



FHM

**FARMER-HELPER
MACHINERY COMPANY**

FH-IGN Series Rotary Tiller Assembly/Operations/Parts Manual



Please read these instructions carefully before using!

You must fill with oil before operating!

Uses Approx. 2 ½ Gallons of 80-90 Gear Oil

BETSTCO

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RUGGED LABOR SAVING EQUIPMENT SINCE 1995

**Prices and Specifications subject to change without notice*

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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 are 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 zert on the joint cross and the needle bearing must lubricated by you inject 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 assy 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 to 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 adjusts 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 losing.

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 assy.

2.5 Right side plate

The right side plate assy 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 where 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 assy consists of cultivator shaft, blade disc and blade.

2.8 Trailing bar

The function of the trailing bar is to farther breaking the clods and flattening 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 mud and the weed on the cultivator shaft, assemble the blades, long-distance transport; you can set the bar at the highest.

Farmer Helper IGN Series Commercial Duty Rotary Tiller Specifications						
MODEL	FH IGN90	FH IGN105	FH IGN125	FH IGN135	FH IGN150	FH IGN180
Standard Tine Rotation	Yes	Yes	Yes	Yes	Yes	Yes
Working Width	35"	41"	48"	53"	59"	71"
Overall Width	44 1/2"	50 1/2"	57 1/2"	62 1/2"	68 1/2"	80 1/2"
Min.- Max. HP	15hp - 40hp	18hp -45hp	20hp - 45hp	22hp - 45hp	25hp - 50hp	35hp - 75hp
3Pt. Hitch	Cat.1	Cat.1	Cat. 1	Cat.1	Cat.1	Cat.1 or 2
Gear Box Rating	65Hp	65Hp	65Hp	65Hp	65Hp	65Hp
Number of L shaped Tines	18	24	30	30	36	42
Drive Type	Gear to Gear	Gear to Gear	Gear to Gear	Gear to Gear	Gear to Gear	Gear to Gear
Double Walled Housing	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"
Rotor Swing Dia.	18"	18"	18"	18"	18"	18"
Adjustable Tilling Depth	2"- 6"	2"- 6"	2"- 6"	2"- 6"	2"- 6"	2"- 6"
DriveLine Type 540rpm PTO	Series 4 1-3/8" SPL w/QD x 1-3/8" SPL w/ Slip Clutch	Series 4 1-3/8" SPL w/QD x 1-3/8" SPL w/ Slip Clutch	Series 5 1-3/8" SPL w/QD x 1-3/8" SPL w/ Slip Clutch	Series 5 1-3/8" SPL w/QD x 1-3/8" SPL w/ Slip Clutch	27" Series 5 1-3/8" SPL w/QD x 1-3/8" SPL w/ Slip Clutch	Series 5 1-3/8" SPL w/QD x 1-3/8" SPL w/ Slip Clutch
Warranty	2 Years	2 Years	2 Years	2 Years	2 Years	2 Years
Weight	575 lbs.	620 lbs.	705 lbs.	735 lbs.	775 lbs.	870lbs.
Crated Weight	595 lbs.	640 lbs.	725 lbs.	760 lbs.	800 lbs.	905 lbs.

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 to flat plowing. So the blade shaft operates stable; the surface of 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 to ground, observe if the height between the right and left blade tips and the ground is 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.

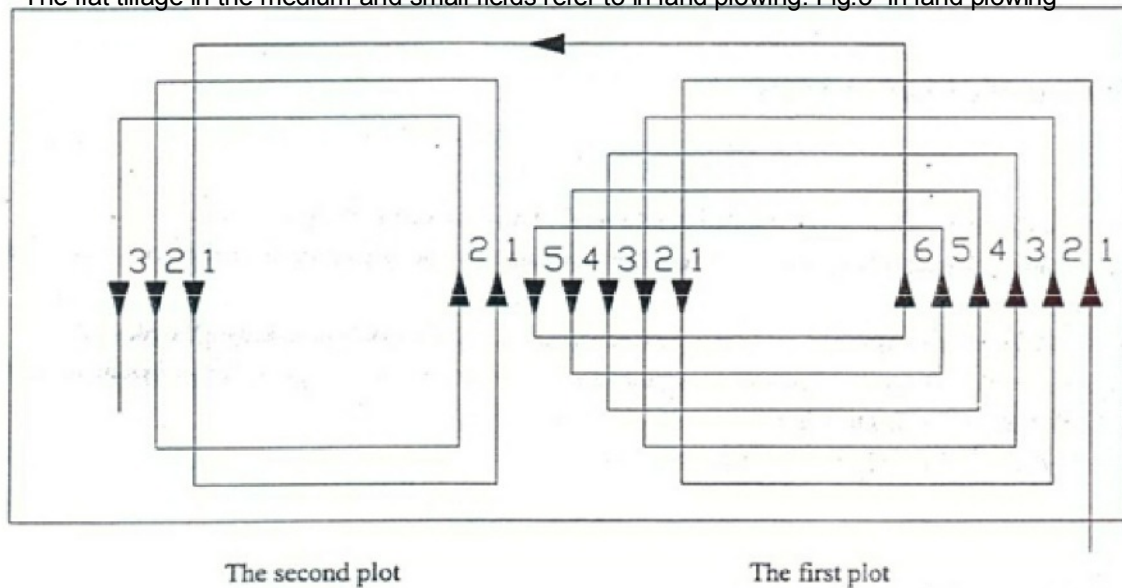
4. Primary adjustment of working depth

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 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 1-2minutes, 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 serve life, it is important that maintenance must done properly.

4.1 Daily maintenance (after 10 hours operating)

1. Check, tighten up all of the joint bolts and nuts, tighten them up or replace them if necessary.
2. Check the lubricant oil in the gearbox and the side gear box, keep the oil level desired.
3. Check universal driveline cross, pin, grease cup on the bearing seat, inject grease into the cup.
4. Check the blades to see if the blades are damaged or their fasten bolts are loose, replace or tighten them as necessary.
5. 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 indoor when stored, and be raised to make the blade tips leave the ground. The blades and bare metal surface revealed must smeared 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 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.

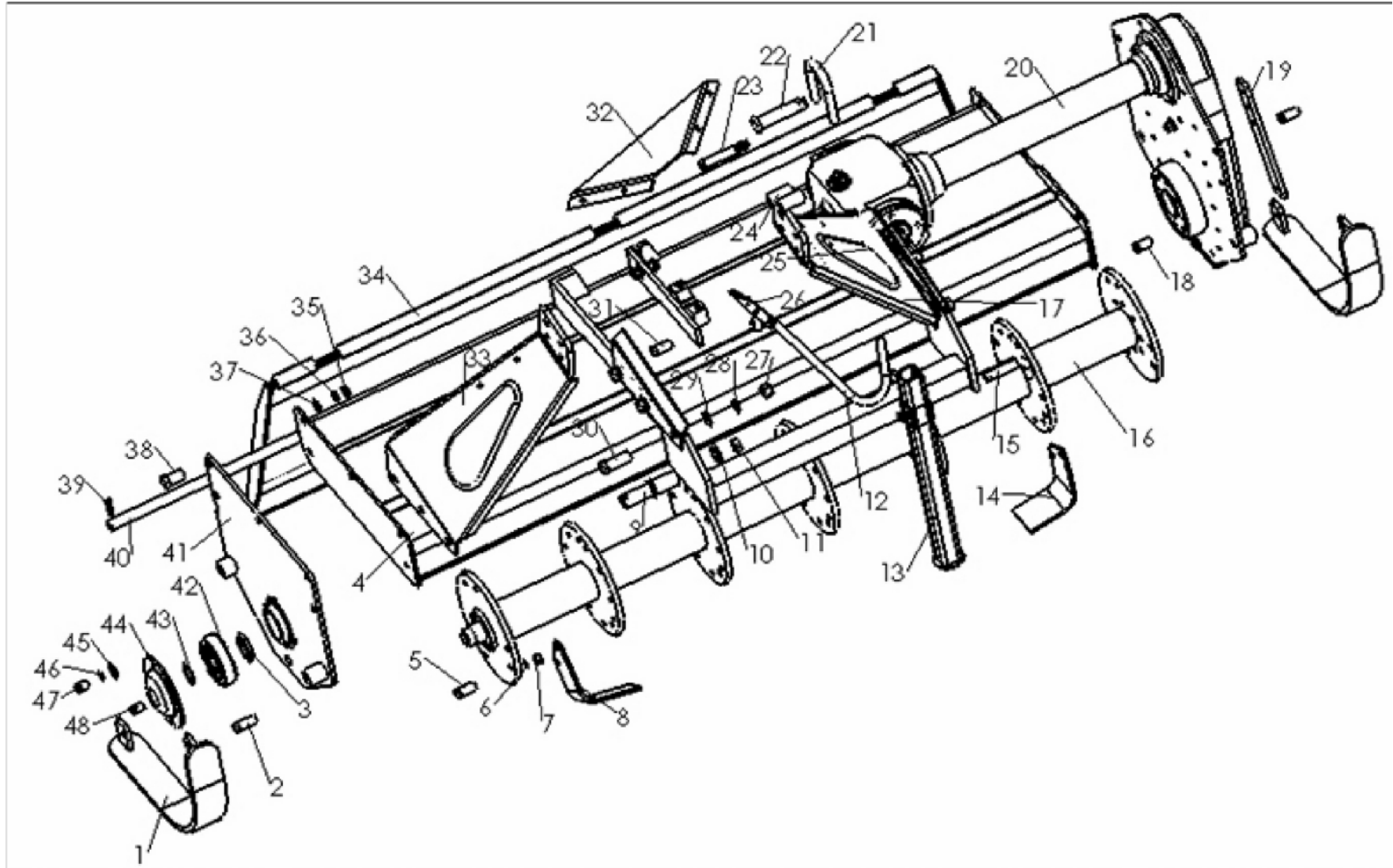
Chapter V Common breakdown and its fixing method

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 $\pm 20^\circ$ 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.

Rotary Tiller Assembly



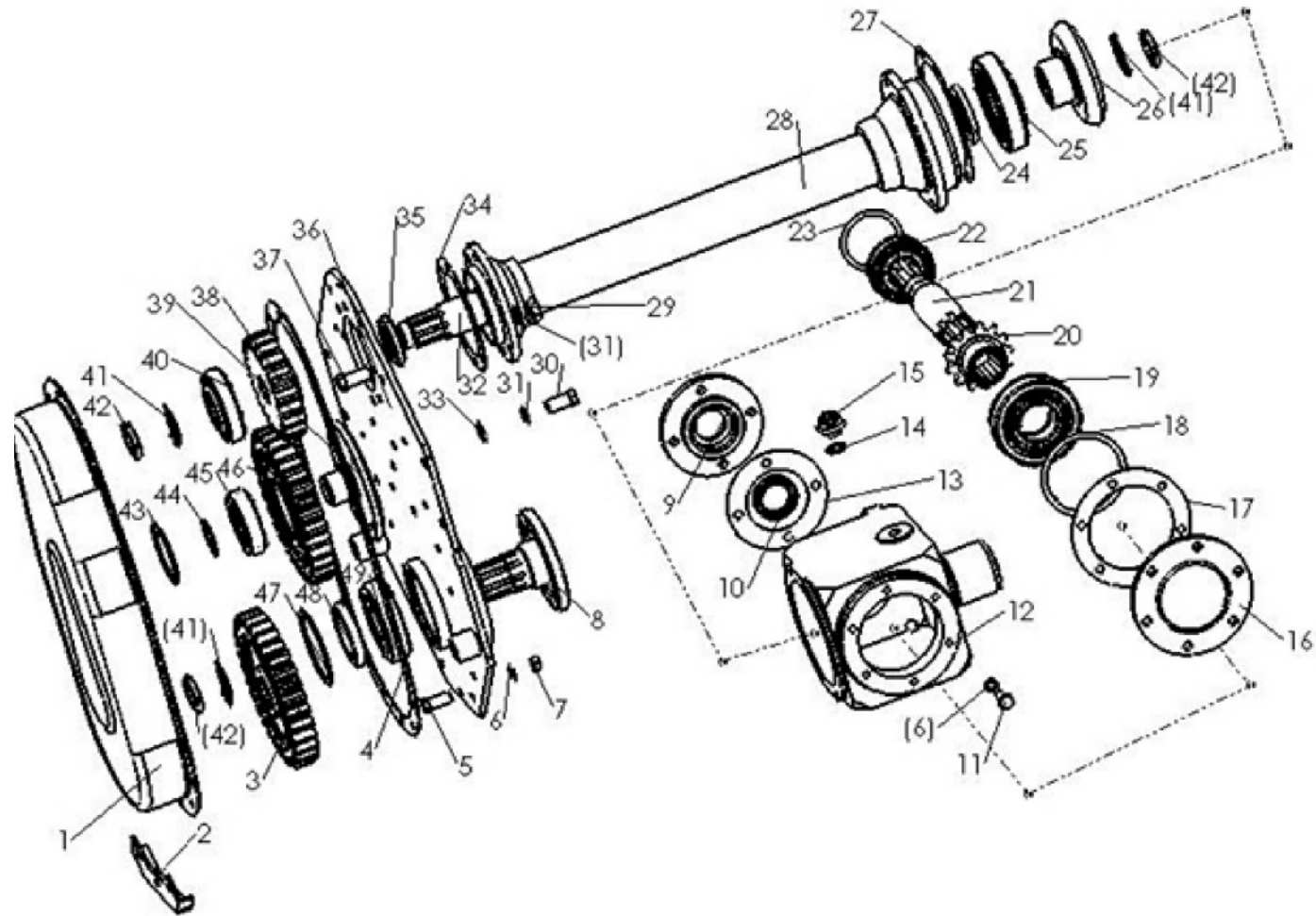
Rotary Tiller Assembly 旋耕机总成

序号 NO.	零件代号 Part NO.	零件名称	Name & Specifications	数量 Quantity	备注 Remark
1	1G-150.00.013	滑轨板焊合	Active plate	2	
2	GB5783-86	螺栓 M12X40	Bolt M12X40	2	
3	HG4-692-67	油封 PD35X62X12	Oil seal PD35X62X12	1	
4	1G-150.00.015	上盖板焊合	Upper cover plate weldment	1	
5	GB5783-86	螺栓 M12x35	Bolt M12X35	72	
6	GB97-83	垫圈 12	Carrier ring 12	88	
7	GB6170-86	螺母 M12	Nut M12	80	
8	1G-150.00.102	右刀片	Right blade	18	
9	SL-140A.00.109	螺栓	Bolt	2	
10	GB97-83	垫圈 24	Carrier ring 24	2	
11	GB6170-86	螺母 M24	Nut M24	2	
12	MZ105.037	挂钩焊合件	Hooker weldment	1	
13	1G-150.00.018	支撑杆焊合件	The brace weldment	1	
14	1G-150.00.103	左刀片	Left blade	18	
15	ZL-25.103	直角销	Right-angle pin	1	
16	1G-150.00.011	刀架焊合	Shaft for blade	1	
17	CBW-00.112	放油螺塞	Oil plug	1	
18	GB5783-86	螺栓 M12X30	Bolt M12X30	8	
19	1G-150.00.101	调节板	Adjustment plate	2	
20	1G-150.01.001	侧边齿轮箱总成	Gear Box Assembly	1	
21	1G-150.00.108	U形螺栓	U bolt	2	
22	EF100.00.019	上悬挂销	Upper hanging pin	1	
23	GB5782-86	螺栓 M12X100	Bolt M12X100	2	
24	MZ105.130	隔套	Sleeve	2	
25	1G-150.00.017	悬挂左侧板焊合件	Hanging right side panel	1	

Rotary Tiller Assembly □□□□□□

□ NO. □	□ Part NO. □	□	Name & Specifications □	□ Quantity □	□ Remark
26	1G-150.00.142 □	□	Hooker plate	1	26
27	GB6170-86 □	□ M16	Nut M16	6	27
28	GB93-87 □	□ 16	Carrier ring 16	6	28
29	GB97.1-85 □	□ 16	Carrier ring 16	14	
30	GB5782-86 □	□ M16X55	Bolt M16X55	6	
31	GB5783-86 □	□ M10X30	Bolt M10X30	6	
32	1G-150.00.106 □	□	Hanging belaying cleat	1	
33	1G-150.00.016 □	□	Hanging left side panel	1	
34	1G-150.00.012 □	□	Rear protecting plate	1	
35	GB6170-86 □	□ M14	Nut M14	10	
36	GB93-87 □	□ 14	Carrier ring 14	12	
37	GB97.1-85 □	□ 14	Carrier ring 14	12	
38	GB5783-86 □	□ M14X40	Bolt M14X40	8	
39	GB91-86 □	□ 2.5X30	Forelock 2.5X30	3	
40	1G-150.00.105 □	□	Rear protecting plate shaft	1	
41	1G-150.00.014 □	□	Right side panel	1	
42	GB276-94 □	□ 306	Bearing 306	1	
43	GB894.1-86 □	□ 30	Circlip 30	1	
44	1G-150.00.104 □	□	Right bearing cover plate	1	
45	GB97.1-85 □	□ 10	Carrier ring 10	10	
46	GB93-87 □	□ 10	Carrier ring 10	10	
47	GB5783-86 □	□ M10X20	Bolt M10X20	4	
48	GB1152-79 □	□ M8X1	Grease nipple M8X1	1	

Gear Box Assembly



Gear Box Assembly □

□ NO.焊	□ Part NO.焊	□	Name & Specifications焊	□ Quantity焊	□ Remark
1	1G-150.01.012焊	□	Cover weldment of gear box	1	1
2	1G-150.01.101焊	□	Guard plate for cover of gear box	1	2
3	1G150.04-01焊	□	Down gear	1	3
4	1G-150.01.102焊	□	Lignum washer for gear box	1	4
5	GB5783-86焊	□ M10X30	Bolt M10X30	32	5
6	GB93-87焊	□ 10	Carrier ring 10	38	6
7	GB6170-86焊	□ M10	Nut M10	20	7
8	1G-150.01.104焊	□	No. □ shaft	1	8
9	1G-150.01.116焊	□	The cover of input shaft	1	9
10	HG4-692-67焊	□ PD38X55X8	Oil seal PD38X55X8	1	10
11	GB5783-86焊	□ M10X25	Bolt M10X25	6	11
12	1G-150.01.118焊	□	Gear box case	1	12
13	1G-150.01.115焊	□	Paper washer for rear-cover	1	13
14	CBW-00.103焊	□	Carrier ring	1	14
15	CBW-00.011焊	□	Oil plug	1	15
16	1G-150.01.110焊	□	Rear-cover of gear box	1	16
17	1G-150.01.111焊	□	Paper washer for rear-cover	1	17
18	1G-150.01.129焊	□	Ring riser焊	□	18
19	GB297-84焊	□ 7310E	Bearing 7310E	1	19
20	1G150.02-04焊	□	Small anger gear	1	20
21	1G-150.01.117焊	□	Shaft of power input	1	21
22	GB297-84焊	□ 7208E	Bearing 7308E	1	22
23	1G-150.01.128焊	□	Ring riser焊	□	23
24	HG4-692-67焊	□ PD42X75X12	Oil seal PD42X75X12	1	24
25	GB297-84焊	□ 7311E	Bearing 7311E	1	25

Gear Box Assembly □□□□□□□□□□

□□ NO.焊	□□□□ Part NO.焊	□□□□	Name & Specifications焊	□□ Quantity焊	□□ Remark
26	1G150.04-08焊	□□□□	Large angle gear	1	
27	1G-150.01.114焊	□□□□□□□□	Right paper washer for spigot	1	
28	1G-150.01.013焊	□□□□□□□□	Spigot for transmission shaft	1	
29	GB6170-86焊	□□ M12	Nut M12	8	
30	GB5783-86焊	□□ M12X30	Bolt M12X30	5	
31	GB93-87焊	□□ 12	Carrier ring 12	13	
32	1G-150.01.109焊	□□□□	Transmission shaft	1	
33	GB97.1-85焊	□□ 12	Carrier ring 12	5	
34	1G-150.01.108焊	□□□□□□□□	Left paper washer for spigot	1	
35	HG4-692-67焊	□□ PD40X70X12	Oil seal PD40X70X12	1	
36	1G-150.01.011焊	□□□□□□	Left side panel weldment	1	
37	GB5783-86焊	□□ M12X35	Bolt M12X35	8	
38	1G150.04-03焊	□□□□	Up-gear	1	
39	1G-150.01.106焊	□□□□□□	Mid-gear shaft	1	
40	GB297-84焊	□□□□□□□□ 7308E	Bearing 7308E	1	
41	GB856-88焊	□□□□□□□□ 30	Outer lockwasher	3	
42	GB810-88焊	□□□□□□ M30X1.5	Clamp nut M30X1.5	3	
43	GB893.1-86焊	□□ 80	Circlip 80	1	
44	GB894.1-86焊	□□ 35	Circlip 35	1	
45	GB276-94焊	□□ 307	Bearing 307	1	
46	1G150.04-02焊	□□□□□□	Mid-gear	1	
47	GB893.1-86焊	□□ 100	Circlip 100	1	
48	HG4-692-67焊	□□ PD55X80X12	Oil seal PD55X80X12	1	
49	GB276-94焊	□□ 309	Bearing 309	1	



FHM
FARMER-HELPER
MACHINERY COMPANY

Parts Request Form

Fax to 541-895-2756 or E-mail
parts@betstco.com

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 Machinery Brand LIMITED WARRANTY

FARMER HELPER MACHINERY CO. LTD. warrants to original Purchaser that FARMER HELPER MACHINERY CO. LTD. products are free from major defects in material under normal use and service for a period of Two (2) Years from the date the product is purchased or shipped, whichever is later. Commercial use 180 days. Use at address that is not yours, is considered commercial use. Consumable, Expendable, Wear Items (Examples: Rubber & plastic parts, hydraulic hoses, belts, tires, cables, blades, tines, wedges, teeth, tips, 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.

FARMER HELPER MACHINERY CO. LTD.'s obligation under this warranty is to repair or replace defective product upon determination by; Betst Products, llc., 83371 Melton Rd. N., Creswell OR 97426 that Warranty Claim is Valid. Product shall be returned upon request of Betst Products, llc. Transportation charges to be prepaid by buyer. **Gasoline or diesel engines used to powered FARMER HELPER MACHINERY CO. LTD. products are covered by the warranty of the appropriate engine manufacture and Purchaser must look to the engine manufacture for all issues relating to engine operation.**

Farmer-Helper Machinery nor Betst Products, llc. assumes any responsibility for labor.

PERMISSIBLE BY APPLICABLE LAW, FARMER HELPER MACHINERY CO. LTD. 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, FARMER HELPER MACHINERY CO. LTD. 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. FARMER HELPER MACHINERY CO. LTD. MAKES NO WARRANTIES TO THOSE DEFINED AS "CONSUMERS" IN THE MAGNUSON-MOSS WARRANTY-FEDERAL TRADE COMMISSION IMPROVEMENTS ACT. THE FOREGOING EXCLUSIONS 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 BETST PRODUCTS, LLC. FOR ANY GENERAL, SPECIAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE SALE OR USE OF ANY PRODUCTS SOLD BY BETST PRODUCTS, LLC OR AN AGENT THEREOF. BETST PRODUCTS, LLC. 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 FARMER HELPER MACHINERY CO. LTD. PRODUCTS. NO OTHER WARRANTY IS APPLICABLE, EITHER EXPRESSED OR IMPLIED, IN FACT OR BY LAW,

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

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

Farmer-Helper Machinery reserves the right to make improvements in design or changes in specifications at any time, without incurring any obligations to owners of units previously sold.

No one is authorized to alter, modify, or enlarge this warranty nor the exclusions, limitations, and reservation thereof.

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

FARMER HELPER MACHINERY REGISTRATION

Item _____ Model # _____ Purchase Date ____/____/____
Purchased From: _____ Gift Inv#/Order# _____
Owner Name: _____ Serial # (if Applicable) _____
Owner Address: _____
City: _____ County: _____ ST: _____ Zip Code: _____
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 Ste 375 Lake Oswego OR 97035 or the current BBB location closest to Betst Products, 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 I alone am responsible for proper maintenance, care and safe operation of this Value-Leader 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 FARMER-HELPER PRODUCTS SHOULD HAVE READ OPERATIONS MANUALS AND SAFETY MANUALS.

Owners Signature: x _____ **Date:** ____/____/____

You must sign this warranty and mail or fax copy to Betst Products, 83371 Melton Rd N.#3, Creswell OR 97426. If you prefer you may complete your registration on line. This warranty is not effective unless the Purchaser completes Registration and Warranty Form within 30 days of purchase or ship date whichever is later.

Fax to 1-904-216-2059

NOTE: We may refuse warranty of any kind unless Betst Product, Ilc., receives a completed, legible and signed warranty registration. It is the responsibility of the purchaser to assure that registration document is received by Betst Products, Ilc..

Fax to 1-904-216-2059

Revised 9-20-14

2 YEAR EXTENDED WARRANTY & REGISTRATION

Farmer Helper Machinery Branded Products

2 YEAR EXTENDED WARRANTY

2 Year Extended Warranty amends to original Recorded Manufacturers Warranty Registration the time period of described coverage. Extended Warranty does not apply to Consumable and Expendable Items as described in Product Warranty Registration.

This Amendment does not affect any other part of recorded Warranty Registration or Policy. This Warranty Extension is the soul responsibility of Betst Products, Ilc.

No one is authorized to alter, modify, or enlarge this addition to the original manufacturers recorded warranty registration.

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

EXTENDED WARRANTY REGISTRATION

Product & Model # : _____

Serial #: _____

Owner Name: _____

Betst Products 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.**

I (purchaser) also understand that persons not familiar with the ~~operation of this equipment should not be allowed to use it. Children especially should not operate or be near equipment.~~ ANYONE OPERATING EQUIPMENT SHOULD HAVE READ ALL EQUIPMENT OPERATIONS MANUALS AND SAFETY MANUALS..

Owners Signature: x _____

Date: _____

You must sign this extended warranty and email to support@betstco.com or Fax to 1-305-397-1780 or mail copy to Betst Products, 83371 Melton Rd N.#3, Creswell OR 97426. This extended warranty is not effective unless the Purchaser faxes or mails this Registration Form within 30 days of purchase. NOTE: The manufacturer may refuse warranty of any kind unless Betst Products receives a completed, legible and signed extended warranty registration. It is the responsibility of the purchaser to assure that this registration document is received by Betst Products.

To Make Payment for Extended Warranty Call: 1-877-876-7895

Revised 9-20-14