Belt Drills

User Guide

STANHAY

ENGLISH

STANHAY USERS GUIDE

This guide is published to help you get the best results from your Stanhay Mk.II precision planter today. The progressive introduction of new seed characteristics leads periodically to new recommendations for seed planting and this guide contains details of the latest recommendations for setting Stanhay precision planters. We hope you find it useful in obtaining the excellent results that are normally expected from Stanhay drills.

But please remember - seeds, conditions and planting requirements vary widely, and this publication is a guide only. The responsibility for efficient planting lies with the machine operator, who should check constantly that the desired results are being achieved.

For help or advice, contact your Stanhay distributor. (Growers in the UK may telephone the Stanhay Webb Seed Test Service on 01638 577 206.)

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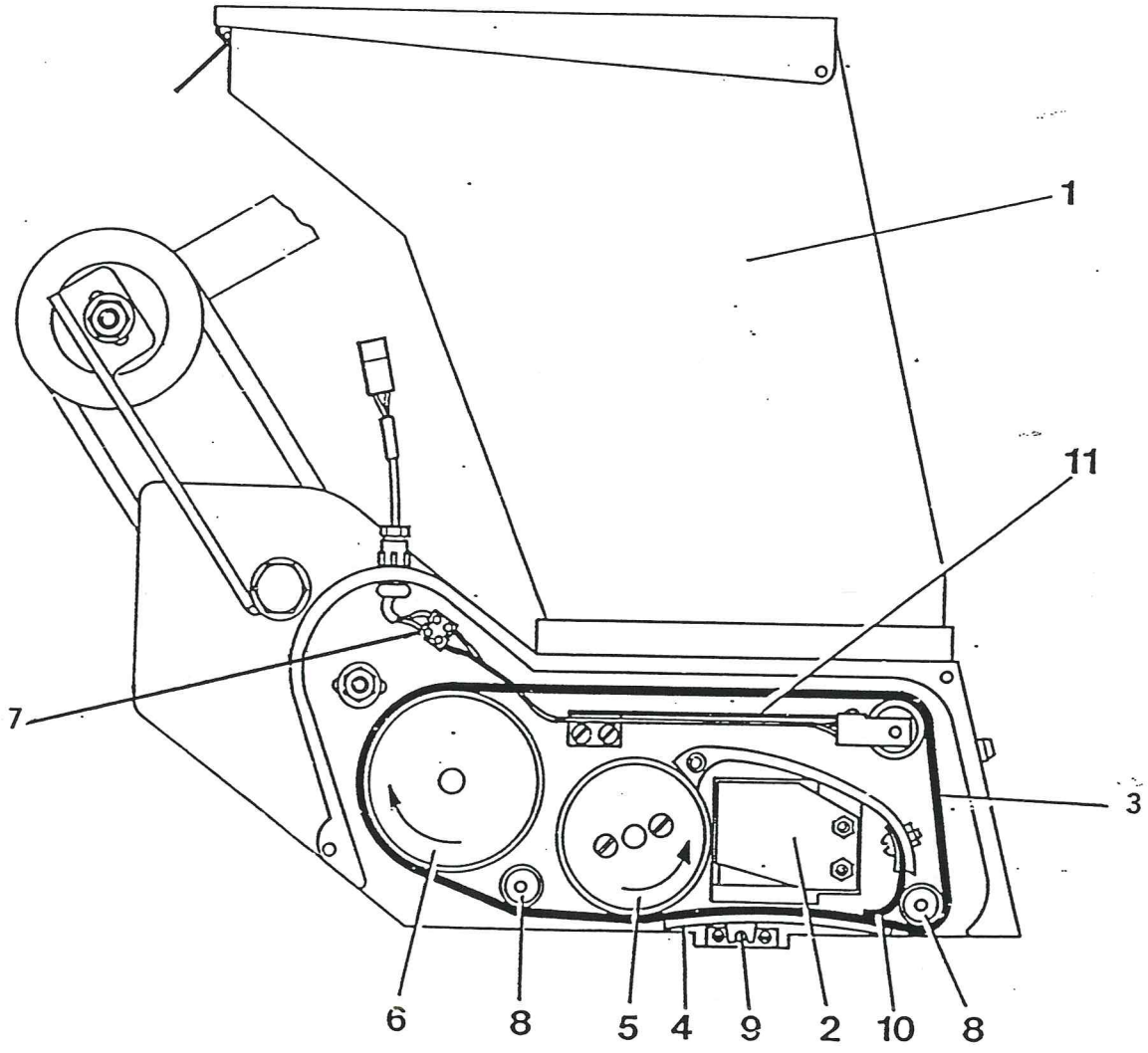
9/93

Part No: 6417117

FIG. 1



PREPARING METERING UNIT

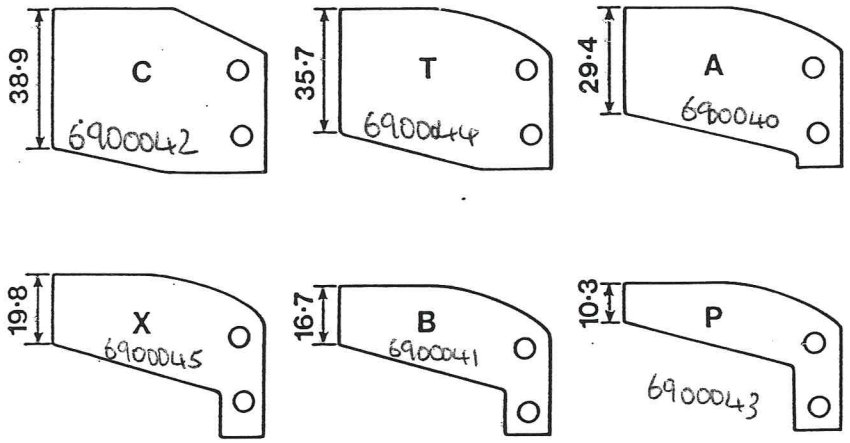
Hopper (Fig. 1 ref.1)

The hopper has a capacity of 4 litres/7 pints or (as shown) 6 litres/10.5 pints. One hopper may be monitored electronically to give an audible and visual warning to the Operator when the seed level is low.

Seed Choke (Fig. 1 ref.2)

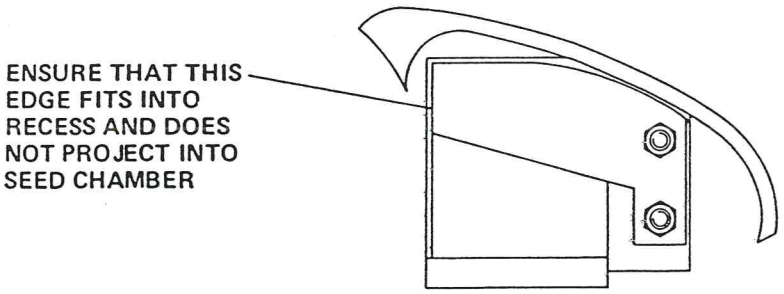
The purpose of the choke is to control the amount of seed in the seed chamber. For optimum performance the amount of seed should be such that when working at normal operating speed, the seed belt exposed in the seed chamber is JUST covered. If the chamber is allowed to become too full, there will be excessive wear on the repeller tyre and damage to the seed. If the choke restricts the inlet too much, the flow of seed will be interrupted. It is important therefore to fit the correct size, see Fig. 2 below and SEED SETTING GUIDE (pages 15 - 20). Chokes are stamped with an identification letter.

Fig.2



When fitting the choke, care must be taken that it fits flush into the recess provided, and does not project into the seed chamber, or it will trap seeds and may damage the repeller tyre. See Fig. 3.

Fig.3



Seed Belt (Fig.1 ref.3)

There are various types of seed belt available, and the selection depends on the size and type of seed to be planted, and the number of lines of seed to be metered from each unit.

Some pelletted seed has volatile chemicals on the pelletting material, which is contained by coating the pellet with a shiny polymer. This polymer reacts adversely with organic rubber, and to overcome potential problems, "Black" belts manufactured from a special synthetic material, should be used. These belts are coloured black on both sides for easy identification.

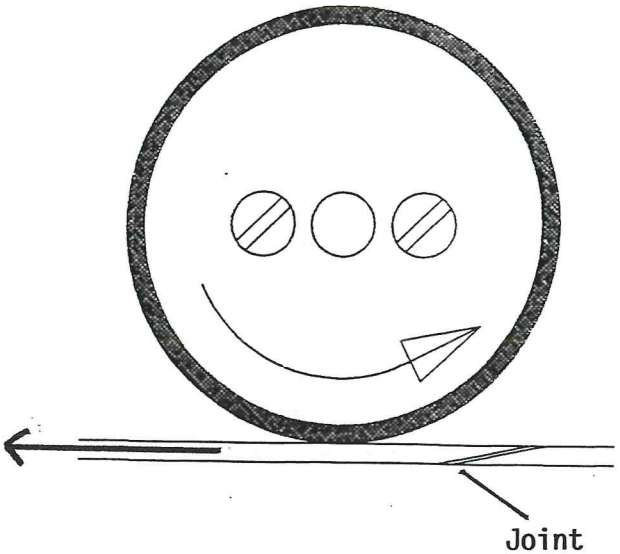
Belt Type:	Recommended for:	Do NOT use for:
Thin Plastic (Green Plastic) (1021002/3/4)	Small seeds 1.0mm thick and less, e.g. natural carrot, lettuce etc.	
Plain Rubber (1022002/3/4)	Small seeds 1.00mm - 3.00mm thick. (Seeds over 2.5mm thick require grooved spring base.)	Polymer coated seed
Ribbed Rubber (1 rib 1023002/3) (3 rib 1024002/3/4)	Seeds 3.0mm thick and greater. (Grooved spring base required)	Polymer coated seed
Plain "Black" (1026002/3/4)	Polymer coated seeds 1.00mm - 3.00mm thick. (Seeds over 2.5mm thick require grooved spring base.)	
Ribbed "Black" (1 rib 1027002/3)	Polymer coated seeds 3.0mm thick and greater. (Grooved spring base required.)	

All belts (except for 1 rib belts) can be punched with one, two or three lines of holes, to suit the required drilling pattern; the maximum number of holes in each line being determined by the hole size. (See chart - page 14, and Seed Setting Guide, pages 15 -20).

Rubber and "Black" Belts must be fitted with the canvas side inwards towards the seed.

Where Thin Plastic Belts are lap jointed they should be fitted as below.

Fig.4



Spring Base (Fig. 1 ref.4)

These may be plain or grooved depending on the seed belt and seed being planted. In general, plain bases are used with plain belts, and grooved bases with ribbed belts, although there are occasions when a base with a shallow groove or outlet, may be used with a plain belt.

Plain bases must always be used with thin plastic belts. The bases are marked on the underside with an identification letter followed by the suffix 2, (which indicates Mk.II machines).

See SEED SETTING GUIDE (pages 15-20) and SPRING BASE LIST (page 21).

Make sure that the base is fitted the correct way round, i.e. with the short end towards the repeller wheel, and free to oscillate on the spring base pin with the unit cover plate tightly fitted.

Repeller Wheel (Fig.1 ref.5)

The function of the Repeller Wheel is to remove excess seed from the holes in the seed belt, and circulate the seed in the seed chamber.

There are 3 types of Repeller Tyre available (see Fig.5).

1. Black Tyre (Part No.2820002 x 3 = Kit 18 = 8010018)

   General purpose tyre for single line drilling of conventional pellets (NOT polymer coated), and larger vegetables seeds. When 3 line drilling with this tyre, a higher seed rate is generally obtained through the centre row of holes in the seed belt, than the outer two rows.

2. Black Tyre - solid centre (Part No.2830042 x 3 = Kit 66 = 8010066)

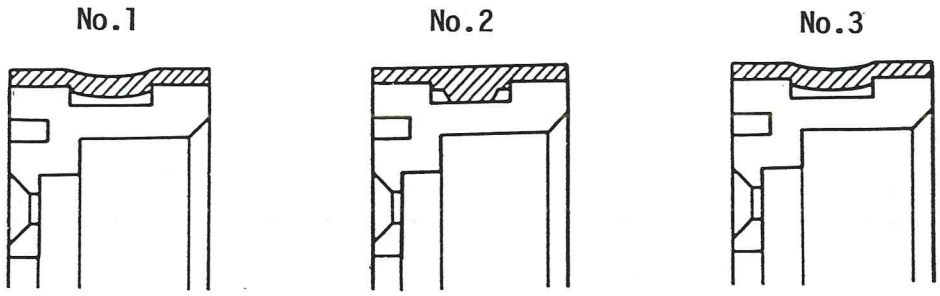
   Synthetic rubber tyre for single and multi-line drilling **ALL** natural and coated vegetable seeds, giving equal seed rates on all 3 lines of seed when multi-line drilling. This tyre is also recommended for drilling single lines of very thin seeds, e.g. raw tomato, lettuce, parsnip etc., and seed such as raw onion and leek, which can tend to stick in the holes in the seed belt.

   Note: New Black tyres should be dusted with French Chalk prior to use.

3. Brown Tyre (Part No.2830033 x 3 = Kit 17 = 8010017)

   Specialist tyre for polymer coated sugar beet pellets. Because of the smooth surface of this tyre it is not recommended for small seeds, as it does not repel as effectively as the Black tyres.

Fig.5



Belt Wheel (Fig.1 ref.6)

The belt wheel is fitted with a rubber tyre and drives the seed belt. It is important that the tyre is in good condition and not contaminated with seed dressing - particularly French Chalk - or seed belt slip may occur with subsequent loss of performance.

Seed Belt Monitor (Fig.1 ref.7)

When an electrical or electronic monitor is being used, the seed belt tensioner has a reed switch fitted to the Spring Arm, activated by a magnet inside the Tensioner Roller. For correct operation it is important that the roller rotates freely.

If any malfunction of the system is indicated, check that dust or seed dressing has not seized the roller to its spindle.

Idler Rollers (Fig.1 ref.8)

These run on spindles screwed into the aluminium body casting, which are easily removed for cleaning or maintenance.

Spring Base Pin (Fig.1 ref.9)

There are 2 types of Spring Base Pin, viz.

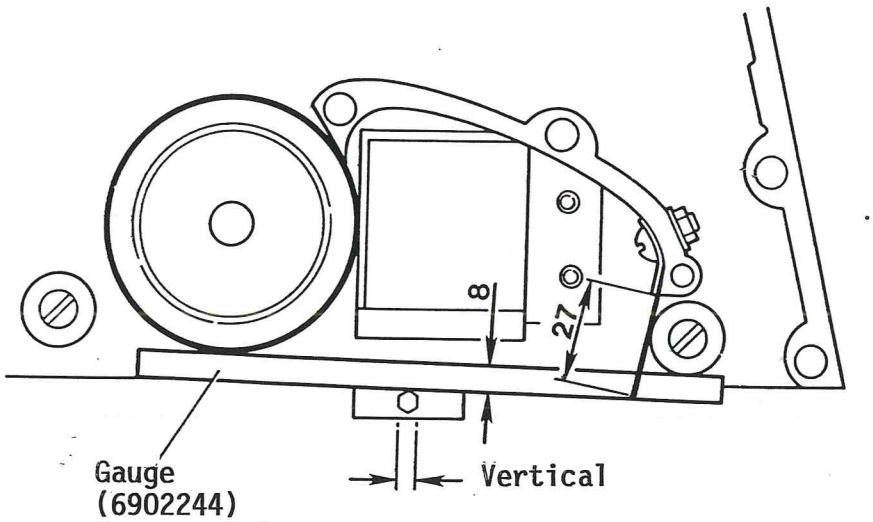
Type A — Screwed directly into a lug on the bottom of the aluminium body casting; and

Type B — Attached to the lug by means of a plate and 2 screws.

With both types of pin, it is important that they are adjusted correctly for optimum unit performance, and to ensure that all units deliver similar amounts of seed - particularly with small seeds such as raw carrot.

Type A: The pin should be screwed tightly into the casting with the flats of the hexagon vertical. If necessary lightly tap the pin until it just makes contact with an 8mm thick gauge held firmly against the Repeller Wheel and Idler Roller as shown below.

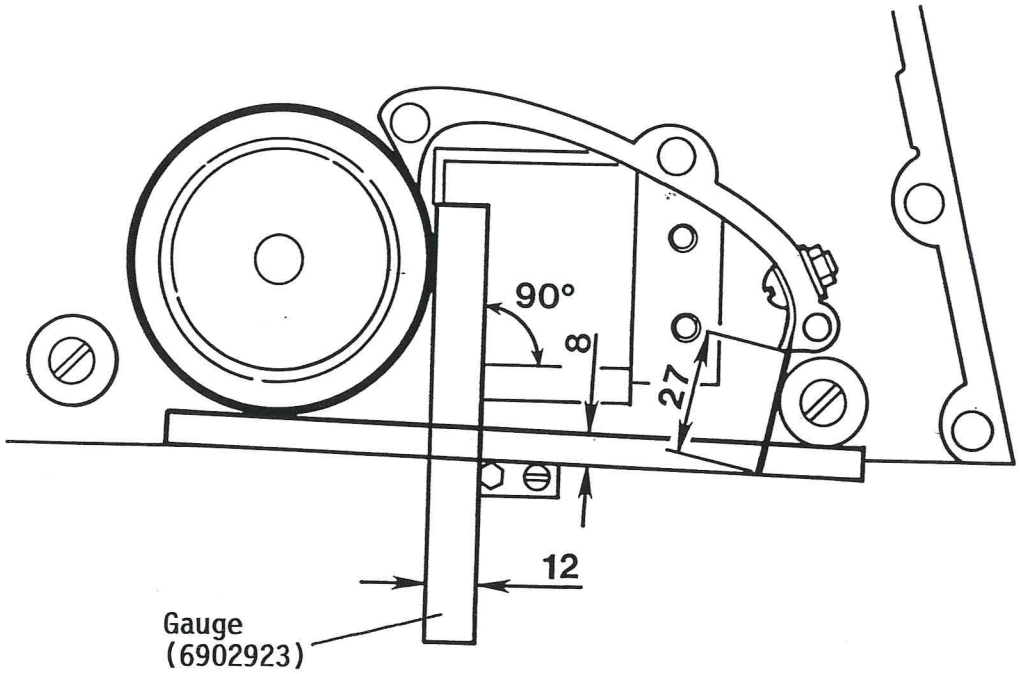
Fig.6



Type B: The pin should be screwed tightly into the attachment plate, with the flats of the hexagon vertical.

Loosen the 2 fixing screws until the plate is just movable. Adjust the plate laterally until the flat of the hexagon pin makes contact with a 12mm thick gauge held vertically against the Repeller Wheel. Lightly tighten the fixing screws. Hold an 8mm thick gauge firmly against the Repeller Wheel and Idler Roller, and tap the attachment plate upwards until the Spring Base pin just makes contact as shown below. Firmly tighten fixing screws.

Fig.7.



Rubber Flap (Fig.1 ref.10)

The Rubber Flap forms the front of the seed chamber and serves to prevent seed contacting the Idler Roller and entering holes in the Seed Belt forward of the Spring Base. To function effectively it should be set with 27mm protruding below the Clamping Plate (see Figs. 6 and 7) and should move freely with the unit cover plate fitted.

Cover Plate

The Cover Plate locates over 2 dowels in the metering unit casting flange, and is secured by means of one wing nut. It is important that the Cover Plate is flat, particularly where it encloses the seed chamber. With the wing nut tightened, check that the Cover Plate is seated firmly against the flange over the seed chamber and against the heads of the Idler Roller Spindles.

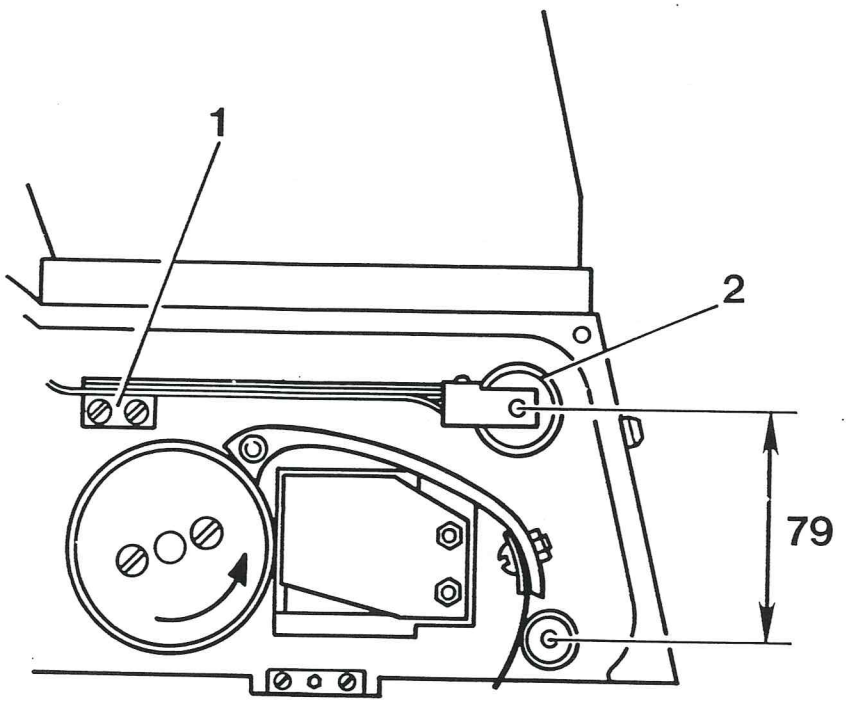
Seed Belt Tensioner (Fig. 1 ref.11)

For correct seed belt tensioning the distance between the centres of the Tensioner Roller and the Front Idler Roller should be 79mm with NO SEED BELT FITTED. If necessary these centres can be adjusted by slackening the 2 fixing screws in the attachment bracket (Item 1 Fig.8).

The Seed Belt Tensioner is also used to make the seed belt track correctly within the width of the metering unit. Bending the attachment bracket (Item 1 Fig.8) up, will cause the belt to run towards the cover plate and, bending down, towards the aluminium casting. Only a very small amount of movement is required and care must be taken not to cause damage to the bracket by over-bending, or damage to the electrical cable if a monitor is fitted.

After aligning the seed belt, recheck roller centres are at 79mm.

Fig.8



SETTING SEED SPACING

There are three types of Drive, viz.

Chain Drive (CLD):

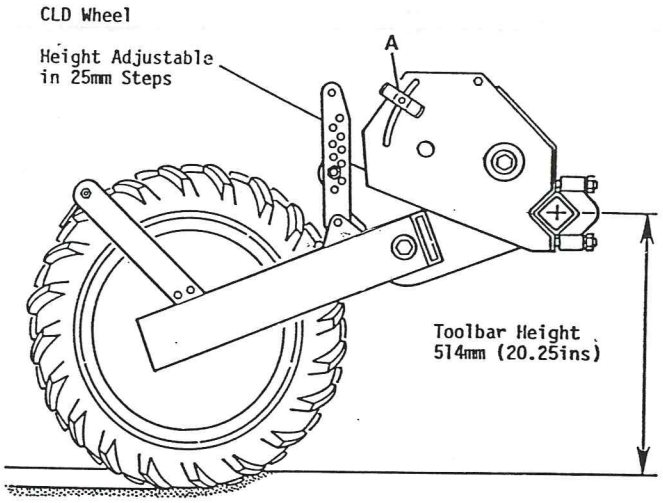
Chain Land Drive wheel.

Belt Drive (MLD or ALD):

Master Land Drive wheel or
Adjustable Height Land Drive wheel.

Unit Wheel Drive (UWD):

If the machine is fitted with more than one drive wheel, ensure they are adjusted identically.

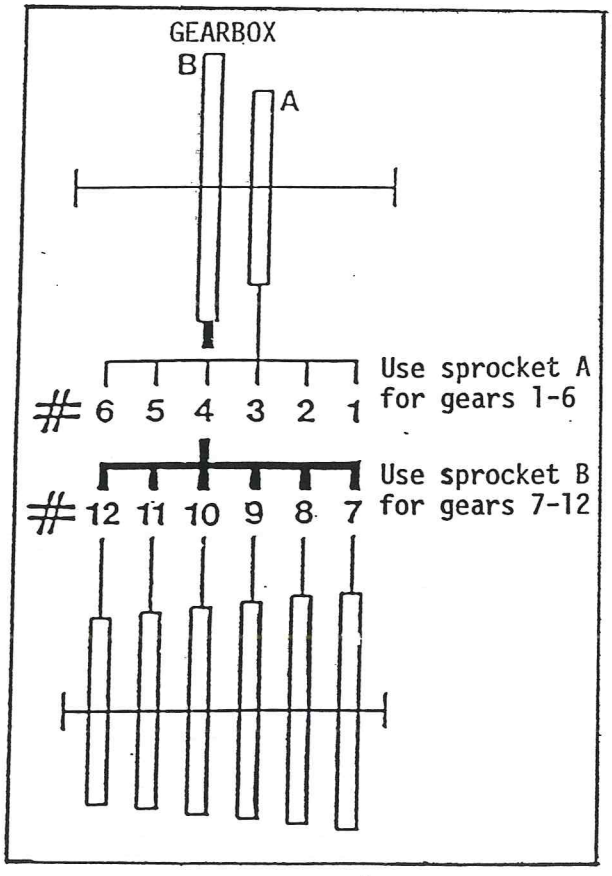


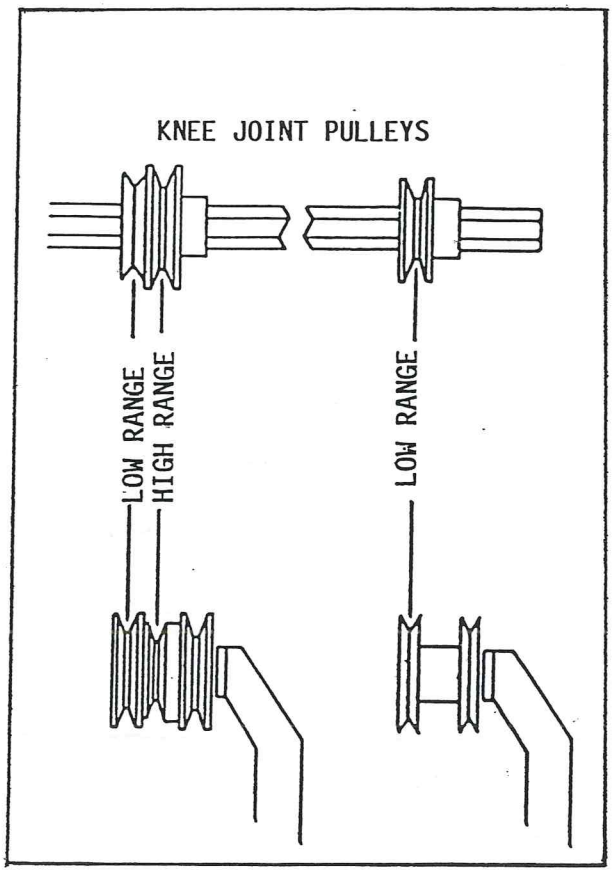
Chain Drive

Seed spacing is varied by means of a chain drive gearbox incorporated within the main drive landwheel. There are 6 primary drive sprockets, used in conjunction with sliding sprockets **A** and **B**, mounted on a pivotted layshaft.

TO SELECT GEAR, loosen the nuts **A**, and pivot the layshaft downwards to slacken the drive chain. Fit the drive chain over the appropriate drive sprocket and sliding sprocket, check that the chain is in line, and re-tension. Turn the landwheel by hand and check chain tension and drive.

GEAR SETTINGS - CHAIN DRIVE

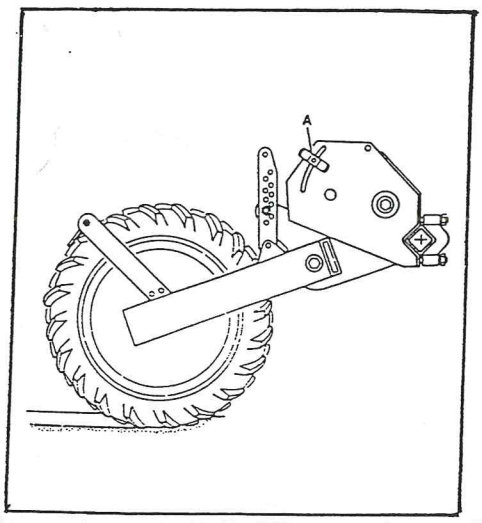


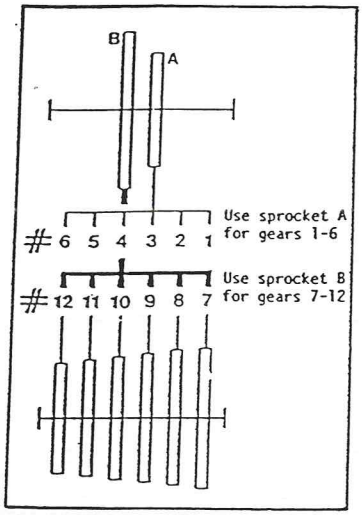


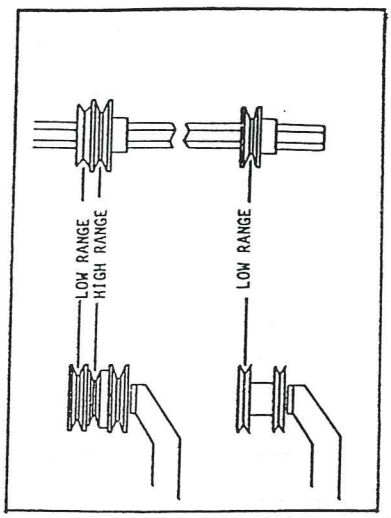
12 SPACING CHAIN DRIVE ADJUSTABLE HEIGHT LANDWHEEL

SEED SPACING CHART - MM
USING LOW RANGE KNEE JOINT PULLEYS

No.of holes in belt	GEAR SETTING #											
	1	2	3	4	5	6	7	8	9	10	11	12
144	16.0	16.8	17.8	18.8	19.8	21.1	22.6	23.9	25.1	26.4	27.9	29.7
120	19.3	20.3	21.3	22.6	23.9	25.4	27.2	28.7	30.2	31.8	33.5	35.8
112	20.6	21.6	22.9	24.1	25.4	27.2	29.2	30.7	32.3	34.0	36.1	38.4
96	24.1	25.4	26.7	28.2	29.7	31.8	34.0	35.8	37.6	39.6	42.2	44.7
90	25.7	26.5	28.4	30.0	31.8	33.8	36.3	38.1	40.1	42.4	45.0	47.8
72	32.3	33.8	35.6	37.6	39.6	42.2	45.5	47.8	50.3	52.8	56.1	59.7
60	38.6	40.2	42.7	45.0	47.8	50.5	54.4	57.2	60.2	63.5	67.3	71.4
56	41.4	43.4	45.7	48.3	51.1	54.4	58.4	61.2	64.5	68.1	72.1	76.7
48	48.3	50.5	53.3	56.1	59.4	63.2	68.1	71.4	75.2	79.5	84.1	89.4
45	51.3	54.1	56.9	59.9	63.5	67.6	72.6	76.2	80.3	84.8	89.7	95.3
40	57.9	60.7	64.0	67.6	71.4	75.9	81.8	85.9	90.4	95.3	100.8	107.2
36	64.3	67.6	71.1	74.9	79.5	84.3	90.7	95.3	100.3	105.9	112.3	119.1
32	72.4	75.9	80.0	84.3	89.4	95.0	102.1	107.2	112.8	119.1	126.2	134.1
30	77.2	81.0	85.3	89.9	95.3	101.3	109.0	114.3	120.4	127.0	134.6	143.0
28	82.6	86.9	91.4	96.5	102.1	108.5	116.6	122.4	129.0	136.1	144.3	153.2
24	96.5	101.3	106.7	112.5	119.1	126.5	136.1	143.0	150.6	158.8	168.1	178.8
20	115.6	121.4	127.8	134.9	143.0	152.1	163.3	171.5	180.6	190.8	201.9	214.4
18	128.5	134.9	142.0	149.9	158.8	168.7	181.4	190.8	200.7	211.8	224.3	238.3
16	144.5	151.9	159.8	168.7	178.6	189.7	204.2	214.4	225.8	238.3	252.2	268.2
15	154.2	162.1	170.4	179.8	190.5	202.4	217.7	228.9	240.8	254.3	269.2	286.0
14	165.4	173.5	182.6	192.8	204.2	216.9	233.4	245.1	258.1	272.3	288.3	306.3
12	192.8	202.4	213.1	225.0	238.3	253.0	272.3	286.0	301.0	317.8	336.6	357.4
10	231.4	243.1	255.8	270.0	285.8	303.8	326.6	343.2	361.2	381.3	403.9	429.0
9	257.0	270.0	284.2	300.0	317.5	337.3	363.0	381.3	401.3	423.7	448.6	476.8
8	289.3	303.8	319.8	337.3	357.4	379.7	408.4	429.0	451.6	476.5	504.7	536.2
6	385.6	404.9	426.2	449.8	476.3	506.0	544.3	572.0	606.0	635.5	672.8	715.0
5	462.8	485.9	511.6	539.8	571.5	607.3	653.3	686.3	722.4	762.5	807.5	858.0
4	578.4	607.3	639.3	674.9	714.5	759.2	816.6	857.8	903.0	953.3	1009.4	1072.4
1 Rev.	2313.9	2430.8	2557.8	2700.0	2857.5	3037.8	3266.4	3431.5	3611.9	3812.5	4038.6	4290.1
Forward Speed kph. 75 rpm Unit	4.1	4.3	4.5	4.7	5.0	5.3	5.7	6.0	6.3	6.7	7.1	7.5
Forward Speed kph. 60 rpm Unit	3.2	3.4	3.6	3.8	4.0	4.3	4.6	4.8	5.1	5.3	5.7	6.0



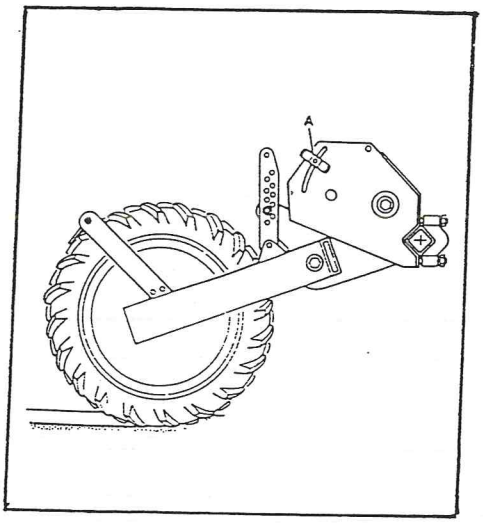


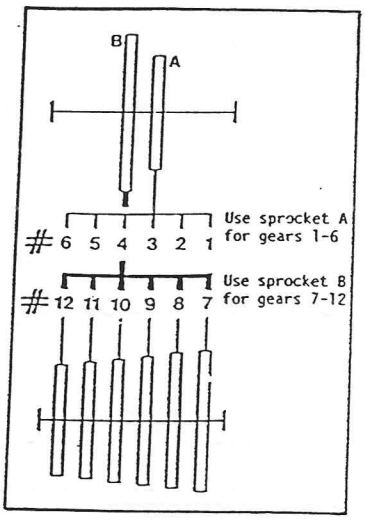


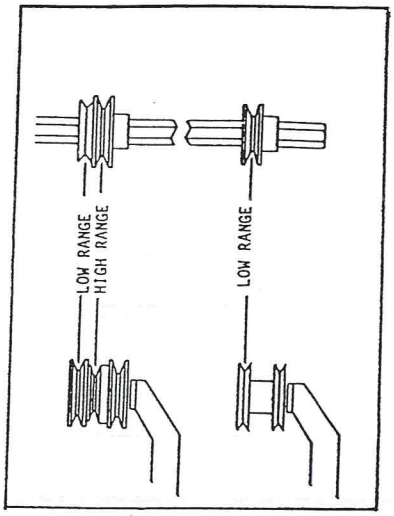
12 SPACING CHAIN DRIVE ADJUSTABLE HEIGHT LANDWHEEL

SEED SPACING CHART - MM
USING HIGH RANGE KNEE JOINT PULLEYS

No.of holes in belt	GEAR SETTING #											
	1	2	3	4	5	6	7	8	9	10	11	12
144	13.0	13.5	14.2	15.0	16.0	16.8	18.0	19.1	20.1	21.1	22.4	23.9
120	15.5	16.3	17.0	18.0	19.1	20.3	21.8	22.9	24.1	25.4	26.9	28.7
112	16.5	17.3	18.3	19.3	20.3	21.6	23.4	24.4	25.9	27.2	29.0	30.7
96	19.3	20.3	21.3	22.6	23.9	25.4	27.2	28.7	30.2	31.8	33.5	35.8
90	20.6	21.6	22.9	23.9	25.4	26.9	29.0	30.5	32.0	33.8	35.8	38.1
72	25.7	26.9	28.4	30.0	31.8	33.8	36.3	38.1	40.1	42.4	45.0	47.8
60	30.7	32.5	34.0	36.1	38.1	40.6	43.4	45.7	48.3	50.8	53.8	57.2
56	33.0	34.8	36.6	38.6	40.9	43.4	46.7	49.0	51.6	54.4	57.7	61.2
48	38.6	40.4	42.7	45.0	47.8	50.5	54.4	57.2	60.2	63.5	67.3	71.4
45	41.1	43.2	45.5	48.0	50.8	54.1	58.2	61.0	64.3	67.8	71.9	76.2
40	46.2	48.5	51.1	54.1	57.2	60.7	65.3	68.6	72.1	76.2	80.8	85.9
36	51.3	54.1	56.9	59.9	63.5	67.6	72.6	76.2	80.3	84.8	89.7	95.3
32	57.9	60.7	64.0	67.6	71.4	75.9	81.8	84.8	90.4	95.3	100.8	107.2
30	61.7	64.8	68.3	71.9	76.2	81.0	87.1	91.4	96.3	101.6	107.7	114.3
28	66.0	69.3	73.2	77.2	81.6	86.9	93.2	98.0	103.1	109.0	115.3	122.7
24	77.2	81.0	85.3	89.9	95.3	101.3	109.0	114.3	120.4	127.0	134.6	143.0
20	92.5	97.3	102.4	108.0	114.3	121.4	130.6	137.2	144.5	152.4	161.5	171.7
18	102.9	108.0	113.8	119.9	127.0	134.9	145.3	152.4	160.5	169.4	179.3	190.8
16	115.6	121.4	127.8	134.5	143.0	151.9	163.3	171.5	180.6	190.8	201.9	214.4
15	123.4	129.5	136.4	144.0	152.4	162.1	174.2	182.9	192.5	203.2	215.4	228.9
14	132.3	138.9	146.1	154.2	163.3	173.5	186.7	196.1	206.5	217.9	230.6	245.1
12	154.2	162.1	170.4	179.8	190.5	202.4	217.7	228.6	240.8	254.3	269.2	286.0
10	185.2	194.3	205.7	215.9	228.6	243.1	261.4	274.6	289.1	305.1	323.1	343.2
9	205.7	215.9	227.3	240.0	254.0	270.0	290.3	305.1	321.1	338.8	358.9	381.3
8	231.4	243.1	255.8	270.0	285.8	303.8	326.6	343.2	361.2	381.3	403.9	429.0
6	308.6	323.9	341.1	359.9	381.0	404.9	435.6	457.5	481.6	508.5	538.2	572.0
5	370.1	388.6	409.2	431.8	457.2	485.9	522.7	548.9	577.9	610.1	645.9	686.3
4	462.8	485.9	511.6	539.8	571.5	589.0	653.3	686.3	722.4	762.5	807.5	858.0
1 Rev.	1851.7	1943.1	2047.2	2159.0	2286.0	2430.8	2613.7	2745.7	2890.5	3050.5	3230.9	3431.5
Forward Speed kph. 75 rpm Unit	3.2	3.4	3.5	3.8	4.0	4.3	4.6	4.8	5.1	5.3	5.7	6.0
Forward Speed kph. 60 rpm Unit	2.6	2.7	2.9	3.1	3.2	3.4	3.7	3.9	4.0	4.3	4.5	4.8



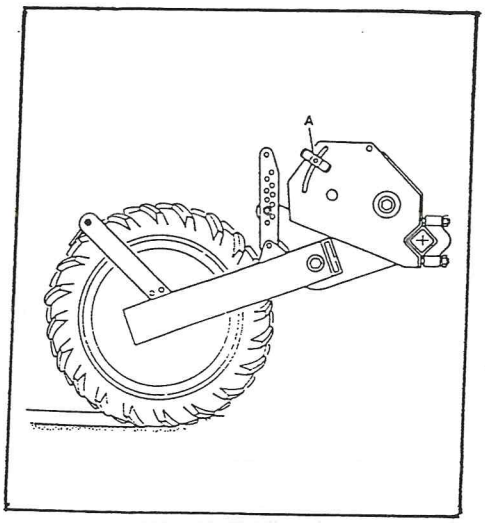


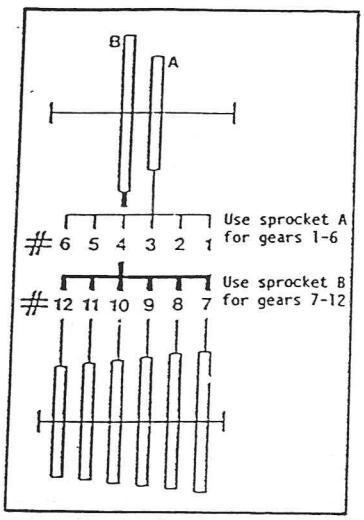


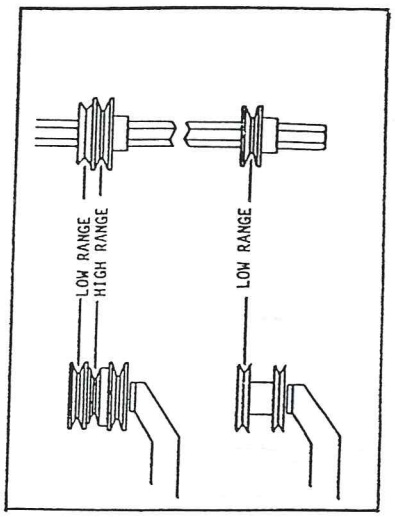
12 SPACING CHAIN DRIVE ADJUSTABLE HEIGHT LANDWHEEL

SEED SPACING CHART - INCHES
USING LOW RANGE KNEE JOINT PULLEYS

No.of holes in belt	GEAR SETTING #											
	1	2	3	4	5	6	7	8	9	10	11	12
144	0.63	0.66	0.70	0.74	0.78	0.83	0.89	0.94	0.99	1.04	1.10	1.17
120	0.76	0.80	0.84	0.89	0.94	1.00	1.07	1.13	1.19	1.25	1.32	1.41
112	0.81	0.85	0.90	0.95	1.00	1.07	1.15	1.21	1.27	1.34	1.42	1.51
96	0.95	1.00	1.05	1.11	1.17	1.25	1.34	1.41	1.48	1.56	1.66	1.76
90	1.01	1.06	1.12	1.18	1.25	1.33	1.43	1.50	1.58	1.67	1.77	1.88
72	1.27	1.33	1.40	1.48	1.56	1.66	1.79	1.88	1.98	2.08	2.21	2.35
60	1.52	1.59	1.68	1.77	1.88	1.99	2.14	2.25	2.37	2.50	2.65	2.81
56	1.63	1.71	1.80	1.90	2.01	2.14	2.30	2.41	2.54	2.68	2.84	3.02
48	1.90	1.99	2.10	2.21	2.34	2.49	2.68	2.81	2.96	3.13	3.31	3.52
45	2.02	2.13	2.24	2.36	2.50	2.66	2.86	3.00	3.16	3.34	3.53	3.75
40	2.28	2.39	2.52	2.66	2.81	2.99	3.22	3.38	3.56	3.75	3.97	4.22
36	2.53	2.66	2.80	2.95	3.13	3.32	3.57	3.75	3.95	4.17	4.42	4.69
32	2.85	2.99	3.15	3.32	3.52	3.74	4.02	4.22	4.44	4.69	4.97	5.28
30	3.04	3.19	3.36	3.54	3.75	3.99	4.29	4.50	4.74	5.00	5.30	5.63
28	3.25	3.42	3.60	3.80	4.02	4.27	4.59	4.82	5.08	5.36	5.68	6.03
24	3.80	3.99	4.20	4.43	4.69	4.98	5.36	5.63	5.93	6.25	6.62	7.04
20	4.55	4.78	5.03	5.31	5.63	5.99	6.43	6.75	7.11	7.51	7.95	8.44
18	5.06	5.31	5.59	5.90	6.25	6.64	7.14	7.51	7.90	8.34	8.83	9.38
16	5.69	5.98	6.29	6.64	7.03	7.47	8.04	8.44	8.89	9.38	9.93	10.56
15	6.07	6.38	6.71	7.08	7.50	7.97	8.57	9.01	9.48	10.01	10.60	11.26
14	6.51	6.83	7.19	7.59	8.04	8.54	9.19	9.65	10.16	10.72	11.35	12.06
12	7.59	7.97	8.39	8.86	9.38	9.96	10.72	11.26	11.85	12.51	13.25	14.07
10	9.11	9.57	10.07	10.63	11.25	11.96	12.86	13.51	14.22	15.01	15.90	16.89
9	10.12	10.63	11.19	11.81	12.50	13.28	14.29	15.01	15.80	16.68	17.66	18.77
8	11.39	11.96	12.59	13.28	14.07	14.95	16.08	16.89	17.78	18.76	19.87	21.11
6	15.18	15.94	16.78	17.71	18.75	19.92	21.43	22.52	23.70	25.02	26.49	28.15
5	18.22	19.13	20.14	21.25	22.50	23.91	25.72	27.02	28.44	30.02	31.79	33.78
4	22.77	23.91	25.17	26.57	28.13	29.89	32.15	33.77	35.55	37.53	39.74	42.22
1 Rev.	91.1	95.7	100.7	106.3	112.5	119.6	128.6	135.1	142.2	150.1	159.0	168.9
Forward Speed mph 75 rpm Unit	2.5	2.6	2.8	2.9	3.1	3.3	3.6	3.7	3.9	4.2	4.4	4.7
Forward Speed mph 60 rpm Unit	2.0	2.1	2.2	2.4	2.5	2.6	2.8	3.0	3.1	3.3	3.5	3.7



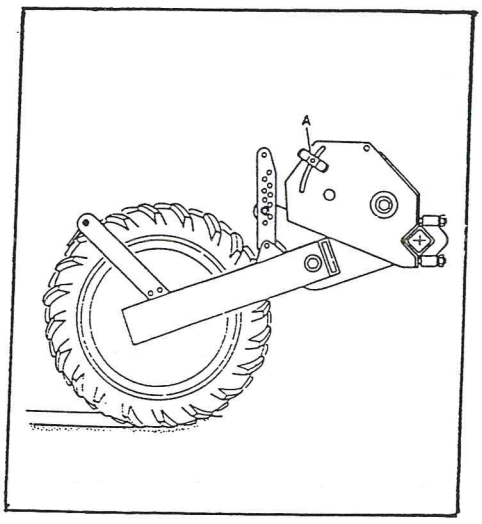


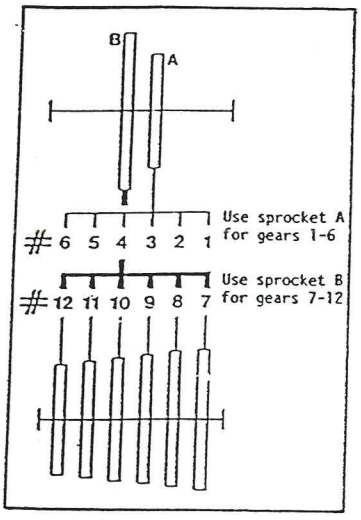


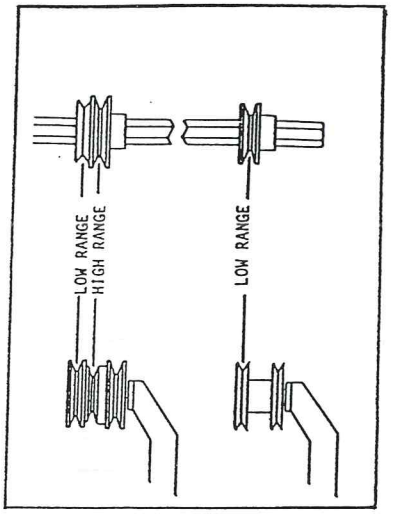
12 SPACING CHAIN DRIVE ADJUSTABLE HEIGHT LANDWHEEL

SEED SPACING CHART - INCHES
USING HIGH RANGE KNEE JOINT PULLEYS

No.of holes in belt	GEAR SETTING #											
	1	2	3	4	5	6	7	8	9	10	11	12
144	0.51	0.53	0.56	0.59	0.63	0.66	0.71	0.75	0.79	0.83	0.88	0.94
120	0.61	0.64	0.67	0.71	0.75	0.80	0.86	0.90	0.95	1.00	1.06	1.13
112	0.65	0.68	0.72	0.76	0.80	0.85	0.92	0.96	1.02	1.07	1.14	1.21
96	0.76	0.80	0.84	0.89	0.94	1.00	1.07	1.13	1.19	1.25	1.32	1.41
90	0.81	0.85	0.90	0.94	1.00	1.06	1.14	1.20	1.26	1.33	1.41	1.50
72	1.01	1.06	1.12	1.18	1.25	1.33	1.43	1.50	1.58	1.67	1.77	1.88
60	1.21	1.28	1.34	1.42	1.50	1.60	1.71	1.80	1.90	2.00	2.12	2.25
56	1.30	1.37	1.44	1.52	1.61	1.71	1.84	1.93	2.03	2.14	2.27	2.41
48	1.52	1.59	1.68	1.77	1.88	1.99	2.14	2.25	2.37	2.50	2.65	2.81
45	1.62	1.70	1.79	1.89	2.00	2.13	2.29	2.40	2.53	2.67	2.83	3.00
40	1.82	1.91	2.01	2.13	2.25	2.39	2.57	2.70	2.84	3.00	3.18	3.38
36	2.02	2.13	2.24	2.36	2.50	2.66	2.86	3.00	3.16	3.34	3.53	3.75
32	2.28	2.39	2.52	2.66	2.81	2.99	3.22	3.34	3.56	3.75	3.97	4.22
30	2.43	2.55	2.69	2.83	3.00	3.19	3.43	3.60	3.79	4.00	4.24	4.50
28	2.60	2.73	2.88	3.04	3.22	3.42	3.67	3.86	4.06	4.29	4.54	4.83
24	3.04	3.19	3.36	3.54	3.75	3.99	4.29	4.50	4.74	5.00	5.30	5.63
20	3.64	3.83	4.03	4.25	4.50	4.78	5.14	5.40	5.69	6.00	6.36	6.76
18	4.05	4.25	4.48	4.72	5.00	5.31	5.72	6.00	6.32	6.67	7.06	7.51
16	4.55	4.78	5.03	5.31	5.63	5.98	6.43	6.75	7.11	7.51	7.95	8.44
15	4.86	5.10	5.37	5.67	6.00	6.38	6.86	7.20	7.58	8.00	8.48	9.01
14	5.21	5.47	5.75	6.07	6.43	6.83	7.35	7.72	8.13	8.58	9.08	9.65
12	6.07	6.38	6.71	7.08	7.50	7.97	8.57	9.00	9.48	10.01	10.60	11.26
10	7.29	7.65	8.10	8.50	9.00	9.57	10.29	10.81	11.38	12.01	12.72	13.51
9	8.10	8.50	8.95	9.45	10.00	10.63	11.43	12.01	12.64	13.34	14.13	15.01
8	9.11	9.57	10.07	10.63	11.25	11.96	12.86	13.51	14.22	15.01	15.90	16.89
6	12.15	12.75	13.43	14.17	15.00	15.94	17.15	18.01	18.96	20.02	21.19	22.52
5	14.57	15.30	16.11	17.00	18.00	19.13	20.58	21.61	22.75	24.02	25.43	27.02
4	18.22	19.13	20.14	21.25	22.50	23.19	25.72	27.02	28.44	30.02	31.79	33.78
1 Rev.	72.9	76.5	80.6	85.0	90.0	95.7	102.9	108.1	113.8	120.1	127.2	135.1
Forward Speed mph 75 rpm Unit	2.0	2.1	2.2	2.4	2.5	2.6	2.8	3.0	3.1	3.3	3.5	3.7
Forward Speed mph 60 rpm Unit	6	1.7	1.8	1.9	2.0	2.1	2.3	2.4	2.5	2.7	2.8	3.0



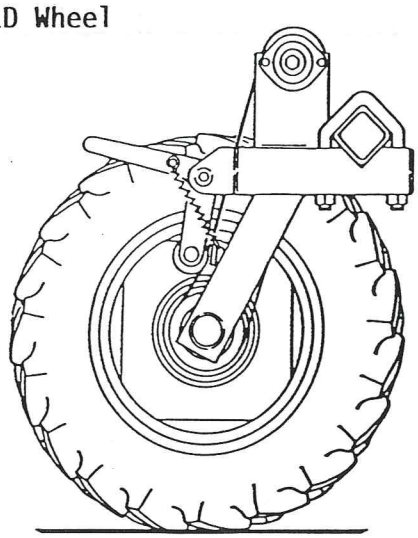




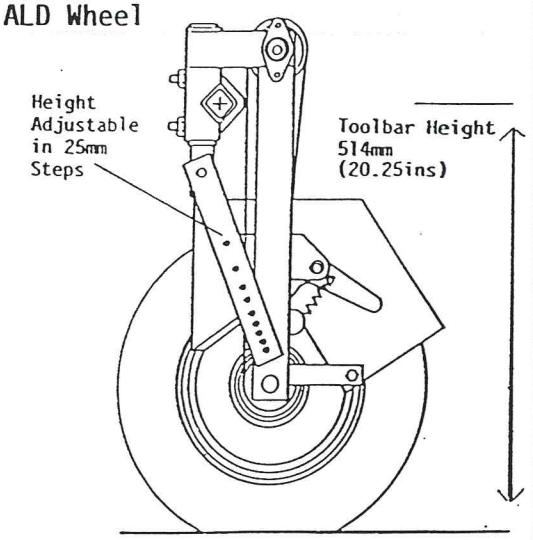
Belt Drive

Seed spacing is varied by locating the drive belt in position A,B, C or D. Do not over tighten the belt tensioner.

MLD Wheel

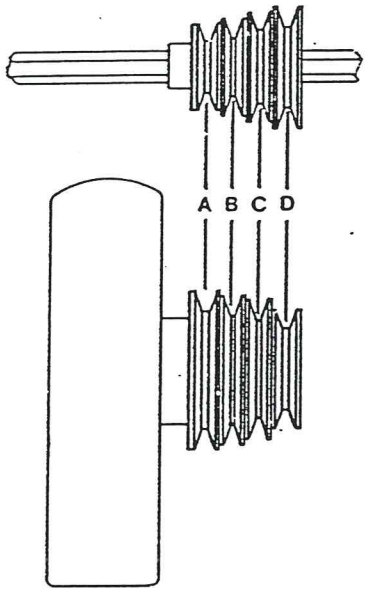


ALD Wheel

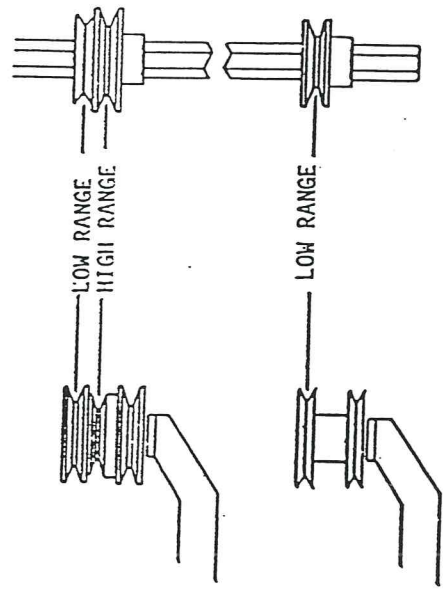


GEAR SETTINGS - BELT DRIVE

Landwheel



Knee Joint Pulleys

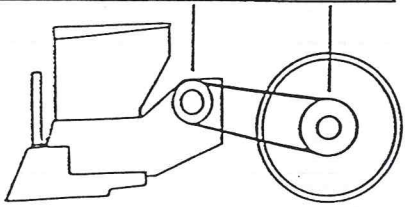


Unit Wheel Drive

Seed spacing is varied by fitting the drive belt over the pulleys as shown.

The drive ratios are identical to the belt drive system **low range.**

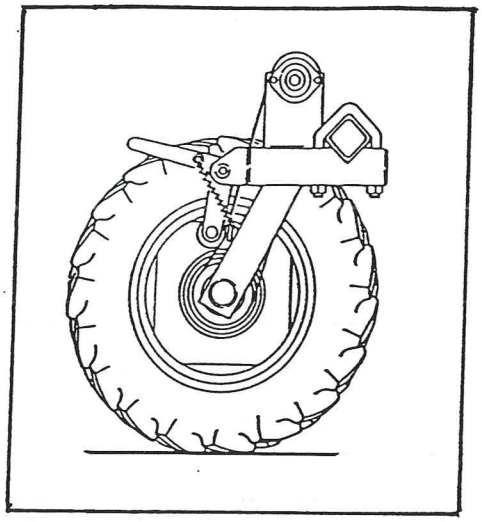
DRIVE	UNIT PULLEY	WHEEL PULLEY
AL	SMALL	LARGE
BL	LARGE	LARGE
CL	SMALL	SMALL
DL	LARGE	SMALL

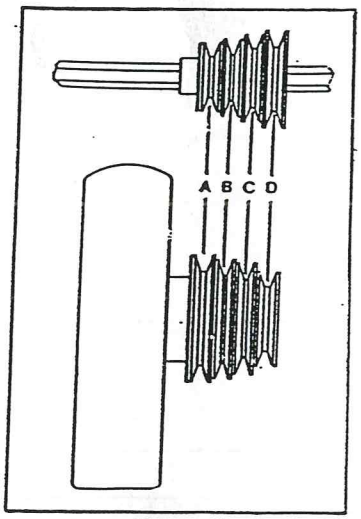


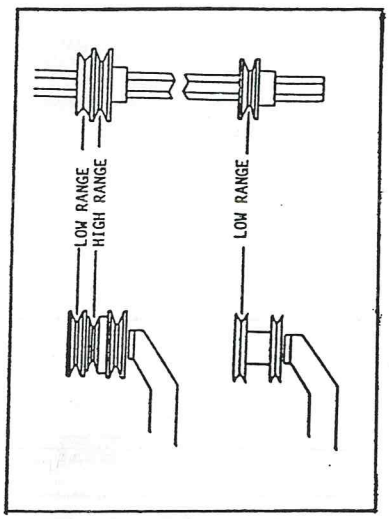
BELT DRIVE AND UNIT WHEEL DRIVE

SEED SPACING CHART - INCHES AND MM
USING LOW RANGE (L) AND HIGH RANGE (H) KNEE JOINT PULLEYS

No.of holes in belt	DRIVE BELT SETTING													
	AH		BH		CH						DH			
			AL				BL		CL				DL	
	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm
144	0.50	13	0.63	16	0.75	19	0.78	20	0.9	24	1.0	25	1.25	32
120	0.59	15	0.75	19	0.9	23	0.94	24	1.1	29	1.2	31	1.5	38
112	0.66	17	0.8	20	0.97	25	1.0	25	1.2	31	1.3	33	1.6	41
96	0.75	19	0.94	24	1.1	29	1.2	30	1.4	36	1.5	38	1.9	47
90	0.8	20	1.0	25	1.2	31	1.25	32	1.5	38	1.6	41	2.0	51
72	1.0	25	1.25	32	1.5	38	1.6	40	1.9	48	2.0	51	2.5	64
60	1.2	30	1.5	38	1.8	47	1.9	48	2.25	57	2.4	61	3.0	76
56	1.3	33	1.6	41	1.9	49	2.0	51	2.4	61	2.6	66	3.2	82
48	1 5	38	1.9	48	2.25	57	2.3	60	2.8	71	3.0	76	3.75	95
45	1.6	40	2.0	51	2.4	61	2.5	64	3.0	76	3.2	81	4.0	102
40	1.8	46	2.25	57	2.7	69	2.8	71	3.4	86	3.6	91	4.5	114
36	2.0	51	2.5	64	3.0	76	3.1	79	3.75	95	4.0	102	5.0	127
32	2.25	57	2.8	71	3.4	86	3.5	89	4.2	107	4.5	114	5.6	143
30	2.4	61	3.0	76	3.6	91	3.75	95	4.5	114	4.8	122	6.0	152
28	2.6	66	3.2	81	3.9	98	4.0	102	4.8	123	5.1	130	6.4	163
24	3.0	76	3.75	95	4.5	114	4.7	119	5.6	143	6.0	152	7.5	191
20	3.6	91	4.5	114	5.4	137	5.6	143	6.75	171	7.2	183	9.0	229
18	4.0	101	5.0	127	6.0	152	6.25	159	7.5	191	8.0	203	10.0	254
16	4.5	114	5.6	142	6.75	171	7.0	178	8.4	214	9.0	229	11.3	286
15	4.8	121	6.0	152	7.2	183	7.5	191	9.0	229	9.6	244	12.0	305
14	5.1	130	6.4	163	7.7	196	8.0	203	9.6	245	10.3	262	12.9	327
12	6.0	152	7.5	191	9.0	229	9.4	238	11.3	286	12.0	305	15.0	381
10	7.2	183	9.0	229	10.8	274	11.3	286	13.5	343	14.4	366	18.0	457
9	8.0	203	10.0	254	12.0	305	12.5	318	15.0	381	16.0	406	20.0	508
8	9.0	228	11.2	285	13.5	343	14.0	357	16.8	429	18.0	457	22.4	571
6	12.0	305	15.0	381	18.0	457	18.8	476	22.5	571	24.0	610	30.0	762
5	14.4	366	18.0	457	21.6	549	22.5	571	27.0	686	28.8	732	36.0	914
4	18.0	457	22.4	569	27.0	686	28.0	711	33.8	857	36.0	914	45.0	1143
1 Rev.	72	1829	90	2286	108	2743	112.5	2857	135	3429	144	3658	180	4572
Forward Speed mph	2.0		2.5		3.0		3.1		3.7		4.0			
75rpm Unit kph		3.2		4.0		4.8		5.0		6.0		6.4		
Forward Speed mph	1.5		2.0		2.5		2.5		3.0		3.2		4.0	
60rpm Unit kph		2.4		3.2		4.0		4.0		4.8		5.2		6.4







SEED SETTING

1. Refer to the **SEED SETTING GUIDE** (pages 15-20) to establish the recommended:-

   a) Seed Belt and hole size.
   b) Spring Base
   c) Seed Choke
   d) Repeller Tyre
   e) Unit Speed

2. Refer to the **SEED SPACING CHART(s)** (pages 8-11 or 13) to determine the number of holes in the Seed Belt necessary to produce the required seed spacing, together with the appropriate Gear Setting/Drive Belt Setting.

   These charts also indicate the **Forward Speed** associated with the recommended **Unit Speed.**

   Notes: a) Charts show spacings obtained with **either High or Low Range Knee Joint Pulleys.**

   b) Generally the fewer the holes in the Seed Belt, the better the seed spacing.

   c) The maximum number of holes that can be punched in a Seed Belt is determined by the hole size. See Chart below.

   d) The holes in the Seed Belt should be clean and free of fibres, which can be removed by singeing with a small flame. Too much heat will damage the belt and care must be taken during this operation.

Hole Size	Maximum number of holes
6.5 and 7	144
8, 8.5 and 9	120
9.5 and 10	112
11	96
12 and 13	90
14 to 17	72
18 to 20	60

Hole Size	Maximum number of holes
21 to 24	48
25 to 30	40
32	36
36	32
40	30
44	28
49	24

SEED SETTING GUIDE - GENERAL

Seed	Grade	Seed Belt	Hole Size	Spring Base	Choke	Repeller Tyre	Unit rpm	Remarks
Sugar Beet Plain Pellets	3.50 - 4.75mm	Ribbed Rubber or Ribbed Black	16.5	C2	A	Black or Brown	60	
Sugar Beet Polymer Coated Pellets	3.50 - 4.75mm	Ribbed Black	16.5	C2	A	Brown	60	
Sugar Beet, Red Beet Fodder Beet, Mangold Rubbed and Graded	3.50 - 4.75mm	Ribbed Rubber or Ribbed Black	16.0	B2	X	Black solid centre	75	A Black general purpose repeller tyre may be used, but will result in a deterioration in seed spacing and an increase in double seeds.
	4.00 - 4.50mm	Ribbed Rubber or Ribbed Black	16.0	C2	X	Black solid centre	75	
	3.50 - 4.00mm	Ribbed Rubber or Ribbed Black	15.0	C2	X	Black solid centre	75	
	3.00 - 3.50mm	Ribbed Rubber or Ribbed Black	14.0	S2	X	Black solid centre	75	
Sugar Beet Rubbed Ungraded	-	Ribbed Rubber or Ribbed Black	15.5	B2	X	Black solid centre	75	If number of doubles unacceptable use S2 Spring Base.
	-	Plain Rubber or Plain Black	14.5	E2	X	Black solid centre	75	
Sugar Beet, Red Beet, Fodder Beet, Mangold Natural	5.25 - 6.50mm or ungraded	Ribbed Rubber or Ribbed Black	20.0	D2	P	Black solid centre	75	The hole in the seed belt must be big enough to accept the largest seed.
Brassicae	1.50 - 1.75mm	Plain Rubber or Plain Black	7.0	A2	T	Black solid centre	60	A Black general purpose repeller tyre may be used, but will result in a deterioration in seed spacing and an increase in double seeds.
	1.75 - 2.00mm	Plain Rubber or Plain Black	8.0	A2	T	Black solid centre	60	
	2.00 - 2.25	Plain Rubber or Plain Black	8.5	A2	T	Black solid centre	60	
	2.25 - 2.50	Plain Rubber or Plain Black	9.5	A2	T	Black solid centre	60	
	Under 1.75	Plain Rubber or Plain Black	8.0	A2	T	Black solid centre	60	
	Over 1.75	Plain Rubber or Plain Black	8.5	A2	T	Black solid centre	60	
	Under 2.00	Plain Rubber or Plain Black	8.5	A2	T	Black solid centre	60	
	Over 2.00	Plain Rubber or Plain Black	9.0	A2	T	Black solid centre	60	
	Under 2.25	Plain Rubber or Plain Black	8.5	A2	T	Black solid centre	60	
	Over 2.25	Plain Rubber or Plain Black	9.5	A2	T	Black solid centre	60	
Carrot Pelletted	1.50 - 1.75	Plain Rubber or Plain Black	7.5	A2	T	Black or Black solid centre	60	If pellets are polymer coated, a Black seed belt, and a Black solid centre repeller tyre must be used.
	1.75 - 2.25	Plain Rubber or Plain Black	9.0	A2	T	Black or Black solid centre	60	
	2.00 - 2.50	Plain Rubber or Plain Black	10.0	A2	T	Black or Black solid centre	60	
	2.00 - 3.50	Plain Rubber or Plain Black	11.0	Z2	T	Black or Black solid centre	60	
	3.00 - 3.50	Ribbed Rubber or Ribbed Black	13.0	S2	A	Black or Black solid centre	60	
Carrot Raw or Coated * - see page 17	1.2 - 1.4	Thin Plastic	7.0	A2	T	Black solid centre	60	The hole sizes shown give approx. 2 seeds per station. Seed rates are reduced by increasing the unit speed towards 75 rpm.
	1.4 - 1.6	Thin Plastic	8.0	A2	T	Black solid centre	60	
	1.6 - 1.8	Thin Plastic	9.5	A2	T	Black solid centre	60	
	1.8 - 2.0	Thin Plastic	11.0	A2	T	Black solid centre	60	
	2.0 - 2.2	Thin Plastic	12.0	A2	T	Black solid centre	60	

Seeds vary: the above settings are a guide only.

SEED SETTING GUIDE - GENERAL

Seed	Grade	Seed Belt	Hole Size	Spring Base	Choke	Repeller Tyre	Unit rpm	Remarks
Celery - Mini Pellet	1.5 - 1.75	Plain Rubber or Plain Black	7.0	A2	T	Black or Black solid centre	60	If pellets are polymer coated, a plain Black Black seed belt, and a Black solid centre repeller tyre must be used.
Chicory (Endive) Pelletted	2.75 - 3.25	Ribbed Rubber or Ribbed Black	12.0	E2	A	Black or Black solid centre	60	If pellets are polymer coated, a Ribbed Black seed belt and a Black solid centre repeller tyre must be used.
Chicory (Endive) Raw or Coated	-	Thin Plastic	9.0	A2	C	Black solid centre	60	Test seed for more accurate selection.
Courgette	-	Ribbed Rubber or Ribbed Black	38.0 to 49.0	P2	P	Black	60	Test seed for hole size.
Cucumber	-	Plain Rubber or Plain Black	23.0	A2	A	Black	60	
Leek Pelletted	2.00 - 2.50	Plain Rubber or Plain Black	9.5	A2	T	Black	60	
	2.25 - 2.75	Plain Rubber or Plain Black	11.0	Z2	A	Black	60	
	3.00 - 4.00	Ribbed Rubber or Ribbed Black	14.5	S2	A	Black	60	
Leek Raw or Coated	1.75 - 2.00	Thin Plastic	8.0	A2	T	Black solid centre	60	If number of doubles unacceptable increase unit speed to 75 rpm
	1.75 - 2.50	Plain Rubber or Plain Black	8.25	A2	T	Black solid centre	60	
Lettuce Pelletted	Mini-Pellet	Plain Rubber or Plain Black	-	A2	T	Black	-	Test seed.
	3.00 - 3.5	Ribbed Rubber or Ribbed Black	13.0	S2	A	Black	60	
	Split Pill	Ribbed Rubber or Ribbed Black	14.0	C2	A	Black	60	
	4.0 - 4.75	Ribbed Rubber or Ribbed Black	16.0	C2	A	Black	60	
Lettuce Raw * - see page 17	-	Thin Plastic	9.5 or 10.0	A2	T	Black solid centre	75	2 or 3 seeds per hole.
Mustard White or Yellow	-	Plain Rubber or Plain Black	10.0	G2	T	Black solid centre	60	
Millet	-	Plain Rubber or Plain Black	12.0	F2	T	Black solid centre	60	
Onion Pelletted	2.75 - 3.25	Plain Rubber or Plain Black	11.5	Z2	A	Black	60	
	3.00 - 3.50	Ribbed Rubber or Ribbed Black	13.0	S2	A	Black	60	
	3.50 - 4.00	Ribbed Rubber or Ribbed Black	14.5	S2	A	Black	60	
	3.00 - 4.50	Ribbed Rubber or Ribbed Black	15.0	B2	A	Black	60	
Onion Raw	2.25 - 2.5	Plain Rubber or Plain Black	10.0	A2	T	Black solid centre	60	
Parsnip Pelletted	4.00 - 4.75	Ribbed Rubber or Ribbed Black	16.0	C2	A	Black	60	
	4.50 - 5.00	Ribbed Rubber or Ribbed Black	17.0	C2	A	Black	60	
	4.75 - 6.00	Ribbed Rubber or Ribbed Black	18.0	C2	X	Black	60	
	Over 6.00	Ribbed Rubber or Ribbed Black	20.0	M2	X	Black	60	
Parsnip Raw * - see page 17	4.25 - 4.50	Thin Plastic	17.0	A2	A	Black solid centre	60	2 seeds per hole.
	4.50 - 5.50	Thin Plastic	20.0	A2	A	Black solid centre	60	

Seeds vary: the above settings are a guide only.

SEED SETTING GUIDE - HERBS

Seed	Seed Belt	Hole Size	Spring Base	Choke	Repeller tyre
Anise	Thin Plastic	9.0	A2	T	Black solid centre
Balm	Thin Plastic	7.5	A2	T	Black solid centre
Basil	Thin Plastic	7.5	A2	C	Black solid centre
Bush Basil	Thin Plastic	8.0	A2	T	Black solid centre
Borage	RibbedRubber	16.5	B2	X	Black
Caraway	Plain Rubber	16.0	A2	A	Black
Chervil	Thin Plastic	15.0	A2	A	Black solid centre
Chives	Thin Plastic	8.5	A2	C	Black solid centre
Coriander	Ribbed Rubber	15.5	HC2	A	Black
Cumin	Plain Rubber	15.0	A2	A	Black
Dill	Thin Plastic	10.5	A2	T	Black solid centre
Fennel	Plain Rubber	15-17	A2	A	Black solid centre
Fenugreek	Plain Black	14.0	Z2	A	Black
Garlic Chives	Ribbed Rubber	14.0	B2	A	Black
Marjoram	Thin Plastic	4.5	A2	C	Black solid centre
Parsley	Thin Plastic	8-11	A2	T	Black solid centre
Poppy	Thin Plastic	6.0	A2	C	Black solid centre
Rosemary	Thin Plastic	7.5	A2	T	Black solid centre
Sage	Plain Rubber	9.5	A2	T	Black
Salad Burnet	Ribbed Rubber	14.0	B2	A	Black
Sorrel	Thin Plastic	5.0	A2	C	Black solid centre
Summer Savory	Thin Plastic	4.0	A2	C	Black solid centre
Sweet Fennel	Plain Rubber	14.5	A2	T	Black
Thyme	Thin Plastic	4.5	A2	C	Black solid centre
Wild Celery	Thin Plastic	6.0	A2	C	Black solid centre

SEED SETTING GUIDE - GENERAL

Seed	Grade	Seed Belt	Hole Size	Spring Base	Choke	Repeller Tyre	Unit rpm	Remarks
Peas	-	Ribbed Rubber or Ribbed Black	25.0 to 36.0	P2 or T2	P	Black	60	Test seed for hole size
Radish	2.25 - 2.50	Plain Rubber or Plain Black	10.5	A2	T	Black	60	
	2.50 - 2.75	Plain Rubber or Plain Black	11.0	Z2	T	Black	60	
	2.75 - 3.00	Plain Rubber or Plain Black	12.0	Z2	T	Black	60	
	Under 3.00	Plain Rubber or Plain Black	12.0	Z2	T	Black	60	
	Over 3.00	Plain Rubber or Plain Black	13.0	Z2	T	Black	60	
Sorghum	-	Ribbed Rubber or Ribbed Black	15.5	B2	A	Black	60	
Soya Bean	-	Ribbed Rubber or Ribbed Black	26.0	D2	X	Black	60	
Swede	1.75 - 2.00	Plain Rubber or Plain Black	8.0	A2	T	Black or Black solid centre	60	If not powder dressed, add French Chalk.
Sweet Corn	-	Ribbed Rubber or Ribbed Black	28.0 to 40.0	P2 or T2	P	Black	60	Test seed for hole size.
Tomato * see below	-	Thin Plastic	12.5	A2	A	Black solid centre	60	2-4 seeds per hole
Turnip	1.50 - 1.75	Plain Rubber or Plain Black	7.0	A2	T	Black or Black solid centre	60	

*

Note: Raw Lettuce, Carrot, Parsnip, Swede and Tomato seed.
If these seeds do not have a powder dressing, mix one part of French Chalk to every sixteen parts of seed by weight. This assists circulation of the seed and stops it picking up on the repeller wheel tyre.

Seeds vary: the above settings are a guide only.

SEED SETTING GUIDE - NATURAL FLOWER SEED

Seed	Seed Belt	Hole Size	Spring Base	Choke	Repeller Tyre
Agrostis Nebulos	Thin Plastic	5.0	A2	C	Black solid centre
Amaranthus gangeticus	Thin Plastic	4.5	A2	C	Black solid centre
Amaranthus lividus	Thin Plastic	4.5	A2	C	Black solid centre
Amaranthus paniculatus	Thin Plastic	4.5	A2	C	Black solid centre
Ambrosinia	Thin Plastic	4.0	A2	C	Black solid centre
Ammi Majus	Thin Plastic	7.5	A2	T	Black solid centre
Ammobium alarum	Thin Plastic	11.0	A2	T	Black solid centre
Anemone 1-2 cm	Ribbed Rubber	32.0	D2	P or nil	Black
Anemone 2-3 cm	Ribbed Rubber	38.0	U2	nil	Black
Anemone 3-4 cm	Ribbed Rubber	49.0	V2	nil	Black
Antirrhinum	Thin Plastic	4.0	A2	C	Black solid centre
Aster	Thin Plastic	13.0	A2	T	Black solid centre
Aster Matsumoto	Plain Rubber	10.0	A2	T	Black
Atriplex Hortensis	Thin Plastic	10.0	A2	T	Black solid centre
Bells of Ireland	Plain Rubber	14.0	A2	A	Black
Briza Maxima	Ribbed Rubber	24.0	M2	P	Black
Briza Minor	Plain Rubber	10.0	A2	T	Black
Bupleurum	Thin Plastic	10.0	A2	T	Black solid centre
Calendula	Plain Rubber	26.0	A2	X	Black
Canary Paniset Macrocheta	Thin Plastic	8.0	A2	C	Black solid centre
Carthanus	Ribbed Rubber	22.0	C2	X	Black
Chrysanthemum	Plain Rubber	13.5	A2	T	Black
Clarkia	Thin Plastic	6.0	A2	T	Black solid centre
Clary	Plain Rubber	9.0	A2	T	Black
Cornflower	Ribbed Rubber	14.0	S2	A	Black
Delphinium	Plain Rubber	10.0	A2	T	Black
Ergrostis	Thin Plastic	7.5	A2	C	Black solid centre
Freesia	Plain Rubber	12.5	Z2	A	Black
Genopodium Cristata	Thin Plastic	8.0	A2	T	Black solid centre
Godetia	Thin Plastic	5 or 6.0	A2	C	Black solid centre
Gypsophila	Thin Plastic	7.0	A2	C	Black solid centre
Helicrysum	Thin Plastic	9.5	A2	T	Black solid centre
Heliophila	Thin Plastic	7.5	A2	C	Black solid centre

SEED SETTING GUIDE 985 DRILLS - NATURAL FLOWER SEED

Seed	Seed Belt	Hole Size	Spring Base	Choke	Repeller Tyre
Larkspur	Plain Black	8.5	A2	T	Black
Lavatera	Plain Black	11.0	A2	T	Black
Lepidium Ruderale	Thin Plastic	5.0	A2	C	Black solid centre
Lepidium Satinum	Thin Plastic	9.0	A2	C	Black solid centre
Lepidium Bossige	Thin Plastic	7.0	A2	C	Black solid centre
Limonium Suworowii (Pink Pokers)	Thin Plastic	4.0	A2	C	Black solid centre
Lonas Inodora	Thin Plastic	5.0	A2	C	Black solid centre
Lonas	Thin Plastic	6.0	A2	C	Black solid centre
Lupin	Ribbed Rubber	24.0	D2	B	Black
Matricoria	Thin Plastic	6.0	A2	C	Black solid centre
Molucella	Plain Rubber	12.0	A2	T	Black
Mysotis	Thin Plastic	4.5	A2	C	Black solid centre
Nigella	Plain Rubber	9.5	A2	T	Black
Pansy	Thin Plastic	7.0	A2	C	Black solid centre
Phalaris (Canary Grass)	Thin Plastic	12.0	A2	T	Black solid centre
Phleum Pratense Timothee	Thin Plastic	6.0	A2	C	Black solid centre
Phlox	Plain Rubber	9.5	A2	T	Black
Phlox Drummondii	Plain Rubber	10.0	A2	T	Black
Polypogon	Thin Plastic	4.0	A2	C	Black solid centre
Poppy	Thin Plastic	5 or 6.0	A2	C	Black solid centre
Pyrethrum	Thin Plastic	13.0	A2	T	Black solid centre
Saponaria	Thin Plastic	12.5	A2	T	Black solid centre
Saponaria Vaccaria	Plain Rubber	13.0	A2	T	Black
Scabiosa	Ribbed Rubber	24.0	C2	X	Black
Setaria Italica	Thin Plastic	8.5	A2	T	Black solid centre
Silene	Thin Plastic	6.0	A2	C	Black solid centre
Sorghum Nigrum	Plain Black	14.0	Z2		Black
Statice	Thin Plastic	11.5	A2	T	Black solid centre
Statice Suworowii	Thin Plastic	4.5	A2	C	Black solid centre
Stock	Thin Plastic	11.0	A2	T	Black solid centre
Sunflower *	Ribbed Rubber	26 - 36.0	D or M2	P	Black
Sweet William	Thin Plastic	7.5	A2	C	Black solid centre
Triticum Durum	Ribbed Rubber	20.0	S2	A	Black
Wallflower *	Thin Plastic	7.5-10	A2	A	Black solid centre
Xeranthemum **	Thin Plastic	14.0	A2	A	Black solid centre

* Samples of seed required ** Mix with French Chalk.

SPRING BASE LIST

Base	Part No:	Description
A2	2810017	Plain - No Grooves.
B2 Single Groove B2 Triple Groove	2810018 2810046	5.0mm wide, 2.4mm deep, flat bottom. Vee groove, whole length of base. Slight radius at each end of groove
C2 Single Groove C2 Triple Groove	2810019 2810047	6.4mm dia. 2.4mm deep groove whole length of base. Slight radius at each end of groove.
D2 Single Groove D2 Double Groove	2810020 2810097	9.5mm wide, 3.2mm deep groove whole length of base. Outlet end cut back 5.6mm.
E2 Single Groove E2 Triple Groove	2810021 2810048	6.4mm dia. 1.2mm deep groove whole length of base. Slight radius at each end of groove.
F2 Single Groove F2 Triple Groove	2810022 2810049	4.8mm dia. 0.8mm deep groove at outlet, tapering to nothing over 38mm length. Slight radius at outlet.
G2 Single Groove G2 Double Groove G2 Triple Groove	2810023 2810042 2810050	4.8mm dia. 1.6mm deep groove at outlet tapering to nothing over 29mm length. Slight radius at outlet.
J2 Single Groove	2810024	19.1mm dia. 6.4mm deep groove whole length of base. Outlet end cut back 25.4mm at 19.1 dia. Thick base.
K2 Single Groove	2810025	19.4mm wide, 3.2mm deep groove whole length of base. Outlet end cut back 12.7mm. Thick base.
L2 Single Groove	2810026	19.4mm wide, 3.2mm deep groove whole length of base. Outlet end cut back 17.5mm. Thick base.
M2 Single Groove M2 Double Groove	2810027 2810043	9.5mm wide, 2.4mm deep groove whole length of base. Slight radius at each end of groove.
N2 Single Groove N2 Double Groove	2810028 2810210	9.5mm dia. 4.8mm deep groove whole length of base. Slight radius at each end of groove. Thick base.
P2 Single Groove	2810029	14.3mm wide, 3.2mm deep groove whole length of base. Outlet end cut back 9.5mm.
Q2 Single Groove	2810030	15.9mm wide, 3.2mm deep groove whole length of base. Outlet end cut back 12.7mm.
R2 Single Groove	2810031	17.5mm wide groove tapering to nothing over 57.2mm. Outlet end cut back 12.7mm. Thick base.
S2 Triple Groove	2810051	4.8mm dia., 1.6mm deep groove whole length of base. Slight radius at each end of groove.
T2 Single Groove	2810033	12.7mm dia.,5.6mm deep groove whole length of base. Outlet end cut back 6.4mm at 12.7mm dia. Thick base.
U2 Single Groove	2810034	12.7mm dia., 6.4mm deep groove whole length of base. Outlet end cut back 6.4mm at 12.7mm dia. Thick base.
V2 Single Groove	2810035	19.1mm dia., 6.4mm deep groove whole length of base. Outlet end cut back 15.9mm at 19.1mm dia. Thick base.
W2 Double Groove	2810044	4.8mm dia., 1.6mm deep groove at outlet, tapering to nothing over 22.2mm length.
X2 Single Groove	2810036	14.3mm wide, 3.2mm deep groove whole length of base. Slight radius at outlet end of groove. Thick base.
Y2 Single Groove	2810037	15.9mm wide, 4.0mm deep groove whole length of base. Slight radius at outlet end of groove. Thick base.
Z2 Triple Groove	2810052	4.8mm dia., 0.8mm deep groove whole length of base. Slight radius at each end of groove.
FC2 Single Groove FC2 Triple Groove	2810039 2810164	6.4mm dia., 3.2mm deep groove whole length of base. Slight radius at each end of groove.
HC2 Single Groove HC2 Triple Groove	2810040 2810135	5.3mm dia. groove, 3.2mm deep at entry, tapering to 1.9mm deep at outlet end.
YC2 Single Groove YC2 Triple Groove	2810041 2810099	7.0mm dia., 4.3mm deep groove whole length of base. Slight radius at each end of groove. Thick base.