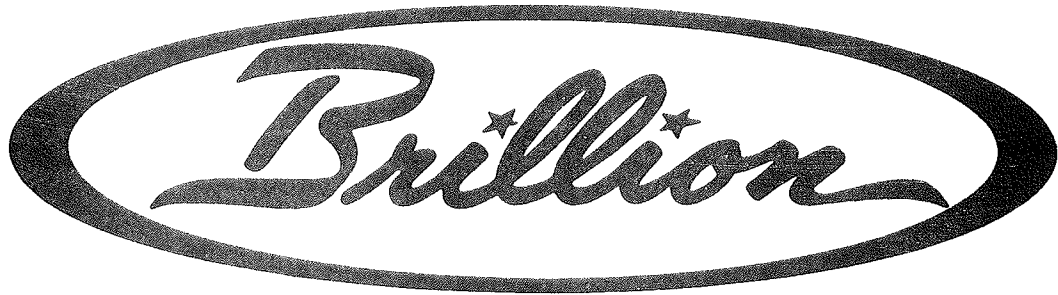
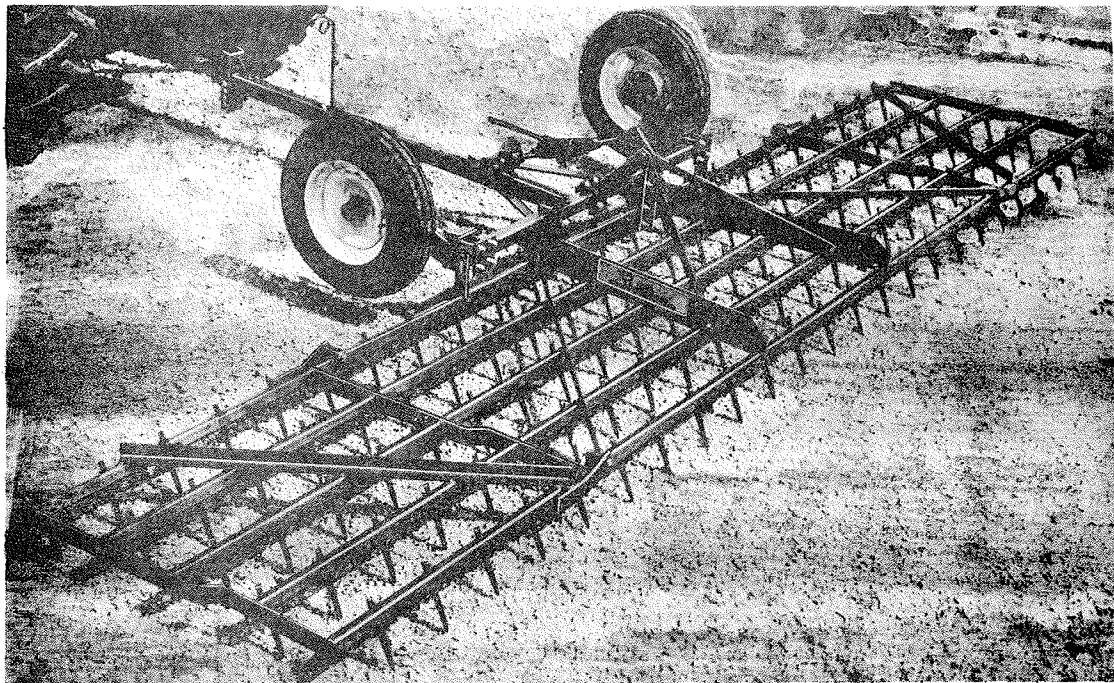


REPAIR PARTS CATALOG and OPERATOR'S MANUAL



SURE-TILL HARROW

MODELS S-102 THRU S-266



MODEL NO.
DATE PURCHASED



BRILLION IRON WORKS
BRILLION, WISCONSIN 54110

SETTING UP AND OPERATING INSTRUCTIONS

FOR BRILLION SURE-TILL HARROW

MODELS

S-102	S-206	S-246
S-142	S-226	S-266
S-186		

Your Brillion Sure-Till Harrow is built with the best materials and workmanship available. It has been designed to give years of trouble-free operation, and proper care and operation will insure the service and long life built into it.

Study this manual carefully before attempting to assemble or operate the machine.

LOCATION REFERENCE

"Right" and "Left", "Front" and "Rear" refer to operators "Right" and "Left", "Front" and "Rear" when he faces in the same direction as the machine will travel.

SURE-TILL HARROW SPECIFICATIONS (Less Hitch)

<u>Model</u>	<u>Working Width</u>	<u>Description</u>	<u>No. of Teeth</u>	<u>Weight</u>
S-102	8'6"	Single section harrow	50	330#
S-142	11'10"	Single section harrow	70	455#
S-186	15'6"	8'6" section plus 2 - 3'6" wings	90	630#
S-206	17'2"	8'6" section plus 2 - 4'4" wings	100	680#
S-226	18'6"	8'6" section plus 2 - 5'2" wings	110	730#
S-246	20'6"	11'10" section plus 2 - 4'4" wings	120	805#
S-266	22'2"	11'10" section plus 2 - 5'2" wings	130	855#
WS-42		Set of 2 - 3'6" wings including hdw.	40	300#
WS-52		Set of 2 - 4'4" wings including hdw.	50	350#
WS-62		Set of 2 - 5'2" wings including hdw.	60	400#
8D-295		Wing Hold Down Kit - locks wing in rigid position		10#

HITCHES

PS-1	Pick up Hitch Assembly (Category II - Three Point Hitch)	65#
DBS-1	Drawbar (pull type) Hitch complete with transport wheels and long drawbar. 15" rims (less tires)	285#

CAUTION NOTES! !

1. DO NOT TRANSPORT AT SPEEDS EXCEEDING 20 MPH.
2. DO NOT REMOVE THE DRAWBAR HITCH PIN WHILE THE HARROW IS IN TRANSPORT POSITION.
3. DO NOT BACK UP WHILE THE HARROW IS IN WORKING POSITION.
4. WHEN TRANSPORTING THE HARROW OVER VERY ROUGH TERRAIN AT HIGH SPEEDS, IT MAY BE NECESSARY TO TIE THE WINGS TOGETHER INTO THE TRANSPORT POSITION. THIS PROCEDURE WILL ELIMINATE THE POSSIBILITY OF THE WINGS "BOUNCING" INTO WORKING POSITION.

Downward Pressure on Rear Tooth Bars

The drawbar hitch is designed to operate with a Brillion ratchet jack or a standard 8" stroke agricultural hydraulic cylinder.

To put downward pressure on the rear tooth bar of the harrow the ratchet jack or hydraulic cylinder must be fully extended. In this position the front tooth bars will raise out of the ground slightly and the rear tooth bars will penetrate deeper. The amount of downward pressure applied to the rear tooth bars will depend on the tractor drawbar height and the hole position of the clevis in the harrow drawbar.

To put downward pressure on the rear tooth bars when using the 3 point lift hitch, it is necessary to lengthen the upper tractor link. By lengthening the upper tractor link, it acts as a depth control device to hold the machine into the ground. This method eliminates the need for additional weight on the machine.

SURE-TILL HARROW TRANSPORT CLEARANCE

<u>Tractor or Trailing Imp. Drawbar Height</u>	<u>(With Drawbar Hitch) Hole Position of Clevis in Harrow Drawbar Bracket</u>	<u>*Approximate Ground Clearance in Transport Position</u>
12"	1 (bottom hole)	11"
13"	2	11"
14"	3	11"
15"	4	11"
16"	5	11"
17"	6	11"
18"	7	11"
19" to 22"	8	11"
23" to 28"	8	11" to 8"
29" to 36"	8 (top hole)	8" to 4"

*These dimensions are with a 27" outside diameter tire. A larger diameter tire will result in greater ground clearance.

SETTING UP INSTRUCTIONS

Your Brillion Sure-Till Harrow is shipped to you in separate assemblies. Before assembling the unit, separate the various bundles and open the box assembly, taking care not to lose any of the parts or hardware. Use nuts and lockwashers on all capscrews.

Refer to the figures indicated in the repair parts section. These figures will show the relationship of the parts put together and also identify the fasteners to use for attaching these components.

DRAWBAR HITCH ASSEMBLY

Study Figure 1 and the repair parts section carefully before assembling the drawbar components to the main frame. Begin by positioning the 9D-532 drawbar and 9D-546 drawbar brackets onto the front part of the center frame as shown. Attach the 9D-546 drawbar brackets to the frame tubes with the 8D-312 straps, 1/2" x 4-1/2" long capscrews, lockwashers, and nuts.

Fasten the 6D-333 cylinder hose support to the mating lug on the drawbar with the 5/8 x 1-3/4 long capscrew, 5/8" flat washer, lockwasher, and nut provided.

Attach the 2D-349 clevis assembly to the drawbar bracket with the 3/4" x 5" long bolt and 3/4" locknut. The hole position of the clevis into the drawbar bracket will depend on the tractor drawbar height and the desired amount of downward pressure to be applied on the rear tooth bars when the cylinder is fully extended. Refer to the transport clearance chart on page 3.

Position the 9D-547 lift arm onto the upper frame tube as shown in Figure 1. Bolt the 8D-119 clamp to the lift arm with the four 5/8" x 2-3/4" long capscrews, nuts, and lockwashers. Do not tighten these capscrews until the two braces are attached to the lift arm and harrow frame. Observe that the brace ends have different angles of bend. The ends with the larger angle of bend are bolted to the 9D-547 lift arm with the 1/2" x 2-1/2" long capscrew, lockwasher and nut. The ends with the smaller angle of bend are bolted to the mating holes in the frame plates with the 1/2" x 1-1/2" long capscrews, lockwashers, and nuts.

Next bolt the 9D-541 right hand wheel bracket and the 9D-542 left hand wheel bracket to the 2-1/2" square frame tube. Attach the brackets with the 9D-548 plates and the eight 1/2" x 4-1/2" long capscrews, lockwashers and nuts as shown in Figure 1. It is important that these brackets are mounted on the very ends of the 2-1/2" square tube for balance and stability while transporting. A set of 15" wheels (less tires) are supplied as standard equipment.

MAIN FRAME AND WING ASSEMBLY

The folding wings are hinged to the main frame with the 5/8" x 4" long drilled capscrews, flat washers, slotted nuts, and cotter pins. Assemble by aligning the holes in the wing hinge straps with the holes in the blocks welded to the main frame. When joining the wings to the main frame, it is important that the heads of the capscrews be positioned to the outside, against the hinge strap. See Figure 2. Fasten the flat washer, slotted nut, and cotter pin but do not tighten the nuts completely. This will permit the wings to be folded up easily for transport. To reduce the lifting weight of the wings when folding them into the transport position (on the drawbar model only), raise the entire harrow frame into the transport position.

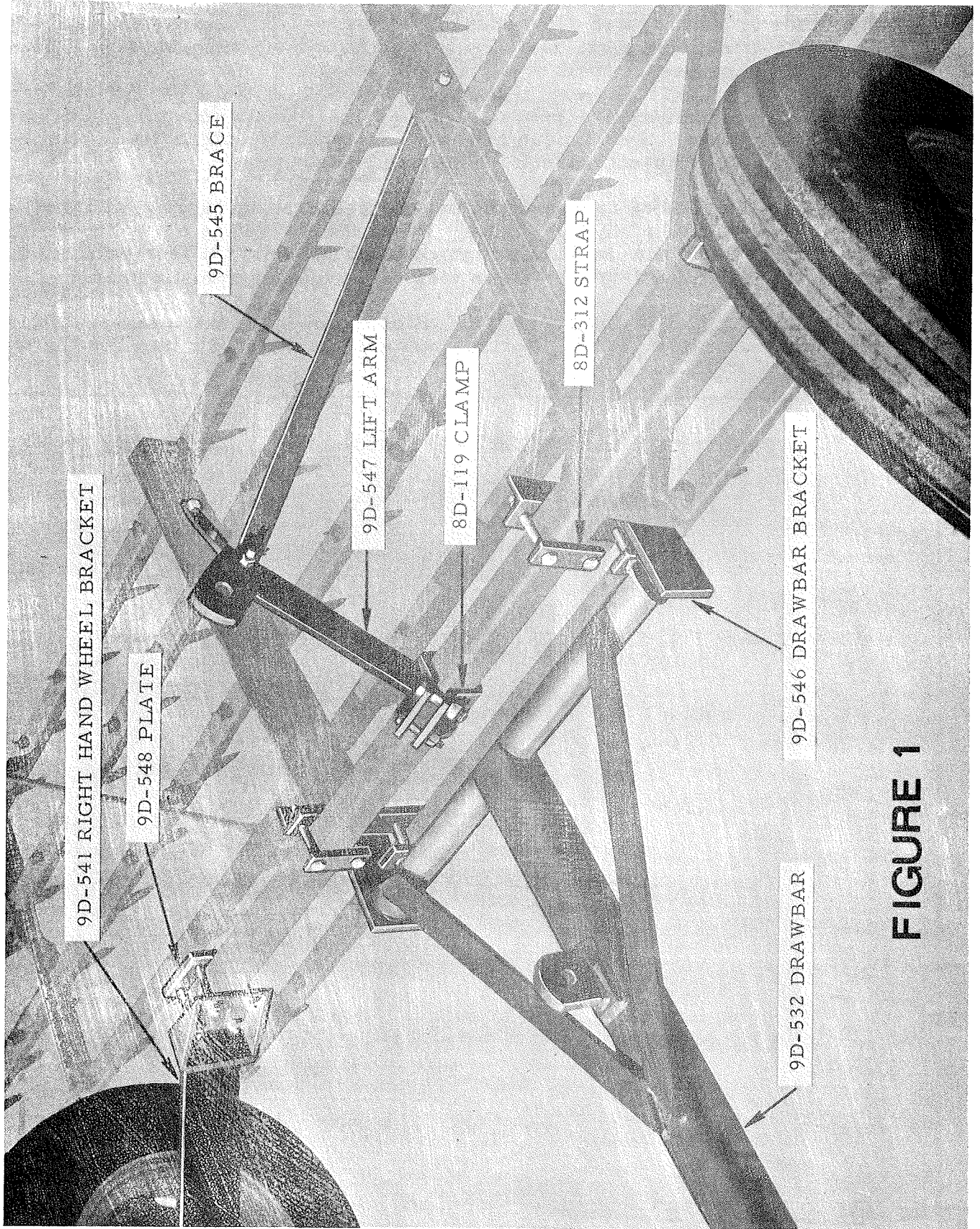


FIGURE 1

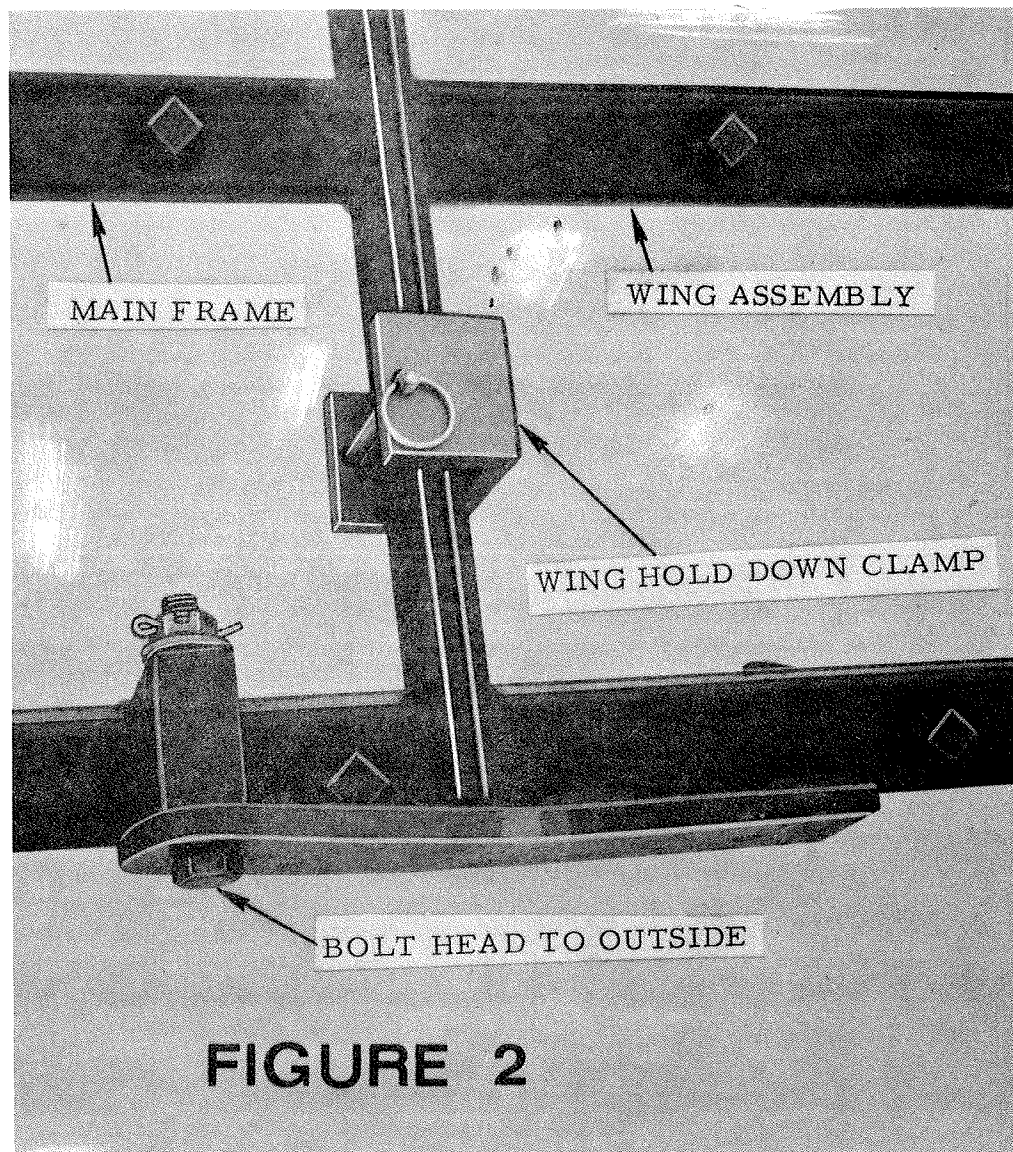
MAINTENANCE

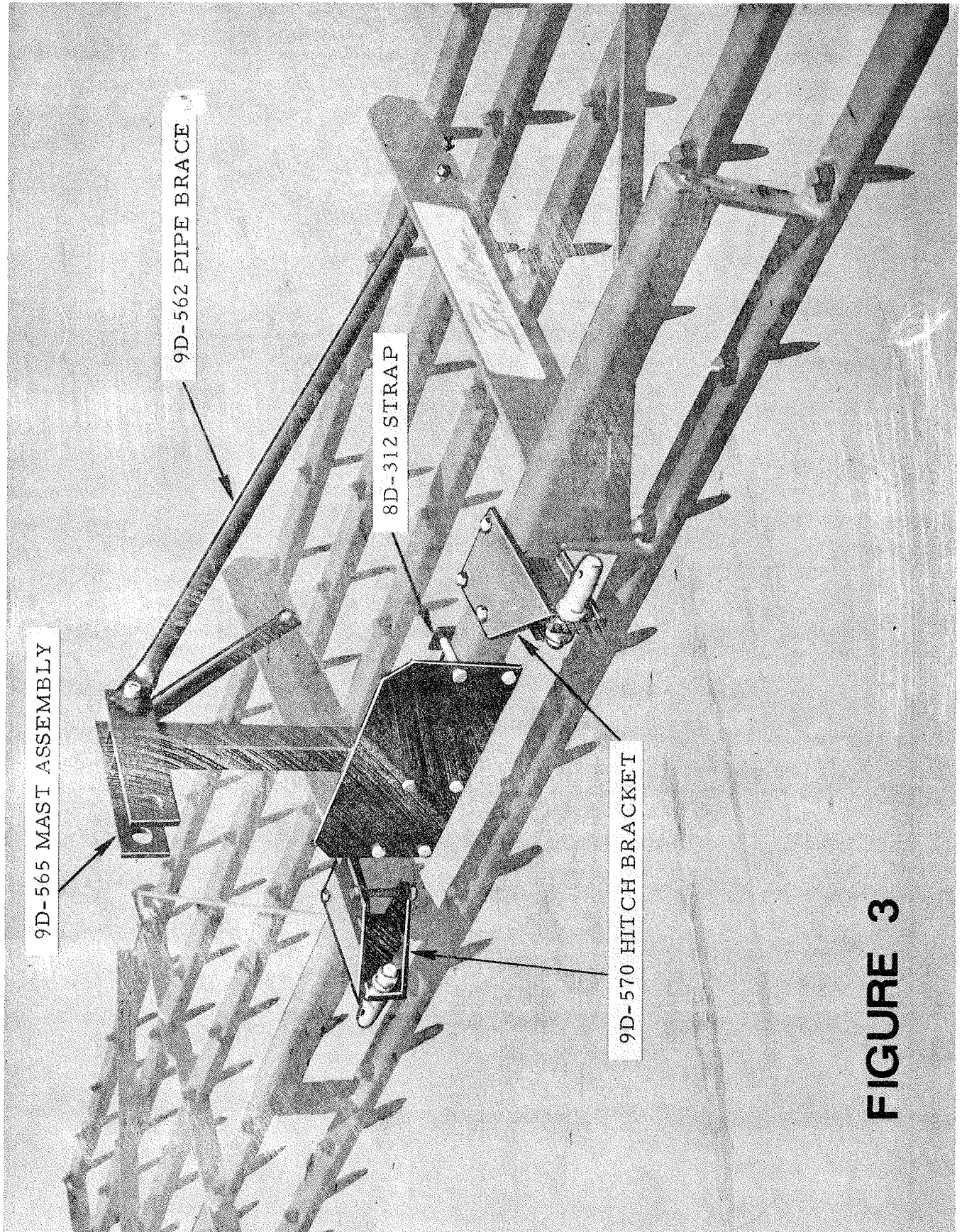
The Brillion Sure-Till Harrow requires very little upkeep. The spike teeth are made of heat treated alloy steel for good wearing characteristics. It should be noted, however, that the harrow be raised when backing. This will avoid unnecessary tooth breakage.

The teeth themselves are pressed through the tubular mounting bars and welded into place. This unique method of fastening the spike teeth eliminates the need for special clamps, bolts, and nuts.

To replace or remove broken teeth, cut the weld free from the spikes on the underside of the tube mounting bars. Drive the old spikes out of the tubing and replace with new Brillion spike teeth. Then weld the teeth in place to one of the flared ears on the bottom side of the tubular mounting bars.

After the first five or six hours of operation, go over the machine and tighten all nuts which may be loose. Normal periodic checks should be made thereafter.





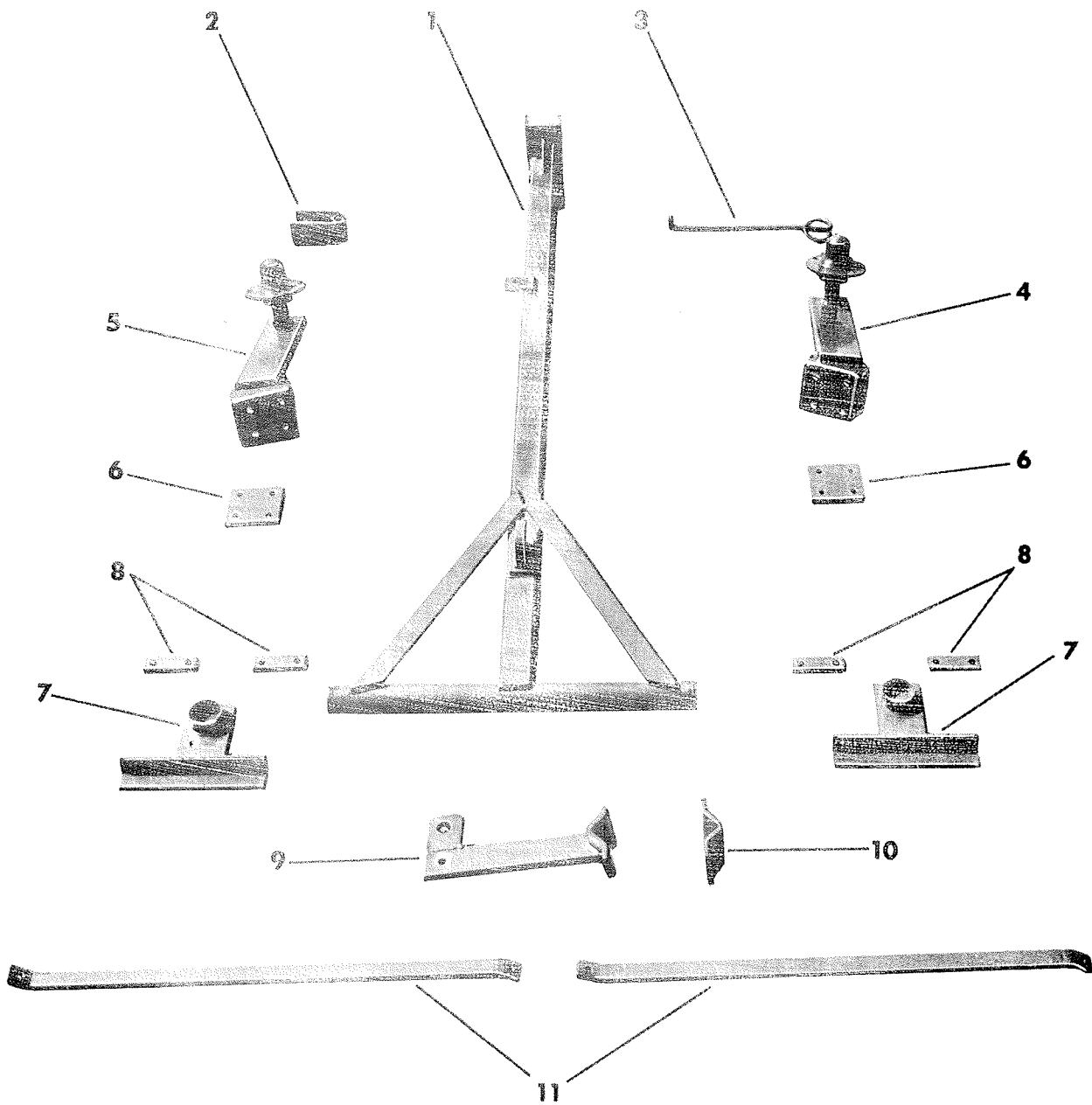
9D-565 MAST ASSEMBLY

9D-562 PIPE BRACE

8D-312 STRAP

9D-570 HITCH BRACKET

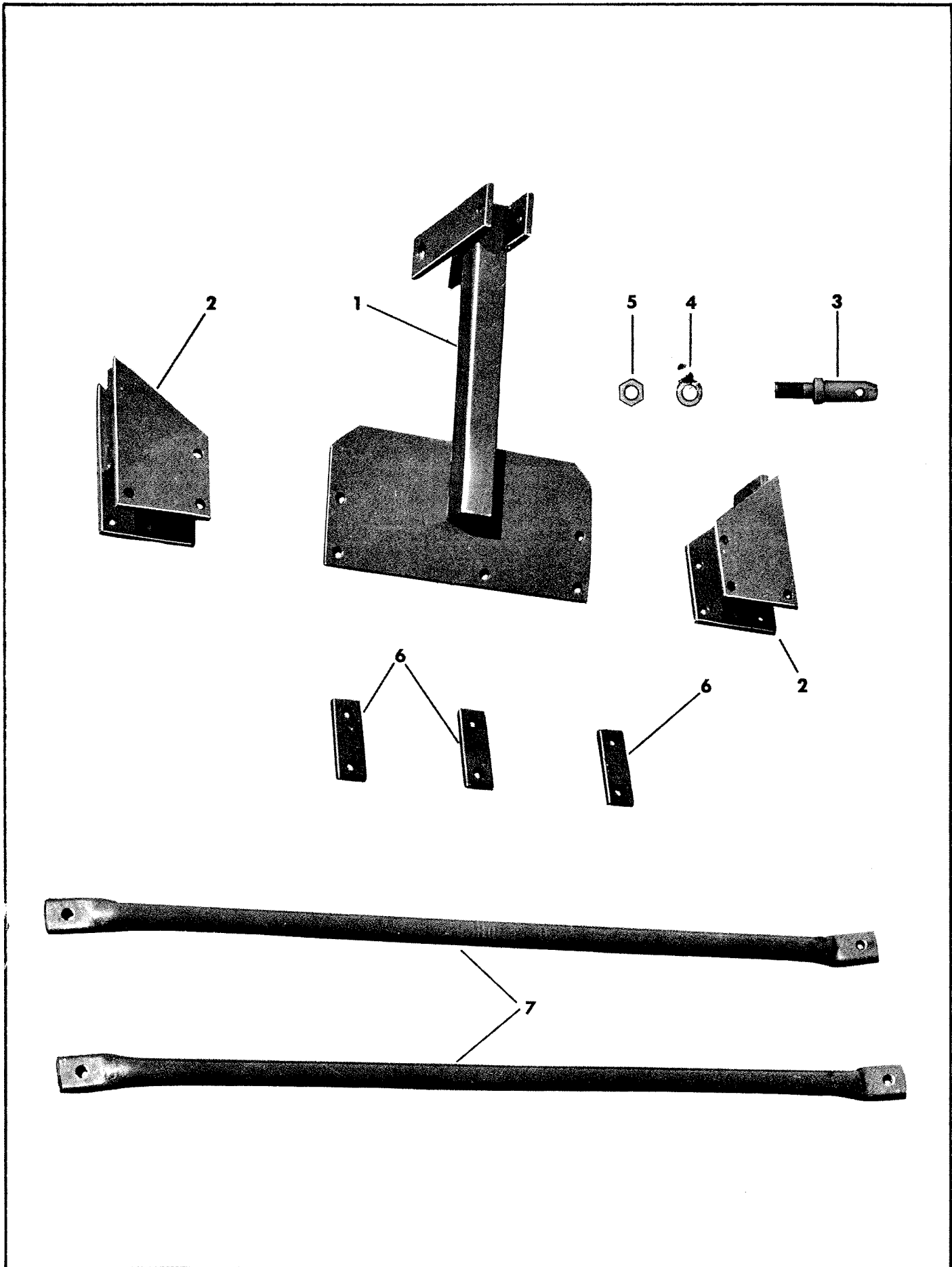
FIGURE 3



REPAIR PARTS SECTION

SURE-TILL HARROW - DRAWBAR MODEL

Index No.	Part No.	Description	No. Req'd.	Approx. Weight
	9D-526	8 Ft. Main Frame	1	330.00
	9D-527	12 Ft. Main Frame	1	455.00
	2J-161	3 Ft. 6 In. Right Hand Wing	1	150.00
	2J-162	3 Ft. 6 In. Left Hand Wing	1	150.00
	9D-528	4 Ft. 4 In. Right Hand Wing	1	175.00
	9D-529	4 Ft. 4 In. Left Hand Wing	1	175.00
	9D-530	5 Ft. 2 In. Right Hand Wing	1	200.00
	9D-531	5 Ft. 2 In. Left Hand Wing	1	200.00
	8D-250	Spike Tooth		1.40
		For 8 Ft. Frame	50	
		For 12 Ft. Frame	70	
		For One 3'6" Wing	20	
		For One 4 Ft. Wing	25	
		For One 5 Ft. Wing	30	
*	9D-554	Drilled Bolt, 5/8-11 NC x 4 Lg., Grade 5	4	.40
*	5C-907	Flat Washer, 5/8 S. A. E.	4	.15
*	4D-529	Slotted Nut, 5/8-11 NC	4	.20
*	1C-205	Cotter Pin, 5/32 Dia. x 1-1/2 Lg.	4	.08
+	8D-296	Clamp	4	2.00
+	8D-297	Drilled Bolt	4	.30
+	8D-298	Ring Pin	4	.10
1	9D-532	Drawbar	1	105.00
2	2D-349	Clevis Assembly	1	5.00
	2D-488	Capscrew, 3/4-10 NC x 5 Long, Grade 5	1	.90
	6C-729	Locknut, 3/4-10 NC	1	.35
3	6D-333	Hose Support	1	2.00
	6C-421	Capscrew, 5/8-11 NC x 1-3/4 Long	1	.35
	1C-122	Flat Washer, 5/8 Std.	1	.20
4	9D-541	Right Hand Wheel Bracket	1	37.00
5	9D-542	Left Hand Wheel Bracket	1	37.00
6	9D-548	Plate	2	4.50
	3D-751	Capscrew, 1/2-13 NC x 4-1/2 Lg., Grade 5	16	.30
	5C-916	Wheel, 15" - 4 Bolt	2	16.00
	5C-100	Wheel Bolt	8	.25
7	9D-546	Drawbar Bracket	2	10.50
8	8D-312	Strap	4	.95
9	9D-547	Lift Arm	1	10.00
10	8D-119	Clamp	1	2.60
	5D-990	Capscrew, 5/8-11 NC x 2-3/4 Lg., Grade 5	4	.30
11	9D-545	Brace	2	6.00
	7C-875	Capscrew, 1/2-13 NC x 2-1/2 Lg., Grade 5	1	.25
	8C-527	Capscrew, 1/2-13 NC x 1-1/2 Lg., Grade 5	2	.18
		Lockwasher, 5/8 Reg.	5	.20
		Nut, 5/8-11 NC Reg. Hex	5	.20
		Lockwasher, 1/2 Reg.	19	.18
		Nut, 1/2-13 NC Reg. Hex	19	.18
		*Hardware for Wing Hinges		
		+Parts for Optional 8D-295 Wing Hold Down Kit		



THREE POINT LIFT HITCH ASSEMBLY

Study Figure 3 and the repair parts section carefully before assembling the 3-point hitch components to the main frame. Position the 9D-565 mast assembly onto the upper frame tube as shown. Bolt the three 8D-312 straps to the mast assembly with the six 1/2" x 4" long capscrews, washers and nuts provided. Do not tighten these capscrews completely until the braces are attached to the mast assembly and main frame. The braces are bolted to the mating holes in the mast assembly and main frame with the four 1/2" x 1-3/4" long capscrews, lockwashers, and nuts provided.

Bolt the 9D-570 hitch brackets to the 2-1/2" square frame tube with the 1/2" x 4" long capscrews, lockwashers, and nuts. Position the hitch brackets as far away from the 9D-565 mast assembly as possible when using a Category II tractor hook-up. For Category I hitch pin hook-up, position the hitch brackets against the mast assembly. Fasten the hitch pins with the 7/8 lockwashers, and nuts.

REPAIR PARTS SECTION

SURE-TILL HARROW - 3 POINT LIFT MODEL				
Index No.	Part No.	Description	No. Req'd.	Approx. Weight
	9D-526	8 Ft. Main Frame	1	330.00
	9D-527	12 Ft. Main Frame	1	455.00
	2J-161	3 Ft. 6 In. Right Hand Wing	1	150.00
	2J-162	3 Ft. 6 In. Left Hand Wing	1	150.00
	9D-528	4 Ft. 4 In. Right Hand Wing	1	175.00
	9D-529	4 Ft. 4 In. Left Hand Wing	1	175.00
	9D-530	5 Ft. 2 In. Right Hand Wing	1	200.00
	9D-531	5 Ft. 2 In. Left Hand Wing	1	200.00
	8D-250	Spike Tooth		1.40
		For 8 Ft. Frame	50	
		For 12 Ft. Frame	70	
		For one 4 Ft. Wing	25	
		For one 5 Ft. Wing	30	
		For one 3 Ft. Wing	20	
*	9D-554	Drilled Bolt, 5/8-11 NC x 4 Lg., Grade 5	4	.40
*	5C-907	Flat Washer, 5/8 S. A. E.	4	.15
*	4D-529	Slotted Nut, 5/8-11 NC	4	.20
*	1C-205	Cotter Pin, 5/32 Dia. x 1-1/2 Long	4	.08
+	8D-296	Clamp	4	2.00
+	8D-297	Drilled Bolt	4	.30
+	8D-298	Ring Pin	4	.10
1	9D-565	Mast Assembly	1	21.00
2	9D-570	Hitch Bracket	2	10.00
	5D-335	Capscrew, 1/2-13 NC x 4 Lg., Grade 5	12	.30
3	1D-217	Hitch Pin, Category II	2	1.25
	5D-186	Hitch Pin, Category I (Optional)	2	1.00
4	9C-766	Lockwasher, 7/8 Std.	2	.20
5	1D-218	Nut, 7/8-14 NF Reg. Hex	2	.40
6	8D-312	Strap	3	.95
7	9D-562	Pipe Brace	2	7.00
	5D-51	Capscrew, 1/2-13 NC x 1-3/4 Lg., Grade 5	4	.15
		Lockwasher, 1/2 Std.	16	.06
		Nut, 1/2-13 NC Reg. Hex	16	.09
		*Hardware for Wing Hinges		
		+Parts for optional 8D-295 Wing Hold Down Kit		

