



**BROOM BUCKET
GENERAL USER, SPARE PARTS,
MAINTENANCE AND SAFETY MANUAL**

CBTI

MODEL: 03.CBTI.2150 – 03.CBTI.1850

SERIAL N°:





NOTES



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0.- INTRODUCTION

Purpose of the Broom Bucket

This sweeper is designed solely for the use in construction cleanup, road maintenance and similar operations. Use in any other way is considered contrary to the intended use. Compliance with and strict adherence to operation, service and repair conditions, as specified by the manufacturer, are also essential elements of the intended use.

Contacting Implement Sales/ Dealer

If you have any questions about information in this manual or need to order parts, please contact your dealer. For help with installation, operation or maintenance procedures, contact our Technical Service. Direct product questions and parts orders to our Sales Department. When ordering parts or accessories, be prepared to give the following information:

- Sweeper model, serial number and date of purchase
- Prime mover, make and model
- Part number, description and quantity.

Terms Used in Manual

Right-hand, left-hand, front and rear are determined from the operator's perspective (either the operator's seat or standing behind a walk-behind unit), facing forward in the normal operating position.

Warranty

To validate the warranty for this unit, fill out the warranty card or warranty pages located in the back of this manual.

Then send this information to your dealer.



1.- SAFETY STATEMENTS



DANGER!

THIS STATEMENT IS USED WHERE SERIOUS INJURY OR DEATH WILL RESULT IF THE INSTRUCTIONS ARE NOT FOLLOWED PROPERLY.



WARNING!

THIS STATEMENT IS USED WHERE SERIOUS INJURY OR DEATH COULD RESULT IF THE INSTRUCTIONS ARE NOT FOLLOWED PROPERLY.



CAUTION!

THIS STATEMENT IS USED WHERE MINOR INJURY COULD RESULT IF THE INSTRUCTIONS ARE NOT FOLLOWED PROPERLY.

NOTICE!


THIS STATEMENT IS USED WHERE EQUIPMENT OR PROPERTY DAMAGE COULD RESULT IF THE INSTRUCTIONS ARE NOT FOLLOWED PROPERLY.



THIS SYMBOL BY ITSELF OR USED WITH A SAFETY SIGNAL WORD THROUGHOUT THIS MANUAL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY OR THE SAFETY OF OTHERS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH.



2.- GENERAL SAFETY PRECAUTIONS

	<p>THIS MANUAL MUST BE READ, UNDERSTOOD AND MUST BE FOLLOWED ESTRICLY BY THE OPERATOR.</p> <ul style="list-style-type: none">- Befote starting using the broom bucket read and understand the whole manual. First of all, read also the manual of the prime mover machine to which the attachment is connected.- An unqualified operator can cause serious accidents and could cause death.
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SECURITY IS RESPONSIBILITY OF THE OPERATOR

The Optimal attachment has been designed to give maximum security but a machine design cannot foresee negligence or errors of the operator.



WARNING!

READ MANUAL PRIOR TO INSTALL

Improper installation, operation, or maintenance of this equipment could result in serious injury or death. Operators and maintenance personnel should read this manual as well as all manuals related to this equipment and the prime mover thoroughly before beginning installation, operation, or maintenance. **FOLLOW ALL SAFETY INSTRUCTIONS IN THIS MANUAL AND THE PRIME MOVE MACHINE MANUAL.**



WARNING!

READ AND UNDERSTAND ALL SAFETY STATEMENTS

Read all safety decals and safety statements in all manuals prior to operating or working on this equipment. Know and obey all OSHA regulations, local laws and other professional guidelines for your operation. Know and follow good work practices when assembling, maintaining, repairing, mounting, removing or operating this equipment.

KNOW YOUR EQUIPMENT

Know your equipment's capabilities, dimensions and operations before operating. Visually inspect your equipment before you start, and never operate equipment that is not in proper working order with all safety devices intact. Check all hardware to assure it is tight. Make certain that all locking pins, latches, and connection devices are properly installed and secured. Remove and replace any damaged, fatigued or excessively worn parts. Make certain all safety decals are in place and are legible. Keep decals clean, and replace them if they become worn and hard to read.



WARNING!

PROTECT AGAINST FLYING DEBRIS

Always wear proper safety glasses, goggles or a face shield when driving pins in or out or when operation causes dust, flying debris, or any other hazardous material.



WARNING!

LOWER OR SUPPORT RAISED EQUIPMENT

Do not work under raised booms without supporting them. Do not use support material made of concrete blocks, logs, buckets, barrels or any other material that could suddenly collapse or shift positions. Make sure support material is solid, not decayed, warped, twisted, or tapered. Lower booms to ground level or onto blocks. Lower booms and attachments to the ground before leaving the cab or operator's station.

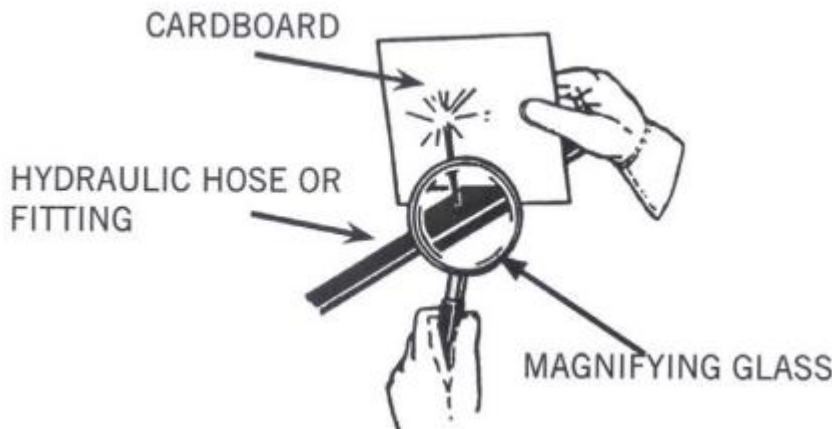


WARNING!

USE CARE WITH HYDRAULIC FLUID PRESSURE

Hydraulic fluid under pressure can penetrate the skin and cause serious injury or death. Hydraulic leaks under pressure may not be visible. Before connecting or disconnecting hydraulic hoses, read your prime movers operator's manual for detailed instructions on connecting and disconnecting hydraulic hoses or fittings:

- Keep unprotected body parts, such as face, eyes, and arms as far away as possible from a suspected leak. Flesh injected with hydraulic fluid may develop gangrene or other permanent disabilities.
- If injured by injected fluid, see a doctor at once. If your doctor is not familiar with this type of injury, ask him to research immediately to determine proper treatment.
- Wear safety glasses, protective clothing, and use a sound piece of cardboard or wood when searching for hydraulic leaks. **DO NOT USE YOUR HANDS! SEE PICTURE.**



- Don't remove hydraulic parts of the attachment. This operation is reserved to the authorized people of the dealers. Never remove engine cover or the Chain. Don't carry out maintenance operations when broom bucket is working. In case of damaged parts being identified or there were oil leakages, noise, etc. Please contact to the authorized agent.



WARNING!

DO NOT MODIFY MACHINE OR ATTACHMENTS

Modifications may weaken the integrity of the attachment and may impair the function, safety, life and performance of the attachment. When making repairs, use only the manufacturer's genuine parts, following authorized instructions. Other parts may be substandard in fit and quality. Never modify any ROPS (Roll Over Protection System) equipment or device. Any modifications must be authorized in writing by the manufacturer.



WARNING!

SAFELY MAINTAIN AND REPAIR EQUIPMENT

- Do not wear loose clothing, or any accessories that can catch in moving parts. If you have long hair, cover or secure it so that it does not become entangled in the equipment.
- Work on a level surface in a well-lit area.
- Use properly grounded electrical outlets and tools.
- Use the correct tool for the job at hand. Make sure they are in good condition for the task required.
- Wear the protective clothing equipment specified by the tool manufacturer.



WARNING!

SAFELY OPERATE EQUIPMENT

Do not operate equipment until you are completely trained by a qualified operator in how to use the controls, know its capabilities, dimensions, and all safety requirements. See your prime movers manual for these instructions.

- Keep all step plates, grab bars, pedals, and controls free of dirt, grease, debris, and oil.
- Never allow anyone to be around the equipment when it is operating.
- Do not allow riders on the attachment or the prime mover.
- Do not operate the equipment from anywhere other than the correct operators position.
- Never leave equipment unattended with the engine running or with this attachment in a raise position.
- Do not alter or remove any safety feature from the prime mover or this attachment.
- Know your work site safety rules as well as traffic rules and flow. When in doubt on any safety issue, contact your supervisor or safety coordinator for an explanation.

3.- SAFETY SIGNS & DECALS

There are several specific decals on this broom bucket. The exact location of the hazards and description of the hazards are reviewed.

SAFETY DECALS LAY OUT:

COVER SIDE:

COVER TOP:

BUCKET BACK:

Labels and Signs:

- DANGER:** PREVENT SERIOUS OR MORTAL INJURIES BY STAYING AWAY FROM THE DANGER ZONE AROUND THE MACHINE
- REFLEXIVE STICKER:** A reflective safety sticker on the side of the cover.
- MODEL: CBTI 1850**
- WARNING!** Read and understand the operator's manual for machine handling. Do not reverse the hydraulic connections. Lubricate the grease points daily.
- REVERSE:** A yellow circular sign with a 'S' and an upward arrow.
- OPERATION & SPARE PARTS MANUAL:** A QR code linking to the manual.





DECALS ITEMS FOR ORDER:



REFLECTIVE STICKER
00EI0005



00EI0251



00EI0075



00EI0110



00EI0114



00EI0112



OPERATION & SPARE PARTS
MANUAL

00EI0248

00EI0248



00EI0001



00EI0067



00EI0002



Placement or replacement of Safety decals procedure:

1. Clean the surface of application.
2. Dry the surface of application.
3. Remove the backing from the safety decal, exposing the adhesive surface.
4. Apply the safety decal to the position shown above and smooth out any bubbles.

Instructions:

1. Keep all safety decals clean and legible.
2. Replace all missing, illegible or damaged safety decals.
3. Replacement parts, for parts with safety signs attached, must also have safety decals attached.



4. Safety decals are available from your dealer.



4.- SERVICE & REPAIR – SAFETY



CAUTION!

DO NOT MODIFY THE SWEEPER IN ANY WAY.

Personal injury could result. If you have questions, contact your dealer.

Repair or adjust the broom bucket in a safe and flat area, away from traffic and other hazards.

Before adjusting or servicing the broom bucket, lower the broom bucket to the ground, stop the prime mover engine, set the brakes and remove the key from the ignition.

When working on or around the broom bucket, lower it to the ground or secure it with transport chains or cylinder-stop locks.

Stop the prime mover engine and cycle control levers to release hydraulic pressure before servicing or adjusting broom bucket hydraulic systems.



WARNING!

ESCAPING HYDRAULIC FLUID CAN HAVE ENOUGH PRESSURE TO PENETRATE THE SKIN, causing serious personal injury.

Do not bend high pressure lines. Do not strike high pressure lines. Do not install bent lines, bent tubes, or kinked hoses. Do not install damaged lines, tubes, or hoses. Repair damaged or loose lines, tubes and hoses. Leaks can cause fires. See your dealer for repair or replacement parts.

Replace the parts if any of the following conditions are present:

- The hose has been pulled or stretched. Make sure that all clamps, guards, and shields are installed correctly.
- The end fittings are damaged or leaking.
- The outer covering is chafed or cut.
- The reinforcing wire layer is exposed.
- The outer covering is ballooning locally.
- The hose is kinked or crushed.



5.- OPERATION



CAUTION!

A BROOM BUCKET IS A DEMANDING MACHINE.

Only fully trained operators or trainee operators under supervision of a fully trained person should use this attachment.

Before operating Broom Bucket:

- Learn sweeper and prime mover controls in an off-road location.
- Be sure that you are in a safe area, away from traffic or other hazards.
- Check all hardware holding the sweeper to the host machine, making sure it is tight.
- Replace any damaged or fatigued hardware with properly rated fasteners.
- Make sure all hydraulic hardware and hydraulic fittings are tight.
- Replace any damaged or fatigued fittings or hoses.
- Check all tire pressures before sweeping.
- Check tire ratings to be sure they match the prime mover load. Weigh the sweeper end of the prime mover, if necessary, to insure proper tire rating.
- Remove from the sweeping area all property that could be damaged by flying debris.
- Be sure all persons not operating the sweeper are clear of the sweeper discharge area.
- Always wear proper apparel such as a long sleeved shirt buttoned at the cuffs; safety glasses, goggles or a face shield; ear protection; and a dust mask.

Installation Procedure and Use:

- Check pins, bolts, etc that are placed and wellfixed. Check oil lackages are not visible. If you observe oil lackages, please contact to an official agent to proceed to repair them.
- Connect the attachment to the prime mover machine by the own system of each model. Check that it remains firmly fixed.
- Connect the hydraulic tubes to the machine checking that the flowing coincidates (pressure and return). Before connecting them, clean the connections properly. Dirt can harm seriously the hydraulic circuit. When disconnecting the attachment place the corresponding caps on the **quick couplers**.
- Before operating the attachment check that it works correctly.
- Do not carry out different applications with the attachment than those for which it is designed.
- Keep the appropriate rotation direction and prime mover machine engine rpm.
- Hold tied to a safety surfece to access to the prime mover machine, put the feed onto the top broom bucket cover (that must be clean and dry), when the prime mover machine (host machine) is a SSL.
- Remove hydraulic oil pressure from the auxiliar line of the SSL, stop engine and connect quick fit connectors from the broom bucket to the prime mover machine. Be sure that the prime mover machine is completely stopped (brakes ON).



- Connect broom bucket using the joisticks of the prime mover machine. Never connect it, if people are closer than 65 ft. Be sure that there is no pressure between the arms of the host machine to the grown when the connecting operation of the broom bucket to the prime mover machine is carried out.

	<ul style="list-style-type: none">- Never start operating the attachment before first having read the operating manual.- Do not allow anyone to stand in the operating area of the machine.- Keep always the machine leveled when you operate in areas with tilt.- Before going through dangerous areas check carefully all the obstacles that could be in the area.
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- Check the attachment's plate to verify maximum pressure: Never work up to the maximum pressure. Broom Bucket cannot permit counter-pressure into the return back oil line. If there is "High Flow Line" or "High Pressure" installed to the prime mover machine / SSL , never use them for the work of the broom bucket.
- Check that brushes can move in both senses.
- When broom bucket is used for sweeping, brushes must move to the bucket in the bottom side. If brushes move in opposite could generate stone projections and could injure people.
- When transportation, move the broom bucket without contact to the grown.
- Ensure the working area free of people, holes, or irregular surfaces that could be dangerous for the operator.
- Use the Broom bucket backward to reach better swept quality and better speed for the sweep operation. In a forward displacement, the sweeping operation could be done as well.

While operating the broom bucket:

- When operating broom bucket, adhere to all government rules, local laws and other professional guidelines for your sweeping application.
- Before leaving the operators area for any reason, lower the broom bucket to the ground. Stop the prime mover engine, set the brakes and remove the key from the ignition.
- Minimize flying debris - use the slowest rotating speed that will do the job.

	<ul style="list-style-type: none">- Never allow people near the broom bucket. Ensure there is a minimum distance of 9ft from people when broom bucket is working. That way will avoid accidents and people injuries or flying debris.
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- Keep hands, feet, hair and other loose clothing away from all moving parts.

	<ul style="list-style-type: none">- keep hands out of moving parts.
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- Leave the brush hood (shield) and all other shields and safety equipment in place when operating the broom bucket and primer mover.
- Be aware of extra weight and width a broom bucket adds. Reduce travel speed accordingly.
- Leave the brush hood (shield) and all other shields and safety equipment in place when operating the broom bucket.
- When sweeping on rough terrain, reduce speed to avoid “bouncing” the sweeper. Loss of steering can result.
- Never sweep toward people, buildings, vehicles or other objects that can be damaged by flying debris. Keep minimum 20 feet distance.
- Only operate the sweeper while you are in the seat of the prime mover. The seat belt must be fastened while you operate the prime mover. Only operate the controls while the engine is running. Protective glasses must be worn while you operate the prime mover and while you operate the sweeper.
- While you operate the broom bucket slowly in an open area, check for proper operation of all controls and all protective devices. Note any repairs needed during operation of the broom bucket. Report any needed repairs to the person responsible of the job.

Before Each Use:

Perform daily maintenance as indicated in Maintenance Schedule list. Run the prime mover and broom bucket at a low idle. Check for hydraulic leaks or other problems and make corrections, if necessary, before using the broom bucket. In that way you will avoid further damages or unexpected events.



WARNING!

AVOID SERIOUS INJURY.

Check for large objects that could harm the operator or others if thrown by the broom bucket. Remove these items before operating.

During Use:

Carry the broom bucket low to the ground so that the operator has good visibility and stability. Avoid any sudden movements from one side to the other side when you carry a broom bucket. Avoid excessive downward pressure on the brush sections to prevent excessive wear. A two to four inch wide pattern is sufficient for most applications.

The sweeping operation can be performed in either the forward or reverse travel direction.

Never use High Flow to operate the broom bucket. Do not use the maximum speed of the SSL. For proper sweeping:

- 1) Tilt the sweeper slightly forward.



- 2) Use a hydraulic flow corresponding to 3/4 of the maximum rpm of the carrier machine.
- 3) Adjust the forward speed to the ground.

If you operate at the limit of the rpm (flow rate) and at a very fast forward speed, you will only get accelerated brush wear, high fuel consumption and poor sweeping quality.

Ensure that the motor and bearing plates are equally adjusted in order to prevent an uneven wear pattern.

Directing Debris Observe wind direction. Sweeping with the wind makes sweeping more effective and helps keep debris off the operator. The terms swing and angle are used interchangeably.

NOTICE!

AVOID BROOM BUCKET DAMAGE.

Reduce travel speed to avoid hitting immovable objects.

6.- STORAGE AND BROOM BUCKET LIFTING PROCEDURE.

NOTICE!

Do not store the broom bucket with weight on the brush. Weight will deform the bristles, destroying the sweeping effectiveness. Do not store polypropylene brushes in direct sunlight. The material can deteriorate and crumble before the bristles are worn out. Keep polypropylene brush material away from intense heat or flame.



WARNING!

EXPOSURE TO RESPIRABLE CRYSTALLINE SILICA DUST ALONG WITH OTHER HAZARDOUS DUSTS MAY CAUSE SERIOUS OR FATAL RESPIRATORY DISEASE.

It is recommended to use dust suppression, dust collection and if necessary personal protective equipment during the operation of any attachment that may cause high levels of dust.

6.1. BROOM BUCKET LIFTING PROCEDURE

LIFTING PROCEDURE AT BROOM BUCKET HEIGHT

1.- *USE TOWS SUITABLE FOR A MINIMUM LOAD OF 500 KG.*

2.- *USE THE APPROPRIATE LIFTING EQUIPMENT: TRUCK CRANE, FORKLIFT TRUCK, HOIST, HOIST, ETC.*



3.- PROCEDURE :

3.1.- *PLACE THE SLINGS ON THE GROUND WHERE YOU ARE GOING TO RAISE YOUR BROOM BUCKET AT A DISTANCE BETWEEN THEM OF ABOUT 780 MM.*



3.2.- *PLACE THE BROOM BUCKET WITH THE SSL ON TOP OF THE SLINGS.*



3.3.- *PASS THE SLING THROUGH THE COUPLING HOLE OF THE BROOM BUCKET AND PLACE IT ON ITS COVER.*



3.4.- POSITION THE OTHER SIDE OF THE SLINGS ON THE BROOM BUCKET COVER, MAKING SURE THAT IT IS EVENLY DISTRIBUTED ON BOTH SIDES.



ATENCIÓN !!!: ATTENTION !!!:

- *IF YOU ARE GOING TO USE A FORKLIFT TRUCK, INSERT THE FORKS SO THAT EACH ONE OF THEM TAKES BOTH SIDES OF THE SAME SLING.*
- *IF YOU ARE USING A TRUCK CRANE OR BUILDING INTERIOR CRANE, USE AN ADDITIONAL SLING TO CONNECT THE 4 ENDS.*



3.5.- LIFT THE BROOM BUCKET SLOWLY AND CAREFULLY UNTIL IT IS POSITIONED ON A TRUCK OR ON THE MOST SUITABLE MEANS OF TRANSPORT. HANDLE WITH CARE.



ATENCIÓN !!! ATTENTION !!!

THE BROOM BUCKET IS BALANCED, BUT IF YOU SEE ANY STRANGE OR UNBALANCED MOVEMENT, POSITION THE BROOM BUCKET AGAIN ON THE FLOOR AND PROCEED AGAIN FROM THE BEGINNING OF THE PROCEDURE, ENSURING THAT THE SLINGS ARE EVENLY SPREAD AND CENTERED ON THE TOP OF YOUR BROOM BUCKET COVER.



7.- MAINTENANCE

Maintenance shall be understood as those operations or procedures to be carried out so that the operation of the sweeper is always optimal and as expected.

Therefore, the following will be contemplated:

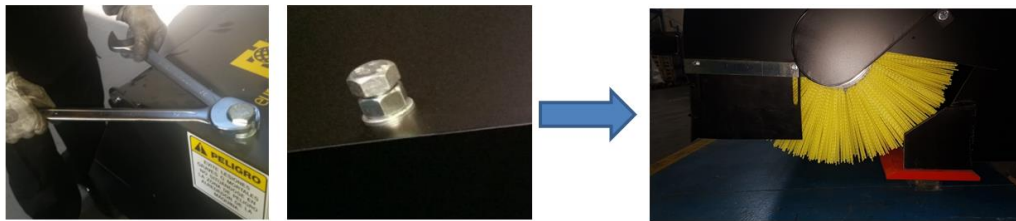
- 1.- Brush adjustments.
- 2.- Change of consumables (bristles, cutting edge,...).
- 3.- Maintenance program of the sweeper.

7.1.- CENTRAL BRUSH HEIGHT ADJUSTMENT

A properly adjusted brush offers the best Broom Bucket performance.

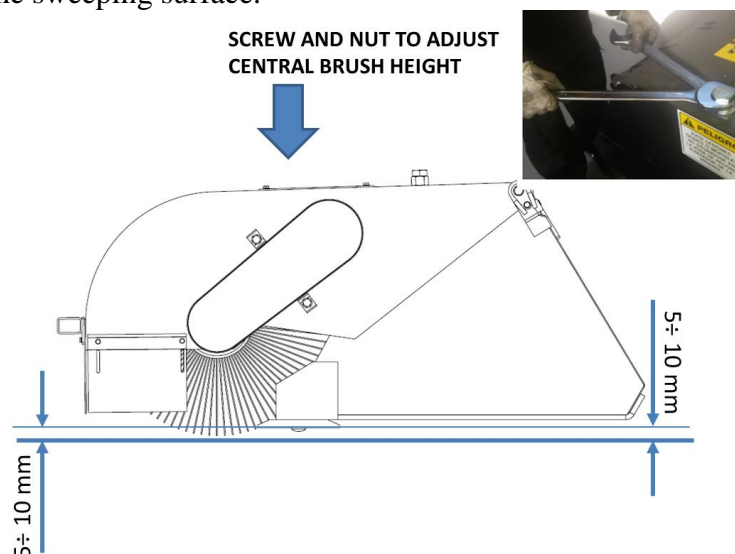
To check the brush height:

1. Move the sweeper to a dusty, flat surface.
2. Set the prime mover parking brake and leave the engine running.
- 3.- Position the sweeper with the blade horizontal (parallel to the ground).
- 4.- Raise the sweeper until the height of the blade to the ground is between 5 and 10 mm.
- 5.- Use a wrench (hand tool) according to their size, to reposition the upper screws on the sweeper cover. Counterclockwise to the left, the sweeper cover will lower and consequently, the brush will lower.



6.- As soon as the brush contacts the floor, tighten the nut to fix the height of the brush with the hand tool.

7.- Perform the same operation on the opposite side of the sweeper, so that the central brush is positioned horizontal to the sweeping surface.



NOTICE! To extend brush life make sure bolts on both sides are adjusted evenly.

7.2.- REPLACING BRUSH SECTIONS:

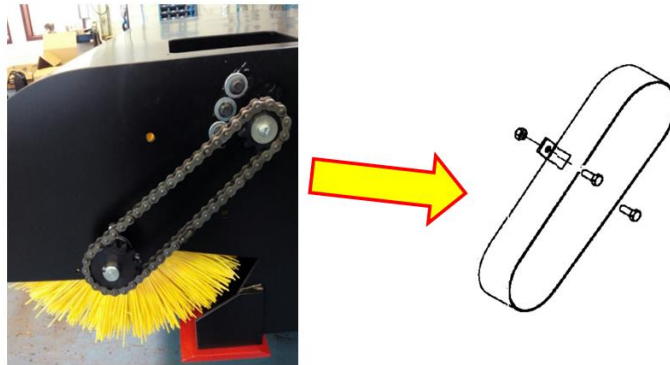
This operation should be carried out in a workshop or in a place where the sweeper cover can be handled safely. Adequate tools and lifting equipment should be available to perform this operation safely and effectively.

0.- Brush replacing area must be:

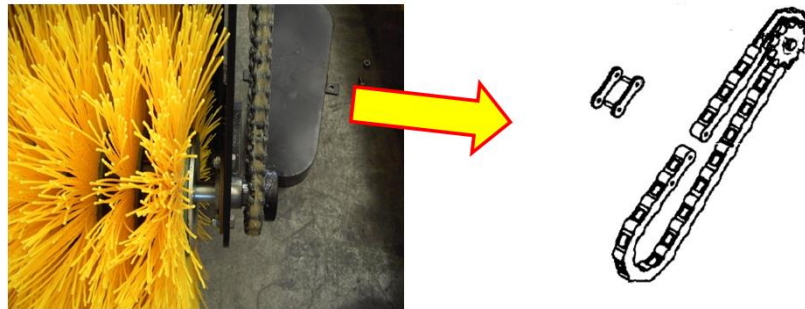
- 0.1.- Broom Bucket must be in a safe, level and flat surface.
- 0.2.- Use the most appropriate lifting system just to avoid unexpected fall and accidents when the broom bucket cover is lifted.
- 0.3.- Use appropriate protective clothes and fixed keys to carry out the operations.

1.- Brush replacing Procedure:

- 1.1.- Remove the lateral cover (chain protector), use appropriate manual key:



- 1.2.- Disassemble the chain using the chain join and the appropriate manual keys:



- 1.3.- Disassembling of the axle on the opposite side of the motor of the broom bucket:



USING A # 19 HAND KEY LOOSEN THE SCREWS THAT FIXE THE BEARING TO THE BROOM BUCKET SIDE COVER.

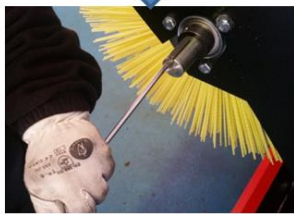


REMOVE THE AXLE FROM THE BROOM BUCKET SIDE COVER.

1.4.- Disassembling of the axle from the side of the motor of the broom bucket:



Remove the sprocket from the axle using and allen key (hexagon wrench).



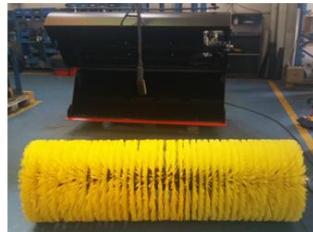
Remove the cotter pin.



Remove the bracket.



Remove the screws that fixe the bearing to the side of the broom bucket cover.



CAREFULLY, PLACE THE BRUSH ASSY ONTO THE GROUND.

1.5.- BRISTLES EXCHANGE:



Remove the bearing



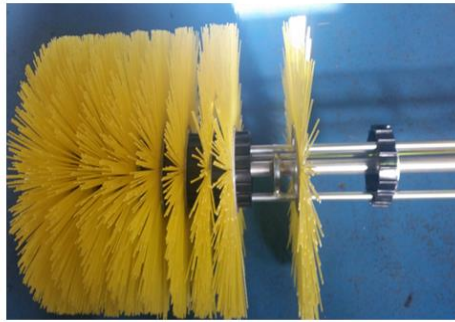
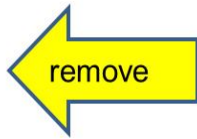
Remove the bracket



Remove the stopper plate from the axle.

1.6.- Remove the wasted bristles and the spacers from the side of the bearing

(on the side opposite the sprocket):



To ASSEMBLE AGAIN THE BROOM BUCKET WITH THE NEW BRUSHES, CARRY OUT THE STEPS IN OPPOSITE WAY, TAKING CARE THAT THE BRUSHES MUST BE POSITIONED IN PERPENDICULAR TO THE AXLE, AND:

- ON THE SIDE OF THE SPROCKET, INSTALL 2 BRUSHES JOINED WITHOUT SPACER.
- ON THE OPPOSITE SIDE OF THE SPROCKET, JOIN BRUSHES WITHOUT SPACERS TILL THE STOPPER PLATE PRESS TO THE AXLE TO FIX THEM.

1.7.- Assemble again the complete axle with the new brushes to the broom bucket.



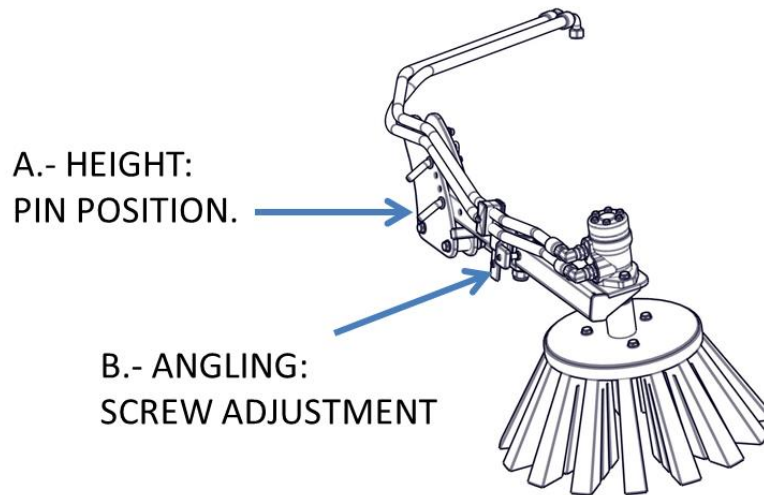
After that, carry out the operations of points 4, 3, 2 and 1 in an opposite way.

1.8.- ADJUST THE HEIGHT OF THE BRUSHES MOVING THE ADJUSTMENT SCREW TO THE LOWER POSITION, THEN THE CENTRAL BRUSH WILL BE ADJUSTED TO THE CORRECT SWEEPING POSITION.



7.3.- GUTTER BRUSH/ SIDE BRUSH ADJUSTMENTS:

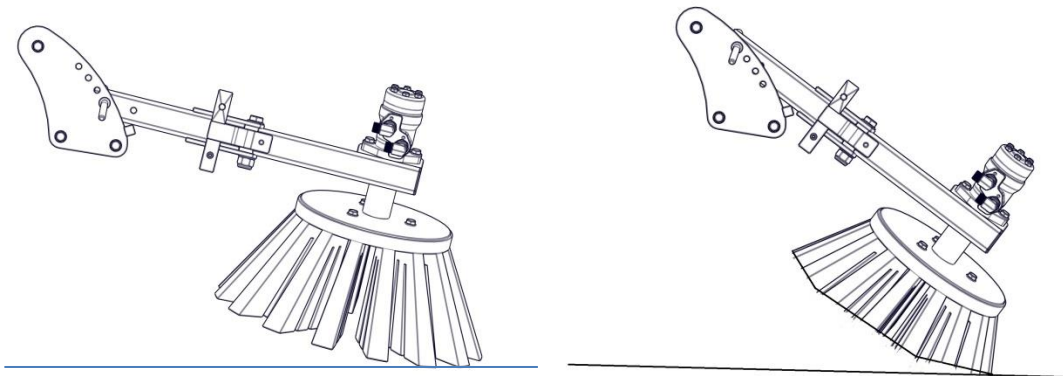
The adjustments of the side brush/Gutter Brush are carried out in 2 ways:



A .- HEIGHT:

Vertical adjustment of the brush position as the brush wears.

- Reposition the arm by repositioning the pivot pin while the wear is observe don the brush.

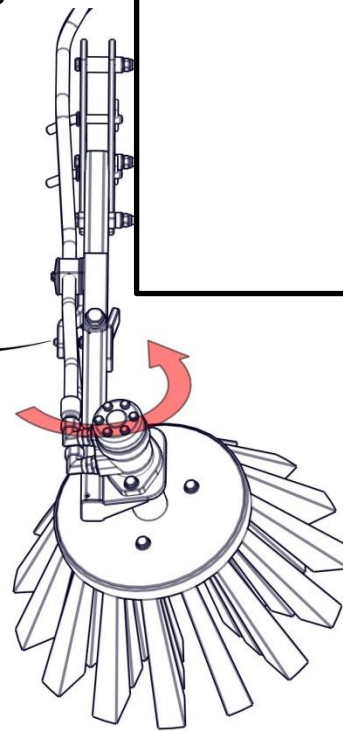
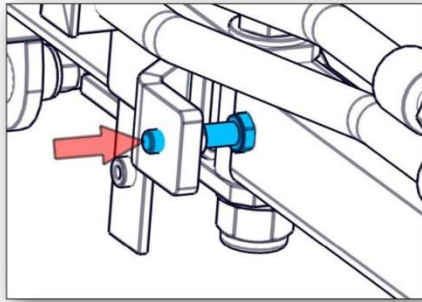


B.- ANGLING:

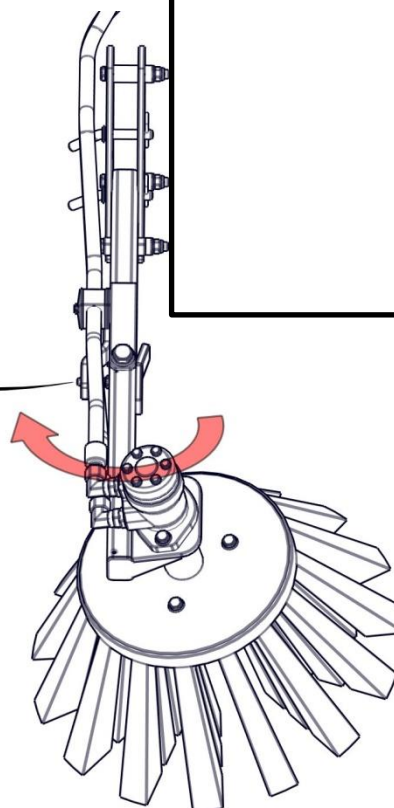
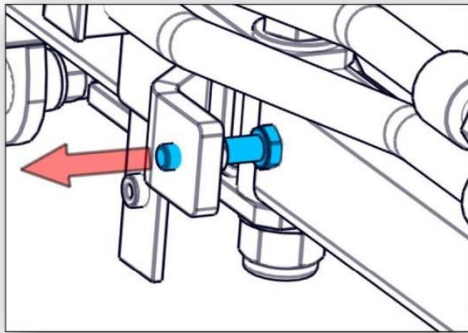
Adjustment of maximum brush opening horizontally.

Use the screw and the nut to adjust the angle of the arm and its width:

Loose the screw to closet he angle.



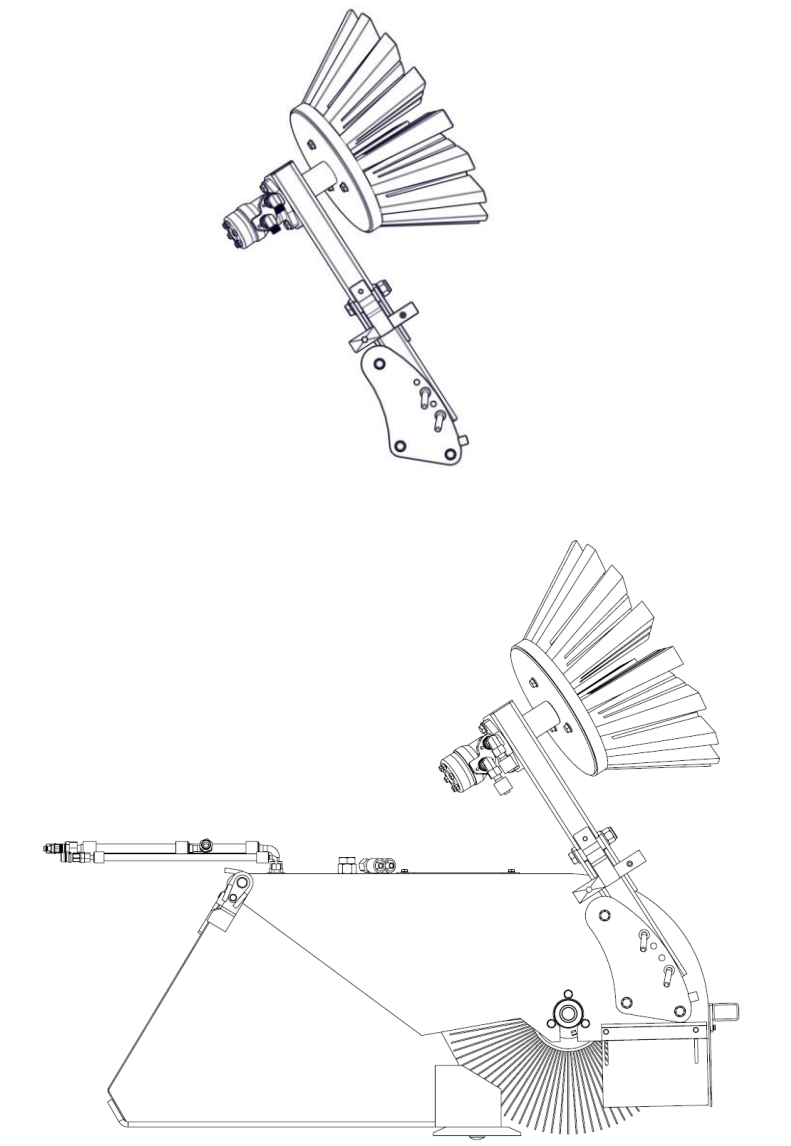
Tight the screw to open the sweeping angle.



Attention:

For the discharge of the dirt inside the bucket, it is compulsory to retract the arm in transportation position. If the arm is completely extended, there is a risk of damage on it due to the lever exerted on the extended arm.

Side brush arm position for dirt discharge from the collection bucket.



ATTENTION:

Be careful with the brush. In this position, the brush is turning when the sweeper is operated.



7.4.- MAINTENANCE SCHEDULE:

1.- OIL LACKAGES CHECK IN CONNECTORS FROM BROOM BUCKET TO MACHINE.

IF LEAKS ARE VISIBLE, SCREW AGAIN THE CONNECTOR. IF LEAKS CONTINUE REPLACE CONNECTOR.



2.- OIL LACKAGES IN HYDRAULIC MOTOR FITTINGS.

IN CASE OF VISIBLE LOST, SCREW AGAIN OR REPLACE THEM.

3.- OIL LACKAGES AT THE HYDRAULIC ENGINE.

IN CASE OF OIL LACKAGES, REVIEW ENGINE AND REPLACE IT.

4.- In case of a CBTI Broom Bucket Type, CHECK CLEARANCE BETWEEN HYDRAULIC MOTOR GROUP AND AXIS / CHAIN AND SPROCKET EXCENTRICITY.

IN CASE OF CLEARANCE OR EXCENTRICITY IT MUST BE NECESSARY TO ADJUST AGAIN THE CHAIN AND SPROCKETS MUST BE ALIGNED FOLLOWING THE **CHAIN DRAWING PROCEDURE**..

5.- CUTTING EDGE CHECK.

THE EDGE CAN BE USED IN TWO POSITIONS. IN CASE OF WASTE, TURN IT OVER. IF IT IS COMPLETELY REPLACE IT IN ORDER TO REACH A PERFECT SWEEP.

CONTINUING WORKING WITH A WASTED KNIFE COULD DAMAGE DOWN SIDE OF THE STEEL BROOM BUCKET STRUCTURE.

6.- CHECK POSITIONING AND PRESENCE OF THE BOLT SET TO FIX THE HINGE PIN BETWEEN BROOM BUCKET TOP COVER WRAP TO THE BUCKET. BOLT MUST BE COMPLETELY SCREWED AND FIXED ON ITS POSITION.

IN CASE OF LACK OF BOLT, PIN COULD GO OUT FROM ITS WORKING POSITION, IT COULD BRAKE OR DAMAGED AND IT COULD CAUSE SERIOUSE DAMAGE TO THE STRUCTURE OF THE BROOM BUCKET.



7.- TESTILE OR METALLIC WIRES, PLASTICS, CORDS, ETC MUST BE REMOVED IF THEY ARE ATTACHED BETWEEN BEARING AND AXIS SUPORT, AND/OR BETWEEN PINION AND CHAIN, AXIS AND ENGINE COVER.

8.- ADJUST THE HEIGHT OF THE CENTRAL BRUSH BY THE ADJUSTMENT SCREW UNDER THE COVER.

ADJUST TO THE CENTRAL BRUSH WASTE POSITION.

9- SAFETY STICKS MUST BE ALWAYS JOINED TO THE ATTACHEMNT. THEY MUST BE CLEANED AND PERFECTLY VISIBLE. IN CASE OF LOST OR DAMAGE, REPLACE THEM QUICKLY.

10- MAINTAIN THE ATTACHMENT PERFECTLY CLEAN AFTER WORK IS FINISHED. IT WILL INCREASE LIFE OF THE ATTACHMENT AND ITS COMPOUNDS.



MAINTENANCE PROCEDURES:

PROCEDURE	BEFORE EACH USE	AFTER EACH USE	100 HOURS	COMMENT
CENTRAL BRUSH ADJUSTMENTS	★			IT IS RELATED TO WASTE.
GUTTER BRUSH ADJUSTMENTS	★			
HYDRAULICS CHECK: LEAKS AND DAMAGE OF HOSES AND FITTINGS		★	★	SEE REQUIREMENTS BELOW
CLEANING		★		
LUBRICATION POINTS AND OIL QUALITY CHECK		★	★	
HARDWARE CHECK: CHECK DAMAGES OF PINS, STRUCTURE, CUTTING EDGE, SHIELDS, MISSING PARTS (DECALS/BOLTS,...)		★	★	

Hydraulic Check (Fittings/Hoses Inspection) Guideline:

Stop the prime mover machine engine and release hydraulic pressure before servicing or adjusting sweeper hydraulic systems.



WARNING!

ESCAPING HYDRAULIC FLUID CAN HAVE ENOUGH PRESSURE TO PENETRATE THE SKIN, causing serious personal injury.

Do not bend or strike high pressure lines. Do not install bent or kinked lines, hoses or tubes. Do not install damaged lines, tubes or hoses.

Repair loose lines, tubes and hoses. Repair damaged lines, tubes and hoses. Leaks can cause fires. See your Implement Sales or dealer for repair or replacement parts. Check lines, tubes and hoses carefully. Do not use your hand to check for leaks. Use a board or cardboard to check for leaks. Tighten all connections to the recommended torque.

Replace the parts if any of the following conditions are present:

- The end fittings are damaged or leaking.
- The outer covering is chafed or cut.
- The reinforcing wire layer is exposed.
- The outer covering is ballooning locally.
- The hose is kinked or crushed.
- The hoses have been pulled or stretched. Make sure that all clamps, guards and shields are installed correctly.



8.- TROUBLESHOOTING

Central Brush Assembly

Problem	Possible Cause	Possible Solution
Motor for broom will not operate	Auxiliary hydraulics control on prime mover is activated in the wrong position	Verify controls. See prime mover owners manual
	Hoses improperly connected to prime mover	Connect hoses correctly to prime mover
	Hoses on prime mover are obstructed	Clear obstruction on prime mover
	Hoses on broom are obstructed	Clear obstruction on broom
	The motor has failed	Replace the motor
Sluggish broom operation	Insufficient oil flow from the prime mover	Increase engine RPM
	One or more seals have failed in the moto	Replace the seals or motor
	Hydraulic filter on prime mover is dirty	Replace filter
The motor runs but the broom does not run	Motor shaft has a sheared key	Replace key
	Chain has lost is tension.	Tensiona again ans align the sprockets.
	Chain or its link is broken.	Replace the link with the one set into the chain cover.
	washer/spacers are missing due to the wrong position of the sprocket.	Replace the washers or replace the motor.
Oil leaks from the motor	One or more seals have failed in the motor	Replace the seals or moto
	Seals on the fittings are damaged	Replace seals or fittings
	Fittings are loose or damaged	Tighten or replace fittings
	Wrong sprocket alignment causes damage on the motor.	Replace the motor.
	Hydraulic hoses are loose or damaged	Tighten or replace hoses
Brush rotates in wrong directions	Hoses installed incorrectly	Switch hose connections
Brush slows or stops when sweeping	Central Brush height missadjustment	Adjustcentral brush height
	Travel speed too fast	Reduce travel speed
	Trying to sweep too much material at once.	Reduce amount of material being swept, make more passes
	Hydraulic motor is failing	Replace motor
Brush wears very quickly	Central Brush height missadjustment	Adjust central brush height

Hydraulic Assembly

Problem	Possible Cause	Possible Solution
Excessive hydraulic oil temperature	Low hydraulic oil level on the prime mover	Add hydraulic fluid
	Hydraulic hoses are obstructed	Clear obstructions in hoses
	Hydraulic oil and/or filter on prime mover are dirty	Replace hydraulic oil and/or filter on prime mover
	Quick couplers are not properly seated	Reconnect quick couplers properly
	Central Brush height missadjustment	Adjust central brush height
	Travel speed too fast	Reduce travel speed
	Trying to sweep too much material at once	Reduce the amount of material being swept. Make more passes.
	Hydraulic motor is failing	Replace motor
Hydraulic quick coupler leaks	Quick coupler poppet is unseated or damaged	Reconnect or replace the quick couplers

9.- OTHER ADJUSTMENTS:

9.1.- CHAIN TENSIONING/DRAWING PROCEDURE:

The chain is an element of the sweeper that is not subject to warranty. When an improper sweeping operation is performed or an unexpected situation such as the shaft is blocked due to some kind of rope, cable etc. that is wrapped around the shaft, or due to the operation of alternating rotation of the center brush with the chain slackened, the chain link may break (this is due to lack of inspection and maintenance).

Therefore, an extra link is incorporated under the chain cover for customers with little experience in sweeper operation.



To reinstall the chain, it is sufficient to loosen the motor fastening screws using a wrench:



Make sure that the distance from the center of the motor sprocket to the wall is the same as the distance from the shaft sprocket to the wall:

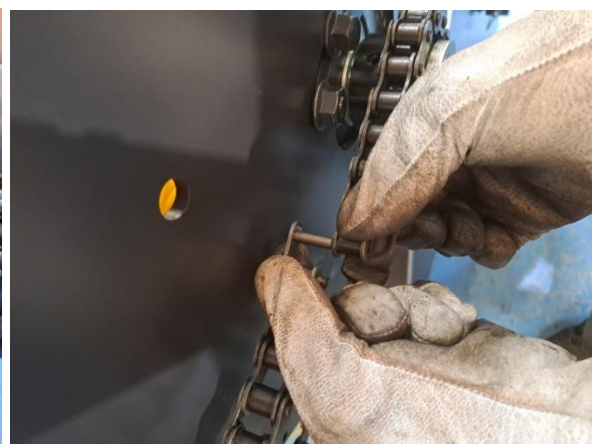
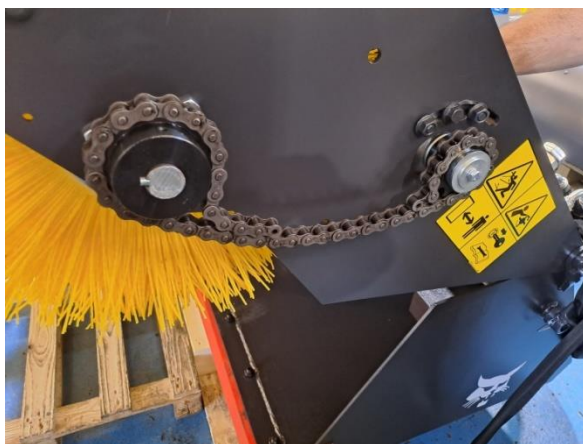


35 mm Wall to center of the sprocket (motor side). (axle).



35 mm Wall to center of the sprocket

Reinstall the chain and close it with the supplied connecting link:





Tighten the chain by pushing the motor backwards and tightening the motor repositioning screws:



Make sure that the chain is fully tensioned. It should not sag more than 0,5 mm.

Chain must be tensed when it have been mounted.



Add grease along the chain:



Install again the chain cover.



IMPORTANT POINTS TO TAKE INTO ACCOUNT WHEN DISASSEMBLING THE CHAIN IN CASE OF BREAKAGE OR CHANGE OF THE CENTRAL SHAFT BRUSHES:

- 1) THE ALIGNMENT OF THE SPROCKETS MUST BE CONFIRMED.
- 2) THE SPROCKET FASTENING SYSTEM TO THE BRUSH SHAFT OR MOTOR SHAFT MUST BE OF THE "POINTED" TYPE AND ONCE THE POSITION OF THE SPROCKET IS SET, APPLY LOCTITE AND TIGHTEN THEM ACCORDING TO THE ESTABLISHED TORQUE.



- 3) TIGHTEN THE CHAIN SO THAT IT CANNOT DEFORM INWARD BY MORE THAN 0,5 MM.



4) APPLY GREASE TO THE ENTIRE CHAIN AND SPROCKET TO AVOID DRY FRICTION DETERIORATION. GREASE RECOMMENDED 1 TIME/WEEK OF USE WITH STANDARD BEARING GREASE.

PRODUCTION PROCESS AUDIT:

Chain alignment is 100% verified when broom is produced and also when the broom performance test is done at the hidraulic test bench. Chain cover must be removed to check alignment when broom is working.

CHAIN BREAKAGE PROBABLY CAUSES :

- 1) BRUSHES REPLACEMENT WITHOUT CHAIN ALIGNEMENT.
- 2) NO TENSION ADJUSTMEN WHEN CHAIN IS REPLACED (NO DRAWN IS BEING DONE).
- 3) BEARING MOVED FROM ITS ORIGINAL PLACE OF THE AXIS.
- 4) DUE TO THE BOLT LACKAGE OR FITTING LOOSE THAT FIXES AXIS, PINION IS OUT OF ITS CORRECT POSITION.
- 5) WHEN ENGINE CHANGES DRIVING SENSE, TO REACH MOVEMENT INVERSION FOR THE CENTRAL BRUSH.

CONSEQUENCES OF OPERATING THE SWEEPER WITH THE CHAIN OUT OF ALIGNMENT:

When the alignment of the chain and sprockets is ignored for a prolonged period of operation, and the chain untensioning, the consequences/damage to other components can be significant:

- A misalignment in the sprocket of the shaft together with a lack of cleanliness of the sweeper (especially in dusty environments and extreme environmental conditions), could result in damage to the bearings by rotating the shaft eccentrically. In this way, the chain could also come off or break.
- A misalignment in the upper or lower sprocket could strain the washer system between the motor and the sprocket and cause damage to the motor body itself, reaching the motor bearing seals and eventually leaking. The chain joint could also break.



CHAIN WARRANTY:

Chain breakage is considered as NO WARRANTY. It is normal to break chain due to the normal use of the broom. If chain breakage increase frequency it is directly caused by an abnormal axis set when brushes are replaced.

Any damage resulting from continued operation with the chain slack and/or misaligned will also not be accepted as a warranty, it being understood that this problem is caused by lack of inspection and preventive maintenance of the Broom Bucket.

10.- ASSEMBLING INSTRUCTIONS:

10.1.- MOTOR DISASSEMBLY.



1.- Block the motor with a bracket.



2.- Remove the 4 cover screws.



3.- Remove the cover housing and seals.



4.- Remove commutator assembly.



5.- Remove Piston seals and springs.



6.- Remove manifold and manifold seals.



7.- Remove the drive link.



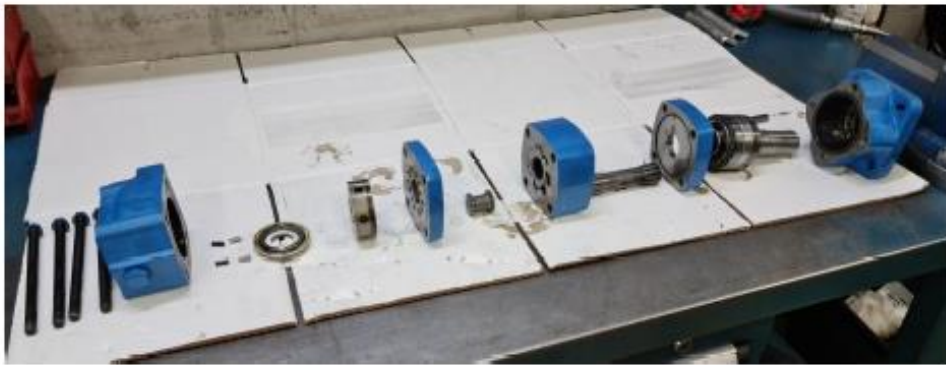
8.- Remove the gerotor and its seal.



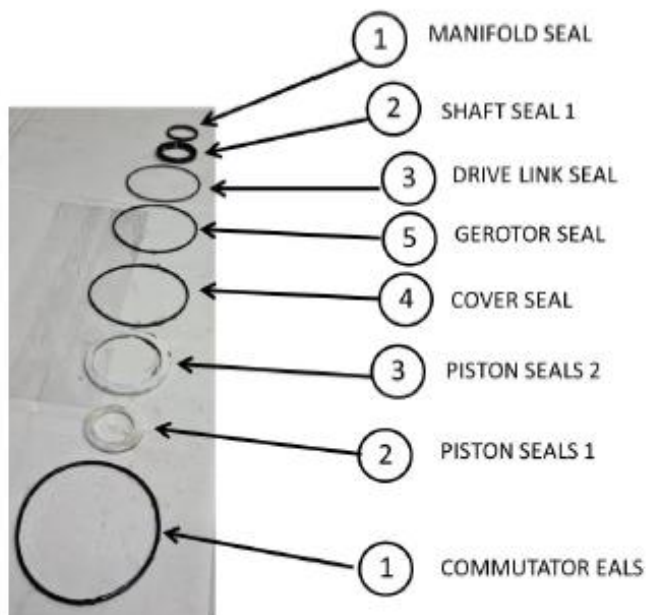
9.- Remove the drive link and it seal.



10.- Insert housing and tap out the coupling shaft. 11.- Remove the shaft seal.



Once the motor is disassembled, clean the parts of the motor and set again the new seals into their places:



Seals kit SMS-245 SK:



Shaft Seal.



Cover Housing seal.



Drive Link seal.



Manifold seal.



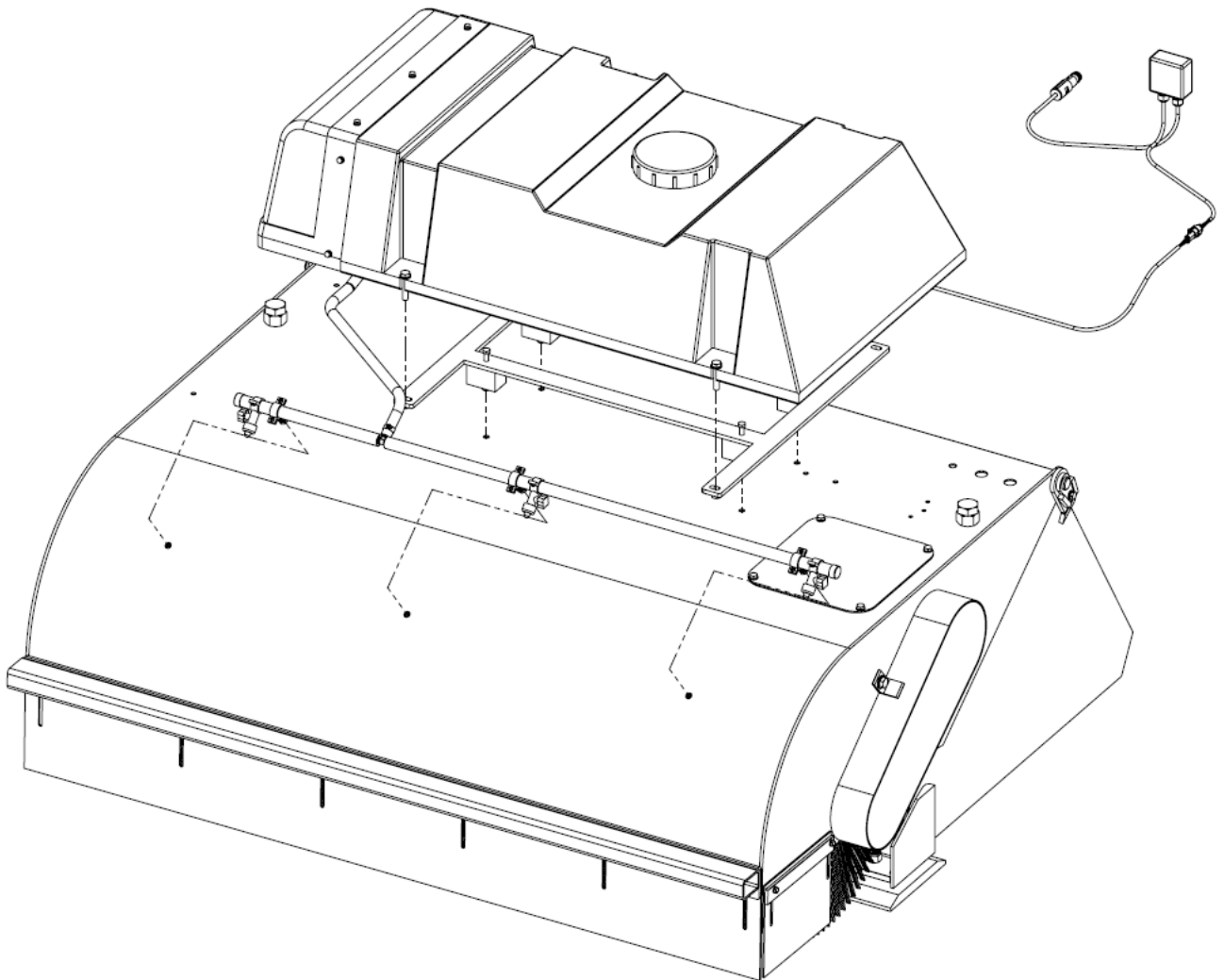
Commutator seal.



Cover Seal.

Assemble again the motor following the order carried out for disassembling it.

10.2.- WATER TANK SYSTEM KIT ASSEMBLY.



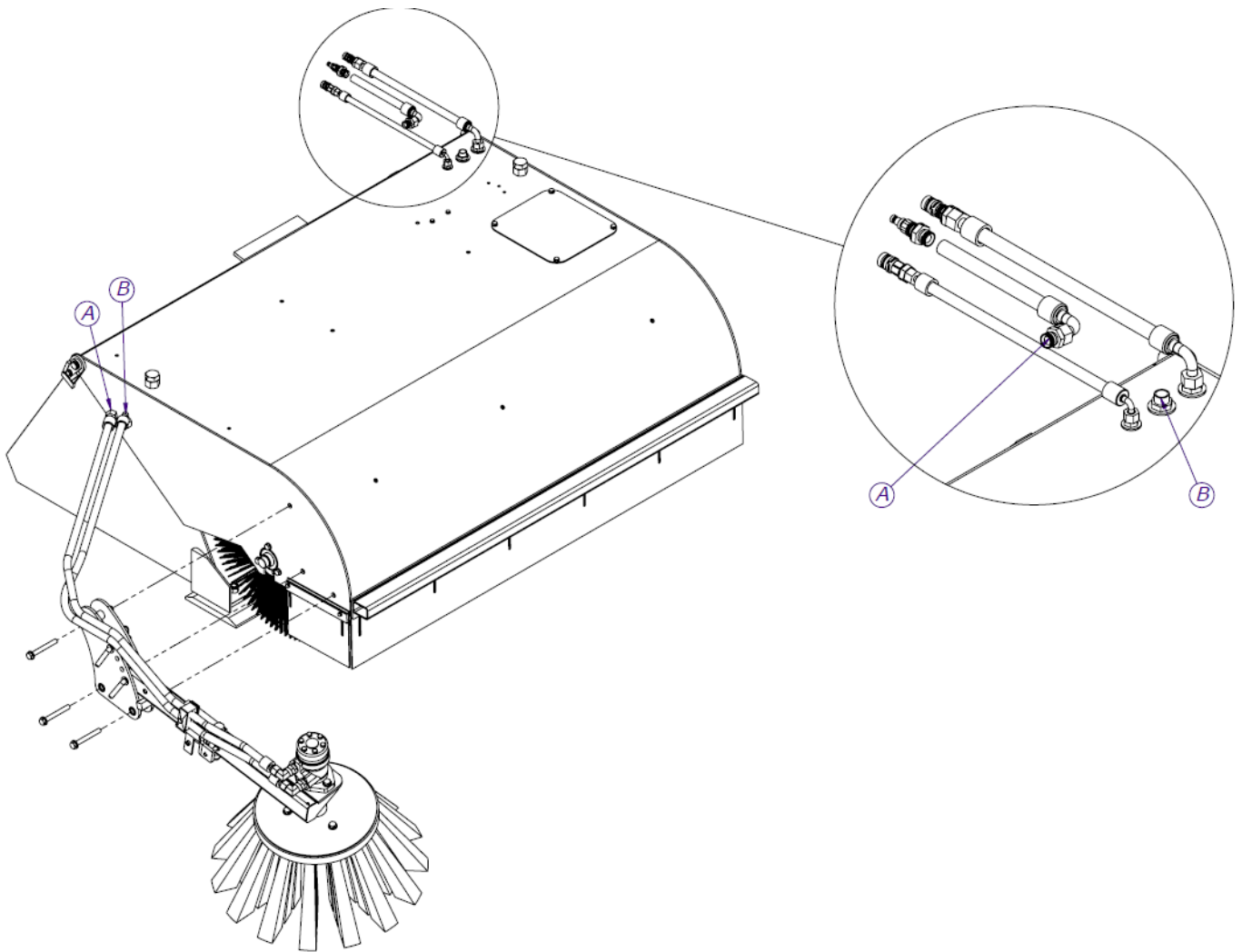
Use the holes on the CBTI cover to install the tank bracket. Use the screws and nuts supplied with the kit.

Do it aswell for the water bar.

Connect cable ans switch to the CTL/SSL lighter inside the cabin.

Take care the level of water into the tank. If the tank is empty, the pump could become damaged.

10.3.- GUTTER BRUSH KIT ASSEMBLY.



Assemble the Side Brush/Gutter Brush bracket to the holes that are placed on the side plate of the sweeper cover. Install the supplied screws and nuts.

Relieve the return hose of the bulkhead and connect the hoses according to the drawing above (A and B connections).

Verify that the turn of the side brush brush is counter-clockwise.



11. BROOM BUCKET PRODUCT INFORMATION

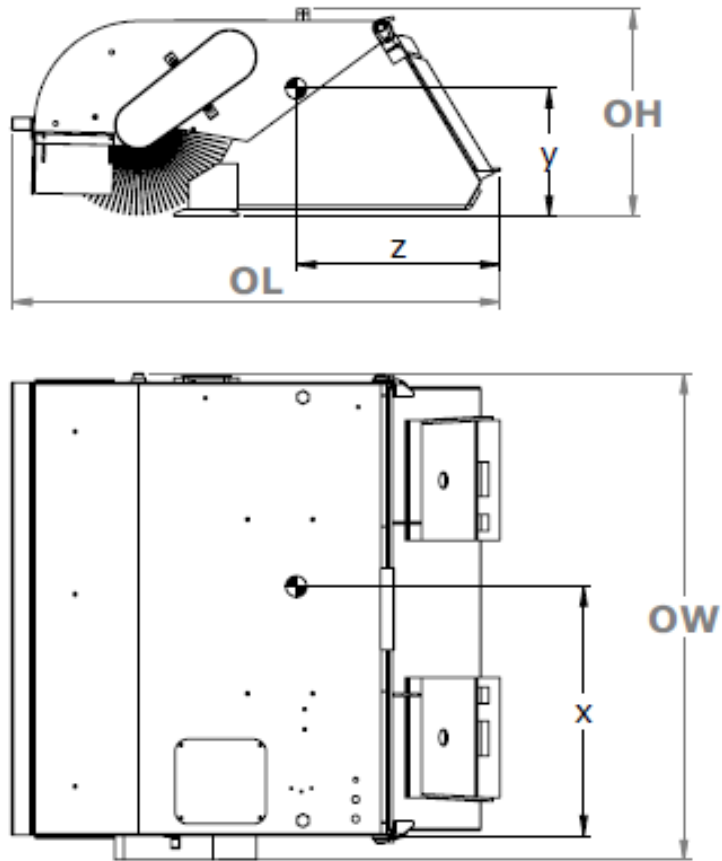
MODEL: 03.CBTI.2150 – 03.CBTI.1850

SERIAL N°:





11.- PRODUCT INFORMATION- BROOM BUCKET SPECIFICATIONS:



	UNITS	03 CBTI 2150	03 CBTI 1850
OVERALL HEIGHT (OH)	inches	25	25
OVERALL WIDTH (OW)	inches	88.33	76.52
OVERALL LENGHT (OL)	inches	59.2	59.2
CENTER OF GRAVITY (x/y/z)	inches	40.36 / 12.41 / 27.24	34.61 / 12.34 / 27.25
WEIGHT STANDARD	lbs.	1118	1027
MAX. FLOW RANGE	gpm	19.8	19.8
MAX. PRESSURE	psi	2466	2466
BRISTLES DIAMETER (outer / inner)	inches	21.65 / 5.04	21.65 / 5.04



12. BROOM BUCKET SPARE PARTS

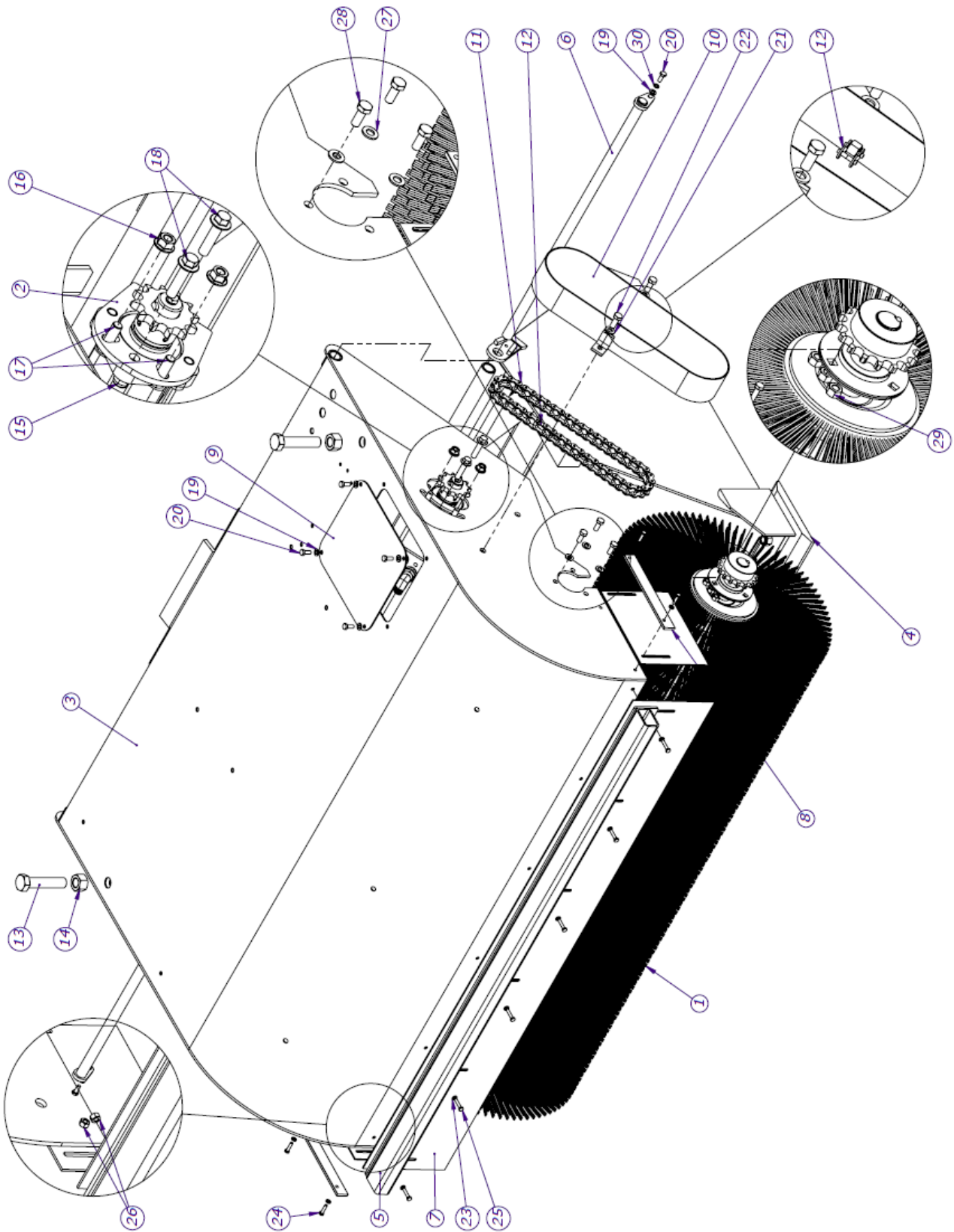
MODEL: 03.CBTI.2150 – 03.CBTI.1850

SERIAL N°:



12.- SPARE PARTS EXPLOSION:

12.1.- CBTI SWEEPER ASSEMBLY PARTS EXPLOSION.





CBTI-2150 GENERAL ASSEMBLY

N.	Part Number	Name	Qtt.
1	ASSEMBLY	AXLE ASSEMBLY	1
2	ASSEMBLY	HYDRAULIC MOTOR ASSEMBLY	1
3	5821C002	COVER 2150	1
4	ASSEMBLY	CUTTING EDGE ASSEMBLY	1
5	5821C005	2150 FRONT CRASH BAR	1
6	5821C006	HINGE PIN 2150	2
7	5821C051	RUBBER COVERS KIT 2150	1
8	5800010	RUBBER COVER PLATE	2
9	5800029	COVER	1
10	3150201	MOTOR COVER	1
11	03150203	CHAIN	1
12	M24X110E	BOLT	2
13	M24D934T	NUT	2
14	M12D125A	WASHER	6
15	M12D934T	NUT	4
16	M12D127A	WASHER	4
17	5800P10	SPECIAL BOLT	2
18	M12X050E	BOLT	2
19	M08D125A	WASHER	6
20	M08X020E	BOLT	6
21	M12D125A	WASHER	2
22	M12X030E	BOLT	2
23	M06D125A	WASHER	10
24	M06X025E	BOLT	4
25	M06X030E	BOLT	6
26	M06D934T	NUT	10
27	M10D125A	WASHER	6
28	M10X025E	BOLT	6
29	M10D934T	NUT	6
30	M08D127A	WASHER	2

CBTI-1850 GENERAL ASSEMBLY

N.	Part Number	Name	Qtt.
1	ASSEMBLY	AXLE ASSEMBLY	1
2	ASSEMBLY	HYDRAULIC MOTOR ASSEMBLY	1
3	5818C002	COVER 1850	1
4	ASSEMBLY	CUTTING EDGE ASSEMBLY	1
5	5818C005	1850 FRONT CRASH BAR	1
6	03180305	HINGE PIN 1850	2
7	5818C051	RUBBER COVERS KITt 1850	1
8	5800010	RUBBER COVER PLATE	2
9	5800029	COVER	1
10	3150201	MOTOR COVER	1
11	03150203	CHAIN	1
12	M24X110E	BOLT	2
13	M24D934T	NUT	2
14	M12D125A	WASHER	6
15	M12D934T	NUT	4
16	M12D127A	WASHER	2
17	5800P10	SPECIAL BOLT	2
18	M12X050E	BOLT	2
19	M08D125A	WASHER	6
20	M08X020E	BOLT	6
21	M12D125A	WASHER	2
22	M12X030E	BOLT	2
23	M06D125A	WASHER	10
24	M06X025E	BOLT	4
25	M06X030E	BOLT	6
26	M06D934T	NUT	10
27	M10D125A	WASHER	6
28	M10X025E	BOLT	6
29	M10D934T	NUT	6
30	M08D127A	WASHER	2

12.1.1. CBTI AXLE ASSEMBLY:





CBTI 2150 AXLE ASSEMBLY

N.	Part Number	Name	Qtt.
1	03DN0550	BRISTLE DIAM 550x 128 mm	table 2.
2	03D0550	SPACER DIAM 128 mm	46
3	5821C004	AXLE - 2150	1
4	03150103	BRIDLE Ø30	1
5	03150105	PLATE	1
6	03150204	SPROKET	2
7	M08X016	BOLT	1
8	M08X010	BLOCKING PIN	2
9	03150207	PARALLEL KEY	1
10	03150103	BEARING	2

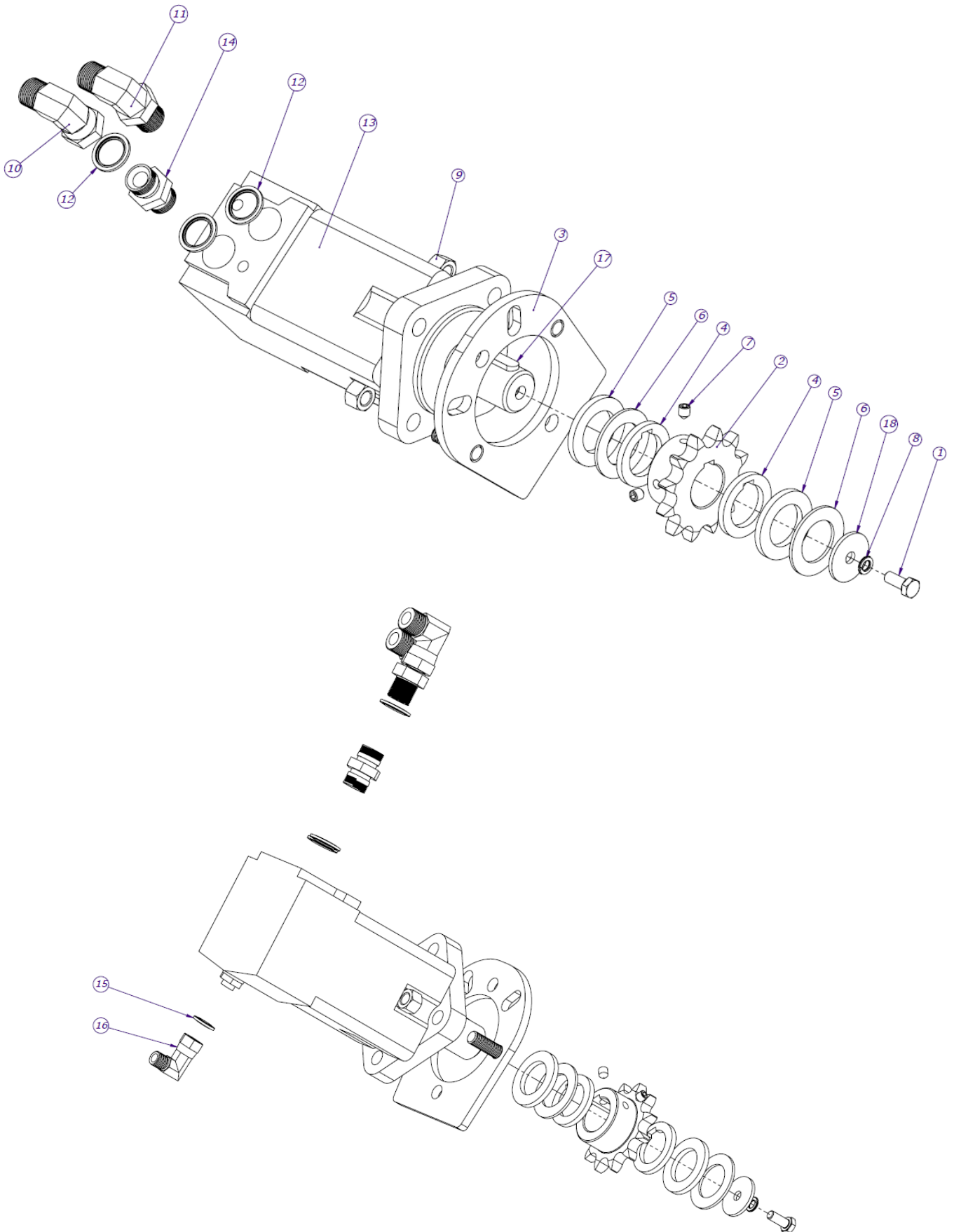
CBTI 1850 AXLE ASSEMBLY

N.	Part Number	Name	Qtt.
1	03DN0550	BRISTLE DIAM 550x 128 mm	table 2.
2	03D0550	SPACER DIAM 128 mm	40
3	5818C004	AXLE - 1850	1
4	03150103	BRIDLE Ø30	1
5	03150105	PLATE	1
6	03150204	SPROKET	2
7	M08X016	BOLT	1
8	M08X010	BLOCKING PIN	2
9	03150207	PARALLEL KEY	1
10	03150103	BEARING	2

TABLE 2. BRISTLES KIT :QUANTITY PER CBR

BRISTLES KIT PART NUMBER	CBTI MODEL	BRISTLES IN AX	Part Number	Name	Qtt.
9966250.P	03.CBTI.1850	FULL PLP	03DN0550	PLP BRISTLES - DIAM 550	44
9966250.SP	03.CBTI.1850 SP	STEEL + PLP	03DN0550	PLP BRISTLES - DIAM 550	25
			03DA0550	STEEL BRISTLES- DIAM 550	19
9988250.P	03.CBTI.2150	FULL PLP	03DN0550	PLP BRISTLES - DIAM 550	50
9988250.SP	03.CBTI.2150 SP	STEEL + PLP	03DN0550	PLP BRISTLES - DIAM 550	27
			03DA0550	STEEL BRISTLES- DIAM 550	23

12.1.2. CBTI HYDRAULIC MOTOR ASSEMBLY:

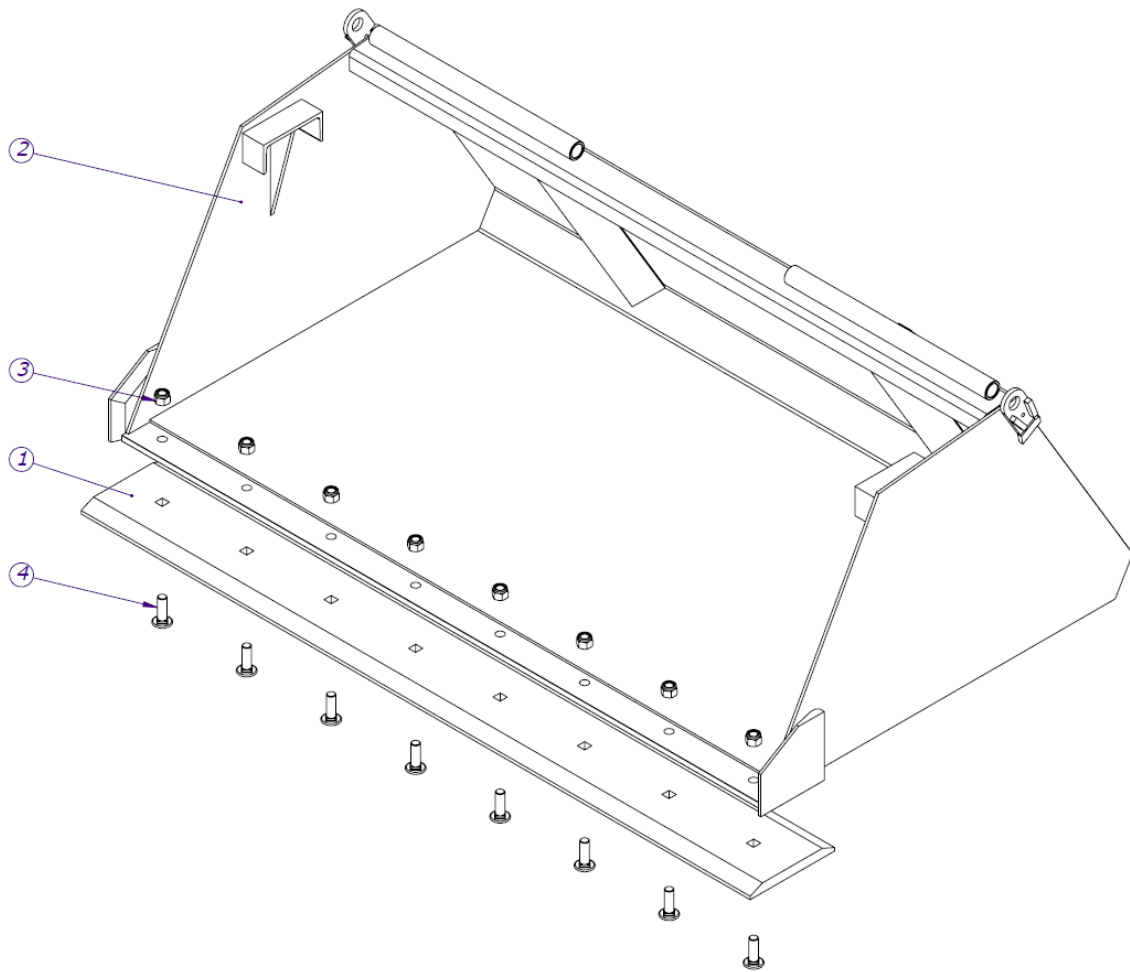




CBTI HYDRAULIC MOTOR ASSEMBLY

N.	Part Number	Name	Qtt.
1	M08X020E	BOLT	1
2	5800P01	SPROCKET	1
3	9910C005	MOTOR BRACKET	1
4	9911196	WASHER	2
5	9911197	WASHER	2
6	9911198	WASHER	2
7	M08X10	BLOCKING PIN	2
8	M08D127A	WASHER	1
9	M12D934T	NUT	2
10	34090808	90 ELBOW	1
11	34050808	90 ELBOW	1
12	30470008	BONDED SEAL	3
13	03150212	HYDRAULIC MOTOR- SMS 245	1
14	30170808	STRAIGHT FITTING	1
15	30470004	BONDED SEAL	1
16	34030404	1/4" ELBOW	1
17	03150211	PARALLEL KEY	1
18	9911227	WASHER	1

2.1.3. CUTTING EDGE ASSEMBLY:



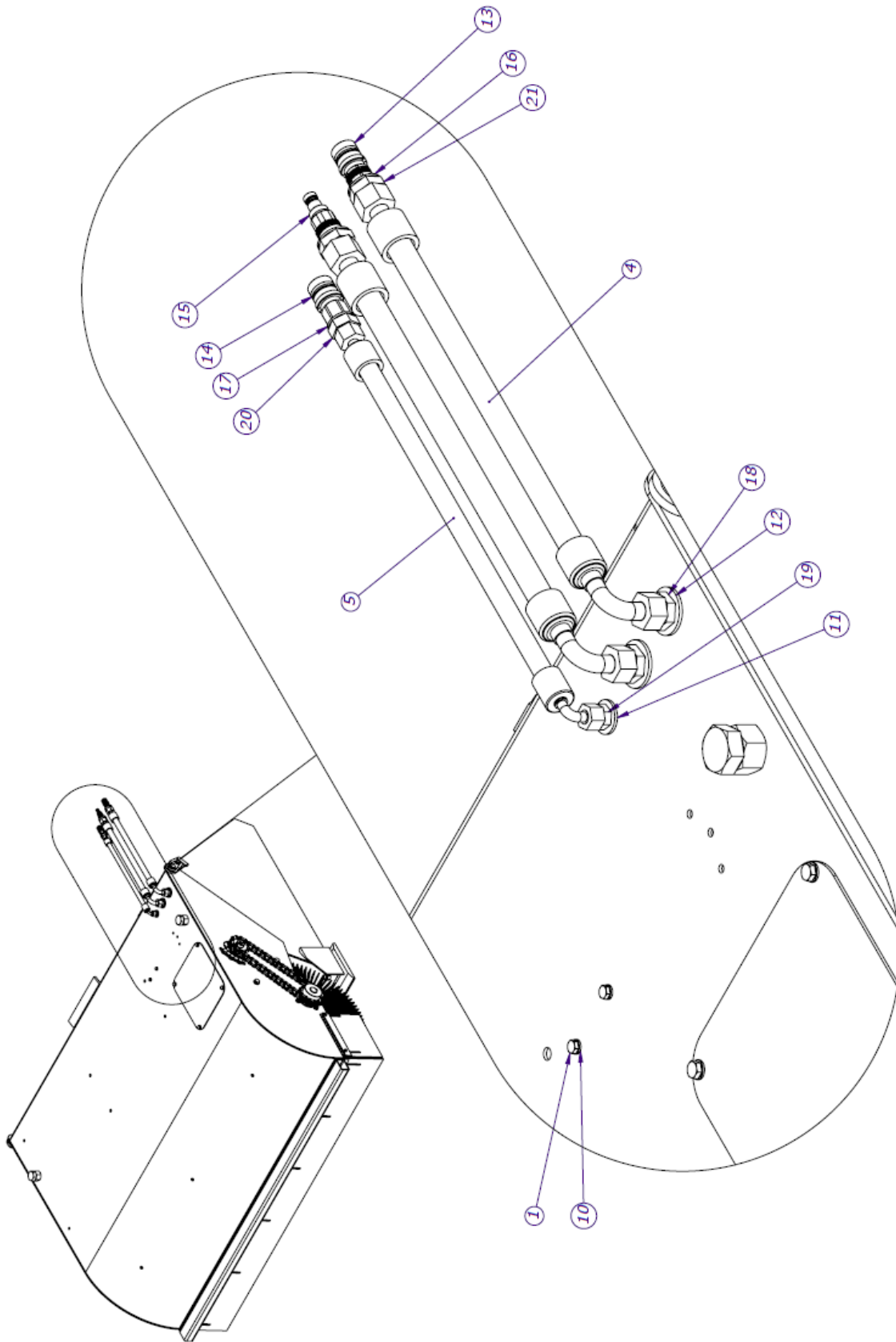
CBTI 2150 - CUTTING EDGE ASSEMBLY

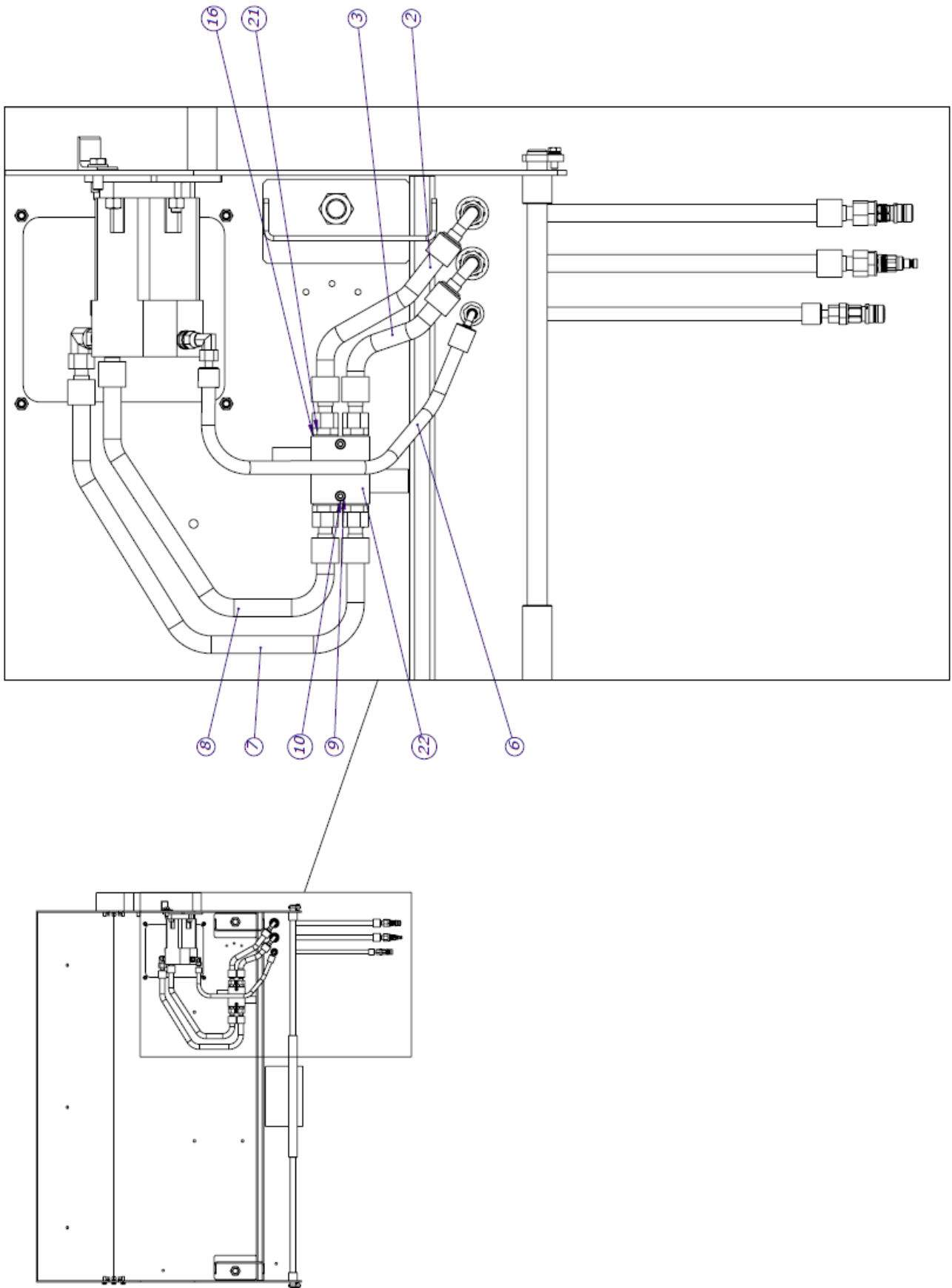
N.	Part Number	Name	Qty.
1	5821P019	EDGE - 2150	1
2	5821C001	BUCKET - 2150	1
3	NP-158	NUT	11
4	PB-510	BOLT	11

CBTI 1850 - CUTTING EDGE ASSEMBLY

N.	Part Number	Name	Qty.
1	03180317	EDGE - 1850	1
2	5818C001	BUCKET - 1850	2
3	NP-158	NUT	9
4	PB-510	BOLT	9

12.1.4. CBTI HYDRAULICS:



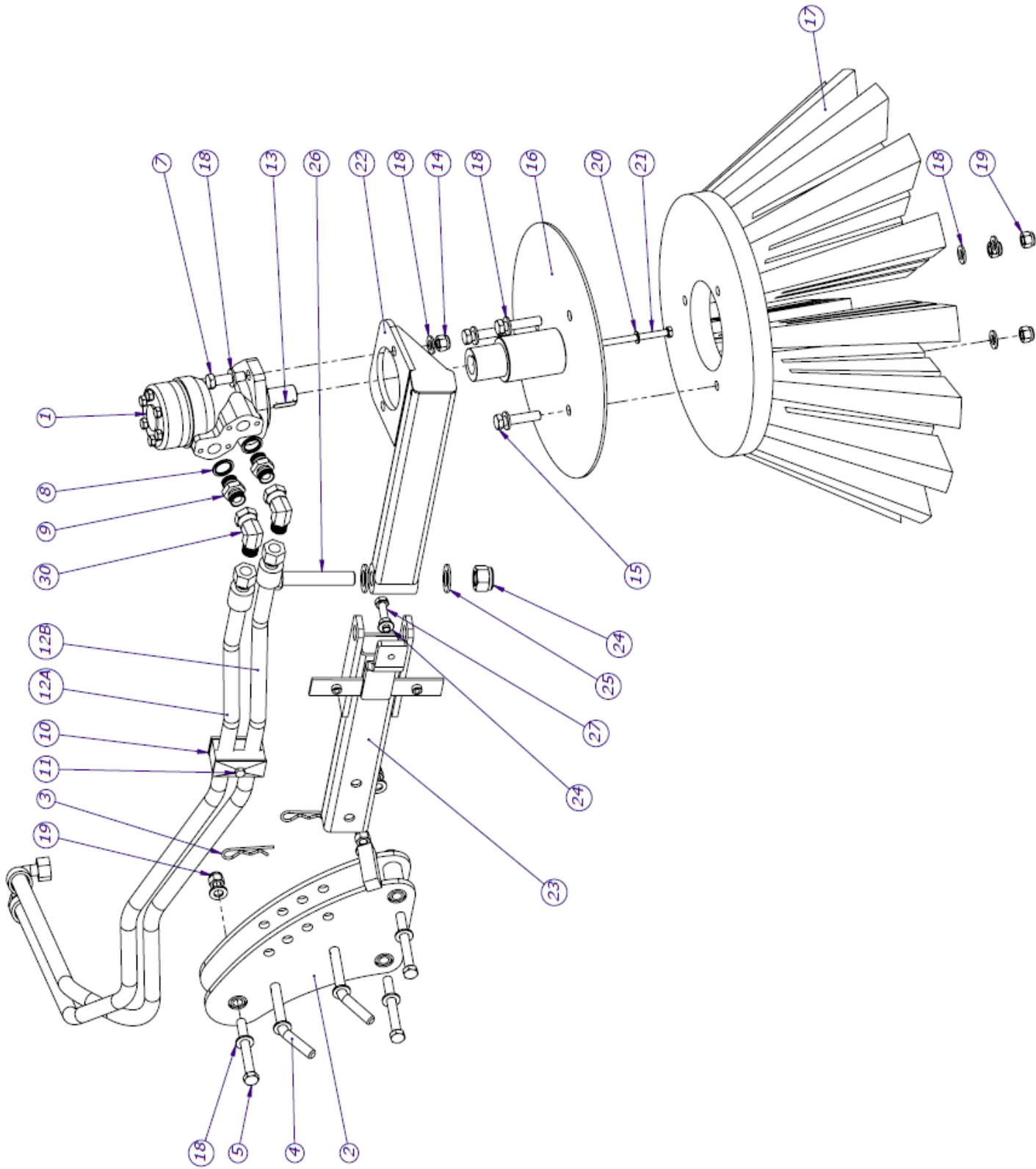




CBTI HYDRAULICS

N.	Part Number	Name	Qtt.
1	M06X065E	BOLT	2
2	5800L001	HOSE	1
3	5800L002	HOSE	1
4	5800L003	HOSE	2
5	5800L004	HOSE	1
6	5800L005	HOSE	1
7	5800L006	HOSE	1
8	5800L007	HOSE	1
9	M06D934T	NUT	2
10	M06D125A	WASHER	4
11	M14D125A	WASHER	2
12	M22D125A	WASHER	4
13	2FFI12GASF	FEMALE FAST CONNECTOR	1
14	2FF3812GASF	FEMALE FAST CONNECTOR	1
15	FFI12GASM	MALE FAST CONNECTOR	1
16	30470008	1/2" BONDED SEAL	6
17	30470010	3/4" BONDED SEAL	1
18	30510808	1/2 CONNECTOR BULKHEAD	2
19	30510404	1/4 CONNECTOR BULKHEAD	1
20	30190806	FITTING REDUCER 3/8" TO 1/2"	1
21	30170808	FITTING M-M 1/2"	6
22	DOVPDDI-1-213000	RELIEF VALVE	1

12.2.- GUTTER BRUSH KIT: PART NUMBER 03CL610 – SPECIFY CBTI

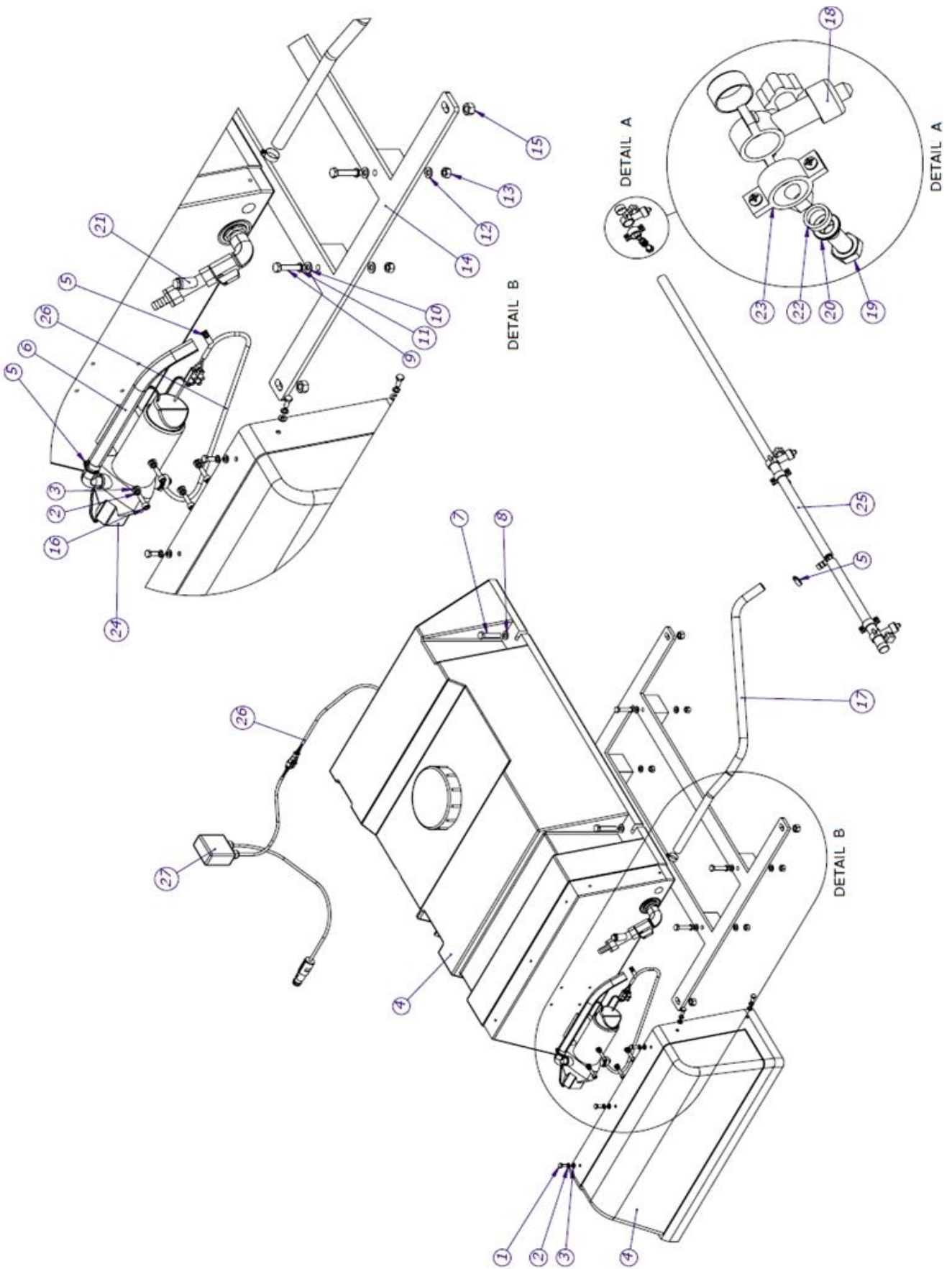




03CL610- CBTI: GUTTERBRUSH FOR CBTI

Nº	Part Number	Name	Qtt.
1	02150805	HYDRAULIC MOTOR SMR160	1
2	9911231	support	1
3	0215PA03	pin	2
4	02150804	pin	2
5	M12X100E	bolt	3
6	9911144	arm	1
7	M12X040E	bolt	2
8	30470008	bonded seal	2
9	30170808	straight fitting	2
10	51200020	bridle	2
11	M08X040A	bolt	1
12A	03150403	hose	1
12B	03150404	hose	1
13	03200207	cotter	1
14	M12D985T	nut	2
15	M12X050E	bolt	3
16	0215007	plate	1
17	03RCL610	brush	1
18	M12D125A	washer	16
19	M12D985T	nut	8
20	M08D127G	washer	1
21	M08X100E	bolt	1
21	M08X100E	bolt	1
22	5601017	arm	1
23	5601018	arm	1
24	M18D985T	nut	1
25	M18D125A	washer	2
26	M18X100E	bolt	1
27	M10X045E	bolt	1
28	M10D6923T	nut	1
30	34090808	elbow	2

12.3.- WATER TANK SYSTEM KIT. PART NUMBER 03SR0100:





03SR0100- WATER TANK SYSTEM KIT:

Nº	Part Number	Name	Qtt.
1	M06X010E	bolt	7
2	M06D127G	washer	11
3	M06D125A	washer	11
4	02151501	water tank	1
5	BR019000058	bridle	4
6	5511571	hosepipe	1
7	M10X040E	bolt	4
8	M12D127G	washer	4
9	M08050E	bolt	4
10	M08D127G	washer	4
11	M10D125A	washer	4
12	M08D127G	washer	4
13	M08D985T	nut	4
14	5511465	support	1
15	M10D985T	nut	4
16	M06X020E	bolt	4
17	5511573	hosepipe	1
18	02151515	sprinkler	3
19	M10X020E	bolt	2
20	M10D127G	washer	2
21	02151330	filter & tap kit	1
22	5620004	ring	2
23	5620003	bridle	2
24	02151518	water pump	2
25	02151513	watering bar	1
26	Kit ELE1WS	pump wire kit	1
27	Kit ELE2WS	electric switch kit	1






13.- BOLT TORQUE SPECIFICATIONS

GENERAL TORQUE SPECIFICATION TABLES

Use the following charts when determining bolt torque specifications, when special torques are not given. Always use grade 5 or better when replacing bolts.

SAE BOLT TORQUE SPECIFICATIONS

Note: The following torque values are for use with extreme pressure lubricants, plating or hard washer applications. Increase torque 15% when using hardware that is unplated and either dry or lubricated with engine oil.

Bolt Size		SAE GRADE 5 TORQUE				SAE GRADE 8 TORQUE				Bolt head identification marks as per grade. NOTE: Manufacturing Marks Will Vary
		Ft-lbs		Newton-Meter		Ft-lbs		Newton-Meter		
Inches	mm	UNC	UNF	UNC	UNF	UNC	UNF	UNC	UNF	
1/4	6,35	8	9	11	12	10	13	14	18	<p>Grade 2</p>  <p>Grade 5</p>  <p>Grade 8</p> 
5/16	7,94	14	17	19	23	20	25	27	34	
3/8	9,53	30	36	41	49	38	46	52	62	
7/16	11,11	46	54	62	73	60	71	81	96	
1/2	12,70	68	82	92	111	94	112	127	152	
9/16	14,29	94	112	127	152	136	163	184	221	
5/8	15,88	128	153	174	207	187	224	254	304	
3/4	19,05	230	275	312	373	323	395	438	536	
7/8	22,23	340	408	461	553	510	612	691	830	
1	25,40	493	592	668	803	765	918	1037	1245	
1-1/8	25,58	680	748	922	1014	1088	1224	1475	1660	
1-1/4	31,75	952	1054	1291	1429	1547	1700	2097	2305	
1-3/8	34,93	1241	1428	1683	1936	2023	2312	2743	3135	
1-1/2	38,10	1649	1870	2236	2535	2686	3026	3642	4103	

METRIC BOLT TORQUE SPECIFICATIONS

Bolt head identification marks as per grade.		
		

NOTE:

The following torque values are for use with metric hardware that is unplated and either dry or lubricated with engine oil. Reduce torque 15% when using hardware that has extreme pressure lubricants, plating or hard washer applications.



Bolt Size	Grade No.	Pitch (mm)	Ft-lbs	Newton-Meter	Pitch (mm)	Ft-lbs	Newton-Meter
M6	5.6	1,0	3.6-5.8	4,9-7,9	-	-	-
	8.8		5.8-4	7,9-12,7		-	-
	10.9		7.2-10	9,8-13,6		-	-
M8	5.6	1,25	7.2-14	9,8-19	1,0	12-17	16,3-23
	8.8		17-22	23-29,8		19-27	25,7-36,6
	10.9		20-26	27,1-35,2		22-31	29,8-42
M10	5.6	1,5	20-25	27,1-33,9	1,25	20-29	27,1-39,3
	8.8		34-40	46,1-54,2		35-47	47,4-63,7
	10.9		38-46	51,5-62,3		40-52	54,2-70,5
M12	5.6	1,75	28-34	37,9-46,1	1,25	31-41	42-55,6
	8.8		51-59	69,1-79,9		56-68	75,9-92,1
	10.9		57-66	77,2-89,4		62-75	84-101,6
M14	5.6	2,0	49-56	66,4-75,9	1,5	52-64	70,5-86,7
	8.8		81-93	109,8-126		90-106	122-143,6
	10.9		96-109	130,1-147,7		107-124	145-168
M16	5.6	2,0	67-77	90,8-104,3	1,5	69-83	93,5-112,5
	8.8		116-130	157,2-176,2		120-138	162,6-187
	10.9		129-145	174,8-196,5		140-158	189,7-214,1
M18	5.6	2,0	88-100	119,2-136	1,5	100-117	136-158,5
	8.8		150-168	203,3-227,6		177-199	239,8-269,6
	10.9		175-194	237,1-262,9		202-231	273,7-313
M20	5.6	2,5	108-130	146,3-176,2	1,5	132-150	178,9-203,3
	8.8		186-205	252-277,8		206-242	279,1-327,9
	10.9		213-249	288,6-337,4		246-289	333,3-391,6



14.- WARRANTY

- 1- THIS ACCESORY HAS BEEN VERIFIED FOR BEING INSTALLED ON YOUR MACHINE. THE INSTALLATION MUST BE PERFORMED ONLY BY AN AUTHORISED WORKSHOP. ANY CHECK OR INTERVENTION MUST BE DONE THROUGH AN AUTHORISED DEALER WHO WILL PROCESS THE WARRANTY.
- 2- FOR USING THIS WARRANTY, YOU MUST HAND THE MACHINE'S CUTOFF RECEIPT TO THE MANUFACTURER IN A MAXIMUM OF 10 DAYS AFTER THE DELIVERY OF THE MACHINE TO THE USER.
- 3- THE WARRANTY LASTS FOR **1 YEAR** FROM THE DELIVERY TO THE USE OR 14 MONTHS FROM THE DATE OF THE DELIVERY TO THE DEALER.
- 4- INDICATING THE SERIAL NUMBER IS A MUST FOR REQUESTING THE WARRANTY. THIS WARRANTY COVERS ALL THE MANUFACTURE DEFECTS, REPLACING THE DEFFECTIVE PARTS. THE WARRANTY DOES NOT INCLUDE WORKING HOURS.
- 5- THE AUTORIZED AGENT OF THE MANUFACTURER KEEPS THE RIGHT TO INSPECT THE PARTS IN ORDER TO DETERMINE IF THE PART MUST BE REPLACED OR NOT IN WARRANTY.
- 6- THE RECEPTION AND REPLACEMENT OF PARTS WILL BE FREE OF CHARGE COSTS FOR THE MANUFACTURER.
- 7- ALL THE WARRANTY IS LOST IN CASE OF USING OR ASSEMBLING UNORIGINAL ACCESSORIES.
- 8- THE MANUFACTURER DOES NOT RESPOND IN ANY CASE OF THE PROFIT LOSS DERIVED FROM THE ACCESORY BREAKDOWNS.
- 9- THE HYDRAULIC QUICK COUPLERS (PLUGS), THE HOSE WHICH CONNECTS THE ACCESORY TO THE CARRIER MACHINE AND ANY PART OF THE ELECTRIC INSTALLATION ARE OUT OF WARRANTY.

Excluded Parts from the warranty:

The following products are excluded from the Warranty:

- (a) Any cable, part that engages with the ground (i.e. sprockets), chain, bearing, Bristles and spacers, cutting edge, Axle, that either constitutes or is part of a product.
- (b) Any product, merchandise or component that, in the opinion of the manufacturer, has been:
 - (i) misused;
 - (ii) modified in any unauthorized manner;
 - (iii) altered;
 - (iv) damaged;
 - (v) involved in an accident; or
 - (vi) repaired using parts not obtained through Implement Salsjes.

(c) Return of Defective Part or Product. If requested by Manufacturer, the alleged defective part or product shall be shipped to manufacturer at its manufacturing facility or other location specified by the agent of the manufacturer, with freight PRE-PAID by the claimant, to allow manufacturer to inspect the part or product. Claims that fail to comply with any of the above terms and conditions shall be denied.

THE WARRANTY WILL BE REFUSED IN CASE OF:

- 1- BREAKDOWNS CAUSED BY MISUSE, WRONG INSTALLATION OR TUNING OR LACK OF MAINTENANCE.
- 2- ASSEMBLING PARTS NOT SUPPLIED BY THE MANUFACTURER OR ITS OFFICIAL AGENT, OR WITHOUT AUTHORISATION.
- 3- PARTS THAT HAVE WORN OUT BECAUSE OF THE WORK OF THE MACHINE ITSELF.