set critical failure list:

1 A solid foreign object (stone, metal object, etc.) gets into the cutter bar of the header.

2 Failure of reducing gear and (or) the row unit speed increaser.

3 Breaking of row unit feeder chain.

4.5 Possible malfunctions and troubleshooting

The basic possible malfunctions and methods of their elimination are given in Table 4.1.

Table 4.1 – Possible Malfunctions

Malfunction, external manifestation	**Possible causes**	**Troubleshooting method, required adjustments**
Large amounts of corn grain between the header auger and the conveyor of the combine harvester's feeder housing	The limit stops holding the feeder housing lower shaft levers are not turned	Increase the clearance between the conveyor bars and the bottom of the feeder housing (according to point 2.6.12).
The snapping unit gets clogged when harvesting laid corn	Feeder chains tension in the header row units has not been adjusted	Adjust the tension of the feeder chains
Winding stalks or weeds onto the snapping rollers	Clearance between wipers and roller ribs is not adjusted	Adjust the clearance between wipers and roller ribs
Header auger does not rotate	The torque of the safety coupling in the auger drive has not been adjusted	Check the auger coupling
It is hard to keep the header on the rows	Mismatch of row spacing between the header and corn rows	Check the matching of row spacing between the header and corn rows
Significant, incessant vibrations of the tank and front section of the combine frame	1 Beater bar side-shields are not installed on the threshing drum. The cobs that fall into the inner cavity of the drum cause its technological imbalance. 2 Beater bar side-shields are installed on the threshing drum, but their installation is inconsistent with the OG	Check the idle drum operation, and completeness of shields set. If one of the drum shields is lost and cannot be restored, remove the opposite paired shield from the drum. Check threshing clearances and serviceability of the concave and straw walker racks. Run the rotor without the dismantled pair of shields at idle speed and in operation

Table 4.1 end

Malfunction, external manifestation	**Possible causes**	**Troubleshooting method, required adjustments**
Unbalance of threshing drum with the shield set, incessant vibration in the front section of the combine frame	Beater bar side-shields are installed on the threshing drum, but their installation is inconsistent with the OG	Check the static balance of the drum. To do this, remove the drum drive belt. Turning the drum by hand, trace which shield hangs down, stopping under the action of its imbalance. Check shield fasteners for completeness. Repair any missing fasteners. Repeat the test several times. Remove the possibly malfunctioning drum shield and paired opposite shield. Clean the inside of the threshing drum of threshing products and random objects. Check the weight of the removed shields. Adjust the difference in their weights (the difference in weights should no exceed 10 g) and secure these paired shields to the drum. Run the drum with the shields at idle speed

5 Storing

5.1 General Storage Requirements

The header should be stored in accordance with the requirements of GOST 7751-2009.

5.1.1 Short-term header storage – 10 days to two months; long-term header storage – two months and longer.

5.1.2 The header is placed for long-term storage in an enclosed unheated room or in an open area under a shed.

Storage areas should be provided with fire– fighting equipment and conditions for easy inspection and maintenance and, if necessary, quick removal from storage.

5.2 Preparation for Storage

5.2.1 List of operations to be carried out when the equipment set is placed in short-term storage:

- clean the header components from dust, dirt and crop residues;
- wash the header and blow it over with compressed air;
- tightly close all holes, slots, cavities through which atmospheric precipitation can enter the internal cavities of the header, with covers, blind plugs, plugs, or shrouds made of plastic film or paraffin-coated paper;
- cure any unpainted surfaces;
- cover the shields of the header.

The header should be stored at a distance of 0.7 m between machines and 1 m between rows to ensure preventive inspections, installation and removal from storage.

5.2.2 List of operations to be carried out when equipment set is placed in long-term storage.

When preparing the equipment set for long-term storage:

- clean the header components from dust, dirt and plant residues;
- wash the header and blow it over with compressed air;
- transport the header to the storage area;
- remove the following elements from the combine harvester: safety coupling from the upper shaft of the feeder housing; threshing drum and straw walker side-shields; replaceable deck plates of the front concave; replaceable cover on the combine pulverizer; replaceable driving sprocket (Z=21) in the chain drive of grain-conveying actuating elements; support assemblies and beam from the header trailer.

Disassembled set components should be placed on the technological supports and stored in an enclosed unheated room or under a shed in compliance with all the storage rules according to the OM of the combine harvester.

To prepare the combine harvester for the following season's harvesting of grain crops, install:

- on the upper shaft of the tilt chamber: a safety coupling, which was removed when the set was installed;
- replaceable front concave deck plates for grain crops;
- pulverizer deck cover;

- replaceable driving sprocket (Z=17) in the chain drive of grain-conveying actuating elements, removing, if necessary, transitional links from the drive chain; - support assemblies of the header trailer to install a grain header.

Check the technical condition of the header before storing it.

- be sure to change the oil (TM 5-18) in the threshing drum reduction gearbox;
- after removing components from the combine harvester, seal the slots, cavities and openings to prevent moisture and dust from entering the header;
- restore any damaged paintwork;
- set the header on the shoes mounted on the lower holes.

5.2.3 When removing from storage:

- clean, remove the sealants and de-preserve the equipment set;
- adjust the friction safety couplings according to point 2.6.10.

5.3 Equipment set storage rules

Regularly, at least once a month, check the sealing reliability of assemblies protected by polyethylene films or covers, as well as the condition of unpainted surfaces coated with preservation grease.

Check the condition of the equipment set every two months if stored indoors and monthly if stored under a shed. Eliminate any deviations from the storage rules revealed during inspections.

5.4 Preservation Methods

5.4.1 Preservation includes surface preparation, application of temporary protection agents and packaging. The time between preservation stages should not exceed two hours.

Preservation should be carried out in specially equipped rooms or in assembly areas and other preservation areas that allow compliance with the established technological process and safety requirements. Conservation areas should be located so as to limit or eliminate the penetration of corrosive gases and dust.

Air temperature in the room should be no lower than 15 °C, relative humidity no higher than 70%. The header should be delivered for preservation without corrosion damage to the metal or metal coatings.

5.4.2 Temporary corrosion protection of the header should be performed according to the protection options: PO-1 (protection by conservation oils), PO-2 (protection by operational and conservation oils).

In the absence of direct exposure to atmospheric precipitation, use liquid inhibited greases: NG-203A and NG-203A, K-17.

Apply preservative oils to the outer surfaces of the products by dipping, spraying or brush (swab).

Perform internal preservation of reducing gears with the addition of 5% of AKOR-1 additive to the required amount of process oil.

5.5 De-preservation Methods

Depending on the temporary protection options used, the following methods of de-preservation are used:

- in case of protection options PO-1, PO-2: by wiping the surface with a rag soaked in low-viscosity oils and solvents, followed by wiping dry or by blowing with warm air;
- by immersion in solvents followed by drying or wiping dry;
- by washing with hot water or “Complex”, “Labomid-101”, “Labomid-102”, MS-6 synthetic detergents.

6 Transportation

The equipment set can be transported by road, river or railway in accordance with the regulations in force for these modes of transport.

The method of loading, as well as the placement and securing of packing units should ensure complete safety of the equipment set items.

At the destination point, acceptance of the header should be carried out in presence of the carrier's representative.

In the case of shortages or breakdowns, a commercial act should be executed.

Sling the header and the equipment set only in specially marked points.

A transport traverse, which is supplied with the header, should be installed on the row units shoes.

⚠CAUTION: Keep unauthorized persons out of the loading and unloading area of the header and other parts of the equipment set!

When driving combine harvester with the equipment set on public roads, the header should be mounted and secured to the header trailer (re-equipped) attached to the combine harvester with the traction device.

⚠**CAUTION:** Drive in accordance with the Traffic Regulations of the country in which the equipment is operated, not exceeding the established speed of transportation, which is 20 km/h!

⚠**CAUTION:** Do not transport the equipment set, if light and signalling equipment is installed on the header trailer!

7 Scope of Supply

Scope of supply of the equipment set is shown in Table 7.1

Table 7.1 – Scope of Supply

Designation	Name	Quantity	Designation of the stack or package unit
KOK-6-2	Header, KZK0500000-03 Spare parts kit, Installation parts kit	1 2	Unit No. 1 Unit No. 2
Technical documentation set			
KZK-12-0500000 OG	Operation Guide Packing lists	1 1 set	Unit No. 1
KOK-0000000 OBE	Safety justification (CD)	1	Unit No. 1
Note – * Complete according to the packing lists			

8 Acceptance Certificate

KOK-6-2 grain corn harvesting equipment set No. _____ is manufactured and accepted in accordance with the mandatory
serial number
requirements of state standards, current technical documentation and is recognized as suitable for operation

Head of Quality Control Department

Seal _____

_____
personal signature printed name

_____
year, month, date

cut here for exports

Head
of the enterprise _____
designation
of the shipping
document

Seal

_____ _____
personal signature printed name

_____
year, month, date

Customer
(if available)

Seal

_____ _____
personal signature printed name

_____
year, month, date

9 Manufacturer's Warranty

The manufacturer guarantees the compliance of the equipment set with the requirements of technical specifications only if the consumer observes the operating, transportation and storage conditions established by this OG.

Warranty period is _____

The warranty period is calculated from the date of kit commissioning, but not later than 12 months from the date of purchase by the consumer.

For export deliveries, the warranty period for the equipment set and the beginning of its calculation is stipulated in the contract.

Satisfaction of claims regarding the quality of the kit must be carried out in accordance with the legislation of the Republic of Belarus, Decree of the President of the Republic of Belarus No. 186 "On certain measures to increase responsibility for the quality of domestic goods" dated March 27, 2008 and Resolution of the Council of Ministers of the Republic of Belarus No. 952 "On the warranty period for the operation of complex machinery and equipment" dated June 27, 2008.

Warranty card – Appendix A

Warranty service rules:

- the owner is obliged to conclude a warranty service contract with the GOMSELMASH service centre in due time and register it within 10 days from the time of delivery of the equipment set to the place of operation;
- if the equipment set is sold by an intermediary organization (seller) without the manufacturer's approval, the seller is responsible for the warranty;
- for pre-sale preparation and warranty service, the owner has the right to contact any service center recommended by GOMSELMASH. Information about dealer centers is posted on the website www.gomselmash.by;

compliance with the operating rules and frequency of technical maintenance of the kit is an essential condition for warranty service;

- the service center that carries out warranty service of the kit monitors and records warranty repairs and technical maintenance by filling out a warranty card;
- the kit is serviced in accordance with the operating instructions.

Warranty obligations do not apply:

1. In case of non-compliance with the requirements specified in this operating manual, including the use of operating and consumable materials not specified.

2. In case of violations of the frequency and volume of scheduled maintenance types, more than 10% of the standard indicators specified in the operating documentation.

3. When using the product for other than its intended purpose.

Using the product for other than its intended purpose also includes working with adapters not intended for harvesting the relevant crops, using adapters with combines from third-party manufacturers, without the consent of GOMSELMASH.

4. In case of changes in the design of the product or its components without the consent of GOMSELMASH.

5. If during the warranty period the product maintenance was not performed by service organizations authorized by GOMSELMASH.

6. When repair work or maintenance of the product is carried out using components or units that have not passed the GOMSELMASH Quality Control Department or are non-original.

7. If the consequences and defects are caused by non-compliance with the product storage requirements.

8. For damage or defects that occurred as a result of an accident or during unauthorized disassembly or repair of units and assemblies not agreed upon with GOMSELMASH.

9. For damage or defects that occurred during the operation of the product by an operator who has not studied the combine harvester devices and operating rules, has not undergone practical training and does not have a tractor driver's license with an open permit category.

10. In case of loss of the Warranty Card. If the Warranty Card is lost, a duplicate will not be issued and the product will be removed from the warranty!

11. In the absence of records in the Warranty Card on the performance of all maintenance specified in the operating documentation, certified by the seal of the service organization.

12. For component parts and components of the product subject to periodic replacement, specified in Table 9.1.

13. For replacement of consumables and wearing components.

14. For adjustment of the kit.

15. The procedure for termination of warranty service for the product is initiated by the GOMSELMASH service department.

Table 9.1 – List of components and kit parts subject to periodic replacement

No.	Name designation
1.	1.321.511 Plate
2.	KPS-4-0513401 Knife
3.	KPS-4-0513603 Plug
4.	KPS-5-0213603-01 Skrew
5.	1.329.163A Check board
6.	Rubber products (silent blocks, rings, cuffs, profiles, seals, windshield wipers, covers, plates, caps, high and low pressure hoses, impact belts, elevator blades, conveyor belts, etc.)
7.	Electrical equipment (bulbs, fuses, relays)
Note: when carrying out work on upgrading products in order to improve their technical characteristics, letters of the Russian alphabet are added to the digital designation of components and parts (for example - KZK-10-0104502A), while the designation indicators and warranty obligations remain unchanged.	

10 Recycling

10.1 Safety Precautions

10.1.1 Recycle the equipment set (or its components) at the end of its service life or based on the results of routine maintenance, technical maintenance and storage in accordance with generally accepted safety requirements and the safety requirements set out in this OG.

10.1.2 When disassembling the equipment set, safety instructions for the equipment and tools used for recycling should be observed.

10.2 Information and measures taken to prepare and dispatch the equipment set for recycling

10.2.1 Before recycling the equipment set should be dismantled in specialized workshops into assembly units and parts according to the following criteria: precious materials, non-ferrous metals, ferrous metals, non-metallic materials.

10.3 Recycling methods

10.3.1 Waste oil should be discharged into a special container and disposed of in an environmentally friendly manner.

 Do **NOT** drain waste fluids on soil, into domestic, industrial and storm sewer systems, as well as into open water bodies!

10.3.2 If waste fluid is spilled in an open area, collect it in a separate container, cover the place of the spill with sand and then remove and recycle it.

APPENDIX A

GOMSELMASH
Open Joint Stock Company
“Gomel Maltal and Normal Molders Plant”
246010, Gomel, Mogilevskaya str., 16,
tel: (0232) 59 61 31, fax (0232) 59 42 03, UNP 400051772

WARRANTY CARD

1. Grain corn harvesting equipment set _____
(set model)

2. _____
(date, month, year of manufacture)

3. _____
(serial number)

Grain corn harvesting equipment set fully complies with the drawings, specifications of TU BY 400052396.102-2007, and technical regulations.

The serviceability of the set is guaranteed for 24 months of operation from the date of its commissioning, but no later than 12 months from the date of purchase.

Head of Quality Control Department
of the enterprise _____
_____
(full name)(signature)

Seal

1. _____
(date of receipt of the product at the manufacturer's warehouse)

_____ _____
(position, full name) (signature)

Seal

2. _____
(date of sale (delivery) of the product by the seller (supplier))

_____ _____
(position, full name)(signature)

Seal

_____
(date of sale (delivery) of the product by the seller (supplier))

_____ _____
(position, full name) (signature)

Seal

3. _____
(commissioning date)

_____ _____
(position, full name) (signature)

Seal

APPENDIX B
(reference)

Filling tanks

Name	**Volume, dm^3 (L)**	**Oil and process fluid grade**
		Basic
Assembly unit drive reducing gear	1	TM5-18
Row unit rotor drive speed increaser	0.5	TM5-18

APPENDIX C

Preservation

Information about preservation, de-preservation and re-preservation of the equipment set can be found in Table C.1.

In “Procedure item” column also indicate the brand of oil used for preservation.

Table C.3

Date	Procedure item	Duration, years	Position surname and signature

Note – Completion of the “Preservation” section is mandatory at the equipment set manufacturer, technical centres and farms.

APPENDIX D
Record of operating hours and maintenance

Table D.3

Date of the next TM	Operating hours		Type of TM	Full name, signature of the person responsible for TM and repair
	Until the next TM	cumulative total		

Note – Completion of the "Record of Operating Hours and Maintenance" section is mandatory at the equipment set manufacturer, technical centres and farms.