

OPERATOR'S MANUAL

SETTING-UP DIRECTIONS

and

Repair Parts List

for

ATHENS SERIES "83" & "84" WHEELED TANDEM HARROWS

Units Without Wings From 8'9" to 13'9" in Width

Units With Wings From 15' to 21'3" in Width



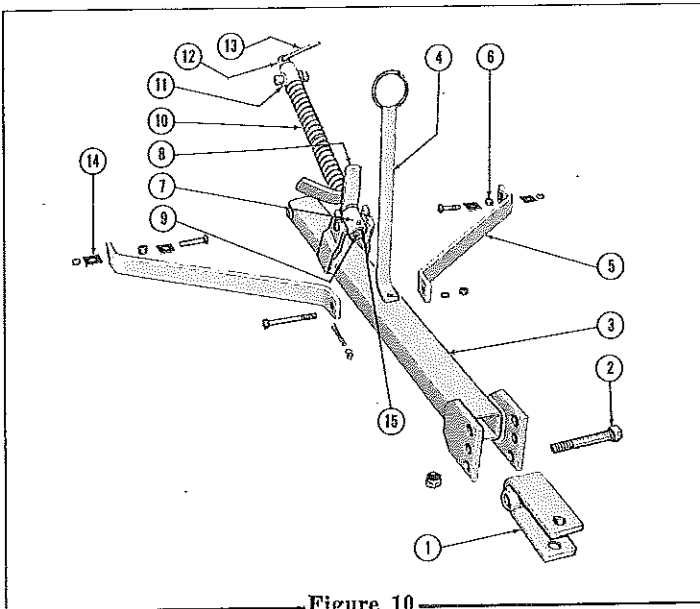


Figure 10

TONGUE PARTS

Item No.	Part No.	Quantity "83"	Quantity "84"	Description
1	18132	1	1	Clevis Assembly
2		1	1	1" x 6½" Bolt
		1	1	1" Lock Nut
3	18000	1	1	Tongue Assembly
4	16645	1	1	Hose Stand
		1	1	½" x 4" Bolt w/Nut
		1	1	½" Lockwasher
5	18102	2	2	Tongue Brace
		2	2	¾" x 6" Bolt
	18041	2	2	Tongue Brace
		2	2	¾" x 6" Bolt
		1	1	¾" x 6½" Bolt w/Nut
		1	1	¾" Lockwasher
		2	2	¾" Lock Nut
6	18027	2	2	Tongue Brace Bushing
7	15818	1	1	Threaded Trunnion
8	15731	2	2	Leveling Spring Lock
9	18134	1	1	Leveling Rod
		3	3	1¼" Flat Washer
10	15729	2	2	Leveling Spring
11	15709	1	1	Plain Trunnion
12	18135	1	1	Leveling Rod Bushing
13	18136	1	1	Leveling Rod Handle
		1	1	3/16" x 1" Cotter
14	18658	4	4	Back-Up Washer
15	1610	1	1	½" NPT Grease Fitting

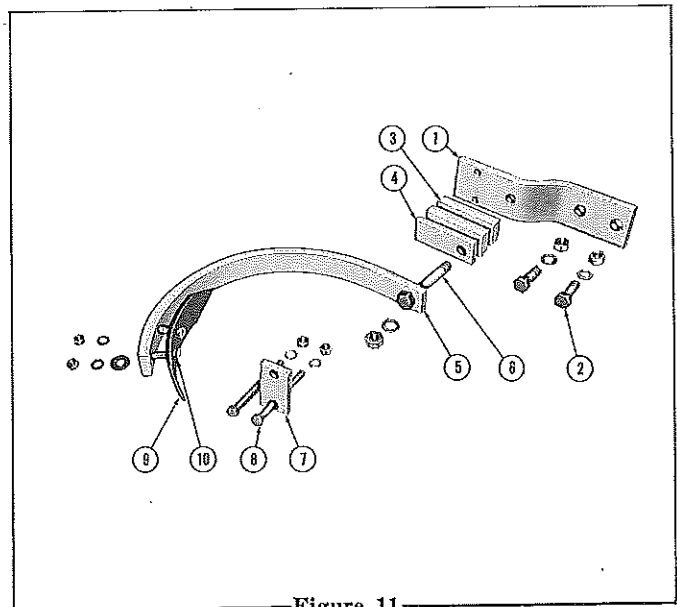


Figure 11

BALK BUSTER PARTS

Item No.	Part No.	Quantity	Description
1	18007	1	Balk Buster Attaching Plate
2		2	¾" x 2¼" Bolt w/Nut
		2	¾" Lockwasher
3	17729	3	Thick Depth Spacer
4	17727	1	Thin Depth Spacer
5	17730	1	Balk Buster Tine
6		1	¾" x 5½" Bolt w/Nut
		1	¾" Lockwasher
7	17726	1	Clamp Plate
8		2	½" x 6" Bolt w/Nut
		2	½" Lockwasher
9		1	2" Point or 6" Sweep (Not Furnished)
10		2	7/16" x 2" No. 3 Plow Bolt w/Nut
		2	7/16" Lockwasher
		1	7/16" Flat Washer

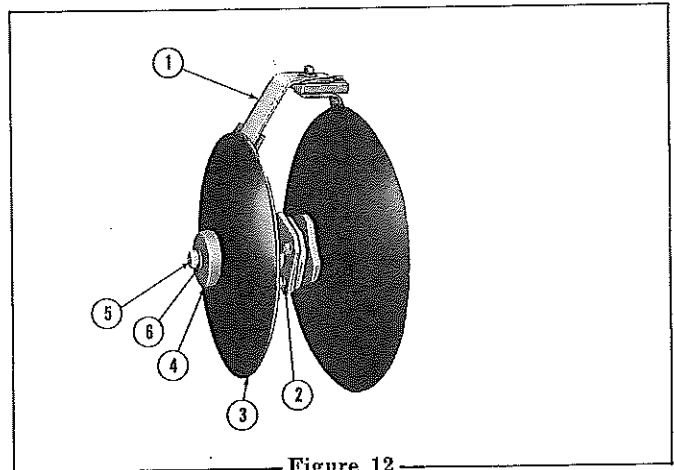


Figure 12

COVER DISC PARTS

Item No.	Part No.	Quantity	Description
1	18665	1	Right Cover Disc Scraper
	18666	1	Left Cover Disc Scraper
2	17126	2	Cover Disc Mounting Assembly
		8	½" x 1½" Carriage Bolt w/Nut
		8	½" Lockwasher
3		2	Cover Disc (not furnished)
4	17117	2	Cover Disc End Washer
5		2	¾" Lock Nut
6		2	¾" Flat Washer

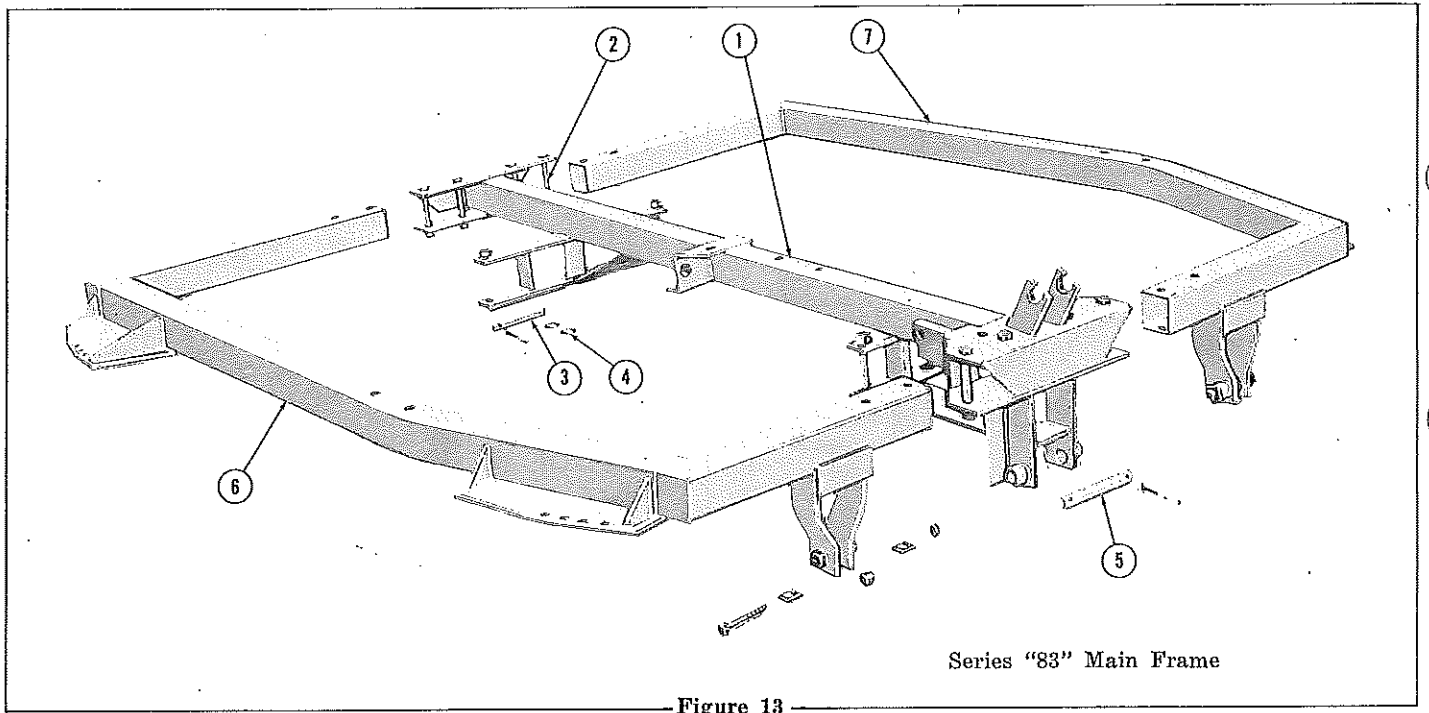


Figure 13

Series "83" Main Frame

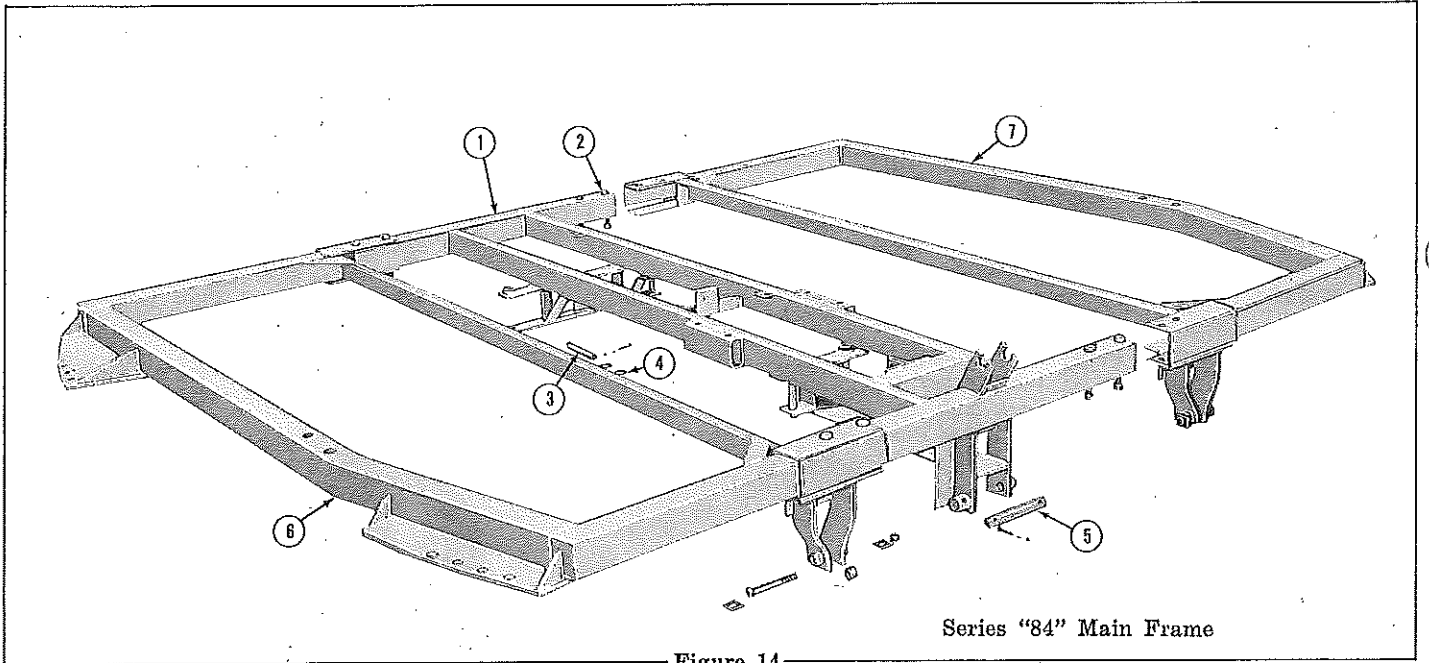


Figure 14

Series "84" Main Frame

MAIN FRAME PARTS

Item No.	Part No.	Quantity "83"	Quantity "84"	Description	Item No.	Part No.	Quantity "83"	Quantity "84"	Description
1	18783	1		Center Frame Assembly	5	18049	1	1	Tongue Connecting Pin
	18807	1		Center Frame Assembly			1	1	$\frac{3}{8}$ " x 2 $\frac{1}{2}$ " Hex Bolt w/Nut
2		8	8	$\frac{3}{4}$ " x 6" Hex Bolt w/Nut			1	1	$\frac{3}{8}$ " Flat Washer
		8	8	$\frac{3}{4}$ " Lockwasher	6	18804	1		Right Side Frame Assembly
3	18048	4	4	Cylinder Pivot Pin		18834		1	Right Side Frame Assembly
		4	4	$\frac{3}{8}$ " x 2" Hex Bolt w/Nut	7	18805	1		Left Side Frame Assembly
		4	4	$\frac{3}{8}$ " Lockwasher		18835		1	Left Side Frame Assembly
4		8	8	1" SAE Flat Washer					

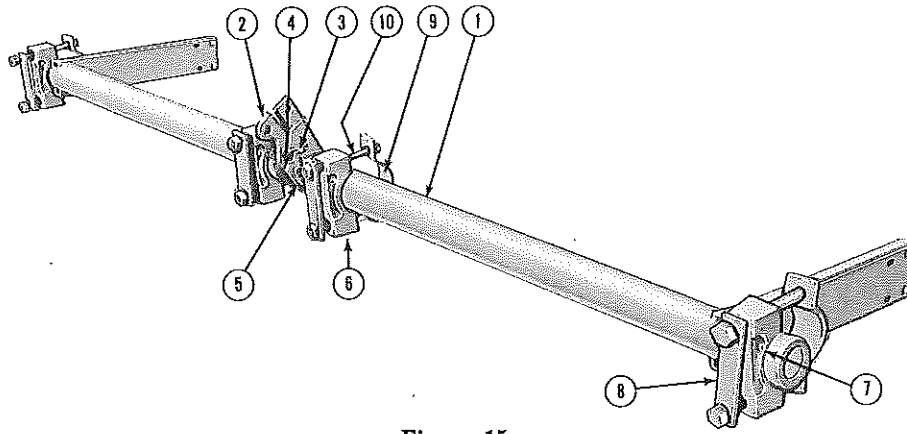


Figure 15

WHEEL CARRIAGE PARTS

Item No.	Part No.	Quantity		Description	Item No.	Part No.	Quantity		Description
		"83"	"84"				"83"	"84"	
1	18769	1		Wheel Carriage Assembly (not shown)	6	15917	3	4	Wheel Pivot Casting
	18766		1	Wheel Carriage Assembly (shown)	7	1610	3	4	1/8" NPT Grease Fitting
2	18767	1	1	Ram Arm	8	16837	3	4	Bearing Plate
3	105	1	1	Transport Rivet	9	15925	3	4	Pivot Strap
4	2057	1	1	3/16" Quick-Hitch Pin	10	18858	6	8	Bolt Assembly w/Nut
5		1	1	3/4" x 2 3/4" Hex Bolt			6	8	3/8" Lockwasher
		1	1	3/4" Lock Nut					

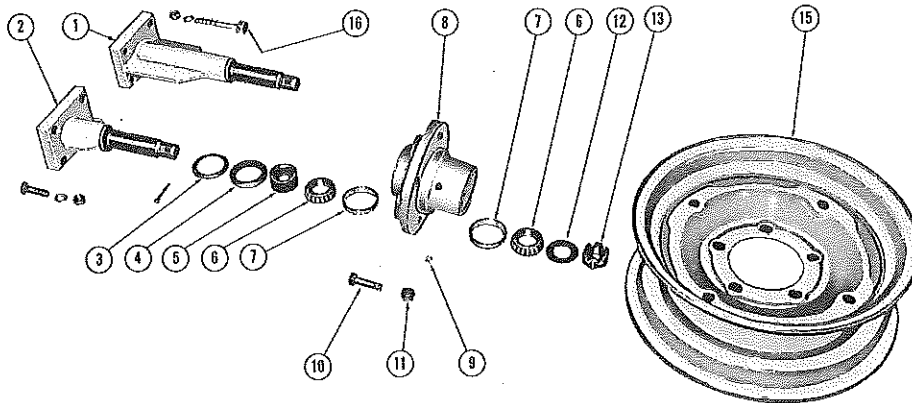


Figure 16

WHEEL AND WHEEL HUB PARTS

Item No.	Part No.	Quantity		Description	Item No.	Part No.	Quantity		Description
		Single Wheels	Dual Wheels				Single Wheels	Dual Wheels	
1	17996	2	2	Outside Wheel Axle Assembly	10	3198	10	20	Wheel Bolt
				3/16" x 2 1/2" Cotter	11	15793	10	20	Wheel Bolt Nut
2	17080	2	2	Wheel Axle Assembly	12	1194	2	4	1" SAE Flat Washer
		2	2	3/16" x 2 1/2" Cotter	13		2	4	1" Hex Slotted Nut w/Fine Threads
		8	8	1/2" x 3 3/4" H.T. Bolt w/Nut	14	3197	2	4	Hub Cap (Not Shown)
3	2168	2	4	Flinger	15	15792	2	4	15" Wheel
4	17079	2	4	Seal	16			8	1/2" x 5" H.T. Bolt w/Nut
5	17077	2	4	Seal Sleeve					
6	LM67048	4	8	Bearing Cone					
7	LM67010	4	8	Bearing Cup					
8	R74	2	4	Wheel Hub w/2 Cups					
9	1610	2	4	Grease Fitting					

NOTE: Dual Wheels are standard equipment on all units with wings and all series "84" Harrows and available as extra equipment on 9'-13 1/2' Series "83" Harrows.

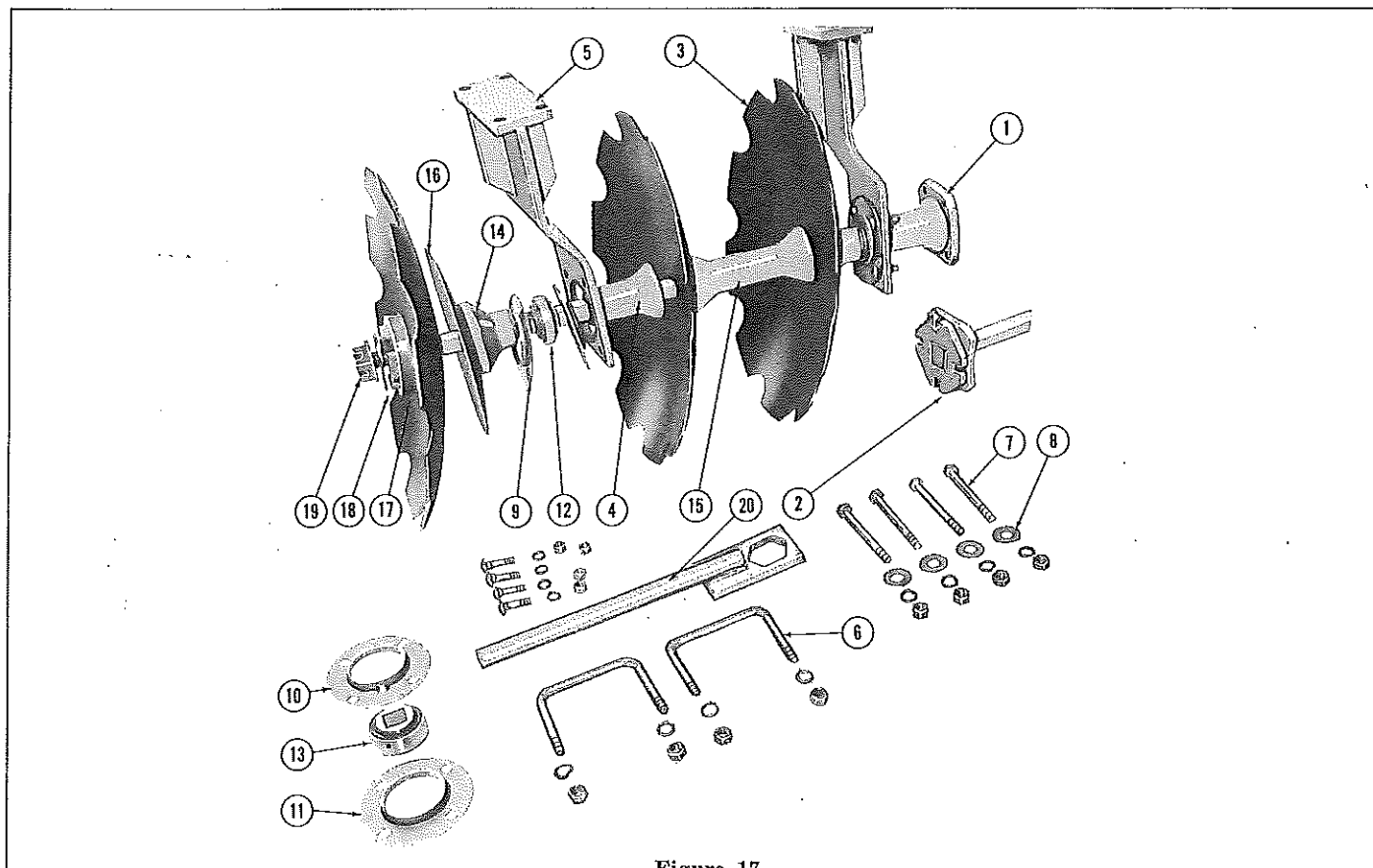


Figure 17

DISC GANGS

Item No.	Part No.	Quantity 9" Spacing				Quantity 7½" Spacing				Quantity 9" Front, 7½" Rear				Description													
		24	28	32	36	40	44	52	56	28	32	40	44		48	52	64	68	26	30	36	40	44	48	58	62	
1	17572					2		2														2		2		4 x 9 Axle Assembly (29½")	
	17574							2														2		2		5 x 9 Axle Assembly (38½")	
	17576	2				4	4												2			2	2			6 x 9 Axle Assembly (47½")	
	17578		2																2							7 x 9 Axle Assembly (56½")	
	18753			2																	2					8 x 9 Axle Assembly (65½")	
	18755				2			4	4														2	2		9 x 9 Axle Assembly (74½")	
	17580												2		2											5 x 7½ Axle Assembly (32½")	
	15550													2												6 x 7½ Axle Assembly (39½")	
	17576									2			4	4								2	2			7 x 7½ Axle Assembly (47½")	
	17585									2																8 x 7½ Axle Assembly (54½")	
	18757										2															70 x 7½ Axle Assembly (70")	
	18291											2			4	4								2	2	11 x 7½ Axle Assembly (77½")	
2	17789					2		2																		4 x 9 Axle for Cover Discs	
	17994							2																		5 x 9 Axle for Cover Discs	
	17790	2																								6 x 9 Axle for Cover Discs	
	17791		2																							7 x 9 Axle for Cover Discs	
	18760			2																						8 x 9 Axle for Cover Discs	
	18761				2																					9 x 9 Axle for Cover Discs	
	17792												2		2							2		2		5 x 7½ Axle for Cover Discs	
	17995													2									2		2	6 x 7½ Axle for Cover Discs	
	17790									2								2								7 x 7½ Axle for Cover Discs	
	17793												2													8 x 7½ Axle for Cover Discs	
	18762													2												10 x 7½ Axle for Cover Discs	
	18763														2									2		11 x 7½ Axle for Cover Discs	
3	15986																									18" Cutout Disc x 10 Gauge	
	15985																									18" Smooth Disc x 10 Gauge	
	15866																									20" Cutout Disc x 9 Gauge	
	15966																									20" Smooth Disc x 9 Gauge	
	18698																									20" Cutout Disc x 7 Gauge	
	18699																									20" Smooth Disc x 7 Gauge	
	15620																									22" Cutout Disc x 8 Gauge	
	15664																									22" Smooth Disc x 8 Gauge	
	18005																										22" Cutout Disc x 6 Gauge
	18004																										22" Smooth Disc x 6 Gauge

Item No.	Part No.	Quantity 9" Spacing				Quantity 7½" Spacing				Quantity 9" Front, 7½" Rear				Description																
		24	28	32	36	40	44	52	56	28	32	40	44		48	52	64	68	26	30	36	40	44	48	58	62				
4	17526	8	8	12	12	16	16	20	20	8	8	12	12	16	16	20	20	4	4	6	6	8	8	10	10	8	8	10	10	Long Convex Half Spacer
	17783																													Short Convex Half Spacer
5	18775	8	8	12	12	16	16	20	20	8	8	12	12	16	16	20	20	8	8	12	12	16	16	20	20	16	16	20	20	Bearing Hanger Assy.
6	18776	16	16	24	24	24	24	32	32	16	16	24	24	24	24	32	32	16	16	24	24	24	24	32	32	24	24	32	32	Bearing Hanger "U" Bolt w/Nuts
7						16	16	16	16					16	16	16	16					16	16	16	16	16	16	16	16	½" x 6" Hex Bolt w/Nut
		32	32	48	48	64	64	80	80	32	32	48	48	64	64	80	80	32	32	48	48	64	64	80	80	64	64	80	80	½" Lockwasher
8	18771					16	16	16	16					16	16	16	16					16	16	16	16	16	16	16	16	Back-Up Washer
9	17532	16	16	24	24	32	32	40	40	16	16	24	24	32	32	40	40	16	16	24	24	32	32	40	40	32	32	40	40	Plain Flangette (Standard)
10	17992	8	8	12	12	16	16	20	20	8	8	12	12	16	16	20	20	8	8	12	12	16	16	20	20	16	16	20	20	Relube Flangette w/Fitting (Extra)
11	17993	8	8	12	12	16	16	20	20	8	8	12	12	16	16	20	20	8	8	12	12	16	16	20	20	16	16	20	20	Relube Flangette w/o Fitting (Extra)
12	W208PPB5	8	8	12	12	16	16	20	20	8	8	12	12	16	16	20	20	8	8	12	12	16	16	20	20	16	16	20	20	Sealed Ball Bearing (Standard)
13	GW208PPB5 70504	8	8	12	12	16	16	20	20	8	8	12	12	16	16	20	20	8	8	12	12	16	16	20	20	16	16	20	20	Relube Ball Bearing (Extra)
		32	32	48	48	64	64	80	80	32	32	48	48	64	64	80	80	32	32	48	48	64	64	80	80	64	64	80	80	½" x ½" Carriage Bolt w/Nut
		32	32	48	48	64	64	80	80	32	32	48	48	64	64	80	80	32	32	48	48	64	64	80	80	64	64	80	80	½" Lockwasher
14	17525	8	8	12	12	16	16	20	20	8	8	12	12	16	16	20	20	8	8	12	12	16	16	20	20	16	16	20	20	Concave Half Spacer
15	17527	12	16	16	20	16	20	24	28									6	8	8	10	8	10	12	14	8	10	12	14	Full Spacer, 9"
	17784									16	20	24	28	24	28	36	40	8	10	12	14	12	14	18	20	12	14	18	20	Full Spacer, 7½"
16	15621	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	Back-Up Disc
17	16436	4	4	4	4	8	8	8	8	4	4	4	4	8	8	8	8	4	4	4	4	8	8	8	8	8	8	8	8	End Washer
18	16437	4	4	4	4	8	8	8	8	4	4	4	4	8	8	8	8	4	4	4	4	8	8	8	8	8	8	8	8	End Washer Spacer
19	17099	4	4	4	4	8	8	8	8	4	4	4	4	8	8	8	8	4	4	4	4	8	8	8	8	8	8	8	8	Disc Assembly Nut
		4	4	4	4	8	8	8	8	4	4	4	4	8	8	8	8	4	4	4	4	8	8	8	8	8	8	8	8	¾" x 2½" Cotter
20	18445	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	Disc Assembly Wrench

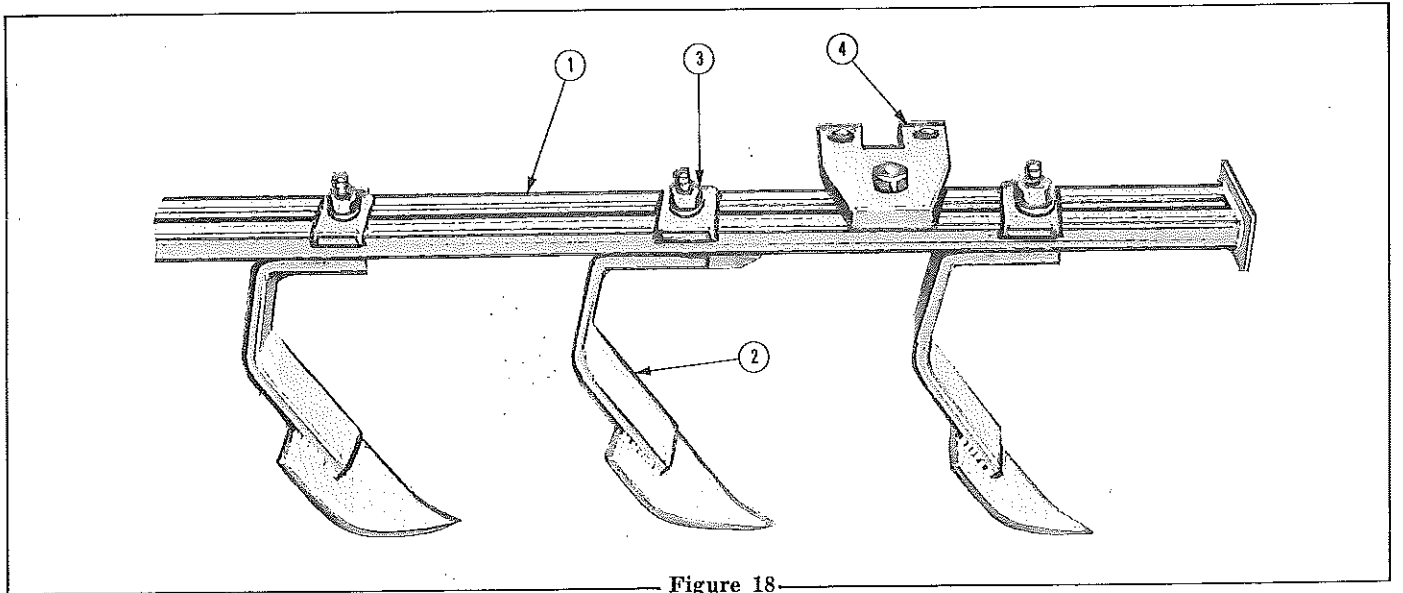


Figure 18

DISC SCRAPES AND SCRAPER BARS (Extra Equipment)

Item No.	Part No.	Quantity 9" Spacing				Quantity 7½" Spacing				Quantity 9" Front, 7½" Rear				Description																
		24	28	32	36	40	44	52	56	28	32	40	44		48	52	64	68	26	30	36	40	44	48	58	62				
1	3590	4								4								4								4	4	Scraper Bar, 54"		
	15517					4	4							4	4											4	4	Scraper Bar, 42½"		
	15961	4								4								4										Scraper Bar, 48"		
	16674		4							4									4									Scraper Bar, 68¾"		
	16675			4							4									4								Scraper Bar, 77¾"		
	18059				4							4									4							Scraper Bar, 34½"		
2	16530	10	12	14	16	18	20	24	26	12	14	18	20	22	24	30	32	11	13	16	18	20	22	27	29	20	22	27	29	Right Front or Left Rear Scraper
	16531	10	12	14	16	18	20	24	26	12	14	18	20	22	24	30	32	11	13	16	18	20	22	27	29	20	22	27	29	Left Front or Right Rear Scraper
3	16527	20	24	28	32	36	40	48	52	24	28	36	40	44	48	60	64	22	26	32	36	40	44	54	58	40	44	54	58	Scraper Clamp
		28	32	40	44	48	52	68	72	32	36	48	52	56	60	80	84	30	34	44	48	52	56	74	78	52	56	74	78	½" x 2¼" Carriage Bolt w/Nut
4	18770	28	32	40	44	48	52	68	72	32	36	48	52	56	60	80	84	30	34	44	48	52	56	74	78	52	56	74	78	½" Lockwasher
		8	8	12	12	16	16	20	20	8	8	12	12	16	16	20	20	8	8	12	12	16	16	20	20	16	16	20	20	Scraper Bar Mounting Clamp

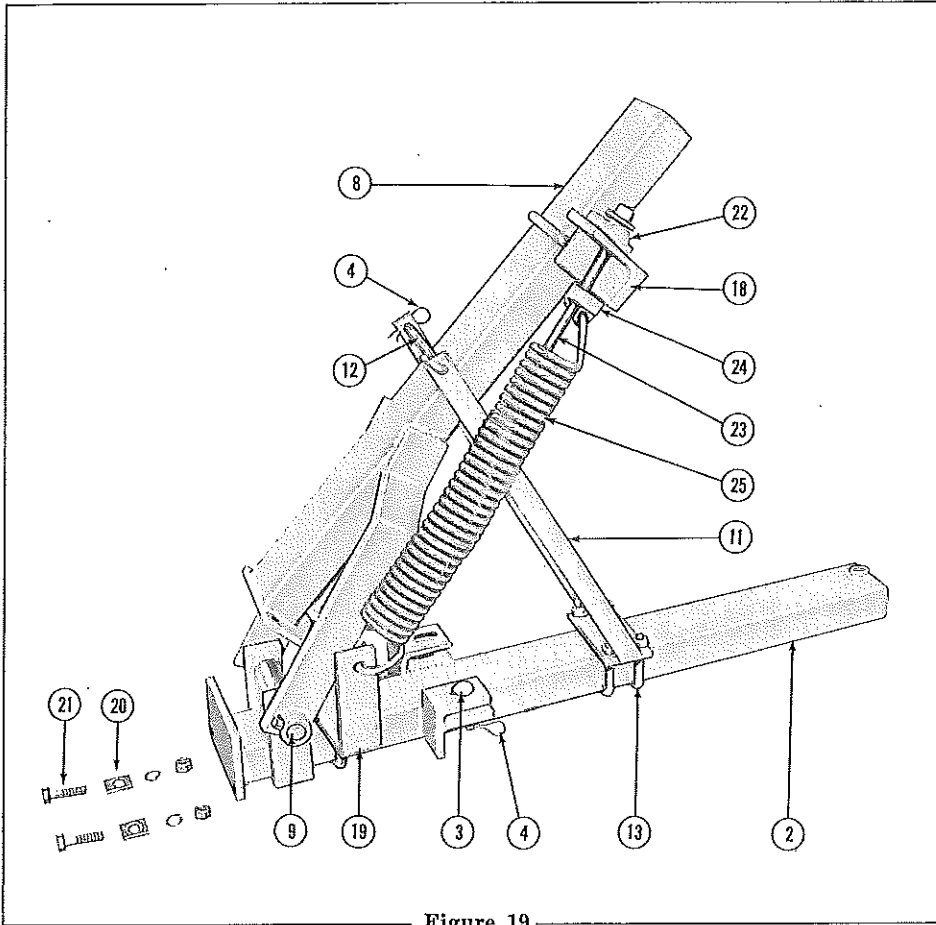


Figure 19

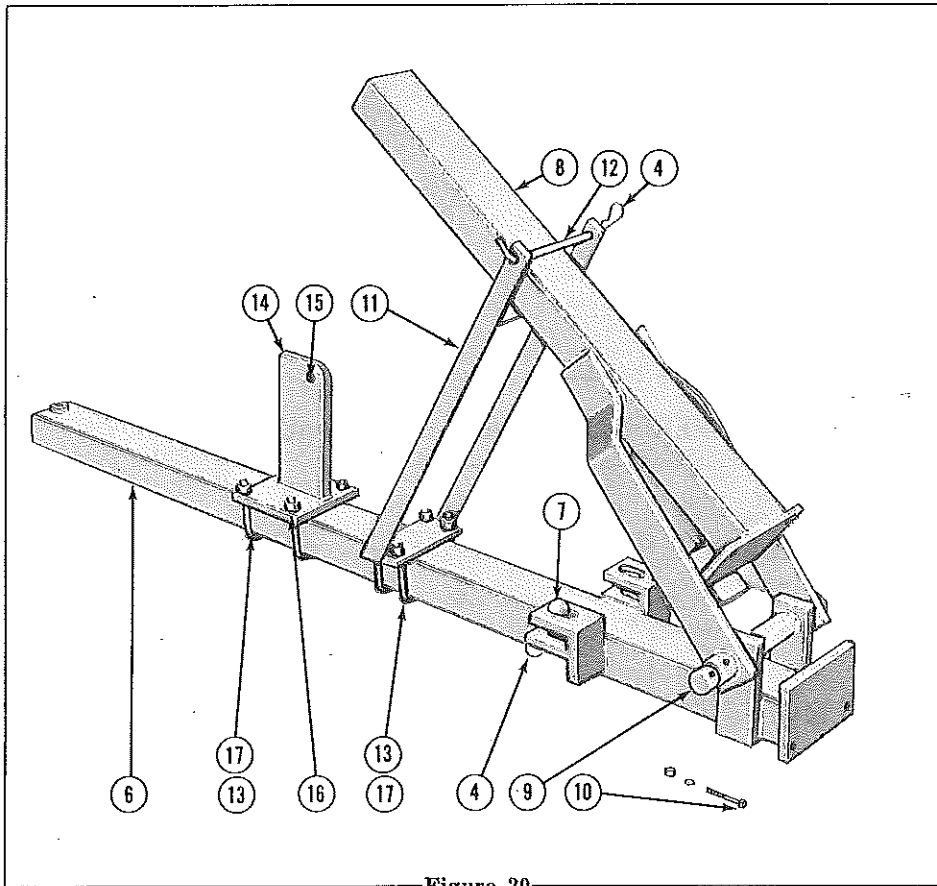


Figure 20

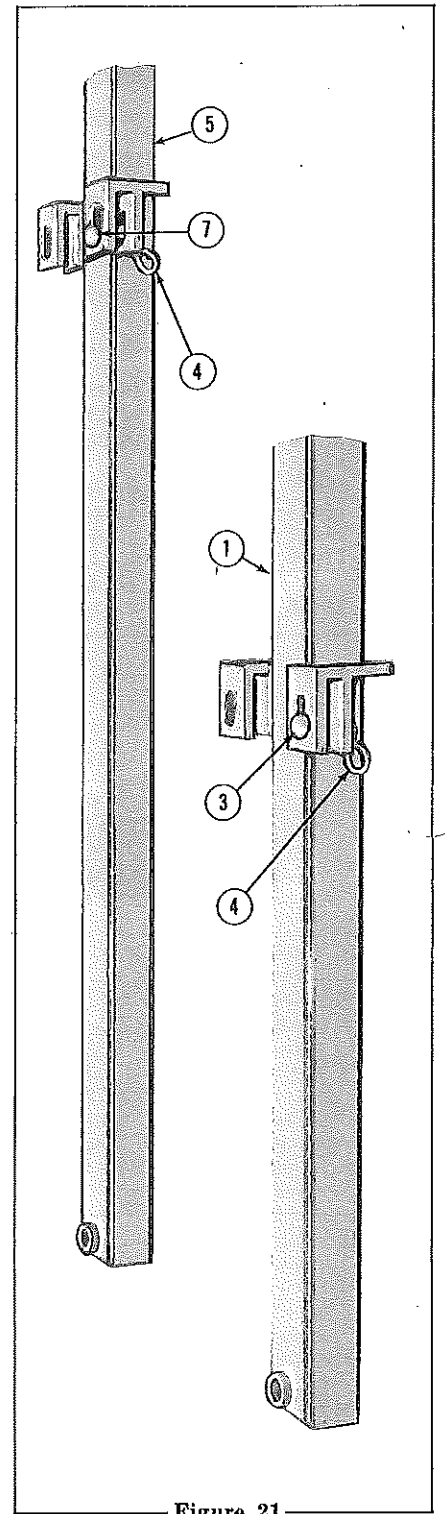


Figure 21

CYLINDER FRAMES, ANGLING AND FOLDING PARTS

Item No.	Part No.	Quantity 9" Spacing				Quantity 7½" Spacing				Quantity 9" Front, 7½" Rear				Description												
		24	28	32	36	40	44	52	56	28	32	40	44		48	52	64	68	26	30	36	40	44	48	58	62
1	18816 18818 18820	4				("83" only)				4								4								Cylinder Frame, 45" Cylinder Frame, 54" Cylinder Frame, 67½"
2	18822 18814			4		("83" only)							4								4	4				Cylinder Frame, 75" Cylinder Frame for Wings
3	238	4	4	4	4	4	4			4	4	4	4	4	4			4	4	4	4	4	4			Angling Pin ("83")
4	2057	4	4	4	4	8	8	8	8	4	4	4	4	8	8	8	8	4	4	4	4	8	8	8	8	3/16" Quick Hitch Pin
5	18825				4	("84" only)							4								4					Cylinder Frame, 75"
6	18827									("84" only)						4	4							4	4	Cylinder Frame for Wings
7	18785			4				4	4			4								4			4	4		Angling Pin ("84")
8	18794 18796				4			4	4			4		4	4			4			4		4	4		Wing Frame Assy. (34") Wing Frame Assy. (39½")
9	18791					4	4	4	4				4	4	4	4					4	4	4	4		Wing Pivot Pin
10						4	4	4	4				4	4	4	4					4	4	4	4		¾" x 2½" Bolt w/Nut
						4	4	4	4				4	4	4	4					4	4	4	4		¾" Lockwasher
11	18839					4	4	4	4				4	4	4	4					4	4	4	4		Wing Transport Assy.
12	18838					4	4	4	4				4	4	4	4					4	4	4	4		Wing Transport Pin
13	18776					8	8	8	8				8	8	8	8					8	8	8	8		"U" Bolt
H 14	18799					16	16	16	16				16	16	16	16					16	16	16	16		¾" Nut
						16	16	16	16				16	16	16	16					16	16	16	16		¾" Lockwasher
						4	4	4	4				4	4	4	4					4	4	4	4		Wing Ram Anchor Assy.
H 15	18556					8	8	8	8				8	8	8	8					8	8	8	8		Ram Pivot Bushing
H 16	18771					24	24	24	24				24	24	24	24					24	24	24	24		Back-Up Washer
H 17	18776								8				8	8									8	8		"U" Bolt
H						16	16	8	8				16	16	8	8					16	16	8	8		¾" x 6" Bolt w/Nut
H						16	16	24	24				16	16	24	24					16	16	24	24		¾" Lockwasher
S 18	18842					2	2	2	2				2	2	2	2					2	2	2	2		Right Spring Anchor Assy.
S	18843					2	2	2	2				2	2	2	2					2	2	2	2		Left Spring Anchor Assy.
S 19	18845					4	4	4	4				4	4	4	4					4	4	4	4		Wing Spring Pivot
S						8	8	8	8				8	8	8	8					8	8	8	8		¾" x 6" Bolt w/Nut
S	18847					8	8	8	8				8	8	8	8					8	8	8	8		¾" Lockwasher
S 20						8	8	8	8				8	8	8	8					8	8	8	8		Tie-Down Spacer
S 21						8	8	8	8				8	8	8	8					8	8	8	8		¾" x 2" Bolt w/Nut
S	18850					8	8	8	8				8	8	8	8					8	8	8	8		¾" Lockwasher
S 22	18850					4	4	4	4				4	4	4	4					4	4	4	4		Spring Bolt Guide Casting
S 23	18008					4	4	4	4				4	4	4	4					4	4	4	4		Spring Bolt
S 24	18001					4	4	4	4				4	4	4	4					4	4	4	4		Spring Attaching Clamps
S 25	18006					4	4	4	4				4	4	4	4					4	4	4	4		Wing Spring

Prefix H (items 14-17)—for hydraulic wing folding only.

Prefix S (items 18-25)—for spring wing folding only.