CON-TREAT™
CONCRETE HI-PERFORMANCE TREATMENTS

SHARK CS200-P & CS200-E

OPERATOR'S MANUAL

CONTENTS

1. SAFETY MESSAGES

READ AND UNDERSTAND THE OPERATORS INSTRUCTION MANUAL THOROUGHLY BEFORE ATTEMPTING TO OPERATE THIS EQUIPMENT.
Death or serious injury could occur if this machine is used improperly.

Do not disconnect power by pulling cord. To disconnect, grasp the plug, not the cord.

- Safety Instructions are proceeded by a graphic alert symbol of DANGER, WARNING, or CAUTION.

DANGER Indicates an imminent hazard which, if not avoided, will result in death or serious injury.

WARNING Indicates an imminent hazard which, if not avoided, can result in death or serious injury.

CAUTION Indicates hazards which, if not avoided, could result in serious injury and or damage to the equipment.

GASOLINE/PROPANE POWERED EQUIPMENT

• Gasoline is extremely flammable and poisonous. It should only be dispensed in well ventilated areas, and with a cool engine.

Warning: • Engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

- Small gasoline engines produce high concentrations of carbon monoxide (CO) example: a 5 HP 4 cycle engine operation in an enclosed 100,000 cu. ft. area with only one change of air per hour is capable of providing deadly concentrations of CO in less than fifteen minutes. Five changes of air in the same area will produce noxious fumes in less than 30 minutes. Gasoline or propane powered equipment should not be used in enclosed or partially enclosed areas. Symptoms of CO poisoning include, head- ache, nausea, weakness, dizziness, visual problems and loss of consciousness. If symptoms occur - get into fresh air and seek medical attention immediately.

ELECTRICAL POWERED EQUIPMENT

Extreme care must be taken when operating electric models with water present: Ensure power cord is properly grounded, is attached to a Ground-Fault-Interrupter (GFI) outlet, and is undamaged.

- Check all electrical cables - be sure connections are tight and cable is continuous and in good condition. Be sure cable is correctly rated for both the operating current and voltage of this equipment.
- Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Check with qualified electrician or service person if there is any doubt as to whether the outlet is properly grounded. Adhere to **all** local codes and ordinances.
- **NOTE:** In the event of a malfunction or breakdown, grounding provides a path of least resistance for the electric current to dissipate. The motor is equipped with a grounded plug and must be connected to an outlet that is properly installed and properly grounded. DO NOT modify the plug provided on the motor. If the plug does not fit the outlet have a qualified electrician install the proper receptacle.
- Switch motor OFF **before** disconnecting power.
- Unplug power cord at the machine when not in use and before servicing.

GENERAL INSTRUCTIONS

- Equipment should only be operated by trained personnel in good physical condition and mental health (not fatigued). The operator and maintenance personnel must be physically able to handle the bulk weight and power of this equipment.
- This is a one person tool. Maintain a safe operating distance to other personnel. It is the **operators' responsibility** to keep other people (workers, pedestrians, bystanders, etc.) away during operation. Block off the work area in all directions with roping, safety netting, etc. for a safe distance. Failure to do so may result in others being injured by flying debris or exposing them to harmful dust and noise.
- This equipment is intended for commercial use only.
- For the operator's safety and the safety of others, always keep all guards in place during operation.
- Never let equipment run unattended.

- Personal Protection Equipment and proper safety attire must be worn when operating this machinery. The operator must wear approved safety equipment appropriate for the job such as hard hat and safety shoes when conditions require. Hearing protection MUST be used (operational noise levels of this equipment may exceed 90db). Eye protection MUST be worn at all times.

Keep body parts and loose clothing away from moving parts. Failure to do so could result in dismemberment or death.

- Do not modify the machine.
- Stop motor/engine when adjusting or servicing this equipment. Maintain a safe operating distance from flammable materials. Sparks from the cutting-action of this machine can ignite flammable materials or vapors.

DUST WARNING

Warning

1. Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to cause cancer, birth defects, or other reproductive harm. Some examples of these chemicals are:

2. Lead from lead-based paints, and
3. Crystalline silica from bricks and concrete and other masonry products. Your risk of exposure to these chemicals varies depending on how often you do this type of work. To reduce your risk: work in a well ventilated area, use a dust control system, such as an industrial-style vacuum, and wear approved personal safety equipment, such as a dust/ particle respirator designed to filter out microscopic particles.

2. SPECIFICATIONS

Model	CS-200	CS-250	CS-280
Working Width	185 mm	235mm	265 mm
Drum Assembly	Changeable	Changeable	Changeable
Power Option	Petrol 5.5/7hp ; Diesel 7hp ; 4kw electric motor	Petrol 13hp ; Diesel 10hp; 5.5kw electric motor	Petrol 25hp; Diesel 22hp; 11kw electric motor
Working Depth	3-5 mm	5-10 mm	8-15 mm
Drum Rotation	Downcut (clockwise)	Downcut (clockwise)	Downcut (clockwise)
Weight	110 kg	192 kg	336 kg
Working Efficiency	20-40 m2/h	25-50 m2/h	40-70 m2/h
Depth Control	Yes	Yes	Yes
Number of Shafts	4/6	6	6
Packing Dimensions (l*W*H)	90*57*91 cm	99*55*98 cm	138*72*101 cm
Walking	Manual	Manual	Self-Propelled

3. OPERATION INSTRUCTION

IMPORTANT!

Read the engine manufacturer's manual, familiarise yourself with engine start procedures.

BEFORE STARTING THE ENGINE: *Gasoline models only
Be sure that the cutter drum assembly has been properly installed and the cutter drum shaft is in place and secured.

1. Select a level place at the job site. Set the "Handle Wheel" in the full RIGHT position. It is most important to determine the position of the cutter wheels as they relate to the slab or floor surface. If the drum assembly is filled with cutters, the cutter wheels will most likely contact the slab when the "Handle Wheel" is turned left.
Turn the "Lock Lever" DOWN until the cutter wheels are clear of the slab. Follow these instructions each time before the engine is started to prevent accidental damage to the slab.

2. Turn the "Handle Wheel" to the full RIGHT position and raise the machine. DO NOT force the handle wheel. If resistance is felt, turn the "Handle Wheel" LEFT one or two turns. This will allow the "Handle Wheel" to reach its normal full UP position.

3. Check the oil level in engine crankcase (engines are usually shipped dry, oil must be added as per engine manufacturers instructions). *

4. Check fuel level (follow engine manufacturers instructions). *

5. Be sure all guards (belt, motor, cutter wheel) are in place and secure.

6. Locate engine on/off switch, if the engine is so equipped. On some engines the throttle control is also the engine shut-off switch. Familiarise yourself with this operation. *

7. Open throttle (full to engage choke) 3/4 to full on engines with a separate choke. Turn engine ignition switch ON. Be sure emergency STOP switch is ON. *

8. Before starting determines that the recoil starter assembly turns freely, starter rope pulls easily and the rope retracts properly. *

Before Starting the Machine:

- Perform a visual inspection of the entire machine and all daily maintenance according to the *Maintenance Schedule* on page 18.
- Locate and be familiar with all engine/motor and operating controls.
- For Gasoline models, obtain the *Engine Manufacturer's Owner's Manual*. Read it and understand it before continuing. Follow the engine manual for break-in instructions.
- Use the correct cutters for the job. Be sure cutter drum is balanced, the number, size and type of cutter wheels are correct and the cutter drum shaft is locked and secured.
- Be sure all fasteners are tight and secure, check for signs of metal cracking or fatigue, inspect for damage to electrical wiring, damage to fuel lines, check bearings, etc.
- Be sure all guards are in place. Do not operate unless cutter drum guard is in place and secure.
- Inspect work area to determine the presence and location of deck inserts, pipes, columns and objects protruding from the slab surface so that they may be avoided during operation.

Starting the Engine / Motor:

For Electric Models:

- Be sure the "OFF" button is depressed on the motor starter box.

CAUTION

- Hook up the correct voltage/phase electrical power source by plugging into the connector provided. If the cord does not mate with the connector, consult a qualified licensed electrician before continuing.
- Verify that the electrical current being supplied is the proper voltage and phase required to run the equipment.

- Check motor rotation. Cutter drum rotation on the machines is down cut. DO NOT use if the drum rotation is incorrect - have a qualified electrician make the necessary change in the main control panel or motor connection box?

For Gasoline & Diesel Models:

- Consult the *Engine Manufacturer's Owner's Manual* and follow the directions for starting the engine and allow the engine to warm up.

DANGER

DO NOT operate gasoline/ propane powered equipment without adequate ventilation. Carbon monoxide is an invisible, odorless gas that can kill.

DANGER

NEVER check for propane leaks using an open flame. Instead, use a leak-testing solution. NEVER allow propane fumes to escape in a closed area; propane is heavier than air and will "settle."

- To start this propane powered equipment, open the main fuel valve located on the propane tank. Open the throttle wide open and start the engine.

NOTE: Always turn off the main fuel valve on the propane tank when equipment is not being used.

Starting the Cut:

- Slowly lower the cutter head to the slab surface with the cutter head lever.
- Rotate the Depth Control down until you hear the cutters contact the slab. Once contact is made lower the machine an additional 3mm for the initial pass. Additional passes can be made in 3mm increments to a maximum depth of 9.5mm. Cutting more than 3mm per pass could result in damage to the drum and machine.
- Use an Industrial Vacuum Dust Control System for dry planning operations.

Stopping the Cut:

- Move cutter head control lever to raise cutter head assembly above slab surface.
- For gasoline and propane models, close throttle and turn the ignition switch to the “OFF” position.
- For electric models, depress the “OFF” button.

After Cutting:

- At the end of the day, clean the entire machine after it has cooled. Check for worn or damaged cutters and perform any required maintenance. See the "Maintenance Schedule" and Instructions on page 13.

Cutting Heads / Drums:

- The drum assembly revolves at approximately 1200-1800 RPM; Push Model Scarifier/Planer is a down-cut planer, Depth of cut is completely determined by the material to be cut, horsepower of the engine/motor and spacing of the cutter wheels on the cutter head.
- All cuts should be started from a stationary position - when the cutting depth is reached the planer should then move forward.
- The engine/motor should not labor. Run at full speed and adjust forward speed to fit the work being performed. Very hard concrete will have to be cut at a slower pace than asphalt or deteriorated surfaces.
- If it is necessary to make deep cuts - make several shallow cuts to achieve the desired depth. If the cutting depth is set too deep the cutter wheels will not be able to absorb the shock and damage to the equipment will result.
- The cutter wheels have an oversized arbor hole. This “play” is needed to absorb some of the shock of the cutter contacting the concrete.
- Cutting speed is directly proportional to the amount of material to be removed in one pass; an example - cutters spaced on 25mm centres will penetrate to a greater depth than those spaced at 12.5mm centres, and the planer will move forward faster. Most of the material in the path of the cutting head will be removed either by the cutters themselves or through the natural hammering action and spalling of the material being cut. A later pass with cutters spaced closer together will remove the ridges.

To Reach Maximum Depth in Concrete:

- It is best to make several passes - increments of 1mm-3mm or even less if the surface is extremely hard.
- Use coarse (wide spacing) for initial passes. Complete the job with medium spacing. Never use a fine spaced cutter head to cut deeper than 1mm-3mm.
- Some concrete slabs, especially if they are covered with water a good deal of time or if they have been treated with hardeners, develop an extremely high surface strength.

Material removal depth should not exceed 1mm-3mm per pass thus requiring several passes to reach the desired depth of cut.

To Cut Asphalt:

- This surface can be easier to penetrate than concrete. In some instances depths of 1/4" per pass can be achieved with the larger machines. In general though, 1/8" per pass is still standard and should be maintained until the hardness of the asphalt is determined.

Note: Specific information on asphalt cutting is available upon request.

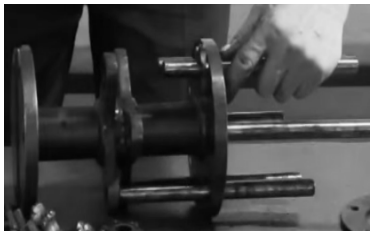
Fine Cutting:

- This assembly should be used for very shallow or cleaning operations. Check with dealer for special cutter wheels for removal of paint build-up or similar surface coatings.

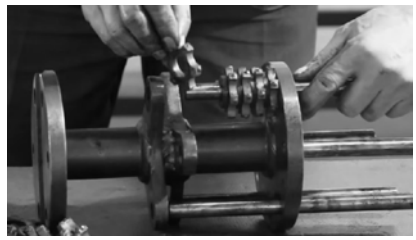
4. BLADES & DRUM REMOVAL / REPLACEMENT

CUTTING DRUM ASSEMBLY:

NOTE: The Cutting Drum may be disassembled from either end.

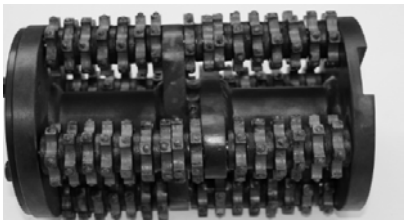


(A)
Pull the Cutting Disc Shafts out the open side of the Cutting Drum as shown.



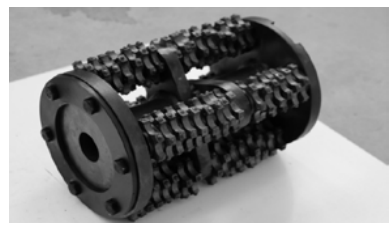
(B)
Assemble the Cutting Drum using Cutting Discs and Disc Spacers (See Cutting Drum Configuration).

(C)
Continue with Step B until the Cutting Drum assembly is complete.



(D)
Place the Cutting Drum on the closed end, with the open end facing upward.

(E)
Obtain the Retaining Ring and Flat Washer Spacers.

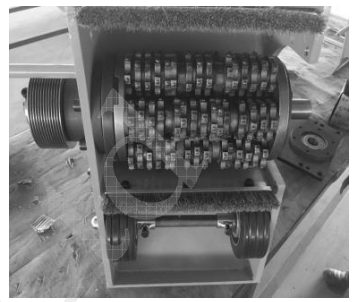


(F)
Install the 6 Flat Washer Spacers (if used) over the 6 Retaining Ring, Retaining Screw holes.

CUTTING DRUM INSTALLATION

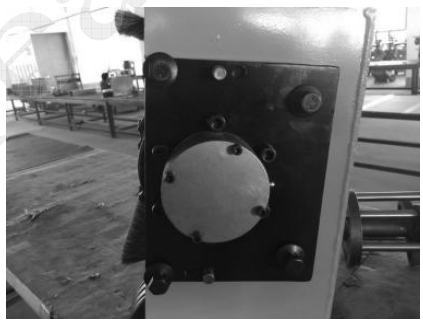
(A)
Rotate the Scarifier to rest on the Handle/Stand. Never rest on the back handle bar.

(B)
Install the Cutting Drum; align the Cutting Drum with the Shaft-side Bearing and install the Cutting Drum, Shaft.



(C)
Verify the Cutting Drum and Shaft are fully installed and seated.

(D)
Put the small gland into the principal shaft.



(E)
Install the 4 dish mats and hex screw into the 4 angle holes. Then install the 2 locating pins into the middle hole.

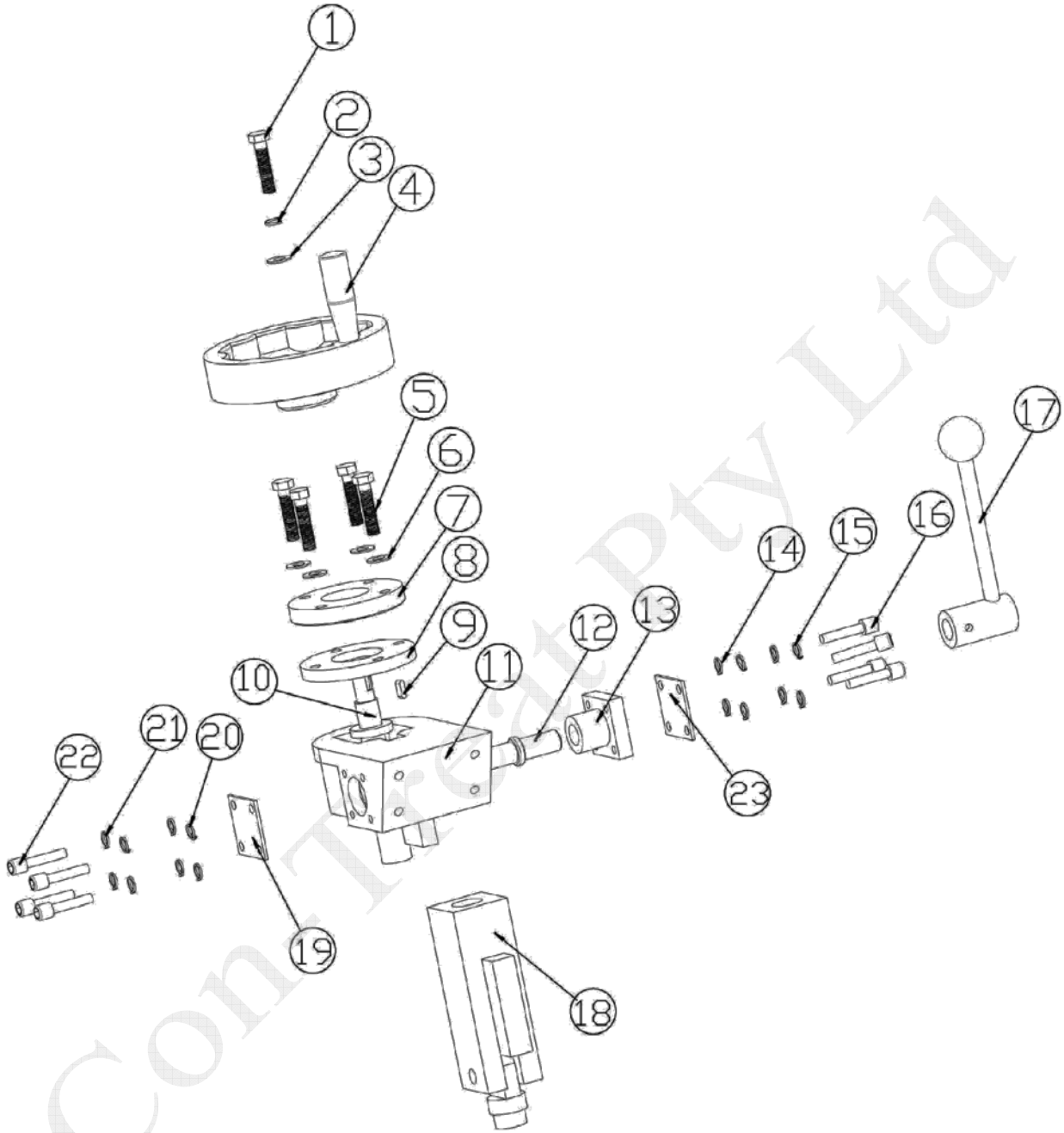
5. FLOOR PLANER ACCESSORIES APPLICATION GUIDE KEY

- Preferred method to produce maximum performance or productivity rates for most job applications
- Acceptable performance or productivity rate for most job applications
- Limited performance productivity rates for most job applications

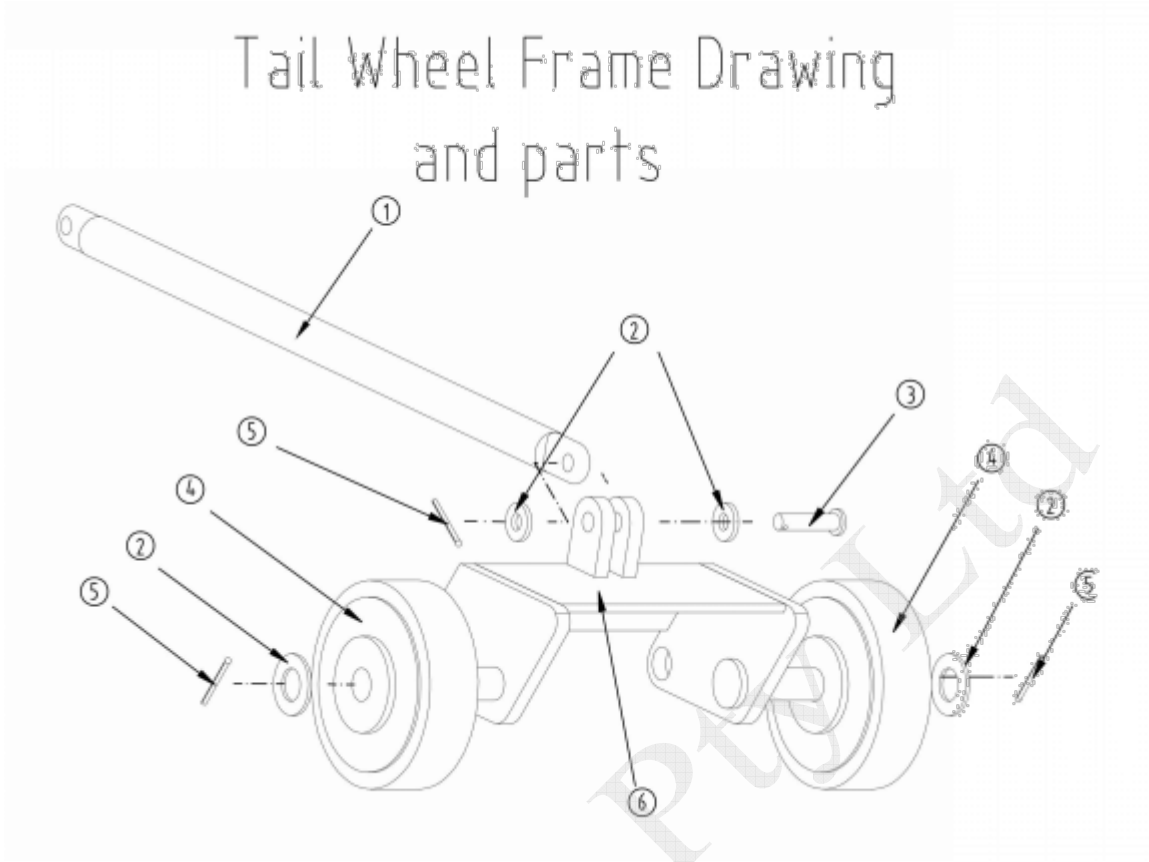
Drum Assembly	 60/4（cutters/blade shaft）	 90/6cuttes/blade shaft）	 90/6(cutters/blade shaft）	 9/110(cutters/blade shaft）
Applications				
preparation guide	←Light burnishing			Heavy scaling →
Removal of paints & coatings from tanks & deck areas	●	●	●	●
Removal of non-slip paints, epoxies, mastics & rubberised coatings from steel tanks & deck areas	●	●	●	●
Removal of heavy rust & scale build up in tanks & deck areas	●	●	●	●
Removal of paint, dirt build up & ice deposits from concrete floors	●	●	●	●

Roughing keying texturing concrete. Removal of laitance excess concrete or asphalt				
Removal of thermoplastic road, runway markings				
Sidewalk trip hazard repair				
Concrete grooving applications for non-slip surfaces				

6. CS200 OPERATING HOLDER EXPLOSION DRAWING

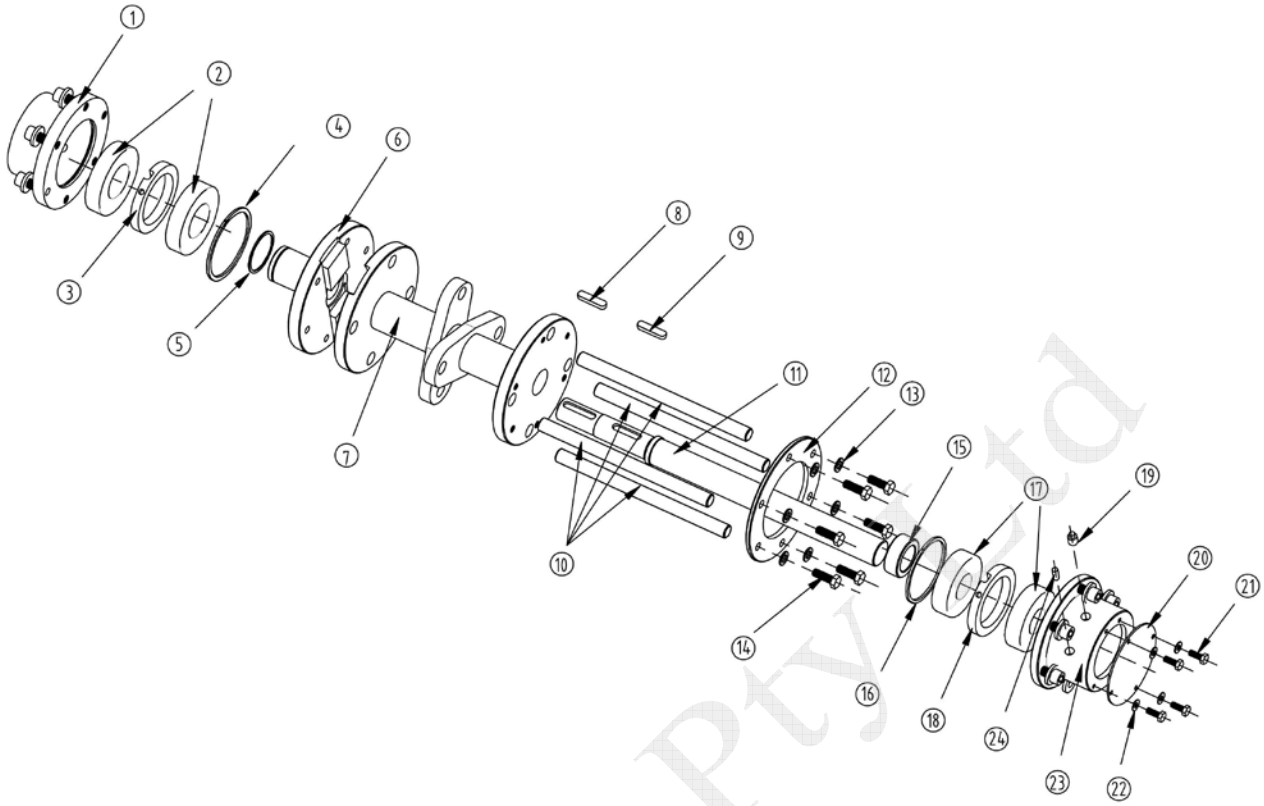


ITEM	DESCRIPTION	QTY
1	Outer hexagonal bolt M6x16	1
2	Spring washerΦ6	1
3	Flat washerΦ6	1
4	Hand wheel	1
5	Inner hexagonal bolt M6x30	4
6	Spring washerΦ6	4
7	Upper Gland	1
8	Lower Gland	1
9	Flat Key 4X4X12	1
10	Adjustable screw	1
11	Operating holder	1
12	Lock screw	1
13	Bushing flange	1
14	Flat washerΦ6	4
15	Spring washerΦ6	4
16	Inner hexagonal bolt M5x25	8
17	Handle	1
18	Director	1
19	Small gland(Left)	1
20	Spring washerΦ6	4
21	Inner hexagonal bolt M5x25	4
22	Inner hexagonal bolt M5x8	4
23	Small gland(Right)	1



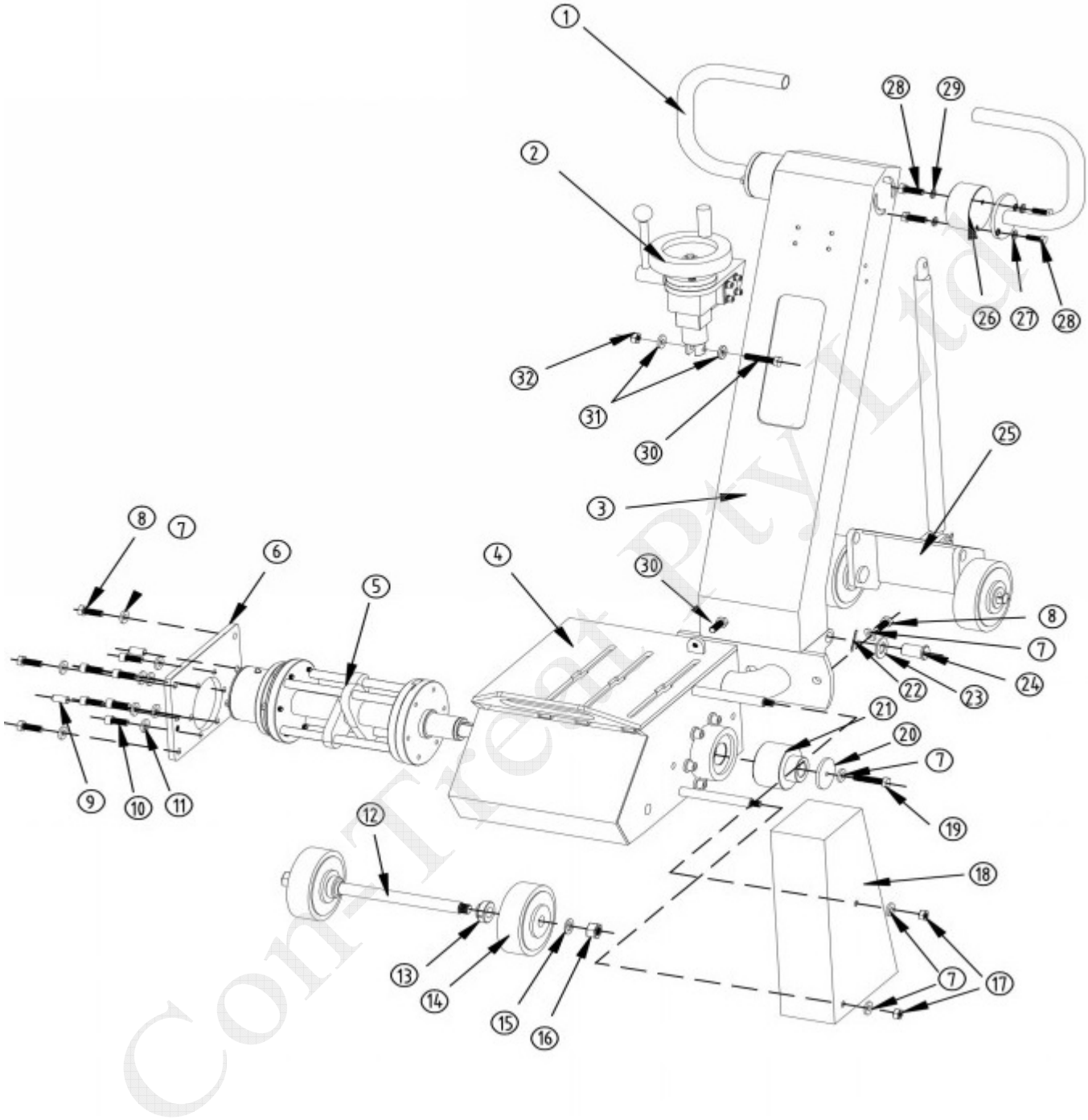
CS200 TAIL WHEEL FRAME DRAWING AND PARTS

ITEM	DESCRIPTION	QTY
1	Lifting rod	1
2	Flat washer Φ20	4
3	Hinge pin	1
4	Rubber wheel Φ150	2
5	Cotter pin Φ3	3
6	Tail wheel frame	1



CS200 SCARIFYING MACHINE DRUM PARTS

ITEM	DESCRIPTION	QTY
1	Left bearing pedestal	1
2	Deep groove ball bearing6208ZZ	2
3	Left circlips	1
4	Φ80 Circlips for holes	1
5	Φ40 Circlips for shaft	1
6	Clutch flange	1
7	Drum	1
8	Flat Key 8X8X40	1
9	Flat Key 8X8X35	1
10	Blade shaft	4
11	Main shaft	1
12	Drum close cover	1
13	Dish mat Φ8	6
14	Outer hexagonal bolt M8x20	6
15	spacer	1
16	Φ72 Circlips for holes	1
17	Deep groove ball bearing6306ZZ	2
18	Right circlips	1
19	Grease nipple	2
20	Cover	1
21	Inner hexagonal bolt M5x16	4
22	Flat washer Φ5	4
23	Right bearing pedestal	1
24	Set inner hexagonal bolt M6x15	2



CS200 SCARIFYING MACHINE EXPLOSION DRAWING

ITEM	DESCRIPTION	QTY
1	Armrest	1
2	Hand wheel	1
3	Rack	1
4	Main box	1
5	Drum	1

6	Subplate	1
7	Dish mat Φ10	8
8	Hexagonal bolt M10x25	6
9	Locating pin Φ12x25	2
10	Inner hexagonal bolt M10x20	12
11	Spring washer Φ10	12
12	Front wheel spindle	1
13	Front wheel locating bush	2
14	Rubber wheel Φ150	2
15	Flat washer Φ16	2
16	M16 cap nuts	2
17	M10 cap nuts	2
18	Belt cover	1
19	Outer hexagonal bolt M10x25 Length30	1
20	Non-standard flat washer Φ10	1
21	Synchronizing wheel	1
22	Cotter pin Φ3	2
23	Flat washer Φ20	2
24	Hinge pin Φ20	2
25	Tail wheel frame	1
26	Shock cushion	2
27	Dish mat Φ8	4
28	Outer hexagonal bolt M8x16	8
29	Dish mat Φ8	4
30	Outer hexagonal bolt M10x50	2
31	Flat washer Φ10	2
32	Locknut M10	1

7. MAINTENANCE INSTRUCTIONS

Refer to the Engine/Motor Manufacturer's Owner's Manual for maintenance information specific to the engine/motor used

Caution:

- Never work on or under equipment without first securing the equipment to prevent it from moving or falling. Always work on a flat and level surface.

Important!

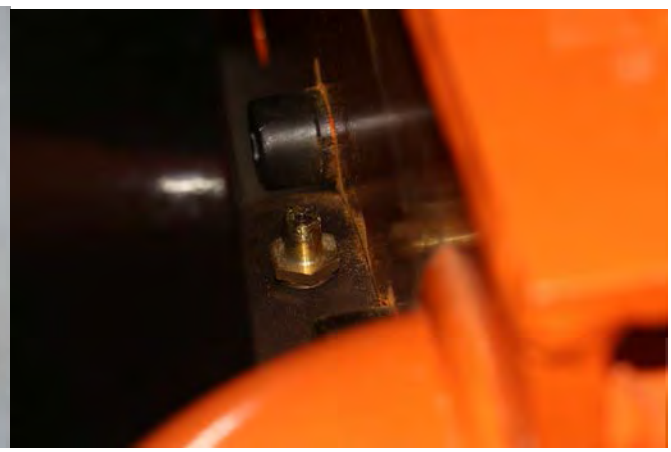
- Check oil level before operation. Change engine oil and filter according to engine manufacturers recommendations.
- Clean air filter element daily.

Belts:

- On new equipment, and after replacing a set of belts, they should be re-tensioned after the first four hours of use.
- New belts will be stiff and will loosen with use. Proper belt tension must be maintained to transmit the engine/motor power to the cutting drum. Slipping belts will overheat, belt life will be shortened and the cutting speed limited.
  Over tensioned belts will shorten belt and bearing life.
- Damaged, stretched or excessively worn belts should be replaced with a complete set. **DO NOT** mix new and used belts, doing so will only shorten the life of new belt(s) and limit power transfer from the engine/motor to the cutting drum. This will have a definite impact on machine efficiency and production rate.
- To tension belts, loosen motor mounting hardware slightly. Use the jacking bolt to adjust the engine/motor until the belts are tight. Re-torque the engine/motor mounting hardware.

Cutter assembly bearings:

- Grease cutter assembly bearings after every 4 hours of use.



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