

BYJ-2D Corn (soybean, sorghum) Precision Planter
BYJ-4D Corn (soybean, sorghum) Precision Planter
BYJ-6D Corn (soybean, sorghum) Precision Planter

Operation Instructions


YBF Tech

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Overview

The Instruction is an important part of the planter. It is recommended that the Supplier keep relevant documents to prove that the Instruction and the planter are provided to the user at the same time. In order to use the planter correctly, efficiently and reasonably, it is very important for you to carefully read the Instruction provided with the planter before use and master the following information.

1. The planter shall be operated, adjusted, inspected and maintained in strict accordance with the provisions of the Instruction when in use, otherwise it may cause reduced performance of the planter, failure or shortened service life of the planter, as well as difficulty to perform the relevant responsibilities of the "Warranty" service.
2. The safety rules in the Instruction and the safety warning signs on the planter must be observed by the planter user. The user shall bear the consequences of any injury, failure or loss caused by non-compliance with these rules.
3. This Instruction provides the safety precautions, operation instructions, main technical specifications, maintenance instructions, installation, troubleshooting, etc. required by the user. If you do not understand any part, you can consult our company.
4.  Safety warning symbol

In the Instruction, this safety warning symbol indicates important safety information. When you see this symbol, you shall be warned of possible injury or impact on product performance, read the information under this symbol carefully, and inform other operators.

Intended Use

BYJ-D series corn (soybean/sorghum) precision planter is a multi-purpose and fully suspended agricultural machine. The supporting power of this planter is 22-73kW (30-100 hp) wheeled tractor.

This planter can sow corn, soybean, sorghum and other inter-tillage crops, and can complete deep application of granular fertilizer while seeding. This planter conforms to JB/T10293-2013 Specifications for single seed drills (precision drills). **Note: If the seeds are too large or too small or of different sizes, the seeding performance will be decreased, so the user shall screen the seeds; excessive use of fertilizer may affect the crop emergence or yield, so the amount of fertilizer applied shall be properly controlled.**

This planter is only used for conventional agricultural operations matched with tractors, and other operations are contrary to the intended use of the planter. The user shall strictly comply with the use, maintenance and repair conditions specified by the manufacturer and the basic requirements for the intended use.

This planter can only be operated, maintained and repaired by the personnel who are familiar with the characteristics of the planter and have knowledge of safe operation. The manufacturer shall not be responsible for the reduction of the planter reliability or the planter damage or personal injury caused by the unauthorized modification of the planter.

1. Safe Operation Precautions and Warning Signs

1.1 Safety operation precautions

1.1.1 ⚠ Read the Instruction carefully before use, and be familiar with the structure, performance, use, adjustment method and safety precautions of the planter.

1.1.2 ⚠ Do not go backwards when seeding.

1.1.3 ⚠ Carry out trial seeding before formal seeding, and seed after trial seeding meets user requirements.

1.1.4 ⚠ Do not approach the planter when lifting and lowering, and do not touch the rotating parts with your hands during operation.

1.1.5 ⚠ Do not turn before the planter is lifted, or turn the seeding set sharply.

1.1.6 ⚠ Add and clean seeds (fertilizer) after the planter is stopped.

1.1.7 ⚠ In case of failure during seeding, stop the planter for maintenance.

1.1.8 ⚠ After the planter is lifted, do not carry out maintenance and other operations under the planter.

1.1.9 ⚠ Do not stand between the tractor and the planter when working.

1.2 Safety warning signs

1.2.1 The yellow notice sign for reading the Instruction is on the back wall of the seed box to remind the operators to read the Instruction carefully before use.

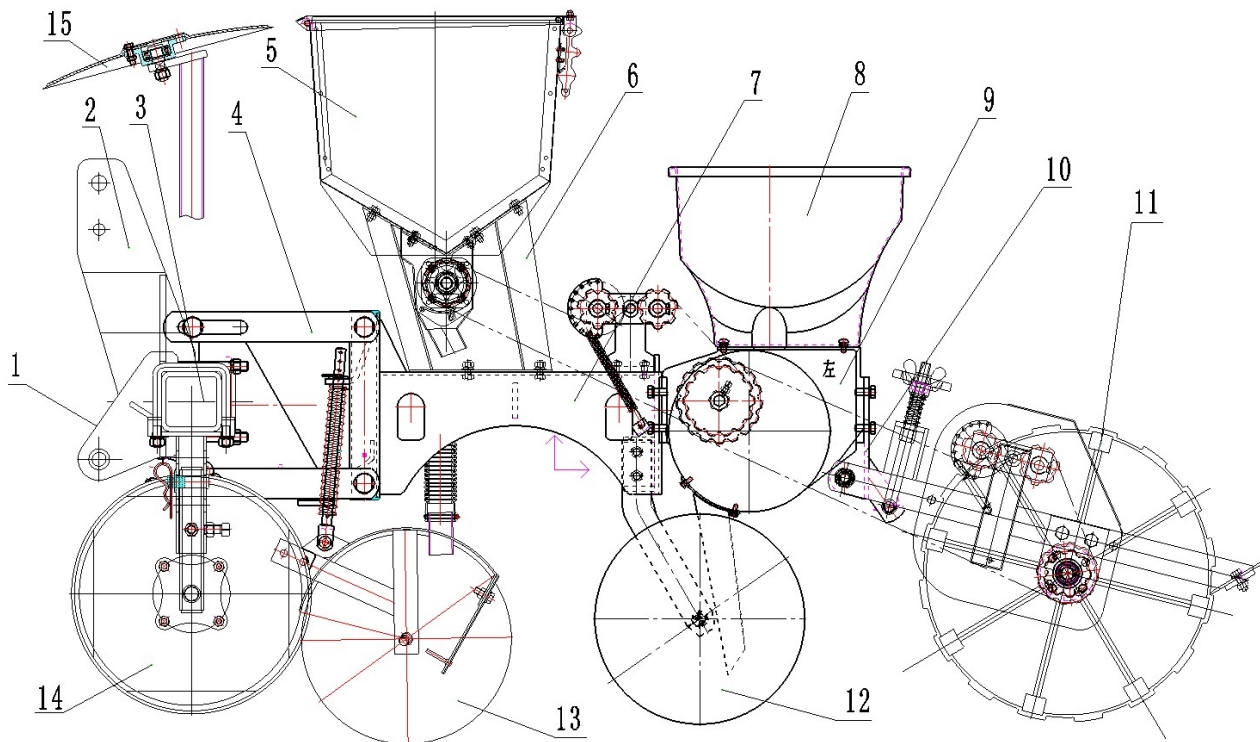
1.2.2 The red warning sign for chain sprocket cover protection is above the chain guard to remind the operators of the precautions.

1.2.3 The orange warning sign for keeping a safe distance from the planter is on the back wall of the seed box to remind the operators of the precautions.

2. Operation Instructions

2.1 Planter structure and working principle

BYJ-D corn (soybean/sorghum) precision planter consists of the following parts (see the figure below):



1. Lower hitch assembly 2. Upper hitch assembly 3. Main frame 4. Front support assembly 5. Fertilizer hopper assembly 6. Fertilizer loading system assembly 7. Rear support assembly 8. Seed box assembly 9. Seed-metering unit assembly 10. Ground-wheel support assembly 11. Ground wheel assembly 12. Seed disk opener assembly 13. Fertilizer disk opener assembly 14. Supporting wheel assembly 15. Row marker assembly

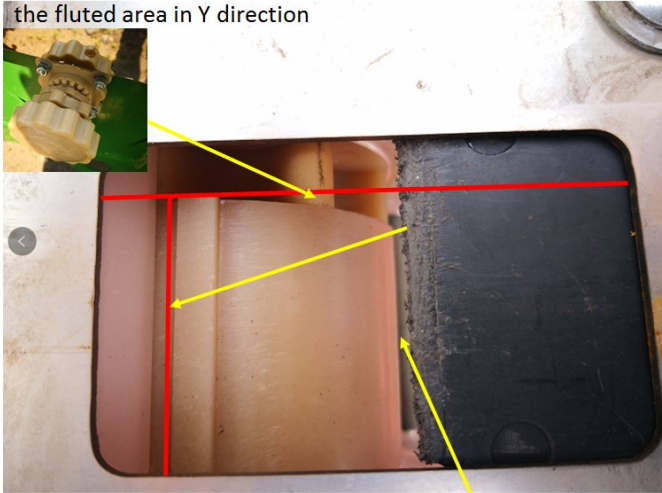
2.1.1 Main frame assembly

The main frame assembly connects the components with bolts (or U-bolts) to form a complete machine, and connects with the tractor through the upper and lower hitch pins installed on the frame. It is composed of main frame, upper and lower hitch assemblies, etc.

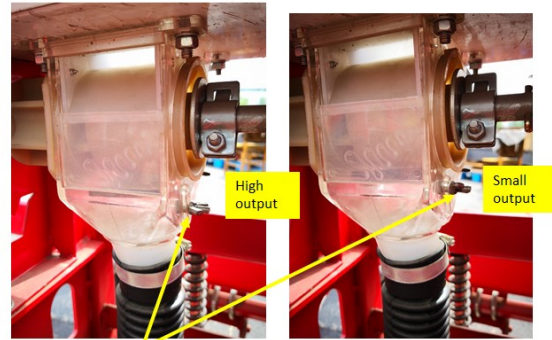
2.1.2 Fertilizer hopper and fertilizer loading system assembly

The fertilizer loading system assembly drives the fertilizing through the transmission. It includes the fertilizer hopper, the fertilizer discharging gear, the fertilizer discharging shaft, the fertilizer hopper sprocket, the Plastic hand-wheel assembly, etc. Rotating the nylon hand-wheel can change the working length of the fertilizer discharging gear thus changing the fertilizer loading amount.

The opening in the fertilizer hopper can be adjusted in two direction for the speed of fertilizing. The blocking plate adjusts the opening in X direction and the plastic hand wheel moves the fluted area in Y direction



To completely seal the opening pocket, push the black blocking plate all the way down. And to increasing the fertilizers, slide the blocking plate outward.



There is a teeth right above the loading tube, which could adjust the fertilizing speed further.



2.1.3 Seeding assembly

The seeding assembly is the main functional component of the planter, and includes the front support assembly, the rear support assembly, the seed-metering unit, the ground-wheel support assembly, the ground-wheel assembly, the disk opener and the transmission.

2.1.3.1 Seed-metering unit

The seed metering unit is the key component of the planter, and the spoon-clamping type seed-metering unit is used for planting corn (see Figure 1).

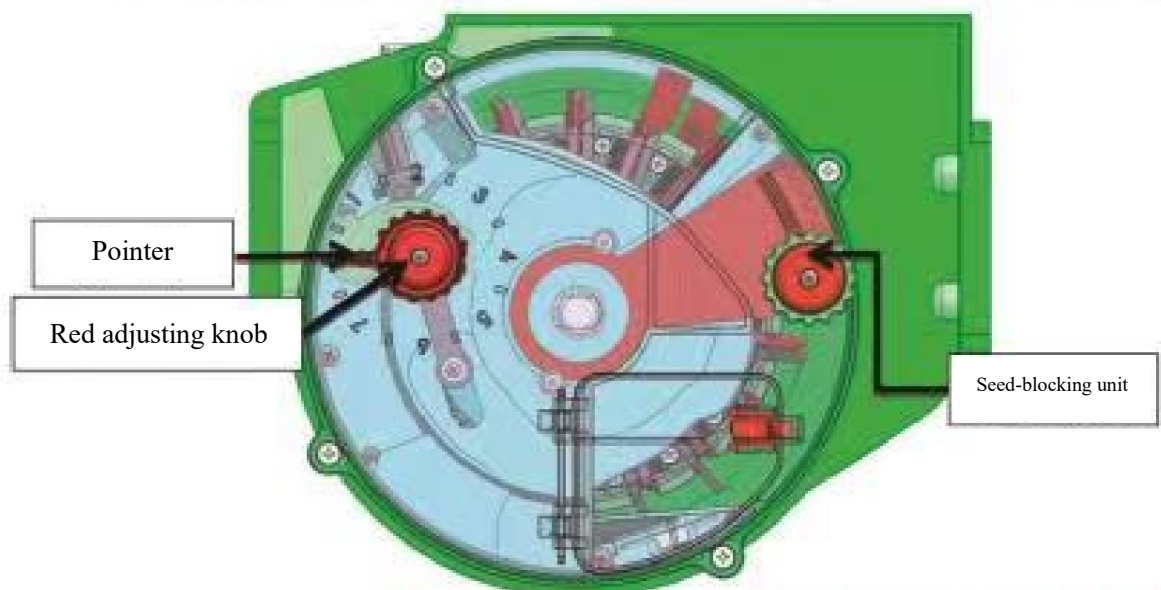


Figure 1

The spoon-clamping type seed-metering unit has the advantages of fast operation speed, low miss-seeding rate and accurate seed metering; the whole process of seed metering can be directly observed through the high-strength transparent panel; various coarse grain seeds can be seeded by replacing different seeding components; the 7-speed gearbox and chain sprocket are installed for the selection of different seeds and multiple plant spacing.

1. Precautions: for using spoon-clamping type seed-metering unit

(1) Fill the seed hopper in the field only to avoid seeds being compacted during transportation, which will affect seeds flowing in the hopper.

(2) Use sorted seeds before sowing, the size of the seeds has to be controlled.

(3) Mix proper seed lubricant before sowing would bring benefit, but it is not necessary.

(4) Do not mix metal objects or stones when adding seeds, so as to avoid damage to the seed-metering unit.

(5) To maintain the gearbox in the seed metering unit, only apply proper layer of grease on the gear, and **DO NOT use the liquid lubricating oil.**

(6) Only when assemble the corn plate and after removing the cover, the front red adjusting knob should be turned to the scale between 1 and 2, then install the four screws of the outer cover, and then adjust the pointer to the corresponding position; at the same time, set the green seed-blocking knob to the highest (ex-factory setting) position; otherwise, there will be empty cavities and no seed.

(7) When the seeds level is too high in the metering unit, turn the green seed-blocking knob clockwise to adjust the seed-blocking plate to a appropriate position.

2. Preparations before operation

(1) Adjust the planter to make the seed-metering unit in horizontal position before operation.

(2) Check the seed clamping status: after adjusting the horizontal status, lift the planter off the ground and keep the ground (driving) wheel 4 inch from the ground. After putting in seeds, turn the ground wheel towards the tractor by hand. At same time, check the seed clamping status through the transparent cover. If any cavity is found, it means that the seed clamping port is too small and shall be adjusted to a bigger position. If the double seed rate is high, the seed clamping port shall be adjusted to a smaller position.

(3) Adjustment unit: due to the different sizes of seeds, the seed metering unit is set up with a set of units to adjust the size of the clamping port. The adjustment unit has a pointer and a total of 16 scales arranged in a circle. It is adjusted by the red adjusting knob with a pointer, as shown in Figure 1. When the scale is adjusted from 1 to 2, the seed clamping port is extended or shortened by 0.1 inch, and when the scale is adjusted between 1 and 2, the seed clamping port is extended or shortened by 0.05 inch. Generally, the pointer is set at the scale of 6 as the factory default settings.

(4) Adjustment method: first pull the red adjusting knob outward, and then turn it according to the scale. When it is found that more seeds are not clamped by the seed scoop, turn the pointer to the direction of large numbers. Observe the seed clamping

condition, and continue to turn the pointer to the direction of large numbers if there is still missing clamping. When it is found that the double seed rate of the seed scoop is high, turn the pointer to the direction of small numbers until it works well.

(5) Adjustment of seed-blocking unit:

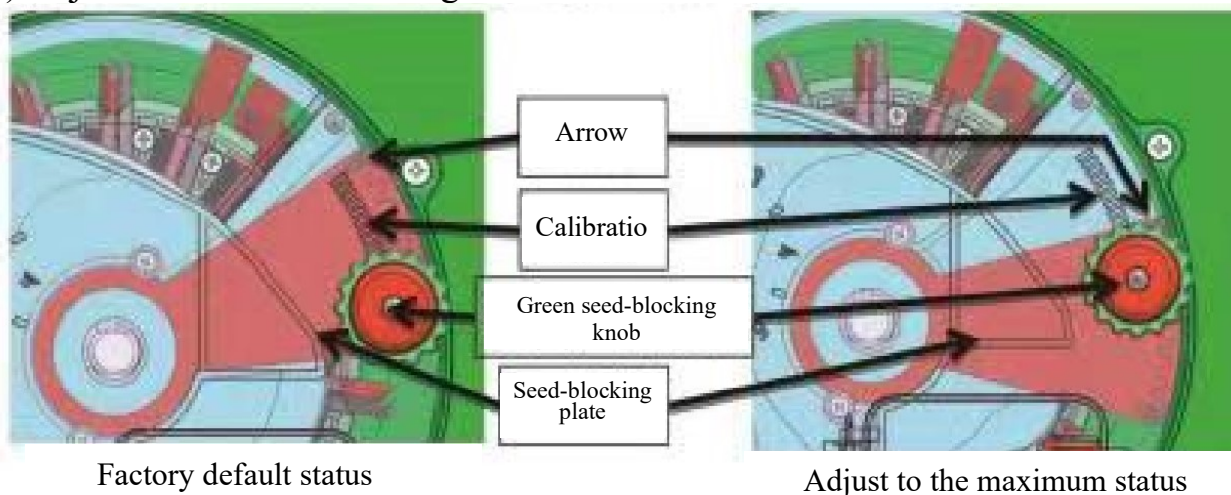


Figure 2

The seed-blocking unit is composed of the green seed-blocking knob, the seed-blocking plate, etc. (see Figure 2), which can control the quantity of seeds of seed-metering unit entering seed-metering chamber, so that to control the seed level in the seed-metering chamber. First, pull out the green knob and then rotate it. When rotating clockwise, the amount of seeds falling into the seed-metering chamber decreases, and the seed level decreases. The minimum number of seeds will enter the seed-metering chamber when seed blocking is adjusted to the maximum position. If the seed level is too low, the seed metering will be affected. Then, the green knob shall be turned counterclockwise to adjust to the factory default position or the appropriate position.

When replacing the seed plate in the seed metering unit, and when the front transparent cover is installed, the seed-blocking plate is at the lowest position due to its gravity, which will cause the seed level too low in the chamber. It is necessary to turn the green adjusting knob counterclockwise to the factory default position or the appropriate position to avoid empty cavity

(6) Replacing of seed-metering plate

There are totally 3 types of seed-metering plate: Corn, Soybean, Sorghum (Figure3)



Corn seed plate assembling steps:



Corn plate, 4x short screw and 2x long screw, Front cover.

Step1: put the corn seed plate onto the shaft.

Step2: put in two 2 long screw as shown by yellow arrow to lock the corn plate base to the cast iron body

Step3: put on the cover.

Step4: put in the 4 short screw to lock the cover with the cast iron body.

Step5: Set the seed loading port in the seed hopper for soybean (refer to figure 4)

Soybean seed plate assembling steps:



Soybean seed plate, 4x short screw and 2x long screw, Front cover for soybean ONLY.

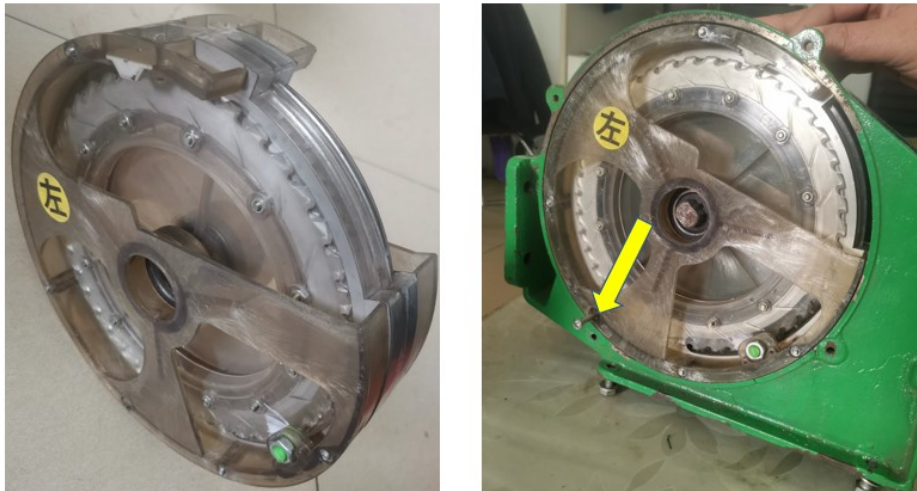
Step1: put the soybean seed plate onto the shaft.

Step2: put on the cover.

Step3: put in the 4 short screw to lock the cover with the cast iron body.

Step4: Set the seed loading port in the seed hopper for soybean (refer to figure 4)

Sorghum seed plate assembling steps:



Sorghum seed plate, 4x short screw and 1x long screw, Front cover (same as corn)

Step1: put the sorghum seed plate onto the shaft.

Step2: put in two 1 long screw as shown by yellow arrow to lock the sorghum plate base to the cast iron body

Step3: put on the cover.

Step4: put in the 4 short screw to lock the cover with the cast iron body.

Step5: Set the seed loading port in the seed hopper for sorghum (refer to figure 4)

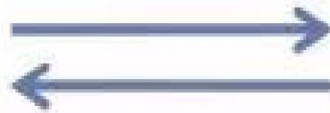
Figure 3

(7) Change of seed loading port of seed-metering unit :

Round plug on and Square plug off
For Corn and Other plate

For soybean seed-metering plate,
remove a round plug and install
the square plug.

Square plug on and round plug off
For soybean plate



For corn seed-metering plate and
other plate, remove the square
plug and install the round plug.



Figure 4

When planting corn or other kinds of crops, remove the square plug plate from the seed box, keep the round plug on the hold, and **properly keep the square plug plate and screws**; when planting soybeans, remove the round plug plate, keep the square plug on the hole, and **properly keep the round plug plate and screws**.

(8) Cleaning of seed spoon of seed-metering plate:



Figure 5

Unscrew the two screws (M6×70) of the corn plate, take out the corn plate, clean the seed spoon with neutral liquid cleaner, and **DO NOT clean with gasoline or diesel**. First wash the bottom two seed spoons with brush, then rotate clockwise to clean the bottom two seed spoons again. After cleaning, wipe out the liquid residual on the seed scoop and bottom of the seed metering plate .

(9) Troubleshooting of spoon-clamping type seed-metering unit: see the table below

Faults	Fault causes	Troubleshooting
Seed damage	Seed loading port blockage	Clean the seed loading port.
Missed seeding	Improper adjustment of the red adjusting knob	Re-adjust the red adjusting knob, lift the planter and turn ground wheel to check the seed clamping status.
	Seed sticking due to excessive seed coating agent in the seed scoop	Clean the seed scoop.
	Wet seed coating agent	Dry the seeds in the sun.
	Need to mix seed lubricant	Mix a proper amount of seed lubricant.
	Slipping or non-rotation of planter ground wheel (driving wheel)	Troubleshoot the ground wheel mechanical problem.
	Non-rotation of drive chain sprocket	Tighten the chain sprocket jackscrew.
Many double seeds	Seed level rises to high in the chamber	Adjust the seed-blocking plate downward to decrease the level of seeds.
	Too large seed clamping port of the seed spoon	Re-adjust the red adjusting knob and turn the ground wheel to check.
Incorrect crop spacing	Incorrect number of chain sprocket teeth	Replace the chain sprocket.
	Incorrect gearbox setting on side of the seed-metering unit	Adjust the gear.
	Improper rotation of the drive chain	Tighten the chain sprocket jackscrew.

	sprocket Slipping or non-rotation of planter ground wheel	Troubleshoot the ground wheel mechanical problem.
No seeding	Jammed seeding port of the seed-metering unit	Clean the seeding port of the seed-metering unit.
	Too low of the seeds level in the seed metering unit chamber.	Turn the green seed-blocking knob counterclockwise to raise the seed-blocking plate.
Seed overfilling	the seed-metering unit not in a horizontal level, and is heading downward.	Extend the tractor center hitch to level the seed-metering unit horizontally.
	Fail to adjust the green seed blocking knob to a proper position	Move the seed blocking plate downward to the appropriate position.
	Seed hopper is full of seeds during the transportation	Do not add seeds in the hopper or clean seeds out of hopper during transportation

2.1.3.2 Ground wheel

The ground wheel is used to support the seeding assembly, control the seed depth and drive the fertilizer loading and seed metering.



2.1.3.3 Transmission

The transmission consists of two parts: seed-metering drive system, the seeding is driving through the seed-metering chain sprocket connected from the ground-wheel by chain; the fertilizer loading drive system, the seed-metering chain sprocket is transferred to the 9-tooth fertilizer loading chain sprocket shaft welding. Additionally, the combination of the chain sprocket and the seed-metering unit gear box can help to set up multiple crop spacing, as shown in table of crop spacing in the following pages.



2.1.3.4 Seed disk opener assembly and fertilizer disk opener assembly

This planter adopts a round disk opener, which has low soil penetration resistance, and can carry out seeding and fertilizing operations smoothly on harrowed land.

2.1.4 Seed box assembly

The seed box need to be fixed above the seed-metering unit to hold seeds.

2.1.5 Row Marker assembly

The rower is an accessory component of the planter, and used to draw a ditch on the side that not seeded of the planter during normal operation, for the driver's reference of the next seeding position.

2.1.6 Supporting wheel assembly

Installed on the main frame to support the planter putting on the ground.

2.2 Planter installation

The planter is delivered as partial assembly, and the user shall check and accept it according to the packing list after receiving the planter. Before installing the seeder, spread out the parts in a clean place, and refer to the structural drawing for installation. The installation sequence is as follows:

2.2.1 On the flat ground, put the main frame to a support with certain height, install the upper and lower hitch assemblies to form the main frame assembly.

Note: The support for the main frame shall be stable.



The surface
be facing dc



To install the lower hitch to the main frame:
 Step 1- insert the back side fixing clamp to the main frame, make sure the top is inserted first
 Step 2 – inset the bolts
 Step 3- assemble the lower hitch to the bolts and tighten it up with the nuts.



2.2.2 Install the seeding assembly to the main frame

Use M16U bolts to install the seeding assembly (below picture) onto the main frame according to the row spacing by the crop requirement and pay attention to the installation symmetry.

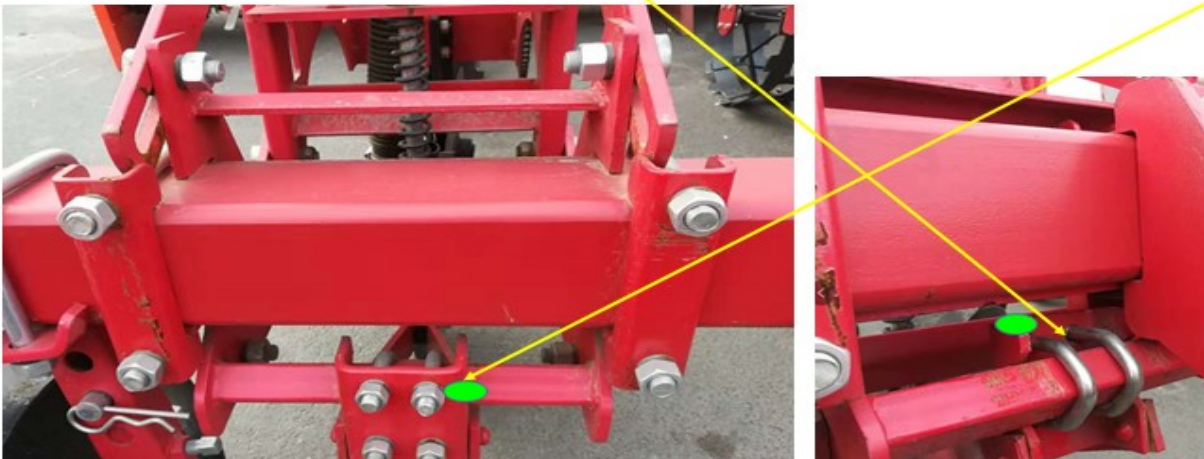


Always put the U bolt outside of the supporting frame of the seeding seeding assembly. See below picture

The U bolt need to be put outside of the seeding assembly, so the lower hitch can move inside of 1



To move the lower hitch freely inside of the front support of the seeding assembly unit, turn of the fertilizer opener at inner side of the frame



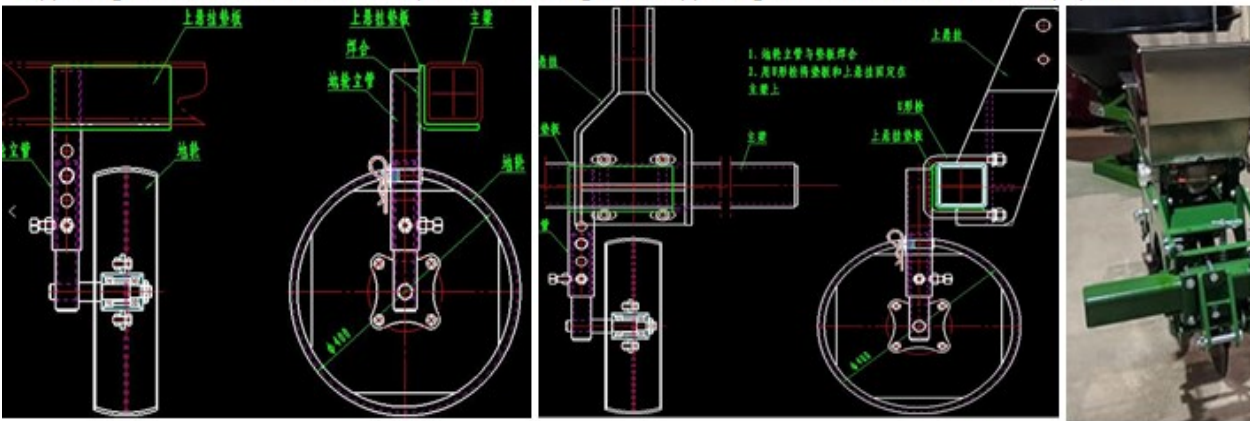
Note: when the number of rows is odd, connect the center row with the upper hitch by bolts.

2.2.3 Install the supporting wheel assembly

Install the supporting wheel assembly on the main frame with U-bolts (M16). The supporting wheel assembly is located in the middle of two assemblies at both ends, as an auxiliary support to control the height of the main frame.

See below picture for instruction.

Both 4 row and 2 row planters have the same top hitch, and both have an L shape plate slide inside of the top hitch. However ONLY supporting wheel must be centric to the top hitch and the leg of the supporting wheel is welded on the L shape plate



For 4 row planter, there will be 2 depth engage wheels. They are located on the two side of the main frame symmetrically.



2.2.4 Fertilizer hopper and fertilizer loading assembly

Fix the fertilizer loading assembly on the rear support assembly, and then fix the fertilizer hopper assembly on the fertilizer loading system assembly. Use the rubber fertilizer tube and the band throat clamp. to connect the fertilizer loading box with the disk opener

2.2.5 Installation of seed box assembly

Fix the seed hopper assembly with M8×16 screws and washers onto the spoon-clamping type seed-metering unit.

2.2.6 Installation of tensioning wheel assembly

Install the fertilizer tensioning wheel assembly on the rear support assembly; install the seed tensioning wheel assembly on the ground wheel support.



2.2.7 Installation of seed-metering chain sprocket and ground-wheel chain sprocket
The 14&17-tooth seed-metering chain sprocket can be installed in two ways: generally, 17 teeth chain sprocket is installed inside

When **the 9&12-tooth ground-wheel chain sprocket** can be installed, the 9 teeth chain sprocket is installed inside.

Different crop spacing can be obtained by different installation methods, and multiple plant spacing can be selected by matching the gear of the seed-metering unit.

Note: See the plant spacing table for details.

2.2.8 Chain installation

Use 25.4 double-pitch chain (68 sections) to connect the ground wheel with the seed-metering unit chain sprocket, use 25.4 double-pitch chain (52 sections) to connect the seed-metering unit chain sprocket with the fertilizer-loading chain sprocket, attach the tension spring of tensioning wheel to related hole and make the chain tight properly.

2.2.9 Row marker installation

Fix the row marker on both sides of the main frame with U-bolts, and pay attention to the left and right sides.

If the hydraulic rower is selected, fix the oil pipe on the main frame and connect it with the row marker oil cylinder.

2.3 Planter adjustment

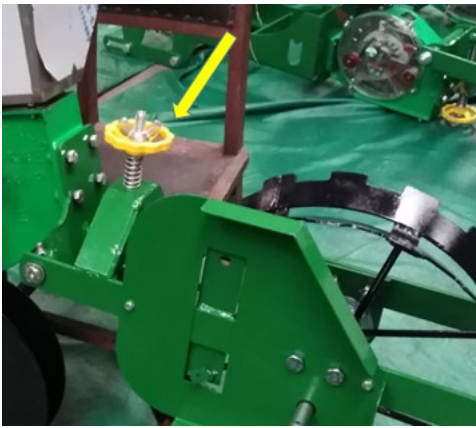
2.3.1 Fertilization depth adjustment: the fertilization depth can be adjusted by adjusting the position of the lifting pull rod spring behind fertilizer disk opener.

The fertilization depth is large when the lifting pull rod spring is tight and vice versa.

The fertilizer disk opener **MUST** be positioned left or right side from the seeding disk opener, to separate seeding and fertilizing and avoid seed being over-fertilize.

Note: **DO NOT** align the fertilizer disk opener with the seeding disk opener in a line.

2.3.2 Seeding depth adjustment: the seeding depth can be adjusted by adjusting the position of the ground wheel. Raising the ground wheel can increase the seeding depth, and vice versa. The ground wheel can be adjusted by the hand wheel.



2.3.3 Adjustment of fertilizer loading amount

The working length of the fertilizer loading wheel can be adjusted by the plastic hand-wheel, thus changing the fertilizer loading amount.

The method for testing the fertilizer loading amount is as follows:

- a. Fix the plastic hand wheel at the required position;
- b. check the working length (flutes) of all fertilizer loading wheels, and ensure the error not greater than 0.05 inch.
- c. fertilizing quantity test: lift the planter, make the ground wheel rotate for a few turns (make the fertilizer loading box full of fertilizer), and then make the ground wheel rotate with the rotating speed close to the working speed, collect the fertilizer discharged by each fertilizing unit with small box, and then weigh all fertilizers according to the following formula to calculate the fertilizer quantity per acre. If the measured value do not match the desired fertilizing quantity per acre, the opening length (flutes) of the fertilizer loading wheel shall be adjusted. Calculation formula of fertilizer quantity (lbs/acre):

$$Q = \frac{43560 * G}{\pi \times D \times n \times B \times (1+\delta)}$$

Where: Q-fertilizer quantity per acre (lbs/acre)	G-total discharge of all fertilizer loading boxes (lbs)
D-ground wheel diameter (1.64ft)	n-number of revolutions of ground wheel during test
B - planter working width (ft)	δ - slip rate of ground wheel
	δ= 0.05-0.1

Note: Please contact local dealer for quantity/area calculation if you are in USA.

When there is a difference between the calculated fertilizer loading amount and the agronomic requirements, the working length (flute) of the fertilizer loading wheel can be adjusted and then tested until the requirements are met.

2.3.4 Row spacing adjustment

Adjust according to agronomic requirements, and pay attention to the symmetrical arrangement of assembly on the frame.

2.3.5 Plant spacing adjustment

The plant spacing can be adjusted by replacing the chain sprocket with different teeth on the ground wheel and the seed-metering unit, and matching with the gearbox gear, a variety of plant spacing can be selected. The relationship between the number of teeth and the gearbox gear and the spacing (inch) is shown in the following table.

(The plant spacing is for reference only, and the specific values change with the change of slip rate of ground wheel)

Chain sprocket ratio (ground wheel / seed metering)	Number of corn per seed plate	Corn crop spacing (inch)	Number of soybean per seeds plate	Soybean crop spacing (inch)	Number of sorghum per seeds plate	Sorghum crop spacing (inch)	Seed-metering unit gear
9 teeth with 17 teeth	18	5.9	50	2.1	42	2.6	Gear I
9 teeth with 17 teeth	18	7.1	50	2.6	42	3.1	Gear II
9 teeth with 17 teeth	18	8.3	50	3	42	3.5	Gear III
9 teeth with 17 teeth	18	9.5	50	3.4	42	4.1	Gear IV
9 teeth with 17 teeth	18	10.7	50	3.7	42	4.6	Gear V
9 teeth with 17 teeth	18	11.9	50	4.3	42	5.1	Gear VI
9 teeth with 17 teeth	18	13	50	4.7	42	5.6	Gear VII
Chain sprocket ratio (ground wheel / seed metering)	Number of corn seed per rotation	Corn crop spacing (inch)	Number of soybean seeds per rotation	Soybean crop spacing (inch)	Number of sorghum seeds per rotation	Sorghum crop spacing (inch)	Seed-metering unit gear
12 teeth with 17 teeth	18	4.5	50	1.6	42	1.9	Gear I
12 teeth with 17 teeth	18	5.4	50	1.9	42	2.3	Gear II
12 teeth with 17 teeth	18	6.2	50	2.2	42	2.7	Gear III
12 teeth with 17 teeth	18	7.1	50	2.6	42	3.1	Gear IV
12 teeth with 17 teeth	18	8	50	2.9	42	3.4	Gear V
12 teeth with 17 teeth	18	8.9	50	3.2	42	3.8	Gear VI

12 teeth with 17 teeth	18	9.7	50	3.5	42	4.2	Gear VII
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The above is the selection table of plant spacing when the seed-metering chain sprocket is unchanged (17 teeth) and the tooth number of ground-wheel chain sprocket is changed to match the gearbox gear.

(The slip rate of ground wheel is calculated as 10%).

Chain sprocket ratio (ground wheel / seed metering)	Number of corn seed per rotation	Corn crop spacing (inch)	Number of soybean seeds per rotation	Soybean crop spacing (inch)	Number of sorghum seeds per rotation	Sorghum crop spacing (inch)	Seed-metering unit gear
12 teeth with 14 teeth	18	3.7	50	1.3	42	1.6	Gear I
12 teeth with 14 teeth	18	4.4	50	1.6	42	1.9	Gear II
12 teeth with 14 teeth	18	5.1	50	1.9	42	2.2	Gear III
12 teeth with 14 teeth	18	5.9	50	2.1	42	2.5	Gear IV
12 teeth with 14 teeth	18	6.6	50	2.4	42	2.8	Gear V
12 teeth with 14 teeth	18	7.4	50	2.6	42	3.1	Gear VI
12 teeth with 14 teeth	18	8	50	2.9	42	3.4	Gear VII

Chain sprocket ratio (ground wheel / seed metering)	Number of corn seed per rotation	Corn crop spacing (inch)	Number of soybean seeds per rotation	Soybean crop spacing (inch)	Number of sorghum seeds per rotation	Sorghum crop spacing (inch)	Seed-metering unit gear
9 teeth with 14 teeth	18	4.9	50	1.8	42	2.1	Gear I
9 teeth with 14 teeth	18	5.9	50	2.1	42	2.5	Gear II
9 teeth with 14 teeth	18	6.9	50	2.5	42	2.9	Gear III
9 teeth with 14 teeth	18	7.8	50	2.8	42	3.3	Gear IV
9 teeth with 14 teeth	18	8.8	50	3.1	42	3.8	Gear V
9 teeth with 14 teeth	18	9.8	50	3.5	42	4.2	Gear VI
9 teeth with 14 teeth	18	10.7	50	3.9	42	4.6	Gear VII

The above is the selection table of plant spacing when the seed-metering chain sprocket is unchanged (14 teeth) and the tooth number of ground-wheel chain sprocket is changed to match the gearbox gear.

(The slip rate of ground wheel is calculated as 10%).

2.3.6 Replacement of seed-metering plate

This planter is equipped with corn, soybean and sorghum seed-metering plate. When the planter leaves the factory, the corn seed-metering plate is installed on the seed-metering unit. Users can replace the soybean plate or sorghum plate as required. When replacing the plate, do not remove the seed-metering unit. Please refer to the above operation Instruction of the seed-metering unit.

2.3.7 Row marker adjustment

The row market length is related to the target selected by the driver. When driving in the forward position, the target is generally on the center line of the locomotive, and the calculation formula of the marking length is:

$$L_{\text{left}} = L_{\text{right}} = B/2 + C$$

When the target is selected to align the right front wheel of the tractor with the marking line and adopt the shuttle seeding method, the calculation formula is as follows:

$$L_{\text{left}} = (B+A)/2 + C \quad L_{\text{right}} = B - A/2 + C$$

$$B = (\text{number of lines} - 1) \times \text{line spacing (inch)}$$

$$C = \text{line spacing (inch)}$$

$$A = \text{distance between tractor front wheel centerlines (inch)}$$

The adjustment method is to loosen the adjusting rod fixing bolt, pull the adjusting rod to the proper position and then fix it.

3. Planter Use and Maintenance

3.1 Planter use

3.1.1 After the planter is connected with the tractor, the frame shall be horizontal and not skewed, otherwise the consistency of seeding depth in each line will be affected.

3.1.2 Before adding seeds (fertilizer), the sundries in the box shall be removed first, and the seeds or fertilizer in packages shall not be thrown into the box to avoid crushing the seed (fertilizer) box. No sundries shall be carried when seeds and fertilizer are added, and there shall be no hardened lumps in the fertilizer.

3.1.3 Users shall use screened seeds.

3.1.4 Before the formal seeding, 30-60ft trial seeding can be carried out at the edge of field to observe whether the seed metering meets the requirements. During seeding, the working condition of the seed-metering mechanism shall be observed.

3.1.5 During seeding, the seed surface height in the seed chamber of the seed-metering unit shall be appropriate, and the green knob shall be pulled out to adjust through the seed-blocking plate.

3.1.6 During seeding, pay attention to the working condition of the disk opener. If there is soil bonding, or the disk opener is blocked by weeds or crops, stop the plant in time to remove.

3.1.7 When the planter is not raised, the tractor is not allowed to move backward and turn sharply. The planter shall be raised or lowered slowly to avoid blocking the disk

opener and the seed tube.

3.1.8 When the plot is transported or transferred over a long distance, **seeds and chemical fertilizers shall not be loaded, and can be added only after arriving at the work site.**

3.1.9 Before use, butter shall be filled at each oil filling point, and each fastening part and pin shaft connecting part shall be checked one by one, without looseness and detachment;

3.1.10 The tractor shall be started and stopped according to the specified action signal sent by the planter operator under the condition of confirming safety.

3.2 Planter maintenance

3.2.1 At the end of each shift, clean the soil on the planter.

3.2.2 At the end of each shift, check and tighten the fasteners at all parts.

3.2.3 Check whether the drive parts are flexible, and timely adjust them if they are abnormal.

3.2.4 Refuel the lubricating point every shift.

3.2.5 After the seasonal operation, thoroughly clean the seed box, place it in the drying shed, and pad with wood to prevent moisture and corrosion.

3.2.6 Protect the chain sprocket and the chain with oil.

3.2.7 Store each pressure spring in a free state.

3.2.8 Polish and paint the rusted parts. Check all parts and replace them in case of damage.

4. Planter Main Technical Specifications

Items		Unit	BYJ-2D	BYJ-3D	BYJ-4D	BYJ-5D	BYJ-6D
Outline dimension	Length	ft	6.5	6.5	6.5	6.5	6.5
	Width		5.7	8.7	11.6	14.6	17.5
	Height		3.9	3.9	3.9	3.9	3.9
Structure weight		lbs	772	1190	1455	1637	2160
Structure type		/	Mechanical, 3 point hitch				
Line spacing range		inch	17.7-35.4				
Type of seed-metering unit		/	Spoon-clamping type (corn), spoon-type (sorghum), soybean (socket type)				
Type of fertilizer apparatus		/	Fluted-wheel				
Crop spacing		inch	3.7-13 (corn) 1.3-4.7 (soybean) 1.6-5.6 (sorghum)				
Working speed		mph	3-6				
Seeding depth		inch	1.2-2.4				
Fertilization depth		inch	2-3.1				
Seed box volume		gallon	6.6×2	6.6×3	6.6×4	6.6×5	6.6×6
Fertilizer hopper volume		gallon	13.2×2	13.2×3	13.2×4	13.2×5	13.2×6
Tractor power		hp	30-40	40-70	50-70	70-90	70-100

Work efficiency	acre/h	1-4	1.5-6	2-8	2.5-10	3-12
Type of seeding opener	/	Double-disc type				
Type of fertilizing opener	/	Double-disc type				
Fertilizer amount adjustment range	lbs/acre	123-803 (line spacing 27.6 inch, speed ratio: 14/17)				
Transport clearance	inch	> 11.8				

5. Planter Common Faults and Troubleshooting

Fault	Fault causes	Troubleshooting
No seeds in the seed trench	Seeds level low in seed box	Add seeds
	Drive failure	Check the transmission system and eliminate the fault.
	Seed tube blockage	Clearing
Shallow seeding depth	seeding disk opener positioned too high to the ground wheel.	Lift the planter, turn the hand wheel counterclockwise to raise the ground wheel to a higher position (lift ground wheel by hand, and then turn the hand wheel is faster way), and then lock the hand wheel nut.
Chain noise	Too loose chain	Adjust the soil-covered spring hook to the appropriate hole position.
No fertilizer in the fertilizer trench	Fertilizer delivery tube blockage	Clearing
Uneven seed metering	Too low seed level in seed chamber	Adjust the seed-blocking plate upward to increase the height of seed surface.
	Foreign matter in the seed box	Clearing
Miss-seeding	See the table of seed-metering unit faults for details.	See the table of seed-metering unit faults for details.
Many double seeds		
Incorrect plant spacing		
Seeding failure		

6. Warranty Instructions

6.1 Contact local dealer for warranty period.

6.2 During the warranty period, if the equipment damage and service performance deterioration caused by the product quality are identified as the responsibility of the manufacturer, the warranty shall be provided. No warranty will be given beyond the

warranty period.

6.3 Under the following circumstances, no warranty shall be provided, and the repair shall be carried out at reasonable cost:

6.3.1 Improper use and maintenance.

6.3.2 Self-modification in violation of regulations.

6.3.3 Without warranty certificate and delivery note.

6.3.4 Failure to keep the damaged part intact.

6.3.5 Faults caused by force majeure.

6.3.6 Wearing parts, such as chains, funnels, seed tubes, etc., are not subject to warranty.

7. List of Wearing Parts

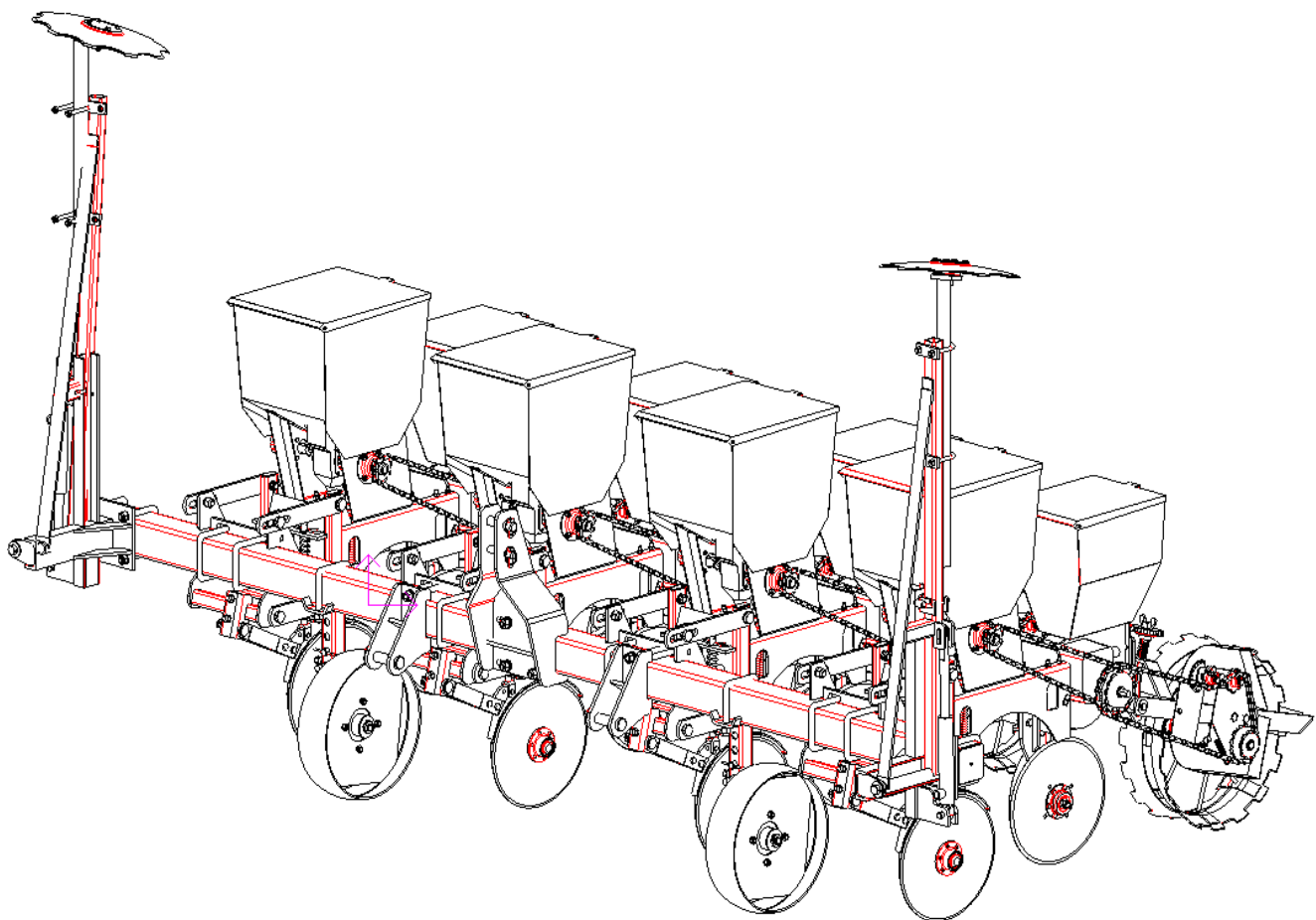
Wearing parts mainly include the fertilizer delivery tube, fertilizer apparatus, nylon sleeve, bearing (6204-2RS, 6205-2RS, 6005-2RS), etc.

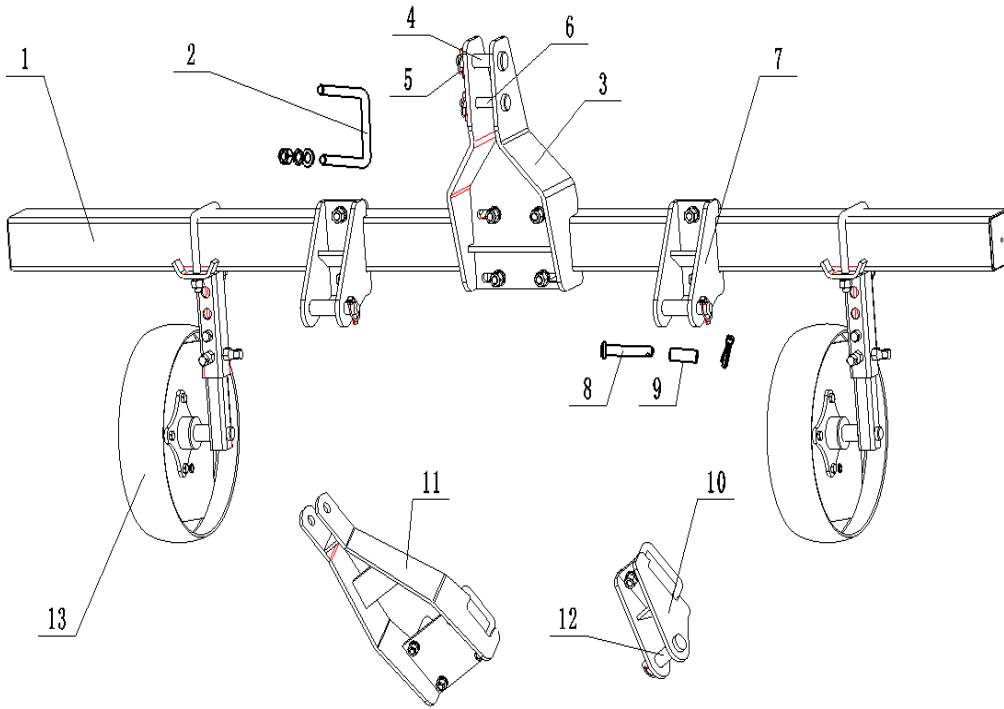
Note: Due to the continuous improvement, no notice will be given in case of any discrepancy between the physical object and the Instruction

BYJ-D Series Row Planter

For corn soybean sorghum

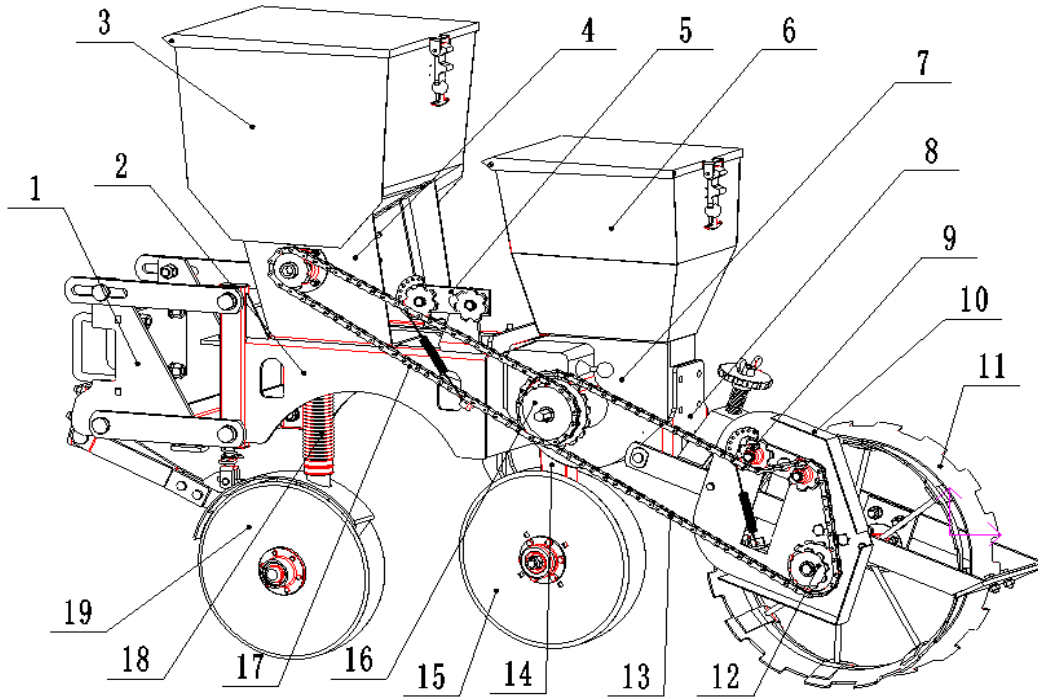
Parts List





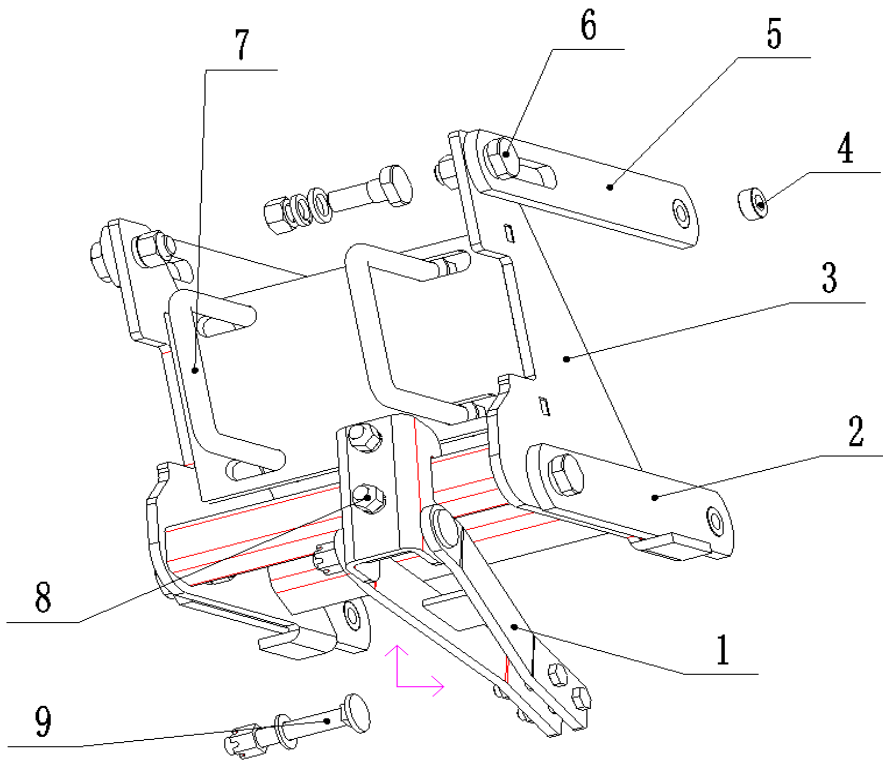
BYJD Seeder main frame, Hitch, Supporting wheels Assembly

S/N	P/N	QTY	Name	Remark
1	BYJ4C-1-1M	1	Main frame welding	4 Row planter
	BYJ2C-1-1M	1	Main frame welding	2 Row planter
2	3ZF6-1-603	4	U bolt	
3	BYJ4D-1K-1	1	Upper hitch welding	for CAT I quick hitch
4	BYJ4D-1K-602	1	Upper hitch pin axle 2	
5	GB/T4329	4	Lock pin 10	
6	BYJ4D-1K-601	1	Upper hitch pin shaft 1	
7	BYJ4D-2K-1	2	Lower hitch welding	for CAT I quick hitch
8	BYJ4D-2K-601	2	Lower hitch pin shaft	
9	BYJ4D-2K-602	2	Lower hitch pin shaft sleeve	
10	BYJ4D-2	2	Lower hitch welding assembly	CAT II
11	BYJ4D-1	1	Upper hitch welding assembly	CAT II
12	4Q165-0-601	2	Lower hitch pin	CAT II
13	BYJ6C-8	2	Supporting wheel assembly	4 Row planter only
	BYJ2D-8K	1	Supporting wheel assembly	2 Row planter only



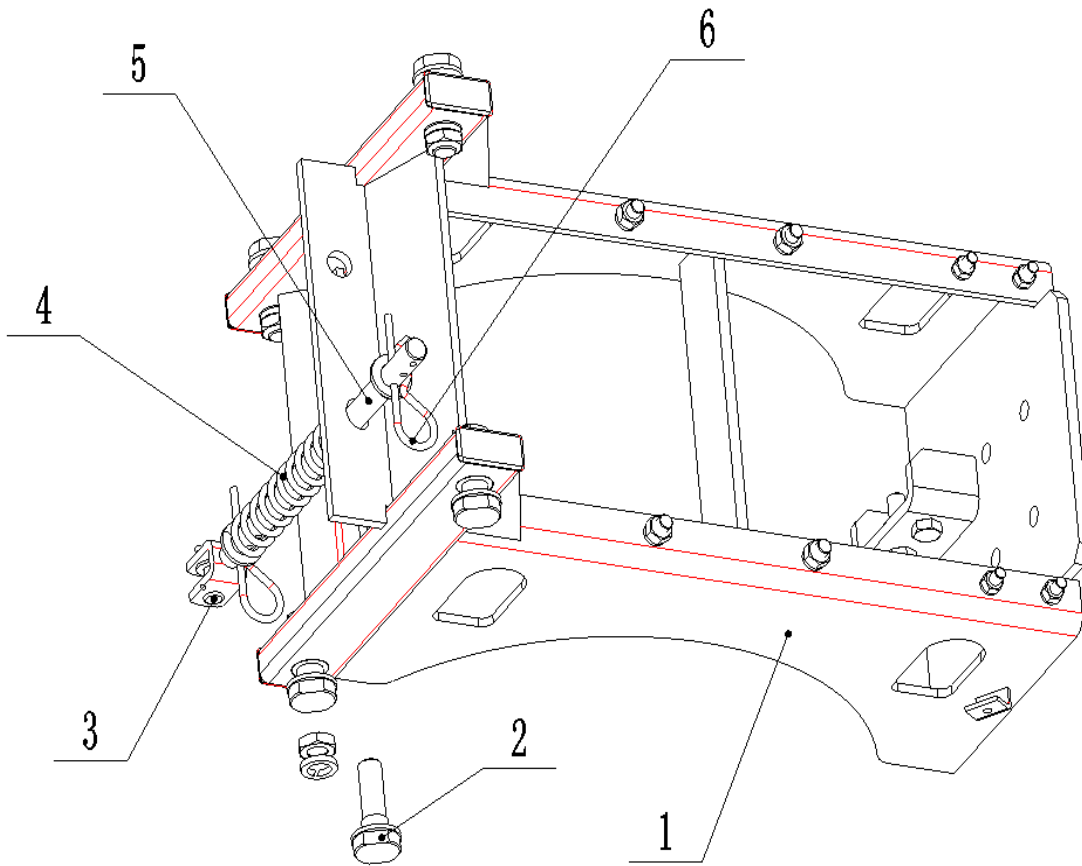
BYJ4D seed metering unit

S/N	P/N	QTY	Name	Remark
1	BYJ4D-3	1	Front support assembly	
2	BYJ4D-4	1	Rear support assembly	
3	BYJ4D-13	1	Fertilizer hopper assembly	
4	BYJ4D-11	1	Fertilizer loading system assembly	
5	BYJ4C-15	1	Fertilizer tension wheel assembly	
6	BYJ4D-14	1	Seed box assembly	
7	BYJ4D-12	1	Seed-metering unit assembly	
8	BYJ4D-5-1	1	Compressing wheel support assembly	
9	BYJ4C-5-3A	1	Seed tension wheel assembly	
10	BYJ4C--5-406	1	Apron for sprocket	
11	BYJ4D-5	1	Compressing wheel assembly	
12	BYJ4C-0-3X	1	9-12 Sprocket welding	
13	GB/T5269	1	Chain 208B 68 sections	
14	BYJ4D-7-1-2	1	Seed tube welding	
15	BYJ4D-7B	1	Seed disk opener assembly	
16	BYJ4D--0-1-1	1	14-17 Sprocket welding	
17	GB/T5269	1	Chain 208B 52 sections	
18	BYJ4C-0-002	1	Fertilizer tube	
19	BYJ4C-6B	1	Fertilizer disk opener assembly	



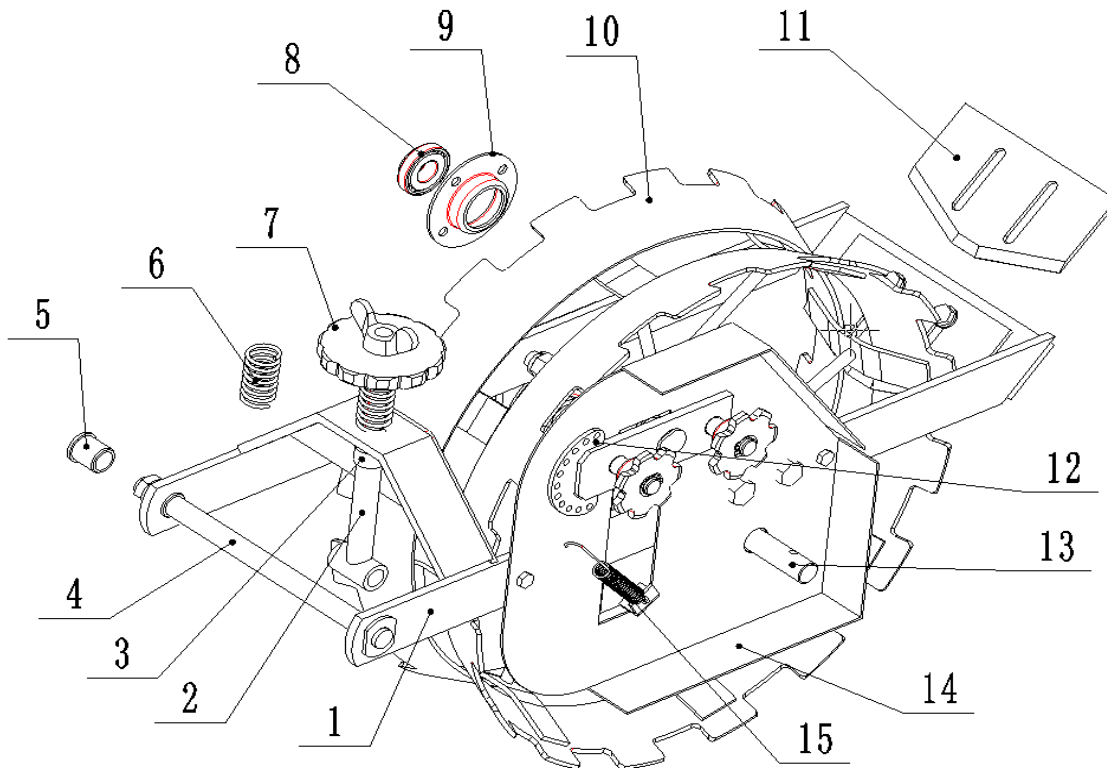
BYJ4D-3 Front Support Assembly

S/N	P/N	QTY	Name	Remark
1	BYJ4D-3-2	1	Bar assembly	
2	BYJ4C-3-501	2	short four bar linkage	
3	BYJ4D-3-1	1	Front support welding	
4	BYJ4C-3-001	6	Four bar linkage sleeve	
5	BYJ4C-3-502	2	Long four bar linkage	
6	BYJ4C-3-602	4	Short bar shaft	
7	3ZF6-1-603	2	U bolt	
8	2BFZ14-0-601	1	U bolt	
9	BYJ24-5-602X	1	Square neck bolt	



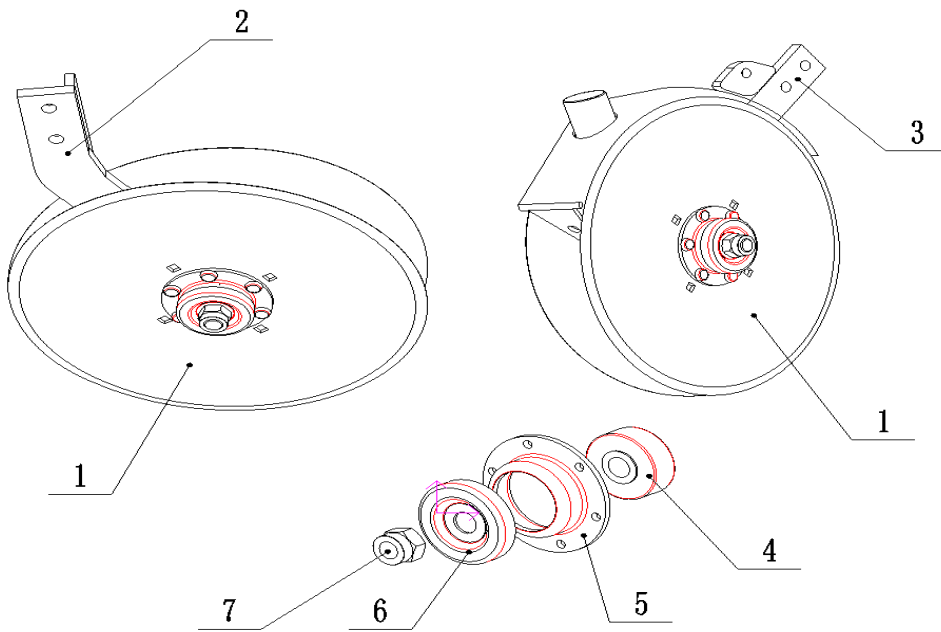
BYJ4D-4 Rear Support Assembly

S/N	Part No.	Qty	Name	Remark
1	BYJD-4-1	1	Rear support welding	
2	BYJ4C-4-604	4	Long bar shaft	
3	GB/T882	1	Pin shaft B10*35	
4	BYJ4C-4-603	1	Spring	
5	BYJ4C-4-2-1	1	Shifting beam welding	
6	BYJ4C-4-602A	2	Spring pin	



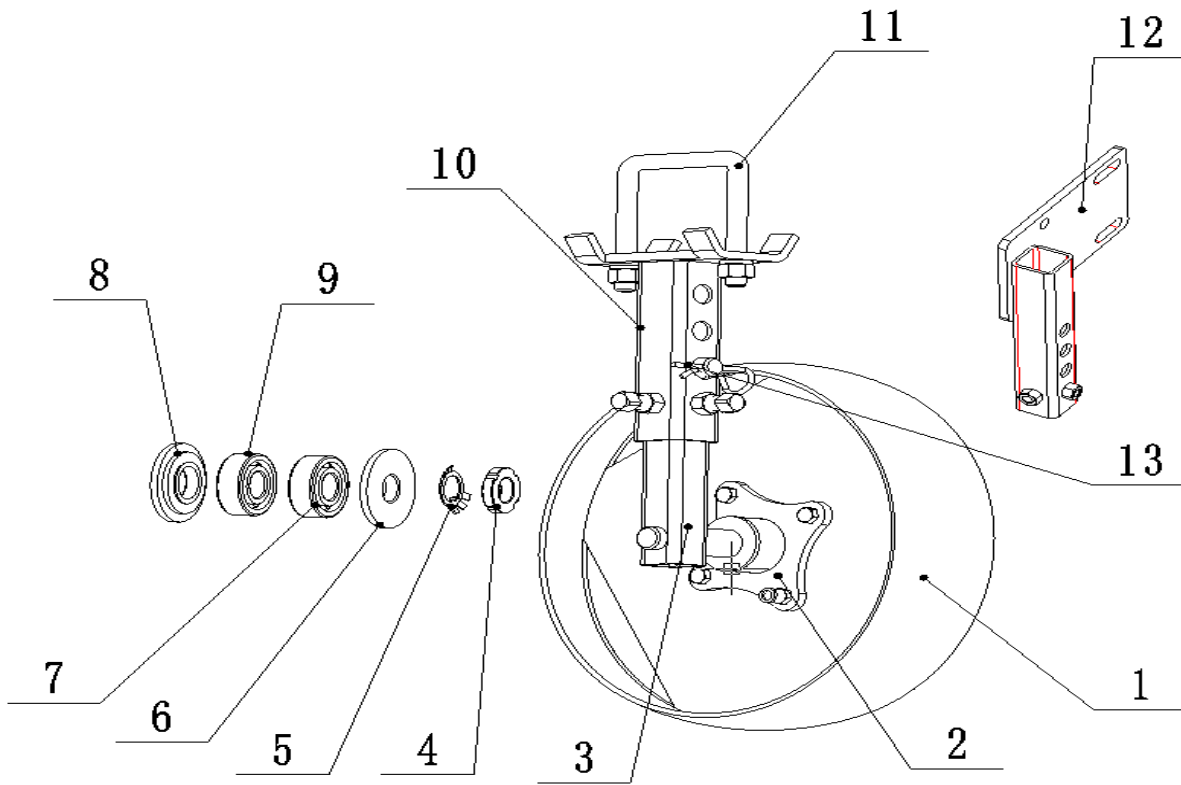
BYJ4D-5 Compressing wheel Assembly (Depth Control wheel)

S/N	P/N	QTY	Name	Remark
1	BYJ4D-5-2-1	1	Support arm welding of compressing wheel	
2	BYJ4D-5-2-2	1	Limit lever welding of compressing wheel	
3	BYJ4C-5-803	1	Limit lever tube	
4	BYJ4D-5-2-3	1	Screw rod welding	
5	BYJ4C-5-001	2	Sleeve of compressing wheel	
6	BYJ4C-5-608A	1	Pressurize spring	
7	BYJ4D-5-001	1	Adjusting hand wheel	
8	GB/T276	2	Bearing 6204-2RS	
9	BYJ4C-5-401	2	Bearing block	
10	BYJ4C-5-1-1	1	Compressing wheel welding	
11	BYJ4C-5-407	1	Clean shoe	
12	BYJ4C-5-3A	1	Seed tension wheel assembly	
13	BYJ4C-5-604	1	Compressing wheel shaft	
14	BYJ4C-5-406	1	Apron for sprocket	
15	2BQ5-6-604B	1	Spring	



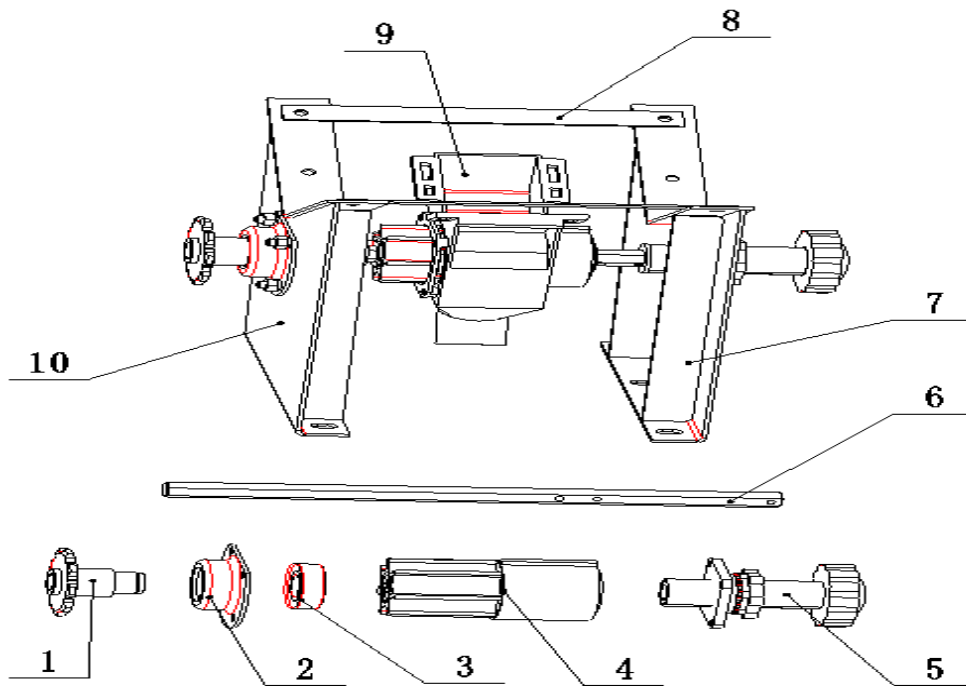
BYJ4D-7B、BYJ4C-6B Seeding (Fertilizing)Disk Opener Assembly

S/N	Part No.	Qty	Name	Remark
1	2BFC24-07-1	2	Disk riveting of opener	
2	BYJ4C-7-1-1A	1	Handle welding of seed disk opener	
3	BYJ4C-6-1	1	Opener body welding	
4	AA205DD	2	Bearing AA205DD	
5	2BFC24-07-402	2	Disk hub	
6	2BFC24-07-403	2	Protecting cover	
7	GB/T889.1	1/each	Lock nut	



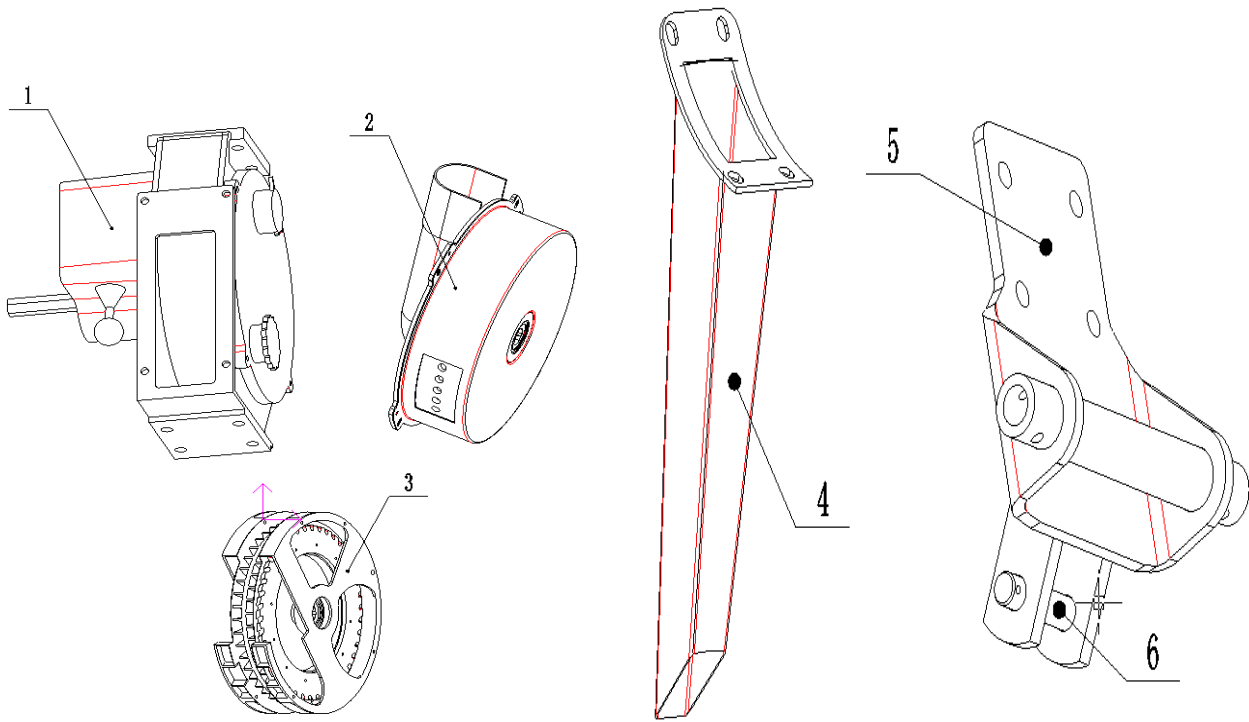
BYJ6C-8 & BYJ2D-8K (Supporting Wheel Assembly)

S/N	P/N	QTY	Name	Remark
1	BYJ4C-8-4	1	Supporting wheel welding	
2	BYJ4C-8-1	1	Hub welding	
3	BYJ4C-8-2	1	Inner tube welding	
4	GB/T812	1	Round nut M20	
5	GB/T858	1	Locking washer	
6	BYJ4C-8-405	1	Sealing cover B	
7	GB/T276	1	Bearing 6204-2RS	
8	BYJ4C-8-404	1	Sealing cover A	
9	GB/T276	1	Bearing 6005-2RS	
10	BYJ4C-8-3	1	Outside tube welding	4 row planter only
11	3ZF6-1-603	1	U bolt	
12	BYJ2D-8K-3	1	Outside tube welding	2 row planter only
13	BYJ4C-4-602A	1	Spring pin	



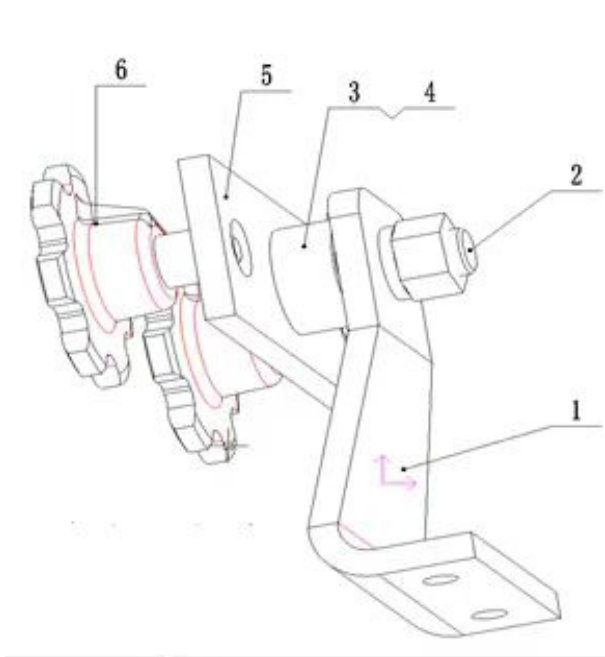
BYJ4D-11 Fertilizer Meter System Assembly

S/N	P/N	QTY	Name	Remark
1	BYJ4D-11-5	1	Fertilizer Sprocket welding	
2	2BFX24-02-406A	1	Middle bearing block	
3	GB/T276	1	Bearing 6205-2RS	
4	BYJ4C-11-2B-1	1	Fertilizer wheel and block wheel combine	
5	BYJ4D-11-3	1	Handle wheel assembly 20	
6	BYJ4D-11-601	1	Fertilizer shaft	
7	BYJ4D-11-2	1	Right support of Fertilizer hopper	
8	BYJ4D-11-405	2	Fertilizer hopper backing board	
9	BYJ4D-11-4	1	Fertilizer box combine	
10	BYJ4D-11-1	1	Left support of fertilizer hopper	

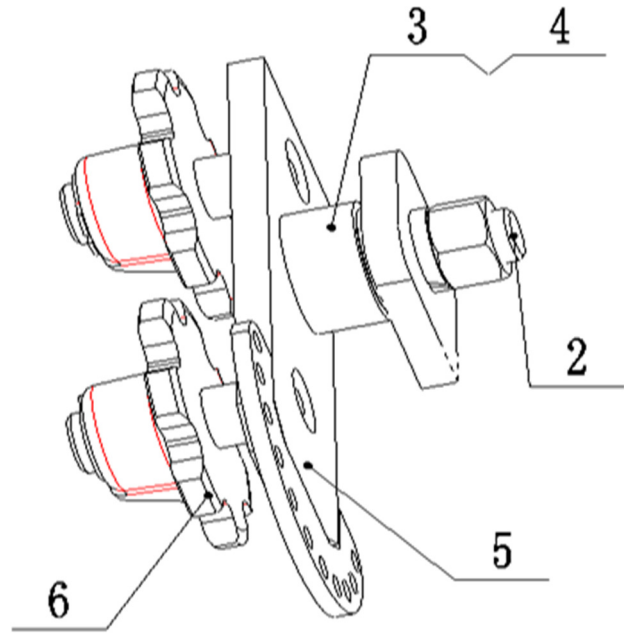


BYJ4D-12 Spoon-clamping type seed-metering、Seed tube welding、Support base welding of Compressing wheel

S/N	P/N	QTY	Name	Remark
1	BYJ4D-12	1	Spoon-clamping type seed-metering	
2	BYJ4D-12-1	1	50 Holes soyabean seed plate	
3	BYJ4D-12-2	1	42 Teeth sorghum plate	
4	BYJ4D-7-1-2	1	Seed tube welding	
5	BYJ4D-5-1	1	Support base welding of Compressing wheel	
6	GB/T882	1	Shaft pin B16*75	



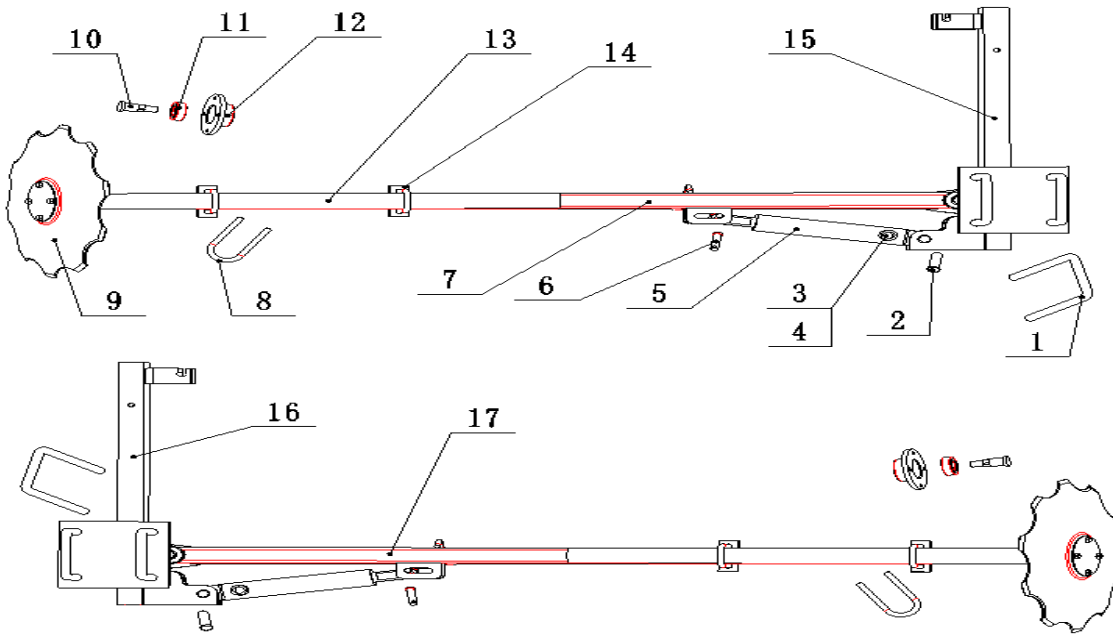
Fertilizer tension Wheel Assembly



Seed tension wheel assembly

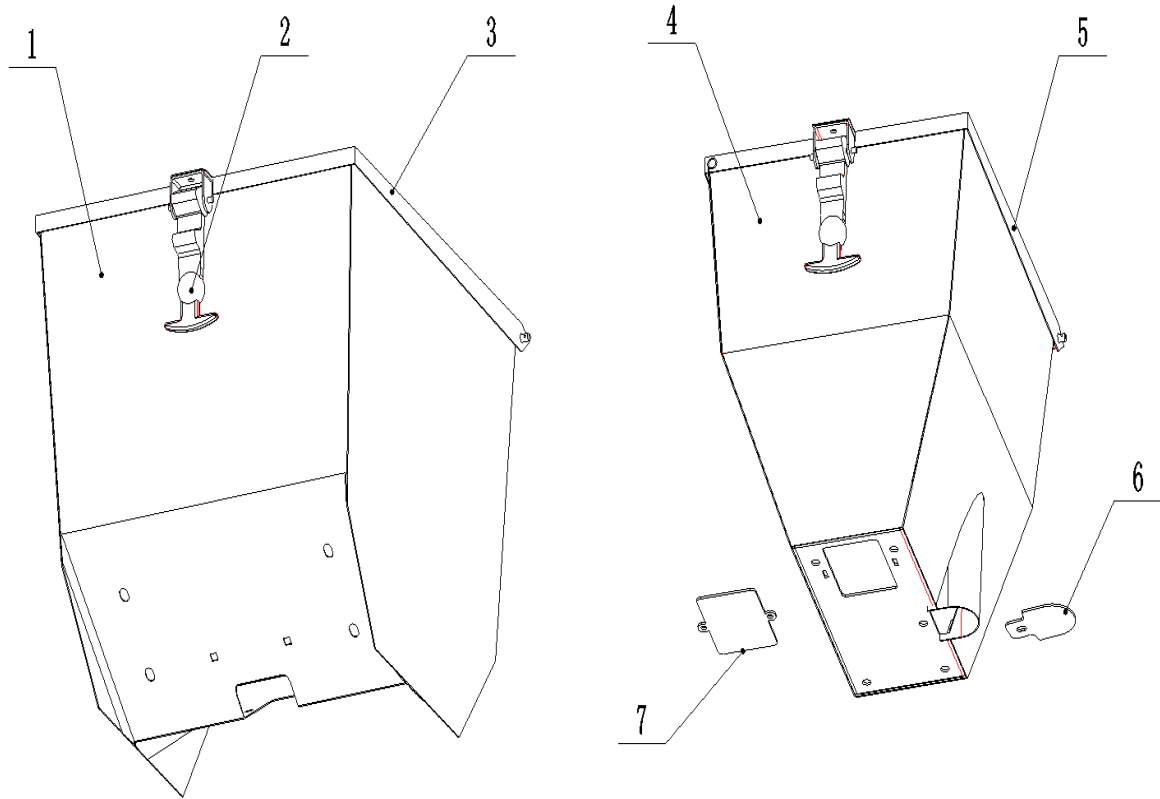
BYJ4C-15 Fertilizer tension wheel assembly、BYJ4C-5-3A Seed tension wheel assembly

S/N	P/N	QTY	Name	Remark
1	BYJ4C-15-401A	1	Fertilizer tension wheel fixed stand	
2	BYJ4C-5-606	2	Tension wheel axle	
3	BYJ4C-15-801	2	Tension wheel axle sleeve	
4	BYJ4C-5-001A	2	Sleeve of compressing wheel	
5	BYJ4C-5-3-1	2	Tension mechanism fixed stand welding	
6	3ZF12-2-102	4	Tension wheel	



BYJ6C-9Y Left Row Marker Assembly、BYJ6C-10Y Right Row Marker Assembly

S/N	P/N	QTY	Name	Remark
1	3ZF6-1-603	2	U bolt	
2	GB/T882	1	Shaft pin B16*55	
3	BYJ24-14-604	1	Hydraulic ram connect	
4	JB/T982	1	Combination washer	
5	ZG1-E32×160	1	Hydraulic ram	
6	GB/T882	1	Shaft pin B12*55	
7	BYJ24-14-3B	1	Disc marker left long tube welding	
8	2BF24-20-601	2	U bolt	
9	2BFL20-21-401	1	Disc marker notched disc	
10	2BFL20-21-602	1	Disc marker axle	
11	GB/T276	1	Bearing 6204-2RS	
12	2BFL20-21-601	1	Disc marker axle seat	
13	BYJ24-14-2	1	Disc marker short tube welding	
14	2BF24-20-501	2	Disc marker fixed board	
15	BYJ6C-9-1Y	1	Left disc marker seat welding	
16	BYJ6C-10-1Y	1	Right disc marker seat welding	
17	BYJ24-15-3	1	Disc marker right tube welding	



BYJ4D-13 Fertilizer hopper Assembly、 BYJ4D-14 Seed box Assembly

S/N	P/N	QTY	Name	Remark
1	BYJ4D-13-1	1	Fertilizer hopper body welding	
2	BYJ4C-13-3A	1	Rubber handle	
3	BYJ4C-13-2A	1	Fertilizer hopper cover welding	
4	BYJ4D-14-1	1	Seed box body welding	
5	BYJ4C-14-2A	1	Seed box cover welding	
6	BYJ4D-14-408	1	Round plug	
7	BYJ4D-14-407	1	Square plug	