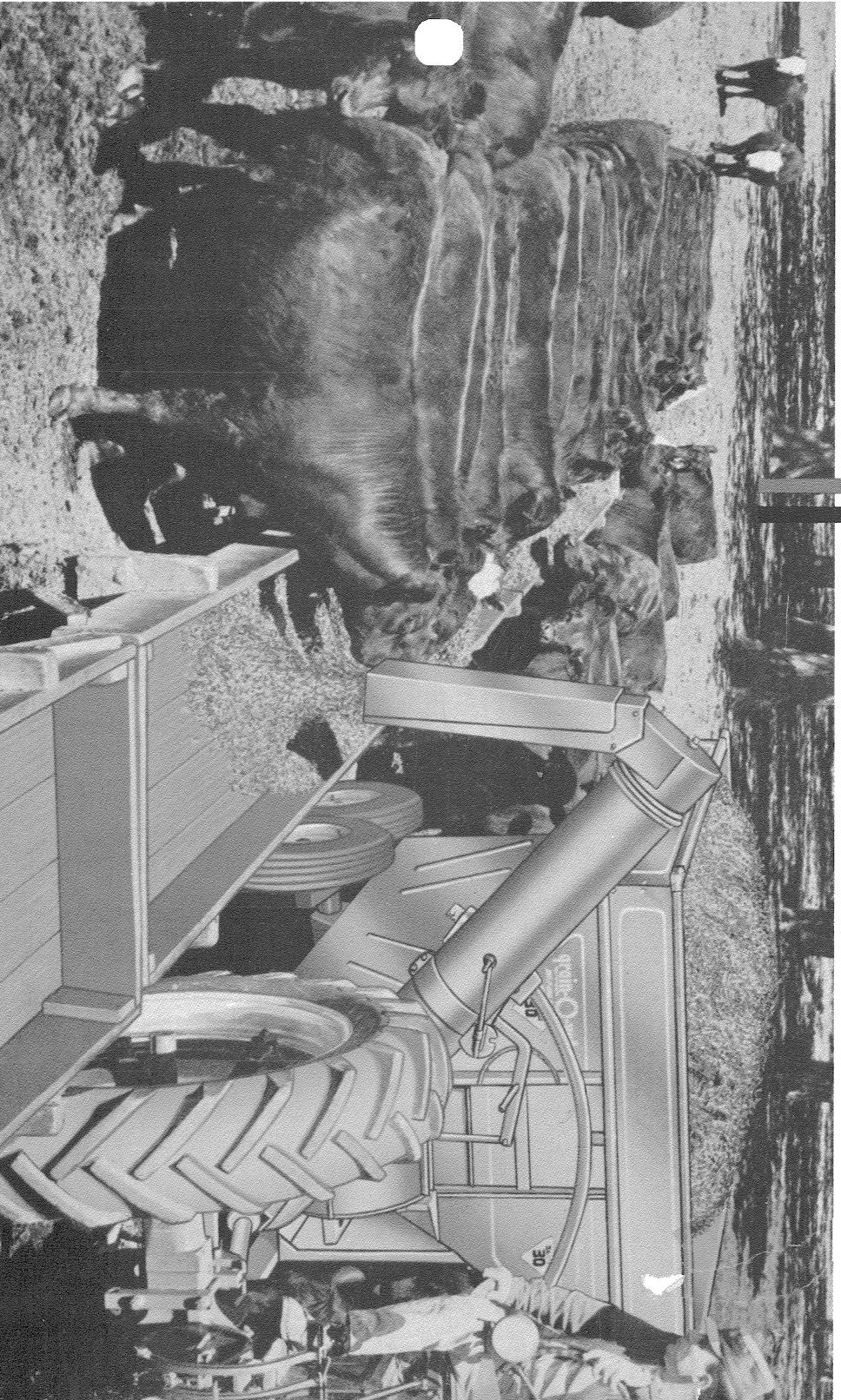


**PARTS
SETTING UP
MAINTENANCE
OPERATING
and
OPTIONAL
EQUIPMENT**

North American
grain-O-vator

**Series
Model 10 GOV-30**

SEPT. 1, 1972



PARTS—ORDERING INSTRUCTIONS

1. ALWAYS order by both Parts No. and Description from this book.
2. Double check your order—one digit transposed, deleted or any other small variation can result in wrong shipment of Parts and inconvenience to both you and your supplier.
3. Order from your Dealer.

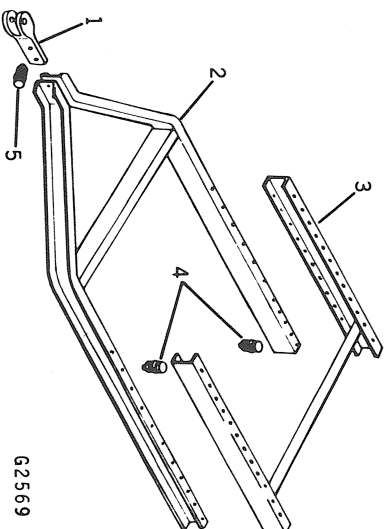


NORTH AMERICAN MFG. CO., Sioux City, Ia.

ALPHABETICAL INDEX

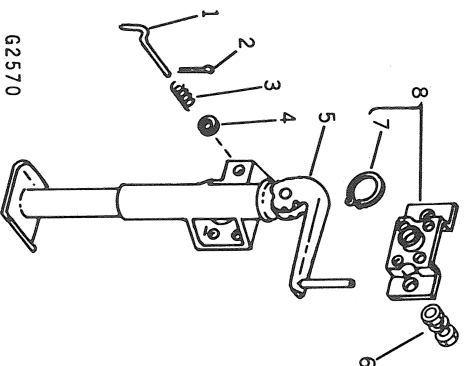
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HITCH



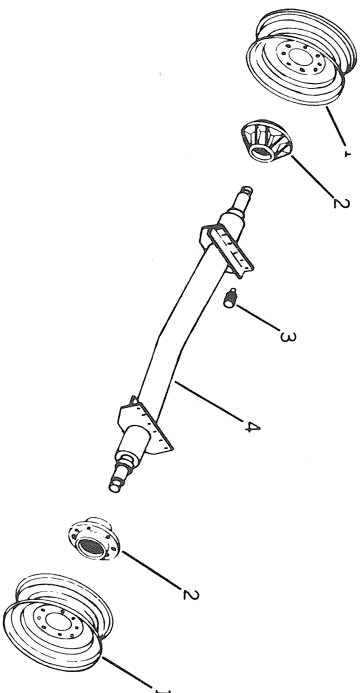
Key No.	Part No.	Description
1	21059	Clevis (Casting No. NAM128M)
2	30101	Hitch (only)
3	36400	Hitch Riser (For H.D. Single Axle)
4		1/2 x 1 1/2 Cap Screw, nuts & Lockwashers (6 used)
5		1/2 x 2 1/4 fine thread cap screw, nut & lockwasher (2 used)

HITCH STAND



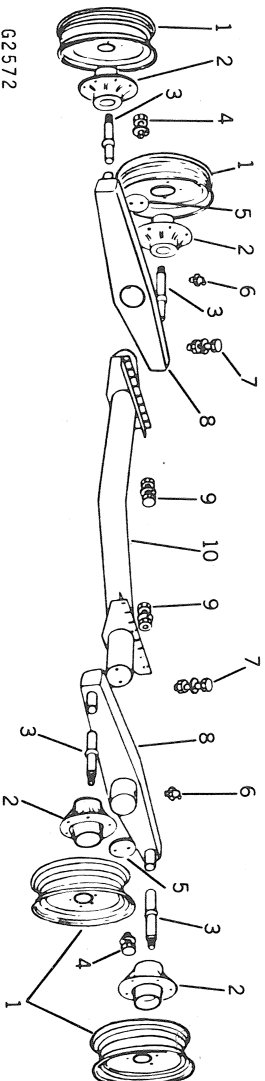
Key No.	Part No.	Description
1	21304	Plunger Repair Kit Includes 1-2-3-4
2		
3		
4		
5	21301	Jack Complete
6	21305	Cap Screws 1/2 x 1 1/4 Nuts (2 used) & Lockwashers
7	21305	Jack Snap Ring
8	21303	Bolt on Mount Bracket and Snap Ring

1829 HEAVY DUTY AXLE



Key No.	Part No.	Description
1	2654	16" D.C. Floatation Wheel
2	2656	20" Wheel
3	50430	Hub (2 used) Casting No. 0594EWC for parts see page 5
4	20470	1/2" x 1 1/4" Cap Screws, nuts & Lockwashers (6 used) Axle (Spindle only 50415) (Weld in)

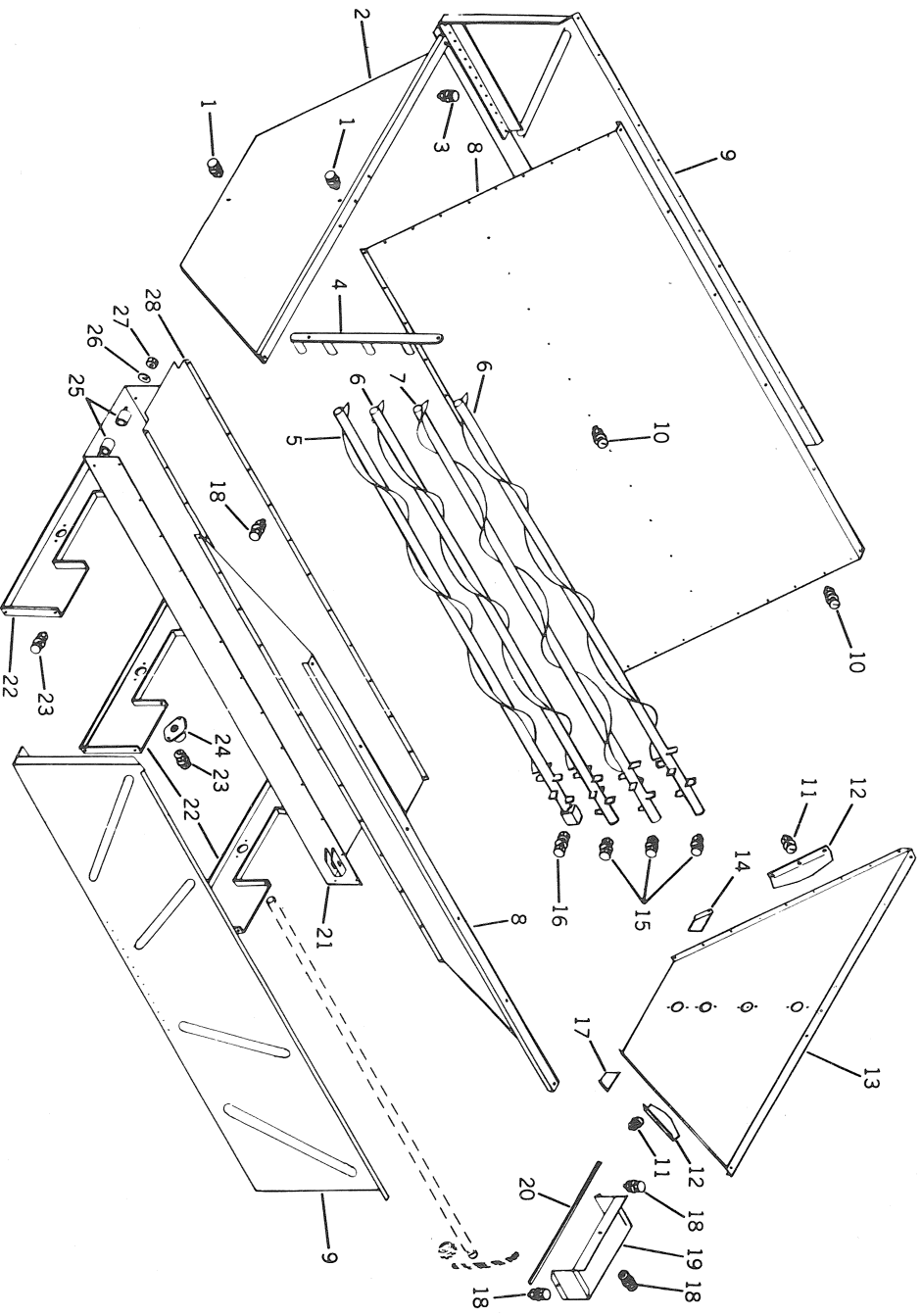
1833 OSCILLATING TANDEM AXLE



Key No.	Part No.	Description
1	2650	14" Wheel
2	2651	15" Wheel (4 used)
3	2653	16" Wheel
4	25320	Hub (4 used) Casting No. FH101546N - See page 5 for parts
5	25480	Spindle (4 used)
6	27200	1/2" x 1 1/4" cap screws & Lockwashers (4 used) Plate (2 used)
7	27020	Grease fitting 45 degree, 1/8" (2 used)
8	27020	3/8" x 5 1/2" Cap Screw, nuts & Lockwashers (4 used)
9	27102	Bolster (2 used)
10	27102	1/2" x 1 1/4" Cap Screws, nuts & Lockwashers (6 used) Axle

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WAGON BOX

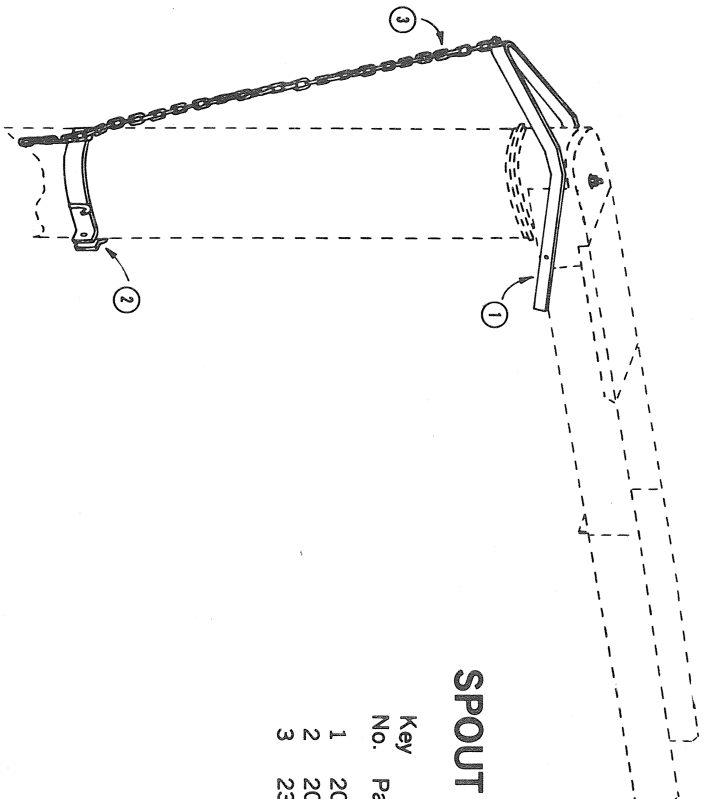


Key No.	Part No.
1	30110
2	30110
3	35760
4	30290
5	30300
6	30280
7	38020
8	30320
9	30320
10	
11	38630
12	30150
13	31840
14	
15	
16	31860
17	
18	34700
19	34680
20	38540
21	30136
22	45610
23	30600
24	
25	
26	
27	
28	38640

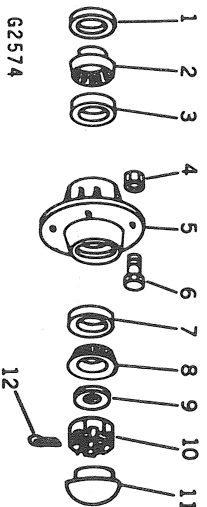
- Description**
- Flat Hd. Machine Screw 3/8 x 3/4, Nuts & Lockwashers (2 used)
 - Elevator End Sheet
 - Cap Screw 1/2" x 1 1/2" (2 used) Nuts & Lockwashers
 - Agitator Bearing Bracket
 - Bottom Agitator Auger L.H.
 - Upper & Second Up Agitator Auger L.H.
 - Second Down Agitator Auger R.H.
 - Sides (2 used)
 - Frame Side (2 used)
 - Pan Head 3/8" x 3/4" Machine Screws, Nuts & Lockwashers
 - Pan Head 3/8" x 1" Machine Screws, Nuts & Lockwashers (6 used)
 - Stress Plates (4 used)
 - Agitator End
 - Filler Plate R.H.
 - Cap Screws 3/8" x 2" (3 used), Nuts & Lockwashers
 - Cap Screws 3/8" x 2 1/2", Nut & Lockwasher
 - Filler Plate L.H.
 - Cap Screws 5/16" x 1", Nuts & Lockwashers
 - Sprocket Cover
 - Seal Cover
 - Bottom Channel
 - Crossmember (5 used)
 - Cap Screw 3/8" x 3/4" Nuts & Lockwasher (22 used)
 - Driveshaft Bearing Casting No. NAM113G
 - Chain Guide (2 used)
 - 3/8" Lockwasher
 - 3/8" Nut
 - False Bottom

SPOUT CONTROL COMPONENTS

Key No.	Part No.	Description
1	20242	Spout Control Arm
2	20246	Spout Control Band
3	23840	Control Chain

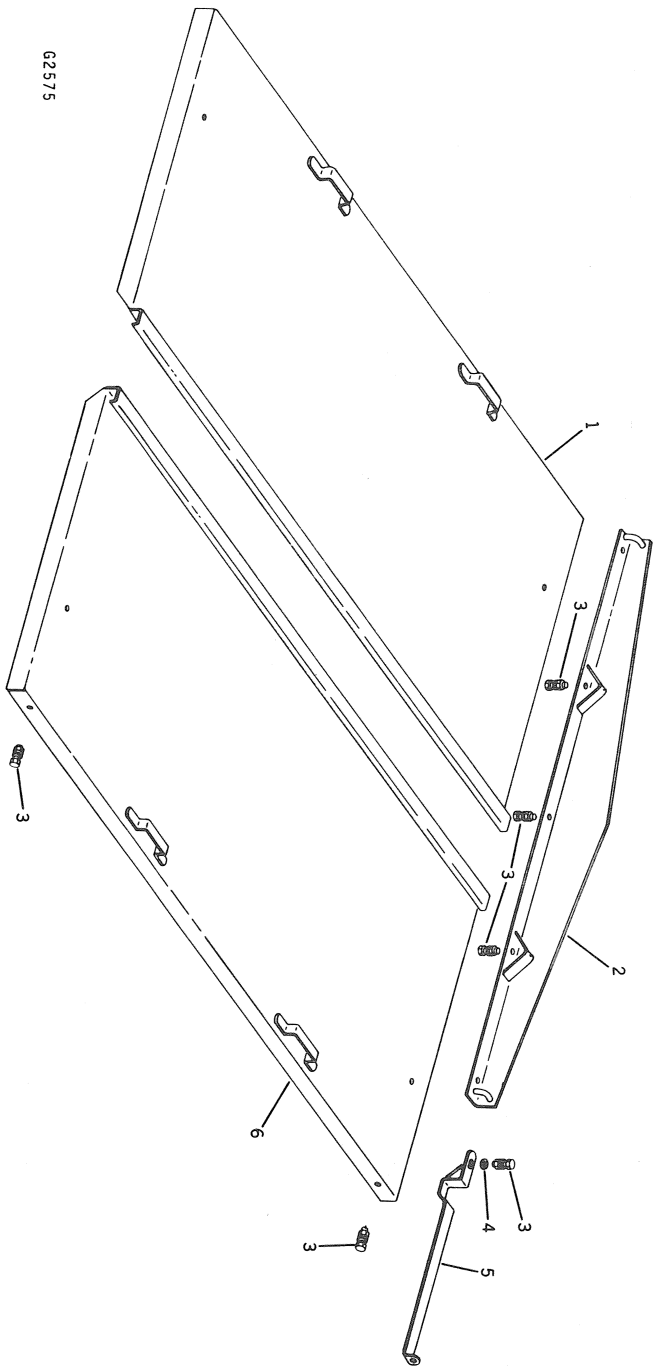


WHEEL HUB



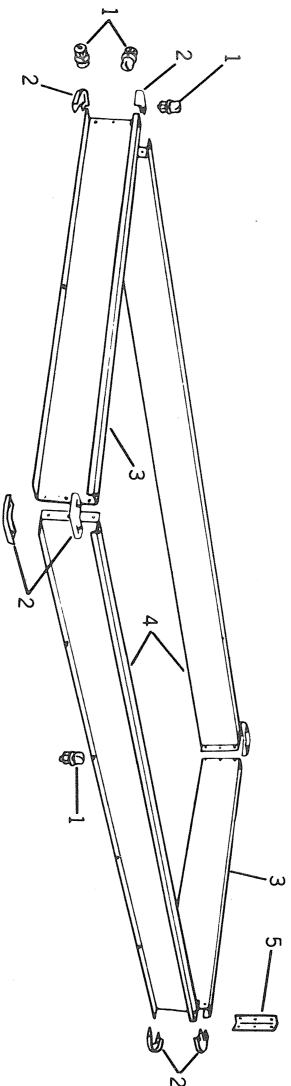
Key No.	Part No.	Description
1	50428	Seal (For heavy duty single axle)
	25420	Seal (For single & Tandem Hubs)
2	50433	Bearing Inner (For heavy duty single axle)
	25380	Bearing inner (For single & Tandem Hubs)
3	50435	Cup Bearing Inner (For heavy duty single axle)
	25340	Cup Bearing Inner (Single & Tandem Hubs)
4	25360	Wheel Nut 1/2" (Single & Tandem Hubs) (5 used)
5	50430	Hub Casting No. 0594EWC (For heavy duty single axle)
6	25320	Hub Casting FH101546N (For single & Tandem Hub)
	50429	Hub Casting No. 0594EWC (For heavy duty single axle)
7	25350	Bolt 1/2" (Single & Tandem Hubs) (5 used)
	50434	Cup Bearing Outer (Single Heavy Duty)
	25340	Cup Bearing Outer (Single & Tandem Hubs)
8	50432	Bearing Outer (Single Heavy Duty)
	25400	Bearing Outer (Single & Tandem Hubs)
9	25450	Washer
	25460	Nut Slotted, 1"
10	50424	Hub Cap (Heavy Single)
11	50424	Hub Cap (Single & Tandem Hub)
	25440	Cotter Pin 3/16" x 1 1/2"
12	25290	Hub Complete Less Spindle (For single & Tandem Axle)
*	50410	Hub Complete Less Spindle (For heavy duty Single)

BOX COVER



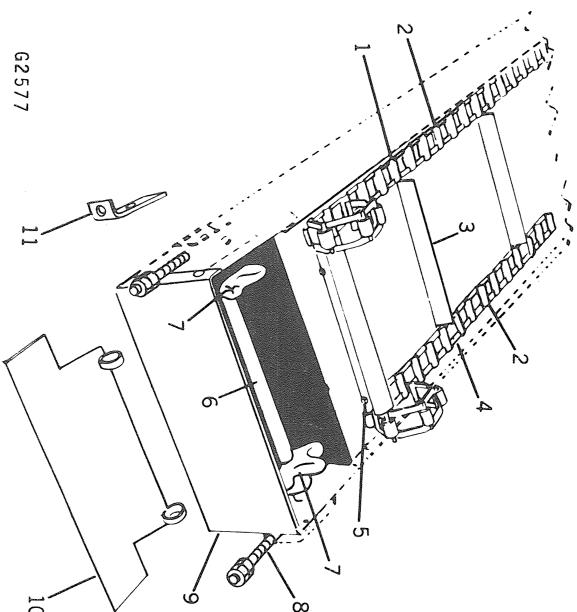
Key No.	Part No.	Description
1	20932	Upper Cover
2	20912	Mount Plate (2 used)
3		5/16" x 3/4" Pan hd. Machine Screws, Nuts & Lockwashers (14 used)
4		5/16" Flat washers (4 used)
5	20904	Slide (4 used)
6	20938	Lower Cover

BOX EXTENSION



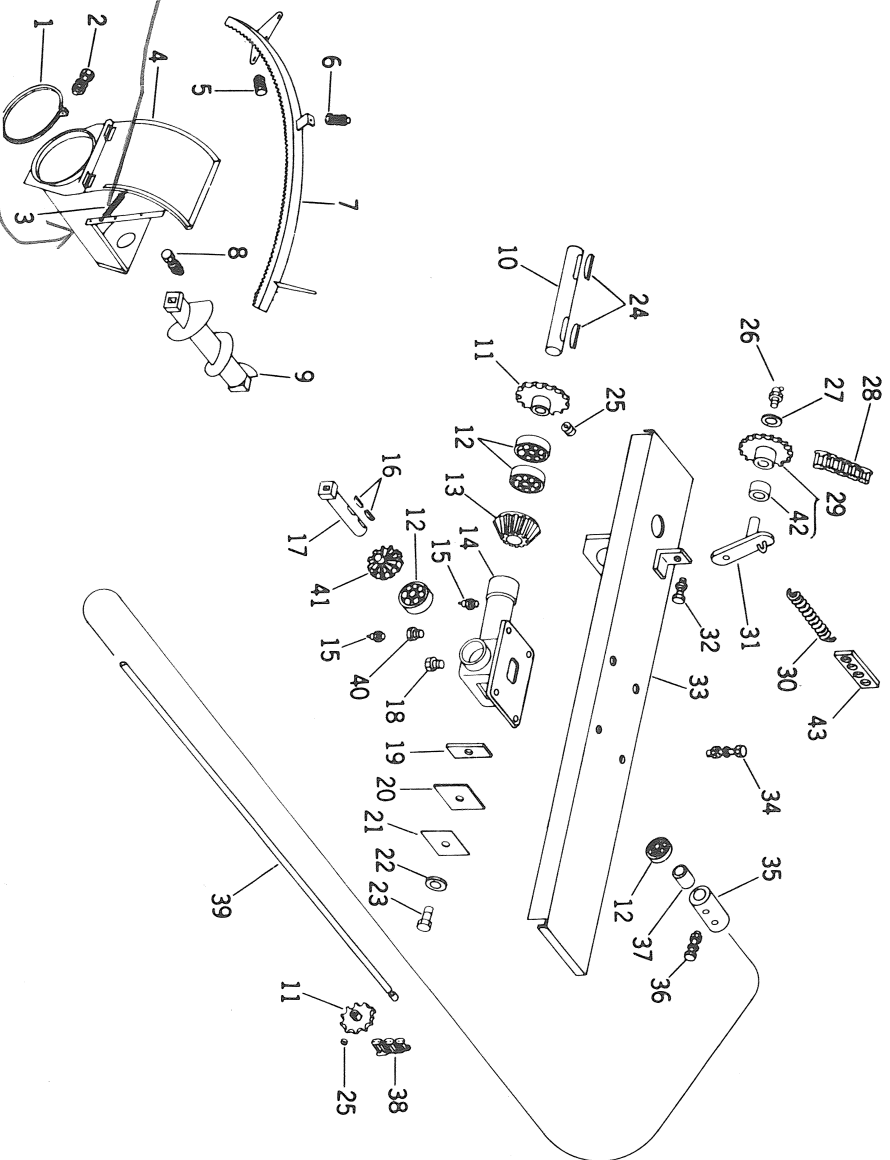
Key No.	Part No.	Description
1		5/16" x 3/4" Pan Hd. Machine Screws, Nuts & Lockwashers (48 used)
2	20120	Corner Piece (8 used)
3	20084	Top Box End (2 used)
4	35820	Top Box Side 10' (2 used)
5	26840	Corner Angle (4 used)

CONVEYOR CHAIN



Key No.	Part No.	Description
1	33370	Right Attachment Link
2	33320	Chain Type 67
3	33380	Flight
4	33380	Left Attachment Link
5	30700	5/16" x 1" cap screw (for replacement)
6	30800	Idle'r Shaft
7	900078	Idle'r Sprocket with busing NAM132G
8	31020	3/8" x 4" full threaded cap screws, double nuts.
9	30900	Bottom Channel End
10	31000	Over shaft guard
11	31010	Chain Tightener R.H.
*	30330	Chain tightener L.H.
*	30334	10' Drag Chain Assembly
		10' Chain PR only

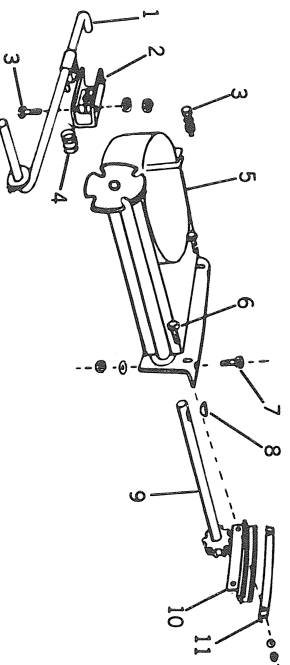
ADAPTER CASE, RACK AND GEARBOX



Key No.	Part No.	Description
1	39000	Ring Clamp
2	36131	3/8" x 2" Cap Screw, Nut & Lockwasher
3	36021	Spring
4		Adapter
5		3/8" x 1" Pan Hd. Machine Screws, Nuts & Lockwashers
6		3/8" x 1/4" Cap Screw, Nut & Lockwasher
7	39620	Rack
8		5/16" x 1" Cap Screw, Nut & Lockwasher
9	36301	Stub Auger
10	33580	Drive Shaft
11	31140	Rt. Sprocket
12	23060	Bearing (4 used)
13	33600	19T Bevel Gear
14	33560	Gear Box (NAM139G)
15		Grease Zerk 1/8"
16	16760	5/16" x 1" Woodruff key
17	30428	Drive Shaft
18		5/16" x 1 1/4" Cap Screw & Lockwasher
19	33680	Cover Clamp
20	33760	Cover Clamp
21	33660	Cover Gasket
22		5/16" Lockwasher

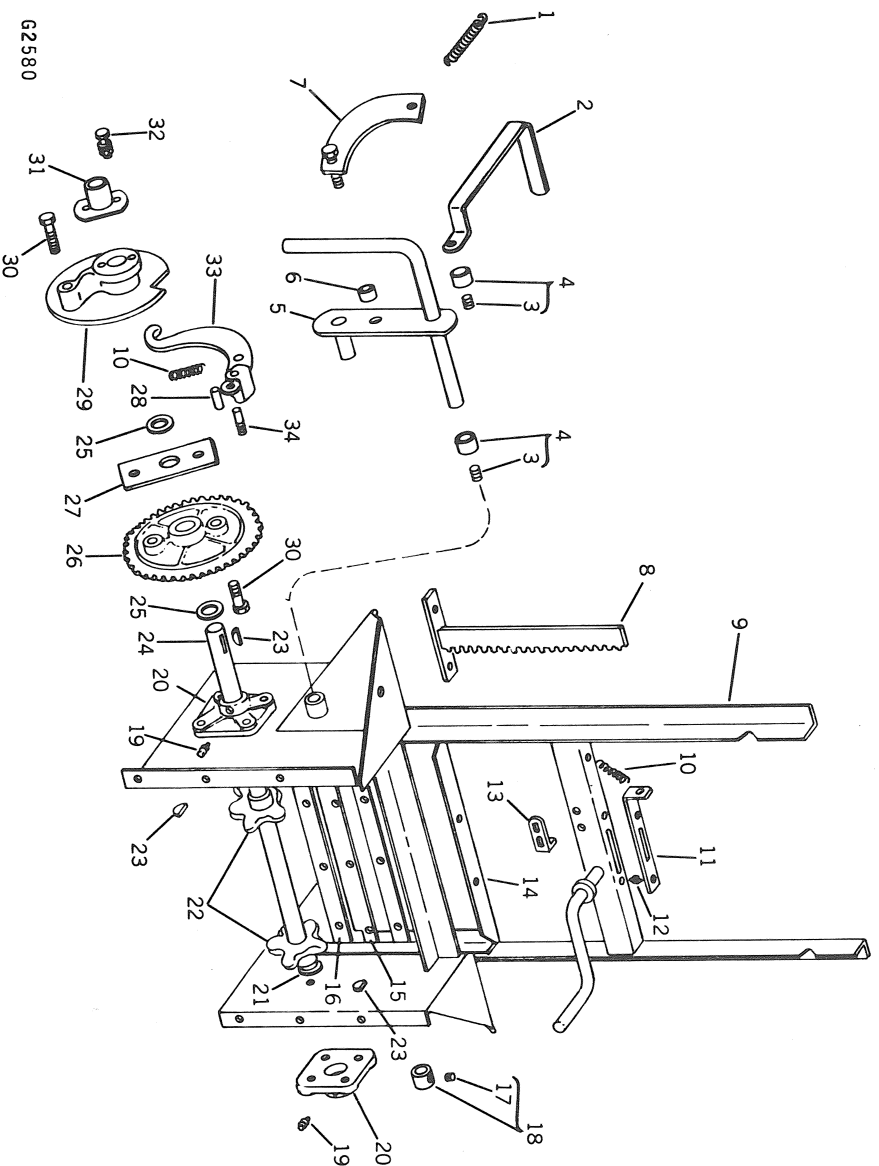
23	5/16" x 1 1/4" Cap Screw
24	5/16" x 1" Woodruff Key
25	5/16" x 1" Set Screw with locknut (2 used)
26	Grease Zerk 45°
27	Washer 13/32" x 13/16" x .060
28	Roller Chain type 50, 5/8" 80 links
29	Idle Sprocket with bushing
30	Idle Spring
31	Idle Arm
32	1/2" x 1" Cap Screw with Locknut
33	Gear Box Carrier
34	3/8" x 1 1/4" Flat Head Machine Screw
35	Nuts and Lockwasher (4 used)
36	60254 Connector Sleeve
37	23320 3/8" x 1" Set Screws with locknut and Lockwasher
38	31770 Spacer
39	30262 Roller Chain Type 50, 5/8" 85 links
40	18290 10' Driveshaft
41	18290 1/2" to 1/8" Reducer with zerk
42	33620 13T Bevel Gear
43	34520 Bushing
* 43	Spring Clip
30424	Gear Box Assembly includes 10 through 25, 40 & 41

AUGER TUBE CRANK



Key No.	Part No.	Description
*	39660	Crank Frame complete
1	29940	Lock Crank
2	29990	Crank Casting NAM160M
3		3/8" x 2" Capscrew, Nuts & Lockwashers (4 used)
4	20890	Spring
5	39740	Crank Frame
6		5/16" x 1" Cap Screw, Nut & Lockwasher
7		5/16" x 2" Cap Screw, Nut & Lockwasher
8		1/8" x 1/2" Woodruff Key
9	39860	Gear Shaft
10	29681	Holder Guide
11	29700	Holder Shoe
	900-451	Bushing for Frame

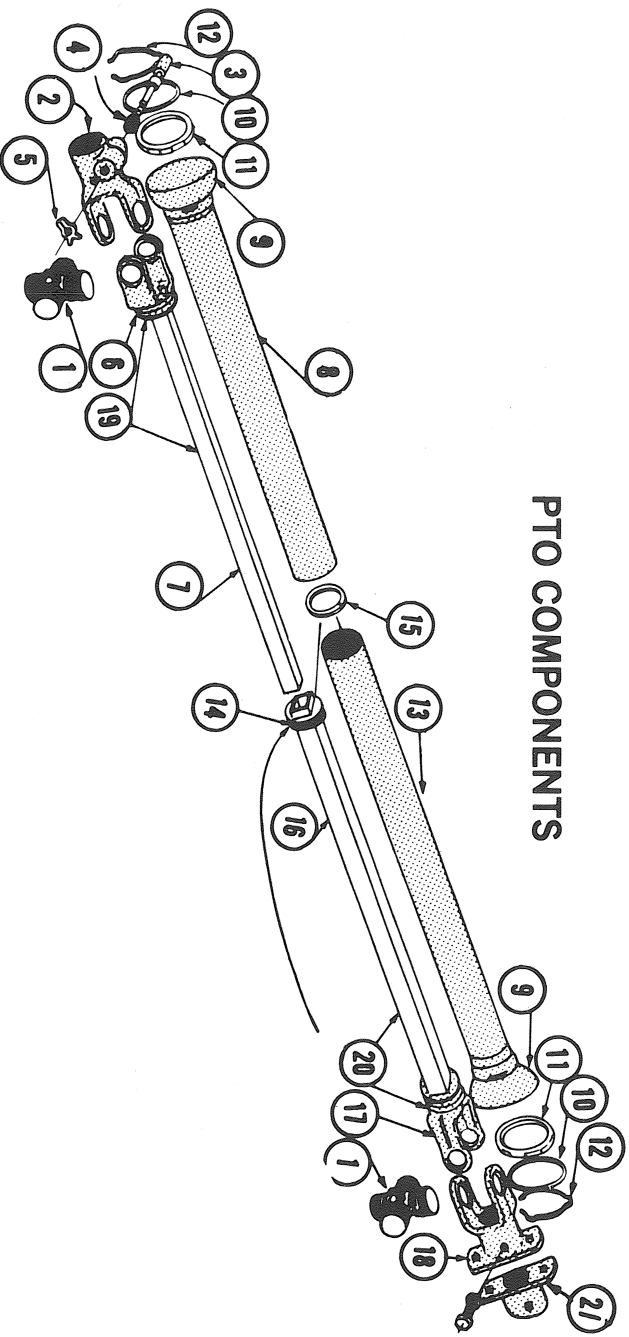
END GATE AND CLUTCH



Key No.	Part No.	Description
1	31880	Clutch Lever Spring
2	30128	Clutch Mount Hanger
3		Socket Hd. Set Screw 5/16" x 3/8"
4	34460	Clutch Collar with set screw
5	34320	Drag Clutch Lever
6		3/8" Nut
7	34400	Crescent Link
8	30509	Rack
9	30502	End Gate
10	33020	Spring 3/8" x 2" (2 used)
11	30516	Gate Lock
12		1/4" Zerk
13	30517	Adjustment Angle
14	30512	Door for End Gate
15	32600	Rubber Door Seal
16	32620	Rubber Door Retainer
17		Socket Hd. Set Screw 3/8" x 3/8"
18	32120	Collar with set screw
19		1/8" Zerk
20	33200	Flange Bearing with bushing (2 used)
21		Washer 1 1/16" x 2 1/4" x .164 (2 used)
22	32080	Sprocket NAM132G (2 used)
23		5/16" x 1" Woodruff Key
24	32100	Drag Drive Shaft
25		1 1/64" x 1 1/2" x .075 Washer
26	32740	45 T. Sprocket with bushing NAM132G

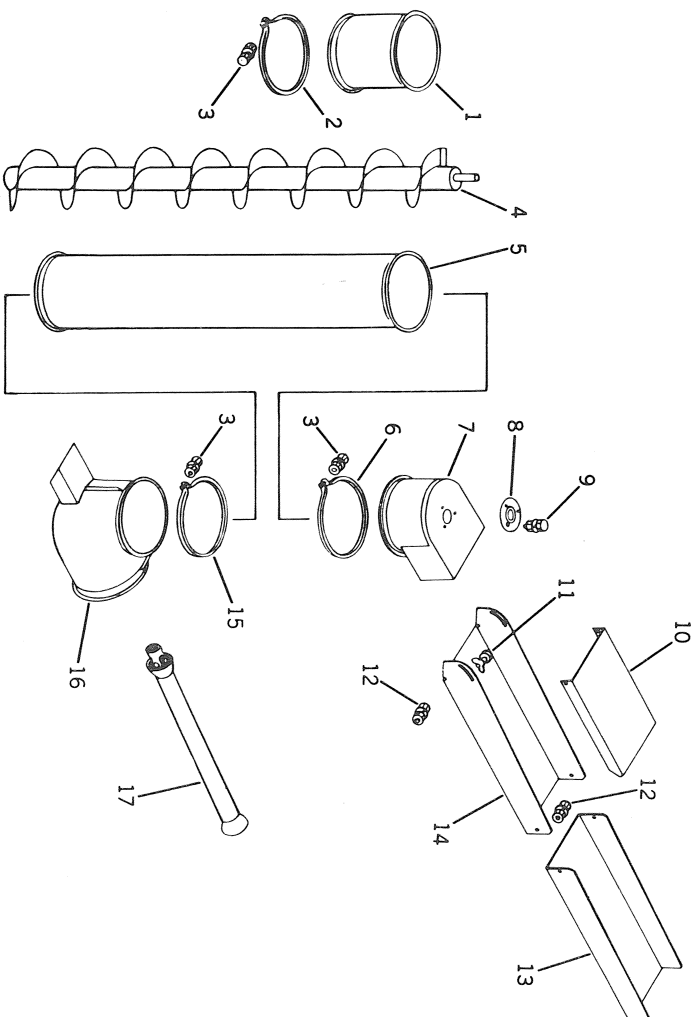
27	32780	Clutch Bar
28	32980	Clutch Arm Roller
29	33000	Clutch Plate NAM137G
30	33100	1/2" x 1 3/4" Cap Screw (3 used)
31	33100	Shear Hub
32	32960	5/16" x 1" shear bolt, nuts and lockwasher
33	32960	Clutch Arm Casting (NAM138S)
34	32940	Clutch Arm Stud

PTO COMPONENTS



Key No.	Part No.	Description
A*	2075	P.T.O. complete (see unit price list)
B*	20101	Tractor half B* consists of 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 19
C*	20102	Machine half C* consists of 1, 9, 10, 11, 12, 13, 14, 15, 18, 20, 21
1	20139	Joint Repair Kit
2	20737	Q.D. Splined Yoke Assy.
3	20141	Lock Pin
4	20142	Lock Pin Spring
5	20143	Lock Pin Washer
6	20144	Plain Yoke for Shaft
7	20145	Rectangular Shaft "30"
8	20146	Outer Shield Tube 28"
9	20147	Shield Bell
10	20148	Thrust Washer
11	20149	Nylon Bearing
12	20150	Snap Ring
13	20151	Inner Shield Tube 29"
14	20152	Support Sleeve
15	20153	Nylon Support Brg.
16	20154	Rectangular Tube 30-3/4"
17	20155	Plain Yoke Rectangular
18	20156	Plain Yoke Round
19	20157	Rect. Shaft & Yoke Assy.
20	20158	Rect. Tube & Yoke Assy.
21	22141	Shear Hub

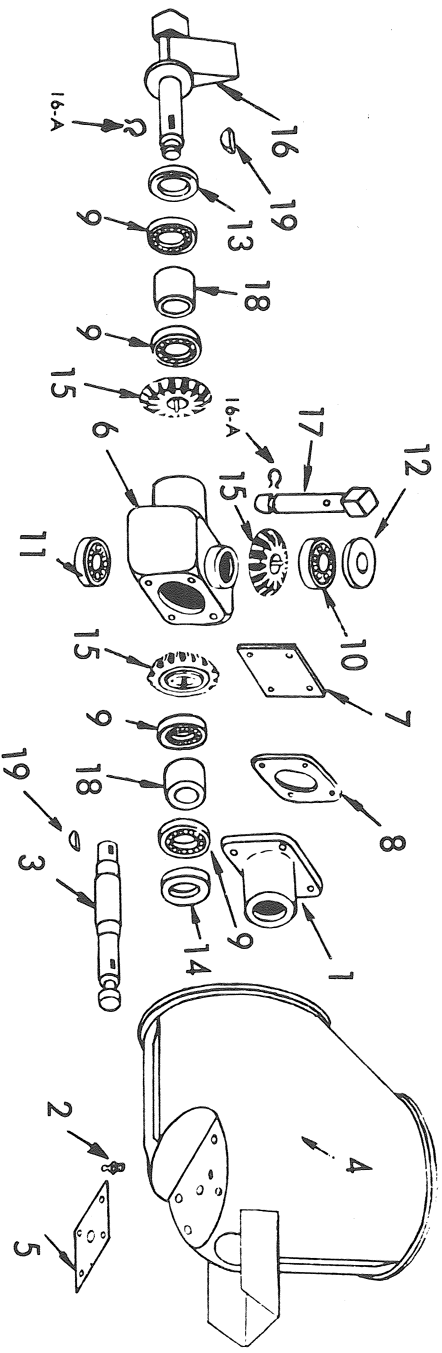
EVEVATOR AUGER TUBE AND SPOUT



G2582

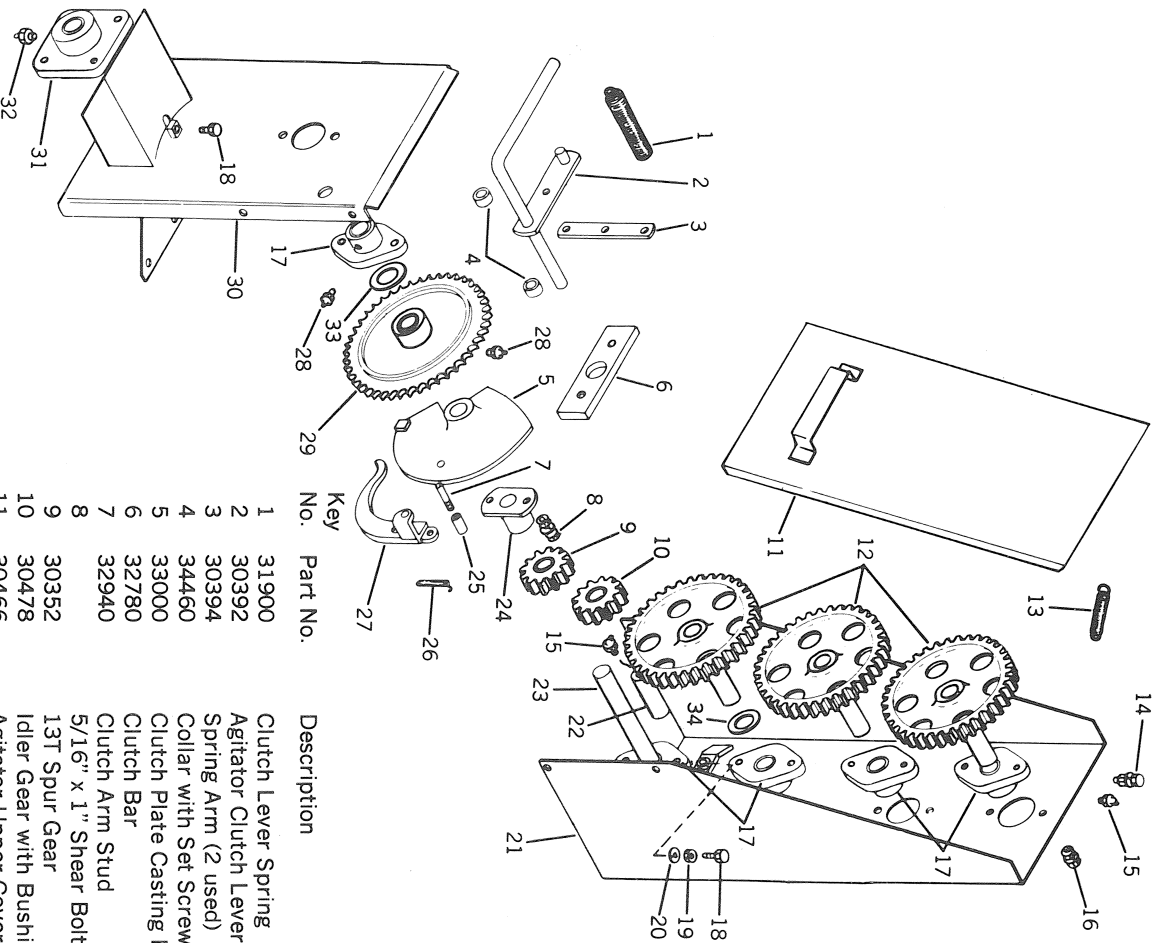
Key No.	Part No.	Description
1	24060	1' Extension Tube
	24150	2' Extension Tube
2	24020	Narrow Ring Clamp (Used w/extension tube)
3	23900	5/16" x 2" Cap Screws, Nuts & Lockwashers (2 or 3 used)
4	24100	7' Auger
	24200	8' Auger
	29350	9' Auger
5	24022	Base Tube
6	29390	Swivel Ring Clamp
7	23820	Swivel Head
8		Flange Bearing
9		5/16" x 3/4" Cap Screws, Nuts & Lockwashers (3 used)
10	23800	Spout Cover
11		5/16" x 3/4" Pan head with wing nuts and lockwashers (2 used)
12		5/16" x 3/4" Pan head screws with nuts and lockwashers (4 used)
13	20016	Spout Extension
14	20010	Spout
15	24000	Lock Ring Clamp
16	22803	Elbow Assy. (see page 13 for Parts)
17	2075	PTO (For parts see page 11)

AUGER TUBE ELBOW



Key No.	Part No.	Description
A*	22803	R.F. Elbow Assy.
B*	22603	R (Only) Elbow Assy.
C*	22901	R (Only) Gear Box Assy.
D*	23401	R & F Gear Box Assy. (C & E Combined)
E*	23411	Bearing Holder Assy. (9-9-14-15-18-3-1)
1	23441	Bearing Holder Casting (NAM107G)
2		1/8" Straight Zerk
3	23420	Input Shaft
4	22822	R.F. Elbow Case Only
5	22622	R (only) Elbow Case Only
6	22860	Lock Plate
7	22951	Gear Box Casting (NAM106G)
8	22980	Cover (Rear only)
9	22990	Rear (only) cover plate gasket
9	22991	R.F. Gasket
9	23020	Bearing 3206
10	23060	Bearing 7R18
11	23040	Bearing 3305
12	23080	1 1/8" Seal
13	23090	1 1/4" Seal
14	23080	1 1/8" Seal
15	23140	17T Gear
16	23160	Horizontal Shaft
16A	16680	Snap Ring
17	23260	Vertical Shaft
18	23320	Spacer
19	16760	Woodruff Key 5/16" x 1"

AGITATOR DRIVE



Key No.	Part No.	Description
1	31900	Clutch Lever Spring
2	30392	Agitator Clutch Lever
3	30394	Spring Arm (2 used)
4	34460	Collar with Set Screw (2 used)
5	33000	Clutch Plate Casting NAM137G
6	32780	Clutch Bar
7	32940	Clutch Arm Stud
8	30352	5/16" x 1" Shear Bolts (2 used) Nuts & Lockwasher
9	30478	13T Spur Gear
10	30466	Idler Gear with Bushing
11	30401	Agitator Upper Cover
12	31980	Drive Gear NAM184S (3 used)
13		Spring
14		3/8" x 2" Cap Screws, Nuts & Lockwashers (3 used)
15		Grease Zerk 1/8" 45° (5 used)
16		3/8" x 3/4" Cap Screws with Lockwashers (8 used)
17	35140	2 Hole Flange Bearing with Bushing NAM113G
18		3/8" x 1 1/2" Set Screw (2 used)
19		3/8" Nut
20		3/8" Lockwasher
21	30460	Agitator Drive Case
22	30482	Idler Shaft
23	30382	Clutch Shaft
24	33100	Shear Hub
25	32980	Clutch Roller
26	33020	Clutch Arm Spring
27	32960	Clutch Arm NAM138S
28		1/8" Zerk (2 used)
29	32740	45T Sprocket with Bushing NAM136G
30	30374	Agitator Lower Cover
31	35180	4 Hole Flange Bearing
32		1/4" Zerk
33		1 1/16" x 2 1/4" x .164 Washer
34		1 1/64" x 1 1/2" x .075 Washers (Used as required)

GRAIN-O-VATOR "30" SETTING-UP INSTRUCTIONS

PART ONE: SETTING UP INSTRUCTIONS

Lay out all parts and separate all bolts, nuts, and washers and parts according to size and description.

NOTE: DO NOT TIGHTEN ANY BOLTS UNTIL INSTALLED TO DO SO. When inserting any shaft, grease both shaft and bore in which shaft is to be inserted.

STEP ONE: ASSEMBLING THE UNDERCARRIAGE

1. Mount tires on wheels. Largest tires which can safely be used on standard wheels are 8:00 x 15. Inflate tires 45 to 50 pounds.
 2. Mount wheels on hubs and tighten lug nuts.
 3. **OPTIONAL TANDEM AXLE** (Page 3)
 - a. Remove end plates.
 - b. Install oscillating bolsters over axle with hubs to outside and grease fitting up.
 - c. Replace end plates and secure with previously removed bolts.
- TIGHTEN SECURELY.**

STEP TWO: ASSEMBLING THE BOX

1. Center either frame side on axle with lower flanges toward center of machine. Secure in place with 1/2 x 1 1/4 cap screws. Use first and third holes from each end. (Do Not Tighten Bolts.) Repeat with remaining side frame. Be sure it is centered on axle same as first frame side.
2. Position three cross members and secure with 3/8" x 3/4" cap screws, nuts and lockwashers to inside. (See figure 1). **DO NOT TIGHTEN BOLTS.** Note: Install flange bearing (provided in bolt sack) in center cross-member. Secure with 3/8" x 3/4" cap screws and lockwashers. Direction of bearing does not count as long as grease fitting is down. (Do not tighten).
3. Mount gear box carrier with gear box attached between frame sides. See figure 1. Sprockets must be toward left frame side and front of machine. Also gear box proper must be on underside of carrier frame. Secure with two 3/8" x 3/4" cap screws on each side, nuts and lockwashers inside. (Do Not Tighten). Bolt on hitch 32" from cross bar to machine frame using 1/2" x 1/4" cap screws.
4. Install long drive shaft through cross members and bearing with grooved end away from machine. Install half moon key. Insert end of shaft in coupler sleeve. Tighten set screw. Make sure set screw fits into countersunk in shaft.
5. Remove chain guides from bottom channel. Place bottom channel in cross members leaving 6-1/2 inch of closed end of bottom channel projecting beyond front end of frame. See figure 2, Page 18.
6. Unroll drag chain. Position in bottom channel. Pull approximately two feet of chain up under front idler sprocket. Chain flights must be facing forward and down.
7. Lay overshaft guard over end of bottom channel. See figure 2, Page 18.
8. Position false bottom in bottom channel with flanges up, leaving one hold in notched end of false bottom open past open end of bottom channel. Temporarily insert one 5/16" x 1" cap screw in second hold from each corner from outside in. Lay overshaft guard back over false bottom. See figure 2, Page 18.
9. Place one side sheet on frame side with edge with two breaks on top and to outside. Catch lower edge of side sheet over previously inserted 5/16" x 1" cap screws. Lower edge must be on inside of bottom channel so that upper edges of bottom channel and false bottom do not constitute an obstruction. See figure 2, Page 18.
10. Bolt side sheet to false bottom and bottom channel with 5/16" x 1" cap screws with heads toward center of machine. Nuts and lockwashers must be on outside of box. Remove previously inserted 5/16" x 1" cap screws and reposition correctly. Position bolts in all holes except one hole at front end of machine and two holes at rear end of machine. Also secure side sheet to frame side with 3/8" x 3/4" oven head bolts (with nuts and lockwashers to outside of box) in all holes except each end hole. **DO NOT TIGHTEN ANY BOLTS.** Repeat this step with remaining side. Lay 2 ft. chain (pull through in step 6) up over sprockets over false bottom.

STEP THREE: ASSEMBLING THE ENDS AND AGITATOR

1. Position agitator end sheet (longest one) on agitator end of machine, see figure 5, with its flanges outside side sheet but inside frame side. Secure in place with 3/8" x 3/4" over head screws (with nuts and lockwashers to outside of machine) in all holes except bottom two on each side. It is necessary to use 3/8" x 1" at junction with frame side (**DO NOT TIGHTEN**).
 2. Remove bolts from four shafts on rear of agitator drive case. Remove grease fitting and 3/8" x 3/4" cap screws from five bearings on rear of agitator drive case. Also remove flange bearing from bottom of drive case.
 3. Position agitator drive case assembly on agitator sheet with hubs of bearing through cutouts in end sheet. Align holes in bearing and agitator end sheet and replace the 3/8" x 3/4" cap screws and lockwashers previously removed and tighten securely. Also replace grease fitting. **NOTE: REPLACE FLANGE BEARING OVER DRIVE SHAFT AND BACK ON CASE.**
 4. Insert five 5/16" x 1" cap screws through bottom channel and stabilizer plate (welded to agitator case assembly) and secure with nuts and lockwashers on underside (Do not tighten.)
 5. Install agitator augers. You will note that there is one auger with a square on one end, also three other augers of which one has a yellow stripe on one end.
 - a. Position auger with square over lower square shaft and block other end of auger in position so there is no strain on it.
 - b. Position one of the two remaining augers that is **not striped** yellow, in second from bottom position. Align bolt holes but **do not** insert bolts. Block end to prevent strain.
 - c. Position **striped** auger in third from bottom position. Block in place.
 - d. Position remaining auger in place and block.
 - e. Insert auger bearing bracket into rear end of augers.

(NOTE: LARGEST END OF BRACKET MUST BE AT THE TOP.)
 6. Position rear end sheet on outside of side sheets but on inside of frame side and secure in place with 3/8" x 3/4" oven head bolts except at junction with frame side where a 3/8" x 1" oven head bolt is necessary. Nut and lockwashers must be on **OUTSIDE** of machine.
 7. Bolt rear agitator bearing bracket to end sheet using 3/8" x 3/4" flat head bolts. Nuts and lockwashers must be on inside of box. Holes in bearing bracket are counter-sunk so tighten bolts until heads are flush with end sheet.
 8. Bolt agitator augers to front shafts with previously removed bolts and tighten securely.
 9. Position agitator drive chain longer of two provided, around 45 tooth sprocket in agitator drive case through square holes in stabilizer plate and around 12 tooth sprocket on drive shaft and connect chain. See figure 3, Page 18.
- IMPORTANT!**
- Be sure to install spring lock on connecting link of chain. Loosen four bolts holding lower flange bearing to agitator drive case. By turning set screw above flange bearing adjust chain tension until it is possible to move chain only one inch. When chain is in correct tension securely tighten previously loosened bearing bolts.

STEP FOUR: INSTALLING END GATE AND DRAG DRIVE.

- Install clutch mount hanger with 3/8" x 3/4" hex head cap screws at position 27 **Figure 1 Page 18**.
- Position the end gate with the side plates on the outside of bottom channel and secure as below:
- a. In holes "a," use 3/8" x 1" cap screws with nuts and lockwashers to outside of box.
 - b. In holes "b," where false bottom, bottom channel, sides and end gate bolt together use 5/16" x 1" cap screws with nuts and lockwashers to outside.
 - c. Insert chain guides in holes "c," and secure with 3/8" nut and lockwashers. (These previously removed from bottom channel.) **NOTE:** Chain guides go under chain. Refer to Figure IV detail B for correct installation.

- d. In holes "d" bolt end gate to end sheet using 3/8" x 1" oven head bolts with nuts and lockwasher to outside.
- e. Position remaining roller chain over 45 tooth sprocket then back over idler arm and sprocket through hole in gear box carrier frame, around 12-tooth drive sprocket then connect to end of chain on 45 tooth sprocket. REFER TO FIGURE IV.
- f. Hook drag drive tightener spring to idler arm, then hook spring clip (provided in bolt sack) on opposite end. Determine which of bolts that hold sides to bottom channel will catch spring clip. Remove nut and lockwasher from this bolt and all spring clip. Replace nut and lockwasher and tighten securely. See figure IV.
- g. Loosen two collars on drag clutch lever assembly, do not remove. Install lever by inserting long bent end through clutch lever hanger. Insert opposite end into bushing welded to end gate frame, as shown in Figure IV. Be sure pin on end of flate lever engages cast arm on clutch plate. Slide collars against clutch arm hanger and bushing, tighten set screws. Hook remaining spring between hole in clutch mount hanger and hole in crescent link. Be sure crescent link passes under round lever rod. Refer to Figure IV for correct installation.
2. Place front filler plates in position over lower holes in front end sheet as shown in Figure V and secure with 3/8" x 3/4" oven head bolts with nuts and lockwashers to outside. NOTE: Flange must be toward center of machine so as to cover small opening on each side.
3. Install agitator drive case cover and spring. Refer Figure V.
4. Pull drag chain over rear drive sprockets and into box. Connect chains by driving links together sideways. Tighten chain until it is snug by adjusting tension screws on front of bottom channel.
5. Position front sprocket cover over open portion of bottom channel under agitator drive case. Refer to Figure V for correct placement. The open side must be toward end sheet and lower flanges should be resting on chain tightener bracket. Insert sprocket cover sponge rubber seal strip between end sheet and sprocket cover with gunned seal against end sheet. Force sprocket cover securely against seal and secure to chain tightener brackets with 5/16" x 1" cap screws with nut and lockwasher on top. Tighten securely.
6. Position corner pieces between end sheets and side sheets and secure with 3/8" x 3/4" oven head bolts with nuts and lockwashers underneath. NOTE: If top box extension is to be installed bypass this step.

STEP FIVE: TIGHTENING THE BOX

1. Tighten all bolts on hitch and then sight across top of machine to ascertain if box is square and level. If not, take corrective steps. When box is square, tighten ALL bolts checking to see that all have lockwashers.
- INSTALLING 10 INCH BOX EXTENSION: (Optional, if machine has tandem axle and is to use this.)
1. Install one extension end opposite elevator end of machine and insert three 3/8" x 3/4" oven head bolts in center holes. Do not insert corner bolts.
 2. Install both extension sides using four 3/8" x 3/4" oven head bolts in each side. Do not insert corner bolts.
 3. Install remaining extension end by using two corner angles, angles to on outside of each corner. Do not bolt this end to box as yet. Position remaining two angles and secure with 3/8" x 3/4" oven head bolts with nuts and lockwashers to outside of box. Do NOT tighten.

STEP SIX:

INSTALLING THE ADAPTER AND ELEVATOR.

1. Remove stub auger from adapter case.
2. Bolt adapter case to end gate frame with three 5/16" x 1" cap screws on each side. See Figure IV for correct installation. Sides of adapter through must be outside sides of end gate frame. Secure with 5/16" x 1" cap screws with nuts and lockwashers and tighten.
3. Insert the stub auger with smaller or narrower portion of flighting toward center of the machine, and slip square over square drive shaft protruding from gear box. Refer Figure IV Detail A for correct installation.
4. Bolt drag drive cover in place over chain and sprockets on left side of adapter.

5. Lay auger elevator on ground extending out to either side. Lift elbow into place and slip the square drive shaft in elbow into square on stub auger. IMPORTANT: The beginning edge of stub auger flighting must be placed at right angle to flipper. See Figure IV Detail C. Slip ring clamp over both flanges and insert wing bolt and tighten until elevator can just be lifted by hand.

NOTE: See Elevator Control Instructions Page 14.

Raise the elevator to vertical position and lock in place with elevator holder.

NOTE: It may be necessary to adjust holder band on elevator tube up or down to make it fit holder properly.

STEP SEVEN: INSTALLING THE POWER-TAKE-OFF

For FRONT delivery machines the power-take-off must be installed on the elevator and for REAR delivery machines it must be installed on long drive shaft.

1. Loosen two 5/16" x 1" bolts in shear hub on power-take-off and back out Allen screw. Remove the 3/8" cap screw from yoke.
2. Insert a 5/16" Woodruff key in shaft. Slide shear hub and yoke over shaft until the groove in shaft appears in the bolt hole on power-take-off yoke. Reinsert 3/8" cap screw previously removed from yoke, and tighten securely. NOTE: This cap screw is used only to hold power-take-off assembly on shaft in the event that shear bolts shear and must not seat on shaft, but must be free to revolve.

3. Tighten shear bolts and set screw.

NOTE: To minimize power consumption when operating try to run P.T.O. shaft as straight as possible.

PART TWO: LUBRICATION AND RUN-IN

Your Grain-O-Vator 30 is now ready to be hitched to your tractor.

- A. If power-take-off shaft is too long or too short for your tractor you may compensate for this variation by moving hitch out or in to lengthen or shorten your draw-bar dimension.

B. LUBRICATION INSTRUCTIONS: Grease following places:

1. Long drive shaft bearings—one fitting at front of shaft and one at center. Grease every 4 hours of operation.
 2. Power-take-off—one zerk on each universal joint. Grease every 2 hours in use.
 3. Front Idler Sprocket Shaft—one zerk on side. (Requires a considerable amount of grease the first lubrication as one zerk greases both sprockets.) Grease daily.
 4. Rear Gear Box—two zerks. Grease daily several strokes of gun.
 5. Rear Chain Tightener Sprocket—one fitting. Grease every 2 hours in use.
 6. Rear End Gate—45 tooth sprocket—one fitting. Grease daily. Drag drive shaft bearings—one fitting each. Grease every 4 hours. Put some grease on each of mesh gears weekly.
 7. Elevator: Elbow—One fitting on bottom of elbow. Three complete strokes with grease gun every 1000 bushels.
 8. Front agitator Drive Case—One fitting—45 tooth Drive Sprocket, five rear agitator bearings, one fitting each; two front agitator bearings, one fitting each. Grease daily.
 9. Wheel Bearings—repack with wheel bearing grease yearly.
 10. Tandem axle—Grease oscillating bolsters daily in use.
- NOTE: When greasing Grain-O-Vator 30, force grease in until it is visible through any bores. The seals in your Grain-O-Vator are designed to let grease out, thereby preventing blowing the seals by overgreasing.

PART THREE: OPERATING INSTRUCTIONS

A. BEFORE OPERATING

1. Check all bolts and set screws to make sure they have lockwashers and are tight. Also check entire machine inside for loose bolts, nuts, etc. that could be carried through conveying system and possibly cause damage.
2. Check all roller chains for proper adjustment and alignment.
3. Lubricate entire machine following lubrication instructions.
4. Check drag chain to make sure it is tight but not stretched and that both chains have same tension.
5. Turn power-take-off by hand a few times to make sure that all operating parts are clear.

6. Check to see that power-take-off shield is free to rotate on power-take-off shaft.

B. INITIAL RUN-IN

1. Attach power-take-off to tractor.

NOTE: If power-take-off shaft is too long it may be sawed off to adjust for different tractor coupler lengths. If it is too short, the hitch may be coupled up shorter.

2. **IMPORTANT NOTE—OPEN THE END GATE DOOR SO THAT THE DRAG CHAIN FLIGHTS WILL CLEAR IT.** With the Grain-O-Vator empty and clutches disengaged (clutch levers in position so that lever has pulled back clutch arm.) **IDLE TRACTOR** and check operation of roller chains, shafts and elevators.

3. Again check to see that end gate door is open and engage rear drag clutch.

4. Engage agitator clutch.

5. Let machine run for a few minutes at **IDLING SPEED**.

6. Disengage clutches and check all grease points and bearings and lubricate again.

7. If the agitator case has a weave or vibration, loosen the bolts holding the front bearings on main agitator drive shaft to allow this bearing to center itself and then retighten bolts. **REFER TO FIGURE III.**

C. GENERAL OPERATION

NOTE: THIS IS A VERY IMPORTANT PROCEDURE AND SHOULD BE FOLLOWED IMPLICITELY WITHOUT DEVIATION.

1. With clutches disengaged, engage tractor power-take-off.

2. Open end gate. End gate must be open far enough to allow flights to clear. The correct opening will depend on the desired rate of flow of material being handled and elevating angle of elevator.

3. Engage rear drag drive clutch. With well cut corn ensilage or dry chopped hay, it may be necessary to engage and disengage this clutch several times at start of load to prevent overloading elevator.

4. Engage agitator clutch only when necessary. Agitator augers do not serve purpose of a mixer but are merely to break down rough materials that would otherwise have a tendency to bridge. It should only be engaged when needed and never for any length of time in ear corn, ground feed or grain.

5. Stopping the Machine: Disengage agitator and drag drive clutches, then close end gate. Allow elevator to clear itself before disengaging tractor power-take-off.

D. LOADING THE BOX

The Box should always be loaded with the clutches **DISENGAGED** and end gate closed. (With materials that will not flow freely, it is permissible to leave end gate open when loading.)

E. MIXING INSTRUCTIONS

Mixing is accomplished by loading different ingredients in layers so that they fall into front of drag as box unloads. Mixing results are determined by how box is loaded. A little experience in observing how machine unloads various materials will teach you how to load box for best results with each material.

1. With **GROUND FEED ONLY** the best mix is usually obtained by putting ingredients with which there is the most bulk on bottom, then lesser ingredients, with supplement spread evenly over entire top layer of load.

2. For **MIXING DRY CHOPPED HAY OR ENSILAGE** with grain or ground feed, load the chopped hay or ensilage first. Load this material level sideways of box but low in the front and rear of box. Then spread the grain evenly over entire load. Spread the supplement evenly over entire top layer.

For obtaining best mix, it is necessary that box unload from front. If the material in back of box is being unloaded instead of being brought forward by the agitator (when engaged), close end gate slightly.

If material is packing or boiling up in back of the box, open end gate slightly.

F. SHEAR PINS AND TROUBLESHOOTING

Grain-O-Vator 30 is equipped with three sets of shear pins. These shear pins have been installed to protect the entire machine and if properly maintained will prevent your machine from damage in operation.

These shear pins must be 5/16" x 1" soft steel cap screws. Do not use hardened bolts as they will not shear when necessary, as is intended purpose.

One set of shear pins is on the power-take-off, one is on main agitator drive shaft in agitator drive case and one is on rear drag drive shaft on end gate. If either of these sets of shear pins shear, it is an indication that either the machine is being overloaded, something is lodged in machine, or a part of the mechanism is frozen or out of line. If any of the pins shear, first check the entire machine to see if anything is obviously wrong, then replace shear pins and start machine slowly, using no more power than was being used at time the pins sheared. (These shear pins may crystallize in time and shear for no apparent reason.) If the pins shear again:

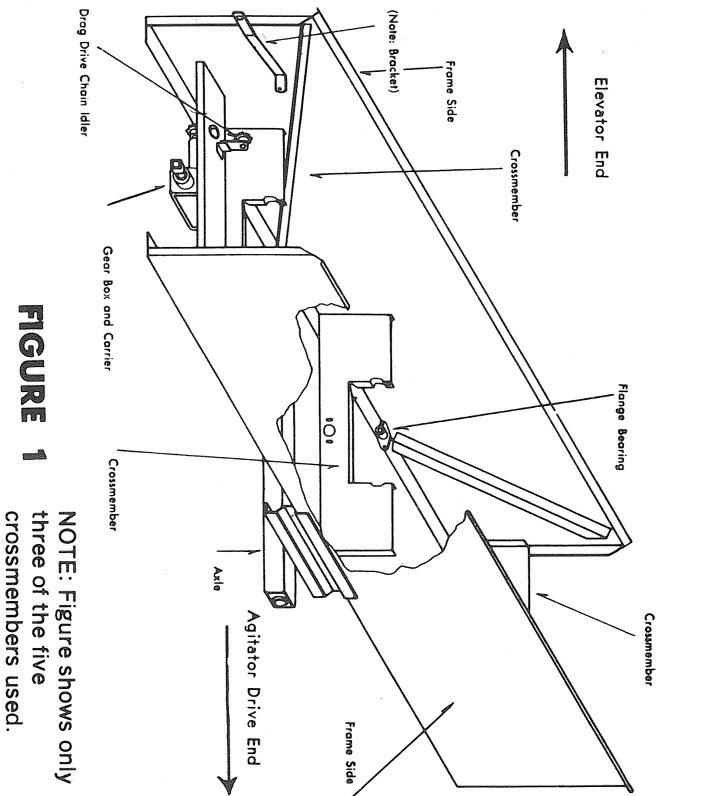
a. If it is the shear pin in agitator drive case that sheared, check four auger drive sprockets to see that they are all in line. If one of sprockets is out of line, it usually means a bent agitator auger. Disengage agitator and unload the box. Top agitator auger being sprung is usually caused by a heavy load of ensilage or chopped hay above it. If more than 1 1/2 ft. of sideboards are added to box and it is to be used for chopped hay or ensilage, place a 2" x 6" plank on edge, lengthways with box, directly above the top agitator auger. (Refer to figure III).

b. If drag drive or power-take-off pins shear, it may be caused by material packing in rear of the box or in adapter. If packing occurs inside the box, end gate should be opened further and perhaps agitator engaged and disengaged alternately. If packing occurs in adapter, check operation of flippers in adapter case. Then disengage the drag drive clutch and check the unloading capacity of stub auger and elevator auger. If these augers do not seem to take material away freely, remove elevator and inspect augers for bent flights. The flighting being bent even slightly will affect its unloading capacity to a large extent. Also a bent flipper on gear box in elevator elbow will affect the unloading capacity. Also check the installation of stub auger to be sure that small or narrow flighting is away from elevator elbow; that is, toward rear gear box.

G. OPERATION AND UPKEEP

Your Grain-O-Vator 30 will give you years of troublefree operation if the previously listed lubrication and operation instructions are followed implicitly.

North American
Grain-O-Vator



NOTE: Figure shows only three of the five crossmembers used.

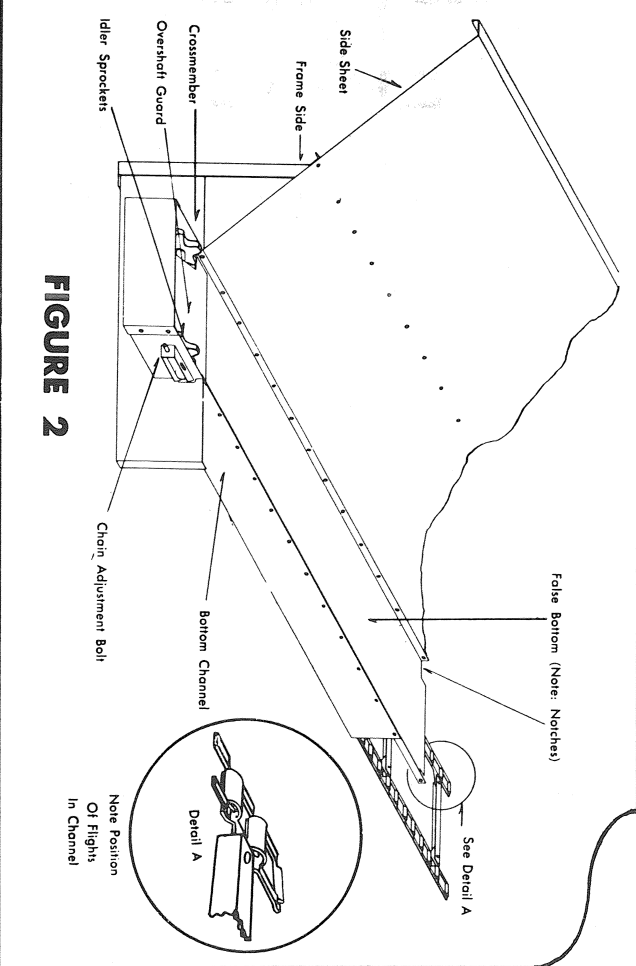
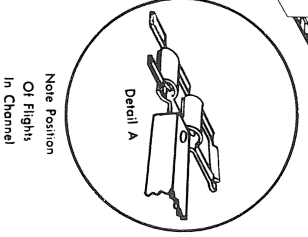


FIGURE 2



DETAIL C

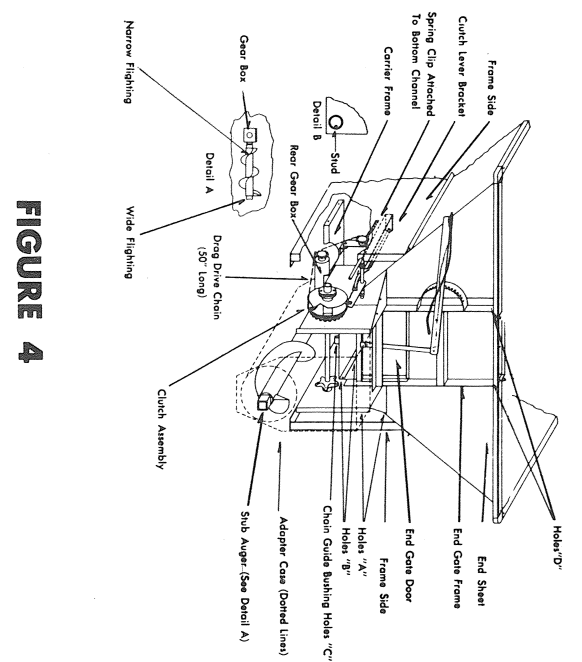
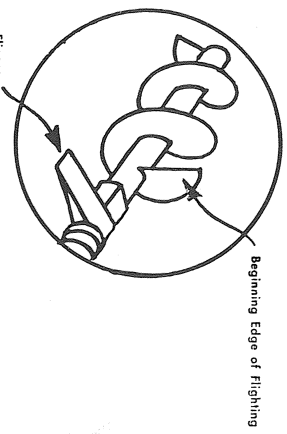


FIGURE 4

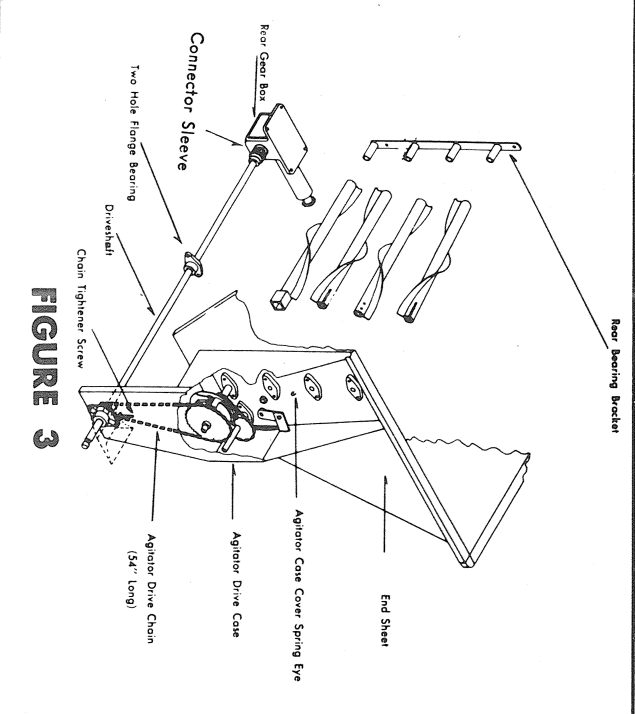


FIGURE 3

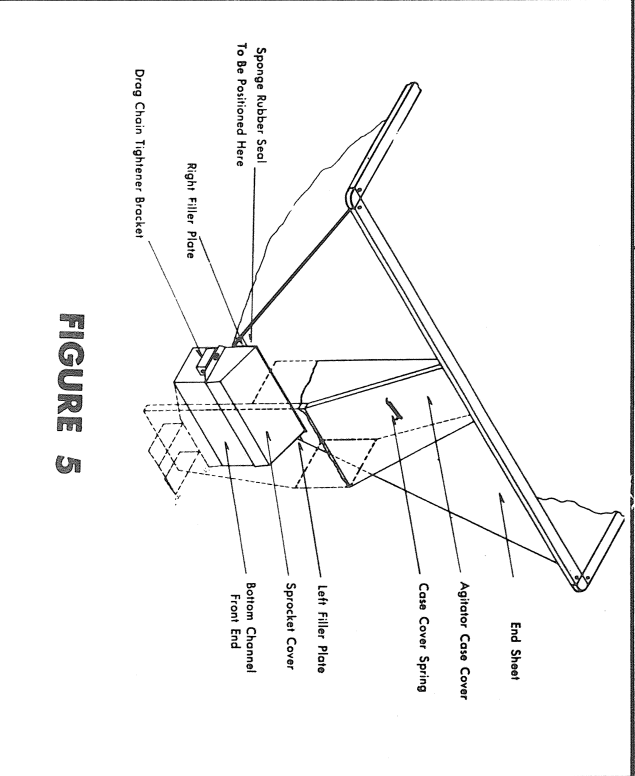
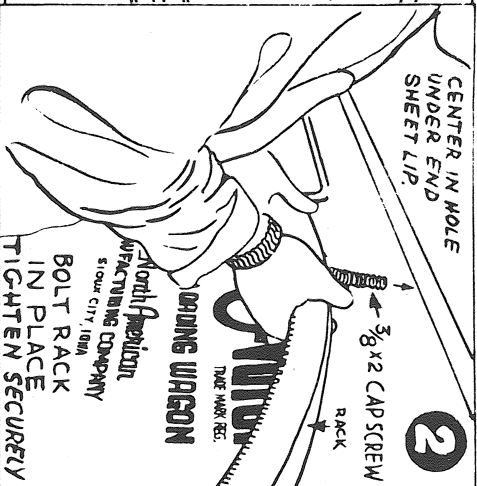
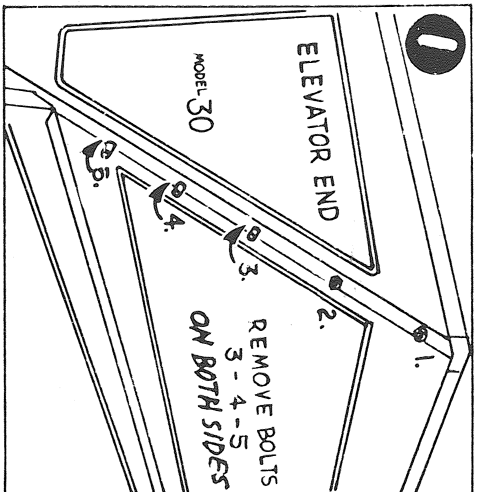


FIGURE 5

INSTALLING ELEVATOR CONTROL



MOUNTING IN THE FIELD

BEND 1/2" OF ANGLE IRON ON ADAPTER HOLDER 90° ABOUT 3 5/8" FROM TOP OF ANGLE

