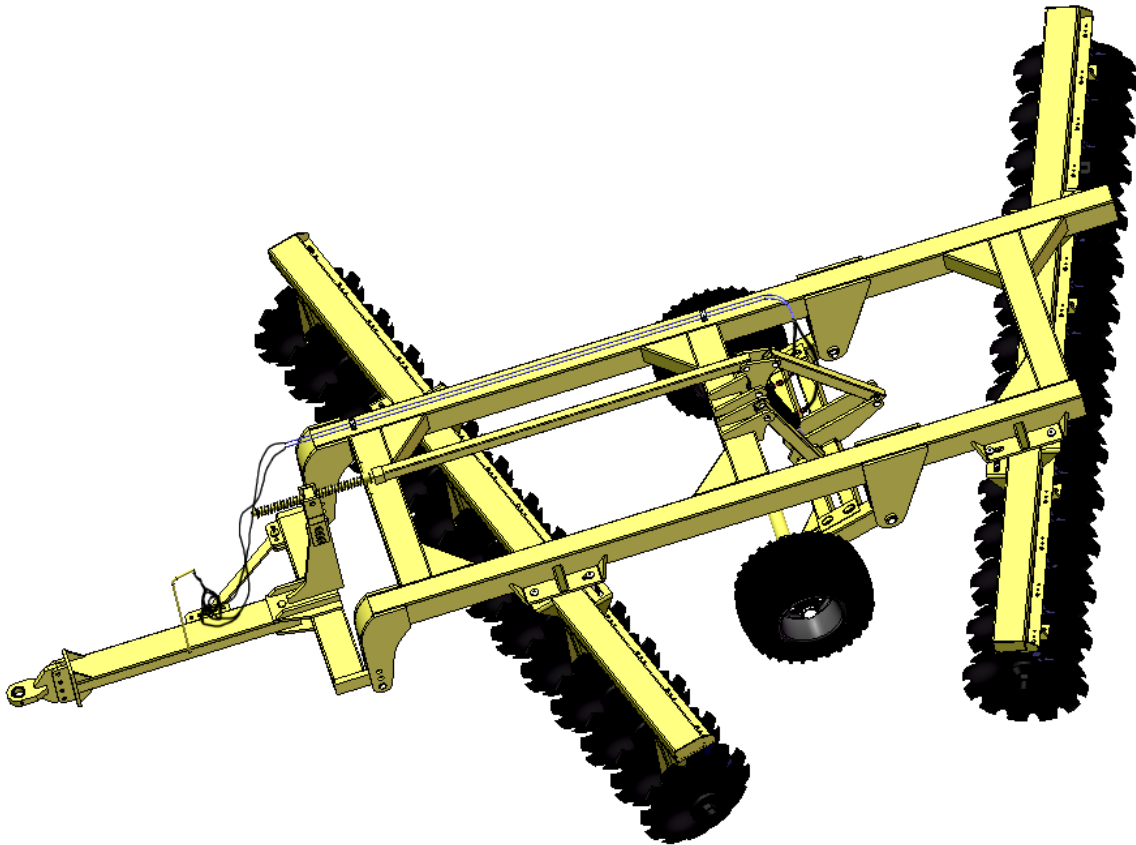


Serafin
ECO BUSTA

**OFFSET DISC
1BZZ 16 – 20 - 24 – 28 PLATES
MANUAL BOOK**



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1. Safety regulation

In order to ensure the personal safety and equipment safety of the auxiliary staff, please read the instructions carefully and use them according to the specifications

Failure to comply with the instructions and safety operation rules in this manual may lead to serious injury incidents, please be careful

To avoid dangerous situations, know and understand the safety rules in advance before proceeding to the next step.

1. Always perform pre-action checks
2. Always perform pre-use functional tests
3. Check the workplace.
4. Use the machine only according to the machine's design intent.

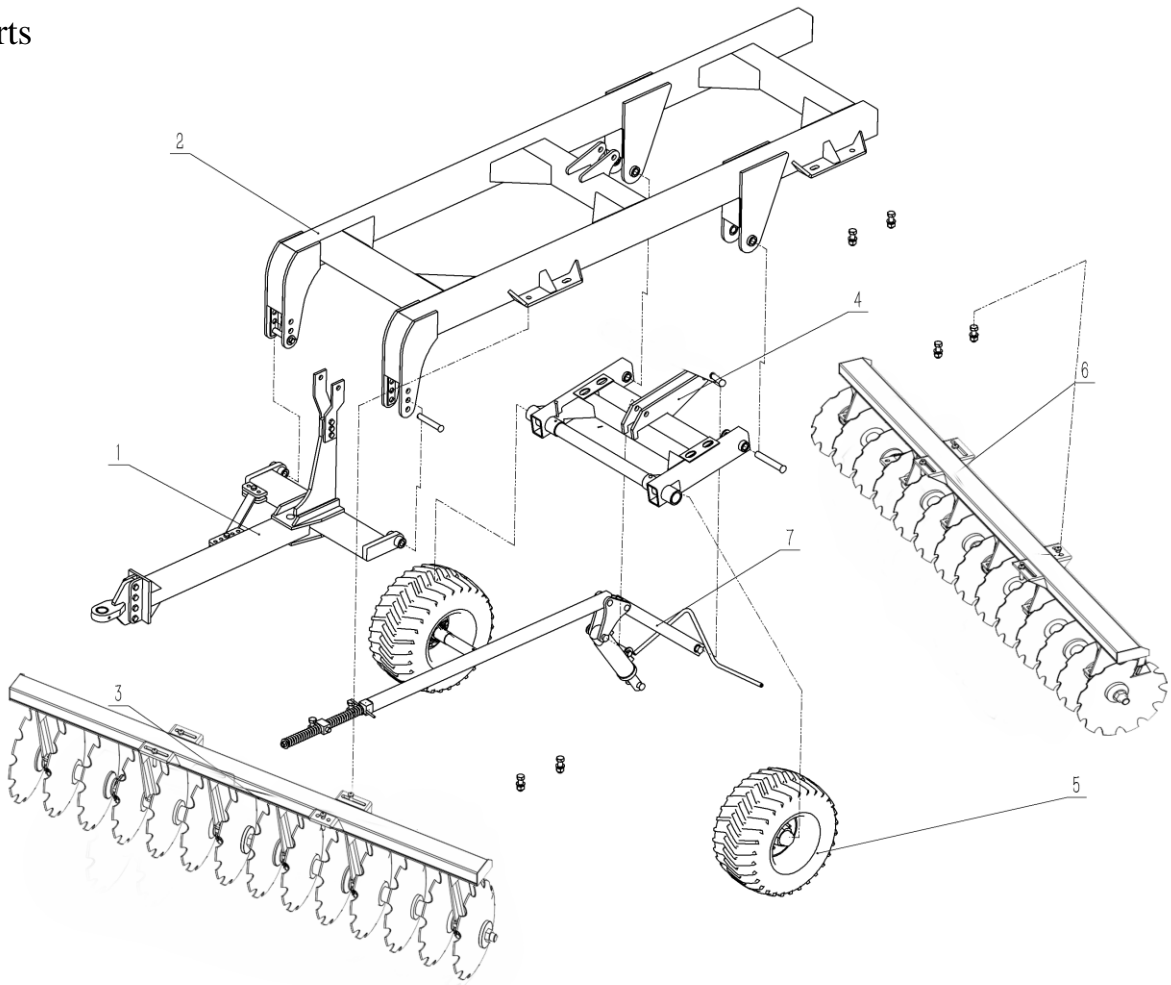
2. Product description and components

1) Product Introduction

1BZZ offset disc is applicable for hacking after the plough in heavy clay soil and stubble cleaning before the plough by “substitute harrow for plow” in moderate and light soil. Its features include high operating efficiency, reasonable power utilization, and strong capability of soil piercing and hacking, which ensures flat surface after harrowing, loose soil, stronger adaptability for clay, heavy soil, wild land and weedy land.

1BZZ offset disc absorbs the advantages of similar advanced products at home and abroad and the whole machine uses the modular structure and takes integral square welded pipe rigid rake as main body, equipped with hydraulic lifting inflatable rubber transport wheels, spring leveling mechanism and sealed rolling bearings, including outer sphere and inner square hole, specially for of the disc harrow, and it has reasonable structure, which is firm, wearable, convenient for transport, small swing radius, easy for adjustment, convenient for maintenance, is currently advanced disc harrow product at home and abroad.

2) Main parts



- 1.Drawn part 2. Main frame 3. Front disc gang 4.wheel axle frame 5. Tyre assembly
6. Front disc gang 7.Leveller assembly and hydraulic cylinder

1. Drawn part (Figure 3.1)

Linked with tractor, hydraulic cylinder adjust drawn part height to achieve discs gang balance. While the tractor is advancing, the traction is transmitted to the offset disc through the traction device, then the offset disc works.

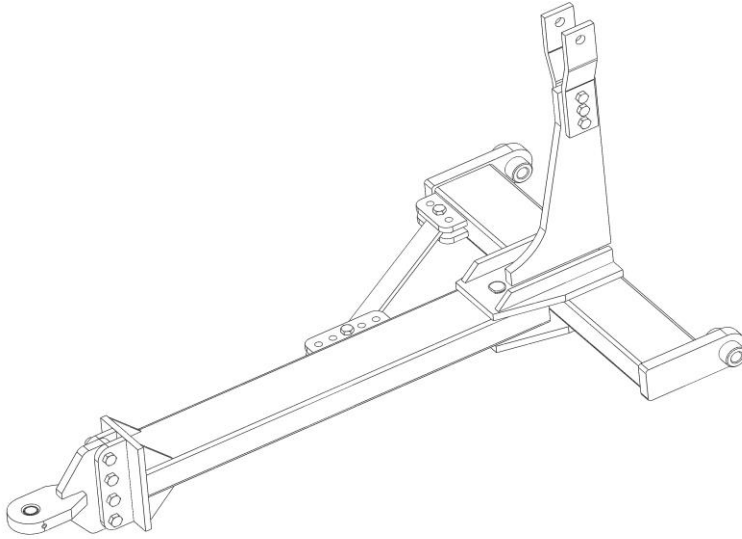


Figure 3.1

2. Main Frame (Figure 3.2)

Main frame connects drawn part, disc gangs, level system, transportation part. keep front and back discs gang balance to ensure back soil smooth

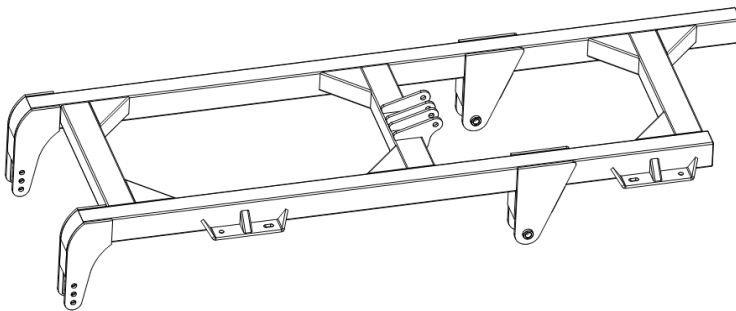


Figure 3.2

3. Front Disc Gang (figure 3.3)

Front and back disc gangs are offset disc main part After heat treatment harrow discs are Strong wear-resisting. Scraper remove clay from harrow disc to avoid blocking. The coulter blades have a certain Angle of inclination, have Shear and friction then make soil relative displacement to finish Cut off the grass,crop residues and motion of stirring and turning the topsoil to cut of the grass crop,broken soil and chessom.

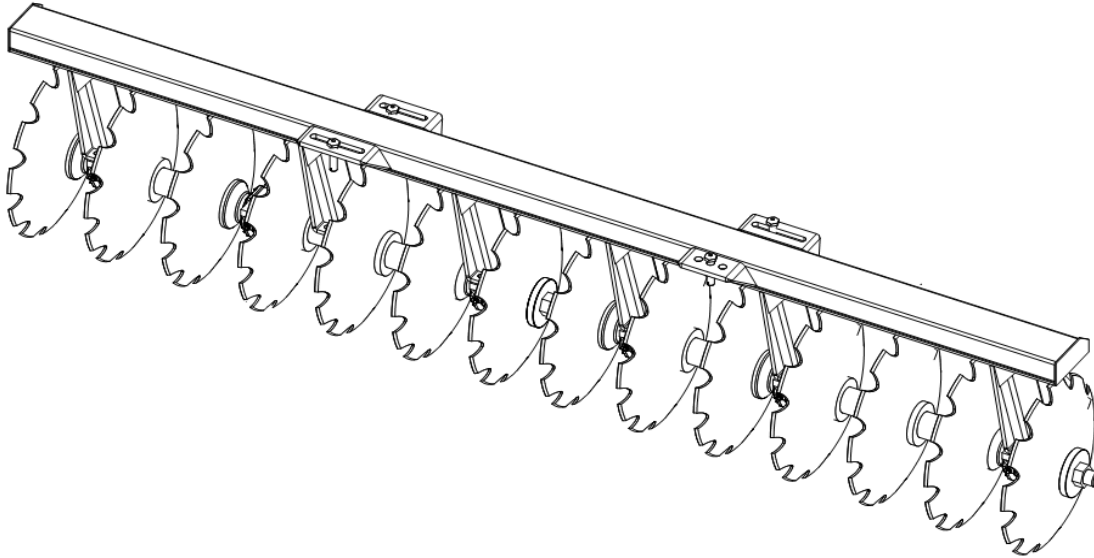


Figure3.3

3. Wheel Axle Frame (Figure 3.4)

Wheel axle structure connect frame and wheel together. Hydraulic cylinder adjust tyre height to make transportation balance

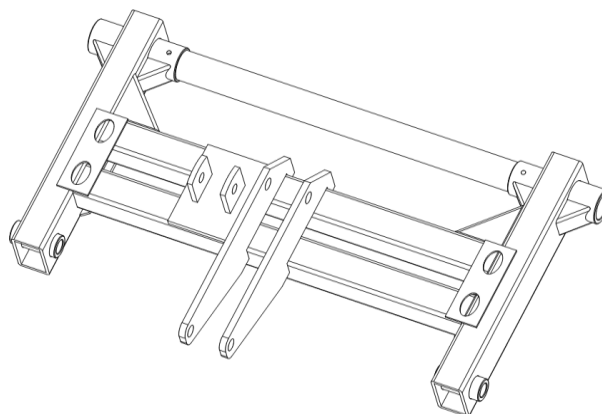


Figure 3.4

5. Transportation Wheels (Figure 3.5)

Mainly used for discs transport and transfer, also control working depth, avoid blocking, use wide tyre to enlarge contact soil surface.

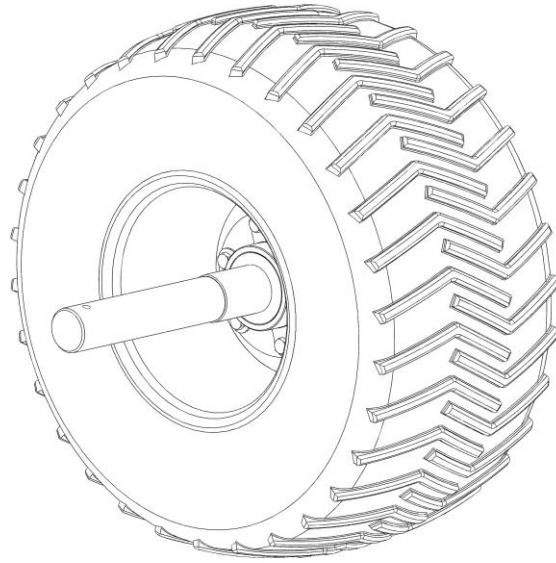


Figure 3.5

6. Back disc gang (Figure 3.6)

same as front disc gang

NOTE: Front and back disc gangs frame and scrapers **MUST** different cambered surfaces relative

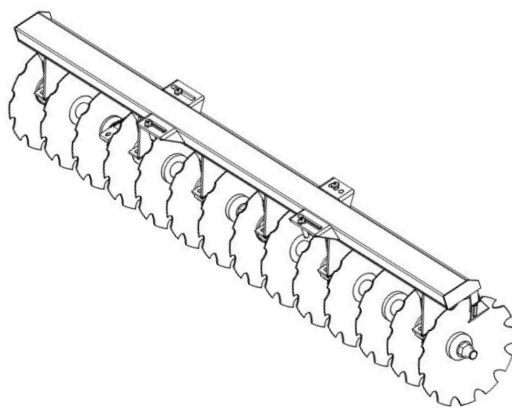


Figure 3.6

7. Leveling rod Drawn bar (Figure 3.7)

Used for Longitudinal level adjustment, keep discs work and transportation balance Spring is a buffer vibration, pay attention to the tension of the spring ensure its working condition. Fully tighten the spring is prohibition.

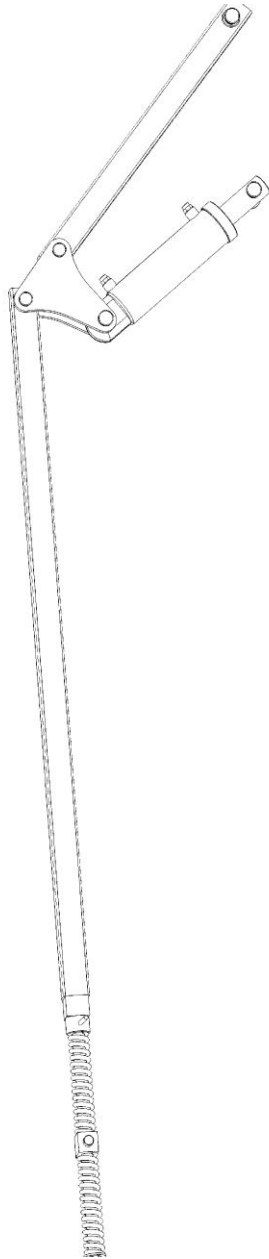


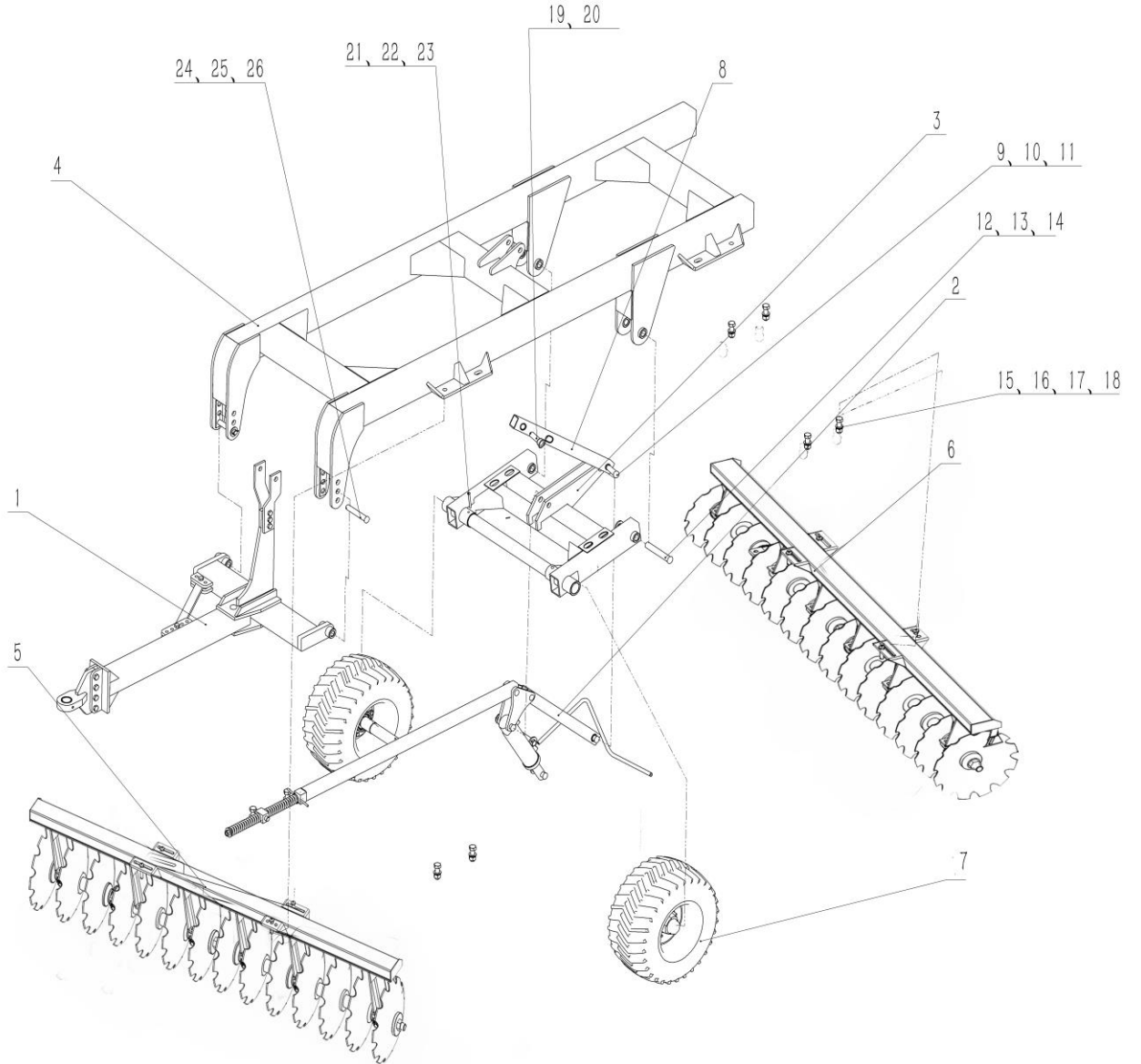
Figure 3.7

4. Type and main parameter

No	parameter	Unit	Specification				
1	Product		Heavy duty offset disc				
2	Connect type		Trailed				
4	Model		1BZZ-4.4	1BZZ-3.9	1BZZ-3.7	1BZZ-3.4	
5	Disc blade number	pc	28	24	20	16	
6	Disc dia.	mm	760	760	760	760	
7	Disc space	mm	340	340	340	340	
8	Tractor	hp	300	180-250	180-250	150-180	
9	Working width	mm	4400	3875	3690	3400	
10	Working length	mm	7560	7373	7120	6960	
11	During work	Width	mm	4700	4010	3575	3140
12		height	mm	1525	1525	1525	1525
13	Transportation height	mm	1875	1875	1875	1875	
14	.N.W	kg	4688	4054	3682	3440	
15	transport interval	mm	300	300	300	300	
16	Depth	cm	20—28				
17	Angel	度	15、18 和 22				
18	wheel space	mm	1960	1960	1860	1860	
19	Tyre		400/60-15.5 16				

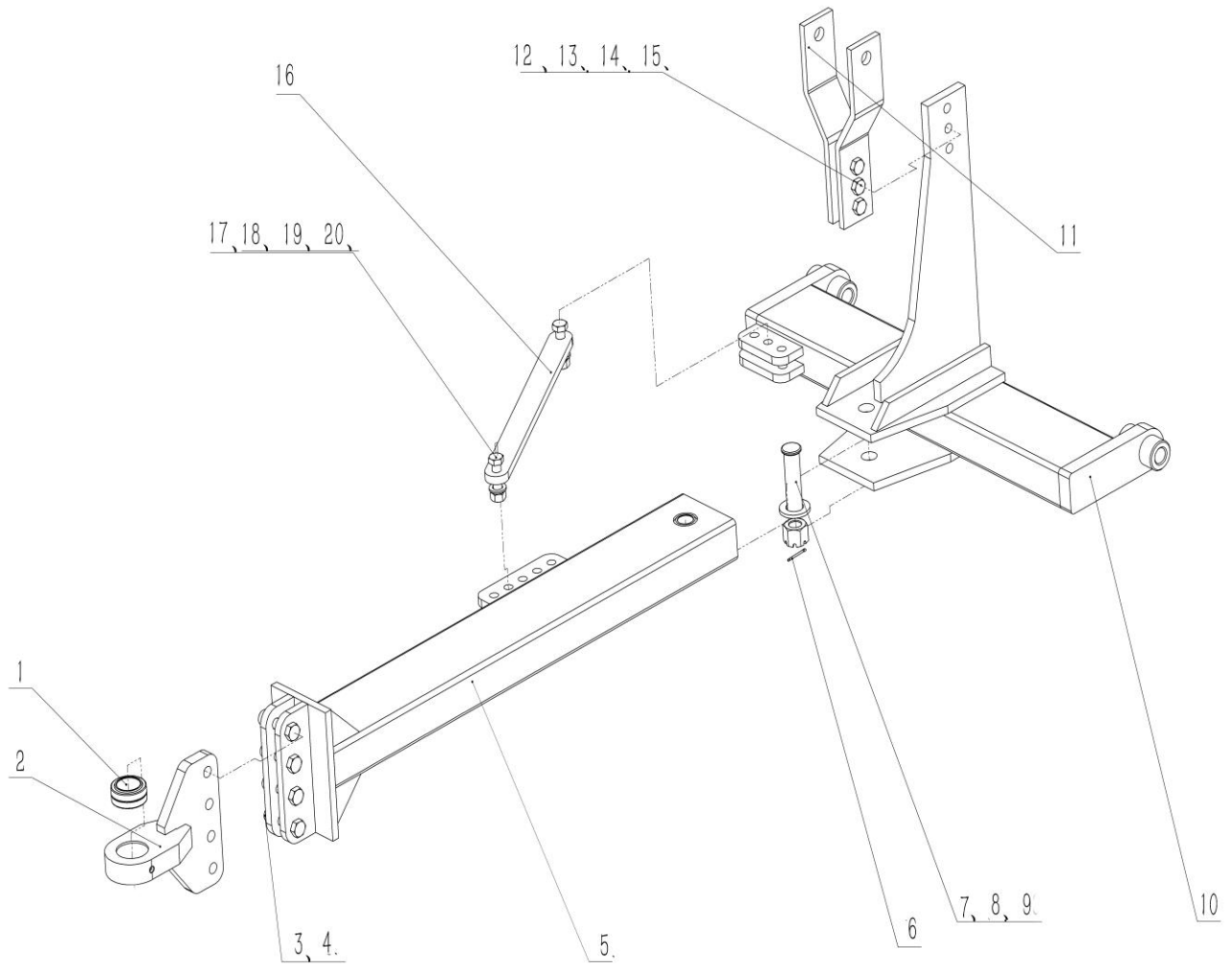
5. Spare parts list

0、Main part



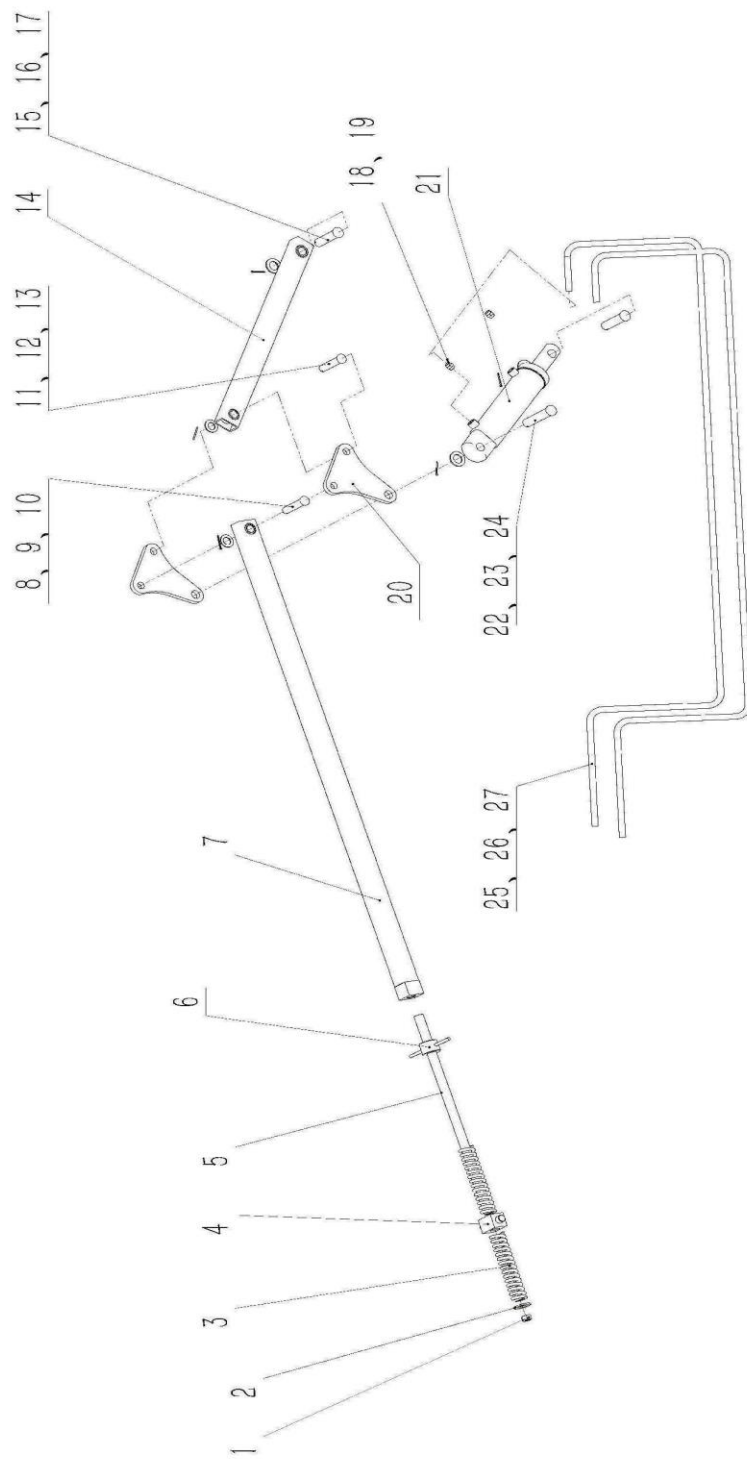
Main part--SP : standard spare parts							
No.	Item	parts	Plates no.				Note
			28	24	20	16	
1	1BZZ-4.4-01	Drawn beam assembly	1	1	1	1	
2	1BZZ-4.4-02	Leveling mechanism and oil cylinder combination	1	1	1	1	
3	1BZZ-4.4-03	Wheel axle frame combination	1	1	1	1	
4	1BZZ-4.4-04	Frame	1	1	1	1	
5	1BZZ-4.4-05	Front disc gang	1	1	1	1	
6	1BZZ-4.4-06	Back disc gang	1	1	1	1	
7	1BZZ-4.4-07	Tyre combination	2	2	2	2	
8	1BZZ-4.4-10	Upright pole	1	1	1	1	
9	1BZZ-4.4-12	Upright pole down pin	1	1	1	1	φ30*140
10	GB/ T95-2002	Flat washer Φ30	1	1	1	1	SP
11	GB/T 91-2000	B Pin	1	1	1	1	SP
12	1BZZ-4.4-11	Wheel axle Pin	2	2	2	2	φ40*265
13	GB/T 95-2002	Flat pinΦ40	2	2	2	2	SP
14	GB/T 91-2000	B Pin	2	2	2	2	SP
15	GB/T 5783-2000	Screw M30x90	8	8	8	8	SP
16	GB/T 95-2002	Flat washer Φ30	8	8	8	8	SP
17	GB/T 93-87	Spring washer Φ30	8	8	8	8	SP
18	GB/T 6170-2000	Nut M30	8	8	8	8	SP
19	1BZZ-4.4-11	Upright pole top pin	1	1	1	1	
20		Spring pin Φ8	1	1	1	1	SP
21	1BZZ-4.4-09	wheel axle fix pin	2	2	2	2	φ12*120
22	GB/T 95-2002	Flat washer Φ12	2	2	2	2	SP
23	GB/T 91-2000	Cotter Φ3x22	2	2	2	2	SP
24	1BZZ-4.4-08	Draw part pin	2	2	2	2	φ35*220
25	GB/T 95-2002	Flat washerΦ36	2	2	2	2	SP
26	GB/T 91-2000	B Pin	2	2	2	2	SP

1. Draw part combination



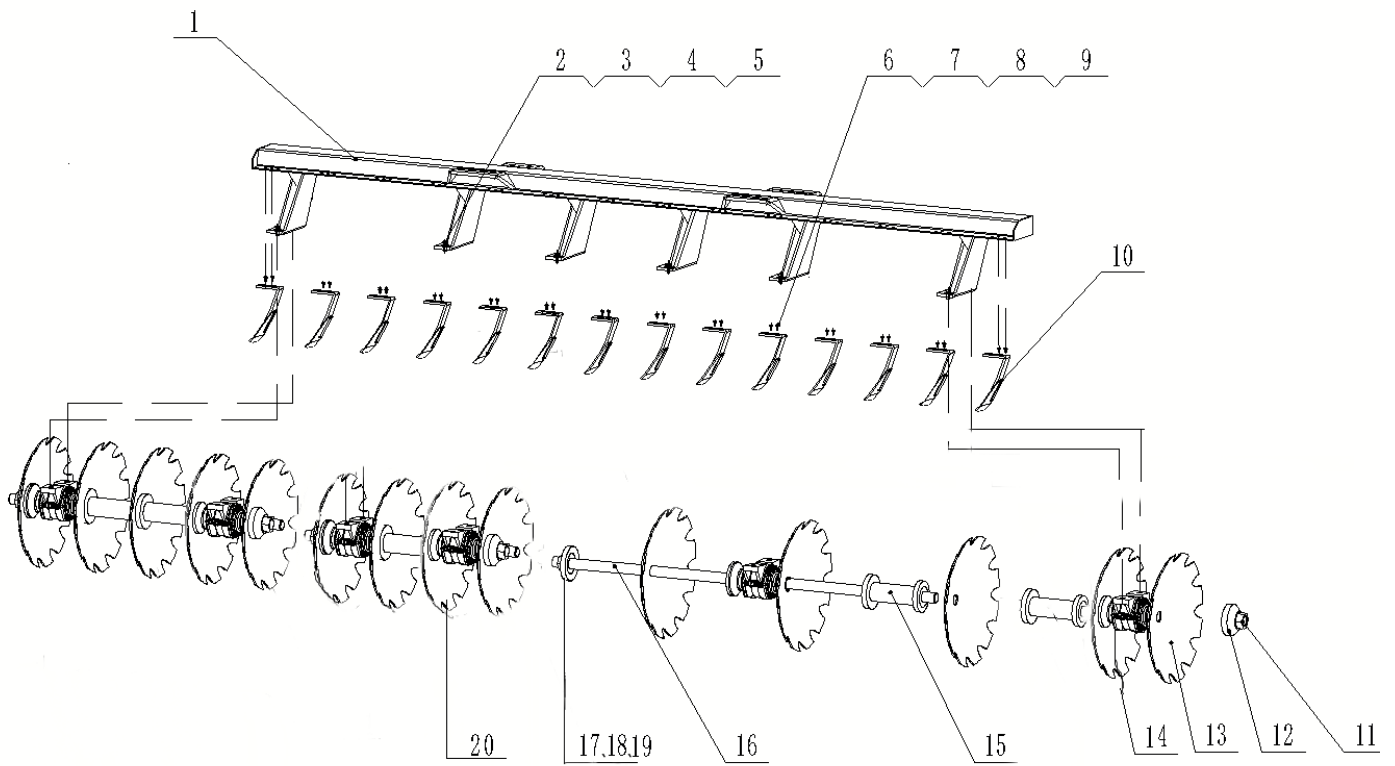
Draw part combination --SP : standard spare parts							
NO.	Item	Parts	plates				NOTE
			28	24	20	16	
1	1BZZ-4.4-01-2-7-3	drawn head bush	1	1	1	1	
2	1BZZ-4.4-01-2-7	Drawn head combination	1	1	1	1	
3	GB/T 5782-2000	Screw M24x100	4	4	4	4	SP
4	GB/T 889.1-2000	Blacking nut M24	4	4	4	4	SP
5	1BZZ-4.4-01-2	Drawing beam	1	1	1	1	
6	GB/T 91-2000	cotter	1	1	1	1	SP
7	1BZZ-4.4-01-4	drawn part pin	1	1	1	1	φ39*203
8	GB/T 95-2002	Flat washerΦ39	1	1	1	1	SP
9	GB/T 9457-88	Castle nuts M39	1	1	1	1	SP
10	1BZZ-4.4-01-1	Drawn beam	1	1	1	1	
11	1BZZ-4.4-01-1-8	Leveller plates	2	2	2	2	One for each side
12	GB/T 5782-2000	Screw M22x100	3	3	3	3	SP
13	GB/T 95-2002	Flat washer Φ22	3	3	3	3	SP
14	GB/T 93-87	Spring washer Φ22	3	3	3	3	SP
15	GB/T 6170-2000	Nut M22	3	3	3	3	SP
16	1BZZ-4.4-01-3	Drawn bar	1	1	1	1	
17	GB/T 5782-2000	Screw M22x90	2	2	2	2	SP
18	GB/T 95-2002	Flat washer Φ22	2	2	2	2	SP
19	GB/T 93-87	Spring washer Φ22	2	2	2	2	SP
20	GB/T 6170-2000	Nut M22	2	2	2	2	SP

3. Levelling mechanism and oil cylinder combination



Leveling mechanism and oil cylinder combination SP : standard spare parts						
NO.	Item	Parts	Plates number			NOTE
			24	20	16	
1	GB/T 6170-2000	Nut M39	1	1	1	SP
2	GB/T 95-2002	Flat washer Φ39	1	1	1	SP
3	1BZZ-4.4-02-3	Spring	2	2	2	
4	1BZZ-4.4-02-4	spring sleeve	1	1	1	
5	1BZZ-4.4-02-5	Spring pole	1	1	1	
6	1BZZ-4.4-02-6	Spring Nut	1	1	1	
7	1BZZ-4.4-02-8	Long bar	1	1	1	
8	1BZZ-4.4-02-9	Leveller pin	2	2	2	φ30*140
9	GB/T 95-2002	Flat washer Φ30	2	2	2	SP
10	GB/T 91-2000	B pin	8	8	8	SP
11	1BZZ-4.4-02-15	Leveller pin	2	2	2	φ30*140
12	GB/T 95-2002	Φ30 Flat washer	2	2	2	SP
13	GB/T 91-2000	B pin	8	8	8	SP
14	1BZZ-4.4-02-13	short bar	2	2	2	
15	1BZZ-4.4-02-15	Draw bar& hydraulic cylinder down pin	2	2	2	φ35*145
16	GB/T 95-2002	Flat washer Φ36	2	2	2	SP
17	GB/T 91-2000	B Pin	8	8	8	SP
18		Nipple M22x1.5	2	2	2	
19		compound plates	2	2	2	SP
20	1BZZ-4.4-02-12	Guid plate	2	2	2	
21	1BZZ-4.4-02-14	hydraulic cylinder	1	1	1	
22	1BZZ-4.4-02-18	hydraulic cylinder Top pin	1	1	1	φ35*178
23	GB/T 95-2002	Flat washer Φ36	1	1	1	
24	GB/T 91-2000	B pin	1	1	1	
25		Iron tubing 2.65m	1	1	1	
26		Iron tubing2.7m	1	1	1	
27		Hose 0.6m	1	1	1	straight-elbow
28		hose 0.7m	1	1	1	straight-elbow
29		Nipple	2	2	2	quick coupling
30		quick coupling	2	2	2	
NOTE: 16&20 plates discs 0.5m and 3m hose each 1 pc, iron tubing 2.45m and 2.5m each 1 pc						

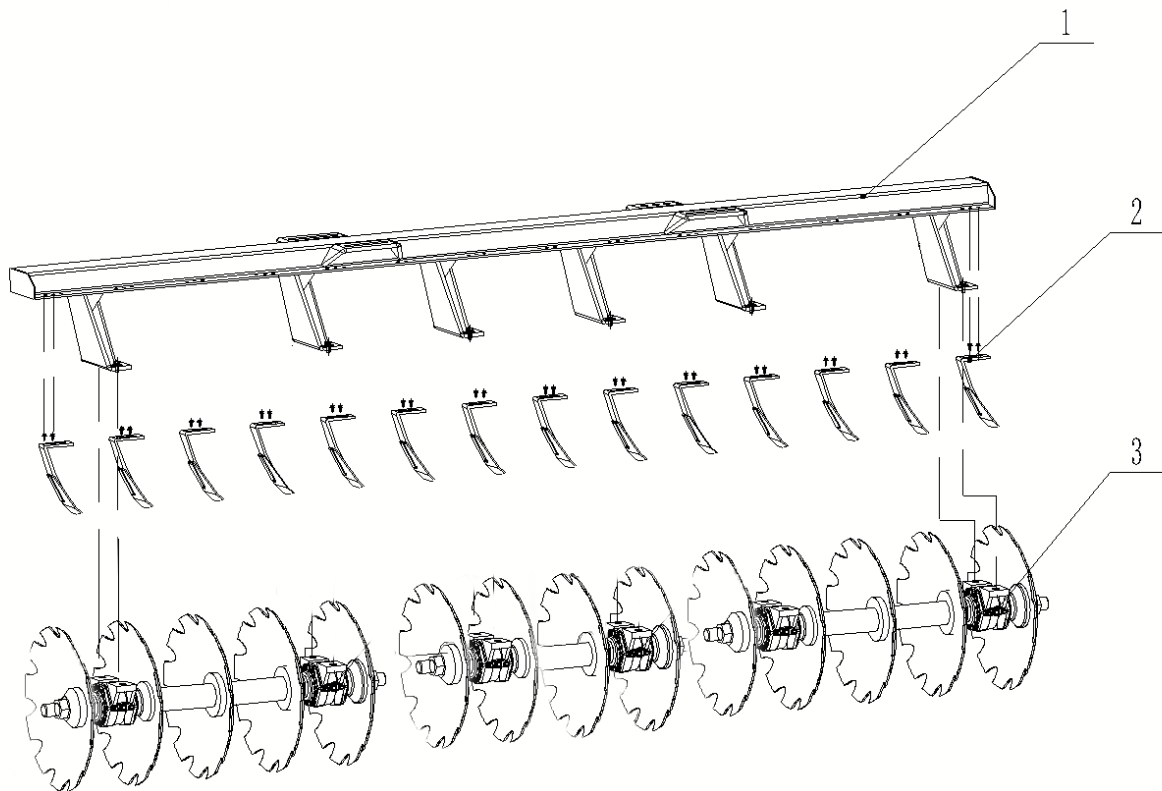
5. Front disc gang



Front disc gang parts list SP : standard spare parts							
No.	Item	Parts	Plates number				NOTE
			28	24	20	16	
1	1BZZ-4.4-05-1	Beam combination	1	1	1	1	
2	GB/T 5783-2000	Screw M24x80	12	8	8	8	SP
3	GB/T 95-2002	Flat washerΦ24	12	8	8	8	SP
4	GB/T 93-87	Spring washer Φ24	12	8	8	8	SP
5	GB/T 6170-2000	Nut M24	12	8	8	8	SP
6	GB/T 5782-2000	Screw M12x45	28	24	20	16	SP
7	GB/T 95-2002	Flat washer Φ12	28	24	20	16	SP
8	GB/T 93-87	Spring washer Φ12	28	24	20	16	SP
9	GB/T 6170-2000	NutM12	28	24	20	16	SP
10	1BZZ-4.4-05-4	Front/Back scraper	14	12	10	8	
11	GB/T 6170-2000	Nut M56x5.5	6	4	4	4	SP
12	1BZZ-4.4-05-5	Inner end plate	3	2	2	2	
13	760X8	discs	14	12	10	8	
14	1BZZ-4.4-05-2	340 bearing assembly	6	4	4	4	
15	1BZZ-4.4-05-3	spacer	6	6	4	2	
16	1BZZ-4.4-05-10	Round shaft	3	2	2	2	
17	1BZZ-4.4-05-6	outside plate	3	2	2	2	
18		Blocking plate	6	4	4	4	
19	GB/T 5783-2000	screw M12x55	6	4	4	4	SP
20	GB/T 95-2002	Flat washer Φ12	6	4	4	4	SP
21	GB/T 93-87	Spring washerΦ12	6	4	4	4	SP
22	GB/T 6170-2000	Nut M12	6	4	4	4	SP
23	1BZZ-4.4-05	Disc gang combination	3	2	2	2	
NOTE: Only for front disc gang							

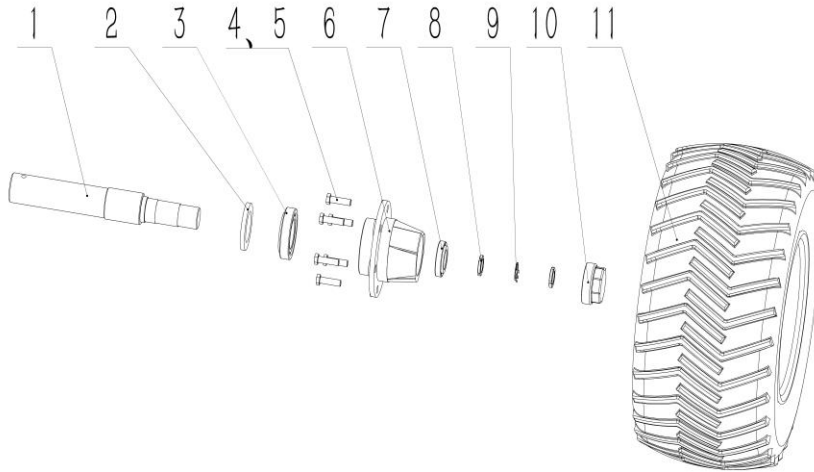
6.Back disc gang combination

Same as front disc gang, difference are: installation direction, bearing support place opposite.



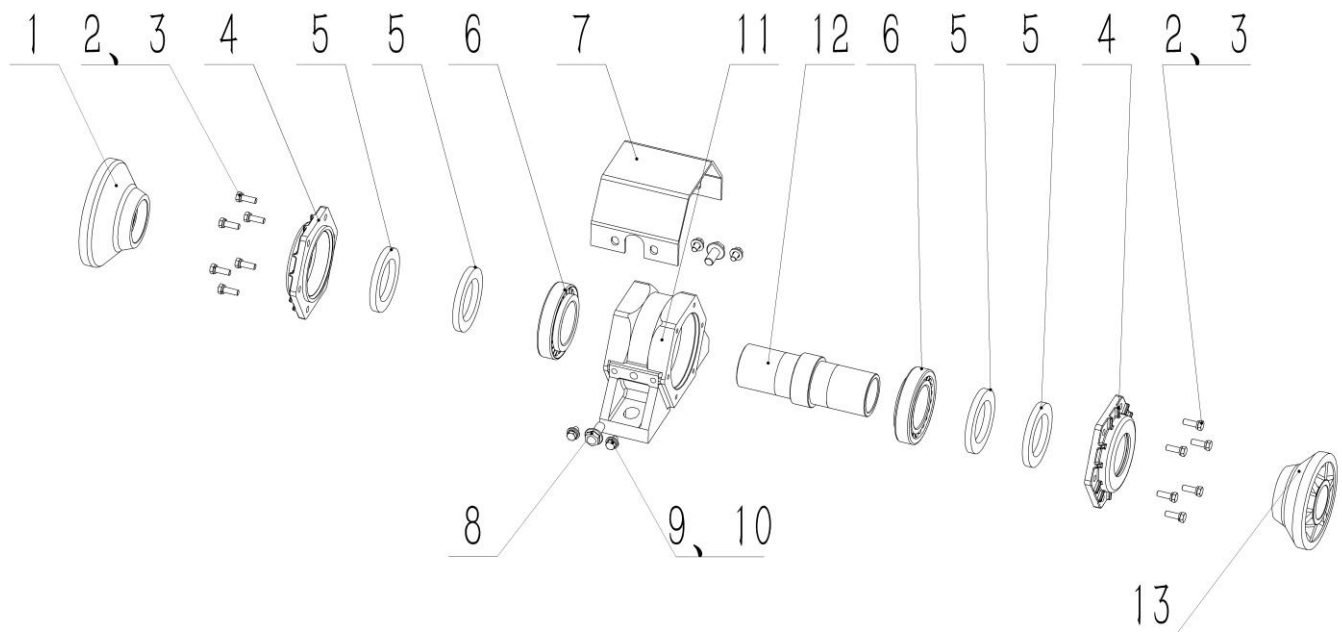
Back disc gang parts list SP : standard spare parts							
No.	Item	parts	Plates number				NOTE
			28	24	20	16	
1	1BZZ-4.4-06-1	Back disc gang combination	1	1	1	1	
2	1BZZ-4.4-06-2	Back scraper combination	14	12	10	8	
3	1BZZ-4.4-05	Disc gang combination	3	2	2	2	

7. Transportation wheel combination



Transportation wheel parts list(ONE)			SP : standard spare parts				
No.	Item	Parts	Discs number				NOTE
			28	24	20	16	
1	1BZZ-4.4-07-1-3	Wheel axle	1	1	1	1	
2	GB/T 10708.1-2000	Oil seal Φ120xΦ65x12	1	1	1	1	SP
3	GB/T 297-1994	Bearing32212	1	1	1	1	
4	GB/T 5782-2000	Screw M20x60	6	6	6	6	SP
5	GB/T 804-1988	Nut M20	6	6	6	6	SP
6	1BZZ-4.4-07-1-2	Wheel hub	1	1	1	1	
7	GB/T 297-1994	Bearing 32211	1	1	1	1	
8	GB/T 810-1988	Nut M55x2	2	2	2	2	SP
9	GB/T 858-1988	Blocking ring Φ55	1	1	1	1	SP
10	1BZZ-4.4-07-1-1	Anti-dust cap	1	1	1	1	
11	400/60-15.5	Tyre	1	1	1	1	

8. 340 bearing assembly



Use and adjustment

1. Hitch-connection

(1) The front end of the traction stringer of the harrow is connected with the traction point at the tail of the tractor by the late pin. During connection, the tractor is reversed slowly, pay attention to the safety.

(2) The front end of the oil pipe is connected to the hydraulic output connector of the tractor by the quick connector.

2. Precautions

(1) Before operation, it shall check if all fastenings are fastened and the rotating parts turn flexibly.

(2) The hydraulic handle of the tractor is manipulated to lift and lower the harrow several times and check if the lifting mechanism is normal and if there is oil leaking from all joints in the hydraulic oil way.

(3) The nuts on the square shaft of the harrow must be fastened again after a certain area of operation to prevent the harrow from being loosened, at the same time, check if other fastenings are loosened.

(4) Prohibit reversing or suddenly turning the harrow during operation, if the harrow is necessary to be reversed or suddenly turned, it shall be lifted firstly.

(5) Prohibit maintaining, repairing and adjusting the harrow during operation and person riding on the harrow.

3. Adjustment of transport position

During long-distance transport of the harrow, it shall adjust the spring leveling mechanism (the adjusting method refers to the adjustment of spring leveling mechanism) so that the front and rear

harrow bodies are basically in horizontal state or its tail is slightly higher to ensure smooth transport and good through put capacity.

4. Adjustment of job status

The harrow shall be adjusted as follows so that it is in normal job status during operation, That is to say, the harrow depth meets the requirements of operation; front and rear harrow bodies are in horizontal state or its head is slightly higher; the tractor drives straightly and the rake stringer is consistent with the direction that the tractor drives forward; no apparent partial traction for plant unit.

(1) Adjustment of harrow section declination

Lift the harrow and loosen the connecting bolt between the rake and the beam of the harrow section, push the beam of the harrow section to adjust the harrow section declination. After adjusting the declination properly, all connecting bolts must be tightened. Adjustment of the front and rear rows of the harrow section declination has mainly following functions:

① Change the harrow depth; when the harrow section declination is increased, the capability of soil piercing of the harrow is enhanced and the harrow depth is increased, generally, in order to ensure the front and rear rows of the harrow sections are under uniform stress, the rear row of the harrow section declination is one level more than the front row of the harrow section declination.

② Change the offset of harrow: when the harrow section declination is increased, the resistance center of harrow will shift right (see from the tail of plant unit, the same below), to match up the right shift of traction stringer, i.e. the harrow shifts left relative to the tractor and the offset is increased accordingly. In reverse, the offset is decreased.

In addition, the change in the harrow section declination has the influence on the partial traction of plant unit, after the declination is determined, the corresponding adjustment shall be carried out to eliminate or reduce the partial traction.

(2) Adjustment of height of traction beam

Pull out the connecting pin between the traction beam and the rake, i.e. change the height of traction beam according to the position of the corresponding hole, after the position is selected, the connecting pin and the lock pin shall be inserted. Adjusting the height of traction beam will have obvious influence on the harrow depth for front and rear rows of the harrow sections. When the position is moved upward, the harrow depth of front row of harrow section will be increased, in reverse, the harrow depth of rear row of harrow section will be increased.

(3) Adjustment of position of traction stringer

After removing the connecting bolts between the traction stringer and the traction beam, the transverse position and angle of the traction stringer will be changed according to the position of the corresponding hole; after the position and angle are selected, the connecting bolts shall be installed and fastened. Adjusting the position and angle of the traction stringer has mainly following functions:

① Remove or reduce the partial traction: when the partial traction occurs, the traction stringer shall shift right. The partial traction is more serious and the traction stringer shall shift right more till the partial traction is reduced obviously or eliminated.

② When the harrow depth of rear row of harrow section does not meet the requirement, the traction stringer will shift right appropriately to match up other adjustment so that the harrow depth is increased.

③ Change the offset: moving the position of the traction stringer, which is matched up by

adjustment of the harrow section declination, can change the offset of the harrow relative to the tractor. The position is moved right more and the offset is larger. When the position is moved to the rightmost hole and the stringer angle is changed, the operation of large offset as special requirements can be achieved.

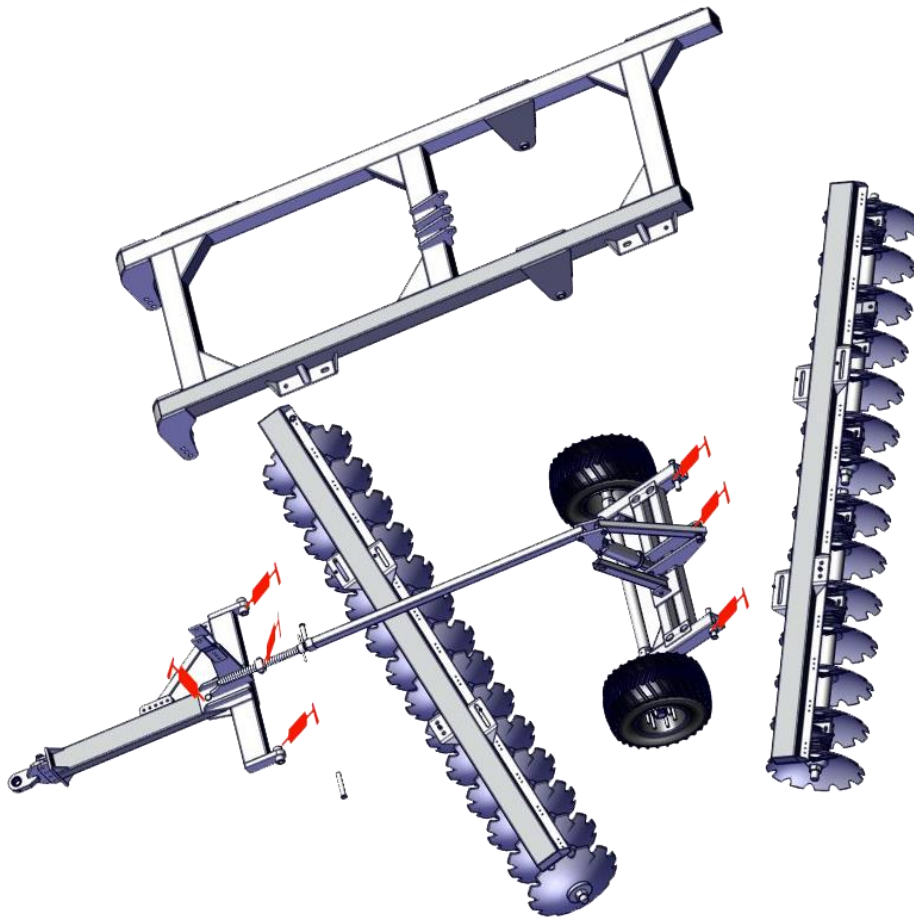
(4) Use of leveling mechanism assembly

Adjusting the longitudinal horizontal position of the harrow body is one important part of job status adjustment of harrow, which can change the harrow depths of front and rear rows of harrow sections so as to obviously influence the longitudinal position and offset of harrow, therefore, it shall be adjusted carefully. During adjustment, as following figure shows, the upper screw nut and lower screw rod are adjusted jointly till the adjustment is satisfactory.

6. Maintenance and care

1. Maintenance

- (1) It shall check if all fastenings of the harrow are fastened before and after operation and if all rotating parts turn flexibly.
- (2) It shall often keep the surface of parts in the hydraulic system clean.
- (3) The oil cup of wheel carrier shaft seat is filled with the grease once every week.



2. Care

- (1) After one operation season, the whole harrow shall be disassembled and maintained once to clean the clay on the implement.
- (2) Disassemble and clean the bearing, replace the lubricant in the bearing, clean up the outer sphere of the bearing and inside of the bearing block, during assembly, it shall be filled with the lubricant, after assembly, the seal ring is not allowed to rotate relative to the outer ring of the bearing.
- (3) It shall lacquer in the place where the paint strips so as to avoid rust protection.
- (4) After cleaning the harrow, the antirust or used oil shall be coated.
- (5) The oil cylinder and oil pipe assembly shall be completely disassembled, cleaned and maintained and the wearing parts shall be replaced in time, and they are placed in clean, dry places in the room for safekeeping.
- (6) The harrow shall be placed in the warehouse in fallow season to prevent from solarization and drench.

7.

8. Troubleshooting

1. The harrow section is blocked due to too loose soil texture and too much depth in the soil.

Due to too loose soil texture, the harrow section cannot usually work under large angle, or else, it has too much depth in the soil because of large declination, even the whole harrow section gets in the soil and blocked, at this time, the tractor shall be stopped and the harrow is lifted by the hydraulic mechanism to remove the piled-up earth, then, the harrow section declination is decreased for operation.

2. The harrow section is blocked due to too much soil moisture and too much clay on the harrow.

Due to too much soil moisture, too much clay is on the harrow so that the harrow is blocked because of unnoticeable function of scraper. Therefore, the tractor is stopped and the harrow is lifted to remove the clay and piled-up earth. The gap between the scraper plate and the concave face of the harrow is decreased and the harrow is not used for operation until the scraper plate does not usually contact with the harrow, if there is the clay and blockage, the harrow shall not be used for operation.

3. The accumulation is caused due to too much stubble and upturned soil in the ground

When the accumulation is caused due to too much stubble and upturned soil in the ground, the tractor may not be stopped and the harrow is lifted to get over the accumulation for continuous operation.

4. The bearing does not rotate flexibly and the operation is abnormal.

The reasons that the bearing does not rotate flexibly are as follows:

(1) The bearing support plate is installed in incorrect position (2) The bearing support plate is deformed(3)The nut of square shaft is loosened(4)The square shaft is deformed. Under the above four conditions, the bearing is usually under the axial pressure and easy to damaged, so the tractor shall be stopped at once to repair the bearing.

When the bearing support plate is installed in incorrect position, the clamp nut of the cross beam of the harrow section can be loosened to adjust the installation position of the bearing support plate by the long hole of the bearing support plate. When the bearing support plate is deformed, it can be installed again after shaping and repairing and the square shaft is straightened and the nuts are tightened to remove the axial pressure of the bearing.

9. Precautions

1. The operator must be familiar with the structure, performance and the methods of operation and adjustment of the harrow.

2. The harrow must be checked before operation to prevent the fastenings are loosened or the rotating parts do not rotate or work.

3. When the tractor and harrow are operated, it is not allowed maintaining, repairing, adjusting the harrow, also being close to the harrow, even riding on the harrow.

4. When the harrow is operated, the hydraulic distributor handle of the tractor must be placed in the floating position and the harrow must be lifted during turning or reversing at the turn land.

9Packing list

Products	No.	Parts	耙片数量			
			28	24	20	16
1BZZ offset dis	1	耙架 Frame	1	1	1	1
	2	耙组梁 disc gang beam	2	2	2	2
	3	牵引横梁 drawbar cross beam	1	1	1	1
	4	牵引纵梁 Traction longeron	1	1	1	1
	5	轮轴架 wheel axle frame	1	1	1	1
	7	刮泥板组合 Scraper combination	28	24	20	16
	8	圆轴 Round shaft	6	4	4	4
		间管 Spacer	12	12	8	4
		内垫 inner end plate	6	4	4	4
		外垫 outside end plate	6	4	4	4
		轴盒 bearing assembly	12	8	8	8
	9	耙片 harrow disc	28	24	20	16
	11	轮毂轴 wheel hub axle	2	2	2	2
	12	轮胎 tyre	2	2	2	2
	13	油缸 hydraulic cylinder	1	1	1	1
	14	油管 Oil tubing	2	2	2	2
	15	油管支架 hose support	1	1	1	1
	16	丝杠 spring pole	1	1	1	1
	17	导向板 guide plate	2	2	2	2
18	导架 guide frame	1	1	1	1	
19	导架拉杆	1	1	1	1	

		guide frame pole				
	20	轴承支板压板 bearing support press plate	12	4	4	4
	21	牵引板 draw bar	1	1	1	1
	22	标件 SP	1	1	1	1