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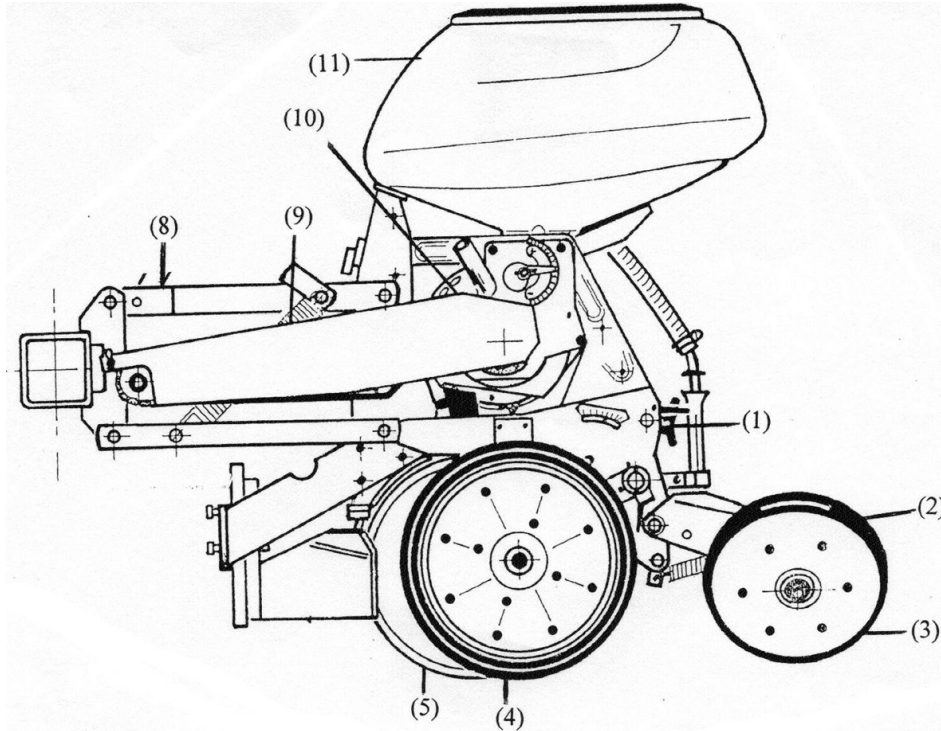
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## ROW UNIT

### NG Plus 3

The NG Plus 3 row unit is shown below with standard features.

Other options are available for specific conditions or uses.



- (1) – Hand wheel
- (2) – Hand wheel
- (3) – Adjustable V Press Wheels
- (4) – Independent Gauge Wheels
- (5) – Heavy-Duty Disc Openers
- (8) – Heavy Duty Parallel Linkage
- (9) – Stabilizing Springs
- (10) – Metering Box
- (11) – Heavy-Duty Plastic Hopper

#### SEED DEPTH

The seed depth is adjusted by the hand wheel (1) that changes the height of the depth gauge wheels (4) in relation to the disc openers (5). A sticker close to the hand wheel, indicating a gradual scale, ensures the uniformity of the depth control on all row units of the planter. Be sure that all row units of the planter are set at the same adjustment.

The disc openers and ground adjustment system guarantees an accurate and regular seed depth in all types of soil and conditions because the depth wheels are positioned perpendicular to the falling point of seeds.

#### V PRESS WHEELS

The two adjustable rear press wheels (3) affect only the closing of the seed furrow. They float independently and therefore do not have any effect on the ground engaging of the unit. Their soil pressure is regulated by the hand wheel (2). This adjustment allows for shallow (beet), medium (corn) or deep (bean) planting. This pressure has to be chosen carefully with relationship to the type and humidity of the soil, in order to assure proper seed to soil contact.

The width between the bottoms of the adjustable press wheels can also be adjusted with the addition of spacer bushings placed next to the bracket. A spacer of 10mm (25/64") is standard, and can be replaced with a bushing of 8mm (5/16") for narrower closing (such as sugarbeet seed).

Using an oilcan, lubricate the closing wheel assembly at pivot points daily, or as needed. Optional disc closing systems with flat or V press wheels are available. See section under optional wheels.

## ROW UNIT

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### NG Plus 3

#### DEPTH GAUGE WHEELS

The depth gauge wheels (4) are engineered with an equalizing rocker bar to assure uniform depth control of the disc openers, even in clods or rocky conditions. The gauge wheels are independent of each other for a smoother ride through the field. The Optional gauge wheel scrapers can be added, if necessary, to lessen soil buildup to maintain a uniform depth control.

In order for the disc openers to remain properly cleaned and free of soil build-up, the flange of the gauge wheels need to be just touching the disc. To double-check this, raise the unit (using the unit lock up) and manually rotate the gauge wheels; the disc openers should also rotate freely without restriction.

After starting up the planter, the factory assembly may need readjustment. Adjust gauge wheel spacing by putting the washers from one side of the articulating arm to the other. Using an SAE multipurpose grease in a clean grease gun, lubricate the gauge wheel arms as needed.

#### DOUBLE DISC OPENERS

The heavy-duty double disc openers (5) are very durable and mounted on watertight roller bearings. Their function is to slice the soil, and open a straight seed trench. A new interchangeable firming point attached to the frame and positioned ahead of the seed tube also acts as a disc scraper. As mentioned above, the flange of the gauge wheel should be just touching the disc openers, without restricting their movement.

A disc scraper is mounted to the side of each disc. You can adjust the pressure of the scrapers by tightening or loosening the bolts.

#### STABILIZER SPRINGS

The pair of stabilizer springs (9) located within the parallel linkage (shown above) absorbs shock and helps to stabilize the unit in rough terrain. Optional heavy duty down pressure springs are also available.

#### SEED HOPPER

A 52, 60 or 90 ltr. plastic hopper with lid (11) is standard, depending on the type of planter and seed usage

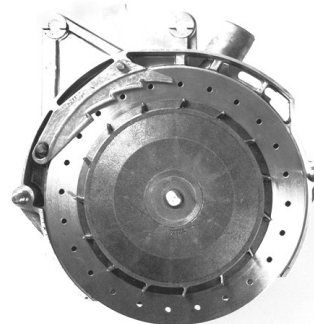
#### DRIVE CHAIN

The drive chain has a hardened surface that increases wear resistance and extends the life of the chain. The drive chains are spring loaded and therefore, self adjusting. The only adjustment needed is to shorten the chain if wear stretches the chain and reduces spring tension. The pivot point of the chain idlers should be checked periodically to ensure they rotate freely. The drive chain is 5R, and has 124 links with the connector link. Use a chain lubricant spray daily, or as needed.

#### SEED METERING SYSTEM

The seed metering system (10) consists of a 2-part metering box made of cast aluminum that is equipped with stainless steel seed discs that deliver the seed to a curved seed tube.

The metering box is located below the seed hopper and is engineered for accuracy and long life. The special shape allows for planting even when a minimum of seed remains in the hopper. The metering box contains sealed bearings for durability.



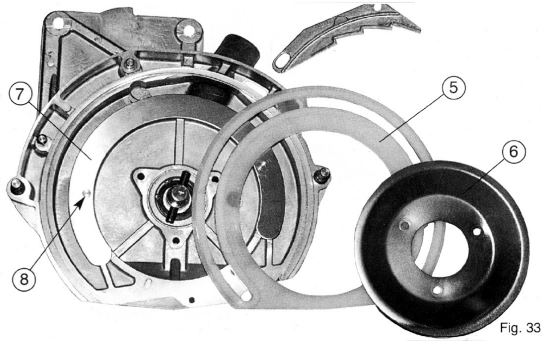
The stationary part of the metering box is called the **main housing**, shown below, and is mounted in the planter unit frame.

Components in the main housing are the plastic wear gasket (5) and cap (6), seed disc and seed scraper. The plastic wear gasket, on which the seed disc rotates, should be smooth and in good condition. Under normal operating conditions, it should be replaced only after 1250 to 2500 acres. The metal brace (7) should be positioned with its tab notched in the hole of the housing. The outer edge of the plastic wear gasket is then rotated into the groove, locking into place when the stub fits into the hole of the housing, and is then held in position by the cap (6) and 3 bolts.

**NOTE:** Thoroughly clean the metering box housing before installing a new wear gasket. Any residue left from previous use will not allow the gasket to fit in the proper position.

## ROW UNIT

### NG Plus 3

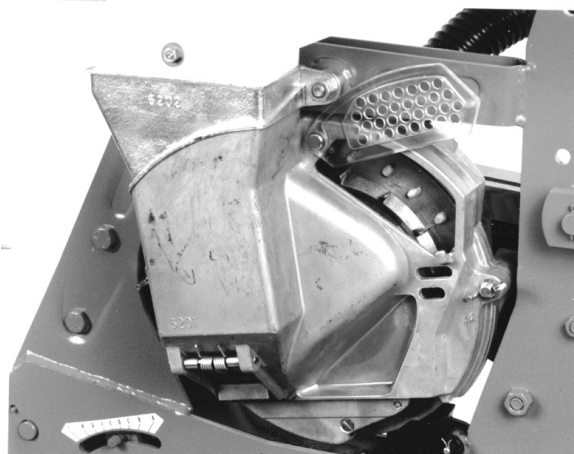


On the outside of the main housing is the lever for adjusting the air suction to the weight of the seed, as well as setting the height of the seed scraper.



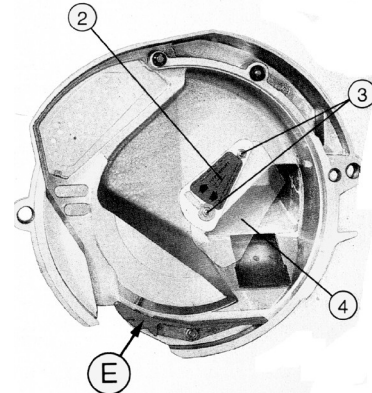
The second part of the metering box is called the **cover**. The cover is secured to the main housing by 2 wing nuts. The components on the outside of the cover are a control window and trap door. The components on the inside of the cover are a metal shutter, and ejector block.

The control window is made of clear plastic and allows for viewing of the seed against the seed disc. It can also be raised for close inspection.

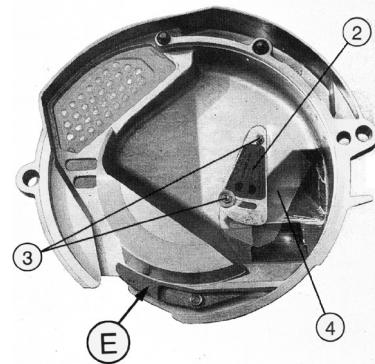


The metal shutter regulates the flow of seeds coming from the hopper and provides a constant and sufficient level in front of the disc. According to the seed used, the shutter has to be checked and adjusted at 2 different positions before planting.

The interior shutter is adjusted by lowering it after loosening the 2 bolts (3). A small plastic sheet (4) is located under the shutter and is also used to limit the level of seeds in front of the disc.



1 – **High Position:** For large seeds, such as corn, soybean, edible beans, cotton, etc. The high position moves the shutter away from the opening.



2– **Low Position:** For small seeds, such as cucumbers, beet, peppers, etc. The low position moves the shutter over part of the opening.

**NOTE:** A special metal shutter is available for planting small seeds such as cabbage, rapeseed, etc., to reduce the seed flow into the seed chamber.

The brass ejector block (E) assures that the seed is dropped at a consistent angle to reduce seed bounce inside the seed tube, for more accurate seed placement. Because of the important function of the ejector block, it is recommended to check its condition periodically.

## ROW UNIT

### NG Plus 3

#### EXTRA LARGE SEED

A special metering box cover should be used for seeds such as peanuts, and kidney beans. This special metering box cover is designed with a larger opening (to improve the seed flow into the seed chamber), a larger discharge channel (to avoid blockage), and a special less aggressive seed scraper (to avoid skips). The position of the metal shutter should be in a high position for these large seeds.

**NOTE:** If your planter was ordered to plant extra large seed as the main crop and it has the special metering box cover installed, you will also be able to use this cover for smaller seed as corn or beans, by adjusting the metal shutter to a low position.

#### DISENGAGING THE METERING BOX

The individual disengaging of a metering unit is possible by removing the lynch pin (1) or by disconnecting the vacuum hose.

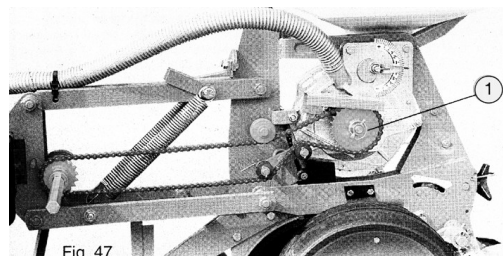


Fig. 47

#### SEED TUBE

The seed tube is the last point of contact the seed has in the metering system. After the seed passes by the brass ejector block, (which ejects the seed at a consistent angle to reduce seed bounce in the seed tube) it is guided through the curved seed tube into the seed trench.

Before and during each new planting season, check to see if the seed tubes are in good condition, as consistent and regular seeding will depend on this. To replace the seed tube, remove the gauge wheel and disc opener on one side to remove the top pin holding the tube in place.

Electronic seed monitors (that monitor the flow of seed through the seed tube) are optional. See optional equipment.

Note: If the optional V shoe insert is used for small seed, it must be removed when planting larger seeds such as beans, as it will cause plugging due to normal crimping of the seed tube during installation.

#### METERING BOX ADJUSTMENT

The outside lever on the metering box cover is unique. It makes two adjustments at the same time.

**It is these two factors that influence the degree of singulation of the seed.**

**(1) It adjusts the height of the scraper in relationship to the holes in the disc, and (2) at the same time adjusts the air suction (from the turbofan) to the weight of the seed.**

When the indicator (1) is positioned to the "+", it raises the scraper over the holes of the disc and increases the amount of suction (closing the size of the hole (2)). This may cause doubles if raised too high.

When the indicator (1) is positioned to the "-" it lowers the scraper over the holes and reduces the degree of suction (opening the size of the hole (2)). This may cause skipping if it is too low.

The clear plastic control window in the cover allows you to monitor the results.

Below is a recommendation for setting the indicator.

Corn	+1 (0 to +2)
Cotton	+1
Beans	+4 to +5
Sunflowers	+1 (0 to +2)
Coated Sugarbeet	+2
Uncoated Sugarbeet	0 (-2 to +1)
Pickles/Melon	- 1 ½ (-1 to -2)
Soybeans/Peas	+4
Sorghum	+3
Kidney Beans	+5
Peanuts	+4 ½ (+4 to +5)
Rape Seed/Cabbage	+2

This applies to 500-rpm PTO speed, except for large seed (kidney beans, peanuts, etc.) for which a slightly higher speed (5-10%) is preferable. It is then recommended to run at 540 rpm PTO speed.

**NOTE: The above settings are theoretical, so checking before and during planting is essential.**

## ROW UNIT

### NG Plus 3

#### METERING BOX ADJUSTMENT

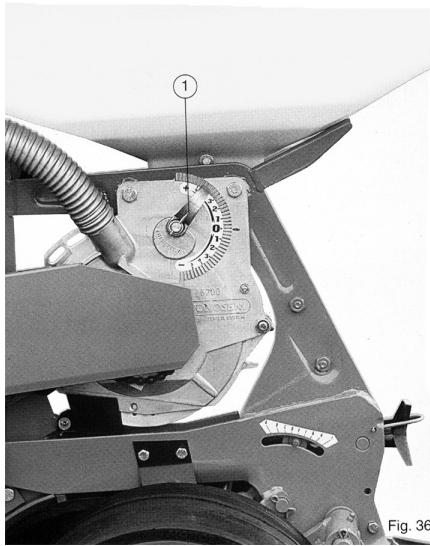


Fig. 36

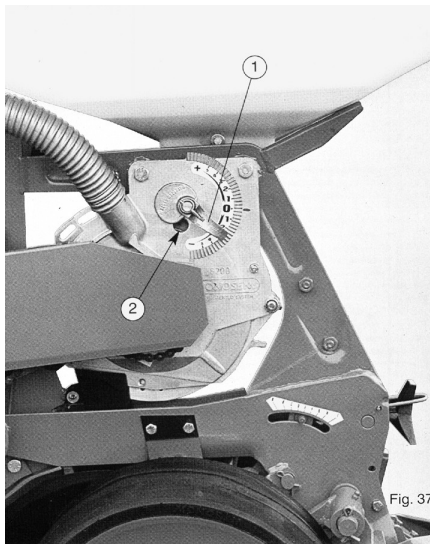


Fig. 37

#### SEED DISC

Use the proper seed disc for different seeds. Check your type of seed, and use the **Seed Disc Recommendations** chart to determine the correct disc for your crop.

It is important to use seed discs that are clean and in good condition. Customized seed discs are not shown, but are available upon special request. It is not recommended to drill out your own seed discs. Any slight burrs or imperfections in drilling will alter your metering. The precision of your seed discs must be maintained to have proper metering.

The brass agitator screws onto the seed disc with 6 special screws.

If you remove your seed discs from the metering box, to clean or use different seed discs, it would be beneficial, when re-using the seed discs, to place them back into the same metering box. You can use a marker to identify the seed disc to the metering box.

#### SEED CHUTE

A seed chute (shown below) is supplied with each planter, and simplifies emptying of the hoppers.



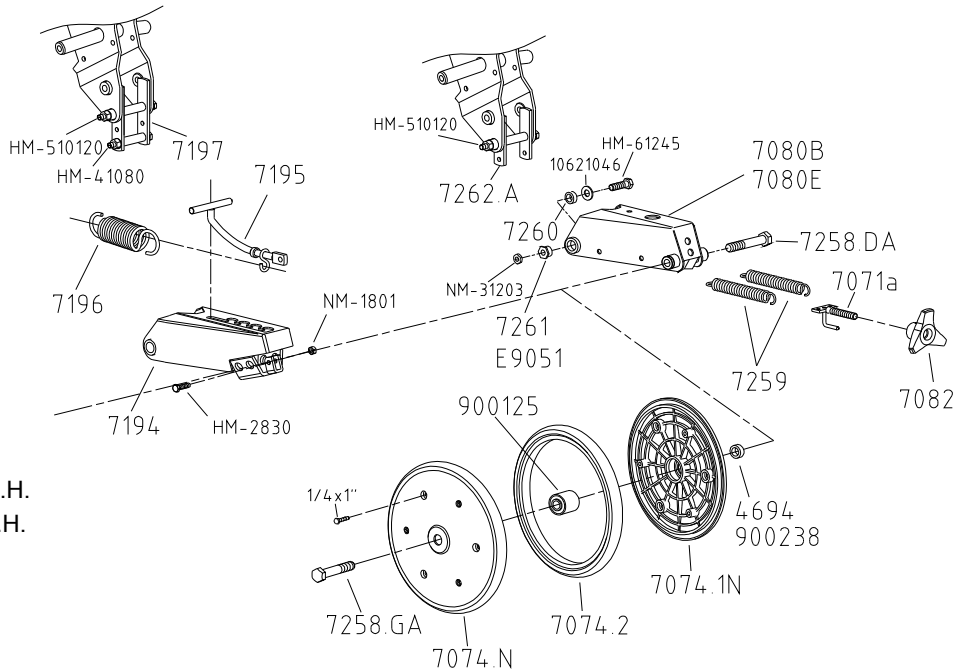
**ROW UNIT**

**NG Plus 3**

**CLOSING WHEEL ASSEMBLY**

**PART No. DESCRIPTION**

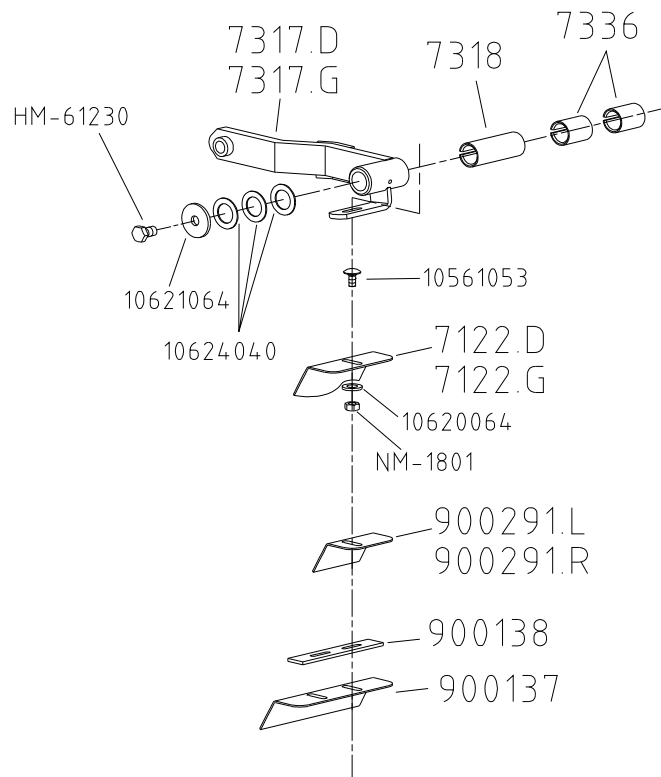
4694	Bushing 10mm
7074.1N	Nylon rim half
7074.2	Tire 1" x 12"
7074.N	Closing wheel complete 1" x 12"
7080.B	Bracket adjustable closing wheels
7080.E	Bracket for narrow and twin rows
7082	Handwheel
7194	Bracket for T-handle
7195	T-handle
7196	Spring
7197	Spring support
7258.DA	Special bolt M16 x 80 R.H.
7258.GA	Special bolt M16 x 80 L.H.
7259	Spring
7260	Spacer bushing
7261	Threaded pivot bushing
7262.A	Spring support
900125	Bearing 40mm
900238	Bushing 8mm
10621046	Washer M13 x 27 x 2
HM-2830	Hex bolt M8 x 30
NM-1801	Hex nut M8
E9051	Eccentric bushing
HM-41080	Bolt M10 x 80
HM-510120	Bolt M10 x 120
HM-61245	Bolt M12 x 45
NM-31203	Jam nut M12



**GAUGE WHEEL ARM**

**PART No. DESCRIPTION**

7318	One piece bushing
7336	Two piece bushing
900137	Scraper blade dbl. g.w.
900138	Extension dbl. g.w.
10561053	Carriage bolt M8 x 18
10620064	Washer M8.5 x 16 x 2
10621064	Washer M13 x 45 x 5
10624040	Washer M33 x 45 x 1.5
7122.D	Scraper blade RH std. g.w.
7122.G	Scraper blade LH std. g.w.
7317.D	Gauge wheel arm RH
7317.G	Gauge wheel arm LH
900291.L	Scraper blade LH narrow g.w.
900291.R	Scraper blade RH narrow g.w.
HM-61230	Hex bolt M12 x 30
NM-1801	Hex nut M8



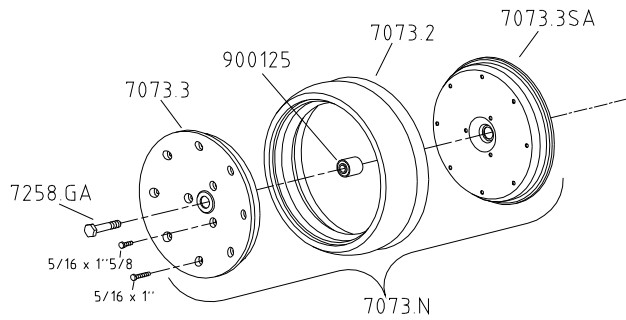
**ROW UNIT**

**NG Plus 3**

**GAUGE WHEEL ASSEMBLY**

**7073.N Gauge wheel complete (black nylon rim)**

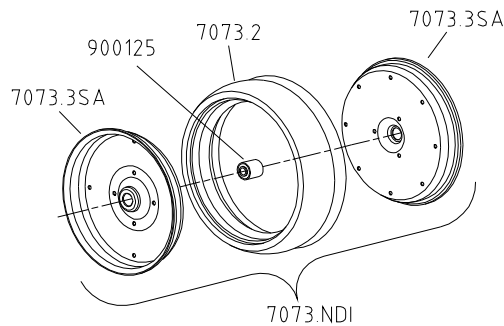
- 900125 Bearing, 40mm (DAC1640442RSL)
- 7073.2 Tire only, standard
- 7073.3 Outer rim (black nylon)
- 7073.3SA Inner rim (black steel)
- 7258.DA RH Hex head bolt 16 x 80
- 7258.GA LH Hex head bolt 16 x 80



**7073.NDI Dual gauge wheel, inside**

(2 blk steel rims with bearing)

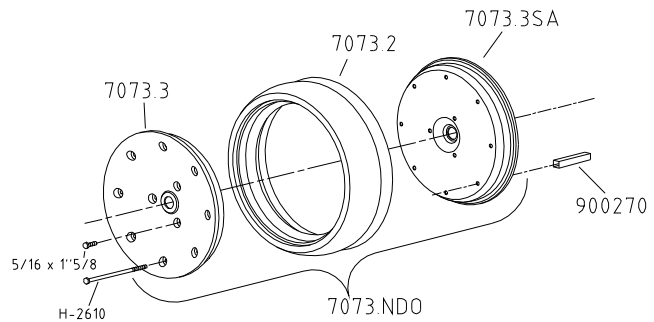
- 900125 Bearing, 40mm (DAC1640442RSL)



**7073.NDO Dual gauge wheel, outside**

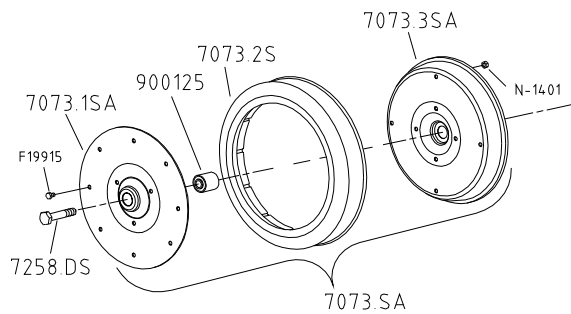
(1 steel rim, 1 nylon rim, no bearing)

- 900270 Spacer, 4" length
- H-2610 Bolt, 5/16" x 6"



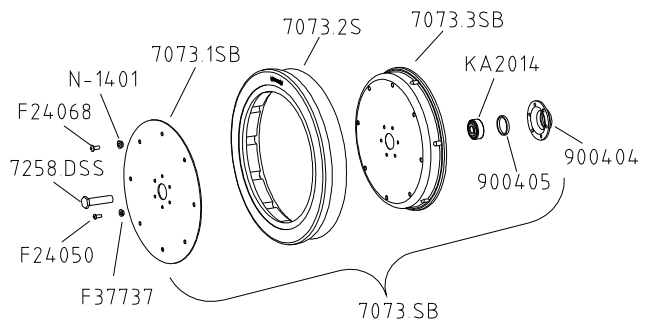
**7073.SA Narrow gauge wheel, complete**

- 900125 Bearing, 40mm (DAC1640442RSL)
- 7073.1SA Outer rim (steel)
- 7073.2S Tire only, narrow
- 7073.3SA Inner rim (black steel)
- 7258.DS RH Hex bolt 16 x 80, W/ 7/32" thick bolt head
- 7258.GS LH Hex bolt 16 x 80, W/ 7/32" thick bolt head
- F19915 Flange head bolt, 5/16-18 x 5/8"
- N-1401 5/16 -18 Flange lock nut



**7073.SB Flat narrow gauge wheel**

- 900404 Bearing housing
- 900405 Spacer
- 7073.1SB Outer rim (steel)
- 7073.2S Tire only, narrow
- 7073.3SB Inner rim (black steel)
- 7258.DSS RH Bolt 16 x 60, W/ 7/32" thick bolt head
- 7258.GSS LH Bolt 16 x 60, W/ 7/32" thick bolt head
- F24050 1/4" -20 x 5/8 Button head socket screw
- F24068 5/16" -18 x 5/8" Button head socket screw
- F37337 1/4 -20 Flange lock nut
- N-1401 5/16 -18 Flange lock nut
- KA2014 Bearing

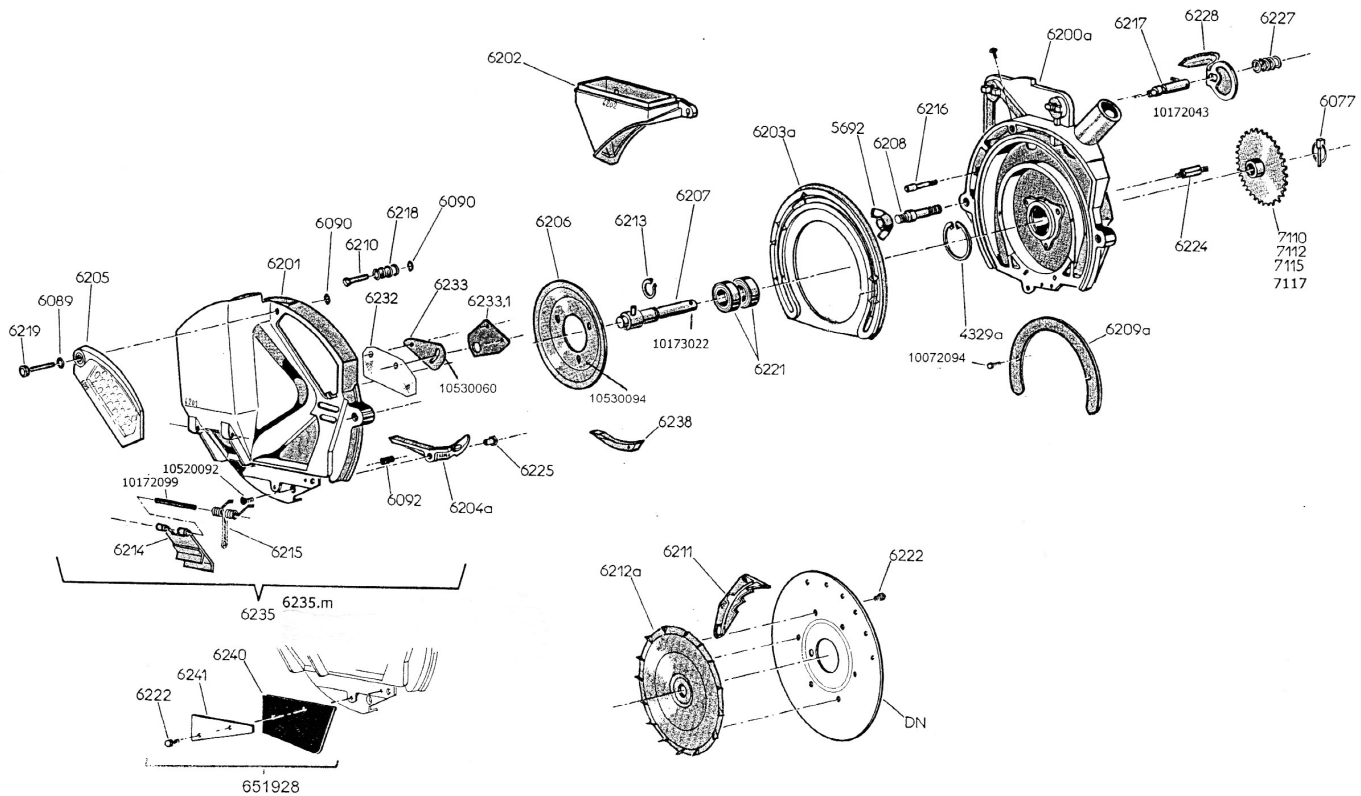




## ROW UNIT

### NG Plus 3

#### METERING BOX ASSEMBLY



PART No.	DESCRIPTION	PART No.	DESCRIPTION
4329.a	Snapping, internal, 57mm	6222	Screw, used for agitator and wind flap
5692	Wing nut, 10mm	6225	Nut, to secure ejector block
6077	Lynch pin, 6mm dia.	6227	Spring for selector handle
6089	Rubber ring	6228	Selector handle
6090	Snapping, 6mm	6232	Gasket for inside meter box cover
6092	Spring	6233	Shutter, standard cover
6200.a	Housing only for meter box	6233.1	Shutter for small seed, standard cover
6201	Meter box cover only	6233.2	Shutter for medium to small seed, standard cover
6202	Collar brace	6233.2s	Shutter for small seed, large seed cover only
6203.a	Plastic insert	6233.3s	Shutter for medium seed, large seed cover only
6204.a	Bronze ejector block assembly	6235	Standard cover complete
6205	Control window	6235.m	Large seed cover complete, accepts both 6204.a or 6238
6206	Tightening cap	6238	Aluminum ejector block (for large seed covers)
6207	Shaft, meter box, uses 8x50 roll pin	6240	Rubber shield
6208	Threaded tightening rod for cover	6241	Metal tightener plate
6209.a	Brace for plastic insert	7110	Sprocket, 27 tooth, (4% slow down from std sprocket 7115)
6210	Pressure pin scraper	7112	Sprocket, 21 tooth (20% speed up from std sprocket 7115)
6211	Seed scraper, standard	7115	Sprocket, 26 tooth, standard drive sprocket
6211.2a	Seed scraper, extra large seed	7117	Double sprocket, 26-12 to drive US insecticide
6212.a	Agitator, brass	651928	Protection kit
6213	Snapping, external, 20mm	10072094	Screw, 5x6 to secure brace 6209.a
6214	Trap door	10172043	Roll pin, 4x35 for 6217 pin
6215	Spring for trap door	10172099	Roll pin, 6x70 to secure trap door
6216	Fixed pin for seed scraper	10173022	Roll pin, 8x50 for 6207 shaft
6217	Adjustable pin for seed scraper, uses 4x35 roll pin	10520092	Screw, 6x16 for ejector block assembly
6218	Spring	10530060	Bolt, 5x20
6219	Pin for control window	10530094	Phillips screw, 6x20
6221	Bearing 42mm, (ref. 60042RS)		

## **ROW UNIT**

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### **NG Plus 3**

#### **METERING BOX - TROUBLE SHOOTING**

##### **Excessive Skipping**

- Seed scraper is too low. (Incorrect setting on the indicator.)
- Seed scraper is bent. (Not flat)
- Seed disc is bent or worn.
- Seed scraper is dirty with chemical product.
- Plastic wear surface of metering box is warped or used up.
- Holes of the seed disc are clogged (sugarbeets, rapeseed, cabbage.) To be double-checked from time to time.
- Excessive working speed.
- Defective vacuum hoses.
- Insufficient vacuum suction.
- PTO speed is too low.
- Foreign material mixed with seed.
- Seed blockage in the hopper.  
(Seed treatment product may be too moist.)
- Fan belt is too loose.

##### **Excessive Doubling**

- Seed scraper is too high. (Incorrect setting on the indicator.)
- Seed scraper is worn.
- Holes of the seed disc too large for seed.
- Excessive working speed.
- Seed level too high in the metering box.

##### **Irregular Seeding (Skipping and Doubles)**

- Excessive working speed.
- Holes of the seed disc are too large. (Cut off seeds.)
- Fields are too steep
- Shutter is adjusted incorrectly

##### **Irregular Spacing**

- Excessive working speed.
- Soil is too wet and is sticking to tires.
- Incorrect tire pressure.
- Shutter is adjusted incorrectly.
- Ejector is damaged.

**ROW UNIT**

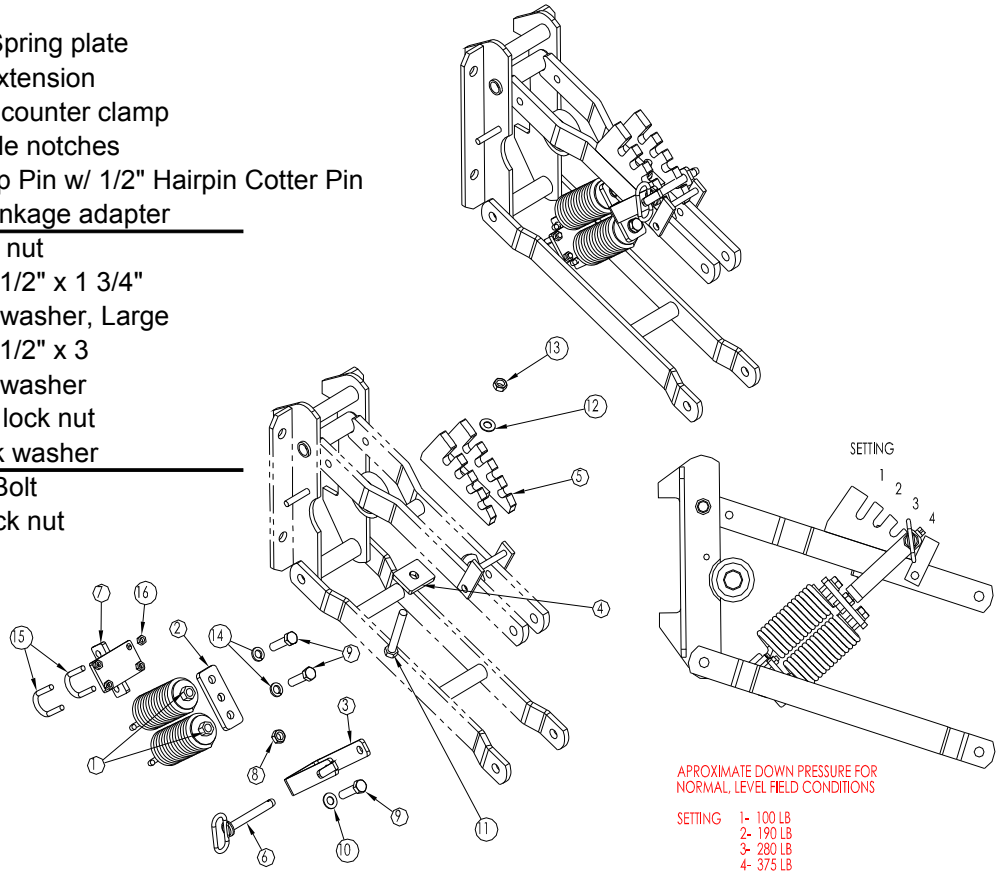
**NG Plus 3**

**UP / DOWN PRESSURE SPRING**

Quick Change Down Pressure, For Use with Narrow Bottom Linkage Sub-Assembly #KA2068QT

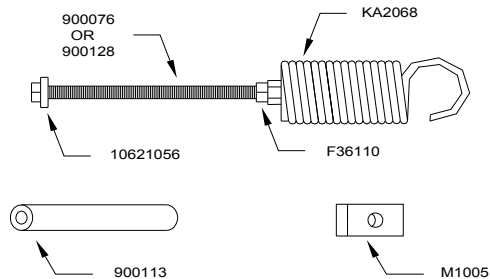
**ITEM PART No. DESCRIPTION**

1	KA2068	Spring
2	800208	Double Spring plate
3	800145.B	Spring Extension
4	800144	Notched counter clamp
5	800143.A	Adjustable notches
6	800228	Easy Grip Pin w/ 1/2" Hairpin Cotter Pin
7	800211	Narrow linkage adapter
8	F36210	1/2" Jam nut
9	F13210	Hex bolt 1/2" x 1 3/4"
10	F33012	1/2" Flat washer, Large
11	F33215	Hex bolt 1/2" x 3
12	F33086	1/2" Flat washer
13	F37214	1/2" Rev lock nut
14	F123498	1/2" Lock washer
15	F42012	5/16" U-Bolt
16	F37021	5/16" Lock nut



**UP/DOWN PRESSURE SPRING KIT PART #'S**

<b>KA2068.ASY</b>	<b>Down Pressure Spring Kit</b>
KA2068	Spring
10621056	Washer, 13x30x6
900076	Bolt, all thread, 1/2-13x8"
900113	Spacer bushing
F36110	Nut, 1/2-13
M1005	Upper linkage tab (if needed)
<b>KA2068.ASYU</b>	<b>Up Pressure Spring Kit</b>
KA2068	Spring
10621056	Washer, 13x30x6
900128	Bolt, all thread, 1/2-13x10"
F36110	Nut, 1/2-13
M1005	Upper linkage tab (if needed)



**ROW UNIT**

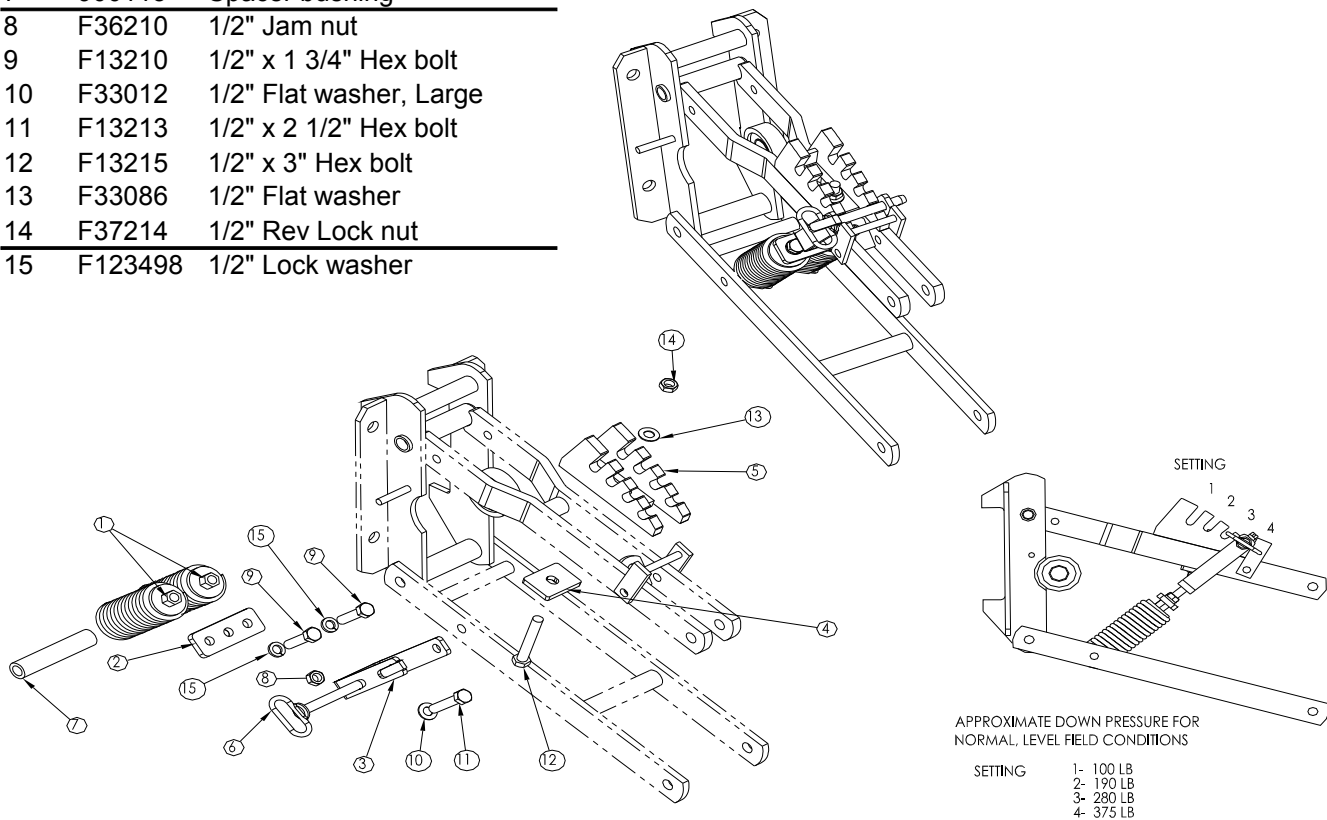
**NG Plus 3**

**UP / DOWN PRESSURE SPRING**

Quick Change Down Pressure, For Use with Standard Linkage Sub-Assembly #KA2068Q

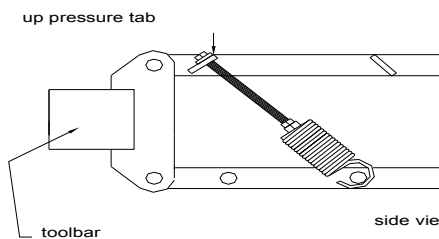
**ITEM PART No. DESCRIPTION**

1	KA2068	Spring
2	800208	Double Spring Plate
3	800145.B	Spring Extension
4	800144	Notch Counter Clamp
5	800143.A	Adjustable Notches
6	800228	Easy Grip pin w 1/2" Hairpin cotter pin
7	900113	Spacer bushing
8	F36210	1/2" Jam nut
9	F13210	1/2" x 1 3/4" Hex bolt
10	F33012	1/2" Flat washer, Large
11	F13213	1/2" x 2 1/2" Hex bolt
12	F13215	1/2" x 3" Hex bolt
13	F33086	1/2" Flat washer
14	F37214	1/2" Rev Lock nut
15	F123498	1/2" Lock washer

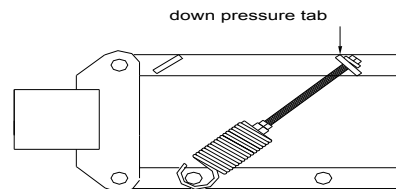


APPROXIMATE DOWN PRESSURE FOR  
 NORMAL, LEVEL FIELD CONDITIONS

SETTING	1- 100 LB
	2- 190 LB
	3- 280 LB
	4- 375 LB



side view of parallel linkage



**ROW UNIT**

**SEED DISC IDENTIFICATION**

The size of the seed disc is engraved into the back of the seed disc. When ordering seed discs, the prefix DN indicates the disc only. The prefix DC indicates the complete disc with brass agitator (6212.a). The first 2 numbers of a 4 number series indicates the number of holes in the seed disc. The second two numbers indicates the size (diameter) of the holes.

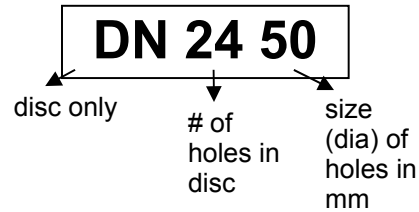
**Example:**

**Seed Disc # DN 2450**

**DN** indicates disc only (no agitator)

**24** indicates 24 holes

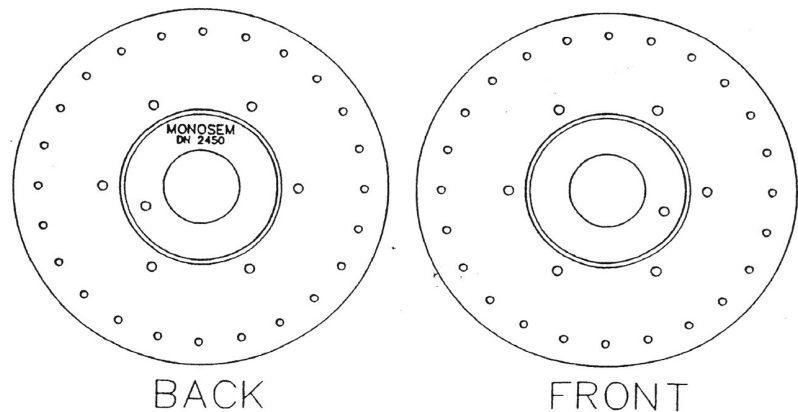
**50** indicates the holes are diameter 5.0 mm.



**HOLE SIZE**

**EXAMPLES**

- 08 = .8 mm
- 10 = 1.0 mm
- 12 = 1.2 mm
- 20 = 2.0 mm
- 35 = 3.5 mm
- 45 = 4.5 mm
- 50 = 5.0 mm
- 60 = 6.0 mm
- 65 = 6.5 mm



**SEED DISC RECOMMENDATIONS**

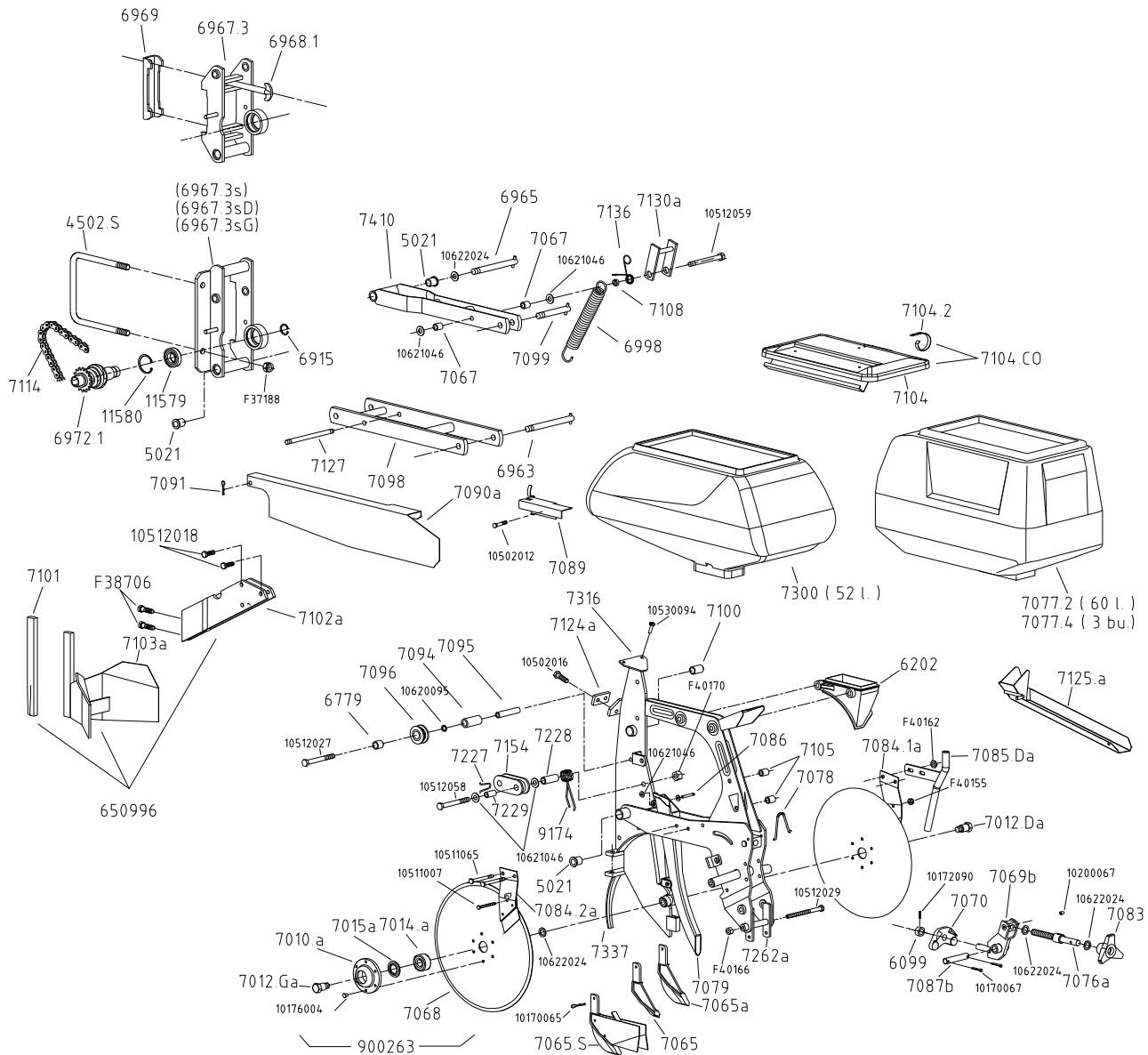
<b>CROP</b>	<b>SEED DISC</b>		<b>SEED SPACING</b>
Beans	DC3665	Large, Kidney	2 3/8 - 7"
	DC4850	Large, Pinto, Romano, Lima, Chicapee	1 3/4 - 5 1/2"
	DC6045	Medium, Snap, Baby Limas, Soybeans	1 3/8 - 4 3/8"
	DC6035	Small, Navy, Peas	1 3/8 - 4 3/8"
Broccoli and Cabbage	DC3612 (low population)		2 3/8 - 7"
	DC7212 (high population)		1 3/16 - 3 1/2"
Canola	DC7212		1 3/16 - 3 1/2"
Cauliflower	DC3612 (low population)		2 3/8 - 7"
	DC7212 (high population)		1 3/16 - 3 1/2"
Collard Greens	DC7208		1 3/16 - 3 1/2"
Corn	DC0950	Field	9 1/2 - 28"
	DC1250		7 - 21"
	DC1850 (low population)		4 3/4 - 14"
	DC2450 (medium population)		3 1/2 - 10 1/2"
	DC3050 (high population)		2 3/4 - 8 1/2"
	DC2437, small, 2700-5000 seeds/lb. Sweet		3 1/2 - 10 1/2"
	DC2445, large, 1700-2700 seeds/lb.		3 1/2 - 10 1/2"
	DC2425	Ornamental	3 1/2 - 10 1/2"
Cotton	DC3635 (low population)	Single seed drop	2 3/8 - 7"
	DC6035 (high population)	Single seed drop	1 3/8 - 4 3/8"
	DC0930D (double seed drop)	Hill drop(seeds 3/4 - 2" apart)	9 1/2 - 28"
	DC0930T (triple seed drop)	Hill drop(seeds 3/4 - 2" apart)	9 1/2 - 28"
	DC1230D (double seed drop)	Hill drop(seeds 3/4 - 2" apart)	7 1/8 - 21"
	DC1230T (triple seed drop)	Hill drop(seeds 3/4 - 2" apart)	7 1/8 - 21"

**ROW UNIT**

Cotton	DC1830D (double seed drop)	Hill drop(seeds 3/4 - 2" apart)	4 3/4 - 14"	
	DC1830T (triple seed drop)	Hill drop(seeds 3/4 - 2" apart)	4 3/4 - 14"	
Cucumbers/ Pickles	DC1820	Hand harvest	4 3/4 - 14"	
	DC3020	Machine harvest	2 3/4 - 8 1/2"	
Kale	DC7208		1 3/16 - 3 1/2"	
Melons	DC0620 (low population)	Watermelon, small seed, Cantaloupe	14 1/4 - 42"	
	DC0920 (medium population)		9 1/2 - 28"	
	DC1820 (high population)		4 3/4 - -14"	
	DC0325 (low population)	Watermelon, large seed	28 1/2 - 84"	
	DC0325D (hill drop )		Drop two seeds, 1-3/8 - 4-3/8" apart	28 1/2 - 84"
	DC0625 (medium population)		14 1/4 - 42"	
	DC0625D (hill drop)		Drop two seeds, 1-3/8 - 4-3/8" apart	14 1/4 - 42"
	DC0925 (high population)		9 1/2 - 28"	
Okra, Artichoke	DC3622		2 3/8 - 7"	
	DC7222		1 3/16 - 3 1/2"	
Onions	DC3610 (low population)	Raw	2 3/8 - 7"	
	DC7210 (high population)		1 3/16 - 3 1/2"	
	DC3622 (low population)	Pelleted	2 3/8 - 7"	
	DC7222 (high population)		1 3/16 - 3 1/2"	
Parsley	DC7208		1 3/16 - 3 1/2"	
Peanuts	DC3665	Jumbo seed	2 3/8 - 7"	
	DC3060 (twin row)	Small to medium seed	2 3/4 - 8 1/2"	
	DC4060	Small to medium seed	2 1/8 - 6 1/2"	
	DC4860(not recommended)	Small to medium seed, (High pop.)	1 3/4 - 5 1/2"	
Peppers	DC3612 (low population)		2 3/8 - 7"	
	DC7212 (high population)		1 3/16 - 3 1/2"	
Pumpkins	DC0335 (low population)		28 1/2 - 84"	
	DC0335D (hill drop)	Drop two seeds, 1-3/8 - 4-3/8" apart	28 1/2 - 84"	
	DC0635 (medium population)		14 1/4 - 42"	
	DC0635D (hill drop)	Drop two seeds, 1-3/8 - 4-3/8" apart	14 1/4 - 42"	
DC0935 (high population)	9 1/2 - 28"			
Radish	DC6015		1 3/8 - 4 3/8"	
Rice	DC9016		15/16 - 2 3/4"	
Sesame	DC7208		1 3/16 - 3 1/2"	
Sorghum	DC3622 (low population)		2 3/8 - 7"	
	DC7222 (high population)		1 3/16 - 3 1/2"	
Spinach	DC6015	Small seed	1 3/8 - 4 3/8"	
	DC6020	Large seed	1 3/8 - 4 3/8"	
	DC12020	Large seed(high populations)	11/16 - 2 1/16"	
Squash	DC0625 (medium population)	Summer	14 1/4 - 42"	
	DC0925 (high population)		9 1/2 - 28"	
	DC0635 (medium population)	Winter	14 1/4 - 42"	
	DC0935 (high population)		9 1/2 - 28"	
Sugarbeets	DC4016 (medium population)	Small, Medium, Large & Pelleted seed	2 1/8 - 6 1/2"	
	DC4020 (medium population)		Medium, Large and Pelleted seed	2 1/8 - 6 1/2"
	DC6020 (high population)		Medium, Large and Pelleted seed	1 3/8 - 4 3/8"
	DC12015 (seed production)		Small, Medium, Large & Pelleted seed	11/16 - 2 1/16"
	DC12020 (seed production)		Medium, Large and Pelleted seed	11/16 - 2 1/16"
Sunflowers	DC1225 (low population)	Oil & Confection	7 1/8 - 21"	
	DC1825 (high population)		4 3/4 - 14"	
Tomatoes	DC7212		1 3/16 - 3 1/2"	
	DC1212T(hill drop 12 x 3 x 1.2)		7 - 21"	
Turnips	DC7208		1 3/16 - 3 1/2"	

## ROW UNIT

### NG Plus 3 Assembly



PART No.	DESCRIPTION
4502.S	U bolt, for 7" x 7" x 5/8-11
4503	Nylon locknut, 16mm
5021	Bushing, self lubricated
6099	Collar with 6x25 roll pin
6202	Collar brace
6779	Bushing, self lubricated
6915	Snapping, 30mm
6963	Pivot pin, lower linkage, 165mm(16mm jam nut)
6965	Pivot pin, upper linkage, 155mm (16mm jam nut)
6967.3	Clamp facing, 5x5 toolbar
6967.3S	Clamp facing, 7x7 toolbar
6967.3SD	Clamp facing, 7x7 toolbar R.H.
6967.3SG	Clamp facing, 7x7 toolbar L.H.

PART No.	DESCRIPTION
6968.1	T-bolt, 16mm
6969	Clamp plate, 5x5 toolbar
6972.1	Slipclutch
6998	Spring
7010.A	Cast hub, uses 6x22 rivets
7012.DA	Removable spindle, righthand
7012.GA	Removable spingle, lefthand
7014.A	Bearing double disc opener (52042RS)
7015.A	Sealing washer
7065	Cast point
7065.A	Cast V slice insert
7065.S	V shoe insert for small seed
7067	Spacers for unit lockup bracket

## ROW UNIT

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### NG Plus 3 Assembly

<b>PART No.</b>	<b>DESCRIPTION</b>	<b>PART No.</b>	<b>DESCRIPTION</b>
7068	Opening disc only	7127	Threaded rod
7069.B	Bracket for wheel stop/depth control rod	7130.A	Unit lock up bracket
7070	Swing bracket	7136	Spring
7076.A	Threaded for depth adjustment	7262.A	Spring support bracket
7077.2	Seed hopper, standard, 60 ltr	7300	Seed hopper, 52 ltr.
7077.3	Seed hopper, Twin row, 60 ltr	7316	Main frame NG+3
7077.3A	Seed hopper, TwinRow/reversed, 60 ltr	7337	Protection point, double disc openers
7077.4	Seed hopper, 3 bu.	7410	Upper parallel linkage arm
7077.UNR	Seed hopper, 50 ltr (1.4 bu, uses 7088.n lid)	9174	Spring, chain tightener
7078	Wire stop for depth control rod	11579	Bearing, safety clutch (60062RS)
7079	Blank seed tube	11580	Snapping, 55mm
7083	Handwheel for depth control, uses 6x30 roll pin	650996	Clod remover, complete
7084.1A	Right outside scraper	900263	Opening disc complete w/bearing
7084.2A	Left outside scraper	F37188	Nylon locknut 5/8"
7085.DA	Insecticide drop tube, right	F40155	Lock nut 6mm
7085.GA	Insecticide drop tube, left	F40162	Nut, 8mm
7086	Pin for seed tube attachment	F40166	Nut, 10mm
7087.B	Pin, uses 2-5x40 cotter pins	F40170	Nut, 12mm
7088.N	Lid for 7077.UNR hopper	10170065	Cotter pin, M5 x 30
7089	Small chain guard	10170067	Cotter pin, M5 x 40
7090.A	Drive chain guard	10172090	Roll pin, M6 x 25
7091	Clip pin	10176004	Rivet, 6 x 22mm
7094	Spacer bushing	10200067	Red cap, depth indicator
7095	Pivot pin, takes 10x100 bolt	10502012	Bolt, M10 x 15
7096	Chain roller (cast iron)	10502016	Bolt, M10 x 25
7098	Lower parallel linkage arm	10511007	Bolt, M6 x 100
7099	Pivot pin, upper linkage, 75mm (16mm jam nut)	10511065	Bolt, M8 x 75
7100	Bushing, self lubricated	10512018	Bolt, M10 x 35
7101	Front point, clod remover	10512027	Bolt, M10 x 100
7102.A	Mounting bracket, clod remover	10512029	Bolt, M10 x 120
7103.A	Clod remover	10512058	Bolt, M12 x 110
7104	Lid w/o spring clip	10512059	Bolt, M12 x 120
7104.CO	Lid complete w/spring clip	10530094	Bolt, M6 x 20. oval head slotted
7104.2	Spring clip	10620095	Washer, 10.5 x 27 x 2mm
7105	Spacer	10621026	Washer, 13 x 18 x 2mm
7108	Bushing, self lubricated	10621046	Washer, 13x27x2mm
7114	Drive chain, 5R, 124 links w conn. Link	10622024	Washer, 16.5 x 26 x 1mm
7124.A	Unit stop	10622052	Washer, 17 x 50 x 1mm
7125.A	Seed chute		

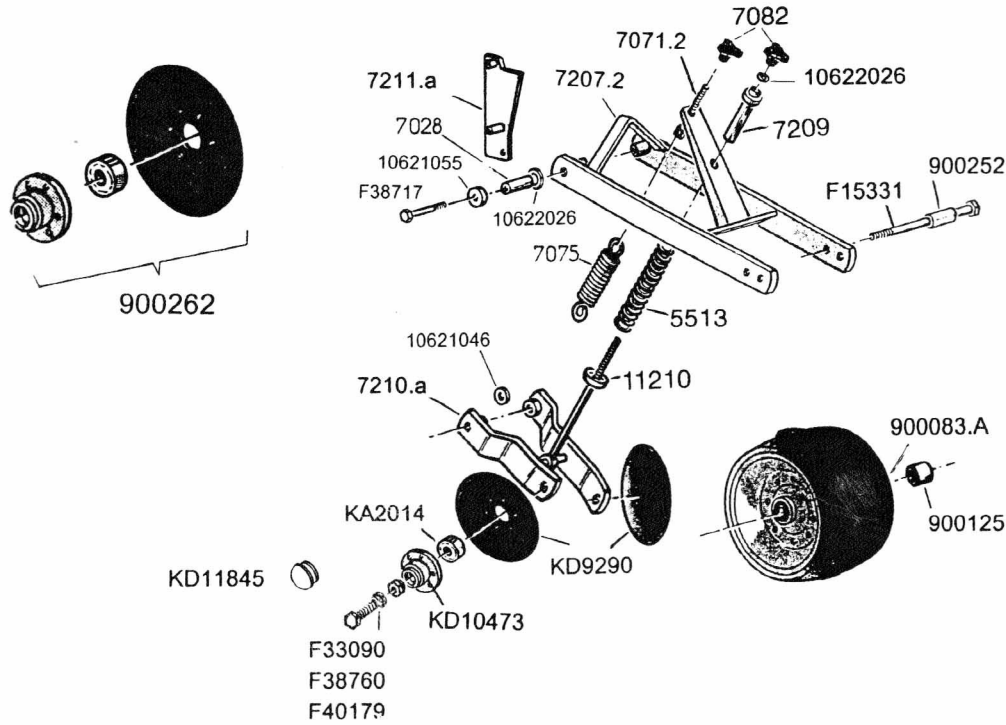


**ROW UNIT**

**NG Plus 3**

**HILLER DISC WITH FLAT PRESS WHEEL CLOSING SYSTEM**

The flat press wheel with disc closing system is used for cotton or other shallow planted crops. It has an adjustable down pressure spring and an independent spring for discs.



PART No.	DESCRIPTION
5513	Pressure spring
7028	Spacer
7071.2	Adjustment rod 12 x 130 mm
7075	Spring
7082	Handwheel knob
7207.2	Frame for hiller disc
7209	Sleeve for spring
7210.a	Bracket for mounting discs
7211.a	Frame wheel stop
11210	Cap to support spring
90083.1	Rim half
90083.2	Tire only (6.5" x 12")
<b>900083.a</b>	<b>Complete flat press wheel</b>
90052.a	Complete assembly as shown
900252	Bushing spacer, 2 13/16"
900262	Disc complete w/ hub & bearing
900125	Bearing 40mm

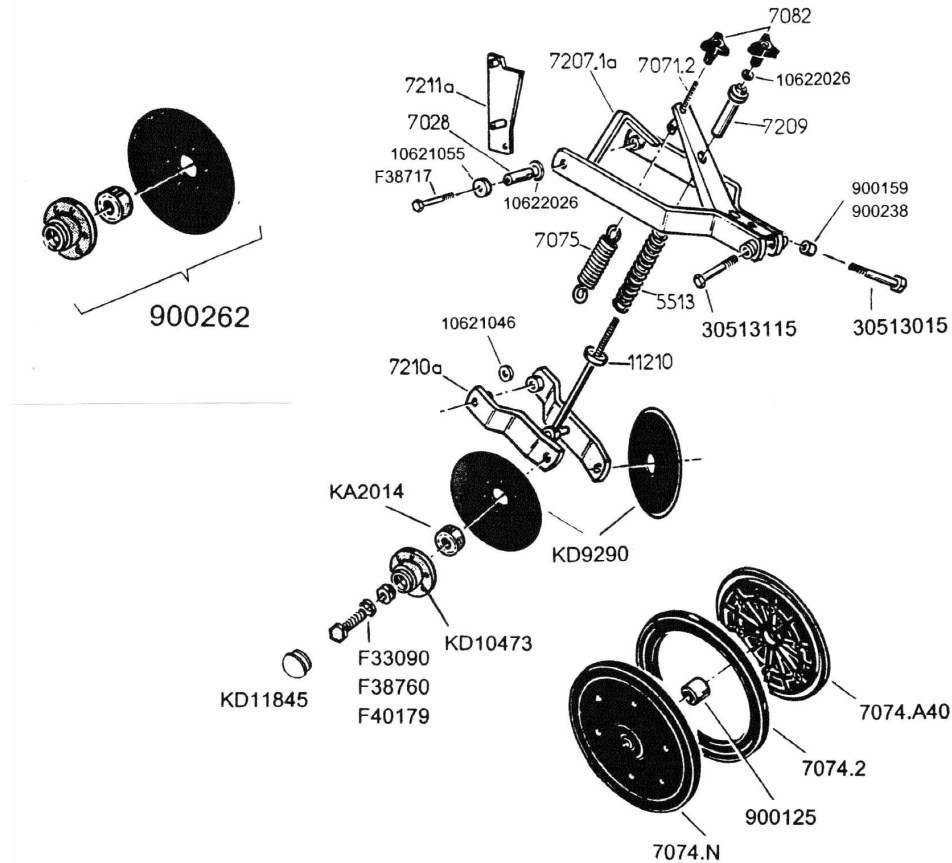
PART No.	DESCRIPTION
10621046	Washer, 13x 27x 2
10621055	Washer, 13x 30x 5
10622026	Washer, 16.5x 26x 2
F15331	Bolt, 5/8 x 9
F33090	Flat washer, 5/8" SAE
F37216	Locknut, 5/8"
F38717	Bolt, 12 x 90 mm]
F38760	Bolt, 16 x 45 mm
F40171	Nylon locknut, 12 mm
F40179	Jam nut, 16mm
K10427	Rivet button head 1/4" x 1/2"
KA2014	Bearing closing disc
KD10473	Hub only
KD11845	Plastic cap for hub
KD9290	Hiller disc, 8" diameter

**ROW UNIT**

**NG Plus 3**

**HILLER DISC WITH V PRESS WHEEL CLOSING SYSTEM**

The V press wheel features twin off-set discs and a V press wheel with an adjustable down pressure spring. There is an independent spring-loaded adjustment for discs.



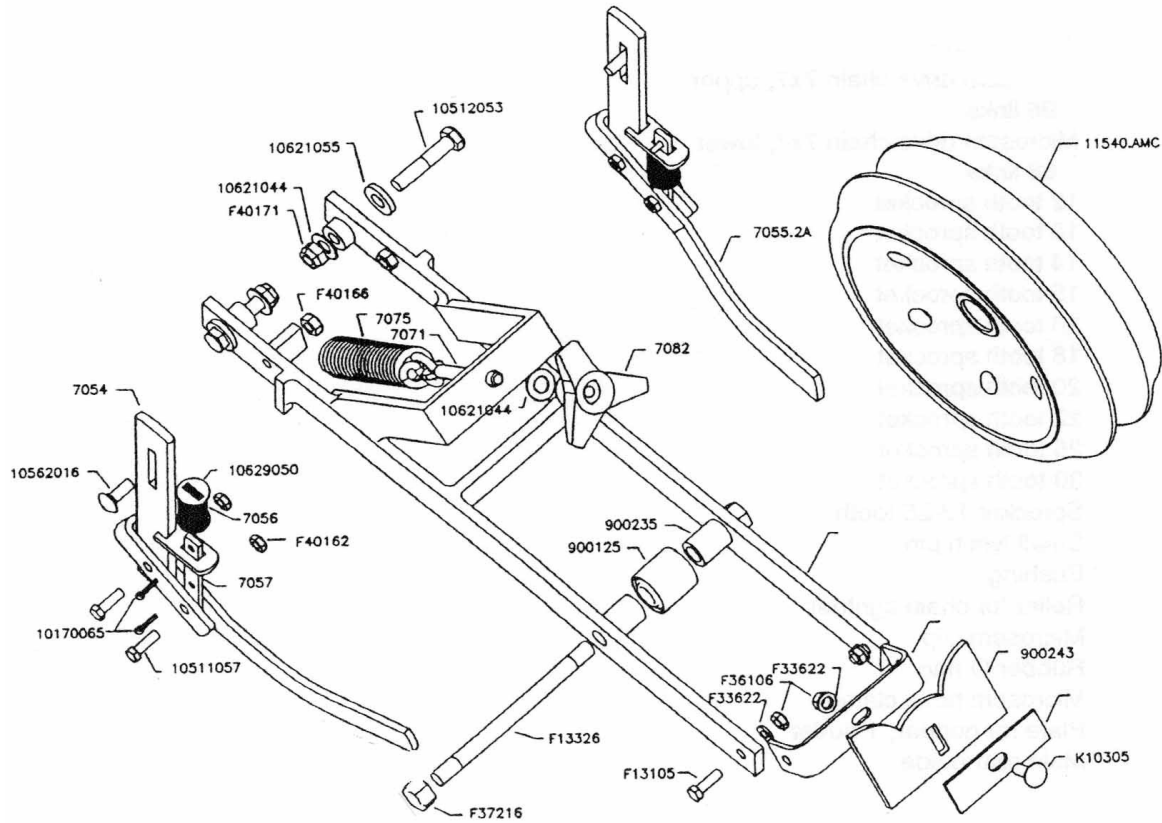
PART No.	DESCRIPTION
5513	Pressure spring
7028	Bushing spacer, 59mm
7071.2	Adjustment rod 12 x 130 mm
7074.N	Adjustable closing wheel complete
7074.A40	Rim Half
7074.2	Tire only, 1 x 12
7075	Spring
7082	Handwheel knob
7207.1A	Frame for hiller disc
7209	Sleeve for spring
7210.a	Bracket for mounting discs
7211.a	Frame wheel stop
11210	Cap to support spring
900125	Bearing 40mm
900159	Bushing spacer, STND 7/16" wide
900238	Bushing spacer, Narrow, 5/16" wide
900262	Disc complete w/ hub & bearing

PART No.	DESCRIPTION
10621046	Washer, 13x 27x 2
10621055	Washer, 13x 30x 5
10622026	Washer, 16.5x 26x 2
30513015	Bolt, 16x 80 RH
30513115	Bolt, 16x 80 LH
F33090	Flat washer, 5/8" SAE
F38717	Bolt, 12 x 90 mm]
F38760	Bolt, 16 x 45 mm
F40171	Nylon locknut, 12 mm
F40179	Jam nut, 16mm
K10427	Rivet button head 1/4" x 1/2"
KA2014	Bearing closing disc
KD10473	Hub only
KD11845	Plastic cap for hub
KD9290	Hiller disc, 8" diameter

**ROW UNIT**

**NG Plus 3**

**CONCAVE PRESS WHEEL/ HILLER ASSEMBLY**



<b>PART No.</b>	<b>DESCRIPTION</b>	<b>PART No.</b>	<b>DESCRIPTION</b>
7054	Scraper support bracket	10562016	Carriage bolt, 10x 25
7055.1A	Lefthand scraper	10621044	Washer, 13x 27x 1
7055.2A	Righthand scraper	10621055	Washer, 13x 30x 5
7056	Spring	10629050	Washer, 18x 7x 27x 2
7057	Spring support	F13105	Bolt, 3/8 -16x 1
7071	Tension rod	F13326	Bolt, 5/8 -11x 6 1/2
7075	Spring closing wheel	F33622	Lock washer, 3/8 z
7082	Handwheel pressure control	F36106	Nut, 3/8 -16 z
11540.AMC	Wheel complete	F37216	Rev. Lock nut, 5/8 -11
900125	Bearing	F40162	Nut, 8mm
900235	Bushing	F40166	Nut, 10mm
900243	Mud scraper	F40171	Lock nut, 12mm
10170065	Cotter pin, 5x 30	K10305	Carraige bolt, 3/8 -16x 1
10511057	Bolt, 8x 30 mm		
10512053	Bolt, 12x 60 mm		