KNEGT®
QUALITY EQUIPMENT EUROPE

Safety Operators Manual

POWER HARROW

Model: RE

IMPORTANT

Read these instructions before installing and using this implement

www.knegt-international.com

1. Preface:

Dear customer!

With its five tine units, the rotary Knegt RE type Knegt RE is an ideal implement for tilling the soil and preparing seed-beds on farms and in vineyards or orchards, as well as for row crops and specialty crops.

Please read these Operating Instructions through carefully before using the rotary Knegt RE and strictly follow all the instructions so that the rotary harrow can be used safely and correctly, for its intended purpose.

The Knegt RE may only be used by persons who have the required professional know-how and who have also read and understood these Operating Instructions.

Please ensure that you know how to handle and operate the Knegt RE before using it!

General information:

- The rotary Knegt RE may only be used for the specified purpose: mechanical soil tillage and seed-bed preparation.
- The Knegt RE may only be started and stopped from the tractor driver's seat. No-one may remain within a distance of less than 10 meters around the rotary harrow during its operation.
- The Knegt RE may only be operated in full daylight.
- The Knegt RE may only be operated when all guards and safety mechanisms are installed and fully functional.
- Malfunctions impairing safety must immediately be remedied by specialist personnel.
- The accident prevention regulations issued by the employers' liability insurance association must be observed.
- The traffic regulations must be observed when driving on public roads.
- The PTO shaft must be disengaged from the tractor during all maintenance and repair work on the Knegt RE in order to prevent inadvertent start-up.
- Repairs should only be undertaken by specialist repair shops or the customer service center. The rotary Knegt RE should never be modified without authorization.
- The Knegt RE may only be operated with a PTO shaft with friction clutch.

2. Description of the machine:

The rotary Knegt RE must be used for mechanical soil tillage and seed-bed preparation on farms and in vineyards and orchards, as well as for row crops and specialty crops.

Moisture remains in the soil and the water balance of the soil is maintained since the soil is not turned up as it is tilled. The vertically rotating cutters also prevent compaction of the soil, thus resulting in optimum preparation of the seed-beds.

The Knegt RE is mounted on the tractor by means of a three-point suspension. It has five tine units; the tine pick-up is rigidly mounted. The gear mechanism is driven via a PTO shaft and drives the cutters in the housing via gear wheels.
The working depth is set by means of a hand spindle in combination with the support roller. The friction clutch mounted on the PTO shaft protects both the harrow and the tractor from damage if overloaded. An additional machine, such as a seeder, can be connected to the rotary harrow via a further three-point suspension on the basic unit and a p.t.o. shaft on the main gear unit. In this way, the seed-bed can be prepared and the seed sown in a single pass.

The working depth should be adjusted in line with the prevailing ground conditions in order to obtain the best possible results. Large objects should be removed from the ground beforehand so that the soil can be tilled correctly and to prevent premature wear on the tines.

The housing accommodates the various components making up the rotary Knegt RE. The support roller, three-point frame, angular gear and tine units are bolted onto the housing.
The three-point frame is made of robust sheet metal and bolted onto the housing. The bolts of the lower links support can be undone and the three-point frame displaced sideways on the rectangular profile of the housing for off-center operation.
The angular gear which is mounted on the housing diverts the tractor's rotary motion through 90° and drives the tine units via gear wheels.

Each tine unit comprises a tine flange, guard plate, two tines, bearing housing, bearing and connecting elements. The tines are mounted underneath the guard plate and serve to loosen the soil. They are secured by means of special bushings, washers, bolts and lock nuts.

3. Start-up and operation of the machine:

* Before using the machine for the first time

- Read through the operating instructions for the rotary Knegt RE and additional attachments and ensure that you are fully familiar with the mode of operation of all units.

- Check that the length of the PTO shaft fits your tractor. The PTO shaft should include an appropriate protective mechanism!

* Attachment to the tractor

- Examine tools (tines) and tine carriers for signs of wear and ensure they are secured correctly.

- Check that the support roller and three-point frame are correctly secured to the housing.

- Now connect the Knegt RE to the tractor by means of the three-point PTO shaft to match your tractor. For this purpose, hold the two halves of the PTO shaft side-by-side in the shortest lift-out position and mark it accordingly. Shorten the inner and outer protective tube by equal amounts. Then shorten the inner and outer sliding profile by the same amount as the protective tube. Finally round off the cut edges and carefully remove all chips. Grease the sliding profiles.

- Before engaging the PTO shaft, carefully clean and grease the p.t.o. shaft of the tractor and power harrow. Then slide the PTO shaft over the p.t.o. shaft until the locking pin engages completely. The friction clutch of the PTO shaft must be mounted at the machine end.

- The working depth is now adjusted with the aid of the hand

suspension. Secure the bolts of the upper and lower links with spring pins. Park the tractor on level ground and adjust the upper link so that the rotary Knegt RE is horizontal.

- Now adjust the length of the spindle in accordance with ground condition on a firm and level substrate or by lifting the unit completely.

The Knegt RE with fitted tools and attachments is now ready for use.

* Working with the Knegt RE

- The tractor p.t.o. shaft must not be switched on until it is certain that the shaft will rotate at not more than 540 rpm at maximum engine speed.

- The p.t.o. drive must not be engaged when the tractor drives running at full load.

- The power harrow may only be started and stopped from the tractor driver's seat.

- The Knegt RE may only be switched on when there is no-one within its range of operation and hazard area (radius of 10 m from the rotary harrow) due to the risk of objects, such as stones, being hurled away from the machine. The duly prepared machine must be lowered to the working position before it is switched on. The rotary power harrow can then be switched on.

- The machine must be lowered slowly in order to avoid damage to the tools and attachments.

- During the work, the machine must be lowered to the working depth and left with the set control hydraulics. The horizontal position of the rotary Knegt RE can be corrected by means of the upper link.

- The areas to be tilled should be inspected for visible large obstacles before staring so that they can be removed from the harrow's range and thus prevent damage to the tines and drive elements.

- If a reversing manoeuvre is required at the end of the row being tilled, the tractor p.t.o. must be switched off and the rotary harrow allowed to come to a complete standstill before it is lifted out of the ground for the manoeuvre (risk of clods of earth being hurled off by the tines).

- If the frame has been fully fitted with tools, its stability will be assured even without support wheels.

- Dust clouds may form when operating the Knegt RE at higher speeds on dry ground. Light respiratory protection should therefore be worn when using a tractor without closed driver's cab.

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4. Maintenance, care and transport:

The PTO shaft must always be disengaged and the ignition key removed before starting any maintenance and repair work on the Knegt RE !

Maintenance or repair work must never be performed underneath the rotary Knegt RE without appropriate supports. Precautions must always be taken to prevent the machine from dropping inadvertently, for instance by using hoisting gear.
The rotary Knegt RE should always be placed on firm, level ground.

The Knegt RE type LXG is designed and built to require as little maintenance and care as possible.

<u>However, the following points should be observed nevertheless:</u>

- All nuts, bolts and screws must be examined after the first five hours of operation and then always before using the machine in order to ensure that they are secure. They must be retightened if necessary.

- The PTO shaft must be lubricated with sufficient sulphur-free grease every eight hours of operation so that it can always be extended and retracted without difficulty. The bearing points on the cutter unit, the spindle for setting the working depth and the roller mount must be lubricated every 30 hours of operation via the corresponding grease nipples.

- The oil must be checked every 20 hours of operation.

- Gear oil must be changed after approx. 200 hours of operation. A container must be placed under the machine to collect the escaping oil and prevent contamination of the ground. Waste oil must be disposed of in accordance with the regulations.

- The rotary Knegt RE should be stored in a dry place, on firm, level ground. It should be secured with chocks or similar objects to prevent inadvertent tilting.

- The machine must be thoroughly cleaned before prolonged storage. Those parts which are in contact with the ground during operation should be sprayed with corrosion inhibitor.

- Particular attention must be paid to the condition of the tines in order to ensure maximum occupational safety and high-quality results. Before starting work, the tine must therefore be examined to ensure they are correctly secured and wear down evenly. Bent tines must be replaced immediately.

- Vibrations in the rotary power harrow are usually due to imbalances in the tine unit and may damage the machine. Switch off the rotary Knegt RE and the tractor if the vibrations increase significantly during operation or if the machine's running noise changes suddenly. The cause must be located and remedied before resuming work.

- When cleaning the machine with a high-pressure cleaner, care must be taken not to direct the high-pressure jet against bearings and seals, as this can result in malfunctions and premature failure of the machine.

- The screw connections between tines and tine flange / guard plate must be checked regularly. Always fit new lock nuts and new washers whenever the screw connections have been removed. The condition and degree of wear on the tines and tine pick-up must be checked regularly.

- When transporting the machine, care must be taken to ensure that there is no one and nothing in the immediate vicinity when sluing outwards with the tractor.

- The Knegt RE should only be repaired by a specialist repair shop or a authorized customer service center.

Changing and regrinding tines:

Tines should only be reground and changed by your dealer, since considerable hazards can arise if they are fitted incorrectly.

Removal of the tines:

- First switch off the tractor and remove the ignition key.
- Disengage the PTO shaft and then the rotary Knegt RE from the tractor.
  Remember to support it so that it cannot tip over inadvertently.
- Turn the power harrow over with the aid of hoisting gear so that the tines can be reached without difficulty.
- Remove the fastening bolt and nut with a suitable wrench.
- Important: For safety reasons, new self-locking nuts and new washers must always be used whenever the tints are changed.
  Ensure that the tines are fitted correctly in the direction of rotation.

Installation of the tines:

- Fit the tines in the correct order.
- Fit the fastening bolt, washers and nut.
- Tighten the self-locking nut twice.

Regrinding the tines:

If the tines have to be reground, care must be taken to ensure that each pair of tines in the tine unit is reground. This prevents the tine unit concerned becoming imbalanced.

Use the transport aids or three-point hitch provided on the housing to transport and handle the Knegt RE .

5. Safety instructions:

- The Implements may only be used when all safety mechanisms are in place and fully functional.
- All faults capable of impairing safety must immediately be remedied by specialist personnel.
- The operating instructions of any additional attachments installed must be read through carefully and observed.
- Never climb onto the tractor or leave it unattended when the p.t.o. shaft is running.
- Never allow anyone who is not familiar with the safety and operating instructions to use the machine.
- Remove all visible large objects which may be picked up and hurled aside by the rotary Knegt RE . Particular attention must be paid to loose wires on the ground.
- Adjust your driving speed in line with the ground conditions and prevailing circumstances.
- No one may remain within 10 meters of the Knegt RE during operation of the machine. High risk of injury due to moving machine parts and objects being hurled away from the machine, such as stones, etc.
- Never climb or reach in between the Knegt RE and the tractor with your arms or legs during operation of the machine – high risk of injury! (This is only permitted when the machine has been lowered to the ground and the tractor switched off.)
- The machine should only be operated in full daylight . Traffic regulations must be observed when driving on public roads. Adequate illumination must be ensured when driving in twilight or darkness (A detachable set of lights is recommended.)

- Never climb or reach in between the support roller and cutter unit with your arms or legs – high risk of injury.

- Always wear tightly fitting clothes so that these cannot be caught between rotating parts of the machine.

- Safety stickers must be kept clean and observed!

- Never open or remove the guard elements during operation. Worn or defective parts must immediately be replaced by new parts.

- The cutter unit must never be operated when the Knegt RE is lifted off the ground.

- Driving a tractor on steep slopes can be dangerous. If work on steep slopes is unavoidable, great care should be exercised. Do not take bends too tightly.

- No one may ever ride on the machine either during operations or while it is being transported, not even over short distances.

- Always examine the rotary Knegt RE for signs of damage following a collision with any objects. Such damage must always be repaired before resuming work.

- Maintenance and repair work may only be carried out when the PTO shaft and machine have been disengaged form the tractor.

- Never crawl under a rotary Knegt RE which is still connected to the tractor, as the machine may be lowered at any time – high risk of injury.

- The accident prevention regulations of the employers' liability insurance association must be observed when using the machine.

- When traveling round bends, take account of the larger width / length (turning circle) and considerable weight of the rotary Knegt RE .

- Ensure that the PTO shaft halves and protective tubes overlap as prescribed, both in the transport position and in the working position. Read the operating instructions for the PTO shaft in this context.

- The PTO shaft should only be engaged and disengaged when the tractor engine is switched off and the ignition key has been removed.

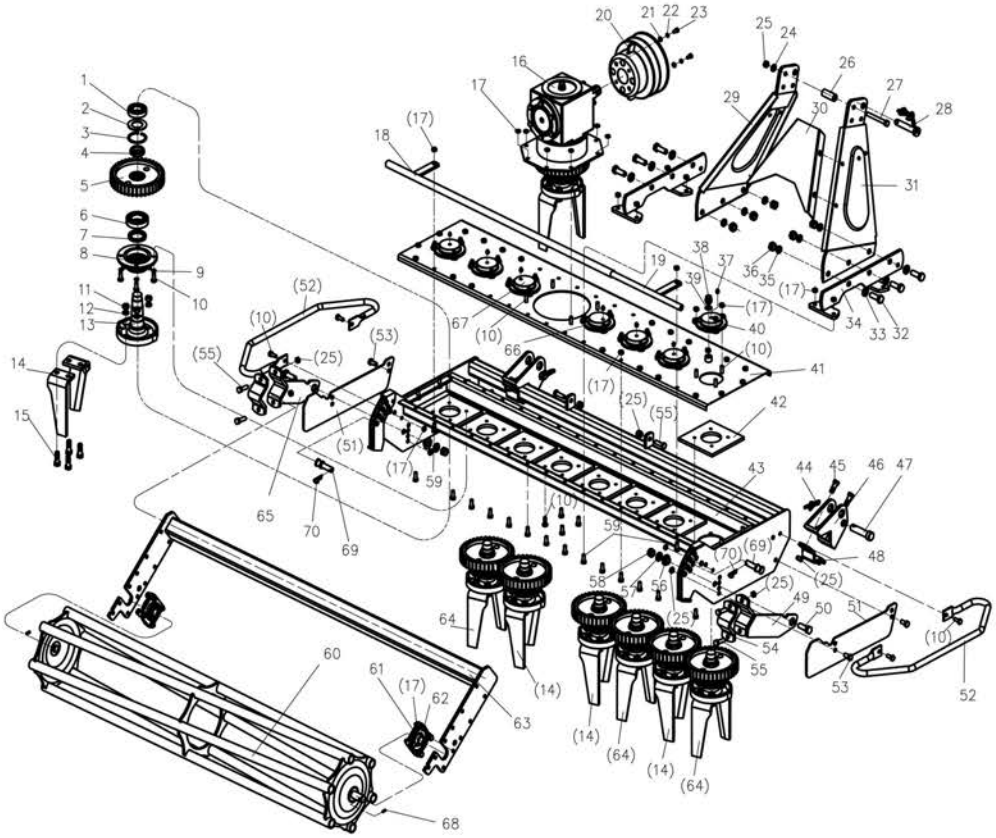
6. Technical data:

MODEL	LXG-130 (1BQ1.3)		LXG-170 (1BQ1.7)		LXG-200 (1BQ2.0)	
SPECIFICATION	Inch	Metric	Inch	Metric	Inch	Metric
Structure Weight	617.3lb	280kg	727.5lb	330kg	837.7lb	380kg
Gear Box HP	50hp		50hp		50hp	
No. of Blade	12		16		18	
Tilling Width	51.2"	1300mm	66.9"	1700mm	78.7"	2000mm
Tilling Depth	7.9"	200mm	7.9"	200mm	7.9"	200mm
PTO Turning Speed	540r/min		540r/min		540r/min	
Tractor HP	25-35hp		40-70hp		55-80hp	

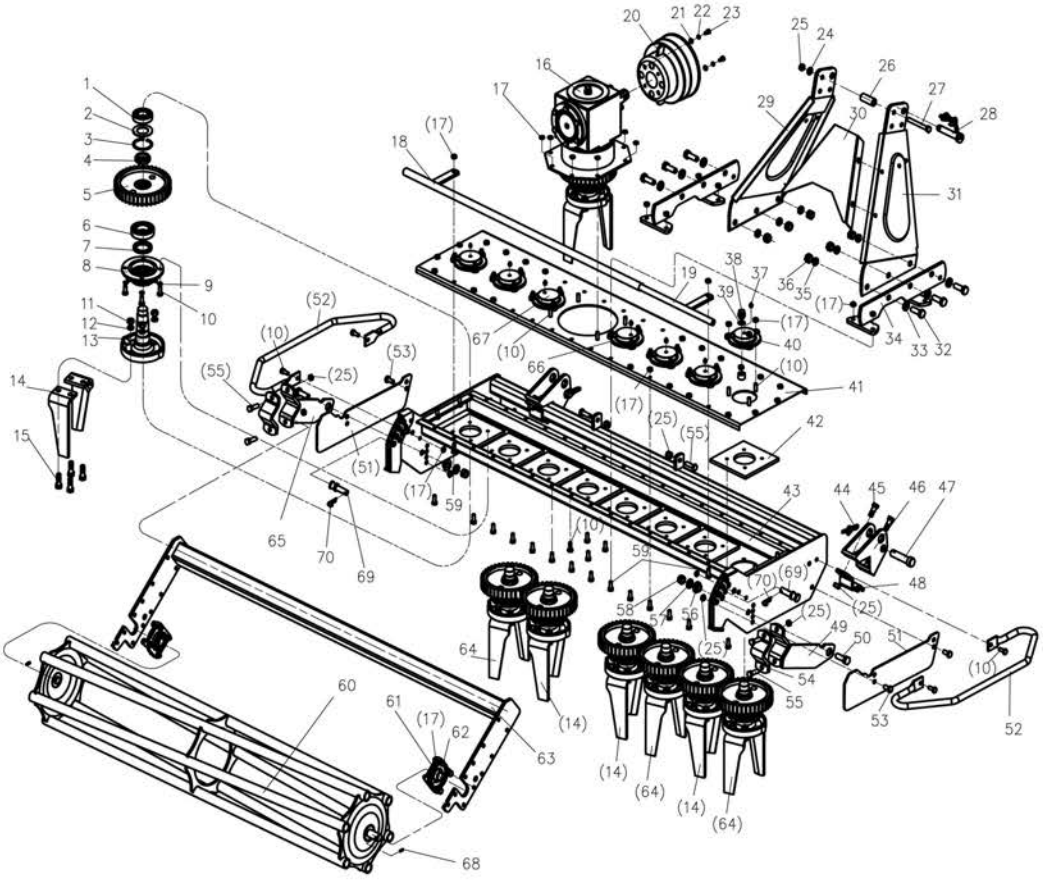
7. Safety Decals:


DANGER
ROTATING MACHINERY.
DO NOT OPERATE WITHOUT GUARDS OR SHIELD IN PLACE.
FAILURE TO HEED THIS WARNING COULD RESULT IN SEVERE PERSONAL INJURY OR DEATH.

8. Parts Manual:



NO.	Part NO.	Name &Specifications	Quantity	Remark
1	GB 278-89	Bearing 60207	7	
2	LXG170.115	Big washer	7	
3	GB 893.1 - 1986	Seeger ring 72	7	
4	LXG170.116	Self locking nut M39x1.5	7	
5	LXG170.118	Export gear(two)	7	
6	GB/T 276-94	Bearing 6209	7	
7	GB 13871 - 1992	Oil seal FB - 50 x 68 x 8	7	
8	LXG170.112	Rotor support down panel(two)	7	
9	GB 93-87	Washer 10	32	
10	GB 5783-86	Bolt M10 x 35	32	
11	GB 6170-86	Nut M14	32	
12	GB 93-87	Washer 14	32	
13	LXG170.110	Colter fixing seat	7	
14	LXG170.109	Colter (one)	8	
15	GB 5782-86	Bolt M14x60	32	
16	LXG170.011	Gear case assembly	1	
17	GB 6184-86	Six corner locknut M10	77	
18	LXG170.018	Staff guage jointing(one)	1	
19	LXG170.020	Staff guage jointing(two)	1	
20	FM120.00.401	Cover	1	
21	GB97.1-85	Washer 8	2	
22	GB93-87	Washer 8	2	
23	GB5783-86	Bolt M8x16	2	
24	GB 97.1-85	Washer 12	2	
25	GB6184-86	Six corner locknut M12	2	
26	MZ105.130	Bushing	2	
27	GB 5782-86	Bolt M12x100	2	
28	EF100.00.019	Above append pin	1	
29	LXG170.029	Sx 3rd point	1	
30	LXG170.104	Reinforcement	1	
31	LXG170.028	Dx 3rd point	1	
32	GB 5782-86	Bolt M16x45	6	
33	GB 97.1-85	Washer 16	6	
34	LXG170.012	Impendend connect fixing join	2	
35	GB 93-87	Washer 16	6	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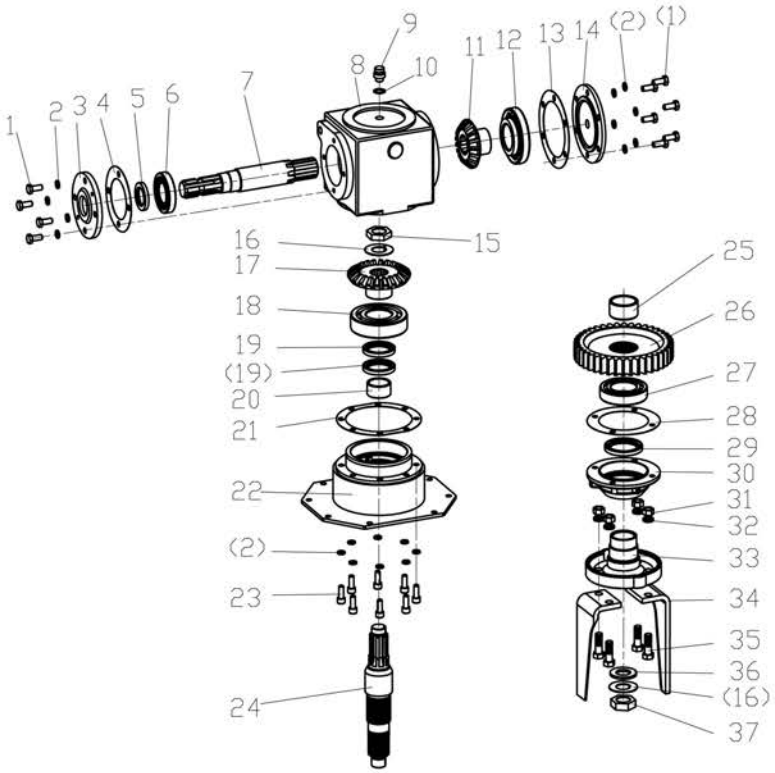
36	GB 6170-86	Nut M16	6	
37	GB1152-89	Frank press oiling cup M10x1	8	
38	CBW	Aerate bolt discreteness	2	
39	GB3541-83	Washer 16	2	
40	LXG170.102	Rotor support above panel(one	6	
41	LXG170.015	Above cover boart jointing	1	
42	LXG170.132	Mat	8	
43	LXG170.016	Engine rack jointing	1	
44	200.56.011	Snap pin chain	2	
45	GB 5783-86	Bolt M12x40	4	
46	LXG170.130	Stirrup(two)	2	
47	LXG170.106	Pin (one)	2	
48	LXG170.131	Stirrup(one)	2	
49	LXG170.021	Unknit rack right connect joi	1	
50	GB 5783-86	Bolt M16x45	2	
51	LXG170.122	Shield	2	
52	LXG170.101	Shield rack	2	
53	GB 5783-86	Bolt M12x30	4	
54	RT150.107	U bolt	2	
55	GB 5783-86	Six corner bolt	18	
56	LXG170.108	Bush	2	
57	GB 97.1-85	Washer 16	2	
58	GB 6184-86	Six corner locknut M16	2	
59	GB 5783-86	Bolt M10x30	10	
60	LXG170.024	Unlnit implement jointing	1	
61	GB/T 7810-1995	Squareness bearing UCFU205	2	
62	GB 5783-86	Bolt M10x40	8	
63	LXG170.025	Unlnit implement connect rack	1	
64	LXG170.109	Colter (two)	8	
65	LXG170.017	Unknit rack left connect join	1	
66	LXG170.103	Rotor support above panel(two	1	
67	LXG170.105	Rotor support above panel(thr	1	
68	GB 879-86	pin 8x36	2	
69	LXG170.250	pin	2	
70	ZL-25.106	pin	2	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NO.	Part NO.	Name &Specifications	Quantity	Remark
1	GB5783-86	Bolt M10x25	10	
2	GB93-87	Washer 10	17	
3	1G-150.01.116	Front cover	1	
4	1G-150.01.115	Front casket	1	
5	HG4-692-67	Oil seal PD38x55	1	
6	GB297-84	Bearing 7208E	1	
7	1G-150.01.117	Transmission shaft	1	
8	1G-150.01.118	Gearbox	1	
9	CBW-00.011	Breather plug	1	
10	CBW-00.103	Washer	2	
11	1G150.02-04	Smallcone-shaped gear	1	
12	GB297-84	Bearing 7310E	1	
13	1G-150.01.111	Back end casket	1	
14	1G-150.01.110	Back end cover	1	
15	1G-150.01.131	Nut M30x1.5	1	
16	1G-150.01.132	Lock washer	2	
17	1G150.04-08	Big cone-shaped gear	1	
18	GB/T 276-94	Bearing 6311	1	
19	GB 13871 - 1992	Oil seal 50x68x8	10	
20	LXG170.138	Bushing(two)	1	
21	1G-150.01.114	Casket	1	
22	LXG170.026	Setting	1	
23	GB 70-85	Bolt M10x25	8	
24	LXG170.136	Output axes	1	
25	LXG170.135	Bushing	1	
26	LXG170.133	Output gear(one)	1	
27	GB/T 276-94	Bearing 6211	1	
28	LXG170.128	Gasket	8	
29	GB 13871 - 1992	Oil seal PB-60x80x8	1	
30	LXG170.147	Bearing seat(one)	1	
31	GB 6170-86	Nut M14	32	
32	GB 93-87	Washer 14	32	
33	LXG170.126	Colter setting seat	1	
34	LXG170.123	Colter (two)	8	
35	GB 5782-86	Bolt M14x40	32	
36	LXG170.125	Washer 30	1	
37	1G-150.01.131A	Nut M30x1.5x14	1	

KNEGT®
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Hoofdkantoor:
Knegt International
Habraken 2323 L
5507 TK Veldhoven
+31 (0) 40 2558416
info@knegttractors.nl

www.knegt-international.com