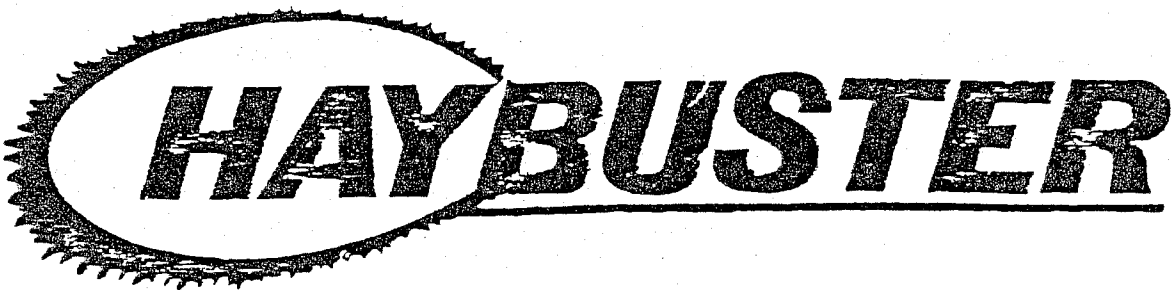


GRASS SEED HANDBOOK

0500099

The 107 is a very versatile seeding drill. The base drill is capable of accurately metering most common seeds and fertilizer. The seed will be placed at the correct depth in conventional and minimum tillage and most zero-tillage situations. Through the use of special attachments, the 107 drill can be used for seeding of various types of grass seeds including small-seed legumes and chaffy native grasses. When grass seeding is complete, the same drill is capable of seeding and fertilizing your conventional crops.

The following attachments are available for grass seeding:

Legume box
Single agitator
Double agitator
2 inch I.D. seed tubes
Depth bands

PURE LIVE SEED CALCULATIONS

Any sample of bulk seed always has a certain percentage of non-viable seed and inert matter. In cereal grains, this percentage is quite small and can usually be ignored when determining seeding rates. Grass seeds can have a very high percentage of dormant and non-viable seed, and inert matter. These high percentages must be considered when determing grass seeding rates.

For example: You wish to plant Big Bluestem at a rate of 12 pounds of pure live seed (pls) per acre.

A typical grass seed tag might appear as follows:

BIG BLUESTEM

Weed seed.....	0.10%	Lot No.....83101
Noxious weed seed..	0.00%	Germ.....52.0%
Other crops.....	0.05%	Date of test...3-86
Inert matter.....40.05%		Grown.....Kansas

STEP 1. Determine the total percentage of inert matter from the seed tag.

Weed seed	0.10%
Noxious weed seed	0.00%
Other crops	0.05%
Inert matter	40.05%
	40.20%

STEP 2. Subtract the percentage of inert matter from 100% to find pure seed percentage.

$$\begin{array}{r} 100.00\% \\ 40.20\% \\ \hline 59.80\% \end{array}$$

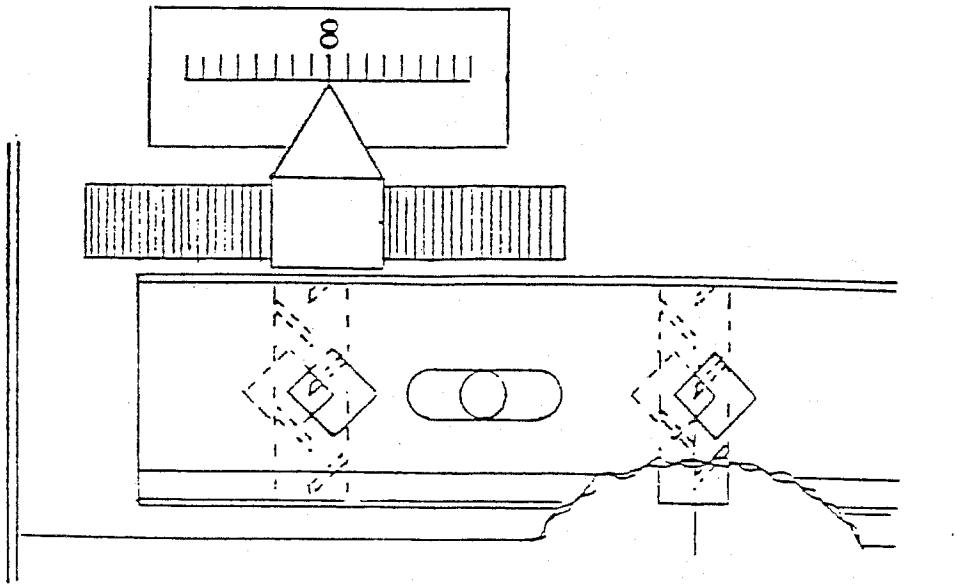
STEP 3. Divide the pounds of pure live seed desired by the percent pure seed.

$$\frac{12 \text{ lbs pls}}{0.5980} = 20.07 \text{ lbs pure seed}$$

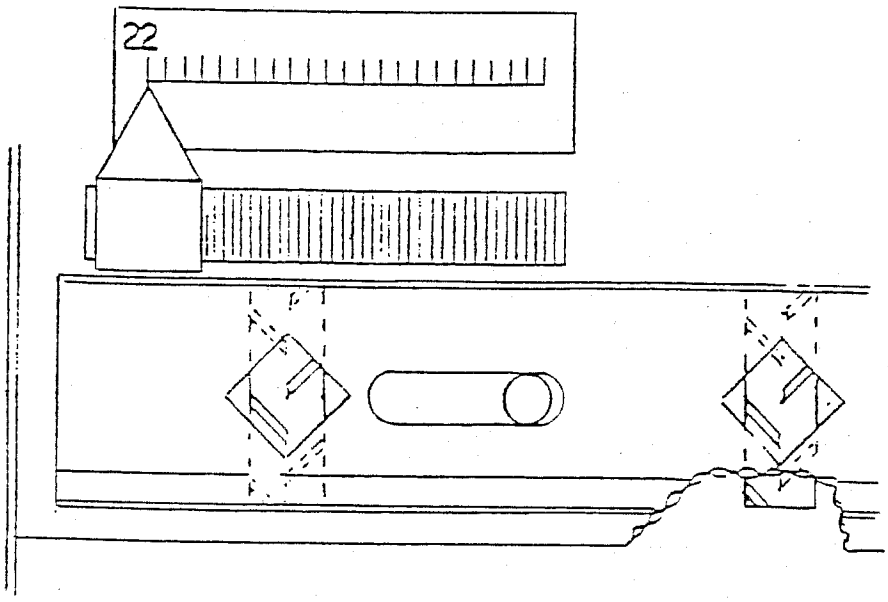
STEP 4. Divide pounds of pure seed by the germination percentage to get bulk seed.

$$\frac{20.07}{0.52} = 38.6 \text{ lbs. of bulk seed}$$

So 38.6 lbs. of bulk seed per acre must be sown to get 12 lbs. of pure live seed per acre.



For most seeding, the feed wheel should be aligned as shown above. Set the pointer on number 8. The center of the feed wheel should be centered in the opening as viewed from outside of the box.



When seeding the grasses listed on page 15, move the feed wheel as shown above. Set the pointer on number 22, The center of the feed wheel should be centered in the opening as viewed from outside of the box. Generally, a small screwdriver or similar tool may be inserted through the opening into the tank and used to push the wheel into position. The agitator blades inside the drill box may need to be re-centered over the feed wheels to prevent interference.

FEED WHEEL SPACE ADJUSTMENT

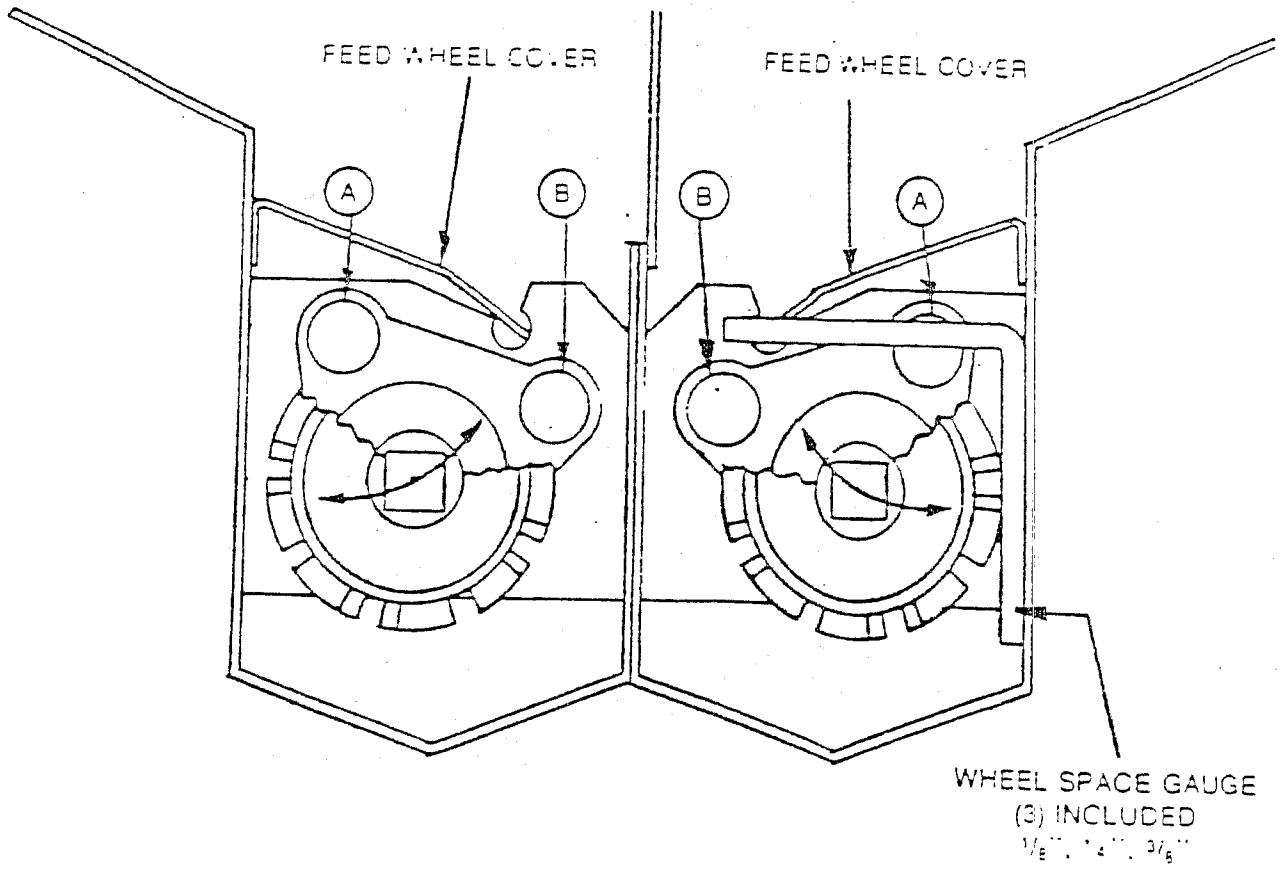
SERIAL NO. 553 THRU

:rge seeds require more space between feed wheel lugs and tank wall than small seeds to prevent cracking. Sm all :eds require less space to provide an even flow. Therefore each seed listed in the feed rate chart shows a required :heel space.

See Illustration Below

:move feed wheel covers. Loosen bolts A and B. Insert gauge required and retighten bolts. Recheck for accuracy : sure to replace feed wheel cover before f ng tank.

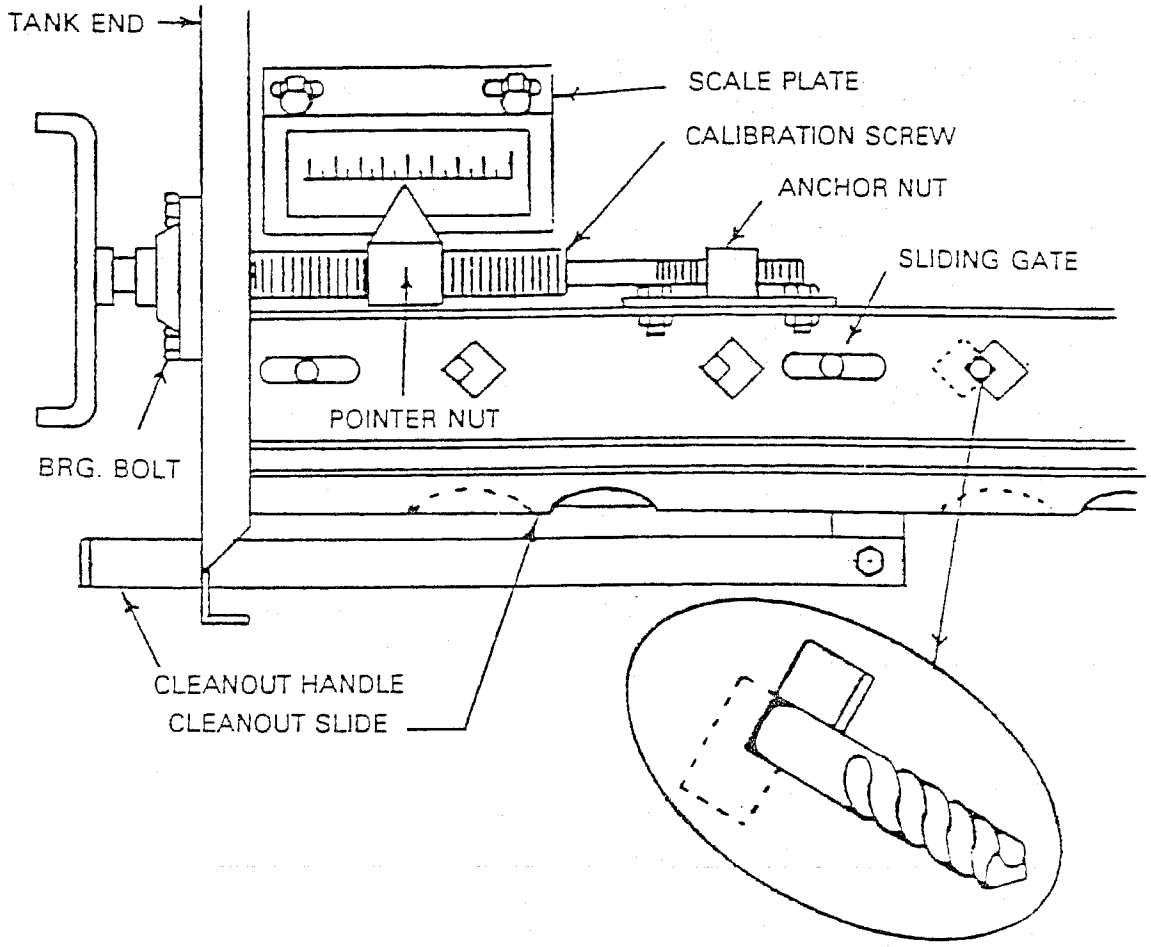
:rtilizer requires only the 1/8 setting.



100 DRILL CLEANOUT SLIDES

SERIAL NO. 900 THRU

Cleanout slides are provided on both grain and fertilizer tanks. Handles for opening and closing the slides are located on the left side of the drill.



CALIBRATION POINTER ADJUSTMENT

SERIAL NO. 201 THRU

Grain and fertilizer sliding gates are preadjusted at the factory. In the event any part of the calibrating mechanism is removed or replaced, it can be recalibrated in this order:

Step 1 — Place both pointer nut and anchor nut in the center of their respective thread.

Step 2 — Insert a short length of 7/16" rod or the shank end of a 7/16" drill bit into the square hole in sliding gate as shown.

Step 3 — Tighten bearing bolts securing calibration screw to end of tank.

Step 4 — Tighten bolts securing anchor nut to sliding gate.

Step 5 — Place scale plate on tank so number 8 is directly in line with tip of pointer. This will ensure pointer setting to coincide with chart. Scale plate must be parallel with calibration screw to allow pointer to operate smoothly along plate.

100 Drill

SETTING AND CHECKING FEED RATE

The rates shown on the charts serve only as a starting point. Due to variations in material size and density the rates may vary from the chart. The following method may be used to determine a proper setting for your particular seed or fertilizer.

Setting And Checking Feed Rate Using Wheat As An Example:

1. You want to seed wheat at a rate of 95 lbs per acre on 7" spacing.
2. Seed rate chart calls for a wheel space of ⅛" (page 11). Pointer set on 8 (page 14). This adjustment should be made before filling grain tank.
3. Make sure feed wheel cover is in place. Put grain in tank.
4. Seed far enough so you can visually check grain flowing into seed cups.

CHECKING FEED RATE

1. Meaure a distance of 415' (1/10 acre) 7" spacing and mark - 435' (1/10 acre) 10" spacing or paired row and mark. Remove one hose from seed hopper on each drill. Attach a container (cloth or plastic bag) to hopper to collect seed.
2. Operate drill at intended planting speed through entire length of test track.
3. Weigh the sample in ounces (less weight of sample container). Use the following formula to determine lbs./acre for your particular shank spacing.

   I 7" Spacing - oz. x 11.25 = lbs./acre
   II 10" Spacing - oz. x 7.5 = lbs./acre

EXAMPLE

Sample and container weighs	9.9 ounces
Container weighs	- 1.5 ounces
Weight of sample only	8.4 ounces

4. Use formula No. I to figure pounds per acre.

   8.4 ounces x 11.25 = 94.5 pounds per acre

5. To calibrate a seed not shown on the chart or a mix of different seeds, compare to a similar charted seed to obtain a trial setting. Recalibrate as necessary.

6. The same method may be used to determine fertilizer rates.

Many grasses can be metered through the standard seed box with no additional equipment. However, some of the grasses listed below can be metered more accurately by using some of the special attachments listed on the following pages.

*Alfalfa

*Alsike clover

@Alti wildrye

*Bahiagrass

*Birdsfoot trefoil

@Bromegrass

Buffalograss

Fescue

Green needlegrass

@Intermediate wheatgrass

*Kentucky bluegrass

@Killdeer sideoats

*Ladino clover

*Lespedeza (unhulled)

*Lovegrass

Orchard grass

@Pubescent wheatgrass

Ryegrass

*Red clover

*Red top

*Reed canarygrass

*Serecia (unhulled)

*Sweet clover

*Switchgrass

@Streambank wheatgrass

*Timothy

@Tall wheatgrass

@Western wheatgrass

* See legume box section, page 11.
@ See single agitator section, page 13.

HAYBUSTER

SPACING 7 INCH

CHART FOR DRILLING GRASS IN POUNDS PER ACRE

POINTER SETTING

WHEEL SPACE			3		4		5		6		7		8		9		10		11		12		13		14		15		16
BAHIA GRASS	1/8	2.5	5.5	10.3	16.1	19.5	24.6	34.2	44.5	53.7	63.9	77.7	89.9	102	115	131	145												
BUFFALO GRASS *	1/8						2.5	3.8	5.3	6.7	8.6	10.9	13.9	16.0	18.8	21.7	26.1		34.0		42.7		54.8		65.8		73.4		
FESCUE	1/8						4.5	6.3	8.1	11.7	14.4	18.9	22.9	27.4	32.0	36.4	42.2	49.4	56.6	66.5	75.9								
GREEN NEEDLEGRASS *	1/8			3.6	4.8	6.8	9.3	12.1	14.7	17.7	20.7	24.5	28.5	31.3	34.7	40.0	43.7	50.3	54.8	60.9	69.3							
ORCHARD GRASS	1/8						1.3	2.0	2.7	4.1	5.4	7.2	9.0	11.3	13.5	16.7	19.8	22.7	25.6	30.1	34.6	40.2	45.8						
RYEGRASS	1/8				3.1	4.5	6.7	9.4	13.5	16.6	21.1	27.0	33.7	37.7	45.4	53.0	61.1												

* FEED COVER OFF

HAYBUSTER

SPACING 10 INCH

CHART FOR DRILLING GRASS IN POUNDS PER ACRE

POINTER SETTING

WHEEL SPACE			3		4		5		6		7		8		9		10		11		12		13		14		15		16
BAHIA GRASS	1/8	1.8	3.9	7.2	11.3	13.7	17.2	23.9	31.2	37.6	44.7	54.4	62.9	71.4	80.5	91.7	102												
BUFFALO GRASS *	1/8						1.8	2.7	3.7	4.7	6.0	7.6	9.7	11.2	13.2	15.2	18.3		23.8		29.9		38.4		46.1		51.4		
FESCUE	1/8						3.2	4.4	5.7	8.2	10.1	13.2	16.0	19.2	22.4	25.5	29.5	34.6	39.6	46.6	53.1								
GREEN NEEDLEGRASS *	1/8			2.5	3.4	4.8	6.5	8.5	10.3	12.4	14.5	17.2	20.0	21.9	24.3	28.0	30.6	35.2	38.4	42.6	48.5							
ORCHARD GRASS	1/8						0.9	1.4	1.9	2.9	3.8	5.0	6.3	7.9	9.5	11.7	13.9	15.9	17.9	21.1	24.2	28.1	32.1						
RYEGRASS	1/8				2.2	3.2	4.7	6.6	9.5	11.6	14.8	18.9	23.6	26.4	31.8	37.1	42.8												

* FEED COVER OFF

HAYBUSTER

CHART FOR DRILLING GRASS IN POUNDS PER ACRE

SPACING - 7 INCH

POINTER SETTING

WHEEL SPACE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
ALFALFA	1/8	0.4	1.3	3.6	8.1	13.9	19.8	27.0	35.5	48.5	57.5	71.1	85.8		
KENTUCKY BLUEGRASS	1/8			0.7	1.6	2.9	4.4	6.3	8.8	12.1	16.1	20.4	25.1	30.8	37.5	44.1	50.0	57.3	65.2
LADINO CLOVER	1/8		1.0	3.4	8.1	15.5	25.0	35.2	46.4	59.8									
LESPEDEZA (KOREAN)	1/8			1.1	4.7	8.3	12.4	17.3	23.6	31.3	39.8	49.2							
LOVEGRASS	1/8	1.0	3.4	8.3	15.5	23.4	33.5	44.5	57.5										
RED CLOVER	1/8		1.3	4.3	9.5	16.4	24.3	32.8	43.4										
RED TOP	1/8			0.9	1.9	3.5	5.5	7.6	10.5	14.8	20.1	25.8	31.6	38.3	46.2	54.1	60.9	69.7	82.6
REED CANARYGRASS	1/8				0.9	2.3	3.8	5.5	7.9	10.9	14.0	17.2	20.6	24.8	29.4	33.9	39.1	44.7	50.6
SERECIA (UNHULLED)	1/8			1.0	2.7	4.7	7.4	10.6	14.1	19.0	25.0	30.8	37.1	45.2	54.2				
SWEET CLOVER	1/8		2.7	7.2	14.4	23.4	33.5	44.5	58.9	77.3	97.5								
SWITCHGRASS	1/8		0.9	2.7	7.2	12.1	17.5	24.3	34.1										
TIMOTHY	1/8	0.9	3.6	8.5	15.3	22.9	30.6	39.5	53.0										

HAYBUSTER

CHART FOR DRILLING GRASS IN POUNDS PER ACRE

SPACING 10 INCH

POINTER SETTING

WHEEL SPACE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
ALFALFA	1/8	0.3	0.9	2.6	5.7	9.7	13.9	18.9	24.9	34.0	40.3	49.8	60.1		
KENTUCKY BLUEGRASS	1/8			0.5	1.1	2.0	3.1	4.4	6.2	8.5	11.3	14.3	17.6	21.6	26.3	30.9	35.1	40.2	45.7
LADINO CLOVER	1/8	0.3	2.4	5.6	10.9	17.5	24.8	32.5	41.9										
LESPEDEZA (KOREAN)	1/8			1.0	3.6	6.1	8.7	12.1	16.5	21.9	27.9	34.5							
LOVEGRASS	1/8	0.7	2.4	5.8	10.9	16.4	23.5	31.2	40.3										
RED CLOVER	1/8		2.3	3.0	6.6	11.5	17.0	23.0	30.4										
RED TOP	1/8			0.6	1.3	2.5	3.9	5.4	7.3	10.4	14.1	18.1	22.1	26.8	32.3	37.9	42.6	49.1	57.9
REED CANARYGRASS	1/8				0.9	1.6	2.6	3.9	5.5	7.6	9.8	12.1	14.4	17.3	20.1	23.6	27.4	31.3	35.4
SERECIA (UNHULLED)	1/8			0.7	1.9	3.3	5.2	7.4	9.9	13.6	17.7	21.6	26.0	31.6	37.9				
SWEET CLOVER	1/8	0.5	2.5	5.6	10.1	16.4	23.4	31.1	41.2	54.1	68.3								
SWITCHGRASS	1/8		0.6	1.9	5.0	8.5	12.3	17.0	23.9										
TIMOTHY	1/8	0.6	2.5	6.0	10.7	16.0	21.4	27.7	37.1										

The legume box attachment is designed to accurately meter the small seeds listed below. The box may be bolted to any 107 drill after Serial No. 200. (Some modification of seed tube attachment is necessary on drills prior to Serial No. 553.)

Alfalfa

Alsike clover

Bahia grass

Birdsfoot trefoil

Fescue

Kentucky bluegrass

Ladino clover

Lespedeza (Korean)

Lovegrass

Orchard grass

Red clover

Red top

Reed canarygrass

Rye grass

Serecia (unhulled)

Sweet clover

Switchgrass

Tibbet clover

Timothy

Vetch

HAYBUSTER

CHART FOR DRILLING LEGUMES AND SMALL GRASSES IN POUNDS PER ACRE

LEGUME BOX ATTACHMENT FOR 107 OR 1000 DRILL ON 7 INCH SPACING

NOTCHES ON INDEX	LBS/BU	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
ALFALFA, RED, ALSIKE, LADINO CLOVER, VETCH	60	2.2	4.7	7.7	10.7	13.6	17.0	20.4	23.9	27.3	30.9	34.7	37.9	41.3	44.7	47.8	50.8
SWEET CLOVER	60	2.3	5.1	8.4	12.4	17.4	22.8	28.4	30.9	37.1	41.6	46.7	51.2	56.3	59.6	63.0	66.4
BIRDSFOOT TREFOIL	60	2.3	4.5	7.9	10.7	14.1	17.4	21.4	25.3	28.1	32.1	36.0	39.4	42.2	46.7	50.1	55.1
MILLET, TIMOTHY, CLOVER	60	2.1	4.9	7.7	10.7	14.3	17.4	21.2	25.1	28.5	30.9	35.8	39.4	42.6	46.7	51.0	55.9
UNHULLED SERICEA	36	1.1	2.8	4.5	6.6	9.6	11.8	14.8	17.4	20.3	23.1	26.4	28.7	31.5	33.8	36.0	40.5
UNHULLED LESPEDEZA	46	1.7	3.9	5.6	8.4	11.6	15.3	18.0	21.9	25.3	28.7	32.0	35.4	38.3	41.6	45.0	50.1
RAMAGRASS	48	1.1	2.8	5.3	8.2	8.6	10.7	11.8	14.8	16.9	18.6	20.8	22.5	24.7	25.9	27.6	29.1
LOVEGRASS	44	2.3	5.1	7.9	11.3	14.3	20.3	24.3	28.7	32.6	36.4	42.2	46.7	51.7	56.1	57.6	60.3

	LBS/BU	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
TIMOTHY	50	1.7	3.9	6.2	8.8	12.8	16.9	20.9	24.8	28.1	32.8	37.1	40.5	44.4	48.7	49.5	54.6
SWITCHGRASS	55	2.3	4.5	6.8	9.6	12.4	15.8	18.6	20.8	24.2	28.1	30.8	33.6	37.1	38.9	42.3	47.9
FLAX SESAME	55	1.4	3.7	6.2	8.7	11.8	14.7	17.5	20.8	23.1	26.5	29.6	32.4	36.5	37.6	40.5	44.5
RAPE MUSTARD	53	1.7	4.2	7.4	10.2	12.9	16.4	19.2	22.5	25.9	28.3	31.6	34.9	37.7	40.8	43.3	48.9
ORCHARD GRASS	17		0.8	1.7	2.8	3.4	3.9	6.1	5.6	6.6	7.3	8.4	9.0	10.1	10.7	11.3	11.9
PERENNIAL RYEGRASS	31		2.3	3.4	5.0	7.3	9.0	10.7	11.8	13.8	15.3	16.9	18.6	20.8	21.9	23.1	24.8
FESCUE	27		1.1	2.8	3.9	5.8	8.9	8.4	9.8	11.3	12.4	13.3	15.2	16.9	18.0	19.1	21.9

SEED MIXTURES

SELECT THE SETTING FOR THE DESIRED QUANTITY OF EACH SEED

ADD INDIVIDUAL SETTINGS

EXAMPLE:

	LBS./ACRE	NOTCH
ALFALFA	6	2
SWEET CLOVER	8	3
TIMOTHY	2	1
TOTAL		6

WHEN USING HALF SPEED DRIVE DIVIDE CHARTED RATES BY TWO REPLACE 17 TOOTH SPROCKET ON COUNTERSHAFT WITH 35 TOOTH (SEE MANUAL FOR DETAILS)

DENSITY OF THE SAMPLES USED TO PREPARE THIS CHART ARE GIVEN IN THE FIRST COLUMN TO THE RIGHT OF THE CROP NAME IN POUNDS PER BUSHEL

HAYBUSTER

CHART FOR DRILLING LEGUMES AND SMALL GRASSES IN POUNDS PER ACRE

LEGUME BOX ATTACHMENT FOR 107 TO 1000 DRILL ON 10 INCH SPACING

NOTCHES ON INDEX	LBS/BU	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
ALFALFA, RED, ALSIKE, LADINO CLOVER, VETCH	60	1.5	3.3	5.4	7.5	9.8	11.9	14.3	16.7	19.1	21.6	24.2	26.5	28.9	31.3	33.3	35.4
SWEET CLOVER	60	1.6	3.5	5.9	8.7	12.2	15.8	19.8	21.7	26.0	29.2	32.7	36.0	39.4	41.8	44.1	46.5
BIRDSFOOT TREFOIL	60	1.6	3.2	5.5	7.5	9.8	12.3	15.0	17.7	19.7	22.5	25.2	27.6	29.0	32.7	35.1	38.6
MILLET, TIMOTHY, CLOVER	60	1.5	3.4	5.4	7.5	10.0	12.9	14.9	19.3	20.0	21.9	24.0	27.6	30.0	32.7	35.7	39.2
UNHULLED SERICEA	36	0.8	2.0	3.2	4.7	6.7	8.3	10.2	12.2	14.2	16.2	18.5	20.1	22.1	23.6	25.2	28.4
UNHULLED LESPEDEZA	46	1.7	3.9	5.9	5.9	8.3	10.6	12.8	15.4	17.7	20.1	22.0	24.8	26.8	29.2	31.5	35.1
RAMAGRASS	48	0.8	2.0	3.5	4.3	5.9	7.8	8.3	10.2	11.8	13.0	14.6	15.8	16.9	18.1	19.3	19.7
LOVEGRASS	44	1.6	3.5	5.5	7.9	11.4	14.2	16.9	20.1	22.0	25.6	29.6	32.7	35.9	35.6	40.6	42.2

	LBS/BU	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
TIMOTHY	50	1.2	2.8	4.3	6.2	9.1	11.8	14.8	17.3	19.7	23.0	26.0	28.4	31.1	33.7	34.7	38.2
SWITCHGRASS	55	1.6	3.2	4.7	6.7	8.7	11.0	13.0	14.8	16.9	19.7	21.7	23.0	26.0	28.0	29.8	33.1
FLAX SESAME	55	1.0	2.6	4.3	6.1	8.1	10.3	12.3	14.4	16.2	18.6	20.7	22.7	24.6	26.8	28.4	31.2
RAPE MUSTARD	53	1.2	2.9	5.2	7.1	9.0	11.5	13.4	15.9	17.8	19.8	22.3	24.4	26.4	28.6	30.3	33.2
ORCHARD GRASS	17		0.6	1.2	2.0	2.4	2.8	3.5	3.9	4.7	5.1	5.9	6.3	7.1	7.5	7.9	8.3
PERENNIAL RYEGRASS	31		1.6	2.4	3.9	5.1	6.3	7.5	8.3	9.5	10.8	11.8	13.0	14.6	15.4	16.3	17.3
FESCUE	27		0.8	2.0	2.8	3.9	4.7	5.9	6.7	7.9	8.7	9.5	10.6	11.8	12.8	13.4	15.4

SEED MIXTURES

SELECT THE SETTING FOR THE DESIRED QUANTITY OF EACH SEED

ADD INDIVIDUAL SETTINGS

EXAMPLE

	LBS./ACRE	NOTCH
ALFALFA	5	2
SWEET CLOVER	5	2
TIMOTHY	2	1
TOTAL		5

WHEN USING HALF SPEED DRIVE, DIVIDE CHARTED RATES BY TWO. REPLACE 17 TOOTH SPROCKET ON COUNTERSHAFT WITH 35 TOOTH

(SEE MANUAL FOR DETAILS).

DENSITY OF THE SAMPLES USED TO PREPARE THIS CHART ARE GIVEN IN THE FIRST COLUMN TO THE RIGHT OF THE CROP NAME IN POUNDS PER BUSHEL.

The addition of the single agitator to the standard drill box will prevent these seeds from bridging above the feed wheels. The single agitator may be added to all 107 drills after Serial No. 553. (Serial No. 553 to 899 require longer agitator shafts.)

Alti wildrye

Bromegrass #

Intermediate wheatgrass

Killdeer sideoats #

Pubescent wheatgrass

Streambank wheatgrass

Tall wheatgrass

Western wheatgrass

Extremely trashy samples may require the double agitator.

HAYBUSTER

SPACING 7 INCH

CHART FOR DRILLING GRASS IN POUNDS PER ACRE

3

POINTER SETTING

WHEEL SPACE		3	4	5	6	7	8	9	10	11	12	13	14	15	16
ALTA WILDRYE	1/8					3.1	5.7	7.6	12.7	18.5	27.1	36.2	46.4	47.4	49.8
BROMEGRASS $	1/8							3.6	5.3	7.5	10.2	13.6	16.5	20.0	20.7
INTERMEDIATE WHEATGRASS	1/8					5.8	8.1	12.1	19.3	28.3	35.0	49.8	55.2		
KILDEER SIDEOATS $	1/8					2.5	3.8	5.5	7.4	9.6	11.8	14.0	16.4	19.3	22.5
PUBESCENT WHEATGRASS	1/8					4.9	12.6	19.3	28.5	39.7	53.4	69.9	81.1	86.1	
STREAMBANK WHEATGRASS	1/8					2.9	4.5	7.1	10.3	13.4	20.0	27.2	33.4	35.1	
TALL WHEATGRASS	1/8					5.8	8.5	12.1	18.4	25.2	32.3	43.1	53.9		
WESTERN WHEATGRASS	1/8					2.7	4.4	7.3	10.8	15.3	19.9	25.0	30.4	35.5	39.8

$ DOUBLE AGITATOR MAY BE REQUIRED FOR EXTREMELY TRASHY SAMPLES

HAYBUSTER

SPACING 10 INCH

CHART FOR DRILLING GRASS IN POUNDS PER ACRE

3

POINTER SETTING

WHEEL SPACE		3	4	5	6	7	8	9	10	11	12	13	14	15	16
ALTA WILDRYE	1/8					2.2	4.0	5.3	8.9	13.0	19.0	25.3	32.5	33.2	34.9
BROMEGRASS $	1/8							2.5	3.7	5.3	7.1	9.5	11.6	14.0	14.5
INTERMEDIATE WHEATGRASS	1/8					4.1	5.7	8.5	13.5	19.8	24.5	34.9	38.6		
KILDEER SIDEOATS $	1/8					1.8	2.7	3.9	5.2	6.7	8.3	9.8	11.5	13.5	15.8
PUBESCENT WHEATGRASS	1/8					3.4	8.8	13.5	20.0	27.8	37.4	48.9	66.8	60.3	
STREAMBANK WHEATGRASS	1/8					2.0	3.2	5.0	7.2	9.4	14.0	19.0	23.4	24.6	
TALL WHEATGRASS	1/8					4.1	6.0	8.5	12.9	17.6	22.6	30.2	37.7		
WESTERN WHEATGRASS	1/8					1.9	3.1	5.1	7.6	10.7	13.9	17.5	21.3	24.9	27.9

$ DOUBLE AGITATOR MAY BE REQUIRED FOR EXTREMELY TRASHY SAMPLES

Warm season grasses tend to be very low bulk and are very trashy or chaffy in appearance. Special equipment required to properly meter these grasses is listed below.

Double agitator (top and bottom)

Larger opening in drill box (1 1/4 inch)

2 inch I.D. grass tube kit

Sprocket set (feed shaft speed adjustment)

Obtain the best quality seed available for best results. Trashier samples may need to be blended with heavier seed to improve metering capabilities. Center the feed wheels as shown on page 4. Be sure to check the feed rate as shown on page 7.

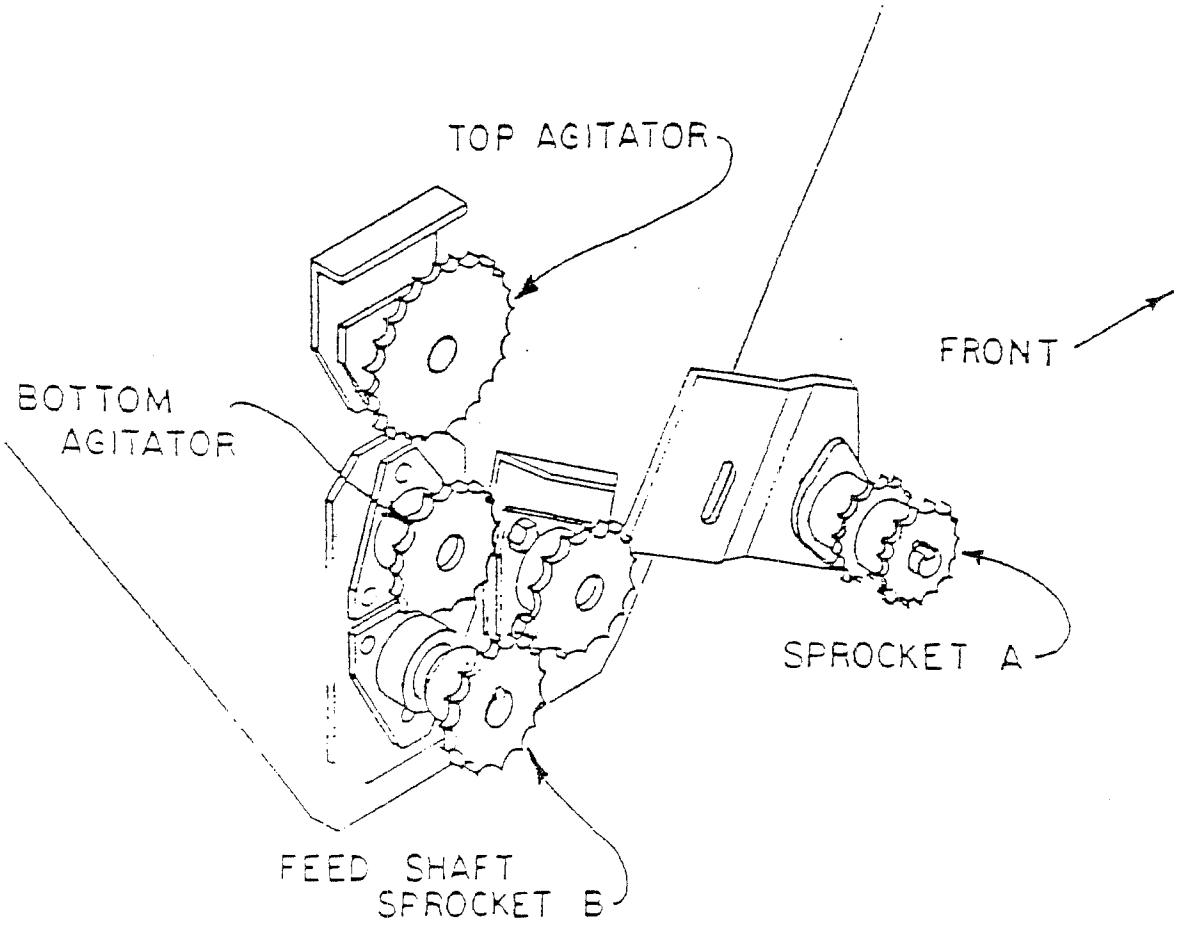
Blue grammagrass

Big bluestem

Indiangrass

Little bluestem

Prairie sandreed



To obtain the desired seeding rate of the chaffy native grasses it may be necessary to adjust the feed shaft speed. The charts on pages 17 and 18 list the possible sprocket combinations and relative speed in revolutions per acre. Use these charts as a guideline in choosing the correct sprocket combinations. On a standard drill box, Sprocket A has 14 teeth and Sprocket B has 18 teeth. There are a 12 tooth and 24 tooth sprocket included in the shipping kit for the native grass attachment.

HAYBUSTER

CHART FOR DRILLING GRASS IN POUNDS PER ACRE

SPACING 7 INCH

GRASS NAME	DENSITY	WHEEL SPACE	POINTER											
SPROCKET A				12	14	12	18	14	12	14	18	24	18	24	24
SPROCKET B				24	24	18	24	18	14	12	14	18	12	14	12
REV. PER ACRE				154	180	205	231	240	264	359	396	411	462	528	616
BLUE GRAMMA	9 LB/BU	1/8	14	6.8	7.9	9.3	10.1	10.6	11.8	14.8	15.8	17.4	19.3	23.3	25.3
			17	9.5	11.3	13.3	14.1	15.7	16.5	19.4	19.9	22.5	24.8	27.9	31.0
			22	11.3	12.5	13.5	15.3	17.0	18.8	19.9	20.5	21.1	24.5	28.5	31.1
BIG BLUESTEM	9	1/8	14	4.9	5.7	6.2	6.7	7.8	8.0	11.2	11.4	12.1	15.0	15.4	19.0
			17	9.3	10.8	12.5	12.6	17.4	19.0	24.2	25.5	26.0	29.4	33.3	34.1
			22	15.7	19.2	19.9	21.4	22.7	23.6	26.5	29.7	30.7	36.5	38.8	41.4
INDIANGRASS	13	1/8	14												
			17	9.2	10.9	11.5	13.8	14.5	14.6	15.5	20.4	21.2	22.3	23.2	26.4
			22	17.5	20.0	21.4	21.8	22.9	23.8	24.4	24.5	27.3	28.8	30.1	31.1
LITTLE BLUESTEM **	9	1/8	14												
			17												
			22	3.2	3.3	4.2	5.4	7.5	8.3	9.4	9.8	10.5	10.8	11.4	13.5
PRARIE SANDREED **	13	1/8	14												
			17												
			22	5.5	5.6	8.5	8.6	9.2	10.5	13.3	15.8	16.0	18.6	20.0	22.1
			14												
			17												
			22												

** FOR BEST RESULTS OBTAIN THE MOST TRASH-FREE SEED AVAILABLE

			17												
			22												

HAYBUSTER

CHART FOR DRILLING GRASS IN POUNDS PER ACRE

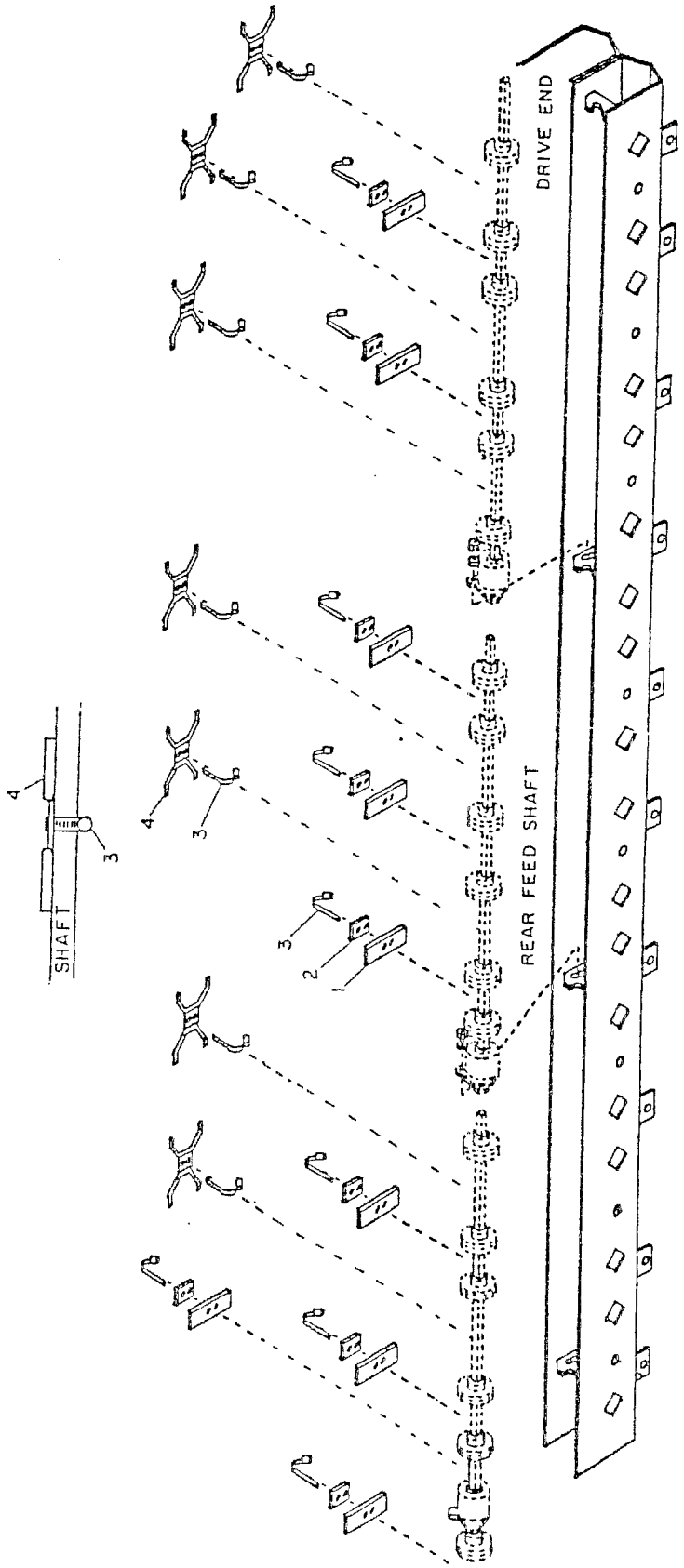
SPACING 10 INCH

GRASS NAME	DENSITY	WHEEL SPACE	POINTER	SPROCKET A	12	14	12	18	14	12	14	18	24	18	24	24
				SPROCKET B	24	24	18	24	18	14	12	14	18	12	14	12
				REV. PER ACRE	162	189	216	243	251	277	377	416	431	485	555	647
BLUE GRAMMA	9 LB/BU	1/8	14		4.8	5.5	6.5	7.1	7.4	8.3	10.4	11.1	12.2	13.5	16.3	17.7
			17		6.7	7.9	9.3	9.9	11.0	11.6	13.6	13.9	15.8	17.4	19.5	21.7
			22		7.9	8.8	9.5	10.7	11.9	13.2	13.9	14.4	14.8	17.2	20.0	21.8
BIG BLUESTEM	9	1/8	14		3.4	4.0	4.3	4.7	5.5	5.6	7.8	8.0	8.5	10.5	10.8	13.3
			17		6.5	7.6	8.8	8.8	12.2	13.3	16.9	17.9	18.2	20.6	23.3	23.9
			22		11.0	13.4	13.9	15.0	15.9	16.5	18.6	20.8	21.5	25.6	27.2	29.0
INDIANGRASS	13	1/8	14													
			17		6.4	7.6	8.1	9.7	10.2	10.2	10.9	14.3	14.8	15.6	16.2	18.5
			22		12.3	14.0	15.0	15.3	16.0	16.7	17.1	17.1	19.1	20.2	21.1	21.8
LITTLE BLUESTEM **	9	1/8	14													
			17													
			22		2.2	2.3	2.9	3.8	5.3	5.8	6.6	6.9	7.4	7.6	8.0	9.5
PRARIE SANDREED **	13	1/8	14													
			17													
			22		3.9	3.9	6.0	6.0	6.4	7.4	9.3	11.1	11.2	13.0	14.0	15.5
			14													
			17													
			22													

** FOR BEST RESULTS OBTAIN THE MOST TRASH-FREE SEED AVAILABLE !

			17													
			22													

8 TANK, EXISTING SHAFT MODIFICATIONS



TANK: EXISTING SHAFT MODIFICATIONS 9

Item	Part	Quantity	Description
1	8400396	9	RUBBER PADDLE
2	8400397	9	PADDLE REINFORCE PLATE
3	7500107	16	CLAMP\HOSE\1-1/4\WORM\SS
4	8400267	7	FEED WHEEL SHAFT AGITATOR