

Landmaster L120

Operating Instructions

ML1000

LANDMASTER ROTARY CULTIVATOR

IMPORTANT! STUDY THIS BOOK AND THE ENGINE MAKERS' LITERATURE AND ATTEND TO PRELIMINARY SERVICING OF THE ENGINE AND MACHINE BEFORE USING FOR THE FIRST TIME.

NOTE: The terms Left Hand (L.H.) and Right Hand (R.H.) used in this handbook are as viewed from the Operator's position.

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GUARANTEE: No statement or representation in this handbook, as a guide to the owner or user, shall be construed as enlarging or varying the Terms of Guarantee which are as stated on the Guarantee Card, issued with the machines.

The Guarantee Terms are applicable only to the first owner/user. Use for Hire or Contract Work will render the Guarantee void.

MAIN FEATURES

This pedestrian controlled light tractor allows three distinct forms of powered operation:

- 1 Powered Rotary Cultivation, with drive direct to the rotor; or
- 2 Powered traction by wheels on the rotor shaft for ploughing or trailer work or for rotary grass cutting etc. See separate instruction for Ploughing and Rotary Grass cutting.
- 3 Power take-off to some attachments; either with or without traction

The main engine features should be identified and located from the Engine Makers literature supplied with each machine. A new owner should familiarise himself with such points as: air filter, fuel tank, fuel cock, carburettor, starter, engine stop, oil sump filler plug, spark plug, etc. etc.

Power is transmitted, via a 'Vee' belt, from the engine to a large diameter pulley atop the totally enclosed chain-case. This oil filled chain-case incorporates fixed reduction sprockets and heavy-duty drive chains.

The drive may be engaged or disengaged by means of a clutch lever conveniently located on the handlebars. Operation of the clutch lever controls a Jockey (Idler) Pulley which tensions or releases the 'Vee' belt to give either a tightly tensioned (driving) belt or a slack (de-clutched) slipping belt. The clutch lever has a spring-loaded plunger device to facilitate 'hold' in the engaged position for long runs.

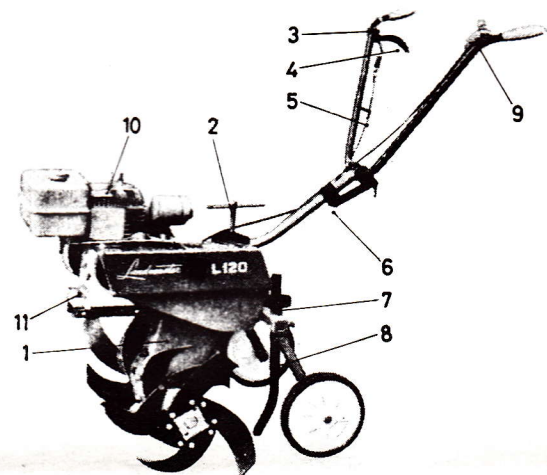
The engine has a built-in speed governor so that a speed once set at the throttle lever should be automatically maintained whether the engine is 'on' load or 'off' load.

The handlebars can be set to any comfortable working height by sliding and fixing the handlebar clamp on the central support tube. The centre lever allows the handlebars to be swung sideways and locked to right or left of the machine's centre-line, thus permitting the operator to tread clear of the tillage path. For storage purposes the handlebars can be folded flat by removing the locking pin on the linkage.

A shorting tab adjacent to the engine spark plug is used to stop the engine. When a trailer attachment is used on Home Market machines, an additional cut-out switch must also be fitted on the handlebars, close to the operator.

A hitch point at the rear of the machine is used for attaching various ancillaries as well as the support-frame which carries two transport/stabilising wheels and a depth skid for cultivation purposes. See 'Rotary Cultivation' for greater details.

Many built-in safety features have been incorporated, such as belt guards, stopping devices, etc., and in these and other respects the machine complies fully with current U.K. Agricultural Safety Regulations.



- KEY:
- | | |
|----------------------------|----------------------------|
| 1 Chain Case | 6 H/Bar Height Adj'nt. |
| 2 H/Bar Side-swing Adj'mt. | 7 Support Frame |
| 3 Clutch Lever 'Hold' | 8 Rear Skid |
| 4 Clutch Lever | 9 Throttle Lever |
| 5 Clutch Cable Adj'nt. | 10 Ignition Shorting Tab |
| | 11 Engine Sump Filler Plug |

MAINTENANCE and LUBRICATION

Refer to the Engine Makers literature for full details of servicing times, procedures and recommended fuels and lubricants.

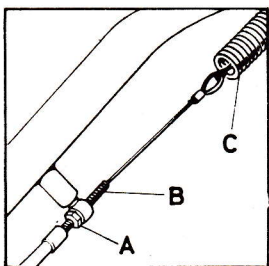
Before using four-stroke engines, always check that the engine sump oil level is correct—if necessary, top up with the correct grade of oil.

Ensure that the engine air filter is cleaned and serviced regularly. In very dry and dusty conditions it may be necessary to clean the filter more frequently than that specified. **Never** run an engine without an air filter, with an incorrectly fitted filter or with a badly ingrained element.

NOTE: A Users Tool Kit is available (see Spares Lists) which contains tools, and small items most likely to require eventual replacement, through wear and/or accidental loss. This will be found a useful 'stand-by' kit and well worth the very modest outlay.

CHAIN-CASE: Approximate capacity $1\frac{1}{2}$ pints (1 litre). Use Shell X100-30, Energol SAE.30 or other brands of SAE.30 grade oil. The combined Filler/Level Plug is located near the top of the chain-case on the right-hand side. To establish the correct level of oil, tip the machine forwards until the engine rests on the ground. Remove the plug (a press fit) and when the oil overflows from the plug hole, the chain-case is full. Refit the plug securely, with the split pin positioned top vertical. Check oil level frequently and renew after the first 50 hours running time; thereafter at each season's end. Save waste oil (also from engine) for use as a rust preventive on ancillaries, etc.

CLUTCH AND BELT DRIVE: During the initial short 'bedding-in' period, a new vee belt may stretch slightly and 'slip' in the engine pulley groove—thereby failing to transmit full tractive power from the engine. To adjust the clutch setting: Release the clutch lever and start the engine. Slacken off locknut **A** and screw-in the cable barrel **B** until the rotors or wheels just start to rotate, then unscrew two turns and tighten the locknut. A further check is that the cable spring **C** should stretch when the clutch lever is applied.



GENERAL MAINTENANCE: After each use, thoroughly clean all parts of dirt and vegetation paying particular attention to wheels and rotor axles and the engine cooling fins and blower housing. Wipe over all surfaces with an oily rag. More specific information will be found in the ancillary sections in this book.

Make frequent and regular spanner-checks on all nuts and bolts, especially those fixing the engine, frame, handlebars and ancillary blades.

Periodically oil the clutch and throttle inner cables, the wheel bearings, the handlebar adjustment threads and the jockey pulley pivot. Oil the felt washers each side of the jockey pulley and wipe off excess oil to prevent contact with the vee belt.

Inspect the vee belt for wear or damage and renew as necessary—use only the special premium grade belts from Landmaster.

WINTER STORAGE: Follow the engine makers instructions for storing the engine. Clean and lubricate all parts, attend to any servicing points and cover and store in a dry place. It is good practice to have a regular examination or overhaul carried out by your Landmaster Service Agent. This is by way of an 'insurance' against future mechanical trouble, and is best done during the winter months ready for the forthcoming growing season.

STARTING and OPERATING

Before starting engine and commencing work, make it a regular habit to:

- A Check fuel level.
- B Check engine sump oil level (see Engine Manual).
- C Check chain-case oil level (see 'Maintenance').
- D Fit belt guards to machine and, where applicable, to ancillaries.

Precautions. Never run the engine in a closed unventilated area—exhaust gases are poisonous.

Do not fill the tank whilst the engine is running and avoid spilling fuel on a hot engine.

Never fit ancillaries or try to make any adjustments whilst the engine is running.

Keep hands, feet and loose clothing clear of all rotating parts.

To Start

- 1 Carry out pre-starting checks (see above), and fit the required ancillary.
- 2 Ensure shorting tab is clear of spark plug. If fitted, turn cut-out switch ON.
- 3 Open fuel tank tap. Ensure clutch lever is released.
- 4 Move choke lever (on carburettor) to full CHOKE position. When re-starting a warm engine, choke may not be necessary.
- 5 Move throttle lever about one-quarter open.
- 6 Pull recoil starter SMARTLY (not quite to its full extent) and return SLOWLY.
- 7 When engine fires, return the choke lever and re-set the throttle lever to idling revs.

To Stop. Flip the shorting tab against the spark plug, or if fitted, use the handlebar mounted cut-off switch.

NOTE: When the machine is not in use, always release the clutch lever to relieve belt tension.

To Set in Motion. Having started the engine, gently squeeze the clutch lever at the same time opening the throttle lever to a higher speed setting. The setting to suit the particular ancillary and work conditions will be found from experience, but the revs should not be so low that the engine 'labours', nor too high that control and manoeuvrability are lost and work finish impaired. Generally, however, half throttle will suit most purposes.

If a long run is intended, press in the spring plunger through the first hole in the clutch lever to 'hold' the lever in the engaged position. To halt the machine, squeeze the clutch lever slightly to disengage the spring plunger then release the lever completely. Re-set the throttle lever to idling when the engine is not under load.

More detailed field techniques and advice will be found in the appropriate ancillary sections in this manual.

TYPICAL PERFORMANCES

Engine R.P.M.	Wheels	Traction Speeds	
		M.P.H.	K.P.H.
2200	8" dia.	1.9	3.0
	3.00 x 6	2.85	4.6
	4.00 x 8	3.75	6.0
	ditto—for ploughing	1.54	2.5
3000	8" dia.	2.58	4.13
	3.00 x 6	3.88	6.2
	4.00 x 8	5.1	8.16
	ditto—for ploughing	2.1	3.36
3600	8" dia.	3.13	5.0
	3.00 x 6	4.7	7.5
	4.00 x 8	6.2	9.0
	ditto—for ploughing	2.54	4.0
Intermediate settings will yield proportionately			

ROTARY CULTIVATING BLADES

SLASHER BLADES—
an all-purpose blade, also ideal for heavier soils and virgin ground.

CURVED BLADES—
used for normal cultivation and deeper digging requirements in average soils.

HOE BLADES—
used for hoeing of weeds, general light-duty soil aeration and shallow digging.



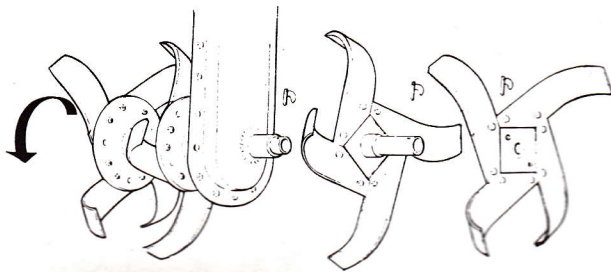
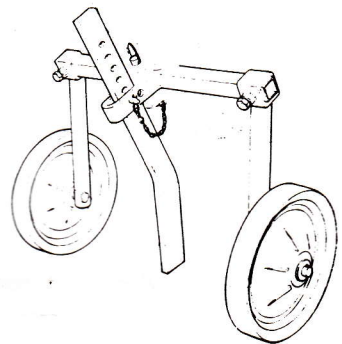
There are three different types of rotary cultivation blades available and these are made up into assemblies with left- and right-hand blades bolted to two common hubs. The different blades are designed for particular functions and varying soil conditions. Your supplier will gladly make recommendations to suit your particular requirements.

The number of assemblies used depends upon the cultivating width required—4 assemblies give a nominal 24" (61 cm.) wide cut; 2 assemblies give a 12" (30.5 cm.) width. Spring Pins secure the hubs to the chain-case axle and to each other.

24" Rotors are assembled with the 'long' hubs nearest the chain-case and the 'short' hubs furthestmost. The two 'short' hubs used alone each side of the chain-case make up a 12" rotor. The rotors should always have the blades' cutting edges facing forwards in the direction of rotation.

For inter-row hoeing work between narrowly spaced crops and for working close to standing plants, special Rotor End-Discs or guards are available through your supplier. These are fitted each end of the rotor, bolted to the end hubs, and prevent side-scatter of soil and damage to plants.

For all rotary cultivation work it is necessary to attach the rear support-frame, complete with depth strake and stabilising wheels, to the rear hitch-point of the machine, although for deep digging in certain soils the wheels should be removed. The wheel track should be adjusted to suit the particular crop spacing. The strake position controls the forward speed of the machine which in turn determines the depth of cultivation relative to the soil conditions and rotor width. The strake may be secured in either of the two holes in the support frame, and can be pointing forwards or rearwards.



TYPICAL ROTOR SET-UP SHOWING HUB ARRANGEMENT

BLADE SELECTION

The shapes of the various blades—Slasher, Curved and Hoe—determines the blades' cutting characteristics and intended functions, i.e. the Slasher blades' swept-back design offers little cutting resistance and has, therefore, an excellent slicing action and good penetration properties—ideal for deep digging of heavy soils and new or hard ground.

The more pronounced 'foot' of the Curved blade offers more resistance and is preferred for digging lighter soils and where a finer tilth is required.

The square-footed Hoe blades' 'chopping' action allows maximum 'lift' and aeration to produce a very fine shallow tilth. This blade is best for surface weed clearing, seed-bed preparation and general light work.

exceptionally heavy or hard conditions it may be necessary to make more than one pass, preferably at right angles to the previous to reach the required depth.

In the early stages, an inexperienced operator tends to 'fight' to control the machine, particularly if it bucks and twists when working hard or stony ground. This manhandling is a natural reaction but is both tiring and unnecessary, and with a little practice a relaxed near straight-arm stance is soon achieved. Allow the machine to do the work—and do not hurry.

On steep slopes always work in uphill or downhill directions to prevent any possibility of the unit overturning.

FIELD TECHNIQUES

The forward speed and depth of cultivation is controlled by the depth of the rear strake in the ground and this in turn is controlled by lifting or pressing down the handlebars. Generally, the deeper the skid—the slower the forward speed, the deeper the cut and the finer the tilth—and vice-versa.

Set the depth strake to a nominal position, start the engine and let the clutch in slowly—at the same time opening the throttle. Press down slightly on the handlebars until the required depth is reached and thereafter use only sufficient pressure to keep the rotors at that depth. If necessary, adjust the strake up or down and reset the handlebars to a comfortable working position. The handlebars may be offset right or left to allow the operator to tread clear of the tillage path.

At the end of a row, close the throttle slightly and lift the handlebars to raise the skid out of the ground; the rotors will then 'climb' out of their furrow for the headland turn. In

WEED ERADICATION

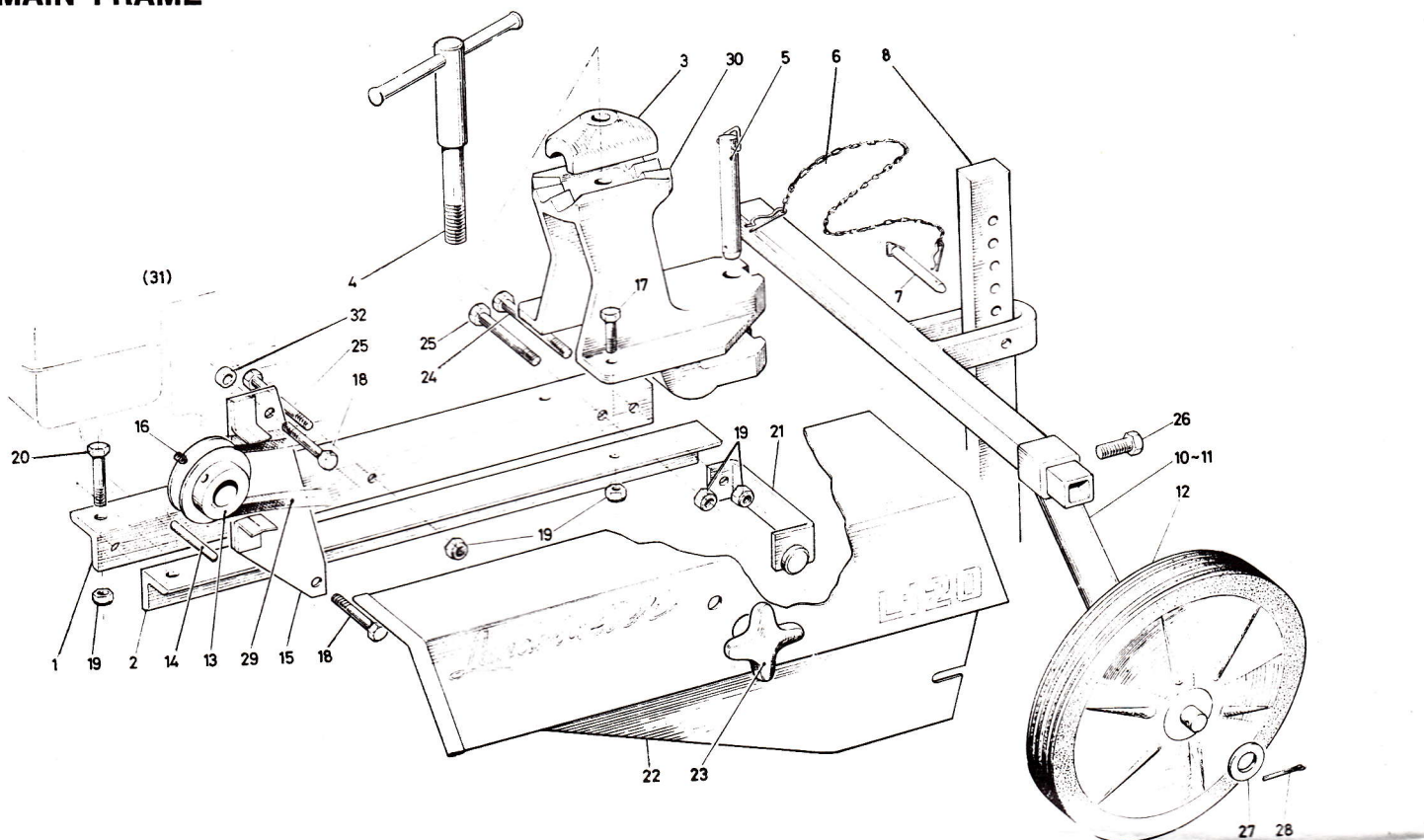
Deep-rooted perennial weeds such as Twitch, Couch and Convolvulus, etc., can be checked and eventually killed by repeated Rotary Cultivating of affected ground areas. The blades will chop the weed root which will die back each time it is cut, so that root-stem pieces become progressively smaller until regrowth ceases. This repetitive working is especially effective in hot, dry conditions, when the eradication process is speeded-up by the action of the sun drying out and killing root-pieces lying on or near the soil surface.

Annual weeds should be 'turned-in' before the seeds are allowed to ripen. The rotors generally leave weed seeds close to the surface, where they germinate quickly. Thus, with a matter of days, a secondary flush of light surface growth will appear and this is then eradicated by further Rotary Cultivation passes to incorporate the growth as a green manure into the previously tilled soil—thereby adding nitrogen and humus.

An excessive top growth of heavy weed, tares, bramble, etc., is sometimes best treated by controlled surface burning. This will produce potash nutriment for subsequent incorporation in the ground.

BASIC MACHINE

MAIN FRAME



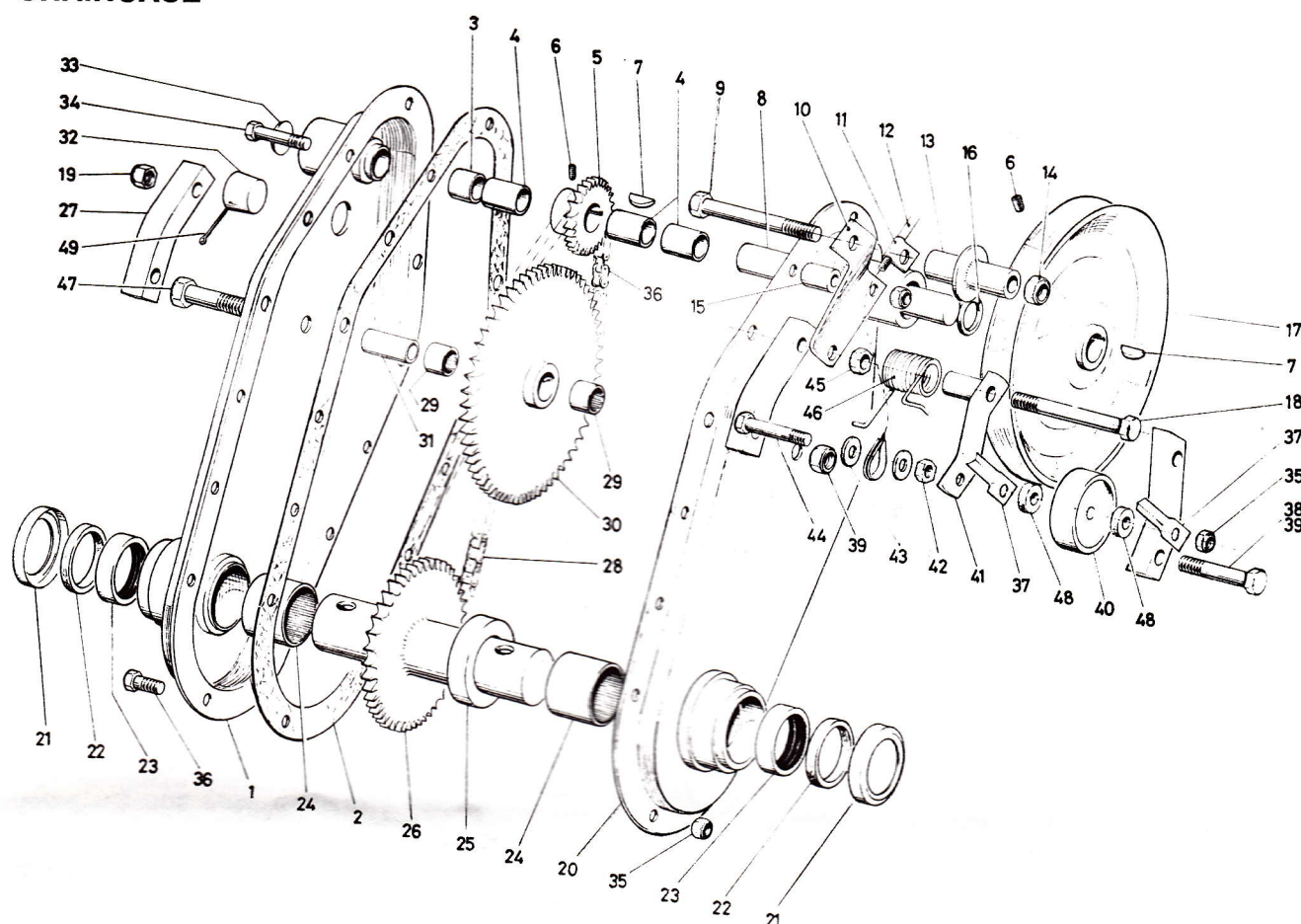
SPARE PARTS

Item No.	Spares No.	Description	Qty.	Item No.	Spares No.	Description	Qty.
1	ML1519	R.H. Support Angle	1	17	A1915	5/16" UNF x 1" Bolt	2
2	ML1518	L.H. Support Angle	1	18	A2784	1/4" UNC x 1 1/2" Bolt	2
3	ML1538	Handlebar Clamp	1	19	A1728	5/16" UNF Nyloc 'P' Nut	9
4	ML1008	Handlebar Clamp Screw	1	20	A2778	5/16" UNF x 1 5/8" Bolt	4
5	ML1024	Support Pin	1	21	ML1011	Belt Cover Support	1
6	ML1102	Chain/Spring Pin Ass'y	1	22	ML1021	Belt Cover	1
7	ML1032	Strake Pin	1	23	A1585	Hand Nut	1
8	ML1564	Rear Strake	1	24	A2831	5/16" UNF x 2 3/4" Bolt	1
9	ML1015	Wheel Bracket Ass'y	1	25	A2771	5/16" x 2 1/2" Bolt	2
10	ML1017	L.H. Wheel Bracket	1	26	A1568	3/8" UNF x 3/4" Set Screw	2
11	ML1018	R.H. Wheel Bracket (not shown)	1	27	A2792	1/2" Washer (16 SWG)	4
12	A2776	Wheels	2	28	A36	3/32" x 3/4" Split Pin	2
13	ML1504	Engine Pulley	1	29	A2765	Vee Belt PA35	1
14	A1758	3/16" square x 1 3/4" Key	1	30	ML1513	H/Bar Side Adjnt. Bracket	1
15	ML1019	Belt Former Ass'y	1	31	A2157	Engine—type B & S 80302	1
16	A2152	1/4" UNF x 1/4" KC Grub Screw	1	32	ML1567	Spacer	2

WHEN ORDERING SPARES, STATE **SPARES No.**, DESCRIPTION, QUANTITY REQUIRED AND MODEL SERIAL No.

OBTAIN ALL SPARE PARTS FROM YOUR LOCAL DEALER

CHAINCASE



SPARE PARTS

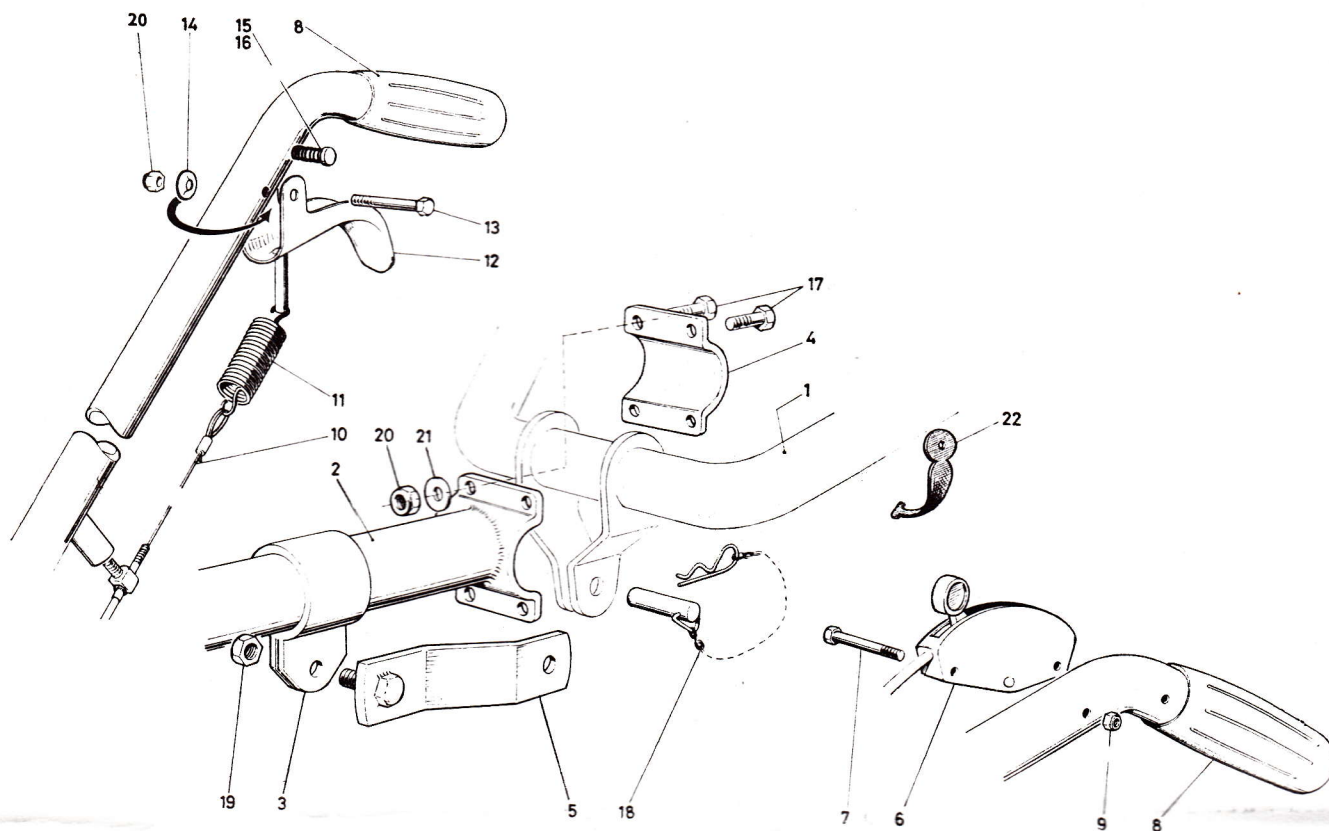
Item No.	Spares No.	Description	Qty.	Item No.	Spares No.	Description	Qty.
	ML1016	Chaincase Unit Comprising:		25	ML1505	Sprocket Spacer	1
1	ML1002	R.H. Chaincase	1	26	ML1014	Rotor Axle Ass'y	1
2	ML1502	Gasket	1	27	ML1503	Chain-case Spacers	4
3	A2937	Glacier Bush 2004.WB.1008	1	28	A2768	Chain 1/2" Pitch—46 Pitches	1
4	A2936	Glacier Bush 2007.WB.1014	3	29	A2779	Needle Bearings	2
5	ML1004	Input Sprocket	1	30	ML1005	Intermediate Sprocket	1
6	A2152	1/2" UNF x 1/2" Grub Screw, K.C. Point	2	31	A2780	Bearing Inner Race	1
7	A1375	Woodruff Key No. 505	2	32	ML1544	Oil Filler Plug	1
8	ML1506	Input Shaft	1	33	A2769	Core Plug	1
9	A2777	3/8" UNF x 3 1/2" Bolt	1	34	A1587	1/2" UNF x 1 3/8" Bolt	1
10	ML1562	Belt Cover Bracket	1	35	B1582	1/2" UNF Nyloc 'T' Nut	13
11	ML1554	Clutch Cable Clip	1	36	A2767	Chain 3/8" Pitch—56 Pitches	1
12	ML1023	Clutch Cable	1	37	ML1548	Jockey Guide Plates	2
13	ML1103	Belt Cover Spacer Ass'y	1	38	A2770	5/16" UNF x 2 1/8" Bolt	1
14	A2115	3/8" UNF Plain Nut	1	39	A1728	5/16" UNF Nyloc 'P' Nut	2
15	ML1563	Bracket Spacer	1	40	ML1020	Jockey Pulley	1
16	A2782	INA Bearing Seal—GSC.10	1	41	ML1007	Jockey Pulley Arm	1
17	ML1003	Chaincase Pulley	1	42	A1695	1/2" UNF Lock Nut	1
18	A2772	5/16" UNF x 3 1/2" Set Screw	1	43	A171	1/2" Plain Washer	2
19	B1583	5/16" UNF Nyloc 'T' Nut	1	44	A2942	1/2" UNF x 2" Bolt	1
20	ML1001	L.H. Chaincase	1	45	A2056	5/16" UNF Plain Nut	1
21	ML1540	Axle Bearing Cap	2	46	ML1524	Jockey Torsion Spring	1
22	ML1539	Felt Seal	2	47	A2211	5/16" UNF x 2" Bolt	1
23	A2781	Oil Seal—Superfect 760	2	48	ML1546	Felt Washer	2
24	A2928	Needle Bearing—INA SC2106	2	49	A1051	Split Pin 3/32" x 1/2"	1

WHEN ORDERING SPARES, STATE SPARES No., DESCRIPTION, QUANTITY REQUIRED AND MODEL SERIAL No.

OBTAIN ALL SPARE PARTS FROM YOUR LOCAL DEALER

BASIC MACHINE

HANDLEBARS



SPARE PARTS

Item No.	Spares No.	Description	Qty.	Item No.	Spares No.	Description	Qty.
1	ML1013	H/Bar Ass'y	1	18	ML1025	Adjustment Pin Ass'y	1
2	ML1012	H/Bar Main Tube Ass'y	1	19	B1623	3/8" UNF Nyloc 'P' Nut	1
3	ML1550	H/Bar Adjustment Bracket	1	20	B1582	1/4" UNF Nyloc 'T' Nut	5
4	ML1537	Main Tube Bracket	1	21	A2773	1/4" S.C.S.S. Spring Washer	4
5	ML1035	Adjustment Bar Ass'y	1	22	A1622	Cable Clip	2
6	ML2905	Throttle Control/Cable	1				
7	A2404	2 BA x 1 1/4" R.Hd. Screw	2				
8	A2774	H/Bar Grips	2				
9	B1453	2 BA Nyloc 'P' Nut	2				
10	ML1023	Clutch Cable	1				
11	ML1560	Tension Spring	1				
12	ML1052	Clutch Lever	1				
13	A2840	1/4" UNF x 1 1/8" Set Screw	1				
14	ML1639	Dished Washer	1				
15	ML1636	Compression Spring	1				
16	A2841	1/4" x 1 1/4" Flat Hd. Rivet	1				
17	A1633	1/4" UNF x 3/4" Bolt	4				

USER TOOL KIT (Optional Extra)

A2765	PA.35 'Vee' Belt	2
ML1023	Clutch Cable	1
ML1020	Jockey Pulley	1
ML1024	Rear Hitch Pin	1
ML1032	Rear Strake	1
ML1031	Rotor Pins	2
ML1102	Chain and Clips	1
A1596	Spanner 3/4" x 9/16" A/F	1
A283	1/8" Allen Key	1

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ROTOR PARTS

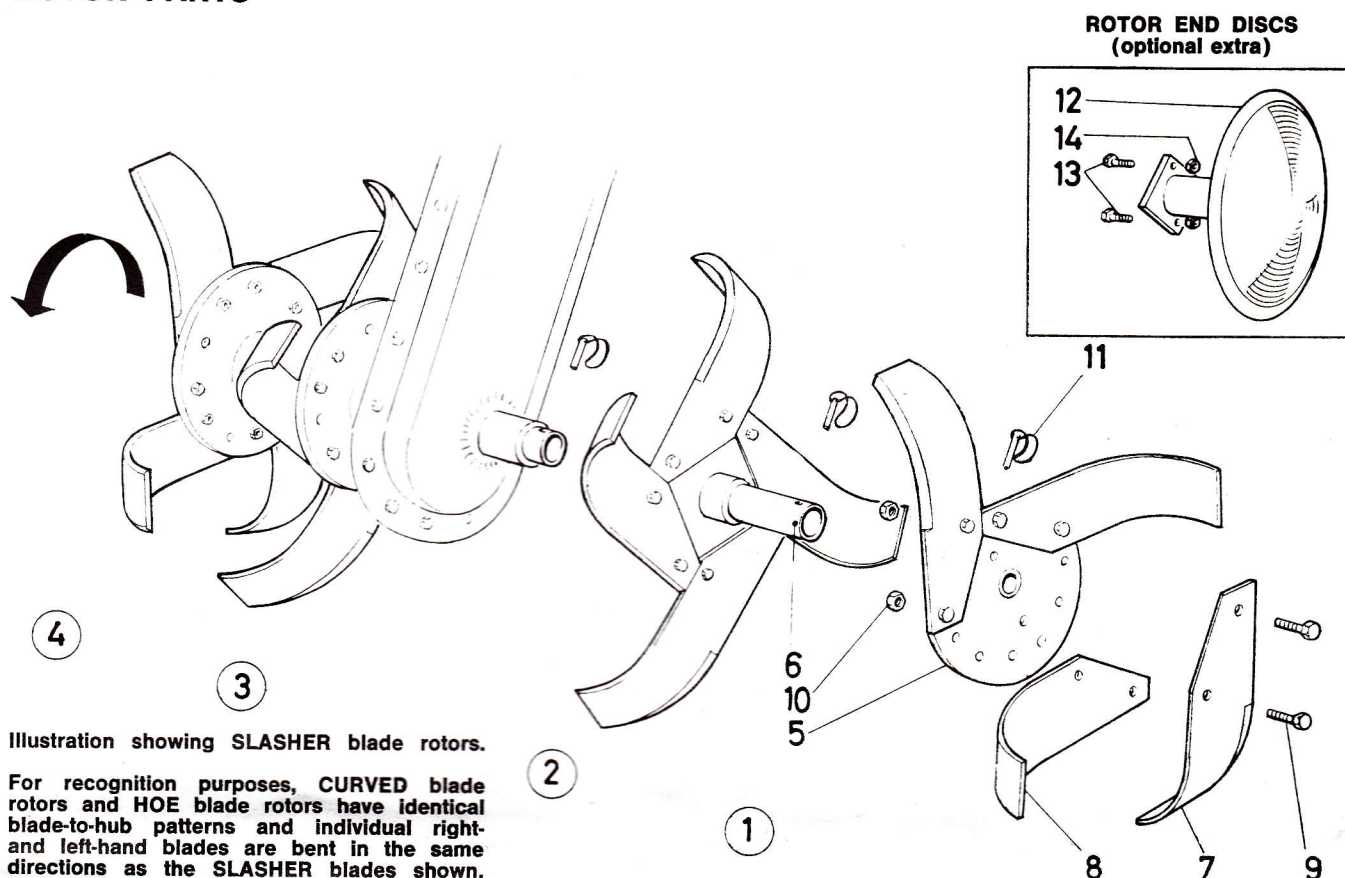


Illustration showing SLASHER blade rotors.

For recognition purposes, CURVED blade rotors and HOE blade rotors have identical blade-to-hub patterns and individual right- and left-hand blades are bent in the same directions as the SLASHER blades shown.

SPARE PARTS

Item No.	Spares No.	Description	Qty	Item No.	Spares No.	Description	Qty.
COMPLETE BLADE/HUB UNITS				ROTOR BLADES			
1	ML1057	R/H Outer Slasher Blade/Hub Ass'y	1	7	M861	R/H Slasher Blade	8
2	ML1058	R/H Inner " " " "	1		M1375	R/H Curved Blade	8
3	ML1047	L/H Inner " " " "	1		M1377	R/H Hoe Blade	8
4	ML1046	L/H Outer " " " "	1				
		As illus.		8	M860	L/H Slasher Blade	8
1	ML1086	R/H Outer Curved Blade/Hub Ass'y	1		M1376	L/H Curved Blade	8
2	ML1087	R/H Inner " " " "	1		M1378	L/H Hoe Blade	8
3	ML1089	L/H Inner " " " "	1				
4	ML1088	L/H Outer " " " "	1	9	M613	Blade Bolts	16
1	ML1078	R/H Outer Hoe Blade/Hub Ass'y	1	10	B1583	5/16" UNF Nyloc 'T' Nuts	16
2	ML1079	R/H Inner " " " "	1	11	ML1031	Rotor Pins	4
3	ML1081	L/H Inner " " " "	1				
4	ML1080	L/H Outer " " " "	1				
HUBS				ROTOR END DISCS (Optional Extra)			
5	ML1067	Outer Hubs (short)	2	12	ML1068	Rotor End Discs	2
6	ML1066	Inner Hubs (long)	2	13	ML1684	Special Bolts	4
				14	B1582	1/2" UNF Nyloc 'T' Nuts	4

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BASIC MACHINE

FAULT FINDING

Detailed engine data will be found in the Engine Makers literature, but the most common general difficulties can be checked against the following points.

FAULT	CHECK FOR	TO REMEDY
ENGINE WILL NOT START OR RUNS ERRATICALLY	Oil shortage in engine sump. Cut-out Switch 'Off' (if fitted). Shorting Tab touching spark plug. Fuel Tank empty. Fuel Tap turned 'off'. Dirty Plug electrodes. Plug lead shorting to earth. Dirty Contact-breaker points. Carburettor flooded. Dirt in carburettor. 'Choke' performance only. Air-lock in fuel pipe(s). Carburettor fixing bolts loose. Water in fuel.	Top-up to filler level. Switch 'on'. Separate. Refill. Turn 'on'. Clean, adjust gap or renew. Dry any moisture, remake ends or replace. Clean, adjust gap—dry off any moisture. Remove spark plug, pull starter handle, refit. Remove and clean carefully. Remove and clean air filter. Slacken at carburettor and flush. Clean vent hole in tank filler cap. Tighten. Drain, dry and refill.
RECOIL STARTER INOPERATIVE	Starter mechanism jammed, not engaging or disengaging, broken starter cord.	See your Dealer for repairs.
LOSS OF THROTTLE CONTROL	Broken throttle cable or jammed throttle linkage.	See Engine Makers literature.
CLUTCH INOPERATIVE	Damaged cable. Vee Belt stretched.	Remake ends, or replace and refit; re-adjust. Re-adjust.
OIL LEAK AT BASE OF CHAIN-CASE	Worn internal oil-seals and felts. Chain-case broken, dented or split. Chain-case overfilled. Oil too thin.	See your Dealer for repairs. See your Dealer for repairs. Remove side level-plug and draw off surplus. Drain, refill with correct grade.

WHEELS

Special purpose wheels are supplied for use with many of the attachments—Ridger, Rotary Grass Cutter, Trailer, etc.—and their uses and construction are explained and shown in the respective sections in this handbook.

There are, however, three sizes and types of *traction* wheel currently available and these are used in conjunction with various attachments:

3-00 x 6—this is a rubber pneumatic wheel having a deep 'Vee' patterned tread for added tractive 'grip' in soft ground. It is used with such attachments as the Trailer, Static Tools, Seed Drill and (if desired)—the Static Ridger.

4-00 x 8—this is a larger version of the 3-00 x 6 and is mainly used for ploughing purposes.

8 ins. dia.—this is a solid rubber tyred wheel used with the Rotary Grass Cutter.

All wheels are fixed to the chain-case axle with standard rotor pins through special wheel hubs. These hubs have elongated slots for the pins and provide a limited 'differential' action for easier steering of the machine.

All pneumatic tyres should be maintained at 10 lb. per sq. in. (·703 kilos/sq.mm.). When wheels are correctly arranged inner-tube valves should be 'inboard', i.e. towards the chain-case, and the tread 'Vees' should point forwards in the direction of rotation. (see illustration opposite).

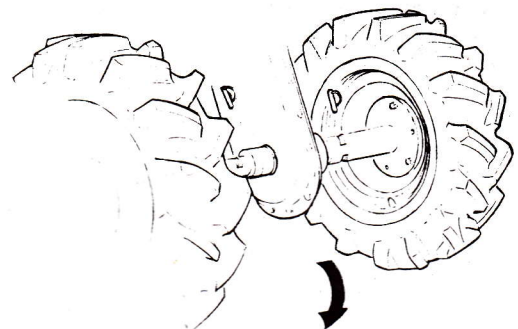
RATCHET HUBS

Ratchet Hubs can only be fitted to 4-00 x 8 wheels. The hubs provide a means of allowing the wheel(s) to over-ride or rotate faster than the axle. This feature is especially useful when frequent headland turns are necessary and the machine can then be made to almost pivot around one wheel.

They can be used on one or both wheels and can be set to give either a 'locked' or 'free-wheel' by means of the spring-loaded locking pin (see inset). Position 'A' gives a locked wheel and position 'B' gives a free wheel. When working on sloping ground and both wheels are fitted with ratchet hubs, it is advisable to keep at least one wheel locked to prevent the machine from inadvertently running away downhill. Hubs are marked for identification purposes for right- or left-hand use.

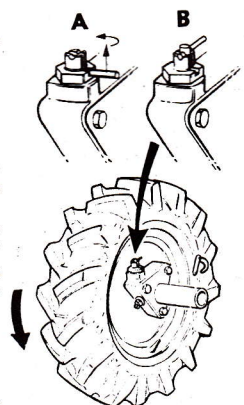
WHEEL WEIGHTS

Wheel Weights of 40 lb. (18·2 kilos) each are available to fit into the outer recesses of the wheel rims, and are fixed with three bolts, as shown in the spares section. They can only be fitted to 4-00 x 8 wheels. Wheel Weights add extra weight to the machine for increased tractive grip, and also help to prevent wheel spin when ploughing heavy wet ground.

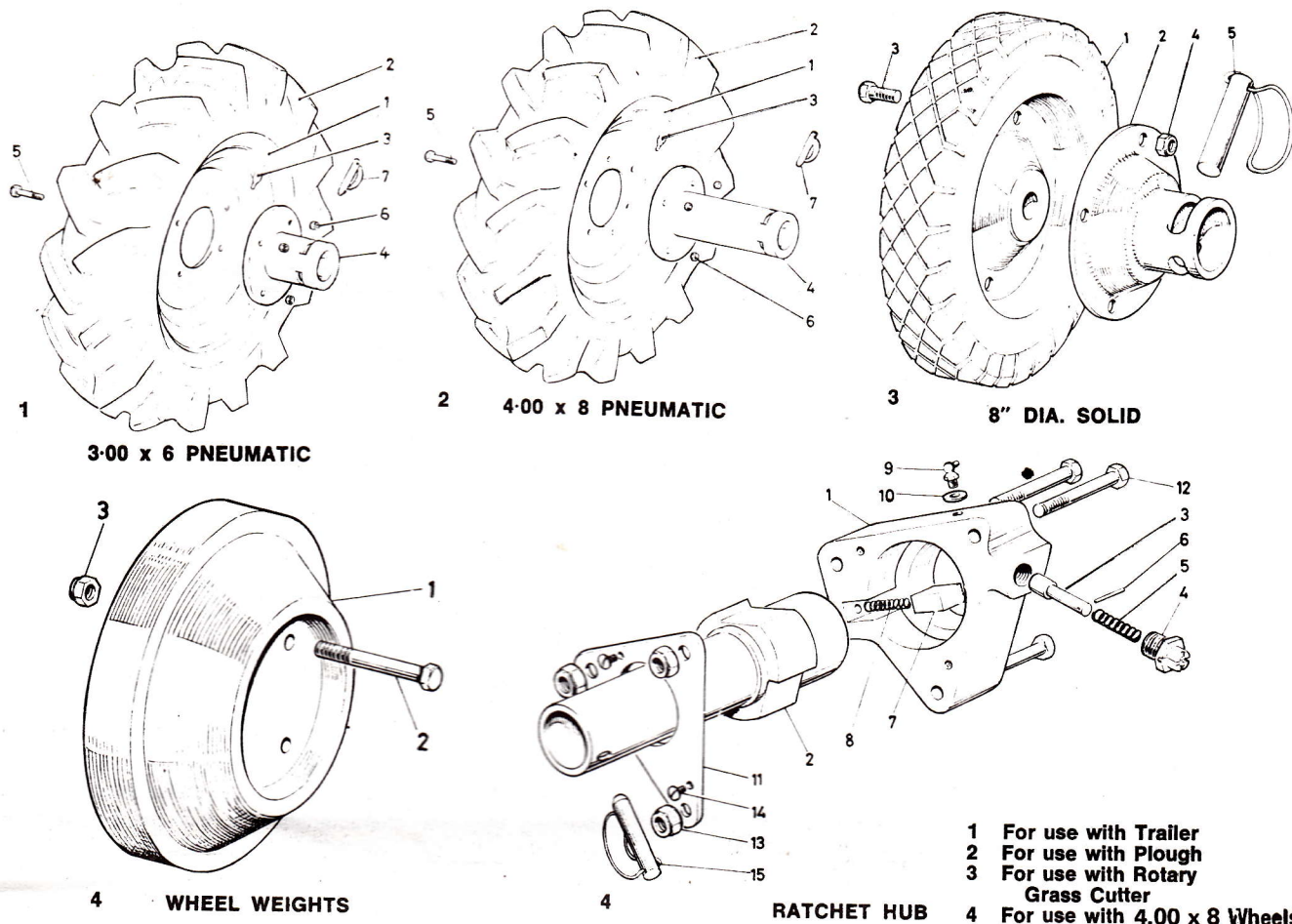


WHEEL FIXING DETAILS

Note the securing pins and the correct directing of tyre tread 'Vees'—also location of inner-tube valves.



R/HAND
RATCHET HUB



SPARE PARTS

Item No.	Spares No.	Description	Qty.
4-00 x 8 TRACTION WHEELS			
	ML1074	R/H Wheel and Hub Ass'y complete	1
	ML1073	L/H Wheel and Hub Ass'y complete	1
	M913	R/H Wheel complete	1
	M912	L/H Wheel complete	1
1	M614	4-00 x 8 Rim (Z101A)	2
2	A1600	4-00 x 8 Tyre	2
3	A1601	4-00 x 8 Tube	2
4	ML1072	Wheel Hub	2
5	M615	Wheel Bolt	6
6	B1584	$\frac{3}{8}$ " UNF Nyloc 'T' Nut	6
7	ML1031	Rotor Pins	2
3-00 x 6 TRACTION WHEELS			
	ML1106	R/H Wheel and Hub Ass'y complete	1
	ML1107	L/H Wheel and Hub Ass'y complete	1
	ML1108	R/H Wheel complete	1
	ML1109	L/H Wheel complete	1
1	A2960	3-00 x 6 Rim	2
2	A2958	3-00 x 6 Tyre	2
3	A2959	3-00 x 6 Tube	2
4	ML1083	Wheel Hub	2
5	A1756	5/16" UNF x $\frac{3}{4}$ " Bolt	8
6	A1728	5/16" UNF Nyloc 'T' Nuts	8
7	ML1031	Rotor Pins	2
8" DIA. TRACTION WHEELS			
1	ML1629	Wheels 8" x $1\frac{3}{4}$ "	2
2	ML1048	Wheel Hubs	2
3	A1037	$\frac{1}{4}$ " UNF x $\frac{3}{8}$ " Set Screw	8
4	B1582	$\frac{1}{4}$ " UNF Nyloc 'T' Nut	8
5	ML1031	Rotor Pins	2

Item No.	Spares No.	Description	Qty.
WHEEL WEIGHTS			
1	ML1685	Wheel Weights	2
2	A3016	$\frac{1}{2}$ " UNF x 4" Bolts	6
3	B1584	$\frac{1}{2}$ " UNF Nyloc 'T' Nuts	6
RATCHET HUBS			
	ML1105	R/H Ratchet Unit complete (as shown)	1
	ML1104	L/H Ratchet Unit complete	1
1	M781	R/H Ratchet Hub (as shown)	1
	M782	L/H Ratchet Hub	1
2	ML1037	R/H Axle Adaptor (as shown)	1
	ML1036	L/H Axle Adaptor	1
3	M769	Locking Plunger	2
4	M772	Locking Adaptor	2
5	M779	Plunger Spring	2
6	A1525	$\frac{1}{8}$ " x $1\frac{1}{2}$ " Grooved Pin	2
7	ED1576	Pawl	2
8	ED1585	Spring	2
9	A810	Grease Nipple ($\frac{1}{4}$ " BSF x 60°)	2
10	A1647	$\frac{1}{2}$ " Fibre Washer	2
11	M771	Cover Plate	2
12	A1947	$\frac{3}{8}$ " UNF x $2\frac{1}{2}$ " Bolts	6
13	B1584	$\frac{3}{8}$ " UNF Nyloc 'T' Nuts	6
14	A1504	$\frac{1}{2}$ " BSF x $\frac{1}{2}$ " M/room Hd. Screws	4
15	ML1031	Rotor Pins	2

WHEN ORDERING SPARES, STATE SPARES No., DESCRIPTION, QUANTITY REQUIRED AND MODEL SERIAL No.
OBTAIN ALL SPARE PARTS FROM YOUR LOCAL DEALER

GENERAL

Two attachments are available for the creation of ridges or furrows—the **Static Ridger** and **Ridging Rotors**—and their choice will be governed by individual requirements based on local conditions and crops.

Ground which has previously been prepared either by ploughing or by rotary cultivation, and reduced to a suitable tilth, can then be worked by either of the implements for:

- A Creating furrows ready for the planting of tubers, seedlings and sets, etc.
- B Earthing-up around growing crops such as potatoes and celery.
- C Opening drainage or irrigation furrows either before or after planting.

THE STATIC RIDGER

The static ridger is a draft implement drawn behind the machine. It is a simple 'Y' blade fixed to a vertical stem which is mounted in the machine's rear support frame in place of the rear depth skid. Initial depth setting is determined by the position of the stem in the support frame but a depth control wheel behind the blade is adjusted to ensure consistent performance.

The static ridger is adjustable for width with side wings which can be set from 12" (30.5 cm.) to 20" (50.8 cm.). This attachment produces furrows which are generally deeper and narrower than those made by ridging rotors.

Note that the support frame wheels are not used—the support frame is fitted to the machine's rear hitch point and secured with the usual pin and clip.

A rotor set-up (preferably HOE blades) should be fitted to give both forward traction and preliminary soil tillage. Alternatively, 3.00 x 6 traction wheels may be used in place of the rotor unit.

RIDGING ROTORS

The ridging rotors are specially shaped cultivating blades fitted to standard rotor hubs. Their action is to provide forward traction to the machine with simultaneous working of the surface soil outwards from the centre of the rig to either side of the tillage path. This 'screw' action produces wider, shallower furrows than those obtained with the static ridger.

Blade/hub assemblies are fitted to the chain-case axle in the same sequence as normal rotary cultivation units—the long inner hubs fixed to the axle followed by the short outer hubs. Normally, only two sets of rotors are recommended either side of the chain-case, but in light dry soil conditions and where particularly wide furrows are required, it is possible to add another pair of the *inner* type hubs to the ends of the normal two-pair rotor unit.

The machine's rear support frame complete with stabilising wheels and depth skid are required for this type of ridging.

FIELD TECHNIQUES

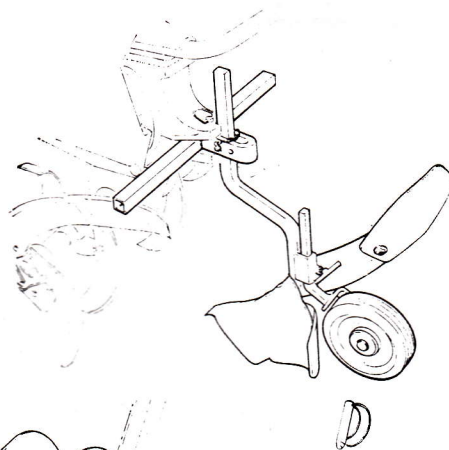
Both attachments are normally used working to-and-fro in parallel lines with a 'U' turn at the field headlands. On large areas of ground it will be found helpful to use marker poles for the operator to steer to, so that row crops will be straight, parallel and equally spaced.

In planning the planting or seeding of the field, initial thought should be given to the possibilities of inter-row short-term 'catch' crops planted between the rows of the main crop—especially if the latter is of the slower developing type.

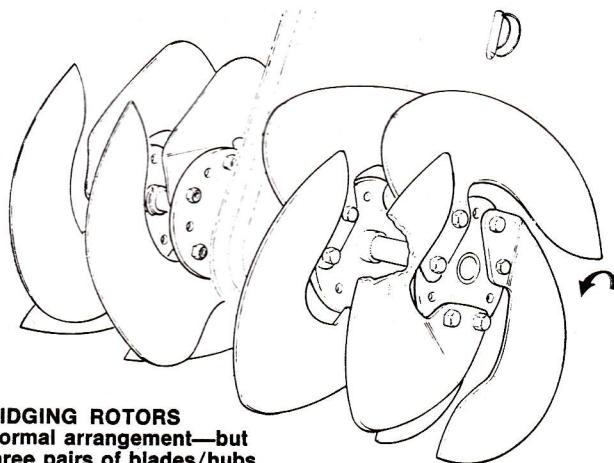
In this way, the wide spaced rows needed for such crops as sugar cane, sunflower, raspberry canes, cordon fruits, etc., when nearly full grown, can be inter-sown or planted for an earlier yield with quick growth crops such as lettuce, radish, onions, peas, etc. Likewise, the furrows created from the earthing-up of the main crop can also be used for these secondary yields, thereby providing supplementary produce, conserving soil moisture and preventing erosion. The ridging rotors, in particular, leave a fine tilth ideally suited for seeding.

It can often pay, therefore to deliberately space the main crop wider than is absolutely necessary in order to introduce this interim harvest crop technique. The excellent close-working inter-row characteristics of the machine for every stage of cultivation can thus be turned to profitable account.

**STATIC
RIDGER**

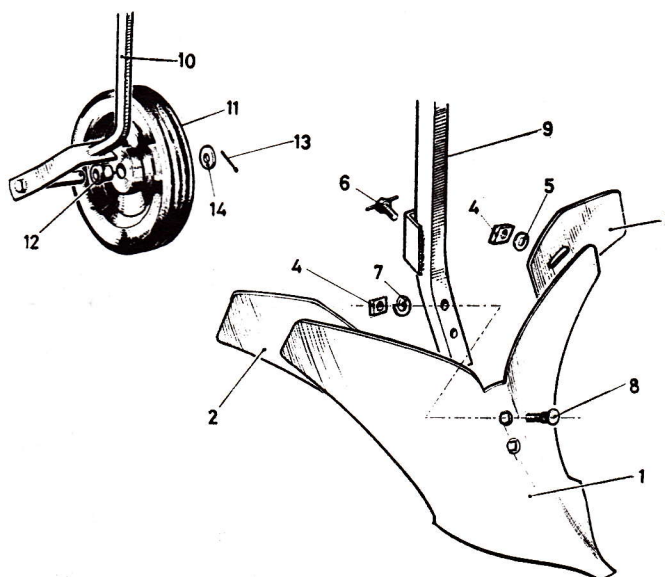
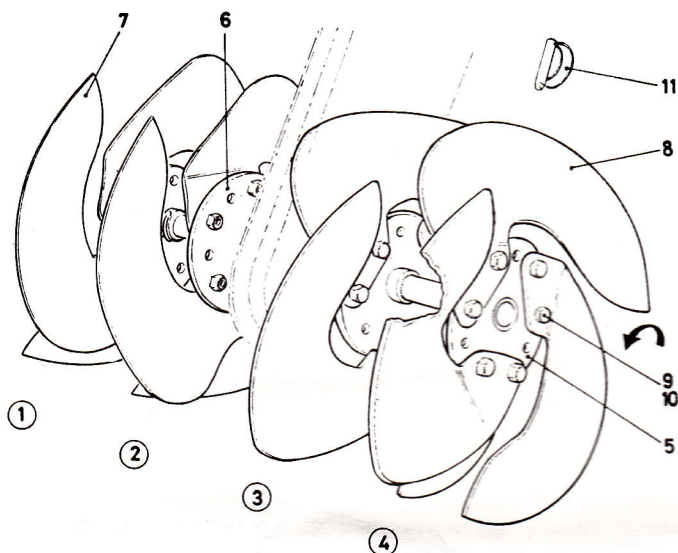


RIDGING ROTORS
Normal arrangement—but
three pairs of blades/hubs
may be used in light soils



SPARE PARTS

RIDGING ROTORS



STATIC RIDGER

SPARE PARTS

STATIC RIDGER

Item No.	Spares No.	Description	Qty.
1	A2142	Ridger Blade	1
2	A2143	R/H Wing	1
3	A1632	L/H Wing	1
4	A1449	$\frac{3}{8}$ " BSW Square Nut	4
5	A170	$\frac{3}{8}$ " Plain Washer	2
6	M588	Wing Bolt	1
7	A9	$\frac{3}{8}$ " S.C.F.S. Spring Washer	2
8	A1574	$\frac{3}{8}$ " BSW x $1\frac{1}{4}$ " O.D.C.S.S. Bolt	2
9	ML1051	Ridger Stem	1
10	M835	Depth Control Stem	1
11	A1526	Wheel complete	1
12	A1487	Nylon Bush (for wheel)	2
13	A922	$3/32$ " x 1" Split Pin	1
14	A75	$\frac{1}{2}$ " Plain Washer	1

RIDGING ROTORS

Item No.	Spares No.	Description	Qty.
1	ML1100	R/H Outer Blade/Hub Ass'y	1
2	ML1099	R/H Inner " " "	1
3	MY1097	L/H Inner " " "	1
4	ML1098	L/H Outer " " "	1
5	ML1067	Outer Hubs (short)	2
6	ML1066	Inner Hubs (long)	2
7	M824	R/H Ridging Blade	6
8	M823	L/H Ridging Blade	6
9	M613	Blade Bolts	24
10	B1583	$5/16$ " UNF Nyloc 'T' Nuts	24
11	ML1031	Rotor Pins	4

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