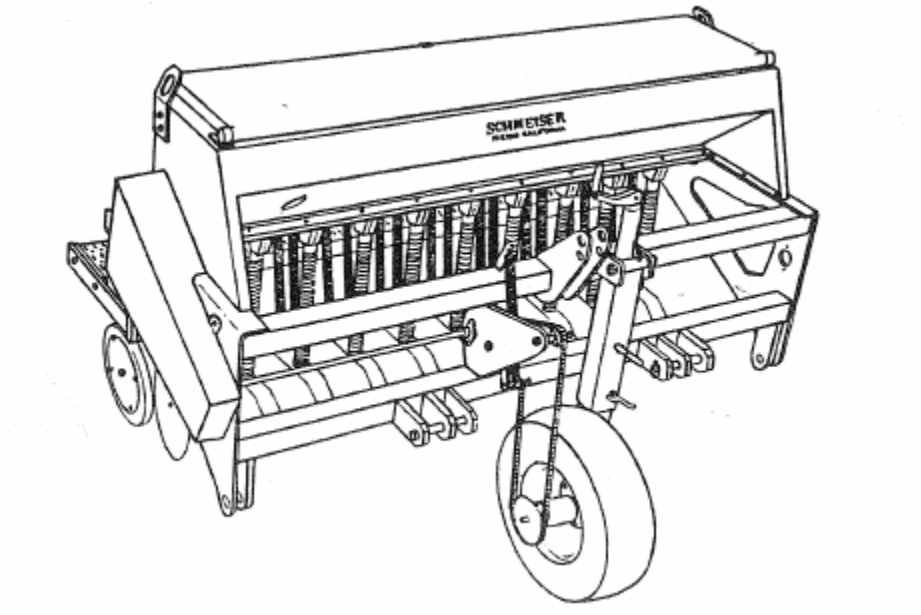
SCHMEISER VINEYARD DRILL

ASSEMBLY & PARTS MANUAL



T.G. SCHMEISER CO. INC.
P.O. BOX 1112 FRESNO, CA 93714-1112
(559) 268-8128 FAX (559) 268-3279

VERSION 1.2

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INTRODUCTION

Your Schmeiser Vineyard Drill/Seeder is designed to you many years of dependable service. This manual had been prepared to instruct you in the safe and efficient operation of this machine. Read and study it thoroughly. Follow all instruction carefully.

Should your Vineyard Drill/Seeder require replacement parts, go to your Schmeiser dealer. Always order genuine Schmeiser replacement parts.

It is important you complete and send in your Warranty Card because it is not valid unless it is on file at Schmeiser. If you need information not contained in this manual, contact your Schmeiser dealer.

Space has been provided below for you to record you model number and serial number of your drill. Be sure to bring this information with you to your dealer when ordering parts or attachments for your drill.

Thank you for buying a Schmeiser Vineyard Drill/Seeder.

SERIAL NUMBER_____

MODEL NUMBER_____

DATE PURCHASED_____

DEALER NAME _____

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SAFETY RULES

The safe operation of any machinery is a big concern to farmers and manufacturers. We have designed our Vineyard Drill/Seeder with many built-in safety features. However, no one should operate this machine before carefully reading this Owner's Manual.

1. Never permit anyone to ride on or walk beside the Grain Drill when moving.

2. Never permit anyone to ride on tractor when Drill is being moved.

3. Never allow anyone to be near Drill when performing operating functions with the Grain Drill or tractor.

4. Never load Grain drill without being hooked-up to tractor.

5. Extra care should be taken when transporting with seed in the boxes.

6. Never back Grain Drill up when openers are in ground.

7. Reduce speed of tractor when transporting over uneven or rough terrain. Avoid all chuck holes and washboard area in roads.

8. Reduce speed of tractor when transporting over hills or steep slopes.

9. Always set Grain Drill in field position before lubrication.

10. Do NOT lubricate, adjust or repair the Grain Drill while it is in operation.

11. When in transport, use accessory lights and devices for adequate warning to operators of other vehicles, and use safety chains. Comply with all Federal, State and local laws when traveling on public roads.

12. Use "Slow Moving Vehicle" emblem for warning vehicles approaching from the rear.

13. Do NOT permit smoking, sparks or an open flame where combustible lubricants or liquids are being used.

14. When using treated grain, avoid direct contact with the seed.

15. When using compressed air to clean Drill, wear safety glasses.

16. When transporting, remember the Drill may be wider than your tractor and extreme care must be taken to allow for safe clearance.

SCHMEISER VINEYARD DRILL/SEEDER
SEED RATE ADJUSTMENTS

Note: Seeding rates will vary greatly with variations in sizes of seeds. Although the seeding rates listed in this manual are based on an average seed size, we recommend that you test and adjust your Vineyard Drill/Seeder using the procedures listed below.

1) There are many factors which will affect seeding rates: Seed treatment, weight of seed, size of seed, surface condition of seed, tire configuration and pressure, and tire slippage. Minor adjustments will probably be needed to compensate for the above factors.

2) The rates listed in the seed charts are based on the gauge wheel drive having a 20.5 x 8.0 x 10 tire with the recommended tire inflation.

3) The large differences in seed size and treatment can cause a wide variation in actual seeding rates. The rate charts are based on average size seed. This may differ from the seed you are using. use the seed rate charts as a guide only. Set the pounds per planted acre desired at the indicator number and complete the following procedure to calibrate the rate for specific seed.

   a. Place several pounds of seed over three of feeder cups at the outboard end of the Vineyard Drill/Seeder.
   b. Pull the seed tubes out of these three drops.
   c. Raise the drive wheel off the ground using a jack.
   d. Rotate the tire to see that the drive system is working properly and that the feed cups are free from foreign matter.
   e. Place a container under the three seed tubes to gather the seed as it is metered.
   f. On 4ft. wide models rotate the tire 46 times to get 1,000 square feet. On 6ft. wide models rotate the tire 32 times to 1,000 square feet. Be sure to check the three feeder cups to make sure each cup has plenty of seed coming into it.
   g. Weigh the seed which has been metered. Divide by three. This will give you the ounces/pounds metered by each feeder cup. Multiply by the number of cups on your vineyard drill to arrive at the total pounds per 1,000 square feet. Now multiply by 43.56 to arrive at the total pounds per planted acre! If this figure is different than desired, set your feed cup adjustment lever accordingly

4) You may want to repeat the calibration procedure if the results of your calibration vary greatly from the suggested settings contained in this manual.

REMEMBER: Tire size and field conditions will also affect seeding rates. Be certain that your Vineyard Drill/Seeder tires are 20.5 x 8.0 x 10 and that they have the proper inflation. When seeding, check the amount of seed you are using by noting area seeded, amount of seed added to box, and level of seed in seeder box. If you suspect that you are seeding more or less seed than desired, and you have accurately calibrated the Vineyard Drill/Seeder to your seed, you may need to adjust the seeding rate slightly to compensate for your field conditions.

SEEDING RATES FOR SCHMEISER VINEYARD DRILL/SEEDER 1-1-93

Rates in Pounds per Planted Acre

Sprocket Combination: 15/25 x 15/33

Seed	Seed Cup Calibration										Suggested
	10	20	30	40	50	60	70	80	90	100	Pounds/Acre
Pearl Millet	34	68	96	128	160	190	222	257	289	321	40-60#/acre
Winter Forage #1	19	37	78	105	131	160	186	208	234	260	100-125#/acre
Westerwald Annual Ryegrass	16	33	48	65	81	89	103	111	125	139	25-35#/acre
Blando Brome	1	2	3	4	5	4	5	5	6	6	6-18#/acre
Crimson/Berseem	37	75	106	142	177	215	251	269	303	337	20-30#/acre
Cahaba Vetch	44	88	121	161	201	256	299	333	374	416	40-100#/acre
Cahaba/Barley Mix	40	79	121	161	201	266	310	319	359	399	40-100#/acre
Germain's Cover Crop #1	32	63	109	146	182	286	334	312	351	390	70-100#/acre
Cover Crop #2	24	49	108	144	180	238	278	308	346	385	120-150#/acre
Cover Crop #3	29	58	126	168	211	298	348	360	405	450	120-150#/acre
Annual Clover Mix	49	99	123	164	205	241	281	290	326	362	30-35#/acre
Germain's Insectary Mix	30	61	88	118	147	173	202	214	241	268	15-25#/acre
Perennial Clover	36	71	100	133	166	187	218	206	232	258	20-30#/acre
Cover Mate	13	25	37	49	62	70	82	86	96	107	25-35#/acre
Chinese Red Cowpea	0	0	0	0	0	0	0	0	0	0	40-60#/acre
Common Vetch	29	57	88	117	146	200	234	264	297	330	50-80#/acre
Purple Vetch	41	83	133	177	221	274	320	322	363	403	50-80#/acre
Wooly Pod Vetch	39	78	130	173	216	300	351	342	385	427	40-80#/acre
Buckwheat	27	54	82	109	136	176	206	227	255	283	30-60#/acre
Sudan Grass Bravo	29	58	88	118	147	171	200	218	245	272	25-50#/acre
Merced Ryegrain	37	75	106	141	176	213	248	259	292	324	60-80#/acre
Winter Forage #2	19	37	78	105	131	160	186	208	234	260	

CAUTION: THESE RATES ARE APPROXIMATE ONLY. PLEASE VERIFY OUPUT PROIR TO FIELD USE.

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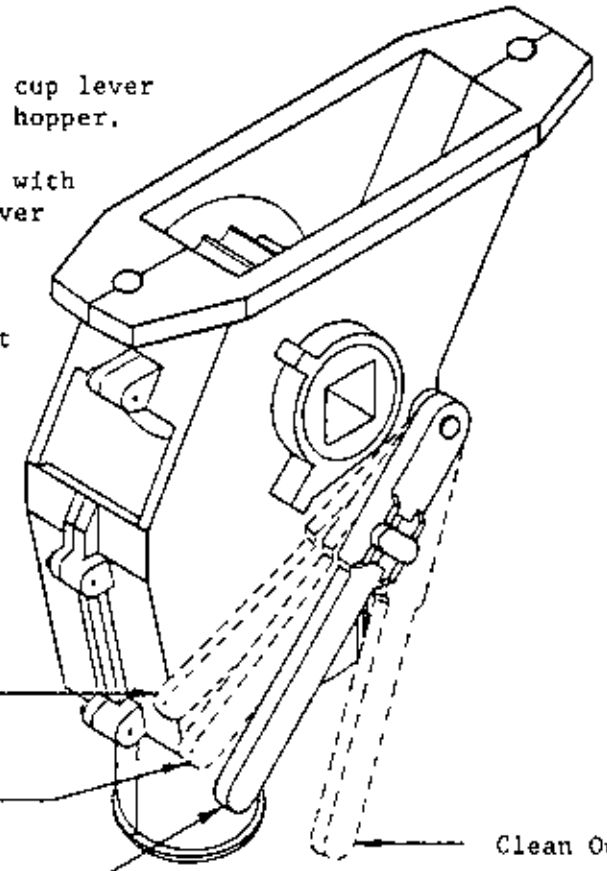
SEED CUP

IMPORTANT: Be sure to adjust seed cup lever position prior to loading seed in hopper.

WARNING!! Closing seed cup lever with seed in cup may damage or break lever

It is important to select the correct lever position. The incorrect position may cause a) seed damage b) excessive wear on fluted nylon sprocket or c) cup damage.



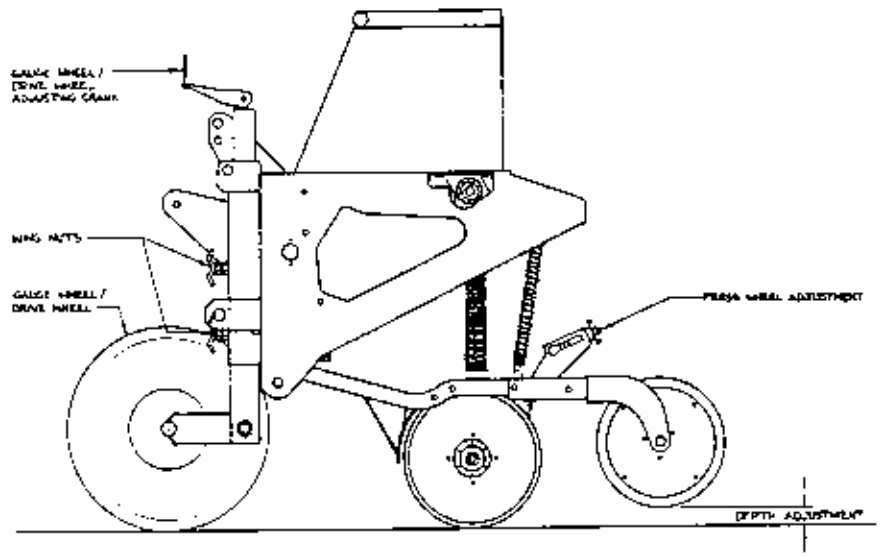
VINEYARD DRILL		
SCALE: HALF SIZE	APPROVED BY:	DRAWN BY M. JACOBY
DATE: 11/23/92		REVISED
SEED FEEDER CUP - ISOMETRIC		
		DRAWING NUMBER

PLANTING DEPTH ADJUSTMENTS

Your Schmeiser Vineyard drill is designed to run level to the ground when in planting position. Minor adjustments may be required to achieve the desired seed placement.

GAUGE WHEEL/DRIVE WHEEL ADJUSTMENTS

Gauge wheel/drive wheel adjustments are made in order to allow your openers to travel both up and down and follow the contour of the ground. In order to adjust your gauge wheel/drive wheel loosen the two wing nuts located on the adjusting crank housing. By lengthening the adjusting crank, the gauge wheel/drive wheel is lowered causing less opener spring rod extension through the spring rod casting. This in turn causes less downward float of your openers. By shortening the adjusting crank, the gauge wheel is raised causing more spring rod to protrude through the opener spring rod casting which in turn causes more downward float of your openers.



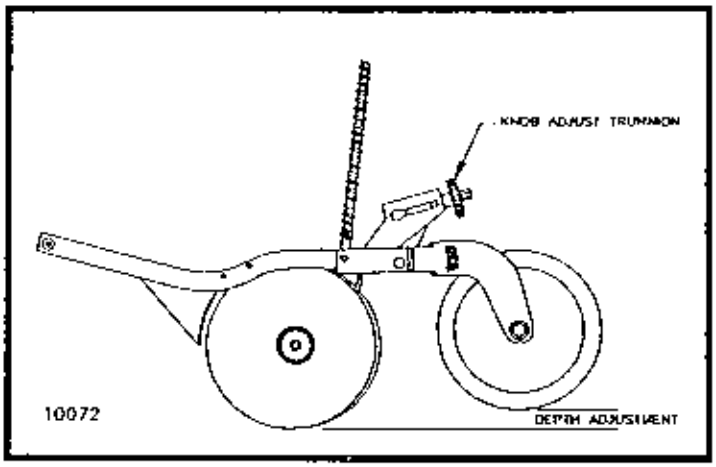
Check the spring rods cross bolts at the top of the spring rods to see that they are extended about 2" above their spring rod casting. This is a general dimension and may vary with spring rod down-pressure that you require for different soil conditions and planting depths. If you require more downward float on your openers, you may want to increase this dimension. Keep in mind that when this dimension is increase your upward motion is decreased, limiting the vertical travel of the openers for running over rocks and other foreign objects.

IMPORTANT: **If your opener's vertical travel is decreased considerable damage will occur to your openers.**

After adjusting the gauge wheel/gauge wheel, be certain to tighten up both wing nuts.

PRESSWHEEL - OPENER LINKAGE DEPTH ADJUSTMENT

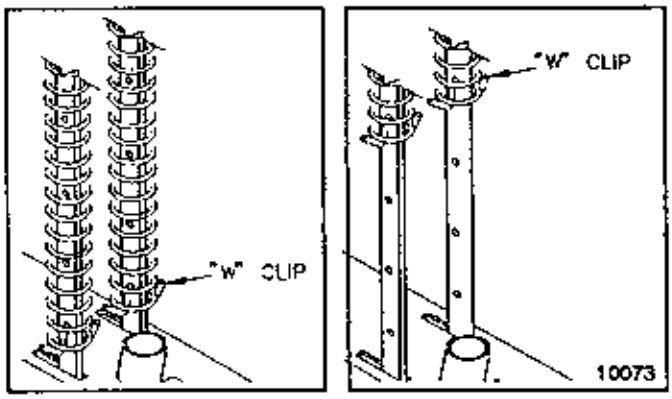
The depth of each opener is controlled by the height of the press wheel. For varying the height of the press wheel which automatically changes the seeding depth of the opener, simply rotate the knob located directly above each press wheel until the seeding depth is correct. A self-locking spring clip holds the knob at your setting to maintain the proper depth.



Direct Link Press Wheel Adjustment

DISK OPENER SPRING PRESSURE SETTING

Each opener spring can be adjusted for down pressure. This is useful when penetrating hard soil and for planting in tractor tire tracks. To adjust the pressure, remove the "W" clip at the bottom of the spring and place it in a higher hole in the spring rod for more pressure and in a lower hole for less pressure (see below). If too much penetration is achieved at the lowest pressure setting the "W" clips may be completely removed.



Minimum Pressure Maximum Pressure

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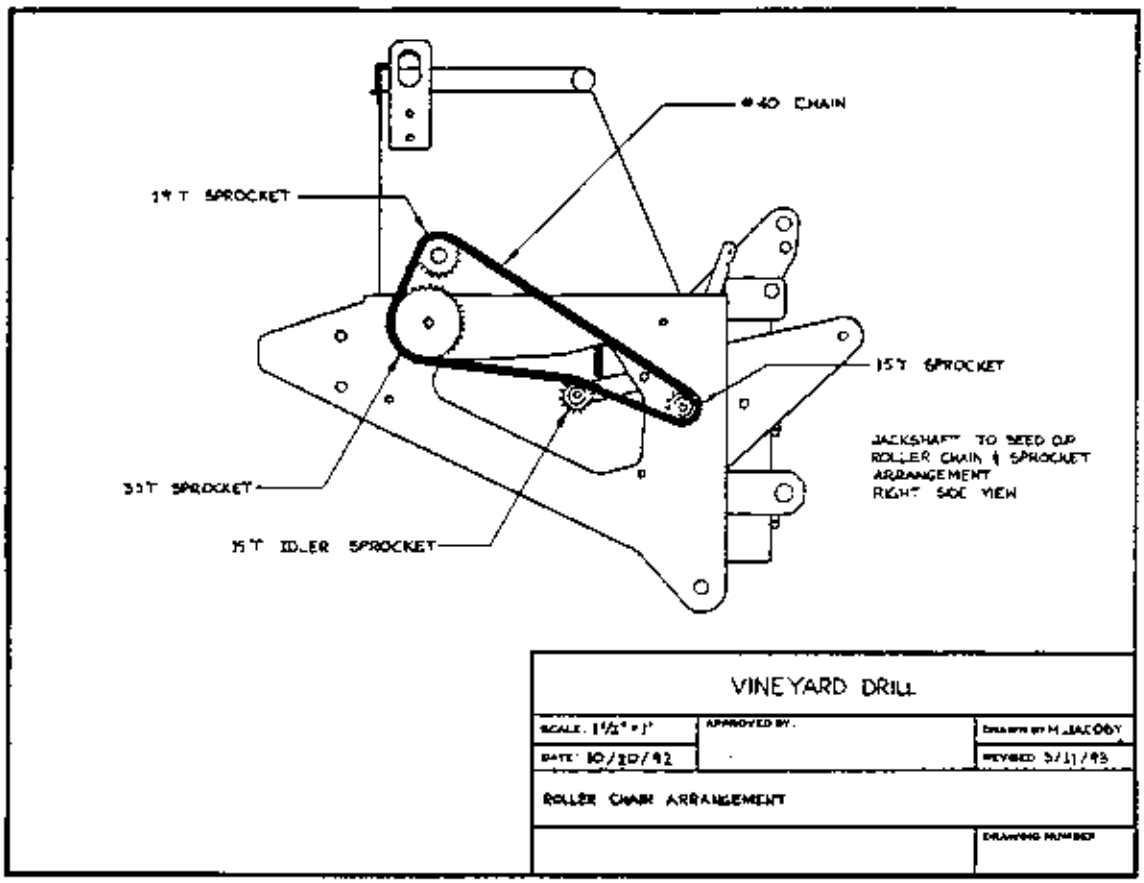
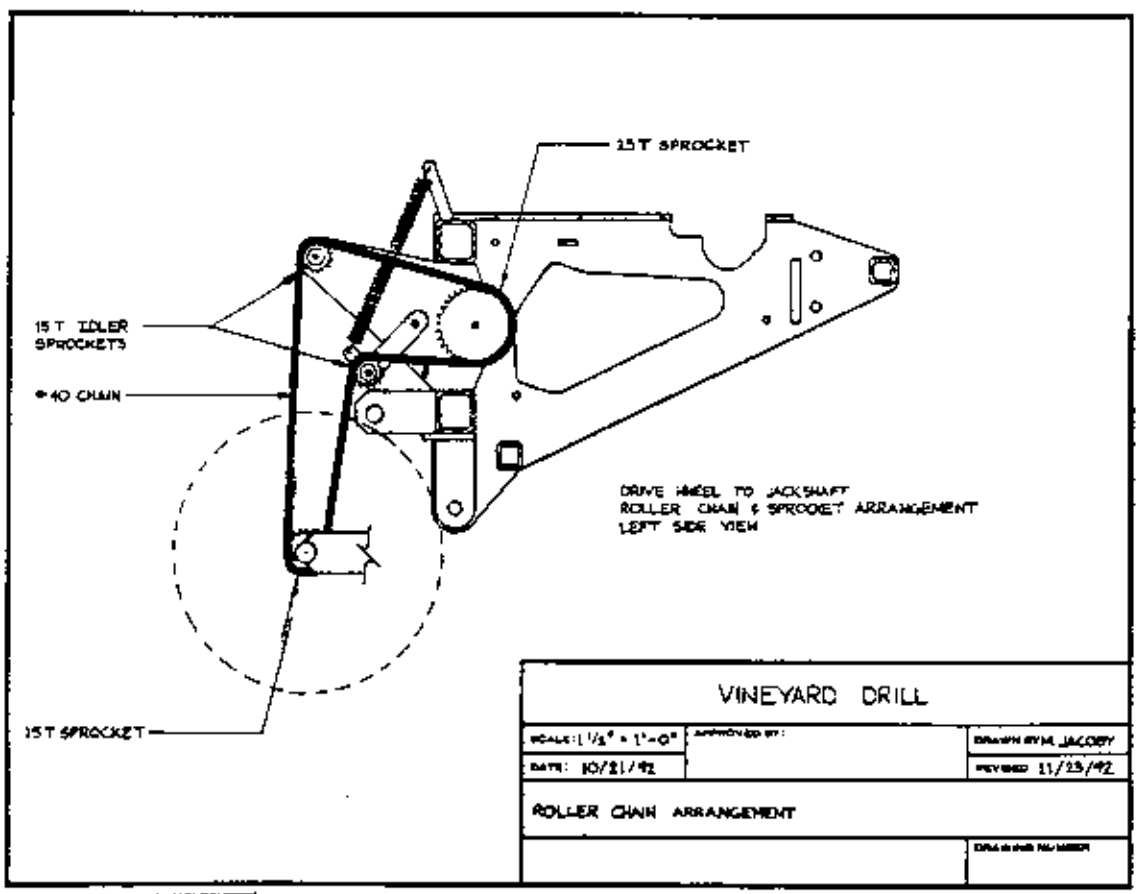
SPROCKET AND CHAIN ASSEMBLIES

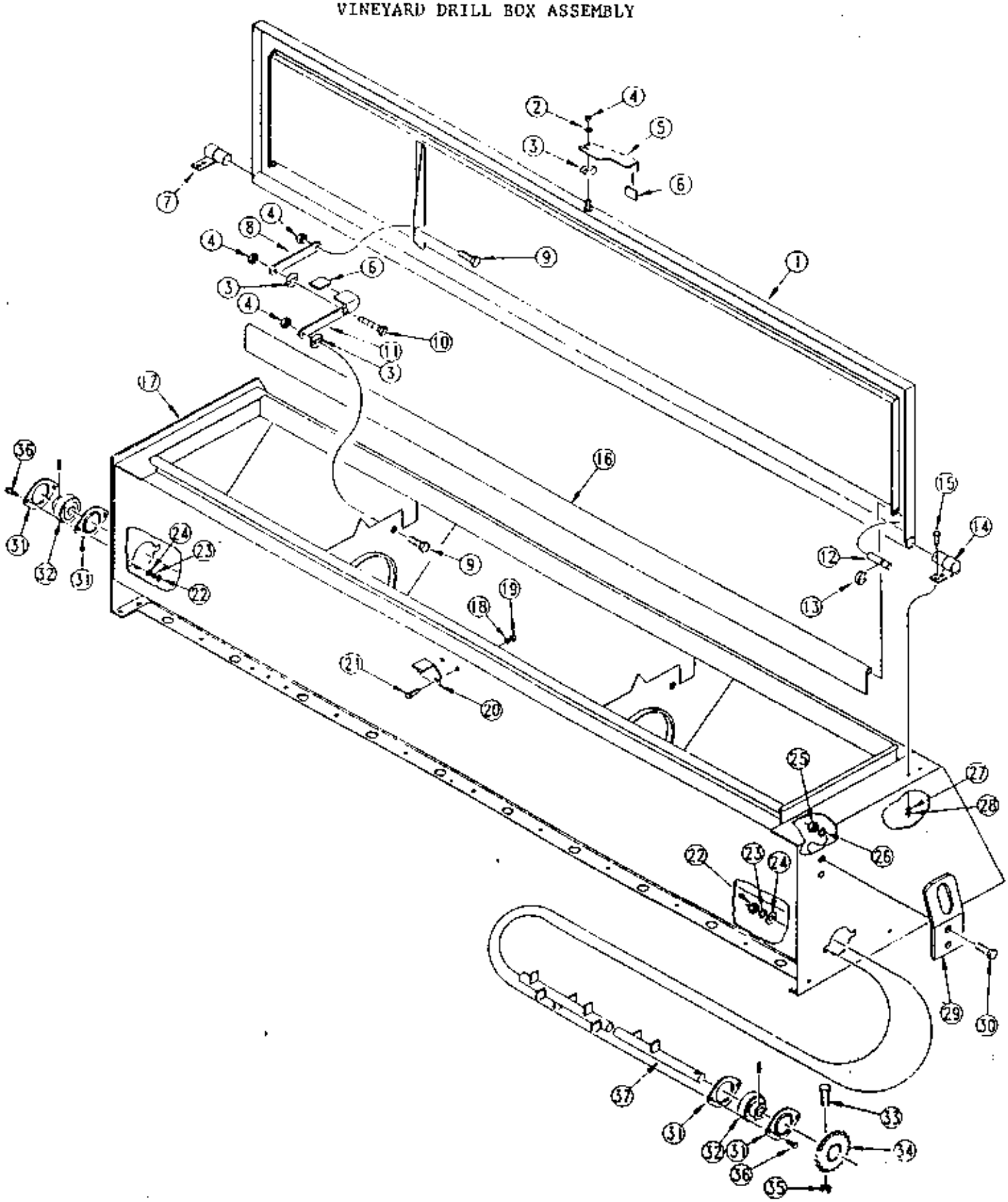




VINEYARD DRILL BOX ASSEMBLY

Ref No.	Part No.	DESCRIPTION
1.	308-002H	Overseeder Lid Weldment OS1572
	308-081H	Overseeder Lid Weldment OS1548
2.	804-036C	Washer, Flat 5/16" SAE
3.	804-056C	Washer, Wave Spring 5/16"
4.	803-084C	Nut, Hex Lock Collared 5/16"-18
5.	179-023D	Lid Latch-Handle
6.	817-033C	Lid Latch Grip
7.	179-004H	Lid Hinge Weldment-Left Hand
8.	179-022D	Lid Latch-Upper Arm
9.	802-159C	Bolt, Hex Head 5/16"-18 x 1" Long Gr 5 Plated
10.	801-024C	Screw, Countersunk 5/16"-18 x 82" x 3/4" Long Plated
11.	179-021D	Lid Latch-Lower Latch
12.	179-025D	Seed Diverter Pin
13.	800-048C	Ring, Snap External "E" 5/8" IRR #E-62
14.	179-005H	Lid Hinge Weldment-Right Hand
15.	802-017C	Bolt, Hex Head 3/8"-16 x 1" Long Gr 5 Plated
16.	308-117D	Seed Diverter OS1572
	308-175D	Seed Diverter OS1548
17.	308-164H	Seedbox OS1548
	308-165H	Seedbox OS1572
18.	804-004C	Washer, Internal Star #10 Plated
19.	803-001C	Nut, Hex #10-24 Plated
20.	179-030D	Rear Lid Latch Strike
21.	801-021C	Screw, Round Head #10-24 x 3/4" Long Plated
22.	803-008C	Nut, Hex 5/16"-18 Gr 2 Plated
23.	804-009C	Washer, Lock Spring 5/16" Plated
24.	804-010C	Washer, Flat 5/16" USS Plated
25.	803-020C	Nut, Hex 1/2"-13 Gr 2 Plated
26.	804-015C	Washer, Lock Spring 1/2" Plated
27.	804-013C	Washer, Lock Spring 3/8" Plated
28.	803-014C	Nut, Hex 3/8"-16 Gr 2 Plated
29.	308-193D	Overseeder Sling Bracket
30.	802-258C	Bolt, Hex Head 1/2"-13 x 1" Long Gr 5
31.	822-041C	Flangette 47 MST
32.	822-040C	Bearing 3/4" Bore Fafnir #RA12RRB
33.	802-167C	Bolt, Hex Head 1/4"-20 x 1 1/2" Long Gr 5
34.	202-002H	Sprocket, Speed Change 19T
35.	803-007C	Nut, Lock Dimpled 1/4"-20 Plated
36.	802-007C	Bolt, Hex Head 5/16"-18 x 3/4" Long Gr 5
37.	308-003H	Agitator Weldment OS1572
	308-085H	Agitator Weldment OS1548

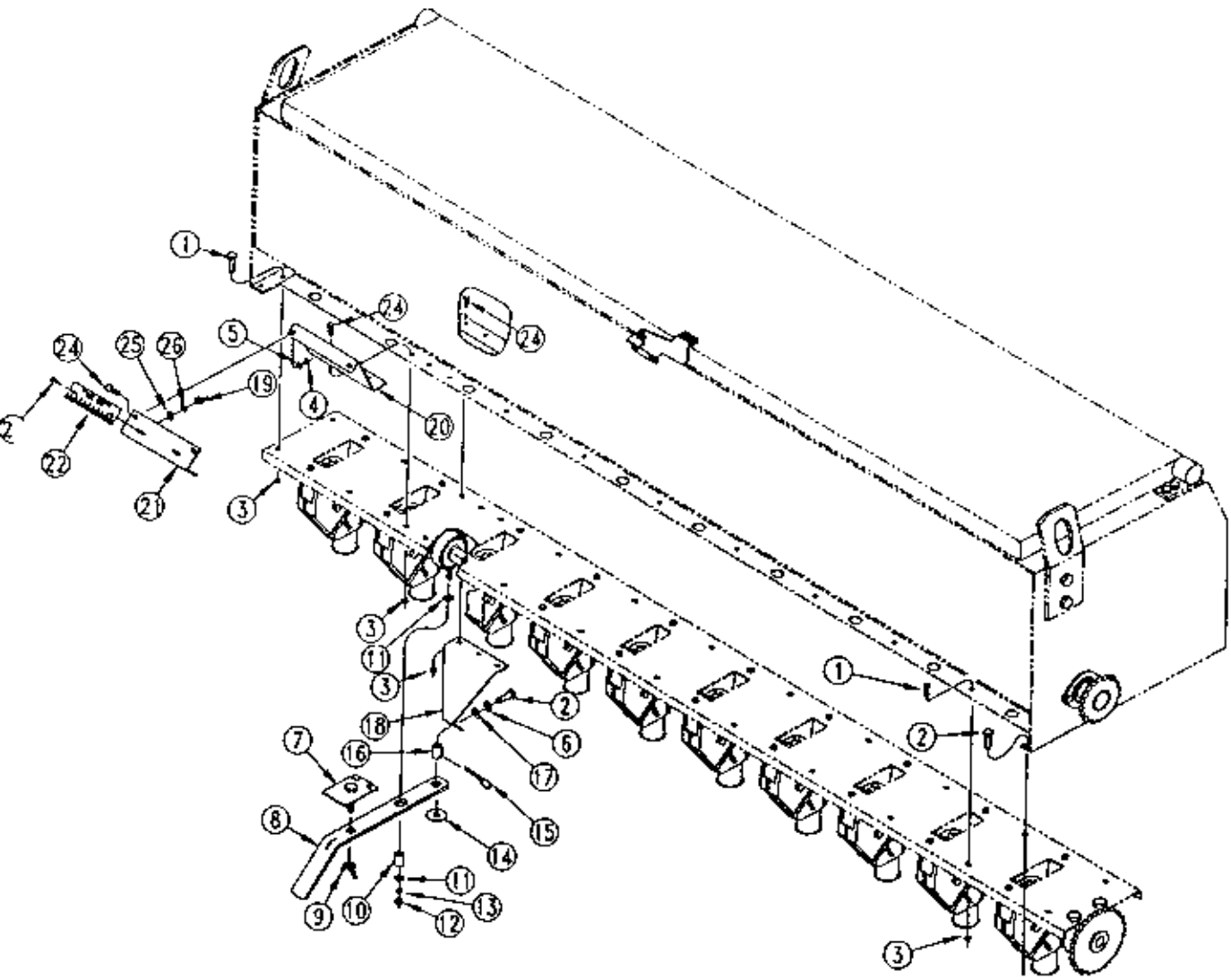
VINEYARD DRILL BOX ASSEMBLY



FEEDER CUP AND DRIVE COMPONENTS

Ref No.	Part No.	DESCRIPTION
1.	802-148C	Bolt, Whiz Head 1/4"-20 x 1/2" Long
2.	802-017C	Bolt, Hex Head 3/8"-16 x 1" Long
3.	803-088C	Nut, Hex Lock Flanged 1/4"-20
4.	803-006C	Nut, Hex 1/4"-20 Gr 2 Plated
5.	804-006C	Washer, Lock Spring 1/4" Plated
6.	804-013C	Washer, Lock Spring 3/8" Plated
7.	109-025H	Adjustment Lock Plate
8.	308-306D	Seed Rate Adjustment Handle
9.	803-016C	Nut, Wing 1/2"-13 Plated
10.	308-015D	Seed Adjustment Bearing Ring Pivot
11.	804-010C	Washer, Flat 5/16" USS Plated
12.	803-008C	Nut, Hex 5/16"-18
13.	804-009C	Washer, Lock 5/16"
14.	804-019C	Washer, Flat 5/8" USS Plated
15.	805-016C	Pin, Cotter 3/16" x 1 1/4" Long Plated
16.	109-069D	Adjustment Handle Pivot
17.	804-012C	Washer, Flat 3/8" SAE Plated
18.	313-054D	Pivot Handle Adjustment Mounting
19.	803-035C	Nut, Hex #8-32 Brass
20.	313-055D	Gauge Mounting Plate
21.	313-056D	Seed Gauge Mount Plate
22.	819-005C	Name Plate Adjustment Gauge Short
23.	801-001C	Screw, Round Head #8-32 x 3/8" Brass
24.	802-196C	Bolt, Hex Flange 1/4"-20 x 5/8" Long
25.	804-003C	Washer, Flat #8 Brass
26.	804-002C	Washer, Internal Star #8 Brass

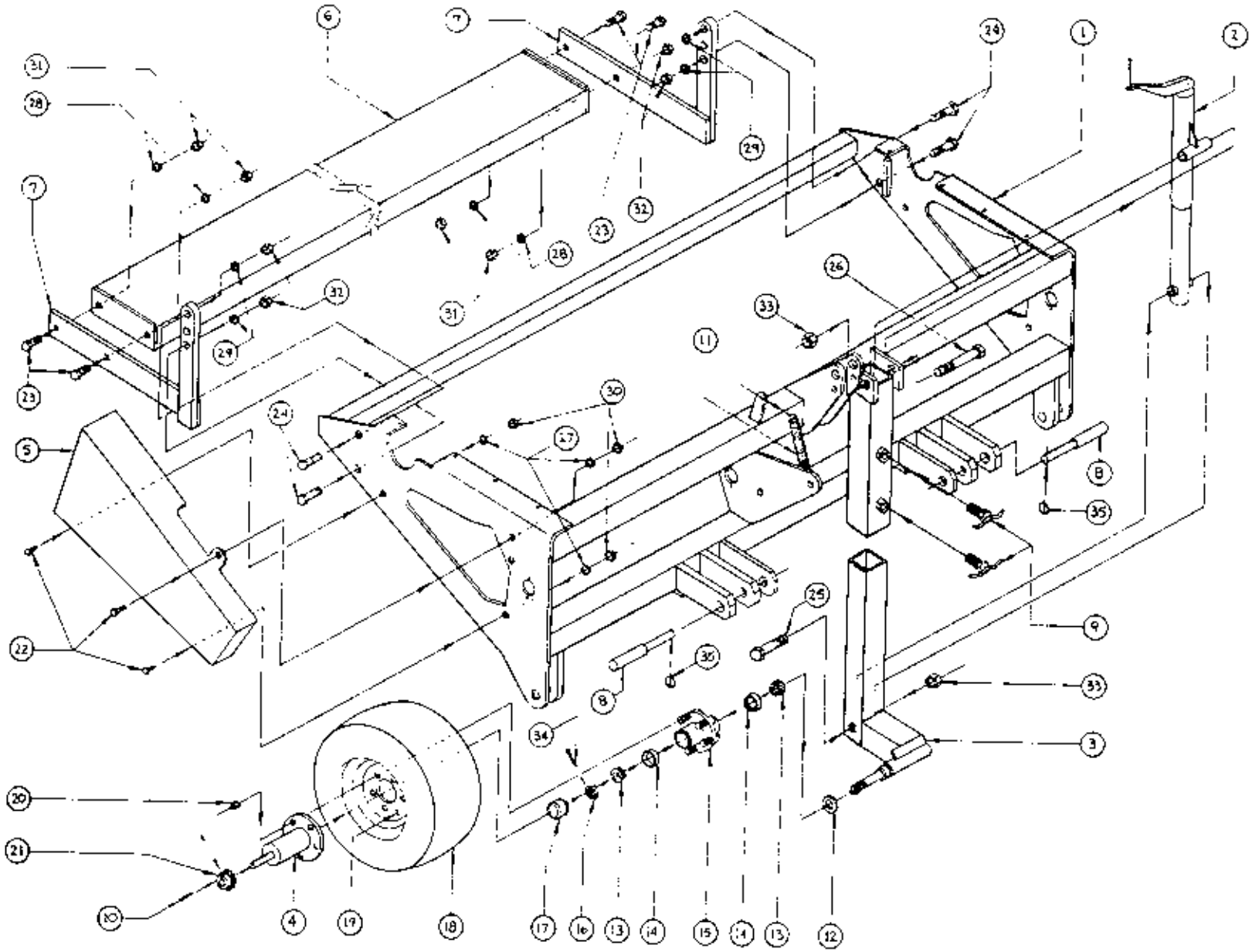
FEEDER CUP AND DRIVE COMPONENTS



MAIN FRAME, WHEEL LEG, CHAIN GUARD & WALK BOARD ASSEMBLIES

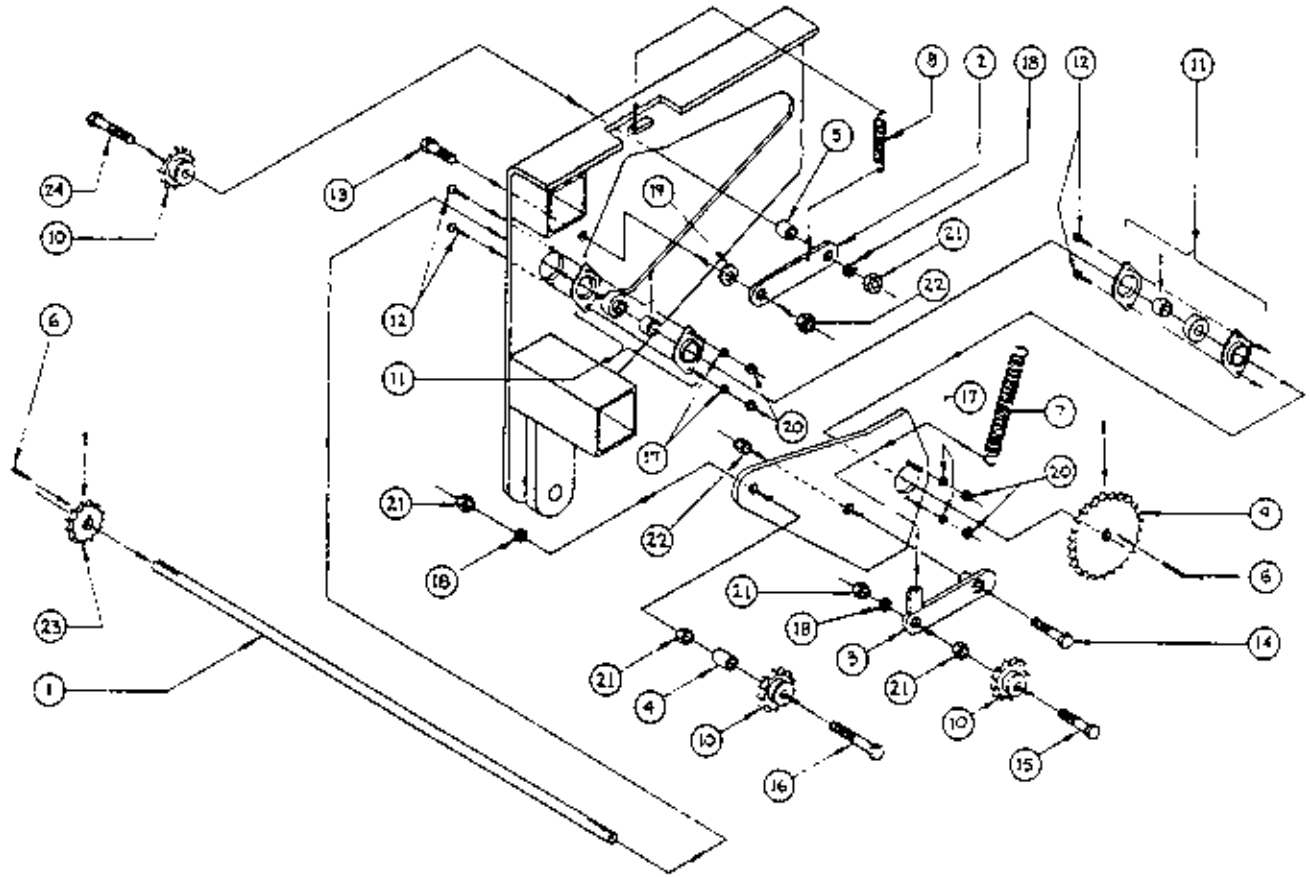
REF No.	PART No.	DESCRIPTION	QTY	
1	DDD-MF	MAIN FRAME	1	
2	DDD-JS	JACK SCREW	1	
3	DDD-WL	WHEEL LEG	1	
4	DDD-WS	WHEEL SHAFT	1	
5	DDD-MF-2	CHAIN GUARD	1	
6	DDD-WK	WALK BOARD	1	(optional)
7	DDD-WB	WALK BOARD BRACKETS	2	(optional)
8	TP3HS-15	CLEVIS PIN Cat. 1 & 2	2	
9	DDD-MF-18	ADJUSTMENT HANDLES	2	
10	DDD-WS-5	SPROCKET KEY	1	
11	DDD-MFB-1	7" TENSION SPRING	1	
12	DDD-MFB-2	OIL SEAL	1	
13	DDD-MFB-3	BEARING CONE	2	
14	DDD-MFB-4	BEARING CUP	2	
15	DDD-MFB-5	HUB, 5 STUDS	1	
16	DDD-MFB-6	CASTLE NUT	1	
17	DDD-MFB-7	HUB CAP	1	
18	DDD-MFB-8	20.5 x 8 x 10 TIRE	1	
19	DDD-MFB-9	8 x 10 WHEEL, 5 on 5	1	
20	DDD-MFB-10	LUG NUTS	5	
21	DDD-MFB-11	15 TOOTH SPROCKET	1	
22	----	3/8" x 1" HEX HEAD Gr.5 z/p BOLTS	3	
23	----	1/2" x 1-1/2" HEX HEAD Gr.5 z/p BOLTS	4	(optional)
24	----	3/4" x 2" HEX HEAD Gr.5 z/p BOLTS	4	(optional)
25	----	1" x 4" HEX HEAD Gr.5 z/p BOLTS	1	
26	----	1" x 5-1/2" HEX HEAD Gr.5 z/p BOLTS	1	
27	----	3/8" LOCKWASHERS	3	
28	----	1/2" LOCKWASHERS	4	(optional)
29	----	3/4" LOCKWASHERS	4	(optional)
30	----	3/8" HEX NUTS	3	
31	----	1/2" HEX NUTS	4	(optional)
32	----	3/4" HEX NUTS	4	(optional)
33	----	1" HEX NUTS	2	
34	----	1/4" x 1-1/2" COTTER PIN	1	
35	----	1/4" x 1-3/4" LYNCH PINS	2	

MAIN FRAME, WHEEL LEG, CHAIN & WALKBOARD ASSEMBLIES



JACK SHAFT, SPROCKET, IDLER & BEARING ASSEMBLIES

REF No.	PART No.	DESCRIPTION	QTY
1	DDD-MF-17	MAIN FRAME JACK SHAFT	1
2	DDD-IDL-2	END PLATE TENSIONER ARM	1
3	DDD-IDL-3	CENTER TENSIONER ARM	1
4	DDD-IDL-3A	BUSHING, 15/16" LONG	1
5	DDD-IDL-1	BUSHING, 3/4" LONG	1
6	DDD-WS-5	SPROCKET KEY	2
7	DDD-MFB-1	7" TENSION SPRING	(1)
8	DDD-IDLB-1	2-1/2" TENSION SPRING	1
9	DDD-MFB-12	25 TOOTH SPROCKET	1
10	DDD-IDLB-2	15 TOOTH IDLERS	3
11	DDD-MFB-13	STAMPED FLANGE BEARINGS	2
12	----	1/4" x 1" CARRIAGE SQUARE NECK BOLTS	4
13	----	1/2" x 1-1/2" HEX HEAD Gr.5 z/p BOLT	1
14	----	1/2" x 2" HEX HEAD Gr.5 z/p BOLT	1
15	----	1/2" x 2-1/2" HEX HEAD Gr.5 z/p BOLT	1
16	----	1/2" x 3-1/2" HEX HEAD Gr.8 z/p BOLT	1
17	----	1/4" LOCK WASHERS	4
18	----	1/2" LOCK WASHERS	3
19	----	1/2" FLAT WASHER	1
20	----	1/4" HEX NUTS	4
21	----	1/2" HEX NUTS	5
22	----	1/2" NYLON LOCKNUTS	3
23	DDD-MFB-11	15 TOOTH SPROCKET	1
24	----	1/2" x 3" HEX HEAD Gr. 5 z/p BOLT	1



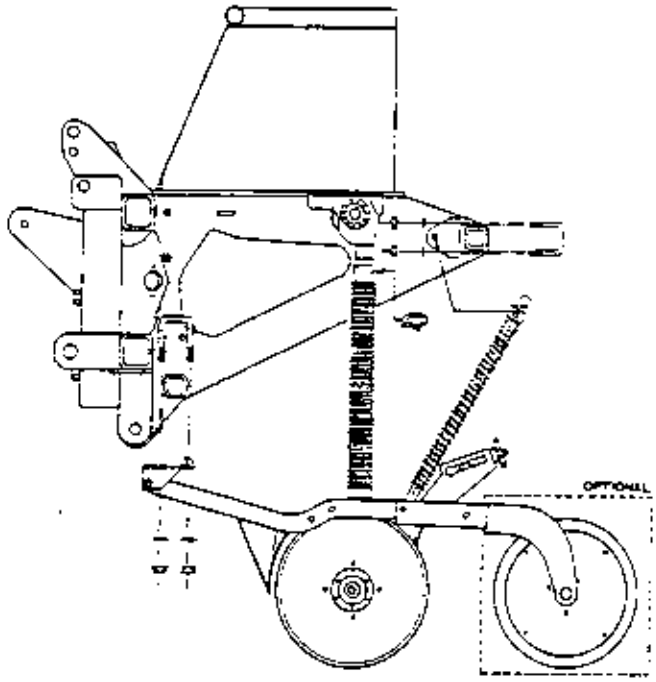
JACK SHAFT, SPROCKET, IDLER & BEARING ASSEMBLIES

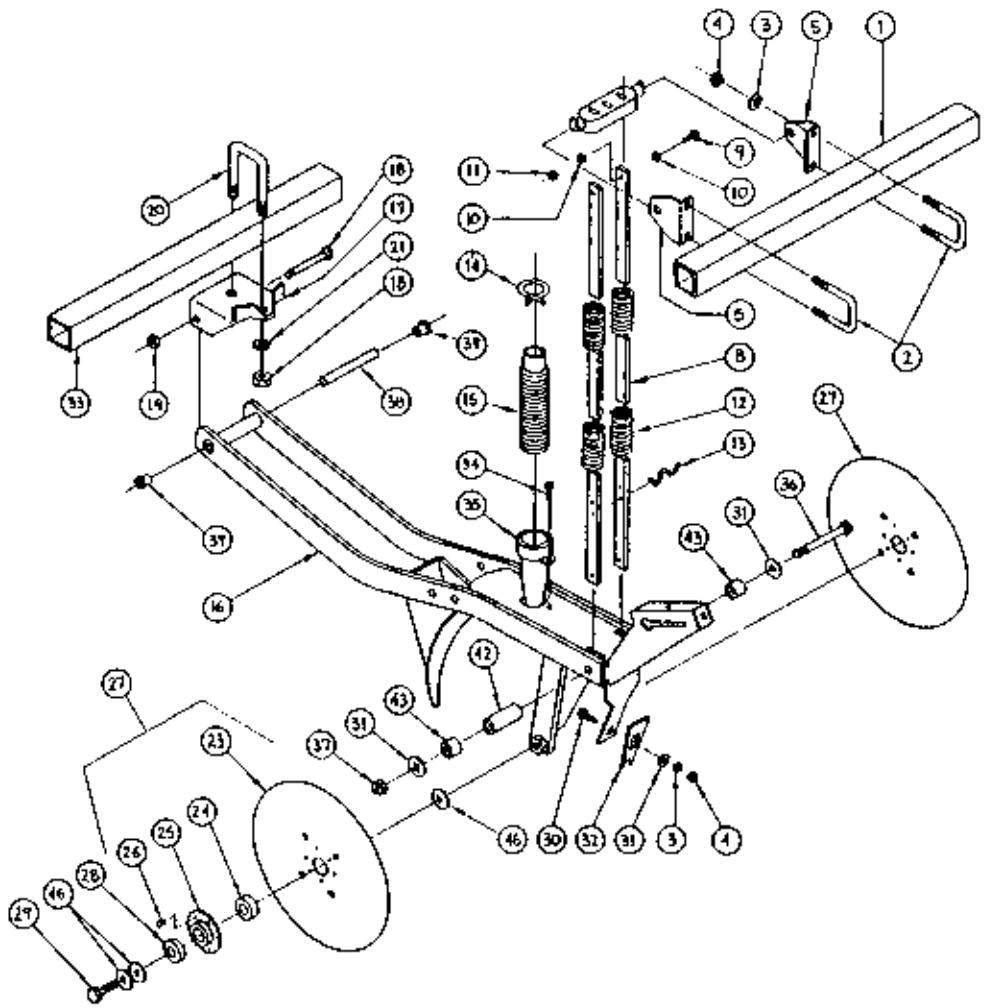
VINEYARD DRILL		
SCALE: 1 1/2" = 1'-0"	APPROVED BY:	DRAWN BY M. JACOBY
DATE: 2/4/93		REVISED
		DRAWING NUMBER

DOUBLE DISK OPENER ASSEMBLY

REF No.	PART No.	DESCRIPTION
1.		Rear Mounting Tube - Welded to Box
2.	806-004C	U-Bolt 3/8"-16 x 2" x 2-3/4" Long
3.	804-013C	Washer, Lock 3/8"
4.	803-014C	Nut, Hex 3/8"-16
5.	121-025D	Clip, Spring Rod Casting
6.	812-012C	Triple Spring Rod Casting
7.	121-011A	Spring Casting Mounting Assembly. Includes 1 Each of Item 6, 2 Each of Items 2 & 5, 4 Each of Items 3 & 4.
8.	121-110D	Double Disk Spring Bar (Standard)
	121-090D	Hillside Spring Bar (Optional)
	121-111D	Bedded Irrigation Bar -20',27', and 30' Bedded Irrigation Drills Only
9.	802-004C	Bolt, Hex 1/4"-20 x 3/4" Long
10.	804-006C	Washer, Lock 1/4"
11.	803-006C	Nut, Hex 1/4"-20
12.	807-028C	Spring, Heavy Duty Double Disk 19-1/2" Long (Standard)
	807-029C	Spring, Light Duty Double Disk 19-1/2" Long (Optional)
13.	107-027D	Double Disk Bar Wire Clip
14.	800-009C	Clamp, Hose 1-5/8" #26
15.	816-028C	Seed Hose-33 Ribs (Bedded Irrigation Only)
	816-046C	Seed Hose-29 Ribs
16.	121-147H	Double Disk Mounting Arm
17.	107-097D	Flanged U-Mount Bracket
18.	802-121C	Bolt, Carriage 1/2"-13 x 5-1/2" Long Gr.5
19.	803-178C	Nut, Hex Jam 1/2"-13 Nylock
20.	806-005C	U-Bolt 1/2"-13 x 2" x 3" Long
21.	804-015C	Washer, Lock 1/2"
22.	803-020C	Nut, Hex 1/2"-13
23.	820-080C	Disk, Flat 3 mm Thick 6 Rivets on 3-1/8" Diameter
24.	188-001V	Bearing, Double Disk #AA205DD
25.	107-112D	Bearing Flange For 188-001V-Plated
26.	800-010C	Rivet, Button Head 3/16" x 9/16"
27.	107-130S	Double Disk Assembly. Includes 1 Each of 820-080C, 188-001V, & 107-112D; And 6 Each of 800-010C.
28.	107-111D	Bearing Flange Dust Cover For 107-130S
29.	802-228C	Bolt, Hex Nylock 5/8"-11 x 1-1/2" Long
30.	802-015C	Bolt, Carriage 3/8"-16 x 1" Long
31.	804-012C	Washer, Flat 3/8" SAE
32.	107-113D	Double Disk Slotted Sraper
33.		Front Mounting Tube (Welded To Frame)
34.	801-002C	Screw, Socket Head #10-16 x 3/8" Long
35.	817-060C	Plastic Seed Tube With Seed Guide
36.	802-174C	Bolt, Hex 3/8"-16 x 4-3/4" Long
37.	803-078C	Nut, Nylock 3/8"-16
38.	121-101D	Spacer, Pivot Pipe
39.	817-028C	Bushing, Pivot
42.	121-091D	Spacer Tube - Spring Rod Center
43.	121-092D	Spacer Tube - Spring Rod End
46.	804-040C	Washer 5/8" ID x 1" OD x 18 Gauge Thick As Required

DOUBLE DISK OPENER ASSEMBLY

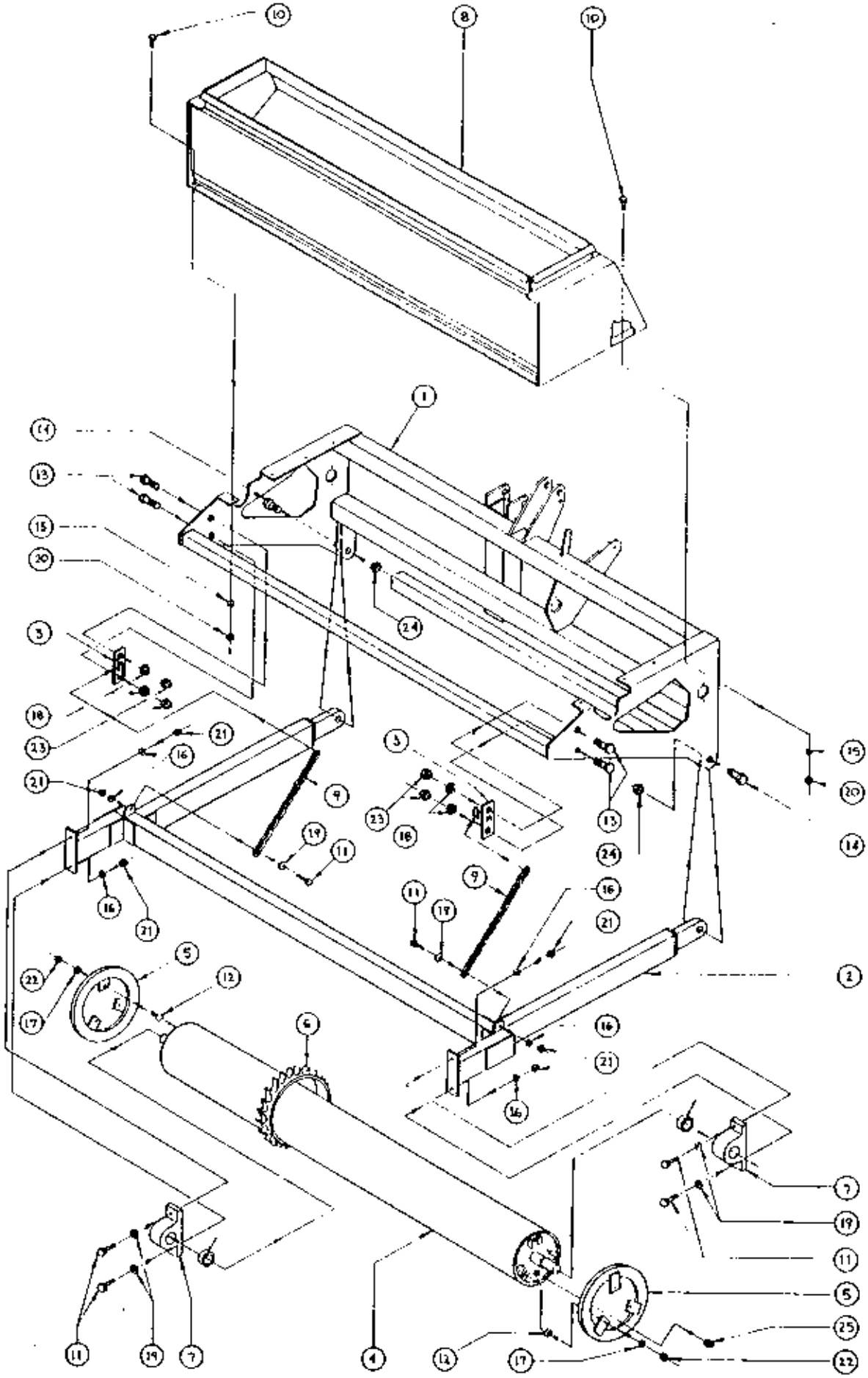




TILL AN' PAK FRAME & SEED BOX TO MAIN FRAME ASSEMBLIES

REF No.	PART No.	DESCRIPTION	QTY	
1	DDD-MF	MAIN FRAME	(1)	
2	DDD-TPa	TILL AN' PAK FRAME	1	(optional)
3	DDD-TPb	TILL AN' PAK FRAME CHAIN BRACKET	2	– (1) L.H. (1) R.H. (opt.)
4	TPR-A	10" TILL AN" PAK RING ROLLER	1	(optional)
5	TPR-C	TILL AN' PAK ROLLER RETAINERS	2	(optional)
6	12/16	TILL AN' PAK RINGS	30	(optional)
7	DDD-TPB-1	1-11/16" PILLOW BLOCK BEARINGS	2	(optional)
8	DDD-BXB	SEED BOX	1	
9	DDD-TPc	3/8" CHAIN	2	(optional)
10	----	3/8" x 1" HEX HEAD Gr.5 z/p BOLTS	8	
11	----	1/2" x 2-1/4" HEX HEAD Gr.5 z/p BOLTS	6	(optional)
12	----	5/8" x 1-1/4" SQUARE NECK CARRIAGE BOLTS	6	(optional)
13	----	3/4" x 2" HEX HEAD Gr.5 z/p BOLTS	4	(optional)
14	----	1" x 3-1/2" HEX HEAD Gr.5 z/p BOLTS	2	(optional)
15	----	3/8" LOCK WASHERS	8	
16	----	1/2" LOCK WASHERS	6	(optional)
17	----	5/8" LOCK WASHERS	6	(optional)
18	----	3/4" LOCK WASHERS	4	(optional)
19	----	1/2" FLAT WASHERS	6	(optional)
20	----	3/8" HEX NUTS	8	
21	----	1/2" HEX NUTS	6	(optional)
22	----	5/8" HEX NUTS	6	(optional)
23	----	3/4" HEX NUTS	4	(optional)
24	----	1" NYLON LOCK NUTS	2	(optional)
25	----	1/2" PLUG	2	(optional)

TILL AN' PAK FRAME AND SEED BOX TO MAIN FRAME ASSEMBLIES



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LIMITED WARRANTY

T G. Schmeiser Co., Inc., P.O. Box 1047, Fresno, California 93714, warrants, to the original Retail Customer, the new Schmeiser equipment identified to be free of defects in material and workmanship. Any part of said equipment that, in Schmeiser's judgement, shows evidence of such defects will be repaired without charge, provided that the failure of part(s) shall have occurred within six (6) months from the date of delivery of said equipment to the Retail Customer. Tires, Hoses, Hydraulic components and other trade accessories may be warranted by their respective manufacturers and those warranties, if any, are hereby extended to the Retail Customer. Expendable components such as points, shanks, blades rings, teeth, and the like are excluded from this warranty.

The Retail Customer must pay the transportation cost to and from the Schmeiser Dealer's service shop for warranty service. Warranty service will be performed by the Schmeiser Dealer from whom the equipment was purchased, in his service shop and during his regularly scheduled days and hours of operation.

All Schmeiser obligations under this warrany shall be terminated if the equipment is modified or altered in ways not approved in writing by Schmeiser, if repair parts other than genuine Schmeiser repair parts have been used, or if the equipment has been subject to misuse, neglect, accident, improper maintenance or improper protection in storage.

Schmeiser reserves the right to make improvemnets in design or changes in specification at any time without incurring any obligation to owners of equipment previously sold.

No agent or persons has authority to alter, add to or waive the above warranties which agreed to be the only warranties, representation or promises, expressed or implied, as to the quality or performance of the products covered and which do not include any implied warranty of merchantability or fitness. In no event will Schmeiser be liable for incidental or consequential damages or injuries, including, but not limited to, loss of crops, loss of profits, rental of substitute equipment or other commercial loss.