

(PURPLE)

Operator's Manual

Three-Point Drill
1984

Great Plains

Manufacturing, Inc.

P.O. Box 5060 • Salina, Kansas 67402-5060



Read the operator's manual entirely. When you see this symbol, the subsequent instructions and warnings are serious - follow without exception. Your life and the lives of others depend on it!

Great Plains

Owner's Manual
Solid Stand 3-Point Drill
Operating Instructions

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INTRODUCTION

Your Great Plains 3-Point Drill is designed to give you many years of dependable service. This Manual has been prepared to instruct you in the safe and efficient operation of this machine. Read and study it thoroughly. Follow all instructions and service procedures carefully.

Should your Grain Drill require replacement parts, go to the Great Plains Dealer. That way you will be sure you are getting the proper part.

It is important you complete and send in your Warranty Card because it is not valid unless it is on file at Great Plains. If you need information not contained in this Manual, contact your Great Plains Dealer.

Thank you for buying a Great Plains 3-Point Drill.

Roy Applequist
President

OPERATING CHECK LIST

Before operating your Drill for the first time, make sure you have checked the following items:

- 1. Read "Operating Instructions".
- 2. Read "Safety Rules".
- 3. Check machine for loose bolts, set screws, pins and chains.
- 4. See that gauge wheel tires have 45 lbs. of air pressure.
- 5. Lubricate Drill.
- 6. Inspect feeder cups for foreign matter.
- 7. Rotate each gauge wheel to see that the drive system is operating smoothly.

TRACTOR HOOK-UP

Great Plains 3-Point Drills are engineered to be used with Category II or III tractors. When these Drills leave the factory, they are set for Category II tractors. To change to Category III, the following bushings will need to be added: for upper link—1" ID x 1 $\frac{1}{4}$ " OD, for lower links—1 $\frac{1}{8}$ " ID x 1 $\frac{7}{16}$ " OD.

Be sure that all three 3-point arms are securely pinned before lifting the drill. Adjust the top 3-Point link so that it remains loose in normal drilling conditions. Do not use this link to adjust depth of opener penetration. Three hitch pins are furnished with each 3-Point drill.

Set your tractor's 3-point draft control in float position. Stand clear of the tractor tire and drill whenever raising and lowering the drill.

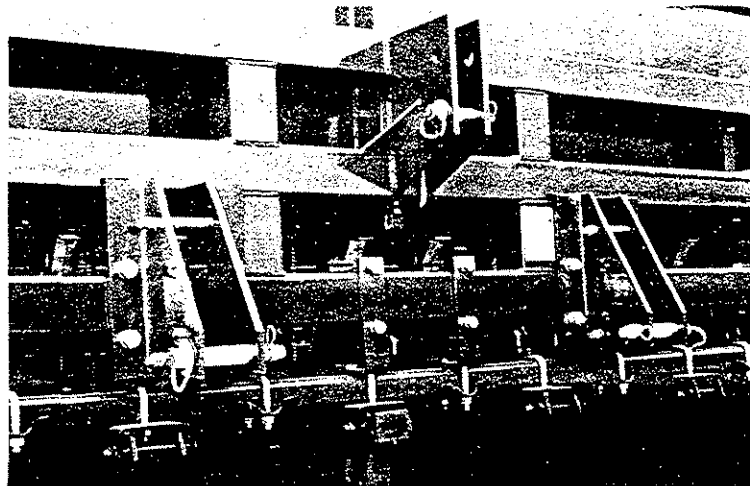


Figure 1. 3-Point Drill Hook-up

DEPTH ADJUSTMENTS

Set the drill on a level seedbed. If penetration of the openers is different than desired for your field conditions, the depth can be adjusted in three ways:

No. 1 Gauge Wheel Depth Adjustment

Raise the drill out of the ground and loosen the jam nut located near the bottom clevis of the gauge wheel adjustment arm (see figure 2). This arm is threaded to allow easy adjustment for the overall seeding depth of the drill. By lengthening this arm the gauge wheel is lowered, causing less penetration of the openers. By shortening the arm the gauge wheel is raised, causing deeper penetration of the openers. After adjusting, be sure the arms on both gauge wheels have the same length of threads showing, unless otherwise desired for ridge bedded ground. The tractor's top 3-point link should then be readjusted so that it remains loose in normal drilling conditions.

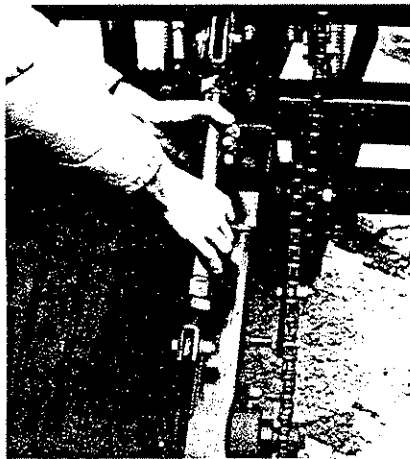


Figure 2. Gauge Wheel Adjustment

No. 2 Press Wheel—Opener Linkage Depth Adjustment

The depth of each opener is controlled by the position of the press wheel. There is a knob and adjustment trunion for varying the height of the press wheel which automatically changes the seeding depth of the opener. Simply rotate the knob until the seeding depth is correct. A self-locking spring clip holds the knob at your setting to maintain the proper depth.

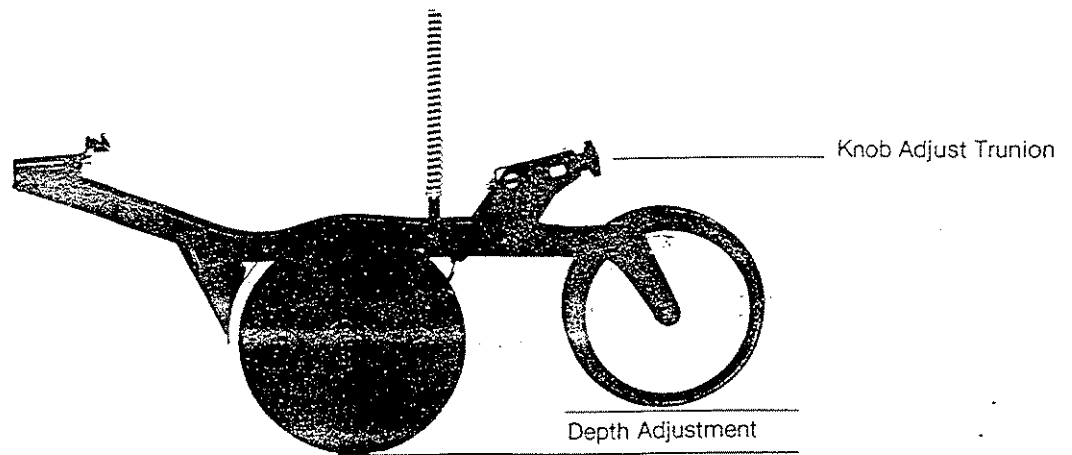


Figure 3. Opener Linkage
Depth Adjustment

No. 3 Opener Depth Adjustment—For Ridge Bedded Ground

There are three holes at the top of the opener spring rod. By removing the bolt at the top end of this rod, the opener assembly can be raised or lowered (see figures 4 and 5). When the bolt is placed in the top hole of the spring rod, the front pivot bolt on the opener arms should be placed in the lower hole of the mounting hanger made for ridge-bedded ground. If these adjustments are used, it may be necessary to re-adjust the spring tension on the opener spring rod in order to maintain adequate penetration. These adjustments should only be made for drilling in ridge bedded ground.

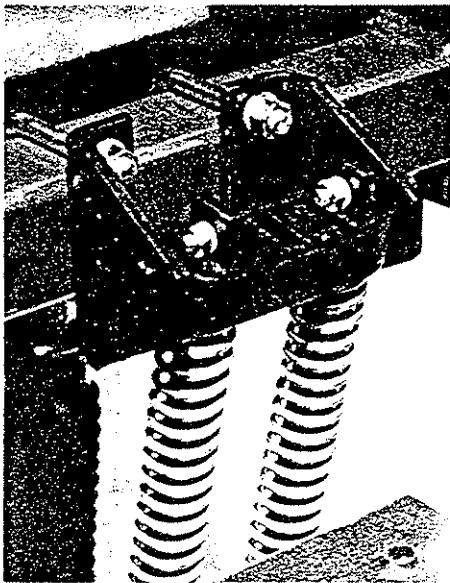


Figure 4. Opener Lowered
(For Ridge Bedded Ground Only)

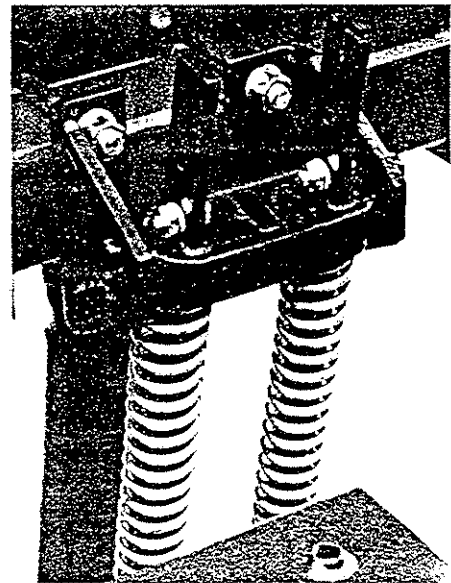


Figure 5. Normal Setting

SPRING TENSION SETTING

Each opener spring can be adjusted for tension. This is useful when penetrating hard soil and for planting in tractor tire tracks. To adjust the tension, remove the "W" clip at the bottom of the spring and place it in a higher hole for more tension and in a lower hole for less tension (see figures 6 and 7). If too much penetration is achieved at the lowest tension setting, completely remove the "W" clips or remove the two springs and spring rods from their side-mounted positions and remount only one spring and rod in the center hole of the opener and spring rod casting.

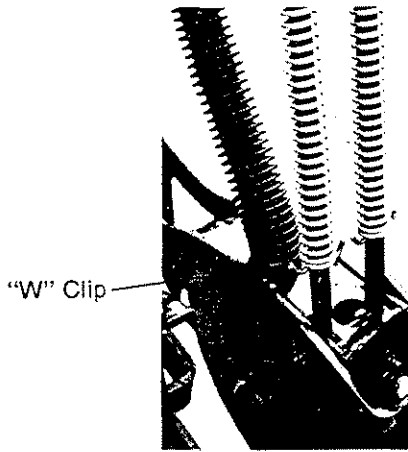


Figure 6.
Minimum Tension

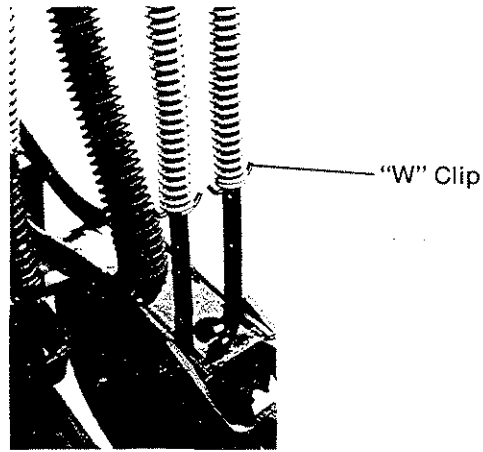


Figure 7.
Maximum Tension

Press Wheel Angle Adjustment (Double-V Press Wheels Only)

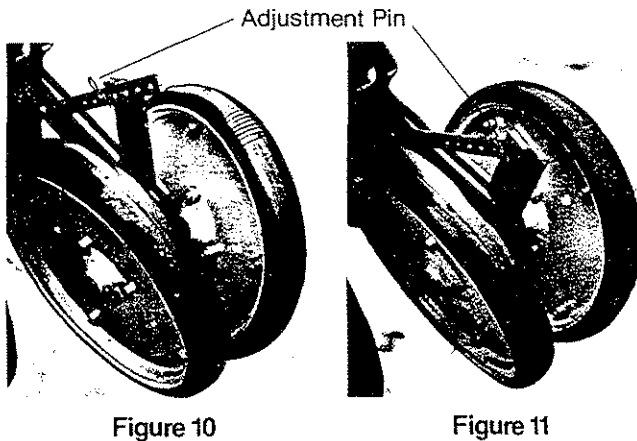


Figure 10

Figure 11

The camber angle of the double-V press wheels may be adjusted by removing the angle bar adjustment pin and moving the angle bar. Moving the angle bar forward will cause the press wheels to pull more soil over the seed (see fig. 10). Moving the angle bar back will cause the press wheel to pull less soil over the seed (see fig. 11).

SEEDING ADJUSTMENTS

NOTE: SEEDING RATES WILL VARY GREATLY WITH VARIATIONS IN SIZES OF THE SEEDS BEING DRILLED. ALTHOUGH THE SEEDING RATES LISTED IN THIS MANUAL ARE BASED ON AN AVERAGE SEED SIZE, WE RECOMMEND THAT YOU TEST AND ADJUST YOUR DRILL USING THE PROCEDURES LISTED BELOW TO HELP INSURE AN ACCURATE SEEDING RATE.

1. Rotate each gauge wheel to see that feed cups and drive are working properly and are free from foreign matter.
2. To adjust your seeding rate, first you must decide which sprocket arrangement you need (see seeding chart). In order to change sprockets, remove nut in center of double speed change sprocket and turn it over. Loosen the idler arm bolt, put chains on and tighten both bolts. (The chains need to be reversed to make this change.)
3. There are many factors which will affect seeding rates: seed treatment, weight of seed, size of seed, surface condition of seed, and tire configuration, pressure and slippage. Minor adjustments will probably be needed to compensate for the above factors.
4. The pounds-per-acre in the seed charts are based on drills having 9.5L x 15 inch rib implement gauge wheel tires with 45 lbs. of air pressure.
5. The large differences in seed size and treatment can cause a wide variation in actual seeding rates. The seed rate charts on the following pages are based on average size seed. This may differ from the seed you are using. Use the seed rate charts as a guide. Set the pounds-per-acre desired at the indicator number for your row spacing and complete the following procedure to calibrate the drill for your specific seed.
 - a. Place several pounds of seed over three of the feeder cups at the outboard end of the drill box.
 - b. Pull the seed tubes out of these three disk openers.
 - c. Raise the drill off the ground.
 - d. Place a container under the three seed tubes to gather the seed as it is metered.
 - e. Rotate the drive gauge wheel until one acre has been tallied on the acremeter. This will be approximately 500 rotations on a 12' drill, approximately 428 rotations on a 14' drill, approximately 400 rotations on a 15' drill, approximately 300 rotations on a 20' drill and approximately 214 rotations on a 27' drill. Be sure to check the three feeder cups to make sure each cup has plenty of grain coming into it.
 - f. 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 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 feed cup adjustment lever accordingly.

Repeat procedures a through f on each drill section that has a seed rate adjustment lever.

6. 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 gauge wheel tires are 9.5L x 15 and that they are inflated to 45 lbs. When drilling, check the amount of seed you are using by noting acres drilled, amount of seed added to drill, and level of seed in drill box. If you suspect that you are drilling more or less seed than desired, and you have accurately calibrated the drill to your seed, you may need to adjust the seeding rate slightly to compensate for your field conditions.

NOTE: This drill is equipped with four-position clean-out handles on each seed cup. The highest position is for wheat and other small grain seeds, the second position is for soybeans and other large grain seeds. Should excessive cracking occur to the large seeds, drop the handle to the third position. The wide open position will allow complete clean out of the seed cup. **MAKE SURE** all clean-out handles are in the same position before drilling.

Seeding Rates for the Great Plains 3-Point Drill

WHEAT (DRIVE TYPE 1)	SEED RATE INDICATOR SETTING NUMBER																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Lbs. Per Acre																				
6"	0	2	15	25	36	48	62	73	86	98	113	125	140	152	168	183	199	217	221	229	230
7"	0	1	13	22	31	41	52	62	73	84	96	106	119	129	143	156	169	185	188	194	196
7½"	0	1	12	20	29	39	49	59	69	79	90	100	118	121	134	147	159	174	177	183	184
8"	0	1	12	19	27	36	46	55	64	74	84	94	105	114	126	138	149	163	166	172	173
10"	0	0	9	15	22	29	37	44	52	59	68	75	84	91	101	110	119	130	133	137	138
12"	0	0	8	13	18	24	31	37	43	49	56	63	70	76	84	92	99	109	111	114	115

WHEAT (DRIVE TYPE 2A)	SEED RATE INDICATOR SETTING NUMBER																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Lbs. Per Acre																				
6"	0	1	10	17	24	32	43	49	58	66	76	84	94	102	113	123	133	145	148	153	154
7"	0	1	9	15	21	27	35	42	49	56	64	71	80	86	96	105	113	124	126	130	131
7½"	0	1	8	13	19	26	33	40	46	53	60	67	79	81	90	98	107	117	119	123	123
8"	0	1	8	13	18	24	31	37	43	50	56	63	70	76	84	92	100	109	111	115	116
10"	0	0	6	10	15	19	25	29	35	40	46	50	56	61	68	74	80	87	89	92	92
12"	0	0	5	9	12	16	21	25	29	33	38	42	47	51	56	62	66	73	76	76	77

RICE SHORT GRAIN (DRIVE TYPE 1)	SEED RATE INDICATOR SETTING NUMBER																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Lbs. Per Acre																				
6"	0	3	12	19	27	36	44	53	61	70	78	87	97	104	112	119	128	135	138	138	141
7"	0	2	10	16	23	31	38	45	52	59	67	74	83	89	95	101	108	115	118	118	120
7½"	0	2	9	15	21	29	35	42	49	56	63	70	78	83	90	95	102	108	111	111	113
8"	0	2	8	14	20	27	33	39	46	52	59	65	73	78	84	89	96	101	104	104	106
10"	0	1	7	12	16	22	27	32	37	42	47	52	58	63	67	72	77	81	83	83	85
12"	0	1	6	10	13	18	22	26	31	35	39	44	49	52	56	60	64	68	69	69	70

RICE SHORT GRAIN (DRIVE TYPE 1-A)	SEED RATE INDICATOR SETTING NUMBER																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Lbs. Per Acre																				
6"	0	6	20	36	52	65	86	103	120	138	158	175	203	219	233	250	272	288	294	298	300
7"	0	5	17	31	44	55	73	87	102	118	135	149	173	186	198	213	231	245	250	254	255
7½"	0	4	16	29	41	52	69	82	96	111	127	140	163	175	187	200	217	231	235	239	240
8"	0	4	15	27	39	49	64	77	90	104	119	131	153	164	175	188	204	216	221	224	225
10"	0	3	12	22	31	39	52	62	72	83	95	105	122	132	140	150	163	173	177	179	180
12"	0	2	10	18	26	33	43	51	60	69	79	88	102	110	117	125	136	144	147	149	150

RICE LONG GRAIN (DRIVE TYPE 1)	SEED RATE INDICATOR SETTING NUMBER																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Lbs. Per Acre																				
6"	0	1	8	16	24	35	43	50	60	68	75	83	89	96	102	107	115	123	123	124	126
7"	0	1	7	14	21	30	37	43	51	57	64	70	76	81	86	91	98	104	104	106	107
7½"	0	1	6	13	19	28	34	40	48	54	60	66	71	77	81	86	92	98	98	99	101
8"	0	1	6	12	18	26	32	38	45	51	56	62	67	72	76	80	86	92	92	93	94
10"	0	0	5	10	15	21	26	30	36	41	45	50	54	58	61	64	69	74	74	75	76
12"	0	0	4	8	12	18	22	25	30	34	38	41	45	48	51	54	58	61	61	62	63

RICE LONG GRAIN (DRIVE TYPE 1-A)	SEED RATE INDICATOR SETTING NUMBER																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Lbs. Per Acre																				
6"	0	3	12	28	47	64	81	101	117	129	151	169	185	196	213	226	242	262	268	272	273
7"	0	2	10	24	40	55	69	86	99	110	128	144	157	167	181	192	205	222	228	231	232
7½"	0	2	9	23	37	51	65	81	93	103	121	135	148	157	171	181	193	209	215	217	218
8"	0	2	9	21	35	48	61	76	88	97	113	127	139	147	160	169	181	196	201	204	205
10"	0	1	7	17	28	39	49	61	70	78	91	102	111	118	128	136	145	157	161	163	164
12"	0	1	6	14	23	32	40	50	58	65	75	85	93	98	107	113	121	131	134	136	137

BARLEY (DRIVE TYPE 1)	SEED RATE INDICATOR SETTING NUMBER																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Lbs. Per Acre																				
6"	0	0	11	19	27	35	43	51	58	66	74	82	90	98	106	114	121	129	137	145	151
7"	0	0	9	16	23	30	36	43	50	57	63	70	77	84	90	97	104	111	117	124	130
7½"	0	0	8.5	15	21	28	34	40	47	53	59	66	72	79	85	91	98	104	110	117	121
8"	0	0	8	14	20	26	32	38	44	50	56	62	68	74	80	86	92	98	104	110	116
10"	0	0	7	11	16	21	26	30	35	40	45	49	54	59	64	68	73	78	83	88	93
12"	0	0	6	10	14	18	22	26	29	33	37	41	45	49	53	57	60	64	68	72	76

SAFFLOWER OR OATS (DRIVE TYPE 1)	SEED RATE INDICATOR SETTING NUMBER																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Lbs. Per Acre																				
6"	0	0	7	14	22	29	37	45	53	62	71	83	87	98	104	113	123	134	147	150	156
7"	0	0	6	12	18	24	32	38	45	53	60	71	74	84	88	96	105	114	125	128	132
7½"	0	0	5	11	17	23	30	36	43	50	57	67	69	79	83	91	99	107	118	120	125
8"	0	0	5	10	16	22	28	33	40	47	53	63	65	74	78	85	93	101	110	113	117
10"	0	0	4	8	13	17	22	27	32	37	43	50	52	59	62	68	74	81	88	90	93
12"	0	0	3	7	11	14	19	22	27	31	35	42	43	49	52	57	62	67	74	75	78

RYE (DRIVE TYPE 2)	SEED RATE INDICATOR SETTING NUMBER																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Lbs. Per Acre																				
6"	0	0	4	8	12	15	18	21	28	30	33	38	41	45	48	53	58	62	63	68	69
7"	0	0	3	7	10	13	16	18	24	25	28	32	35	38	41	45	49	53	54	57	58
7½"	0	3	6	9	9	12	15	17	23	24	27	30	33	36	39	42	46	50	51	54	54
8"	0	0	3	6	9	11	14	16	21	22	25	28	31	34	36	40	43	47	48	51	52
10"	0	0	2	5	7	9	11	13	17	18	20	23	25	27	29	32	35	37	38	41	42
12"	0	0	2	4	6	8	9	11	14	15	17	19	21	23	24	26	29	31	32	34	35

MILLET (DRIVE TYPE 2)	SEED RATE INDICATOR SETTING NUMBER																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Lbs. Per Acre																				
6"	0	2	6	9	12	15	18	22	24	28	33	38	43	46	50	55	61	67	69	70	71
7"	0	1	5	7	10	13	16	18	21	24	28	32	36	39	43	47	52	57	59	60	61
7½"	0	1	4	6	9	12	15	17	19	23	27	30	34	37	40	44	49	53	55	56	57
8"	0	1	5	7	9	11	14	16	18	21	25	28	32	34	38	42	46	50	52	53	54
10"	0	0	4	5	7	9	11	13	15	17	20	23	26	28	30	33	37	40	42	43	44
12"	0	0	3	4	6	8	9	11	12	14	17	19	21	23	25	28	31	33	35	36	37

BUCKWHEAT (DRIVE TYPE 1)	SEED RATE INDICATOR SETTING NUMBER																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Lbs. Per Acre																				
6"	0	4	13	22	31	41	52	62	68	83	94	106	112	124	135	152	166	183	195	196	200
7"	0	4	11	19	27	35	44	53	57	71	80	90	95	106	114	129	141	156	166	167	170
7½"	0	3	10	18	25	33	41	50	54	67	75	85	89	99	108	122	133	147	156	157	160
8"	0	3	10	17	23	31	39	47	51	63	71	80	84	93	101	114	124	138	146	147	150
10"	0	3	8	13	19	25	31	37	41	50	57	64	67	75	81	91	100	110	117	118	120
12"	0	2	7	11	16	20	26	31	34	42	47	53	56	62	67	76	83	92	98	99	100

FLAX OR SUDAN (DRIVE TYPE 2)	SEED RATE INDICATOR SETTING NUMBER																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Lbs. Per Acre																				
6"	0	2	4	7	10	14	17	20	25	28	32	36	39	42	45	50	55	59	63	65	68
7"	0	1	4	6	8	12	15	17	21	24	27	31	33	36	38	42	47	50	53	56	57
7½"	0	1	3	5	7	11	14	16	20	22	25	29	31	34	36	40	44	47	50	52	54
8"	0	1	3	5	7	10	13	15	19	21	24	27	29	32	34	37	41	44	47	49	51
10"	0	0	3	4	6	8	10	12	15	17	19	22	23	25	27	30	33	36	38	39	41
12"	0	0	2	4	5	7	9	10	13	14	16	18	19	21	23	25	28	30	32	33	34

SUNFLOWERS (DRIVE TYPE 2)	SEED RATE INDICATOR SETTING NUMBER																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Lbs. Per Acre																				
6"	0	0	0	3.8	7.6	11.2	15	18.8	22.6	26	32	38	41	45	49	53	56	60	64	68	72
7"	0	0	0	3.2	6.4	9.6	12.8	16	19	22	27	32	35	38	41	45	48	51	54	57	60
7½"	0	0	0	3	6	9	12	15	18	21	25.5	30	33	36	39	42	45	48	51	54	57
8"	0	0	0	2.8	5.6	8.5	11.3	14	17	20	24	28	31	34	37	39	42	45	48	51	54
10"	0	0	0	2.3	4.5	6.8	9	11	13.5	16	19	23	25	27	29	32	34	36	38	41	43
12"	0	0	0	1.9	3.8	5.6	7.5	9.9	11.3	13	16	19	21	23	25	27	28	30	32	34	36

SOYBEANS (DRIVE TYPE 1)	SEED RATE INDICATOR SETTING NUMBER																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Lbs. Per Acre																				
6"	0	0	0	20	25	43	63	75	87	102	123	137	152	170	183	197	207	233	235	237	242
7"	0	0	0	17	21	37	54	63	74	86	104	116	129	144	156	167	176	198	199	201	205
7½"	0	0	0	16	20	35	51	60	69	81	98	109	121	136	147	157	165	187	188	189	193
8"	0	0	0	15	18	33	48	56	65	76	92	103	114	127	138	148	155	175	176	178	181
10"	0	0	0	12	15	26	38	45	52	61	74	82	91	102	110	118	124	140	141	142	145
12"	0	0	0	10	12	22	32	37	43	51	61	68	76	85	92	98	103	117	117	118	121

SOYBEANS (DRIVE TYPE 2)	SEED RATE INDICATOR SETTING NUMBER																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Lbs. Per Acre																				
6"	0	0	0	7	8	15	21	24	29	33	40	45	51	55	62	65	71	76	77	78	79
7"	0	0	0	6	7	13	18	20	24	28	34	38	43	47	52	55	61	65	66	67	68
7½"	0	0	0	5	6	12	17	19	23	27	32	36	41	44	49	52	57	61	62	62	63
8"	0	0	0	5	6	11	16	18	22	25	30	34	38	41	46	48	53	57	58	58	59
10"	0	0	0	4	5	9	13	14	17	20	24	27	31	33	37	39	43	46	46	47	48
12"	0	0	0	3	4	8	10	12	14	17	20	23	25	28	31	32	36	38	39	39	40

SOYBEANS (DRIVE TYPE 2-A)	SEED RATE INDICATOR SETTING NUMBER																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Lbs. Per Acre																				
6"	0	0	0	0	20	32	43	48	58	73	87	98	100	112	118	123	136	149	150	153	159
7"	0	0	0	0	17	27	37	41	50	62	74	83	85	95	101	105	115	127	128	130	135
7½"	0	0	0	0	16	25	35	39	47	59	69	78	80	89	95	99	109	119	120	123	127
8"	0	0	0	0	15	24	33	36	44	55	65	73	75	84	89	93	102	112	113	115	119
10"	0	0	0	0	12	19	26	29	35	44	52	59	60	67	71	74	82	90	91	92	95
12"	0	0	0	0	10	16	22	24	29	37	43	49	50	56	59	62	68	75	76	77	79

Setting the feed cup adjustment lever between 50 and 80 allows for optimum seeding of soybeans.

PEAS (DRIVE TYPE 1)	SEED RATE INDICATOR SETTING NUMBER																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Lbs. Per Acre																				
6"	0	0	7	23	28	48	61	78	95	113	129	148	164	180	198	215	228	244	245	246	247
7"	0	0	6	20	24	41	52	67	81	96	110	126	140	153	168	183	194	208	209	210	211
7½"	0	0	5	19	22	38	50	63	76	90	103	118	131	144	158	172	182	196	196	197	198
8"	0	0	5	18	21	36	46	59	72	84	97	111	123	135	148	161	171	183	184	185	186
10"	0	0	4	14	17	29	37	47	57	68	78	89	99	108	119	129	137	147	148	149	150
12"	0	0	3	12	14	24	31	39	48	56	65	74	82	90	99	108	114	122	123	124	125

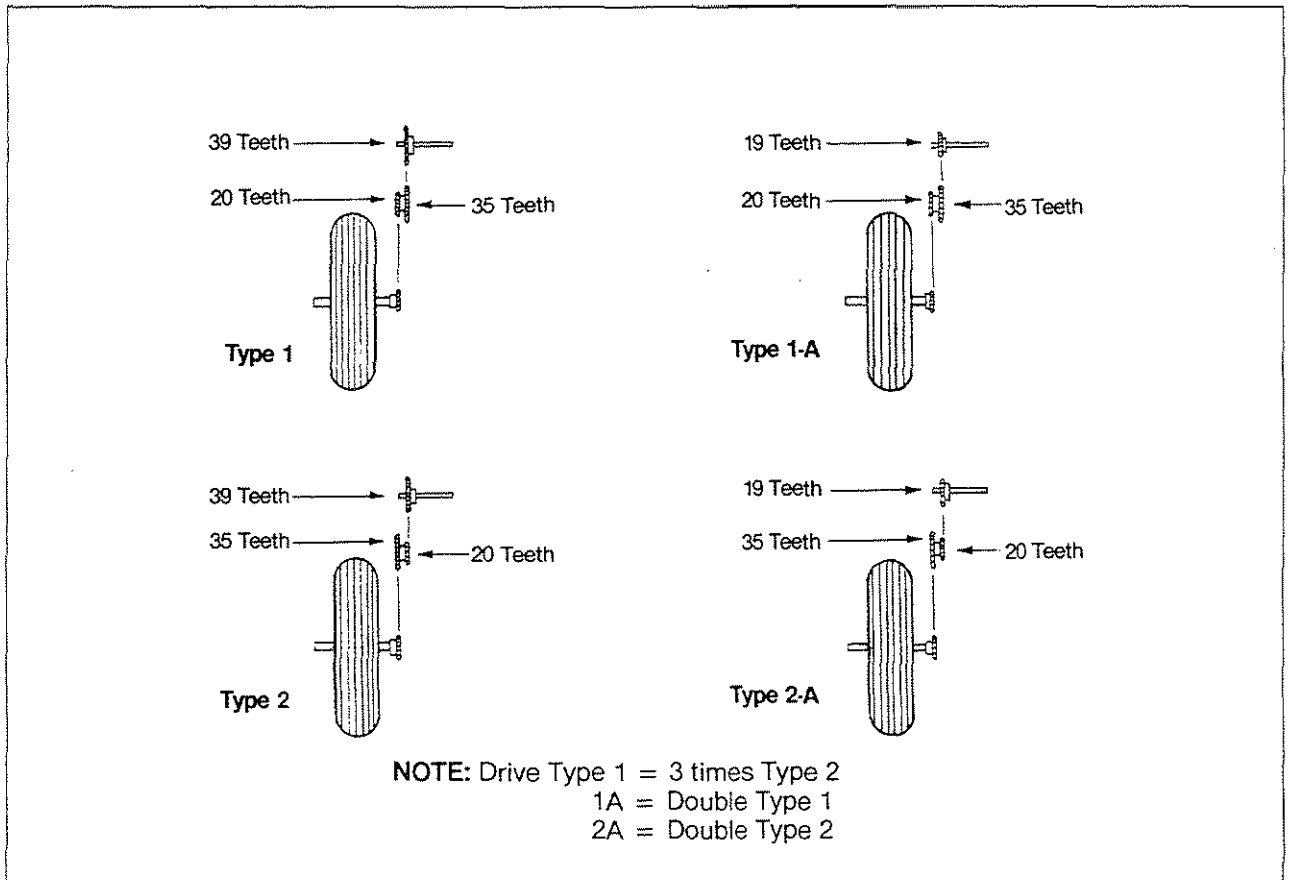
PINTO BEANS (DRIVE TYPE 2)	SEED RATE INDICATOR SETTING NUMBER																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Lbs. Per Acre																				
6"	0	0	0	0	2	3	7	12	17	24	29	40	45	48	54	61	71	73	75	76	80
7"	0	0	0	0	2	3	6	11	16	22	27	34	38	41	46	52	61	62	64	65	67
7½"	0	0	0	0	1	2	5	10	15	21	26	31	36	39	43	49	57	59	60	61	63
8"	0	0	0	0	1	2	5	9	14	19	25	30	34	36	41	46	53	55	56	57	59
10"	0	0	0	0	0	2	4	8	13	18	20	24	27	29	33	37	43	44	45	46	48
12"	0	0	0	0	0	1	3	7	12	16	17	20	23	24	27	30	36	37	38	38	40

RAPE OR ALFALFA (DRIVE TYPE 2)	SEED RATE INDICATOR SETTING NUMBER																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Lbs. Per Acre																				
6"	0	2	5	8	11	13	17	21	24	31	31	35	40	44	48	52	53	55	62	65	66
7"	0	2	4	6	9	11	14	18	20	26	27	30	34	37	41	44	45	47	52	55	56
7½"	0	1	3	6	8	10	13	17	19	25	25	28	32	35	39	42	43	44	49	52	53
8"	0	2	4	6	8	10	13	16	18	23	24	27	30	33	36	39	40	41	46	48	49
10"	0	1	3	5	7	8	10	13	14	19	20	21	24	26	29	31	32	33	37	39	40
12"	0	1	3	4	5	7	8	11	12	15	16	18	20	22	24	26	27	28	31	32	33

MILO (DRIVE TYPE 2)	SEED RATE INDICATOR SETTING NUMBER																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Lbs. Per Acre																				
6"	0	2	5	8	12	15	18	23	28	29	34	40	41	45	49	52	55	65	66	67	68
7"	0	1	4	7	10	13	15	19	23	24	29	34	35	38	41	44	47	55	56	57	58
7½"	0	1	4	6	9	12	14	18	22	23	27	32	33	36	39	41	44	52	53	54	55
8"	0	1	3	6	9	11	13	17	21	22	25	30	31	34	37	39	41	48	50	51	52
10"	0	0	3	5	7	9	11	14	17	18	20	24	25	27	29	31	33	39	40	41	42
12"	0	0	2	4	6	8	9	11	14	15	17	20	21	23	24	26	28	32	33	34	35

WHEAT GRASS (DRIVE TYPE 2)	SEED RATE INDICATOR SETTING NUMBER																				
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
Row Spacing	Lbs. Per Acre																				
6"	0	0	0	1	3	3	4	5	5	8	8	9	9	10	10	10	11	11	12	13	13
7"	0	0	0	1	2	3	3	4	4	6	7	7	8	9	9	9	9	10	10	11	11
7½"	0	0	0	0	2	3	3	4	4	6	6	7	7	8	8	8	9	9	9	10	11
8"	0	0	0	0	2	3	3	3	4	6	6	7	7	8	8	8	8	8	8	9	10
10"	0	0	0	0	2	2	2	3	3	5	5	5	6	6	6	6	7	7	7	8	8
12"	0	0	0	0	2	2	2	2	3	4	4	4	5	5	5	5	6	6	6	6	7

Drive Types:



FIELD OPERATIONS

1. Load seed box with seed. You should use cleaned seed to get the best results. You should always have the drill hitched securely to a tractor before loading.
2. This machine can be transported with a full box of grain. It is best NOT to do this unless necessary because the increased weight does increase the chances for problems on the road. DO NOT exceed 20 miles per hour.
3. Never back up with openers in ground. If you do, check all openers to be sure none are clogged.
4. Never allow anyone to ride on the machine.
5. Maximum drilling speed varies upon soil conditions.
6. If your drill comes equipped with an acremeter it should be mounted to the left gauge wheel. It will accumulate the total acres drilled with the machine. In order to find out the acres covered, write down the beginning reading and subtract it from the ending reading for the total acres planted.
7. You can adjust the tension on each disk spring. This is especially useful in applying more pressure in tractor tracks.
8. A 3-point drill is not designed to be turned sharply in the field. **ALWAYS** lift the drill out of the ground when turning at ends of field rows and other short-radius turns.
9. Should excessive seed cracking occur, open the four-position handle on each feed cup to a more open position. Make sure all handles are at the same position.

MAINTENANCE SERVICE

PROPER SERVICING AND ADJUSTMENT IS THE KEY TO THE LONG LIFE OF ANY FARM IMPLEMENT. WITH CAREFUL AND SYSTEMATIC INSPECTION OF OUR GRAIN DRILL, YOU CAN AVOID COSTLY MAINTENANCE, TIME AND REPAIR.

1. After using your drill for several hours, check all bolts to be sure they are tight.
2. Lubrication—listed below are the items you need to lubricate every 12-15 hours of operation:
 - a. Gauge wheel bearings.
 - b. Jack shaft bearings.
 - c. Feeder cup drive sprocket bearings.
 - d. Oil all roller chains. This is important to do before putting the machine in storage.
 - e. Feeder cup drive sprocket should be oiled in its square bore. Move feeder cup adjustment lever away from the sprocket as far as possible in order to get the oil back into the square. This is most important to do before putting the machine in storage.
3. Disk scrapers should be kept properly adjusted.
4. Always maintain 45 lbs. of air pressure in gauge wheel tires.
5. Store the drill inside if possible for longer drill life.

TROUBLE-SHOOTING

PROBLEM	SOLUTION
1. Uneven seed spacing or uneven stand	<ol style="list-style-type: none">Check for trash in seed cup.Check to see if seed tubes are plugged.Reduce ground speed.Check opener disks to see that turn freely.Use faster drive speed (See page 5, No. 2) and close feed cup flutes to a more narrow position.
2. Opener disks not turning freely.	<ol style="list-style-type: none">Check for trash or mud build-up on disk scraper. Readjust scraper.Check to see if scraper is adjusted too tight and is restricting disk movement.Check disk bearings and flanges.Check opener frame for possible damage.If opener disks turn freely by hand but not in field, lessen down pressure on disk opener. See Operator's Manual, page 4.
3. Actual seeding rate is different than desired.	<ol style="list-style-type: none">Check tire pressure. Proper inflation is 45 lbs. in gauge wheels.Check tire size. Proper size is 9.5L x 15.Liquid seed treatment will affect seeding rate if the chemicals build up in seed cup. Unless cleaned regularly, this build up can cause breakage of the feed shaft.Check drive range. See Operator's Manual, page 9.See Operator's Manual, page 5 for instructions on calculating seed rate.
4. Excessive seed cracking	<ol style="list-style-type: none">Slow drive speed and open flutes in feed cup to a wider position. See page 5, No. 2 in Operator's Manual.Open handle on each feed cup to next position.
5. Acremeter doesn't measure accurately	<ol style="list-style-type: none">Check tire pressure. Proper inflation is 45 lbs. in gauge wheel tires.Check tire size. Proper size is 9.5L x 15.Check planting operation for excessive overlap or gaps between passes.Loose soil conditions and slippage will cause variations in acres registered.To check accuracy of acremeter, see page 5, No. 5e.
6. Uneven seeding depth	<ol style="list-style-type: none">See depth setting instructions, page 2 and 3.
7. Press wheel not compacting the soil as desired.	<ol style="list-style-type: none">Reset press wheel height, page 3 and 4.Convert press wheel spring setting to bottom position which gives independent press wheel action if desired. See Operator's Manual, page 4.
8. Grain box not emptying evenly	<ol style="list-style-type: none">Certain model drills do not have the same number of seed cups between each divider or bulkhead. The section with the larger number of cups will empty sooner.If your drill has multiple boxes, check adjustment levers on each box to see that they are set on same indicator number.
9. Press wheels or openers plugging	<ol style="list-style-type: none">Drilling in damp or wet conditions may increase this problem.Openers may be moved from a staggered to an in-line position to reduce trash thrown from front openers into rear openers.Reduce down pressure on openers.

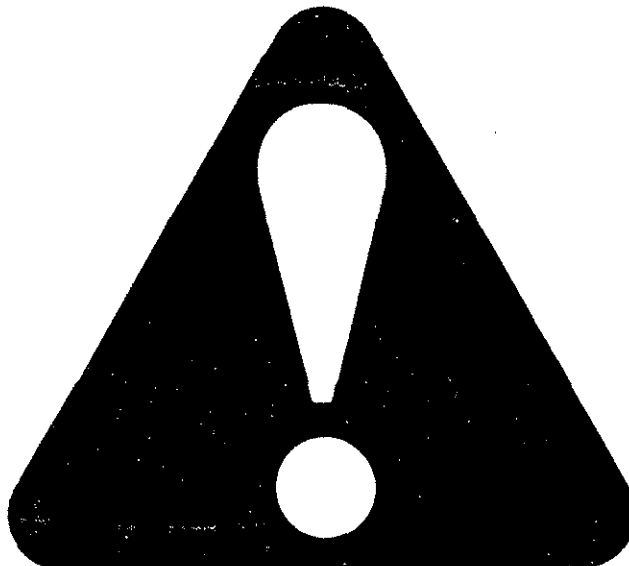
TROUBLE-SHOOTING (Con't)

PROBLEM	SOLUTION
10. Markers (hydraulic) not working properly	<ol style="list-style-type: none">Check all hose fittings and connections for air and oil leaks.Check tractor hydraulic oil level. Check all bolts and fasteners. If conditions persists, have your dealer service department check the unit.Be sure marker hose is connected to a tractor remote valve that will accommodate a single-acting cylinder (see owner's manual).To change the speed that the marker raises, adjust the thumbscrew located on the flow control valve of the marker hydraulic cylinder.Unless the tractor is equipped with more than two auxiliary valves, a sequence valve should be installed when using dual markers and a pull hitch on a 3-point drill.The chain on the folding marker should be slack when the marker is both fully extended and fully retracted.
11. Rubber tire depth control wheels becoming packed with mud	<ol style="list-style-type: none">Install scrapers.Reduce spring tension on openers.Be sure press wheel springs are in independent position. See Operator Manual, page 4.
12. Drill is not pulling level (parallel to ground, front to rear)	<ol style="list-style-type: none">Readjust 3-point top link to level drill.If using a pull-package, readjust threaded top link. If pull-package is equipped with a sliding top link, replace with a threaded top link, part No. 124-019 K.
13. Gauge Wheel leans to left or right	<ol style="list-style-type: none">Realign brackets where gauge wheel is attached to main frame by adjusting U-bolts.Check to see if gauge wheel axle bearings are securely attached to gauge wheel arm.
14. Front staggered S-tines of track removers contact tractor tires	<ol style="list-style-type: none">Remove stagger mount bracket and install S-tine directly to mounting bar.
15. Feeder cup sprockets locked up or twisted feeder drive shaft	<ol style="list-style-type: none">Check for foreign matter lodged in one or more feeder cup sprockets.Liquid insecticide from seed has dried within the feed cup. Remove the build-up by disassembling each feed cup and scrape the foreign substance from the turning surfaces. NOTE: Liquid inoculant should be applied with caution and care should be taken to clean the feeder system after drilling treated seeds.

SAFETY RULES

The safe operation of any machinery is a big concern to farmers and manufacturers. We have designed our 3-Point Drill with many built-in safety features. However, no one should operate this machine before carefully reading this Operator'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 box.
6. Never back Grain Drill up when openers are in ground.
7. Reduce speed when transporting over uneven or rough terrain. Avoid all chuck holes and washboard areas 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. Comply with all Federal, State and Local Laws when traveling on the highway.
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 is wider than your tractor and extreme care must be taken to allow for safe clearance.





Warranty

Great Plains Manufacturing, Incorporated warrants to the original purchaser that this grain drill will be free from defects in material and workmanship for a period of one year from the date of original purchase when used as intended and under normal service and conditions. This Warranty is limited to the replacement of any defective part by Great Plains Manufacturing, Incorporated and the installation by the dealer of any such replacement part: provided that any such defective part is returned to Great Plains within thirty (30) days of the failure.

This Warranty does not apply to any part or product which in Great Plains' judgment shall have been misused or damaged by accident or lack of normal maintenance or care, or which has been repaired or altered in a way which adversely affects its performance or reliability, or which has been used for a purpose for which the product is not designed. This Warranty shall not apply if the product is towed at a speed in excess of 20 miles per hour.

Claims under this Warranty must be made to the dealer which originally sold the product and all warranty adjustments must be made through such dealer. Great Plains reserves the right to make changes in materials or design of the product at any time without notice.

This Warranty shall not be interpreted to render Great Plains liable for damages of any kind, direct, consequential, or contingent, to property. Furthermore, Great Plains shall not be liable for damages resulting from any cause beyond its reasonable control. This Warranty does not extend to loss of crops, losses caused by harvest delays or any expense or loss for labor, supplies, rental machinery or for any other reason.

No other warranty of any kind whatsoever, express or implied, is made with respect to this sale; and all implied warranties of merchantability and fitness for a particular purpose which exceed the obligations set forth in this written warranty are hereby disclaimed and excluded from this sale.

This Warranty is not valid unless registered with Great Plains Manufacturing, Incorporated within 10 days from the date of original purchase.

Great Plains



Hydraulic Marker

30' Full Press and 30' H. C. Full Press

Double Acting Cylinders

Installation Instructions

1. Attach Marker Mount Adapter (A) to drill frame using $\frac{5}{8}$ " x 4" x $5\frac{1}{4}$ " long U-bolts (B), and to Gauge Wheel Support Tube using $\frac{5}{8}$ " x 4" x $3\frac{3}{8}$ " long U-bolts (C) as shown in figure 1.
 2. Attach Marker Mount (D) to Marker Mount Adapter using $\frac{5}{8}$ " x $3\frac{1}{2}$ " x 5" long U-bolts (E) as shown in figure 2.
- NOTE:** The Folding Marker chain should be slack when both fully extended and fully retracted.

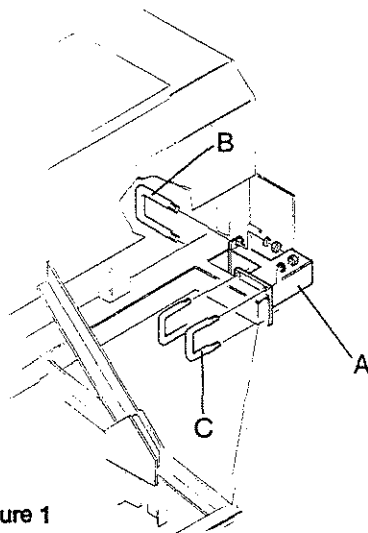


Figure 1

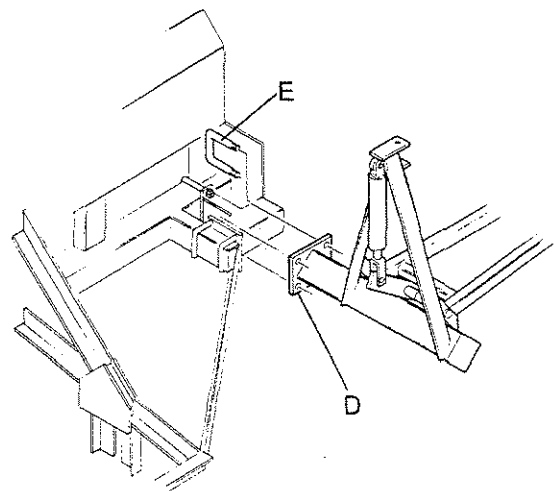


Figure 2

Hydraulics

NOTE: JIC fittings do not require high torque. JIC and O-ring fittings do not require sealant. Always use liquid pipe sealant when adding or replacing pipe thread fittings. Plastic sealant tape can crack fittings and plug hydraulic circuits.

SINGLE MARKER

1. Replace existing fitting at cylinder-head port with $\frac{1}{2}$ " Service Tee (1) and 90° elbow (2) as shown in figure 3.
2. Install marker hose (3) and main lift hydraulic hose as shown.

ROUTE HOSE TO PREVENT KINKING OR PINCHING DURING FOLDING OPERATIONS.

Adjust the rate of rise of marker with Needle Valve, item 5, figure 3.

SINGLE HYDRAULIC MARKER DOUBLE ACTING CYLINDER

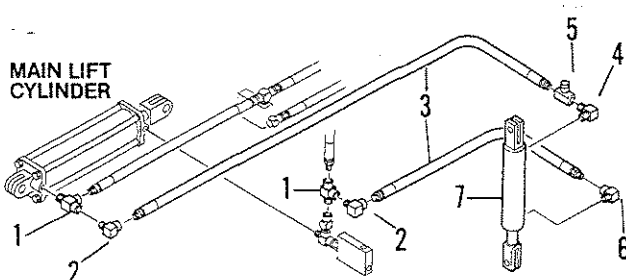


Figure 3

SINGLE MARKER PARTS LIST DOUBLE ACTING CYLINDER

No.	Part No.	Description
1.	811-011 C	Fitting, $\frac{1}{2}$ " Service Tee
2.	811-134 C	M Elbow, $\frac{1}{16}$ " JIC x $\frac{1}{2}$ " Pipe
3.	811-014 C	Hydraulic Hose, $\frac{1}{4}$ " x 24' long
4.	811-156 C	Elbow Fitting, $\frac{3}{8}$ " MNPT, 90°
5.	810-058 C	Needle Valve, $\frac{3}{8}$ "
6.	811-026 C	Elbow Fitting, $\frac{3}{8}$ " MNPT x $\frac{3}{8}$ " FNPT, 90°
7.	810-005 C	Hydraulic Cylinder, 2" x 8" stroke

DUAL MARKERS

1. Assemble Double Selector Valve (1), $\frac{3}{4}$ " Connection Fitting (2), Adapter Fitting (3), 45° Elbow (14), Needle Valve (15) and Sequencing Valve (4) together as shown in figure 4.
2. Detach existing tractor hoses (12) from wing cylinder tees (18). Assemble hoses and fittings as shown in figure 4. Reattach tractor hoses to 90° elbows (11).
3. Attach the assembled Double Selector Valve (1) to the top rail of the main frame side brace using $\frac{3}{8}$ " hex bolts, flat-washers, lockwashers and hex nuts.
4. ROUTE HOSES TO PREVENT KINKING AND PINCHING DURING FOLDING OPERATIONS.
The speed at which the marker rises is adjusted with the needle valve (15). CLOSE THIS VALVE COMPLETELY BEFORE OPERATIONS BEGIN. Then open the valve in small increments until the marker raises and lowers at the desired speed.

1. Right up — Left up
2. Right down — Left up
3. Right up — Left up
4. Right up — Left down
5. Sequence repeats

MARKER SEQUENCE

BE SURE MARKER LOCK PINS ARE REMOVED BEFORE ATTEMPTING TO USE MARKERS.

DUAL HYDRAULIC MARKERS DOUBLE ACTING CYLINDERS

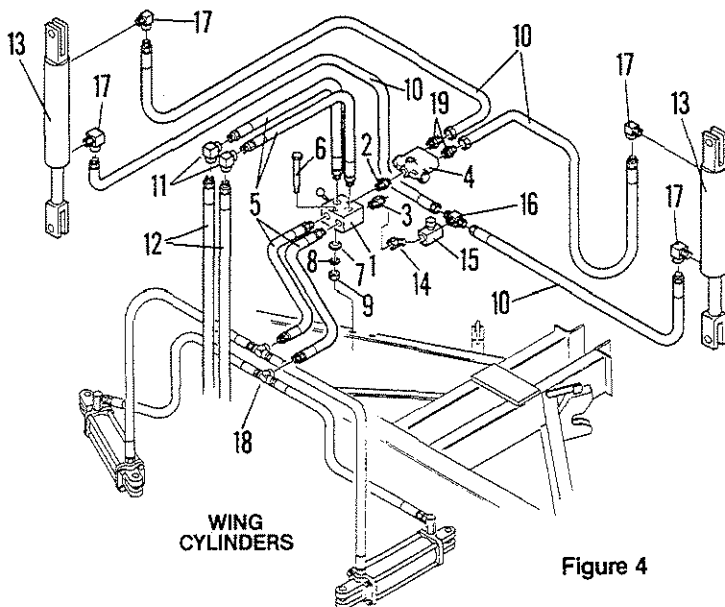


Figure 4

DUAL MARKER PARTS LIST DOUBLE ACTING CYLINDERS

No.	Part No.	Description
1.	810-023 C	Double Selector Valve
2.	811-016 C	Fitting, $\frac{3}{4}$ " MORB
3.	811-155 C	Adapter Fitting, $\frac{3}{8}$ " MNPT x $\frac{1}{2}$ " MNPT
4.	810-006 C	Sequencing Valve
5.	811-071 C	Hydraulic Hose, $\frac{3}{8}$ " x 40" long
6.	802-147 C	Bolt, hex, $\frac{3}{8}$ "-16 x 3 $\frac{1}{2}$ " long
7.	804-011 C	Flatwasher, $\frac{3}{8}$ " USS
8.	804-013 C	Lockwasher, $\frac{3}{8}$ "
9.	803-014 C	Nut, hex $\frac{3}{8}$ "-16
10.	811-014 C	Hydraulic Hose, $\frac{1}{4}$ " x 24' long
11.	811-108 C	Fitting, 90° pipe elbow
12.	811-001 C	Hydraulic Hose (existing), $\frac{3}{8}$ " x 20' long
13.	810-005 C	Hydraulic Cylinder, 2" x 8" stroke
14.	811-157 C	Street Elbow Fitting, $\frac{3}{8}$ " x 45°
15.	810-058 C	Needle Valve, $\frac{3}{8}$ "
16.	811-154 C	Tee Fitting, $\frac{3}{8}$ " M branch x -6 JIC M run
17.	811-026 C	Elbow Fitting, $\frac{3}{8}$ " MNPT x $\frac{3}{8}$ " FNPT, 90°
18.	811-009 C	Fitting (existing), $\frac{1}{2}$ " Female Tee

Field Operations and Maintenance

1. The double selector valve (Figure 4, item 1) transfers hydraulic power from the wing cylinders to the marker cylinders (dual markers only). After your drill boxes have been lowered to field position and locked open, change the selector valve knob. Hydraulic fluid is transferred to the marker hydraulics. Activate your tractor hydraulics lever to lower one marker and raise the other. To put the drill boxes in transport position, raise the markers hydraulically, lock into position and change the selector valve knob, transferring the hydraulic pressure to the wing cylinders.
2. The pitch angle of the marker disk may be varied by rotating the marker disk arm. Be sure the set screws are secure before operating.
3. The marker arm is attached to the marker main body with a $\frac{5}{16}$ " shear bolt. If excessive force is put on the marker during operation, the shear bolt will break, allowing the marker arm to swing away rather than cause damage to the marker. Should this occur, replace the bolt with a $\frac{5}{16}$ " x 1" long, **Grade 2 bolt ONLY**.
4. The marker has four lubrication fittings. These should be serviced after every 12 to 15 hours of operation to prevent excessive wear.
5. Always operate your marker with safety in mind. Never allow anyone near machinery while in operation.

Great Plains MANUFACTURING INC.
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Great Plains



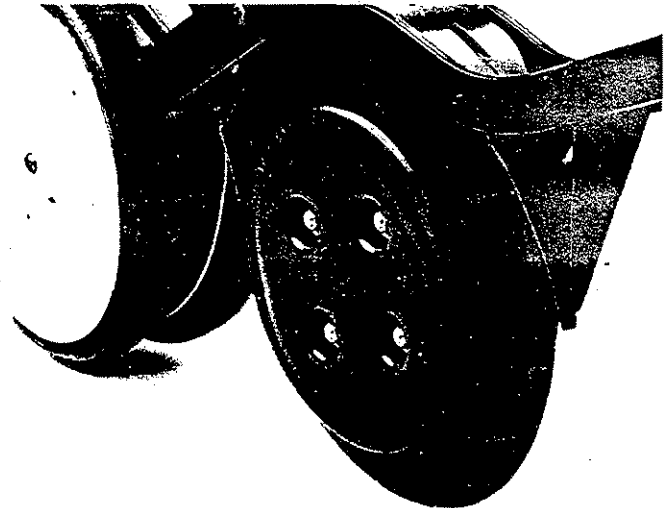
Rubber-Tired Depth Control Wheel

Installation Instructions

The Rubber-Tired Depth Control Wheel is available for all Great Plains double-disk openers.

1. Slip two carriage bolts $\frac{3}{8}$ " x $1\frac{1}{4}$ " long through square holes in disk blade. The carriage bolts must enter from the inside of disks to allow proper clearance.
2. Slip depth control wheel over carriage bolts and secure to disk blade with $\frac{3}{16}$ " USS flatwashers, $\frac{3}{16}$ " lockwashers and $\frac{5}{16}$ " hex nuts.

NOTE: FOR PROPER DEPTH-CONTROL WHEEL OPERATION, OUTSIDE DOUBLE-DISK SCRAPER ARE REQUIRED.



Outside Double-Disk Scraper

Installation Instructions

NOTE: This scraper is designed to mount on the double-disk openers of any Great Plains grain drill to eliminate mud build-up on the opener and on rubber-tired depth control wheels. The rubber-tired depth-control wheels should not be used without the outside scraper.

30 Ft. Full Press and 30 Ft. H. C. Full Press Drills:

1. Remove $\frac{3}{8}$ " x $1\frac{1}{4}$ " long carriage bolt (A), washers and hex nuts which hold existing scraper mount (B) in position (see figure 1).
2. Remove inside scraper (C) from scraper mount (B). Scraper mount (B) is no longer needed.
3. Reposition inside scraper (C) onto new scraper mount (D) with $\frac{3}{8}$ " x 1" long carriage bolt (E), washers and hex nut (see figure 2).
4. Reattach new scraper assembly to opener frame with $\frac{3}{8}$ " x $1\frac{1}{4}$ " long carriage bolt (A), washers and hex nuts. BE SURE ANGLE OF NEW SCRAPER MOUNT (D) POINTS INWARD TOWARD CENTER OF OPENER DISK.
5. Install scraper blade (F) on each wing of scraper mount (D) with $\frac{5}{16}$ " x $\frac{3}{4}$ " carriage bolt, washers and hex nut. Adjust scraper blades to have MINIMUM CLEARANCE with disk opener and rubber-tired depth-control wheel.

BE SURE THE DISK OPENER CAN TURN FREELY AFTER INSTALLATION.

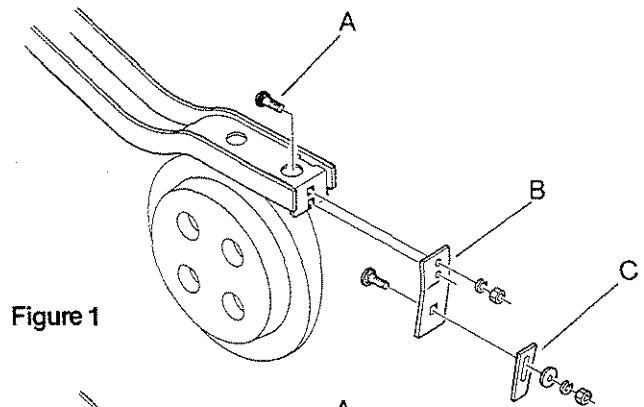


Figure 1

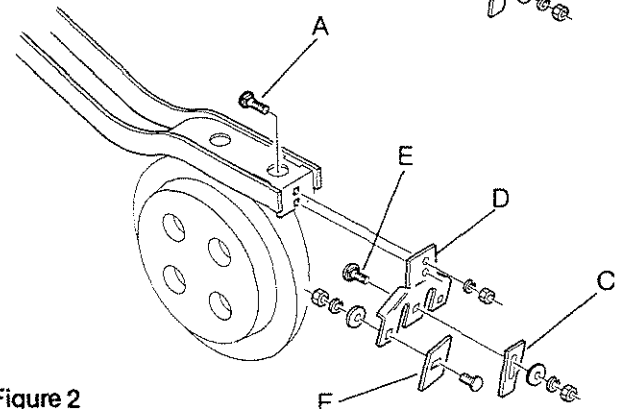


Figure 2

Solid Stand® 3-Point and Solid Stand® Folding Drills:

1. Remove $\frac{3}{8}$ " x $1\frac{1}{4}$ " long carriage bolt (A), washers and hex nuts which hold scraper mounts (B) and press wheel knob adjust bracket (C) in position (see figure 3).
2. Remove inside scraper (D) from scraper mount (B). Scraper mount (B) is no longer needed.

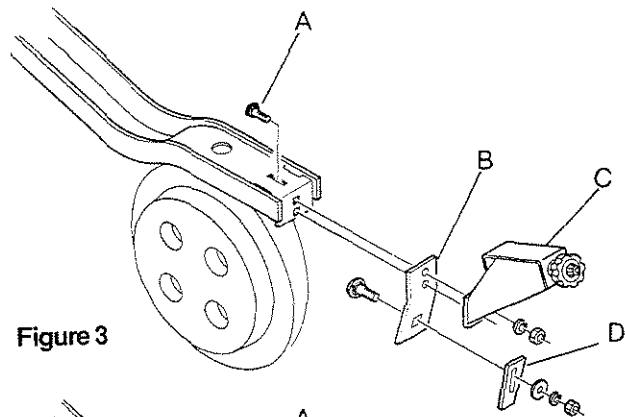


Figure 3

3. Reattach inside scraper (D) onto new outside scraper mount (E) with $\frac{3}{8}$ " x 1" long carriage bolt (F), washers and hex nut (see figure 4).
4. Reposition new scraper assembly behind press wheel knob adjust bracket (C) and attach to opener-frame with $\frac{3}{8}$ " x $1\frac{1}{4}$ " long carriage bolt (A), washers and hex nuts.
BE SURE ANGLE OF NEW SCRAPER MOUNT (D) POINTS INWARD TOWARD CENTER OF OPENER DISK.
5. Install scraper blade (G) on each wing of scraper mount (E) with $\frac{5}{16}$ " x $\frac{3}{4}$ " carriage bolt, washers and hex nut. Adjust scraper blades to have MINIMUM CLEARANCE with disk opener and rubber-tired depth-control wheel.
BE SURE THE DISK OPENER CAN TURN FREELY AFTER INSTALLATION.

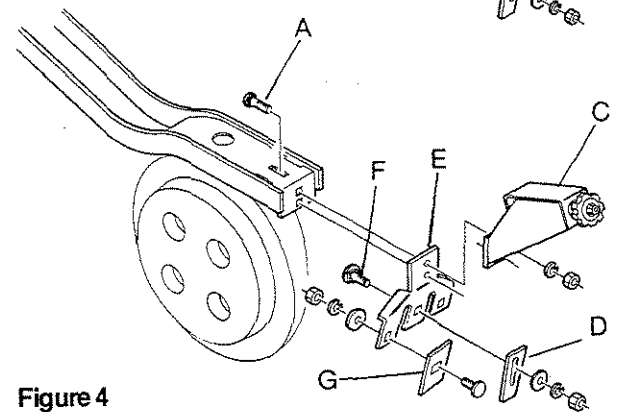


Figure 4

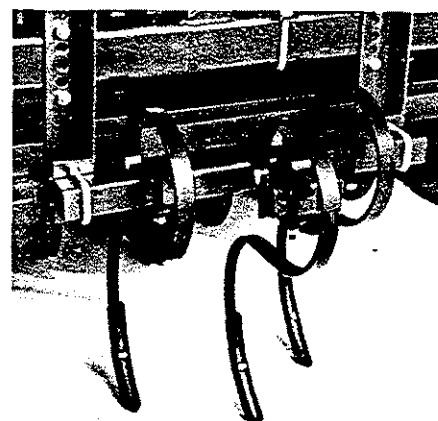
Great Plains



Tractor Tire Track Removers

Installation Instructions

The Track Removers are designed to mount ahead of the openers on the main frame of a Great Plains 3-Point Drill to scratch out tractor tire tracks, allowing accurate seed-planting depth across the length of the drill. They are available in single or dual wheel versions.



1. Locate two points along the drill main frame, directly behind the tractor tires, to mount the support tubes (A). See figure 1.
2. Attach mounting brackets (B) to the lower $3\frac{1}{2}$ " x $3\frac{1}{2}$ " tube of the drill main frame at points where the outside ends of the support tubes (A) will be mounted. Use one $\frac{1}{2}$ " x $3\frac{1}{2}$ " x $4\frac{1}{2}$ " long U-bolt, lockwashers and hex nuts for each mounting bracket.
3. Attach support tubes (A) to mounting brackets (B) using $\frac{1}{2}$ " x 2" x 3" long U-bolts, lockwashers and hex nuts.
4. *SINGLE TIRE TRACK REMOVERS: Attach stagger mount bracket (C) to center of support tube (A) using $\frac{1}{2}$ " x $3\frac{1}{2}$ " long hex bolt, lockwashers and hex nut.
*DUAL TIRE TRACK REMOVERS: Attach two stagger mounts (C) on support tube (A) approximately 12 to 14 inches in from each end using $\frac{1}{2}$ " x $3\frac{1}{2}$ " long hex bolt, lockwasher and hex nut.
5. Set tine clamps (D) on support tubes and stagger mounts at desired locations and attach tines using $\frac{7}{16}$ " carriage bolts, lockwashers and hex nuts.
6. Attach tine tooth (E) to each tine with $\frac{3}{8}$ " x $1\frac{1}{2}$ " long plow bolt, lockwasher and hex nut.

TIGHTEN ALL MOUNTING HARDWARE

- * If the clearance between the drill and the tractor tires is not sufficient to use stagger tooth bracket (C), omit the stagger bracket and attach the tine directly to mount tube (A).

Single Track-Removers shown

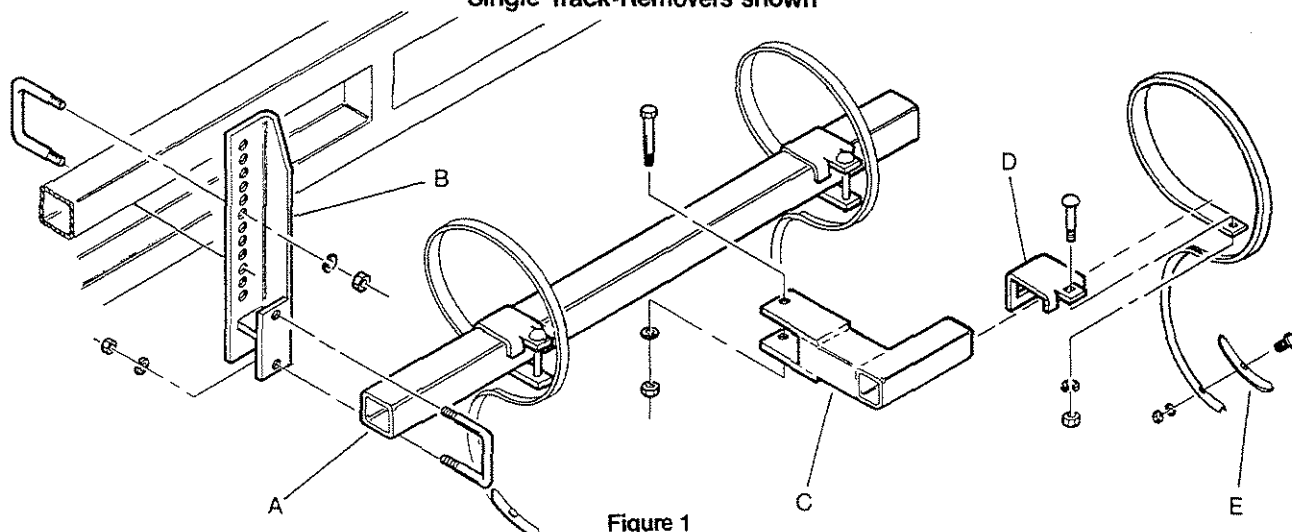


Figure 1

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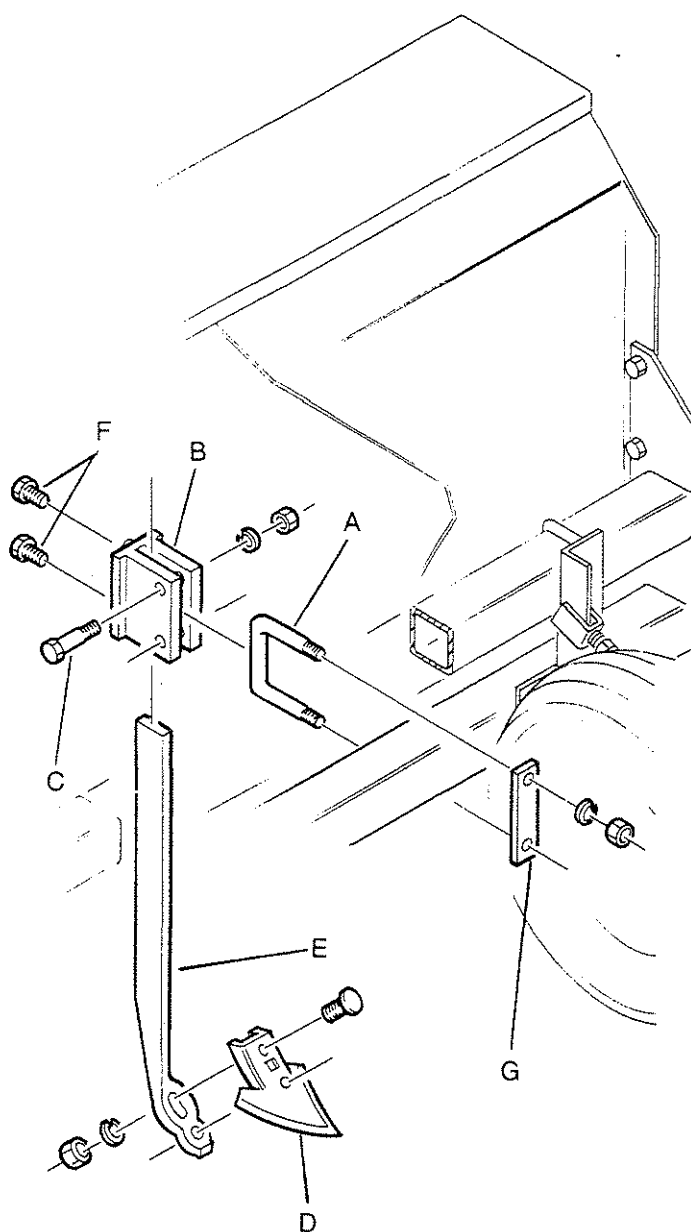
Gauge Wheel Track Removers

Installation Instructions

The Gauge Wheel Track Removers are designed to remove tire tracks made by the gauge wheels on Great Plains 3-Point Drills to allow accurate seed-planting depth across the drill. They mount on the lower $3\frac{1}{2}$ " square tube of the drill main frame from the front or rear, directly behind the gauge wheel.

1. Slide $\frac{5}{8}$ " x $3\frac{1}{2}$ " x $5\frac{7}{8}$ " U-bolt (A) into clevis of plate assembly (B) and secure with two $\frac{1}{2}$ " x $2\frac{1}{4}$ " long hex bolts (C), lockwashers and hex nuts. (See figure)
2. Attach sweep (D) to track remover shank (E) using two $\frac{7}{16}$ " x $1\frac{3}{4}$ " long plow bolts, lockwashers and hex nuts.
3. Slide track remover shank (E) into plate assembly (B) and secure to a temporary height with two $\frac{1}{2}$ " x $1\frac{1}{2}$ " long hex bolts (F).
4. Position U-bolt (A) of plate assembly around lower $3\frac{1}{2}$ " x $3\frac{1}{2}$ " tube of drill main frame from the front or rear at a point directly behind gauge wheel. Attach mounting plate (G) to U-bolt and secure with $\frac{5}{8}$ " lockwashers and hex nuts.
5. Loosen track remover shank (E) from temporary height and set at desired level for removing gauge wheel tire tracks.

TIGHTEN ALL MOUNTING HARDWARE



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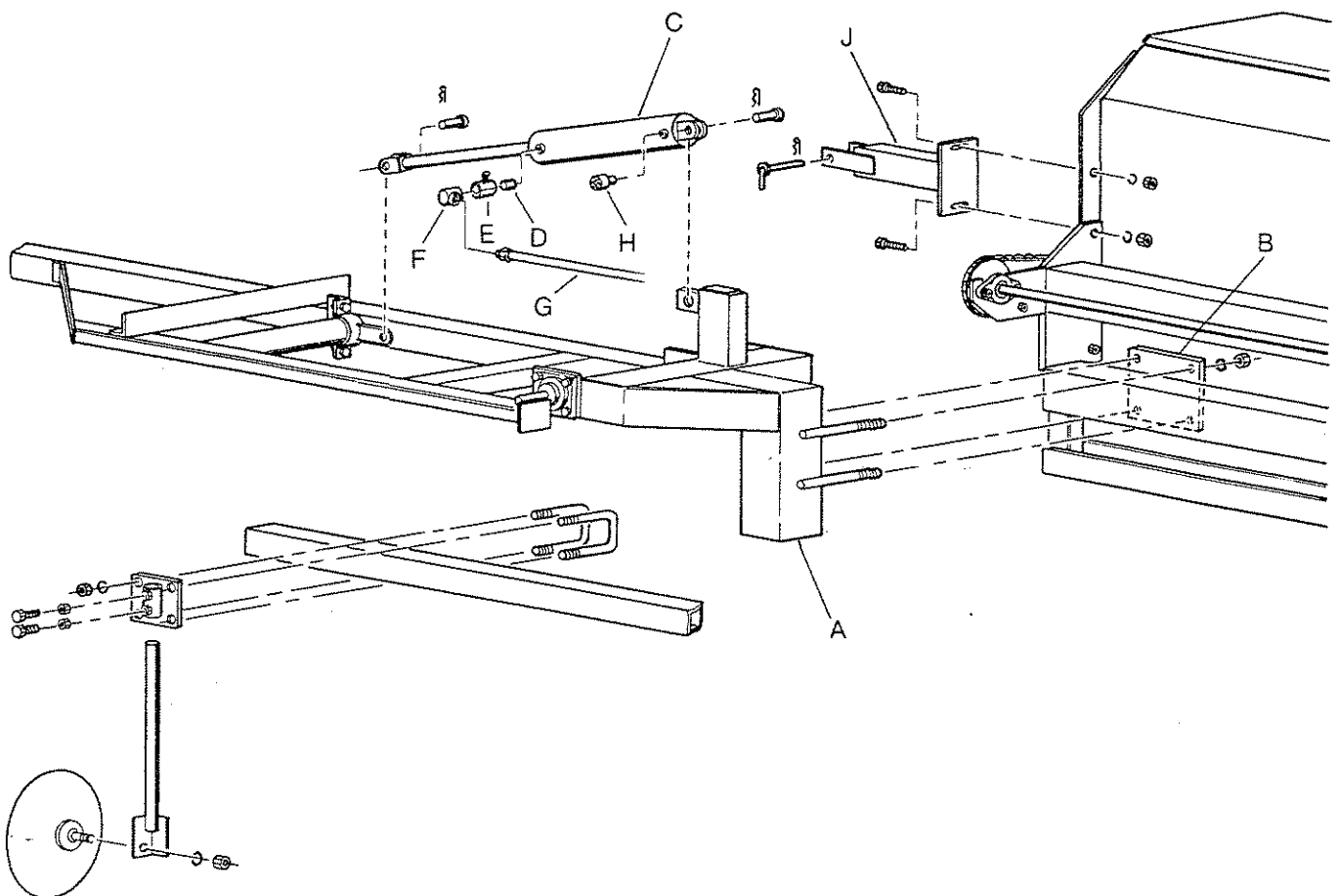
Great Plains



3-Point Rigid Hydraulic Marker

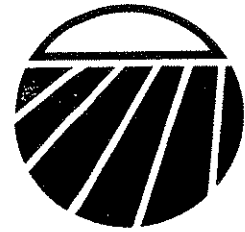
Installation Instructions

1. Attach marker mount frame (A) to center square tube of drill frame with clamp plate (B) and four $\frac{3}{4}$ " lockwashers, and four $\frac{3}{4}$ "-10 hex nuts.
2. Attach hydraulic cylinder (C), pipe nipple (D), restrictor valve (E) and elbow fitting (F) to hose (G). Attach breather (H) to cylinder (C) as shown below. **NOTE:** To avoid cracking the hydraulic fittings, **DO NOT** use plastic sealant tape. Use only liquid pipe sealant to seal the hydraulic fittings. **ROUTE HOSE TO PREVENT KINKING OR PINCHING DURING OPERATION. BLEED AIR FROM HYDRAULIC SYSTEM BEFORE OPERATING.**
3. Install marker lock bracket (J) to top and second box mounting holes with two $\frac{1}{2}$ "-13 hex head bolts, lockwashers, and hex nuts.



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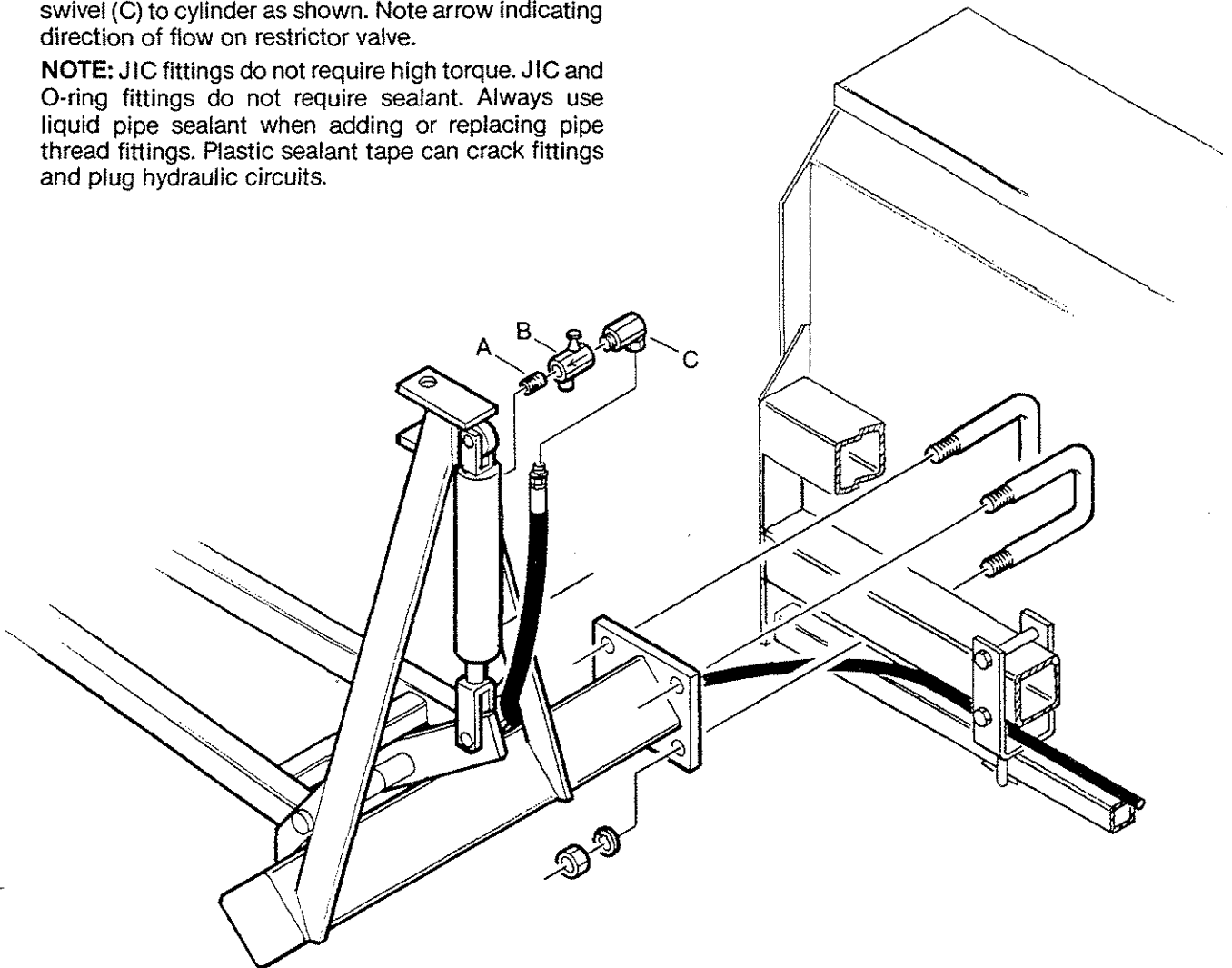
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3-Point Hydraulic Marker Single Acting Cylinders Installation Instructions

1. Attach marker to lower $3\frac{1}{2}$ " square tube of drill frame using two $\frac{5}{8}$ " x $3\frac{1}{2}$ " x 5" long U-Bolts, lockwashers and hex nuts as shown.
2. For folding markers, determine length of chain necessary to allow 1" to $1\frac{1}{2}$ " slack in chain with drill and marker on ground. Rebolt chain at proper length.
3. Attach pipe nipple (A) flow restrictor valve (B), and 90° swivel (C) to cylinder as shown. Note arrow indicating direction of flow on restrictor valve.
4. Route hydraulic hose through marker mount and lower frame support brackets as shown to prevent kinking or pinching during operation.
5. Attach hose to swivel as shown. Bleed air from hydraulic system before operating.

NOTE: JIC fittings do not require high torque. JIC and O-ring fittings do not require sealant. Always use liquid pipe sealant when adding or replacing pipe thread fittings. Plastic sealant tape can crack fittings and plug hydraulic circuits.



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3-Point Hydraulic Marker Double Acting Cylinders

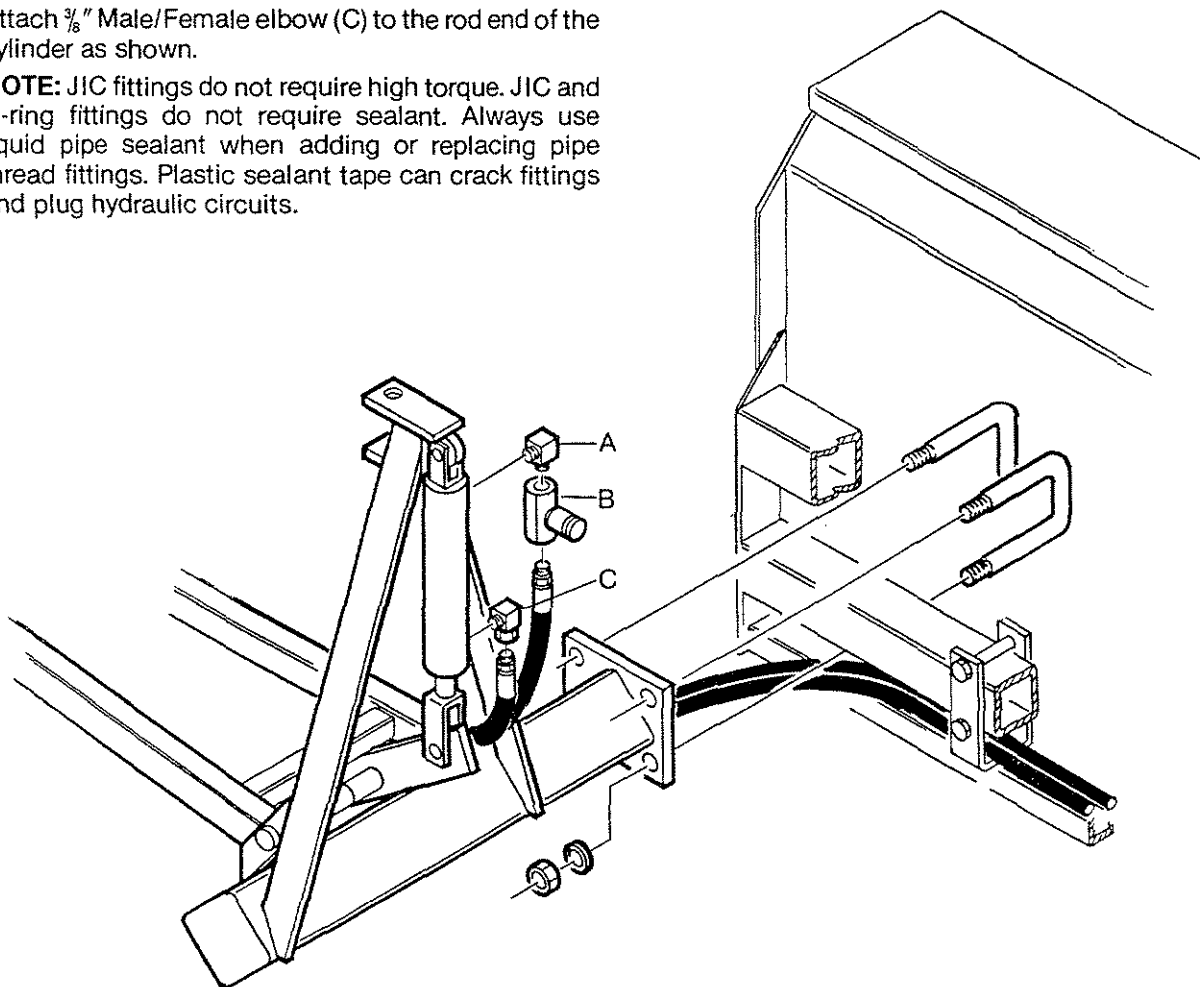
Installation Instructions

1. Attach marker to lower $3\frac{1}{2}$ " square tube of drill frame using two $\frac{5}{8}$ " x $3\frac{1}{2}$ " x 5" long U-Bolts, lockwashers and hex nuts as shown.
2. For folding markers, determine length of chain necessary to allow 1" to $1\frac{1}{2}$ " slack in chain with drill and marker on ground. Rebolt chain at proper length.
3. Assemble $\frac{3}{8}$ " Male elbow (A) to Needle valve (B). Attach the assembly to the base end of the hydraulic cylinder as shown.
4. Attach $\frac{3}{8}$ " Male/Female elbow (C) to the rod end of the cylinder as shown.
5. Attach the hoses to the Needle valve (B) and elbow fitting (C).

Route the hoses through the marker mount and lower frame brackets as shown to prevent kinking or pinching during operation.

Bleed the hydraulic system of air before operating.

NOTE: JIC fittings do not require high torque. JIC and O-ring fittings do not require sealant. Always use liquid pipe sealant when adding or replacing pipe thread fittings. Plastic sealant tape can crack fittings and plug hydraulic circuits.



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Great Plains



Spring-Loaded Gauge Wheel Link

Installation Instructions

The Spring-Loaded Gauge Wheel Link is designed to replace the original equipment adjustable gauge wheel link on the Great Plains 3-Point drill, and insure that the gauge wheel tire will remain on the ground so skips do not occur during drilling operations.

1. Securely block the drill in a raised position and remove the existing adjustable gauge wheel link.
2. With the spring end down, slide the bushing (A) into the top of the Spring-Loaded Gauge Wheel Link (see Figure 1). Attach the link to the top pivot mounting using a $\frac{5}{8}$ " x 3" long bolt (B), flatwasher (C), lockwasher (D) and hex nut (E). Grinding off some excess length of the pivot mounting U-bolt may be necessary to achieve a secure attachment.

BE SURE the grease fittings are in an accessible position.

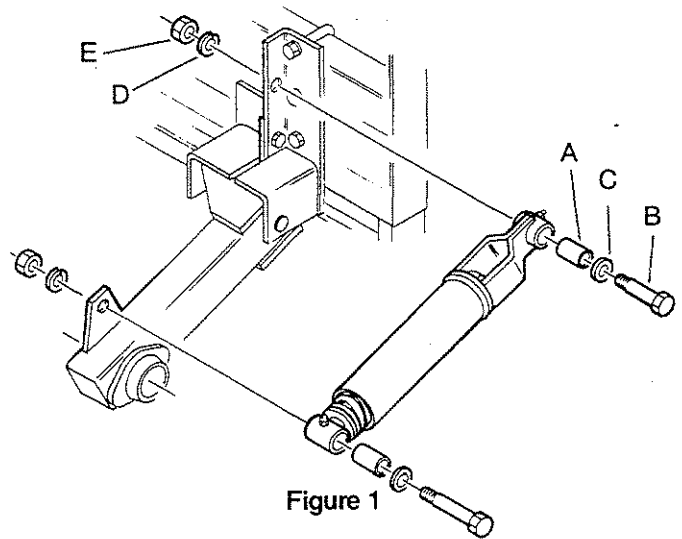


Figure 1

3. Line up the spring end of the link to the tab on the gauge wheel arm. Attach the lower end of the link using the same procedure and fasteners as described above.

Great Plains

3-Point Pull Hitch



Installation Instructions Operation

1. Attach axle assembly bearings (A) to bottom side of hitch frame (B) using eight $\frac{3}{4}$ " x $2\frac{1}{4}$ " long hex bolts, lockwashers and hex nuts (see fig. 1)
2. Raise frame and axle assembly up and install wheels with $\frac{1}{2}$ " lug bolts.
3. Remove Roll Pin (F) and attach hydraulic cylinder (C) to axle cylinder arm (D). Replace roll pin (F).
4. Hook up tractor to tongue of pull hitch using 1" diameter pin and attach to tractor single strap drawbar. If tractor is equipped with clevis hitch, be sure to convert to single strap.
5. Hook hydraulic hoses to tractor and be sure hoses are routed to prevent kinking or pinching during operation. Apply hydraulic fluid and bleed system before attaching hitch to drill. **NOTE:** To avoid cracking the hydraulic fittings, **DO NOT** use plastic sealant tape. Use only liquid pipe sealant to seal the hydraulic fittings.

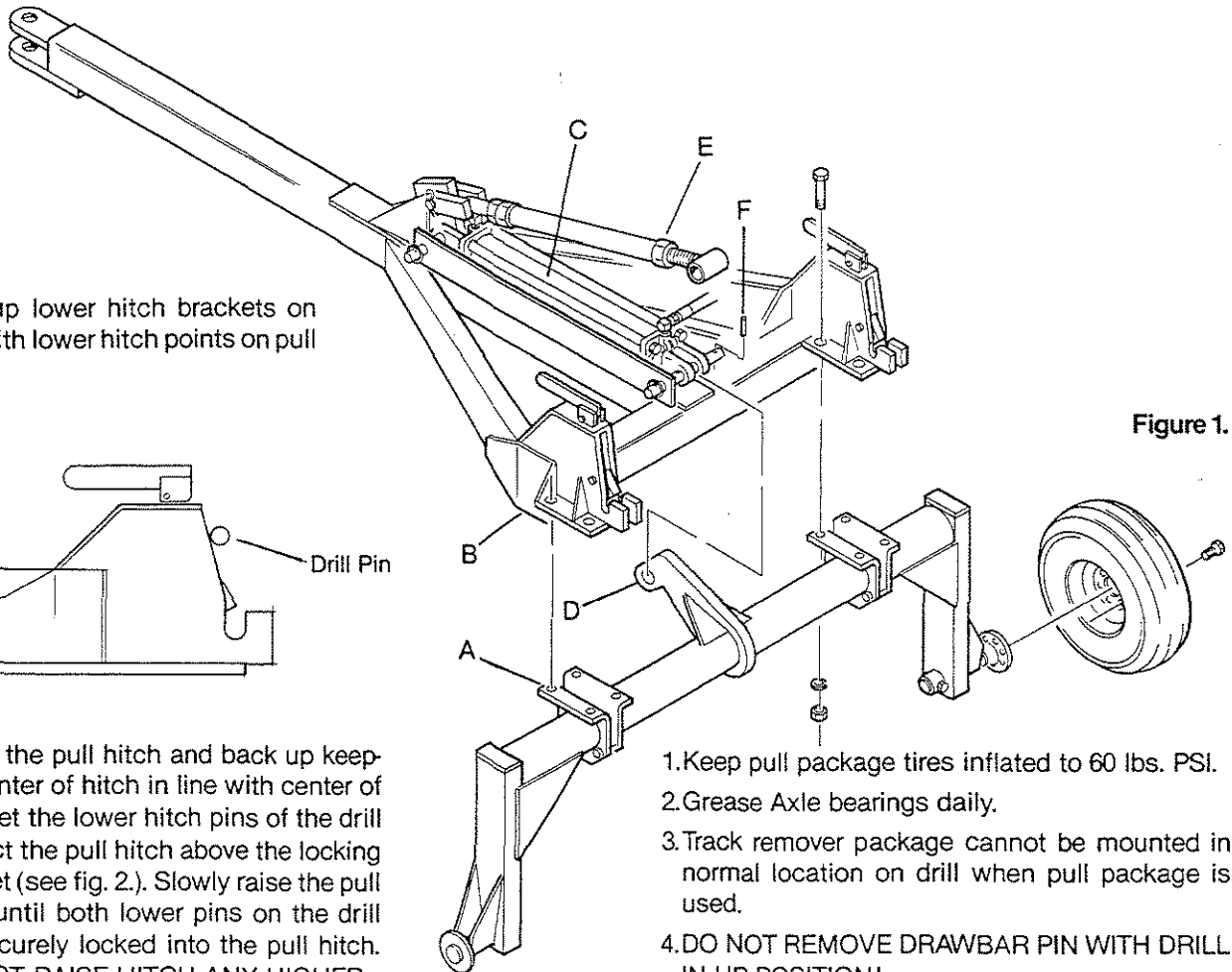
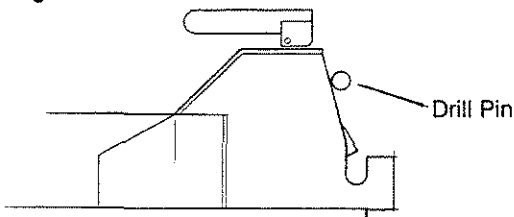


Figure 1.

6. Line up lower hitch brackets on drill with lower hitch points on pull hitch.

Figure 2.



7. Lower the pull hitch and back up keeping center of hitch in line with center of drill. Let the lower hitch pins of the drill contact the pull hitch above the locking bracket (see fig. 2.). Slowly raise the pull hitch until both lower pins on the drill are securely locked into the pull hitch. **DO NOT RAISE HITCH ANY HIGHER.**
8. Attach threaded top link (E) to drill using the pin furnished with the drill. Raise drill to check for length adjustment needed on threaded top link.

1. Keep pull package tires inflated to 60 lbs. PSI.
2. Grease Axle bearings daily.
3. Track remover package cannot be mounted in normal location on drill when pull package is used.
4. **DO NOT REMOVE DRAWBAR PIN WITH DRILL IN UP POSITION!**
5. When transporting, **BE SURE** cylinder lock bar is in position to prevent damage while drill is in motion.

