

Great Plains



END WHEEL DRILL

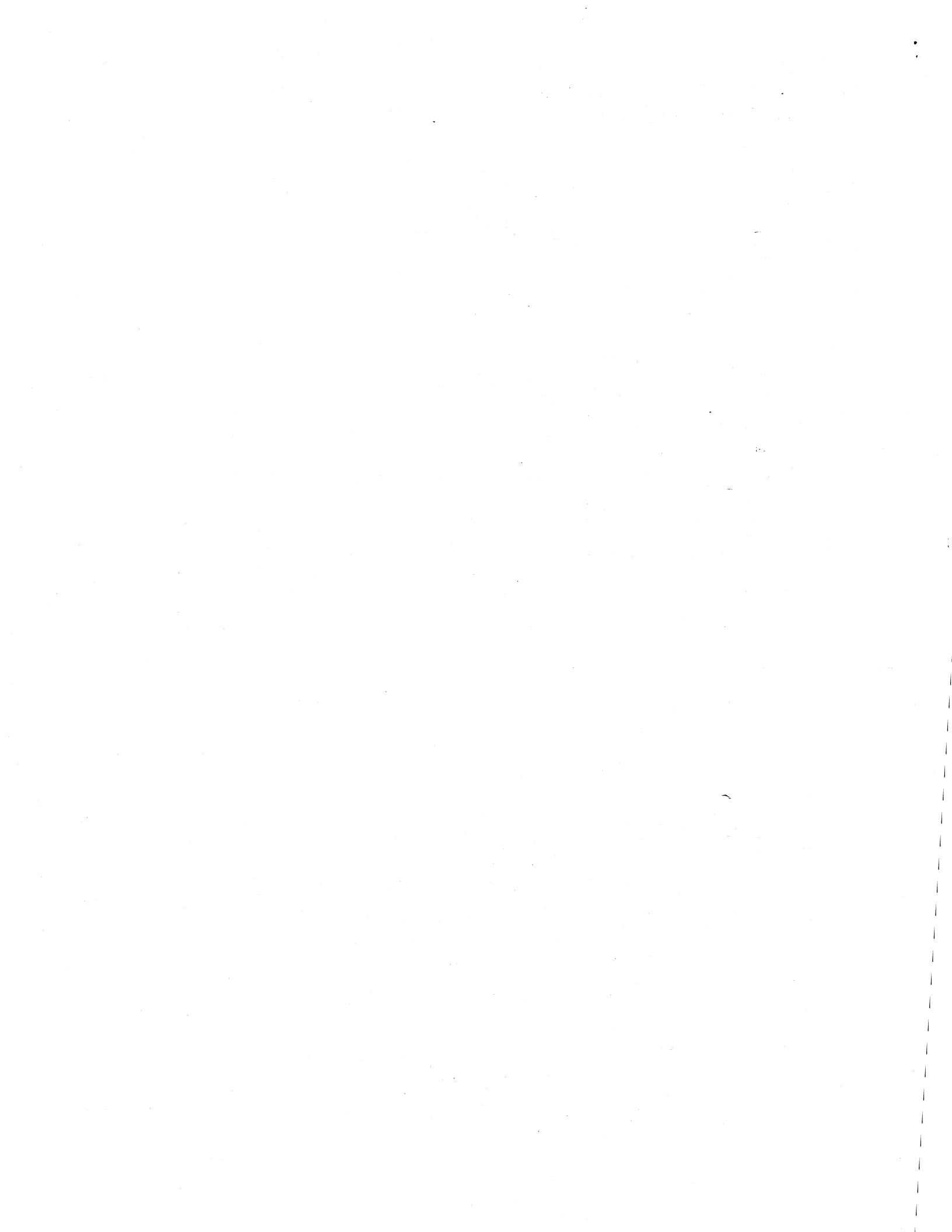
SMALL SEEDS ATTACHMENT

OWNER'S MANUAL

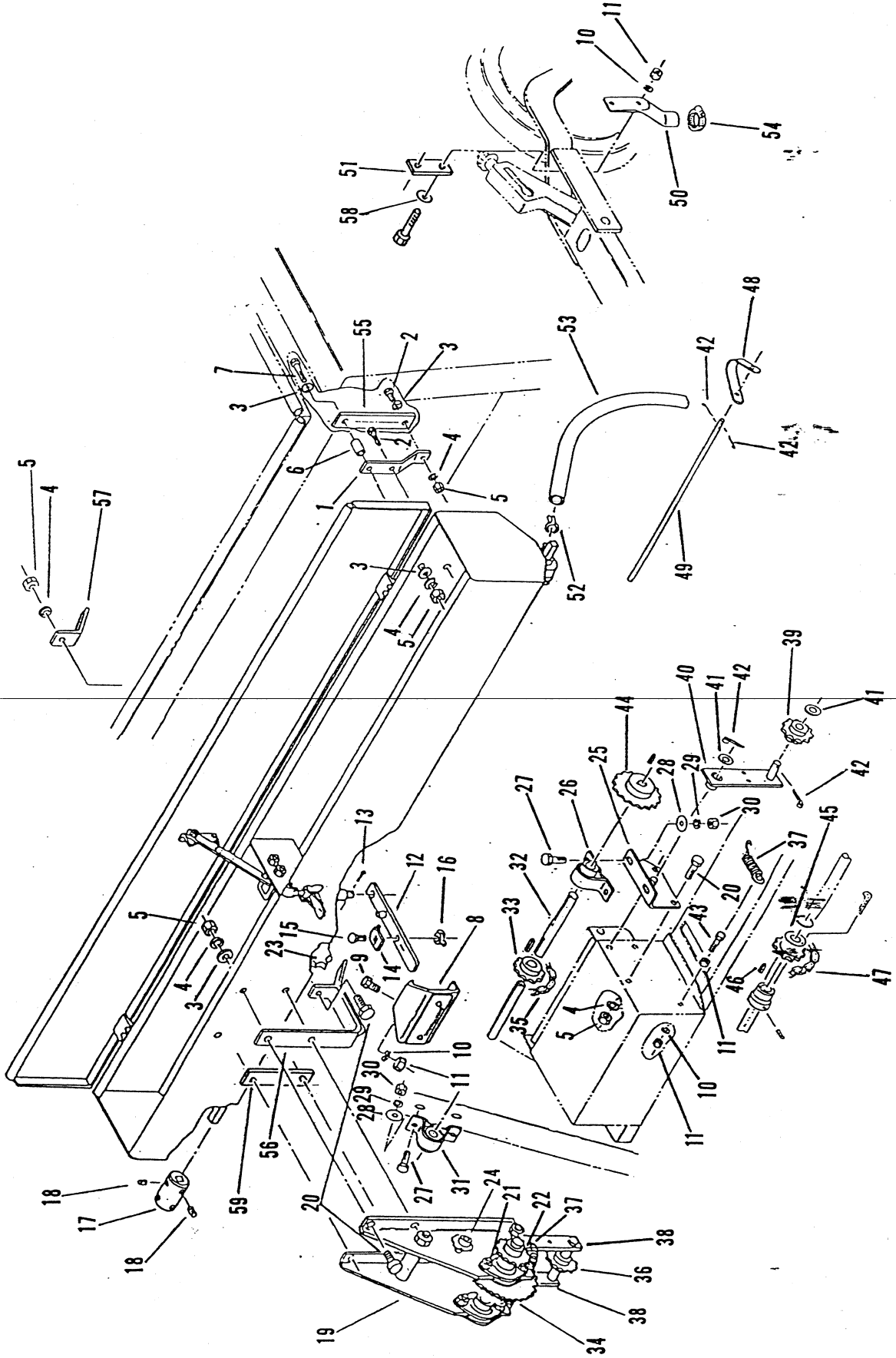
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123-583M
Effective 5/6/93



SMALL SEEDS INSTALLATION INSTRUCTIONS



INSTALLATION INSTRUCTIONS

1. Mark the Small Seeds box mounting hole positions onto the front of the drill box as indicated on the MOUNTING HOLES LOCATION CHART on page 3. The dimensions are measured from the center of the drill box. Drill the mounting holes 11/32" in diameter. The box with drive sprocket on the cup shaft should be bolted on the left side of the drill.
2. Bolt the mount bars (1) using middle hole, to small seeds boxes with 5/16"-18 x 1" long bolts (2), 5/16" flatwashers (3), 5/16" lockwashers (4) and 5/16" hex nuts (5). Secure the small seeds boxes to the drill using top hole in mount bars (1) and spacer tubes (6) with 5/16"-18 x 2 1/4" long bolts (7), 5/16" flatwashers (3), 5/16" lockwashers (4), and 5/16"-18 hex nuts (5). Using bottom hole of mount bar (1), bolt to drill with 5/16"-18 x 1" long bolts (2), 5/16" flatwashers (3), 5/16" lockwashers (4) and 5/16"-18 hex nuts (5). Use backing plate (55) on the inside of the drill box.
3. Mount seed rate adjustment gauge and bracket (8) to small seeds box with 1/4"-20 x 5/8" long bolts (9), 1/4" lockwashers (10), and 1/4"-20 hex nuts (11). Attach adjustment handle (12) to handle pivot with a 5/32" x 1" long cotter pin (13). Secure handle to gauge bracket using lock tab (14), 5/16"-18 x 3/4" carriage bolt (15) and 5/16"-18 wing nut (16).
4. Slide adjustment handle on left hand box to the closed position. Slide shaft coupler (17) onto the end of the seed cup shaft. Slide seed cup shaft on right hand box to the closed position. Next center the shaft coupler so you have an equal amount of cup shaft from the right hand box and left hand box inside each end of coupler. Secure coupler to both shafts using four 5/16"-24 x 5/16" long hex socket set screws (18).
5. Align the holes in the drive brace bracket (56) with the holes in small seeds box and mark the grain drill box for mounting the lower part of the bracket. Drill 11/32" diameter.
6. Attach drive assembly (19), spacer plate (59) and the drive brace bracket (56) to front of left hand small seeds box using 5/16"-18 x 3/4" long bolts (20), 5/16" flatwashers (3), 5/16" lockwashers (4), and 5/16"-18 hex nuts (5). Mount the lower part of brace bracket to the drill box using 5/16"-18 x 3/4" long bolts (20), 5/16" lockwashers (4), 5/16"-18 hex nuts (5) and the backing plate (57). Mount #40 chain x 36 pitches long (21) from 10 tooth sprocket on drive assembly (22) to 15 tooth sprocket (23) on seed cup shaft. Adjust idler (24) on drive assembly to tighten chain.
7. Bolt bearing and idler bracket (25) to the left side of the gear box cover with two 5/16"-18 x 3/4" long bolts (20), 5/16" lockwashers (4), and 5/16"-18 hex nuts (5). Bolt one 3/4" bore pillow block bearing (26) to top flange of bearing bracket with 3/8"-16 x 3/4" long bolts (27), 3/8" flatwashers (28), 3/8" lockwashers (29), and 3/8"-16 hex nuts (30). Bolt second 3/4" bore pillow block bearing (31) to second tapered box angle from left end of drill using same hardware. Slide 3/4" diameter dummy shaft (32) through bearing on tapered box angle, through 12 tooth 3/4" bore sprocket (33), and through bearing above gearbox. Leave approximately 1/8" of shaft protruding from outside of bearing on tapered box angle and set screw lock collars on both bearings to shaft. Align 12 tooth sprocket (33) on dummy shaft with 30 tooth sprocket (34) on drive assembly. Use 3/16" x 7/8" key and set screw sprocket to shaft. Mount #40 chain x 49 pitches long (35) from 12 tooth sprocket (33) to 20 tooth sprocket (34). Center idler sprocket (36) on chain and pull back side of chain forward with one extension spring (37) on each side of swing arm (38).

JACKSHAFT ASSEMBLY

1. Remove bolts and hardware mounting jackshaft bearing bracket and gear from underside of gearbox, leaving outside end of jackshaft connected. Remove snap ring and gear from jackshaft. Loosen bearing collar and slide bearing off jackshaft. Slide 19 tooth shear sprocket on jackshaft and position where keyway is cut.
2. Reassemble bearing and gear on jackshaft and mount jackshaft back under gearbox. Using a feeler gauge, align miter gears so that when gear on jackshaft is pushed against bearing collar there is .015" clearance between teeth. Set screw bearing to shaft and tighten bearing bracket to underside of gear box.

JACKSHAFT ASSEMBLY (CON'T.)

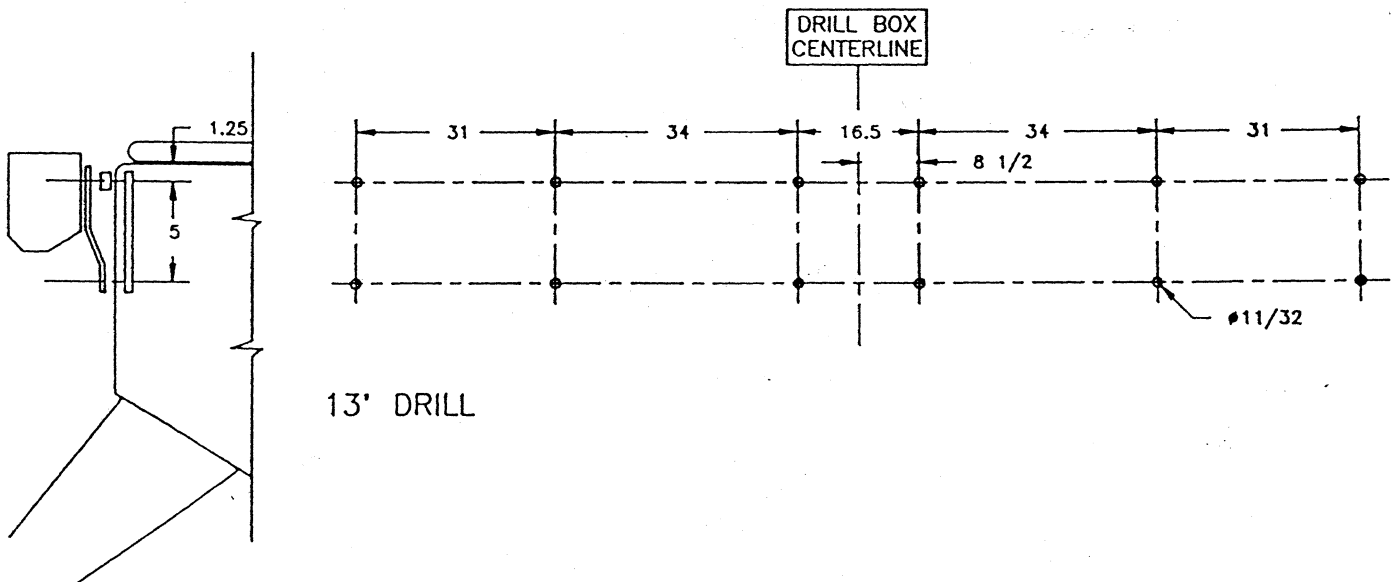
3. Mount idler sprocket (39) on idler arm (40) with a 1/2" flatwasher (41) and a 7/64" x 1" long cotter pin (42). Assemble 1/4"-20 x 1" long bolt (43) with a 1/4"-20 hex nut (11) through hole in gearbox cover and secure with 1/4" lockwasher (10) and another 1/4"-20 hex nut (11) on the other side. NOTE: There should be approximately 5/8" to 3/4" of bolt protruding from outside of cover. Assemble idler arm (40) to bearing and idler bracket (25) with a 1/2" flatwasher (41) and 7/64" x 1" long cotter pin (42).
4. Slide 20 tooth 3/4" bore sprocket (44) on end of dummy shaft and align 20 tooth sprocket through slot in channel with 19 tooth shear sprocket (45) on jackshaft. Use 3/16" x 7/8" key (46) and set screw 19 tooth shear sprocket to jackshaft. Mount #40 chain x 58 pitches long (47) from 19 tooth shear sprocket to 20 tooth sprocket. Assemble idler spring from 1/4"-20 x 1" long bolt (43) to hole in idler arm (40) so that idler is pulling back slack side of chain forward.
5. Recheck all hardware and chains to be certain that they are secure.

HOSE MOUNTING ASSEMBLY

1. Slide as many grass seed hose clips (48) on each hose mounting rod as needed to direct hose to the back of each opener. Slide hose mounting rod (49) through hole in end panel and hole in tapered box angle. Pin rod on inside of tapered box angle and on inboard side of end panel with a 7/64" x 1" long cotter pin (42). Slide mounting rod (49) between each tapered box angle and pin on outside of tapered box angles with 7/64" x 1" long cotter pins (42).
2. Mount hose retainer (50) to inside of press wheel arm if grass seed is to be placed on center line of row, or on outside of arm if grass seed is to be placed between rows. Use mounting plate (51), 1/4" lockwashers (10), 1/4"-20 hex nuts (11) and 1/4" flat washers (58).
3. Place hose clamps (52) on seed hose (53) and push hose on cup spout. Clamp hose around spout. Using your fingertips, slightly squeeze hose clips together and slide seed hose (53) through clip. Direct hose to back of opener, clamp to hose retainer (50) with hose clamp (54). Check all hoses and hardware to be certain they are secure. NOTE: Be sure hose clips (48) are located on mounting rod so that the seed hoses will clear opener lift arms when raising and lowering openers.

MOUNTING HOLE LOCATION

(11/32" DIAMETER HOLE REQUIRED)



SMALL SEEDS SEED RATE ADJUSTMENTS

THE SEED USED TO COMPILE THE GRASS SEED RATES WERE OF AVERAGE SIZE AND WEIGHT PER BUSHEL. USE THE SEED RATE CHART AS A GUIDE.

The setting should be INCREASED for lighter than average seed.
The setting should be DECREASED for heavier than average seed.
FOR SEEDS NOT LISTED on the charts, compare weight and size to those listed and use a similar setting.

There are many factors that affect seeding rates: seed treatment, weight of seed, size of seed, surface condition of seed, tire configuration, pressure and slippage. Minor adjustments may be needed to compensate for these factors.

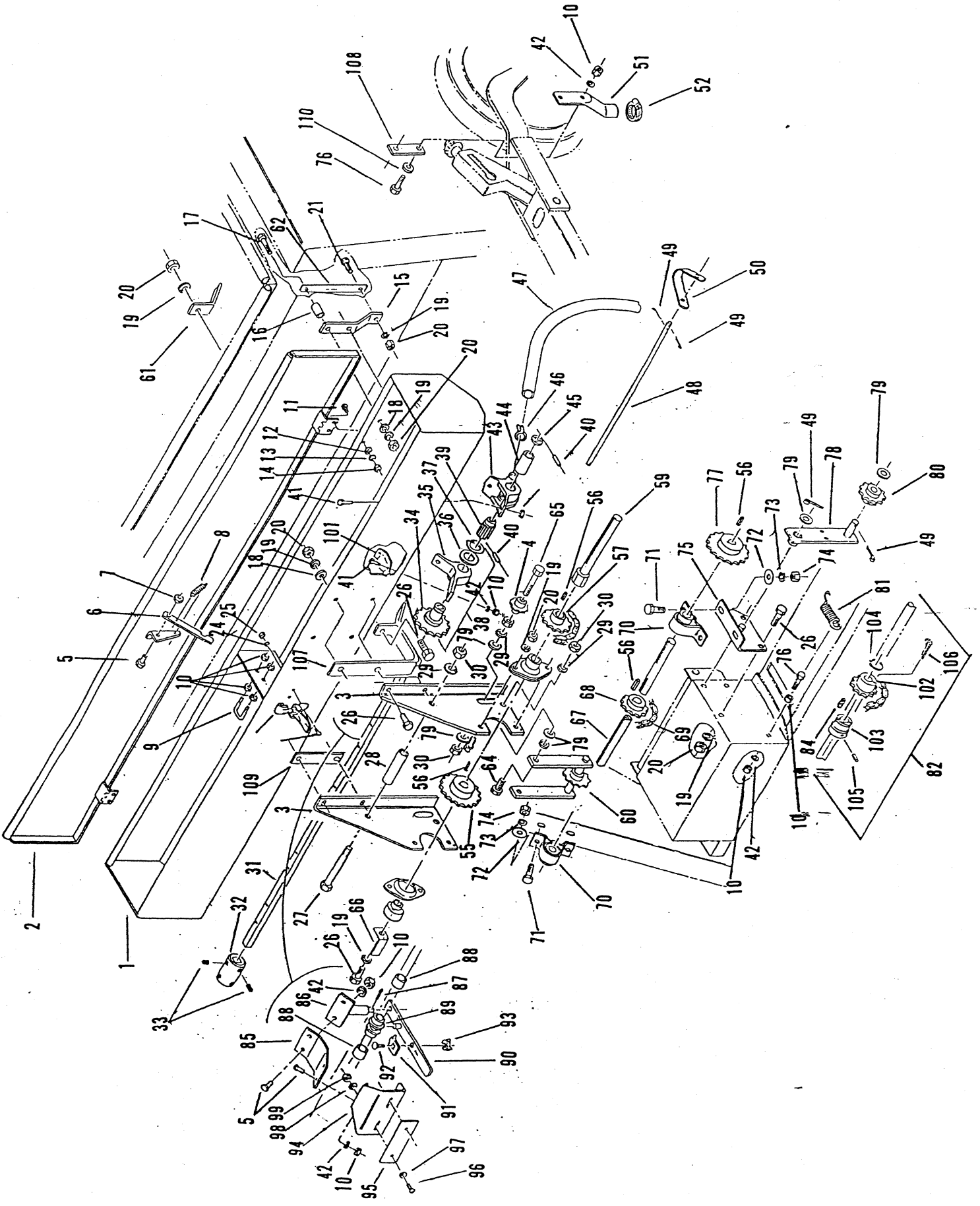
TO CHECK YOUR SEED RATE:

1. Lower openers hydraulically to planting position in order to activate the clutch.
2. Raise the drive (left) end tire off the ground.
3. Rotate the tire to see that the drive system is working properly and that the seed cups are free from foreign matter.
4. Set the grass seeder handle at the desired setting.
5. Place several pounds of seed over the cups to be metered.
6. Pull the drop tubes of these seed cups from the hose mount.
7. Place a container under the three seed tubes to gather the seed as it is metered.
8. Rotate the tire until one acre has been tallied on the acremeter. This will be approximately 348 tire rotations on a 13' End Wheel Drill. Be sure to check the three seed cups to make sure each cup has plenty of seed coming into it.
9. Weigh the seed which has been metered. Divide by three. This will give you the ounces/pounds metered by each seed cup. Multiply by the number of openers on your drill to arrive at the total pounds-per-acre your drill would meter at that setting. If this figure is different than desired, set your seed cup adjustment lever accordingly.
10. If your calibrations vary greatly from the charts, you may want to repeat the calibration procedure.

SMALL SEEDS SEEDING RATES

Indicator Setting		10	20	30	40	50	60	70	80	90	100
Seed Variety	Spacing	Pounds Per Acre									
Alfalfa; Red, Alsike & Ladino Clovers	6"	4	8	12.5	19.5	24	29	36	42	49	54
	7"	3.5	7	10.5	17	21	25	31	36	42.5	47
	7 1/2"	3	6	10	15.5	19	23	29	33.5	39	43
	8"	2.5	5.5	9	14	17.5	21	26	31	36	39.5
	10"	2.25	5	7.5	12	14.5	17	21.5	25	29	32
	12"	2	4	6	9.5	12	14.5	18	21	-24.5	27
Lespedeza Hulled, Serecia, Crimson Clover; Birdsfoot Trefoil	6"	3.5	7	11	21	26	32	40.5	46	57	63.5
	7"	3	6	9.5	18	22.5	27.5	35	39.5	49	55
	7 1/2"	2.5	5.5	8.5	16.5	20.5	25.5	32	36.5	45.5	50.5
	8"	2.25	5	8	15	19	23	29.5	33.5	41.5	46.5
	10"	2	4	6.5	12.5	15.5	19	24	27.5	34	38
	12"	1.5	3.5	5.5	10	13	16	20	23	28.5	31.5
Lespedeza Unhulled	6"	2.5	4.5	7	12	15	18	21	24	27	30
	7"	2	4	6	10	13	15.5	18	21	23.5	26
	7 1/2"	1.75	3.5	5.5	9.5	12	14.5	16.5	19	21.5	24
	8"	1.5	3	5	8.5	11	13	15	17.5	-19.5	22
	10"	1.25	2.5	4	7	9	10.5	12.5	14.5	16	18
	12"	1	2	3.5	6	7.5	9	10	12	-13.5	15
Timothy; Red Top; Sand & Love Grass	6"	2.25	4.5	6.5	9.5	12	14.5	17.5	20	23.5	26
	7"	2	4	5.5	8	10	12.5	15	17	20	22.5
	7 1/2"	1.75	3.5	5	7.5	9.5	11.5	14	16	18.5	20.5
	8"	1.5	3	4.5	6.5	8.5	10.5	12.5	14.5	17	19
	10"	1.25	2.5	3.5	5.5	7	8.5	10.5	12	14	15.5
	12"	1	2	3	4.5	6	7	8.5	10	11.5	13
Kentucky Bluegrass; Fescue	6"	1	2	3	4.5	5.5	6.5	7.5	9	10	11
	7"		1.75	2.5	4	4.5	5.5	6.5	7.5	8.5	9.5
	7 1/2"		1.5	2.25	3.5	4.25	5	6	7	8	8.5
	8"		1.25	2	3	4	4.5	5.5	6.5	7	8
	10"		1	1.5	2.5	3	3.5	4.5	5	6	6.5
	12"			1.25	2.25	2.5	3	3.5	4.5	5	5.5
Reed Canary	6"	1.5	3	4.5	6.5	8	10	12	13.5	15	16.5
	7"	1.25	2.5	4	5.5	7	8.5	10.5	11.5	13	14
	7 1/2"	1	2.25	3.5	5	6.5	8	9.5	10.5	12	13
	8"		2	3	4.5	5.5	7	8.5	10	11	12
	10"		1.75	2.5	3.5	4.5	6	7	8	9	10
	12"		1.5	2.25	3	4	5	6	6.5	7.5	8
German Millet	6"	3	6	10.5	16.5	20.5	24.5	30	35.5	41.5	46.5
	7"	2.5	5	9	14	17.5	21	26	30.5	36	40
	7 1/2"	2.25	4.5	8.5	13	16.5	19.5	24	28.5	33	37
	8"	2	4	7.5	12	15	18	22	26	30.5	34
	10"	1.75	3.5	6	10	12	14.5	18	21	25	28
	12"	1.5	3	5	8	10	12	15	17.5	20.5	23
Sudan Grass	6"	3	6	10.5	16.5	20.5	26	31.5	37	43.5	48.5
	7"	2.5	5	9	14	17.5	22.5	27	32	37.5	42
	7 1/2"	2.25	4.5	8.5	13	16.5	18	25	29.5	34.5	38.5
	8"	2	4	7.5	12	15	19	23	27	32	35.5
	10"	1.75	3.5	6	10	12	15.5	19	22	26	29
	12"	1.5	3	5	8	10	13	15.5	18.5	21.5	24

SMALL SEEDS ATTACHMENT



SMALL SEEDS ATTACHMENT (CON'T.)

Ref.	Part No.	Description
1.	123-061H	Small Seeds Box - R.H. - 6"
	123-062H	Small Seeds Box - L.H. - 6"
	123-096H	Small Seeds Box - R.H. - 7"
	123-097H	Small Seeds Box - L.H. - 7"
	123-098H	Small Seeds Box - R.H. - 7 1/2"
	123-099H	Small Seeds Box - L.H. - 7 1/2"
	123-100H	Small Seeds Box - R.H. - 8"
	123-101H	Small Seeds Box - L.H. - 8"
	123-102H	Small Seeds Box - R.H. - 10"
	123-103H	Small Seeds Box - L.H. - 10"
2.	123-064H	81" Seed Box Lid Weldment
3.	123-264D	Drive Mount Brace - Type B (Shown)
	123-265D	Drive Mount Brace - Type A
4.	817-025C	12T Idler Sprocket
5.	802-078C	Bolt, Hex, 1/4"-20 x 5/8" Long
6.	123-125D	Lid Lock Bar
7.	803-007C	Nut, Lock, 1/4"-20
8.	807-018C	Spring, Lid Latch Extension
9.	806-025C	U-Bolt, 1/4"-20 x 15/16" x 1" Long
10.	803-006C	Nut, Hex, 1/4"-20
11.	801-003C	Screw, Round Head, #10-24 x 1/2" Long
12.	804-046C	Flatwasher, #10
13.	804-004C	Washer, Internal Star, #10
14.	803-001C	Nut, Hex, #10-24
15.	123-200D	Small Seeds Box Mount Bar
16.	123-199D	Small Seeds Box Spacer Tube
17.	802-138C	Bolt, Hex, 5/16"-18 x 2 1/4" Long
18.	804-010C	Flatwasher, 5/16" USS
19.	804-009C	Lockwasher, 5/16"
20.	803-008C	Nut, 5/16"-18
21.	802-159C	Bolt, 5/16"-18 x 1" Long
22.	801-017C	Screw, Pan Head, #6-32 x 1/2" Long
23.	800-027C	Latch
24.	804-050C	Lock Washer, #6
25.	803-065C	Nut, Hex, #6
26.	802-007C	Bolt, Hex, 5/16"-18 x 3/4" Long
27.	802-046C	Bolt, Hex, 1/2"-13 x 5 1/2" Long
28.	123-293D	Drive Bracket Spacer Tube
29.	804-015C	Lock Washer, 1/2"
30.	803-020C	Nut, Hex, 1/2"-13
31.	123-218D	Seed Cup Shaft - 6"
	123-220D	Seed Cup Shaft - 7" - R.H.
	123-219D	Seed Cup Shaft - 7" - L.H.
	123-221D	Seed Cup Shaft - 7 1/2"
	123-222D	Seed Cup Shaft - 8"
	123-223D	Seed Cup Shaft - 10"
32.	123-217D	Shaft Coupler
33.	801-027C	Screw, Set, Hex, Socket, 5/16"-24 x 5/16" Long
34.	123-053E	Seed Cup Drive Sprocket
35.	817-026C	Drive Sprocket Hanger Bearing
36.	804-044C	Flatwasher, 1 3/8" x .876 x .048 Thick
37.	800-028C	Ring, Snap, 7/8"
38.	123-066S	Drive Sprocket Assembly (Includes 1 Each of No's. 34-37)

SMALL SEEDS ATTACHMENT (CON'T.)

Ref.	Part No.	Description
39.	817-010C	Sprocket, Grass Seeder
40.	805-057C	Roll Pin, 1/8" x 3/4" Long
41.	802-148C	Bolt, 1/4"-20 x 1/2" Long
42.	804-006C	Lockwasher, 1/4"
43.	817-008C	Cup Assembly
44.	817-009C	Sleeve
45.	804-042C	Washer, Grass Seeder Cup Shaft
46.	800-029C	Clamp, Hose
47.	123-203D	Hose, Grass Seeder
48.	123-197D	Grass Seed Hose Mounting Rod
49.	805-064C	Cotter Pin, 7/64" x 1" Long
50.	123-194D	Hose Clip
51.	123-202D	Grass Seed Hose Retainer
52.	800-024C	Clamp, Worm Drive, 13/16" x 1 3/4" Long
53.	822-041C	Flangette, 47 MST Bearing
54.	822-040C	Bearing, SB204-12
55.	808-078C	Sprocket 40B32 x 3/4" Bore
56.	123-146D	Key, 3/16" x 7/8" Long
57.	808-027C	Sprocket, 40B10 x 3/4" Bore With Set Screw
58.	809-020C	Chain, #40 x 36 Pitch
59.	123-298H	Grass Seeder Drive Shaft
60.	123-294H	Bracket, Chain Idler
61.	123-292D	E.W. Drive Bracket Brace
62.	123-238D	Mount Bar Back Plate
63.	803-036C	Nut, Jam, 1/2"-13
64.	802-034C	Bolt, Hex, 1/2"-13 x 1 1/4" Long
65.	802-226C	Bolt, Hex, 1/2"-13 x 2 3/4" Long
66.	123-294D	Small Seeds Drive Indicator
67.	123-198D	Small Seeds Dummy Shaft
68.	808-040C	Sprocket, 40B12 x 3/4" Bore With Keyway and Set Screw
69.	809-033C	Chain, #40 x 56 Pitches
70.	822-057C	Bearing, Pillow Block, PB 3/4
71.	802-014C	Bolt, Hex, 3/8"-16 x 3/4" Long
72.	804-012C	Flat Washer, 3/8"
73.	804-013C	Lock Washer, 3/8"
74.	803-014C	Nut, Hex, 3/8"-16
75.	123-225H	Small Seeds Bearing and Idler Bracket
76.	802-005C	Bolt, Hex, 1/4"-20 x 1" Long
77.	808-043C	Sprocket, 40B20 x 3/4" Bore With Keyway and Set Screw
78.	176-010H	Cup Drive Idler Arm
79.	804-016C	Flat Washer, 1/2" SAE
80.	817-025C	Sprocket, Idler, No. 40 - 12 Tooth
81.	807-025C	Spring, Idler Extension
82.	123-308S	19T Shear Sprocket Assembly (Includes 1 Each of Items 102 through 106)
83.	809-037C	Chain, #40 x 56 Pitches
84.	123-004D	Drive Sprocket Key
85.	123-118D	Seed Adjustment Support
86.	123-050H	Adjustment Handle Pivot
87.	805-019C	Cotter Pin, 5/32" x 1" Long
88.	123-127D	6" Spacer
	123-158D	10" Spacer
	123-159D	8" Spacer
	123-160D	7 1/2" Spacer
	123-161D	7" Spacer

SMALL SEEDS ATTACHMENT (CON'T.)

Ref.	Part No.	Description
89.	123-116D	Seed Adjustment Spool
90.	123-051H	Adjustment Handle
91.	123-113D	Lock Tab
92.	802-092C	Bolt, Carriage, 5/16"-18 x 3/4" Long
93.	803-058C	Nut, Wing, 5/16"-18
94.	123-112D	Gauge Mounting Bracket
95.	819-005C	Seed Rate Gauge
96.	801-001C	Screw, Round Head, Brass, #8-32 x 3/8" Long
97.	804-003C	Flat Washer, #8 Brass
98.	804-002C	Lock Washer, #8 Internal Star
99.	803-035C	Nut, hex, #8-32 Brass
100.	806-031C	U-Bolt, 1/4"-20 x 2 1/32" x 3/4" Long
101.	123-051D	Seeder Box Sprocket Cap
102.	123-285H	19T Sprocket Assembly
103.	123-288D	Shear Sprocket Hub
104.	800-044C	Snap Ring, External, 1 1/2"
105.	801-019C	Set Screw, 5/16"-24
106.	805-078C	Pin, Cotter, 3/32" x 2"
107.	123-295H	End Wheel Small Seeds Box Support
108.	123-298D	Hose Retainer Mount Plate
109.	123-208D	Drive Bracket Spacer
110.	804-007C	Flatwasher, 1/2" SAE

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