

Operator & spares manual

TURF SCARIFIER

FINE TURF SLITTER

TURF DRAINER

3 IN 1 CULTIVATOR

EC DECLARATION OF CONFORMITY
Conforming to EEC Directive 89/392/EEC

We,

McCONNEL LIMITED, Temeside Works, Ludlow,
Shropshire SY8 1JL.

declare under our sole responsibility that

the product (type) .. *TURF SCARIFIERS, FINETURF SLITTER* ..
TURF DRAINER, 3 IN 1 CULTIVATOR ..

Product Code .. *TSCA, FTS4, FTS6, FTS8, 3IN1, TDR1, TDR2* ..

Serial No. & Date Type

Manufactured by the above Company/* ..

*(*insert business name and full address if not stated above)*

◆-----◆
complies with the required provisions of the Directive 89/392/EEC,
and AMD 91/368/EEC, AMD 93/44/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 .. *Adrian Longstaff* ..
on behalf of McCONNEL LIMITED .. *Responsible Person*

Status .. *Director of Engineering* .. Date *5th August 2001* ..

READ THE BOOK FIRST

It might save hours and pounds later

**When ordering spare parts always
quote the machine type and serial
number as well as the part number**

**Factory re-built service exchange
units of the major hydraulic components
are available from your dealer.**

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GENERAL INFORMATION

Read this manual before fitting or operating the machine. Whenever any doubt exists contact your dealer or the McConnel Service Department for assistance.

Use only McConnel spare parts on McConnel equipment and machines. This manual includes an illustrated spare parts breakdown and the interpretation which precedes it should be read before ordering replacement components.

DEFINATION

The following definitions apply throughout this manual:

WARNING

An operating procedure, technique etc., which can result in personal injury or loss of life if not observed carefully.

CAUTION

An operating procedure, technique etc., which can result in the damage of either machine or equipment if not observed carefully.

NOTE An operating procedure, technique etc., which is considered essential to emphasise.

LEFT AND RIGHT-HAND

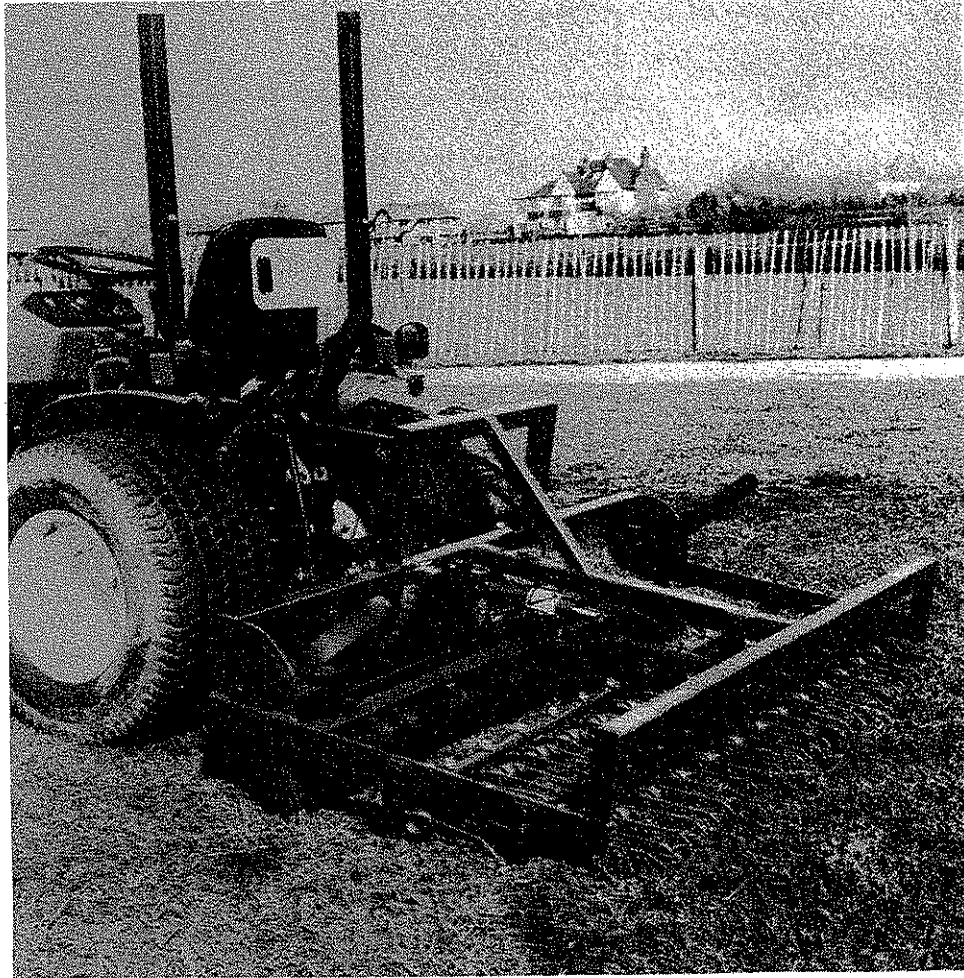
This term is applicable to the machine when fitted to the tractor and viewed from the rear. This also applies to tractor references.

Record the serial number of your machine on this page and always quote this number when ordering spares. Whenever information concerning the machine is requested remember to also state the type of tractor to which it is fitted.

MACHINE SERIAL NUMBER	INSTALLATION DATE
MODEL DETAILS	
DEALERS NAME	
DEALERS TELEPHONE NUMBER	

FOR NOTES

TURF SCARIFIER



INTRODUCTION

The turf scarifier has been designed to fit onto the three point linkages of tractors.

Hydraulic or manual operated machine options.

Fully adjustable pressure of tines via hydraulic operation or manual adjustment.

Available in a range of sizes to suit tractors from 16 Hp +

Suitable on category II linkage tractors.

Front roller for depth adjustment.

WARNING

SAFETY PRECAUTIONS

×

NEVER

- ... Permit inexperienced personnel to operate the machine without supervision.
- ... Allow anybody to ride on the equipment whether in transport or at work.
- ... Work under the frame while the machine is suspended on the tractors hydraulic lift, use a substantial support.

✓

ALWAYS

- ... Keep guards in place (if fitted). They are for your protection.
- ... Ensure that hydraulic hoses are not strained, pinched or chafed.
- ... Keep tight all bolts and nuts and check security of mounting pins.
- ... Keep check chains tight

FITTING

Tractor preparation

Tractor ratings to suit frame widths

Frame Size	Tractor Rating
1.2m (4' 0")	16+ Hp
1.8m (6' 0")	16+ Hp
2.4m (8' 0")	18+ Hp

Hydraulically adjustable machine require double acting spool valve on tractor.

The tractor machine must be stable under all operating conditions. Front compensating weights may be required to be added reference tractors manufactures recommendations.

Tractors with category 1 linkage, the lower link pins need to face inwards and fixed to the inside of 'A' frame.

For category II tractors, the lower link pins must be located onto the outer face of frame so that they face outwards.

Fitting to tractor

Connect draft link arms of tractors three point linkage to the 'A' frame of the machine. Secure with pins.

Adjust length of top link to secure to top of 'A' frame.

Lift machine off the ground via the three point linkage, until approximately 150mm (6ins) off the ground.

Adjust top link if necessary to level machine.

Tighten check chains/stabiliser bars to centralise machine behind tractor and to prevent sideways movement.

Hydraulic operated machines

Connect hydraulic hoses to tractors spool valve using quick release couplings. Make sure the hoses are not pinched, kinked, stretched or chafed and the hydraulic system is oil tight.

The forward roller is pre-set at a height suitable for most applications. However, the roller height can be adjusted if required, to suit individual applications. (See page)

Operation

Set tine bars to required height for ideal pressure. This can be carried out by either one of two ways depending on machine.

(a) Hydraulic machine:-

Operate control lever to activate ram to raise or lower tines. Use the range of travel of ram to achieve optimum tine pressure for your application

(b) Manual machine:-

The tine pressure is adjustable by releasing locking pin, located at centre of linkage mechanism on cross-member of frame, and by using lever provided, adjust tine height to any pre-set position on drilled plate. Relocate locking pin and secure in place.

Pre-set - nearest tractor - Minimum pressure

Pre-set - furthest from tractor - Maximum pressure

Lower machine to ground ready for operation.

Drive tractor in straight line up and down the grass area to be scarified, followed by diagonal runs across the same area.

The machine does not have to be lifted out of work when turning or negotiating around obstacles such as trees.

Fine tilth

For producing a fine tilth in worn turf areas, maximum pressure of tines is required, to increase pressure place front roller at its lowest position and adjust top link so the rear of machine is angled towards the ground.

Changing height position of front roller

Position roller near to ground as possible

With assistance un-do the locking nuts and remove the bolts, by using the levers provided slowly raise or lower the roller to the desired position aligned up holes and rebolt and lock in place.

WARNING Be aware at all times when carrying out this operation, not to endanger yourself of becoming trapped or squashed underneath the roller in an event of an accident.

Removal from tractor

Choose a level surface

Position machine to approximately 6" off the ground.

Switch off tractor

Hydraulic machine only, release pressure on hydraulic system by moving the control lever into all positions. Disconnect hydraulic hoses using the quick release couplings.

Lower machine to ground.

Detach draft link arms of tractor from 'A' frame

Adjust top link to release pressure from pin and disconnect.

Drive tractor forward clear of machine.

FOR NOTES

SPARE PARTS MANUAL

FOR BEST PERFORMANCE....

USE ONLY McCONNEL SPARE PARTS

To be assured of the latest design improvements purchase your genuine replacements from the original equipment manufacturer F.W. McConnel Ltd. through your local dealer or stockist.

Always quote machine type and serial number as well as the part number.

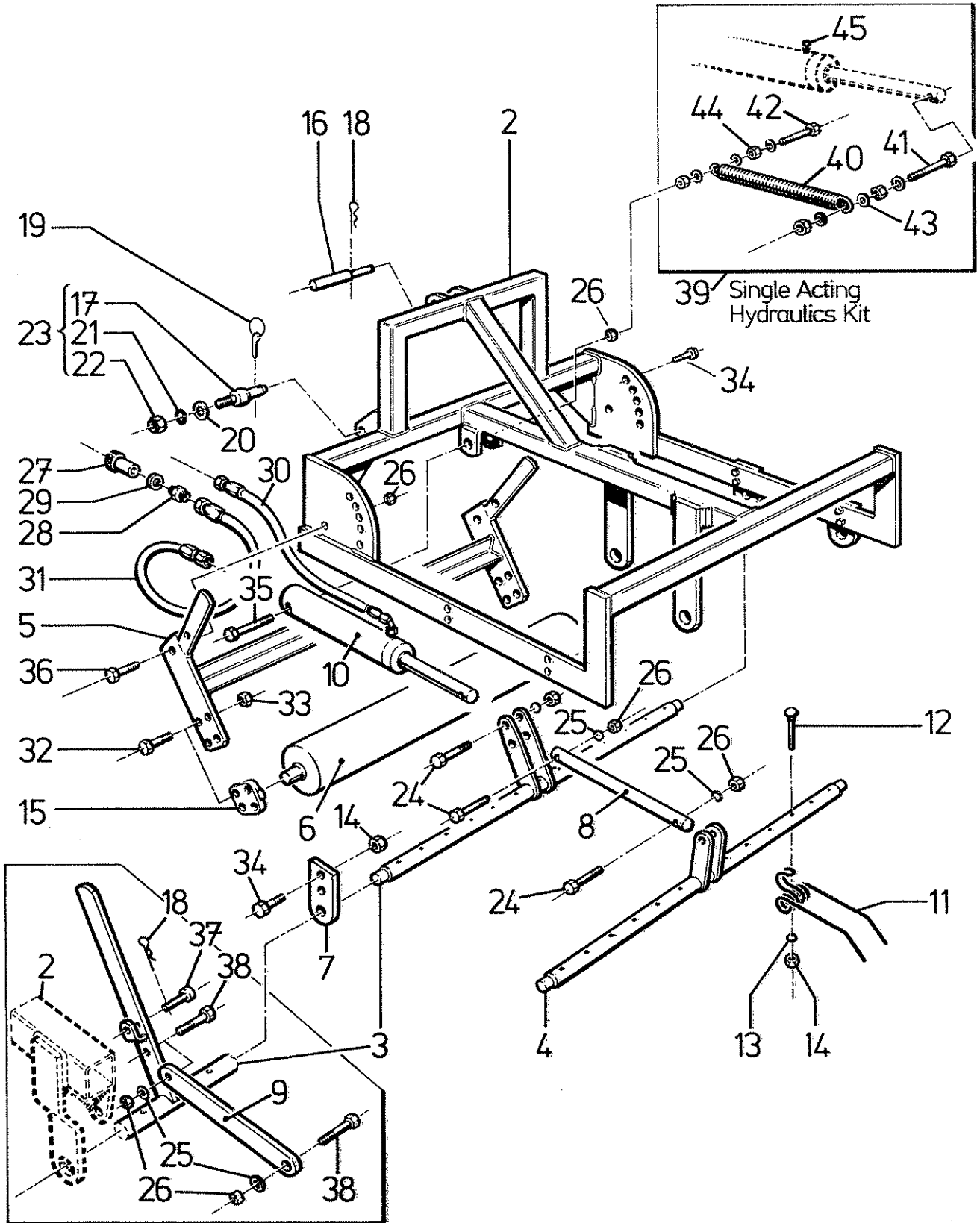
Design improvement may have altered some of the parts listed in this manual - The latest part will always be supplied when it is interchangeable with an earlier one.

Model

TURF SCARIFIER

McCONEL

Temeside Works, Ludlow,
Shropshire, SY8 1JL, England.

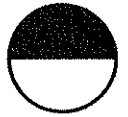




Key	Part No.	Description	Qty. per Machine		
			4' 0"	6' 0"	8' 0"
	DAB TS 40M	ASSY COMPLETE — 4' 0" MANUAL	1	—	—
	DAB TS 60M	ASSY COMPLETE — 6' 0" MANUAL	—	1	—
	DAB TS 80M	ASSY COMPLETE — 8' 0" MANUAL	—	—	1
	DAB TS 40H	ASSY COMPLETE — 4' 0" HYDRAULIC	1	—	—
	DAB TS 60H	ASSY COMPLETE — 6' 0" HYDRAULIC	—	1	—
	DAB TS 80H	ASSY COMPLETE — 8' 0" HYDRAULIC	—	—	1
2	19 41 253	Frame Assembly — 4' 0" Manual	1	—	—
2	19 41 254	Frame Assembly — 6' 0" Manual	—	1	—
2	19 41 255	Frame Assembly — 8' 0" Manual	—	—	1
2	19 42 253	Frame Assembly — 4' 0" Hydraulic	1	—	—
2	19 42 254	Frame Assembly — 6' 0" Hydraulic	—	1	—
2	19 42 255	Frame Assembly — 8' 0" Hydraulic	—	—	1
3	19 41 256	Front Shaft — 4' 0" Manual	1	—	—
3	19 41 257	Front Shaft — 6' 0" Manual	—	1	—
3	19 41 258	Front Shaft — 8' 0" Manual	—	—	1
3	19 42 256	Front Shaft — 4' 0" Hydraulic	1	—	—
3	19 42 257	Front Shaft — 6' 0" Hydraulic	—	1	—
3	19 42 258	Front Shaft — 8' 0" Hydraulic	—	—	1
4	19 41 259	Rear Shaft — 4' 0" Manual	1	—	—
4	19 41 260	Rear Shaft — 6' 0" Manual	—	1	—
4	19 41 261	Rear Shaft — 8' 0" Manual	—	—	1
4	19 42 259	Rear Shaft — 4' 0" Hydraulic	1	—	—
4	19 42 260	Rear Shaft — 6' 0" Hydraulic	—	1	—
4	19 42 261	Rear Shaft — 8' 0" Hydraulic	—	—	1
5	19 40 250	Roller Frame — 4' 0"	1	—	—
5	19 40 251	Roller Frame — 6' 0"	—	1	—
5	19 40 252	Roller Frame — 8' 0"	—	—	1
6	19 40 253	Roller — 4' 0"	1	—	—
6	19 40 254	Roller — 6' 0"	—	1	—
6	19 40 255	Roller — 8' 0"	—	—	1
7	19 40 256	Shaft Pivot Plate	4	4	4
8	19 42 262	Push Rod — Hydraulic	1	1	1
9	19 41 262	Push Rod — Manual	1	1	1
10	19 42 263	Hydraulic Cylinder	1	1	1
11	19 40 100	Tine	18	26	34
12	92 93 126	Coach Bolt M12 x 60	18	26	34
13	19 40 002	Tine Washer	18	26	34
14	91 63 006	Nyloc Nut M12	28	36	44
15	19 40 001	Bearing	2	2	2
16	19 00 028	Top Link Pin	1	1	1
17	19 00 029	Bottom Link Pin	2	2	2
18	04 31 105	"R" Clip — Hydraulic M/Cs	1	1	1
18	04 31 105	"R" Clip — Manual M/Cs	2	2	2
19	04 31 205	Linch Pin	2	2	2
20	91 00 107	16 Dia Plain Washer	2	2	2

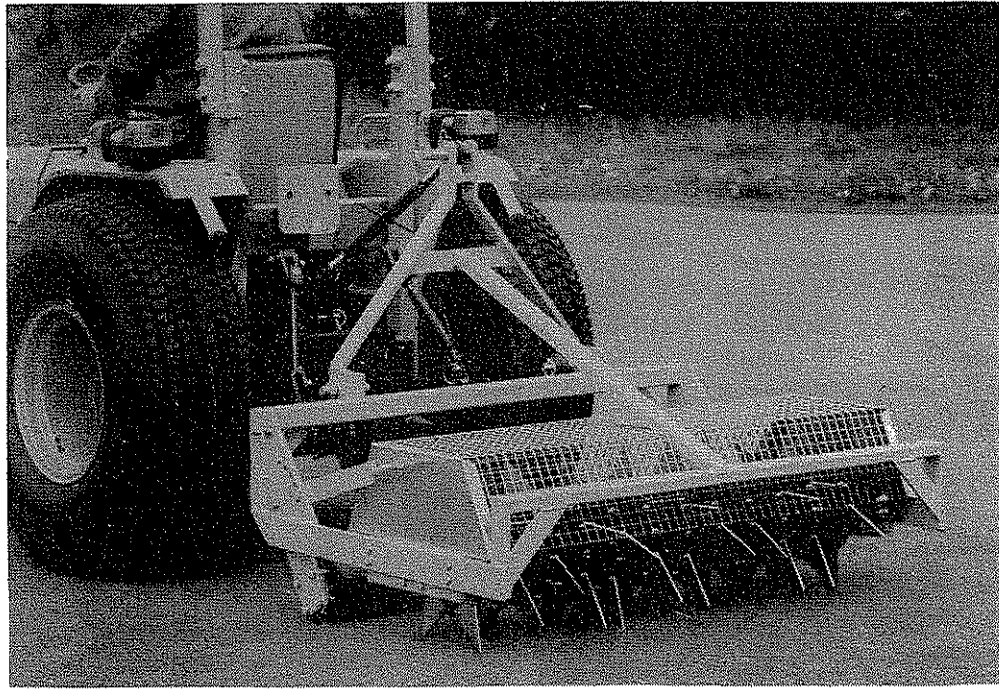
Model

TURF SCARIFIER

McCONELTemeside Works, Ludlow,
Shropshire, SY8 1JL, England.

Key	Part No.	Description	Qty. per Machine		
			4' 0"	6' 0"	8' 0"
21	01 00 206	5/8 Dia Spring Washer	2	2	2
22	01 11 006	5/8 UNF Nut	2	2	2
23	19 00 033	Bottom Link Pin C/W Nut and Spring Washer	2	2	2
24	92 13 157	Hex Hd Bolt M16 x 75	3	3	3
25	91 00 107	Plain Washer 16 Dia	3	3	3
26	91 63 007	Nyloc Nut M16	6	6	6
27	85 81 063	Quick Release Coupling	2	2	2
28	60 00 113	Adaptor	2	2	2
29	86 50 103	Sealing Washer	2	2	2
30	85 31 263	Hose — 56 ins	1	1	1
31	85 11 403	Hose 49 ins	1	1	1
32	92 13 085	Hex Hd Bolt M10 x 40	8	8	8
33	91 63 005	Nyloc Nut M10	8	8	8
34	92 13 086	Hex Hd Bolt M12 x 40	8	8	8
35	92 13 227	Hex Hd Bolt M16 x 110	1	1	1
36	92 13 098	Hex Hd Bolt M20 x 45	2	2	2
37	19 41 001	Lever Pin	1	1	1
38	92 13 097	Hex Hd Bolt M16 x 45	2	2	2
39	19 42 001	Spring Kit for Single Acting Hydraulics	1	1	1
40	19 42 002	Spring	1	1	1
41	92 13 207	Hex Hd Bolt M16 x 100	1	1	1
42	92 13 267	Hex Hd Bolt M16 x 130	1	1	1
43	91 00 107	Plain Washer 16 Dia	6	6	6
44	91 63 007	Nyloc Nut M16	4	4	4
45	19 42 003	Breather	1	1	1
	86 99 220	SEAL KIT For hyd cyl			

FINE TURF SLITTER



INTRODUCTION

The fine turf slitter has its own pressure roller to provide controlled penetration down to a maximum depth of 125mm(5ins).Surface disturbance is minimal.

Available in three width sizes 4ft, 6ft, and 8ft.

To suit tractors from 16 Hp to 18 Hp +

The blades can be easily replaced and are electro-plated to assist with rust prevention.

WARNING

SAFETY PRECAUTIONS

× **NEVER**

- ... Permit inexperienced personnel to operate the machine without supervision.
- ... Allow anybody to ride on the equipment whether in transport or at work.
- ... Work under the frame while the machine is suspended on the tractors hydraulic liftuse a substantial support.

✓ **ALWAYS**

- ... Keep guards in place (if fitted). They are for your protection.
- ... Ensure that hydraulic hoses are not strained, pinched or chafed.
- ... Keep tight all bolts and nuts and check security of mounting pins.
- ... Keep check chains tight

FITTING

Tractor preparation

Tractor ratings to suit frame widths.

FRAME SIZE	TRACTOR RATING
1.2m (4' 0")	16 + Hp
1.8m (6' 0")	16 + Hp
2.4m (8' 0")	18 + Hp

Fitting to tractor

Connect draft link arms of tractors three point linkage to the 'A' frame of the machine. Secure with pins.

Adjust length of top link to secure to top of 'A' frame.

Lift machine off the ground via the three point linkage, until approximately 150mm (6ins) off the ground.

Adjust top link if necessary to level machine.

Tighten check chains/stabiliser bars to centralise machine behind tractor and to prevent sideways movement.

OPERATION

Bring machine into working position using the three point linkage.

Start tractor. Proceed to move forwards. The weight of the machine is sufficient for the blades to penetrate the turf, under normal conditions.

WARNING!

Always drive tractor in a straight line, do not turn tractor when the machine is working or damage to the blades may result.

Lift out of ground using 3 point linkage.

In some circumstances increased penetration force is required due to turf conditions. To achieve this , raise machine clear of ground, lower position of pressure roller and adjust top link so the rear of machine is angled towards the ground.

Adjusting height of pressure roller

With assistance release and remove locking pin. Use lever provided to raise or lower the roller to any one of the pre-set hole positions on adjusting plate. Aligned holes and relocate and secure locking pin in place.

Removal from tractor

Choose a level surface

Lower machine to the ground

Adjust top link to release pressure from pin, and disconnect.

Detach draft link arms of tractor from frame.

Drive tractor forward clear of machine.

SPARE PARTS MANUAL

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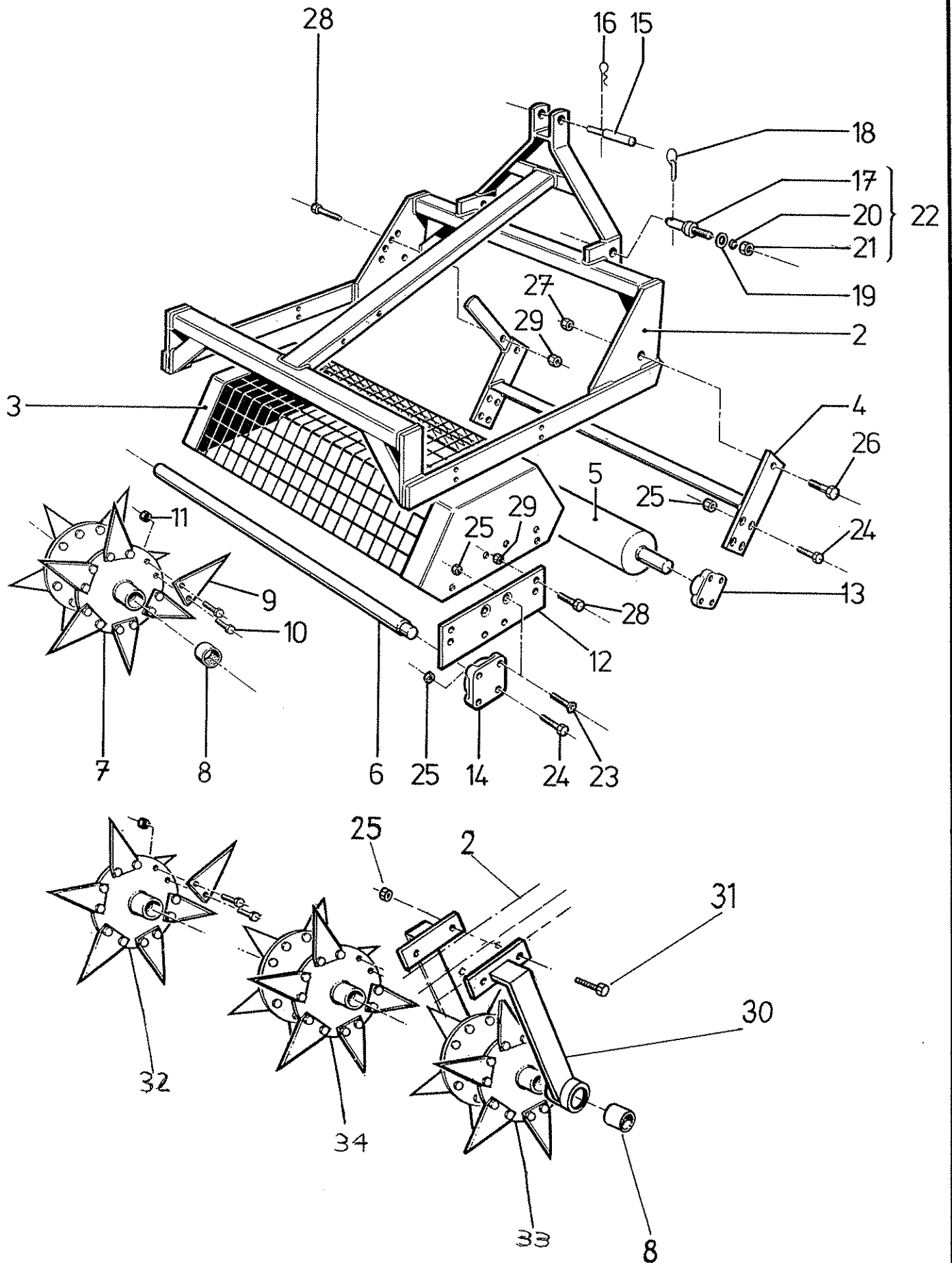
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Model

FINE TURF SLITTER

McCONEL

Temeside Works, Ludlow,
Shropshire, SY8 1JL, England.



Model

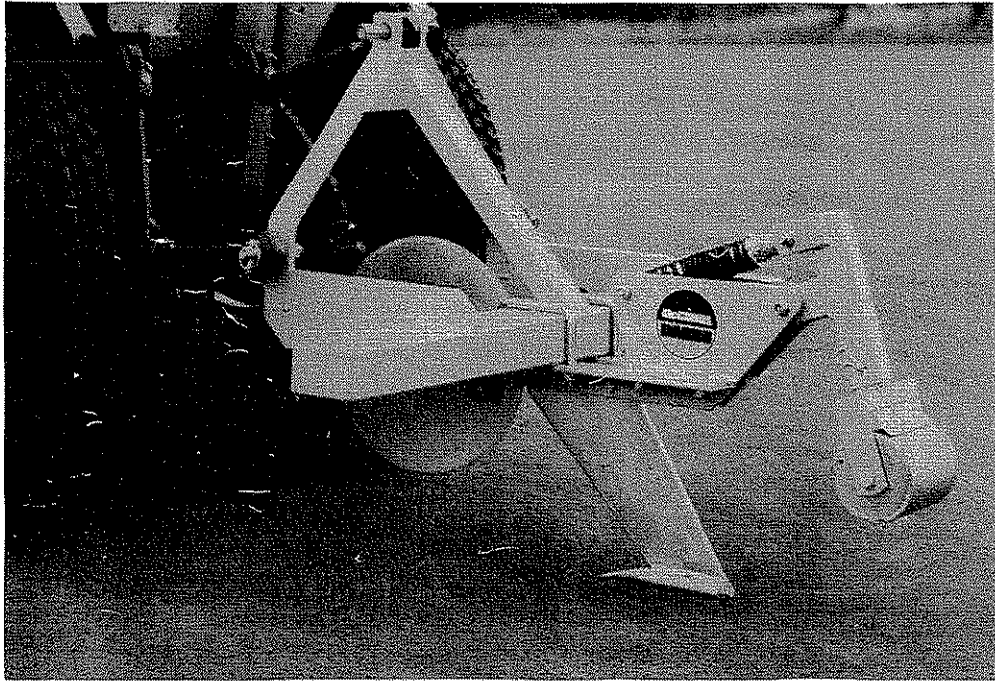
FINE TURF SLITTER

MCCONELTemeside Works, Ludlow,
Shropshire, SY8 1JL, England.

Ref.	Part No.	Description	Qty per Machine		
			4' 0"	6' 0"	8' 0"
DAB	FTS 40M	4' 0" ASSEMBLY COMPLETE	1	-	-
DAB	FTS 60M	6' 0" ASSEMBLY COMPLETE	-	1	-
DAB	FTS 80M	8' 0" ASSEMBLY COMPLETE	-	-	1
2	1931253	4' 0" Frame	1	-	-
2	1931254	6' 0" Frame	-	1	-
2	1931255	8' 0" Frame	-	-	1
3	1931256	4' 0" Guard	1	-	-
3	1931257	6' 0" Guard	-	1	-
3	1931258	8' 0" Guard	-	-	1
4	1931259	4' 0" Roller Frame	1	-	-
4	1931260	6' 0" Roller Frame	-	1	-
4	1931261	8' 0" Roller Frame	-	-	1
5	1931262	4' 0" Roller	1	-	-
5	1931263	6' 0" Roller	-	1	-
5	1931264	8' 0" Roller	-	-	1
6	1931265	4' 0" Shaft	1	-	-
6	1931266	6' 0" Shaft	-	1	-
6	1931267	8' 0" Shaft	-	-	1
7	1931268	Disc Assembly & Bearings	6	-	-
8	1931001	Bearing	12	18	24
9	1931269	Blade	72	108	144
10	93 13 044	Hex Hd Bolt M8 x 20	144	216	288
11	91 13 004	Nyloc Nut M8	144	216	288
12	19 31 270	Bearing Plate	2	2	2
13	19 40 001	Bearing	2	2	2
14	19 31 002	Bearing	2	2	2
15	19 00 028	Top Link Pin	1	1	1
16	04 31 105	"R" Clip	1	1	1
17	19 00 029	Bottom Link Pin	2	2	2
18	04 31 205	Linch Pin	2	2	2
19	91 00 107	Plain washer 16 Dia	2	2	2
20	01 00 206	Spring Washer 5/8 dia	2	2	2
21	01 11 006	Hex Nut 5/8 UNF	2	2	2
22	19 00 033	Bottom Link Pin c/w Nut & Spring Washer	2	2	2
23	93 53 085	Socket c/sunk Hd. Screw M 10 x 40	4	4	4
24	92 13 085	Hex Hd Bolt M10 x 40	12	12	2
25	91 63 005	Nyloc Nut M10	16	16	16
26	92 13 098	Hex Hd Bolt M20 x 45	2	2	2
27	91 63 008	Nylco Nut M20	2	2	2
28	92 13 086	Hex Hd Bolt M12 x 40	10	10	10
29	91 63 006	Nyloc Nut M12	10	10	10
30	19 31 035	Bearing Arm c/w Bearings	-	2	2
31	92 13 205	Hex Hd Bolt M10 x 100	-	2	2
32	19 31 288	Outer Disc c/w Bearings	-	-	2
33	19 31 289	Centre Disc c/w Bearing	-	1	1
34	19 31 290	Intermediate disc c/w bearings	-	8	10

FOR NOTES

TURF DRAINER



INTRODUCTION

The turf drainer produces continuous slits upto 250mm (10 ins). Rear hydraulically dampened roller restores the surface to its previous condition.

Adjustable hydraulic damper

Height adjustment of rollers

Variable width setting of legs

Additional legs can be fitted (subject to tractors Hp)

Attachments are available for laying plastic pipes upto 32mm (1¼ ins) dia.

WARNING

SAFETY PRECAUTIONS

× **NEVER**

- ... Permit inexperienced personnel to operate the machine without supervision.
- ... Allow anybody to ride on the equipment whether in transport or at work.
- ... Work under the frame while the machine is suspended on the tractors hydraulic lift, use a substantial support.

✓ **ALWAYS**

- ... Keep guards in place (if fitted). They are for your protection.
- ... Ensure that hydraulic hoses are not strained, pinched or chafed.
- ... Keep tight all bolts and nuts and check security of mounting pins.
- ... Keep check chains tight

FITTING

Tractor preparation

Tractor ratings to suit frame widths.

Machine type	Tractor rating
Single leg	16+ Hp
Double leg	35+ Hp

Fitting of tractor

Connect draft link arms of tractors three point linkage to the 'A' frame of the machine. Secure with pins.

Adjust length of top link to secure to top of 'A' frame.

Lift machine via way of tractors three point linkage, so that the bullet is approximately 3 ins off the ground.

Tighten check chains/stabiliser bars to centralise machine behind tractor and to prevent sideways movement.

Adjust turn buckle on tractor linkage to ensure cross main beam of turf drainer is horizontal.

OPERATION

Set leg on compression roller to coincide with required working depth.

Adjust hydraulic dampener on roller for correct pressure to suit turf conditions.

If greater penetration force is required due to soil conditions adjust top link so the rear of the machine is angled towards the ground.

Lower machine to ground ready for operation.

Drive slowly forward in a straight line. Controlling depth of Drainer via tractors three point linkage. We recommend minimum slit depth of 100mm(4ins) otherwise excessive damage could occur to turf surface. Max depth 2.50mm (10 ins).

When run is complete reverse and lift machine out of ground in one operation.

Removal from tractor

Choose a level surface

Lower machine to the ground

Adjust top link to release pressure from pin, and disconnect.

Detach draft link arms of tractor from frame.

Drive tractor forward clear of machine.

SPARE PARTS MANUAL

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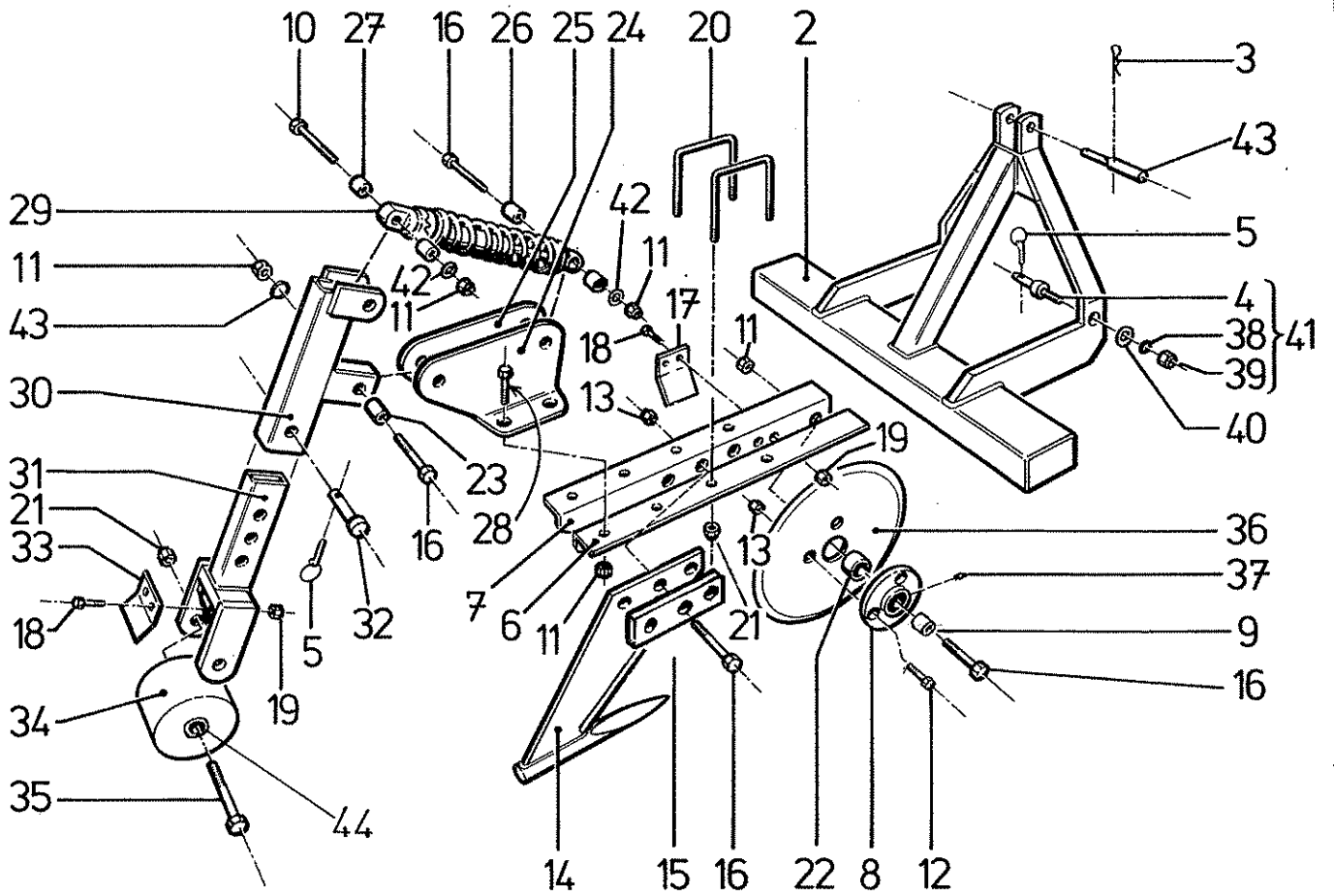
Model

McCOMEL

Temeside Works, Ludlow,
Shropshire, SY8 1JL, England.



TURF DRAINER



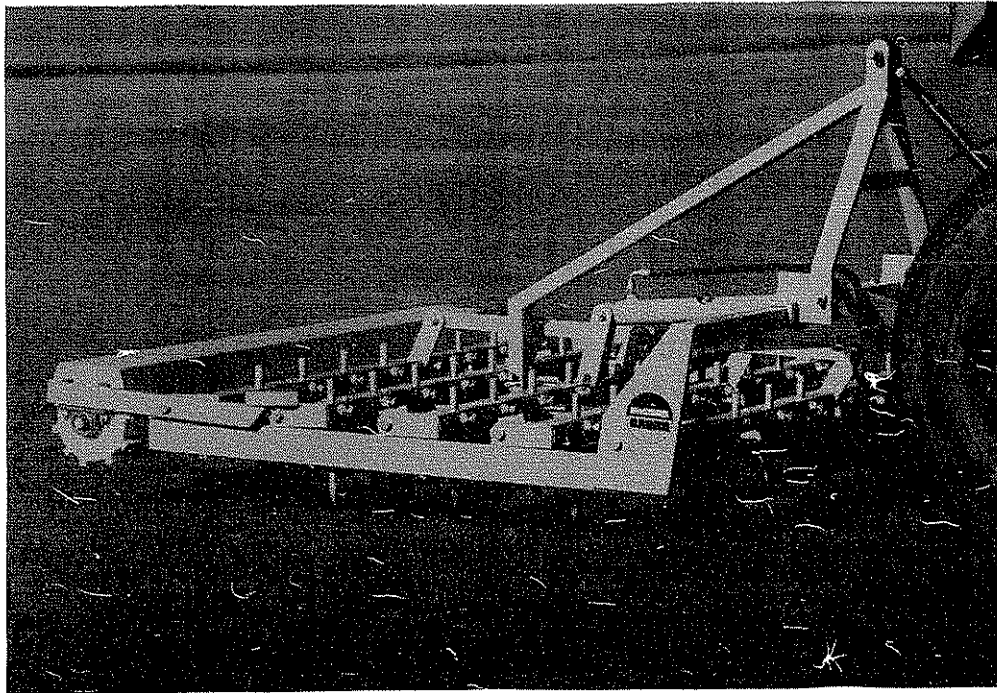
Model

McCOMELTemeside Works, Ludlow,
Shropshire, SY8 1JL, England.**TURF DRAINER**

Key	Part Number	Description	Qty. per Machine	
			TD1	TD2
	DAB TD1	MACHINE COMPLETE	1	—
	DAB TD2	MACHINE COMPLETE	—	1
2	19 51 264	Frame	1	1
3	04 31 105	'R' Clip	1	1
4	19 00 029	Bottom Hitch Pin	2	2
5	04 31 204	Linch Pin	3	4
	DAB TD1X	LEG ASSY— consisting of :-	1	2
6	19 51 251	Blade Arm R H	1	2
7	19 51 252	Blade Arm L H	1	2
8	19 51 263	Disc Hub	1	2
9	19 51 001	Bearing	1	2
10	92 13 166	Bolt M12 x 80	1	2
11	91 63 006	Nyloc Nut M12	11	22
12	93 13 065	Bolt M10 x 30	3	6
13	91 63 005	Nyloc Nut M10	3	6
14	19 51 254	Blade	1	2
15	19 51 013	Blade spacer plate	2	4
16	92 13 186	Bolt M12 x 90	6	12
17	19 51 012	Scraper — Disc	2	4
18	93 13 044	Bolt M8 x 20	7	14
19	91 63 004	Nyloc Nut M8	7	14
20	19 51 256	'U' Bolt	2	4
21	91 63 007	Nyloc Nut M16	5	10
22	19 51 003	Bush	1	2
23	19 51 004	Bush	1	2
24	19 51 257	Carrier Plate — R H	1	2
25	19 51 258	Carrier Plate — L H	1	2
26	19 51 005	Spacer — Long	2	4
27	19 51 006	Spacer — Short	2	4
28	93 13 066	Bolt M12 x 30	4	8
29	19 51 007	Damper	1	2
30	19 51 259	Roller Arm Housing	1	2
31	19 51 260	Roller Arm	1	2
32	19 51 008	Pin	1	2
33	19 51 009	Scraper — Roller	1	2
34	19 51 010	Roller	1	2
35	92 13 407	Bolt M16 x 200	1	2
36	19 51 261	Coulter	1	2
37	09 01 121	Grease Nipple	1	2
38	01 00 206	5/8" Dia Spring Washer	2	2
39	01 11 006	5/8" Dia UNF Nut	2	2
40	91 00 107	M16 Plain Washer	2	2
41	19 00 033	Bottom Link Pin C/W Nut & Spring Washer	2	2
42	91 00 106	M12 Plain Washer	2	4
43	19 00 028	Top Hitch Pin	1	1
44	19 51 017	Roller Bush	2	4

FOR NOTES

3 IN 1 CULTIVATOR



INTRODUCTION

The 3 in 1 is a combination machine which in-corporates spike harrows, a crumbler and land leveller into its design.

Variable adjustment of the three operations is available to achieve ideal results for all applications.

Available in a range of sizes to suit tractors from 20 - 50 + HP.

The variable depth harrows, and crumbler are used in unison in a one pass operation.

Hydraulic operation is available on all models and manual adjustment is an option on 4 ft models only

WARNING

SAFETY PRECAUTIONS

×

NEVER

- ... Permit inexperienced personnel to operate the machine without supervision.
- ... Allow anybody to ride on the equipment whether in transport or at work.
- ... Work under the frame while the machine is suspended on the tractors hydraulic lift, use a substantial support.

✓

ALWAYS

- ... Keep guards in place (if fitted). They are for your protection.
- ... Ensure that hydraulic hoses are not strained, pinched or chafed.
- ... Keep tight all bolts and nuts and check security of mounting pins.
- ... Keep check chains tight
- ... Have tines in horizontal position during transport.
- ... Take care when working across slopes

FITTING

Tractor ratings required to suit frame widths.

Frame Width	Tractor Rating
4ft (1.2m)	20 Hp
5ft (1.5m)	25 Hp
6ft (1.8m)	25/30 Hp
8ft (2.4m)	50+ Hp

No tractor hydraulic capability is necessary other than to be able to lift the machine for the 4ft manually operated model.

Hydraulic operated machines are suitable only for use with tractors with a double acting spool valve.

The tractor/machine must be stable under all operating conditions. Front compensating weights may be required to be added up to tractor manufacturers recommended maximum.

Set wheel widths as wide as possible to increase stability.

Tractors with category I linkage, the lower link pins need to face inwards and fix to the inside of 'A' frame.

For category II tractors, the lower link pins must be bolted to the outer face of the frame so that they face outwards.

Sleeving of these pins is also necessary.

Fitting to tractor

Connect draft link arms of tractors three point linkage to the 'A' frame of the machine. Secure with pins.

Adjust length of top link to secure to top of 'A' frame

Lift machine approximately 6" (150mm) off the ground via way of the three point linkage.

Check and if necessary adjust top link so the main body of the machine is horizontal or with the rear slightly angled towards the ground. When in the operating position.

Tighten check chains/stabiliser bars to centralise behind tractor and to prevent sideways movement.

Hydraulic operated machines

Connect hydraulic hoses to tractors spool valve using quick release couplings. Make sure the hoses are not pinched, kinked, stretched or chafed and that the hydraulic system is oil tight.

Removal from tractor

Move tines to horizontal position

Place machine on level surface and lower to ground

Switch off tractor, release pressure on hydraulic system by moving the control lever into all positions.

Disconnect hydraulic hoses using the quick release couplings.

Detach draft link arms of tractor from 'A' frame.

Extend top link of tractor and disconnect from frame.

OPERATION

Spike harrow/crumble

Raise the machine approximately 6" (150mm) above the ground

By using control lever operate the ram until it is fully retracted.

This will bring the cultivator tines to a vertical position and crumbler into action.

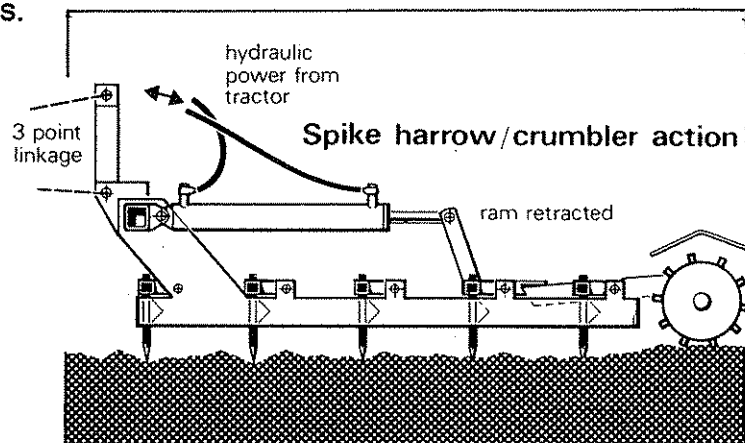
Lower machine to ground and proceed to work soil.

NOTE:- There are three position height adjustments on each tine, so they can be lowered when the tips begin to wear.

The working depth of the tines can be adjusted in three ways.

1. Individually adjust the height of each tine.
2. Adjustment of ram between the maximum and minimum positions.
3. Raising or lowering of machine, using 3 point linkage.

The relation of the crumbler to the harrow points will vary according to height adjustment technique, therefore trial and error is necessary to achieve optimum harrow/crumbler setting suited to the individual applications.

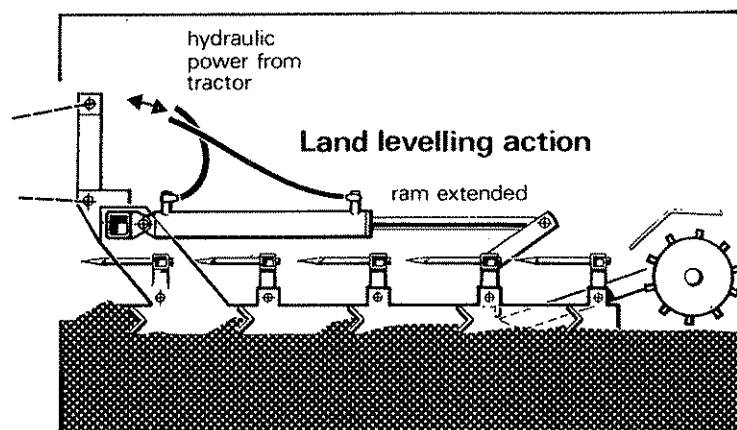


Level only

In the raised position above ground, Operate control lever to fully extend the ram

Whereby the tines will move to the horizontal position and the crumbler will lift out of action,

lower to ground to level soil.



FOR NOTES

SPARE PARTS MANUAL

FOR BEST PERFORMANCE....

USE ONLY McCONNEL SPARE PARTS

To be assured of the latest design improvements purchase your genuine replacements from the original equipment manufacturer F.W. McConnel Ltd. through your local dealer or stockist.

Always quote machine type and serial number as well as the part number.

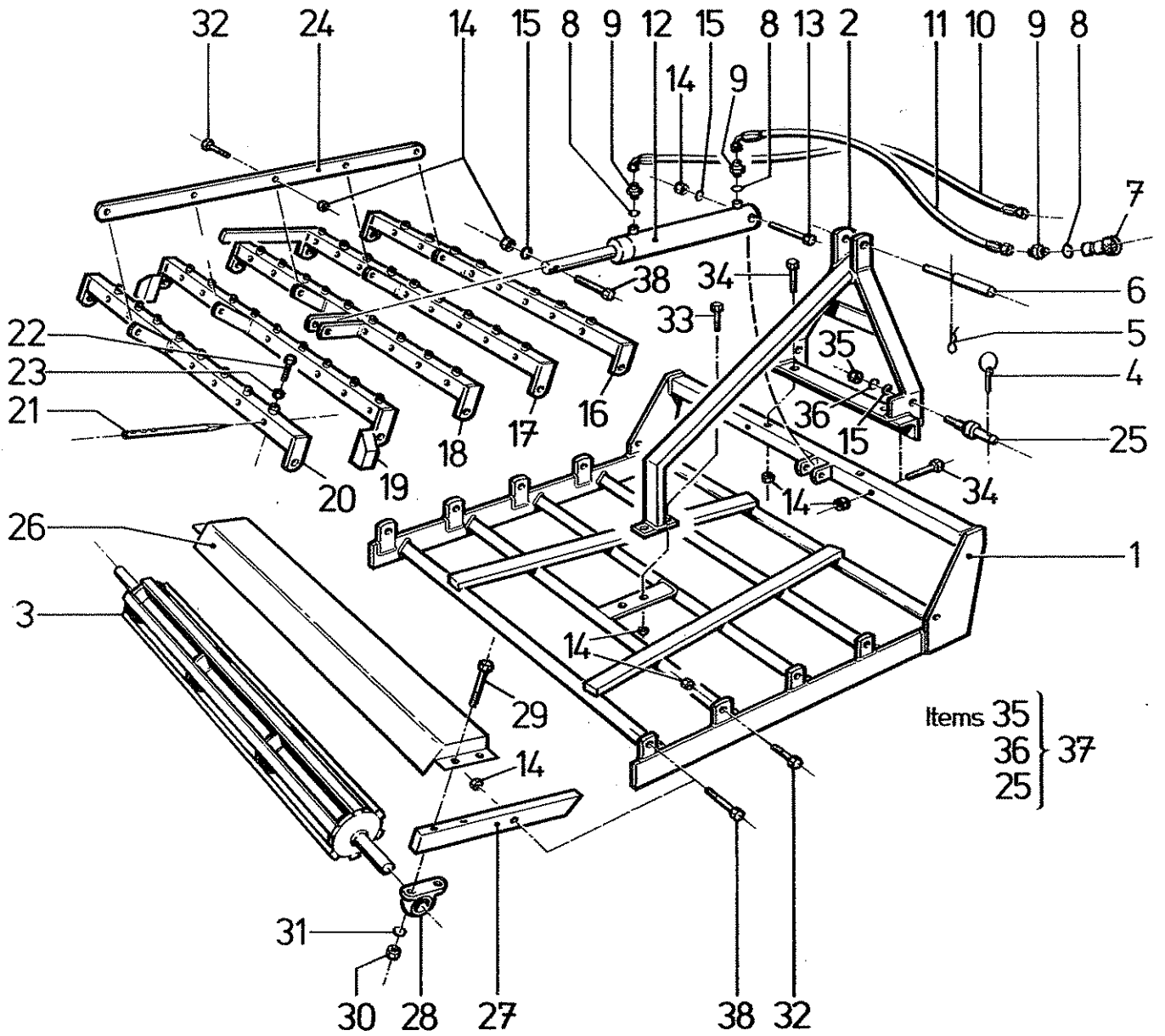
Design improvement may have altered some of the parts listed in this manual - The latest part will always be supplied when it is interchangeable with an earlier one.

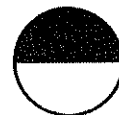
Model

3 IN 1 CULTIVATOR

McCONEL

Temeside Works, Ludlow,
Shropshire, SY8 1JL, England.





Key	Part No.	Description	Qty. per Machine	Hydraulic Operation Manual					
				4' 0"	5' 0"	6' 0"	8' 0"	3' 0"	4' 0"
	DAB 31130M	3' 0" ASSY	— MANUAL	—	—	—	—	1	—
	DAB 31140M	4' 0" ASSY	— MANUAL	—	—	—	—	—	1
	DAB 31140H	4' 0" ASSY	— HYDRAULIC	1	—	—	—	—	—
	DAB 31150H	5' 0" ASSY	— HYDRAULIC	—	1	—	—	—	—
	DAB 31160H	6' 0" ASSY	— HYDRAULIC	—	—	1	—	—	—
	DAB 31180H	8' 0" ASSY	— HYDRAULIC	—	—	—	1	—	—
1	19 71 250	3' 0" Frame		—	—	—	—	1	—
1	19 71 251	4' 0" Frame		—	—	—	—	—	1
1	19 72 250	4' 0" Frame		1	—	—	—	—	—
1	19 72 251	5' 0" Frame		—	1	—	—	—	—
1	19 72 252	6' 0" Frame		—	—	1	—	—	—
1	19 72 253	8' 0" Frame		—	—	—	1	—	—
2	19 70 262	'A' Frame		1	1	—	—	1	1
2	19 70 278	'A' Frame		—	—	1	1	—	—
3	19 70 250	3' 0" Roller		—	—	—	—	1	—
3	19 70 251	4' 0" Roller		1	—	—	—	—	1
3	19 70 252	5' 0" Roller		—	1	—	—	—	—
3	19 70 253	6' 0" Roller		—	—	1	—	—	—
3	19 70 254	8' 0" Roller		—	—	—	1	—	—
4	04 31 205	Linch Pin		2	2	2	2	2	2
5	04 31 105	'R' Clip		1	1	1	1	1	1
6	19 00 028	Top Link Pin		1	1	1	1	1	1
7	85 90 063	Quick Release Coupling		2	2	2	2	—	—
8	86 50 103	Sealing Washer		4	4	4	4	—	—
9	60 00 113	Adaptor		4	4	4	4	—	—
10	85 31 383	Hose		1	1	1	1	—	—
11	85 31 253	Hose		1	1	1	1	—	—
12	19 00 306	Hydraulic Cyl.		1	1	1	1	—	—
13	92 13 227	Bolt M16 x 110 LG		1	1	1	1	—	—
14	91 63 007	Nyloc Nut — M16		18	18	18	18	16	16
15	91 00 107	Plain Washer M16		3	3	3	3	5	5
16	19 70 263	Tine Bar 3' 0"		—	—	—	—	1	—
16	19 70 264	Tine Bar 4' 0"		1	—	—	—	—	1
16	19 70 265	Tine Bar 5' 0"		—	1	—	—	—	—
16	19 70 266	Tine Bar 6' 0"		—	—	1	—	—	—
16	19 70 267	Tine Bar 8' 0"		—	—	—	1	—	—
17	19 71 252	Tine Bar 3' 0" Manual		—	—	—	—	1	—
17	19 71 253	Tine Bar 4' 0" Manual		—	—	—	—	—	1
17	19 72 254	Tine Bar 4' 0"		1	—	—	—	—	—
17	19 72 255	Tine Bar 5' 0"		—	1	—	—	—	—
17	19 72 256	Tine Bar 6' 0"		—	—	1	—	—	—
17	19 72 257	Tine Bar 8' 0"		—	—	—	1	—	—
18	19 71 254	Tine Bar 3' 0" Manual		—	—	—	—	1	—
18	19 71 255	Tine Bar 4' 0" Manual		—	—	—	—	—	1
18	19 72 258	Tine Bar 4' 0"		1	—	—	—	—	—
18	19 72 259	Tine Bar 5' 0"		—	1	—	—	—	—
18	19 72 260	Tine Bar 6' 0"		—	—	1	—	—	—
18	19 72 261	Tine Bar 8' 0"		—	—	—	1	—	—

Model

3 IN 1 CULTIVATOR

McCOMELTermeside Works, Ludlow,
Shropshire, SY8 1JL, England.

Key	Part No.	Description	Qty. per Machine					
			Hydraulic Operation				Manual	
			4' 0"	5' 0"	6' 0"	8' 0"	3' 0"	4' 0"
19	19 70 268	Tine Bar 3' 0"	—	—	—	—	1	—
19	19 70 269	Tine Bar 4' 0"	1	—	—	—	—	—
19	19 70 270	Tine Bar 5' 0"	—	1	—	—	—	—
19	19 70 271	Tine Bar 6' 0"	—	—	1	—	—	—
19	19 70 272	Tine Bar 8' 0"	—	—	—	1	—	—
20	19 70 273	End Tine Bar 3' 0"	—	—	—	—	1	—
20	19 70 274	End Tine Bar 4' 0"	1	—	—	—	—	1
20	19 70 275	End Tine Bar 5' 0"	—	1	—	—	—	—
20	19 70 276	End Tine Bar 6' 0"	—	—	1	—	—	—
20	19 70 277	End Tine Bar 8' 0"	—	—	—	1	—	—
21	19 70 100	Tine	29	37	43	59	21	29
22	19 70 002	Tine Bar Screw	29	37	43	59	21	29
23	91 33 007	Locknut	29	37	43	59	21	29
24	19 70 255	Connecting Bar	1	1	1	1	1	1
25	19 00 029	Bottom Link Pin	2	2	2	2	2	2
26	19 70 256	Guard 3' 0"	—	—	—	—	1	—
26	19 70 257	Guard 4' 0"	1	—	—	—	—	1
26	19 70 258	Guard 5' 0"	—	1	—	—	—	—
26	19 70 259	Guard 6' 0"	—	—	1	—	—	—
26	19 70 260	Guard 8' 0"	—	—	—	1	—	—
27	19 70 261	Pivot Arm	2	2	2	2	2	2
28	19 70 020	Bearing	2	2	2	2	2	2
29	92 13 186	Bolt M12 x 90	4	4	4	4	4	4
30	91 63 006	Nyloc Nut M12	4	4	4	4	4	4
31	91 00 106	Plain Washer M12	4	4	4	4	4	4
32	92 13 097	Bolt M16 x 45	10	10	10	10	10	10
33	92 13 107	Bolt M16 x 50	2	2	2	2	2	2
34	92 13 165	Bolt M16 x 80	4	4	4	4	4	4
35	01 11 006	5/8" Dia UNF Nut	2	2	2	2	2	2
36	01 00 206	5/8" Dia Spring Washer	2	2	2	2	2	2
37	19 00 033	Bottom Link Pin C/W Nut & Spring Washer	2	2	2	2	2	2
38	92 13 155	Bolt M16 x 75	3	3	3	3	3	3

MAINTENANCE

Maintenance

Lubrication

At regular intervals grease bearings if required and all other pivot points. Remember conscientious lubrication pays dividends, in terms of longer machine life and trouble free operation.

Fasteners

Check daily when in use, that all bolts and nuts are tight, pins are secure and hydraulic connections are not leaking.

Hoses

The conditions of all hoses should be carefully checked during routine maintenance of the machine. Hoses that have been chafed or damaged on their outer casing should be securely wrapped in waterproof adhesive tape to prevent the metal braid from rusting. Hose that have suffered damage to the metal braid should be replaced at the earliest opportunity.

Hose replacement

When the hose is screwed to an additional fitting or a union use a second spanner on the fitting to avoid breaking both seals.

Do not use thread sealing, or jointing compounds on the threads

Avoid twisting the hose. Adjust the hose line to ensure freedom from rubbing or trapping before tightening the hose end connections.

Storage

If the machine is to be left standing for an extended period of time, grease all pivot points. Lightly coat the exposed portion of the ram rod with grease. Subsequently this grease on the ram which becomes contaminated with dust and grit must be wiped off before the ram is next moved.

Suspend QR coupling clear of the ground.



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