



PARTS CATALOG

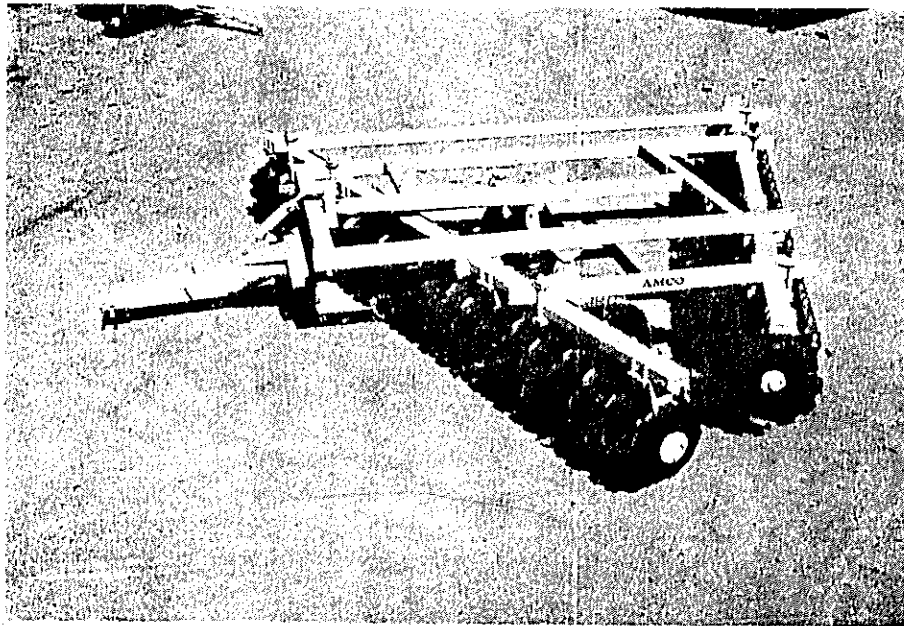
FOR

NUMBERED SERIES

MODELS 48, 148 AND 248

MODELS 85, 185 AND 285

WHEEL TYPE OFFSET DISK HARROWS



AMCO MANUFACTURING, INC.

Highway 3 Bypass — P. O. Box 1107 — (601) 746-4464
Yazoo City, Mississippi 39194 U.S.A.

PRINTED IN U.S.A.

GENERAL SPECIFICATIONS :

AXLES:	1 1/2" Square	TONGUE JACK:	Standard
SCRAPERS:	High Carbon Blades on 1/2 x 2 Shank	GANG WRENCHES:	2 Standard
TONGUE:	Adjustable angle, 81" long	TRANSPORT WIDTH:	Width of cut plus 12" plus 12" for feathering blade
CLEVIS:	Reversible, ductile iron		
CUTTING ANGLE:	15° to 23°		

48 & 85 SERIES

CUTTING WIDTH:	8'4" to 20'10"
BEARINGS:	1 1/2" square bore, regreasable, flange mounted
SPACING:	9"
BLADES:	22 x 3/16 Plain or C. O.
WEIGHT:	347 - 398 lbs. per foot, 143 - 193 lbs. per blade

148 & 185 SERIES

CUTTING WIDTH:	8'7" to 19'6"
BEARINGS:	1 1/2" square bore, regreasable, toggle mounted, Protect-O-Shield
SPACING:	9", 10 1/2" or 9" front and 10 1/2" rear
BLADES:	24 x 3/16 Plain or C. O. 24 x 1/4 Plain or C. O. 26 x 1/4 Plain or C. O. 10 1/2" Spacing Only
WEIGHT:	359 - 434 lbs. per foot, 139 - 188 lbs. per blade

248 & 285 SERIES

CUTTING WIDTH:	8'7" to 19'6"
BEARINGS:	2 1/4" bore, regreasable, toggle mounted, Protect-O-Shield
SPACING:	9", 10 1/2" or 9" front and 10 1/2" rear
BLADES:	24 x 3/16 Plain or C. O. 24 x 1/4 Plain or C. O. 26 x 1/4 Plain or C. O. 10 1/2" Spacing Only
WEIGHT:	370 - 458 lbs. per foot, 143 - 193 lbs. per blade

The total number of blades required for each model harrow is found in the Gang Location Table at the end of the catalogue. To avoid repetition, some sections of this catalog do not list the number of parts required for the 248 and 285 Series. If they are not listed, they would require the same number of parts as the corresponding model in the 148 or 185 Series. For example, a 248-009 would require the same number of parts as a 148-009.

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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.

AMCO OFFSET DISK HARROW

PULL TONGUE

Ref. No.	Part No.	Description	No. Required
1	16001	Pull Clevis (Cast).....	1
	0434	*Pull Clevis (Double Pull Ears) (Yoke Type	
	0550	*Pull Clevis (Single Pull Ear) (Bar Type)	
	9204	*Bushing 1 3/4 O.D. x 3/16 wt. 5 7/8 Long	
	9205	*Bushing 1 5/16 O.D. x 1/4 wt. 7 1/2 Long	
	10865	*Hex Bolt 3/4 x 9 NC, PL	
	10866	*Flat Washer 3/4 PL	
	10300	*Lock Nut 3/4 NC, PL	
2	20245	Clevis Pin.....	1
3	11360	Roll Pin 1/2 x 3.....	1
4	10509	Lock Nut 3/8 NC, PL.....	1
5	11261	Parking Jack.....	1
	10883	Tongue Jack	
	10912	*Snap Ring	
6	10866	Flat Washer 3/4 PL.....	4
7	10300	Lock Nut 3/4 NC, PL.....	2
8	0435A	Pull Tongue.....	1
9	10867	Hex Bolt 1 1/4 x 6 1/2 NC, PL.....	2
10	10397	Lock Nut 1 1/4 NC, PL.....	2
11	0436	Cross Tongue.....	1
12	9206	Bushing 1 5/16 O.D. x 1/4 wt. 5 3/4 Long.....	2
13	10696	Hex Bolt 3/4 x 7 NC, PL.....	2
14	100061	Hose Holder.....	1
15	10075	Cotter Pin 1/4 x 1 1/2.....	1
16	081	Spring Housing.....	1
17	1166	Cap.....	1
18	11081	Grease Fitting 5/16 Drive In.....	1
19	1167	Piston Rod.....	1
20	5403	Rod Stud - Threaded.....	1
21	10460	Spring.....	2
23	10113	Hex Bolt 3/4 x 4 NC, PL, GR5.....	1
24	10320	Hex Bolt 3/4 x 3 1/2 NC, PL, GR5.....	1
25	100134	Nut Wrench (Fits Hex Nut 1 1/2").....	1
26	100136	Nut Wrench (Fits Hex Nuts 1 1/2" & 1 3/8").....	1

NOTE: Parts identified with an (*) are not shown. These are used on older style Pull Tongues. Please check your harrow to be sure which parts you need before ordering

Note: Safety chains are offered as optional equipment at your AMCO dealer.

48" MAIN FRAME

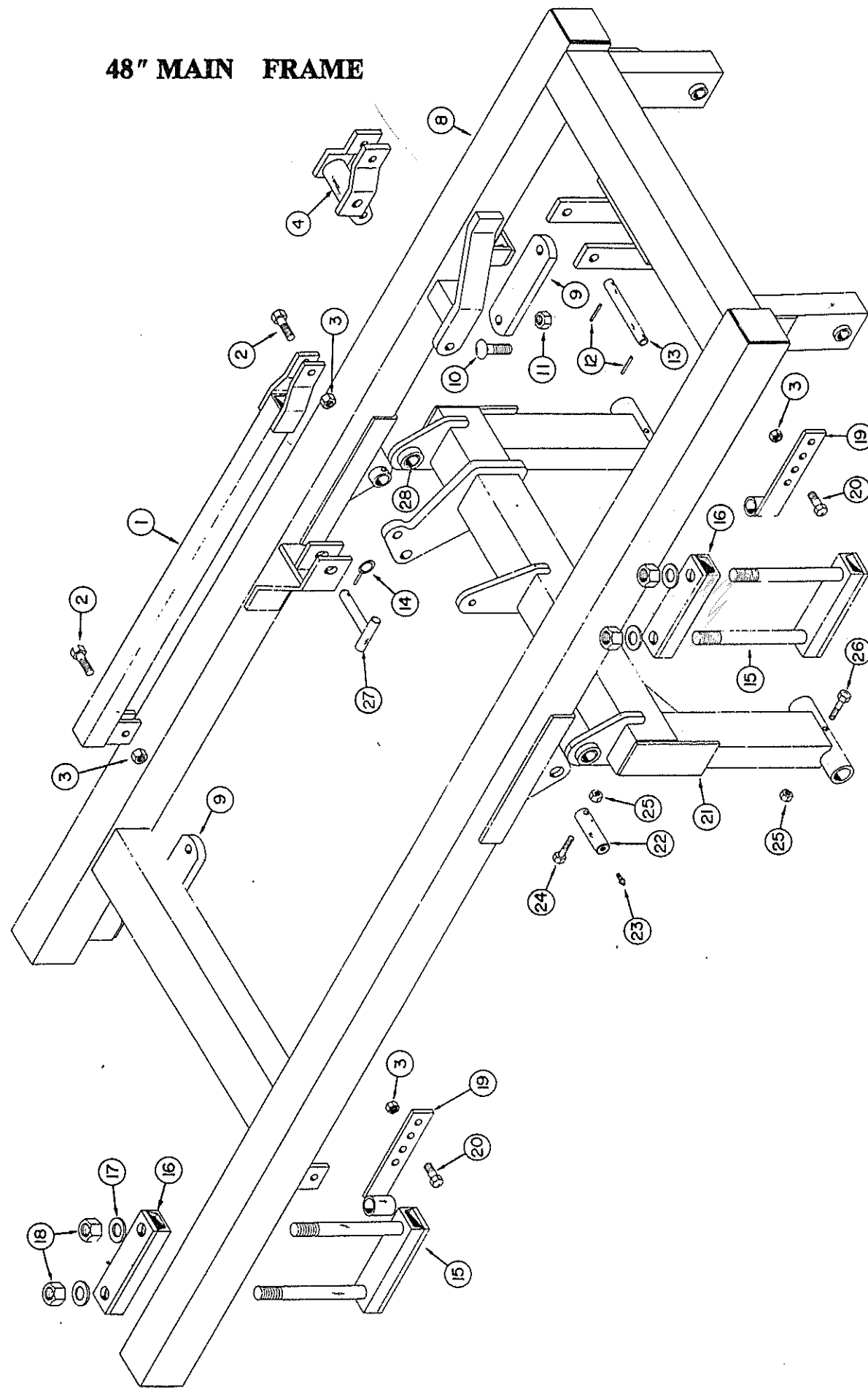


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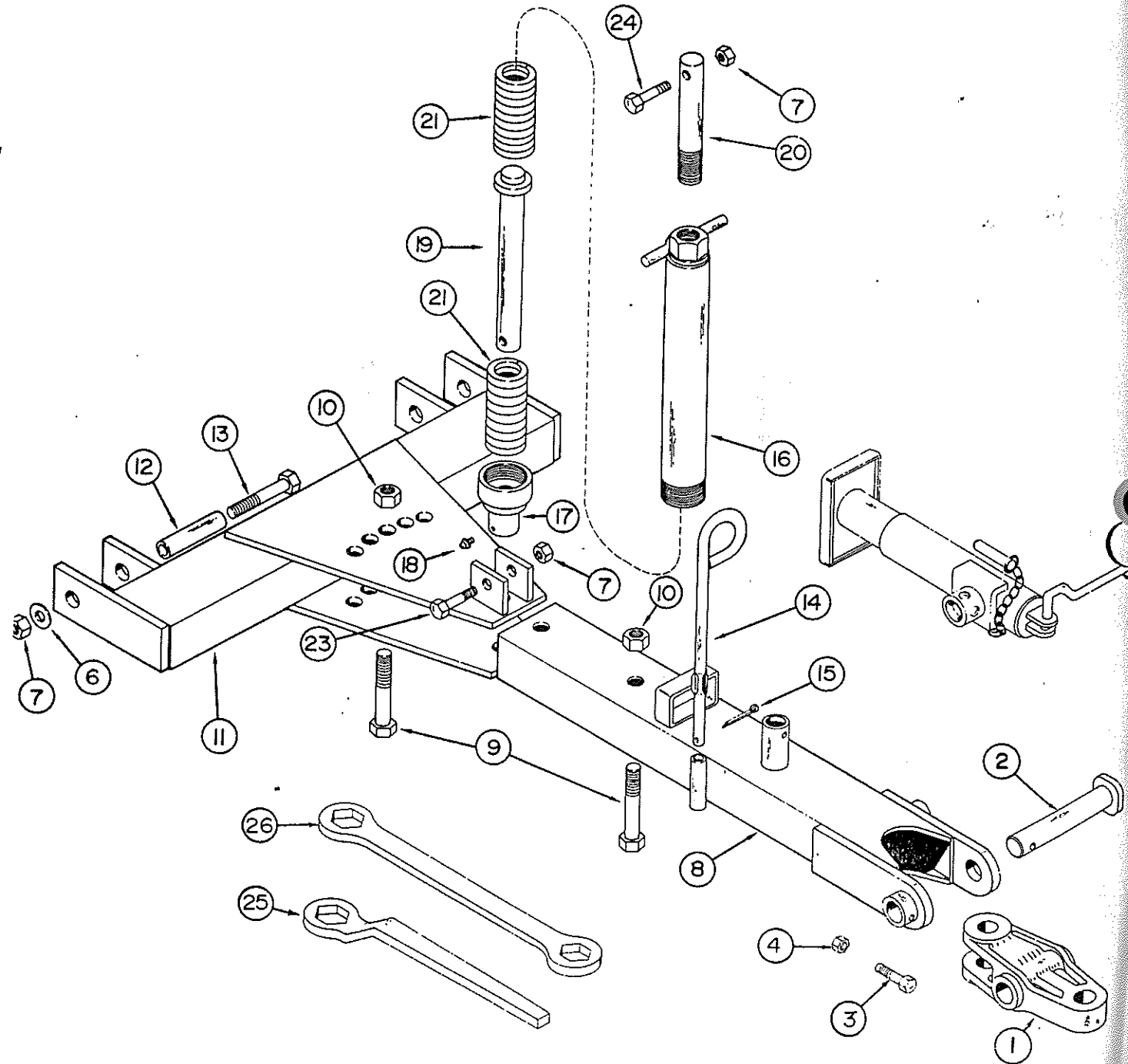
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 48" MAIN FRAME & ROCKSHAFT.....
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 GANG & FRAME 148 & 185 SERIES..... 1
 GANG & FRAME 248 & 285 SERIES..... 2
 SCRAPERS & SCRAPER BARS 48 & 85 SERIES..... 2
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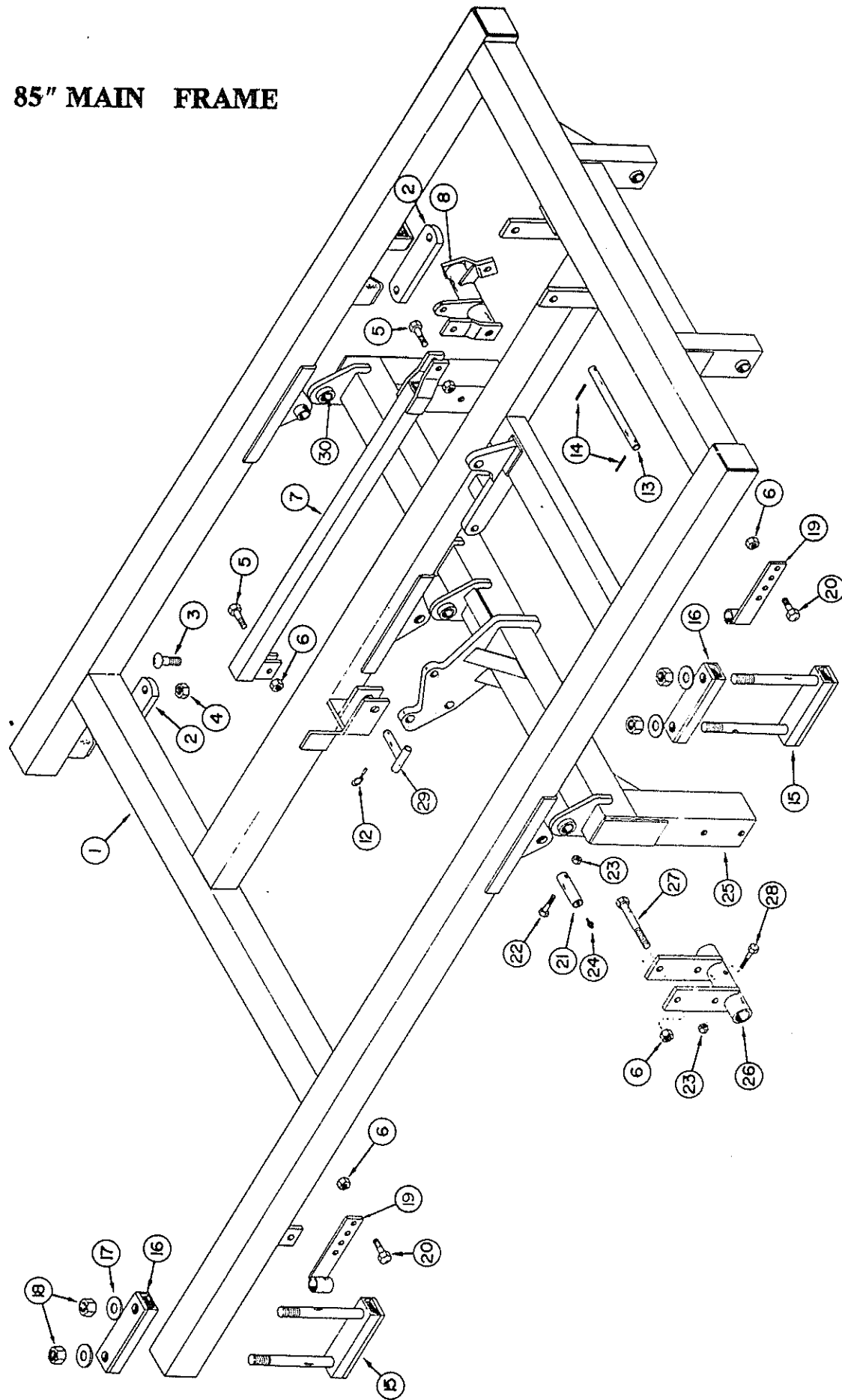
PULL TONGUE

AMCO 48, 148, 248 SERIES
48" FRAME AND ROCKSHAFT



Ref. No.	Part No.	Description	No. Required
1	0474A	Tongue Control Rod.....	1
2	10678	Hex Bolt 3/4 x 2 1/2 - NC, PL, GR5.....	2
3	10300	Lock Nut 3/4 - NC, PLT.....	4
4	0473A	Pivot Bracket.....	1
8	0475	Main Frame.....	1
9	9208	Gang Clamp Plate 1" C1045 3 1/2 x 12 1/2.....	2
10	11130	Carriage Bolt 1 x 3 - NC, PL, GR5.....	4
11	10868	Lock Nut 1 - NC, PL.....	4
12	10910	Roll Pin 5/16 x 2 1/4.....	2
13	9349	Pivot Pin 1 Dia. 8 3/8 Long.....	1
14	10317	Klik Pin 1/4".....	1
15	0456A	Gang Frame Clamp-Male.....	2
16	0455A	Gang Frame Clamp-Female.....	2
17	10872	Cut Washer 1 3/8 PLT.....	4
18	10873	Hex Nut 1 3/8 - NC, PLT.....	4
19	0870	Gang Angle Set Bracket.....	2
20	10670	Hex Bolt 3/4 x 2 - NC, PL, GR5.....	2
21	0703	Rockshaft.....	1
22	9209	Retainer Pin - 1 1/2 Dia. 5 Long.....	2
23	11081	Grease Fitting - 5/16 Straight — Drive-In.....	2
24	10765	Hex Bolt 3/8 x 2 1/2 - NC, PL, GR5.....	2
25	10509	Lock Nut 3/8 - NC, PL.....	4
26	10871	Hex Bolt 3/8 x 3 NC, PLT, GR5.....	2
27	0871	Transport Pin.....	1
28	9270	Bushing - Bronze 1 3/4 O.D. x 1 1/2 I.D. x 2 Long.....	2

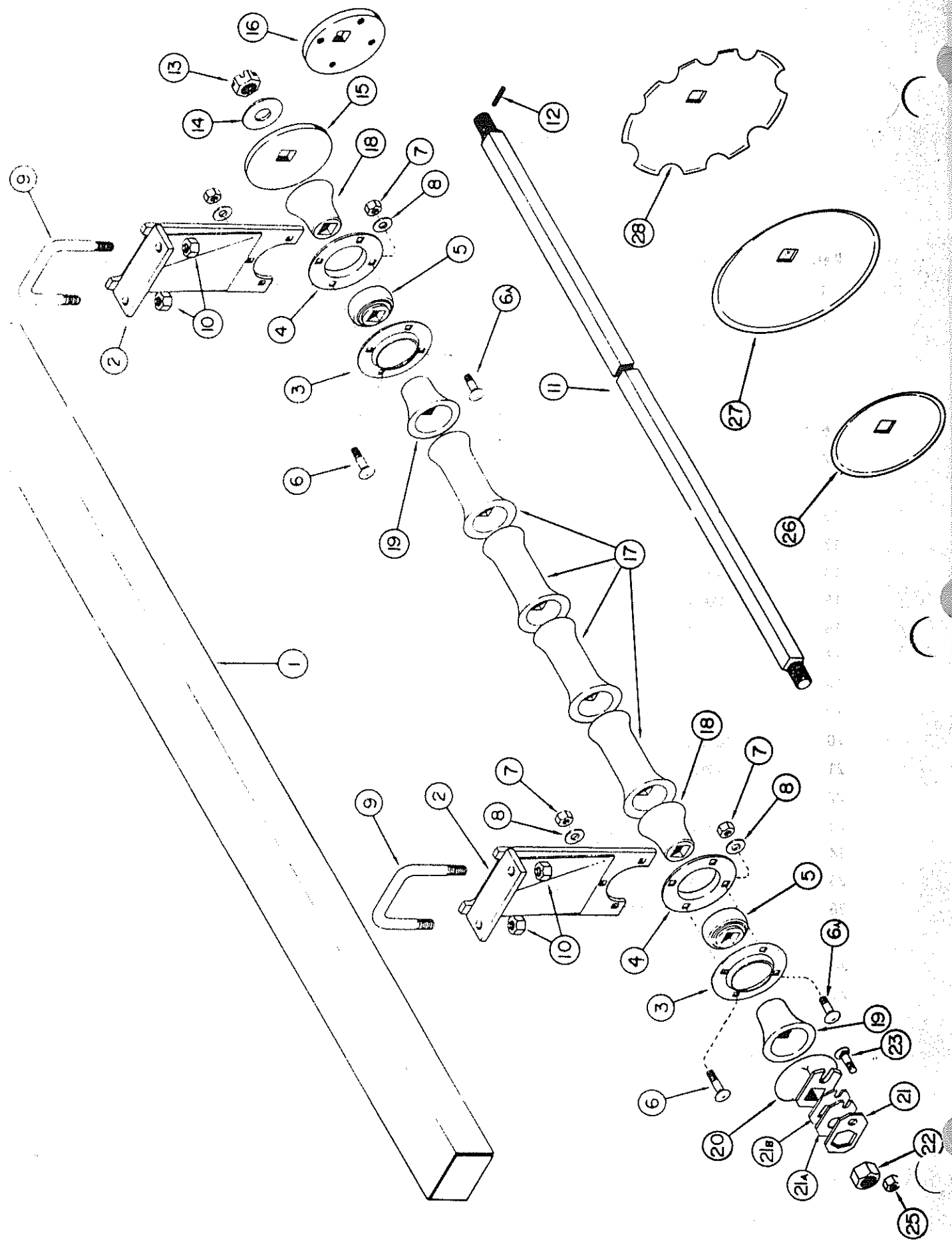
85" MAIN FRAME



AMCO 85, 185, 285, SERIES
85" FRAME AND ROCKSHAFT

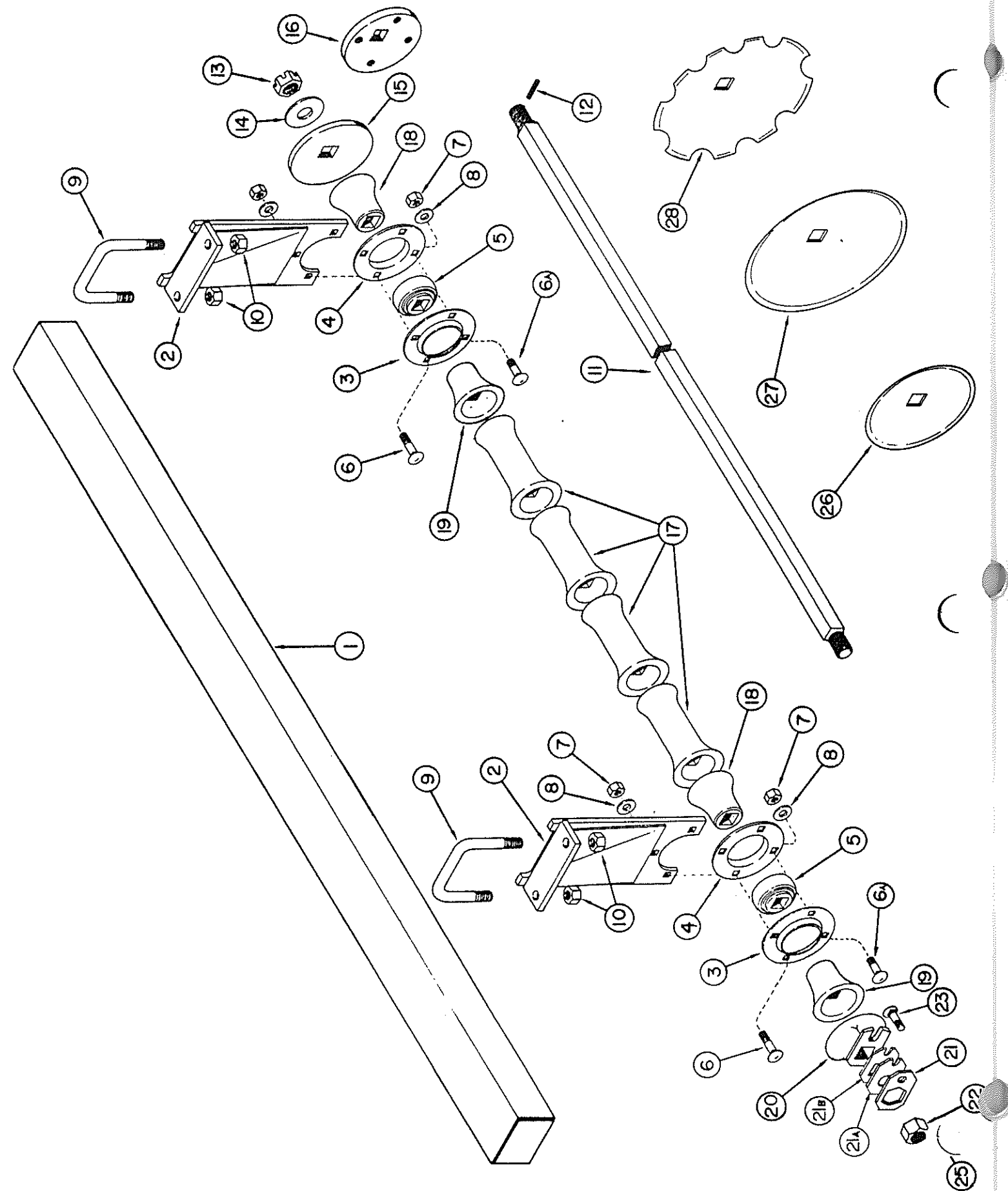
Ref. No.	Part No.	Description	No. Required
1	0439	Main Frame...	1
2	9208	Gang Clamp Plate 1" C-1045 3 1/2 x 12 1/2	1
3	11130	Carriage Bolt 1 x 3 - NC, PL, GR5	1
4	10868	Lock Nut 1 - NC, PL	1
5	10678	Hex bolt 3/4 x 2 1/2 - NC, PL, GR5	1
6	10300	Lock Nut 3/4 - NC, PL T	1
7	0438-A	Tongue Control Rod	1
8	0437-A	Pivot Bracket	1
12	10317	Klik-Pin 1/4"	1
13	9207	Pivot Pin 1" Dia 14 3/8 Long	1
14	10910	Roll Pin 5/16 x 2 1/4	1
15	0456-A	Gang Frame Clamp - Male	1
16	0455-A	Gang Frame Clamp - Female	1
17	10872	Cut Washer 1 3/8 PL T	1
18	10873	Hex Nut 1 3/8 - NC, PL T	1
19	0870	Gang Angle Set Bracket	1
20	10670	Hex Bolt 3/4 x 2 - NC, PL, GR5	1
21	9209	Retainer Pin 1 1/2 Dia 5 Long	1
22	10765	Hex Bolt 3/8 x 2 1/2 - NC, PL, GR5	1
23	10509	Lock Nut 3/8 - NC, PL	1
24	11081	Grease Fitting - 5/16 Straight - Drive In	1
25	0704	Rockshaft	1
26	0465	Wheel Support	1
27	10697	Hex Head Machine Bolt 3/4 x 7 1/2 - NC, PL	1
28	10871	Machine Bolt 3/8 x 3 - NC, PL, GR5	1
29	0871	Transport Pin	1
30	9270	Bushing - Bronze 1 3/4 O.D. x 1 1/2 I.D. x 2 Long	1

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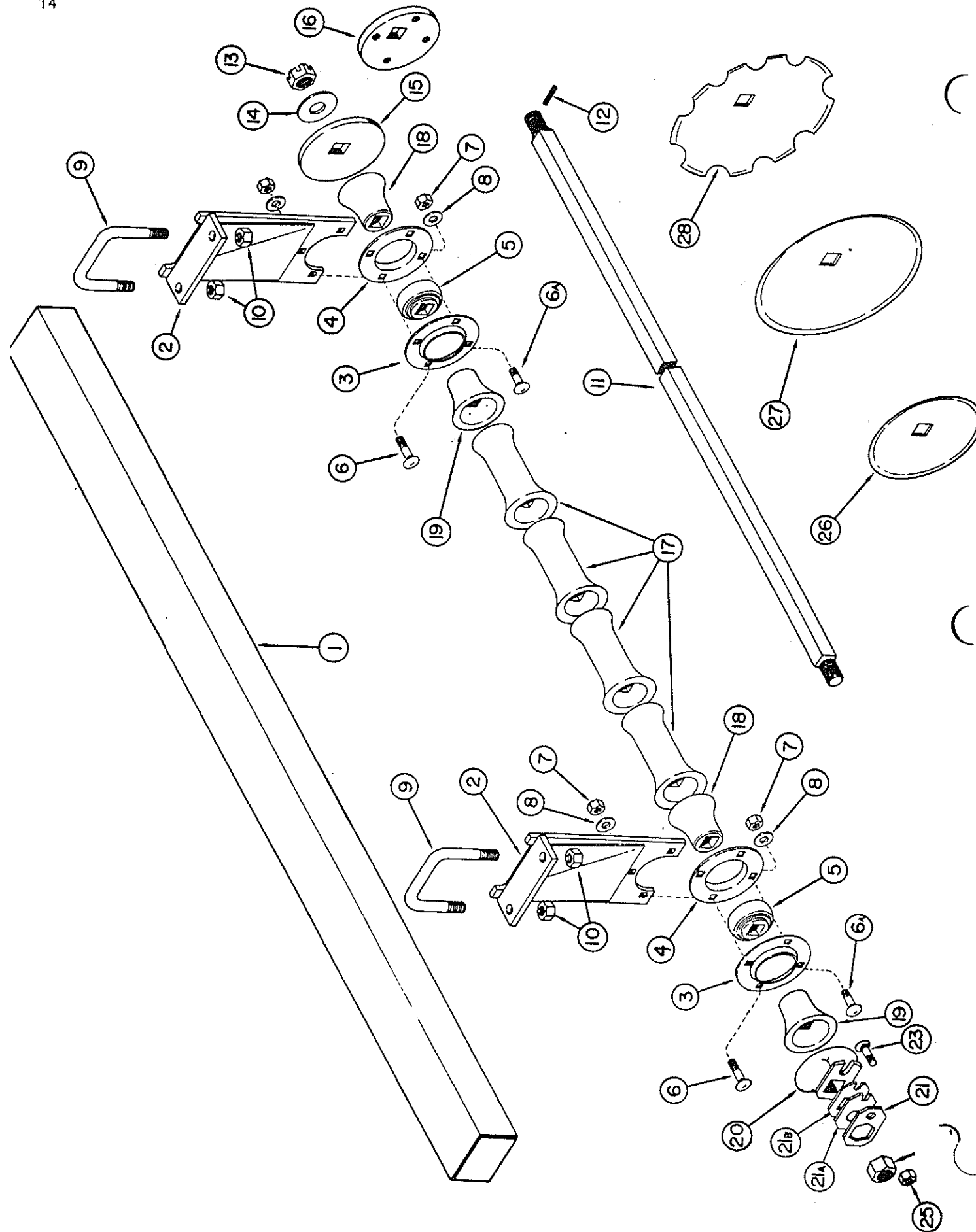
AMCO OFFSET DISK HARROW GANG & FRAME 48 & 85 SERIES

Ref. No.	Part No.	Description	No. Required
1	0503	Gang Frame 102" 48-005.....	2
1	0504	Gang Frame 108" 48-009.....	2
1	0505	Gang Frame 117" 48-013.....	2
1	0506	Gang Frame 126" 48-017.....	2
1	0508	Gang Frame 144" 48-025.....	2
1	0525	Gang Frame 163" 85-001.....	2
1	0472	Gang Frame 172" 85-005.....	2
1	0520	Gang Frame 181" 85-009.....	2
1	0492	Gang Frame 200" 85-017.....	2
1	0494	Gang Frame 219" 85-025.....	2
1	0517	Gang Frame 238" 85-033.....	2
1	0872	Gang Frame 257" 85-041.....	2
2	0471	Bearing Riser	
		48-005, 009, 013, 017.....	8
		48-025.....	10
		85-001, 005, 009.....	12
		85-017.....	13
		85-025, 033, 041.....	16
	FB-09-0006	*Bearing & Housing Complete	
3	10904	Flangette 100MSA (1 Per Bearing Riser).....	A.R.
4	10905	*Flangette 100MSB (1 Per Bearing Riser).....	A.R.
5	10906	*Bearing (1 Per Bearing Riser).....	A.R.
6	10870	Carriage Bolt 1/2 x 1 1/2 NC, PL (3 Per Bearing).....	A.R.
6A	10860	*Carriage Bolt 1/2 x 1 NC, PL (1 Per Bearing).....	A.R.
7	10395	*Lock Nut 1/2 NC, PL (4 Per Bearing).....	A.R.



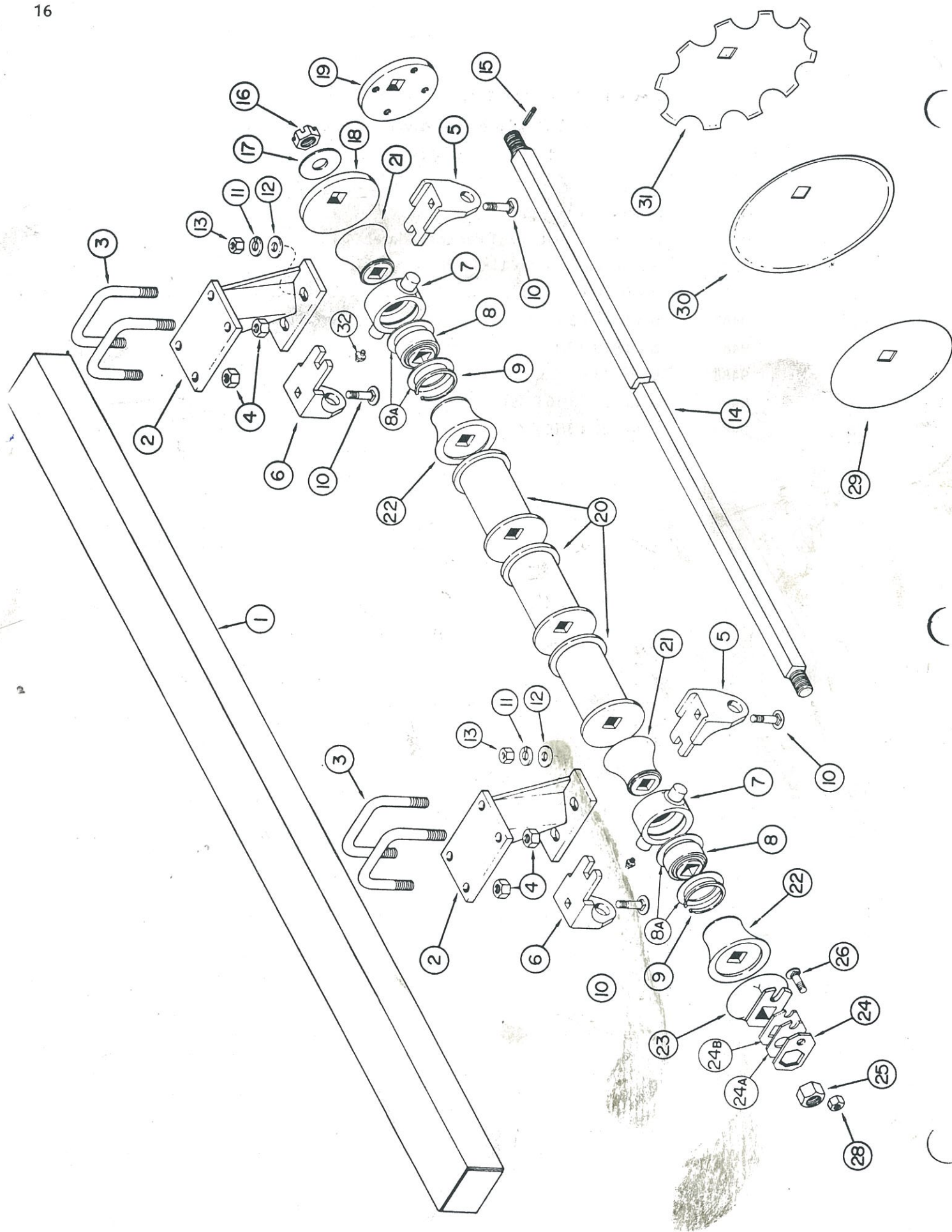
**AMCO OFFSET DISK HARROW
GANG & FRAME
48 & 85 SERIES
(CONTINUED)**

Ref. No.	Part No.	Description	No. Required
8	10832	Flat Washer 1/2 PL (4 Per Bearing).....	A.R.
9	9212	"U" Bolt 3/4" (1 Per Bearing Riser).....	A.R.
10	10300	Lock Nut 3/4 NC, PL (2 Per "U" Bolt).....	A.R.
11	9441	Gang Bolt 42 3/8" 5 Blade 48-005, 009.....	2
11	9442	Gang Bolt 52 3/4" 6 Blade 48-005, 013, 017.....	2
11	9443	Gang Bolt 61 15/16 7 Blade 48-009, 013, 025, 85-017, 025, 033, 041.....	2
11	9444	Gang Bolt 71 1/8" 85-001, 017.....	1
		48-017, 85-025.....	2
11	9445	Gang Bolt 80 5/16 9 Blade 85-009.....	1
		48-025, 85-001, 005, 025, 033.....	2
11	9446	Gang Bolt 89 1/2" 10 Blade 85-001.....	1
		85-005, 009, 033, 041.....	2
11	9447	Gang Bolt 98 11/16" 11 Blade 85-009.....	1
		85-017, 041.....	2
12	10910	Roll Pin 5/16 x 2 1/4 (1 Per Gang Bolt).....	A.R.
13	10226	Hex Nut 1 1/2 NF, Slotted (1 Per Gang Bolt).....	A.R.
14	10872	Flat Washer 1 3/8 PL (1 Per Gang Bolt).....	A.R.
15	2404	Bumper Washer (1 Per Gang Bolt).....	A.R.
16	100738A	Bumper Washer (Drilled & Tapped) (Right Rear Gang Only).....	1
17	9272A	Spacer Spool.....	A.R.
18	9350	End Bell - Small (1 Per Bearing).....	A.R.
19	9351	End Bell - Large (1 Per Bearing).....	A.R.
20	1222A	End Washer (1 Per Gang Bolt).....	A.R.
21	5622A	Lock Plate (1 Per Gang Bolt).....	A.R.
21A	100098	Bearing Plate (1 Per Gang Bolt).....	A.R.
21B	100099	Spacer Plate (1 Per Gang Bolt).....	A.R.
22	10489	Hex Nut 1 1/2 NF (1 Per Gang Bolt).....	A.R.
23	10870	Carriage Bolt 1/2 x 1 1/2 NC, PL (1 Per Lock Plate).....	A.R.



AMCO OFFSET DISK HARROW GANG & FRAME 48 & 85 SERIES

Ref. No.	Part No.	Description	No. Required
25	10395	Lock Nut 1/2 NC, PL (1 Per Lock Plate).....	A.R.
26	3278	Blade - Backup 10 x 11 Ga. Pl.....	1
27	9481	Blade 20 x 3/16 PL.....	2
27	9482	Blade 18 x 8 Ga. Pl.....	1
28	9487	Blade 20 x 3/16 C.O.....	2
28	9488	Blade 18 x 8 Ga. C. O.....	1
27	9480	Blade 22 x 3/16 PL.....	A.R.
28	9484	Blade 22 x 3/16 C.O.....	A.R.

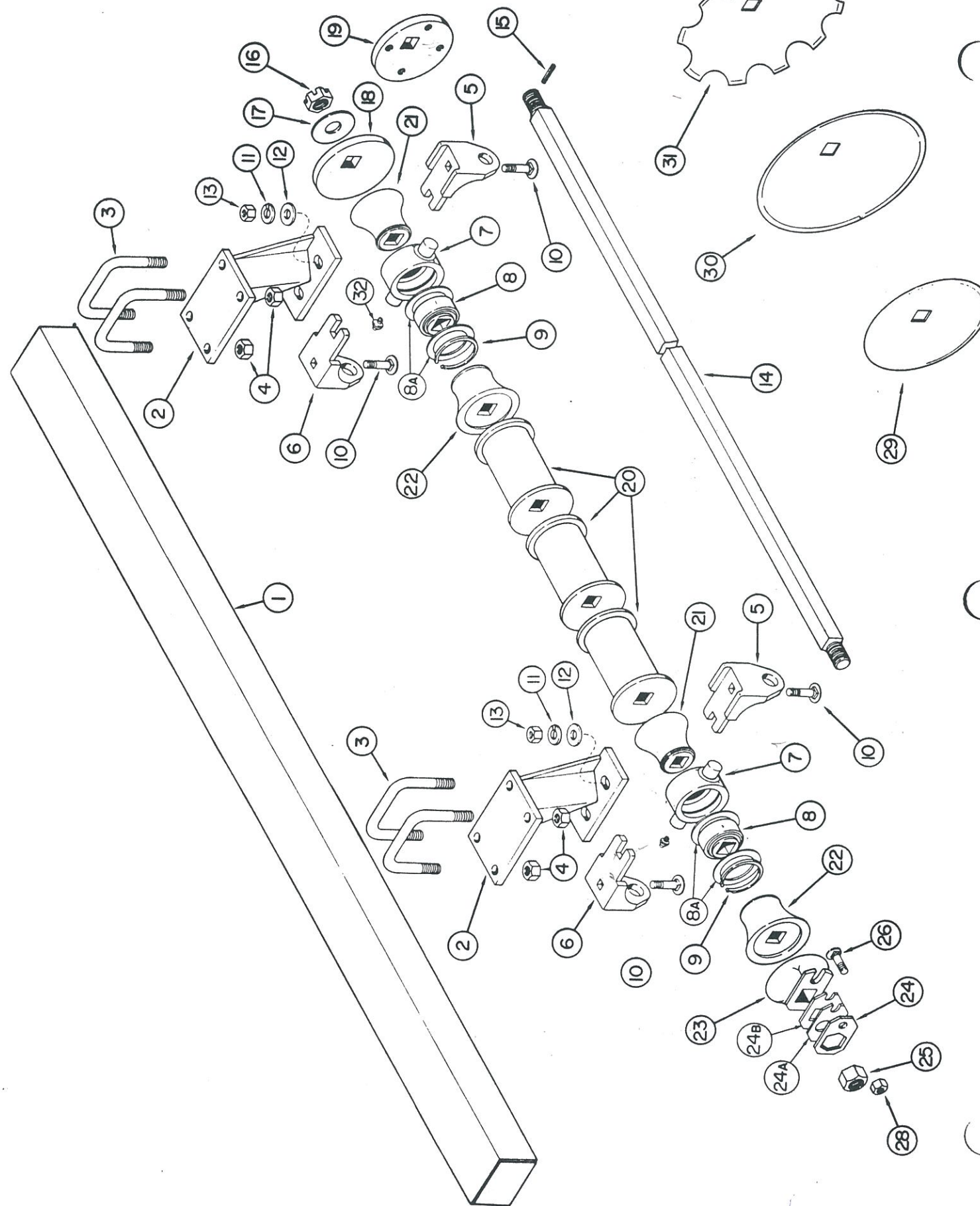


AMCO OFFSET DISK HARROW GANG & FRAME 148 & 185 SERIES

Ref. No.	Part No.	Description	No. Required
1	0503	Gang Frame - 102" 148-001, 004, 006.	2
1	0504	Gang Frame - 108" 148-010.	2
1	0505	Gang Frame - 117" 148-014.	2
1	0506	Gang Frame - 126" 148-009, 012, 018.	2
1	0508	Gang Frame - 144" 148-017, 020, 026.	2
1	0463	Gang Frame - 155" 185-009, 012, 018.	2
1	0464	Gang Frame - 175" 185-017, 020, 026.	2
1	0487	Gang Frame - 165" 185-013, 022.	2
1	0489	Gang Frame - 192" 185-034.	2
1	0492	Gang Frame - 200" 185-025, 028, 038.	2
1	0494	Gang Frame - 219" 185-033, 036, 046.	2
2	0458	Bearing Riser 148-001.	6
		148-004.	7
		148-006, 009, 010, 012, 014, 017, 020, 026, 108.	8
		185-009, 013.	9
		185-012.	10
		185-017, 018, 020, 022, 025, 026, 028.	11
		185-033, 034, 036, 038, 046.	12
3	9212	"U" Bolt 3/4" (2 Per Bearing Riser).	A.R.
4	10300	Lock Nut 3/4 NC, PL (2 Per "U" Bolt).	A.R.
5	6397	Bearing Housing Bracket - Front Half (1 Per Bearing Riser).	A.R.
6	6398	Bearing Housing Bracket - Rear Half (1 Per Bearing Riser).	A.R.
7	16003	*Bearing Housing (1 Per Bearing Riser).	A.R.
	FB-09-0013	*Bearing & Housing - Complete	A.R.
8	C11071	*Bearing (1 Per Bearing Riser).	A.R.
8A	100104	*Washer 100mm (2 Per Bearing).	A.R.
9	11064	*Retaining Ring (1 Per Bearing).	A.R.
10	10579	Carriage bolt 3/4 x 3 NF, GR5 (2 Per Bearing).	A.R.
11	10061	Lock Washer 3/4" (2 Per Bearing).	A.R.
12	10866	Cut Washer 3/4" (2 Per Bearing).	A.R.
13	10585	Hex Nut 3/4 NF (2 Per Bearing).	A.R.
14	9441	Gang Bolt 43 3/8" 5 Blade	
		148-004, 185-020, 022, 038.	1
		148-006, 185-012, 018.	2
14	9442	Gang Bolt 52 3/4" 6 Blades	
		148-004, 185-018, 020, 026.	1
		148-006, 014.	2
		148-010.	4
14	9443	Gang Bolt 61 15/16" 7 Blade	
		185-012, 022, 036, 046.	1
		148-012, 014, 185-018, 028, 038.	2
		185-034.	3
		148-018.	4
14	9444	Gang Bolt 71 1/8" 8 Blade	
		148-012, 185-009, 012, 013, 020, 022, 025, 028, 033, 036, 038, 046.	1
		148-009, 020, 185-026.	2
		148-026.	4

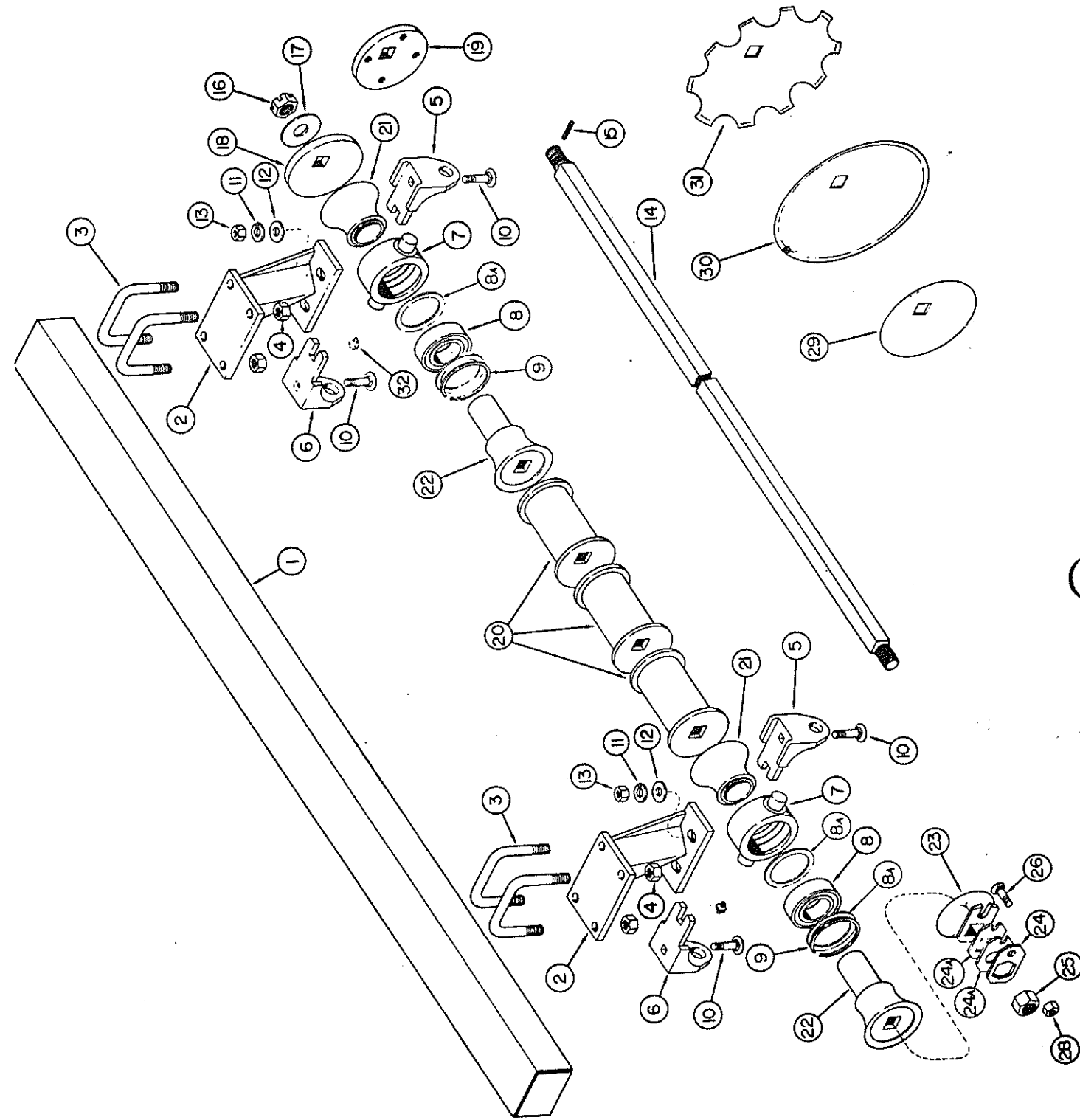
**AMCO OFFSET DISK HARROW
GANG & FRAME
148 & 185 SERIES
(CONTINUED)**

148-009



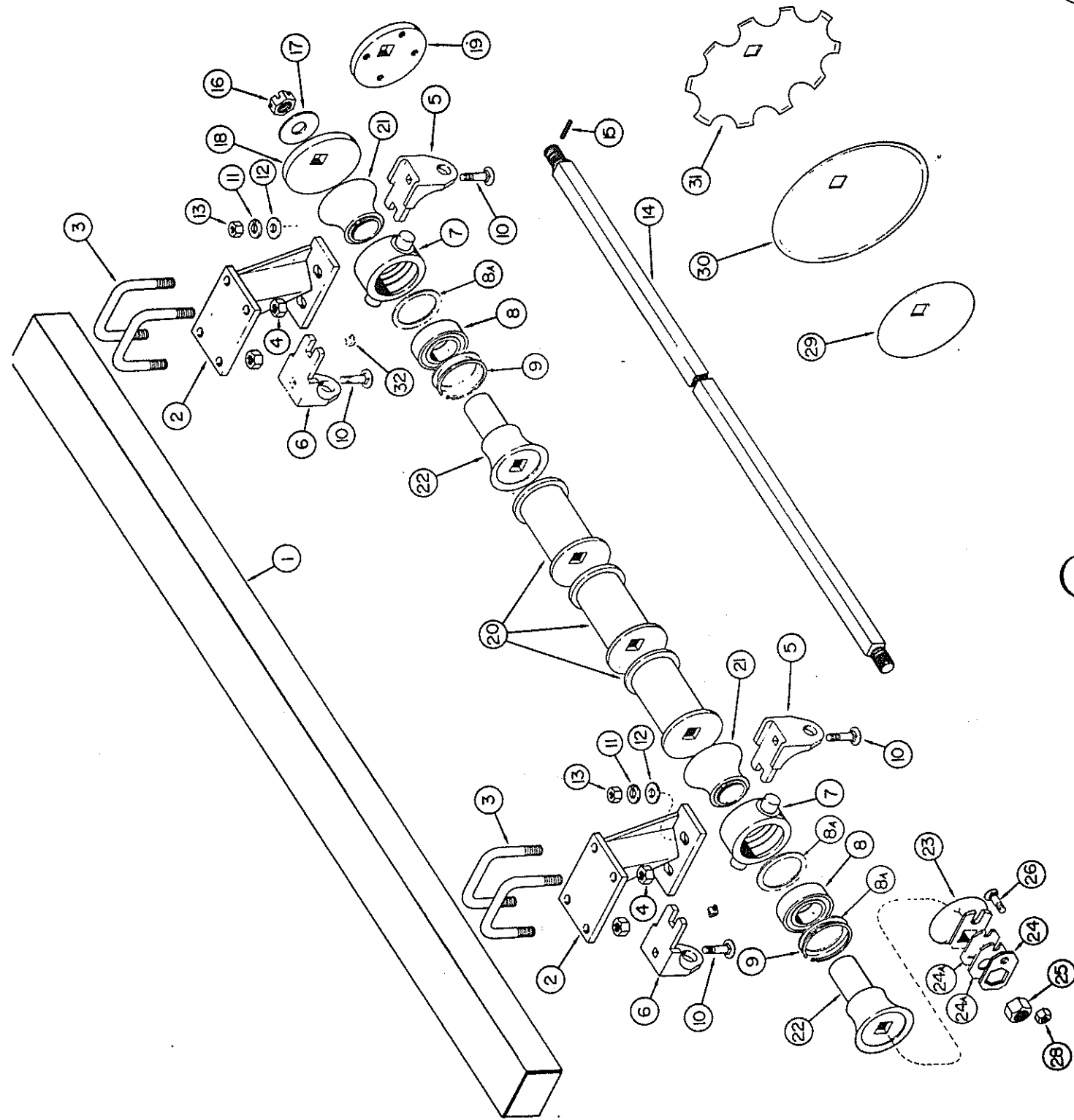
Ref. No.	Part No.	Description	No. Required
14	9445	Gang Bolt 80 5/16" 9 Blade 185-036, 046.	1
14	9446	Gang Bolt 89 1/2" 10 Blade 185-018, 022, 034.	1
14	9447	Gang Bolt 98 11/16" 11 Blade 185-034.	1
14	9448	Gang Bolt 107 7/8" 12 Blade 185-038.	2
14	9450	Gang Bolt 49 1/2" 5 Blade 148-012, 185-009, 017, 033, 036. 148-009.	1 2
14	9451	Gang Bolt 60 1/4" 6 Blade 148-020, 185-033. 148-017, 185-025.	1 2
14	9453	Gang Bolt 81 3/4" 8 Blade 185-009, 012, 017, 020, 025; 028. 148-017, 185-013, 036. 185-033.	1 2 3
14	9454	Gang Bolt 92 1/2" 9 Blade 185-013, 017, 020.	1
14	9455	Gang Bolt 103 1/4" 10 Blade 148-004, 185-009. 148-001, 185-017.	1 2
14	9456	Gang Bolt 114" 11 Blade 185-025, 028.	1
15	10910	Roll Pin 5/16 x 2 1/4 (1 Per Gang Bolt).	A.R.
16	10226	Hex Nut 1 1/2 NC, SLOTTED (1 Per Gang Bolt).	A.R.
17	10872	Flat Washer 1 3/8 PL (1 Per Gang Bolt).	A.R.
18	2404	Bumper Washer (1 Per Gang Bolt).	A.R.
19	100738A	Bumper Washer (Drilled & Tapped) Right Rear Gang Only.	1
20	0522	Spacer Spool 9" Spacing.	A.R.
20	0523	Spacer Spool 10 1/2" Spacing.	A.R.
21	9901	End Bell - Small 9" Spacing (1 Per Bearing).	A.R.
21	9902	End Bell - Large 9" Spacing (1 Per Bearing).	A.R.
21	5481	End Bell - Small 10 1/2" Spacing (1 Per Bearing).	A.R.
22	5482	End Bell - Large 10 1/2" Spacing (1 Per Bearing).	A.R.
23	1222A	End Washer (1 Per Gang Bolt).	A.R.
24	5622A	Lock Plate (1 Per Gang Bolt).	A.R.
24A	100098	Bearing Plate (1 Per Gang Bolt).	A.R.
24B	100099	Spacer Plate (1 Per Gang Bolt).	A.R.
25	10489	Hex Nut 1 1/2 NF (1 Per Gang Bolt).	A.R.
26	10870	Carriage Bolt 1/2 x 1 1/2 NC, PL (1 Per Lock Plate).	A.R.
28	10395	Lock Nut 1/2 NC, PL (1 Per Lock Plate).	A.R.
29	3278	Blade - Backup 10 x 11 Ga. PL.	1
30	9480	Blade 22 x 3/16 PL.	3
30	9481	Blade 20 x 3/16 PL.	1
31	9484	Blade 22 x 3/16 C.O.	3
31	9487	Blade 20 x 3/16 C.O.	1
30	3253	Blade 24 x 3/16 PL.	A.R.
30	3255	Blade 24 x 1/4 PL.	A.R.
31	2455	Blade 24 x 3/16 C.O.	A.R.
31	3250	Blade 24 x 1/4 C.O.	A.R.
30	3263	Blade 26 x 1/4 PL.	A.R.
31	2456	Blade 26 x 1/4 C.O.	A.R.
32	10606	Grease Fitting (1 Per Bearing Housing).	A.R.

3 1/2 2R
4 3/4



AMCO OFFSET DISK HARROW GANG & FRAME 248 & 285 SERIES

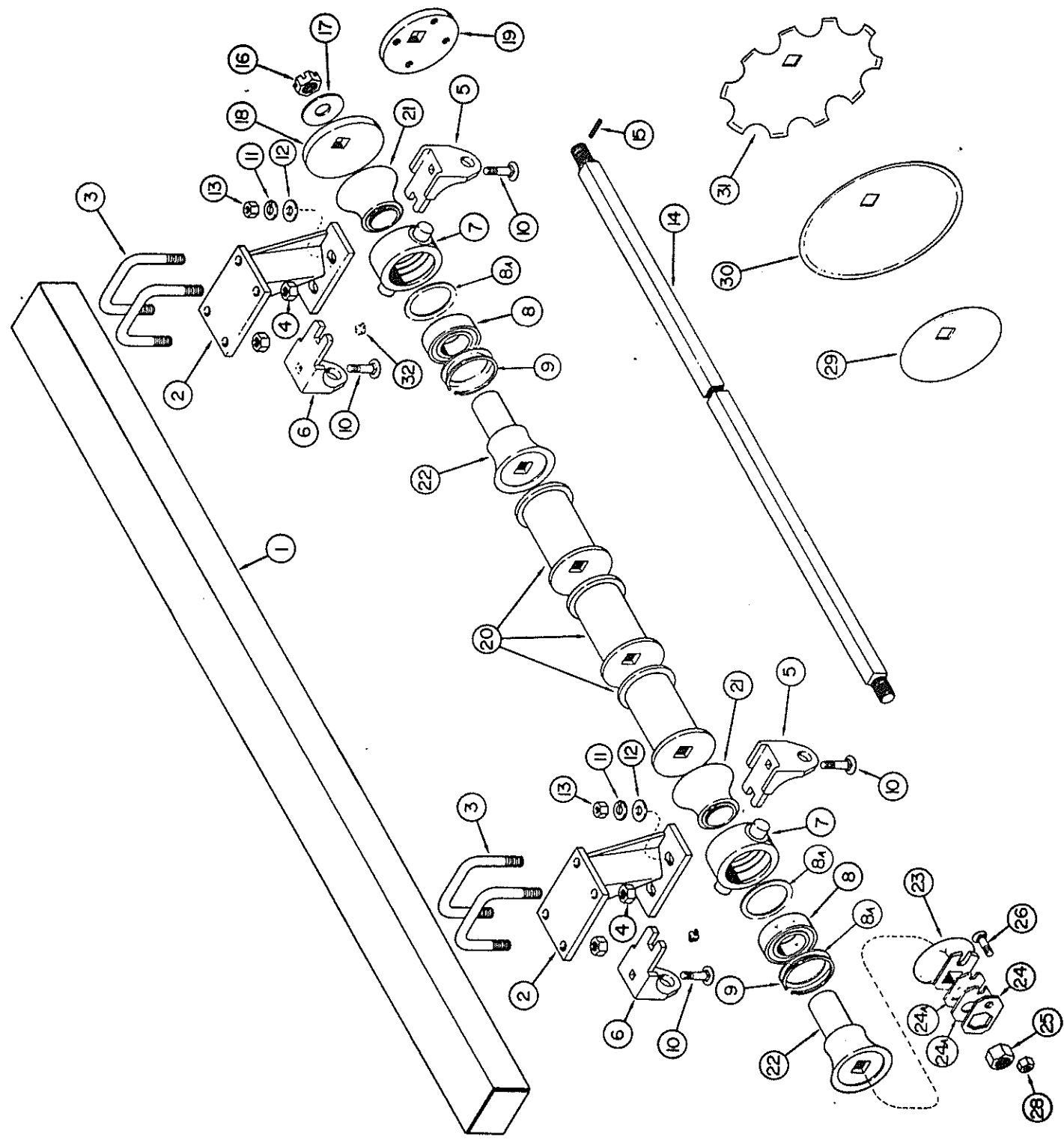
Ref. No.	Part No.	Description	No. Required
1	0503	Gang Frame 102" 248-001, 004, 006.....	2
1	0504	Gang Frame 108" 248-010.....	2
1	0505	Gang Frame 117" 248-014.....	2
1	0506	Gang Frame 126" 248-009, 012, 018.....	2
1	0508	Gang Frame 144" 248-017, 020, 026.....	2
1	0463	Gang Frame 155" 285-009, 012, 018.....	2
1	0487	Game Frame 165" 285-013, 022.....	2
1	0464	Game Frame 175" 285-017, 020, 026.....	2
1	0489	Gang Frame 192" 285-034.....	2
1	0492	Gang Frame 200" 285-025, 028, 038.....	2
1	0494	Gang Frame 219" 285-033, 036, 046.....	2
1	0517	Gang Frame 238" 285-041, 044, 054.....	2
2	0458	Bearing Riser	
		248-001.....	6
		248-004.....	7
		248-006, 009, 010, 012, 014, 017, 018, 020, 026.....	8
		285-009, 013.....	9
		285-012.....	10
		285-017, 018, 020, 022, 025, 026, 028.....	11
		285-033, 034, 036, 038, 046.....	12
		285-041, 044, 054.....	16
3	9212	"U" Bolt 3/4" (2 Per Bearing Riser).....	A.R.
4	10300	Lock Nut 3/4 NC, PL (2 Per "U" Bolt).....	A.R.
5	6405	Bearing Housing Bracket - Front Half (1 Per Bearing Riser).....	A.R.
6	6406	Bearing Housing Bracket - Rear Half (1 Per Bearing Riser).....	A.R.
	FB-09-0014	*Bearing & Housing - Complete	
7	16014	*Bearing Housing (1 Per Bearing Riser).....	A.R.
8	G10218	*Bearing (1 Per Bearing Riser).....	A.R.
8A	100105	*Washer 125mm (2 Per Bearing).....	A.R.
9	11072	*Retaining Ring (1 Per Bearing).....	A.R.
10	10579	Carriage Bolt 3/4 x 3 NF, GR5 (2 Per Bearing).....	A.R.
11	10002	Lock Washer 3/4 (2 Per Bearing).....	A.R.
12	10078	Flat Washer 3/4 (2 Per Bearing).....	A.R.
13	10585	Hex Nut 3/4 (2 Per Bearing).....	A.R.
14	9441	Gang Bolt 43 3/8" 5 Blade	
		248-004, 285-020, 022, 038.....	1
		248-006, 285-012, 018.....	2
14	9442	Gang Bolt 52 3/4" 6 Blade	
		248-004, 285-018, 020, 026.....	1
		248-006, 014.....	2
		248-010.....	4
14	9443	Gang Bolt 61 15/16" 7 Blade	
		285-012, 022, 036, 044, 046.....	1
		248-012, 014, 285-018, 028, 038, 054.....	2
		285-034.....	3
		248-018.....	4
14	9444	Gang Bolt 71 1/8" 8 Blade	
		285-009, 012, 013, 020, 022, 025, 028, 033, 036, 038, 046.....	1
		248-009, 020, 285-026.....	2
		248-026.....	4



**AMCO OFFSET DISK HARROW
GANG & FRAME
248 & 285 SERIES
(CONTINUED)**

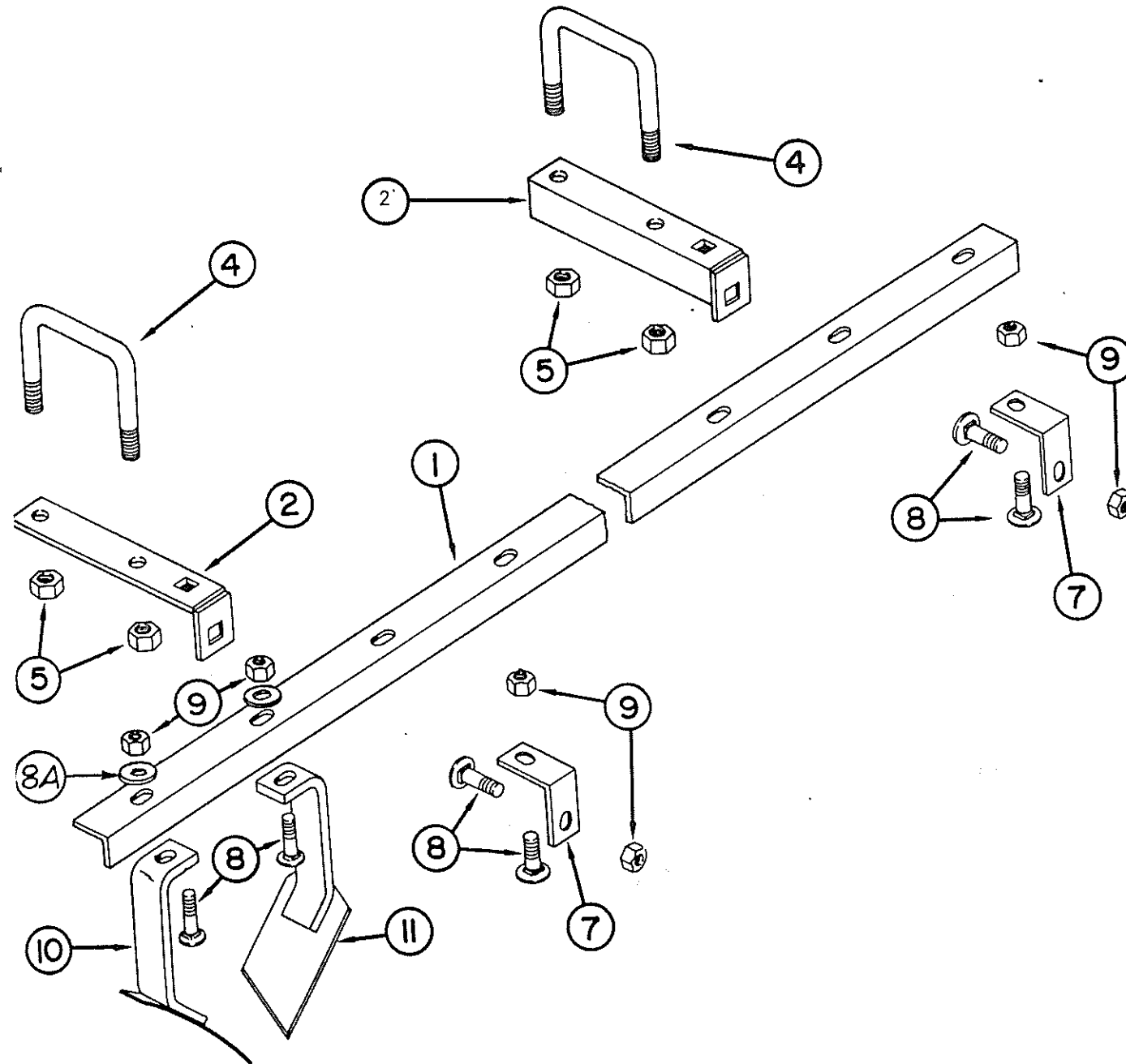
Ref. No.	Part No.	Description	No. Required
14	9445	Gang Bolt 80 5/16" 9 Blade 285-036, 044, 046.....	1
		285-041, 054.....	2
14	9446	Gang Bolt 89 1/2" 10 Blade 285-018, 022, 034, 044.....	1
		285-054.....	2
14	9447	Gang Bolt 98 11/16" 11 Blade 285-034.....	1
		285-038.....	2
14	9448	Gang Bolt 107 7/8" 12 Blade 285-046.....	2
14	9450	Gang Bolt 49 1/2" 5 Blade 248-012, 285-009, 017, 033, 036.....	1
		248-009.....	2
14	9451	Gang Bolt 60 1/4" 6 Blade 248-020, 285-033, 044.....	1
		248-017, 285-025.....	2
14	9453	Gang Bolt 81 3/4" 8 Blade 285-009, 012, 017, 020, 025, 028, 044.....	1
		248-017, 285-013, 036, 041.....	2
		285-033.....	3
14	9454	Gang Bolt 92 1/2" 9 Blade 285-013, 017, 020, 044.....	1
		285-041.....	2
14	9455	Gang Bolt 103 1/4" 10 Blade 248-004, 285-009.....	1
		285-017.....	2
14	9456	Gang Bolt 114" 11 Blade 285-025, 028.....	1
15	10910	Roll Pin 5/16 x 2 1/4 (1 Per Gang Bolt).....	A.R.
16	10226	Hex Nut 1 1/2 NF, Slotted (1 Per Gang Bolt).....	A.R.
17	10872	Flat Washer 1 3/8 PL (1 Per Gang Bolt).....	A.R.
18	2404	Bumper Washer (1 Per Gang Bolt).....	A.R.
19	100738A	Bumper Washer (Drilled & Tapped) (Right Rear Gang Only).....	1
20	0522	Spacer Spool 9" Spacing.....	A.R.
20	0523	Spacer Spool 10 1/2" Spacing.....	A.R.
21	6400	End Bell - Small 9" Spacing (1 Per Bearing).....	A.R.
21	6402	End Bell - Small 10 1/2" Spacing (1 Per Bearing).....	A.R.
22	6401	End Bell - Large 9" Spacing (1 Per Bearing).....	A.R.
22	6403	End Bell - Large 10 1/2" Spacing (1 Per Bearing).....	A.R.
23	1222A	End Washer (1 Per Gang Bolt).....	A.R.
24	5622A	Lock Plate (1 Per Gang Bolt).....	A.R.
24A	100098	Bearing Plate (1 Per Gang Bolt).....	A.R.
24B	100099	Spacer Plate (1 Per Gang Bolt).....	A.R.
25	10489	Hex Nut 1 1/2 NF (1 Per Gang Bolt).....	A.R.
26	10870	Carriage Bolt 1/2 x 1 1/2 NC, PL (1 Per Lock Plate).....	A.R.
28	10395	Lock Nut 1/2 NC, PL (1 Per Lock Plate).....	A.R.
29	3278	Blade - Backup 10 x 11 Ga. Pl.....	1
30	9480	Blade - 22 x 3/16 Pl.....	3
30	9481	Blade - 20 x 3/16 Pl.....	1
31	9484	Blade - 22 x 3/16 C. O.....	3
31	9487	Blade - 20 x 3/16 C. O.....	1
30	3253	Blade - 24 x 3/16 Pl.....	A.R.
30	3255	Blade - 24 x 1/4 Pl.....	A.R.
31	2455	Blade - 24 x 3/16 C. O.....	A.R.
31	3250	Blade - 24 x 1/4 C. O.....	A.R.

**AMCO OFFSET DISK HARROW
GANG & FRAME
248 & 285 SERIES
(CONTINUED)**



Ref. No.	Part No.	Description	No. Required
30	3263	Blade 26 x 1/4 Pl.....	A.R.
31	2456	Blade 26 x 1/4 C. O.....	A.R.
32	10606	Grease Fitting (1 Per Bearing Housing).....	A.R.

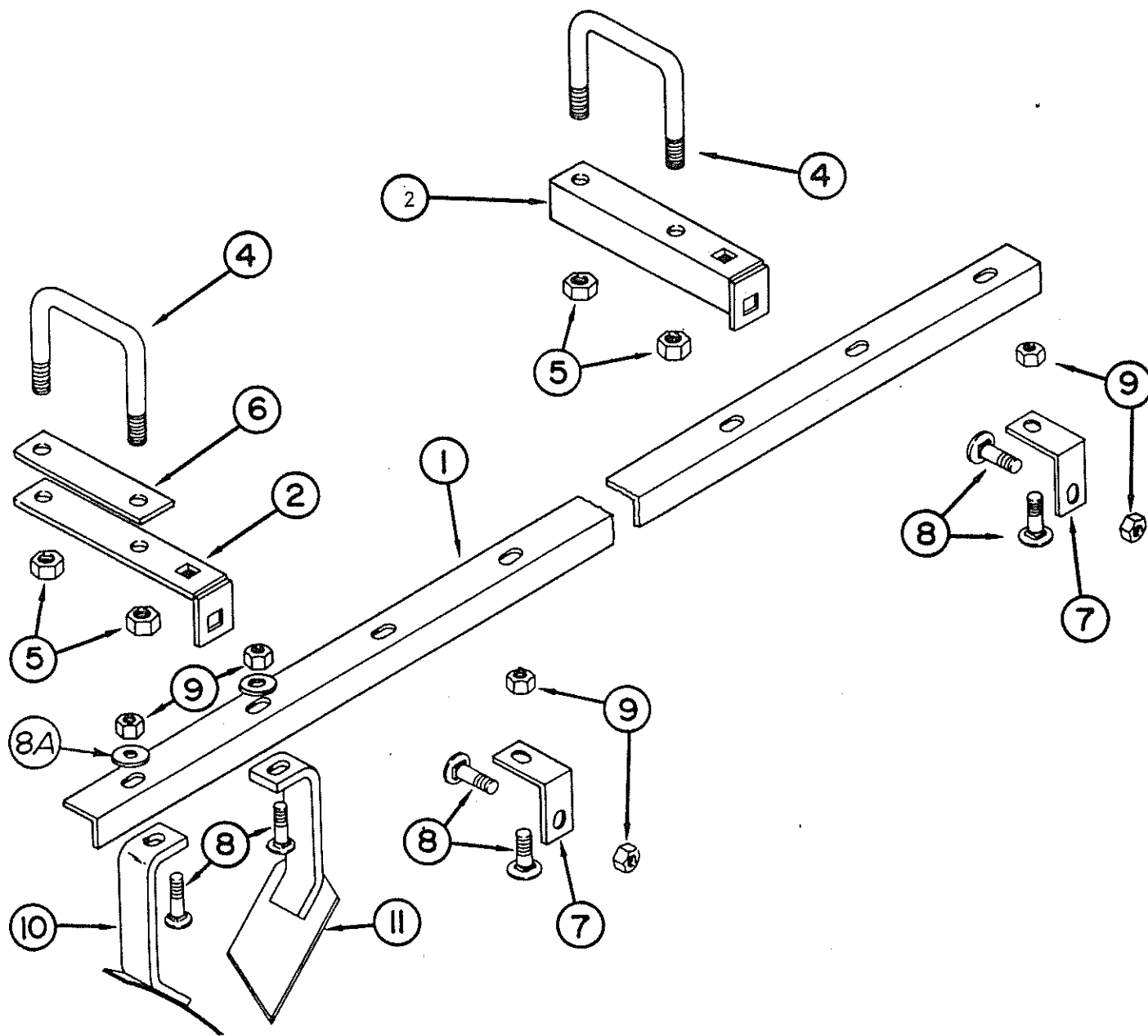
SCRAPER BAR



AMCO OFFSET DISK HARROW
SCRAPER BARS 48 & 85 SERIES 9" SPACING

Ref. No.	Part No.	Description	No. Req'd
1	101072	Scraper Bar 41 1/4 5 Blade 48-005, 009.....	2
1	101074	Scraper Bar 50 1/2 6 Blade 48-005, 013, 017.....	2
1	101076	Scraper Bar 59 3/4 7 Blade 48-009, 013, 025, 85-017, 025, 033, 041.....	2
1	101078	Scraper Bar 69 8 Blade 85-001.....	1
1	101080	Scraper Bar 78 1/4 9 Blade 48-017, 85-025.....	2
1	101082	Scraper Bar 87 1/2 10 Blade 85-009.....	1
1	101084	Scraper Bar 96 3/4 11 Blade 48-025, 85-001, 005, 025, 033.....	2
2	20359	Scraper Bar Mount 85-001.....	2
4	9212	U Bolt 48-005.....	8
5	10300	Lock Nut 3/4" NC, PL (2 per "U" Bolt).....	A. R.
7	101547	Scraper Bar Bracket 48-005.....	8
8	10135	Carriage Bolt 5/8 x 1 3/4 NC, PL (2 Per Scraper Bar Bracket and 1 Per Scraper).....	A. R.
8A	10059	Cut Washer - 5/8 PL (1 Per Scraper).....	A. R.
9	10299	Lock Nut 5/8 NC, PL (2 Per Scraper Bar Bracket and 1 Per Scraper).....	A. R.
10	0459	Front Scraper (1 Per Blade).....	A. R.
11	0460	Rear Scraper (1 Per Blade).....	A. R.

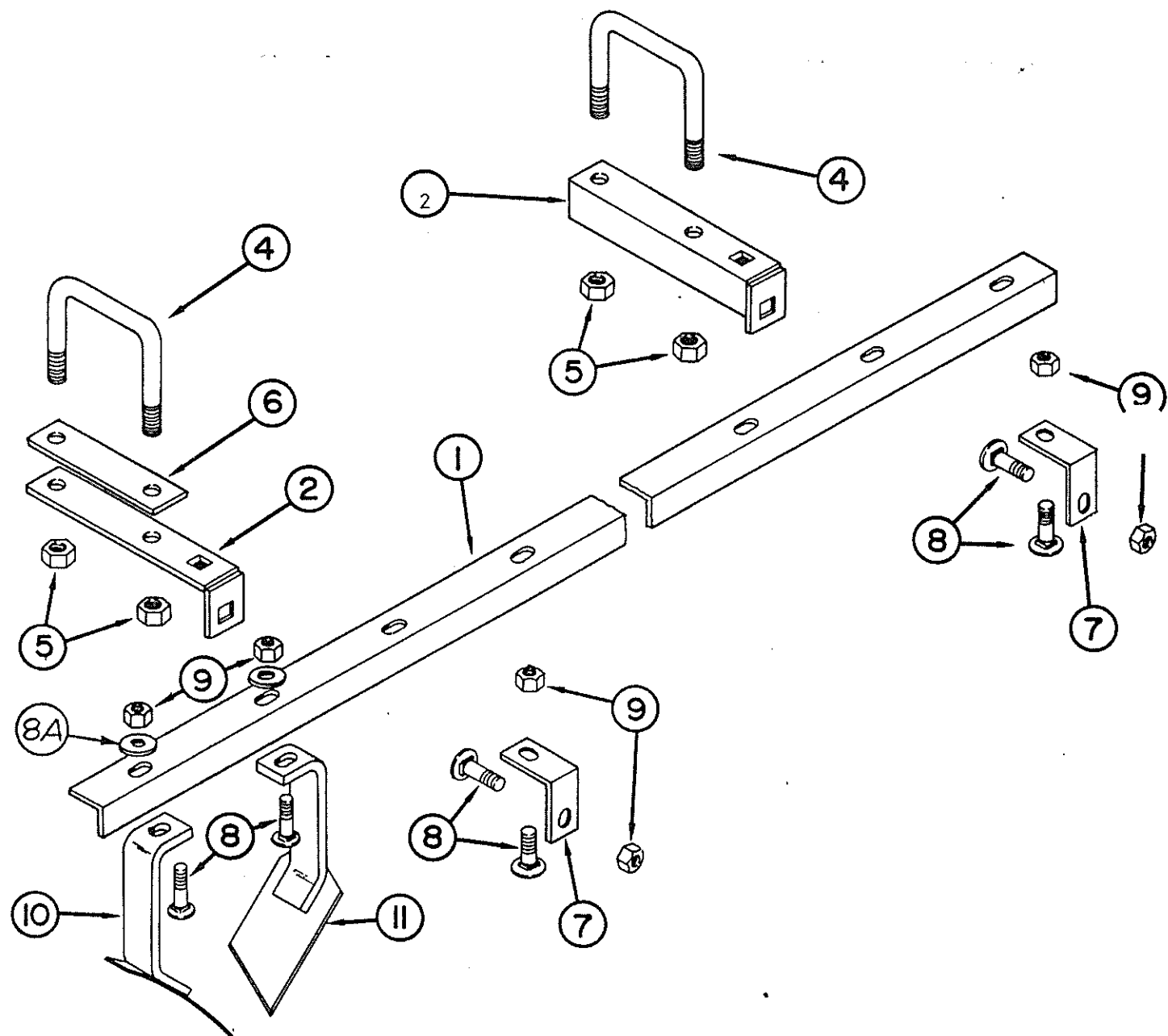
SCRAPER BAR



AMCO OFFSET DISK HARROW
SCRAPER BARS - 148,248,185,285 SERIES - 9" SPACING

Ref. No.	Part No.	Description	No. Req'd
1	101072	Scraper Bar - 41 1/4 5 Blade 185-026, 022.....	1
		148-006, 185-018.....	2
1	101074	Scraper Bar - 50 1/2 6 Blade 148-006, 014.....	2
		148-010.....	4
1	101076	Scraper Bar - 59 3/4 7 Blade 185-022, 046.....	1
		148-014, 185-018, 038, 054.....	2
		185-034.....	3
		148-018.....	4
1	101078	Scraper Bar - 69 8 Blade 185-022, 038, 046.....	1
		185-026.....	2
		148-026.....	4
1	101080	Scraper Bar - 78 1/4 9 Blade 185-046.....	1
		185-054.....	2
1	101082	Scraper Bar - 87 1/2 10 Blade 185-018, 022, 034.....	1
		185-054.....	2
1	101084	Scraper Bar - 96 3/4 11 Blade 185-026, 034.....	1
		185-038.....	2
1	101086	Scraper Bar - 106 12 Blade 185-046.....	2
2	20359	Scraper Bar Mount - 148-006, 010.....	8
		148-014.....	10
		148-018, 026.....	12
		185-018, 022, 026.....	13
		185-034, 038, 046.....	15
5	9212	U Bolt 185-022, 026.....	2
		185-018, 038, 046.....	3
		148-018, 026.....	4
5	10300	Lock Nut - 3/4" NC, PL (2 Per U Bolt).....	A.R.
6	9462	Spacer 185-026.....	1
		148-014, 185-018, 022.....	2
		185-034, 038, 046.....	3
		148-018, 026.....	4
7	101547	Scraper Bar Bracket 148-006, 010.....	8
		148-014.....	10
		148-018, 026.....	12
		185-018, 022, 026.....	13
		185-034, 038, 046.....	15
8	10135	Carriage Bolt 5/8" x 1 3/4" NC, PL (2 Per Scraper Bracket and 1 Per Scraper).....	A.R.
8A	10059	Cut Washer - 5/8" PL (1 Per Scraper).....	A.R.
9	10299	Lock Nut 5/8" NC, PL (2 Per Scraper Bar Bracket and 1 Per Scraper).....	A.R.
10	0459	Scraper - Front (1 Per Blade).....	A.R.
11	0460	Scraper - Rear (1 Per Blade).....	A.R.

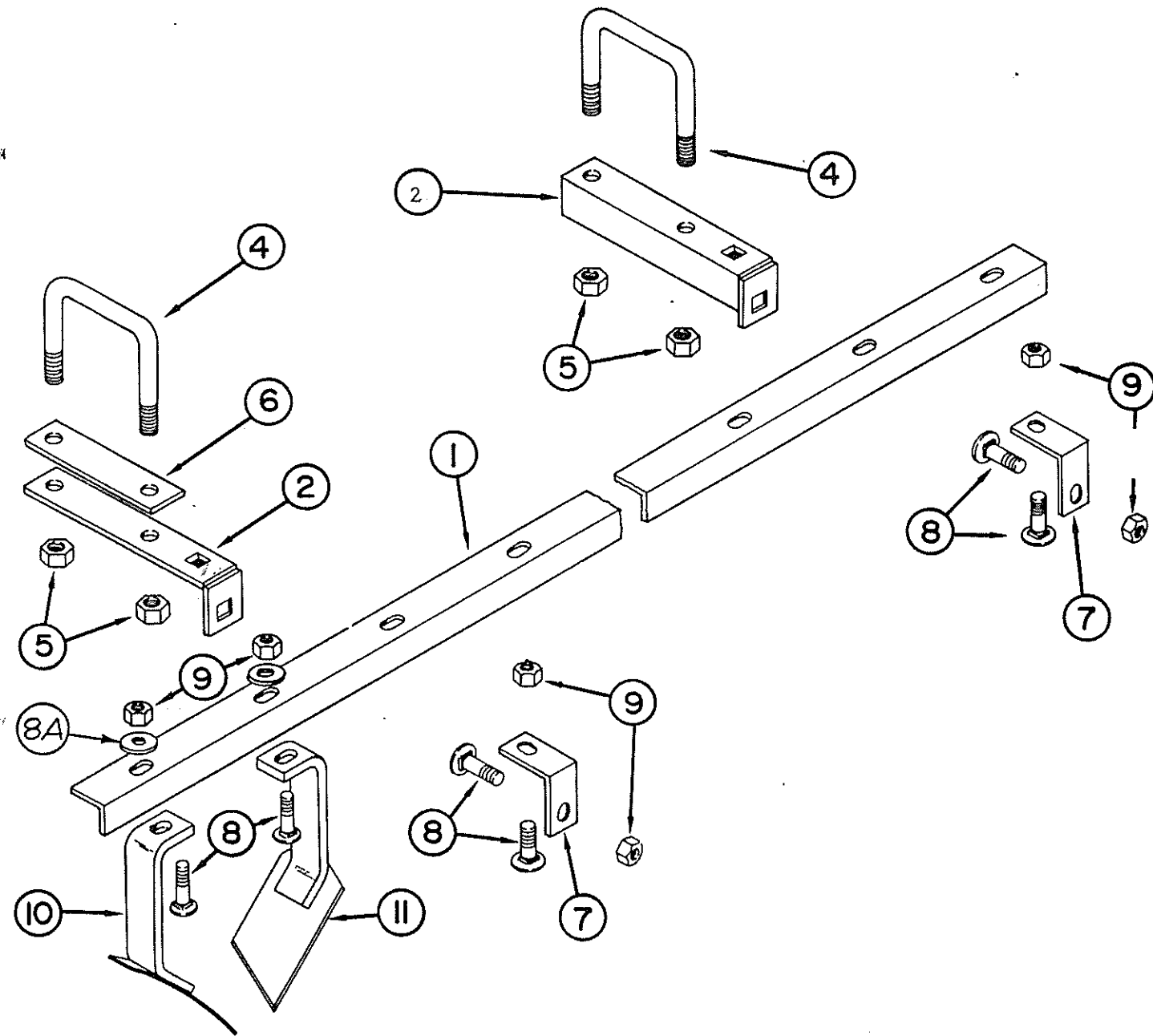
SCRAPER BAR



AMCO OFFSET DISK HARROW
SCRAPER BARS - 148,248,185,285 SERIES - 10 1/2" SPACING

Ref. No.	Part No.	Description	No. Req'd.
1	101269	Scraper Bar - 48 1/4 5 Blade 185-009, 017, 033.....	1
		148-009.....	2
1	101103	Scraper Bar 58 15/16 6 Blade 185-033.....	1
		148-017, 185-017, 025, 041.....	2
1	101104	Scraper Bar - 69 5/8 7 Blade 185-009, 013, 025, 033.....	1
		148-009.....	2
1	101050	Scraper Bar - 80 5/16 8 Blade 185-009, 017, 025.....	1
		148-017, 185-013, 041.....	2
		185-033.....	3
1	101051	Scraper Bar - 91 9 Blade 185-013, 017.....	1
		185-041.....	2
1	101052	Scraper Bar - 101 11/16 10 Blade 185-009.....	1
		148-001.....	2
1	101053	Scraper Bar - 112 3/8 11 Blade 185-025.....	1
2	20359	Scraper Bar Mount 148-001.....	6
		148-009, 017.....	10
		185-009.....	11
		185-013, 017.....	12
		185-025.....	13
		185-033.....	16
4	9212	U Bolt 185-017.....	1
		148-009, 017, 185-009, 025.....	2
		185-013.....	3
		185-033.....	4
5	10300	Lock Nut 3/4" NC,PL (2 Per U Bolt).....	A.R.
6	9462	Spacer 185-017.....	1
		148-009, 017, 185-009, 025.....	2
		185-013.....	3
		185-033.....	4
7	101547	Scraper Bar Bracket 148-001.....	6
		148-009, 017.....	10
		185-009.....	11
		185-013, 017.....	12
		185-025.....	13
		185-033.....	16
8	10135	Carriage Bolt 5/8" x 1 3/4" NC,PL (2 Per Scraper Bar Bracket and 1 Per Scraper).....	A.R.
8A	10059	Cut Washer - 5/8" PL (1 Per Scraper).....	A.R.
9	10299	Lock Nut 5/8" NC,PL (2 Per Scraper Bar Bracket and 1 Per Scraper).....	A.R.
10	0459	Scraper - Front (1 Per Blade).....	A.R.
11	0460	Scraper - Rear (1 Per Blade).....	A.R.

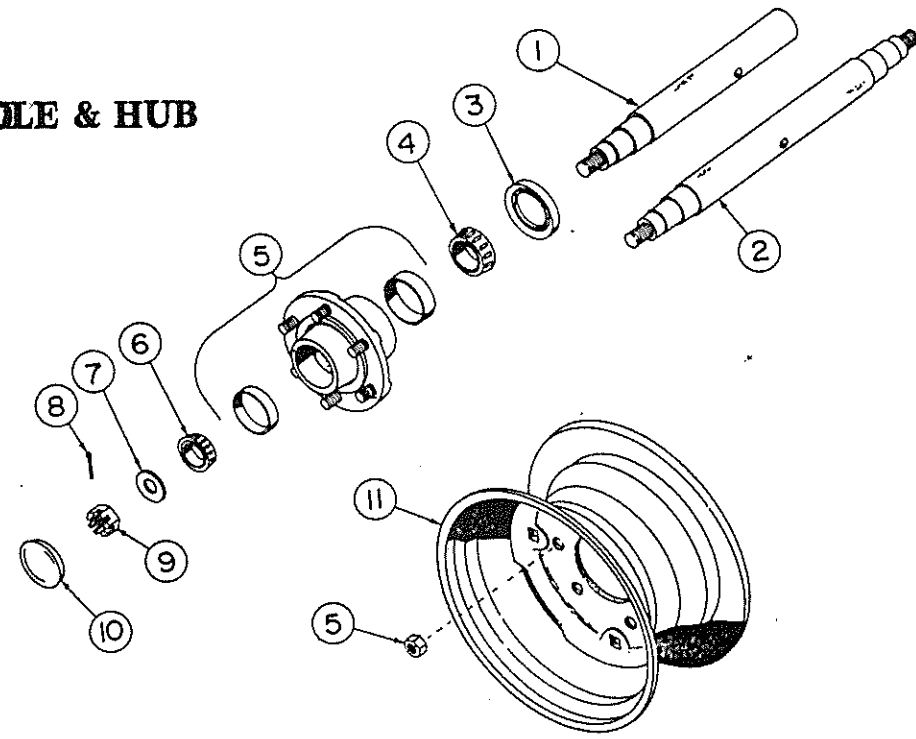
SCRAPER BAR



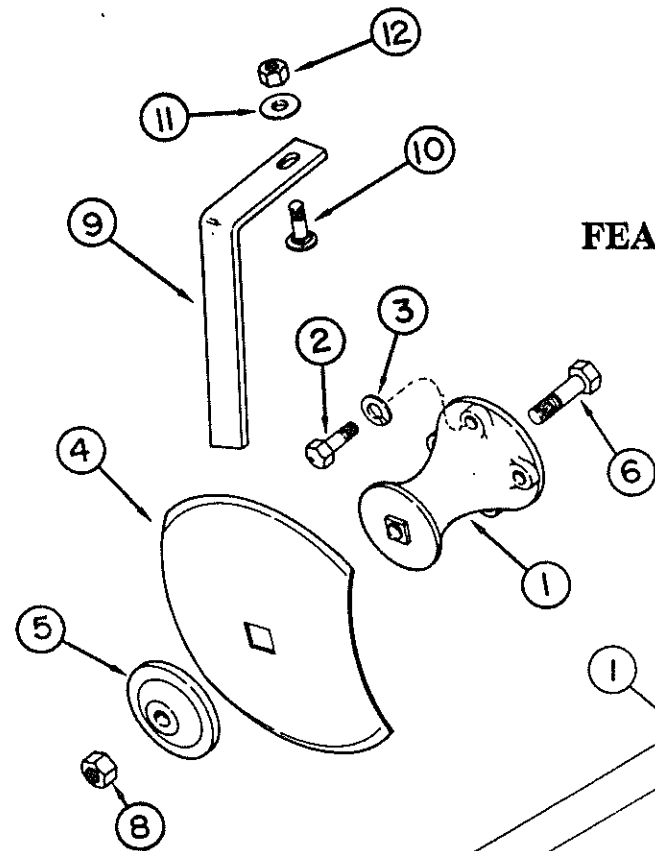
AMCO OFFSET DISK HARROW
 SCRAPER BARS - 148, 248, 185, 285 SERIES
 9" FRONT SPACING - 10 1/2" REAR SPACING

Ref. No.	Part No.	Description	No. Req'd
1	101072	Scraper Bar - 41 1/4 5 Blade - Front 148-004, 185-020.....	1
		185-012.....	2
1	101074	Scraper Bar - 50 1/2 6 Blade - Front 148-004, 185-020.....	1
1	101076	Scraper Bar - 59 3/4 7 Blade - Front 148-004, 185-020.....	1
		148-012, 185-028.....	2
1	101078	Scraper Bar - 69 8 Blade - Front 185-020, 028, 036.....	1
		148-020.....	2
1	101080	Scraper Bar - 78 1/4 9 Blade - Front 185-036, 044.....	1
1	101082	Scraper Bar - 87 1/2 Front 185-044.....	1
1	101269	Scraper Bar - 48 1/4 5 Blade - Rear 148-012, 185-036.....	1
1	101103	Scraper Bar - 58 15/16 6 Blade - Rear 148-020, 185-044.....	1
1	101104	Scraper Bar - 69 5/8 7 Blade - Rear 148-012, 185-012.....	1
1	101050	Scraper 80 5/16 8 Blade - Rear 148-020, 185-012, 020, 028, 044.....	1
		185-036.....	2
1	101051	Scraper Bar - 91 9 Blade - Rear 185-020, 044.....	1
1	101053	Scraper Bar - 112 3/8 11 Blade - Rear 185-028.....	1
2	20359	Scraper Bar Mount 148-004.....	7
		148-012, 020.....	11
		185-012, 020.....	13
		185-028.....	15
		185-036.....	17
4	9212	U Bolt 148-012, 185-020.....	2
		148-020, 185-012, 028.....	4
		185-036.....	5
5	10300	Lock Nut - 3/4" NC,PL (2 per U Bolt).....	A. R.
6	9462	Spacer 148-012, 185-020.....	2
		148-020, 185-012, 028.....	4
		185-036.....	5
7	101547	Scraper Bar Bracket 148-004.....	7
		148-012, 020.....	11
		185-012, 020.....	13
		185-028.....	15
		185-036.....	17
8	10135	Carriage Bolt 5/8" x 1 3/4 NC,PL (2 Per Scraper Bar Bracket and 1 per Scraper).....	A.R.
8A	10059	Cut Washer 5/8 PL (1 per Scraper).....	A.R.
9	10299	Lock Nut 5/8" NC,PL (2 Per Scraper Bar Bracket and 1 Per Scraper).....	A.R.
10	0459	Scraper - Front (1 Per Blade).....	A.R.
11	0460	Scraper - Rear (1 Per Blade).....	A.R.

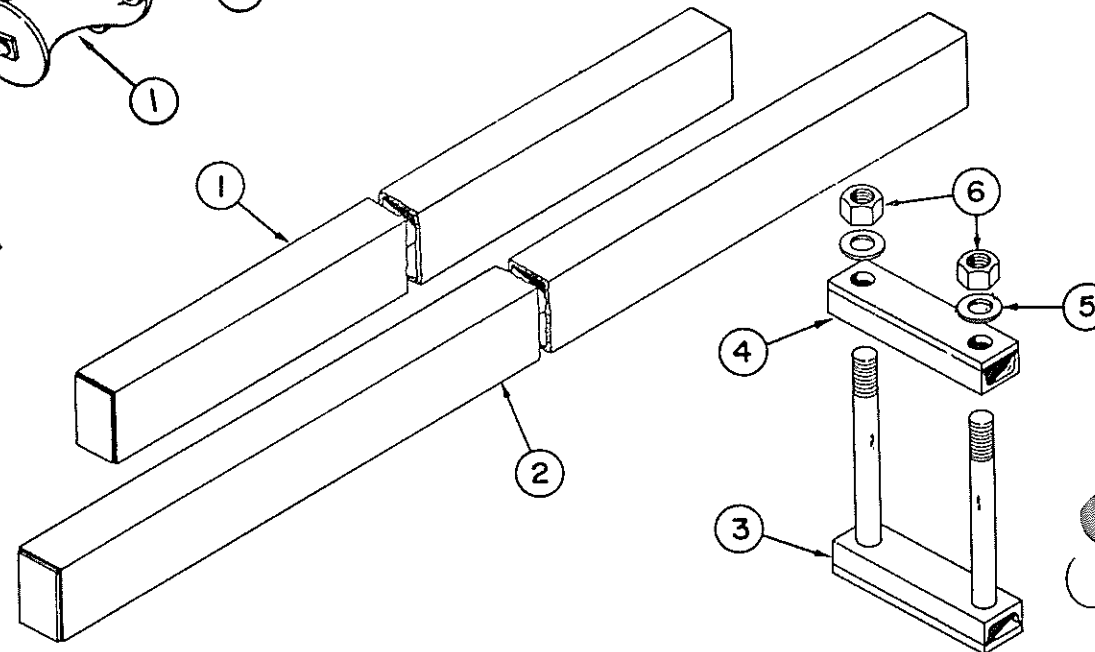
SPINDLE & HUB



FEATHERING BLADE



AUXILIARY FRAMES



**AMCO OFFSET DISK HARROW
SPINDLE & HUB**

Ref. No.	Part No.	Description	Single Wheels	Dual Wheels
1	10911	Spindle	2	—
2	10869	Spindle	—	2
3	10256	Seal	2	4
4	10258	Cone - Inner	2	4
5	11297	Hub w/2 Cups, 6 Hub Bolts & 6 Hub Nuts	2	4
5	11298	Hub	2	4
5	10257	Cup - Inner	2	4
5	10261	Cup - Outer	2	4
5	11299	Hub Bolt	12	24
5	11046	Hub Nut 1/2 NF	12	24
6	10262	Cone - Outer	2	4
7	10263	Washer	2	4
8	10291	Cotter Pin 5/32 x 1 1/4	2	4
9	10264	Hex Nut 7/8 NF, Slotted	2	4
10	10242	Hub Cap	2	4
11	10265	Wheel 15 x 6	2	4
11	10936	Wheel 15 x 8	2	4

NOTE: 48" Main Frame sold with single or dual wheels
85" Main Frame requires dual wheels

**AMCO OFFSET DISK HARROW
FEATHERING BLADE**

Ref. No.	Part No.	Description	No. Required
1	7673	Spacer Spool	1
2	10928	Hex Bolt 1/2" x 1 3/4" NC, PL	4
3	10786	Lock Washer 1/2" PL	4
4	9464	Blade - 16" Special	1
4	3055	Blade - 16 x 9 GA. PL (Not Shown)	1
5	7801	Blade Cap	1
6	10189	Hex Bolt 7/8" x 3" NC	1
8	10396	Lock Nut - 7/8" NC, PL	1
9	9463	Scraper	1
10	10665	Carriage Bolt 5/8" x 2" NC, PL	1
11	10059	Flat Washer 5/8" PL	1
12	10299	Lock Nut 5/8" NC, PL	1

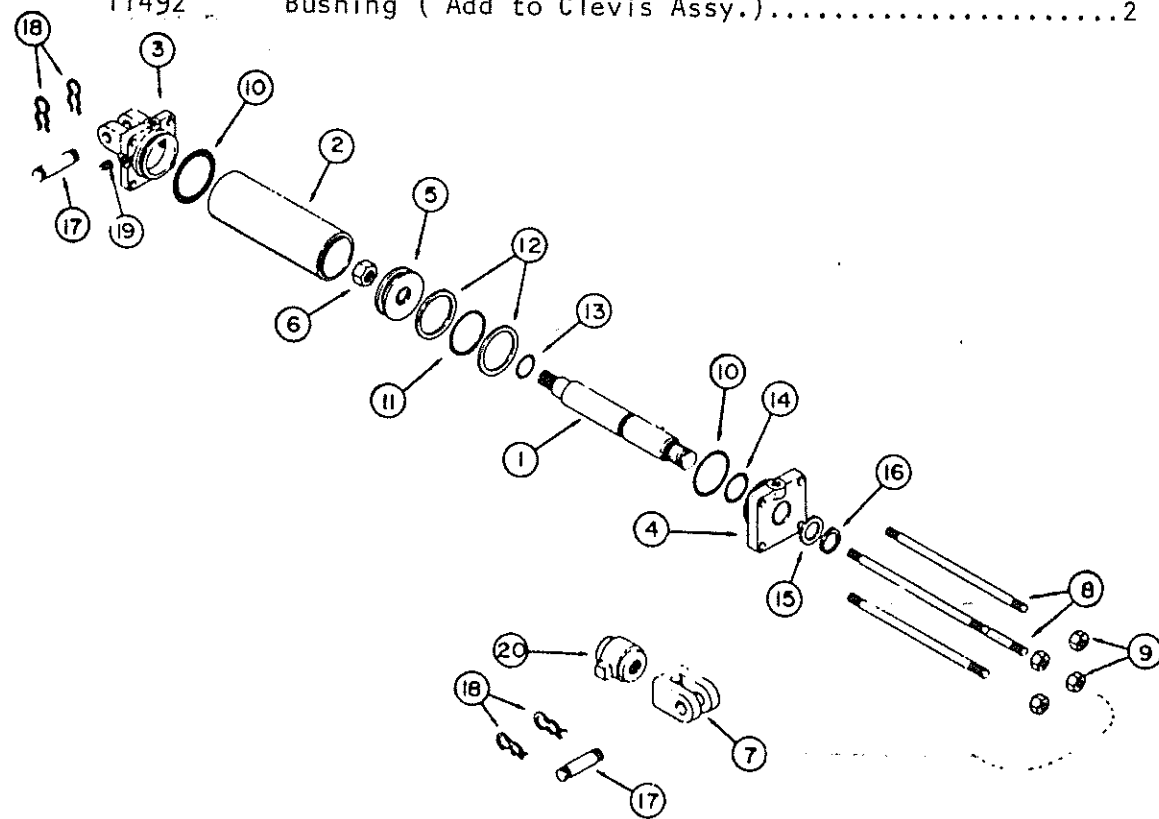
**AMCO OFFSET DISK HARROW
AUXILIARY FRAMES**

FOR MODELS: 85-025, 033 185-028, 036 185-034, 038, 046
185-025, 033 285, 028, 036 285-034, 038, 046
285-025,

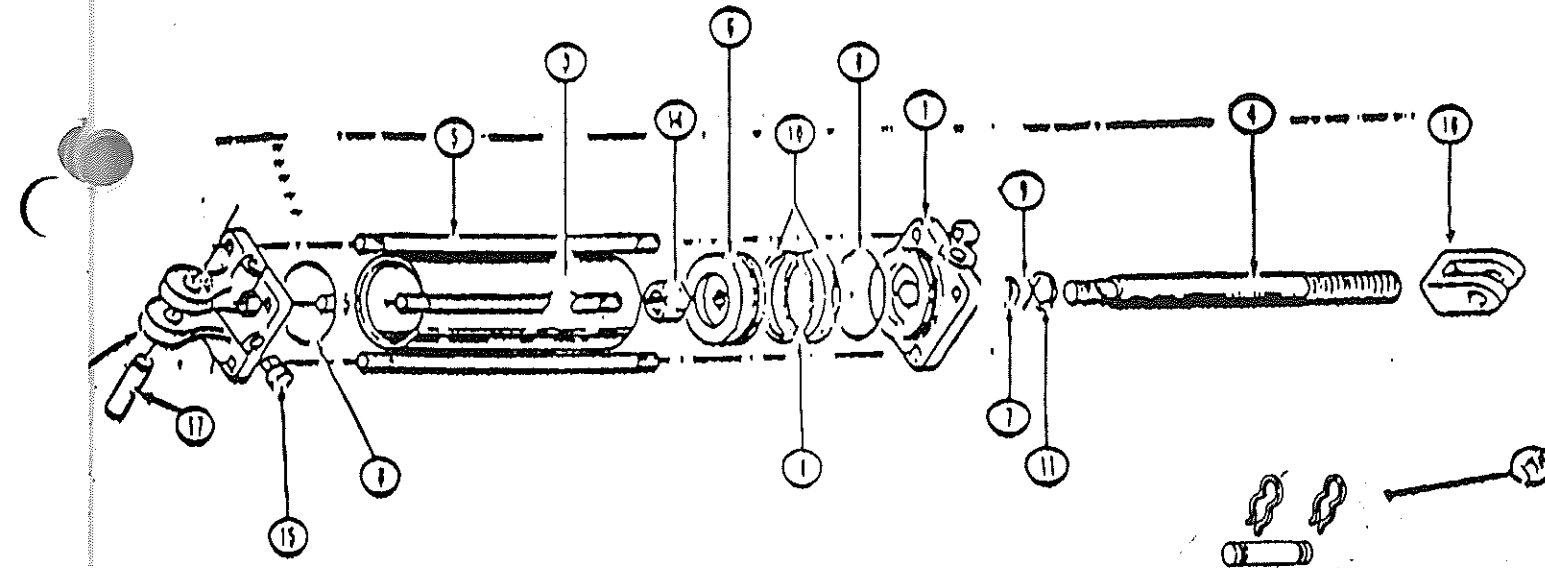
Ref. No.	Part No.	Description	No. Required
1	0490	Auxiliary Frame - Short	1
2	0491	Auxiliary Frame - Long	1
3	0456A	Frame Clamp - Male	1
4	0455A	Frame Clamp - Female	1
5	10872	Flat Washer 1 3/8"	1
6	10873	Hex Nut 1 3/8" NC, PL	1

4 x 8 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	11296	Clevis Assembly 1" Dia. Pin	1
8	10970	Rod Tie	4
9	10139	Nut 5/8-NC, PL	4
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 1/2 NPT	1
20	10937	Stroke Control	1
	*10976	Seal Repair Kit (Prince #8600)	
	BD-20-0003	4 x 8 Hydraulic Cylinder w/Stroke Control (Complete)	
	11492	Note: Items with (*) sold in seal repair kit only. Bushing (Add to Clevis Assy.)	2

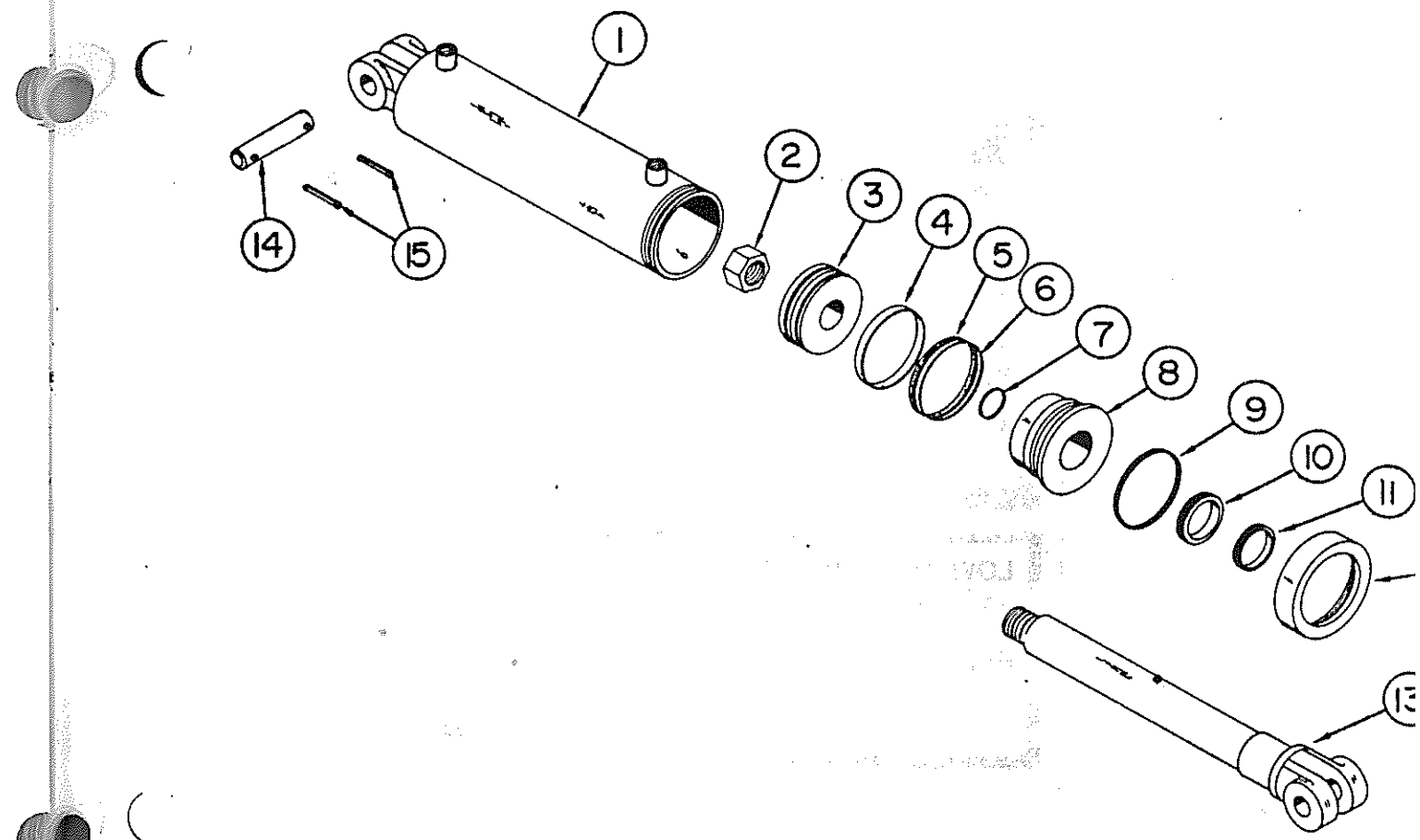


4 x 16 HYDRAULIC CYLINDER



Part Number	Description	No. Req'd
12087	Cylinder Complete	1
1	12133 Head-Piston	1
2	12134 Butt	1
3	12135 Tube	1
4	12136 Piston Rod	1
5	12137 Tie Rod	4
6	12138 Piston	1
	12139 Seal Repair Kit	1
*7	O Ring	1
*8	O Ring	3
*9	Washer	1
*10	Washer	2
*11	Rod Wiper	1
14	12140 Lock Nut C-302-16	1
15	12127 Plug	1
17	100171 Cylinder Pin	1
17A	100171 Cylinder Pin	1
18	11296 Clevis	1
	10910 Roll Pin (Not Shown)	4
	10077 1-1/4 Cut Washer (Not Shown)	2

NOTE: Item 7, 8, 9, 10 and 11 sold in repair kit only.
After Serial #91050117.

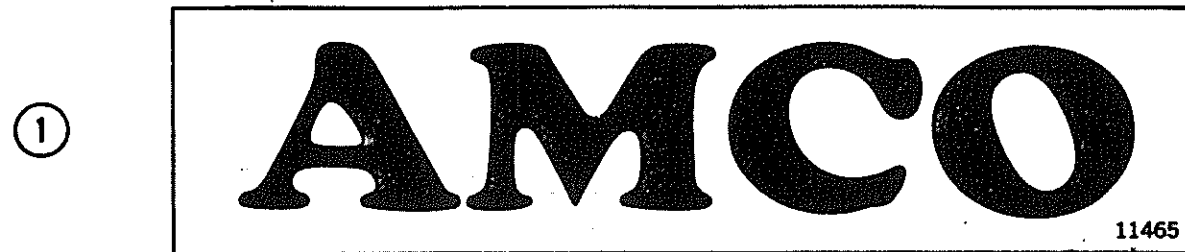


4 x 16 HYDRAULIC CYLINDER (OPTIONAL)

Ref. No.	Part No.	Description	No. R
	11134	Cylinder Complete (Lantex #x3050-BL) (Pins Not Included) . .	
1	11136	Barrel Assy	
2	11139	Lock Nut-Self Locking 1½-12 NF	
3	11138	Piston	
4	*11146	Wear Strip	
5	*11144	Piston Seal	
6	*11145	"O" Ring	
7	*11143	Rod Static Seal	
8	11137	Gland	
9	*11140	Gland Static Seal	
10	*11141	Rod Seal	
11	*11142	Rod Wiper	
12	11147	Collar	
13	11135	Rod Assy	
14	100171	Pin 1¼ Dia. x 4½ Long	
15	10910	Roll Pin 5/16 x 2¼	
	*11148	Seal Repair Kit	
	AG-20-0004	4 x 16 Hydraulic Cylinder - Complete w/Pins	

11932 BUSHING (Clevis Rod End)
 Note: Items with (*) sold in seal repair kit only.

DECALS



③

MAINTENANCE INSTRUCTIONS

<p>1. Keep all bolts tight.</p> <p>A. Visually inspect all bolts daily.</p> <p>B. Check after first 50 hours or one week's operations.</p>	<p>3. Do not run with loose disk blades. Keep gang bolts tight! Tighten after first day's operation.</p> <p>4. Keep scrapers properly adjusted 1/16" - 1/8" from blades.</p> <p>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.</p>
<p>2. Keep wheel bearings properly adjusted.</p> <p>A. Clean and repack each season or every 300 hours.</p> <p>B. Replace all worn or damaged parts when repairing.</p>	

AMCO NUMBERED SERIES DISK HARROW
DECALS

Ref. No.	Part No.	Description	No. Required
1	11465	Decal - AMCO.....	3
2	11741	Decal - Warning.....	1
3	11716	Decal - Maintenance.....	1
	11708	Reflector - Amber.....	2
	11707	Reflector - Red.....	2

GENERAL TORQUE SPECIFICATION TABLE
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 NF and NC threads.

SAE Grade No		2		5		8 *	
Bolt head identification marks as per grade NOTE Manufacturing Marks Will Vary							
Bolt Size		Torque		Torque		Torque	
Inches	Millimeters	Foot Pounds	Foot Pounds	Foot Pounds	Foot Pounds	Foot Pounds	Foot Pounds
		Min	Max	Min	Max	Min	Max
1/4	6.35	5	6	9	11	12	15
5/16	7.94	10	12	17	20.5	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"

SET-UP INSTRUCTIONS

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

1. Main frame and rockshaft. 48" main frame on harrows below 12'3" in width. 85" main frame on harrows above 12'3" width.
2. Pull tongue.
3. Two gang and frame bundles with scrapers and scraper bars attached.
4. Two or four 15 x 8 six bolt wheels.
5. Auxiliary frame on models 15'0" and larger.

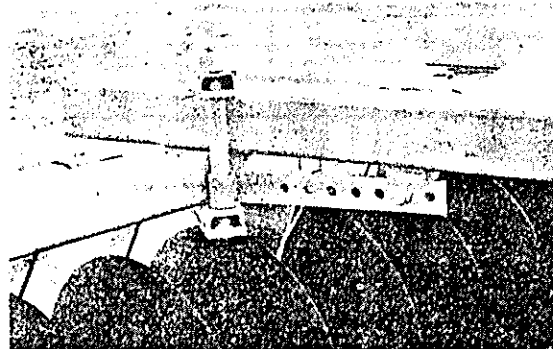
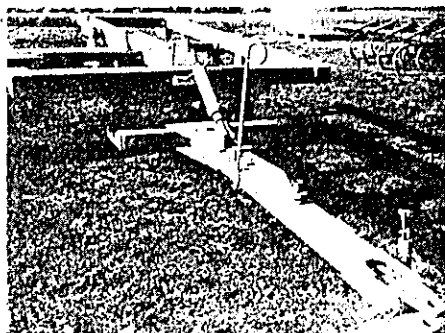
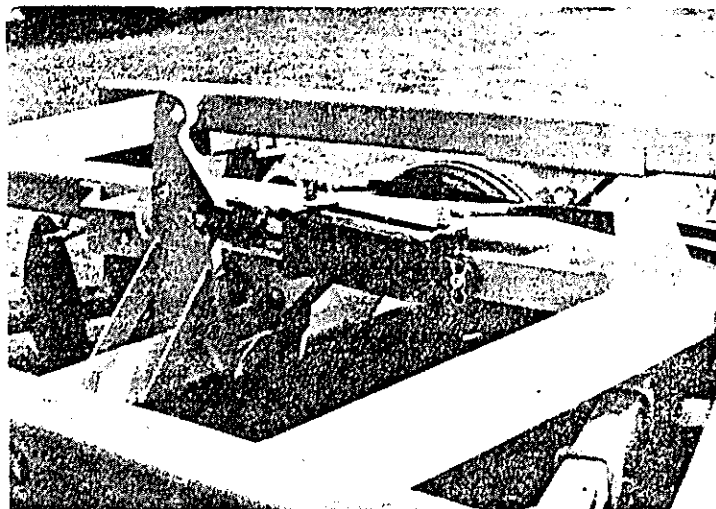
SET-UP PROCEDURE

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 units and parts, insert all bolts leaving the nuts slightly 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 a clean level area for assembly. Place the main frame on sturdy stands.



CAUTION! Use sturdy stands to prevent frame from falling!

3. Attach hitch tongue using holes in the main frame. Tighten bolts.
4. Attach stabilizer to the hitch control bracket and hitch tongue.
5. Attach hose holder to hitch tongue.
6. Attach tongue jack to hitch tongue.



7. Mount the wheel support and hubs on the rockshaft legs. This applies to the larger harrows with 85" wide main frames. The wheel supports should then be welded to the rockshaft legs. This will prevent the bolts working loose in operation.
8. Mount tires and tubes on 15 x 8 wheels. Inflate tires. 9.5L x 15 or 11L x 15 6-ply tires are recommended. Bolt the wheels to the hubs. Tighten hub bolts evenly to assure wheel alignment.
9. Install a 4 x 8 or 4 x 16 hydraulic cylinder (optional) to the harrow. Connect hydraulic hoses from the cylinder to the tractor. Attach the hitch clevis to the tractor drawbar.
10. Raise the harrow up on the wheels by activating the hydraulic cylinder.
11. Remove gang clamp plates and gang frame clamps from the main frame. Attach the gang assemblies to the main frame. Secure them with clamp plates and frame clamps. Convex end of the gang faces to the left on the front gang and to the right on the rear gang.

12. Tighten bolts snug but not tight. For proper placement of the gang frame on the main frame, refer to the chart and drawing at the end of these instructions. The dimensions shown are measured from the left side of the main frame along the center of the gang frame tubing to the inside of the inside "U" bolt.
13. On models 15'0" and up, attach the two outrigger braces to the gang frames.
14. Check and tighten all bolts. Be sure all cotter pins are properly spread and all pins in place. Check the gangs to see that they rotate freely.
15. Be sure that the harrow is properly lubricated.
16. Adjust the harrow for front to rear leveling.

LUBRICATION

Careful and regular attention to lubrication will greatly increase the life of the harrow. For economical and efficient operation, the proper lubrication of frame fittings, gang bearings, and wheel bearings is essential.

Be sure fittings are free of dirt before greasing. If a fitting is lost or damaged, replace it immediately. Lubricate all parts thoroughly with a good grade No. 2 gun grease (Lithium Base).

Miscellaneous working parts not provided with lubrication fittings should be oiled occasionally with a good grade of lubrication oil.

ROCKSHAFT RETAINER PINS

Grease every week or 50 hours of operation.

GANG BEARINGS

The AMCO wheel type offset disk harrow is equipped with triple sealed re-greasable ball bearings. The bearings are packed and greased at the factory. Grease these bearings every week or 50 hours of operation. **IMPORTANT** - apply grease with a low pressure, low volume hand grease gun. Use care to prevent damage to bearing seals. At the end of the season, all bearings should be greased, then raise the harrow on its wheels and spin the gangs slowly so that grease wraps around the bearing seals. This will help protect the seals from the elements during periods of storage.

HITCH STABILIZER

The hitch stabilizer should be greased every week or 50 hours of operation. The stabilizer 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 out and oiled occasionally for smooth operation.

OPERATING INSTRUCTIONS

Your new AMCO offset disk harrow has been set-up, inspected, and adjusted by your dealer before delivery. However, before using your new harrow, or one that has been stored, check to make certain that all nuts and bolts are tight, all cotter pins spread and that the harrow has been lubricated.

This instruction manual should be carefully and thoroughly read to enable the operator to care for and operate the harrow.

The right and left hand sides of the harrow are determined by standing at the rear of the harrow and facing the direction of travel.

Refer to your tractor operator's manual for complete tractor operating instructions.

ADJUSTMENT FOR LEVEL DISKING

It is recommended that 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" or "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.

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 speeds. 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 and (3) Disk Gang Angle Adjustment.

TRACTOR DRAWBAR

It is suggested that the tractor drawbar be set so it is free to swing when disking. This will prevent side draft, making operation of the harrow easier. The tractor drawbar will pull somewhat to the left side during operation. This is normal with an offset harrow.

HARROW HITCH

The harrow pull tongue can be offset to the right or left by using the set of holes in the cross tongue plates to obtain the desired offset.

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.

SPRING LOADED STABILIZER

Penetration of front and rear gangs may vary. The spring loaded stabilizer may be adjusted to level the harrow front to rear. In extremely hard ground it may be necessary to shorten the stabilizer to force the front or penetrating gang into the ground. In normal conditions, the stabilizer should be adjusted so that the disk harrow is level to front to rear while disking. The stabilizer may also be adjusted to level the unit for transport.

The type of work to be done by the harrow will determine the type of adjustments to be made.

Observe the harrow while it is working and check if the dead furrow is being filled and the ground left level. If not, an adjustment will have to be made.

If the left blade of the rear gang is being "starved" for soil, move the rear gang slightly to the right or increase the rear gang cutting angle.

If the left blade of the rear gang is throwing too much soil, move the gang slightly to the left or decrease the rear gang cutting angle.

Changing the angle between the gangs will affect the penetration of the harrow. The wider the angle, the deeper the harrow will cut.

There are many factors which affect the way in which the soil will flow. Some factors are: moisture content of the soil, type of soil, speed of the tractor, depth of penetration, and working angle between the gangs. If any one of the conditions change, there will be a change in the resulting disking job.

Move the rear gang laterally one or two inches, or change the angle one hole at a time when making an adjustment.

To check the quality of disking being done, make one complete round and pass the points where the observation was made.

DISK GANG ANGLE

The gangs may be set at cutting angles from 15 degrees to 23 degrees depending on soil conditions and job to be done. When conditions are near normal, a setting somewhere between the two extremes is advisable for best operation. Use the gang angle set brackets on the right hand side of the main frame to select desired angles. The front gang angle can be increased by moving the gang forward. Moving the gang rearward will decrease the gang angle. Moving the rear gang forward will decrease the rear gang angle. Moving the rear gang to the rear will increase the rear gang cutting angle.

Increasing the cutting angle will increase penetration, soil pulverizing action and power requirements. Decreasing the cutting angle will have the opposite effect. Remember, always retorque gang frame mount bolts after making adjustments.

Disk as deep as necessary to do a thorough job but do not try to disk to an excessive depth. In most conditions, your AMCO harrow has ample weight for penetration. In other conditions, you may have a little more weight than you really need. Your harrow should be equipped with flotation tires for these conditions. 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 or 4 x 16 hydraulic cylinder. This will allow you to control your harrow cutting depth to meet all conditions. You should never allow soil to "bulldoze" ahead of or flow over the axle and spacer spoils. Cutting depth should be controlled to avoid this situation. Maintaining proper cutting depth will have the following advantages:

1. Increased life of gang bearings.
2. Less strain on disk harrow frame. Therefore, the harrow will last longer.
3. Less load on your tractor engine and drive train.
4. Lower fuel consumption due to less load on tractor engine.
5. Less wheel slippage and less rear tractor tire wear due to lower load.
6. Higher tractor travel speeds due to less rear wheel slippage.

Therefore, by properly controlling the cutting depth, you can increase gang bearing life and cover more acres per day at a lower cost. In most cases it will not be necessary to reduce cutting depth by more than 1/2"

GANG LATERAL ADJUSTMENT

Front and rear gangs may be moved laterally for adjustments in extreme conditions. To make lateral gang adjustments, loosen the gang clamp plates on the left hand side of the main frame and the gang frame clamps on the right hand side of the main frame. Be sure to re-tighten the clamp bolts after making the adjustments.

SCRAPER ADJUSTMENT

Scrapers should be adjusted to run approximately 1/8" from the disk blades. Rotate the gang to be sure the scrapers are not rubbing the disk blades. Each scraper may be adjusted individually by loosening the carriage bolt holding the scraper to the scraper bar and adjusting the scraper as required. Be sure to retighten the scraper bolt.

TRANSPORT PIN

When transporting the disk harrow, always lock it in transport position with the transport pin. If the hydraulic cylinder is to be removed from the disk harrow, the transport pin should be installed before attempting to remove the cylinder.

OFFSETTING THE HARROW

The harrow drawbar may be adjusted so the left tractor wheel can be run in the furrow if that is desirable. Or the left hand tractor wheel may be operated to the right of this furrow, on uncut ground, by making a compensating adjustment on the harrow drawbar. The fields may be laid out so right turns are made by lifting the harrow out of the ground before making the turn.

When the harrow is adjusted so it disks in an extreme left offset position, the front gang will assume a much greater angle (with respect to forward travel) than the rear gang. The rear gang will have a relatively small angle with respect to forward travel.

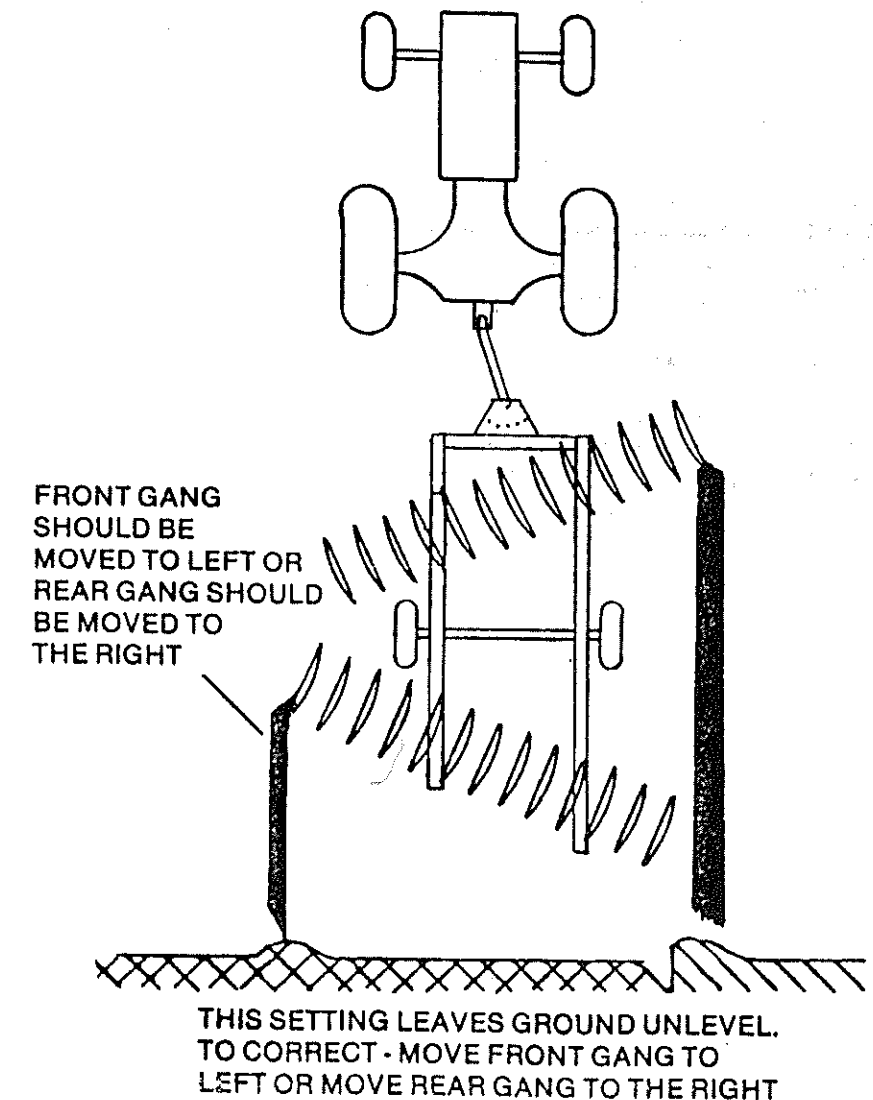
The small angle of the rear gang makes it more difficult to fill the dead furrow, but the condition can be corrected by using a rear gang adjustment. Usually, the rear gang will have to be shifted to the left.

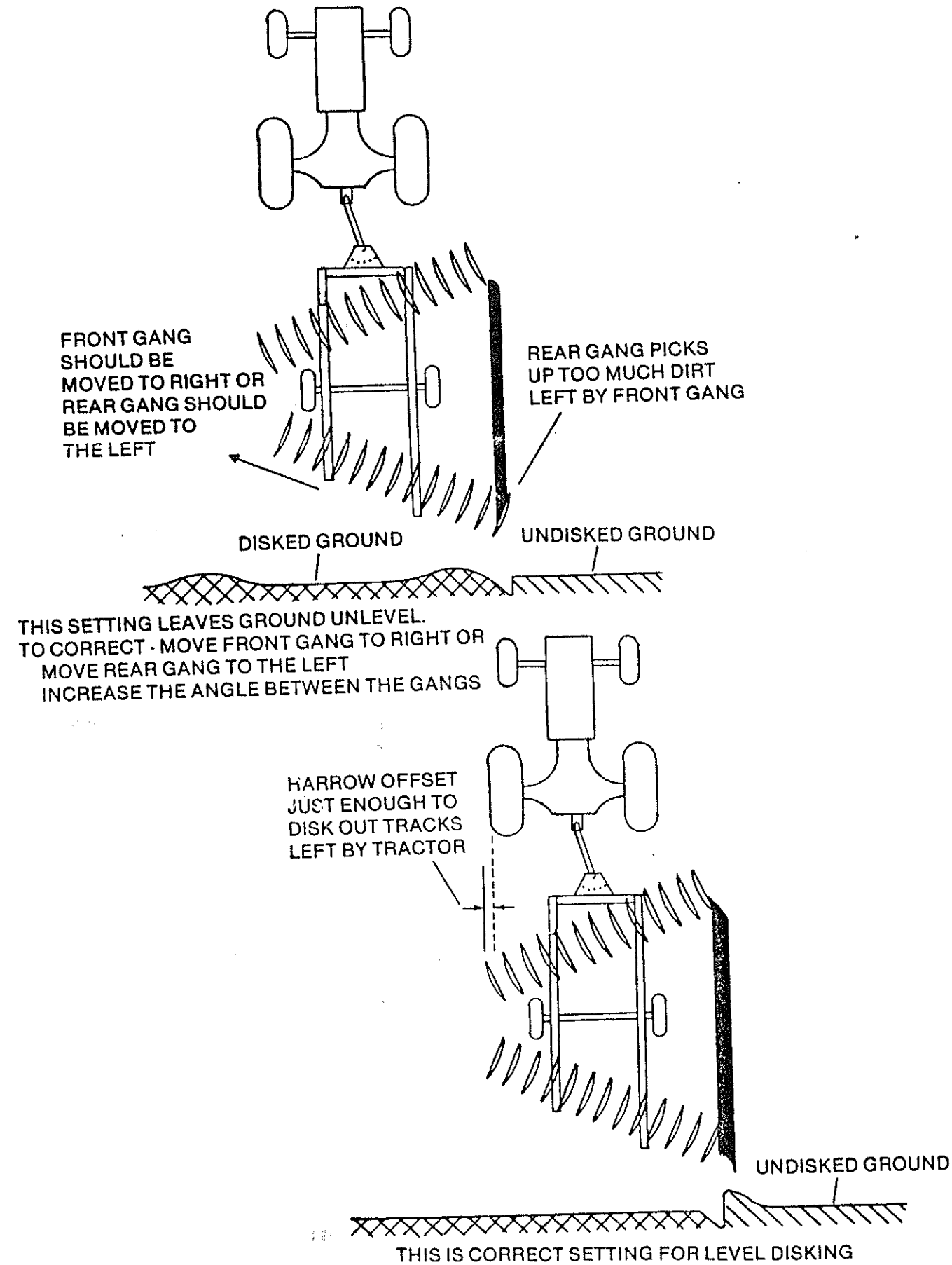
In general when making a left offset, attempt to keep the amount of offset as small as possible.

The following points are important to remember when offsetting the harrow:

Offsetting to the left increases the angle of the front gang and decreases the angle of the rear gang.

Offsetting to the right decreases the angle of the front gang and increases the angle of the rear gang.





SMV EMBLEM

The SMV (Slow Moving Vehicle) Emblem is a recommended attachment that should be added to your harrow. Check your state and local laws regarding placement of the SMV Emblem. The SMV Emblem and warning reflectors can be purchased from your authorized AMCO dealer. A mounting bracket is located on the rear of the main frame for the SMV Emblem.

MAINTENANCE

GANG REPAIR:

1. With the harrow in its "down" or working position, loosen the gang bolt nut. It is helpful to clean the threads of all bolts with a wire brush and apply penetrating oil before removing the nuts.
2. Remove the nuts that secure the gang to the bearing riser.
3. Remove the trunion clamps.
4. Raise the harrow on its wheels. The entire gang can then be rolled away from the harrow. In most cases time can be saved by removing the scraper bars and scrapers.
5. Remove the gang bolt nut and end washer.
6. Remove the blades, spacer spools and bearings being careful not to damage the threads on the gang bolt.
7. Tear the entire gang down and clean all parts. Check disk axle for straightness. Bowed, bent or worn axles must be replaced.
8. Check spacer spools for damage caused by running disk with loose gangs or hitting underground obstructions. Replace spools if they are damaged.
9. Carefully check all end bells. The large end must contact the disk blade around the entire circumference of the end bell. The small end must be smooth and perpendicular to the axle. The end bells must be replaced if they are cracked or worn on the surface adjacent to the bearing.
10. Check all disk blades for cracks, wear and other damage. Replace worn or damaged disk blades.
11. Check all the bearings on the gang. Running a harrow for one hour or more after a bearing failure will seriously damage other bearings on the gang. This damaged bearing will then fail within a few hours after the failed bearing has been replaced. Continued operation with this failed bearing will damage the new bearing thus it will fail after a few hours use. In most cases it will be best to replace all bearings on a gang when it is torn down for repairs. A triple lip sealed bearing should always be used for bearing replacement. Also, a regreasable type bearing should always be used.

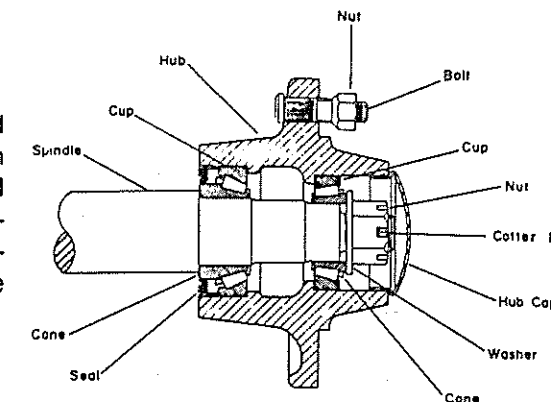
12. To replace a bearing, the snap ring must be removed. The old bearing should then be pressed out of the housing. Clean and wash out old grease and carefully check the housing. Replace the housing if it is damaged. Check the Protect-O-Shield washers. They should fit snug in the bearing housing requiring a few light taps with a hammer to remove or install them. If they are loose or show signs of wear, near the inner race of the bearing, they should be replaced. Do not use the harrow without the washers being installed. Press the new bearing straight into the housing. Always press against the outer race of the bearing. **NEVER** press against the seal or inner race of the bearing. Check location of the grease hole in the outer race of the bearing. This hole must align with the grease groove in the bearing housing. Rotate the bearing in the housing after it is pressed in to be sure it turns freely. Install the snap ring in the housing.
13. After cleaning, checking and replacing all damaged parts, the gang should be assembled. Be sure the grease fittings in the bearing housing face to the rear. Be sure the snap ring in the bearing housing is turned toward the convex (back) side of the disk blades. The 1-1/2" square gang bolt nut should be torqued to 1200 FT/LBS. The axle nut should be locked in place with the lock strap.
14. After the gang is assembled it should be attached to the harrow. The bearing risers should be carefully spaced to match the bearing housings. Poorly spaced bearing risers will overload the bearings and cause premature failure. The gang should be rotated 4 or 5 complete revolutions to be sure that all parts are aligned and the gang turns freely.
15. The bearings should be greased each week or every 50 hours of use with a good grade of clean, lithium soap base grease. Use of dirty grease or a grease with metallic additives will reduce bearing life.
16. It is essential that gang bolts be kept tight to prevent axle bending, blade breakage, spacer spool breakage and damage to other gang parts. Gang parts tend to wear on a bevel when the harrow is operated with a loose gang bolt. This reduces the area of contact between mating gang parts. Therefore, it is often difficult to keep a gang bolt tight if it has been operated in a loose condition. After such a gang bolt has been properly torqued it should be retorqued after about 30 minutes of operation, again after 4 or 5 hours of operation and again after 8 to 10 hours of use. This will assure that proper gang bolt tension is maintained while the mating components are reseating. If the gang bolt will not stay tight, the gang should be completely disassembled and all parts carefully inspected. All damaged parts should be replaced before reassembling the gang.



CAUTION: When working on disk harrows care should be exercised in handling or tightening bolts near disk blades to avoid injury. All hydraulically or mechanically elevated components must be blocked or lowered to prevent accidents when servicing the harrow.

WHEEL BEARINGS

The wheel hubs are equipped with tapered roller bearings. These hubs are packed with grease and adjusted at the factory. They should be repacked and the spindle nut properly adjusted each season or every 300 hours of operation. Use a good grade No. 2 gun grease (Lithium Base).



Wheel bearings should be repacked with grease and adjusted annually. Under extreme conditions, they should be serviced more frequently. Check occasionally for excessive end play. Adjust as required to eliminate excessive end play.

To disassemble the hub, remove the wheel, then remove the dust cap by prying around it. Remove the cotter pin, slotted nut and flat washer. Carefully remove the hub and bearings from the spindle. Thoroughly clean and carefully inspect all parts for wear. All parts that appear to be worn or damaged must be replaced.

Use the following procedure when repairing or servicing wheel hubs:

1. Clean all parts that are to be re-used.
2. Carefully inspect the metal case on the grease seal. Discard the seal if the case is bent or damaged. Check seal lips for cuts, tears or excessive wear. Seal must fit snugly on extended inner race of bearing.
3. Carefully inspect both sets of bearing cones. Bearing bore and rollers must be smooth and free of nicks and scratches. Replace cones if damaged.
4. Inspect hub to make sure that the hub bolt holes have a full thread. Bearing cones must be smooth and free of surface blemishes. Cups must be removed from the hub and replaced if damaged. Cups should be fully pressed into the hub and rest squarely against the shoulder inside the hub. Hub cap and grease seal should fit snugly inside the hub. Severely damaged hubs should be replaced.
5. Threads on spindle must be in good condition. Bearing cone seats must be smooth and free of blemishes. Bearing cones must fit squarely on the spindle.
6. Flat washer, slotted nut, cotter pin and hub cap must be in good condition. Replace if worn or damaged.

To reassemble the hub, repack each bearing cone with grease and fill the hub cavity 1/3 full of grease. Place inner bearing assembly in hub, press grease seal into hub and carefully re-install the hub on the spindle. Install the outer bearing assembly into the hub and replace the flat washer and slotted nut. Tighten the slotted nut to seat the bearings, until the hub binds when rotated.

Back the slotted nut off to the nearest slot. Rotate the hub five or six revolutions in each direction to seat all parts. Re-tighten the slotted nut while rotating the hub. When the hub binds, back the nut off to the nearest slot and install the cotter pin. Install the hub cap and re-mount the wheel on the hub.

SCRAPER REPAIR: Bent scraper bars or shanks should be replaced or straightened if possible. The blades can be replaced when they wear to the extent they are not performing properly. Keep the blades adjusted from 1/16" to 1/8" from the disk blades. The scrapers can be adjusted by loosening the mount bolt and sliding the scraper to the proper position then tightening the mount bolt. Additional adjustment can be obtained by loosening the scraper bar mount bolts and shifting the entire scraper bar. Do not allow the scraper blades to run on the spacer spools as immediate damage to the spool will occur.

ROCKSHAFT PIVOT PIN REPAIR: The rockshafts are equipped with replaceable, regreasable, bronze bushings. If properly lubricated they should last for several seasons. The bushings should be checked each disking season for excessive pivot pin or bushing wear. Worn bushings and pivot pins should be replaced. Failure to replace worn or damaged parts will damage other parts.

HYDRAULIC CYLINDER REPAIR:

- A. Remove hoses and fittings from cylinder.
- B. Remove cylinder from harrow and clean outside of cylinder.
- C. Dis-assemble cylinder by removing the rods and nut from end of cylinder rod. Slip piston and gland off cylinder rod.
- D. 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. Replace parts that cannot be repaired.
- E. Remove all O' Rings from piston and gland. Replace all seals with new parts.
- F. Assemble cylinder using care to prevent damage to O' Rings and Seals.
- G. Replace cylinder on harrow and attach hoses. Check cylinder for leaks.

GENERAL:

Keeps all bolts tight. Check all bolts after 50 hours operation and each season thereafter. Visually inspect all bolts daily. Do not run with loose gang bolts. Keep the gang bolts torqued to 1200 FT/LBS.

STORAGE

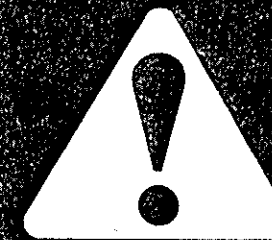
Proper storage will add to the life of your disk harrow, and assure its being in good condition for the next season. The following procedure is recommended:

- Clean off all foreign matter, and lubricate the harrow.
- Repaint the harrow where the original paint has worn off.
- Coat the disk blades with a rust preventative.
- Tighten all loose bolts and replace any damaged or missing parts.
- All hydraulic cylinder rods should be fully retracted or coated with a rust preventative to prevent rusting in storage.

operating tips

OPERATING TIPS FOR LONG LIFE AND SATISFACTORY PERFORMANCE

1. Match the harrow with the proper size tractor. Too much horsepower and speed will result in excessive maintenance cost.
2. Lubricate with clean grease at the recommended intervals.
3. Use good quality tires, hoses, and hydraulic cylinders.
4. Use the tongue adjusting rod, proper cutting depth, and travel speed to get level disking and smooth fields.
5. Wash corrosive materials such as fertilizer and herbicides from the disk when it is not in use.
6. Insist on genuine AMCO replacement parts. Items such as bearings and blades look alike but are not as reliable as original equipment.
7. Never allow unsafe conditions or operating practices. Your safety is of prime importance.
8. Raise the disk harrow on its transport wheels when turning. Failure to do so will result in broken blades, bent axles, and excessive strain on the tongue and main frame.
9. Reduce operating speed in areas containing stumps or rocks to reduce blade breakage.



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.

MOST OFTEN ENCOUNTERED DISK BLADE FAILURES

Most disk blade failures can be prevented by selecting the correct blade size and thickness for individual conditions when buying a disk. Reduction of speed in areas containing rocks and stumps will greatly lengthen the blade life. Keeping gang bolts properly torqued and raising the harrow while turning will also reduce disk blade breakage.

FIGURE 1 — Laminated Disc—defective steel. Eligible for warranty consideration.

SURFACE VIEW

EDGE VIEW

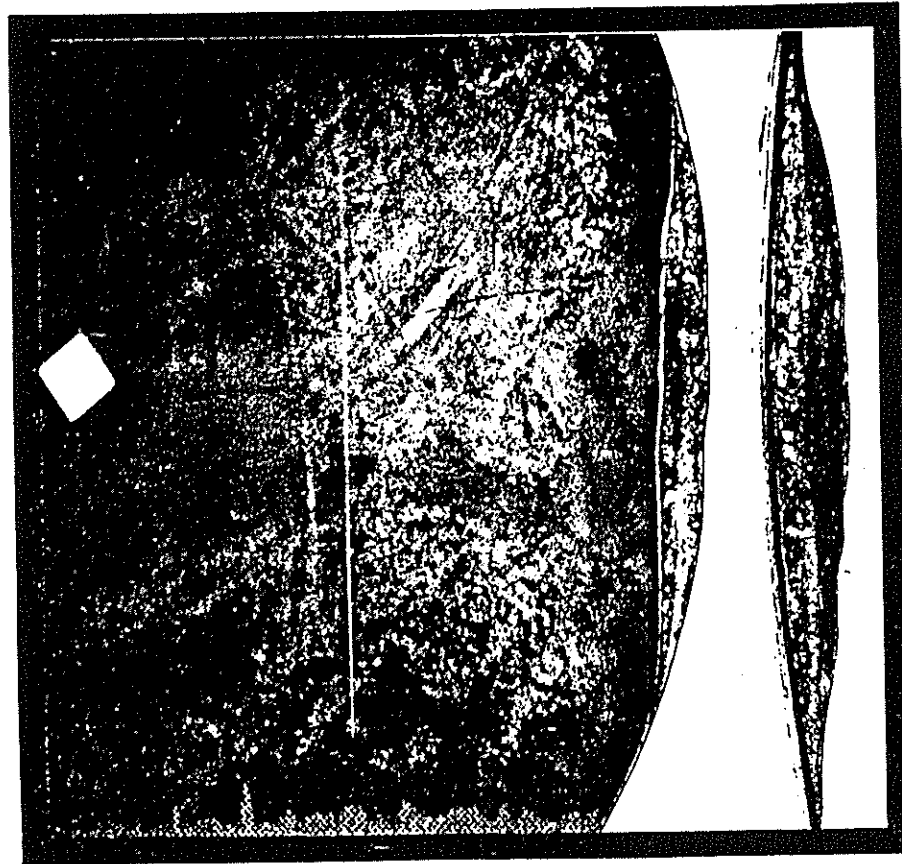


FIGURE 2 — Straight directional break caused by defective steel. Eligible for warranty consideration.

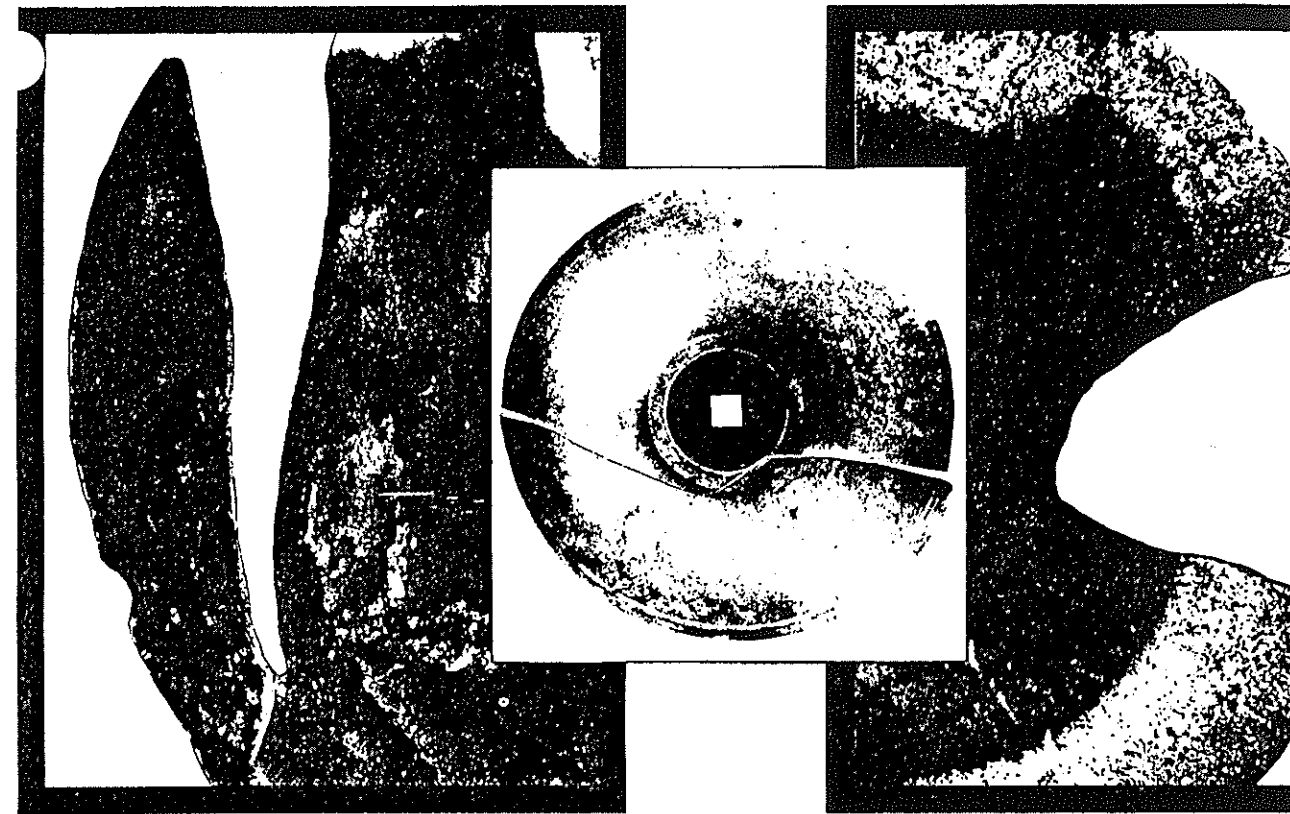


FIGURE 3, 4, 5 — Irregular breaks caused by contact against rocks or stumps. Not covered by warranty.



FIGURE 6 — Chipped or dented edges resulting from use in areas containing rocks or stumps. Not covered by warranty.

FIGURE 7 — Center broken out—Experience has that this is usually caused by loose bolts, excessive or by contact with rocks and stumps. Not covered by warranty.

Model	No. of Blades	Front Measurement A	Rear Measurement B
48-005	22	21	5 7/8
48-009	24	25 5/8	10 1/2
48-013	26	30 3/8	15 1/4
48-017	28	35	19 7/8
48-025	32	44 3/8	29 1/4
85-001	36	35 1/2	21
85-005	38	40 1/4	25 5/8
85-009	40	44 7/8	29 3/8
85-017	44	55 1/4	38 3/4
85-025	48	64 5/8	48 1/8
85-033	52	74	57 1/4
85-041	56	83 1/4	66 1/2
148-001	20	21 1/2	7 7/8
148-003	—	21 1/2	12 7/8
148-004	21	21 3/8	7 7/8
148-006	22	21 3/8	8 1/8
148-007	—	26 7/8	17 1/2
148-009	24	32 1/4	18 5/8
148-010	24	26 1/8	12 7/8
148-011	—	32 1/4	22 1/4
148-012	26	35 1/2	18 5/8
148-014	26	30 3/4	17 1/2
148-015	—	37 5/8	26 7/8
148-017	28	43	29 3/8
148-018	28	35 1/2	22 1/4
148-019	—	43	31 5/8
148-020	30	44 7/8	29 3/8
148-026	32	44 7/8	31 5/8
185-009	30	28 5/8	15
185-011	—	28 5/8	16 1/8
185-012	32	29 3/8	15
185-013	32	34	20 3/8
185-015	—	34	20 7/8
185-017	34	39 3/8	25 3/4
185-018	34	29 3/8	16 1/8
185-019	—	39 3/8	25 1/2
185-020	36	39	25 3/4
185-022	36	34 3/8	20 7/8
185-023	—	44 3/4	30 1/4
185-025	38	50 1/8	36 1/2
185-026	38	39	25 1/2
185-027	—	50 1/8	39 5/8
185-028	41	53 1/8	36 1/2
185-031	—	55 1/2	44 1/4
185-033	42	60 7/8	47 1/4
185-034	42	48 3/8	34 7/8
185-035	—	60 7/8	49
185-036	45	62 1/2	47 1/4
185-038	44	53 1/8	39 5/8
185-041	46	71 5/8	58
185-044	49	71 7/8	58
185-046	48	62 1/2	49
185-054	52	71 7/8	58 3/8

