

John Berends Implements Pty Ltd

AGRICULTURAL ENGINEERS

OPERATOR'S MANUAL PARTS LIST



Rotary Slashers - EP

PRODUCT NO.

0051 EP 100 (3'4") Slasher,

0056 EP 120 (3'10") Slasher, Dual Mount 0061 EP 135 (4'6") Slasher, Dial Mount 0062 EP 150 (5') Slasher, Dual Mount 0063GAL EP180 (6') Slasher, Dual Mount

0065 EP Slasher Wheel Kit (Pneumatic Wheel)

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TABLE OF CONTENTS

	Page No.
TROUBLE SHOOTING	2
SAFETY INSTRUCTIONS	
INTRODUCTION	5
SAFETY FEATURES	6
ASSEMBLY	7
OPERATION	7
MAINTENANCE	9
SPARE PARTS	11

<u>Trouble Shooting</u>

<u>Defect</u>	<u>Component</u>	<u>Possible Cause</u>
Vibration	P.T.O shaft	Twisted/bent shaft Universal joints damaged or worn Lifting slasher too high while P.T.O. engaged
	Rotor and blades	Damaged due to obstruction by foreign object Blades not loose on bushes
Excessive noise	Gearbox	Worn or loose bearing No oil
	P.T.O. shaft	Lifting slasher too high while P.T.O. engaged
Leaking oil	Gearbox	Loose/damaged seals and/or bearings
Excessive heat	Slip Clutch	Worn friction discs Incorrect spring adjustments Incorrect positioning of pressure plate
	P.T.O. shaft	Needs lubrication



SAFETY



Farm machinery is dangerous if operated incorrectly so please read this manual in its entirety prior to operating the machine.

No operator, however experienced in farm machinery operation, should attempt to use any machine they have not been competently trained to use. Your local Department of Agriculture can help you with training, as can most Occupational Health and Safety offices, Agricultural schools and colleges and farm equipment dealerships.

All instructions relating to tractor safety as per the tractor operators manual should be followed. When making any machine adjustments, stop the tractor engine first and wait for all moving parts to stop. Maintain the tractor to ensure it remains safe to use. Do not operate faulty or damaged equipment.

Extreme caution should be taken when fitting equipment to the tractor's three point linkage. Avoid standing between the implement and the tractor when coupling machinery.

All machines should be mounted and retained correctly. All guards must be kept in place and correctly maintained. P.T.O. shafts must be correctly attached and secured to both the tractor and the machine. Decals must be visible and legible at all times. Keep well clear of all moving parts.

Keep all people and animals at a safe distance from all moving parts. Children must not be allowed to operate this equipment and all passengers must have the same level of protection as the operator.



Wear protective clothing where appropriate.

Never operate when tired (not alert) or in poorly lit areas and stay alert for humps and other hidden hazards. Remove all timber, rocks and foreign objects prior to operation.



Avoid operating the machine in wet conditions.

Exercise extreme caution when changing direction on hills. Avoid sudden movement, sudden breaking, high speeds, rough terrain and steep slopes.



If machine starts to vibrate, stop tractor, turn off engine and investigate.

After striking a foreign object or if there are doubts about the performance of the machine, stop the tractor as described and check if machine is making excessive noise.

Extreme caution must be taken when working in public areas (roadsides etc). It is recommended that chains are fitted to slashers when operating in public areas. These are available as optional extras.



Watch overhead clearance and beware of underground pipes and cables.

Where fitted, hydraulic hoses and fittings must be maintained so as to prevent damage.

Do not modify this equipment in anyway, or use it for any other purpose than it was designed to do.

Never work under unsupported machines or adjust unsupported machines. Do not enter the danger zone where a load being carried by a machine could fall on you, for example a round bale from a bale fork, a log from a carryall or material from a rear end loader.

These instructions should be used in conjunction with any local regulations regarding safety ie OHS.

Maintenance is essential for safe operation. Ensure maintenance is carried out regularly by people qualified to do so. This is of particular importance on P.T.O. drive machines where driven parts can fly off at high speed if wearing parts are not properly maintained.

FAILURE TO FOLLOW THESE INSTRUCTIONS AND PROCEDURES MAY RESULT IN EQUIPMENT MALFUNCTION, OR DAMAGE, SERIOUS INJURY OR EVEN DEATH.

INTRODUCTION:

This manual was developed specifically for the machine you have purchased. The information within is to assist you in preparing, operating and maintaining your machine. Please read and understand the contents of the manual completely before attempting to operate your machine, paying special attention to <u>all</u> safety details. With our policy of continuous improvement, products and specifications may change without notice and without incurring the obligation to install such changes on any unit previously delivered.

EP Slashers

Horsepower requirements largely depend on terrain and what is being cut, however the following specifications are a guide. You can use higher HP tractors on all models but the vegetation being cut needs to be considered when doing this. All EP slashers come standard with front and rear chain guards. The optional wheel kit consists of one pneumatic wheel which castors 360 degrees (Refer to spare parts section).

MACHINE SPECIFICATIONS

MODEL	EP 100	EP 120	EP 135	EP 150	EP180
Cutting Width	1.0 m	1.15 m	1.35 m	1.45m	1.75 m
Cutting Height (with adjust skids)			25-100mm		
Tractor H.P.	18-30 H.P.	20-35 H.P.	25-45 H.P.	25-50 H.P.	35-60 H.P.
Tractor CAT connection		3 Point Linka	age / Cat 1		
Gearbox/PTO speed	40 H.P. (540 RPM) on EP100-150. 50HP on EP180			80	
PTO/Adjustable Slip Clutches	B4 on EP100-150/ B5 on EP180				
Blades	Stepped / Bushed				
Headstock	Floating				
Body Construction	3mm Top-plate / 6mm Skirt				
Nett Weight (kg)	185	200	230	250	360
Length (Overall)	1.35m	1.50m	1.65m	1.90m	2.2m
Width (Overall)	1.15m	1.30m	1.50m	1.60m	1.90m
Height (To top of gearbox guard) 470mm		470mm	470mm	470mm	470mm

WARRANTY

John Berends Implements P/L warrants each new product sold to be free from defects in material and workmanship, under normal use and service, as outlined in the operators manual, for a period of 12 months.

This warranty is void if any damage to the machine has been caused by misuse or non genuine parts have been used or any repairs have been made by any persons other than authorised dealer service personnel.

The manufacturer/dealer is not obligated to any transportation charges incurred in the repair or replacement of parts.

This warranty does not exclude any condition or warranty implied by the Trade Practices Act 1974 or any other legislation which implies any condition which cannot be excluded.

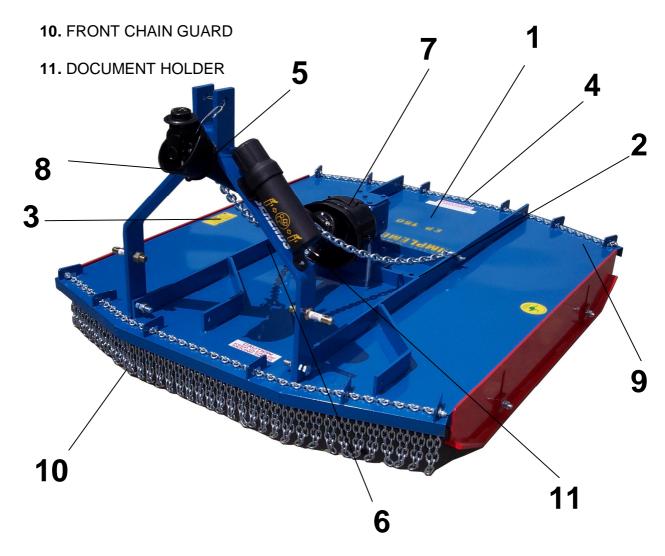
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Safety Features

- 1. MODEL NUMBER (Painted)
- 2. SERIAL NUMBER (Decal)
- 3. WARNING DECAL
- 4. CAUTION DECAL



- 5. CAUTION DECAL FOR P.T.O. SHAFT
- 6. BERENDS DECAL
- 7. CLUTCH COVER GUARD
- 8. P.T.O. SHAFT INNER/OUTER GUARDS
- 9. REAR CHAIN GUARD



ASSEMBLY

When assembling the slasher ensure that the front two mounting bolts (part 1292) are secure but not too tight. It is important that the A-frame (part 1293) is able to float back and forward with minimal sideways movement. Ensure both chains (part 1294) are of equal tension. This is achieved by moving the D-shackle to the closest link. In some cases it may also be necessary to twist the chain so as to shorten it. It is important that this is done so that the stress loads are evenly distributed to both chains simultaneously. There are two different chain lengths provided. The longer chain (3 links longer) is for the right hand side of the headstock. When centrally mounted, the headstock uses equal length chains of 31 links. When mounted in its offset position, the right hand chain requires all 34 links to be used however the left hand chain remains the same.

Line up the lower linkage arms with the linkage pins of the slasher, slide the linkage arms onto the pins and secure with linch pins. Attach the top link to the slasher. Raise the slasher from the ground and adjust stabiliser bars or chains if required.

Care must be taken when operating on tractors with down pressure, as this prevents the slasher from floating when hitting obstructions.

Lift the slasher off the ground first. Be careful around fixed objects such as stumps or rocks as these can damage the chain guards

CAUTION:

Check the length of the P.T.O. shaft before connecting to the tractor by raising the shaft to a position where it would be horizontal when connected. If necessary have the shaft shortened by cutting the same amount off both metal tubes and both plastic covers (Refer to P.T.O shaft section p.10). This can be done with a hacksaw.

FITTING AND REMOVAL OF P.T.O. SHAFT

The clutch end of the P.T.O. shaft is located in the groove on the slasher input shaft with a tapered bolt. On the tractor end, the yoke is secured by a quick release pin. The P.T.O. shaft can be fitted or removed by depressing the pin or undoing the tapered bolt. To avoid difficulties later it is advisable to apply some grease to the input shaft prior to fitting the P.T.O. shaft.

OPERATION

Once all safety procedures have been followed, start the tractor and raise the slasher approximately 100-200mm (4-6 inches) off the ground

CAUTION:

Depending on the model of the slasher and the tractor it may be possible to lift the slasher too high and the P.T.O. shaft may hit the slasher body. Set the adjustment on your hydraulics before operation, do not depend on your memory.

Engage P.T.O. drive and put the tractor into gear. Build up revolutions to 540 rpm and edge slowly forward while lowering the slasher. To minimise wear and tear on both tractor and slasher the P.T.O. speed should be maintained at 540 rpm. Lower speeds cause excessive wear, especially to blades and blade bolts, as the blades move continuously due to low centrifugal force. If the operator is not certain of the condition of the area to be slashed, a prior inspection is recommended, particularly as vacant blocks, sides of roads and channels can hold hazardous surprises. Remove all timber, rocks and foreign objects. If the cutting is extremely heavy and the tractor has difficulty handling it, take a narrower cut which requires less horsepower and creates

more space for the cut material to form a windrow. All machines are fitted with adjustable clutches (Refer to page 10).

CAUTION:

Continuous slipping can burn the clutch plates (Refer to page 10). If this happens there is no alternative but to replace the clutch plates. These are not covered by warranty.

When slashing, always drive the tractor clockwise, so the cut material is not thrown into the standing material. Always allow for the effect the weight of the slasher has on the performance of the tractor, particularly on sloping hillsides and unstable areas

CAUTION:

Be careful driving over drains or undulating ground as this will apply excessive force to the headstock and rear chain stays. When transporting, raise the slasher as high as possible but ensure that the PTO shaft does not foul on the slasher deck. By raising it higher, there is less movement (float) in the linkage arms which prevents the slasher from bouncing excessively and stressing the support chains.

STOPPING

Lower the machine, stop the tractor engine (removing the ignition key) and apply the park brake. Remain clear until the machine has stopped its rotation completely Disengage the P.T.O. prior to any maintenance, transporting or when not in use.

HEIGHT ADJUSTMENT

1) Adjustable skids

Where slashers are fitted with adjustable skids, adjustment is simple. Loosen off the nuts sufficiently for the skids to be moved up or down. In heavy terrain it is an advantage if the front of the slasher is about 20-30mm lower than the rear. Note: Slots in the skids are provided instead of holes so as to enable the slasher to be tilted forward, while the whole skid remains in contact with the ground.

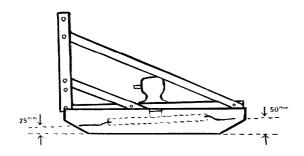


FIGURE 1.: Front and rear height variations using adjustable skids.

As shown in Figure 1, the material is only cut once. If the slasher is lower at the rear, the material will be cut a second time, requiring more horsepower. When adjusting skids make sure the whole skid surface touches the ground, to avoid uneven wear.

MAINTENANCE

When doing any type of maintenance on this machine, always follow the safety steps described in this manual. Service should only be carried out by qualified personnel. Use only authorised genuine parts for replacement.

The slasher must be adequately supported under its body – do not rely on the tractor to hold it in position. After 1-2 hours work, check all bolts and nuts and tighten if necessary. Check all fasteners and guards are installed (Refer to page 6)

Gearbox

It is recommended the first oil change occur after 50 working hours; subsequent changes should take place after 500-800 working hours. Periodically check the oil level and top up if necessary. Use EP80/90 or HD140 gearbox oil. Regularly check for leaks by lifting and securing the slasher, turning off the engine and looking underneath the slasher for any oil. Unfortunately, most gearboxes of this HP rating are not designed with drain plugs. Therefore, there is no easy way to remove the oil without either, pumping the oil out, removing the gearbox or turning the slasher safely on its side.

<u>Blades</u>

Check slasher bolts and blades every 8 working hours. Check the blades are not jammed, are sharp and evenly worn and are free of nicks and cracks. If too much movement is apparent, replace the bolts and bushes (all EP models are fitted with bushes). When replacing blades, make sure they are fitted correctly.

Rotor

Remove any foreign material wrapped around the rotor and ensure the rotor spins freely without any vertical play.

Adjustable skids

Check for any damage and make sure they are set to the required cutting height and secured.

Chains Stays

Check for damage or stretching to the chains and D-shackles and replace if necessary.

Wheel kit

Check tyre pressure. Wheel must run freely on axle and yoke must be lubricated. Note: Bearings are replaceable if necessary.

Power take off (p.t.o.) shaft

Before operating the machine, check that the P.T.O. shaft is securely attached to the tractor and to the slasher.

Confirm the minimum and maximum working lengths of the P.T.O. shaft. The telescopic tubes must be overlapping at least 150mm. If it is necessary to shorten the shaft, contact your implement dealer.

Check that the tube guards are not damaged and rotate freely on the P.T.O. shaft. Safety chains must be sufficiently loose to allow free turning of the tube guards. Check that the angles of the joints on the P.T.O. shaft do not exceed 35 degrees. When machine is not in use, protect or cover the P.T.O. shaft from the weather. Check all components are fully lubricated before use. Frequently grease all points as shown in Figure 2.

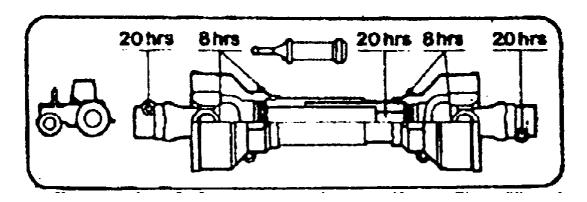


FIGURE 2. : Grease points and intervals for P.T.O. shaft.

Slip clutch setting

Slip Clutches need to be set if one of the following occurs:

The clutch has been repaired (including replacing the friction discs).

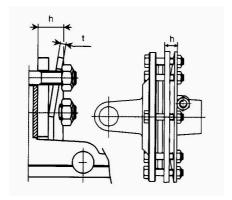
The clutch is slipping in work (clutch getting hot, burning out friction discs, machine slowing down in work).

The clutch is not slipping when the machine hits an obstruction (tractor stalls, P.T.O. breaks). The clutch has been freed up after a period of storage (see "how to free up clutch" next page).

How to set the clutch

The setting of the clutch is dependent on many variables - the work, the size of the tractor, the size of the machine and so on. It is best to set each clutch individually if possible. The aim is to start with a loose clutch and tighten it up to the exact point where it stops slipping in normal work. If set in this way the clutch will slip if any load exceeds this point, protecting both tractor and machine. It is best to set up the clutch with the machine on the tractor which will normally be used, and in conditions which approximate to the normal work the machine does.

These friction clutches are equipped with special Belleville springs, designed to apply pressure that varies with the amount of compression. The compression of the Belleville springs must be adjusted to compensate for wear of the friction linings and to maintain the desired setting. Do not over-tighten the bolts. This may endanger the function of the clutch. The table below set out spring codes, thicknesses and compression 'h' measured as shown in the figure for standard settings. The height of the spring is measured next to each bolt and may be \pm 0.2mm of the listed value. The tables also show the amount of rotation of each bolt required to achieve the next higher or lower setting, relative to the nominal setting (listed with no rotation noted on the bolt). In addition to the listed settings, intermediate settings may be obtained by tightening or loosening the bolts proportionately.



Spring code	t mm	Setting Nm	h mm	
367008860		900	17.5	
	3.75	1000	17.0	
		1100	16.5	

The clutch must be quite loose initially to ensure it will slip. Slipping can be identified by the clutch getting very hot. The clutch will always be quite warm in work as the gearbox gets warm. Run the machine for a short distance (20 metres) in work and check the clutch slips. Then tighten each tension bolt up a turn (more if the clutch was very loose) evenly and run a short distance again. Keep repeating this procedure until the clutch is not slipping - it should only take a few stops. As you get to the point at which the clutch is not slipping tighten the tension bolts half a turn instead of a full turn.

If the clutch still slips when you have set the maximum recommended setting, *reduce the load*. Reduce your ground-speed or take less cut. Otherwise you risk damaging the machine. Whenever a slip clutch slips take all load off it until full operating speed is regained with zero load. Continuing operations with a slipping clutch results in clutch damage.

Continue to work the machine checking the clutch regularly to see how it is performing. You may want to adjust it for varying conditions. If the clutch is too loose it will slip, wearing out the friction discs, getting hot and possibly damaging the clutch pressure surfaces as well. Remember as the plates wear, the tension on them is reduced. If the clutch is too tight it will fail to protect the tractor and machine when an overload occurs.

How to free up the clutch after a period of storage

Slip clutches can seize up if left for long periods without use. To free up the clutch loosen all the tension bolts until the Belleville spring is free of any tension. Then run the machine into normal work so the clutch slips. With the clutch set in this way the machine will fail to work at all, clutch slip being 100%. Run the machine in this way for 30 seconds to one minute. This cleans the surfaces of the clutch. An alternative to this is dismantling the clutch and cleaning it.

SPARE PARTS

ORDER SPARE PARTS THROUGH YOUR ORIGINAL SUPPLIER OR YOUR LOCAL JOHN BERENDS IMPLEMENTS DEALER.

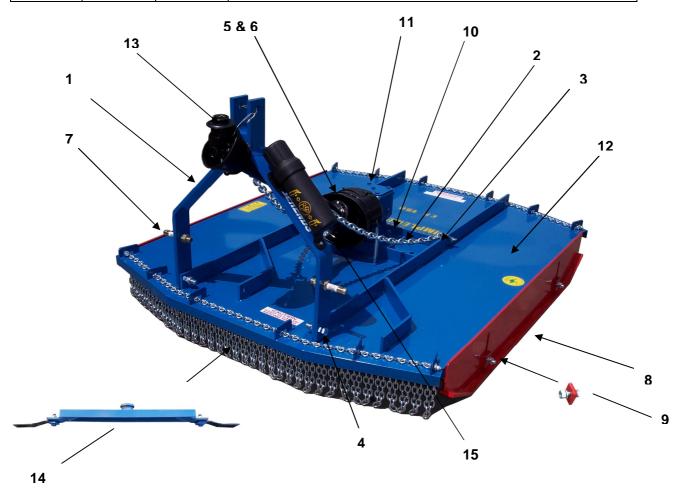
Always quote the machine serial No. or product No., spare part number and its part name as stated in the operator's manual.

Glossary of terms

c/w = Complete with sw = Spring Washer n.s.s. = Not serviced separately a.r. = As required fw = Flat Washer

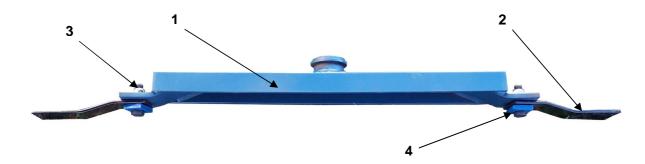
EP Slasher - All models (floating model)

Key No.	Part No.	Quantity	Description	
1	1289	1	"A" Frame bars	
2	1290	1 set	Rear chains (pair)	
3	1291	4	D-shackles	
4	1292	2	"A" Frame mounting bolts	
5	1909	1	Clutch cover	
6	3200	4	Bolt & washer assembly (suit above)	
7	1967	2	Cat 1 Bolt on	
8	1916	2	Adj skid suit 3'	
	1917	2	Runner only suit above	
	1845	2	Adj skid suit 3'4"	
	1854	2	Runner only suit above	
	1846	2	Adj skid suit 3'10"	
	1855	2	Runner only suit above	
	1847	2	Adj skid suit 4'6"	
	1856	2	Runner only suit above	
	1848	2	Adj skid suit 5'	
	1857	2	Runner only suit above	
	1841	2	Adj skid suit 6'	
	1860	2	Runner suit above	
9	1901	4	Adj skid bolt c/w plate/nut/sw (Part 1998 on EP180)	
10	1898	4	Gearbox mounting bolt/nut/sw	
11	1588/1587	1	Gearbox (for breakdown refer gearbox section)	
12		1	Slasher body (priced on request)	
13	3024	1	P.T.O. (for breakdown refer pto section)	
14		1	Rotor (for breakdown refer rotor section)	
15	2400	1	Document Holder	



EP Slasher rotor beam

Key No.	Part No.	Quantity	Description
1	1573	1	Beam/Rotor assy c/w blades suit 3'
	1568	1	Beam/Rotor assy c/w blades suit 3'4"
	1572	1	Beam/Rotor assy c/w blades suit 3'10"
	1576	1	Beam/Rotor assy c/w blades suit 4'6"
	1872	1	Beam/Rotor assy c/w blades suit 5'
	1589	1	Beam/Rotor assy c/w blades suit 6'
2	1980	2	Blade stepped – EP90-150
	2005	2	Blade stepped – suit EP180 only
3	1542	2	Bolt/nut/bush – EP90-150
	1992	2	Bol/tnut/bush suit EP180 only
4	1571	2	EP rotor square washer
		1	Castle nut/washer/split pin refer gearbox breakdown



Slasher Chains (bolt-on)

0050	T
0956	Front chain EP90 (3')
0957	Rear chain EP90 (3')
1001	Front chain EP 100 (3'4") c/l
1002	Rear chain EP 100 (3'4")
1003	Front chain EP 120 (3'10") c/l
1004	Front chain EP 120 (3'10") o/s
1005	Rear chain EP 120 (3'10") c/l
1000	Rear chain EP 120 (3'10") o/s
1006	Front chain EP 135 (4'6") c/l
1007	Front chain EP 135 (4'6") o/s
1008	Rear chain EP 135 (4'6")
1009	Front chain EP 150 (5') c/l
1010	Front chain EP 150 (5') o/s
1011	Rear chain EP 150 (5')

Slasher steel flaps

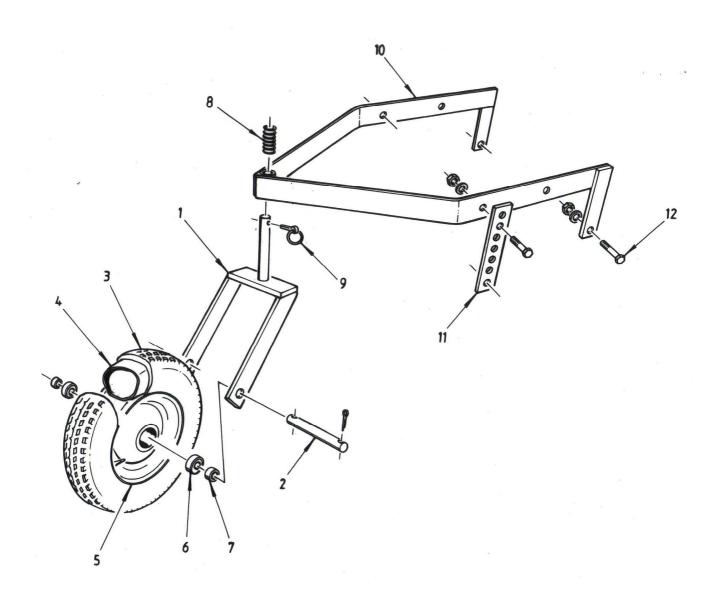
1079	Rear steel flap EP90 (3') - hinging
1050	Rear steel flap TA100 & EP100 (3' 4") - hinging
1051	Rear steel flap TA120 & EP120 (3' 10") - hinging
1052	Rear steel flap EP135 (4' 6") - hinging
1053	Rear steel flap EP150 (5') - hinging

Slasher rubber flaps

1080	Rubber front/rear guard EP90 (3')
1081	Rubber front/rear guard EP100 (3'4")
1082	Rubber front/rear guard EP120 (3'10")
1083	Rubber front/rear guard EP135 (4'6") & HD137 (4'6")

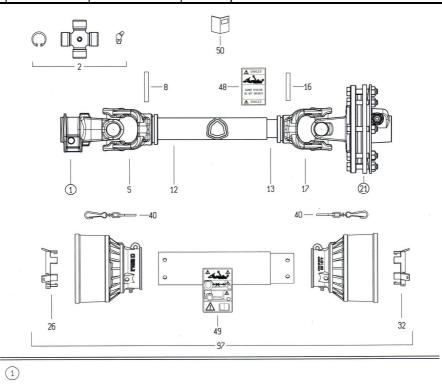
EP slasher wheel kit (0065)

Key No	Part No	Quantity	Description
1	3209	1	Yoke
2	3220	1	Axle
3	1510	1	Complete Wheel (parts n.s.s except brgs)
4		1	Tube
5		1	Rim
6	1903	2	Bearing
7	3252	2	Spacer
8	1939	1	Spring
9	1940	1	Linch Pin
10		1	Wheel kit main Frame
11		2	Adjusting bracket c/w Bolt/nut/sw
12	1955	4	Bolt/nut/sw attach wheel kit to slasher



EP slasher – shaft with plate tensioned clutch

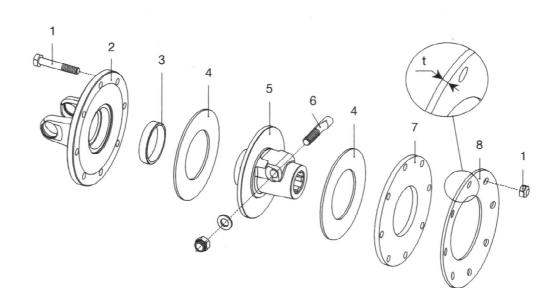
Key no.	Part no.	Quantity	Description
1	3039	1	Yoke
2	3040	2	Cross/universal joint
3		8	Circlip - n.s.s
4		2	Grease nipple - n.s.s
5	3041	1	Outer tube yoke
8	3000	1	Roll pin
12	3042	1	Outer drive tube
13	3043	1	Inner drive tube
16	3020	1	Roll pin
17	3044	1	Inner tube yoke
21	3047	1	Clutch
26	3060	1	Outer shield support
32	3060	1	Inner shield support
40		1	Chain
48		1	Danger label
49		1	Danger decal
50		1	Instruction booklet
51	3045	1	Quick release pin
97	3058	1	Inner cover
97	3059	1	Outer cover
	3024	1	Complete shaft c/w clutch
	0148	1	Over-run clutch (optional extra) – slip on type
	3896	1	Complete shaft c/w integrated overrun clutch and slip clutch





EP slasher – plate tensioned clutch

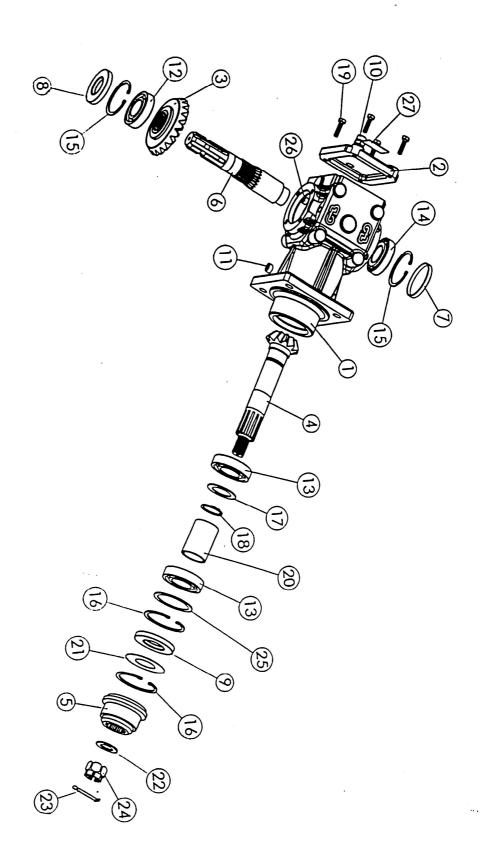
Key no.	Part no.	Quantity	Quantity Description	
1	3898	8	Bolt and nut	
2	3899	1	Flange yoke	
3	3900	1	Bush	
4	3901	2	Clutch lining	
5	3902	1	Hub with taper pin	
6	3903	1	Taper pin	
7	3904	1	Inner plate	
8	3905	1	Belleville spring (tension plate)	



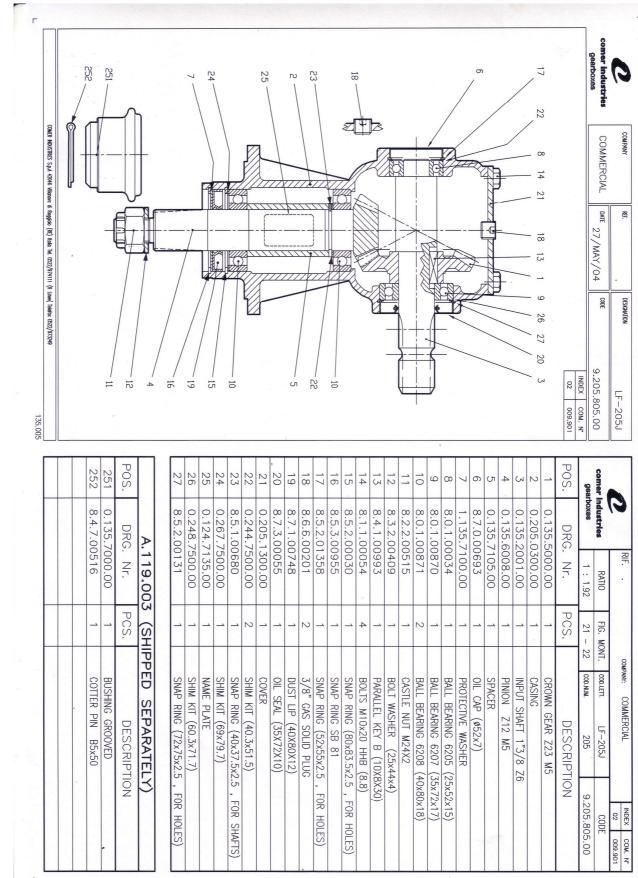
There are a couple of gearbox options with the EP model – the listing in the manual is for the standard comer model and the optional Italian GB model. They are not interchangeable.

M32V EP Slasher Gearbox - post 2001

Key No.	Part No.	Quantity	Description
1	3500	1	Casing
2	3501	1	Cover
3	3502	1	Crown wheel
4	3503	1	Output shaft
5	3504	1	Boss/Hub
6	3505	1	Input shaft
7	3506	1	Сар
8	3507	1	Input oil seal
9	3508	1	Output oil seal
10	3509	1	Breather plug
11	3510	1	Drain plug
12	3511	1	Input bearing (front)
13	3512	2	Output bearing
14	3513	1	Input bearing (back)
15	3514	2	Input circlip
16	3515	2	Output circlip
17	3516	1	Shim
18	3517	1	Output circlip
19	3518	4	Bolts
20	3519	1	Spacer
21	3520	1	Protective washer
22	3521	1	Flat washer
23	3522	1	Split pin
24	3523	1	Castle nut
25	3524	1	Shim
26	3525	1	Level plug
27	3526	1	M32V label plate



LF205J - EP Slasher Gearbox (used from 2012 onwards on EP100-150).



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LF347J - EP180 Slasher (contact JBI for further breakdown)

