IM 1869

TURBOMOWER 1700

(INCLUDING REPLACEMENT PARTS INFORMATION)

ISSUE 1

This manual covers the Bomford Turbomower 1700 lightweight trailed flail mowers

IMPORTANT

This machine is designed for vegetation control and must not be used for any other purpose

It is potentially hazardous to fit or use Any parts other than genuine **Bomford Turner** parts

The company disclaims all liability for the consequences of such use, which in addition voids the machine warranty

We reserve right to modify the technical data and characteristics of the machines at any time without prior notice.

EC DECLARATION OF CONFORMITY

Conforming to EEC Directive 98/37/EC

We,

Bomford Turner Ltd, PO Box 18, Salford Priors, Evesham, Worcestershire WR11 5SW

Declare under our sole responsibility that

The product (type): ***Tractor Mounted Flail Mower***

Product Code: ***MA17***

Serial No……..……. *Date ……*

Manufactured by the above company

Complies with the required provisions of the Directive 98/37/EC and,89/336/EEC AMD 92/31/EEC, AMD 93/68/EEC, and Conforms with European Norm. BS EN 292.

Part 1:1991 Safety of Machinery – Terminology, Methodology.
Part 2 1991 Safety of Machinery – Technical Specifications

And other national standards associated with its design and construction as listed in the Technical File.

Signed ……..……
On behalf of ***Bomford Turner Ltd*** *Responsible Person*

Status: ***Chief Design Engineer*** *Date:* ***05/04/02***

1. GENERAL INFORMATION

1.1 Before Use

This operation and maintenance manual is intended for operators and maintenance personnel and should be read and fully understood before operating or working on the machine. It is mandatory to follow these instructions in order to prevent events which could endanger the operator's and other people's safety. In case of doubt, do not experiment; call Bomford Customer Service Department or your local Bomford dealer.

1.2 Machine Identification

Each mower is fitted with an identification plate with the data necessary to identify the model and serial number to order replacement parts or after sales service stamped on the plate.

1.3 Replacement Parts

It is strongly recommended to use genuine replacement parts to avoid altering the technical features of the mower. Bomford Turner do not accept responsibility for any damage or injuries to people due to unauthorised modifications or the use of non-genuine replacement parts.

2. TECHNICAL INFORMATION

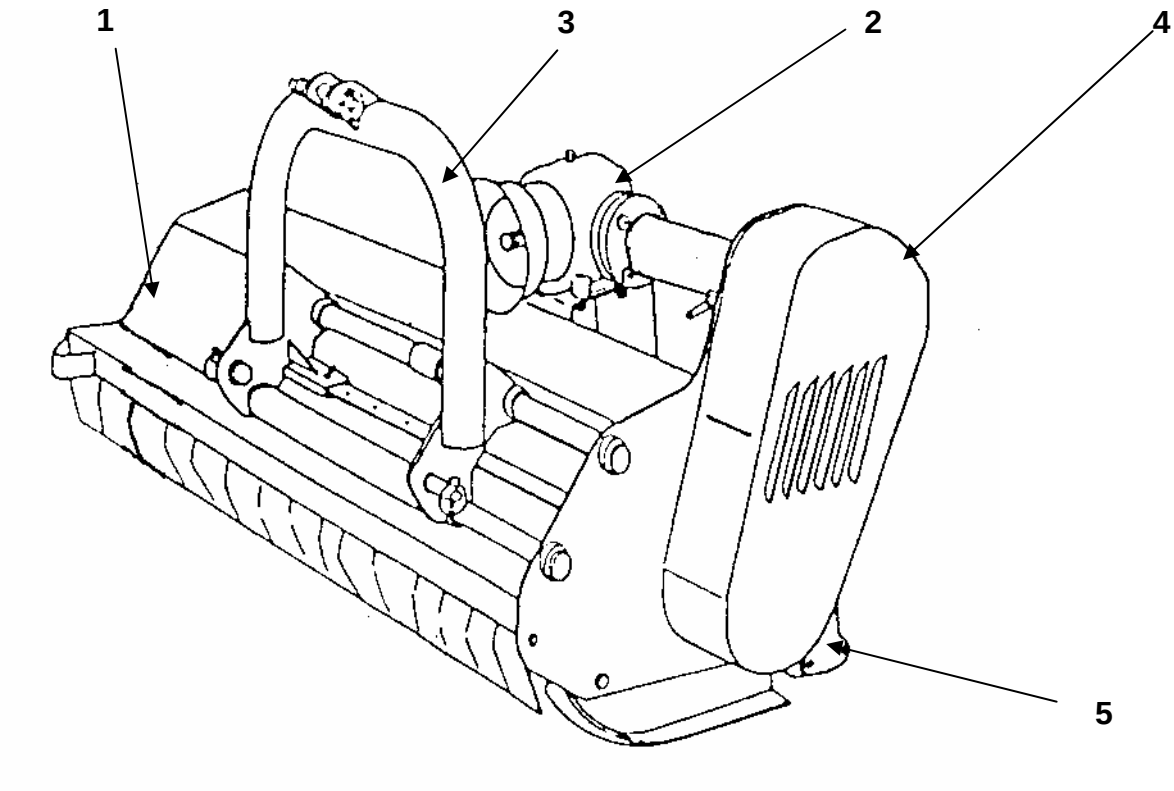
2.1 Designed Use

The Turbomower has been designed to cut amenity areas, light scrub, vegetable crop residues and most annual growth. A sliding A frame allows the machine to be semi offset.

Any other use is considered improper and the manufacturer disclaims all responsibility for any consequential injuries to people, or for damage to the machine. Before use read the safety and maintenance instructions provided by the manufacturer.

2.2 General Arrangement *(see diagram below)*

1 - Cowl
2 - Gearbox
3 – frame
4 – Drive guard
5 - Rear adjustable roller
6 - Flails



2.3. Technical Specifications

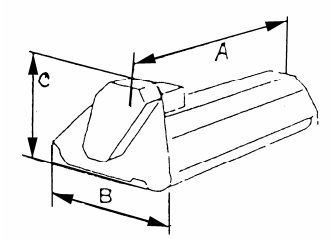


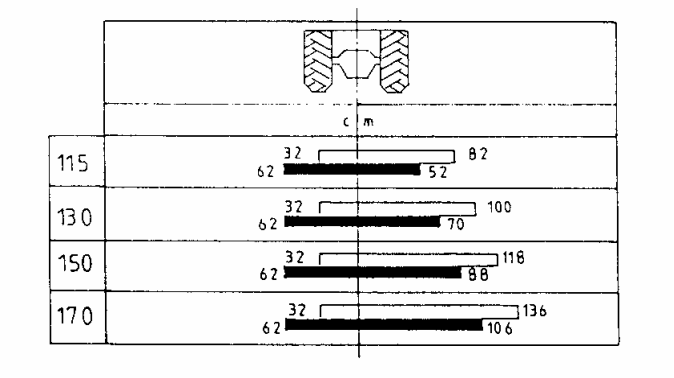
Table.1

Mod.		*	*	*	**1700**
Width of cut	cm	114	132	150	168
Min.tractor required power	KW/HP	18-23/ 25-30	23-27/ 30-35	27-30/ 35-40	30-38/ 40-50
Power takeoff speed	rpm	540	540	540	540
Weight	kg	200	220	250	285
Attachment to the tractor	Cat.	II	II	II	II
Y-blades	Nr.	48	56	64	72
Fine Cut blades	Nr.	24	28	32	36
Width A	CM	134	152	170	188
Length B	CM	76	76	76	76
Height C	CM	80	80	80	80

2.3. Width of cut

Table. 2 shows the dimensions of cut of the mower.

Table 2



2.4. Equipment

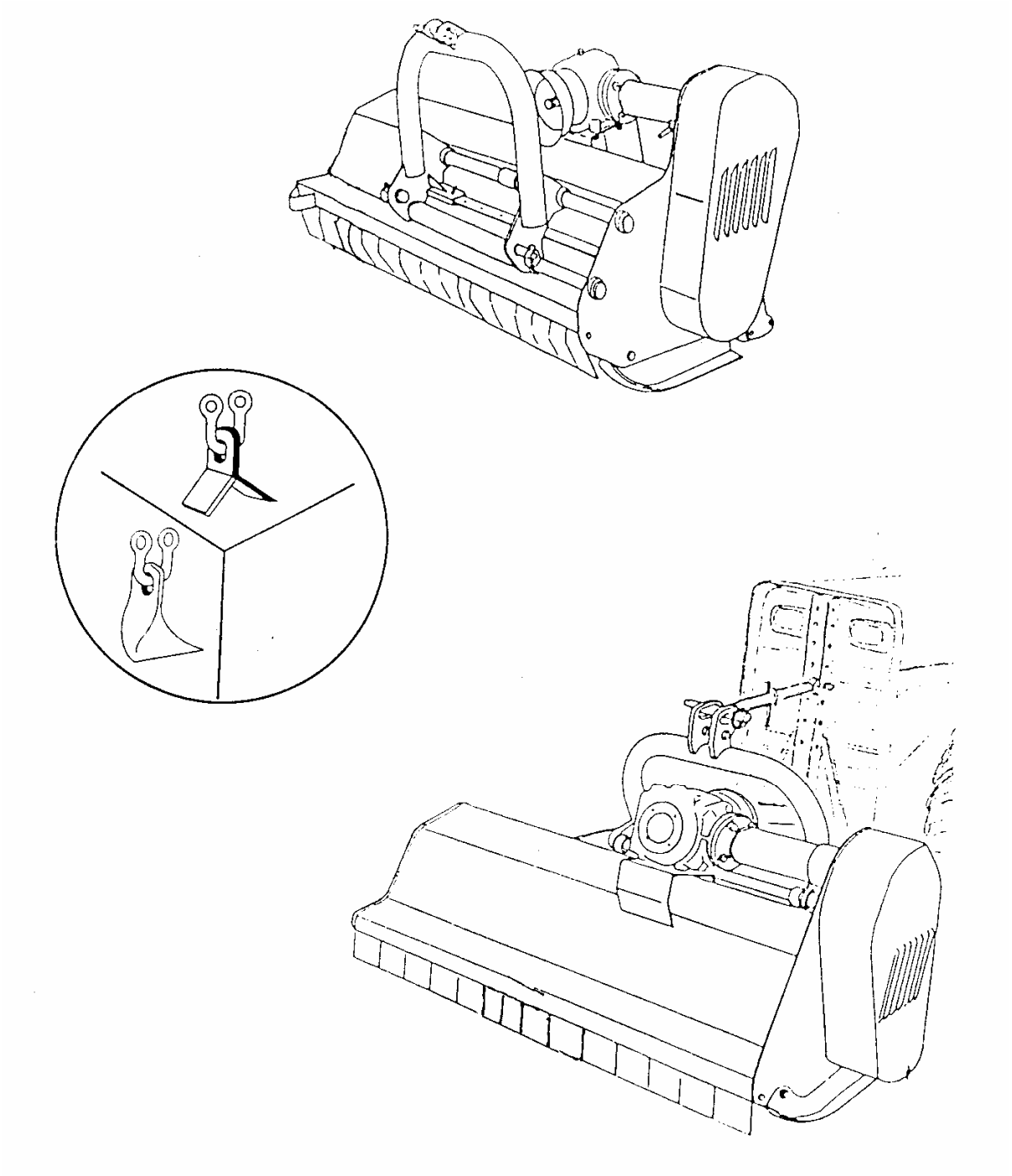
Table 3

Equipment MA	*	*	*	**1700**
Y-blades	♦	♦	♦	♦
Fine cut blades	□	□	□	□
Rear roller	♦	♦	♦	♦
Mechanic side movement	♦	♦	♦	♦
Hydraulic side movement	□	□	□	□
skids	□	□	□	□
Hydraulic rotary side cutter	□	□	□	□

♦ = Standard eqt

□ = Optional eqt

2.5. Options



3. SAFETY INFORMATION

3.1 General Safety Rules:

- It is mandatory to read and follow the instructions for the use and maintenance before carrying out any operation with the mower
- Improper or incorrect use may seriously damage the machine or injure people.
- Both the operator and the maintenance fitter must be aware of the dangers resulting from improper use or incorrect repairs.
- Before starting, checks on tractor and mower must be carried out with regard to Functionality, road safety, accident prevention rules.
- Even when using the mower correctly, stones or other objects may be thrown a long distance. Therefore nobody must stand within the danger area. Special attention must be paid when working near roads or buildings.
- Use tractors with safety cabs.
- The condition of flails and of all guards must be checked before beginning work. They must be replaced if damaged or missing.
- During checks or repairs, make sure nobody could start the tractor or mower by mistake,
- Never wear loose clothes.
- Never carry passengers on the tractor or mower.
- Never connect the power take off with the engine running
- Never approach the mower until the rotor shaft has completely stopped.
- Do not enter the working zone of the PTO shaft. It is dangerous to approach the rotating parts of the machine.
- Keep the PTO shaft guard in good order.
- Before starting check the surrounding area for the likely presence of children and/or animals.
- Do not stand in the range of the operation of the machine.
- The PTO shaft must be fitted and removed with the engine stopped and the starting key removed.
- Before connecting the power takeoff, check that the speed and the rotational direction correspond to those of the mower.
- Before leaving the tractor with the mower attached, proceed as follows:
  1. Disconnect the power takeoff,
  2. Lower the machine to the ground (with the tractor hydraulics)
  3. Apply the hand brake and, if on a steep slope, chock the tractor.
  4. Remove the ignition key.
- Immediately replace any safety sign, or any missing or damaged decal.

3.2 Safety Rules concerning Road Traffic

- In transport, reduce speed, especially on bumpy roads. The weight of the mower may make driving difficult and damage the mower itself.
- Check that the levers that operate the hydraulics are locked, to avoid the lowering of the machine during transport.
- When driving on public roads, respect all road rules.
- Never transport the mower with the rotor moving.

3.3 Safety Rules during use

- Pay special attention when working to avoid fixed objects, such as road drain covers, walls, shafts, kerbs, guard rails, tracks etc. These could cause the breakage of the flails, debris from which would be thrown at very high speed.
- If wires, ropes or chains should get entangled in the rotor, stop immediately, to prevent damage or dangerous situations; stop the rotor and the tractor, take out the starting key. Put working gloves on; clear the rotor with the aid of pliers or shears. Do not try to disentangle by reversing the rotor to clear itself.
- Do not use the machine when there is vibration in the flail head, as this could cause breakage or serious damage. Stop the machine and investigate the cause of the vibration.

3.4 List of Guards fitted to the Mower *(see diagram below)*

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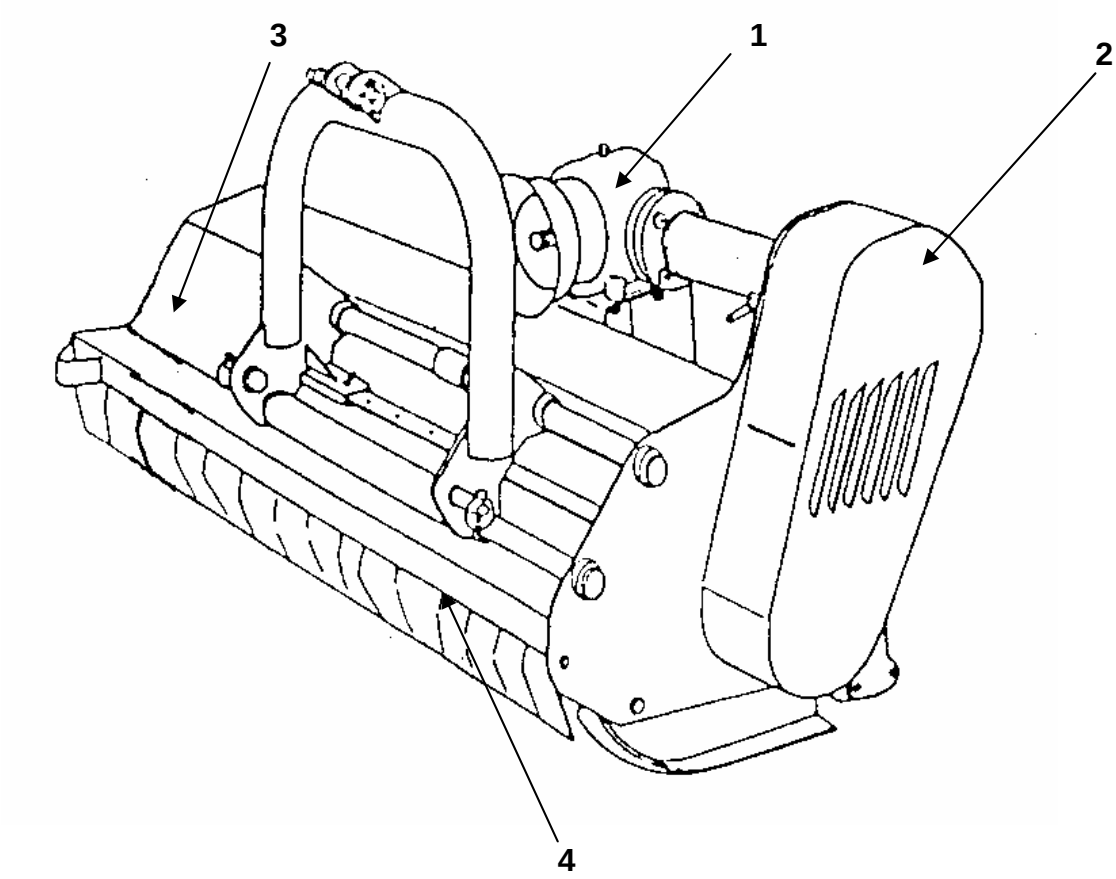
1. PTO shaft guard
2. Belt guard
3. Danger and warning decals
4. Front guard



3.5 Description and Location of Safety Decals

Carefully follow the instructions given on the decals *(see illustrations below).*

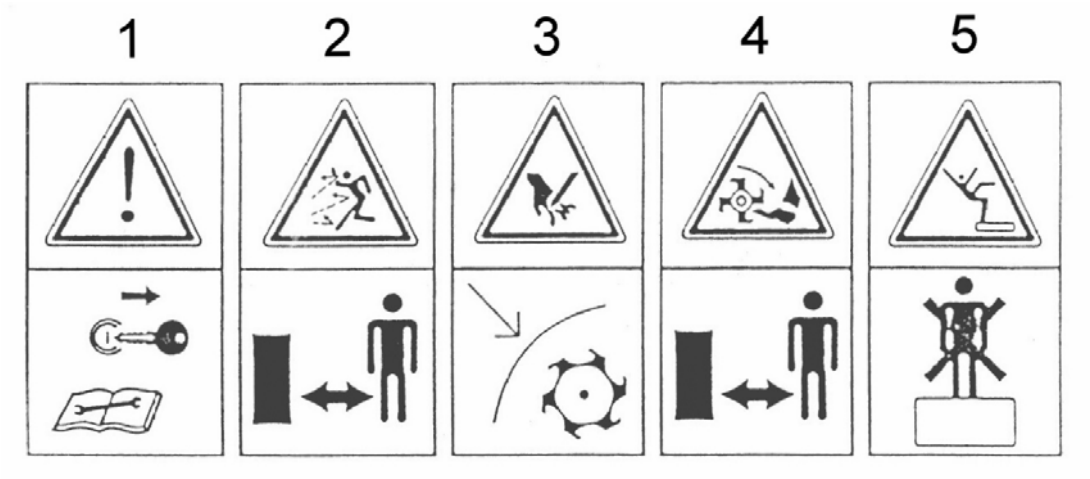
1 Always remove the ignition key and read the instructions carefully before starting servicing and/or maintenance operations.

2 Keep bystanders at a safe distance from the machine to avoid the risk of flying of objects.

3 Never remove the guards while the parts of machine are moving. It is dangerous and may cause injury.

4 Keep at a safety distance from the machine to avoid the risk of injuring feet.

5 It is forbidden to ride or travel on the machine because of the risk of falling or injury



4. INSTALLATION AND HANDLING

4.1 Lifting and Moving

To move the mower use a fork lift truck with a lifting capability suitable for the weight of the machine *(see technical specifications on page 5).*

4.2 Unpacking

To make transport easier, the machine can be supplied with the A frame removed In this case use the bolts, locknuts and washers supplied to fix the frame and the brackets on the machine.

4.3 Attachment To and Removal from Tractor

Before carrying out this operation and whenever the mower is used, it is mandatory to:

Visually check the machine in general for damage
.
Check that all guards are fitted and in good condition.

Check that all flails are in place and in good condition.

Grease the bearings and any other part as indicated by the decal.

Check that the number or revolutions and the rotational direction of the power takeoff correspond to those required by the machine *(see Fig6 below).*

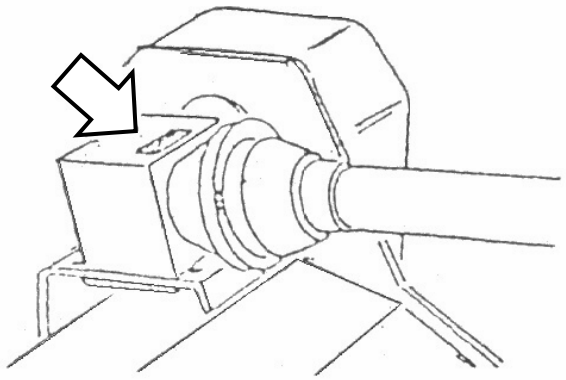


Fig 6

To attach the machine to the tractor: *(see Fig 7 below)*

Position the tractor lower links (1) near the machine, in line with the pins.
Insert the pins (2) and secure them with the spring clips (3).
Fit the top link (4), and raise the machine to a position parallel with the ground.
Adjust the two-tractor lower linkage stabilisers (5) thus fixing the machine to the tractor in a central position.

Proceed in reverse order to detach the mower from the tractor.

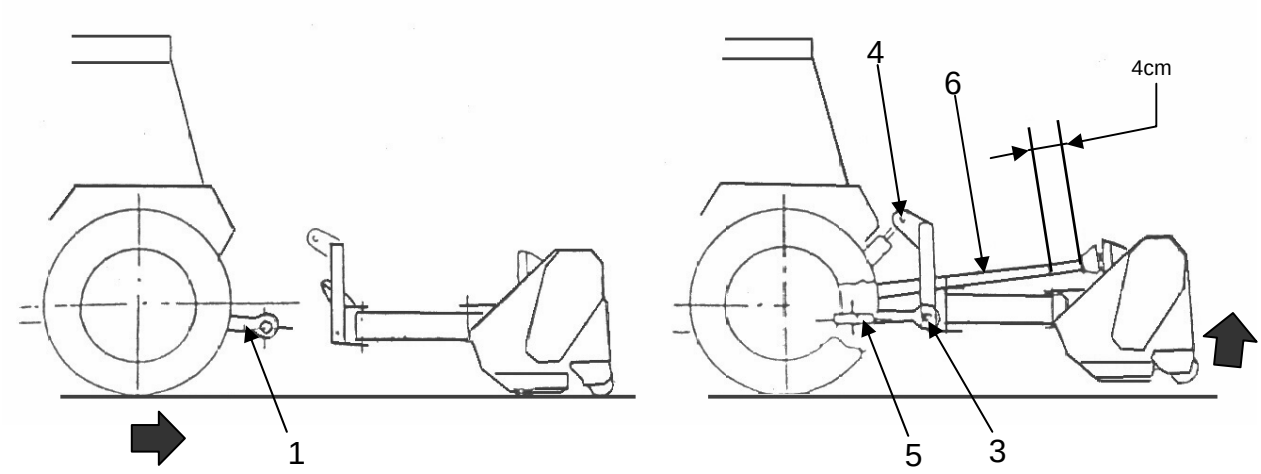


Fig 7

4.4 Fitting the PTO shaft

Follow the Instructions in 4.3 then assemble the PTO shaft (6) and check that the overlap is not less than 2/3 of L. Be sure to keep a 4 cm backlash *(see illustration above)* if it needs shortening, proceed as shown below *(see Fig 8).*
The guards of the PTO shaft must be fixed to the machine and to the tractor with chains, to prevent rotation. The minimum overlap of the guard and the PTO shaft must not be less than 5 cm. *(see Fig 9 below).*

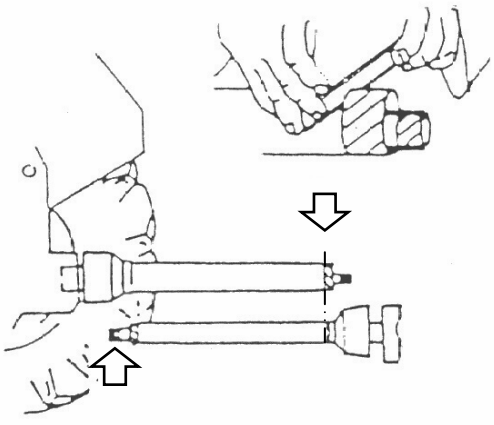


Fig 8

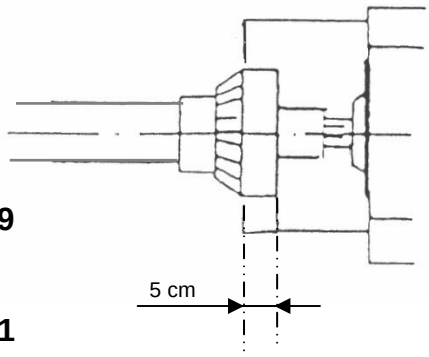


Fig 9

4.5 Tractor Stability

Due to the design of the mowers and the work they do, it is essential to ensure tractor stability, in order to eliminate any risk of overturning.
Lift the machine and check that the tractor is stable. Ballast the rear wheel of the tractor opposite to the offset of the mower (if necessary) and at the front of the tractor *(see Fig 10 below).*

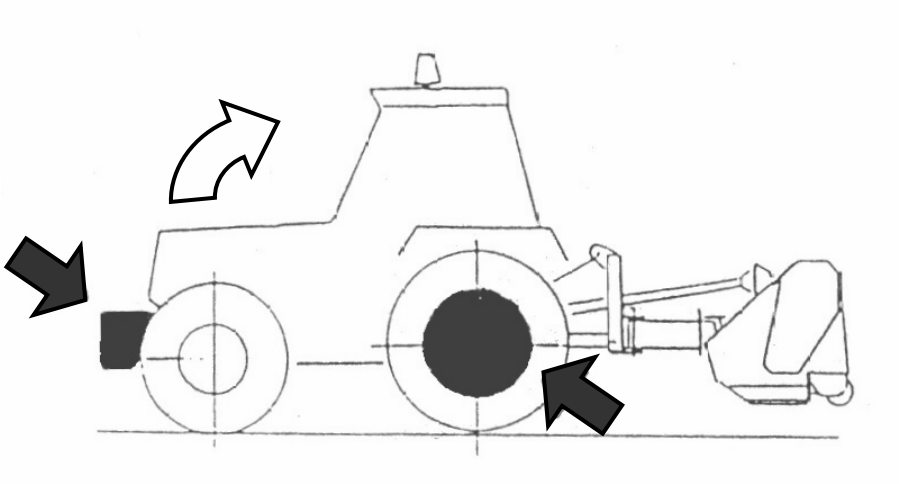


Fig 10

4.5 Parking

Park the machine in a safe place on flat and firm ground in order to prevent the risk of rolling over.
Lower the mower to the ground with the aid of the tractor hydraulics. *(See Fig 11 below)*

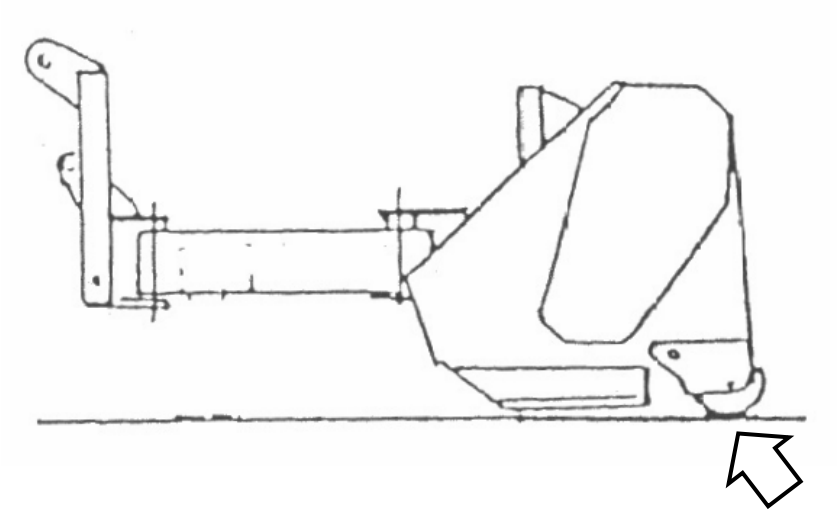


Fig 11

5. ADJUSTMENT AND SETTING UP

5.1 Adjustment

Adjustment of the height of cut is obtained by moving the rear roller in order to suit the material to be cut *(see Fig 12 below).* Do not adjust the height with the top link.

IMPORTANT: Flails must never touch the ground.

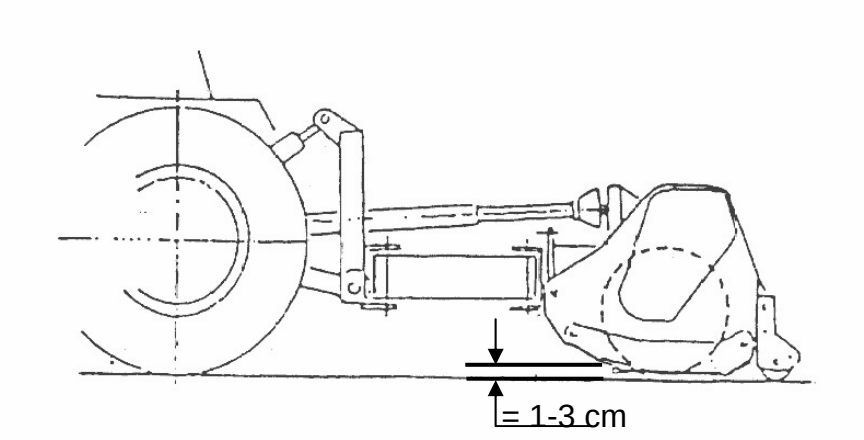


Fig 12

6.USE AND OPERATING INSTRUCTIONS

6.1 Starting

Before using the mower check the tightness of all bolts and the condition and security of all guards. Check that the number of revolutions and the rotational direction of the power takeoff of the tractor correspond to those required by the machine. Refer to decal on the gearbox *(see page 10).* Engage the PTO at low engine RPM to avoid damaging the transmission gearbox and belts.

6.2 Working Mode

Adjust the machine to suit the type of work to be done and the material to be cut: adjust the height of cut, as shown *(see Fig 12)).*

Working speed is chosen to suit the material to be cut and the degree of shredding required. The optimum speed ranges from 3 to 8 km per hour.

IMPORTANT: When side moving the machine, lift the machine off the ground to avoid damage to the frame *(see Fig 13)*

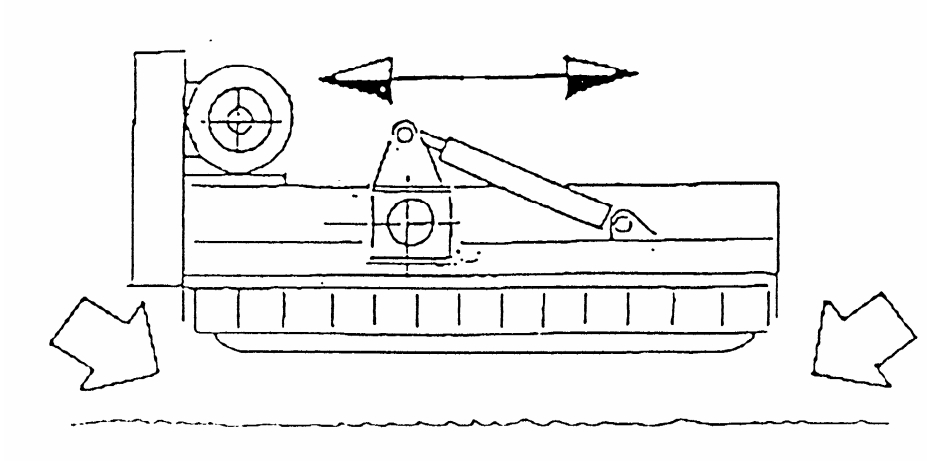


Fig 13

IMPORTANT: When reversing lift the machine off the ground to avoid damage. *(See Fig 14 below)*

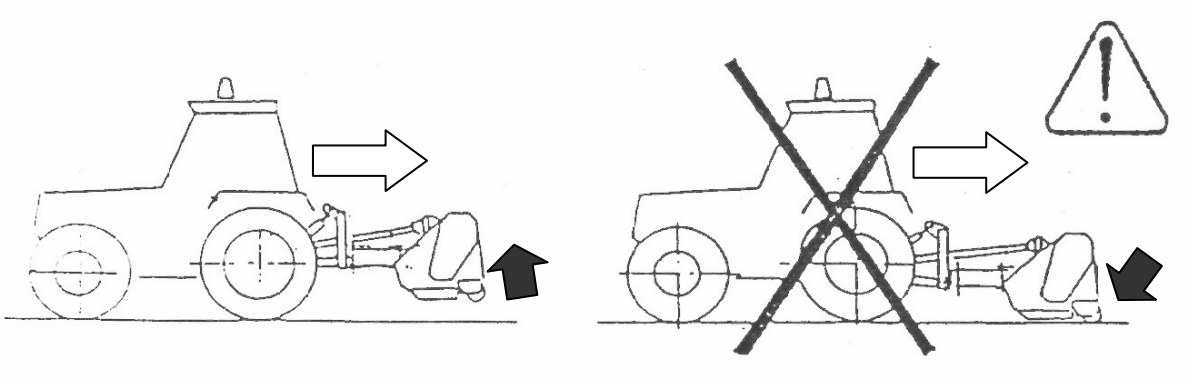


Fig 14

6.3 Stopping

Lower the machine to the ground.

Stop the tractor, take out the starting key and apply the hand brake.

Disconnect the power takeoff.

If the ground is sloping, block the tractor wheels.

6.4 Transport Position

For transport it is mandatory to:

Observe all road transport requirements and note the necessary warning signs.

Reduce speed especially on bumpy roads, The weight of the machine may render driving difficult and damage the machine itself.

The power take off must be disconnected.

IMPORTANT:
During transport on bumpy roads it is mandatory to move the machine into the central position.

7. MACHINE MAINTENANCE

7.1 General

All maintenance, cleaning and repair operations must be carried out with the mower firmly lowered to the ground and detached from the tractor, or with the PTO, disconnected and the tractor engine switched off and starting key removed.

After the first two hours operation from new (or after fitting new belts) check belt tension.

Regularly and after every 8 hours of machine operation:

Tighten bolts and nuts.

Check wear and condition of flails.

Check the safety guards.

Check belt condition.

Visually check the frame to detect possible damage caused by earlier work.

Check gearbox and oil levels.

Grease the parts indicated on the appropriate decal. *(See Fig 15 below)*

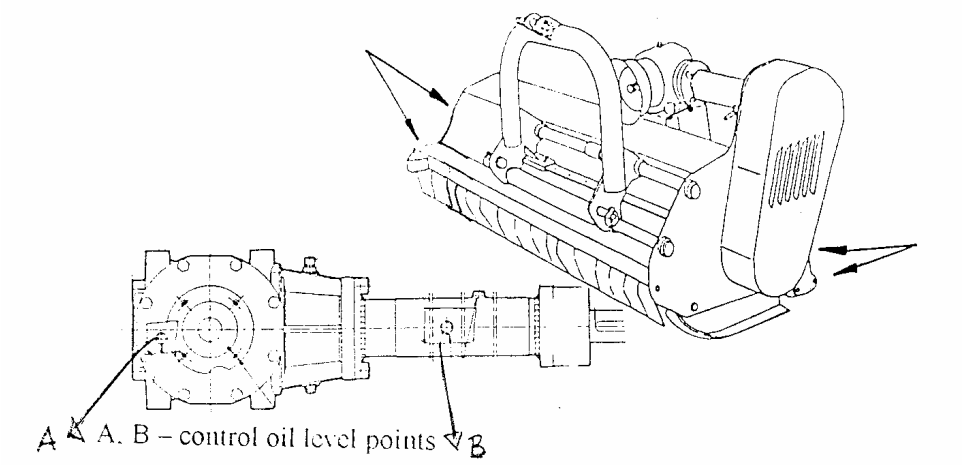


Fig 15

Every 100 hour's operation grease the moving parts of the PTO shaft, extracting the two parts of the shaft.

At the end of each working day or when storing the machine remove mud or other material from the cowl and rotating parts (bearings, pins etc.) in order to avoid rust and possible seizure. Fully grease the machine as described above.

After long periods of inactivity, repeat the operations above before using the machine.

Use grease classification DIN 51825 (KR 2 K)
For gearbox use compatible oils - classification ISO VG 220

7.2 Trouble Shooting Chart

PROBLEM	CAUSES	REMEDIES
Irregular cut	-worn, bent or broken flails - machine is not in level with the ground - clogged material due to excessive working speed	- replace - level it - reduce working speed
Machine noise	- loose bolts - cracks or initiation of flail head	- Tighten bolts - Have it repeared in specialized workshops
Gearbox noise	- lack of oil - worn gears - worn bearings	- fill to level - replace - replace
vibration	- broken or worn flails - unbalanced rotor - worn rotor bearings	- replace - replace in authorized workshops
Premature flail wear	- flails touching the ground	- adjust the height of cut
Excessive backlash in joints	- worn pins	- replace
Breakage of roller bearings	- Violent impact on the ground when the machine is lowered - Dirty or little greased bearings	- Lower it gently - Clean and grease
Belts overheating	- Flails touching to the ground - Working speed unsuitable to the amount of the material to be cut	- Adjust the height of cut - Reduce speed

7.3. Replacing Parts

Before carrying out any work, it is mandatory to:

- Lower the machine to the ground
- Disconnect the power takeoff, stop the tractor and take out the starting key.
- Wear working gloves

7.3.1 Flail replacement

When the flails are worn, they must all be replaced. In case of a partially broken flail it is advisable to replace the broken one and the one diametrically opposite, in order to maintain the balance *(see Fig 16 on page 18).*

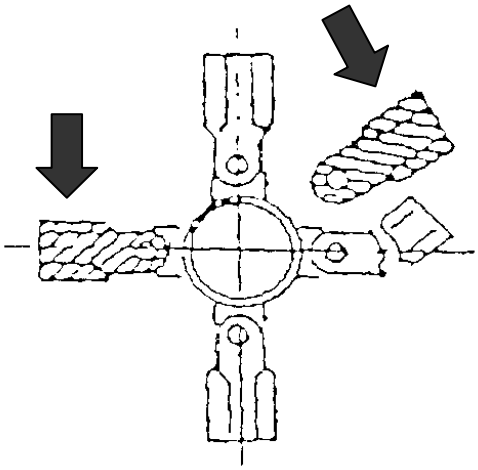


Fig 16

7.3.2 Belt Replacement

This operation must be carried out with the machine resting on the ground, the power take-off disconnected and the starting key out.

Remove the belt guard; slacken the screws (1) *(see Fig 17 below)*,

Unscrew the adjuster (2), remove the belts and replace them with identical ones (dimension and type).

IMPORTANT: more complex operations must be carried out in authorised workshops.

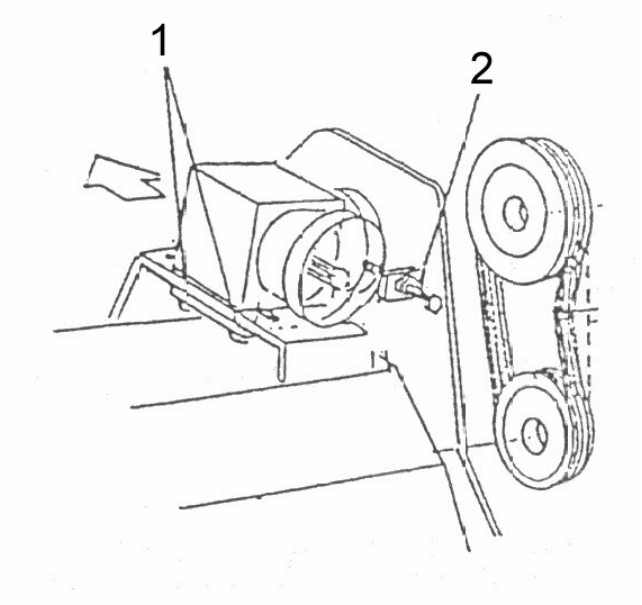


Fig 17

8. DISPOSAL

8.1 Safe Disposal of Machine

When the machine is at the end of its useful life and beyond economical repair it should be disposed of in a safe and proper manner. The materials forming the machine that have to be separated and disposed of are:

Steel

Mineral oil

Rubber

Plastic

Disposal of the above materials must be in accordance with current local legislation

NOTES

Replacement Parts Section

For best performance…

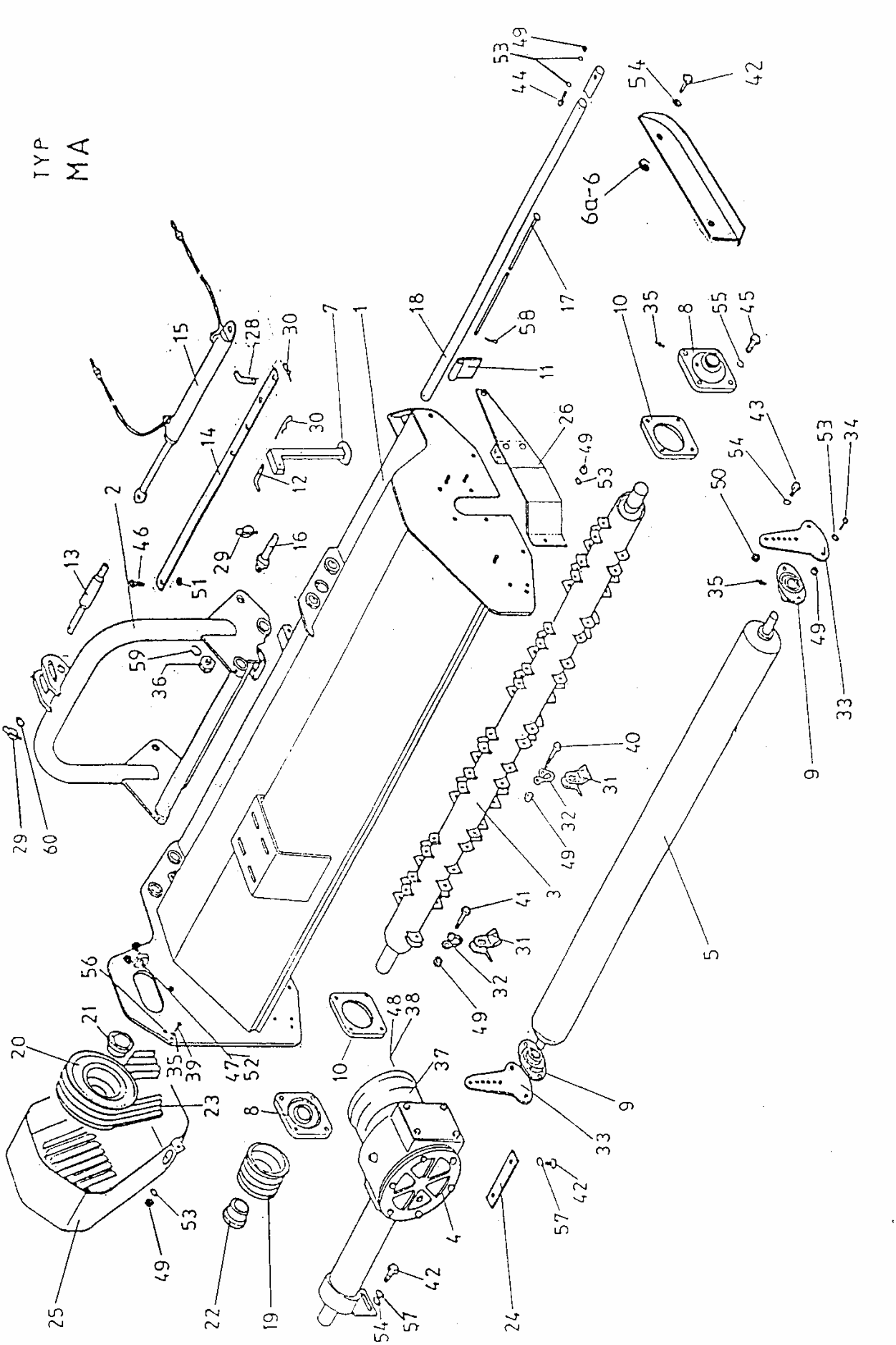
USE ONLY GENUINE SERVICE PARTS

To be assured of the latest design improvements purchase your 'Genuine Replacements' from the Original Equipment Manufacturer through your local Dealer or Stockist.

Always quote:

- ***Machine Type***
- ***Serial Number***
- ***Part Number***

Design Improvements may have altered some of the parts listed in this manual – The latest part will always be supplied when it is interchangeable with an earlier one.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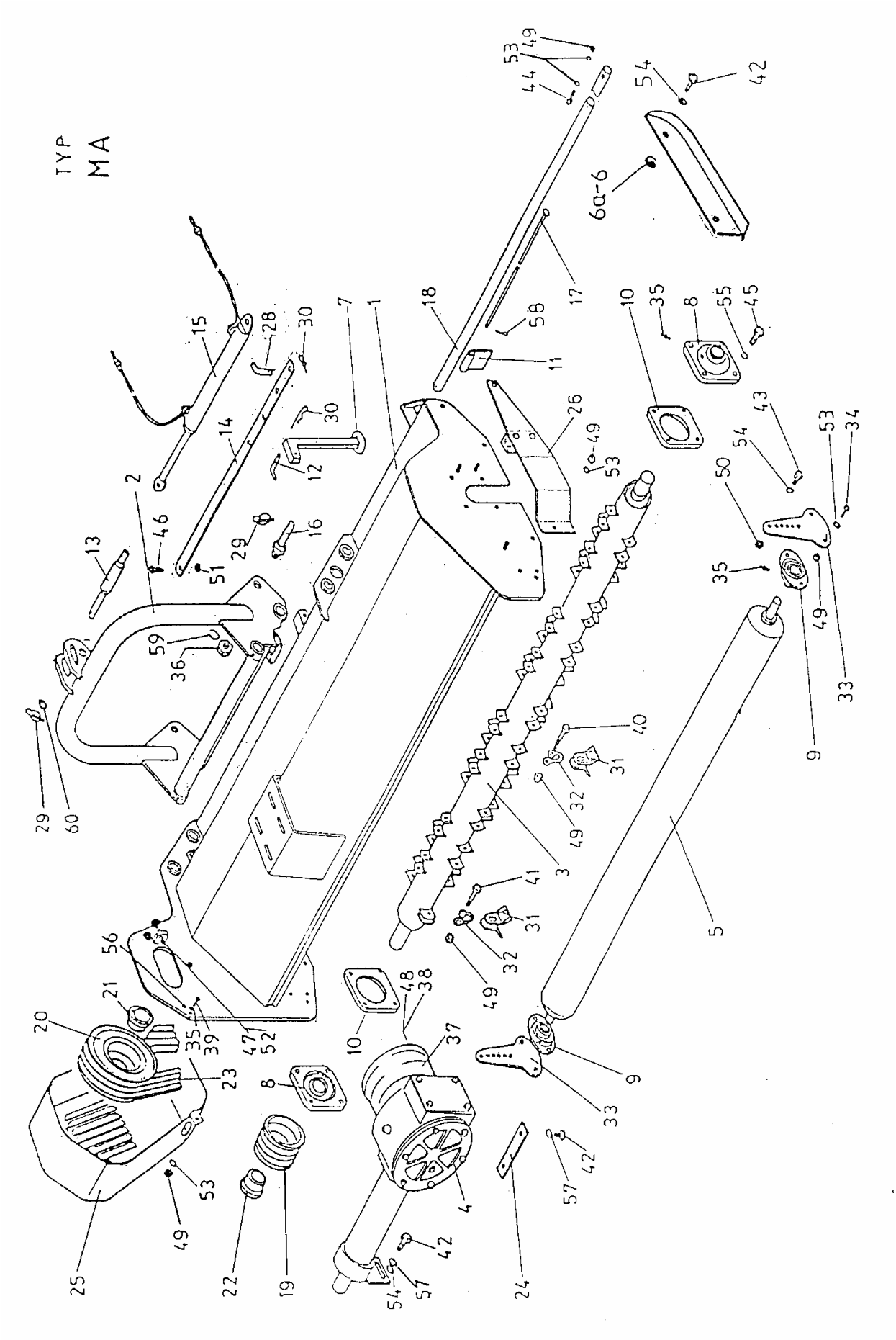
11 SPARE PARTS

Nr.	*Part*	**Code**	*	*	*	***1700***
1	Frame 115	10870	1			
	Frame 130	10871		1		
	Frame 150	10872			1	
	Frame 170	10873				1
2	Connecting Bow	11425	1	1	1	1
3	Rotor 115	10906	1			
	Rotor 130	10907		1		
	Rotor 150	10908			1	
	Rotor 170	10909				1
4	Gear box	10954	1	1	1	1
5	Roller rear 115	10923	1			
	Roller rear 130	10924		1		
	Roller rear 150	10925			1	
	Roller rear 170	10926				1
6	Skid - Left	10951	1	1	1	1
6a	Skid - Right	10950	1	1	1	1
7	Support	11453	1	1	1	1
8	Bearing with casing16209	11671	2	2	2	2
9	Bearing with casing16205	11641	2	2	2	2
10	Bearing Support Plate	11609	2	2	2	2
11	Flap 140	11436	8	9	10	11
12	Pin fl8	11598	1	1	1	1
13	Pivot Pin f9/25	10991	1	1	1	1
14	Blocking Rod	10931	1	1	1	1
15	Hydraulic Cylinder cpl.	10578	1	1	1	1
16	Pivot Pin M24	10940	2	2	2	2
17	Flap Rod 115	10919	1			
	Flap Rod 130	10920		1		
	Flap Rod 150	10921			1	
	Flap Rod 170	10922				1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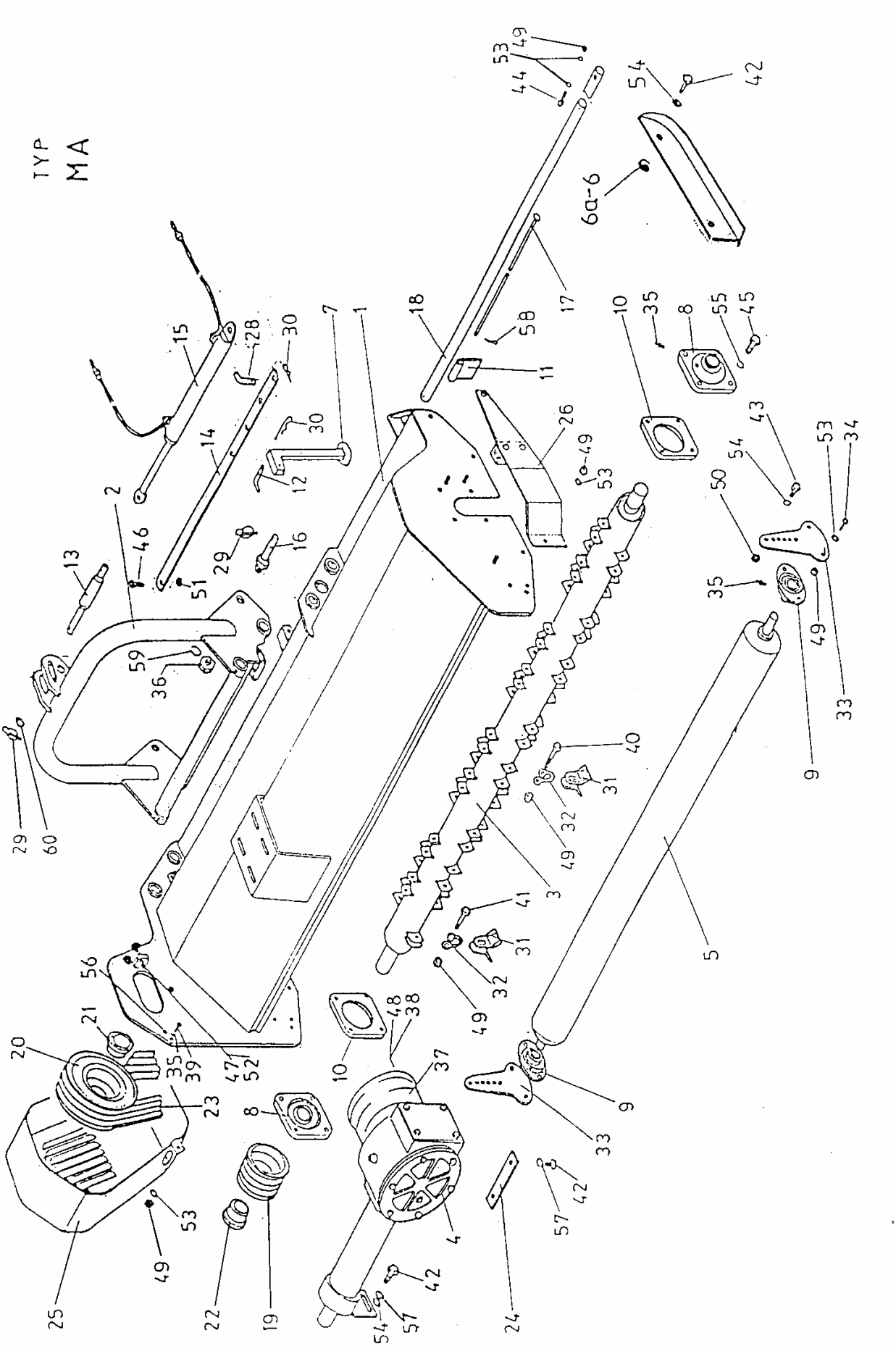
Nr.	*Part*	**Code**	*	*	*	***1700***
18	Guidance	10945	2	2	2	2
19	Pulley 130 – 115/130	10762	1	1		
	Pulley 130 – 150/170	11912			1	1
20	Pulley 180 – 115/130	10756	1	1		
	Pulley 180 – 150/170	11915			1	1
21	Cutch elve 80/40	10759	1	1	1	1
22	Clutch elve 80/45	10760	1	1	1	1
23	Belt	10447	2	2	3	3
24	Support Plate	10986	2	2	2	2
25	Belt shield	10947	1	1	1	1
26	Side Protection	10948	1	1	1	1
28	Pin fi 14	11597	1	1	1	1
29	Safety Pin fi 10	11618	3	3	3	3
30	Safety Pin R3	10327	2	2	2	2
31	Y-blade	10868	48	56	64	72
31a	Fine Cut Blade		24	28	32	36
32	Ring	11003	24	28	32	36
33	Roller Bracket	10956	2	2	2	2
34	Bolt M10	10260	4	4	4	4
35	Grease Nipple AM6	10394	3	3	3	3
35	Grease Nipple M6x1	12250	1	1	1	1
36	Nut M24	11886	2	2	2	2
37	Shield PVC	11002	1	1	1	1
38	Bolt M8	11624	4	4	4	4
39	Bolt M10	10259	1	1	1	1
40	Bolt M10	11004	20	24	28	32
41	Bolt M10	11005	4	4	4	4
42	Bolt M12	10998	9	9	9	9
43	Bolt M12	10270	4	4	4	4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Nr.	*Part*	**Code**	*	*	*	***1700***
44	Bolt M10	10264	2	2	2	2
45	Bolt M14	11835	8	8	8	8
46	Bolt M14	11006	1	1	1	1
47	Bolt M16	11052	1	1	1	1
48	Washer 8	10218	4	4	4	4
49	Locknut M10	10202	35	39	43	47
50	Locknut M12	10203	4	4	4	4
51	Locknut M14	10204	1	1	1	1
52	Nut M16	10193	1	1	1	1
53	Washer M10	10219	13	13	13	13
54	Washer M12	10220	9	9	9	9
55	Spring washer 14	10234	8	8	8	8
56	Spring washer 10	10232	1	1	1	1
57	Spring wash.12	10233	5	5	5	5
58	Split pin	10450	1	1	1	1
59	Spring washer 24	11631	2	2	2	2
60	Washer M20	10224	1	1	1	1

76.754.03 MISCILLANIOUS PARTS

Part No.	**Description**	**Qty**
05.774.07	SERIAL NUMBER PLATE	1
05.227.01	HAMMER DRIVE SCREW	4
43604.01	DECAL – TURBOMOWER	1
43604.04	DECAL – 1700	1
45645.02	DECAL – BOMFORD	1
41544.04	PTO ASSEMBLY	1