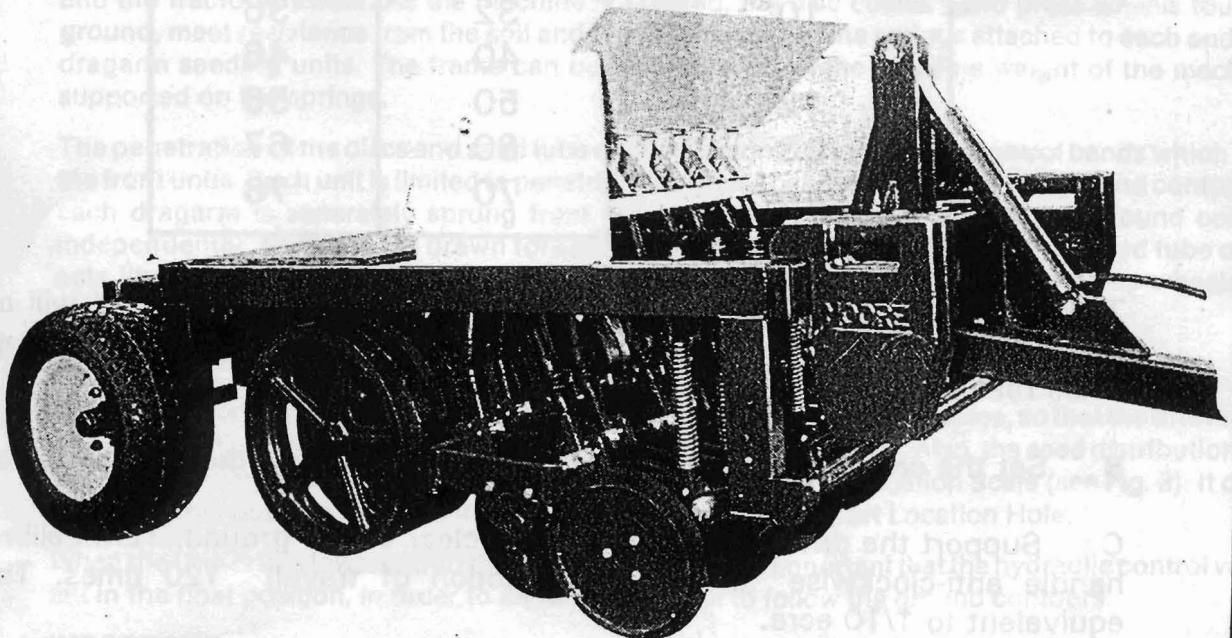


Moore

2.0 METRE UNI-DRILL

BRITISH PATENT Nos. 1,218,785 1,591,607 2,040,656.
U.S.A. PATENT Nos. 3,611,956 4,196,679. AUSTRALIA PATENT No. 518,030.
CANADA PATENT No. 1,082,530. NEW ZEALAND PATENT No. 192,436.
SOUTH AFRICA PATENT No. 79/6679. OTHER PATENTS PENDING.

Instruction Manual & Parts List.



Moore Uni-drill Ltd.

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CALIBRATION OF 2 METRE , 24 ROW UNI - DRILL

In order to calibrate the drill, the following suggestions should be used.

To collect the seed, place a plastic sheet on the ground below the seeding units so as to collect the seeds from the units.

A Put a quantity of seed in the seedbox and use the following table as an approximate guide

Calibration Scale Reading	Sowing Rates	
	Lbs/Acre	Kg/Ha.
6	10	11
7	14	16
8	19	21
9	25	28
10	32	36
11	40	46
12	50	56
13	60	67
14	70	78

This table is only to be used as a guide, as different types of seed will affect the calibration. Fine seeds mixtures can double the seed rate for the same scale reading.

B Set the calibration pointer to the reading as given in the seeding tables.

C Support the drive wheel so that it is clear of the ground. Turn calibration handle anti-clockwise (i.e. in the direction of travel) 120 times. This is equivalent to 1/10 acre.

D Collect and weigh the seed on the plastic sheet. Multiply the weight in lbs. by 10, this gives the seed rate in lbs./acre.

E By adjusting the micrometer control screw the rate can be varied and the desired seed rate obtained.

1. DESCRIPTION

The Uni-Drill is designed to sow grass seeds into all types of sports, leisure and amenity grounds. Use the Moore Uni-Drill to obtain a better wearing turf on sportsfields.

The Uni-Drill plants seeds at a constant depth into a prepared mini seedbed. The heavy press wheels consolidate the seed and soil giving good, even seed germination.

Grass seeds planted at 1/2" (12 mm) deep give an excellent rooting structure, which holds the grass sward together better than shallow planted seeds which tend to be more easily scuffed off.

No stones or trash are left on the surface and it is possible to use the playing fields within a few days of planting.

The Uni-Drill consists of a row of independent dragarm seeding units which are spring mounted to the main frame. Each unit consists of 4 discs and 2 press wheel rollers. The discs are mounted each side of the pair of dragarms at opposite angles. A seed tube coulter is mounted on the inside of each disc, in a position which enables the seed to be placed in a slit cut by the disc. The press wheel rollers are mounted to the rear of the dragarms behind the discs, rolling directly over the slits (See Fig. 2.).

Seed is distributed to the seed tube coulters from the seedbox mounted on top of the main frame and operated by a ground driven stalker wheel.

2. SPECIFICATION

Sowing Width	1333 mm	4 ft 6 in
Overall Width	2000 mm	6 ft 6 in
Total Weight	1900 kg	4190 lbs
No. of Coulters	16	16
Row Width	83 mm	3 1/4 in
Seedbox Capacity	140 ltrs	5 cu ft

3. WORKING PRINCIPLE

When the drill is in the raised position, the weight of the machine is carried on the 2 transport wheels and the tractor drawbar. As the machine is lowered, the disc coulters and press wheels touch the ground, meet resistance from the soil and begin to compress the springs attached to each end of the dragarm seeding units. The frame can be lowered until all the available weight of the machine is supported on the springs.

The penetration of the discs and seed tube coulters is controlled by depth control bands which are on the front units. Each unit is limited in penetration by these bands which follow the ground contours. As each dragarm is separately sprung front and back, each dragarm unit follows ground contours independently. As the drill is drawn forward, the inclined disc opens a slit and the seed tube coulter acts like a tine to prepare a tilth into which the seeds are placed. The roller press wheels then consolidate to ensure good seed/soil contact and moisture retention.

4. TRANSPORT

When transporting the drill behind a tractor please use the ram locking device, so that the drill may not be accidentally dropped on the road and also to protect the ram seals. Also, the seed distribution units can be closed by pushing the Pointer Handle to the top of the Graduation Scale (see Fig. 3). It can be locked in this position by dropping the Locator into the Transport Location Hole.

When the Uni-drill is lowered into the working position it is important that the hydraulic control valve is left in the float position, in order to allow the Uni-drill to follow the ground contours.

IMPORTANT

TRANSPORT SPEED SHOULD BE KEPT TO A MINIMUM, ESPECIALLY OVER UNEVEN TERRAIN.

5. DEPTH CONTROL

Depth control is governed by the depth control bands bolted onto the front disc and hub units. The Uni-drill rides on these depth bands and the independently sprung dragarm seeding units follow the ground contours. In soft field conditions the weight of the machine is all that is necessary to achieve penetration. In harder conditions enough auxiliary weights should be added to the front of the drill in order to get discs to penetrate to the depth control band.

FIG:1 1.3 M. UNI-DRILL

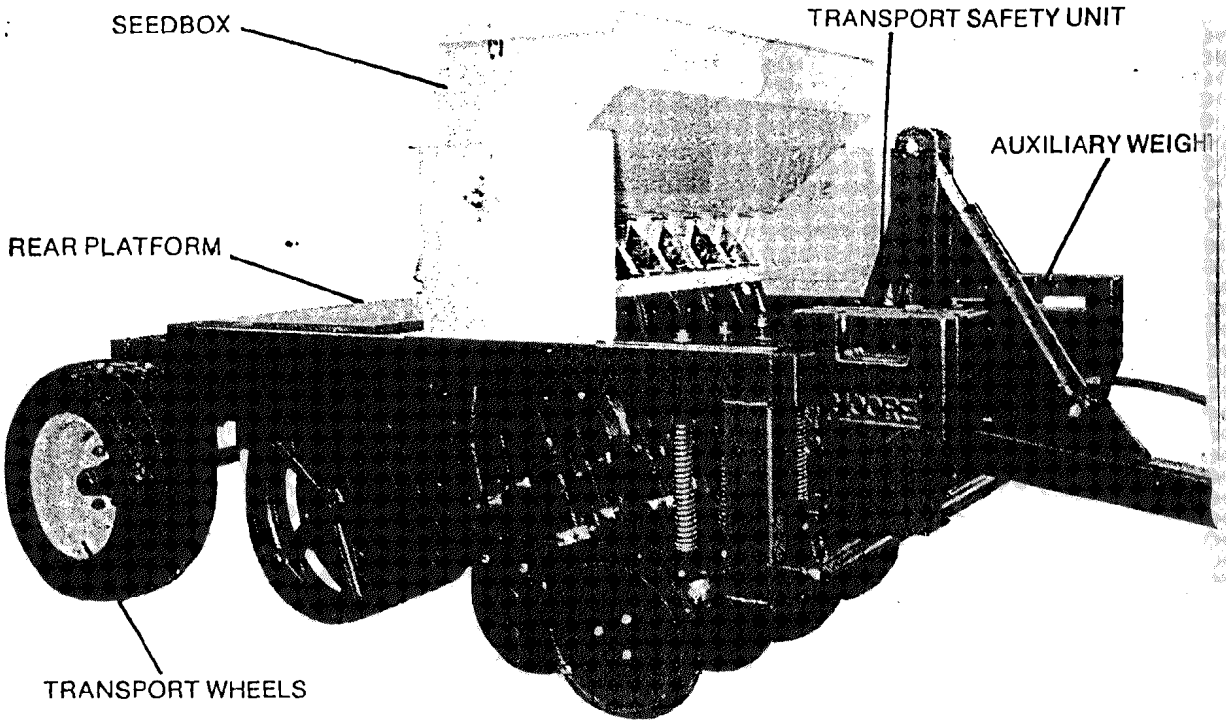
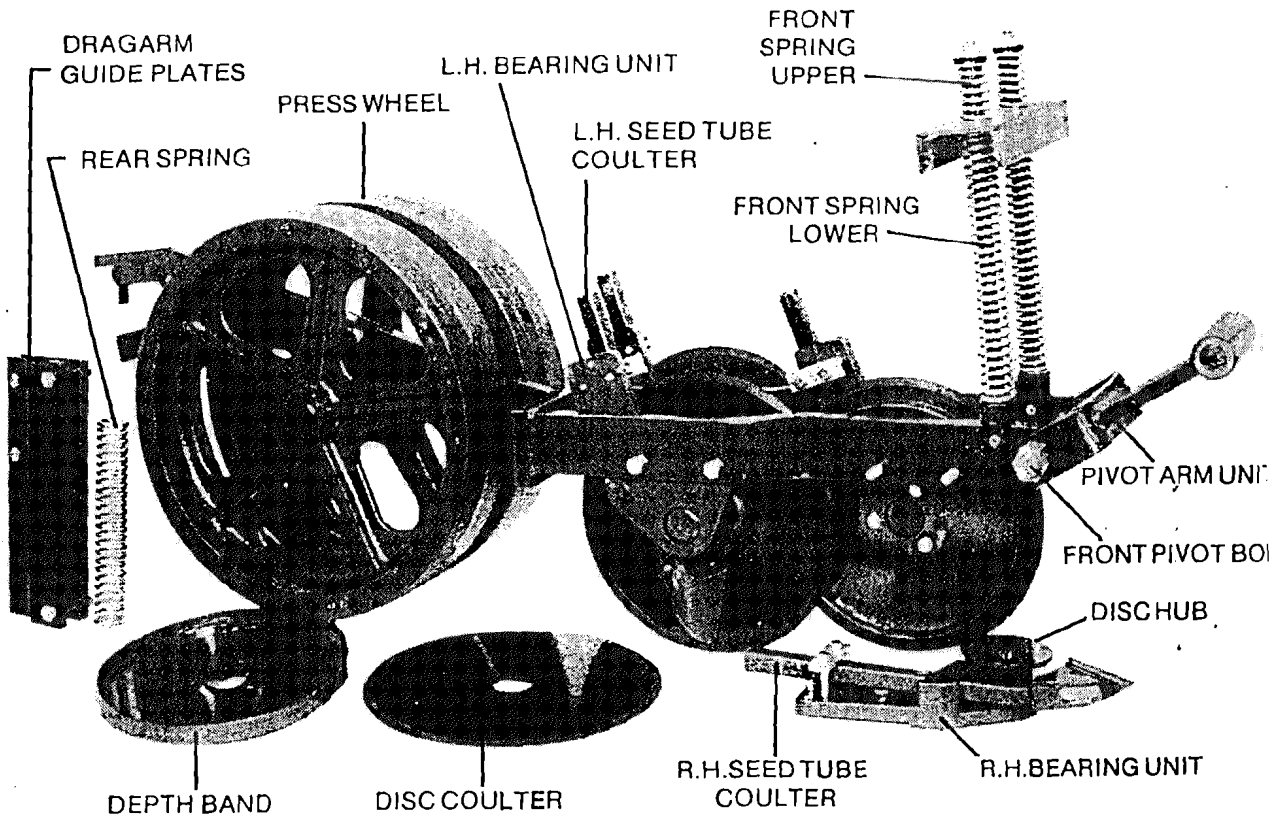


FIG:2 DRAGARM SEEDING UNIT



6. SEEDBOX (See Fig. 3)

Each seeding unit of the Uni-drill is supplied with seed from the hopper by means of a seed feed box. The variable opening of the distribution unit regulates the seed rate. At the lowest part of the feeding box, a plastic feed rotor, operated by the stalker drive wheel, supplies the distribution unit with seed at a high degree of uniformity.

Mounted below the seed distribution unit there is a "seed flow splitting device" which allows each distributor to feed two disc/coulter units. This is a simple but very effective tool. The only maintenance required, is to ensure that the "splitting fin", is centred with the seed distribution unit.

A micrometer hand control screw is used to adjust the openings of the seed distribution units for precise seed rate settings.

7. CALIBRATION (See Fig. 4)

In order to calibrate the drill the following suggestions should be used.

To collect the seed, use either the collection tray/covers or place a plastic sheet on the ground below the seeding units so as to collect all the seeds from the units.

To use the collection tray/covers:-

A Put a quantity of seed in the seedbox and use the following table as an approximate guide

Calibration Scale Reading	Sowing Rates lbs/acre.	Kg/ha
8	12	14
10	20	23
12	30	34
14	42	48
16	56	63
18	72	80
20	90	100
22	115	140

This table is only to be used as a guide, as different type's of seed will affect the calibration. Fine seeds mixture can double the seed rate for the same scale reading.

REMEMBER, when cross drilling, only 1/2 the seed rate is required.

- B Set the calibration pointer to the reading as given in the seeding tables.
- C Open the covers protecting the distribution units and hinge them down to form collection trays for the seeds.
- D Release the spring loaded locating pins at each end of the seed cup holder unit and slide it forwards so that the seed collection trays are underneath the outlets of the seed distribution units. To make this easier remove rear seed tubes from the seed cup holder unit.
- E Hang the stalker drive wheel, using the chain provided, so that it clears the ground. Turn the drive wheel anti-clockwise (ie direction of travel) the required number of times.
- (a) 35 Turns - 100 square yards
(b) 42 Turns - 100 square metres
- F Remove the collection trays and weigh the seed or collect and weigh the seed on the plastic sheet, this will represent the seed rate for:-
- (a) 100 Square yards Lbs x 48.2 - lbs/acre
(b) 100 Square metres Kgs x 100 - kg/hectare
- G By adjusting the micrometer control screw the rate can be varied and the desired seed rate obtained.

FIG:3 SEED DISTRIBUTION & CALIBRATION

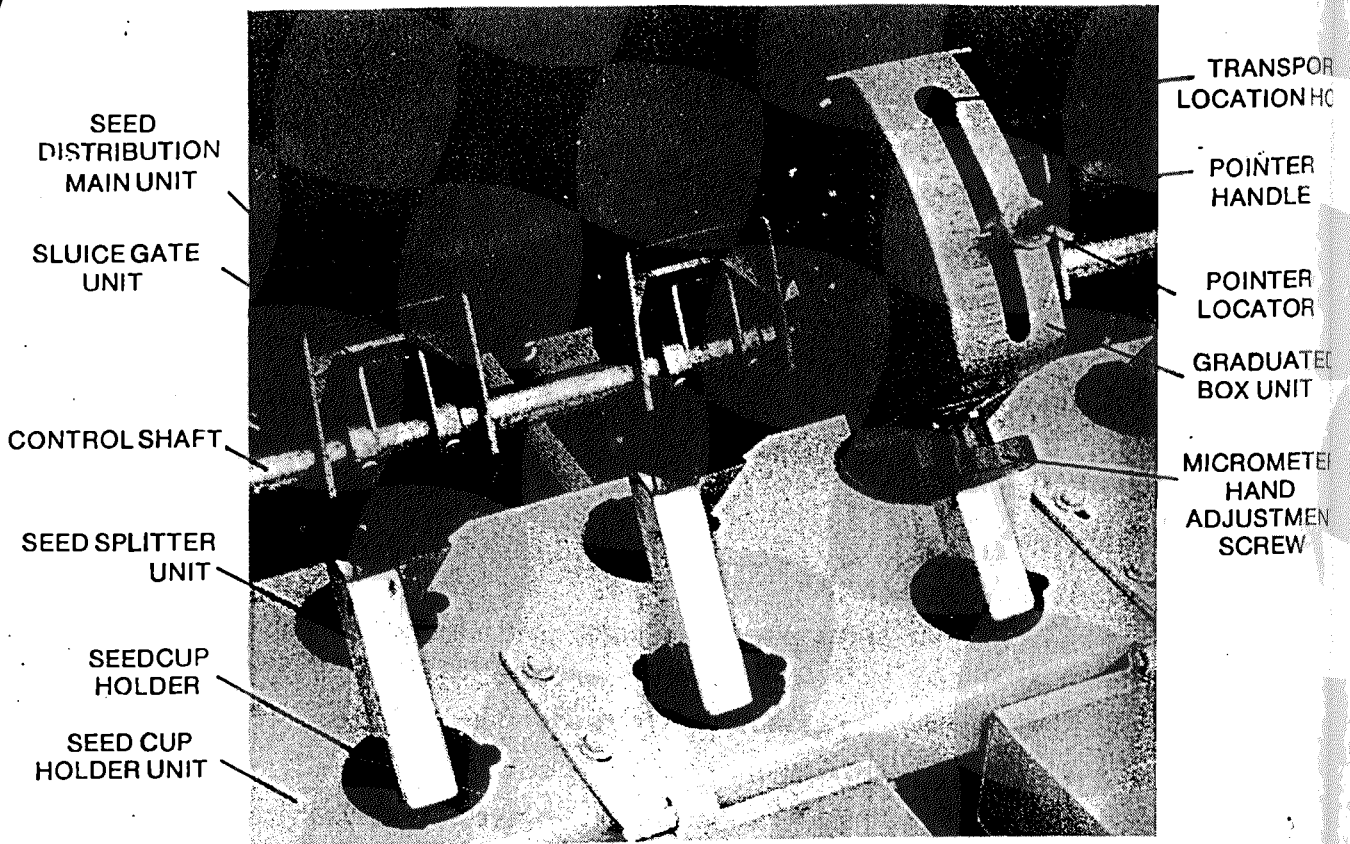
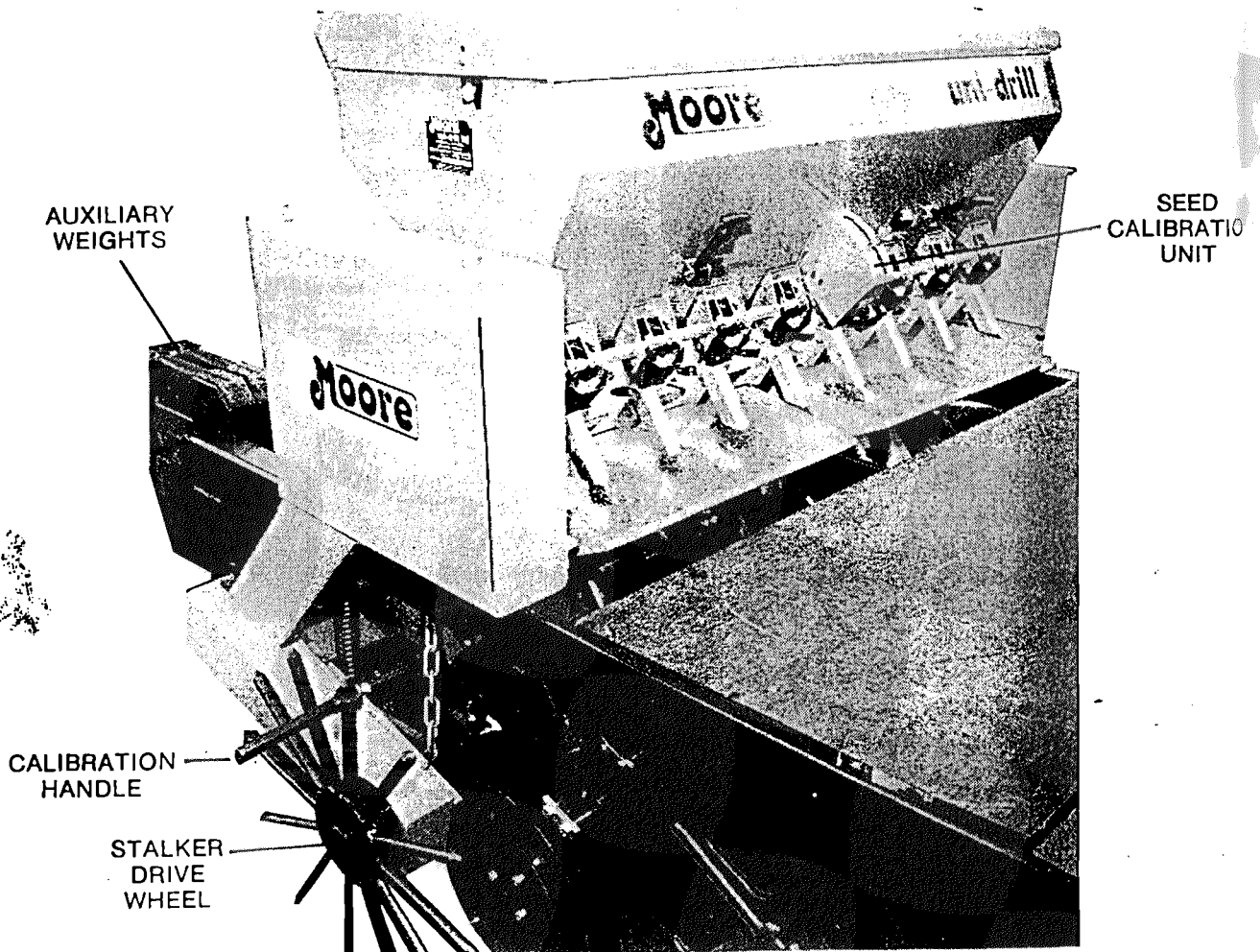


FIG:4 CALIBRATION



8. EMPTYING SEEDBOX

To empty seedbox:-

- A Remove as much seed as possible using a hand shovel or scoop.
- B Use a vacuum cleaner.

If a vacuum is not available then proceed as follows:-

- C Place a plastic sheet on the ground below the seed distribution units.
- D Fully open the seed distribution units.
- E Turn the seed rotors by means of the stalker wheel and remove as much seed as possible.
- F Wrap up a large paper tissue and place it between the rotor and the seed feed box.
- G Turn the rotor so that it will take the tissue around the bottom of the seedbox wiping it clean.

9. MAINTENANCE

A NUTS AND BOLTS

All nuts and bolts should be checked regularly, particularly the seed tube coulters, disc bolts and bearing nuts.

B BEARINGS

Check disc and press wheel bearings for correct adjustment.

1" Dia. Timken Duo Seal Taper Roller Bearings are fitted to the press wheels and disc hubs on the drill. Remove the dust cover and use a socket on the lock nut to tighten up the 2 taper roller bearings so that they can just turn freely. When the bearings are slack the rubber seals will wear thus allowing in dust, ending up with a dry bearing. The bearings are packed with Shell Alvania Grease.

C SEED TUBE COULTER ADJUSTMENT

Check the position of the seed tube coulters in relation to the disc coulters frequently.

For most seeding conditions and as a general rule the tip F of the seed tube coulters should be set so that it is approximately 1/2" above the edge of the disc. The leading edge of the seed coulters should be set parallel to the disc and just touching it. This can be achieved by means of the retaining bolts A and B and the adjusting screws C and D. If the tip, F, of the seed coulters is out from the disc, this can be corrected by tightening bolt A (front bolt) more than bolt B, while the top, G, of the seed coulters can be brought in towards the disc by tightening Bolt B (rear bolt) more than Bolt A.

Some discs, may be slightly distorted, but when in work the side force of the soil on the disc will keep it in contact with the seed coulters. A certain amount of bedding in and wear takes place between the disc and the seed coulters and it may become necessary to adjust screws C and D to position the seed coulters close to the disc.

D DEPTH CONTROL BANDS

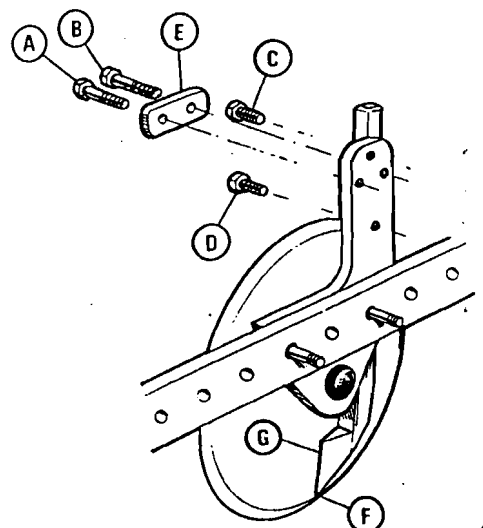
Where necessary, in order to increase the working life of a set of discs, smaller diameter "depth control bands" are available. These are required whenever the disc diameter decreases due to wear and therefore satisfactory seed placement can not be achieved.

E DRAGARM FRONT PIVOT GREASE NIPPLE

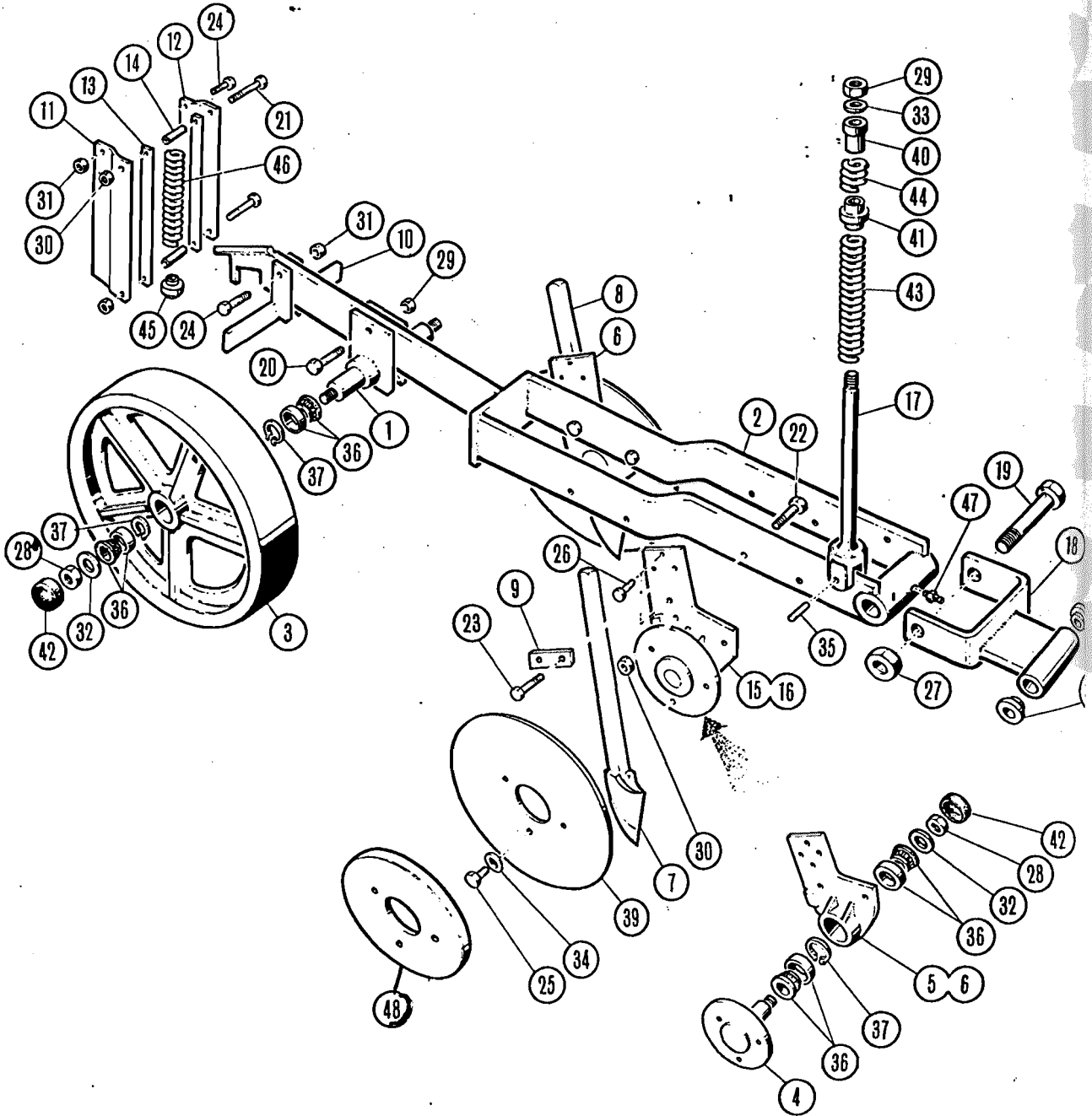
Apply grease to the front pivot nipple every 100 acres. It is important that this pivot nipple is greased at the end of each sowing season, or after the drill has been working and may not be used for a period of time. This prevents the pivot bolt from rusting and seizing in the pivot joint.

F TYRE PRESSURES

Pressure: 15lbs / sq.ins.
Standard Tyres - 23 x 10.5 x 4 Ply.



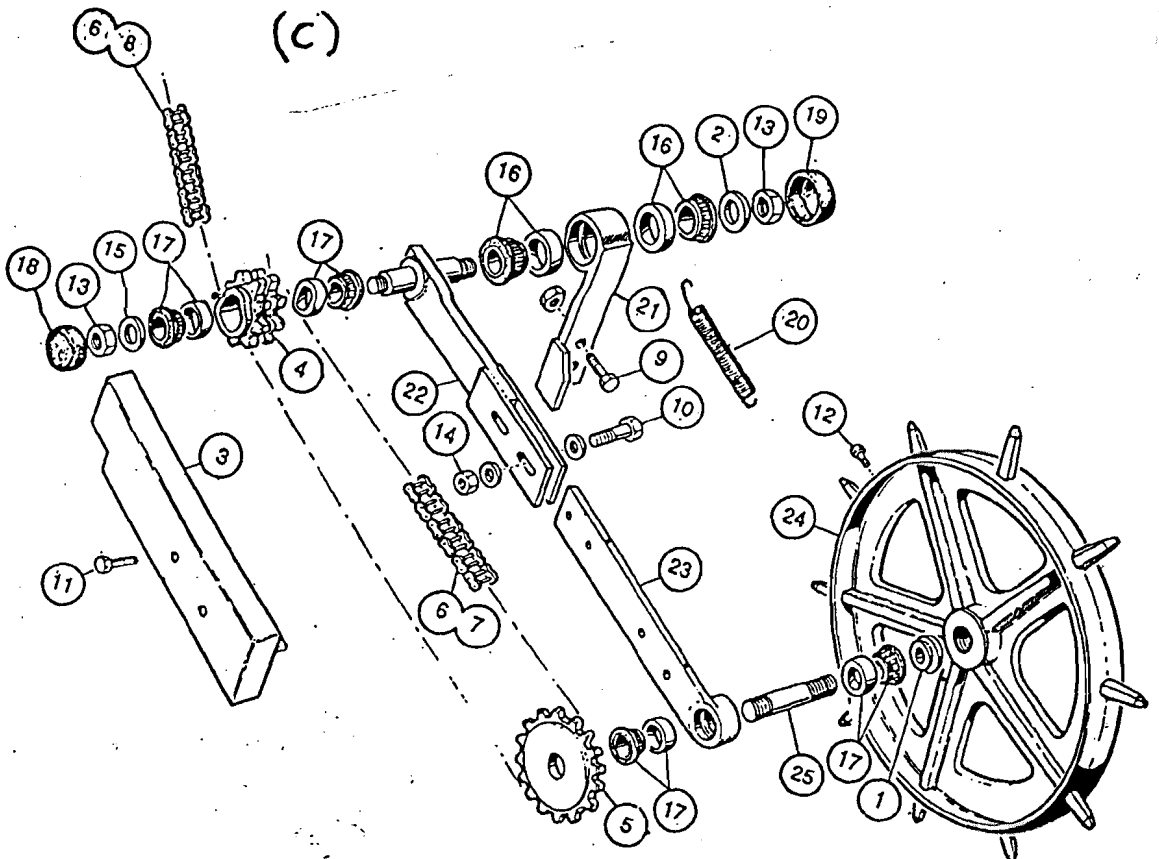
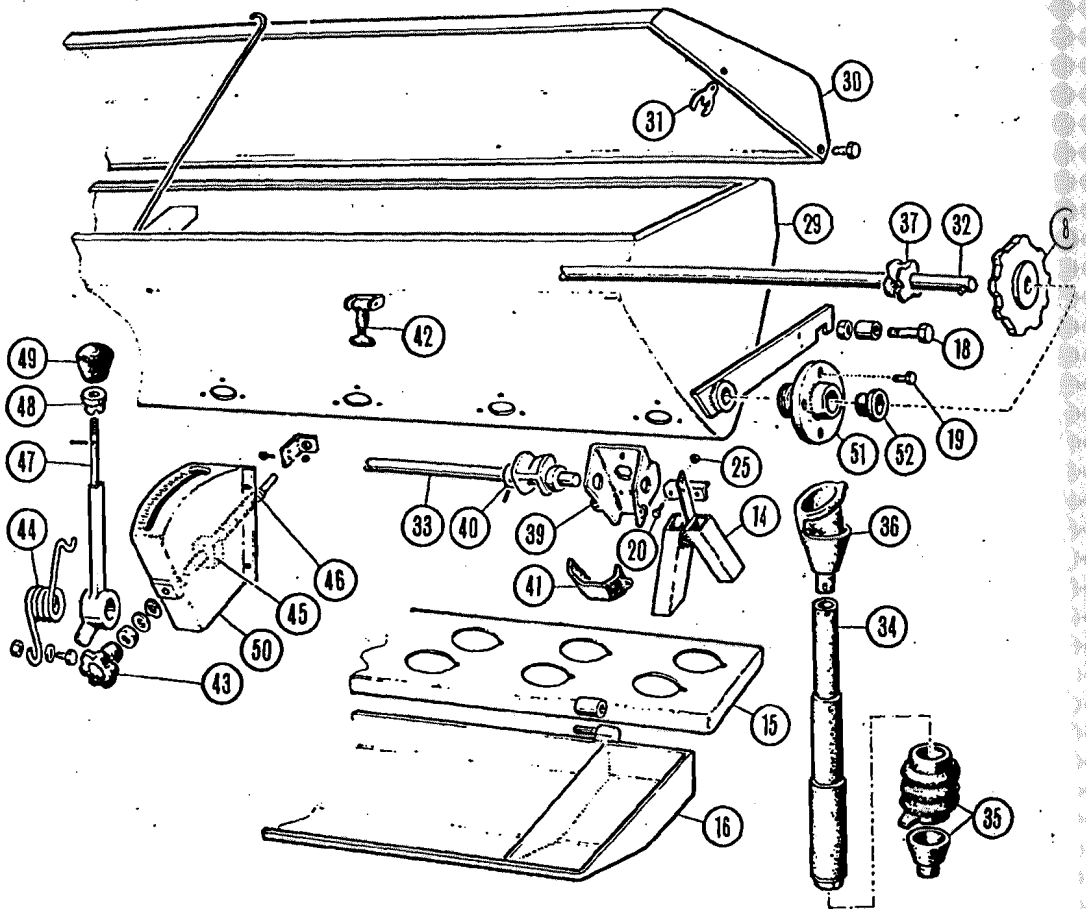
DRAGARM SEEDING UNIT



2.0M DRAGARM SEEDING UNIT

ITEM :	PART NO.	DESCRIPTION	QTY.
1	201-0234	Dragarm Axle Unit	6
2	220-0200	Dragarm Mounting Bar	6
3	203-0200	Press Wheel	12
4	204-1234	Disc Hub	24
5	205-1200	Disc Mounting Bracket - R.H.	12
6	206-1200	Disc Mounting Bracket - L.H.	12
7	207-1234	Seed Tube Coulter - R.H.	12
8	208-1234	Seed Tube Coulter - L.H.	12
9	209-1234	Seed Tube Retaining Plate	24
10	210-0200	Press Wheel Scraper	6
11	211-1234	Dragarm Guide Plate - R.H.	6
12	212-1234	Dragarm Guide Plate - L.H.	6
13	213-1234	Guide Plate Bar	12
14	214-1234	Guide Plate Distance Piece	24
15	215-1200	Disc Bearing Replacement Unit - R.H.	12
16	216-1200	Disc Bearing Replacement Unit - L.H.	12
17	221-1234	Front Spring Arm	6
18	132-0200	Pivot Arm Unit	6
19	133-0200	1" x 10" UNC Bolt	6
20	A107	M 16 x 55 Bolt	6
21	A110	M 12 x 75 Bolt	12
22	A111	M 12 x 55 Bolt	48
23	A113	M 10 x 65 Bolt	48
24	A114	M 10 x 50 Bolt	12
25	A119	3/8" x 3/4" UNF Setscrew	72
26	A122	M 10 x 20 Setscrew	48
27	A130	1" UNC Binx Nut	6
28	A132	3/4" UNF Binx Nut	36
29	A137	M 16 Locknut	6
30	A138	M 12 Locknut	60
31	A139	M 10 Locknut	18
32	A145	M 20 x H.D. Washer	36
33	A146	M 16 x H.D. Washer	12
34	A148	M 10 Shake Proof Washer	72
35	A149	1/2" x 3/4" Spirol Pin	12
36	A157	1" Timken Taper Roller Bearing	72
37	A158	1" Timken Circlip	48
38	A159	Oilite Bush	12
39	A160	Seed Disc Coulter 14 1/2" Dia.	24
40	A180	Spring Retaining Bush	12
41	A181	Spring Locating Bush	12
42	A182	Dust Cap - Small	36
43	A186	Front Spring - Lower	12
44	A187	Front Spring - Upper	12
45	A188	Rear Spring Bush	6
46	A189	Rear Spring - H.D.	6
47	A190	Grease Nipple	6
48	222-2A	Disc Depth Band A 12.23" Dia.	12

SEEDBOX & DRIVE UNIT



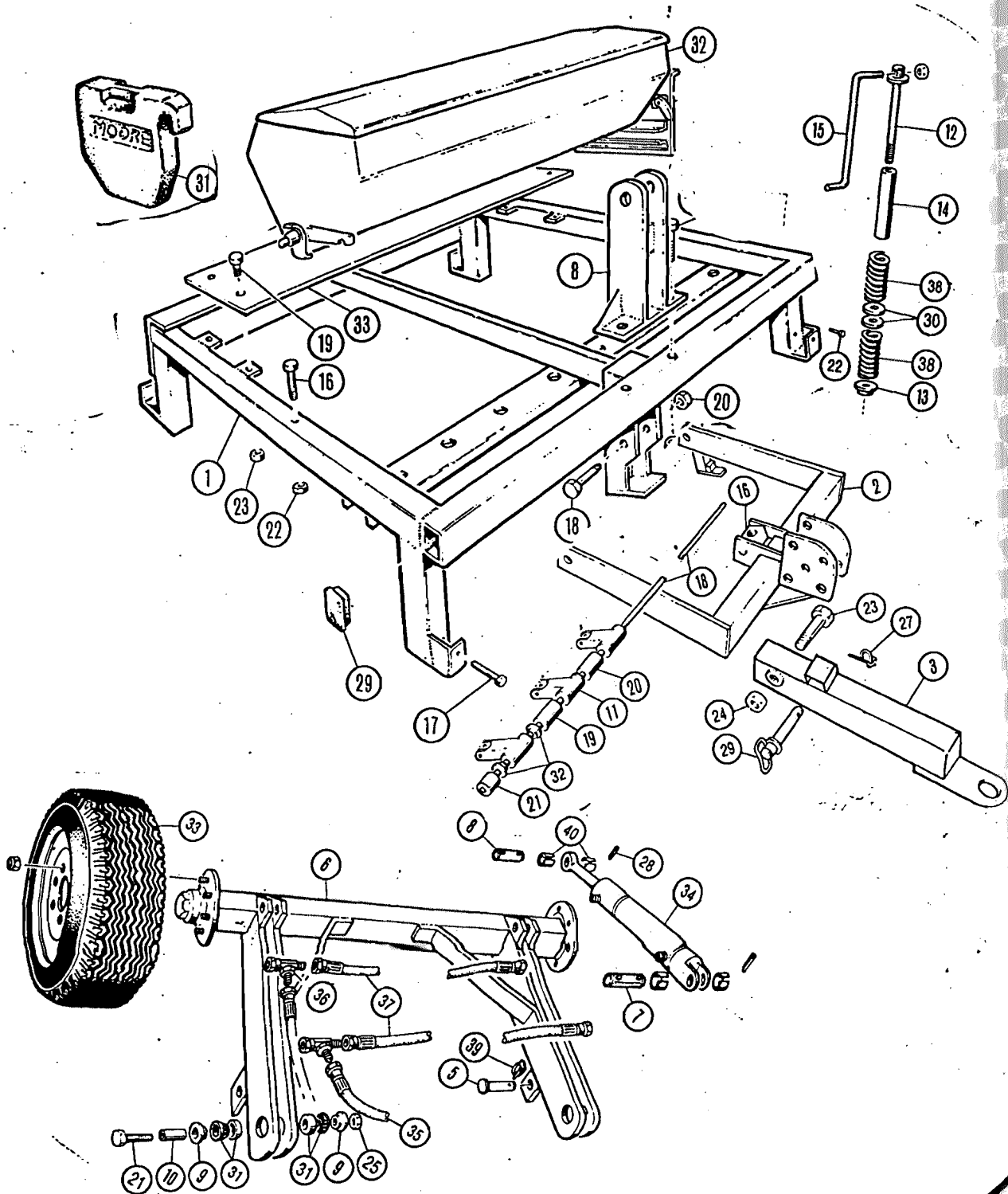
SEEDBOX DRIVE UNIT

ITEM	PART NO.	DESCRIPTION	QTY.
8	326-5000	9T Drive Sprocket - Upper	1
14	375-0200	Seed Splitter Unit	8
15	380-5000	Seed Cup Holder Unit	1
16	385-5000	Collection Tray Cover	2
18	A121	M10 x 40 Setscrew	2
19	A123	M8 x 16 Setscrew	10
20	A125	M5 x 16 Setscrew	16
25	A141	M5 Locknut	16
29	A219	Seedbox Shell	1
30	A229	Seedbox Lid	1
31	A342	Nylon Clip	4
32	A269	Rotor Drive Shaft	1
33	A279	Distribution Shaft	1
34	A315	Flexible Seedtube - 3T	16
35	A325	Seedtube Joint - 3T	16
36	A330	Seed Cup Holder	16
37	A350	Feed Rotor	8
39	A370	Distribution - Main Unit	16
40	A380	Distribution - Sluicgate Unit	16
41	A390	Distribution - Plastic Cover	8
42	A343	Rubber Strap	2
43	A410	Calibration - Hand Adjustment Screw	1
44	A420	Calibration - Spring	1
45	A430	Calibration - Adjustment Nut	1
46	A440	Calibration - Screw Thread	1
47	A450	Calibration - Pointer Shaft	1
48	A460	Calibration - Pointer Locator	1
49	A470	Calibration - Pointer Handle	1
50	A480	Calibration Graduated Box	1
51	A491	Seedbox - Pivot Casting	2
52	A492	Seedbox - Pivot Casting Bush	2

SEED BOX DRIVE UNITS (c)

ITEM	PART NO.	DESCRIPTION**	ITEM	PART NO.	DESCRIPTION
1	318-1034	Drive Wheel - Spacer			
2	319-1234	Pivot Bkt. BRG. Washer			
3	340-1034	Chainguard - Lower			
4	343-1034	18T Double Drive Sprocket			
5	344-1034	19T Drive Sprocket - Lower			
6	348-1034	Connecting Link			
7	346-1034	134L. Drive Chain - Lower			
8	347-1034	114L. Drive Chain - Upper			
9	A106	M20 x 70 Bolt			
10	A111	M12 x 55 Bolt			
11	A115	M12 x 80 Bolt			
12	A121	M10 x 40 Setscrew			
13	A132	¾" UNF. Locknut			
14	A138	M12 Locknut			
15	A145	M20 x 32 H.D. Washer			
16	A1561	¾" T.T.R. Bearing			
17	A157	1" T.T.R. Bearing			
18	A182	Dustcap - Small			
19	A183	Dustcap - Large			
20	A493	Tension Spring			
21	313-0034	Support Arm - Pivot Bkt.			
22	314-1234	D.W. Supp Arm - Upper			
23	315-1234	D.W. Supp Arm - Lower			
24	316-1234	Drive Wheel			
25	317-1234	Drive Wheel - Axle			

MAIN FRAME & DRAWBAR



MAIN FRAME & DRAWBAR

ITEM	PART NO.	DESCRIPTION	QTY.
2	120-01	Drawbar Assembly	1
3	123-1234	Drawbar Towing Arm	1
5	125-1234	Transport Pin	1
6	126-1000	Axle Mounting Unit	1
7	128-1234	Ram - Top Pin	1
8	129-1234	Ram - Bottom Pin	1
9	130-1234	Pivot Collar - Axle Unit	1
10	131-1234	Pivot Bush - Axle Unit	1
11	132-1034	Pivoting Arm Unit	6
12	134-1234	Depth Control Screw	1
13	135-1234	Depth Control Screw - Nut	1
14	136-1234	Depth Control Screw - Tube	1
15	137-1234	Depth Control Screw - Handle	1
16	138-1234	Depth Control Screw - Trunnion	1
18	141-1000	Front Pivot Bar	1
19	142-0234	Spacer Bush - Inner	4
20	143-0234	Spacer Bush - Inner Bushed	1
21	144-5000	Spacer Bush - End	2
21	A101	1" x 6" UNC Bolt	2
22	A110	M12 x 75 Bolt	3
23	A117	1 1/4" x 7 1/2" UNC Bolt	1
24	A129	1 1/4" UNC Nyloc Nut	1
25	A130	1" UNC Locknut	2
27	A152	Lynch Nut	1
28	A153	M8 x 40 Spirol Pin	4
29	A154	1 1/4" x 8" Drawbar Pin	1
30	A155	2" Timken Thrust Bearing	2
31	A156	1 3/8" Timken Taper Roller Bearing	4
32	A159	Oilite Bush	16
33	A146	Road Wheel - 10.5 x 15.0 x 10 Ply	2
34	A169	2 1/2" Dia. Hydraulic Cylinder	1
35	A171	Hydraulic Hose - Ram Tractor	2
36	A173	3/8" BSP Tee M.M.F	4
37	A178	Hydraulic Hose - Ram Ram	2
38	A185	Depth Control Spring	1
40	A199	1 1/8" x 1" Hardened Bush	4

MAIN FRAME & DRAWBAR

ITEM	PART NO.	DESCRIPTION	QTY.
1	110-5000	Main Frame	1
8	139-5000	Depth Control Ram Holder	1
16	A108	M12 x 120 Bolt	4
17	A110	M12 x 75 Bolt	2
18	A117	1 1/4" x 8" UNC Bolt	1
19	A121	M10 x 40 Set Screw	4
20	A129	1 1/4" UNC Nut	1
22	A138	M12 Locknut	4
29	A198	100 x 50 Plastic Cap	2
31	A200	30 Kg Weight	10
32	A209	Seedbox Complete	1
33	A299	Rear Platform	1