

IGN TILLER SERIES



FHM

**FARMER-HELPER
MACHINERY COMPANY**



OPERATION & PARTS MANUAL

Please read these instructions before using. Always grease all fittings and be sure to always check and fill with oil before operating! Retain this manual for future use.

BETSTCO

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541-895-3083 M-F 7am-4pm PST

RUGGED LABOR SAVING EQUIPMENT SINCE 1995 83371 Melton Rd, Creswell OR 97426



ASSEMBLY INSTRUCTION



IGN Series Assembly Instructions

Step # 0: Removing Unit from Shipping Frame

Tools Needed



Angle Grinder or Metal cutting tool

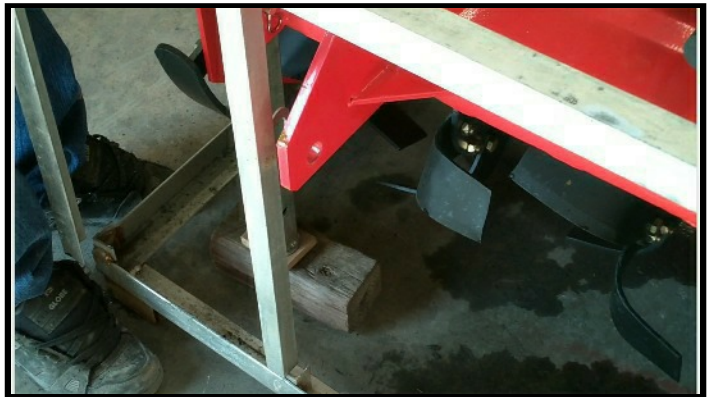


IGN Series Assembly Instructions

Step # 1: Unhook machine from crate

Tools Needed

No Tools required



IGN Series Assembly Instructions

Step # 2: Install lower lift pins

Tools Needed



34mm wrench or socket



IGN Series Assembly Instructions

Step # 2: Install lower lift pins

Parts Needed



Lower lift pins

ASSEMBLY INSTRUCTION



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IGN Series Assembly Instructions

Step # 3: Install uprights

Tools Needed



24mm wrench and socket

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IGN Series Assembly Instructions

Step # 3: Install uprights

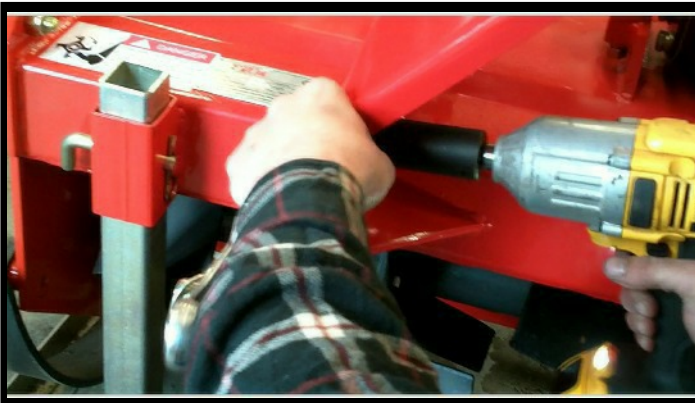
Parts Needed



Uprights



ASSEMBLY INSTRUCTION



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IGN Series Assembly Instructions

Step # 4: Install tail gate adjustment

Tools Needed



16mm wrench and 17mm socket

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IGN Series Assembly Instructions

Step # 4: Install tail gate adjustment

Parts Needed



16mm wrench and 17mm socket



ASSEMBLY INSTRUCTION



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IGN Series Assembly Instructions

Step # 5: Fill side case with oil

Tools Needed



22mm wrench and 80-90 weight gear oil



ASSEMBLY INSTRUCTION



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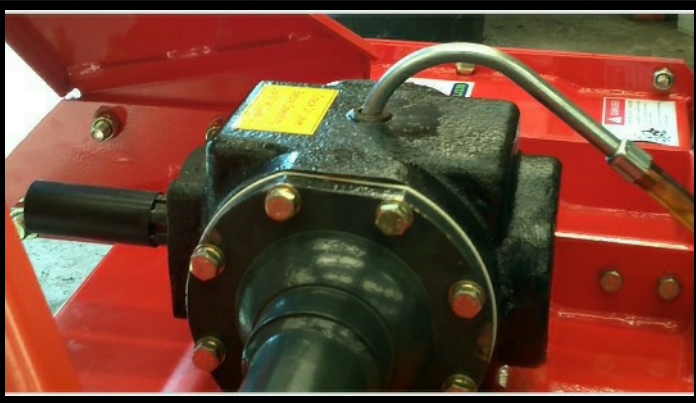
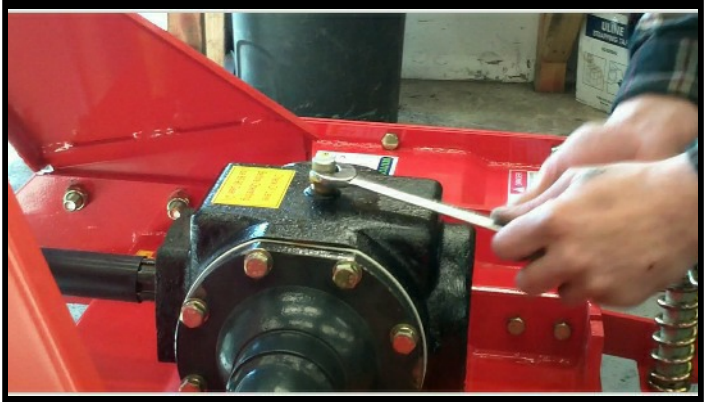
IGN Series Assembly Instructions

Step # 6: Fill gearbox with oil

Tools Needed



19mm wrench and 88-90 weight gear oil



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IGN Series Assembly Instructions

Step # 7: Lube PTO Shaft

Tools Needed



Grease gun



ASSEMBLY INSTRUCTION



For any troubleshooting questions or assistance please
Contact our support desk at (541-895-3083)

Adjusting PTO Driveline Slip Clutch

SLIP CLUTCH IS NOT FACTORY SET

FAILURE TO ADJUST MAY RESULT IN DAMAGE TO TINES, TILLER, TRACTOR, DRIVELINE OR CLUTCH.

There are many aspects which control the needed spring tension for the slip clutch to work properly. The steps below will describe the basic adjustments of the slip clutch. This is a trial and error setup process. You may find that the tension adjustment may need to be changed each time you use your tiller based on the changing soil conditions, tractor being used, ambient temperature, and existing wear of the clutch parts or tiller tines.

WITH TRACTOR OFF AND THE KEY IN YOUR POCKET:

-Loosen all 8 bolts & nuts on the clutch until the springs are free.

-Make sure the clutch slips.

-Tighten all 8 nuts until the nut begins to push the springs up against the flange, try first by hand, if a tool is required, do it slowly so you can observe when the springs push against the flange.

OVERTIGHTENING MAY CAUSE DAMAGE TO TINES, TILLER, TRACTOR, DRIVELINE OR CLUTCH.

-Now go test your tiller, at normal operating RPM, for no more than 6' of traveled distance with the tines in the ground tilling. If you see smoke coming from the clutch or hear a loud noise from the clutch before you finish traveling 6', STOP, the clutch is slipping.

-If it doesn't slip in the ground and you are tilling, then you are done. To be sure, check the slip clutch housing temperature. If it is hot then the clutch is slipping. Be sure to observe the clutch as often for smoke, noise and temperature.

-If it was slipping, allow it to **COOL** before adjusting and attempting to till again. If you adjust before allowing it to cool, you could terminally damage any of the moving parts of the clutch, tiller or tractor, as this may cause it to be overtightened.

-After it has cooled, tighten the nuts 1/4 turn. Then test tiller again as noted above.

OVERTIGHTENING MAY CAUSE DAMAGE TO TINES, TILLER, TRACTOR, DRIVELINE OR CLUTCH.

-Repeat these steps until you are comfortable that the slip clutch is not slipping under the normal operation of your tractor and the conditions in which you will be tilling.

There are many factors that may cause a need for you to adjust the clutch during operations in any given day, including soil conditions and ambient air temperature. You should check the slip clutch on a regular basis for smoke, noise and build up of heat. Failure to do this may result in terminal failure of the clutch, tiller, or tractor.

OVERTIGHTENING MAY CAUSE DAMAGE TO TINES, TILLER, TRACTOR, DRIVELINE OR CLUTCH.

Always check the slip clutch adjustment before tilling on a different day, in different soil, with a different tractor, or a change in temperature.

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Chapter I Brief introduction on the structure and their adjustment

These rotary tillers are tillage equipment by means of the compound motion both of the rotation of the tractor going forward. It consists of universal driveshaft, headstock frame, gearbox, side chain ox (gearbox) are transmission sets. Blade and blade shaft are working parts. Headstock, the cover and trailing bar and sets assistant.

2.1 Universal Driveshaft (Service per Maintenance Schedule)

The universal driveshaft consists of universal joint head, universal joint head for male shaft, the universal joint head for female shaft and joint cross. There are rings on the both ends of joint cross to avoid the movement of joint cross, and there is also a grease zerk on the joint cross and the needle bearing must be lubricated by you injecting grease into it frequently. The universal joint head for male shaft and the universal joint head for female shaft are sliding joint and it can be pulled back and forth freely when the rotary tiller rises or falls. It must be noted that the interval between socket and shaft is in the shortest situation but the socket and the shaft can not contact each other during operating, and if the interval between the socket and the shaft is in the biggest situation, the overlap of socket and shaft must be longer or equal 1/2 length of the shaft. It is suggested that you keep the shaft greased.

2.2 Headstock Frame

The upper hitch point on the headstock must be connected with the top control link of the tractor and the lower coupling pin of headstock must be connected to the lower lift arms links of the tractor to make the rotary tiller stable on the three-point hitch linkage.

2.3 Central gearbox (Service per Maintenance Schedule)

The central gearbox assembly consists of gearbox, front cap, rear cap, first shaft, second shaft and a helical bevel gear pair that transmits the power to side gear box, etc. There is an oil hole for adding oil on the top of the gearbox. There is a stopper for draining oil at the bottom of the gearbox. The helical bevel gear is splined on the shaft. The gears are tightened with elastic collar, washer and locknut to prevent axial moving.

In using, the bearing clearance and the gear backlash will be changed because of wearing of bearings and gears, so you must adjust them (if necessary). Adjustment of helical bevel gear backlash: A proper backlash is the one of the condition for working normally. If the backlash is too small, result in the gear wearing rapidly or even chipping one another. If the backlash is too large, result in the gear making strong collision, excess wear and loud noise.

Precaution:

Helical bevel gear backlash must be adjusted after the clearance of bearing on the first shaft has been adjusted. For retaining the clearance of bearing which has been adjusted, for pinion, the total thickness of adjusted shims of the front and behind bearing seat on the first shaft must keep up. For example, when moving the pinion forward, the decrease--the adjusted shims of the hind-bearing seat on the first shaft must added to the front bearing seat on the first shaft, vice versa. For large helical bevel gear, when moving it rightward, you must decrease the shims of the bearing seat of the large bevel gear. In general, just move the pinion forward when you do it. For adjustment of the bearing axial clearance on the second shaft when the axial displacement has occurred on the second shaft, you must adjust it in the following steps: First, loosen washer and screw down the locknut, then adjust the displacement of the bearing on the second shaft until there was no distinct axial movement and easy to rotate the shaft. Finally, lock the jam nut with the washer. This prevents the bearing from loosening.

2.4 Side gearbox (Adjust per Maintenance Schedule)

The side chain box consists of chain box, two chain wheels, chain, chain tension units, second shaft and shaft left side plate assy. Adjustment of the chain: loosen and screw down the adjustable screw to adjust the tension of the chain, keep the right tension. In general, it can be pressed down 10mm at another side of chain. The side gearbox consists of side gearbox, three shaft and left side plate assembly.

2.5 Right side plate

The right side plate assembly consists of right side plate, right head of cultivator shaft, right side bearing and bearing seat.

2.6 Housing Cover (Check Tine Wear)

A specific purpose of the cover is warding off clods, safeguarding the driver and farther break down the clods. The rotary tiller is designed with a proper gap between the blade edge and the cover. As the tines blades wear, the gap will become too large and the clods would be thrown to the front of the cultivator shaft, so that it will be cultivated once more, therefore the power of the tractor will be wasted. It is recommend that when the gap from the tine tip end is greater than 45mm that the worn tines be replaced.

2.7 Cultivator shaft

The cultivator shaft assembly consists of cultivator shaft, blade disc and blade.

2.8 Trailing bar

The function of the trailing bar is to further break the clods and flatten the cultivated soil as the soil contacts the cover. You can obtain different effect of land surface by adjusting the height of the trailing bar. In general, if the soil is dry, set lower, if the soil is wet, to set higher. When you remove the weed on the cultivator shaft, assemble the blades, long-distance transport; you can set the bar at the highest.

Chapter Methods of operating

3.1 Installation of headstock frame with the main body

Before being put in the crate, the headstock frame is parted with the main body. Simply attach it on the main body with the bolts provided. Pay attention to fitting the spring washers on the bolts, and fastening them firmly.



3.2 The methods of blade mounting

Avoid mounting the blades in reverse and making the back of the blades enter into soil. The tines will be damaged when mounted in reverse. The left-bent blades and the right-bent blades work in a stagger state on the blade shaft. Only a blade enters into soil at the same time. This arrangement is suitable for flat plowing. So the blade shaft operates stably; the surface of the plowed field is smooth.

3.3 Connecting with the three-point linkage of tractor

The connecting the rotary tiller to the tractor three-point hitch.

1. Align with the center of headstock by reversing the tractor, raise the link arm to appropriate height, reverse the tractor to make the link arm of tractor joint with the left and right pin of rotary tiller.
2. First install the left lower linkage arm, then install right lower linkage arm, (because the leveling lift rod has screw that can be adjusted length.) finally insert the pins.
3. Install the upper linkage arm, and then insert the pin.
4. See Drive line and drive line slip clutch manual for proper connections and adjustment of the Driveline and clutch.

3.4 Adjustment before working

1. Adjustment of horizontal level

Put it down to make the blade tips near the ground, observe if the height between the right and left blade tips and the ground is the same or not. If not, it is necessary that the right linkage arm of tractor be adjusted to level off the blade shaft, which ensures the uniformity of working depth.

2. Adjustment of longitudinal level

Lower the tiller to tillage depth desired, observe that driveshaft and PTO shaft are level or not. If the angle of driveshaft is too great (greater than 30 degrees), adjust the control link to make it as level as you can.

3. Adjustment of rising height

The tiller should not operate with driveshaft angle that is above 30°. If it is required that tiller is risen higher, such as when the tractor with the tiller passes through ruts and earth dyke or is driven on the road, the power driving the tiller must be turned off to prevent driveshaft damage and danger. The position of the handle of the 3-point lift control must be limited.

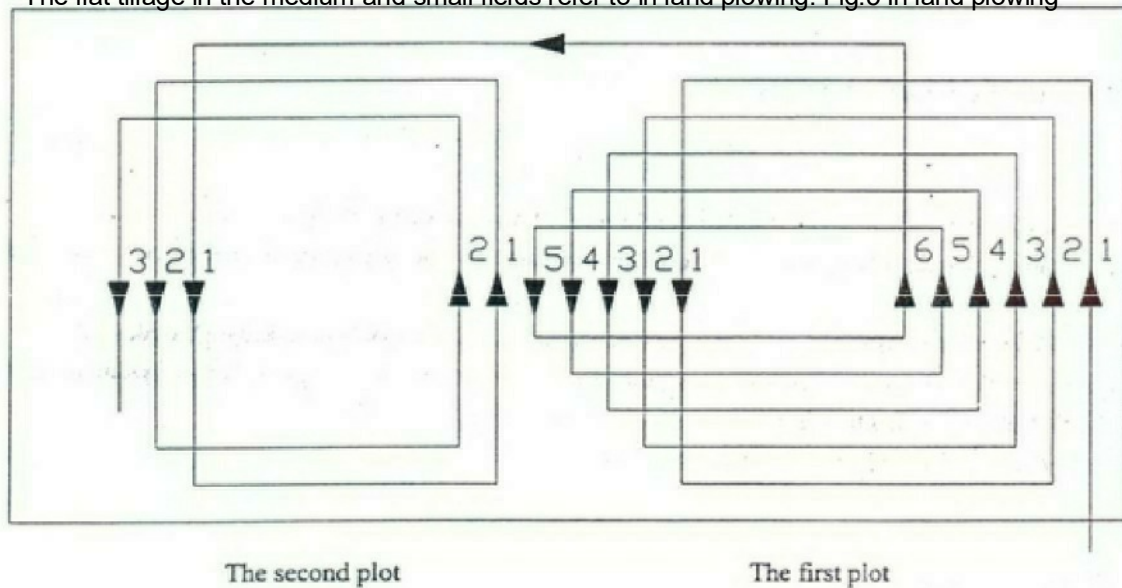
4. Primary adjustment of working depth

Loosening the bolt on the depth skids and adjust the position of the fixing hole used, and then reattach bolt in the hole selected. Adjusted distance is 35mm per step.

3.5 Cultivating route

When working on a large piece of land, land plowing is adopted to reduce the time in tilling the land, the width of the plot selected is the whole number multiple of the working width or as near as possible, so as to decrease repeat tilling.

The flat tillage in the medium and small fields refer to in land plowing. Fig.5 In land plowing



3.6 Starting of the tiller

First, check and fill the gear box and side box with oil as necessary. Injecting grease to the crosshead and the bearing seat of the blade shaft. Then check for the looseness of all connecting bolts and nuts, if loosening, screwing it at once. If the crack and deforming are found in the blades, they must be replaced.

Starting tractor: rise the tiller and the blade tip must be away from ground 150mm-200mm, and driveshaft coupling, then run in 1-2 minutes, gear the operating gear position and increase the fuel throttle opening, control the leveling handle to make the tiller enter into the soil gradually until the normal tillage depth at the same time.

3.7 Selecting of forward speed

The selecting principle of tiller forward speed: the tractor cannot overload constantly; the performance of breaking soil meet the needs of agriculture requirement, furrow bottom and the soil surface are smooth. Not only will tillage quality ensured, but also the rated power of tractor will be utilized and work efficiency will be attained.

Generally, rotary tilling directly: 2 km/h, harrowing: 5 km/h-7 km/h; if the unit draft of the soil is deeper, can select lower gear; contrarily select higher gear; when working in dry fields, select low gear; when working in wet fields adjusting forward speed as required.

3.8 Operating of headstock

1. Do not use the draft control of tractor during rotary tilling.
2. Using position control when doing rotary tiller work. The handle of draft control must be put in the position marked "up".
3. When the handle of position control moves forward, the tiller fall down; contrarily the tiller rise.
4. After the tiller reaching to required depth, using the position hand-wheel to block it, in favor of that the tiller falls the same depth every time.
5. The detail refer to the instruction of tractor used.

Chapter IV Maintenance

To ensure that the tiller works properly, has higher efficiency and prolonging the service life, it is important that maintenance must be done properly.

4.1 Daily maintenance (after 10 hours operating)

1. Check the lubricant oil in the gearbox and the side gear box, keep the oil level desired.
2. Check universal driveline cross, pin, grease cup on the bearing seat, inject grease into the cup.
3. Check the blades to see if the blades are damaged or their fasten bolts are loose, replace or tighten them as necessary.
4. Grease all grease points.

4.2 Season maintenance (after one season operating)

Besides performing the proceeding of daily maintenance, the following must be done also:

1. Replace lubricating oil
2. Check universal driveline joints. If it is seriously worn, replace it.
3. Check the bearing in the ends of the blade shaft to see if water has entered, because of the faults in oil seals. Disassemble it to clean, replace the oil seals and inject grease.
4. Check all bearings; adjust or replace them if necessary.
5. Remove all dust and filth away from the tiller.
6. Check the blades to see if there is crack, wear and tear on them, or loss. Replaced as necessary.
7. Check the blade holder, replace or repair them if necessary.
8. Repair the cover and the trailing bar as necessary
9. The rotary tiller should be placed indoors when stored, and be raised to make the blade tips leave the ground. The blades and bare metal surfaces revealed must be smeared with oil to prevent rusting. The surface in which the paint broken off must be painted.

4.4 Lubrication sites (checked at the daily maintenance) see table 1

Table 1

Lubrication	Purpose
Oil check plug	Check the oil level of the gearbox and the side gearbox (injection should continue until oil overflows out from the oil check hole)
Ventilate screw plug	Ventilation of the side gearbox
Grease cup of the joint cross	Inject the grease into the joint cross (so that you lubricate the roller needle of the joint cross)
Grease cup of the bearing seal on the cultivator shaft	Inject the grease into the bearings and the oil seals of the cultivator shaft (lubricate the bearings and the oil seals)

4.5 Storage

The machine inside and outside shall be cleaned carefully so as to avoid corrosion.

Don't spray water on the rolling bearing if you clean the machine with high pressure sprayer.

Check and clean the drive shaft driving belt press roller, or replace them if they are not in good condition. spread oil on all parts required.

Repaint the parts rubbed and damaged for anti corrosion.

Store the machine in a dry, level area. Support the frame with planks if require.

4.6 Operation After Storage

Before the machine is started up, check the following items regularly:

Check oil level and add it if not enough.

Check and tighten all screws and nuts;

Check the blade state.

Check the air hole on the gearbox. If it is blocked, clean or open the hole with compressed air.

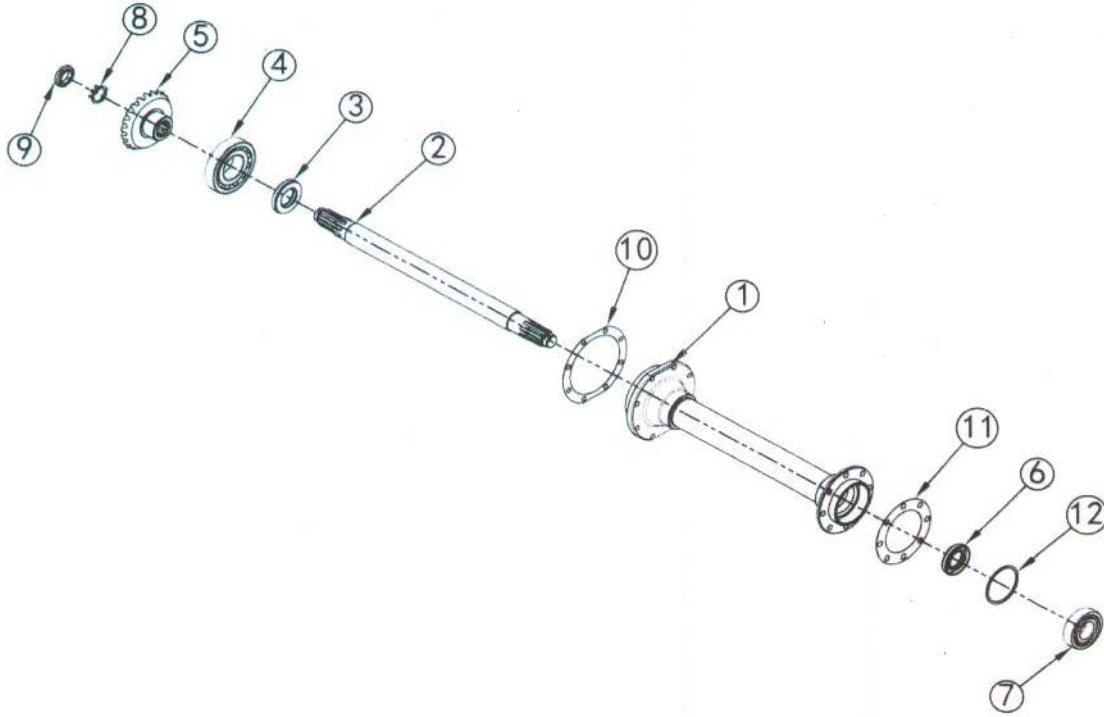
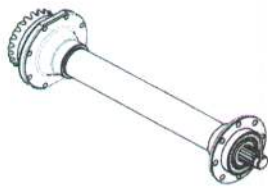
Don't spread oil or grease on the driving belts. If there is oil or grease on the belts, wipe the belts, in case the belt sliding and wearing occur.

Chapter V Common breakdown and its fixing method

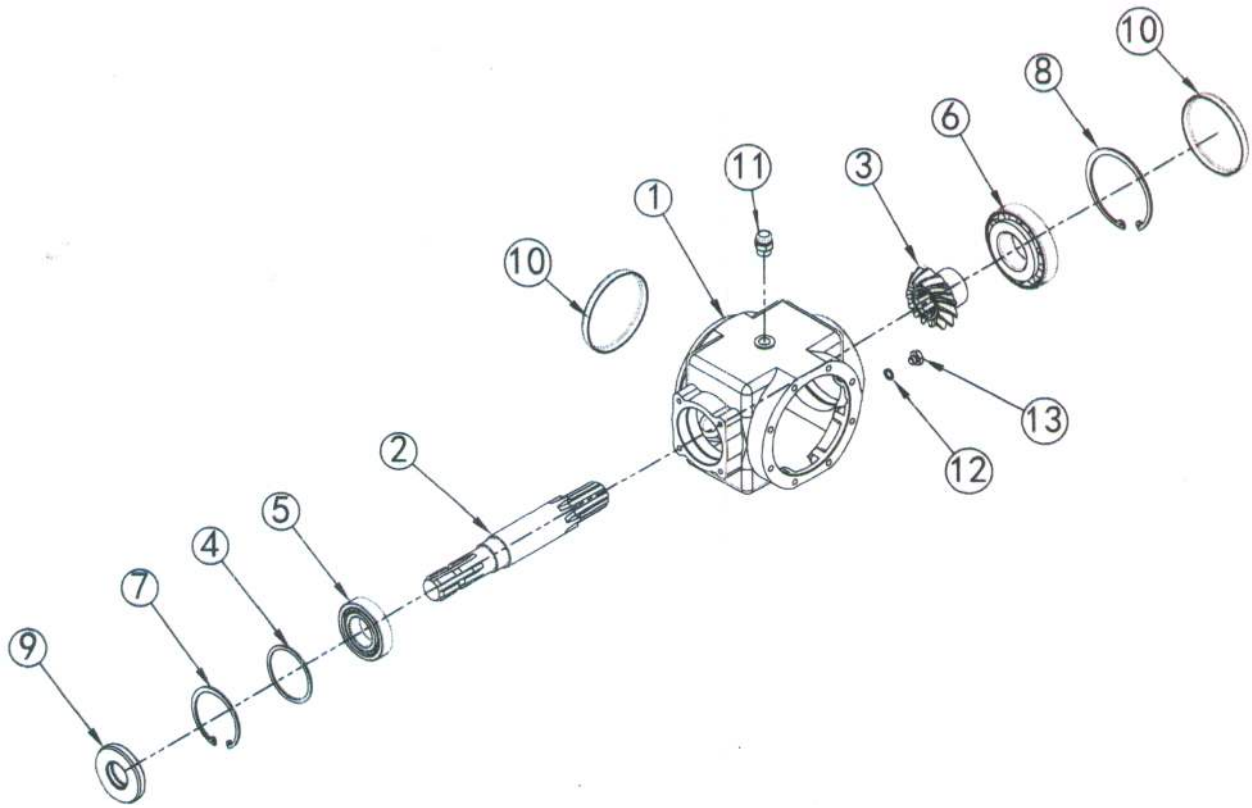
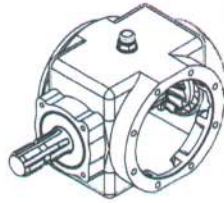
Breakdowns	Cause of breakdown	Removing method
Universal coupling inclined too much	Rotary tiller failed horizontal level	Adjust the horizontal level of the tiller
	One side sway chain of tractor is too short	Adjust the chain
Universal coupling injured	Direction mistaken	Re-assemble correctly
	Grease deficient	Rinse needle and inject grease sufficiently
	Angle of universal coupling is too big or is gripped	Limit the rising position and re-lock the position
	Rotary tiller fallen down the soil sharply	Fall the tiller down the soil smoothly
Noise in gearbox	The clearance between the two helical bevel gears is too large	Adjust this clearance
	Bearing injured	Replace bearing
	Tooth of gear broken	Replace gear
Noise in side gear box	Foreign matter dropped in gear box	Take foreign matter out of the gear box
	Bearing on the third shaft injured	Replace bearing
	Bearing on the middle shaft injured	Replace bearing
Trouble rotation of cultivator shaft	Gear or bearing injured or gripped	Replace gear or bearing
	There was no clearance between the two helical bevel gears	Adjust the clearance of the helical bevel gear pair
	Out of shape of left side plane	Correct side plane
	Cultivator shaft crooked or out of shape	Correct or replace cultivator shaft
	Cultivator shaft twined with grass or hold soil seriously	Clear away grass or soil
Blade slot injured	Blade run foul of stone so that it suffers too much force	Clear away the stone from the field
	Blade assembled on opposite direction so that it suffers too much force	Assemble the blades correctly
	Rotary tiller fallen down the soil sharply so that it suffers too much force	Fall the tiller down the soil smoothly
Blades crooked or broken	Blades run foul of stone	Replace the blades and clear away the stones from the field
	Doing plough when tractor turns a corner in the field	Rise the tiller and do not plough when the tractor turns a corner in the field
	Rotary tiller fallen down the hard ground	Fall the tiller down smoothly

Chapter VI Notes for safety

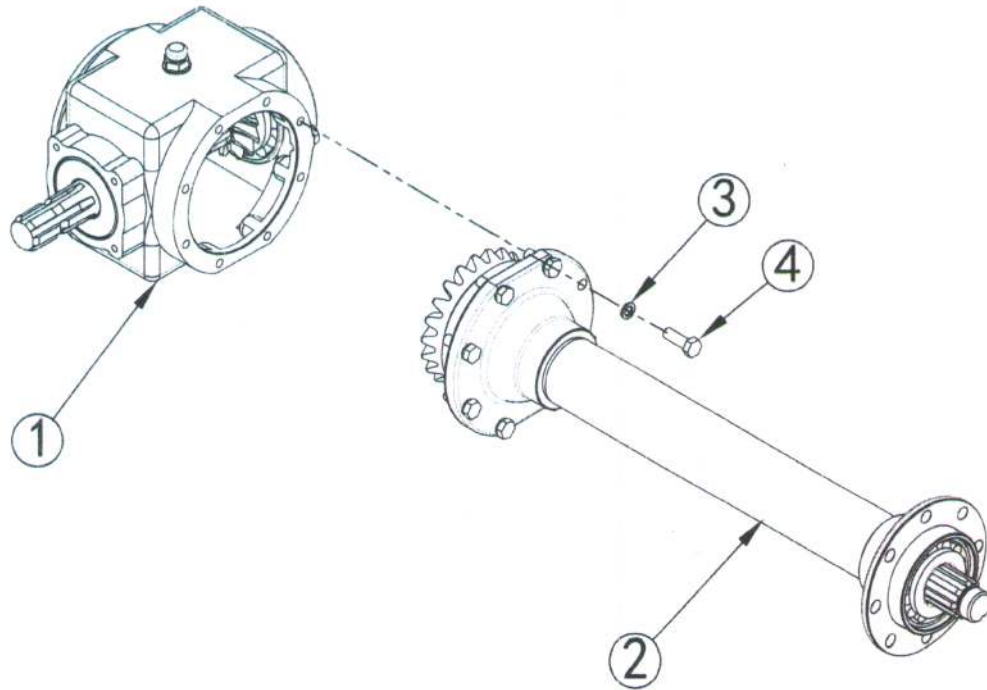
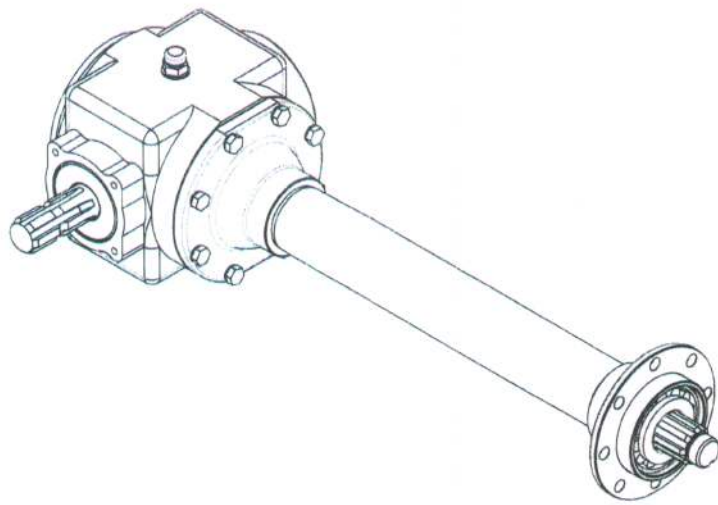
1. The operators must understand the operating characteristics and notes for safe operation.
2. Check the rotary tiller overall, it cannot be used until defects are corrected.
3. The angle of drive shaft coupling is not more than 20° when it is operating, and is not more than 30° when the tractor turns a corner in the field. You must remove the drive shaft coupling when long distance transporting.
4. Do not engage the clutch suddenly when entering tiller into the soil or drop the rotary tiller into the soil. This will prevent the transmission parts of the tractor and rotary tiller from damage.
5. Do not leave tiller in the soil when the tractor turns a corner in the field.
6. Do not till when the tractor is in reverse.
7. Do not allow passengers to ride on the tractor when the rotary tiller is operating.
8. Do not get close to the rotating parts when the machine is operating.
9. The machine must be stopped and checked when hearing abnormal noise in operating.
10. The power from the PTO shaft must be cut off when checking the transmission parts, blades and gears etc. of rotary tiller. If the parts must be replaced, it is necessary to stop the engine. Do not replace the parts when the engine is operating.



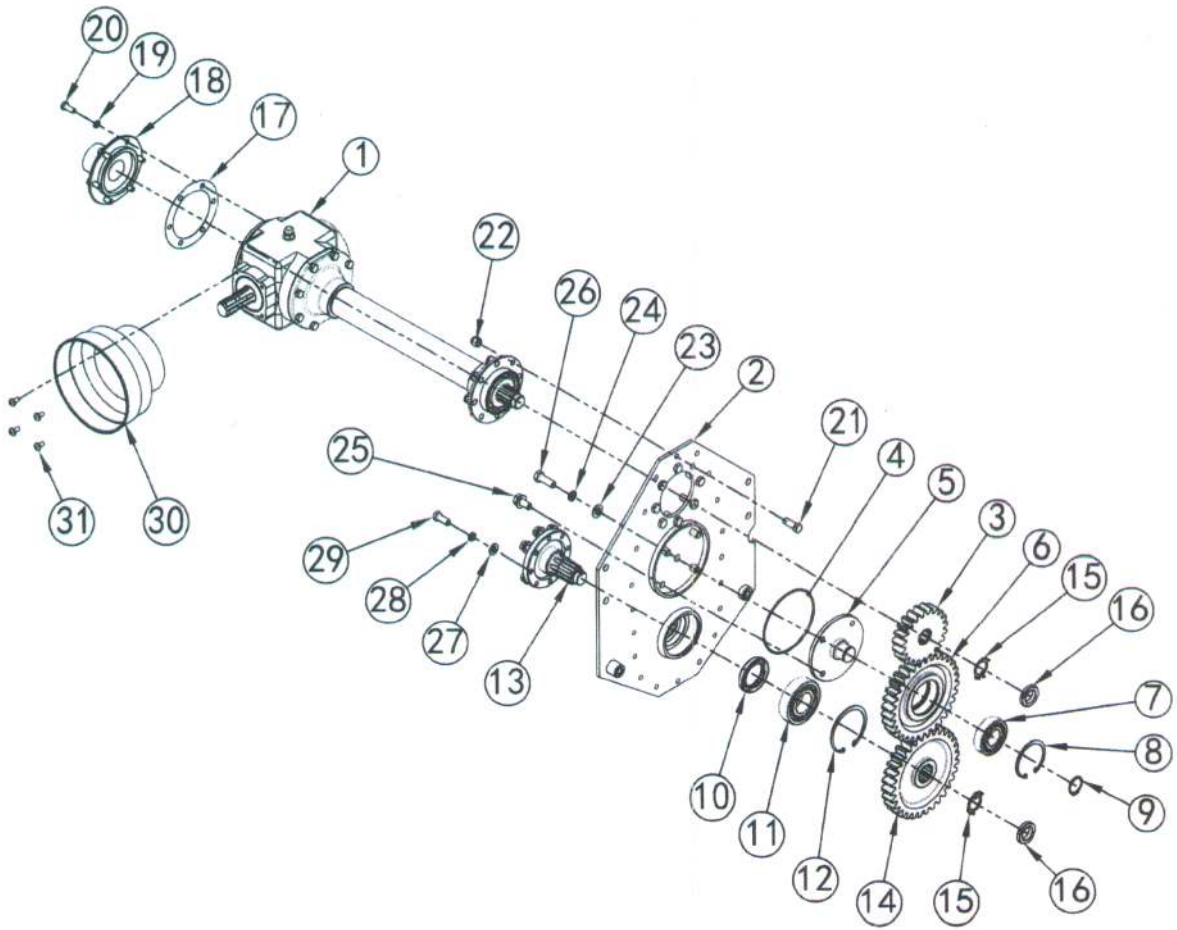
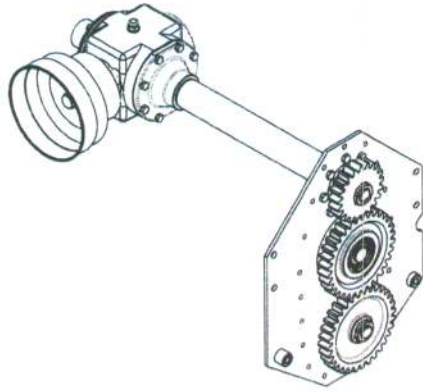
Item	Part No.	Name	Qty.	Model
1	1GN100.02.011	Flange Tube, Weldment	1	IGN100
	1GN125.02.011	Flange Tube, Weldment	1	IGN125
	1GN135.02.011	Flange Tube, Weldment	1	IGN135
	1GN150.02.011	Flange Tube, Weldment	1	IGN150
	1GN180.02.011	Flange Tube, Weldment	1	IGN180
	1GN210.02.011	Flange Tube, Weldment	1	IGN210
2	1GN100.02.111	II-Shaft	1	IGN100
	1GN100.02.111	II-Shaft	1	IGN125
	1GN100.02.111	II-Shaft	1	IGN135
	1GN100.02.111	II-Shaft	1	IGN150
	1GN100.02.111	II-Shaft	1	IGN180
	1GN100.02.111	II-Shaft	1	IGN210
3	GB13871.1-427512	Seal FB 42x75x12	1	
4	GB297-30311	Bearing 30311	1	
5	IGN135.02.108	Bevel Gear (fits IGN)	1	
6	GB13871.1-407012	Seal FB 40x70x12	1	
7	GB297-30308	Bearing 30308	1	
8	GB858-30	Lock washer 30	1	
9	GB812-M30X1.5	Round Nut M30x1.5	1	
10	IGN135.02.107	Gasket -Gearbox side (IGN)	1	
11	IGN135.02.109	Gasket, Chain Box side (IGN)	1	
12	IGN135.02.136	Gasket 90	1	



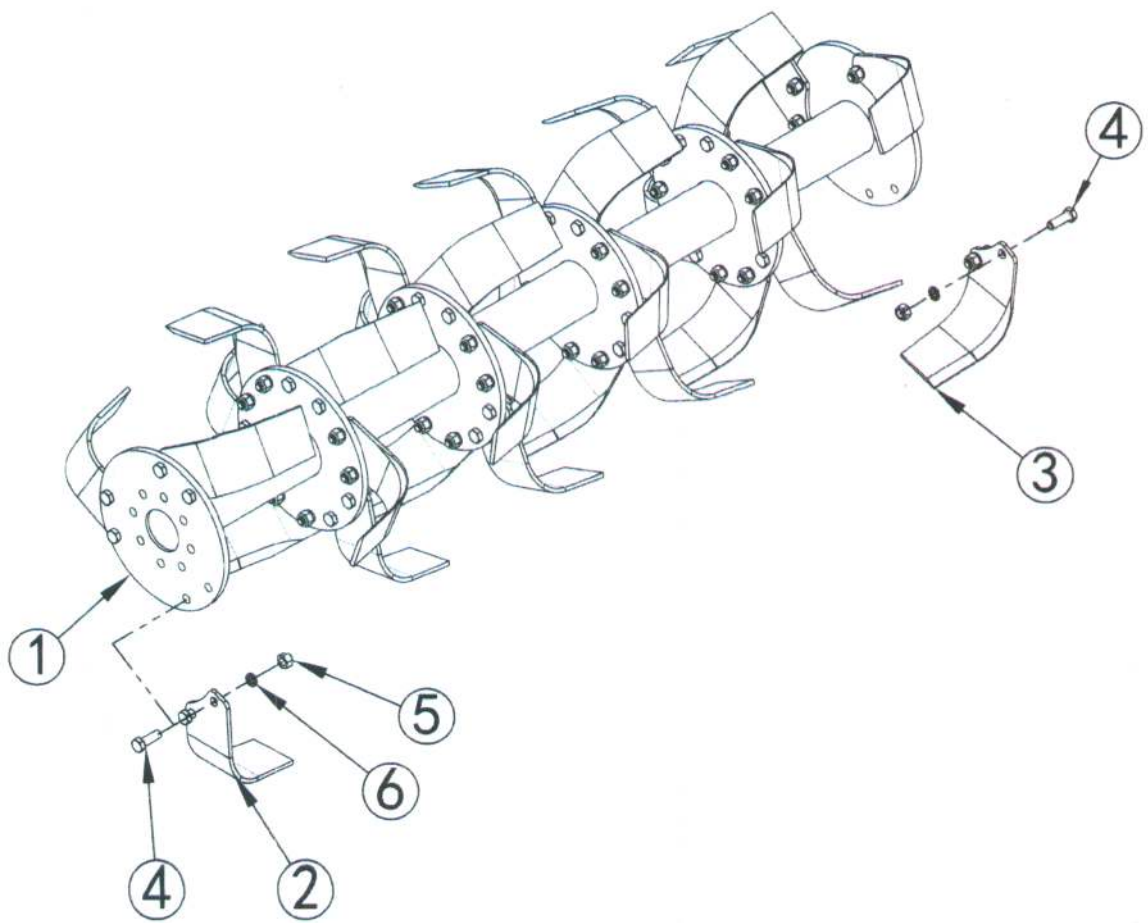
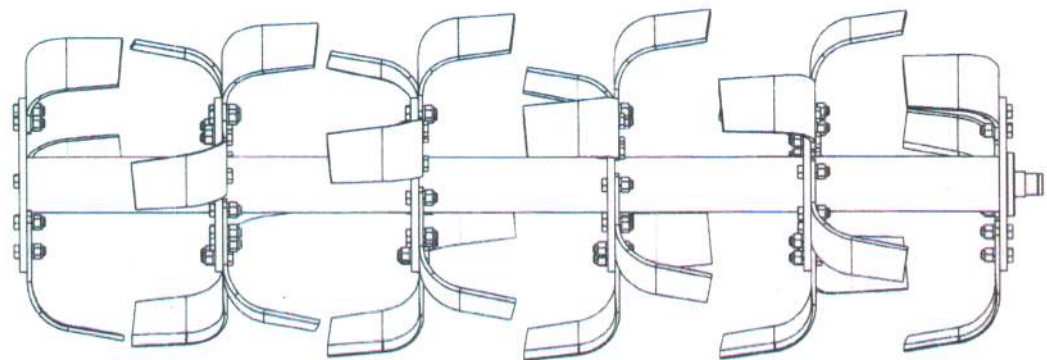
Item	Part No.	Name & Specifacation	Qty.	Model
1	IGN135.02.103	Housing (IGN)	1	
2	IGN135.02.101	Gearbox shaft (IGN)	1	
3	IGN135.02.105	Bevel Pinion	1	
4	IGN135.02.135	Gasket 80	1	
5	GB/T276-6208	Bearing 6208	1	
6	GB297-30310	Bearing 30310	1	
7	GB893.1-86/80	Circlip 80 In	1	
8	GB893.1-110	Retaining Ring 110	1	
9	GB13871.1-358012	Seal FB 35x80x12	1	
10	IGN135.02.201	Cover 110x12	2	
11	Q900B-G3-8	Chain cover oil plug - top	1	
12	JB1761-10	Gasket 10	1	
13	JB1000-AM10X1	Plug AM 10x1	1	



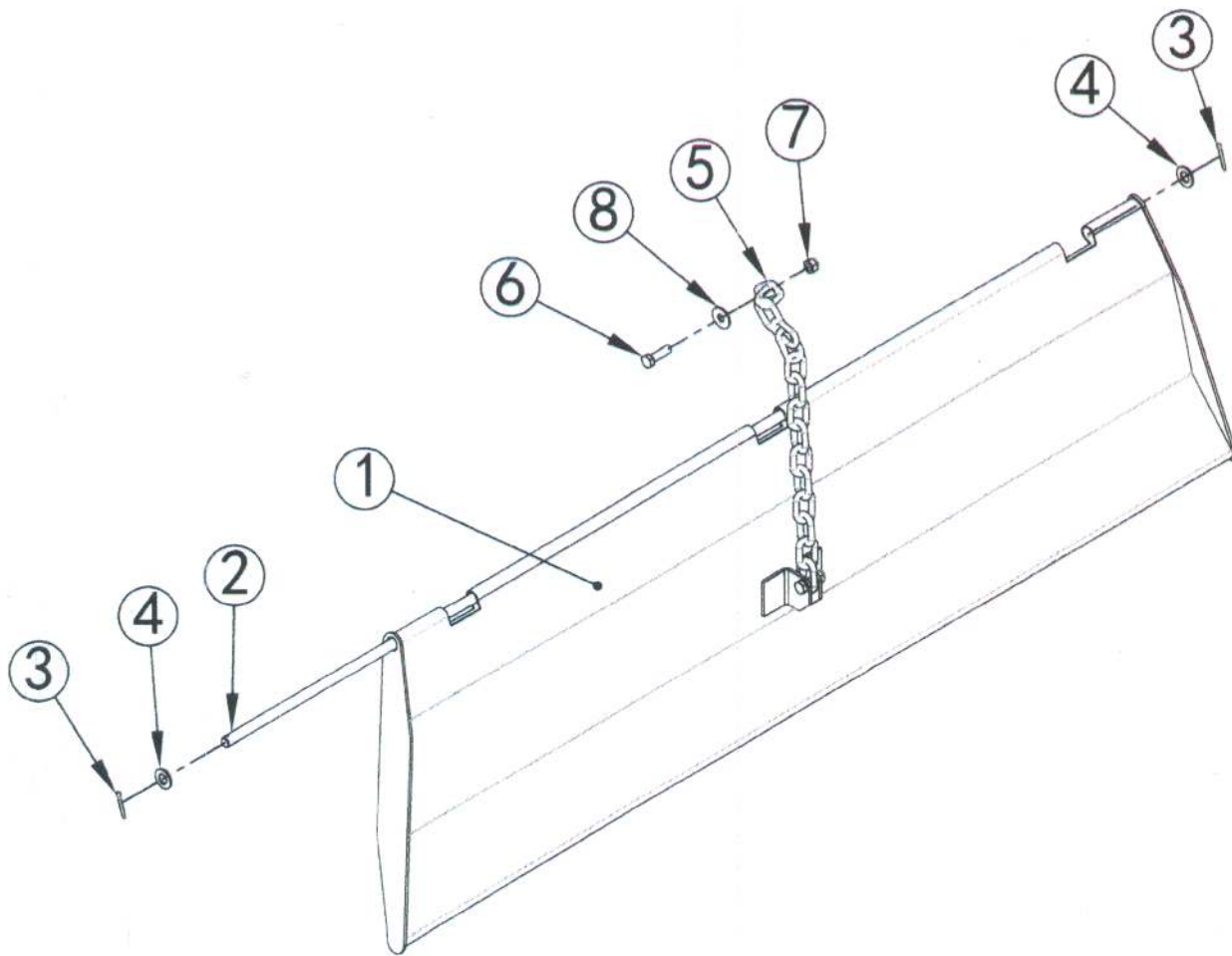
Item	Part No.	Name and Specifications	Qty.	Model
1	IGN135.02.003	Gear Box assembly (IGN series)	1	
2	IGN100.02.004	Output Shaft Assy (Fits IGN 100)	1	IGN100
	IGN125.02.004	Output Shaft Assy (Fits IGN 125)	1	IGN125
	IGN135.02.004	Output Shaft Assy (Fits IGN135)	1	IGN135
	IGN150.02.004	Output Shaft Assy (Fits IGN 150)	1	IGN150
	IGN180.02.004	Output Shaft Assy (Fits IGN 180)	1	IGN180
	IGN210.02.004	Output Shaft Assy (Fits IGN 210)	1	IGN210
3	LW.10	Lock Washer 10	8	
4	B.10X30	Bolt 10x30	8	



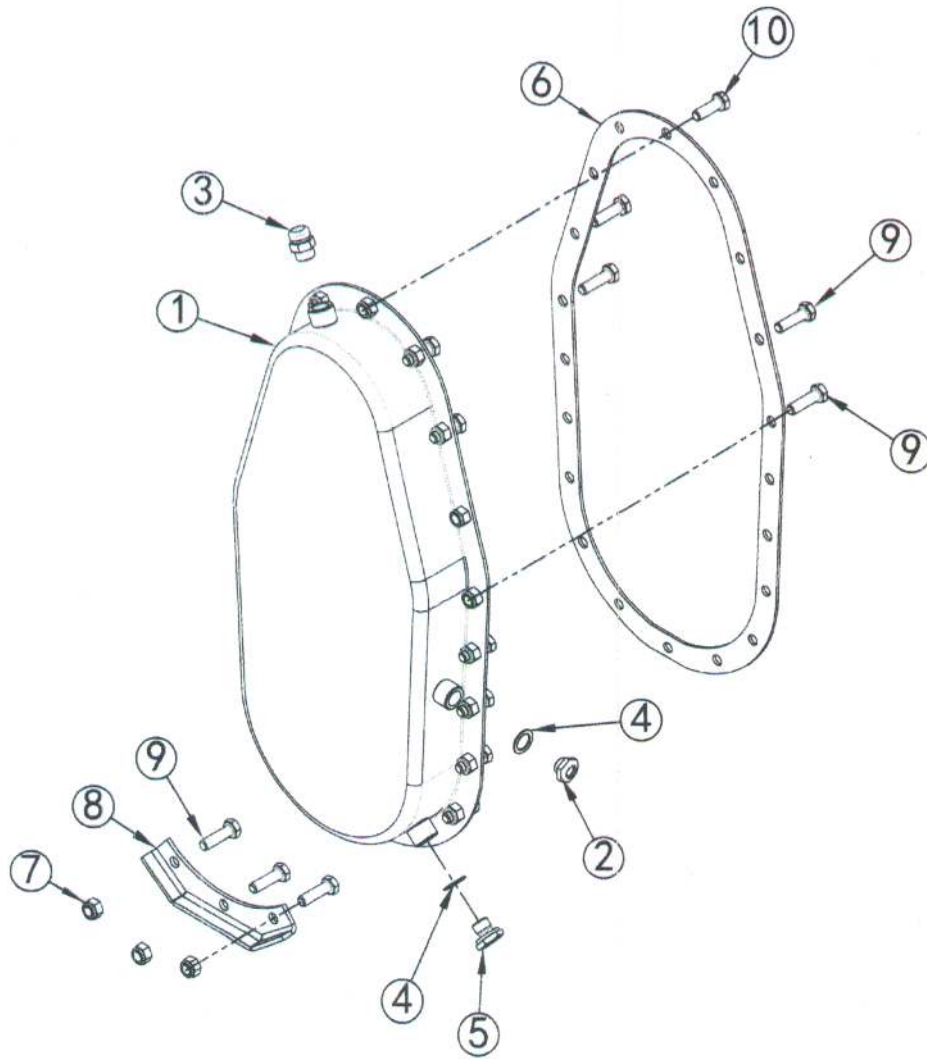
Item	Part No.	Name and Specifications	Qty.	Model
1	IGN100.02.002	Transmission	1	IGN100
	IGN125.02.002	Transmission	1	IGN125
	IGN135.02.002	Transmission	1	IGN135
	IGN150.02.002	Transmission	1	IGN150
	IGN180.02.002	Transmission	1	IGN180
	IGN210.02.002	Transmission	1	IGN210
2	IGN135.02.012	Left Side Plate (IGN)	1	
3	IGN135.02.110	Gear Top	1	
4	GB3452. 1-OR	O Ring	1	
5	IGN135.01.112	Intermediate Gear Shaft	1	
6	IGN135.03.105	Intermediate Gear	1	
7	GB/T276-94/6307	Bearing 6307	1	
8	GB893.I-80	Snap Ring 80	1	
9	GB894.1-35	Retaining Ring 35	1	
10	GB13871.1-558012	Seal FB 55x80x12	1	
11	GB276-6309	Bearing 6309	1	
12	GB893.1-86/100	Circlip 100	1	
13	IG135.03.107	III-Shaft (Bottom gear shaft)	1	
14	IG135.03.106	Gear, Bottom	1	
15	LW.30	Lock Washer 30	2	
16	RN.30X1.5	Round Nut M30x1.5	2	
17	IGN135.02.106	Gearbox gasket	1	
18	IGN135.02.118	Shaft Cup	1	
19	LW.10	Lock Washer 10	6	
20	B.10X25	Bolt M10x25	6	
21	B.12X35	Bolt M12x35	8	
22	LN.12	Lock Nut M12	8	
23	PW.14	Plain Washer 14	5	
24	LW.14	Lock Washer 14	5	
25	B.14X30	Bolt M14x30	2	
26	B.14X40	Bolt M14x40	3	
27	PW.12	Plain Washer 12	8	
28	LW.12	Lock Washer 12	8	
29	B.12X30	Bolt M12x30	8	
30	IGN135.02.117	PTO Guard	1	
31	S.8X16	Screw M8x16	4	



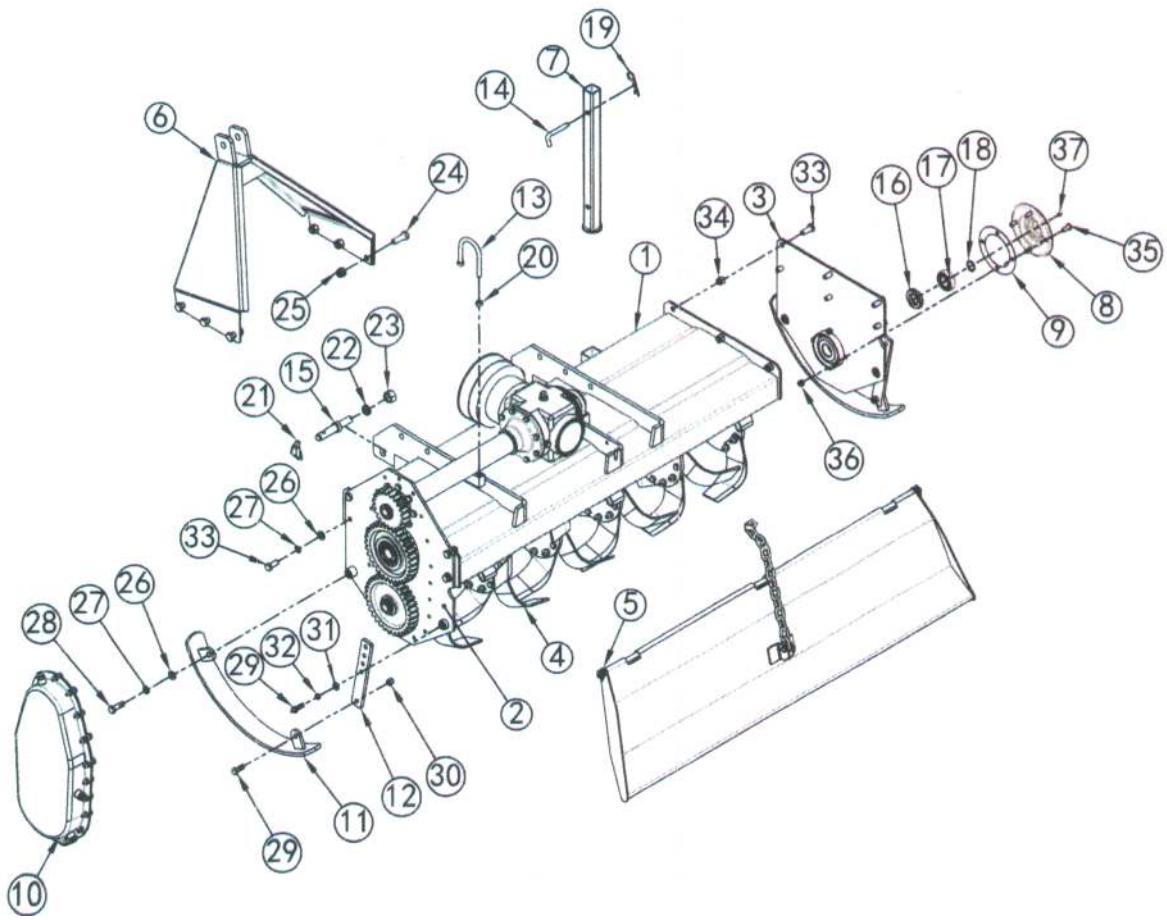
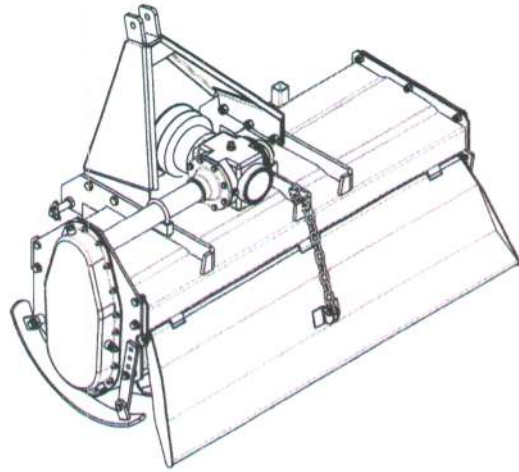
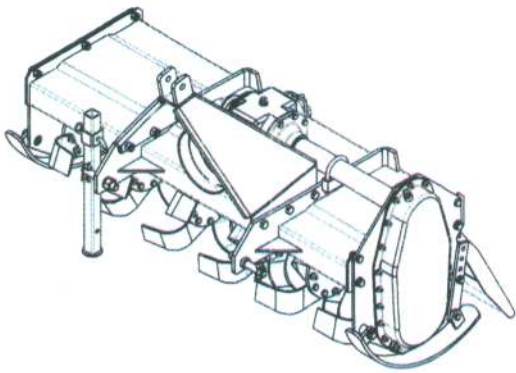
Item	Part No.	Name & specification	Qty.	Model
1	IGN100.01.011	Rotor shaft, weldment (Fits IGN 100)	1	
	IGN125.01.011	Rotor shaft, weldment (Fits IGN 125)	1	
	IGN135.01.011	Rotor shaft, weldment (Fits IGN 135)	1	
	IGN150.01.011	Rotor shaft, weldment (Fits IGN 150)	1	
	IGN180.01.011	Rotor shaft, weldment (Fits IGN 180)	1	
	IGN210.01.011	Rotor shaft, weldment (Fits IGN 210)	1	
2	F-IGN TINE (L)	Tine (l) ~ Fits Ign Series Tiller	12	IGN100
	F-IGN TINE (L)	Tine (l) ~ Fits Ign Series Tiller	15	IGN125
	F-IGN TINE (L)	Tine (l) ~ Fits Ign Series Tiller	15	IGN135
	F-IGN TINE (L)	Tine (l) ~ Fits Ign Series Tiller	18	IGN150
	F-IGN TINE (L)	Tine (l) ~ Fits Ign Series Tiller	21	IGN180
	F-IGN TINE (L)	Tine (l) ~ Fits Ign Series Tiller	24	IGN210
3	F-IGN TINE (R)	Tine (r) ~ Fits Ign Series Tiller	12	IGN100
	F-IGN TINE (R)	Tine (r) ~ Fits Ign Series Tiller	15	IGN125
	F-IGN TINE (R)	Tine (r) ~ Fits Ign Series Tiller	15	IGN135
	F-IGN TINE (R)	Tine (r) ~ Fits Ign Series Tiller	18	IGN150
	F-IGN TINE (R)	Tine (r) ~ Fits Ign Series Tiller	21	IGN180
	F-IGN TINE (R)	Tine (r) ~ Fits Ign Series Tiller	24	IGN210
4	B.12X35	Bolt M12x35	48	IGN100
	B.12X35	Bolt M12x35	60	IGN125
	B.12X35	Bolt M12x35	60	IGN135
	B.12X35	Bolt M12x35	72	IGN150
	B.12X35	Bolt M12x35	84	IGN180
	B.12X35	Bolt M12x35	96	IGN210
5	LN.12	Lock Nut M12	48	IGN100
	LN.12	Lock Nut M12	60	IGN125
	LN.12	Lock Nut M12	60	IGN135
	LN.12	Lock Nut M12	72	IGN150
	LN.12	Lock Nut M12	84	IGN180
	LN.12	Lock Nut M12	96	IGN210
6	LW.12	Lock Washer 12	48	IGN100
	LW.12	Lock Washer 12	60	IGN125
	LW.12	Lock Washer 12	60	IGN135
	LW.12	Lock Washer 12	72	IGN150
	LW.12	Lock Washer 12	84	IGN180
	LW.12	Lock Washer 12	96	IGN210



Item	Part No.	Name & specification	Qty.	Model
1	IGN100.00.019	Drag Shield	1	IGN100
	IGN125.00.019	Drag Shield	1	IGN125
	IGN135.00.019	Drag Shield	1	IGN135
	IGN150.00.019	Drag Shield	1	IGN150
	IGN180.00.019	Drag Shield	1	IGN180
	IGN210.00.019	Drag Shield	1	IGN210
2	IGN100.00.019		1	IGN100
	IGN125.00.019		1	IGN125
	IGN135.00.019		1	IGN135
	IGN150.00.019		1	IGN150
	IGN180.00.019		1	IGN180
	IGN210.00.019		1	IGN210
3	CP.4x30	Cotter Pin 4x30	2	
4	PW.14	Plain Washer 14	2	
5	IGN135.00.018	Link Chain	1	IGN100-150
	IGN135.00.018	Link Chain	2	IGN180-210
6	B.10x35	Bolt M10x35	2	
	B.10x35	Bolt M10x35	4	IGN180-210
7	LN.10	Lock Nut M10	2	
	LN.10	Lock Nut M10	4	IGN180-210
8	PW.10	Plain Washer 10	1	
	PW.10	Plain Washer 10	2	IGN180-210



Item	Part No.	Name & specification	Qty.
1	IGN135.00.015	Gear guard, weldment	1
2	GB1160.2-G3-8	Oil indicator, G3/8	1
3	Q900B-G3-8	Chain cover oil plug - top	1
4	JB1761-16	O-Ring seal M16	2
5	JB1760-M16X12	chain cover oil plug, bottom	1
6	IGN135.00.105	Chain Cover Gasket	1
7	LN.10	Lock Nut M10	20
8	IGN135.00.108	Side Chain Cover Bracket	1
9	B.10X35	Bolt M10x35	7
10	B.10X30	Bolt M10x30	13



Item	Part No.	Name & specification	Qty.	Model
1	IGN100.00.013	Deck, Weldment	1	IGN100
	IGN125.00.013	Deck, Weldment	1	IGN125
	IGN135.00.013	Deck, Weldment	1	IGN135
	IGN150.00.013	Deck, Weldment	1	IGN150
	IGN180.00.013	Deck, Weldment	1	IGN180
	IGN210.00.013	Deck, Weldment	1	IGN210
2	IGN100.02.001	Drivetrain, Assembly	1	IGN100
	IGN125.02.001	Drivetrain, Assembly	1	IGN125
	IGN135.02.001	Drivetrain, Assembly	1	IGN135
	IGN150.02.001	Drivetrain, Assembly	1	IGN150
	IGN180.02.001	Drivetrain, Assembly	1	IGN180
	IGN210.02.001	Drivetrain, Assembly	1	IGN210
3	IGN135.00.012	Right Side Brace	1	
4	IGN100.01.001	Rotor	1	IGN100
	IGN125.01.001	Rotor	1	IGN125
	IGN135.01.001	Rotor	1	IGN135
	IGN150.01.001	Rotor	1	IGN150
	IGN180.01.001	Rotor	1	IGN180
	IGN210.01.001	Rotor	1	IGN210
5	IGN100.00.003	Drag Shield	1	IGN100
	IGN125.00.003	Drag Shield	1	IGN125
	IGN135.00.003	Drag Shield	1	IGN135
	IGN150.00.003	Drag Shield	1	IGN150
	IGN180.00.003	Drag Shield	1	IGN180
	IGN210.00.003	Drag Shield	1	IGN210
6	IGN135.00.014	Hitch Frame Weldment	1	IGN100-125-135
	IGN180.00.014	Hitch Frame Weldment	1	IGN150-180-210
7	IGN135.00.016	IGN stand weldment	1	
8	IGNH150.025	Cover, weldment (fits IGN)	1	
9	IGNH150.129	Seal plate (fits IGN)	1	
10	IGN135.00.002	Gear Guard	1	
11	IGN135.00.011	Depth Gauge shoe (fits IGN)	2	
12	IGN135.00.109	Adjustable Plate	2	
13	IGN135.00.104	U-Bolt	2	
14	IGN135.00.107	Pin	1	

Item	Part No.	Name & specification	Qty.	Model
15	FM150.114	Lower Link Pin	2	IGN100/125/135/150
	IGN180.00156	Lower Link Pin	2	IGN180/210
16	GB13871.1-35X62	Seal FB35x62x12	1	
17	GB276-6206	Bearing 6206	1	
18	GB894.1-30	Retainer Ring 30	1	
19	R-PIN4	R-PIN 4	1	
20	LN.12	Lock Nut M12	4	
21	LP-11.45	Linch Pin 11x45	2	
22	LW.22	Lock Washer 22	2	
23	N.22X1.5	Nut M22x1.5	2	
24	B.16X45	Bolt M16x45	6	
25	LN.16	Lock Nut M16	6	
26	PW.14	Plain Washer 14	7	
27	LW.14	Lock Washer 14	7	
28	B.14X45	Bolt M14x45	2	
29	B.12X35	Bolt M12x35	4	
30	LN.12	Lock Nut M12	2	
31	PW.12	Plain Washer 12	2	
32	LW.12	Lock Washer 12	2	
33	B.14X40	Bolt M14x40	10	
34	LN.14	Lock Nut M14	5	
35	B.10X25	Bolt M10x25	4	
36	LN.10	Lock Nut M10	4	
37	GB1152-M6	Grease Nipple M6	1	



FHM
FARMER-HELPER
MACHINERY COMPANY

Parts Request Form

E-mail cservice@betstco.com

Phone: 541-895-3083

Name: _____

Address: _____

City State Zip: _____

Phone: _____

E-mail: _____

Model Number: _____
Serial Number: _____
Purchase From: _____
Purchase Date: _____

Item No.	Description	Qty	Price	Amount

Comments:

FARMER-HELPER Limited Warranty

Unless otherwise stated on purchase invoice, Betstco warrants to original Purchaser that Farmer-Helper products are free from major defects in material under normal use and service for a period of 90 Days from the date the product is purchased or shipped, whichever is later. Commercial use 90 days. Use at address that is not yours, is considered commercial use. Consumable, Expendable, Wear Items (Rubber plastic parts, hydraulic hoses, belts, tires, cables, blades, tines, wedges, teeth, tiups, chains, pins, brushes, filters, etc) and cracked hydraulic pumps, bent or broken cylinder rods are not covered under this warranty. Warranty does not cover items that have been modified, damaged by abuse or usage not in accordance with design or maintenance.

Betstco obligation under this warranty is to repair or replace defective upon approval by; Betstco, 83371 Melton Rd. N, Creswell OR 97426 that Warranty Claim is valid. Product shall be returned upon request of Betstco. Transportation charges to be prepaid by user.

Gasoline or diesel engines used to powered Farmer-Helper products are covered by the warranty of the appropriate engine manufacturean Purchaser must look to the engine manufacture for all issues relating to engine operation.

Betstco assumes no responsibility for outside labor.

PERMISSABLE BY APPLICABLE LAW, BETSTCO HEREBY DISCLAIMS ALL WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, ANY IMPLIED WARRANTIES WITH RESPECT TO THE PRODUCT PURCHASED, WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, BETSTCO HEREBY EXPRESSLY DISCLAIMS ALL LIABILITY FOR PRODUCT DEFECT OR FAILURE, CLAIMS THAT ARE DUE TO NORMAL WEAR, PRODUCT MISUSE, ABUSE, PRODUCT MODIFICATION, IMPROPER PRODUCT SELECTION, NON-COMPLIANCE WITH ANY CODES, OR MISAPPROPRIATION. BETSTCO MAKES NO WARRANTIES TO THOSE DEFINED AS "CONSUMERS" IN THE MAGNUSON-MOSS WARRANTY FEDERAL TRADE COMMISION IMPROVEMENTS ACT. THE FOREGOING EXCLUSION OF IMPLIED WARRANTIES DO NOT APPLY TO THE EXTENT PROHIBITED BY LAW. PLEASE REFER TO YOUR LOCAL LAWS FOR ANY SUCH PROHIBITIONS.

THERE SHALL BE NO LIABILITY FOR PRODUCT LIABILITY OR LIABILITY ON THE PART OF BETSTCO FOR ANY GENERAL SPECIAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE SALE OR USE OF ANY PRODUCTS SOLD BY BETSTCO OR AN AGENT THEREOF, BETSTCO MAKES NO WARRANTIES, EXPRESS OR IMPLIED, (INCLUDING, BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY OR FITNESS OF THE PRODUCTS FOR ANY PURPOSE) WITH RESPECT TO THE PRODUCTS COVERED BY THIS AGREEMENT EXCEPT AS IN THIS PARAGRAPH OTHERWISE EXPRESSLY PROVIDED.

THIS IS THE SOLE AND ONLY WARRANTY OF VALUE-LEADER PRODUCTS, NO OTHER WARRANTY IS APPLICABLE, EITHE EXPRESSED OR IMPLIED, IN FACT BY LAW.

This warranty shall not be interpreted to render Betstco, or any authorized agent liable for injury or damages of any kind or nature, direct, consequential, or contingent, to a person or property.

The sole and only remedy in regard to any defective product shall be the repair or replacement thereof as herein provided, Betstco, agent(s) of Betstco shall not be liable for any consequential, special, incidental or punitive damages resulting from or caused by any such defects

Betstco reserves the rights to make improvements in design or changes in specifacations at any time, without incurring any obligations to owners of the units previously sold.

WARRANTY VOID IF REGISTRATION IS NOT RECEIVED OR RECORDED ONLINE WITHIN 30 DAYS OF PURCHASE DATE OR SHIP DATE, WHICHEVER IS LATER.



ITEM: _____ **MODEL#** _____ **PURCHASE DATE:** ____/____/____

PURCHASED FROM: _____ **GIFT INV# ORDER#** _____

OWNER NAME: _____ **SERIAL #** _____

OWNER ADDRESS: _____

CITY: _____ **COUNTY:** _____ **ST:** _____ **ZIP:** _____

PHONE: _____ **EMAIL:** _____

ACCEPTANCE OF RESPONSIBILITY:

I (PURCHASER) HAVE READ OPERATORS MANUAL AND LIMITED WARRANTY OR SOMEONE HAS READ/AND EXPLAINED ALL INSTRUCTIONS TO ME. I UNDERSTAND THIS WARRANTY DOES NOT COVER ANY LABOR AND THAT ALL DISPUTES WILL BE SETTLED BY BINDING ARBITRATION. BINDING ARBITRATION IS CONDUCTED BY THE BETTER BUSINESS BUREAU (BBB) LOCATED AT 4004 SW KRUSE WAY PLACE ST 375 LAKE OSWEGO OR 97035 OR THE CURRENT BBB LOCATION CLOSEST TO BETSTCO. I ACKNOWLEDGE MY LIMITED WARRANTY IS VOID IF ANY ATTEMPT TO REPAIR OR REPLACE DEFECTIVE PARTS HAS BEEN MADE BY UNAUTHORIZED PERSONNEL. I ACKNOWLEDGE RECEIPT OF MY OPERATORS MANUAL AND HAVE READ THE SAFE OPERATION SECTION. I ACKNOWLEDGE UNDERSTANDING MAINTENANCE AND SAFE OPERATION REQUIREMENTS, ITEM SPECIFICATIONS, OPERATION, CONTROLS AND STORAGE REQUIREMENTS. **I UNDERSTAND THAT IS ALONE AM RESPONSIBLE FOR PROPER MAINTENANCE, CARE AND SAFE OPERATION OF THIS FARMER-HELPER ITEM**

I (PURCHASER) AGREE THAT PERSONS NOT FAMILIAR WITH THE OPERATION OF THIS ITEM SHOULD NOT BE ALLOWED TO USE IT. CHILDREN ESPECIALLY SHOULD NOT OPERATE OR BE NEAR POWER PRODUCTS WHEN IN USE. ANYONE OPERATING VALUE-LEADER PRODUCTS SHOULD HAVE READ OPERATIONS MANUALS AND SAFETY MANUALS.

OWNERS SIGNATURE: x _____ **DATE:** ____/____/____

YOU MUST SIGN THIS WARRANTY AND MAIL OR FAX A COPY TO BETSTCO, 83371 MELTON RD, CRESWELL OR, 97426. IF YOU PREFER YOU MAY COMPLETE YOUR REGISTRATION ONLINE AT <https://betstco.com/product-registration/>. THIS WARRANTY IS NOT EFFECTIVE UNLESS PURCHASER COMPLETE REGISTRATION AND WARRANTY FOR WITHIN 30 DAYS OF PURCHASE OR SHIP DATE WHICHEVER IS LATER.

NOTE: WE MAY REFUSE WARRANTY OF ANY KIND UNLESS BETSTCO, RECEIVES A COMPLETED, LEGIBLE AND SIGNED WARRANTY REGISTRATION. IT IS THE RESPONSIBILITY OF THE PURCHASER TO ASSURE THAT REGISTRATION DOCUMENT IS RECEIVED BY

**1 YEAR EXTENDED WARRANTY & REGISTRATION
FARMER-HELPER IMPLEMENTS
BRANDED PRODUCTS
1 YEAR EXTENDED WARRANTY**

1 Year Extended Warranty amends to original Recorded Warranty Registration the time period of described coverage. Extended Warranty does not apply to consumable and Expendable Item as described in Product Warranty Registration.

This amendment does not affect any other part of recorded Warranty Registration or policy.

No one is authorized to alter, modify, or enlarge this Amendment to original recorded Warranty Registration

**EXTENDED REGISTRATION & PAYMENT MUST BE RECEIVED
WITHIN 30 DAYS OF PURCHASE DATE**

EXTENDED WARRANTY REGISTRATION

PRODUCT & MODEL # _____

SERIAL # _____

OWNER NAME : _____

BETSTCO INVOICE # _____

ACCEPTANCE OF RESPONSIBILITY:

I (PURCHASER) HAVE READ AND UNDERSTAND THE EXTENDED WARRANTY OR SOMEONE HAS READ AND EXPLAINED ALL THE ABOVE TO ME. I UNDERSTAND THIS EXTENDED WARRANTY DOES NOT COVER ANY LABOR. I HAVE FILED MY ORIGINAL WARRANTY REGISTRATION AND FULLY UNDERSTAND MY REQUIREMENTS. ***I UNDERSTAND THAT I ALONE AM RESPONSIBLE FOR PROPER MAINTENANCE, CARE AND SAFE OPERATION OF THIS TRACTOR IMPLEMENT.***

OWNERS SIGNATURE: x _____

DATE: ____/____/____

FAX TO 1-541-895-2756

YOU MUST SIGN THIS WARRANTY AND MAIL OR FAX A COPY TO BETSTCO, 83371 MELTON RD, CRESWELL OR. IF YOU PREFER YOU MAY COMPLETE YOUR REGISTRATION ONLINE AT <https://betstco.com/product-registration/>. THIS WARRANTY IS NOT EFFECTIVE UNLESS PURCHASER COMPLETE REGISTRATION AND WARRANTY FOR WITHIN 30 DAYS OF PURCHASE OR SHIP DATE WHICHEVER IS LATER.

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