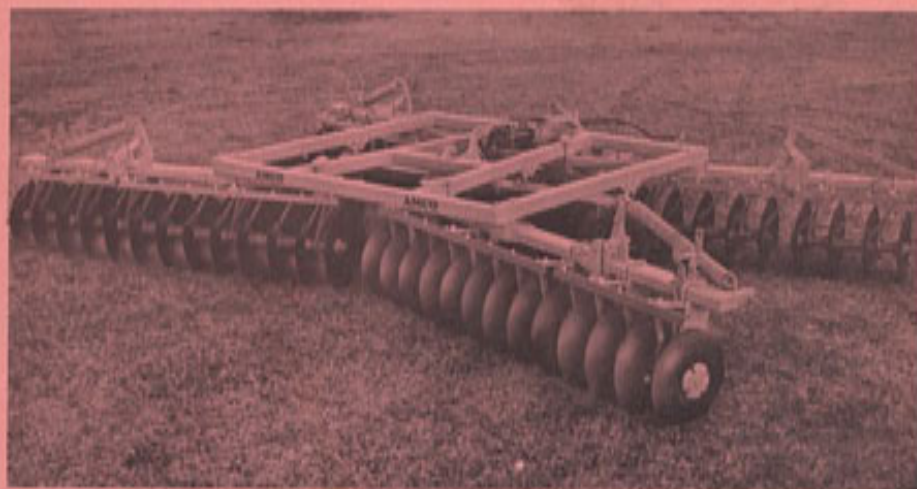




**PARTS CATALOG
OPERATION — MAINTENANCE — SET-UP
INSTRUCTIONS
MODEL HWTD21 — HWTC21 — HWTDC21
WTD21 — WTC21 — WTDC21
TANDEM DISK HARROW**



Amco
PRODUCTS

Portable Elevator Division, Dynamics Corporation of America
No. 1 AMCO Drive, Yazoo City, Mississippi 39194 / 601/746-4464



To the Purchaser:

The care you give your new Amco Tandem Disk Harrow will greatly determine the satisfaction and service life you will obtain from it. By observing the instructions and suggestions in this manual, your harrow will serve you for many years. Please furnish this manual to new owners when the harrow is sold.

As an Authorized AMCO Dealer, we stock Genuine AMCO parts, which are manufactured with the same precision and skill as the original equipment. Use only approved replacement parts. Our factory-trained staff is kept fully informed of the most efficient methods of servicing AMCO equipment and is ready and able to assist you.

If you should require additional aid or information, contact us.

YOUR AUTHORIZED AMCO DEALER

OSHA requires that as a farm employer you meet certain safety requirements. Become familiar with and comply with those requirements. Be sure anyone who operates this equipment understands all safety related items. If this harrow is repainted, be certain new decals are ordered. Decals pertaining to personal safety must be replaced.



Look for this symbol to point out important safety precautions. It means — **ATTENTION! Become alert!**
Your safety is involved.

To insure efficient and prompt service, please provide the model number and serial number of your AMCO Harrow in all correspondence or contacts.

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GENERAL SPECIFICATIONS

Model	Cutting Width	No. of Disks	Transport Width	Approximate D.B.H.P. Required	Approximate Weight Pounds
WTD-21-3220-PBG	12'3"	32	14'6"	60-70	3192
WTD-21-3620-PBG	13'6"	36	16'0"	60-70	3299
WTD-21-4020-PBG	15'0"	40	16'0"	70-80	3520
WTD-21-4820-PBG	18'0"	48	14'6"	85-100	4379
WTD-21-5220-PBG	19'6"	52	14'6"	90-105	4556
WTD-21-5620-PBG	21'0"	56	16'0"	90-105	4733
WTC-21-4020-PBG	12'0"	40	14'6"	65-75	3450
WTC-21-4420-PBG	13'2"	44	16'0"	65-75	3602
WTC-21-6020-PBG	17'10"	60	14'6"	90-105	4735
WTC-21-6420-PBG	19'0"	64	16'0"	90-105	4887
WTC-21-6820-PBG	20'2"	68	14'6"	95-110	5039
WTC-21-7220-PBG	21'4"	72	16'0"	95-110	5191
WTDC-21-3520-PBG	12'0"	16(fr)20(re)	14'6"	65-75	3288
WTDC-21-4020-PBG	13'0"	18(fr)22(re)	16'0"	65-75	3450
WTDC-21-5420-PBG	17'10"	24(fr)30(re)	14'6"	90-105	4557
WTDC-21-6020-PBG	20'2"	26(fr)34(re)	14'6"	90-105	4798
WTDC-21-6420-PBG	21'4"	28(fr)36(re)	16'0"	95-110	4962
2-7 basket HWTC21-6020-PBG	17'10"	60	14'6"	90-105	5242
2-7 basket HWTC21-6420-PBG	19'0"	64	14'6"	90-105	5419
2-7 basket HWTC21-6820-PBG	20'2"	68	14'6"	95-110	5561
2-7 basket HWTC21-7220-PBG	21'4"	72	14'6"	95-110	5856
2-7 basket HWTDC21-4820-PBG	18'0"	48	14'6"	85-100	4946
2-7 basket HWTDC21-5220-PBG	19'6"	52	14'6"	90-105	5136
2-7 basket HWTDC21-5620-PBG	21'0"	56	14'6"	90-105	5433
2-7 basket HWTDC21-5420-PBG	17'10"	24(fr)30(re)	14'6"	90-105	5094
2-7 basket HWTDC21-6020-PBG	20'2"	26(fr)34(re)	14'6"	90-105	5346
2-7 basket HWTDC21-6420-PBG	21'4"	28(fr)36(re)	14'6"	95-110	5643

GENERAL SPECIFICATIONS (CONT'D)

FRAME: Main, heavy structural steel

GANG BOLTS: 1-1/8" Square

BEARINGS: Heavy Duty 2" Bore Sealed Ball Type — Greasable

DRAWBAR HITCH: Spring loaded, adjustable

CLEVIS: Heavy Duty, Reversible

LIFT: Hydraulic depth control and wheel lift transport

SCRAPERS: Heavy duty, adjustable

WHEELS: (4) 15x6 — 6 Bolt

DISK BLADES: 20x7 Ga. Plain

DISK BLADE OPTIONS:

20" x 9 Ga. Plain Blades

20" x 7 Ga. Cutout Blades

22" x 7 Ga. Plain Blades (WTD21 & HWTDC21 Only)

22" x 7-Ga. Cutout Blades (WTD21 & HWTDC21 Only)

ATTACHMENTS & OPTIONS

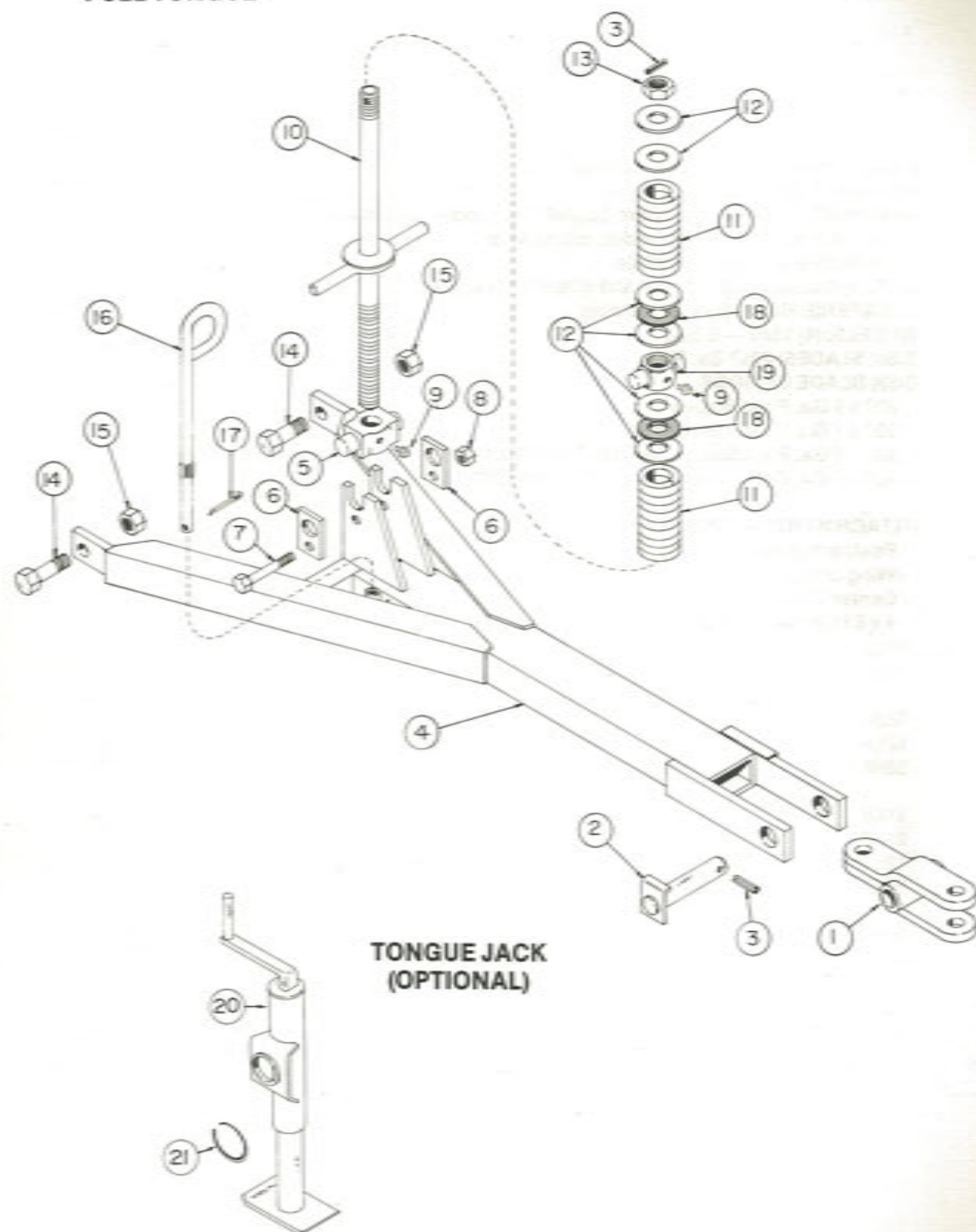
Feathering Blades

Wing Locks

Center Tooth

4 x 8 Hydraulic Cylinder

PULL TONGUE

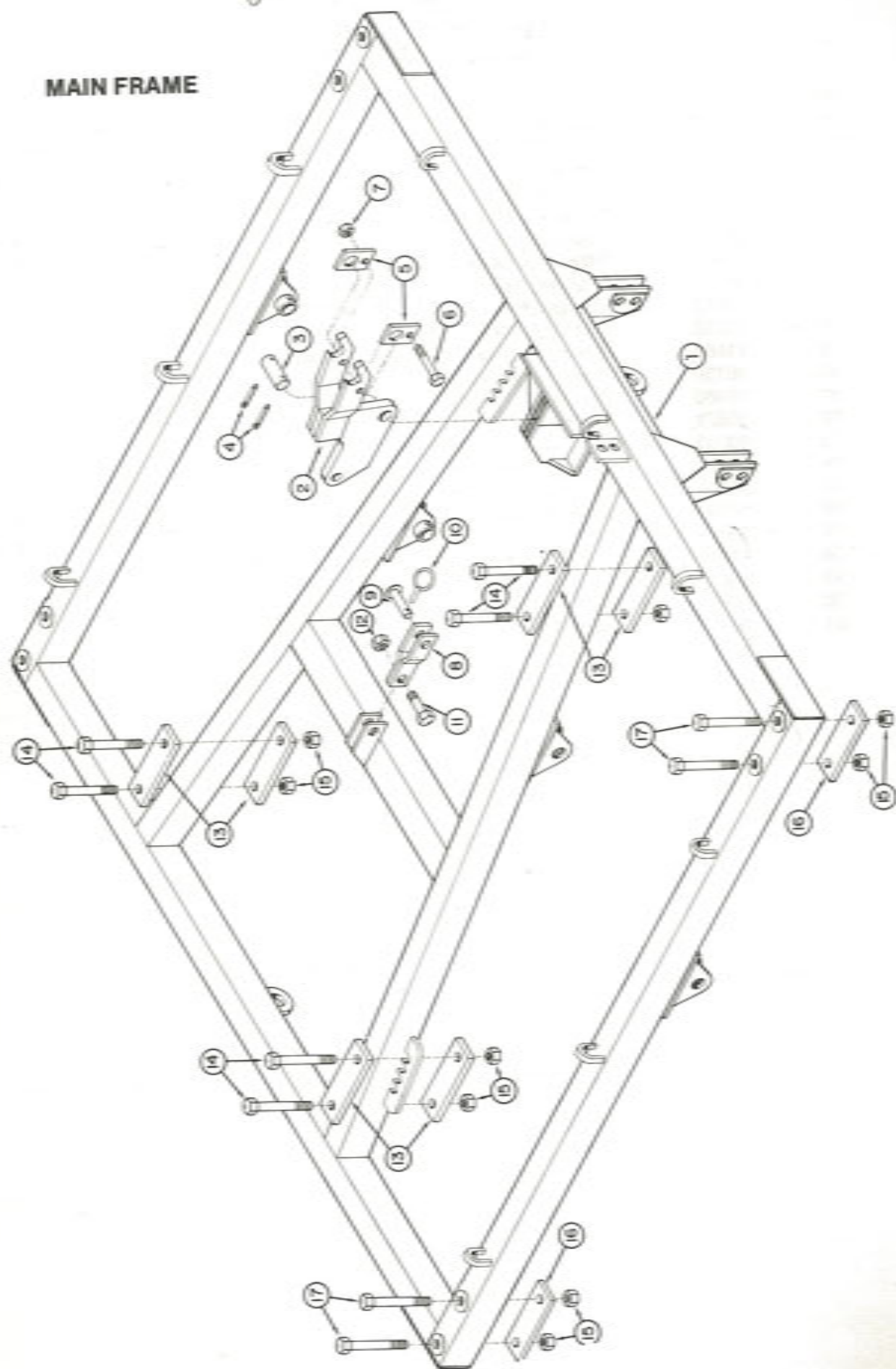


TONGUE JACK (OPTIONAL)

AMCO WTD21, WTC21, WTDC21 HWTDC21, HWTC21, HWTDC21 PULL TONGUE

Ref. No.	Part No.	Description	No. Req'd
1	0623	Clevis	1
2	0650	Pin-Clevis	1
3	10910	Pin-Roll 5/16 x 2 1/4	2
4	0625	Tongue-Pull	1
5	9919A	Stabilizer Swivel-Class 30 Grey Iron	1
6	9628	Trunion-Clamp	2
7	10666	Bolt-Machine 5/8 x 5 NC, PL, GR5	1
8	10299	Nut-Lock 5/8 NC, PL	1
9	11081	Fitting-Grease 5/16 Straight-Drive In	2
10	0635A	Assy. Stabilizer Rod	1
11	10460	Spring	2
12	10872	Cut Washer 1 3/8" PL	6
13	10053	Hex Jam Nut 1 3/8-NC	1
14	10373	Bolt-Machine 1 x 3 1/2 NC, PL	2
15	10868	Nut-Lock 1" NC, PL	2
16	100061	Hose Holder	1
17	10075	Pin-Cotter 1/4 x 1 1/2	1
18	11114	Thrust Washer 3 O.D. x 1 1/2 I.D. x 1/8 Thick	2
19	9892	Swivel-Class 30 Grey Iron	1
20	10883	Jack	1
21	10912	Ring-Snap	1

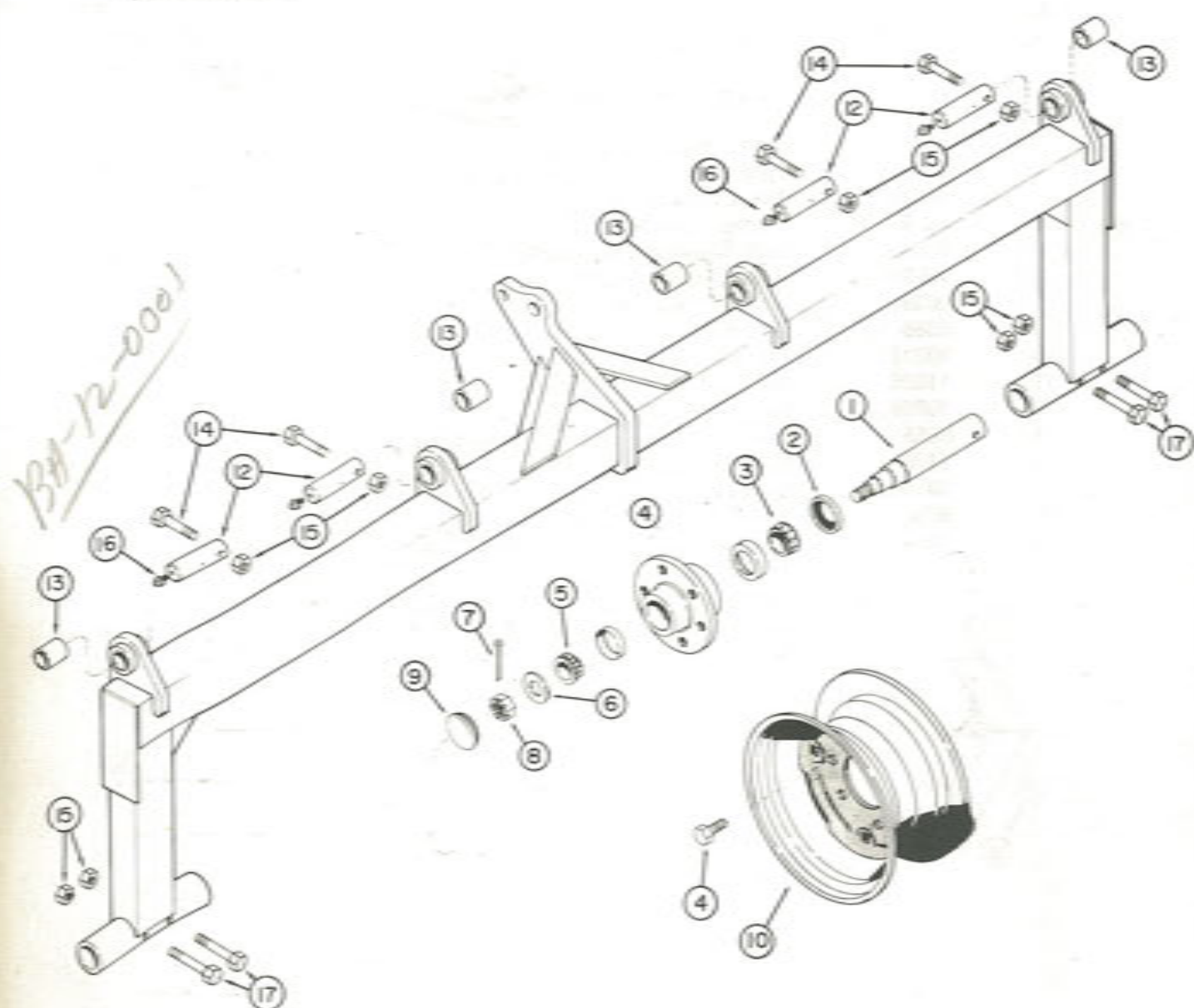
MAIN FRAME



AMCO WTD21, WTC21, WTDC21, HWTD21, HWTC21, HWTDC21 MAIN FRAME

Ref. No.	Part No.	Description	No. Req'd
1	0627	Frame - Main (Spring Models)	1
1	0811	Frame - Main (Hydraulic Models)	1
2	0710	Mount-Rear Cylinder	1
3	6388	Pivot - Pin 1 1/2 x 3 1/2 Long	1
4	10087	Pin - Cotter 1/4 x 2	2
5	9628	Clamp - Trunion	2
6	10043	Bolt - Machine 5/8 x 6 1/2 NC, PL, GR5	1
7	10299	Nut - Lock 5/8 NC, PL	1
8	0636	Strap - Transport	1
9	0388	Pin - Transport	1
10	10317	Pin - Klik 1/4	1
11	11025	Bolt - Machine 1 x 3 NC, PL, GR5	1
12	10868	Nut - Lock 1" NC, PL	1
13	9855	Bracket - Angle Set 3/4 x 3 x 9 1/4 Long	8
14	11102	Bolt - Machine 7/8 x 10 NC, PL	8
15	10396	Nut - Lock 7/8 NC, PL	16
16	9856	Strap 3/4 x 3 x 9 Long	4
17	10945	Bolt - Machine 7/8 x 9 NC, PL	8

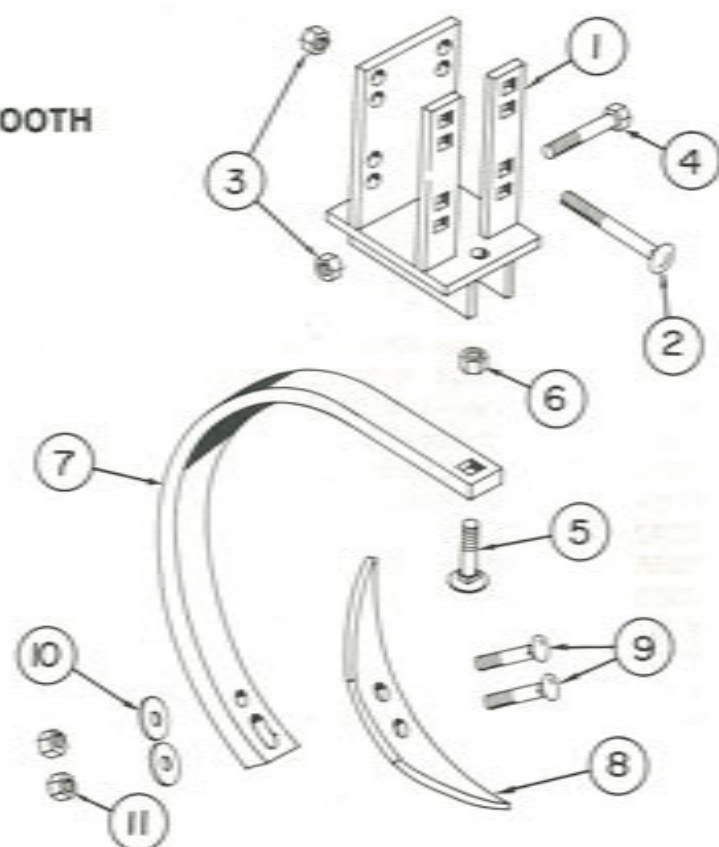
ROCKSHAFT



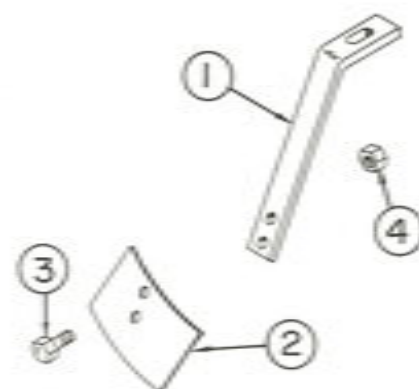
AMCO WTD21, WTC21, WTDC21 HWTD21, HWTC21, HWTDC21 ROCKSHAFT

Ref. No.	Part No.	Description	No. Req'd	
			Single Wheel	Dual Wheel
1	10880	Spindle - 1-15/16 Dia	2	4
2	10256	Seal	2	4
3	10258	Cone - Inner Timken 342A	2	4
4	10254	Hub - w/2 Cups and 6 Lug Bolts	2	4
4	10257	Cup - Inner - Timken 332	2	4
4	10261	Cup - Outer - Timken 14276	2	4
4	10259	Bolt - Hub 1/2 x 1 - 20 NF	12	24
5	10262	Cone - Outer Timken 14137A	2	4
6	10263	Washer - 7/8	2	4
7	10291	Pin - Cotter 5/32 x 1 1/4	2	4
8	10264	Nut - 7/8 NF Slotted	2	4
9	10242	Cap - Hub	2	4
10	10265	Wheel - 15 x 6 6 Hole	2	4
10	10936	Wheel - 15 x 8 6 Hole (optional)	2	4
11	0626	Rockshaft	1	1
12	9209	Pin - Retainer 1 1/2 Dia. x 5 Long	4	4
13	9270	Bushing - Bronze 1 1/4 O.D. x 1 1/2 I.D. x 2 Long	4	4
14	10765	Bore - Machine 3/8 x 2 1/2 NC, PL, GR5	4	4
15	10509	Nut - Lock 3/8 NC, PL	6	8
16	11081	Fitting - Grease 5/16 Straight - Drive In	4	4
17	10773	Bolt - Machine 3/8 x 3 1/2 NC, PL, GR5	2	4

CENTER TOOTH



SCRAPER - STANDARD



SCRAPER - SPECIAL



AMCO WTD21, WTC21, WTDC21 HWTDC21, HWTC21, HWTDC21 CENTER TOOTH ATTACHMENT

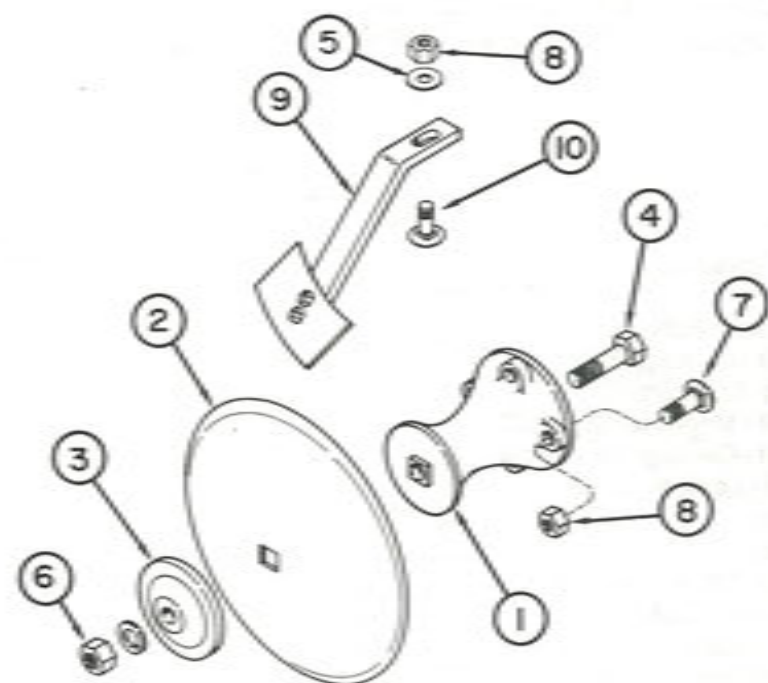
Ref. No.	Part No.	Description	No. Req'd
1	0654	Buster - Balk	1
2	10073	Bolt - Carriage 5/8 x 6 NC, PL	4
3	10299	Nut - Lock 5/8 NC, PL	5
4	10190	Bolt - Machine 5/8 x 4 NC, PL	1
5	10389	Bolt - Carriage 3/4 x 2 1/2 NC, PL	1
6	10300	Nut - Lock 3/4 NC, PL	1
7	10378	Tine	1
8	10379	Spike	1
9	10420	Bolt - Plow 1/2 x 2 1/4 NC, PL	2
10	10832	Washer - Cut 1/2 PL	2
11	10395	Nut - Lock 1/2 NC, PL	2
	BK-01-0002	CENTER TOOTH COMPLETE	

SCRAPER - STANDARD

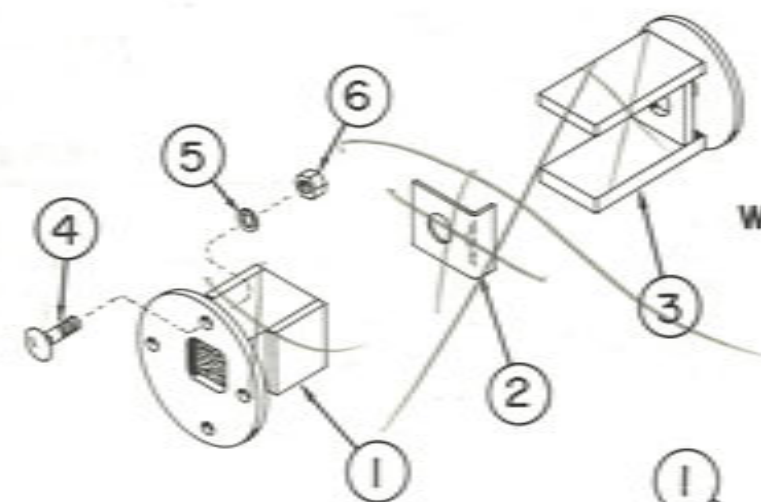
Ref. No.	Part No.	Description	No. Req'd
1	100271	Scraper Leg	1
2	100270	Scraper Blade	1
3	10785	Hex Head Screw 1/2 x 1 1/2 NC, PL	2
4	10395	Lock Nut 1/2 NC, PL	2
	0788	Scraper RH Complete	
	0789	Scraper LH Complete	

SCRAPER - SPECIAL

Ref. No.	Part No.	Description	No. Req'd
1	100368	Shank - Special 9" Spacing	1
1	100292	Shank - Special 7" Spacing	1
2	100270	Scraper Blade	1
3	10785	Hex Head Screw 1/2 x 1 1/2 NC, PL	2
4	10395	Lock Nut 1/2 NC, PL	2
	0824	Scraper - Special RH Complete, 9" Spacing	
	0825	Scraper - Special LH Complete, 9" Spacing	
	0836	Scraper - Special RH Complete, 7" Spacing	
	0837	Scraper - Special LH Complete, 7" Spacing	

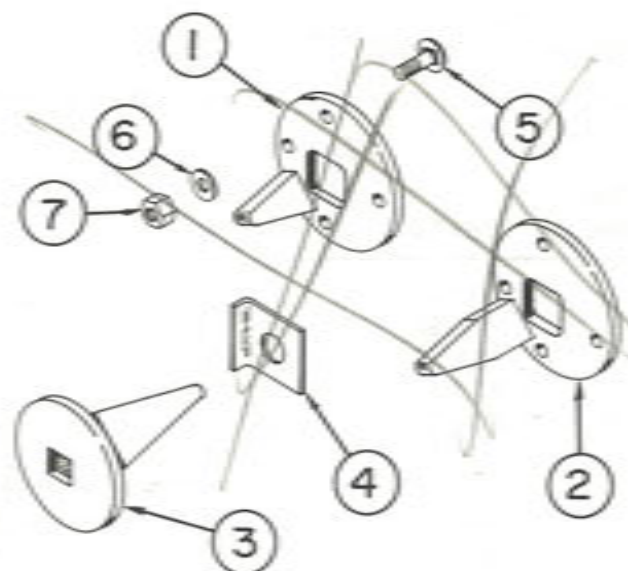


FEATHERING BLADE



GANG DRIVERS
WTD21, WTC21, WTDC21

GANG DRIVERS
HWTD21, HWTC21, HWTDC21



AMCO
HWTD21, HWTC21, HWTDC21
WTD21, WTC21, WTDC21
FEATHERING BLADE

Ref. No.	Part No.	Description	No. Req'd
1	7673	Spacer - Blade	2
2	3267	Blade - 16" Dia	2
3	7801	Cap - Blade	2
4	10189	Bolt - Hex 7/8 x 3 NC	2
5	10832	Cut Washer 1/2 PL	2
6	10396	Lock Nut 7/8 NC, PL	2
7	10238	Bolt - Carriage 1/2 x 2 1/2 NC, PL	8
8	10395	Nut - Lock 1/2 NC, PL	10
9	0788	Scraper - RH	1
9	0789	Scraper - LH	1
10	10870	Bolt - Carriage 1/2 x 1 1/2 NC, PL	2
	BK-01-0003	Feathering Blade Complete	

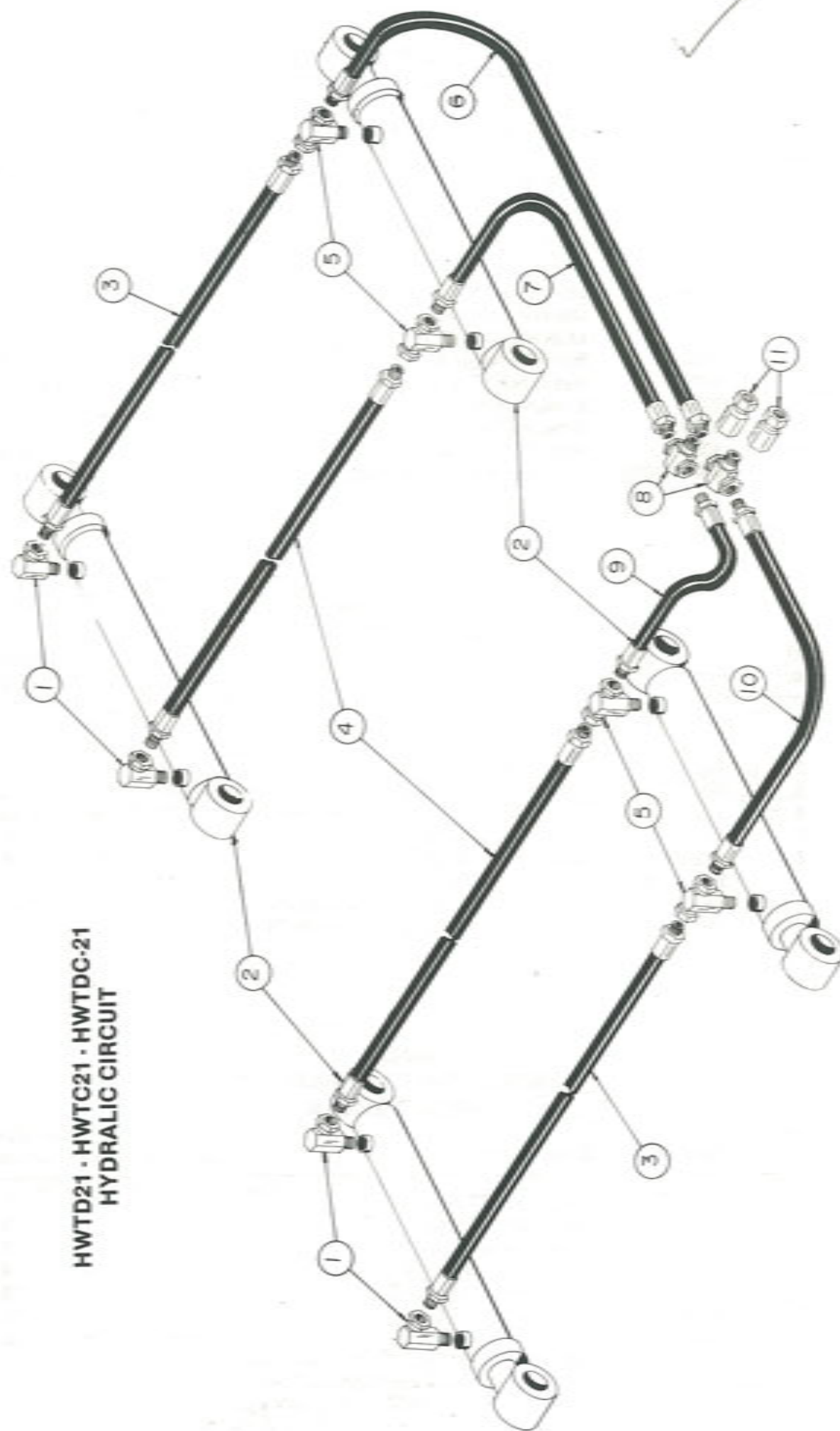
AMCO
WTD21, WTC21, WTDC21
GANG DRIVERS

Ref. No.	Part No.	Description	WTD21	WTC21	WTDC21	No. Req'd
1	0624	Lock - Gang - Male	4	0	2	2
1	0655	Lock - Gang - Male	0	4	2	2
2	8683	Strap - Lock 1/8 x 3 x 4	4	4	4	4
3	0413	Lock - Gang - Female	4	4	4	4
4	10870	Bolt - Carriage 1/2 x 1 1/2 NC, PL, GR5	16	16	16	16
5	10832	Washer - Cut 1/2 PL	16	16	16	16
6	10395	Nut - Lock 1/2 NC, PL	16	16	16	16
	BL-01-0013	Gang Drivers WTD21 (Complete Set of 4)				
	BK-01-0024	Gang Drivers WTC21 (Complete Set of 4)				
	BK-01-0025	Gang Drivers WTDC21 (Complete Set of 4)				

AMCO
HWTD21, HWTC21, HWTDC21
GANG DRIVERS

Ref. No.	Part No.	Description	HWTC21	HWTD21	HWTDC21	No. Req'd
1	0813	Gang Lock 7" Spc	4	0	2	2
2	0814	Gang Lock 9" Spc	0	4	2	2
3	0815	Gang Lock and End Washer	4	4	4	4
4	8683	Lock Strap 1/8 x 3 x 4	4	4	4	4
5	10710	Carriage Bolt 1/2 x 2 NC, PL, GR5	16	16	16	16
6	10832	Cut Washer 1/2 PL	16	16	16	16
7	10395	Lock Nut 1/2 NC, PL	16	16	16	16
	BK-01-0027	Gang Drivers HWTC21 (Complete Set of 4)				
	BK-01-0028	Gang Drivers HWTD21 (Complete Set of 4)				
	BK-01-0029	Gang Drivers HWTDC21 (Complete Set of 4)				

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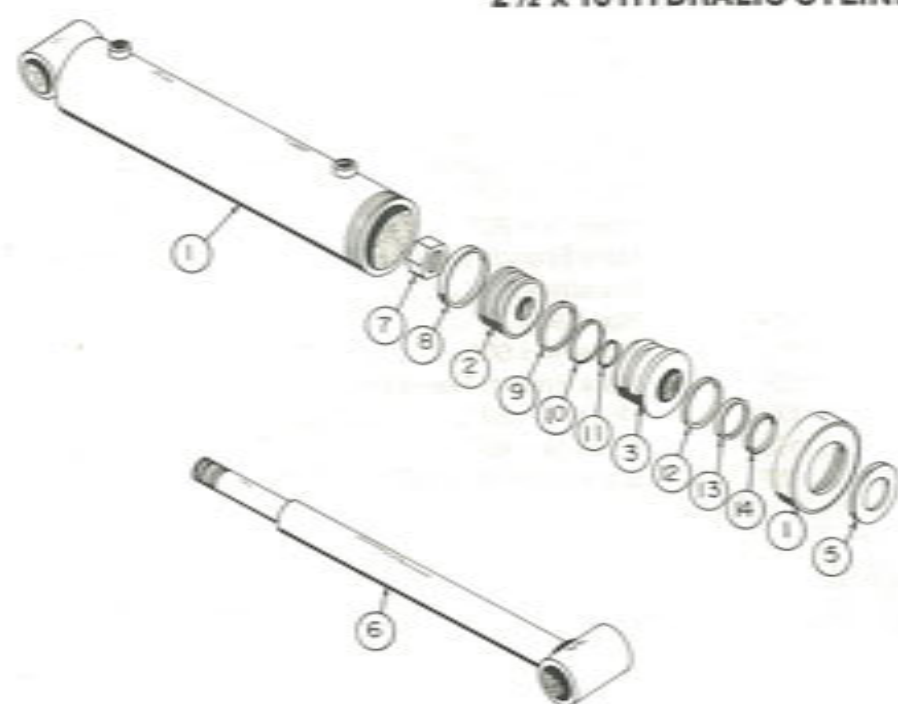


HWTDC-21 - HWTDC-21
HYDRAULIC CIRCUIT

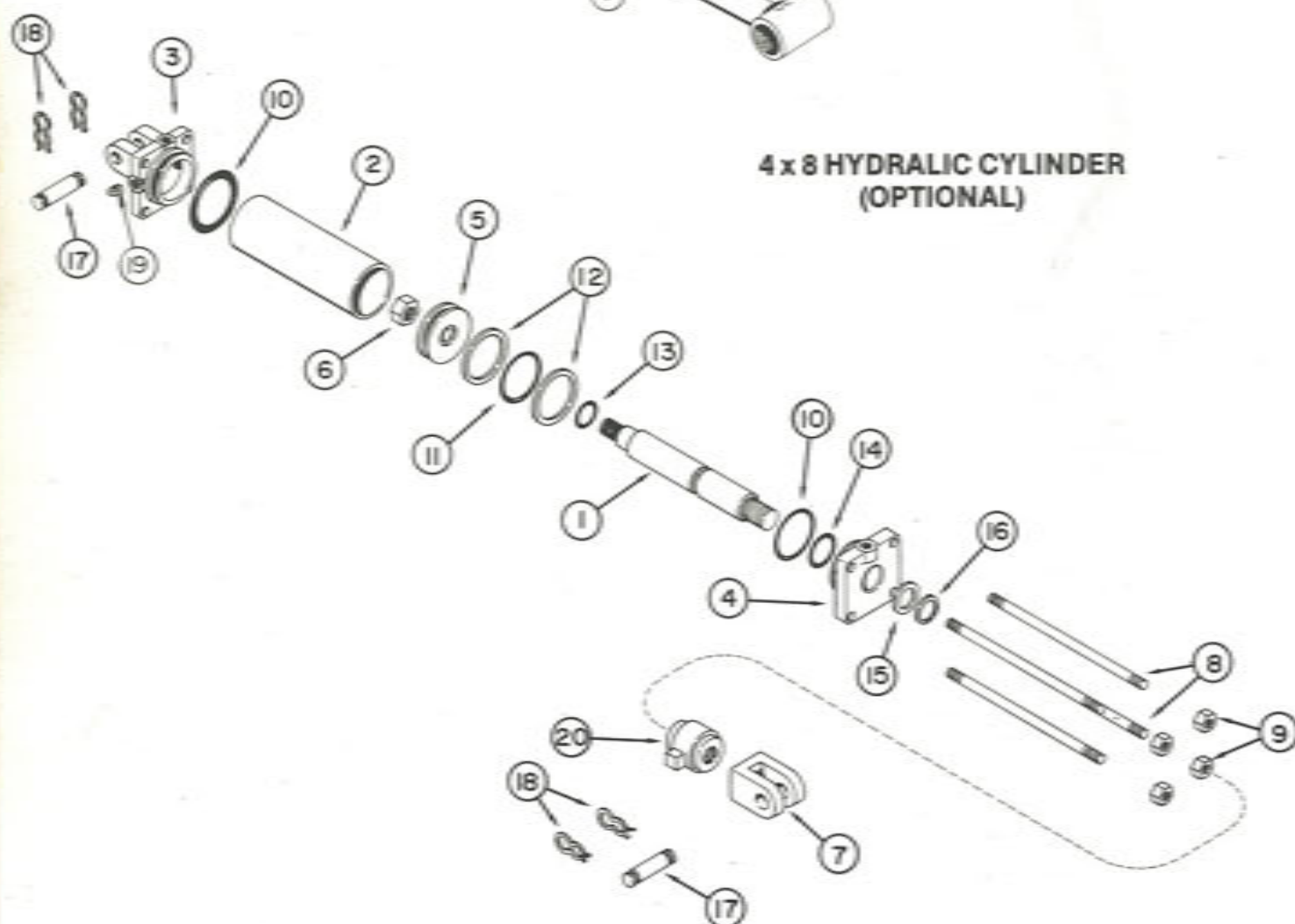
AMCO HWTDC21, HWTDC21, HWTDC21
HYDRAULIC CIRCUIT

Ref. No.	Part No.	Description	No. Req'd
1	11127	Swivel Elbow 90° 1/2 NPTF male to 1/4 NPT female	4
2	11155	Hydraulic Cylinder 2 1/2 x 16 (Lantex 3349BL)	4
3	11123	Hose 1/4 x 96"	2
4	11169	Hose 1/4 x 90"	2
5	11126	Male Branch Tee 1/2 NPTF male to 1/4 NPT female branches	4
6	11121	Hose 1/4 x 72"	1
7	11167	Hose 1/4 x 60"	1
8	11156	Male Branch Tee - Special	2
9	11174	Hose 1/4 x 30"	1
10	11166	Hose 1/4 x 48"	1
11	11157	Swivel Union 1/2 NPTF to 1/2 NPTF	2

2½ x 16 HYDRALIC CYLINDER



4 x 8 HYDRALIC CYLINDER (OPTIONAL)



AMCO HWTD21 - HWTC21 - HWTDC21 2½ x 16 HYDRAULIC CYLINDER

Ref. No.	Part No.	Description	No. Req'd
	11155	Cylinder Complete (Lantex # 3349BL)	
1	11179	Barrel Assy.	1
2	11178	Piston	1
3	11176	Gland, U-Cup	1
5	11177	Collar	1
6	11180	Rod Assy.	1
	11158	AMCO REPAIR KIT*	
7	11188	*Lock Nut 7/8 NF	1
8	11186	*Wear Strip	1
9	11185	*Piston Seal	1
10	11184	*O Ring Seal, Piston	1
11	11187	*Rod Static Seal	1
12	11181	*Gland Static Seal	1
13	11182	*Rod Seal	1
14	11183	*Rod Wiper	1

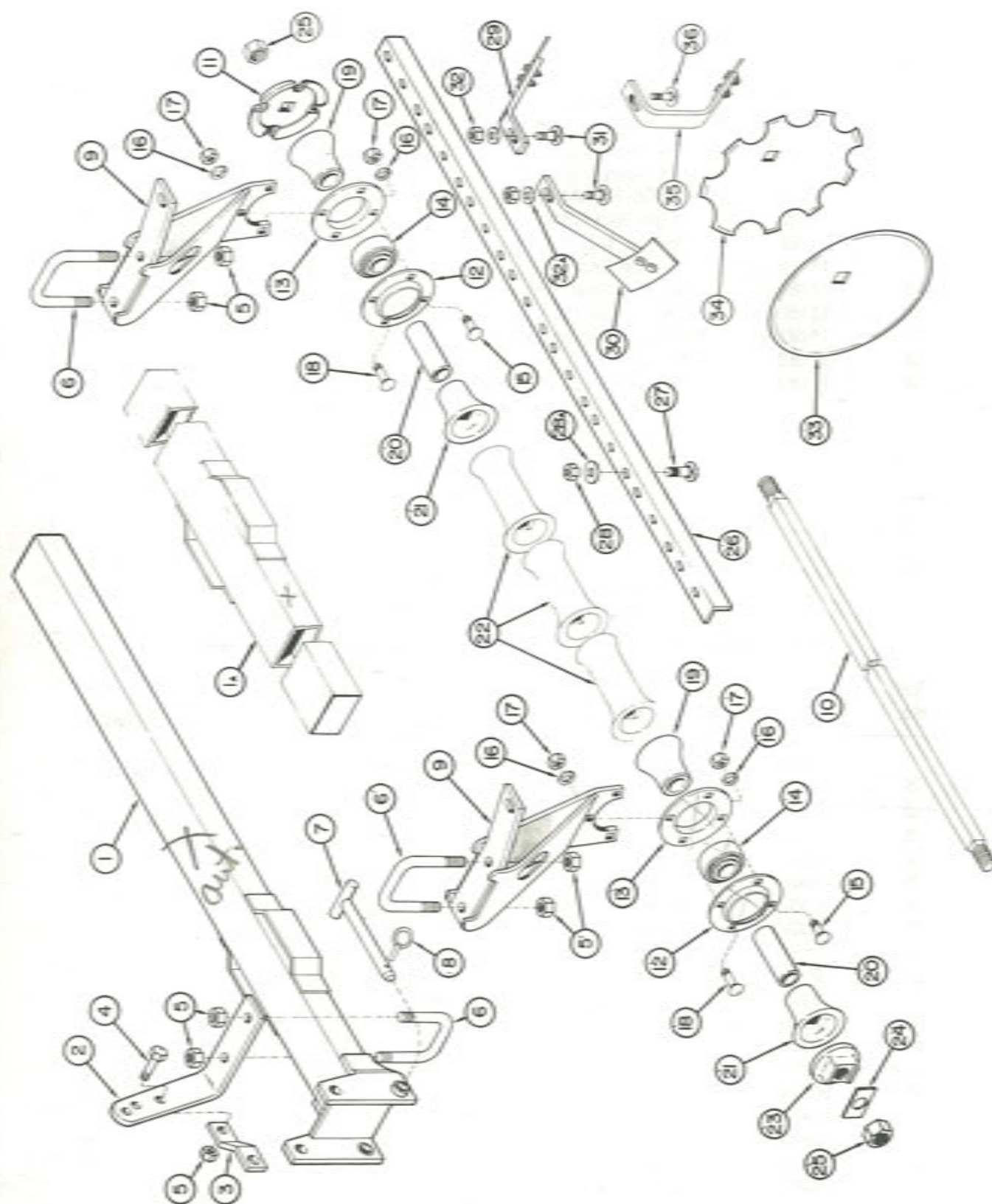
NOTE: Items 7-14 Sold in Seal Repair Kit only

AMCO WTD21, WTC21, WTD21 HWTD21, HWTC21, HWTDC21 4x8 HYDRAULIC CYLINDER (PRINCE # 8608) (OPTIONAL)

Ref. No.	Part No.	Description	No. Req'd
	10934	Cylinder Complete (Prince #8608)	
1	10965	Rod — Piston Assembly	1
2	10966	Tube	1
3	10952	Butt	1
4	10967	Head Piston	1
5	10968	Piston	1
6	10980	Lock Nut 1-14 NF	1
7	10969	Clevis Assembly 1" Dia Pin	1
8	10970	Rod Tie	4
9	10139	Nut 5/8 — NC, PI	4
	10976	Kit Seal Repair (Prince #8600)	1
10	10958	"O" Ring	2
11	10959	"O" Ring	1
12	10960	Washer — Back Up	2
13	10971	"O" Ring	1
14	10972	"O" Ring	1
15	10973	Washer — Back Up	1
16	10974	Wiper	1
17	10956	Clevis Pin - 1" Dia	2
18	10957	Clip Hair Pin	4
19	10978	Plug — Pipe ½ NPT	1
20	10937	Stroke Control	1

Note: Items 10-16 Sold in Seal Repair Kit Only

FRONT MAIN GANG

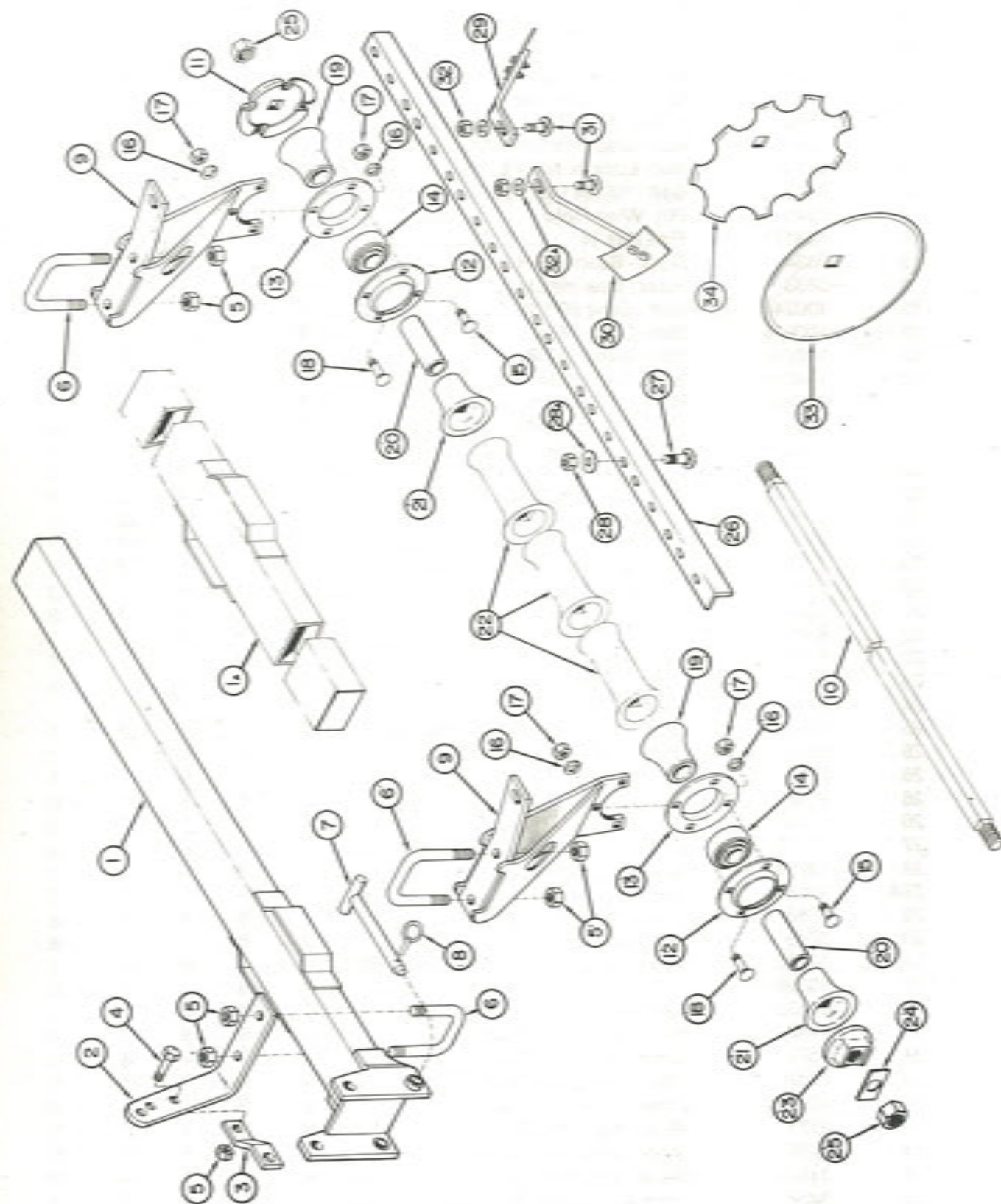


AMCO WTD21 FRONT MAIN GANG — 9" SPACING

Ref. No.	Part No.	Description	No. Req'd				
			32 blade **36 blade	36 blade **40 blade	40 blade	48 blade **54 blade	52 blade **54 blade
1	0645	Frame - Gang	0	0	0	1	0
1	0645	Frame - Gang	0	0	0	0	1
1A	0628	Frame - Gang	0	0	1	0	0
1A	0816	Frame - Gang	1	0	0	0	0
1A	0818	Frame - Gang	0	1	0	0	0
2	9926	Anchor - Spring RH	0	0	0	1	1
2	9927	Anchor - Spring LH	0	0	0	1	1
3	9925	Brace - Anchor	0	0	0	1	1
4	10670	Bolt - Machine 3/4 x 2 NC, PL, GR5	0	0	0	1	1
5	10300	Nut - Lock 3/4 NC, PL	6	6	8	9	9
6	6513	Bolt - "U" 3/4 Dia.	3	3	4	4	4
7	0649	Pin - Wing Hold	0	0	0	1	1
8	10317	Pin - Klik 1/4	0	0	0	1	1
9	0634	Riser - Bearing RH	3	3	4	3	3
9	0633	Riser - Bearing LH	3	3	4	3	3
10	100244	Bolt - Gang 69 1/16	1	0	0	1	0
10	100245	Bolt - Gang 78 1/4	0	1	0	0	1
10	100242	Bolt - Gang 50 7/8	0	0	1	0	0
10	100240	Bolt - Gang 32 1/4	0	0	1	0	0
11	3412A	Washer - Bumper	1	1	2	1	1
12	10837	Flangette 90 MSA	3	3	4	3	3
13	10838	Flangette 90 MSB	3	3	4	3	3
14	G10771	Bearing (GW210PPB2)	3	3	4	3	3
15	10599	Bolt - Carriage 7/16 x 1 NC, PL	3	3	4	3	3
16	10619	Washer - Lock 7/16 PL	12	12	16	12	12
17	10618	Nut - Hex 7/16 NC, PL	12	12	16	12	12
18	10068	Bolt - Carriage 7/16 x 1 1/2 NC, PL	9	9	12	9	9
19	8761	Bell - End, Small	3	3	4	3	3
20	8824	Sleeve - Insert	3	3	4	3	3
21	8762	Bell - End, Large	3	3	4	3	3
22	6165	Spool - Spacer	4	5	4	4	5
23	2030	Washer - End Gang	1	1	2	1	1
24	2116	Plate - Lock	1	1	2	1	1
25	11035	Nut - Gang Bolt 1 1/8 NC, HEAVY	2	2	4	2	2
26	9550	Bar - Scraper 70 1/16 Long	0	0	0	1	0
26	9551	Bar - Scraper 79 1/4	0	1	0	0	1
26	9548	Bar - Scraper 51 1 1/16	0	0	1	0	0
26	9476	Bar - Scraper 33 5/16	0	0	1	0	0
27	10135	Bolt - Carriage 5/8 x 1 3/4 NC, PL	3	3	4	3	3
28	10299	Nut - Lock 5/8 NC, PL	3	3	4	3	3
28A	10059	Washer - Cut 5/8 PL	3	3	4	3	3
29	0788	Scraper - RH	7	8	9	7	8
30	0789	Scraper - LH	7	8	9	7	8
31	10870	Bolt - Carriage 1/2 x 1 1/2 NC, PL, GR5	7	8	9	6	7
32	10395	Nut - Lock 1/2 NC, PL	7	8	9	7	8
32A	10832	Washer - Cut 1/2 PL	7	8	9	7	8
33	2450	Blade - 20 x 9 Ga. Plain	8	9	9	8	9
34	3254	Blade - 20 x 7 Ga. C.O.	8	9	9	8	9
33	3262	Blade - 20 x 7 Ga. Plain	8	9	9	8	9
33	3269	Blade - 22 x 7 Ga. Plain	8	9	9	8	9
34	3271	Blade - 22 x 7 Ga. C.O.	8	9	9	8	9
33	3268	Blade - 18 x 9 Ga. Plain	0	0	1	0	0
34	3196	Blade - 18 x 10 Ga. C.O.	0	0	1	0	0
35	0824	Scraper - Special RH	0	0	0	1	1
35	0825	Scraper - Special LH	0	0	0	1	1
36	10710	Bolt Carriage 1/2 x 2 NC, PL	0	0	1	1	1

**WTD21 Models

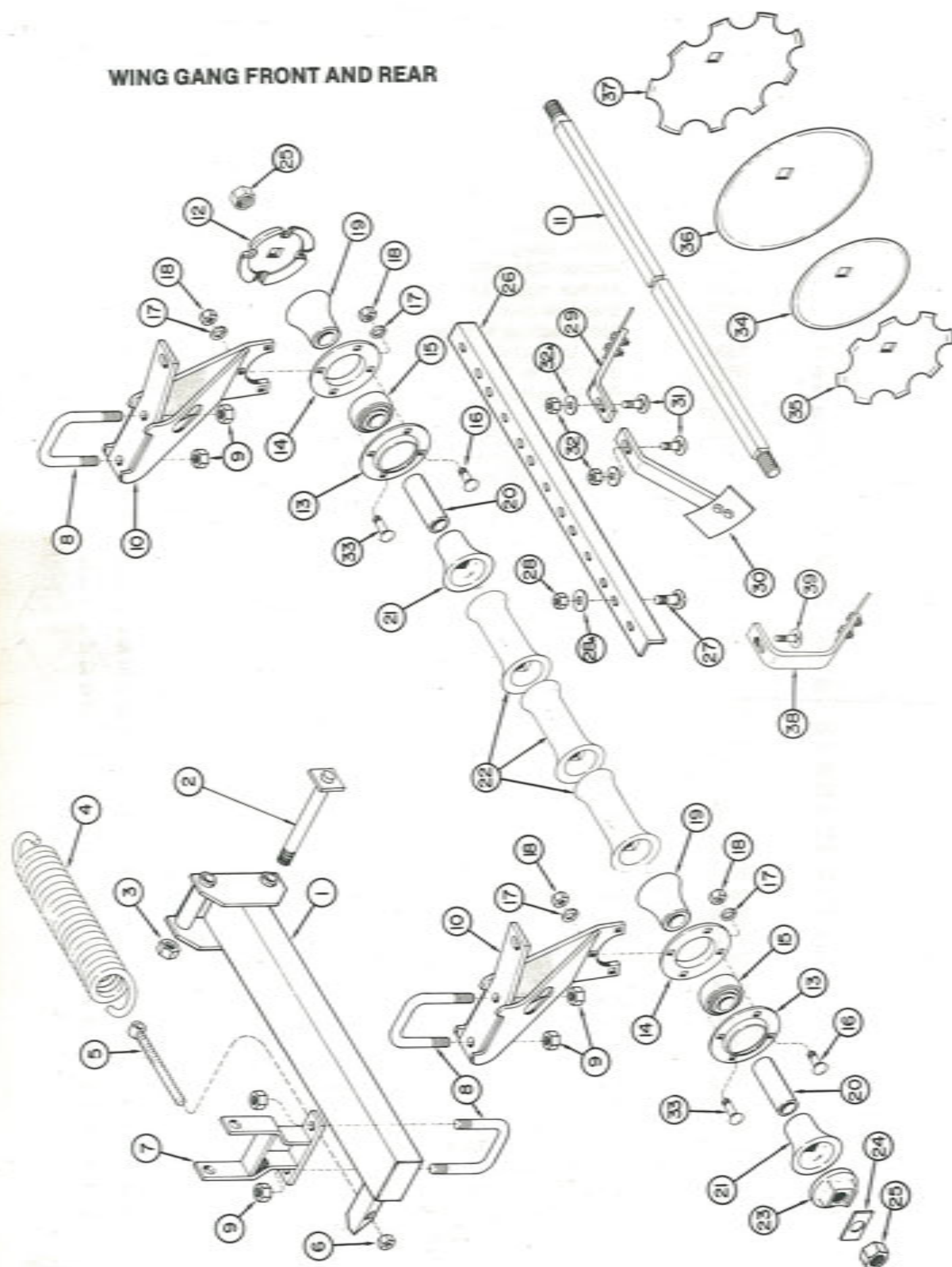
REAR MAIN GANG



AMCO WTD21 REAR MAIN GANG — 9" SPACING

Ref. No.	Part No.	Description	No. Req'd				
			32 blade	36 blade	40 blade	48 blade	56 blade
1	0644	Frame - Gang	0	0	0	1	0
1	0643	Frame - Gang	0	0	0	0	1
1A	0647	Frame - Gang	0	0	1	0	0
1A	0817	Frame - Gang	1	0	0	0	0
1A	0819	Frame - Gang	0	1	0	0	0
2	9926	Anchor - Spring RH	0	0	0	1	1
2	9927	Anchor - Spring LH	0	0	0	1	1
3	9925	Brace - Anchor	0	0	0	1	1
4	10670	Bolt - Machine 3/4 x 2 NC, PL, GR5	0	0	0	1	1
5	10300	Nut - Lock 3/4 NC, PL	6	6	8	9	9
6	6513	Bolt - "U" 3/4 Dia.	3	3	4	4	4
7	0649	Pin - Wing Hold	0	0	0	1	1
8	10317	Pin - Klik 1/4	0	0	0	1	1
9	0634	Riser - Bearing RH	3	3	4	3	3
9	0633	Riser - Bearing LH	3	3	4	3	3
10	100244	Bolt - Gang 69 1/16	1	0	0	1	0
10	100245	Bolt - Gang 78 1/4	0	1	0	0	1
10	100241	Bolt - Gang 41 1/2	0	0	2	0	0
11	3412A	Washer - Bumper	1	1	2	1	1
12	10837	Flangette 90 MSA	3	3	4	3	3
13	10838	Flangette 90 MSB	3	3	4	3	3
14	G10771	Bearing (GW210PPB2)	3	3	4	3	3
15	10599	Bolt - Carriage 7/16 x 1 NC, PL	3	3	4	3	3
16	10619	Washer - Lock 7/16 PL	12	12	16	12	12
17	10618	Nut - Hex 7/16 NC, PL	12	12	16	12	12
18	10068	Bolt - Carriage 7/16 x 1 1/2 NC, PL	9	9	12	9	9
19	8761	Bell - End, Small	3	3	4	3	3
20	8824	Sleeve - Insert	3	3	4	3	3
21	8762	Bell - End, Large	3	3	4	3	3
22	6165	Spool - Spacer	4	5	4	4	5
23	2030	Washer - End Gang	1	1	2	1	1
24	2116	Plate - Lock	1	1	2	1	1
25	11035	Nut - Gang Bolt 1 1/8 NC, HEAVY	2	2	4	2	2
26	9550	Bar - Scraper 70 1/16	1	0	0	1	0
26	9551	Bar - Scraper 79 1/4	0	1	0	0	1
26	9415	Bar - Scraper 42 1/2	0	0	2	0	0
27	10135	Bolt - Carriage 5/8 x 1 3/4 NC, PL	3	3	4	3	3
28	10299	Nut - Lock 5/8 NC, PL	3	3	4	3	3
28A	10059	Washer - Cut 5/8 PL	3	3	4	3	3
29	0788	Scraper - RH	7	8	9	7	8
30	0789	Scraper - LH	7	8	9	7	8
31	10870	Bolt - Carriage 1/2 x 1 1/2 NC, PL, GR5	7	7	9	7	8
32	10395	Nut - Lock 1/2 NC, PL	7	7	9	7	8
32A	10832	Washer - Cut 1/2 PL	7	7	9	7	8
33	2450	Blade - 20 x 9 Ga. Plain	8	9	9	8	9
34	3254	Blade - 20 x 7 Ga. C.O.	8	9	9	8	9
33	3262	Blade - 20 x 7 Ga. Plain	8	9	9	8	9
33	3269	Blade - 22 x 7 Ga. Plain	8	9	9	8	9
34	3271	Blade - 22 x 7 Ga. C.O.	8	9	9	8	9
33	3268	Blade - 18 x 9 Ga. Plain	0	0	1	0	0
34	3196	Blade - 18 x 10 Ga. C.O.	0	0	1	0	0

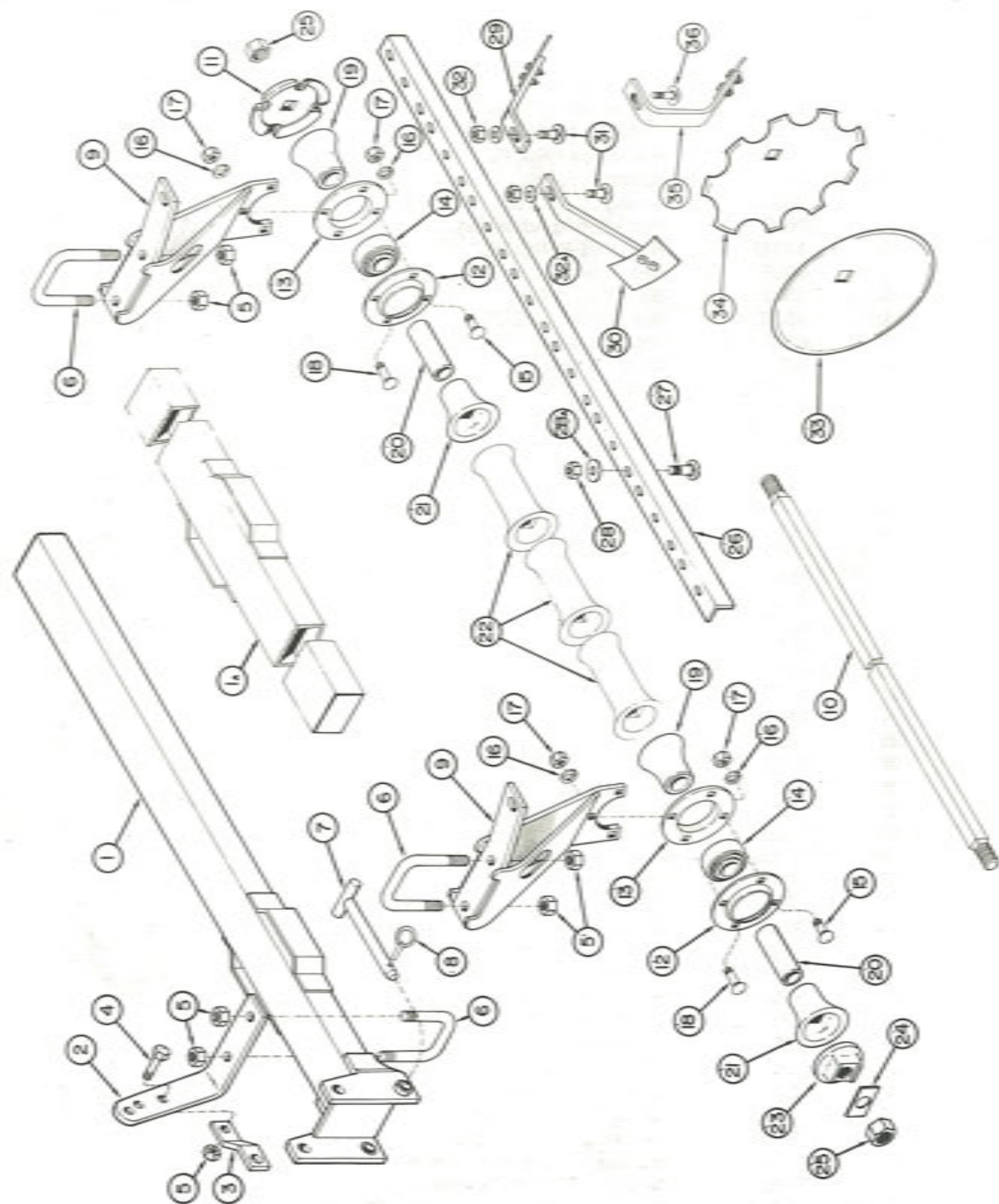
WING GANG FRONT AND REAR



AMCO WTD21 WING GANG FRONT AND REAR (Front Only on WTD21 Models) 9" SPACING

Ref. No.	Part No.	Description	No. Req'd	
			4 blade	5 blade
1	0639	Frame - Wing Gang RH	1	0
1	0640	Frame - Wing Gang LH	1	0
1	0641	Frame - Wing Gang LH	0	1
1	0642	Frame - Wing Gang RH	0	1
2	0734	Pivot Pin 1 1/16 Dia.	1	1
3	10868	Nut - Lock 1 NC, PL	1	1
4	10826	Spring	1	0
4	10825	Spring	0	1
5	0648	Rod - Spring Adjusting	1	1
6	11048	Nut - Hex 3/4 NC, PL	1	1
7	0629	Rest - Gang	1	1
8	6513	Bolt - "U" 3/4 Dia.	3	3
9	10300	Nut - Lock 3/4 NC, PL	6	6
10	0633	Riser - Bearing LH	2	2
10	0634	Riser - Bearing RH	2	2
11	100240	Bolt - Gang 3/2	1	0
11	100241	Bolt - Gang 4 1/2	0	1
12	3412A	Washer - Bumper	1	1
13	10837	Flangette 90 MSA	2	2
14	10838	Flangette 90 MSB	2	2
15	G10771	Bearing (GW210PPB2)	2	2
16	10599	Bolt - Carriage 7/16 x 1, NC, PL	2	2
17	10619	Washer - Lock 7/16 PL	8	8
18	10618	Nut - Hex 7/16 NC, PL	8	8
19	8761	Bell - End - Small	2	2
20	8824	Sleeve - Insert	2	2
21	8762	Bell - End - Large	2	2
22	6165	Spool - Spacer	1	2
23	2030	Washer - End Gang	1	1
24	2116	Plate - Lock	1	1
25	11035	Nut - Gang Bolt 1 1/8 NC, Heavy	2	2
26	9476	Bar - Scraper 33 5/16	1	0
26	9475	Bar - Scraper 42 1/2	0	1
27	10135	Bolt - Carriage 5/8 x 1 1/4 NC, PL	1	1
28	10299	Nut - Lock 5/8 NC, PL	2	2
28A	10059	Washer - Cut 5/8 PL	2	2
29	0788	Scraper - RH	3	4
30	0789	Scraper - LH	3	4
31	10870	Bolt Carriage 1/2 x 1 1/2 NC, PL, GR5	2	3
32	10395	Nut - Lock 1/2 NC, PL	4	5
32A	10832	Washer - Cut 1/2 PL	4	5
33	10068	Bolt - Carriage 7/16 x 1 1/2 NC, PL	6	6
34	3268	Blade - 18 x 9 Ga. Plain	1	1
35	3196	Blade - 18 x 10 Ga. C.O.	1	1
36	2450	Blade - 20 x 9 Ga. Plain	3	4
37	3254	Blade - 20 x 7 Ga. C.O.	3	4
36	3262	Blade - 20 x 7 Ga. Plain	3	4
37	3271	Blade - 22 x 7 Ga. C.O.	3	4
38	0824	Scraper - Special RH (rear only)	1	1
38	0825	Scraper - Special LH (rear only)	1	1
39	10710	Bolt - Carriage 1/2 x 2 NC, PL, GR5 (rear only)	1	1

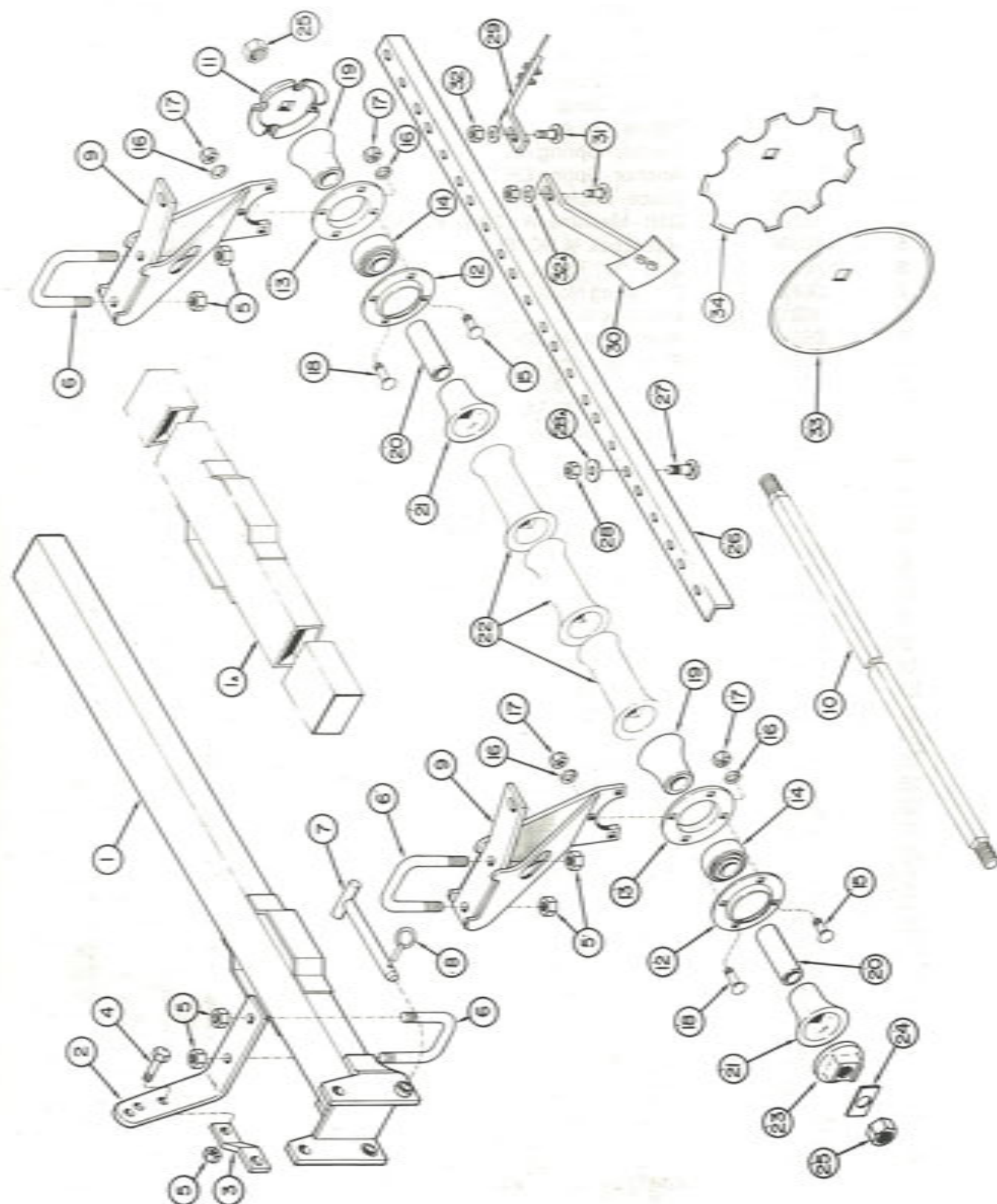
FRONT MAIN GANG



AMCO WTC21 FRONT MAIN GANG 7" SPACING

Ref. No.	Part No.	Description	No. Req'd			
			60 blade 44 blade	64 blade 68 blade	72 blade	
1	0646	Frame - Gang	0	0	1	0
1	0645	Frame - Gang	0	0	0	1
1A	0816	Frame - Gang	1	0	0	0
1A	0818	Frame - Gang	0	1	0	0
2	9926	Anchor - Spring RH	0	0	1	1
2	9927	Anchor - Spring LH	0	0	1	1
3	9925	Brace - Anchor	0	0	1	1
4	10670	Bolt - Machine 3/4 x 2 NC, PL, GR5	0	0	1	1
5	10300	Nut - Lock 3/4 NC, PL	6	6	9	9
6	6513	Bolt - "U" 3/4 Dia.	3	3	4	4
7	0649	Pin - Wing Hold	0	0	1	1
8	10317	Pin - Klik 1/4	0	0	1	1
9	0634	Riser - Bearing RH	3	3	3	3
9	0633	Riser - Bearing LH	3	3	3	3
10	100251	Bolt - Gang 70	1	0	1	0
10	100252	Bolt - Gang 77 3/8	0	1	0	1
11	3412A	Washer - Bumper	1	1	1	1
12	10837	Flangette 90 MSA	3	3	3	3
13	10838	Flangette 90 MSB	3	3	3	3
14	G10771	Bearing (GW210PPB2)	3	3	3	3
15	10599	Bolt - Carriage 7/16 x 1 NC, PL	3	3	3	3
16	10619	Washer - Lock 7/16 PL	12	12	12	12
17	10618	Nut - Hex 7/16 NC, PL	12	12	12	12
18	10068	Bolt - Carriage 7/16 x 1 1/2 NC, PL	9	9	9	9
19	9797	Bell - End, Small	3	3	3	3
20	8824	Sleeve - Insert	3	3	3	3
21	9798	Bell - End, Large	3	3	3	3
22	9830	Spool - Spacer	6	7	6	7
23	2030	Washer - End Gang	1	1	1	1
24	2116	Plate - Lock	1	1	1	1
25	11035	Nut - Gang Bolt 1 1/8 NC, HEAVY	2	2	2	2
26	9961	Bar - Scraper 68 3/4	1	0	1	0
26	9962	Bar - Scraper 76	0	1	0	1
27	10135	Bolt - Carriage 5/8 x 1 3/4 NC, PL	3	3	3	3
28	10299	Nut - Lock 5/8 NC, PL	3	3	3	3
28A	10059	Washer - Cut 5/8 PL	3	3	3	3
29	0788	Scraper - RH	9	10	9	10
30	0789	Scraper - LH	9	10	9	10
31	10870	Bolt - Carriage 1/2 x 1 1/2 NC, PL, GR5	8	9	8	9
32	10395	Nut - Lock 1/2 NC, PL	9	10	9	10
32A	10832	Washer - Cut 1/2 PL	9	10	9	10
33	2450	Blade - 20 x 9 Ga. Plain	10	11	10	11
34	3254	Blade - 20 x 7 Ga. C.O.	10	11	10	11
33	3262	Blade - 20 x 7 Ga. Plain	10	11	10	11
33	3269	Blade - 22 x 7 Ga. Plain	10	11	10	11
34	3271	Blade - 22 x 7 Ga. C.O.	10	11	10	11
35	0836	Scraper - Special RH	1	1	1	1
35	0837	Scraper - Special LH	1	1	1	1
36	10710	Bolt - Carriage 1/2 x 2, NC, PL, GR5	1	1	1	1

REAR MAIN GANG

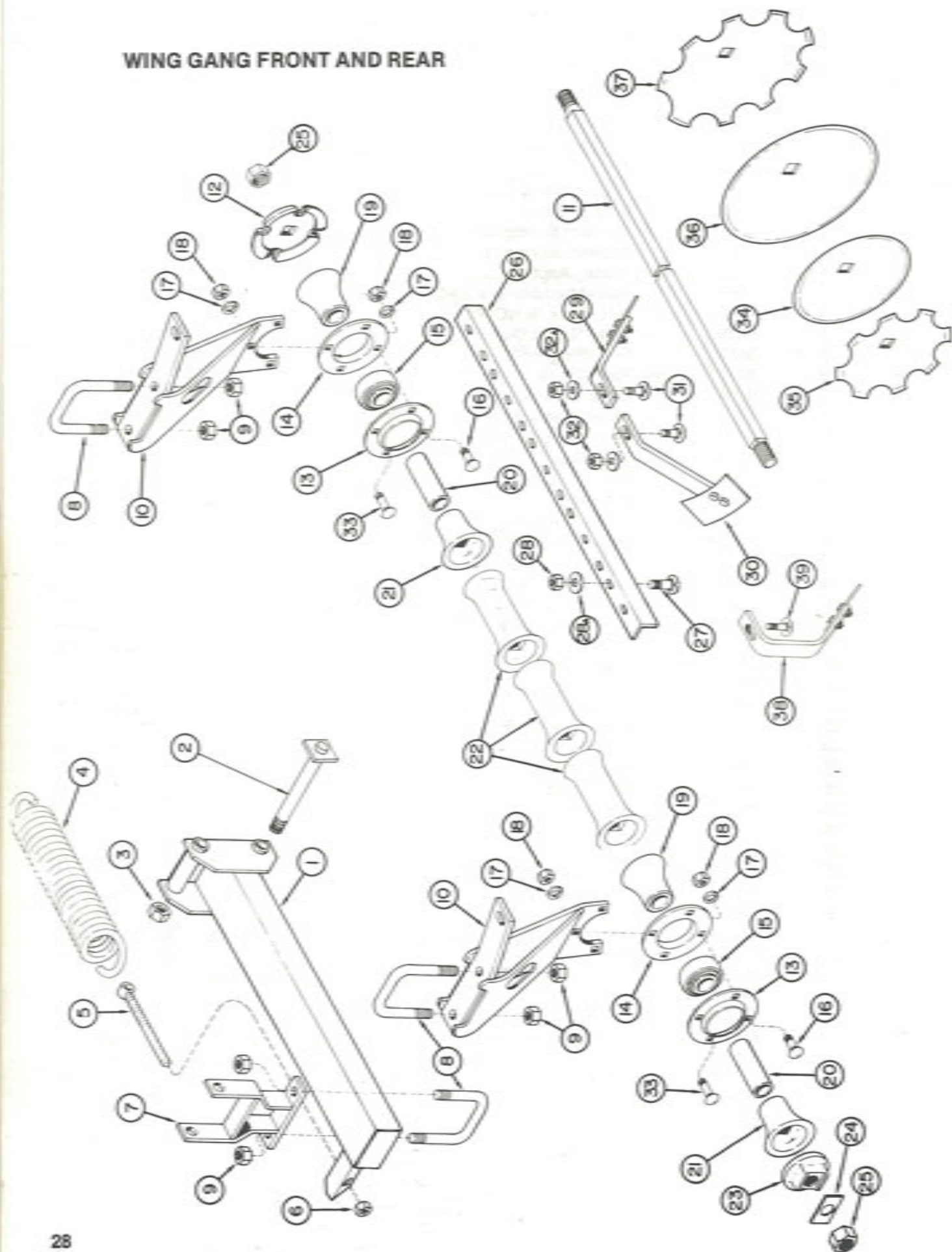


AMCO WTC21 REAR MAIN GANG 7" SPACING

Ref. No.	Part No.	Description	No. Req'd			
			40 blade **36 blade	44 blade **40 blade	60 blade **54 blade **60 blade	64 blade 72 blade **54 blade
1	0644	Frame - Gang	0	0	1	0
1	0643	Frame - Gang	0	0	0	1
1A	0817	Frame - Gang	1	0	0	0
1A	0819	Frame - Gang	0	1	0	0
2	9926	Anchor - Spring RH	0	0	1	1
2	9927	Anchor - Spring LH	0	0	1	1
3	9925	Brace - Anchor	0	0	1	1
4	10670	Bolt - Machine 3/4 x 2 NC, PL, GR5	0	0	1	1
5	10300	Nut - Lock 3/4 NC, PL	6	6	9	9
6	6513	Bolt - "U" 3/4 Dia.	3	3	4	4
7	0649	Pin - Wing Hold	0	0	1	1
8	10317	Pin - Klik 1/4	0	0	1	1
9	0634	Riser - Bearing RH	3	3	3	3
9	0633	Riser - Bearing LH	3	3	3	3
10	100251	Bolt - Gang 70	1	0	1	0
10	100252	Bolt - Gang 77 3/8	0	1	0	1
11	3412	Washer - Bumper	1	1	1	1
12	10837	Flangette 90 MSA	3	3	3	3
13	10838	Flangette 90 MSB	3	3	3	3
14	G10771	Bearing (GW210PPB2)	3	3	3	3
15	10599	Bolt - Carriage 7/16 x 1 NC, PL	3	3	3	3
16	10619	Washer - Lock 7/16 PL	12	12	12	12
17	10618	Nut - Hex 7/16 NC, PL	12	12	12	12
18	10068	Bolt - Carriage 7/16 x 1 1/2 NC, PL	9	9	9	9
19	9797	Bell - End, Small	3	3	3	3
20	8824	Sleeve - Insert	3	3	3	3
21	9798	Bell - End, Large	3	3	3	3
22	9830	Spool - Spacer	6	7	6	7
23	2030	Washer - End Gang	1	1	1	1
24	2116	Plate - Lock	1	1	1	1
25	11035	Nut - Gang Bolt 1 1/8 NC, HEAVY	2	2	2	2
26	9961	Bar - Scraper 68 3/4	0	0	1	0
26	9962	Bar - Scraper 76	0	0	0	1
26	9961	Bar - Scraper 69 3/16	1	0	0	0
26	9962	Bar - Scraper 76 5/8	0	1	0	0
27	10135	Bolt - Carriage 5/8 x 1 3/4 NC, PL	3	3	3	3
28	10299	Nut - Lock 5/8 NC, PL	3	3	3	3
28A	10059	Washer - Cut 5/8 PL	3	3	3	3
29	0788	Scraper - RH	9	10	9	10
30	0789	Scraper - LH	9	10	9	10
31	10870	Bolt - Carriage 1/2 x 1 1/2 NC, PL, GR5	9	10	9	10
32	10395	Nut - Lock 1/2 NC, PL	9	10	9	10
32A	10832	Washer - Cut 1/2 PL	9	10	9	10
33	2450	Blade - 20 x 9 Ga. Plain	10	11	10	11
34	3254	Blade - 20 x 7 Ga. C.O.	10	11	10	11
33	3262	Blade - 20 x 7 Ga. Plain	10	11	10	11
33	3269	Blade - 22 x 7 Ga. Plain	10	11	10	11
34	3271	Blade - 22 x 7 Ga. C.O.	10	11	10	11

** WTC21 Models

WING GANG FRONT AND REAR

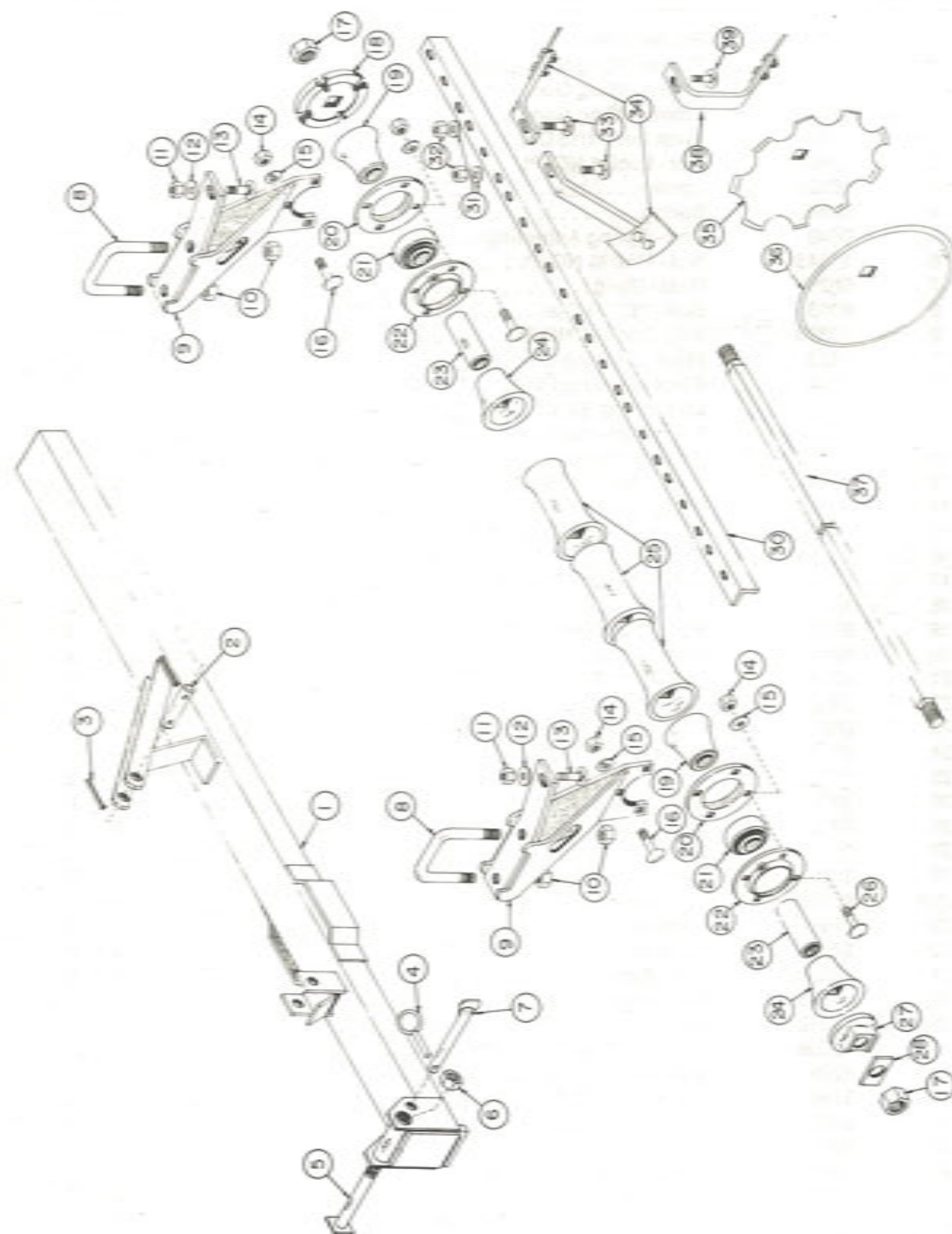


AMCO WTC21 WING GANG FRONT AND REAR (Rear Only on WTC21 Models) 7" SPACING

Ref. No.	Part No.	Description	No. Req'd	
			5 blade	7 blade
1	0639	Frame - Wing Gang RH	1	0
1	0640	Frame - Wing Gang LH	1	0
1	0641	Frame - Wing Gang LH	0	1
1	0642	Frame - Wing Gang RH	0	1
2	0734	Pivot Pin 1 1/16 Dia.	1	1
3	10868	Nut - Lock 1 NC, PL	1	1
4	10826	Spring	1	0
4	10825	Spring	0	1
5	0648	Rod - Spring Adjusting	1	1
6	11048	Nut - Hex 3/4 NC, PL	1	1
7	0629	Rest - Gang	1	1
8	6513	Bolt - "U" 3/4 Dia.	3	3
9	10300	Nut - Lock 3/4 NC, PL	6	6
10	0633	Riser - Bearing LH	2	2
10	0634	Riser - Bearing RH	2	2
11	100246	Bolt - Gang 33 3/4	1	0
11	100248	Bolt - Gang 48 1/2	0	1
12	3412A	Washer - Bumper	1	1
13	10837	Flangette 90 MSA	2	2
14	10838	Flangette 90 MSB	2	2
15	G10771	Bearing (GW21OPPB2)	2	2
16	10599	Bolt - Carriage 7/16 x 1 NC, PL	2	2
17	10619	Washer - Lock 7/16 PL	8	8
18	10618	Nut - Hex 7/16 NC, PL	8	8
19	9797	Bell - End, Small	2	2
20	8824	Sleeve - Insert	2	2
21	9798	Bell - End, Large	2	2
22	9830	Spool - Spacer	2	4
23	2030	Washer - End Gang	1	1
24	2116	Plate - Lock	1	1
25	11035	Nut - Gang Bolt 1 1/8 NC, HEAVY	2	2
26	9928	Bar - Scraper 32 3/4 (Front)	1	0
26	9930	Bar - Scraper 47 3/8	0	1
27	10135	Bolt - Carriage 5/8 x 1 3/4 NC, PL	1	1
28	10299	Nut - Lock 5/8 NC, PL	2	2
28A	10059	Washer - Cut 5/8 PL	2	2
29	0788	Scraper - RH	4	6
30	0789	Scraper - LH	4	6
31	10870	Bolt - Carriage 1/2 x 1 1/2 NC, PL, GR5	3	5
32	10395	Nut - Lock 1/2 NC, PL	5	7
32A	10832	Washer - Cut 1/2 PL	5	7
33	10068	Bolt - Carriage 7/16 x 1 1/2 NC, PL	6	6
34	3268	Blade - 18 x 9 Ga. Plain	1	1
35	3196	Blade - 18 x 10 Ga. C.O.	1	1
36	2450	Blade - 20 x 9 Ga. Plain	4	6
37	3254	Blade - 20 x 7 Ga. C.O.	4	6
36	3262	Blade - 20 x 7 Ga. Plain	4	6
37	3271	Blade - 22 x 7 Ga. C.O.	4	6
38	0836	Scraper - Special RH (rear only)	1	1
38	0837	Scraper - Special LH (rear only)	1	1
39	10710	Bolt - Carriage 1/2 x 2 NC, PL, GR5 (rear only)	1	1

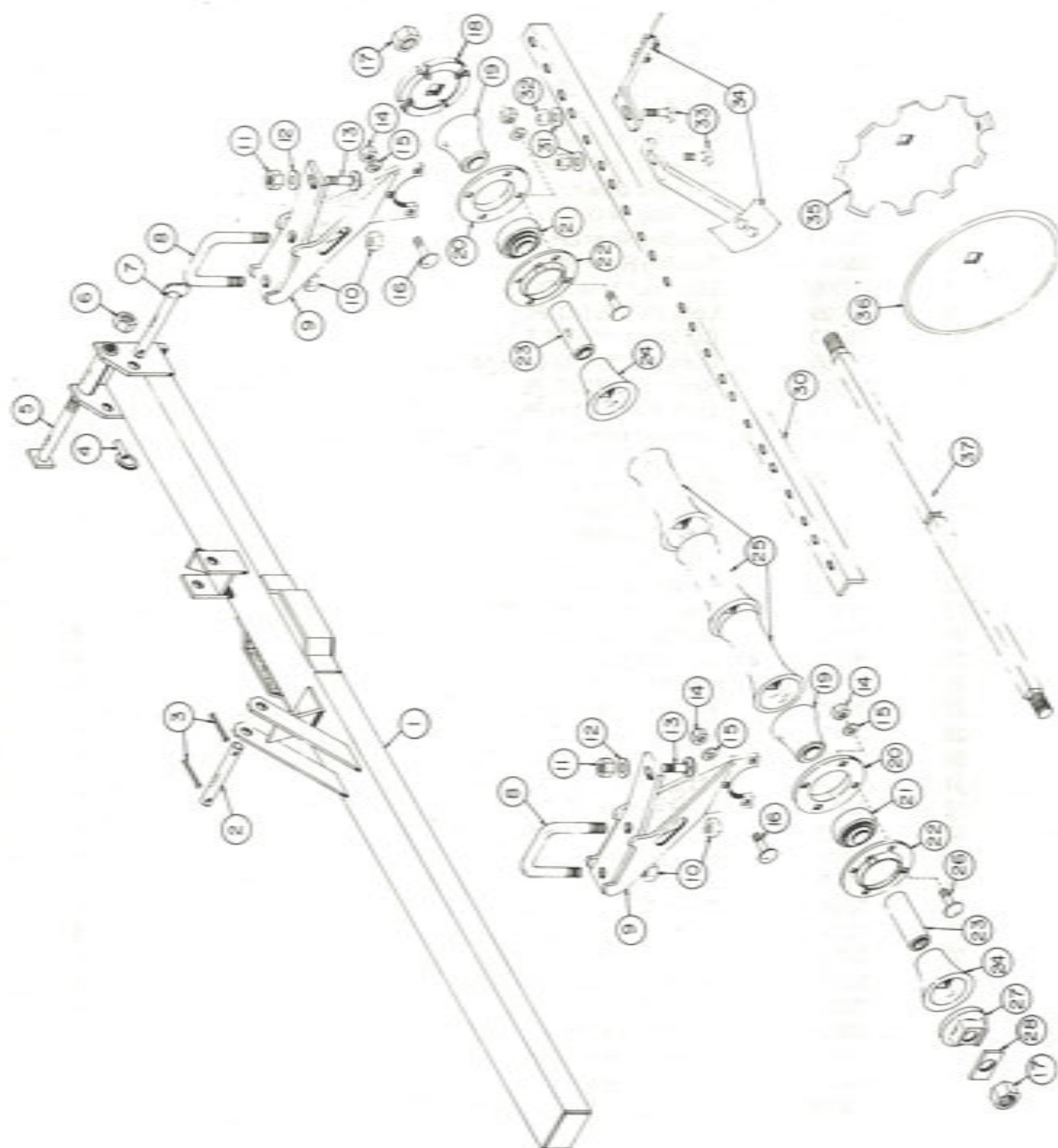
AMCO HWTD21 - HWTDC21
FRONT MAIN GANG

FRONT MAIN GANG



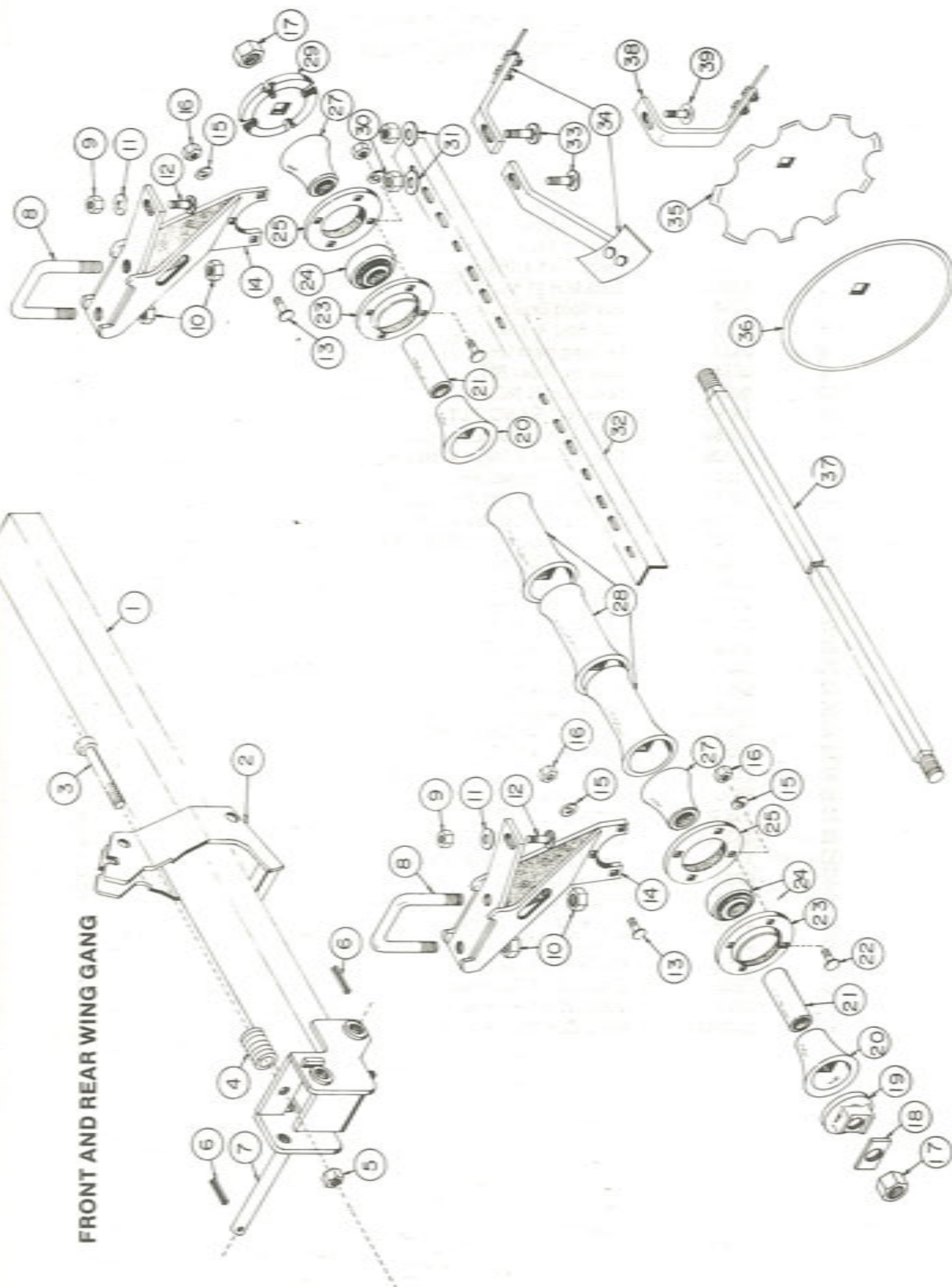
Ref. No.	Part No.	Description	No. Req'd
1	0806	Gang Frame Front	1
2	6554	Hitch Pin 1" Dia. x 5 Long	1
3	10910	Roll Pin 5/16 x 2 1/4	2
4	10317	Klik Pin 1/4	1
5	0734	Pivot Pin 1 1/16 Dia.	1
6	10868	Lock Nut 1" NC, PL	1
7	9532	Pin Hold Down	1
8	6513	"U" Bolt 3/4 Dia.	3
9	0633	Bearing Riser LH	3
9	0634	Bearing Riser RH	3
10	10300	Lock Nut 3/4 NC, PL	6
11	10299	Lock Nut 5/8 NC, PLT	3
12	10059	Cut Washer 5/8 PLT	3
13	10135	Carriage Bolt 5/8 x 1 1/4 NC, PL	3
14	10618	Hex Nut 7/16 NC, PL	12
15	10619	Lock Washer 7/16 PL	12
16	10068	Carriage Bolt 7/16 x 1 1/2 NC, PL	9
17	11035	Nut Gang Bolt 1 1/8 NC HEAVY	2
18	3412A	Bumper Washer	1
19	8761	End Bell - Small	3
20	10837	Flangette 90 MSA	3
21	G10771	Bearing GW21OPPB2	3
22	10838	Flangette 90 MSB	3
23	8824	Insert Sleeve 1.9375 O.D. 3/16 WT. 5 5/8 Long	3
24	8762	End Bell - Large	3
25	9830	Spacer Spool	4
26	10599	Carriage Bolt 7/16 x 1 NC, PL	3
27	2030	End Gang Washer	1
28	2116	Lock Plate 14 Ga. Sheet 2 x 3 1/2	1
30	9550	Scraper Bar 70 1/16	1
31	10832	Cut Washer 1/2" PL	7
32	10395	Lock Nut 1/2 NC, PL	7
33	10870	Carriage bolt 1/2 x 1 1/2 NC, PL, GR5	6
34	0788	Scrapers RH	7
34	0789	Scrapers LH	7
35	3254	Blade 20 x 7 Ga. C.O.	8
35	3271	Blade 22 x 7 Ga. C.O.	8
36	2450	Blade 20 x 9 Ga. Plain	8
36	3262	Blade 20 x 7 Ga. Plain	8
36	3269	Blade 22 x 7 Ga. Plain	8
37	100244	Gang Bolt 69 1/16" Long	1
38	0824	Scraper - Special RH	1
38	0825	Scraper - Special LH	1
39	10710	Carriage bolt 1/2 x 2 NC, PL, GR5	1

REAR MAIN GANG



AMCO HWTD21, HWTDC21 REAR MAIN GANG

Ref. No.	Part No.	Description	No. Req'd
1	0807	Gang Frame Rear.....	1
2	6554	Hitch Pin 1" Dia. x 5 Long.....	1
2	10910	Roll Pin 5/16 x 2 1/4.....	2
4	10317	Klik Pin 1/4.....	1
5	0734	Pivot Pin 1 1/16 Dia.....	1
6	10868	Lock Nut 1" NC, PL.....	1
7	9532	Pin Hold Down.....	1
8	6513	"U" Bolt 3/4 Dia.....	3
9	0633	Bearing riser LH.....	3
9	0634	Bearing Riser RH.....	3
10	10300	Lock Nut 3/4 NC, PL.....	6
11	10299	Lock Nut 5/8 NC, PLT.....	3
12	10059	Cut Washer 5/8 PLT.....	3
13	10135	Carriage bolt 5/8 x 1 3/4 NC, PL.....	3
14	10618	Hex Nut 7/16 NC, PL.....	12
15	10619	Lock Washer 7/16 PL.....	12
16	10068	Carriage Bolt 7/16 x 1 1/2 NC, PL.....	9
17	11035	Nut Gang Bolt 1 1/8 NC HEAVY.....	2
18	3412A	Bumper Washer.....	1
19	8761	End Bell-Small.....	3
20	10837	Flangette 90 MSA.....	3
21	G10771	Bearing GW210PPB2.....	3
22	10838	Flangette 90 MSB.....	3
23	8824	Insert Sleeve 1.9375 O.D. 3/16 WT. 5 5/8 Long.....	3
24	8762	End Bell-Large.....	3
25	6165	Spacer Spool.....	4
26	10599	Carriage Bolt 7/16 x 1 NC, PL.....	3
27	2030	End Gang Washer.....	1
28	2116	Lock Plate 14 Ga. Sheet 2 x 3 1/2.....	1
30	9550	Scraper Bar 70 1/16.....	1
31	10832	Cut Washer 1/2" PL.....	7
32	10395	Lock Nut 1/2 NC PL.....	7
33	10870	Carriage Bolt 1/2 x 1 1/2 NC, PL, GR5.....	7
34	0788	Scrapers RH.....	7
34	0789	Scraper LH.....	7
35	3254	Blade 20 x 7 Ga. C.O.....	8
35	3271	Blade 22 x 7 Ga. C.O.....	8
36	2450	Blade 20 x 9 Ga. Plain.....	8
36	3262	Blade 20 x 7 Ga. Plain.....	8
36	3269	Blade 22 x 7 Ga. Plain.....	8
37	100244	Gang Bolt 69 1/16" Long.....	1

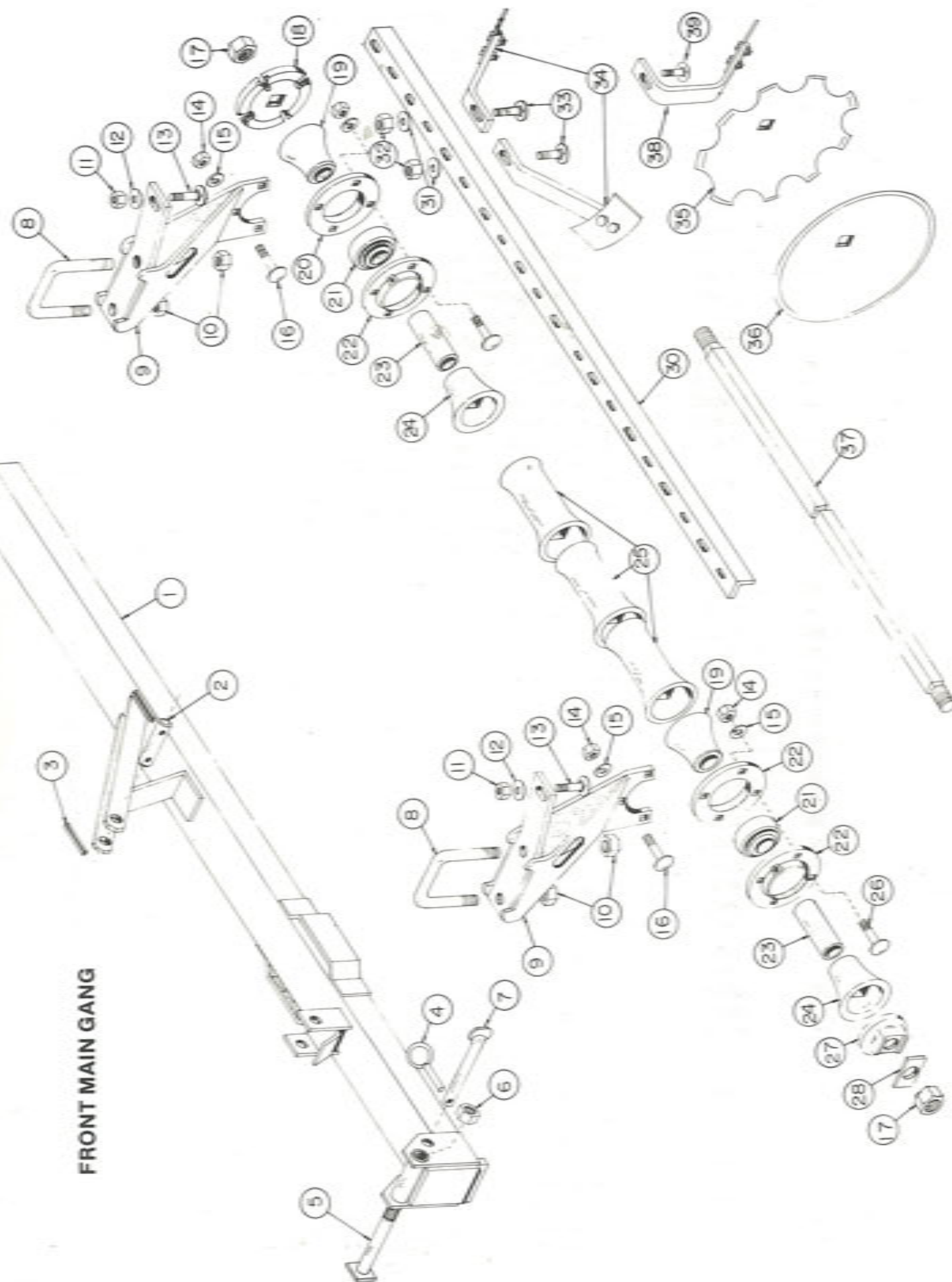


FRONT AND REAR WING GANG

AMCO HWTD21
FRONT & REAR WING GANGS
~~HWTD21 REAR WING GANG~~

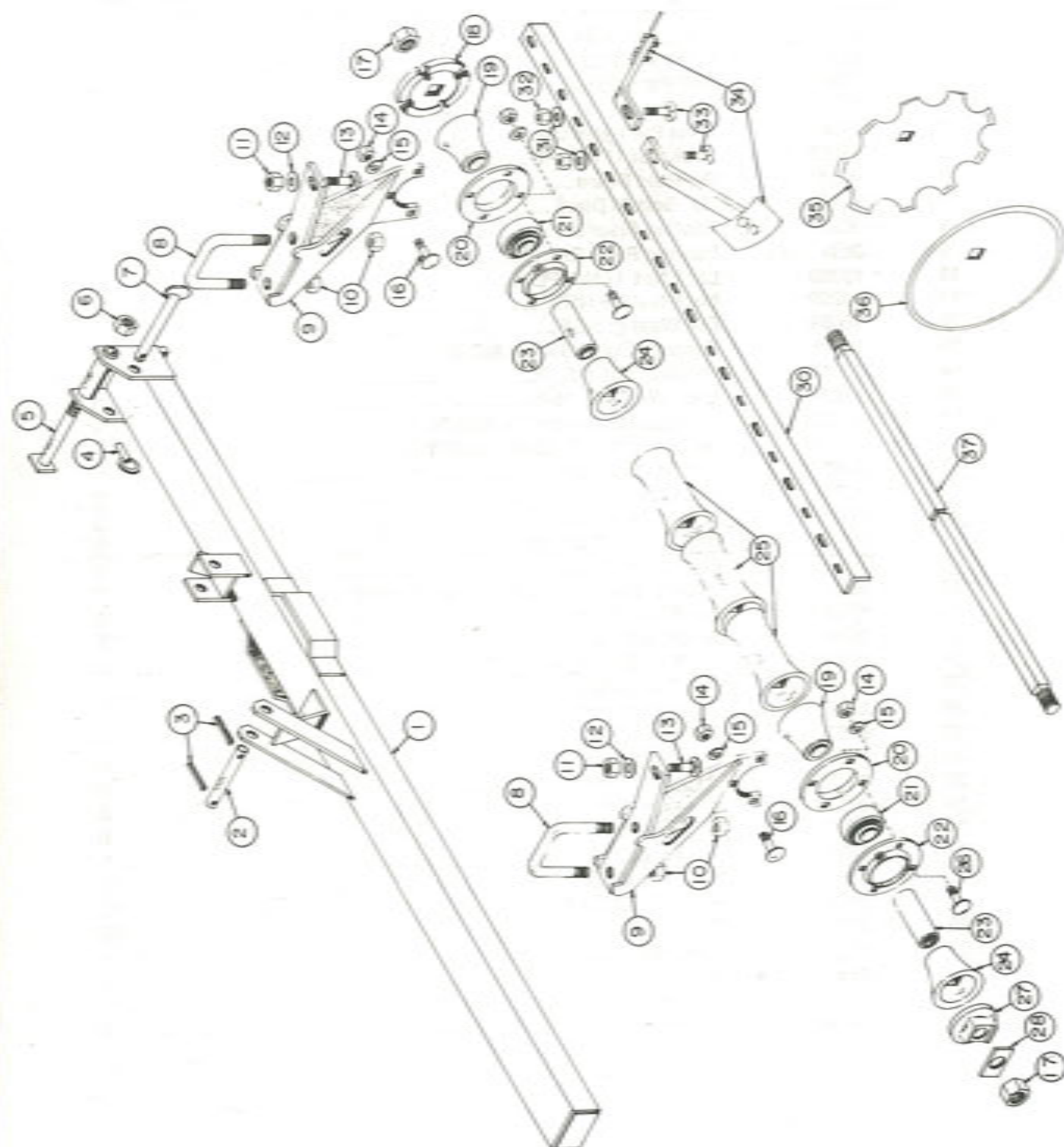
Ref. No.	Part No.	Description	4 blade	5 blade	6 blade
1	0808 ✓	Wing Gang Frame	1	0	0
1	0809 ✓	Wing Gang Frame	0	1	0
1	0812 ✓	Wing Gang Frame	0	0	1
2	0810	Wing Latch	1	1	1
3	10666	Hex Head Machine Bolt 5/8 x 5 NC, PL, GR5	1	1	1
4	10691	Spring 2" I.D. 3 Long	1	1	1
5	10299	Lock Nut 5/8 NC, PL	1	1	1
6	10910	Roll Pin 5/16 x 2 1/4	2	2	2
7	100320	Latch Pin 1 1/16 Dia.	1	1	1
8	6513	"U" Bolt 3/4 Dia.	2	2	2
9	10299	Lock Nut 5/8 NC, PL	2	2	2
10	10300	Lock Nut 3/4 NC, PL	4	4	4
11	10059	Cut Washer 5/8 PLT	2	2	2
12	10135	Carriage Bolt 5/8 x 1 1/4 NC, PL	2	2	2
13	10068	Carriage Bolt 7/16 x 1 1/2 NC, PL	6	6	6
14	0633	Bearing Riser LH	2	2	2
14	0634	Bearing Riser RH	2	2	2
15	10619	Lock Washer 7/16 PL	8	8	8
16	10618	Hex Nut 7/16 NC, PL	8	8	8
17	11035	Nut Gang Bolt 1 1/8 NC, Heavy	2	2	2
18	2116	Lock Plate	1	1	1
19	2030	End Gang Washer	1	1	1
20	8762	End Bell - Large	2	2	2
21	8824	Insert Sleeve	2	2	2
22	10599	Carriage bolt 7/16 x 1 NC, PL	2	2	2
23	10837	Flangette 90 MSA	2	2	2
24	G10771	Bearing GW210PPB2	2	2	2
25	10838	Flangette 90 MSB	2	2	2
27	8761	End Bell - Small	2	2	2
28	6165	Spacer Spool	1	2	3
29	3412A	Bumper Washer	1	1	1
30	10395	Lock Nut 1/2 NC, PL	4	5	6
31	10832	Cut Washers	4	5	6
32	9476	Scraper Bar 33 5/16	1	0	0
32	9475	Scraper Bar 42 1/2	0	1	0
32	9548	Scraper Bar 51 11/16	0	0	1
33	10870	Carriage Bolt 1/2 x 1 1/2 NC, PL, GR5	3	4	5
34	0788	Scraper RH	3	4	5
34	0789	Scraper LH	3	4	5
35	3196	Blade 18 x 10 Ga. C.O.	1	1	1
35	3254	Blade 20 x 7 Ga. C.O.	3	4	5
35	3271	Blade 22 x 7 Ga. C.O.	3	4	5
36	3268	Blade 18 x 9 Ga. Plain	1	1	1
36	2450	Blade 20 x 9 Ga. Plain	3	4	5
36	3262	Blade 20 x 7 Ga. Plain	3	4	5
36	3269	Blade 22 x 7 Ga. Plain	3	4	5
37	100240	Gang Bolt 32 1/4	1	0	0
37	100241	Gang Bolt 41 1/2	0	1	0
37	100242	Gang Bolt 50 7/8	0	0	1
38	0824	Scraper Special RH (REAR ONLY)	1	1	1
38	0825	Scraper Special LH (REAR ONLY)	1	1	1
39	10710	Carriage Bolt 1/2 x 2 NC, PL, GR5 (REAR ONLY)	1	1	1

AMCO HWTC21 FRONT MAIN GANG



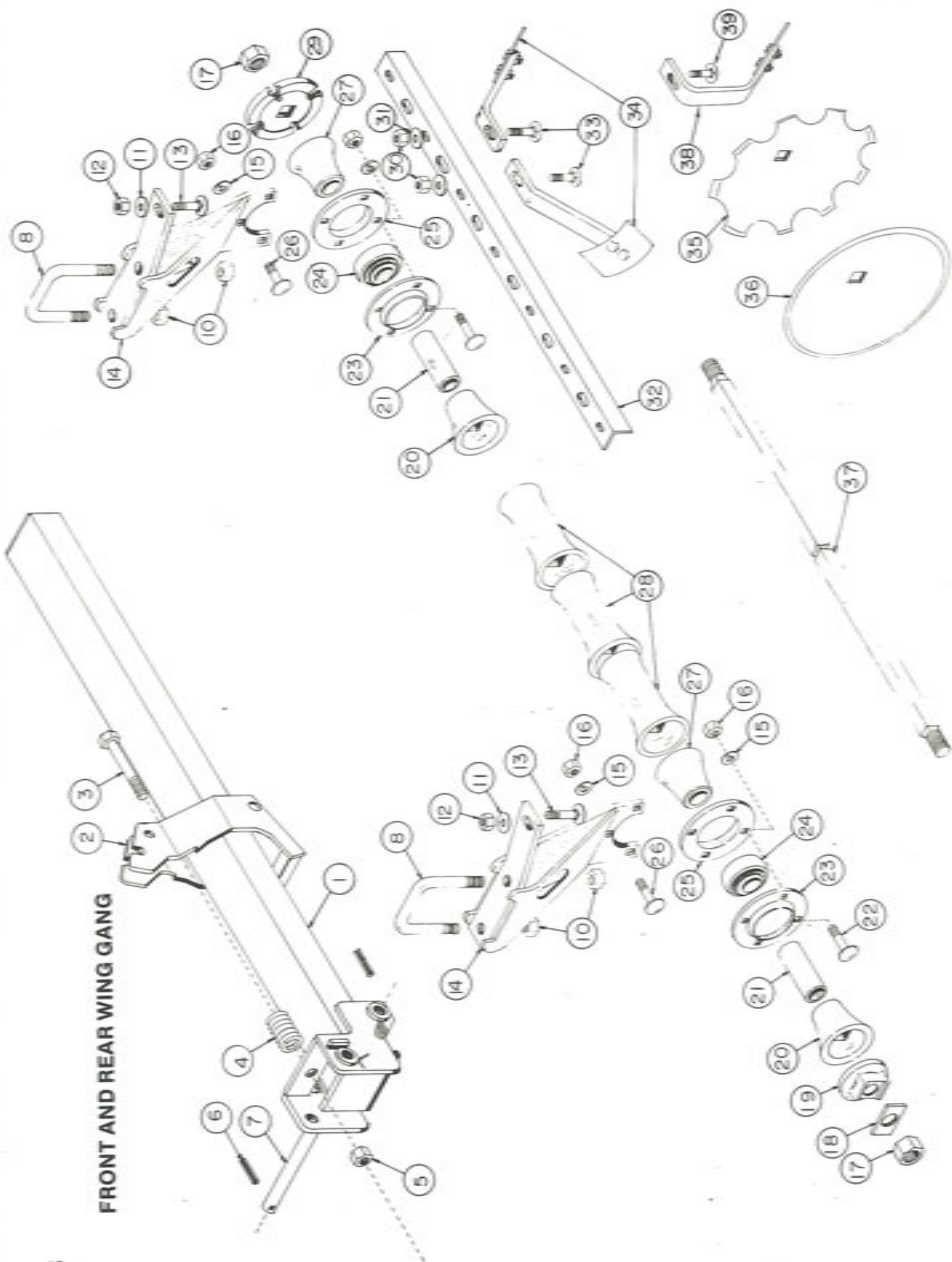
Ref. No.	Part No.	Description	No. Req'd
1	0806	Gang Frame Front	1
2	6554	Hitch Pin 1" Dia. x 5 Long	1
3	10910	Roll Pin 5/16 x 2 1/4	2
4	10317	Klik Pin 1/4	1
5	0734	Pivot Pin 1 1/16 Dia.	1
6	10868	Lock Nut 1" NC, PL	1
7	9532	Pin Hold Down	1
8	6513	"U" Bolt 3/4 Dia.	3
9	0633	Bearing Riser LH	3
9	0634	Bearing Riser RH	3
10	10300	Lock Nut 3/4 NC, PL	6
11	10299	Lock Nut 5/8 NC, PL	3
12	10059	Cut Washer 5/8 PL	3
13	10135	Carriage Bolt 5/8 x 1 1/4 NC, PL	3
14	10618	Hex Nut 7/16 NC, PL	12
15	10619	Lock Washer 7/16 PL	12
16	10068	Carriage Bolt 7/16 x 1 1/2 NC, PL	9
17	11035	Nut Gang Bolt 1 1/8 NC HEAVY	2
18	3412A	Bumper Washer	1
19	8761	End Bell-Small	3
20	10837	Flangette 90 MSA	3
21	G10771	Bearing GW210PPB2	3
22	10838	Flangette 90 MSB	3
23	8824	Insert Sleeve 1.9375 O.D. 3/16 WT. 5 5/8 Long.	3
24	8762	End Bell - Large	3
25	9830	Spacer Spool	6
26	10599	Carriage Bolt 7/16 x 1 NC, PL	3
27	2030	End Gang Washer	1
28	2116	Lock Plate 14 Ga. Sheet 2 x 3 1/2	1
30	9962	Scraper Bar 76	1
31	10832	Cut Washer 1/2" PL	9
32	10395	Lock Nut 1/2 NC, PL	9
33	10870	Carriage Bolt 1/2 x 1 1/2 NC, PL, GR5	8
34	0788	Scrapers RH	9
34	0789	Scrapers LH	9
35	3254	Blade 20 x 7 Ga. C.O.	10
36	2450	Blade 20 x 9 Ga. Plain	10
36	3262	Blade 20 x 7 Ga. Plain	10
37	100251	Gang Bolt 70 Long	1
38	0836	Scraper Special RH	1
38	0837	Scraper Special LH	1
39	10710	Carriage Bolt 1/2 x 2 NC, PL, GR5	1

REAR MAIN GANG



AMCO HWTC21, HWTDC21 REAR MAIN GANG

Ref. No.	Part No.	Description	No. Req'd
1	0807	Gang Frame Rear.....	1
2	6554	Hitch Pin 1" Dia. x 5 Long.....	1
3	10910	Roll Pin 5/16 x 2 1/4.....	2
4	10317	Click Pin 1/4.....	1
5	0734	Pivot Pin 1 1/16 Dia.....	1
6	10868	Lock Nut 1" NC, PL.....	1
7	9532	Pin Hold Down.....	1
8	6513	"U" Bolt 3/4 Dia.....	3
9	0633	Bearing Riser LH.....	3
9	0634	Bearing Riser RH.....	3
10	10300	Lock Nut 3/4 NC, PL.....	6
11	10299	Lock Nut 5/8 NC, PL.....	3
12	10059	Cut Washer 5/8 PL.....	3
13	10135	Carriage Bolt 5/8 x 1 3/4 NC, PL.....	3
14	10618	Hex Nut 7/16 NC, PL.....	12
15	10619	Lock Washer 7/16 PL.....	12
16	10068	Carriage Bolt 7/16 x 1 1/2 NC, PL.....	9
17	11035	Nut Gang Bolt 1 1/8 NC HEAVY.....	2
18	3412A	Bumper Washer.....	1
19	8761	End Bell-Small.....	3
20	10837	Flangette 90 MSA.....	3
21	G10771	Bearing GW210PPB2.....	3
22	10838	Flangette 90 MSB.....	3
23	8824	Insert Sleeve 1.9375 O.D. 3/16 Wt. 5 5/8 Long.....	3
24	8762	End Bell - Large.....	3
25	9830	Spacer Spool.....	6
26	10599	Carriage Bolt 7/16 x 1 NC, PL.....	3
27	2030	End Gang Washer.....	1
28	2116	Lock Plate 14 Ga. Sheet 2 x 3 1/2.....	1
30	9962	Scraper Bar 76.....	1
31	10832	Cut Washer 1/2" PL.....	9
32	10395	Lock Nut 1/2 NC, PL.....	9
33	10870	Carriage Bolt 1/2 x 1 1/2 NC, PL, GR5.....	9
34	0788	Scrapers RH.....	9
34	0789	Scrapers LH.....	9
35	3254	Blade 20 x 7 Ga. C. O.....	10
36	2450	Blade 20 x 9 Ga. Plain.....	10
36	3262	Blade 20 x 7 Ga. Plain.....	10
37	100251	Gang Bolt 70" Long.....	1



AMCO HWTC21 FRONT & REAR WING GANGS (HWTDC21 REAR ONLY)

Ref. No.	Part No.	Description	5 blade	6 blade	7 blade	8 blade
1	0808	Wing Gang Frame	1	0	0	0
1	0809	Wing Gang Frame	0	1	1	0
1	0812	Wing Gang Frame	0	0	0	1
2	0810	Wing Latch	1	1	1	1
3	10666	Hex Head Machine Bolt 5/8 x 5 NC, PL, GR5	1	1	1	1
4	10691	Spring 2" I.D. 3 Long	1	1	1	1
5	10299	Lock Nut 5/8 NC, PL	1	1	1	1
6	10910	Roll Pin 5/16 x 2 1/4	2	2	2	2
7	100320	Latch Pin 1 1/16 Dia.	1	1	1	1
8	6513	"U" Bolt 3/4 Dia.	2	2	2	2
10	10300	Lock Nut 3/4 NC, PL	4	4	4	4
11	10059	Cut Washer 5/8 PL	2	2	2	2
12	10299	Lock Nut 5/8 NC, PL	2	2	2	2
13	10135	Carriage Bolt 5/8 x 1 1/4 NC, PL	2	2	2	2
14	0633	Bearing Riser LH	2	2	2	2
14	0634	Bearing Riser RH	2	2	2	2
15	10619	Lock Washer 7/16 PL	8	8	8	8
16	10618	Hex Nut 7/16 NC, PL	8	8	8	8
17	11035	Nut Gang Bolt 1 1/8 NC, HEAVY	2	2	2	2
18	2116	Lock Plate	1	1	1	1
19	2030	End Gang Washer	1	1	1	1
20	9798	End Bell - Large	2	2	2	2
21	8824	Insert Sleeve	2	2	2	2
22	10599	Carriage Bolt 7/16 x 1 NC, PL	2	2	2	2
23	10837	Flangette 90 MSA	2	2	2	2
24	G10771	Bearing GW210PPB2	2	2	2	2
25	10838	Flangette 90 MSB	2	2	2	2
26	10068	Carriage Bolt 7/16 x 1 1/2 NC, PL	6	6	6	6
27	9797	End Bell - Small	2	2	2	2
28	9830	Spacer Spool	2	3	4	5
29	3412A	Bumper Washer	1	1	1	1
30	10395	Lock Nut 1/2 NC, PL	5	6	7	8
31	10832	Cut Washer 1/2 PL	5	6	7	8
32	9928	Scraper Bar 32 1/2	1	0	0	0
32	9929	Scraper Bar 39 3/4	0	1	0	0
32	9930	Scraper Bar 47	0	0	1	0
32	9931	Scraper Bar 54 1/4	0	0	0	1
33	10870	Carriage Bolt 1/2 x 1 1/2 NC, PL, GR5	4	5	6	7
34	0788	Scraper RH	4	5	6	7
34	0789	Scraper LH	4	5	6	7
35	3196	Blade 18 x 10 Ga. C.O.	1	1	1	1
35	3254	Blade 20 x 7 Ga. C.O.	4	5	6	7
36	3268	Blade 18 x 10 Ga. Plain	1	1	1	1
36	2450	Blade 20 x 9 Ga. Plain	4	5	6	7
36	3262	Blade 20 x 7 Ga. Plain	4	5	6	7
37	100246	Gang Bolt 33 3/4	1	0	0	0
37	100247	Gang Bolt 41	0	1	0	0
37	100248	Gang Bolt 48 1/2	0	0	1	0
37	100249	Gang Bolt 55 3/4	0	0	0	1
38	0836	Scraper Special RH (rear only)	1	1	1	1
38	0837	Scraper Special LH (rear only)	1	1	1	1
39	10710	Carriage Bolt 1/2 x 2 NC, PL, GR5 (rear only)	1	1	1	1

DECALS

①

AMCO

②

WARNING

LOWER OR BLOCK ELEVATED COMPONENTS
BEFORE SERVICING OR WHEN LEAVING THE
MACHINE.
ELEVATED COMPONENTS CAN FALL AND
CAUSE SERIOUS INJURY.

11233

③

MAINTENANCE INSTRUCTIONS

1. Keep all bolts tight.
 - A. Visually inspect all bolts daily.
 - B. Check after first 50 hours or one week's operations.
2. Keep wheel bearings properly adjusted.
 - A. Clean and repack each season or every 300 hours.
 - B. Replace all worn or damaged parts when repairing.
3. Do not run with loose disk blades. Keep gang bolts tight! Tighten after first day's operation.
4. Keep scrapers properly adjusted 1/16" - 1/8" from blades.
5. Grease gang bearings every week or 50 hours, at the start of each season, and at the end of each season. Apply with low pressure, low volume hand grease gun. Use a good, clean lithium base grease, Shell Alvania No. 3 or equal. Rotate gangs while greasing for best results.

AMCO WTD21 — WTC21 — WTDC21 SERIES DISK HARROW DECALS

Ref. No.	Part No.	Description	Req'd No.
1	10948	Decal - AMCO	2
2	11233	Decal — Warning	2
3	10997	Decal — Maintenance	1



THIS SAFETY ALERT SYMBOL INDICATES IMPORTANT SAFETY MESSAGES IN THIS MANUAL. WHEN YOU SEE THIS SYMBOL, CAREFULLY READ THE MESSAGE THAT FOLLOWS AND BE ALERT TO THE POSSIBILITY OF PERSONAL INJURY.



CAUTION Never stand between tractor and disk harrow when hitching unless all controls are in neutral and the brakes are locked.



CAUTION Park or block the disk harrow so it will not roll when disconnected from the tractor drawbar.



CAUTION When working on disk harrows, care should be exercised in handling or tightening bolts near disk blades to avoid injury.



CAUTION Always secure for transport by using the lock pin and wing lock pins.



CAUTION Never clean, adjust or lubricate a disk harrow that is in motion.



CAUTION Stay out from underneath wing gangs, when folding or unfolding.



CAUTION When transporting machinery over public roads, comply with your local and state laws regarding length, width and lighting.



CAUTION When trailing the harrow over public roads, the SMV Emblem must be used, for protection of tractor and motor vehicle operators.



CAUTION When transporting farm implements on public roads after dusk it is the responsibility of the operator to provide lighting and reflectors on the rear of the implement in accordance with your state law.



CAUTION All hydraulically or mechanically elevated operating components must be blocked to prevent accidental lowering or must be lowered to the ground when making adjustments or when the equipment is idle.

56R

GENERAL TORQUE SPECIFICATION TABLE (Revised 2-74) USE THE FOLLOWING TORQUES WHEN SPECIAL TORQUES ARE NOT GIVEN

Note: These values apply to fasteners as received from supplier, dry, or when lubricated with normal engine oil. They do not apply if special graphited or moly-disulphide greases or other extreme pressure lubricants are used. This applies to both UNF and UNC threads.

SAE Grade No.		2		5		8 *	
Bolt head identification marks as per grade NOTE: Manufacturing Marks Will Vary				  		  	
Bolt Size		Torque Foot Pounds		Torque Foot Pounds		Torque Foot Pounds	
Inches	Millimeters	Min.	Max.	Min.	Max.	Min.	Max.
1/4	6.35	5	6	9	11	12	15
5/16	7.94	10	12	17	20	24	29
3/8	9.53	20	23	35	42	45	54
7/16	11.11	30	35	54	64	70	84
1/2	12.70	45	52	80	96	110	132
9/16	14.29	65	75	110	132	160	192
5/8	15.88	95	105	150	180	220	264
3/4	19.05	150	185	270	324	380	456
7/8	22.23	160	200	400	480	600	720
1	25.40	250	300	580	696	900	1080
1-1/8	25.58			800	880	1280	1440
1-1/4	31.75			1120	1240	1820	2000
1-3/8	34.93			1460	1680	2380	2720
1-1/2	38.10			1940	2200	3160	3560

* Thick nuts must be used with Grade 8 bolts

ALL BOLTS SHOULD BE TIGHTENED TO THE RECOMMENDED TORQUES SHOWN IN THE "GENERAL TORQUE SPECIFICATION TABLE"

ASSEMBLY INSTRUCTIONS

The harrow is shipped from the factory with maximum pre-assembly in the following bundles:

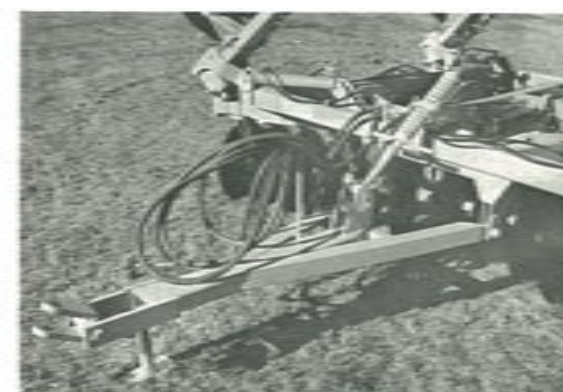
- A. Main Frame, Pull Tongue and Rockshaft
- B. 2 or 4; 15 x 6 - 6 Bolt wheels
- C. 4 - 2 1/2 x 16 Hydraulic Cylinders (HWTD21 and HWTC21 only)
- D. Scrapers and Bolts
- E. Hydraulic Kit (HWTD21 and HWTC21 only)
- F. Front Gang - RH
- G. Front Gang - LH
- H. Rear Gang - RH
- I. Rear Gang - LH
- J. Tongue Jack

1. Place all bundles where they will be convenient. Arrange loose parts so they may be readily seen when needed. To insure good alignment of the units and parts, always insert all bolts leaving the nuts loose. Tighten the nuts evenly to prevent misalignment, distortion, or binding. Be sure all bolts are tight, all cotter pins properly spread and all pins properly inserted.
2. Select clean level area for assembly. Place main frame on sturdy stands at least 30" high. Place on front and rear to clear gang frames.



CAUTION Use sturdy stands to prevent frame from falling.

3. Remove the pull tongue from main frame. Swing rockshaft down into position and lock in place with transport strap.
4. Mount 9.5L x 15 high flotation tires on the wheels. Bolt the wheels to the hubs. Tighten bolts evenly to assure proper alignment of wheels. Consult tire manufacturer for proper tire inflation pressure.



5. Attach pull tongue in upper or lower holes on main frame to match tractor drawbar height. Attach hose support.
6. Attach front cylinder mount and stabilizer assembly.
7. Attach front gangs to main frame with attached straps. Bolt heads must be on top. Center gangs on main frame.
8. Attach rear gangs to main frame with attached straps. Center gangs on main frame.

OPTIONAL EQUIPMENT

9. Attach four 2½ x 16 hydraulic cylinders to the gangs. Attach hydraulic hoses as shown in the diagram on page 14. (Hydraulic models)
10. Attach scrapers to scraper bars. Scrapers should be 1/16" to 1/8" from blade. Rotate gangs to assure that scrapers are properly adjusted.
11. Install wing stands on wing gang frames. Adjust tension in springs so wings will fold easily. (Spring assist models)
12. Attach lift cylinder and hydraulic hoses (optional equipment)
13. Attach tongue jack.
14. Attach the center tooth to the center bar of the main frame. Use the lower set of holes for harrows with 20" blades and the upper set of holes for harrows with 22" blades.
15. Attach the feathering blades to the rear gangs.
16. Install wing gang drivers.



17. Check and retighten all bolts after initial field use.

ROCKSHAFT RETAINER PINS

The four rockshaft retainer pins, Figure 3, should be greased every week or 50 hours of operation. These retainer pins should also be greased at the start of each season, and at the end of each season. The retainer pins ride in bronze bushings that should be replaced when worn.

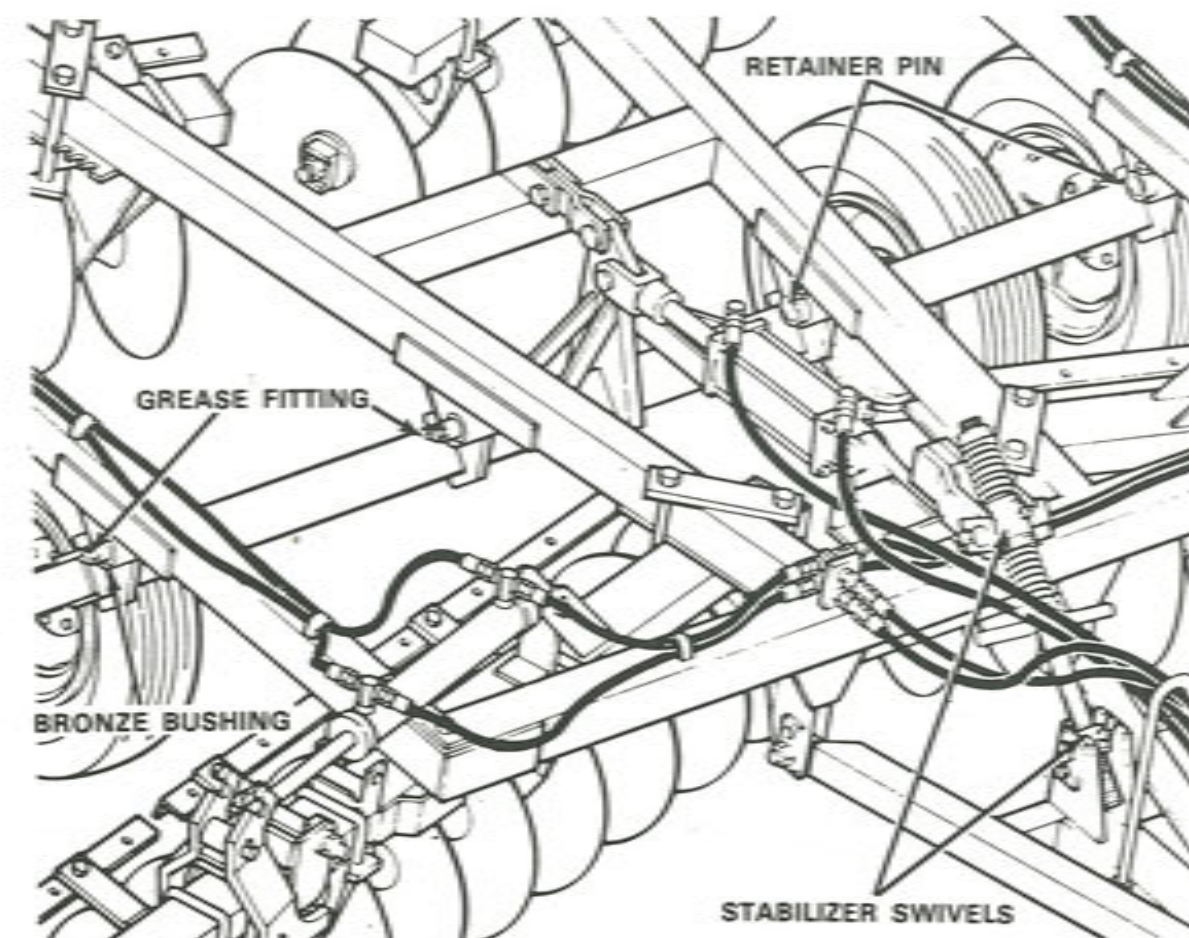


Figure 3

The stabilizer swivels, Figure 3, should be greased every week or 50 hours of operation. The stabilizer swivels should also be greased at the start of each season, and at the end of each season. The threads on the stabilizer rod should be cleaned and oiled occasionally for smooth operation.

OPERATING INSTRUCTIONS

ADJUSTMENT FOR LEVEL DISKING

It is recommended the tractor be operated at a speed best suited for soil conditions. High-speed disking will sometimes result in excessive lateral movement of the soil. This may leave an uneven surface behind the disk harrow known as "Ridging" and "Furrowing".

When disking in a cover crop or where the land is to be reworked, an uneven surface is not objectionable. If the land is to be bare through the winter, furrows and ridges will reduce soil washing, and will help catch and hold moisture, resulting in more water being absorbed by the soil.

CENTER RIDGE

If a ridge of soil is left behind the center of the harrow, decrease the weight on the rear gangs by shortening the stabilizer rod, decrease the angle of the rear gangs, or move the gangs farther apart, or do a combination of all three.

CENTER FURROW

If a furrow is left behind the center of the harrow, increase the weight on the rear gangs by lengthening the stabilizer rod, or move the gangs closer together, or do a combination of all three.

OUTER RIDGES OR FURROWS

If ridges or furrows are left behind at the outer ends of the harrow, change the weight on the rear gangs by adjusting the length of the stabilizer rod, or change the front gang cutting angle.

FEATHERING BLADES

The use of feathering blades with smaller disks will move the excess soil back which is thrown out by the front gangs at high speed. By using the feathering blades, the outside furrows are partially filled giving a more uniform job of disking.

GROUND SPEED AND ADJUSTMENTS

Where it is necessary to have a level job of disking, the following factors must be taken into consideration: (1) Tractor Speed, (2) Hitch Adjustment, (3) Disk Gang Angle Adjustment, and (4) Gang Lateral Adjustment.

TRACTOR SPEED

Speeds above 5 MPH may result in forming of ridges and furrows. Lateral adjustment of the rear gangs, and use of rear gang feathering blades helps to overcome this problem.

OPERATING PROCEDURE

Disk as deep as necessary to do a thorough job, but do not try to disk to an excessive depth. In most conditions the AMCO harrow has sufficient weight for good penetration. In other conditions you have a little more weight than you really need. For these conditions, your harrow should be equipped with flotation tires. 9.5L x 15 or 11L x 15 tires will be adequate for most conditions. You also need a good heavy duty 4 x 8 Hydraulic Cylinder with stroke control. This will allow you to control cutting depth.

Never allow soil to "bulldoze" ahead of or flow over the spacer spools. Cutting depth should be controlled to avoid this situation. Maintaining proper cutting depth will have the following advantages:

1. Increase gang bearing life.
2. Reduce strain on harrow frame and related parts.
3. Reduce load on tractor engine and drive train.
4. Lower fuel consumption due to less load on tractor engine.
5. Reduce wheel slippage and rear tractor tire wear due to lower load.
6. Increase tractor travel speeds due to less rear wheel slippage.

By properly controlling cutting depth, gang bearing life will be increased with more acres covered per day at a lower cost.

HITCH ADJUSTMENT

The frame of the harrow should be level front to rear when the harrow is in operation so the front and rear disk gangs will penetrate the soil uniformly. Shorten or lengthen the stabilizer rod to level the frame.

Attach pull tongue in upper or lower holes, Figure 4, provided on main frame, so that frame is near level when attached to tractor drawbar.

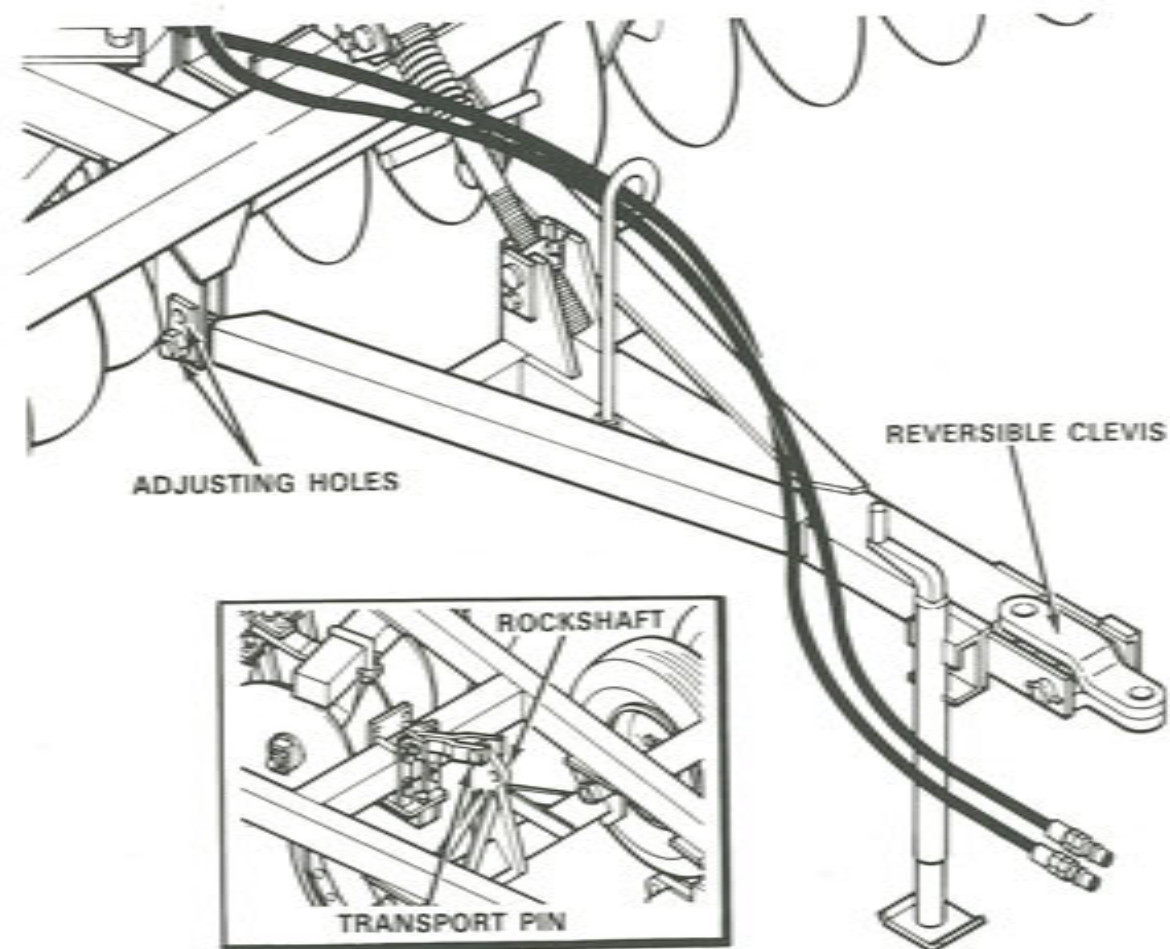


Figure 4

Attach the harrow to the tractor drawbar with the reversible clevis and lower the gangs. **IMPORTANT:** Be sure to remove the transport pin from transport position and insert it in rockshaft before lowering gangs.

HITCH ADJUSTMENT (CONT'D)

Turn the stabilizer rod, Figure 5, until the frame is positioned for the desired working depth of all gangs. The cushion springs, Figure 5, allow the hitch to flex in relation to the main frame.

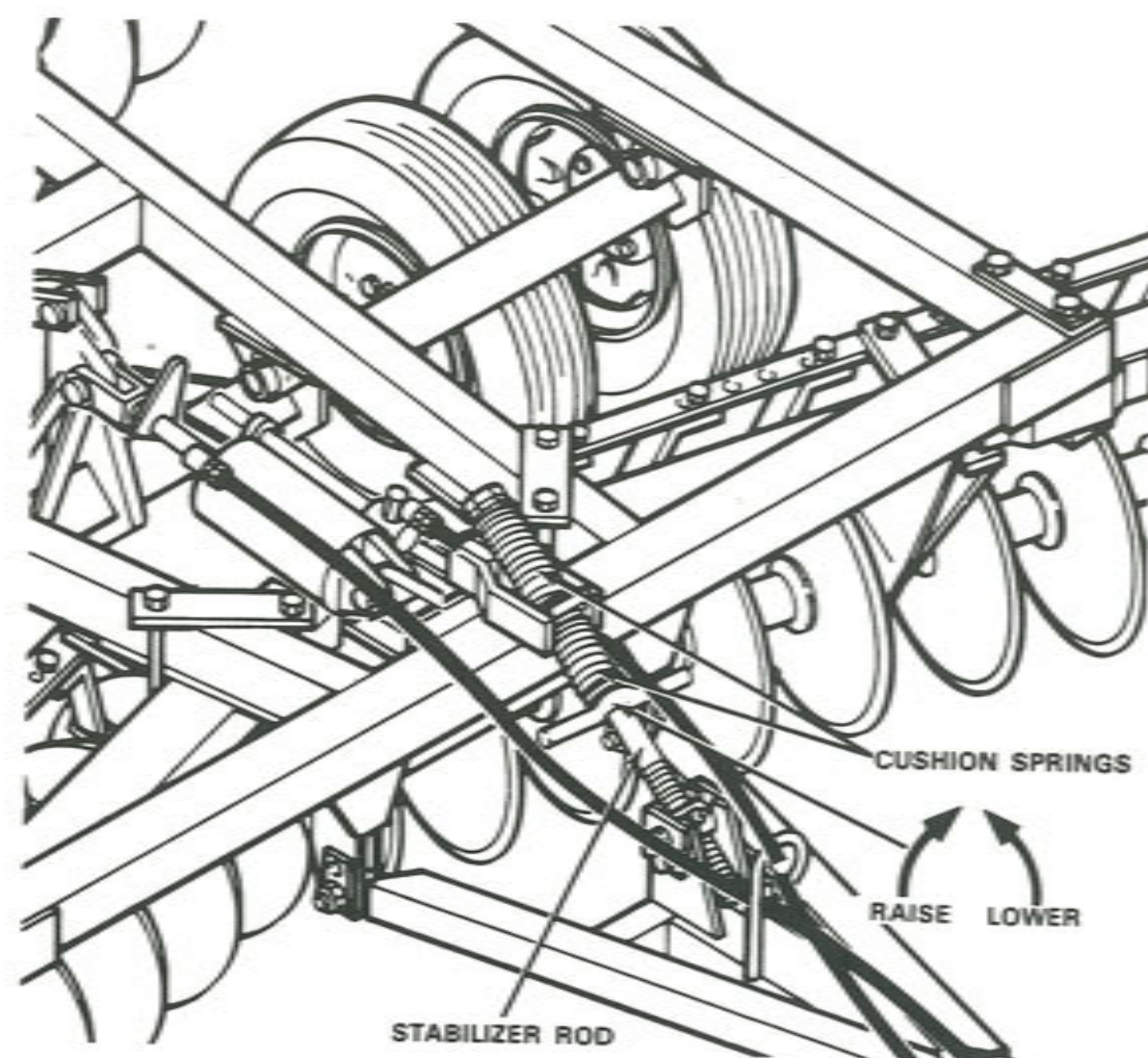


Figure 5

Extend the length of the stabilizer rod to increase penetration of the rear gangs. Reduce the length of the stabilizer rod to increase penetration of the front gangs.

DISK ANGLE ADJUSTMENT

FRONT GANG

The front gang angle may be varied between 14° and 19° , and the rear gang angle may be varied between 11° and $18\frac{1}{2}^{\circ}$. The greater the angle of the gang, the deeper the blades will penetrate the soil. The draft increases as the angle increases. For maximum disk life and operating economy, the gangs should be set at the smallest angle which will do satisfactory disking.

To adjust the front and rear gang angle, remove the bolts securing the angle set brackets and move the gang to the desired degree of cut. Refer to Figures 6 and 7. Be sure to retighten the angle set bracket bolts to 200 foot pounds torque.

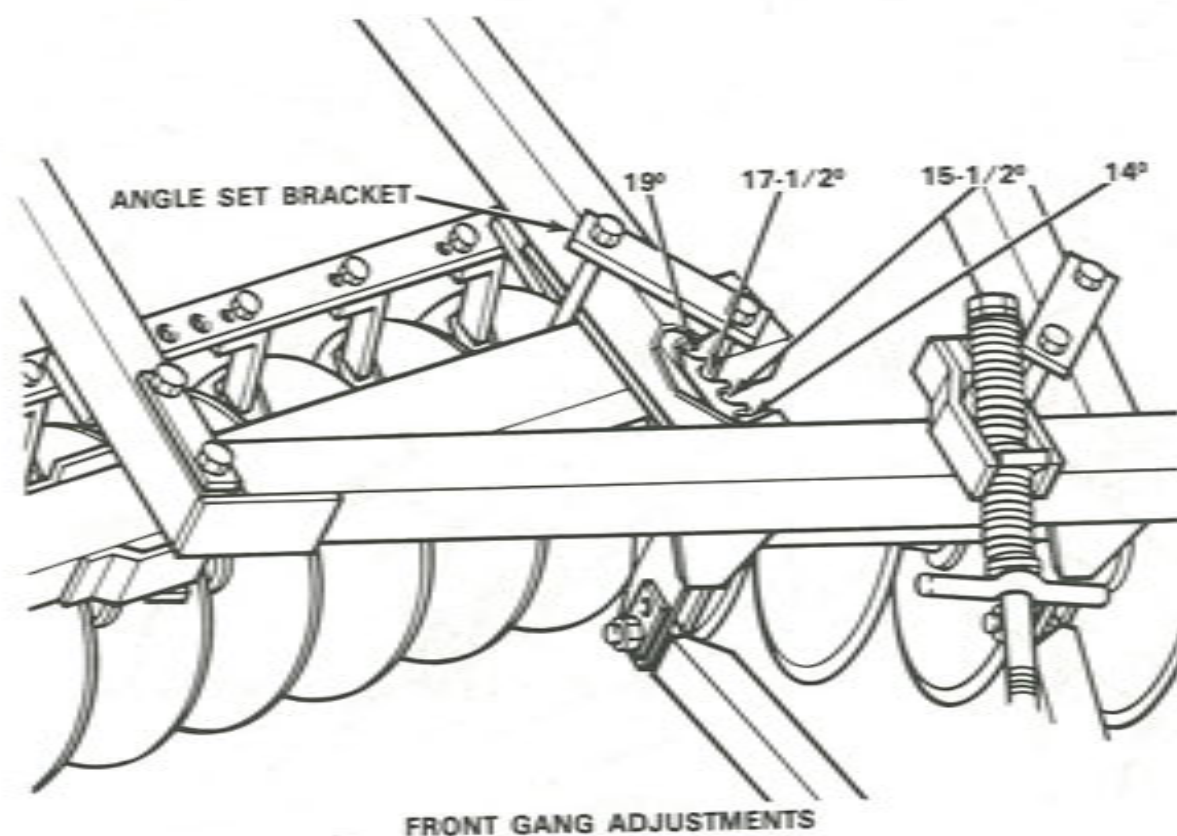


Figure 6

DISK ANGLE ADJUSTMENT (CONT'D)

REAR GANG

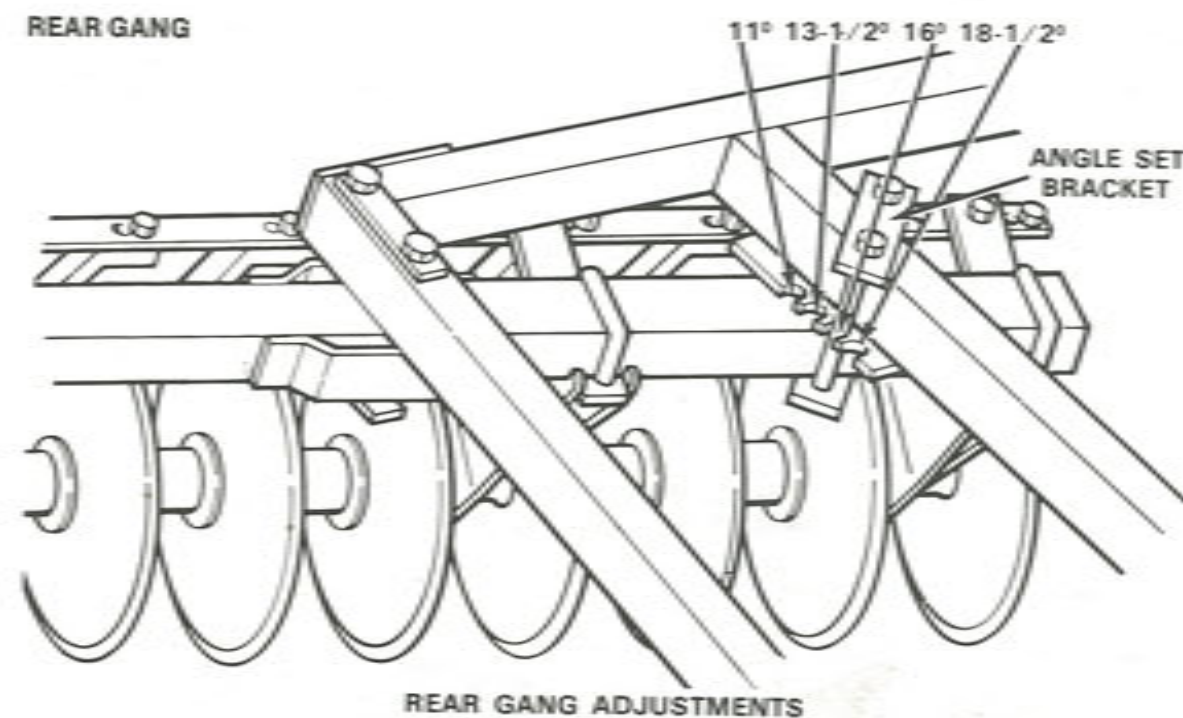


Figure 7

ADJUSTMENT SUMMARY

To fill a furrow, set the front gangs at minimum angle, set the rear gangs at maximum angle and increase the weight on the rear gangs. To cut down a ridge, set the front gangs at maximum angle, set the rear gangs at minimum angle and decrease the weight on the rear gangs.



WARNING Lower or block elevated components before servicing or when leaving the machine. Elevated components can fall and cause serious injury.

GANG LATERAL ADJUSTMENT

GENERAL

The front and rear gangs are adjustable laterally to compensate for soil conditions and tractor speed. As an initial setting, it is recommended that the front gangs be adjusted so that bumper washers are centered on harrow frame and clear each other by $\frac{3}{8}$ to $\frac{1}{2}$ inch; and the rear gangs are approximately 28 inches apart, measured from front edge of disk blades.

RIDGING

Make adjustments as needed after the harrow is placed in operation. When a ridge of soil is left behind the center of the harrow, the rear gangs should be set out. Weight on the rear gangs can be decreased by shortening the stabilizer rod.

FURROWING

When a furrow is formed behind the center of the harrow, the rear gangs should be set in. Weight on the rear gangs should also be increased by lengthening the stabilizer rod.

ADJUSTMENT

To adjust the front and rear gangs laterally, loosen the two bolts securing the gang to the corner of the main frame, and the two bolts in the angle set brackets, Figure 8.

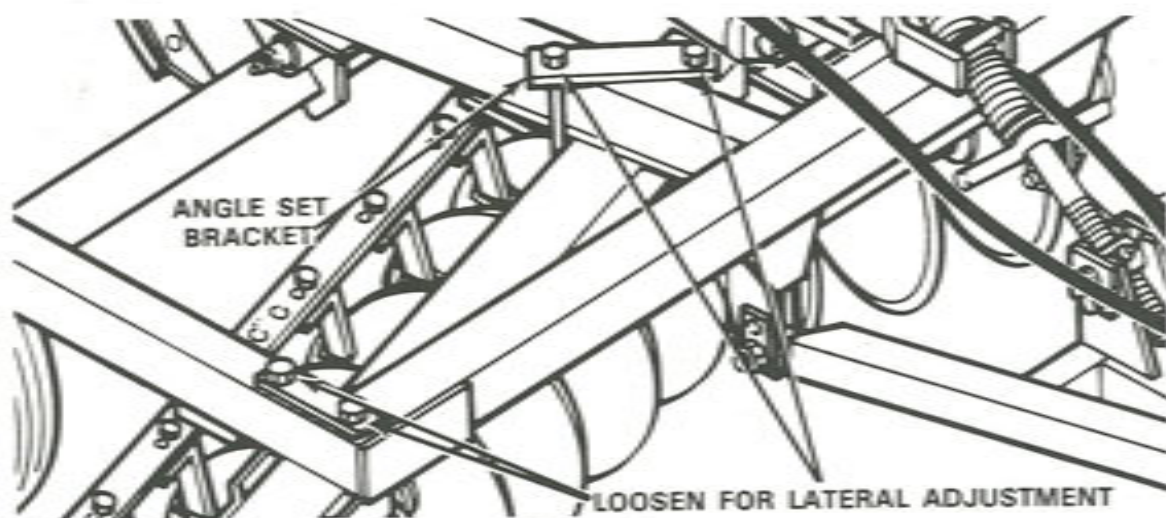


Figure 8

Slide the gangs either toward the center or toward the outside of the harrow until the desired position has been obtained. Be sure to retighten the bolts to 200 foot pounds torque.

It is recommended that the rear gangs be set in at low tractor speeds (below 5 MPH) and set out at high tractor speeds (5 to 6 MPH).

A center tooth attachment is available to till the band of soil not moved by the front gangs.

WING GANGS (SPRING ASSIST)

The wing gangs are equipped with adjustable springs to assist in folding the wings for transport, and unfolding into working position.



CAUTION Stay out from underneath wing gangs, when folding or unfolding.

Models WTD21-4820, WTC21-6020, WTC21-6420 and WTDC21-5420 use a 22" spring. Models WTD21-5220, WTD21-5620, WTC21-6820, WTC21-7220, WTDC21-6020 and WTDC21-6420 use a 24½" spring. NOTE: 22" spring attaches in lower hole of spring anchor, 24½" spring attaches in upper hole of spring anchor.

The springs are adjusted by shortening or lengthening the adjusting bolt shown in Figure 9.

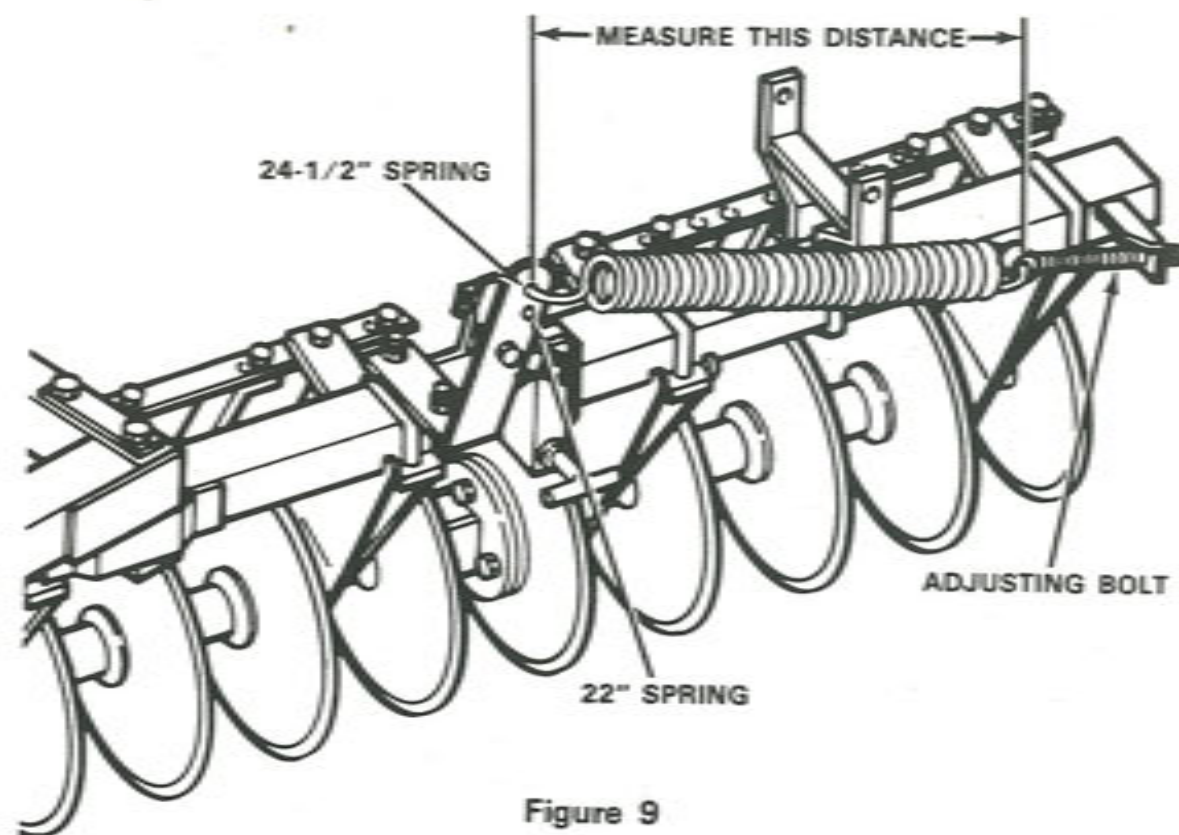


Figure 9

Adjust tension of wing lift assist springs so that wing gang can be folded with about forty to fifty pounds lifting force. Adjust spring length, (measured from center to center of hook ends) as follows: 22" spring approximately 34" long, and 24½" spring approximately 41½" long. See Figure 9.

SCRAPER ADJUSTMENT

Scrapers should be adjusted to run approximately 1/16 to 1/8 inch from the disk blades. Each scraper may be adjusted in the slotted scraper bar, or the entire scraper bar assembly may be moved laterally in the slotted holes provided in the bearing risers, as shown in Figure 10.

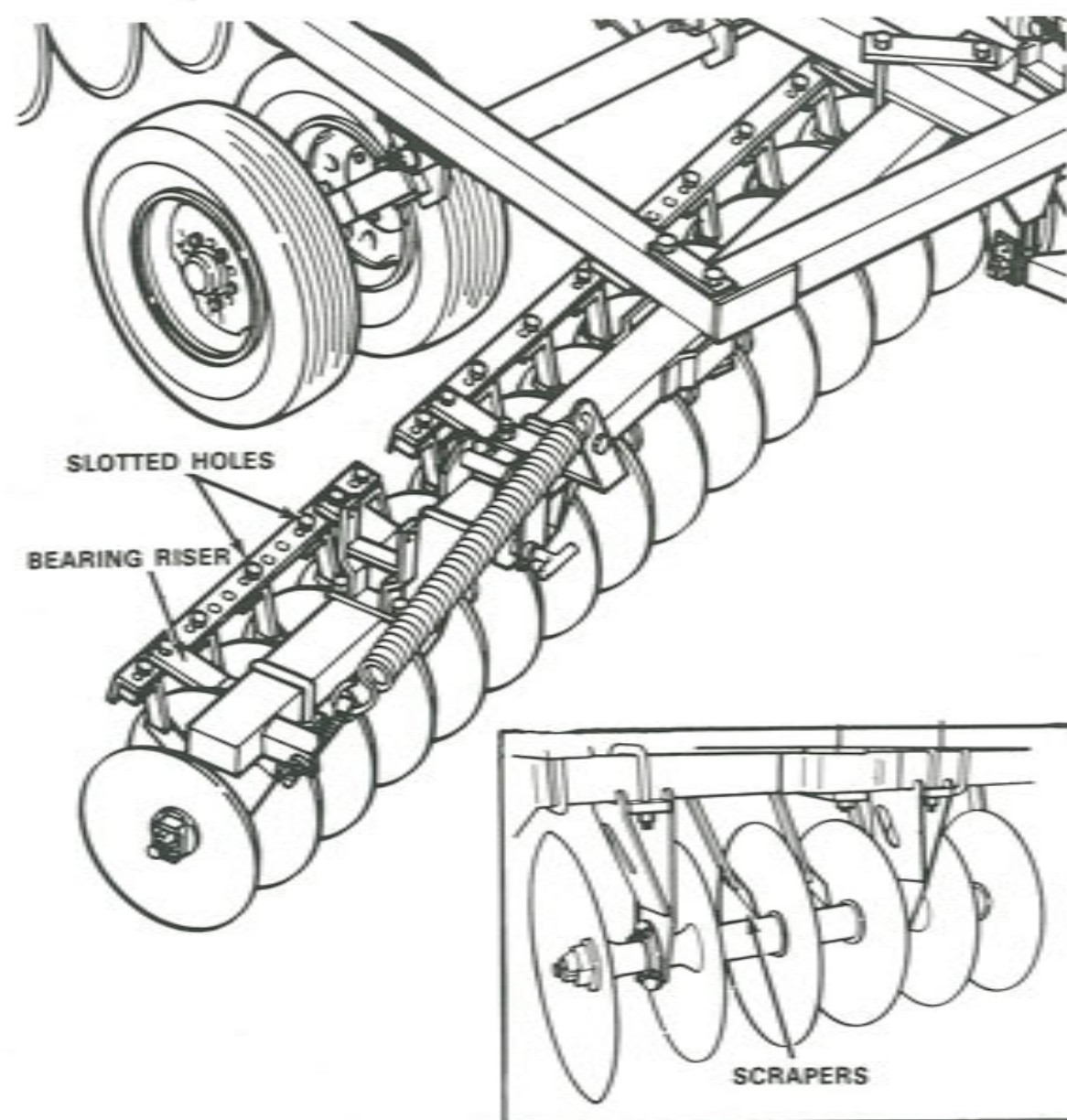


Figure 10

HYDRAULIC LIFT CYLINDER INSTALLATION

Attach rod end of cylinder in forward hole of rockshaft lift arm and other end to cylinder mount on main frame, as shown in Figure 11.

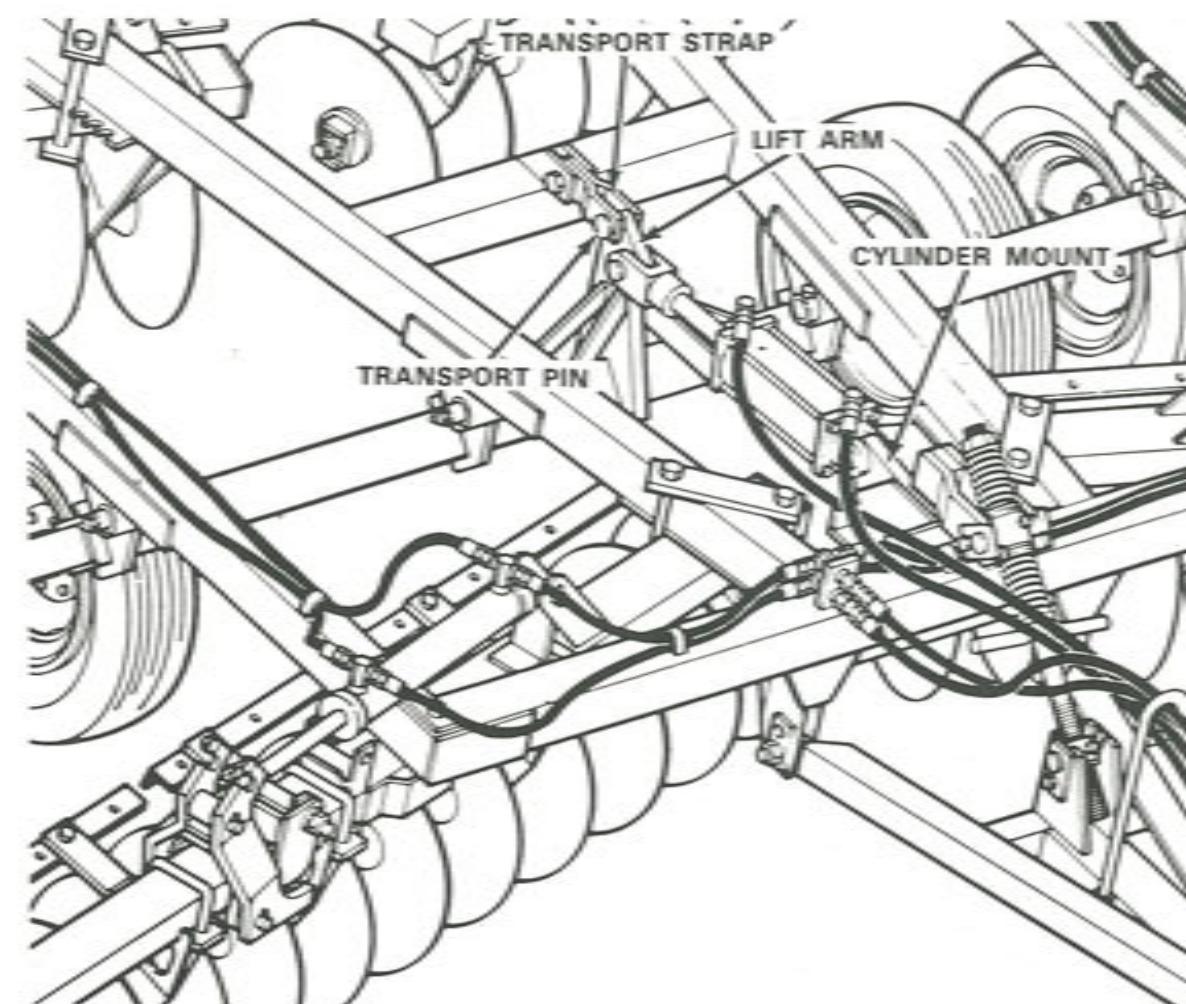


Figure 11

Use the hydraulic lift cylinder to control depth of cut for herbicide incorporation or to conserve fuel.

A heavy duty 4 x 8 ASAE standard hydraulic cylinder, with depth stop, is recommended for raising and lowering the disk harrow.

Heavy duty ASAE standard hydraulic cylinders are available at your local AMCO Dealer.

CAUTION Before attaching cylinder to disk, stroke cylinder to full length several times to allow oil to fill cylinder and hoses. Otherwise cylinder may drop load when first used.

TRANSPORT SAFETY LOCK



CAUTION Always secure for transport by using the transport lock pin and wing hold pins.

Prior to transport, raise harrow and lock in transport position by securing transport strap to rockshaft lift arm with transport pin, as shown in Figure 12, to keep disk blades clear of road surface when transporting. Secure transport pin with klik pin.

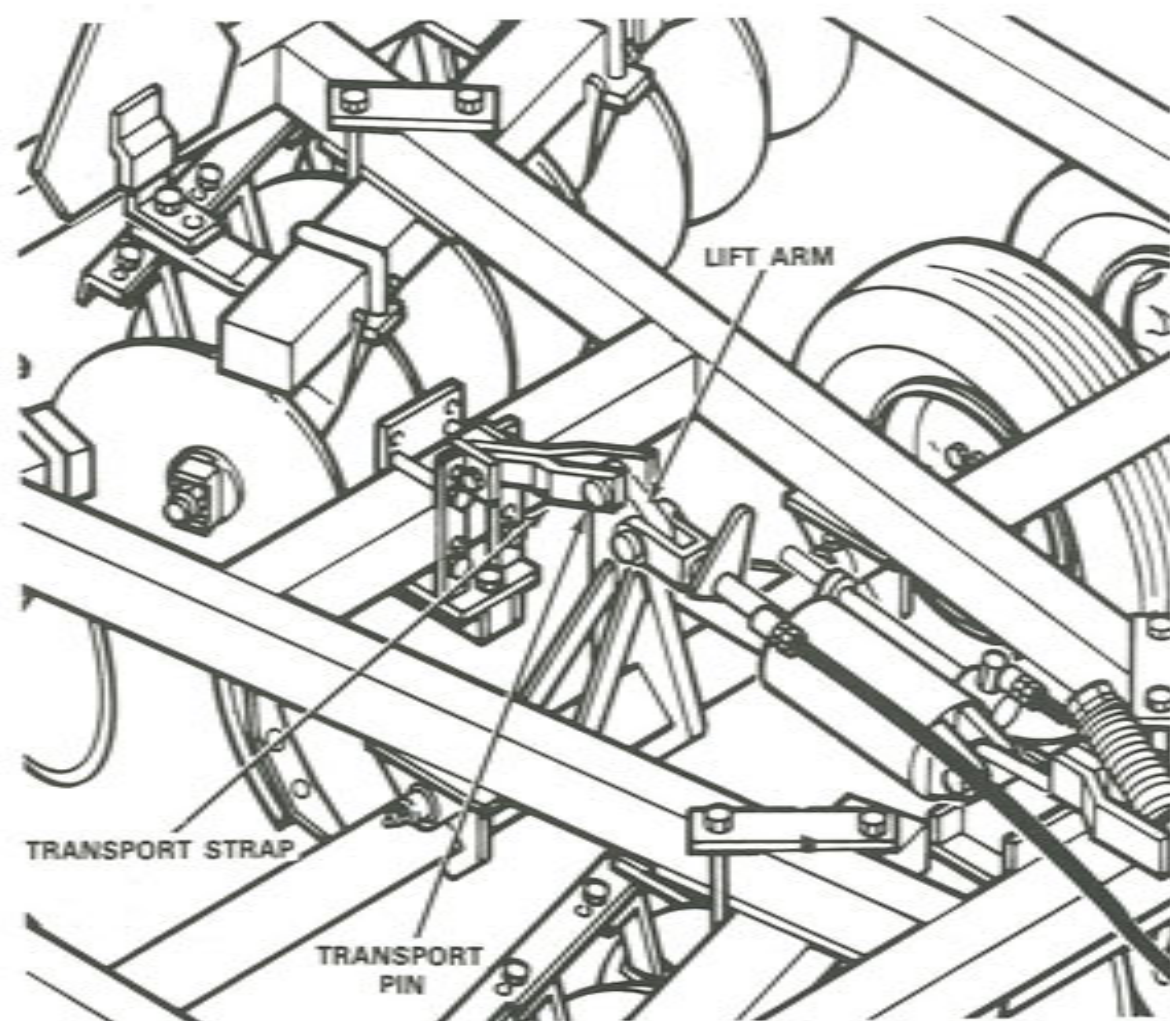


Figure 12

TRANSPORT SAFETY LOCK (CONT'D) (SPRING ASSIST WING GANGS)

If the harrow is equipped with spring assist wing gangs, remove the wing hold pins, Figure 13.

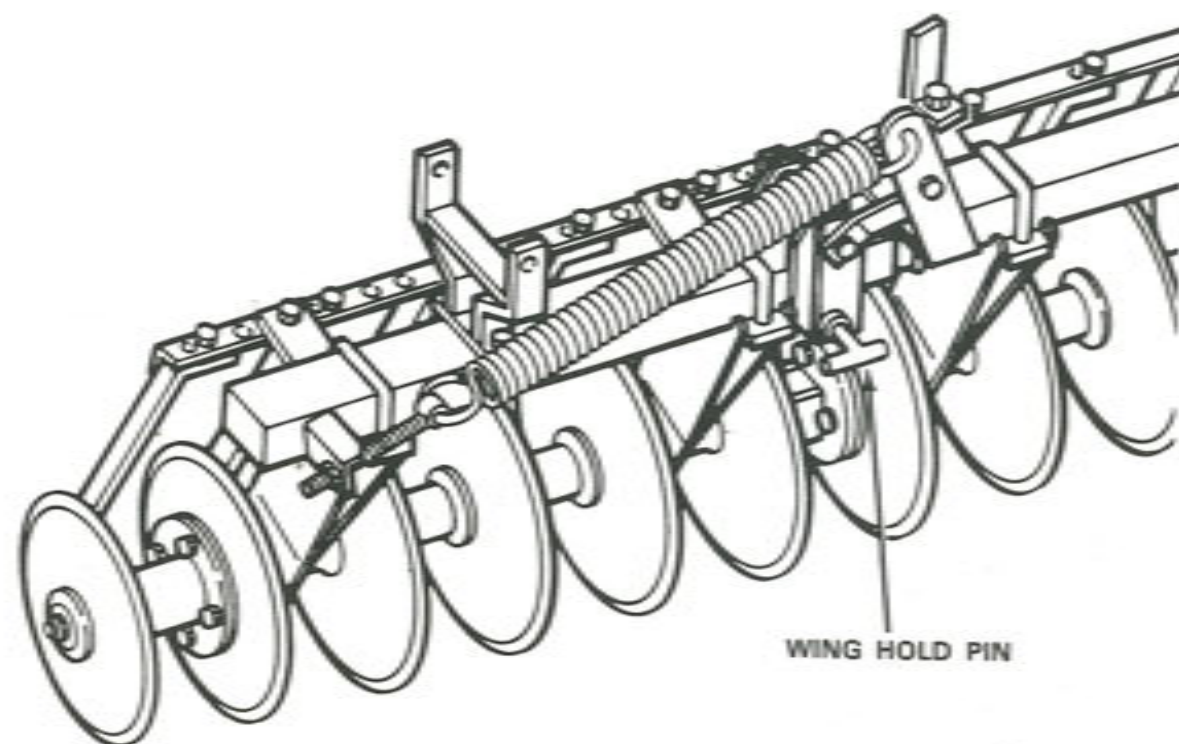


Figure 13



CAUTION Stay out from underneath wing gangs, when folding or unfolding.

TRANSPORT SAFETY LOCK (CONT'D)

Fold the wings and lock in position, in the gang rest brackets, with the wing hold pins as shown in Figure 14. Secure the wing hold pins with the klik pins.

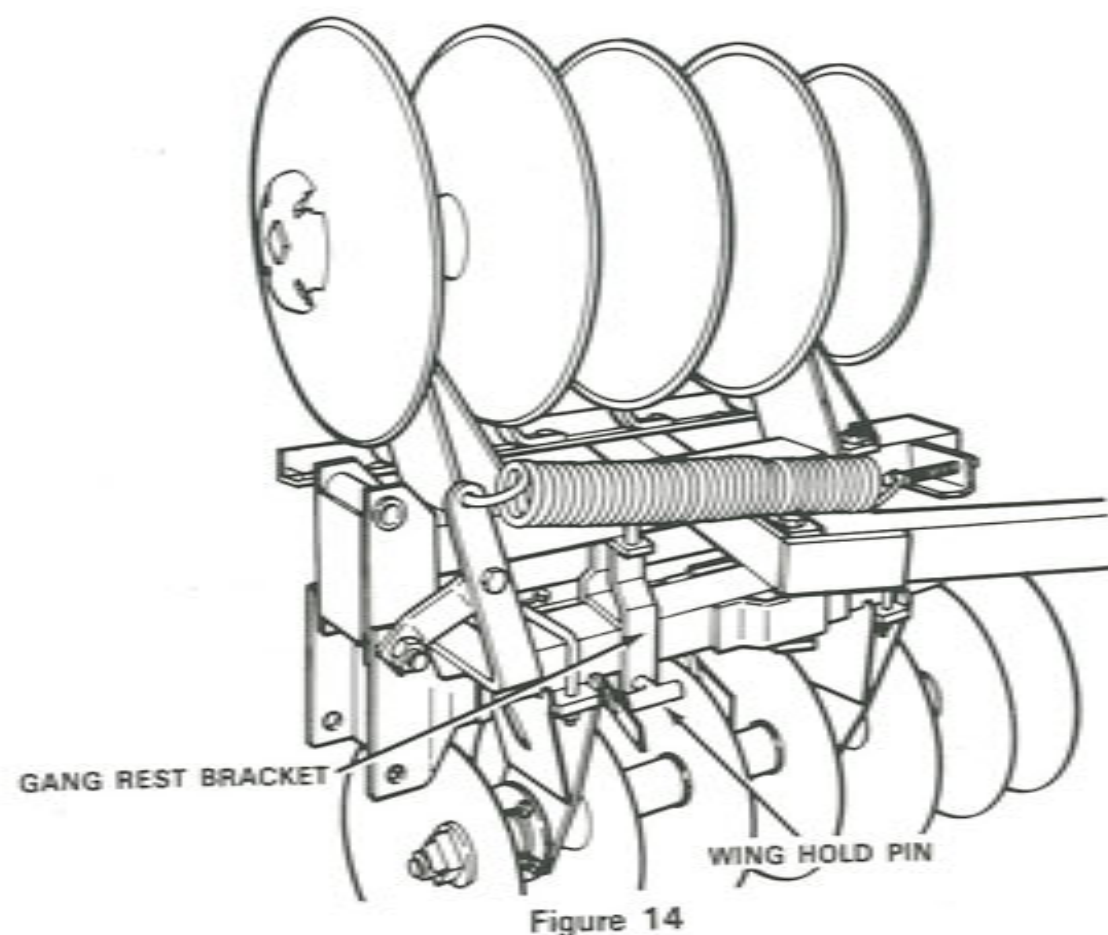


Figure 14

CAUTION When transporting machinery over public roads, comply with your local and state laws regarding length, width and lighting.

TRANSPORT SAFETY LOCK (CONT'D) (HYDRAULIC WING GANGS)

If the harrow is equipped with hydraulic wing gangs, fold the wings by retracting the wing lift cylinders. Remove the wing hold pins from storage position and lock wings in position as shown in Figure 15. Secure the wing hold pins with the klik pins.

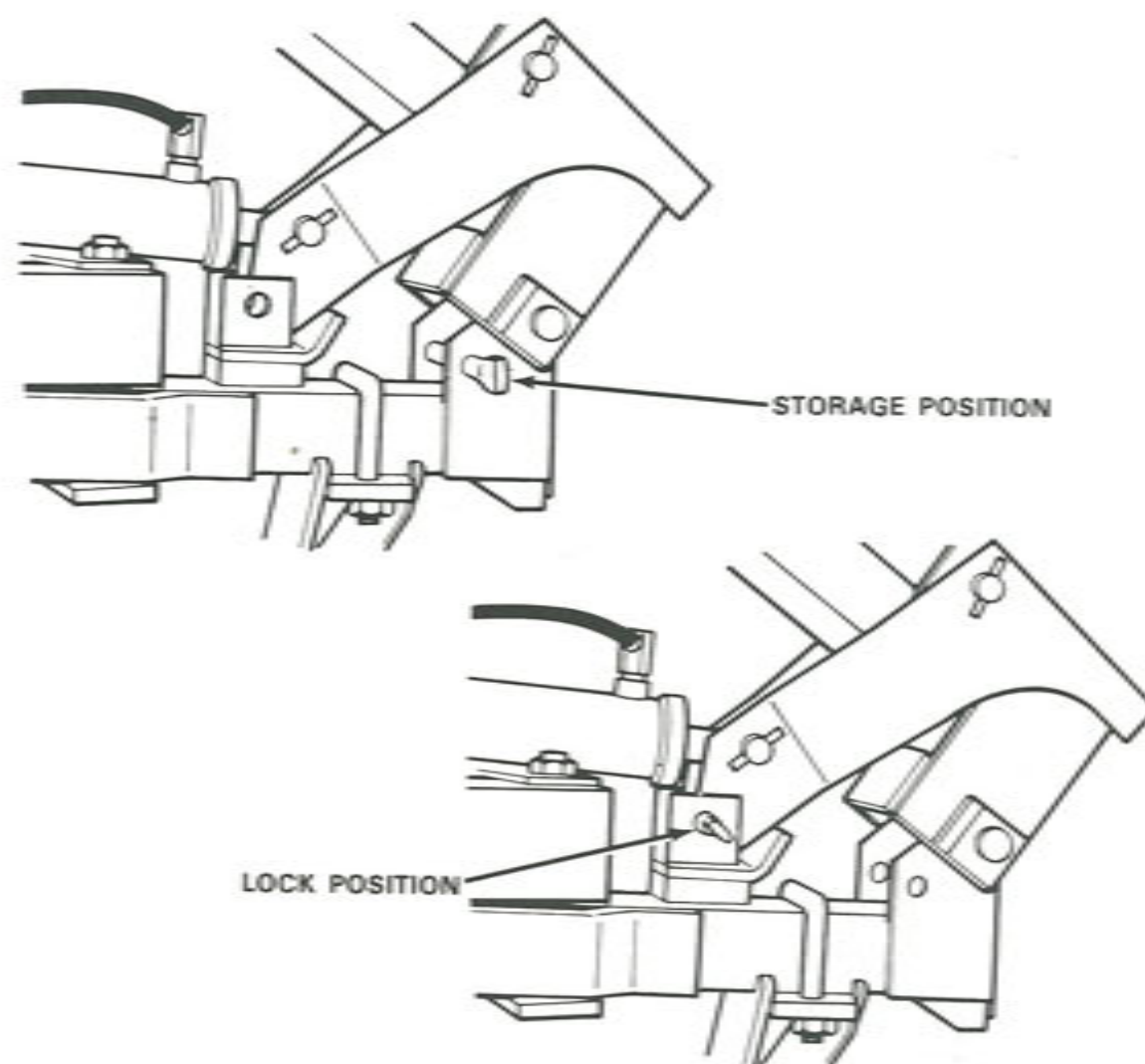


Figure 15

CAUTION Stand clear when disk wings are being raised or lowered. Do not work or stand under disk wings unless wing lock pins are installed. Accidental operation of hydraulic lever or failure of any hydraulic component could cause wing to drop, causing serious injury or damage.

When lowering the hydraulic type wings into the working position, keep pressure applied for 5 to 10 seconds after the cylinders are extended to assure that the wing latches are fully latched.

STORAGE

Proper storage will add to the life of your disk harrow, and assure its being in good condition for the next season. The following procedure is recommended.

Clean off all foreign matter, and thoroughly lubricate the harrow.

Repaint the harrow where the original paint has worn off.

Coat the disk blades and hydraulic cylinder rods with a good rust preventative. If equipped with hydraulic wings, fold wings if possible.

Tighten loose bolts and replace any damaged or missing parts.

Store in a dry place, with the gangs resting on boards to remove weight from the tires.

Carefully rotate each gang and check for worn or damaged blades, bent gang shafts, worn scrapers, damaged bearings and other parts which may need replacing.

Whenever disk blades or bearings are replaced, the gang shaft nuts must be torqued to 800 foot pounds.

MAINTENANCE

1. Keep all bolts tight.
 - A. Check before placing in service.
 - B. Visually inspect all bolts daily.
 - C. Check after first 50 hours or one week's operation.
 - D. Check each season.
2. Keep wheel bearings properly adjusted.
 - A. Check often.
 - B. Clean and repack each season or every 300 hours.
 - C. Replace worn or damaged parts.
 - D. In dis-assembling and re-assembling the wheel hub assemblies, care must be taken to not damage the grease seal lips. In re-assembly, to seat the bearings, carefully tighten the hex nut until the hub drags. Rotate hub to help seat the bearings cups and cones. Re-tighten the hex nut until the hub drags, then back off the hex nut to the nearest slot and secure with cotter pin.
3. Do not run with loose disk blades. Keep gang bolts tight! Tighten gang bolts to 800 ft-lbs of torque.
4. Keep scrapers properly adjusted 1/16" — 1/8" from blades.
5. Grease gang bearings and rockshaft retainer pins every week or 50 hours, at the start of each season, and at the end of each season. Apply with low pressure, low volume hand grease gun. Use a good No. 2 gun grease (Lithium Base). Rotate gangs while greasing for best results.

CAUTION! Use care to prevent damage to seals.

6. Approximately three (3) gallons of hydraulic fluid is required to fill the harrow hydraulic system.

CAUTION! Check the tractor hydraulic fluid level after all cylinder rams have been extended. Add fluid as necessary.

7. Disk Blade, Bearing and Spool Replacement.

A. Remove the bolts that hold the flanges to the bearing riser.

- B. Raise the harrow and roll the disk gang away from the frame.
- C. Remove the gang nut lock plate.
- D. Remove the gang hex nut from the end of the axle shaft.
- E. Slide off the bearing spools, spacers and blades.
- F. Avoid thread damage.
- G. Install new blades.
- H. To replace bearing, remove all flange bolts, clean flanges, check flanges for wear. Check flanges on new bearing. They must be tight enough to hold bearing snug. Discard flanges if not in good condition.
- I. Re-install bearing spools, spacers, and blades.
- J. Install gang shaft hex nut. **IMPORTANT:** Tighten nut to 800 ft-lbs.
- K. Secure gang nut lock plate.
- L. Attach gang to harrow by bolting flanges to bearing riser.
- M. Lubricate bearings (See lubrication section).
- N. Rotate gang to be sure it turns freely. The bearings must be in proper alignment to prevent unnecessary wear. Bearing risers must be properly spaced to prevent bearing preload.

8. Hydraulic Cylinder Repair:

- A. Remove hoses and fittings from cylinder.
- B. Remove cylinder from harrow and clean outside of cylinder.
- C. Disassemble cylinder by rotating cap on rod end of cylinder. Use a spanner wrench to remove cap.
- D. Pull cylinder rod to slip rod, gland and piston out of barrel.
- E. Remove nut on end of rod then slip piston and gland off rod. Use care to avoid damaging rod while removing nut.
- F. Carefully clean and inspect all parts for wear or damage. Small nicks, scratches or blemishes on rod and inside of barrel should be smoothed with fine steel wool or emory cloth.
- G. Remove all "O" rings, seals and "U" cups from piston and gland. Carefully replace all seals with new parts.
- H. Assemble cylinder using care to prevent damage to "O" rings, seals and "U" cups.
- I. Replace cylinder on harrow and attach hoses.

Check cylinder for leaks by applying pressure to butt end of cylinder before attaching hose to rod end of cylinder. Oil will flow from port on rod end of cylinder if piston seals are not sealing properly. Attach hose to rod end of cylinder and apply pressure to check for gland or rod seal leaks.

CAUTION Hydraulic systems are highly pressurized. Escaping hydraulic oil, even an invisible pinhole leak, can penetrate body tissues causing serious injury. Use a piece of wood or cardboard when looking for leaks - never use the hands or other parts of the body.



Relieve hydraulic pressure before disconnecting circuits. When reassembling, make absolutely certain that all connections are tight.

If injured by hydraulic oil escaping under pressure, see a doctor immediately. Serious infection or reaction may occur if medical attention is not given at once.



CAUTION Never clean, adjust or lubricate a disk that is in motion. Disk blades could cause severe injury.

EXTRA EQUIPMENT

WARNING REFLECTORS

Attach the reflector with both red and amber reflective surfaces as near as possible to the extreme left rear part of the harrow. Mount the reflector so the red reflective surface is visible from the rear and the amber surface visible from the front.

Attach the other reflector as near as possible to the extreme right rear part of the harrow with the red reflective surface visible from the rear.



CAUTION When transporting farm implements on public roads after dusk, it is the responsibility of the operator to provide lighting and reflectors on the rear of the implement in accordance with your state law.



CAUTION When transporting machinery over public roads, comply with your local and state laws regarding length, width and lighting.



CAUTION Be sure the area is clear of any personnel before safely driving tractor with disk attached.

DUAL WHEEL ATTACHMENT

A dual wheel attachment is available for harrows with single wheels. This attachment consist of two spindles with hubs. Insert the spindle and hub into the rockshaft and secure with the $3/8 \times 3\frac{1}{2}$ " bolt and locknut as shown in Figure 16.

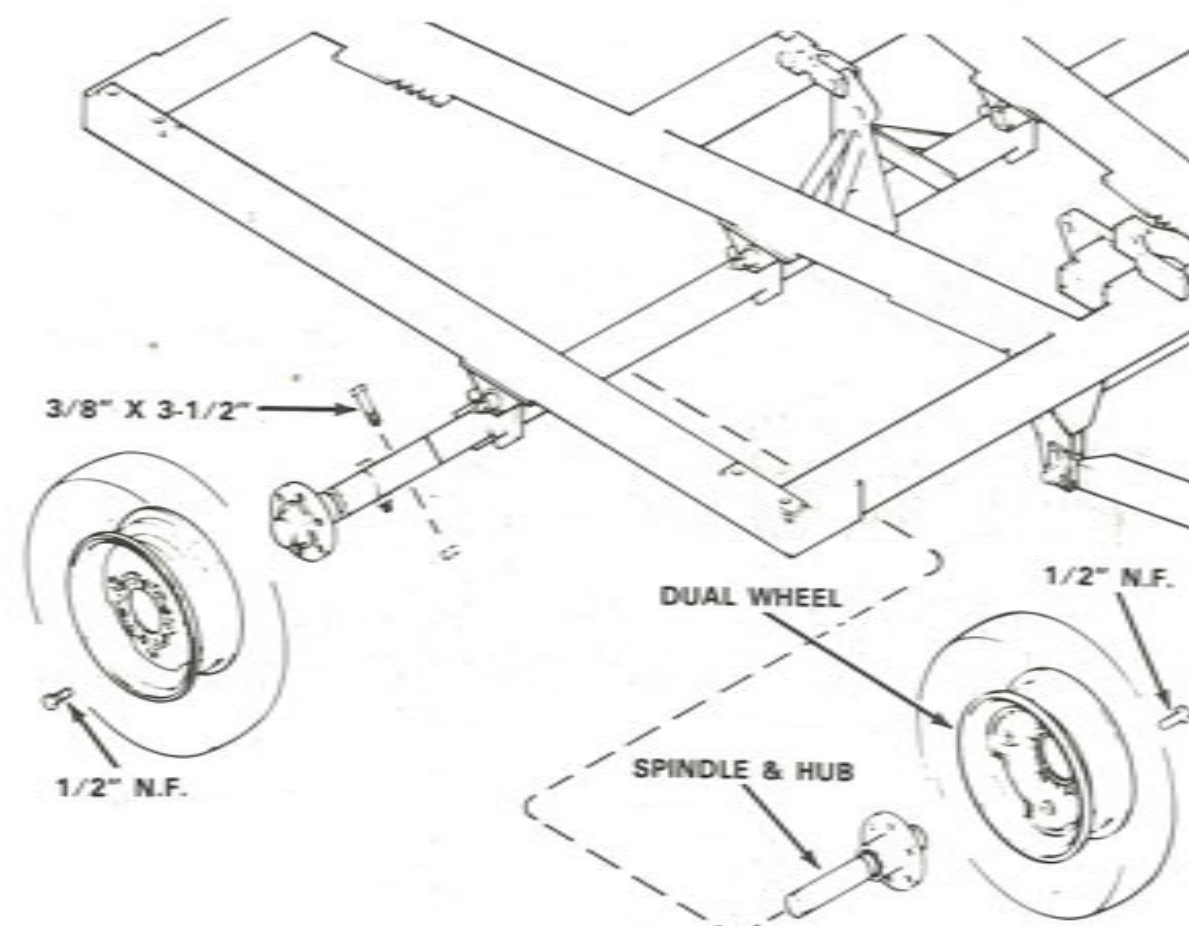


Figure 16

Bolt the wheels to the hubs, and tighten wheel bolts evenly to assure proper alignment of wheels.

NOTE: Be sure to use the same size tires on all four wheels so that main frame remains level.

CENTER TOOTH ATTACHMENT

A center tooth attachment is available to till the band of soil not moved by the front gangs.

Bolt the clamp to the center bar of the main frame, straddling the transport strap, with the four $\frac{5}{8}$ " x 6" carriage bolts and locknuts. When harrow is equipped with 20" blades, use the lower set of mounting holes. When harrow is equipped with 22" blades, use the upper set of mounting holes. Adjusting holes are provided in the clamp for desired depth of spike tooth. Refer to Figure 17.

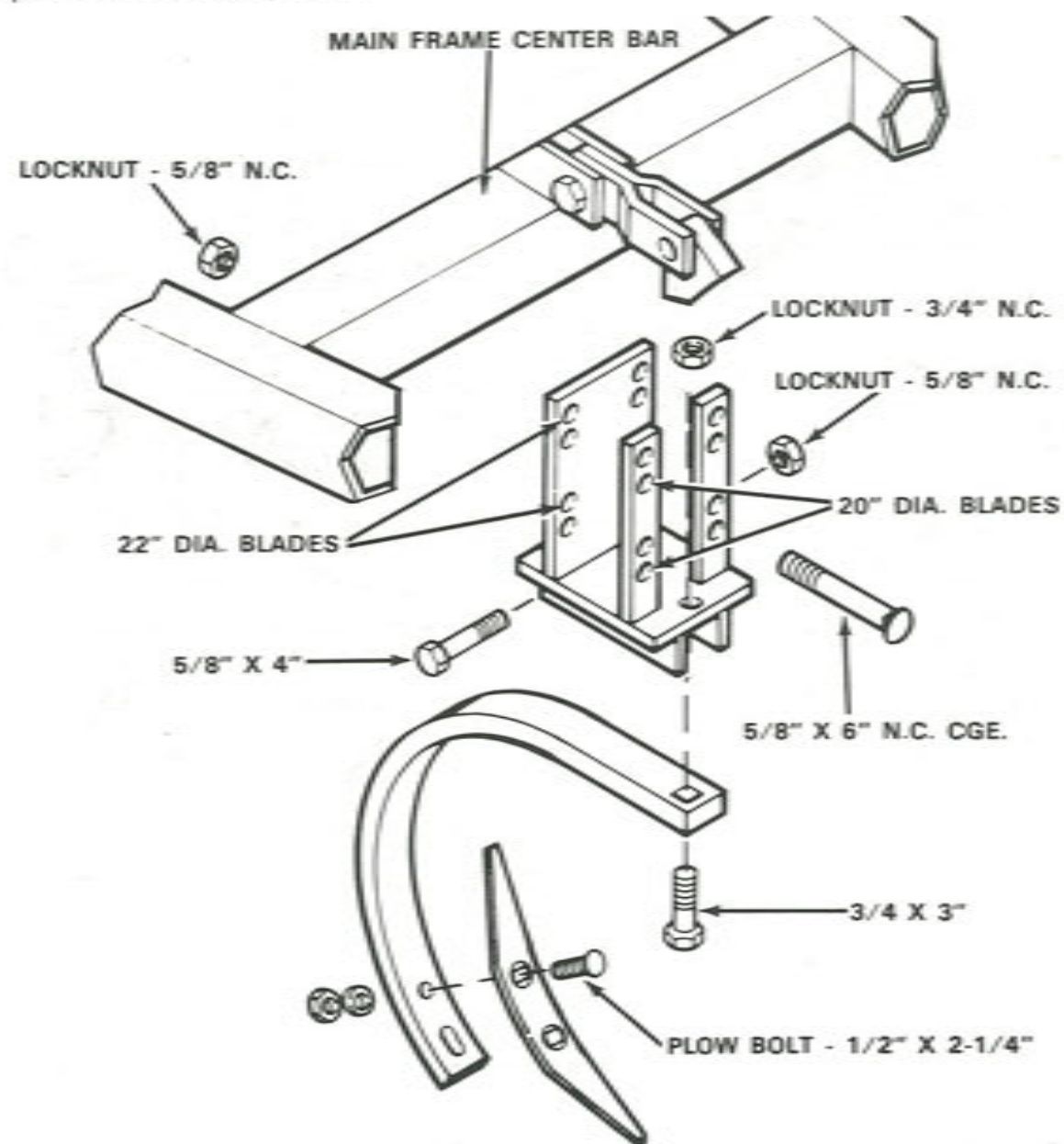


Figure 17

FEATHERING BLADES

Feathering blades with scrapers are available for the rear gangs to fill and level the furrow left by the front gang outer disk blades.

Secure the blade spacer to the outer bumper washer with the four $\frac{1}{2}$ " x 2" bolts and locknuts, as shown in Figure 18. Bolt the scraper to end of scraper bar with the $\frac{1}{2}$ " x 1- $\frac{1}{2}$ " bolt and locknut, maintaining a distance of $\frac{1}{16}$ to $\frac{1}{8}$ of an inch from disk blade.

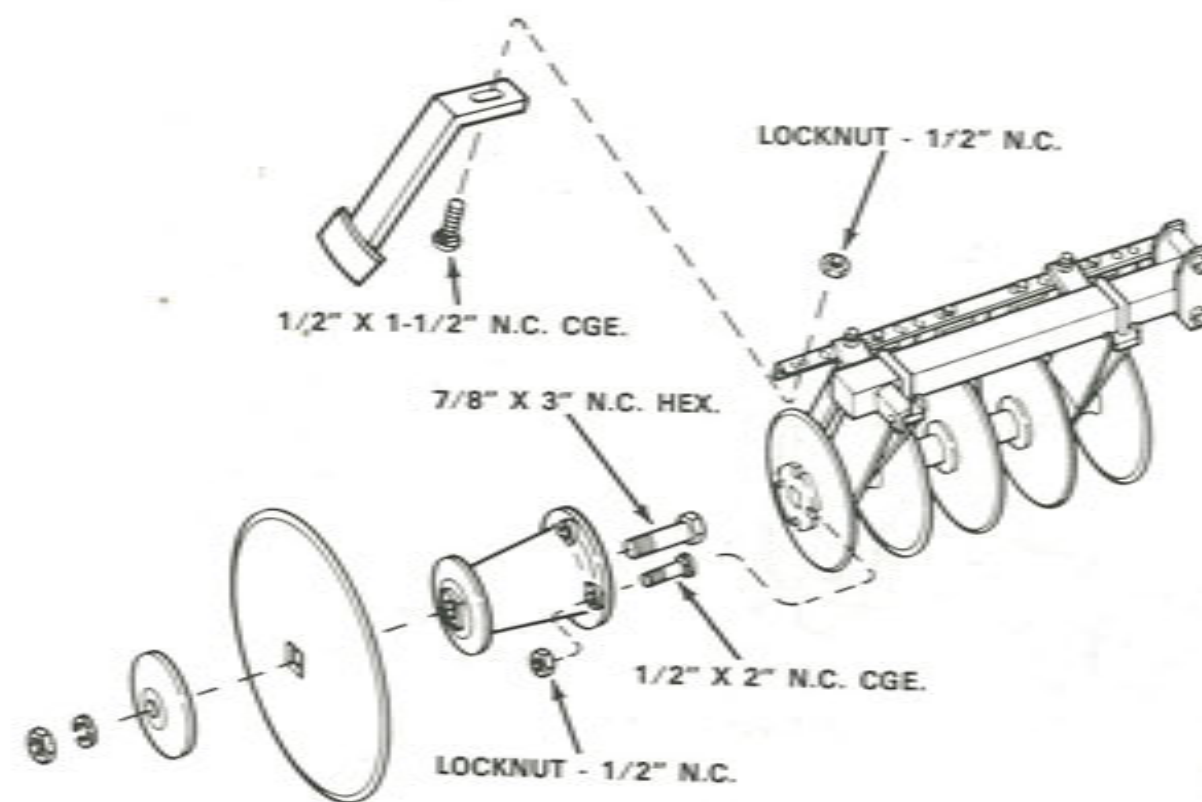


Figure 18

WING GANG DRIVERS (SPRING ASSIST WINGS)

Wing gang drivers are available for all four gangs, to provide positive rotation of wing gangs.

Refer to Figure 19, and bolt the male lock to the outer bumper washer on the main gang with the four $\frac{1}{2}$ " x 2" bolts, flatwashers and locknuts. Tighten bolts evenly to assure proper gang lock alignment.

Remove the wing gang bolt nut and install the female lock and strap, securing with the wing gang bolt nut. **NOTE:** Be sure to torque wing gang bolt to 800 foot pounds.

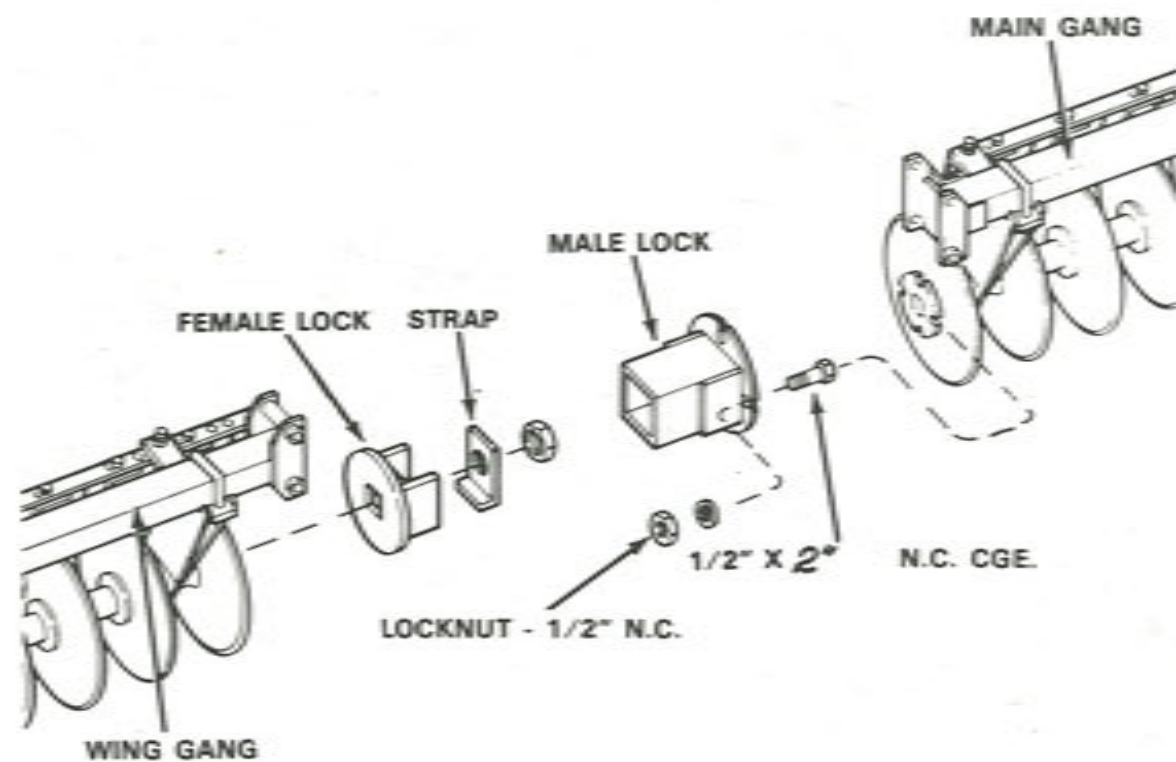


Figure 19

WING GANG DRIVERS (HYDRAULIC WINGS)

Wing gang drivers are available for all four gangs, to provide positive rotation of wing gangs.

Refer to Figure 20, and bolt the lock and end washer to the bumper washer on each gang with the (4) $\frac{1}{2}$ " x 2" bolts, flatwashers and locknuts. Tighten bolts evenly to assure proper gang lock alignment.

Remove the gang bolt nut from other gangs and install the lock and strap securing with the gang bolt nut. **NOTE:** Be sure to torque gang bolt nut to 800 foot pounds.

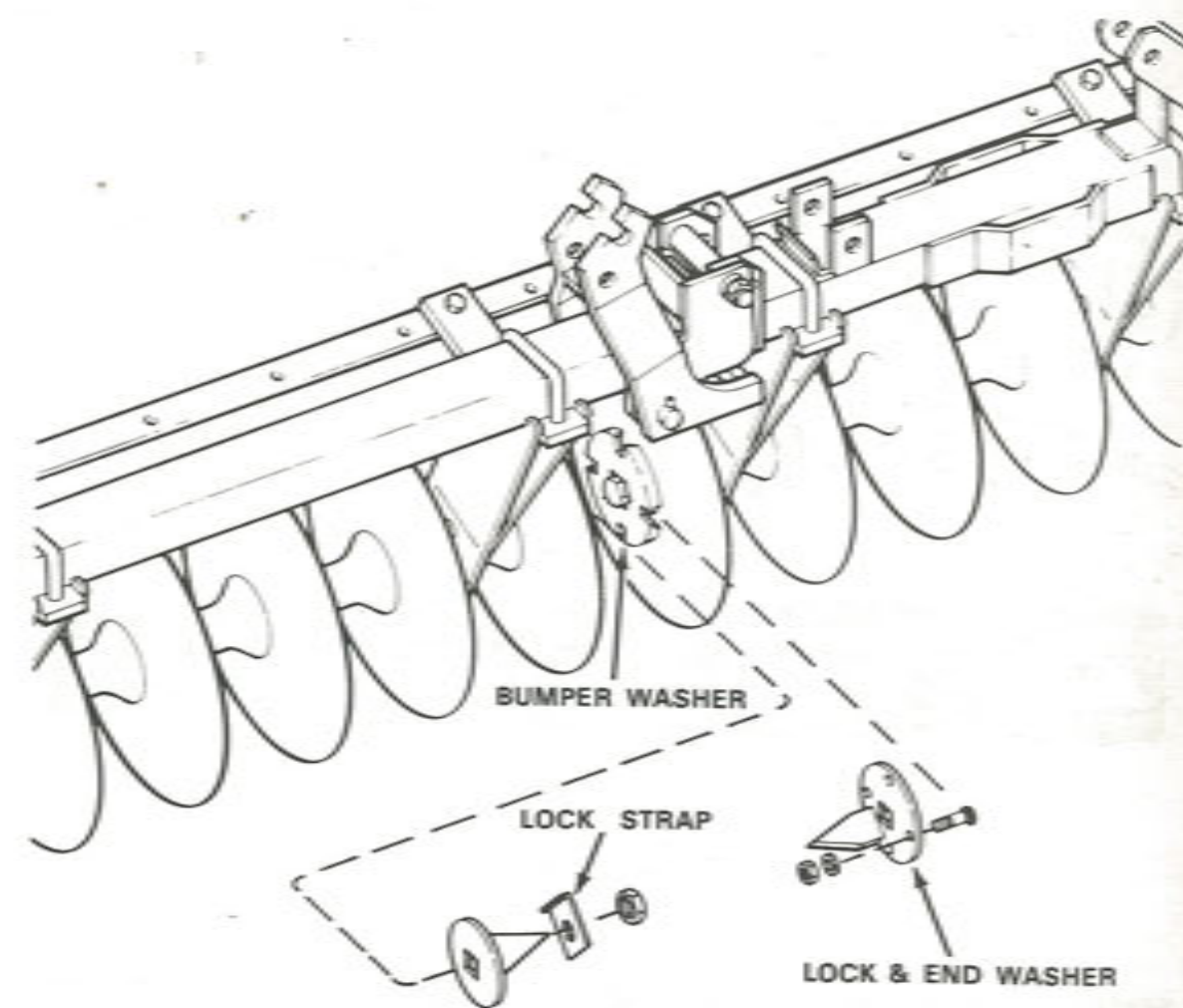
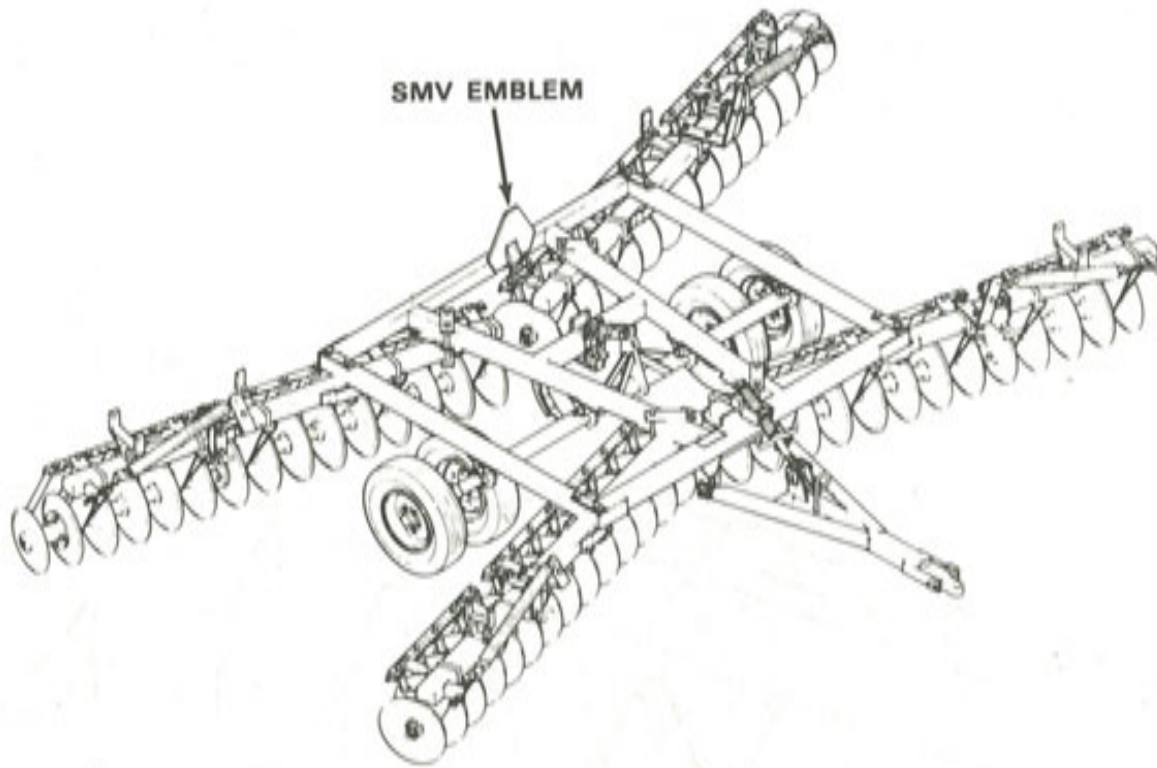


Figure 20

SMV EMBLEM

The SMV (Slow Moving Vehicle) Emblem is a recommended attachment that should be added to your harrow. The SMV Emblem can be purchased from your Authorized AMCO Dealer. Check your state and local laws regarding the placement and use of the SMV Emblem.



CAUTION When trailing the disk over public roads, the SMV Emblem must be used, for protection of tractor and motor vehicle operators.

WARNING LAMP



CAUTION When transporting farm implements on public roads after dusk, it is the responsibility of the operator to provide lighting and reflectors on the rear of the implement in accordance with your state law.

A warning lamp to be mounted on the extreme left hand rear of the disk harrow is available at your local AMCO Dealer.