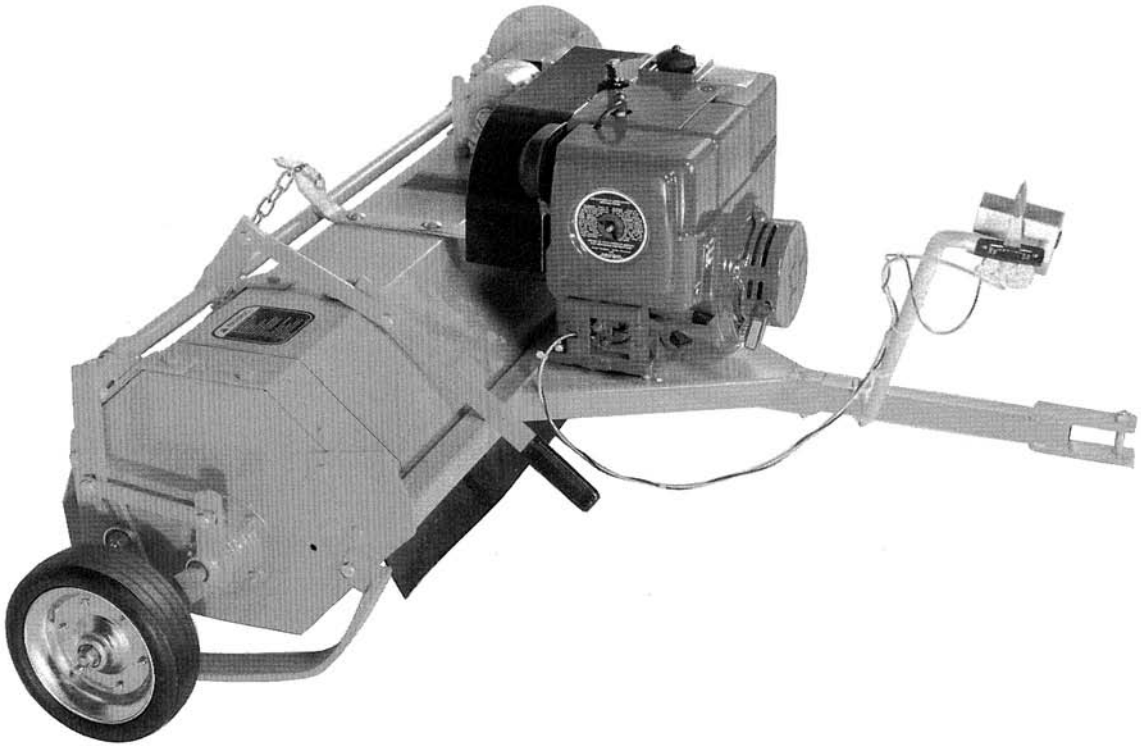
BEFCO®

Operator's Manual

SERIES E

Engine Driven Tiller

E42-530



The operator's manual is a technical service guide and must always accompany the machine.

Manual 960-158B
May 2010

SAFETY

Take note! This safety alert symbol found throughout this manual is used to call your attention to instructions involving your personal safety and the safety of others. Failure to follow these instructions can result in injury or death.

This symbol means:
ATTENTION!
BECOME ALERT!
YOUR SAFETY IS INVOLVED!

Signal Words

Note the use of the signal words DANGER, WARNING and CAUTION with the safety messages. The appropriate signal words for each have been selected using the following guidelines:

DANGER: Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.

WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

CAUTION: Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury.

INDEX

1 - GENERAL INFORMATION

Thank you and congratulations for having chosen our implement. Your new rotary tiller is a technologically advanced machine constructed of high quality, sturdy components that will fulfill your working expectations.
Read this manual carefully. It will instruct you on how to operate and service your machine safely and correctly. Failure to do so could result in personal injury and/or equipment damage.

1.01 - General

CAUTION: Unless otherwise specified, all hardware is metric. Use only metric tools on metric hardware. Other tools that do not fit properly can slip and cause injury.

CAUTION: Right hand and left hand sides of the implement are determined by facing in the direction the implement will travel when going forward (see fig. 2).

Carefully read the Warranty section[1], detailing coverage and limitations of this warranty. **Warranty** is provided for customers who operate and maintain their equipment as described in this manual. Warranty registration is accomplished by the dealer by completing and forwarding the **Warranty Registration** form to the Company, along with a copy of the dealer's invoice. It is in your best interest to insure that this has been done.

Warranty does not cover the following:
1. Cleaning, transporting, mailing and service call charges.
2. Normal wear items such as tines, bearings, etc.
3. Depreciation or damage caused by normal wear, accidents, improper maintenance, improper protection or improper use.
4. The use of non-original spare parts and accessories.
5. Engine.

Your Authorized Company Dealer has genuine parts in stock. Only these approved replacement parts should be used.
This limited warranty covers defective material and workmanship. The cost of normal maintenance or repairs for accidents or improper use and related labor will be borne by the owner.

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[1] See Chapter 8 - Warranty.

NOTE: Engine warranty, service and parts must be obtained through an authorized service center of the manufacturer of the engine.

1.02 - Model and Serial Number ID

Attached to the frame is an ID plate showing the model and the serial number. Record your implement model and serial number in the space provided below. Your local dealer needs this information to give you prompt, efficient service when you order parts.

Model #: _____

Serial #: _____

2 - SAFETY PRECAUTIONS

Safety is the primary concern in the design and manufacture of our products. Unfortunately our efforts to provide safe equipment can be wiped out by a single careless act of an operator.
In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.
It is the operator's responsibility to read and understand all safety and operating instructions in the manual and to follow these.
Allow only properly trained personnel to operate the rotary tiller. Working with unfamiliar equipment can lead to careless injuries. Read this manual, and the manual for your towing vehicle, before assembly or operation, to acquaint yourself with the machines. It is the tiller owner's responsibility, if this machine is used by any person other than yourself, is loaned or rented, to make certain that the operator, prior to operating, reads and understands the operator's manuals and is instructed in safe and proper use.

2.01 - Preparation

1. Before operating equipment read and understand the operator's manual and the safety signs **(see fig. 2)**.
2. Thoroughly inspect the implement before initial operation to assure that all packaging materials, i.e., wires, bands, and tape have been removed.
3. Personal protection equipment including hard hat, safety glasses, safety shoes, and gloves are recommended during assembly, installation, operation, adjustment, maintaining and/or repairing the implement.
4. Operate the tiller only with a towing vehicle equipped with an approved Roll-Over-Protective-System (ROPS). Always wear your seat belt. Serious injury or even death could result from falling off the towing vehicle.
5. Clear area of stones, branches or other debris that might be thrown, causing injury or damage.
6. Operate only in daylight or good artificial light.
7. Ensure tiller is properly mounted, adjusted and in good operating condition.
8. Ensure that all safety shielding and safety signs are properly installed and in good condition.
9. Consult local utility companies to make certain there are no buried gas lines, electrical cables, etc., in the work area before beginning operation.
10. Use only approved drawbar hitch points.
11. Handle gasoline with care, it is highly flammable. Use only approved gasoline containers.

12. Never remove fuel cap or add gasoline to a running engine or a hot engine. Never fill the fuel tank indoors. If spilling occurs wipe up immediately.
13. To reduce fire hazard, keep engine free of grass, leaves or excessive grease.
14. Do not change the engine governor settings or over-speed the engine.

2.02 - Starting and Stopping

1. Be sure that no one is near the machine prior to engaging or while the machine is working.
2. Be sure the towing vehicle is in "Neutral" before starting engine.
3. Tiller operating power is supplied from tiller engine. Refer to your engine manual for engagement and disengagement instructions. Know how to stop the towing vehicle and tiller quickly in case of an emergency.
4. Open doors if engine is running in the garage; exhaust fumes are dangerous. Do not run engine indoors.
5. After striking an obstacle, stop tiller engine, remove the wire from the spark plug, shut the towing vehicle down and thoroughly inspect for damage before restarting.
6. Do not operate if tiller vibrates excessively. Excessive vibration is an indication of damage.
7. Stop tiller engine, towing vehicle engine and set parking brake before leaving operator's position.
8. Stop tiller engine, towing vehicle engine, disconnect spark plug wire, set parking brake and wait for all movement to stop before making any repairs or adjustments.
9. Never adjust tiller while the engine is running.
10. Stop tiller engine when transporting or not in use.
11. When leaving towing vehicle unattended, set parking brake, stop both engines and remove key.
12. Never store the equipment with gasoline in the tank inside a building where fumes may reach an open flame or spark. Allow engine to cool before storing in any enclosure.

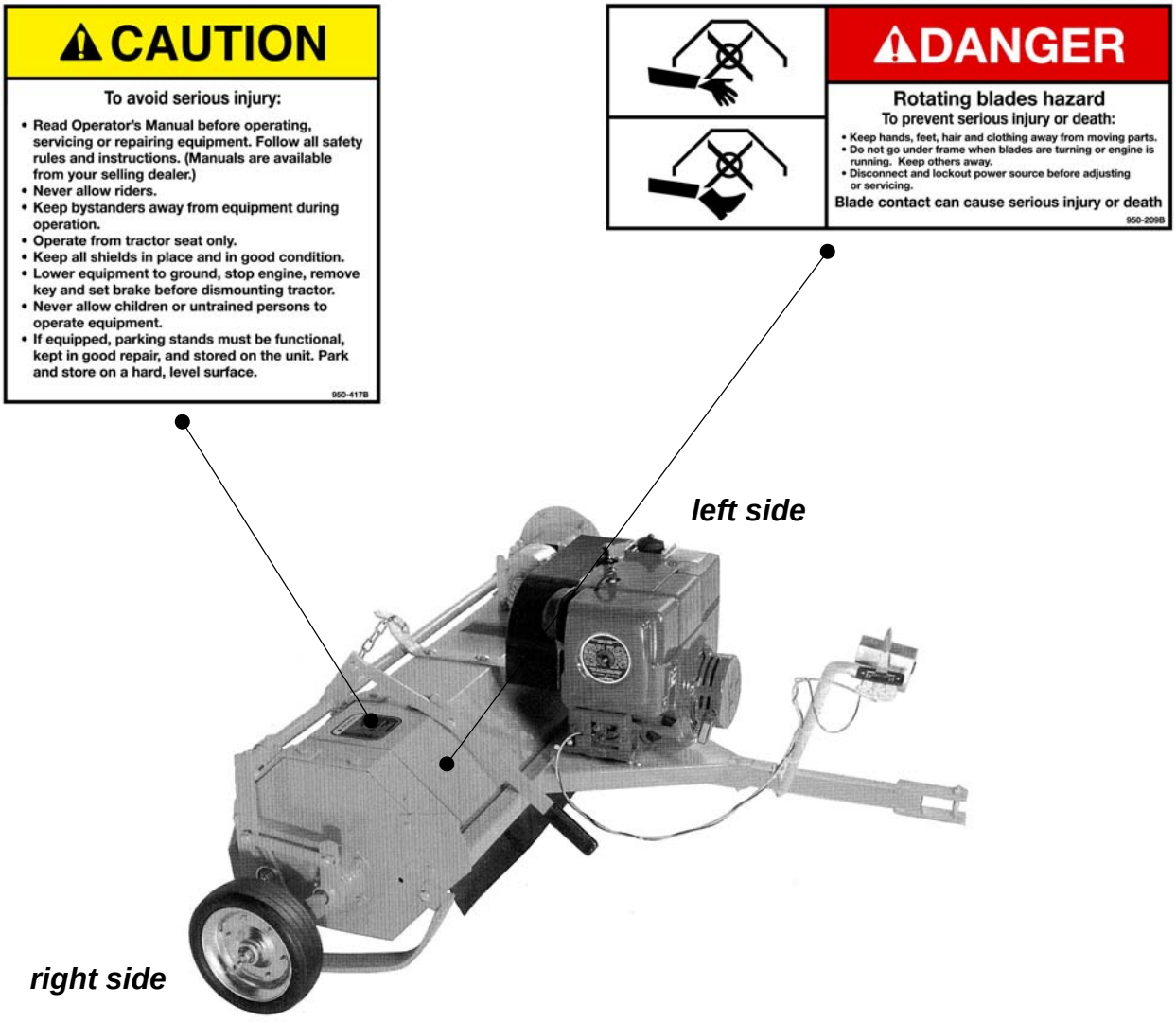
2.03 - Messages and Signs

1. Read and adhere to all safety and operating decals on this machine **(see fig. 2)**.
2. Before dismounting towing vehicle: Allow moving parts to stop, stop both engines, set brake and remove the key of unattended equipment.
3. Keep away from rotating blades.
4. Keep guards and shields in place and in good condition.
5. Do not use with bystanders in area.
6. Allow no riders on towing vehicle or tiller.

7. Allow moving parts to stop before repair.
8. Securely support tiller before working underneath.

Additional warning and operating decals are available at no extra charge. Please specify model and serial number when ordering.

Fig. 2 - Safety decals - implement; replace immediately if damaged.



3 - OPERATION

You have purchased an engine driven tiller designed primarily for tilling areas around fruit trees and in vineyards or greenhouses using an ATV (all terrain vehicle) or a garden tractor. It attaches to the towing vehicle drawbar using a universal attachment point for all types of lawn and garden tractors. It is recommended for tractors of 11 HP and up. The working width is 42". The E42-530 comes complete with a Kohler 8 HP engine, transport wheels, automatic engine disengage and adjustable skids for easy depth control. On your tiller, the engine transmits its power to a gearbox. This gearbox turns a hexagonal drive to which a chain sprocket is attached. A chain transfers power from the drive chain sprocket to a driven chain sprocket connected to a tilling bladed rotor. The rotor speed is set at the optimum speed to ensure ideal tillage conditions.

3.01 - Operational Safety

CAUTION: Our rotary tillers are designed considering safety as the most important target and are the safest available in today's market. Unfortunately, human carelessness can override the safety features built into our machines. Injury prevention and work safety, aside from the features on our tillers, are very much due to the responsible use of the equipment. It must always be operated prudently following with great care, the safety instructions laid out in this manual.

1. The use of this equipment is subject to certain hazards which cannot be prevented by mechanical means or product design. All operators of this equipment must read and understand this entire manual, paying particular attention to safety and operating instructions, prior to using.
2. Do not operate the towing vehicle and tiller when you are tired, sick or when using medication.
3. Before beginning operation, contact local utility companies to make certain there are no bundled gas lines, electrical cables, etc., in the work area.
4. Keep all helpers and bystanders at least 50 yards from a tiller. Only properly trained people should operate this machine.
5. The majority of accidents involve operators being knocked off the towing vehicle by low hanging limbs and then being run over by the tiller. Accidents are most likely to occur with machines that are loaned or rented to someone who has not read the operator's manual and is not familiar with a tiller.
6. Test the safety kill switch on the tiller to ensure that the tiller will cut off when key is removed.

7. Before operating, attach the kill switch rope to the operator's belt strap and to the towing vehicle on the front of operator's seat.
8. Always stop the towing vehicle, set brake, shut off both the tiller engine and the towing vehicle engine, remove the ignition key and allow blades to come to a complete stop before dismounting towing vehicle. Never leave equipment unattended with the towing vehicle running.
9. Never place hands or feet under tiller's deck with engine running or before you are sure all motion has stopped. Stay clear of all moving parts.
10. Do not allow riders on the tiller or towing vehicle at any time. There is no safe place for riders.
11. Do not operate unless all personnel, livestock and pets are 50 yards away to prevent injury by thrown objects.
12. Before backing up, disengage the tiller and look behind carefully.
13. Install and secure all guards and shields before starting or operating.
14. Keep hands, feet, hair and clothing away from moving parts.
15. This rotary tiller is designed for use with all terrain vehicles (ATVs) or garden tractors.
16. Never operate towing vehicle and tiller under trees with low hanging limbs. Operators can be knocked off the towing vehicle and then run over by the rotor.
17. The rotating parts of this machine have been designed and tested for rugged use. However, they could fail upon impact with heavy, solid objects such as steel guard rails and concrete abutments. Such impact could cause the broken objects to be thrown outward at very high velocities. To reduce the possibility of property damage, serious injury, or even death, never allow the rotor to contact such obstacles.
18. Frequently check blades. They should be sharp, free of nicks and cracks and securely fastened.
19. Stop tiller immediately upon striking an obstruction. Turn tiller engine off, turn towing vehicle engine off, remove key, disconnect spark plug wire, set towing vehicle brake and wait for all movement to stop. Inspect and repair any damage before resuming operation.
20. Stay alert for holes, rocks and roots in the terrain and other hidden hazards. Keep away from drop-offs.
21. Use extreme care and maintain minimum ground speed when transporting on hillside, over rough ground and when operating close to ditches or fences. Be careful when turning sharp corners.
22. Reduce speed on slopes and sharp turns to minimize tipping or loss of control. Be careful when changing directions on slopes. Do not start or stop suddenly on slopes. Avoid operation on steep slopes.
23. When making tight turns, do not allow pull hitch to ride up on towing vehicle tires.
24. Inspect the entire machine periodically[2]. Look for loose fasteners, worn or broken parts, and leaky or loose fittings.
25. Pass diagonally through sharp dips and avoid sharp drops to prevent "hanging up" towing vehicle and implement.
26. Avoid sudden starts and stops while traveling up or downhill.

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[2] See Chapter 4 - Maintenance.

27. Always use down slopes; never across the face. Avoid operation on steep slopes. Slow down on sharp turns and slopes to prevent tipping and/or loss of control.

3.02 - Setup and Lubrication

Notice to the dealer: Pre-delivery setup and service including lubrication is the responsibility of the dealer. It is up to him to assure that the machine is in perfect condition and ready to be used. It is his responsibility to ensure that the customer is aware of all safety aspects and operational procedures for the tiller. He must also fill out the Pre-Delivery Checklist[3] prior to delivering the tiller.

CAUTION: Stand clear of bands when cutting as they could be under sufficient tension to cause them to fly loose. Take care in removing bands and wire, they often have extremely sharp edges and cut very easily.

To assemble do the following:

- Remove unit from crate, tongue and support arm are in the bottom of the crate. Throttle and kill switch are hooked up and taped to the engine.
- The tongue must be bolted to the front of the unit. Throttle control box and kill switch support arm should be bolted loosely to find the proper position for the unit being used.
- The throttle and kill switch mount to the top of the support arm.
- See engine operator's manual for engine service.

3.03 - Pre-Operational Check

Check each of the following carefully prior to engaging the equipment:

1. The rotor bearing has been greased and the drive chain is lubricated.
2. The oil in gearbox is between $^1/_2$ and $^2/_3$ full.
3. No wrappings or foreign objects are on the machine.
4. The blades are properly installed and the blade bolts and nuts properly torqued[4].
5. All hardware is tight.
6. All safety shields and guards are in place and tightly attached.
7. No people or animals are in the work area.
8. Local utility companies have been contacted to make certain there are no bundled gas lines, electrical cables, etc., in the work area.

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[3] See Chapter 7 - Pre-Delivery Checklist.

[4] See Table 1, page 19.

WARNING: Shut off tiller engine and remove spark plug wire from spark plug before making adjustments, servicing or cleaning the machine. Failure to do so could result in accidental starting of engine causing possible injury or death.

3.04 - Attaching to the Towing Vehicle

The E42-530 is designed to be towed behind a lawn tractor or an ATV.

To attach the tiller to the towing vehicle do the following:

1. Back the towing vehicle up to the tiller.
2. Turn off engine and set parking break of towing vehicle.
3. Attach a hitch pin to towing vehicle drawbar, slide in place on the tiller and secure with a lynch pin.

CAUTION: Towing vehicle front end stability is necessary for safe operation when pulling equipment.

CAUTION: Always ensure that the towing vehicle's tire pressure is correct according to the vehicle's operator's manual.

DANGER: Failure to ensure a secure hitching of the implement to the towing vehicle can cause serious injury or death.

3.05 - Start Up

Before starting to work, never forget that the **operator is responsible** for the following:

1. Safe and correct driving of the towing vehicle and tiller.
2. To learn precise safe operating procedures for both the towing vehicle and the tiller.
3. To ensure all maintenance and lubrication has been performed on the tiller.
4. To have read and understood all safety aspects for the tiller and the engine in the respective operator's manuals.
5. To have read and understood all safety decals on the tiller.
6. Checking the condition of the blades. Worn or damaged blades should be changed before starting.
7. Checking to ensure that the cutting edge is the leading edge of the blade.
8. Checking that there is no wire, weed, grass or other material wrapped around the rotor.

9. Checking the towing vehicle tires for the proper pressure in accordance with the vehicle operator's manual.
10. Making sure the proper attire is worn. Avoiding loose fitting clothing which can become entangled. Wearing sturdy, tough-soled work shoes and protective equipment for eyes, hands, ears and head. Never operate tiller in bare feet, sandals or sneakers.
11. Checking area for stones, branches and other debris that might be thrown.
12. Ensuring proper lighting is available, sunlight or good artificial lighting.
13. Ensuring the kill switch safety is properly attached.

To **raise the tiller to the transport position** use the handle provided located on the right side of the tiller. Remove handle from locking tab and handle will move up and forward of the tiller. Then push down to lock wheels for transport.

To **place the tiller in the working position** reverse the above process and lock handle in the storage position.

To **start tiller engine** do the following:
1. Install the kill switch plug.
2. Open the fuel valve.
3. Raise the tiller to the transport position.
4. Push throttle in the "CHOKE" position. If the engine is warm, place the throttle in "SLOW" position.
5. Place one foot on the tiller deck and one foot firmly anchored on ground. Make sure foot on ground does not get underneath tiller. Pull starter cord briskly returning slowly until engine starts.
6. When engine cranks, slow to idle and allow the engine to warm up for several minutes. **Tines must stop rotation.**
7. Lower the machine to working position and mount towing unit.

NOTE: If engine is hard to crank consult the engine manufacturer's operator's manual.

DANGER: Keep hands and feet away from underneath the tiller. When starting the engine place one foot on the tiller deck and one foot firmly anchored to the ground safely away from underneath the tiller deck.

To **start working** ensure that:
1. The kill switch tether cord is connected from the switch through the operator's belt loop to towing vehicle forward of operator's seat.
2. Parking brake is released.
3. The lowest gear is selected in order to begin working at a slow speed. Adjust speed gradually in relation to the condition of the ground.

DANGER: Ensure that the safety kill switch is working properly. Test to make sure that the tiller will cut off when the switch is removed. Never operate the tiller without the safety kill switch properly attached. Failure to do so could cause serious injury or death.

To **shut down tiller engine** do the following:
1. Idle the engine down.
2. Set parking brake.
3. Pull out kill switch plug.
4. Stop the engine of the towing vehicle.
5. Close fuel valve.
6. Allow the tiller blades to come to a complete stop before dismounting.

3.06 - Test Run

After running the tiller 120 to 150 feet, ensure that the machine is properly adjusted and functioning properly. After the first five minutes of operation, stop and feel the gearbox. It should be warm to the touch, but not hot.

3.07 - Working Depth

Tilling depth is determined largely by the condition of the ground. When working on hard or on previously unworked ground, set maximum depth at 2" to 3". Greater depth may require a second pass.

NOTE: Excessive vibration or jumping of the machine is an indication that the machine is working too deep for conditions, such as in hard, parched or compacted soil and should be adjusted accordingly.

3.08 - Working Speed

Ground speed is determined by the soil condition and tilling depth. Simple experimentation will soon determine the best speed for the desired results, usually 1 to 2 mph.

3.09 - Finer Pulverization

A slow ground speed will result in a finer soil, as a faster ground speed will render the opposite. The rear shield, besides being a safety device, will help in producing a finer worked soil. Test results show that a raised shield will leave a coarser finished surface.

3.10 - Working Limitations

If the tiller does not penetrate the ground easily, conditions may be too dry, tough or compacted. This condition is evidenced by vibration and jumping of the machine. Also check that the blades are properly installed with the proper scroll **(see fig. 3)**.
The combination of excessively hard ground and rocky conditions will greatly reduce the life of the blades. Under these extreme conditions it may be wise not to use the tiller as the primary tillage tool and therefore it is advised to run over the ground with a disc or plow prior to tilling.

3.11 - Uneven Terrain

DANGER: Be careful of rollover when operating towing vehicle and tiller over uneven ground.

The following precautions should always be observed when working on uneven terrain:
1. In extremely uneven terrain rear wheel weights, front tractor weights, and/or tire ballast should be used to improve stability.
2. Observe the type of terrain and develop a safe working pattern.
3. Whenever traction or stability is doubtful, first test drive over the terrain without attaching the tiller.
4. Operate the implement up and down steep slopes, not across slopes, to prevent the towing vehicle from tipping. Avoid sudden stops and starts, and slow down before changing directions on a slope.
5. Pass diagonally through sharp dips and avoid sharp drops to prevent hanging up the towing vehicle and implement.
6. Slow down on sharp turns and slopes to prevent tipping or loss of control.
7. Watch for holes, roots or other hidden objects. Do not use near the edge of a gully, ditch or stream bank.

3.10 - Transport

Before transporting:
1. Always select a safe ground speed that is appropriate for the terrain.
2. Beware of traffic on public roads. Install a SMV (Slow Moving Vehicle) sign when traveling on roads or streets. Comply with all federal, state and local laws.
3. Reduce ground speed when turning and take care that the implement does not strike obstacles such as trees, fences or buildings.

4 - MAINTENANCE

DANGER: Stop tiller engine, stop towing vehicle engine, lock parking brake, remove key and disconnect spark plug wire, before performing any service or maintenance.
Install blocks or stands under the machine to prevent it from falling. Always use personal protection devices, such as glasses or gloves when performing maintenance.
Keep fingers out of slots to prevent injury.

4.01 - Maintenance Safety

1. Good maintenance is your responsibility.
2. Keep service area clean and dry. Be sure electrical outlets and tools are properly grounded. Use adequate light for the job at hand.
3. Make sure there is plenty of ventilation. Never operate the engine of the tiller or the towing vehicle in a closed building. The exhaust fumes may cause asphyxiation.
4. Make no repair or adjustments with the engine running. Before working on the machine, shut off both engines, set the brakes, remove the ignition key and disconnect spark plug wire.
5. Be certain all moving parts on attachment have come to a complete stop before attempting to perform maintenance.
6. Never work under equipment unless it is blocked securely.
7. Always use personal protection devices such as eye, hand and hearing protectors, when performing any service or maintenance.
8. Frequently check blades. They should be sharp, free of nicks and cracks and securely fastened.
9. Periodically tighten all bolts, nuts and screws and check that all cotter pins are properly installed to ensure unit is in a safe condition.
10. When completing a maintenance or service function, make sure all safety shields and devices are installed before placing unit in service.
11. Do not attempt to mount a tire unless you have the proper equipment and experience to do the job.
12. Inflating or servicing tires can be dangerous. Whenever possible, trained personnel should be called to service and/or mount tires.
13. If fuel needs to be added, allow engine to cool before filling. Use only approved funnel and container to handle gasoline. Do not fuel tank indoors. Wipe up spilled gasoline.

14. After servicing, be sure all tools, parts and service equipment are removed.
15. Never replace hex bolts with less than grade five bolts unless otherwise specified, i.e. shear bolts[5].
16. Where replacement parts are necessary for periodic maintenance and servicing, genuine replacement parts must be used to restore your equipment to original specifications. The Company will not claim responsibility for use of unapproved parts and/or accessories and any other damages as a result of their use.
17. Unauthorized modifications to the machine may impair the function and/or safety of the machine and reduce its life. If equipment has been altered in any way from original design, the manufacturer does not accept any liability for injury or warranty.

4.02 - Service

The accompanying illustrations show lubrication points. The chart gives the frequency of lubrication in hours, based on normal operating conditions. Severe or unusual conditions may require more frequent lubrication.
Use a good quality SAE multipurpose type grease for all locations shown. Be sure to clean fittings thoroughly before using grease gun.
Use 90 wt. or 140 wt. gear oil in gearbox.

Refer to engine manufacturer operator's manual for service requirements on engine.

1. **Hourly:** Remove any wrapping (stalks, weeds, trash, etc.) from tiller, especially from around bearing supports on the rotor ends.
2. **Daily:** Ensure blades are not broken and bolts are tight. Grease the rotor support. Check the gearbox for oil level.
3. **Weekly:** Check the blades for excessive wear or damage. Ensure the rotor turns freely. Inspect the chain in the chain case and make sure it is well lubricated.
4. **After the first 200 hours:** Remove the chain case cover (being sure not to damage the gasket), clean the chain sprockets with kerosene, replace the sprockets and reassemble using fresh GP grease (approximately 2.2 lb.).

4.03 - Blade Maintenance

WARNING: Avoid possible injury, wear proper eye and hand protection when servicing tiller blades.

It is important to change blades after **they have worn down 1" to 1¼"** from their original length. When replacing blades, it is best to replace them one at a time to maintain the original scroll pattern. If, however, it becomes necessary to remove them all, **it is essential to maintain the scroll pattern of the blades (see fig. 3)**. To do this,

[5] Refer to Table 1 - Torque Specifications, for head identification marking, page 19.

remove one blade and immediately replace it with a new one. Be sure the bolt head **(see #3, fig. 4)** is touching the blade **(#4)**, while the washer **(#5)** and nut **(#6)** contact the flange. Sometimes a lock nut is used instead of a lock washer and nut. Proceed until all blades needed to be changed are changed.
After installing the new blades, tighten the nuts to their proper torque specifications.

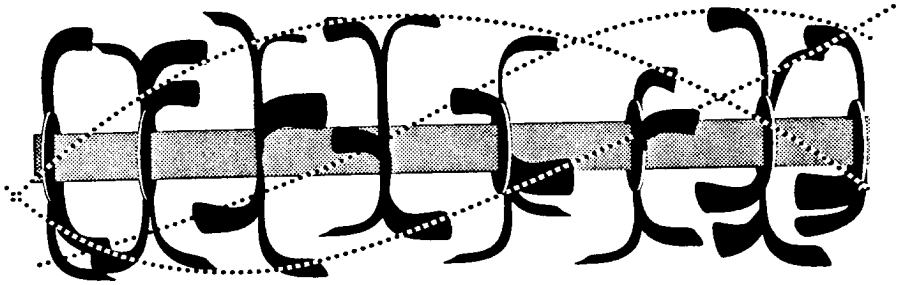

Fig. 3

To determine if a blade is right or left, do the following:

1. Hold the blade in the palm of the hand with the bend pointing upward and away from you.
2. If the cutting edge points towards the right then the blade is right-handed.
3. The cutting edge pointing to the left indicates a left-handed blade.

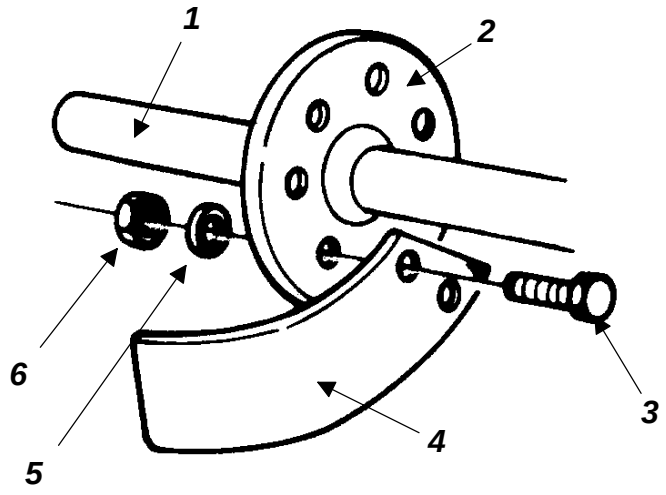

Fig. 4
1. rotor shaft
2. flange
3. bolt
4. blade
5. washer
6. nut

TABLE 1 - TORQUE SPECIFICATIONS

Metric (ISO) treaded bolts head marking		 **Class 5.8**		 **Class 8.8**		 **Class 10.9**		**Inch (SAE) treaded bolts head marking**		 **Grade 2**		 **Grade 5**		 **Grade 8**	
Bolt size mm	**Thread mm**	**N.m**	**ft-lb**	**N.m**	**ft-lb**	**N.m**	**ft-lb**	**Bolt size inch**	**Thread inch tpi**	**N.m**	**ft-lb**	**N.m**	**ft-lb**	**N.m**	**ft-lb**
M5	**0.8**	4	3	6	4	9	7	**1/4"**	**20**	7	5	11	8	16	12
M6	**1**	6	4	10	7	15	11	**1/4"**	**28**	8	6	13	10	19	14
M8	**1.25**	16	12	25	18	36	27	**5/16"**	**18**	15	11	24	17	33	25
M8	**1**	17	13	26	19	38	28	**5/16"**	**24**	17	13	26	19	37	27
M10	**1.5**	31	23	48	35	71	52	**3/8"**	**16**	27	20	42	31	59	44
M10	**1.25**	33	24	51	38	75	55	**3/8"**	**24**	31	23	47	35	67	49
M10	**1**	35	26	53	39	78	58	**7/16"**	**14**	43	32	67	49	95	70
M12	**1.75**	54	40	84	62	123	91	**7/16"**	**20**	48	36	75	55	106	78
M12	**1.5**	56	41	87	64	128	94	**1/2"**	**13**	66	48	102	75	144	106
M12	**1.25**	59	44	90	66	133	98	**1/2"**	**20**	75	55	115	85	163	120
M14	**2**	84	62	133	98	195	144	**9/16"**	**12**	95	70	147	109	208	154
M14	**1.5**	94	69	142	105	209	154	**9/16"**	**18**	106	79	164	121	232	171
M16	**2**	131	97	206	152	302	223	**5/8"**	**11**	132	97	203	150	287	212
M16	**1.5**	141	104	218	161	320	236	**5/8"**	**18**	149	110	230	170	325	240
M18	**2.5**	181	133	295	218	421	310	**3/4"**	**10**	233	172	361	266	509	376
M18	**2**	196	145	311	229	443	327	**3/4"**	**16**	261	192	403	297	569	420
M18	**1.5**	203	150	327	241	465	343	**7/8"**	**9**	226	167	582	430	822	606
M20	**2.5**	256	189	415	306	592	437	**7/8"**	**14**	249	184	642	473	906	668
M20	**1.5**	288	212	454	335	646	476	**1"**	**8**	339	250	873	644	1232	909
M22	**2.5**	344	254	567	418	807	595	**1"**	**12**	371	273	955	704	1348	995
M22	**1.5**	381	281	613	452	873	644	**1-1/8"**	**7**	480	354	1077	794	1746	1288
M24	**3**	444	327	714	526	1017	750	**1-1/8"**	**12**	539	397	1208	891	1958	1445
M24	**2**	488	360	769	567	1095	808	**1-1/4"**	**7**	677	500	1519	1120	2463	1817
M27	**3**	656	484	1050	774	1496	1103	**1-1/4"**	**12**	750	553	1682	1241	2728	2012
M27	**2**	719	530	1119	825	1594	1176	**1-3/8"**	**6**	888	655	1992	1469	3230	2382
M30	**3.5**	906	668	1420	1047	2033	1499	**1-3/8"**	**12**	1011	746	2268	1673	3677	2712
M30	**2**	1000	738	1600	1180	2250	1659	**1-1/2"**	**6**	1179	869	2643	1949	4286	3161
M36	**4**	1534	1131	2482	1830	3535	2607	**1-1/2"**	**12**	1326	978	2974	2194	4823	3557
When using lock washers with nuts, increase torque values by 5%.															

TABLE 2 - SERIES E ROTARY TILLER - TECHNICAL FEATURES

Series E Engine Driven Rotary Tillers - Chain: ASA 60								
Model	Working width	Overall width	Weight lbs.	# of flanges	# of blades	Engine	Chain sprockets	Working depth
E42-530	42"	47"	335	5	20	Kohler 8 HP	9-22	7.2"

5 - REPAIR PROCEDURES

CAUTION: All repair procedures must be done by authorized dealerships. It is not recommended that untrained individuals perform any repair work. The following operations are detailed for qualified personnel only.

5.01 - Gearbox

Whenever the bearings are removed from the gearbox, all oil seals should be replaced to assure no leaks when the box is reassembled.
To avoid damage to components, bearings should always be removed with bearing pullers and pressed in when being replaced.
When reassembling the gearbox, ensure that there is precise mesh between ring and pinion gears.

5.02 - Chain Case

To remove the chain do the following:
1. Unbolt chain case cover.
2. Remove the chain case cover taking care not to damage the gasket.
3. Release the automatic chain tensioner spring.
4. Remove the two snap rings holding the chain sprockets.
5. Slip off both chain sprockets at the same time.

To replace the chain follow the procedure in reverse order, ensuring the gasket is not damaged. If damaged it must be changed.

To shorten the chain one link (1.25") do the following:
1. Remove two links.
2. Replace the two links with one offset connector (false link).
3. Reconnect with the other links.

To shorten the chain two links (2.5") do the following:
1. Remove two links.
2. Reconnect with the other links.

5.03 - Rotor

To remove the rotor and rotor supports do the following:
1. Remove the chain and chain sprockets[6].
2. Unbolt the bolts holding the left rotor support.
3. Unbolt the bolts holding the left side panel.
4. Unbolt the bolts holding the right side panel and slip the rotor out of the rotor supports.

5.04 - Suggested Spare Parts

It is suggested that the following spare parts be kept on hand all times to prevent a minor problem from delaying work:

Description	Quantity
Right hand blade	5
Left hand blade	5
Blade bolt	10
Blade nut	10
Chain	1

5.05 - Storage

After seasonal use it is important to perform the following for prolonged storage:
1. Wash the tiller carefully.
2. Inspect the tiller and replace worn or damaged parts.
3. Tighten all hardware.
4. Grease all areas indicated under maintenance.
5. Cover the tiller from the elements in order to have it in perfect condition for the start of the next season.

[6] See Section 5.02 - Chain Case.

6 - TROUBLESHOOTING

WARNING: Be sure tiller engine and towing vehicle engine are off, parking brake is locked, key is removed and spark plug wire is disconnected before making any adjustments.

PROBLEM	POSSIBLE CAUSE	SOLUTION
Machine makes intermittent clicking noise.	Loose blade bolts. Gearbox gears or chain damaged.	Tighten blade bolts. Replace damaged gears or chain.
Gearbox noise is noticeable and constant.	Oil level low. Worn Gears.	This can be normal on a new machine until it has been run in. Check oil level. Replace worn gears.
Blades stop turning but engine, gearbox and hex shaft are turning.	Broken drive chain.	Remove chain case and check for broken connector link.
Engine turning but not blades.	Engine rpm low.	Increase engine rpm.
Machine skips and leaves crop residue.	Worn blades. Ground speed too fast.	Check for badly worn blades. If worn down to tip, overlap will be lost and cutting will deteriorate. Replace worn blades. Reduce ground speed.
Machine smells hot or begins to smoke.	Wrappings around rotor. Gearbox oil low.	Can be caused by friction from trash heavily wrapped around bearing protection covers. Remove trash immediately, damage to bearing could result. Check oil level in gearbox and lubricant on chain.
Oil leak from gearbox.	Oil seal or grease fitting damaged. Gearbox overfilled.	Replace oil seal or grease fitting. Remove excess oil.

7 - PRE-DELIVERY CHECKLIST

To the dealer: Inspect the machine thoroughly after assembly to assure it is functioning properly before delivering it to the customer. The following checklist is a reminder of points to cover. Check off each item as it is found satisfactory or after proper adjustment is made.

- ☐ Engine oil level.
- ☐ Gearbox oil level.
- ☐ Guards and shield properly fastened.
- ☐ Lubrication of grease fittings.
- ☐ All hardware properly tightened.
- ☐ All decals properly located and readable **(see fig. 2)**.
- ☐ Overall condition (touch up scratches, clean and polish).
- ☐ Test run, check for excessive vibrations or overheating of bearings.
- ☐ Operator's Manual.

Review the Operator's Manual with the customer. Explain the following:

- ☐ Warranty.
- ☐ Safe operation and service.
- ☐ Correct machine installation and operation.
- ☐ Daily and periodic lubrication, maintenance and inspections.
- ☐ Troubleshooting
- ☐ Operational procedures and storage.
- ☐ Parts and service.
- ☐ Remove and fill out the Pre-Delivery Checklist and Warranty Registration form.
- ☐ Give customer the Operator's Manual and encourage the customer to read the manual carefully.

IMPORTANT: Warranty is not valid unless Pre-Delivery Checklist and Warranty Registration form in Operator's Manual is completed in detail and mailed to the Company.

Model Number: _____ Serial Number: _____

Delivery Date: _____ Dealer's Signature: _____

8 - WARRANTY

BEFCO's responsibility will be limited to substitution of the acknowledged defective merchandise to the same place of delivery as the previous one was supplied.

1. LIMITED WARRANTY

BEFCO, Inc. herein referred to as the Company, warrants its machines and related accessories, hereafter referred to as the Machine, to be free from defects in material and workmanship, for a period of twelve (12) months from the date of invoice to the first registered owner; this limited warranty does not apply to common wear items and excludes belts, shear pins, oil, grease, tires, tubes, hydraulic hoses, knives and PTO shafts.

Labor will be reimbursed at $40.00 per hour based on BEFCO's time schedule.

Cost of transport to the servicing dealer is the responsibility of the customer.

Warranty coverage shall not be transferable from the first owner to any subsequent owner.

2. DISCLAIMER OF ALL OTHER WARRANTIES AND REMEDIES

Neither the Company nor any company affiliated with the Company makes any warranties, representations or promises, expressed or implied, as to the quality, performance or application of its products other than those set forth herein and does not make any implied warranty of merchantability or fitness.

The only remedies the purchaser has in connection with the breach, or performance of any warranty on the Company's Machine are those set forth herein. In no event will the dealer, the Company, or any company affiliated with the Company, be liable for:

a. **Injuries or damages of any kind or nature, direct, consequential or contingent to person or property.**
b. **Any expenses incurred by the owner to repair, replace or rework any allegedly defective item.**
c. **Any loss, cost, forfeiture or damages (including loss of profits; loss of crops; loss because of delay in field operations; any expenses or loss incurred for labor, supplies, substitute machine rental; liabilities of the owner to its customers or third persons; and all other consequential damages, losses, liabilities or damages for any other reasons) whether direct or indirect, and whether or not resulting from or contributed to by the default or negligence of the Company, its agents, employees and subcontractors which might be claimed as a result of the use or failure of the equipment delivered.**

The Company's liability based on this limited warranty or any other applicable laws shall be limited to replacement or refund of the purchase price of the product.

The limited warranty extended herein gives you specific rights and you may also have other rights which vary from state to state. Neither the dealer nor the Company personnel has the authority to make any representation or to modify the terms and limitations of this warranty in any way.

Other than the limited warranty extended hereby there is no other expressed warranty in connection with the design, safety or use of any of the Company's products except as to title. All implied warranties are expressly disclaimed pursuant to the terms of this warranty.

3. CUSTOM WORK

If the Machine is used for commercial purposes such as custom work, the period warranted for the Machine is limited to six (6) months from the date of delivery to the first registered owner and does not cover any labor charges incurred.

4. RENTAL

If the Machine is used for rental purposes the period warranted for the Machine is limited to thirty (30) days from the date of delivery to the first registered owner and does not cover any labor charges incurred.

5. REGISTRATION

In order to qualify for coverage on this limited warranty, the product and name of the original purchaser must be registered with the Company by a completed Machine Pre-Delivery Checklist and Warranty Registration along with a copy of the dealer's invoice to the first registered owner to the Company within fourteen (14) days after the date of delivery to the original purchaser.

6. WARRANTY SERVICE

Warranty Service must be performed by a dealer authorized by BEFCO. If the warranty service requested is approved, the owner shall pay only for labor beyond the rate allowed, for overtime labor, and for any mileage charge for transporting the equipment to and from the dealer's shop. It is assumed that the dealer has the appropriate general and special tools to service the Machine. Time required for replacement of knives, oil, grease and to remove excessive dirt from the Machine is not subject to reimbursement by the Company. The owner is required to clean the Machine before presenting it to the dealer for service work. The Machine must be delivered within thirty (30) days after failure date by the owner to the dealer to be eligible for warranty consideration.

7. UNAPPROVED SERVICE OR MODIFICATION

All obligations of the Company under this limited warranty shall be terminated if:

a. Proper service and operation instructions as outlined in the Operator's Manual and on the instruction sticker on the Machine, are not followed.
b. The Machine is modified or altered in any way not approved by the Company.
c. The Company does not receive a copy of the dealers invoice to the first registered owner within fourteen (14) days from the date of delivery.
d. The Company has not been paid in full, by the dealer, for the Machine.

8. ACCIDENTS AND NORMAL MAINTENANCE

This limited warranty covers defective material and workmanship. It does not cover depreciation or damage caused by normal wear, accidents, improper maintenance, improper protection or improper use. The costs of normal maintenance or repairs for accidents or improper use, and related labor will be borne by the owner.

9. REPLACEMENT PARTS

BEFCO, Inc. warrants replacement parts to be free from defect in material and workmanship for a period of thirty (30) days from the date of delivery to the original purchaser.

WARRANTY REGISTRATION

BEFCO, Inc.
P.O. Box 6036
Rocky Mount, NC 27802-6036 **Tel: (252) 977.9920 - Fax: (252) 977.9718**

Dealer Acct. #	Retail Customer
Street Country	Street
Town State Zip	Town State Zip
Date of delivery Invoice #	Phone
Model # Serial #	
Pre-Delivery Checklist: ☐ Oil in gearbox. ☐ Greased fittings. ☐ Safety guards in place. ☐ All hardware tight. ☐ Bolts torqued correctly. ☐ Attached unit to tractor. Yes/No. ☐ Field adjusted. Yes/No. ☐ Test run. Dry/Infield. ☐ Safety decals. ☐ Operator's Manual. The machine described above, had been prepared for delivery according to the Pre-Delivery Checklist and the Customer has been instructed in its care and operation and the condition of warranty.	Tractor make: _____ Model: _____; HP _____ Type of operation: Private homeowner, Landscaping, Commercial maintenance, Golf Course, Municipality, Turf Farm, others: _____ _____ Approximate number of acres machine will be used on annually: _____ I hereby acknowledge that: I have received and accepted delivery of the machine described. The equipment was checked thoroughly for loose or missing parts and has been adjusted in accordance with the Pre-Delivery Checklist. I have read and understand the nature and extent of the warranty and understand clearly that there were and are no other representations of warranties either expressed or implied, made by anyone. I have been advised on proper operation, maintenance and lubrication procedure of this equipment. I have been instructed on and do understand the application, limitation and capacities this equipment was designed and recommended for, all as described in the Operator's Manual and literature published by the Company.
Inspected by: _____	
Date: _____	Date: _____
Dealer's Signature: _____	Customer's Signature: _____

This registration along with a copy of the invoice must be sent to BEFCO, Inc. within 14 days of date of purchase.

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Place stamp here

BEFCO, Inc.

Warranty Department
P.O. Box 6036
Rocky Mount, NC 27802-6036

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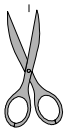


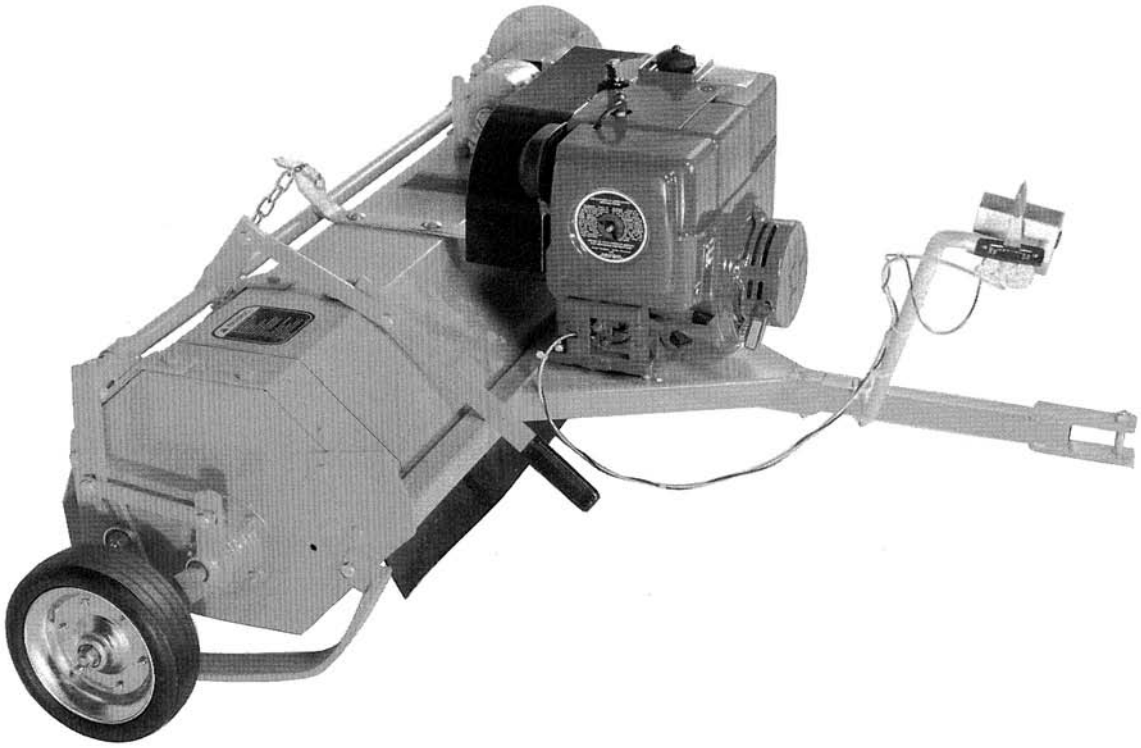
BEFCO®

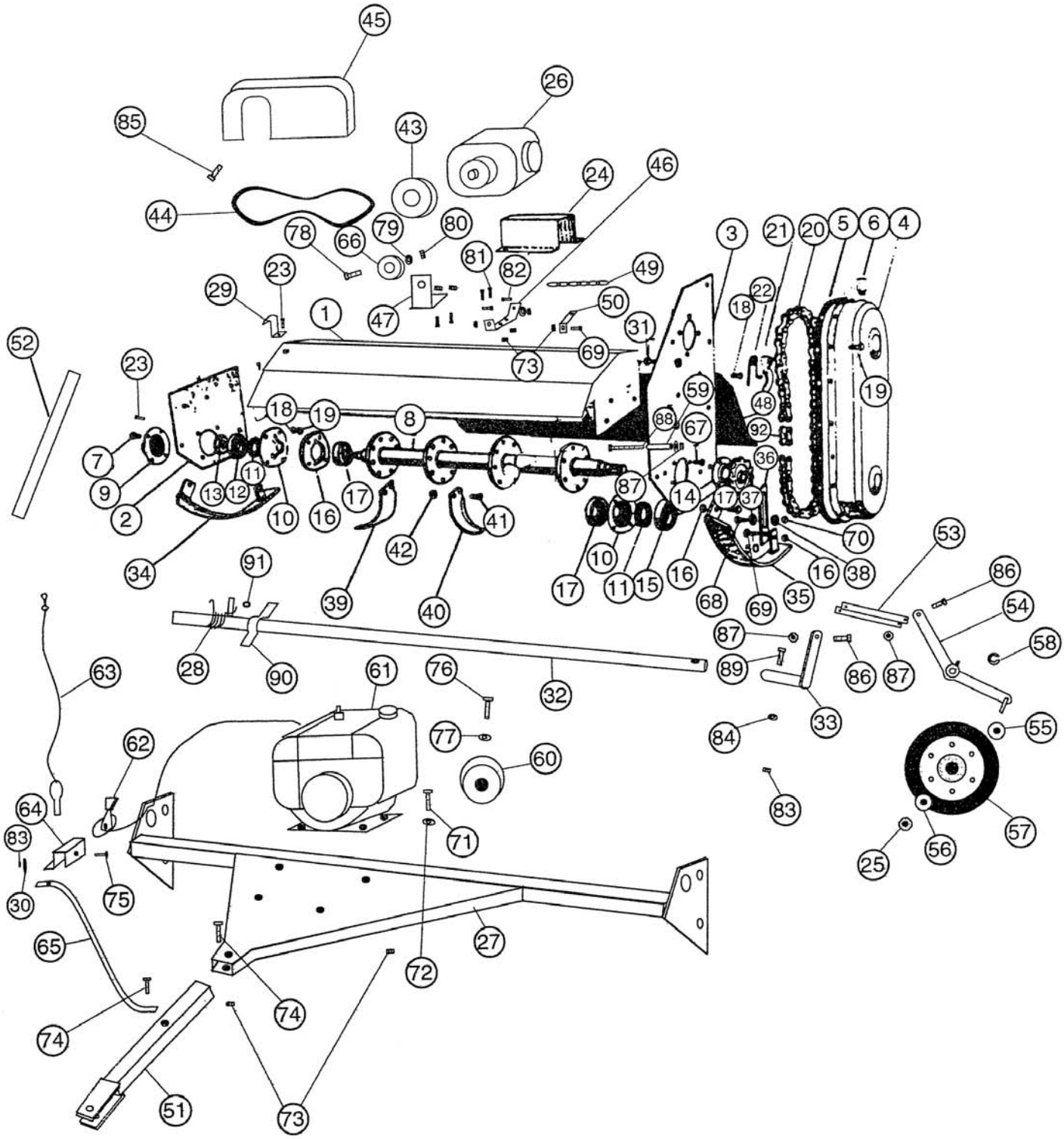
Parts Manual

SERIES E

Engine Driven Tiller

E42-530

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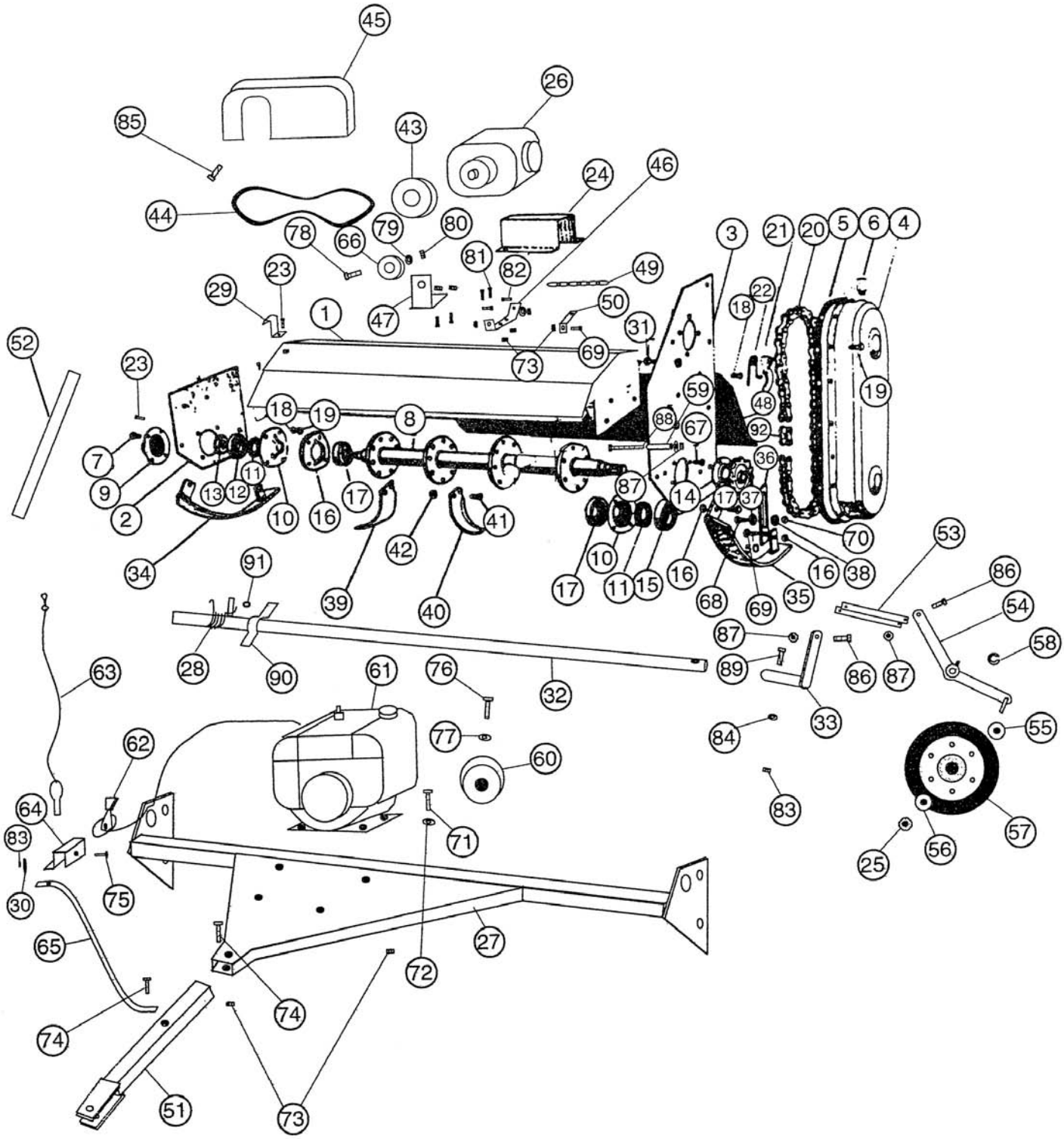
Ref.	Part #	Description	Qty.
1	001-0552	Frame E42-530	1
2	001-0561	Side panel, right	1
3	001-0571	Side pane, left	1
4	001-0581	Chain case cover	1
5	002-2032	Gasket chain housing	1
6	000-1107A	Breather cap	1
7	000-1008	Bolt HH M10-1.50x30 C8.8 N F	-
8	023-4081	Rotor	1
9	001-0628	Outer cover, right	1
10	003-0092	Bearing cover, inner	1
11	003-4098	Oil seal 40.60.10	2
12	003-0094	Bearing 6306	2
13	003-0095	Locking ring ES GUK M30-1.50	1
14	001-0102	Bearing cover, left	1
15	002-5332	Bearing 6207	1
16	001-0073	Cover	1
17	002-2074	Dirt shield	2
18	000-1011	Washer, lock Ø10 N	8
19	000-1010	Nut HH M10-1.50 C6 N TK	8
20	001-0125	Chain ASA 60HEx46	1
21	003-0148	Chain tensioner	1
22	003-0158	Spring, chain tensioner	1
23	009-1216	Grease fitting	1
24	001-0696	Cover, hex shaft	1
25	003-0358	Nut PT M14-2.00 C6 Z TK	2
26	050-0564	Gear box complete 2000 rpm, E42-530	1
27	001-0861	Draw bar complete	1
28	001-0891	Spring	1
29	001-0907	Lever bracket	1
30	005-0166	Washer, flat Ø06 Z	-
31	003-0155	Bolt HH M10-1.50x60 C8.8 N F	-
32	001-0885	Tubular bar	1
33	001-0894	End plate, left	1
	001-0901	End plate, right	1
34	012-2051	Skid, right	1
35	022-2051	Skid, left	1
36	002-1051	Adjustment arm	2
37	002-1052	Washer with thread	2
38	002-1053	Washer with holes	2
39	003-0104D	"C" blade, right[7]	10
40	003-0104S	"C" blade, left[8]	10
41	002-1104	Bolt SP M12-1.25x30 C8.8 Z P	20
42	002-1105	Nut PT M12-1.25 C6 Z	20
43	001-0751	Pulley SPB 130x1	1
44	001-0754	Belt B39	1
45	001-0756	Belt cover	1
46	001-0760	Belt cover bracket	1
47	001-0761	Idler tension bracket	1
48	001-0831	Tailgate	1

[7] Blades must be purchased in pairs (right & left blade).
[8] Blades must be purchased in pairs (right & left blade).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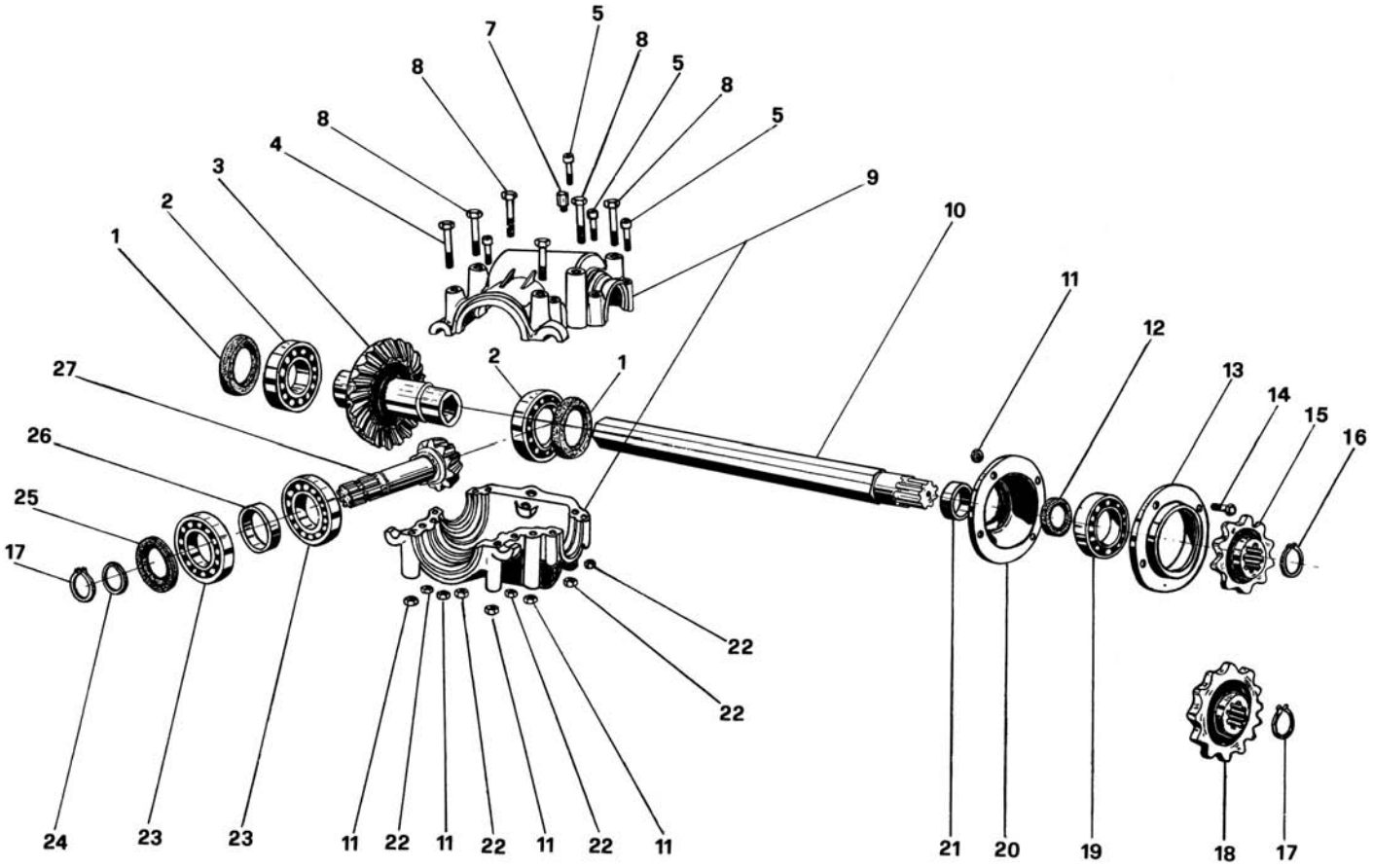
Ref.	Part #	Description	Qty.
49	001-0836	Chain	1
50	001-0838	Tailgate bracket	1
51	001-0876	Draw bar hitch	1
52	001-0906	Lever	1
53	001-0911	Wheel strap	4
54	011-0916	Wheel arm, right	1
	021-0916	Wheel arm, left	1
55	001-0922	Inner bushing	2
56	001-0923	Outer bushing	2
57	000-6923Y	Wheel	2
58	002-9261	Snap ring, outer Ø25	2
59	001-0937	Bushing, left	1
	001-0939	Bushing, right	1
60	502-392B	Centrifugal clutch	1
61	502-393B	Engine Kohler 8 HP	1
	503-374B	Engine 11 HP	-
62	502-394B	Throttle control	1
63	501-681B	Kill switch & key	1
64	501-680B	Kill switch bracket	1
65	502-395B	Throttle control bracket	1
66	502-396B	Idler pulley	1
67	000-1241	Bolt HH M10-1.50x25 C8.8 N F	-
68	002-6329	Bolt HH M10-1.50x45 C8.8 Z F	2
69	000-1278	Bolt HH M10-1.50x30 C8.8 Z F	2
70	000-1279	Nut HH M10-1.50 C6 Z TK	-
71	000-1608	Bolt HH M10-1.50x40 C8.8 N F	4
72	000-2034	Washer, flat Ø10 Z	-
73	001-4106	Nut ES M10-1.50 Z TK	-
74	009-1197	Bolt HH M10-1.50x70 C8.8 Z F	-
75	502-397B	Bolt HH M06-1.00x45 C8.8 Z F	1
76	502-398B	Bolt 7/16"-20x1.00" G5 Z F	1
77	502-399B	Washer, lock Ø7/16" Z	1
78	502-400B	Bolt HH 1/2"-13x2.00" Z P	1
79	502-863B	Washer, flat Ø1/2" Z	1
80	502-402B	Washer, lock Ø1/2" Z	1
81	000-6349	Bolt HH M10-1.50x20 C8.8 Z F	1
82	003-3176	Bolt HH M10-1.50x25 C8.8 Z F	2
83	005-0165	Nut ES M06-1.00 Z TK	1
84	000-1011	Washer, lock Ø10 N	1
85	009-1281	Bolt HH M10-1.50x35 C8.8 Z F	-
86	009-1197	Bolt HH M10-1.50x70 C8.8 Z F	-
87	003-0156	Nut PT M10-1.50 C6 Z TK	4
88	001-5236	Bolt HH M10-1.50x80 C8.8 Z P	1
	001-5236	Bolt HH M10-1.50x80 C8.8 Z P	1
89	002-6329	Bolt HH M10-1.50x45 C8.8 Z F	2
90	502-403B	Reinforcement strap	1
91	502-538B	Grease fitting 1/4"-28	1
92	001-0126B	Chain link, master ASA 60HE	-
	001-1119	Chain link, inner ASA 60HE	-
	001-1120	Chain link, false ASA 60HE	-
	503-388B	Electric motor for wheels (option, not shown on image)	-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Ref.	Part #	Description	Qty.
1	001-0192	Oil seal 40.68.10	2
2	001-2149	Bearing 6208	2
3	001-0425	Ring gear Z31 (2000 rpm); E42-530	1
4	001-0169	Bolt SC M10-1.50x110 C12.9 N P	2
5	001-0173	Bolt SC M08-1.25x50 C8.8 N P	5
7	001-0177	Breather cap	1
8	001-0165	Bolt HH M10-1.50x120 C8.8 N P	4
9	330-0322	Gearbox housing bottom half	1
	330-0322F	Gearbox housing top half	1
10	001-0700	Hexagonal shaft E42-530	1
11	000-1010	NUT HH M10-1.50 C6 N TK	10
12	003-4098	Oil seal 40.60.10	1
13	001-0143	Bearing cover, outer	1
14	000-1241	Bolt HH M10-1.50x25 C8.8 N F	3
15	001-0118	Sprocket Z9 (2000 rpm); E42-530	1
16	001-0122	Snap ring, outer Ø30	1
17	004-2122	Snap ring, outer Ø35	1
18	001-0119	Sprocket Z22 (2000 rpm); E42-530	1
19	003-0094	Bearing 6306	1
20	003-0092	Bearing cover, inner	1
21	001-0148	Spacer	1
22	000-6513	Nut HH M08-1.25 C6 N TK	7
23	002-5332	Bearing 6207	2
24	003-4196	Spacer washer	1
25	000-2295	Oil seal 35.62.10	1
26	001-0435	Spacer (2000 rpm); E42-530	1
27	001-0429	Pinion gear (2000 rpm); E42-530	1
	050-0564	Gearbox complete 2000 rpm; E42-530	-

Use only original spare parts

BEFCO E42-530 (US)
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BEFCO®

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