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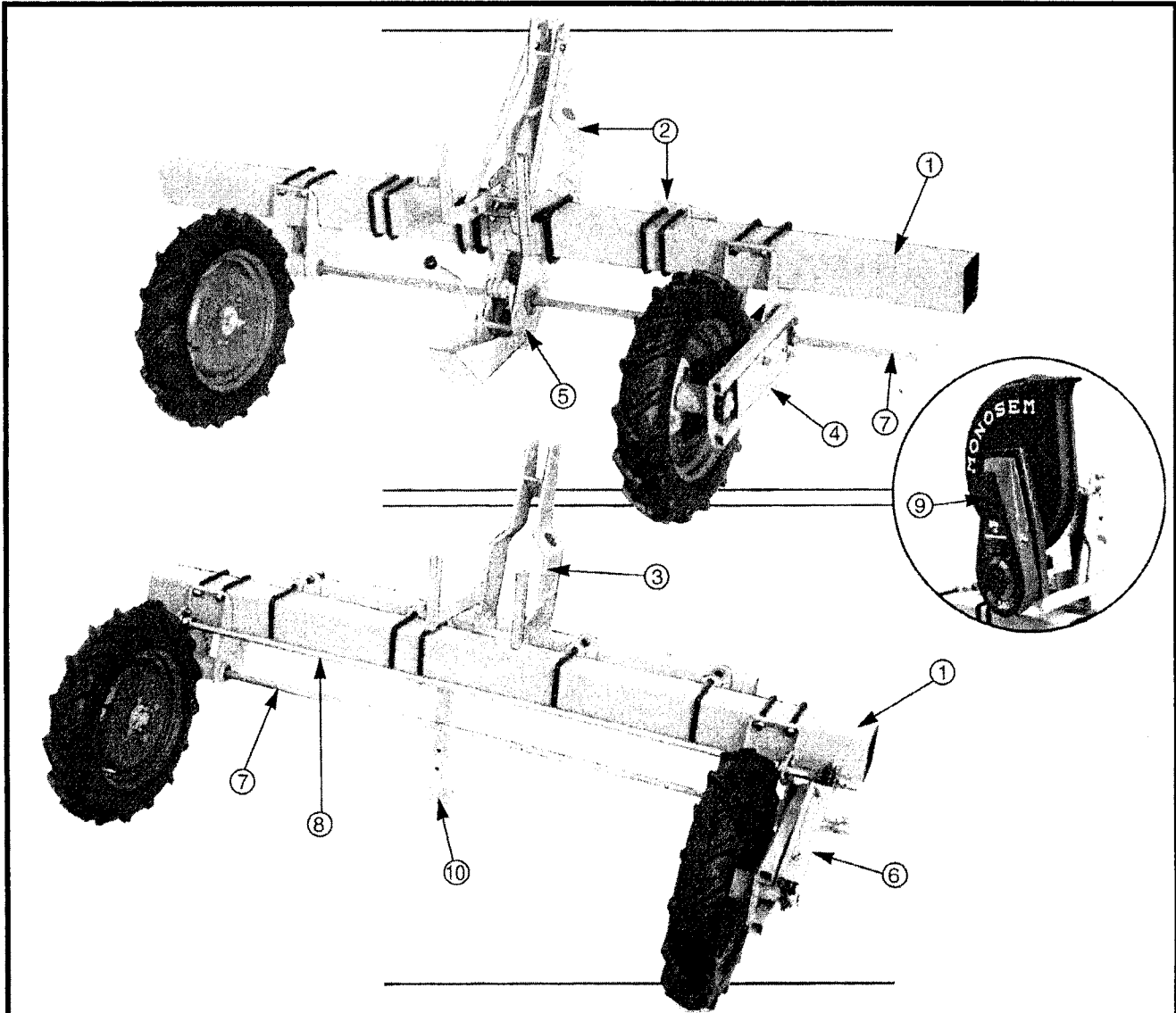
7. OPTIONAL EQUIPMENT

## FRAME

### MS Mini Seed Planter

A **MS** mini-seed planter frame consists of:

- Toolbar (1) the length of which depends on the number of rows and the row spacing.
- 3-point hitch
  - The standard version (2) is for row spacing of more than 14" (36cm) and an even number of row units.
  - Or the special vegetable hitch (3) for easy changes of row spacing.
  - Or the double toolbar hitch for larger planters.
- Drive wheel blocks, two of them, one left block and one right block for planters of less than 12 rows; or four blocks, two left wheel blocks and two right wheel blocks for planters of 12 rows or more, which can be adjusted in height. Wheel blocks are equipped with various sizes of tires according to the row spacing and the number of rows (500x15 width 12cm or 5.0x15 width 14cm).
  - Either a standard version 4 for use with spacing gearbox 5 (top photo) for planters with row spacing of more than 14" (36cm).
  - Or a combination version with a spacing gearbox 6 (bottom photo) for use on planters with narrow row spacing.
- Hex shafts, two, driver (7) and receiver (8) (receiver hex shaft not shown in top photo.)
- Turbofan, 16 or 28 outlets (9).
- Toolbar stands, two, (10).
- Row markers optional.



## FRAME

### MS Mini Seed Planter

#### WHEEL BLOCKS

There are two versions of wheel blocks. The two versions of wheel blocks are the standard version, as shown in figure 4, and the combination version, shown in figure 6, which has an incorporated spacing gearbox.

These wheel blocks can be adjusted in height using the series of holes (3) for planting on flat ground or on beds. Check that the locks and springs on the differential systems (4) are correctly positioned and in working order. After having positioned the shafts (5 or 6) check the alignment of the chains and then lock the shaft into position by means of the bushing stops. On the standard wheel blocks adjust the tension of the chain at the tightener (7.)

For the setting of the sprockets of the combination wheel block, read first the section entitled - Seed spacing gearbox on combination drive wheel block - and corresponding gearbox chart

**IMPORTANT:** The tire pattern on the planter wheels are mounted in the opposite direction of the tractor tires (observe the patterns).

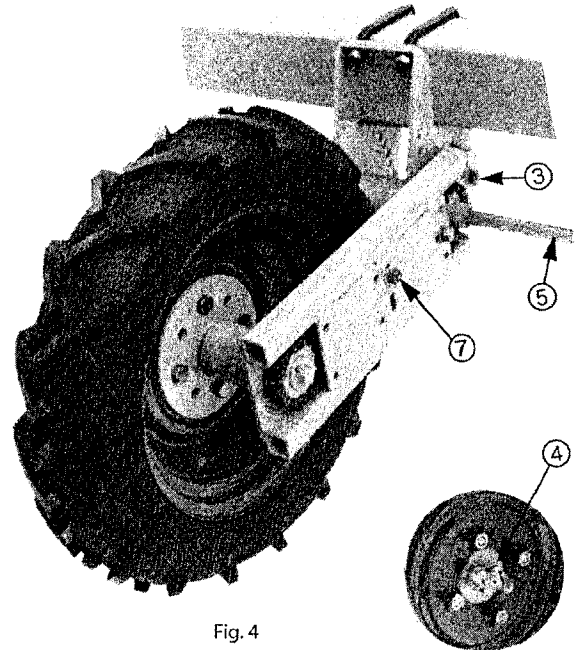


Fig. 4

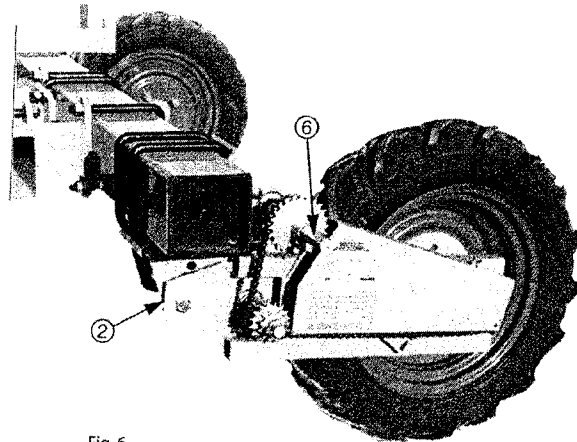


Fig. 6

#### ADJUSTABLE DRIVE WHEEL

Refer to Figure 1.

**A.** To lower the drive wheel, turn the hand wheel (1) counterclockwise.

**B.** To raise the drive wheel, turn the hand wheel (1) clockwise. The spring loaded drive wheel adjustment assembly is intended to act as a "shock absorber" on each drive wheel block. It will allow the drive wheel to flex up and down with variances in the seedbed, yet maintain contact with the soil surface and let the toolbar remain at approximately the proper operating height. To make the drive wheel block rigid, tighten the nylon locknut (2) on top of the spring housing all the way down (clockwise). This will compress the spring inside the housing and minimize any upward or downward travel of the wheel block. You may still raise and lower the drive wheel by turning the hand wheel (1) in directions A and B above. The complete assembly may be ordered as part No. 650610 and includes all items shown in figure 2.

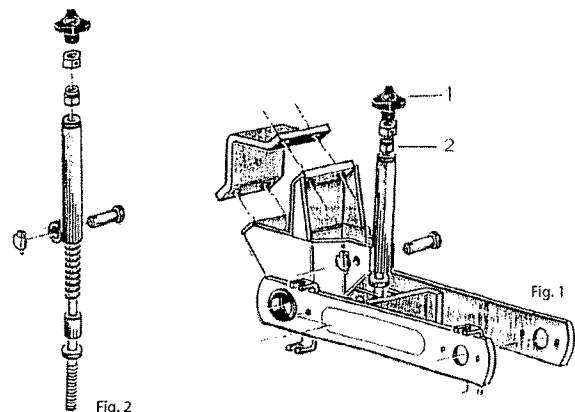
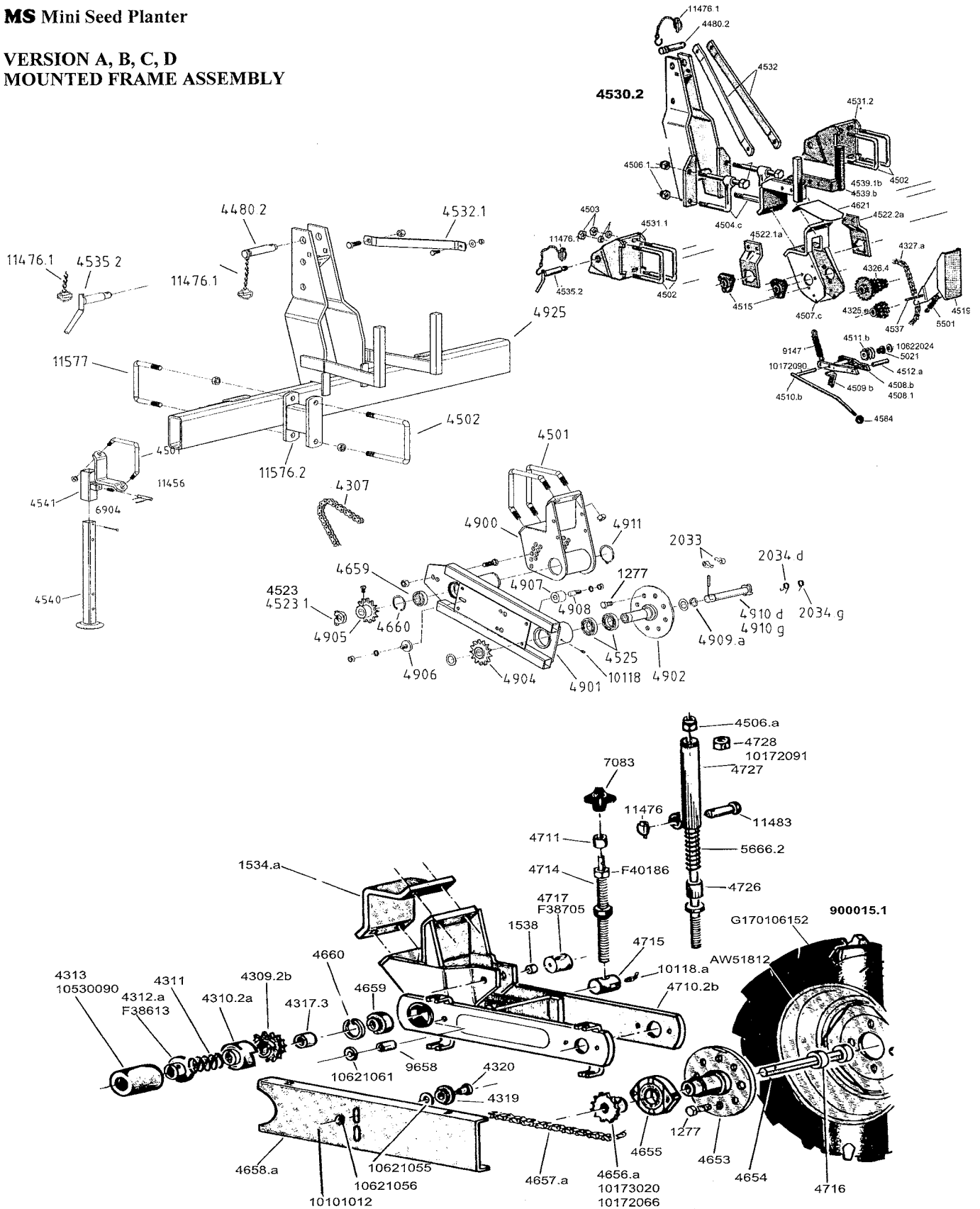


Fig. 2

**FRAME**

**MS Mini Seed Planter**

**VERSION A, B, C, D  
MOUNTED FRAME ASSEMBLY**



**FRAME**

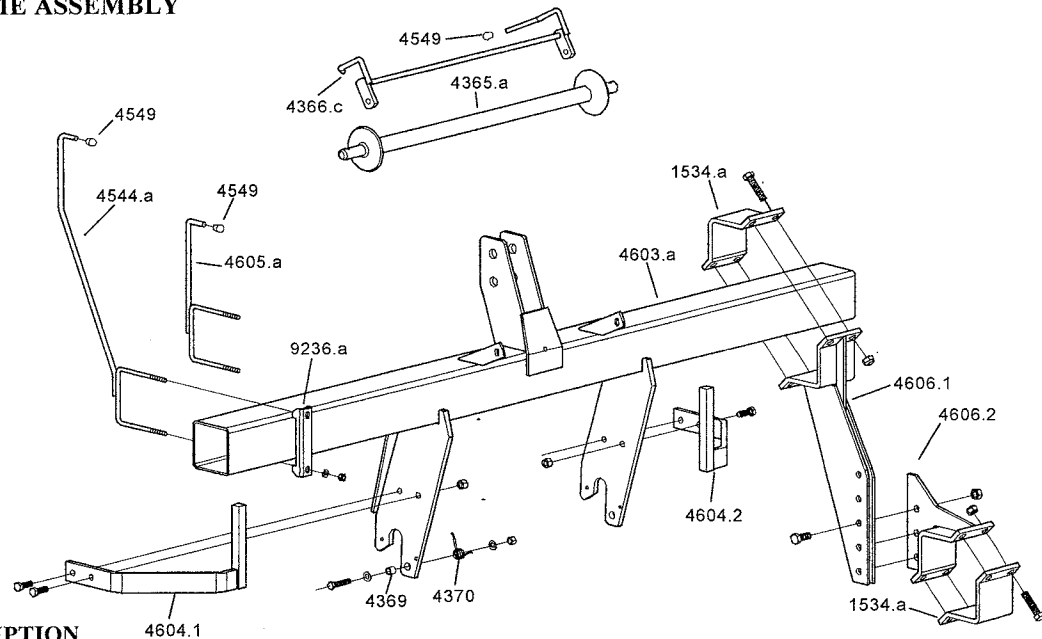
**MS Mini Seed Planter**

**VERSION A, B, C, D MOUNTED FRAME ASSEMBLY**

<b>PART No.</b>	<b>DESCRIPTION</b>	<b>PART No.</b>	<b>DESCRIPTION</b>
1277	Lug nut and bolts, 14mm x 30mm	4925	Hitch bar
1538	Spacer bushing, 12 id x18 od x10mm long	5021	Self-lubricating bushing
2033	Clutch ratchet	5501	Spring
4308	Hub, fixed drive wheel	5666.2	Spring
4311	Spring Slipclutch	6904	Spring, toolbar stand
4313	Housing Slipclutch, uses 6x10 Phillips Head	7083	Depth Control Handwheel
4317.3	Hex Spacer, 33mm	9147	Gearbox spring
4319	Chain Tightening Idler	9658	Bushing (7mm ID, 25mm long)
4320	Pin for Chain Tightener, w/ 12mm nut	10118	GREASE ZERK, 6MM STRAIGHT
4326.4	6 sprocket upper cluster (10-12-14 tooth)	11456	Locking pin, support stand
4480.2	Upper hitch pin, 1" diameter.	11476	Lynch Pin, 9mm Dia.
4501	V bolt, 16 mm	11476.1	Lynch pin, 9 mm dia w/ chain
4502	U bolt, 16 mm	11576.2	Toolbar spacer, special hitch
4503	Locking nut, 16 mm	11577	U clamp w/ Bolt
4507.1	Narrow gearbox housing	900015.1	Tire and Rim Assembly (5.90x15)
4508.1	Narrow gearbox lever	10101012	External Tooth Locking Washer, 12x20
4515	BEARING, HEX BORE W/FLANGETTES	10172066	Roll Pin, 5x35
4515.1	Bearing 7/8 hex bore	10172090	Roll Pin, 6x25
4515.2	Flangette	10172091	Roll Pin, 6x30
4517	Toolbar cap	10173020	Roll Pin, 8x40
4519	Gearbox housing shield	10530090	Phillips Head Screw, 6x10
4520	Hexagon drive shaft, specify length	10621055	Washer, 13 x 30 x 5
4523	Bushing stop	10621056	Washer, 13 x 30 x 6
4523.1	LOCK COLLAR, 7/8" HEX ,W/CROSS	10621061	Washer, 13 x 40 x 4
4525	Ball bearing, drive whl	10622024	Washer, 16.5 x 26 x 1
4530.2	Mast 3-point hitch	10624062	Washer, 36 x 58 x 1.5
4531.1	Lower left bracket, 3-point hitch	10118.a	Grease Zerk, 6mm, 45 degree
4531.2	Lower right bracket, 3-point hitch	1534.a	Counter Clamp, 120mm
4532	Straps, 3-point hitch, 565 mm	2034.d	Clutch spring whl, right
4532.1	Turbofan support strap, 340 mm	2034.g	Clutch spring whl, left
4535.1	Hitch pin	4306.a	Lower sprocket drive whl, 13T
4535.2	Hitch pin	4307.b	Chain, fixed drive wheel 13N
4537	Gearbox door pin	4309.1b	Slipclutch Sprocket, LH, 13 Tooth (w/ 4310.1a)
4540	Standard frame support stand	4309.2b	Slipclutch Sprocket, RH, 13 Tooth (w/ 4310.2a)
4541	Toolbar stand bracket	4310.1a	Claw Slipclutch, LH (C12A on casting)
4584	Gearbox knob handle	4310.2a	Claw Slipclutch, RH (C12B on casting)
4621	Gearbox shield	4312.a	Bushing & Spring Clutch (uses 8x12 bolt)
4653	Hub Drive Wheel, 8 Hole	4325.c	Triple sprocket, gearbox (T413B)
4654	Spindle, Hex shaped, for Collar	4327.a	Gearbox chain- 36 link, w/ 13 N connector link
4655	Pillow Block Complete w/Bearing	4467.d	Slipclutch Assembly complete (w/ 4309.2b & 4310.2a)
4659	Bearing	4467.g	Slipclutch Assembly complete (w/ 4309.1b & 4310.1a)
4660	Snap ring, 52 internal	4504.c	
4711	Spacer bushing, 20x 30x 25	4506.a	Nut, Nylock, 20 mm
4714	Threaded rod (standard adj)	4522.1a	Left support bracket
4715	Threaded pivot pin	4522.2a	Right support bracket
4716	Spacer for spindle (8mm hex bore)	4539.b	Turbofan mounting bracket
4717	Pivot pin (takes 12x25 bolt)	4656.a	Rear sprocket, 13T, hex bore, takes 8x40 roll pin
4726	Threaded shaft on spring loaded adj	4657.a	Chain, 13N (66 links w/ conn link)
4900	Fixed frame, MS adj drive whl blk	4658.a	Drive chain shield
4901	Articulated arm, MS adj drive whl blk	4710.1b	Support frame, w/clutch to the right (since 1994)
4902	Hub, MS adj drive whl blk	4710.2b	Support frame, w/clutch to the left (since 1994)
4904	Drive sprocket, MS drive whl blk	4909.a	Shaft spacer, MS drive whl blk
4905	Receiving sprocket, MS drive whl blk	4910.1d	Shaft, spec. MS drive whl blk w/ whl right of blk
4906	Sprocket washer stop	4910.1g	Shaft, spec MS drive whl blk w/ whl left of blk
4907	Roller tightener, MS drive whl blk	4910.d	Shaft, MS drive whl blk / whl right of blk
4908	Roller tightener shaft	4910.g	Shaft, MS drive whl blk / whl left of blk
4911	Snap ring (E 60)	4922.d	Chain shield, special drive whl, RH
4917.12	Interchangeable drive sprocket, 12 tooth	4922.g	Chain shield, special drive whl, LH
4917.14	Interchangeable drive sprocket, 14 tooth	4923.d	Removable shield on special whl unit
4917.16	Interchangeable drive sprocket, 16 tooth	4923.g	Removable shield on special whl unit
4920	Chain, special MS drive whl blk- 100 link	AW51812	Rim Only
4921	Tension idler arm	F38613	Bolt, 8x12
4924	PIN, STORAGE SPROCKET MS	F38705	Bolt, 12x25
		F39210	Bolt, 12x50
		F40186	Hex Nut, 20mm
		G17010615	Tire Only

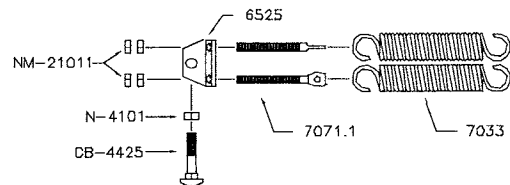
## FRAME

### ADVANCED FRAME ASSEMBLY



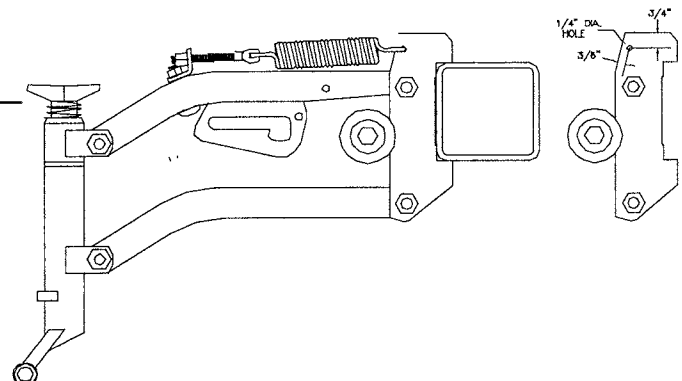
PART No.	DESCRIPTION
1534.a	Counter clamp, 120 mm
4365.a	Hitch bar, semi-automatic hitch, A12
4366.c	Locking rod for hitch bar
4369	Sleeve, locking rod
4370	Locking spring
4549	Plastic protection cap
4603.a	Hitch, advanced toolbar frame, 2m20
4603.1a	Hitch, advanced toolbar frame, 2m60
4604.1	Support bracket, turbofan, right
4604.2	Support bracket, turbofan, left
4605.a	Guide rod for advanced frame
4606	advanced hitch toolbar, complete
4606.1	Toolbar spacer
4606.2	Toolbar spacer

### UP PRESSURE SPRING ASSEMBLY



### UP PRESSURE SPRING ASSEMBLY

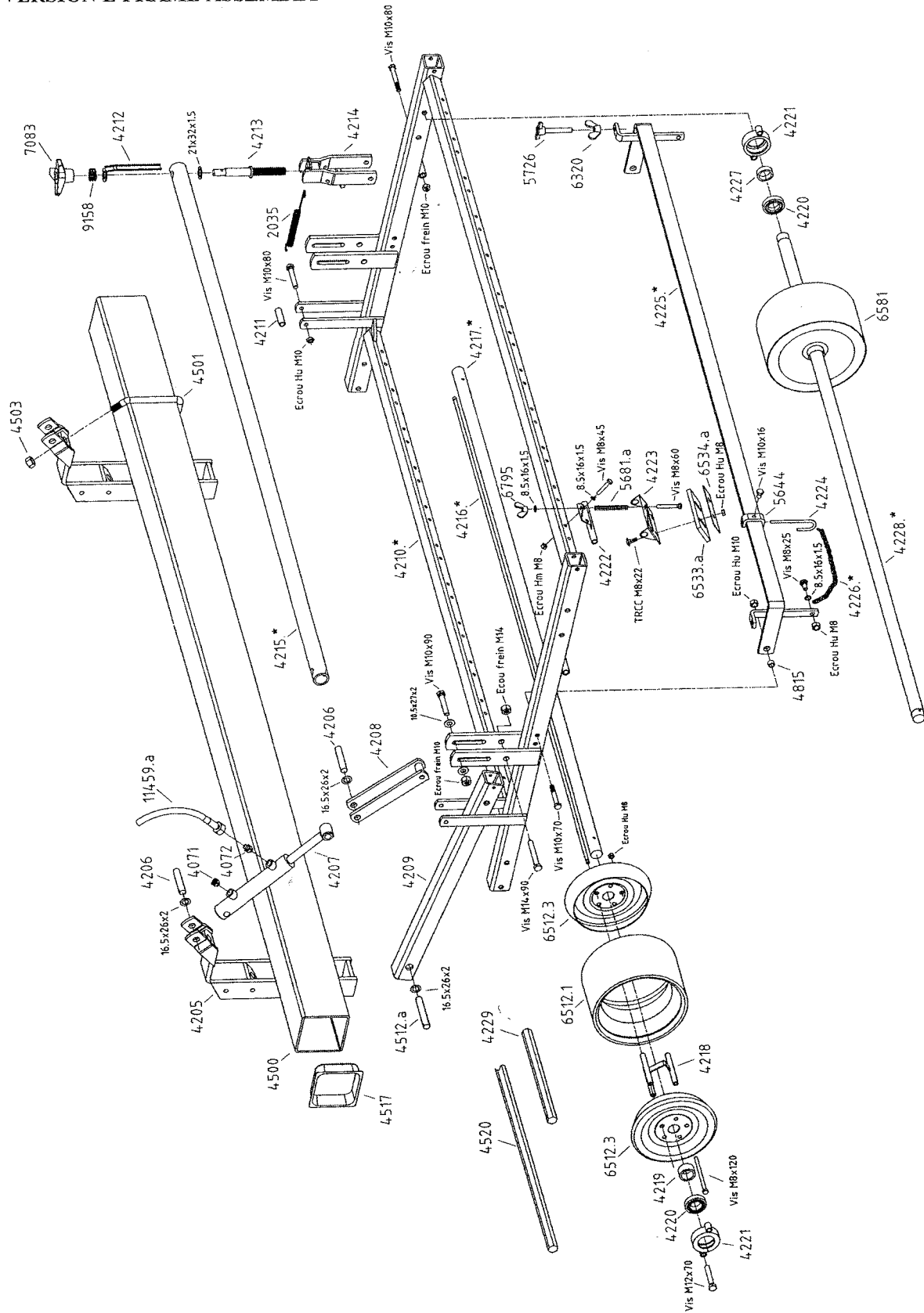
PART No.	DESCRIPTION
651086	Up pressure spring assembly
6525	Up Pressure bracket
7071.1	Tension rod
7033	Spring
CB-4425	Carriage Bolt, 1/2 - 13 x 2 1/2
N-4101	Nylon Locknut, 1/2 - 13
NM-21011	Nut, 10mm



# FRAME

## MS Planter

### VERSION E FRAME ASSEMBLY



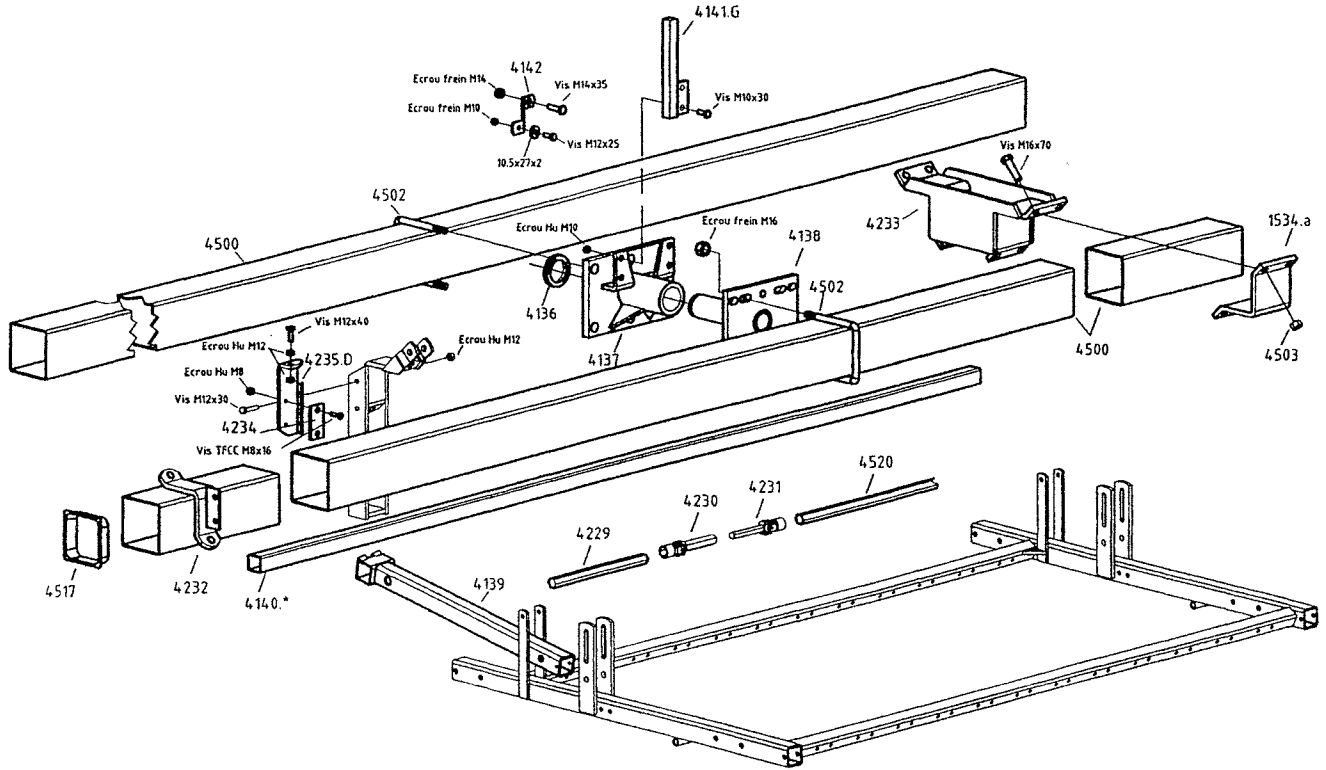
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2035	Spring
4071	Breather fitting
4072	Hose connector fitting
4205	Support bracket cylinder
4206	Pins, cylinder
4207	Cylinder
4208	Lift linkage
4209	Stabilizing linkage
4210	Frame for carrying wheels
4211	Spacer
4212	Depth gauge
4213	Screw adjustment rod
4214	Yoke with adjustable nut
4215	Depth adjustment carrier bar
4216	Threaded rod for connecting wheels
4217	Front axle for press wheels
4218	Spacer for wheel rims
4219	Busher spacer, 250x145
4220	Bearing
4221	Bearing housing
4222	Scraper support bracket
4223	Scraper mounting bracket
4224	Hanger bracket, covering chain
4225	Carrier bracket for drag chains
4226	Chain for closing furrow
4227	Bushing spacer for wheel
4228	Rear axle for SS press wheels
4229	Hex shaft for combination wheel block/gearbox
4500	Toolbar, 5"x5"
4501	V bolt, 16mm
4503	Locking nut, 16mm
4512.a	Pin, gearbox roller
4517	Cap toolbar, 5"x5"
4520	Hexagon drive shaft, specify length
4815	Spacer, bushing
5644	Adjustable bracket, covering chain
5681.a	Spring, scraper
5726	Adjusting screw, 12mm
6320	Wing nug, 12mm
6512.1	Tire, 250x145, self cleaning
6512.3	Half rim
6533.a	Greenflex scraper
6534.a	Scraper mounting plate
6581	Stainless steel press wheel
6795	Wing nut, 8mm
7083	Handwheel, depth control
9158	Spring
11459.a	Hydraulic hose
10561055	8x22, bolt
F38616	8x25, bolt
F38620	8x45, bolt
F38623	8x60, bolt
F38631	8x120, bolt
10502012	10x16, bolt
F38664	10x70, bolt
F38666	10x80, bolt
F38667	10x90, bolt
10512054	12x70, bolt
F38748	14x90, bolt
F40307	8mm nut
F40166	10mm nut
F40175	14mm nut
10620063	8.5x16x1.5, washer
10620095	10.5x27x2, washer
10622026	16.5x26x2, washer
10623009	21x32x1.5, washer

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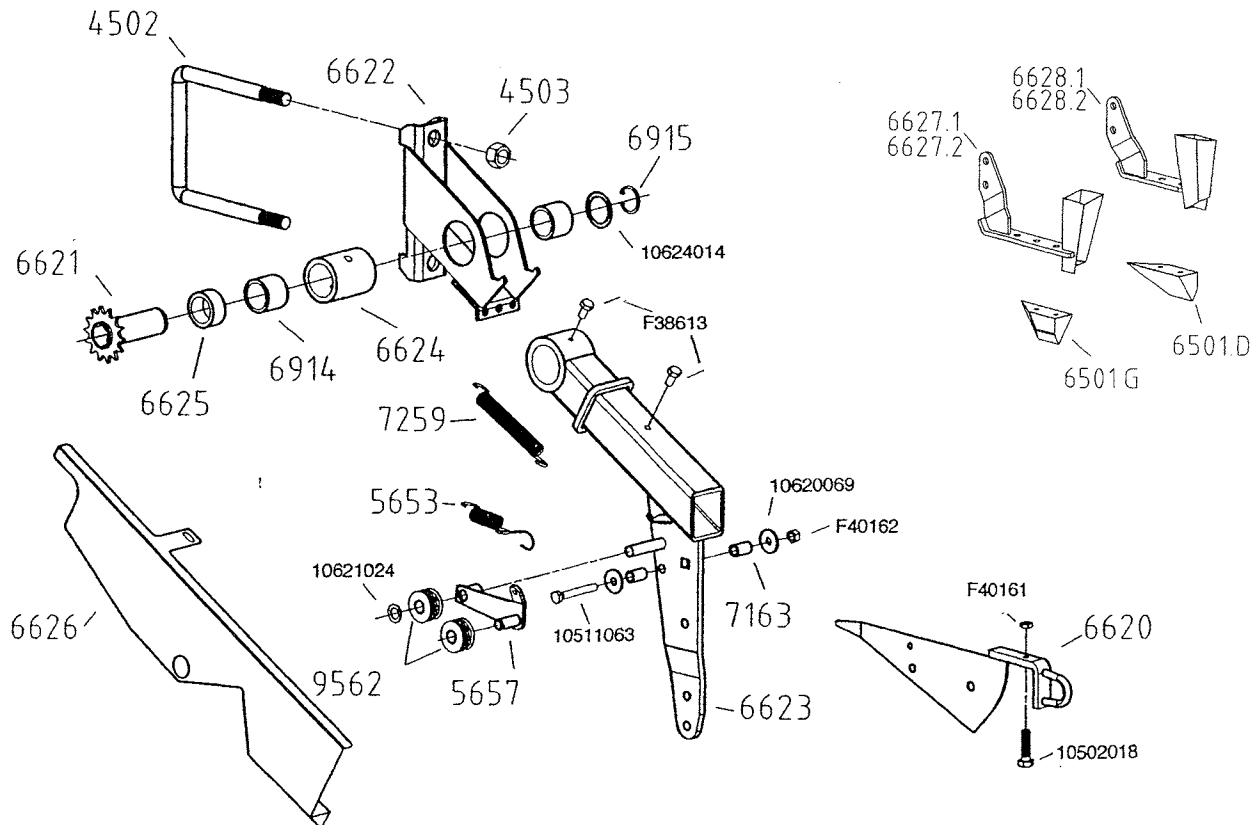


# PLANTING UNIT FRAME VERSION 1



1534.a	Counter clamp	4502	U bolt, 16mm
4136	Pivot nut, 60mm	4503	Locking nut, 16mm
4137	Front pivot block	4517	Cap toolbar, 5"x5"
4138	Rear pivot block	4520	Hexagon drive shaft, indicate length
4139	Traction tie rod		
4140.1	Torsion bar: 1880	8mm nut	
4140.2	Torsion bar: 1740	12mm nut	
4140.3	Torsion bar: 1600	14mm nut	
4140.4	Torsion bar: 1460	10mm nut	
4140.5	Torsion bar: 1320	16mm nut	
4141.D	Turbofan support bracket, right		
4141.G	Turbofan support bracket, left	8x16	
4142	Turbofan strap	10x30	
4229	Hex shaft, 320mm	12x25	
4230	Flex joint, female	12x30	
4231	Flex joint, male	12x40	
4232	Support bearing	14x35	
4233	Lateral spacer	16x70	
4234	Stop plate		
4235.D	Stop, right	10.5x27x2	
4235.G	Stop, left		
4500	Toolbar, 5"x5"		

## PLANTING UNIT FRAME, VERSION E



4502	U bolt, 16mm
4503	Locking nut, 16mm
5653	Tension spring
5657	Chain Tension Bracket
6501.D	Right hand shoe point
6501.G	Left hand shoe point
6620	Bracket
6621	Sprocket shaft
6622	Bracket
6623	Bracket
6624	Main cylinder
6625	Spacer
6627.1	Left shoe - standard 50-90mm
6627.2	Left shoe - large 90-120mm
6628.1	Right shoe - standard 50-90mm
6628.2	Right shoe - large 90-120mm
6914	Self lubricating bushing
6915	Snapping
7163	Bushing
7259	Spring
9562	Chain roller
10620069	8.5X20X1.5 washer
10621024	13x18x1.5 washer
10624014	31x41x1 washer
F40162	8 mm nut
F40161	10mm jam
F38613	6x12 bolt
10511063	8x60 bolt
10502018	10x35 bolt