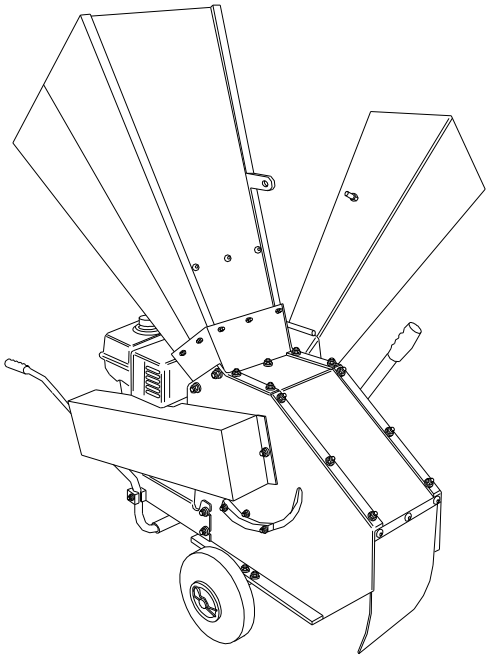
USE AND MAINTENANCE INSTRUCTION MANUAL

Bio 150



BEFORE USING THE MACHINE , READ THE INSTRUCTION MANUAL

1. HOW TO USE AND KEEP THE INSTRUCTION MANUAL

This instruction manual is aimed at the user of the machine , the owner , the maintenance cleaning operator and the repair technician and must always be avaiable for consultation. The instruction manual shows the user for which the machine was designed and the machine's technical characteristics . It also supplies instructions for transport , cleaning adjustment , use , personnel informations , maintenance , spare parts ordering and residual risk , and warnings with regard to operations that must be carried out with particular care .

The machine is for professional use , so the instruction manual can never be a substitute for suitable user experience . The manual should be considered a part of the machine and must by kept for future reference until the machine is demolished. The instruction manual must always be avaiable for consultation and must be kept in a dry , protected place . In the case of loss or damage the user may request a replacement from the manufacturer , quoting the series reference , type and year of construction which are shown on the plate fixed to the bio-chopper (section 5) .
The manufacturer reserves the right to update production and manual without the obligation to update earlier production and manuals. The manufacturer is relieved from all responsability in cases of:

- improper use of the bio-chopper ;
- uses not conforming with what is expressly specified in this documentation ;
- serious deficientes in prescribed and recommended maintenance ;
- unauthorised modifications or interferences ;
- use of spare parts that are not original or model specific ;
- total or partial failure to follow the instructions ;
- force majeure;

2. IDENTIFICATION OF MAIN PARTS

1. Hopper with guards
2. Chaff cutter hopper
3. Petrol engine-electric motor
4. Handles for transport
5. Outlet
6. Chassis 3rd point
7. Power take-off for MTC
8. Power take-off for a tractor

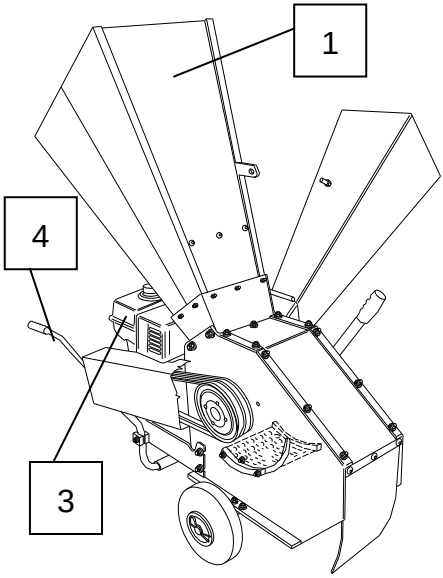


Fig. 1

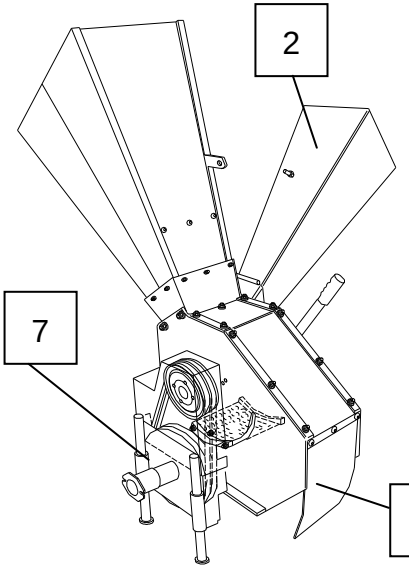


Fig. 2

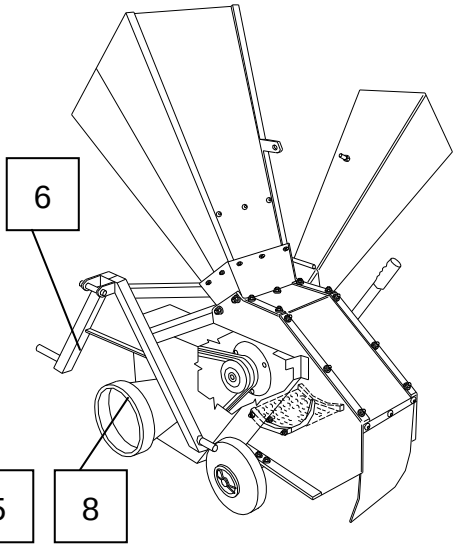


Fig. 3

3. CORRECT USE OF THE MACHINE

The machine must be run by one operator only .
The operator must be have read and fully understood the instructions in this manual in order to use the machine correctly .
The operator must be ensure that person or animals do not come whithin the field of action while the machine is running .
The Caravaggi company's Bio 150 bio-chopper has been built to chop vegetables , foliage and natural wood of the dimensions indicated in the relevant section .
It may be used for cutting peat and similar .
It is not suitable for chopping products other than those listed above .
To work with other products , contact the machine manufactures or authorised dealers .
The operator must be aware of all the instructions given in the instruction manual .

4. UNPACKING AND PREPARATION

The Bio 150 bio-shredder is delivered partially dismantled. It ca be arranged on pallets to facilitate handling and transport before installation, depending on the versions.
To transport the machine in these conditions it is indispensable to use a transpallet or similar with a load capacity of around 300 kilos .
Avoid :

- hoisting the bio-chopper with ropes or unsuitable hoists ;
- dragging the bio-chopper ;
- bumps or shocks ;
- exposing the machine to rain , frost or any bad weather .

On taking delivery check that the contents correspond with the delivery note . Should damage or deformity due to transport be noted , make an immediate compliant to the carrier and advise the authorised dealer or the manufaturer . In particular , check that :

- there are no dents , signs of bumps or deformations ;
- there are no damp areas or signs that may lead to suppose that the pack has been exposed to foul weather ;
- there are no signs of tampering ;

After checking that transport has been carried out correctly , proceed to assembling the machine as shown in figures 5-6-7.

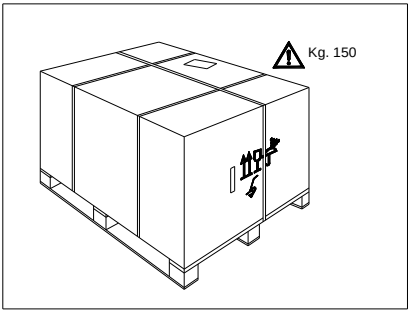


Fig. 3

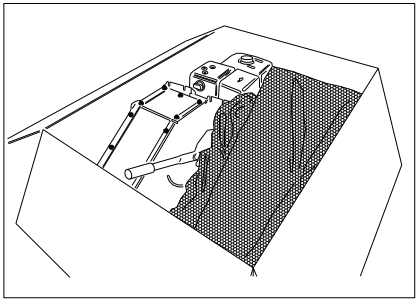


Fig. 4

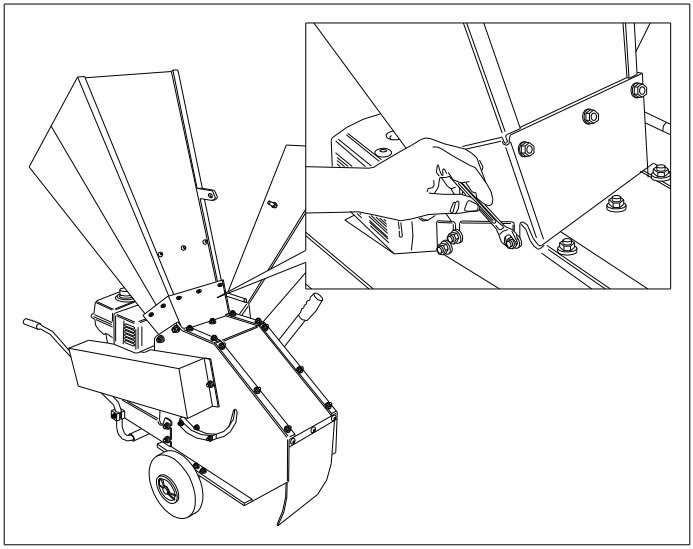


Fig. 5

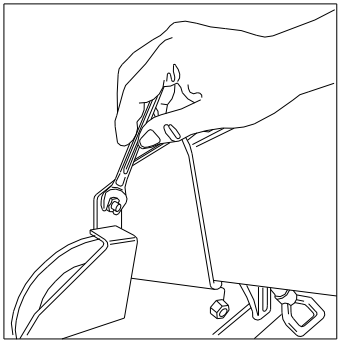


Fig. 6

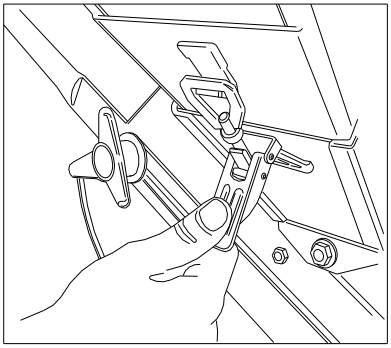


Fig. 7

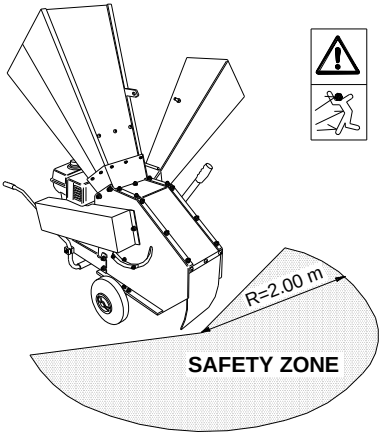
5. TECHNICAL CHARACTERISTICS

The EC identification plate is clearly visible on the Bio 150 bio-chopper (fig. 8) .
In all communications with the manufacturer state the serial number on the identification plate .

Fig. 8

Version	Power HP / kw	Supply	Prod. m^3 / h
BIO 150 B	**11÷13 / 8.2÷9.7**	Petrol	10*
BIO 150 B	**10 / 7.5**	Electric	10*
BIO 150 MTC	**10÷14 / 7.5÷10.4**	MTC	10*
BIO 150 T	**10÷25 / 7.5÷18.6**	P.T.O.	10*
* data depending on quality of material to be chopped and feeding speed			

5.1 Overall dimensions



Breadth (mm) : 1500

Lenght (mm) : 1100

High (mm) : 1580

Weight (kg.) : 150

$L_{WA\ MAX}$ (dB) : 104

6. SAFETY NORMS

Training

- The machine must not be used by under 16's and persons who have not learnt the user instructions .
- The operator is responsible for third parties present in the work area . Keep children and domestic animals at distance when the bio-chopper is in operation .
- This machine may be used only for cutting up natural wood and foliage . It must not be used for other purposes (e.g. for breaking up bottles and boxes in other materials) .
- Work only in adequate light .
- When you start up engine check that machine is equipped with the prescribed guards .
- Wear protective gloves and goggles while working .

Preparation / Operation

- Before begenning work check that the blades and the cutters are perfectly fixed. If the blades show signs of damage they should be sharpened or replaced .
- Do not use the bio-chopper when it is raining .
- The bio-chopper must be positioned on a flat , solid surface where there is no danger of overturning .
- Switch off the motor, remove the keys from the start panel and remove the sparkplug cap (the power supply cable for electric motor bio-choppers , or check that the machine is disconnected from the tractor PTO) in order to :
  - remove foreign bodies from the hoppers ;
  - transport the machine or move it from the workplace ;
  - carry out maintenance or cleaning ;
  - leave the machine unattended .
- The blades continue to turn for a few seconds even after the ignition has been switched off .
- Assemble the blades following the appropriate instructions and use only original spare parts supplied by the manufacturer .
- Never use the chopper with defective guards and protection or without the safety devices correctly fitted .
- Start up the engine with care and following the user instructions . When the engine is functioning it is imperative to prevent anyone from approaching the loading hopper , the discherger and the side hopper .

- If the blades undergo heavy shock and function in an anomalous manner , stop the engine , remove the spark plug hood and request expert advice .

Caution ! The fuel is highly flammable :

- Keep fuel only in the containers made avaiable for this purpose ;
- Refuel only in the open air . Do not smoke or in any way cause naked flames during refuelling .
- Fill the tank before starting the engine . Never open the fuel cap or add petrol while the engine is running or when it is still hot .
- If petrol should be split , never try to start the engine . Move the machine away from the area involved area and avoid any sources of ignition until the fuel vapours have despersed ;
- Tighten up the fuel tank cap .

7. START - UP

Caution ! Before starting up the engine / motor check that the bio-chopper is on a stable surface and that there are no animals or unauthorised persons in the work zone .
Read the engine / motor manufacturer's instruction book carefully .

Check that there is oil and fuel in the tank . Fill if necessary .

Petrol engine version

- Put the selector at position "I" (Start) (fig. 9) . Grasp the starting knob (fig. 10) and pull the cord without force until you feel the resistance caused by compression , release the knob and then give a sharp tug to start the engine .
- Before beginning work let the engine idle for about 1 minute then take it to maximum revs (using accelerator lever) and proceed with normal use .

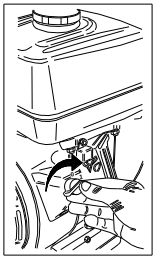


Fig. 9

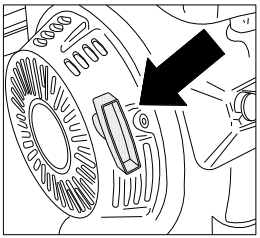


Fig. 10

Electric motor version

- Make sure the mains voltage corresponds to the motor rated voltage (check the rating plate on the motor) .
- Check that the power supply cable is conected then press the start / stop button .

Version with tractor coupling

- Make sure the cardan shaft connecting the bio-shredder and tractor is in proper working order.
- Before each use, make sure the cardan shaft is in proper working order.
- Check that the bio-chopper is correctly hooked up to the PTO then proceed with starting .

Functioning
Having correctly prepared the bio-chopper you can now proceed to working the material to be chopped .

Upper hopper
Load trimming and foliage into the upper loading hopper , taking account of avaiable power in function of the model you possess (fig. 11) .

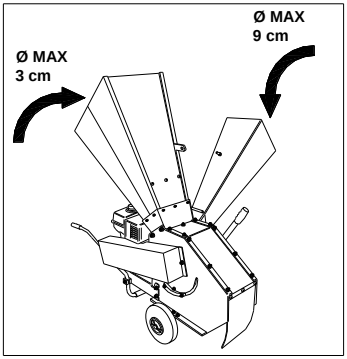


Fig. 11

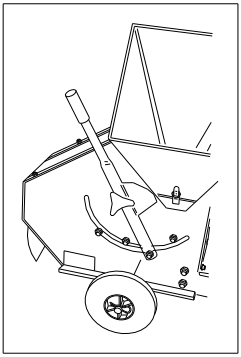


Fig. 12

Caution ! Take the material to the hopper mouth and let it fall in .

Never put hands and arms in to push material into the hopper !

The material that can be worked and chopped in this hopper must not exceed 3 cm diameter .

The sieve control lever (fig. 12) is located on the left side of the Bio-chopper; when the introduction of too much material causes blockage of the machine, open the lever completely to release all the material, then return it to its initial position and resume normal working.

To avoid the danger of intoxication from fumes , machines with internal combustion engines should never be used in closed environments .

Side hopper (chaff cutter)
Assemble this hopper (as shown in section 3) ensuring that the closure hook (fig. 7) is well fixed.
Use the side hopper (fig. 11) for working large size material (branches of up to 7 cm diameter).

8. MAINTENANCE

Caution ! Before proceeding with any maintenance operation swith off the engine / motor and in any case ensure that there is no possibility of the machine functioning . Suitable gloves are obligatory for all maintenance operations .

To facilitate transportation of the Bio 150 bio-chopper its overall size can be reduced by folding the side hopper inwards as follow :

- Unhook the closure hook shown in fig. 7 .
- Fold the chaff cutter hopper (fig. 13) immobilising it with wing nut 1 .

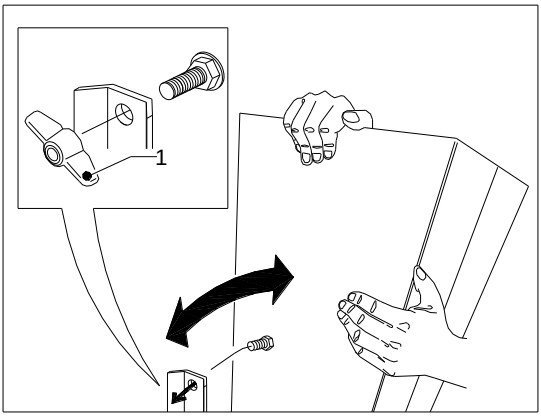


Fig. 13

Maintenance and storage

- Keep all nuts , bolts and screws perfectly tightened in order to work in safe conditions .
- For safety reasons promptly replace worn or damage parts .
- To protect hands during dismantling and assembly of the blades , wear suitable protective gloves .

Version with electric motor

- Regularly check that yhe power supply cable is in perfect condition . Never repair a damaged cable with insulating tape or termal clamps .
- For the power supply conductor use only standardised rubber cable of the type 05 RN-F in accordance with DIN 57282 / VDE 0282 .
- Hook-up plugs must be in rubber or rubber covered .

8.1 Blade replacement

- Unscrew the retaining screws and remove the upper hopper .
- Insert the keys in the two apertures (fig. 14) and remove the blade.
- Proceed with sharpening the blade or , in the case of replacement , request an original spare part from the manufacturer and reassemble following the instructions in reverse order .

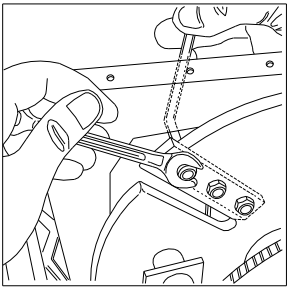


Fig. 14

8.2 Counter-blade replacement

- Remove the side hopper by unscrewing the 3 nuts as shown in fig. 15.
- Unscrew the two security nuts of the counter blade to remove the counter blade.

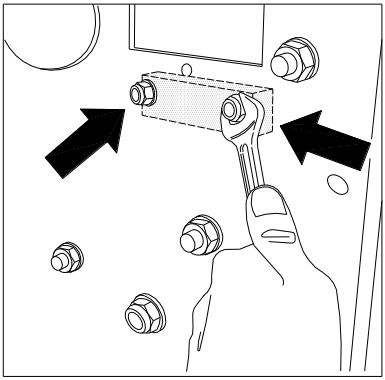


Fig. 15

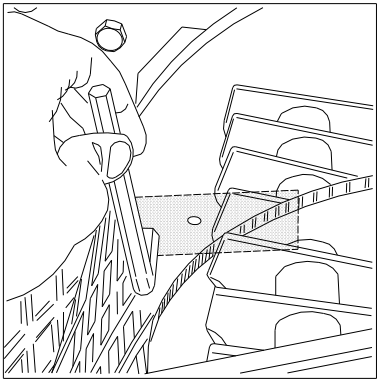


Fig. 16

Caution ! For this operation the blade must be removed as indicated at point 8.1 .

- Proceed with sharpening the blade or , in the case of replacement , request an original spare part from the manufacturer and reassemble following the instructions in reverse order .

8.3 Breaker bar removal , inversion and replacement

- Unscrew the retaining screws and remove the upper hopper
- Remove the side hopper by unscrewing the 3 nuts (fig. 5) .
- Remove the transmission belt casing as shown in fig. 17 .
- Remove the galvanised hole plate .
- Manuallty turn the rotor to align the cutter shaft with the aperture.
- Insert the seeger pliers and remove the ring as shown in fig. 19 (chaff cutter side) .
- Remove the shaft , taking care to note the position of the spacers separating the breaker bars (fig. 20) .
- If necessary replace the breaker bars . Take care to replace the previously removed spacers in the same position on the cutter shaft .

Caution ! Partial replacement of the breaker bars must be carried out respecting the opposite position for balancing .

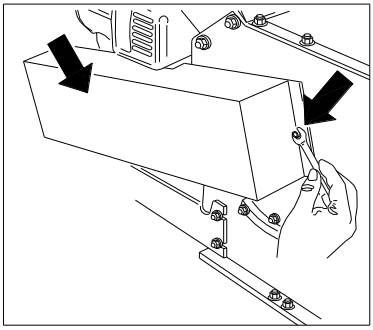


Fig. 17

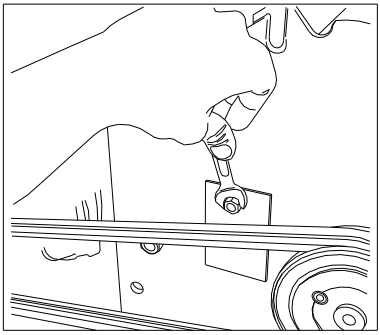


Fig. 18

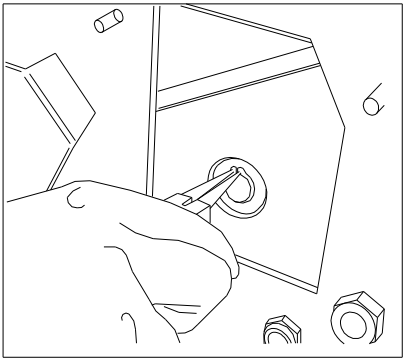


Fig. 19

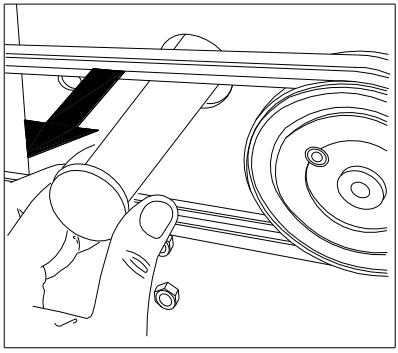


Fig. 20

8.4 Routine maintenance

	Beginning of season	Before each job	End of season
Check engine oil level		♦	
Check screws , tightness , casing , hopper , etc .	♦	♦	
Check belt tension and state of wear	♦	♦	
Check wear on cutters	♦		♦
Check wear on blade	♦		♦
Check wear on counter-blade	♦		♦
Check hopper rubber protection	♦	♦	♦
Clean machine			♦
Check wear on bearings and transmission shafts	♦		♦

9. TROUBLESHOOTING - REMEDIES

Troubleshooting	Remedies
The bio-chopper does not start	Check belt tension and condition , blocked pulleys , PTO or gears . Check cutters , blade , counter-blade and presence of material in the milling chamber . Check state of engine / motor (consult the instruction manual supplied) .
Difficult start-up or loss of power	Check belt tension and condition , blocked pulleys , PTO or gears . Check state of engine / motor (consult the instruction manual supplied) .
The bio-chopper loses revs and functions irregularly	Check belt tension and condition , blocked pulleys , PTO or gears . Check cutters , blade , counter-blade and presence of material in the milling chamber . Check the sieve which should be free of blockages. Check state of engine / motor (consult the instruction manual supplied) . Examine the material being chopped at the moment of breakdown .
Excessive vibration	Check cutters , blade , counter-blade and presence of material in the milling chamber .
Drop in quality of output material	Check belt tension and condition , blocked pulleys , PTO or gears . Check state of engine / motor (consult the instruction manual supplied) .
The hopper rejects the material	Check cutters , blade , counter-blade and presence of material in the milling chamber . Check state of engine / motor (consult the instruction manual supplied) . Check state of wear on hopper rubber protection .

10. GUARANTEE

1. The Manufacturer hereby guarantees its BIO - SHREDDERS against breakage caused by faulty materials or workmanship .
2. This warranty is valid for the first owner only for 12 months as from the date of purchase and / or delivery .
3. The Manufacturer is entitled to inspect the Bio - Shredder and any components for which a claim has been made under the guarantee , in order to determine the validity of the claim .
4. This warranty covers replacements free of charge only of components found to be defective due to faulty materials or workmanship under the guarantee period.
5. This warranty does not cover reimbursement for labour , consumables or transport charges for repairs under guarantee .

THIS WARRANTY DOES NOT APPLY IN THE FOLLOWING CASES

1. The Manufacturer may in no way held liable for general damage , including damage or injury , loss due to halts in production , loss of earnings , leasing costs or any moral or commercial damage .
2. All claims concerning motors or engines mounted on Bio - Shredder will be handled by the relevant Manufacturers' after - sales service .
3. This warranty does not cover damage caused by misuse , abuse , insufficient maintenance , accident or damage caused during transport .
4. Parts which are subject to war , such as hammers , blades , anvil blades , etc . are not covered under this guarantee .
5. All expenses for setting the machine to work will be charged to the distributor or dealer .
6. This warranty is not valid if the repairs , maintenance or modifications are performed by an unauthorised persons or dealers .
7. The owner is responsible for routine maintenance and settings , which are thus excluded herefrom .
8. The use or fitting or components and accessories that are not original will immediately invalidate this warranty .

PROCEDURE FOR MAKING CLAIMS UNDER THIS WARRANTY

If the Bio - Shredder is found to be defective due to faults material or workmanship , you are required to send the Manufacturer a written claim and proceed as follows :

1. The machine must be returned to the Seller or the authorised CARAVAGGI importer .
2. You are required to present the guarantee duly filled in or the bill , if this is not avaiable.
3. The claim will be completed by the Dealer , who will forward it to the Manufacturer .
4. The Manufacturer alone reserves the right to determine whether to accept the claim or otherwise .

Any disputes will be put before the Court of Brescia , Italy .

11. DECLARATION OF CONFORMITY

CE

The company Caravaggi , hereby declares under its own responsability , that the machine: BIOSHREDDER Type BIO 150 electric (E) , with petrol engine (B) , and with P.T.O. (MTC , PTO) ,
complies with the Basic Safety and Health Requirements prescribed in EC Directive 98/37 , 89/336 and 89/392 94/626 and subsequent modifications thereto 89/686 , 91/368 , 93/44 , 93/68 , and 2000/14.

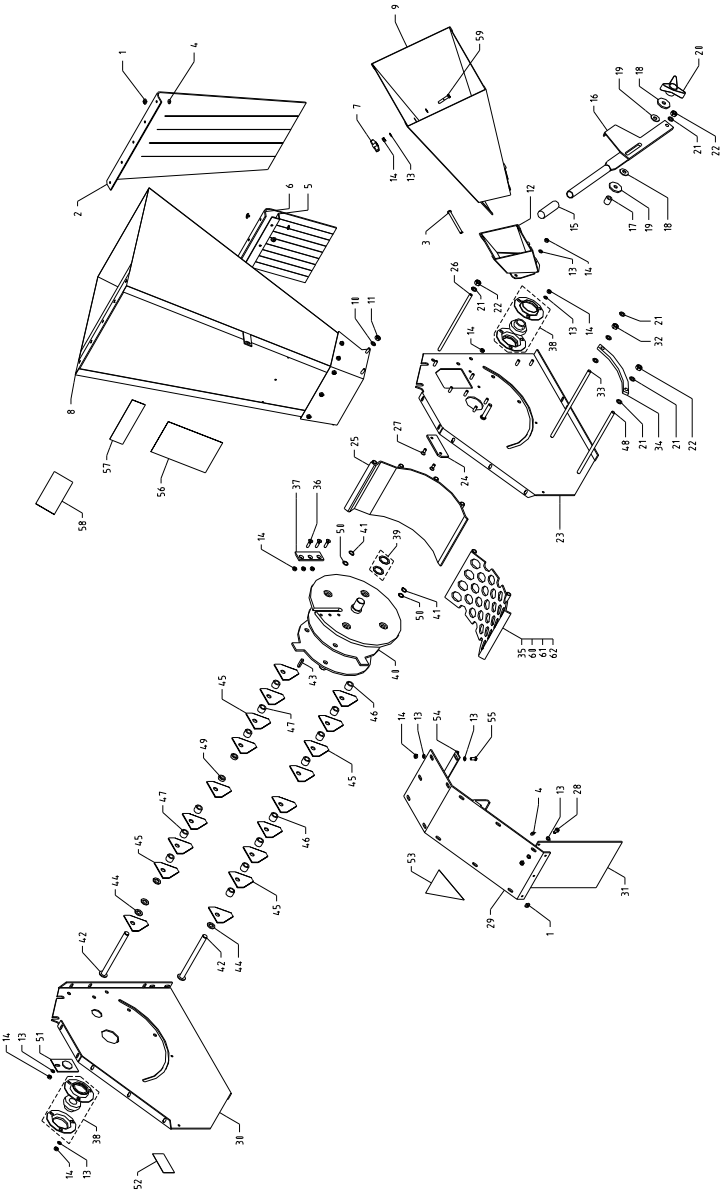
EN 292
EN 294

The Manufacturer

(CARAVAGGI S.R.L.)

Pontoglio , 01 / JAN / 1995

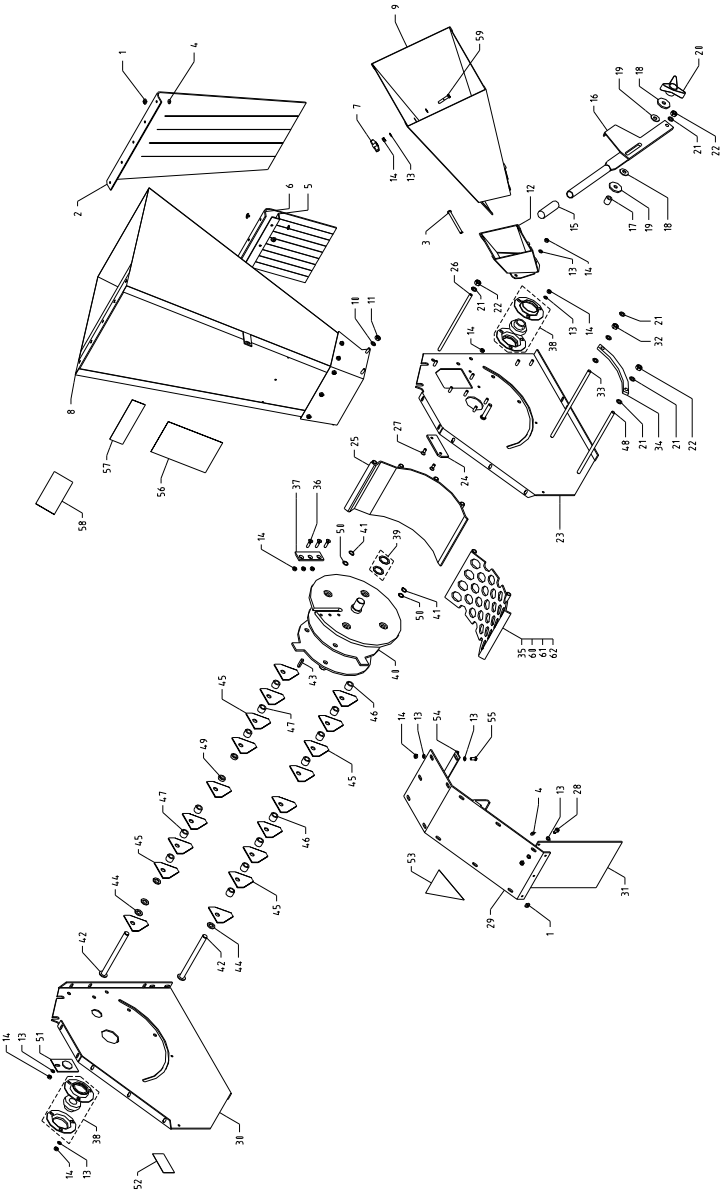
SPARES BIO 150



SPARES BIO 150

Pos.	Description	Q.ty	Code
1	Rivet ø 4,9x16 Al	12	530002000
2	Upper rubber	1	010302000
3	Pin	1	010610000
4	Washer ø5x15x2	8	510003005
5	Angle	1	010310000
6	Lower rubber	1	010410000
7	Knob M8 F	1	013710000
8	Upper hopper	1	010304100
9	Chaff cutter hopper	1	011810000
10	Washer ø11x22x2	4	530001800
11	Self-lock nut M10	4	520007010
12	Chaff cutter support	1	011601000
13	Washer ø9x18x2	31	510005009
14	Self-lock nut M8	43	520002008
15	Knob ø25	2	012310000
16	Sieve lever	1	013410000
17	Lever spacer	1	013411000
18	Washer	2	511000100
19	Belleville washer	2	511100100
20	Knob M12	1	012311000
21	Washer ø12x24x2	19	511100120
22	Self-lock nut M12	11	520003012
23	Chaff cutter side panel	1	012510000
24	Counterblade	1	013100001
25	Bottom	1	012000001
26	Bottom pin	4	012100000
27	Screw TSPEI M8x20	2	500011008
28	Screw TE M8x20	19	500008008
29	Discharge casing	1	012210001
30	Left side panel	1	010140001
31	Discharge rubber	1	012910001
32	Nut M12	1	520000001
33	Sieve pin L	1	012110001
34	Sieve guides	2	012710001
35	Sieve ø40 STD	1	012810003
36	Screw TSPEI M8x30	3	500012008
37	Blade	1	013300000
38	Bearing SBPF 206	2	550002030

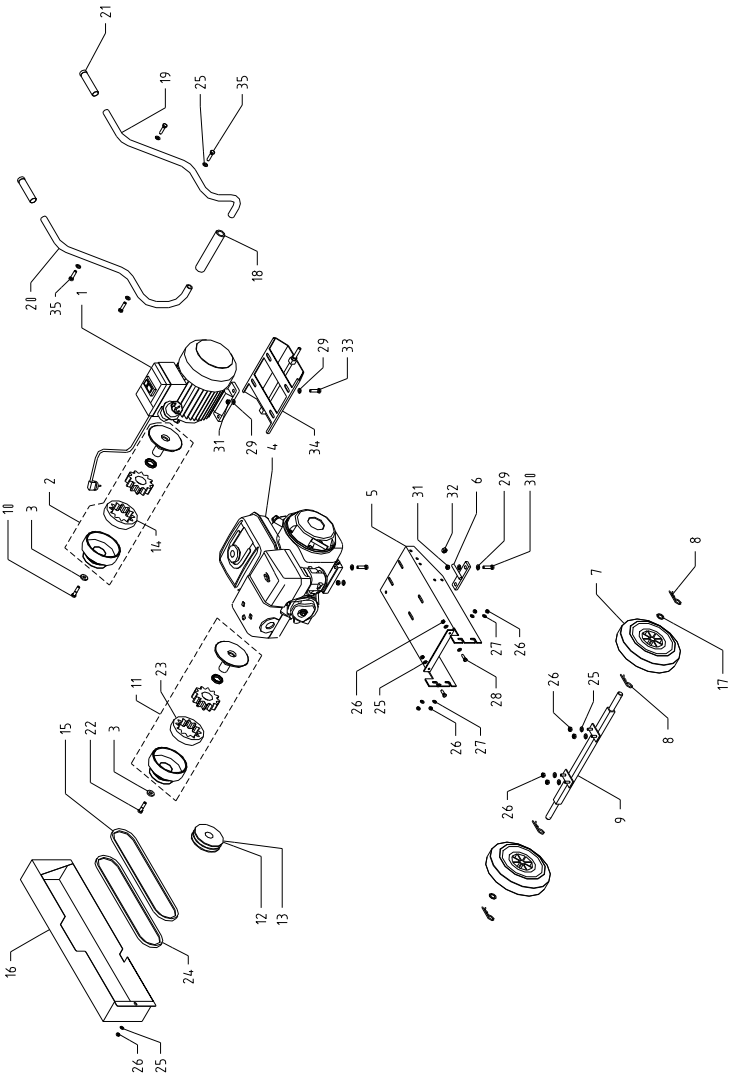
SPARES BIO 150



SPARES BIO 150

Pos.	Description	Q.ty	Code
39	Thickness element PS ø30x1	X	012720001
40	Rotor	1	010101050
41	Seeger ring E-15	4	510012001
42	Rotor pin	4	010102000
43	Key 8x25	1	530004000
44	Washer ø16x3	10	511120020
45	Blade TR 3	36	010105001
46	Spacer H=21	12	010105000
47	Spacer H=18	16	010108001
48	Sieve pin C	1	012110021
49	Spacer H=7	4	010108021
50	Thickness element PS ø16x1	4	080009016
51	Galvanized cover plate	1	011300000
52	Decal	1	000000041
53	Decal	1	000000004
54	Discharge casing angle	1	012210002
55	Screw TBEI M8x20	3	500000820
56	Decal	1	000000002
57	Decal	1	000000035
58	Decal	1	000000005
59	Screw TE M8x40	1	500006208
60	Sieve ø30	1	012810001
61	Sieve ø35	1	012810002
62	Sieve ø50	1	012810004

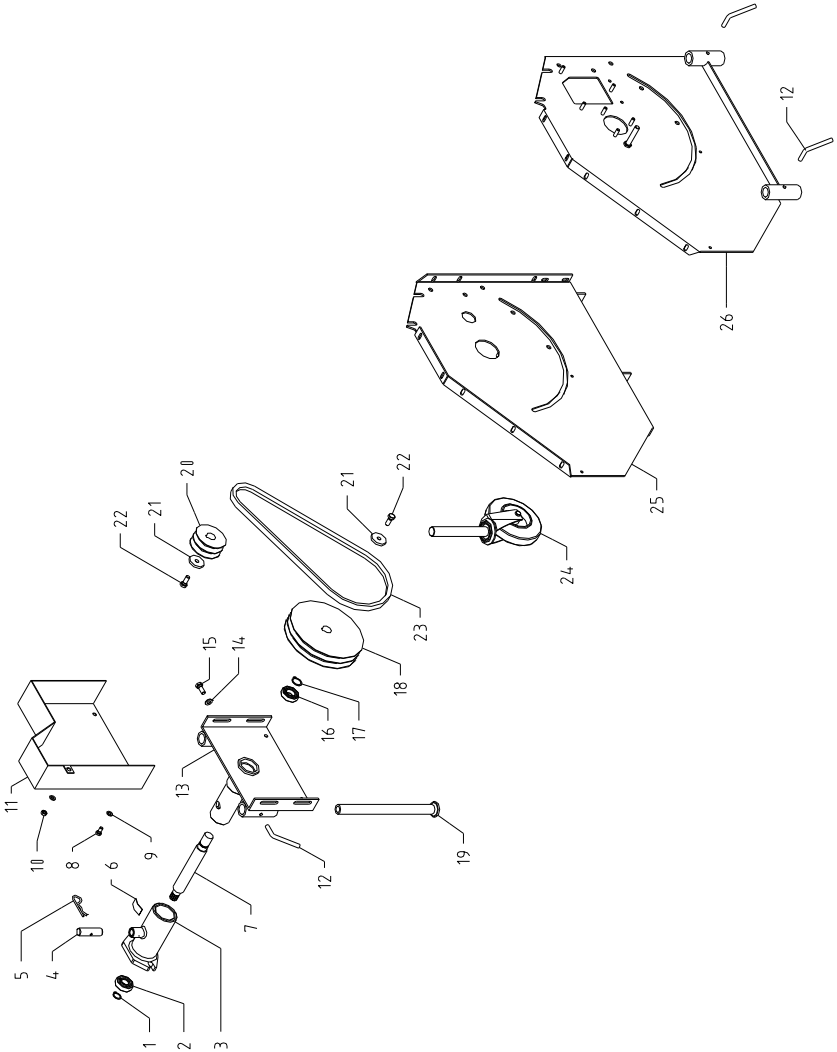
SPARES BIO 150 B / E



SPARES BIO 150 B / E

Pos.	Description	Q.ty	Code
1	Electric motor 5,5 HP	1	019200000
2	Centrifugal clutch 1A 122 (E)	1	013800028
3	Retainer washer	1	014900006
4	Engine 13 HP	1	014100001
5	Engine support	1	014500001
6	Engine adjustment plate	1	014500005
7	Wheel	2	014700000
8	Cotter pin R 5	4	530001000
9	Wheel axle	1	014600000
10	Screw TE M 10x30 (E)	1	500010010
11	Centrifugal clutch 2A 138 (B)	1	019300002
12	Pulley 1A 100 (E)	1	019600001
13	Pulley 2A 118 (B)	1	014800001
14	Bumper rubber ϕ 122	1	019400000
15	Belt A-58	2	014900001
16	Belt guard casing	1	044400001
17	Washer ϕ 20	2	510002520
18	Anti-vibration tube	1	013900001
19	Handle SX	1	014300252
20	Handle DX	1	014300253
21	Knob ϕ 25	2	020903000
22	Screw 7/16” UNF (B)	1	507160134
23	Bumper rubber ϕ 138	1	019400002
24	Belt A-50 (E)	1	620030042
25	Washer ϕ9x18	11	510005009
26	Self lock nut M8	11	520002008
27	Washer ϕ9x27	5	510005509
28	Screw TE M8x20	3	500008008
29	Washer ϕ11x22	8	530001800
30	Screw TE M10x60	2	500001060
31	Self-lock nut M10	4	520007010
32	Self-lock nut M12	1	520000001
33	Screw TE M10x40	4	500009410
34	Saddle	1	014300001
35	Screw TE M8x70	4	500070008

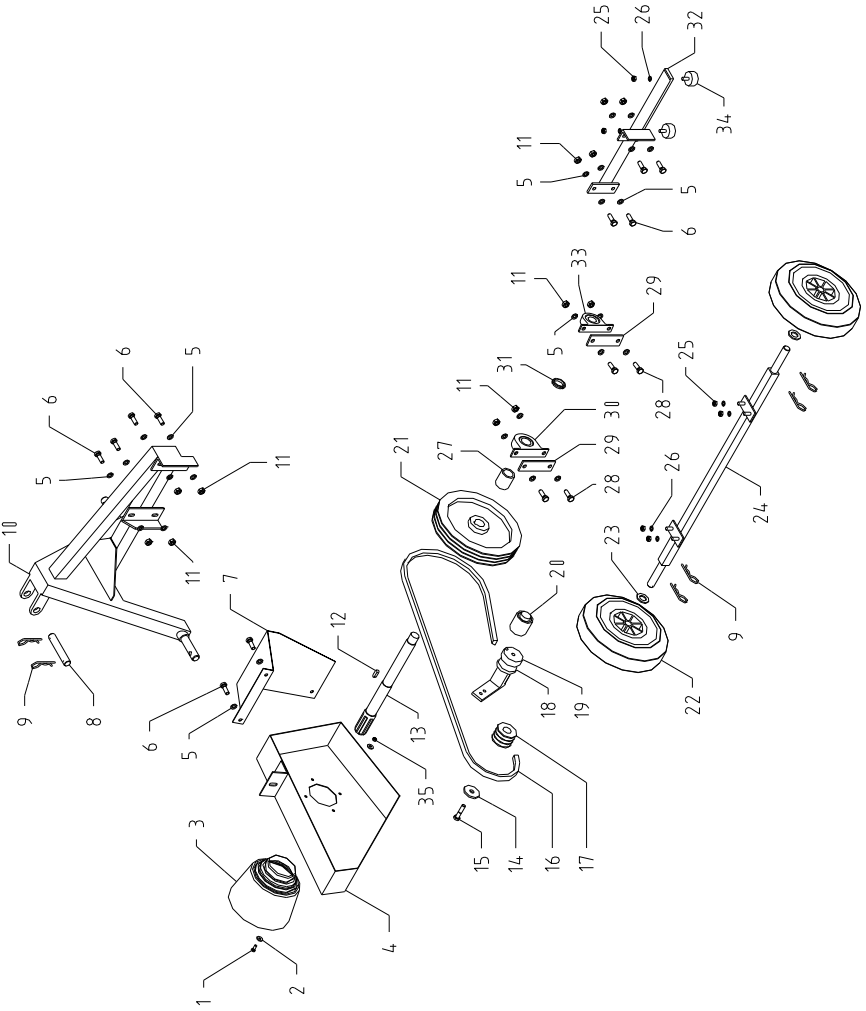
SPARES BIO 150 MTC



SPARES BIO 150 MTC

Pos.	Description	Q.ty	Code
1	Seeger ring E-20	1	510009000
2	Ball bearing 6204 2 RS	1	540001000
3	Support AR	1	010201000
4	Gudgeon pin	1	010202000
5	Cotter pin R 2,5	1	530003000
6	Decal	1	010920000
7	Shaft	1	010203000
8	Screw TE M8x20	2	500008008
9	Washer ø9x18	2	510005009
10	Self-lock nut M8	1	520002008
11	Belt cover casing	1	014300264
12	Lock pin	4	011000000
13	Connector plate	1	010204000
14	Washer ø11x22	4	530001800
15	Screw TE M10x25	4	500009010
16	Ball bearing 6205 2 RS	1	540002000
17	Seeger ring E-25	1	510011000
18	Pulley 2A 200	1	014300263
19	Foot	2	011100000
20	Pulley 2A 80	1	011200000
21	Retainer washer	2	013500010
22	Screw TSPEI M10x35	2	500001036
23	Belt A-34	2	014900010
24	Wheel	2	012600000
25	Left side panel MTC	1	010141001
26	Right side panel MTC	1	012511000

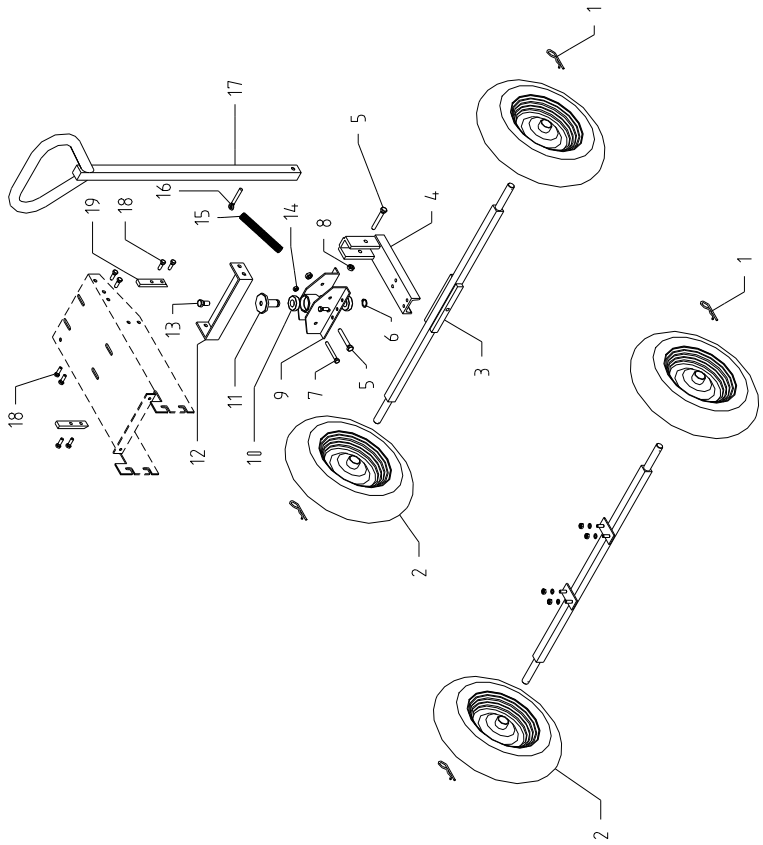
SPARES BIO 150 PTO



SPARES BIO 150 PTO

Pos.	Description	Q.ty	Code
1	Screw TE M6x16	2	520004506
2	Washer ø6x18	4	510000835
3	Protective hood P.T.O.	1	520008003
4	Belt cover casing	1	014300254
5	Washer ø11x22	26	530001800
6	Screw TE M10x30	10	500010010
7	Protective metal sheet	1	014300256
8	Gudgeon pin	1	010202001
9	Cotter pin R5	6	530001000
10	Chassis third point	1	014300262
11	Self-lock nut M10	12	520007010
12	Key	1	014300260
13	Shaft P.T.O.	1	520008002
14	Retainer washer	1	013500010
15	Screw TSPEI M10x35	1	500001036
16	Belt SPA 1180	3	520007011
17	Pulley 3A 60	1	014300255
18	Idler support	1	014310257
19	Spacer SP 20 mm	1	014320257
20	Idler ø50	1	014330257
21	Pulley 3A 250	1	014300257
22	Wheel	2	014700000
23	Washer ø20	2	510002520
24	Wheel axle	1	014600000
25	Self-lock nut M8	8	520002008
26	Washer ø9x18	9	510005009
27	Spacer	1	014300259
28	Screw TE M10x50	4	520002510
29	Plate sp 5 mm	2	520003010
30	Bearing SBPP 206	1	540005000
31	Metal ring M 30	1	530008030
32	Support foot	1	025200001
33	Bearing SBPP 205	1	540004000
34	Rubber feet	2	013900000
35	Self-lock nut M6	2	520003506

SPARES BIO 150 4 R



SPARES BIO 150 4 R

Pos.	Description	Q.ty	Code
1	Cotter pin R5	4	530001000
2	Wheel 3.50-8	4	014700001
3	Axle	1	014300270
4	Drawbar support	1	014300269
5	Screw TE M10x70	2	500070010
6	Seeger ring E-20	1	510009000
7	Screw TE M8x70	2	500070008
8	Self-lock nut M10	2	520007010
9	Swivelled bracket	1	014300271
10	Ball bearing 6004 Z	2	014300274
11	Pin	1	014300265
12	Fixed bracket	1	014300272
13	Screw TE M12x25	1	500025012
14	Self-lock nut M8	2	520002008
15	Spring	1	014300268
16	Tie rod M8	1	014300267
17	Drawbar	1	014300266
18	Screw TE M8x25	8	500025008
19	Retainer	2	014300273

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