

# OWNER'S MANUAL

**MODEL**

**185-285**

**MANURE SPREADER**



**MacDon Industries Ltd.**  
680 Moray Street  
Winnipeg, Manitoba R3J3S3

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# *Introduction*

This manual is a combination Operator's Manual and Parts Catalogue. When using it as an Operator's Manual for assembly and operation purposes you will notice there are more reference numbers on the illustrations than required in the instructions. This excess of reference numbers is required to identify all saleable parts for the parts listing in the back of the book.

**REPAIR PARTS** - To use this manual as a Parts Catalogue you will simply locate the part you require in one of the illustrations, note the Figure number and Item number then turn to the Parts Listing at the back of the book and locate the part number for ordering.

Left hand and right hand is determined by standing in a position which faces the direction the machine will travel when in operation.

All bolts are complete with a lockwasher and a nut except when stated otherwise or where the nut or bolt is a welded component.

## SPECIFICATIONS

<u>Capacity</u>	<u>Mod. "185"</u>	<u>Mod "285"</u>
Former Standard	166 Bu.	198 Bu.
New ASAE Standard		
Struck Level	100 Cu. Ft.	119 Cu. Ft.
15" above single beater paddle	173 Cu. Ft.	205 Cu. Ft.
15" above upper beater paddle	206 Cu. Ft.	245 Cu. Ft.
Weight - less tires & Tubes	1,805 lb.	1920 lb.
Box - length inside (upper front end gate to center-line beater)	138 $\frac{1}{2}$ "	162 $\frac{1}{2}$ "
- width inside -front - rear	58 $\frac{1}{2}$ "	58 $\frac{1}{2}$ "
- depth (top of flare to floor)	60"	60"
Height - (Loading)	22"	22"
Length - (overall)	48"	48"
Width - (overall)	199 $\frac{1}{2}$ "	223 $\frac{1}{2}$ "
Clearance	89 3/4"	89 3/4"
Unloading Speeds	16 $\frac{1}{2}$ "	16 $\frac{1}{2}$ "
Apron -	4 plus neutral	4 plus neutral
- no. of bars	shear pin	shear pin
- no. of bearings	16	19
- bearings	bronze bushing	bronze bushing
- bearings	self-aligning ball bearings	self-aligning ball bearings
Sides & front gate	16 ga. cor-ten steel (corrosion resistant)	16 ga. cor-ten steel (corrosion resistant)
Floor	3/4" plywood	3/4" plywood
Rear apron shaft	1 $\frac{1}{4}$ " dia.	1 $\frac{1}{4}$ " dia.
Beater - (no. of paddles)	12	12
- size	$\frac{1}{4}$ " thick	$\frac{1}{4}$ " thick
- O.D.	22"	22"
- shaft	1 $\frac{1}{4}$ " dia.	1 $\frac{1}{4}$ " dia.
Jack	Screw type	Screw type
Chain	667-H Pintle Chain	667-H Pintle Chain

FLOOR ASSEMBLY - Figure 1

Position the Floor Assembly (1) on two trestles as shown ( *approx 24" high* ).

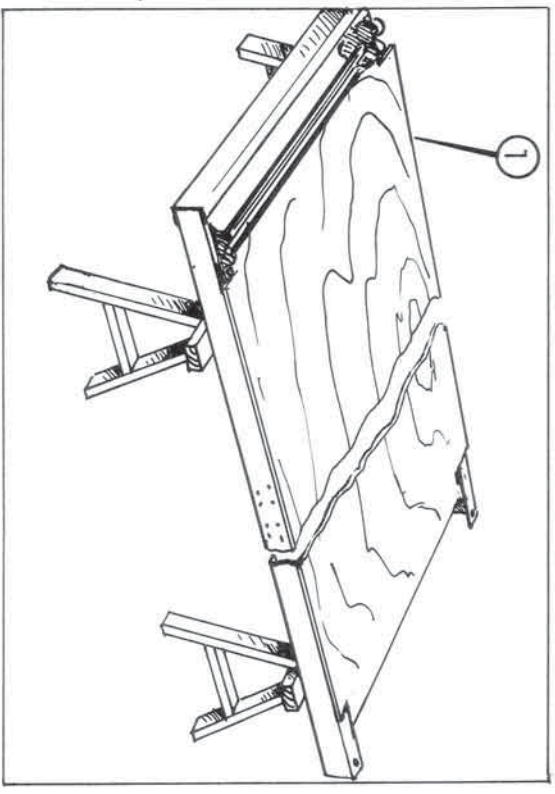


FIGURE 1

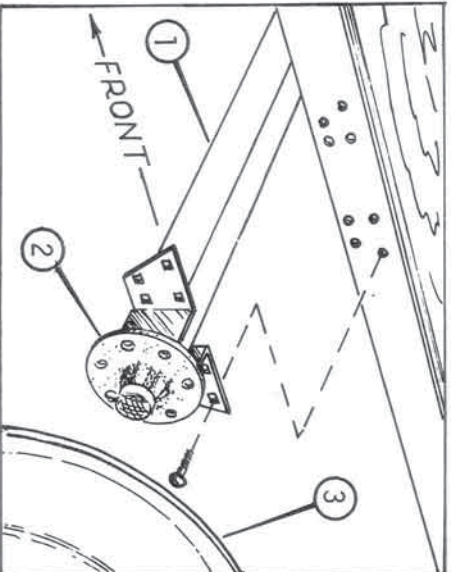


FIGURE 2

AXLE ASSEMBLY - Figure 2

Attach the Axle Assembly (1) to the floor assembly using sixteen 1/2 NC x 1-1/4" lg. carriage bolts.

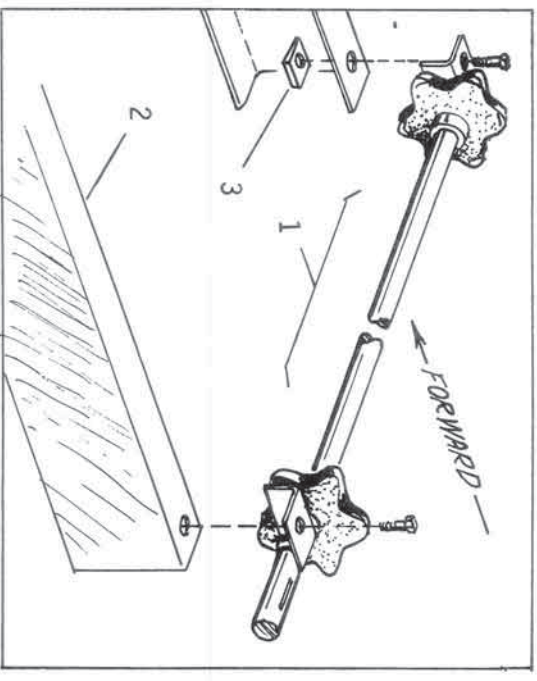


FIGURE 3

APRON DRIVE SHAFT ASSY.-Figure 3

Attach the Drive Shaft Assembly (1) to the channel frame (2) using two 1/2 NC x 1-1/2" lg. hex hd. cap-screws and two tapered cast iron washers (3).

NOTE: Long end of shaft is the L/H side and bolt heads must be up.

APRON DRIVE - Figure 4

Install the Apron Drive Chains (1) on the sprockets being certain that the chain is atop of chain guides welded on frame channels. NOTE: Attachment links (2) must face inwards (*toward centre of floor*). Attachment links must be opposite and equal to each other and may be checked at the sprocket. Install the apron slats (3) on the attachment links using 5/16 NC x 1" lg. carriage bolts (*heads down*).

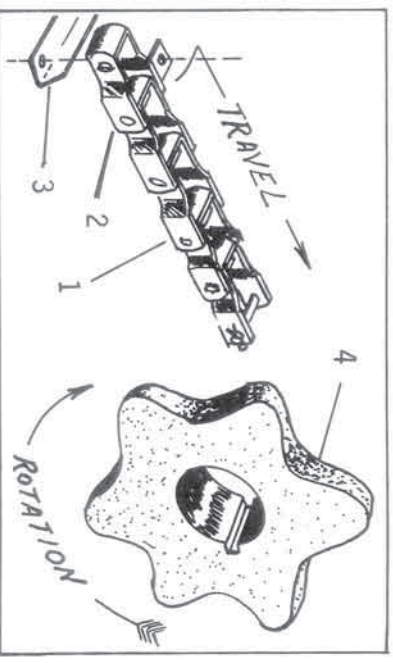


FIGURE 4

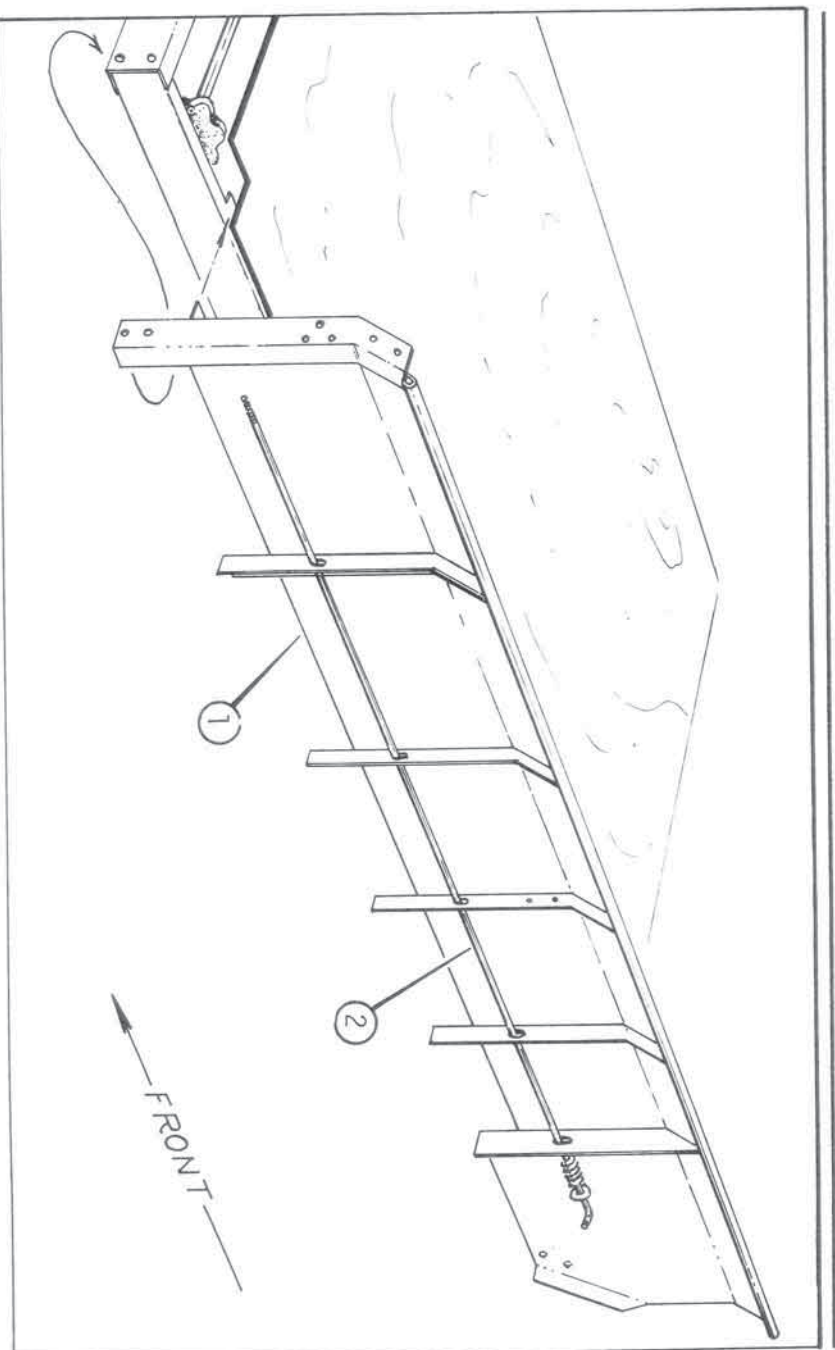


FIGURE 5

LEFT AND RIGHT SIDE PANEL - Figure 5

Insert the bottom flange of the L/H side panel (1) between the plywood floor and metal floor frame ( *see above* ) then attach to the front and side frame channels using 3/8 NC x 1" 1g Capscrews ( *do not tighten* ). Insert the bottom flange of the R/H side panel ( *not shown* ) in the same manner as described for the L/H side panel. NOTE: The R/H side panel does not have a control rod as shown in the illustration.

END GATE - Figure 6

Attach the end gate assembly (1) to the left and right side panels using eight 3/8 NC x 1" 1g. capscrews in location "A" (do not tighten). Attach the corner reinforcements (4) using four 5/16 NC x 1 3/4" 1g. carriage bolts. Install the apron tightener bolts (6) through the flat rectangular washers (7) and into location "B" then thread bolts into the apron idler shaft. Adjust apron chain tension and lock tension bolts by bending washers (7) as shown.

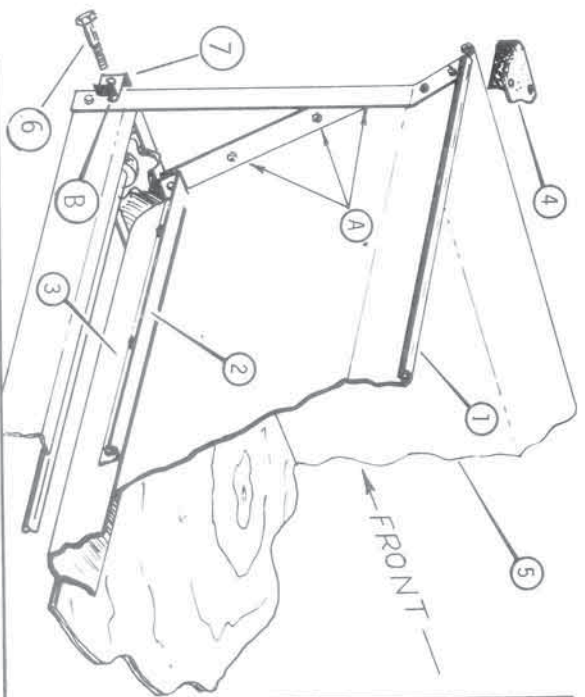


FIGURE 6

WHEELS ( NOT SHOWN )

Install tires ( *not supplied* ) on the 20" rims supplied. Attach this wheel assembly on the hubs using sixteen 9/16 NF wheel bolts.

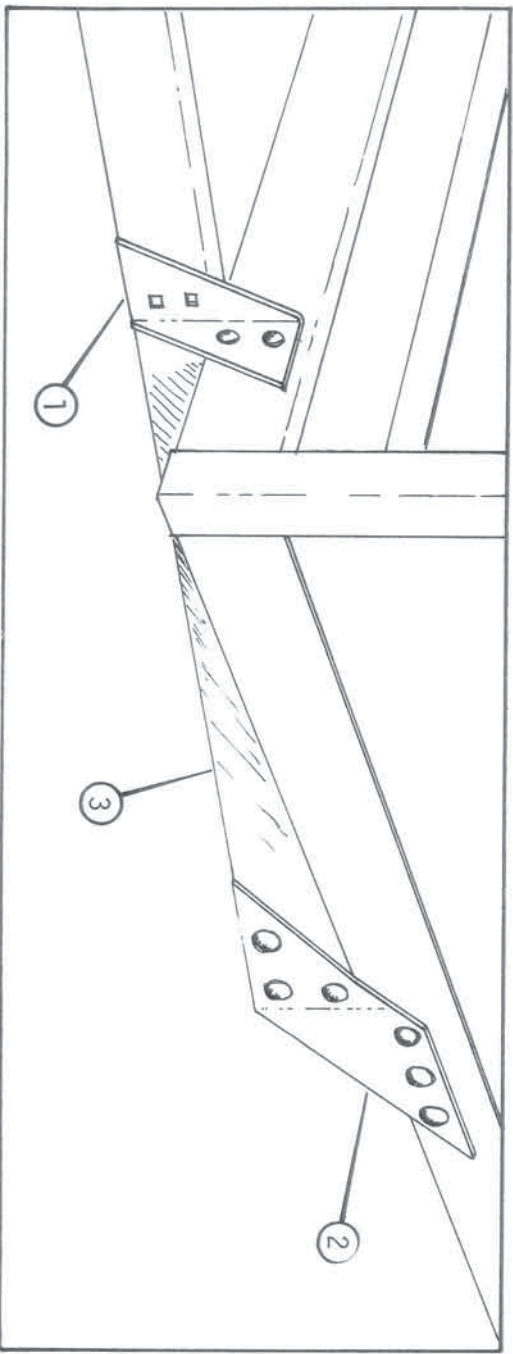
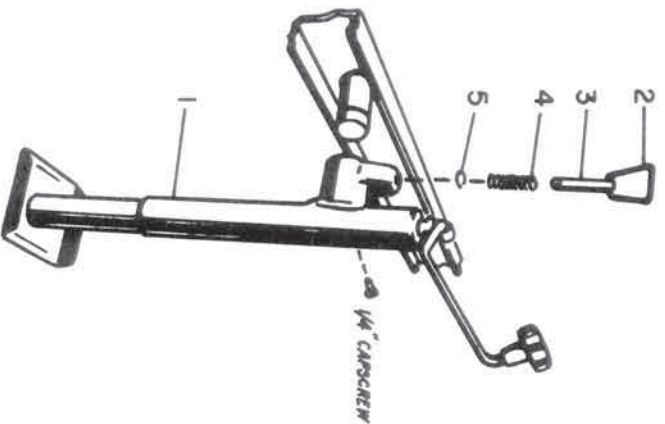


FIGURE 7

HITCH ASSEMBLY - Figure 7

Attach the left and right Front Hitch Brackets (1)... L/H shown, to the floor frame using four 1/2 NC x 1-1/4" 1g. Carriage Bolts ( *do not tighten* ). Attach the Hitch (3) to the front hitch brackets using four 1/2 NC x 1-1/4" 1g. carriage bolts ( *do not tighten* ). Raise rear of hitch members and secure to the floor frame using left and right rear Hitch Brackets (2) ... L/H shown, secure with twelve 1/2 NC x 1-1/4" 1g. carriage bolts ( *tighten all bolts* ).



JACK INSTALLATION - Figure 8

Attach the jack assembly (1) to the mounting tube (welded to the inside of the L/H hitch member). Secure the jack with 1/4 NC cap screw on pivot tube.

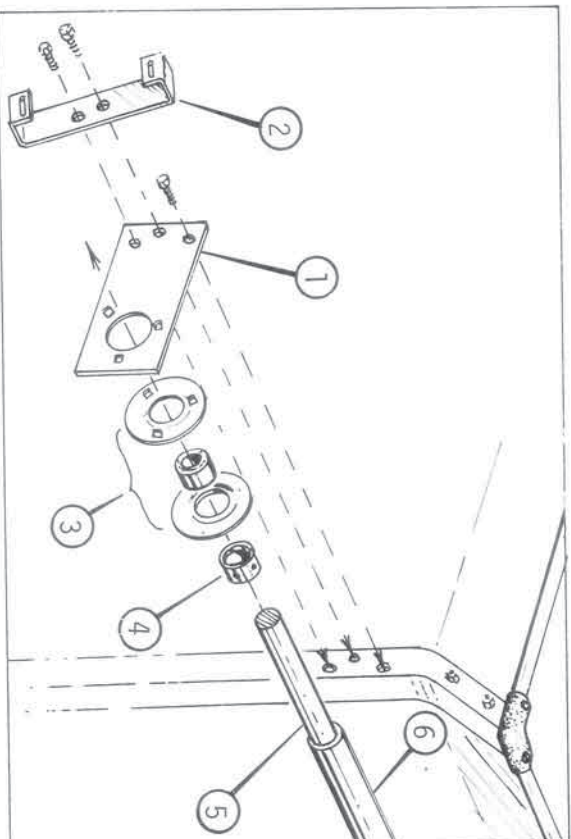


FIGURE 9

BEARING MOUNT (secondary drive) - Figure 9

Attach the bearing mount (1) and the upper shield support (2) to the L/H corner angle using one 3/8 NC x 1" 1g. capscrew and two 3/8 NC x 1-1/4" 1g. capscrews. Attach the bearing assembly (3)...(bearing flange to the rear) to the mount using three 5/16 NC x 3/4" 1g. carriage bolts (do NOT tighten). Install the bearing locking collar (4)...recessed side towards the end of shaft. Insert the end of the drive shaft through the bearing (3).

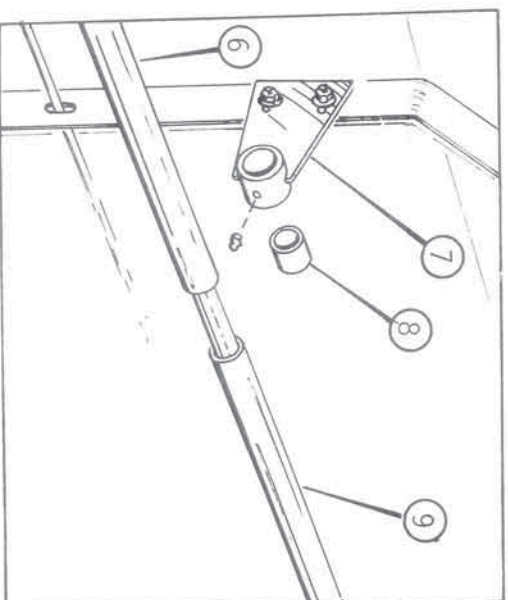


FIGURE 10

DRIVE SHAFT ASSEMBLY Figure 9 & 10

Attach the drive shaft assembly (7) to the vertical side angle (fourth from front) using two 3/8 NC x 1" 1g. carriage bolts.

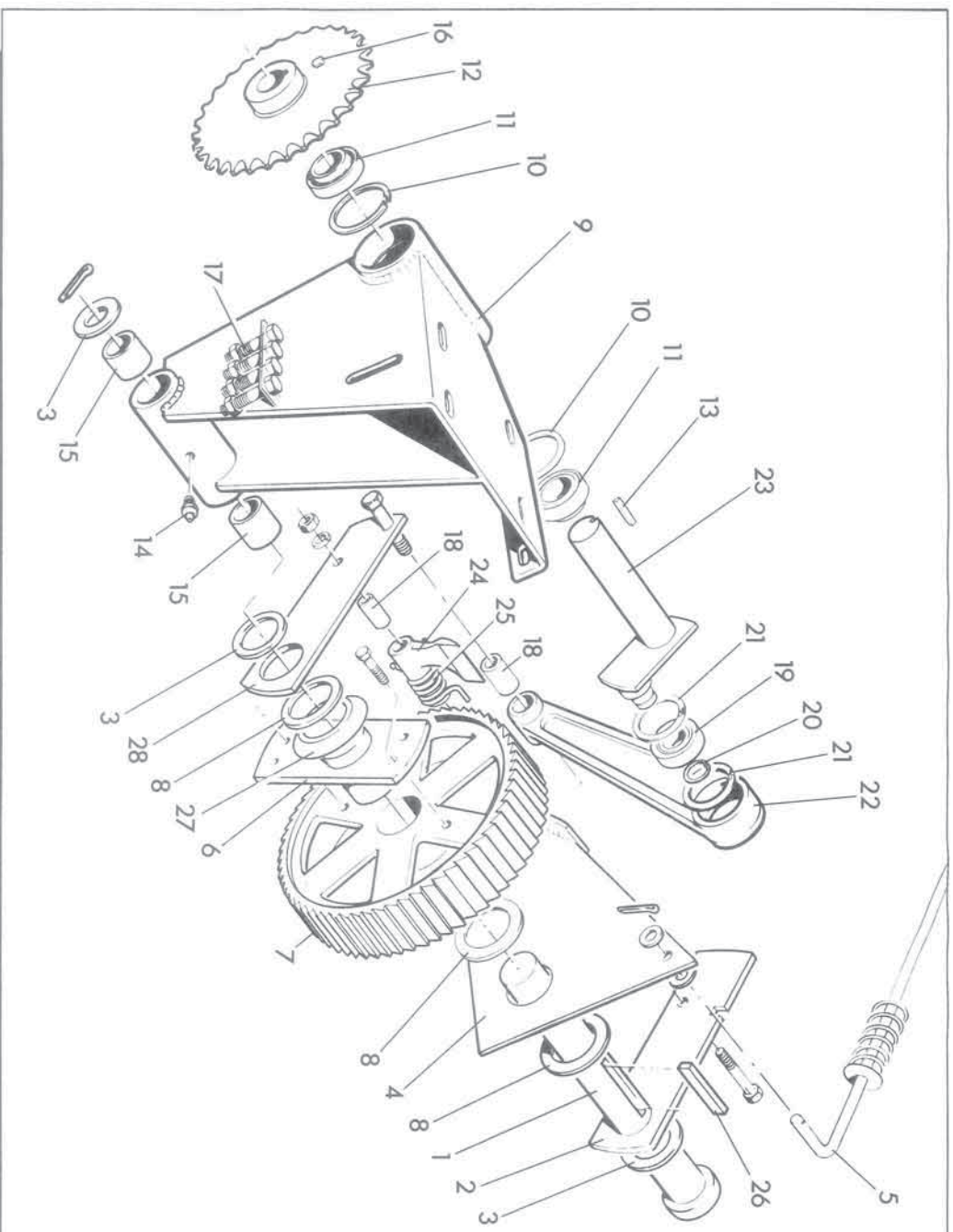


Figure 11

APRON DRIVE - Figure 11

Install the following items onto the apron drive shaft (1).

1. Install a 1-9/32" ID x 2-1/2" OD washer (3).
2. Install the ratchet wheel assembly (contains items 2,4,6,7,8,18,24,25,&27) using a 1/4" sq. x 2" lg. key (26).
3. Install a 1-9/32" ID x 2-1/2" OD washer (3).
4. Install the pitman & mount assembly and secure to L/H side panel on spreader using two 1/2" NC x 1" lg. hex head capscrews (heads on inside of spreader box) and two 17/32" ID SAE washers against slots (do NOT tighten).
5. Install a 1-9/32" ID x 2-1/2" OD washer (3) and secure with a 1/4" dia. x 2" lg. cotter pin.
6. Attach the pitman arm to the two pivot arms, on the ratchet wheel assy., using one 3/4" OD x 2-13/16" lg. spacer bushing (18) and one 1/2" NC x 4" hex head capscrew.
7. Attach feed control rod to (rear) feed control arm using two 13/32" ID SAE flatwashers (on either side of plate) and two 1/8" x 1" lg. cotter pins.

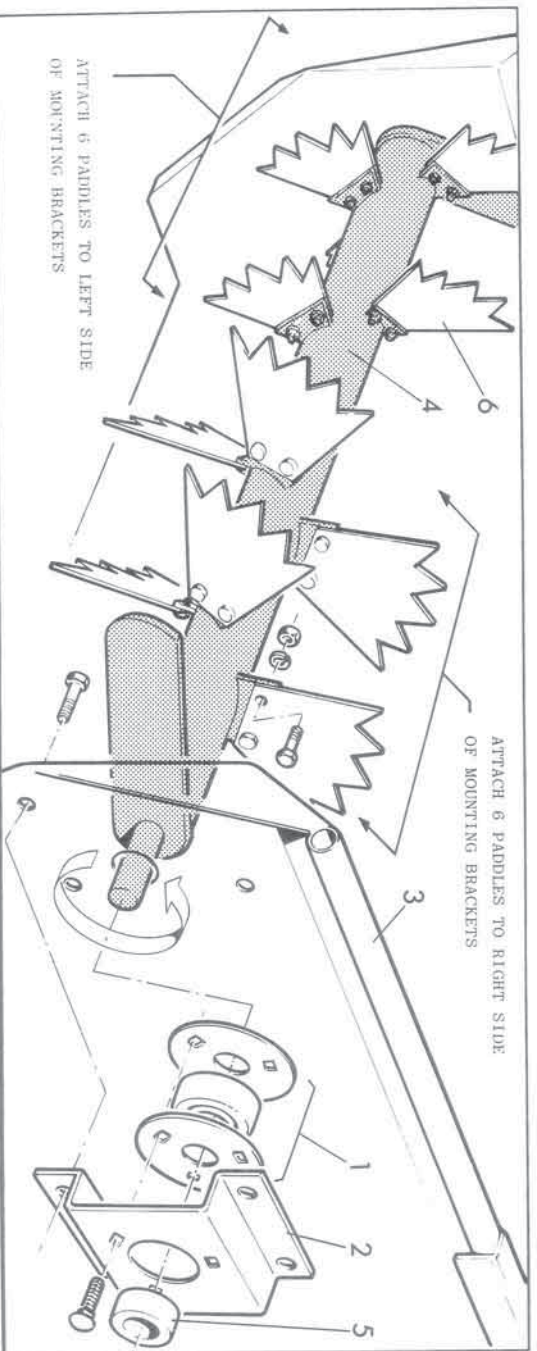


Figure 12

**BEATER ASSEMBLY - Figure 12**

Attach the bearing assembly (1) to the inside of the bearing mount (2)...flange of bearing outwards, then secure with three 5/16" NC x 1" lg. carriage bolts, attach this assembly to the R/H side panel (3) using four 1/2" NC x 1" lg. cap-screws (installed from inside...do not tighten). Install the beater shaft (4) thru the bearing on R/H side panel. Install the bearing locking collar (5)...do not tighten. Attach paddles (6) to lugs on beater shaft (4) using 1/2" NC x 1-1/4" lg. cap-screws. NOTE: Paddles should be on the front side of lugs as shaft rotates into the material with the bolt heads against the paddles.

**GEAR BOX Figure 13**

Attach the support bracket (1) to the top of the gear box using two 1/2 NC x 1" lg. cap-screws with 17/32 ID flatwashers and lockwashers under the bolt heads. Install a 1/4" sq. x 2" lg. key (2) in the end of the gear box (beater side) and insert gear box shaft into the end of the beater tube, secure with one 1/4" dia. x 2" lg. spring pin (3). Secure gear box at the upper support bracket using 1/2 NC x 1" lg. cap-screws (heads inside L/H panel). secure the gear box to the pitman assembly (4) using four 1/2 NC x 1" lg. cap-screws with 17/32 ID flatwashers and lockwashers under the bolt heads. Center the beater tube in the left and right panel holes then tighten all the bolts. Install the 1/4" sq. x 2" lg. key (2) and the drive sprocket (5) on the L/H gear box shaft. NOTE: Sprockets must be in alignment, tighten set-screw. Install drive chain (6) on both sprockets then install the idler sprocket (7) using 5/8 ID-S.A.E. flatwashers as required (max. of three) to achieve alignment. Secure the "u"Joint (8) to the "input" or front gear box shaft using one 1/4" sq. x 2" lg. key (2), tighten setscrew.

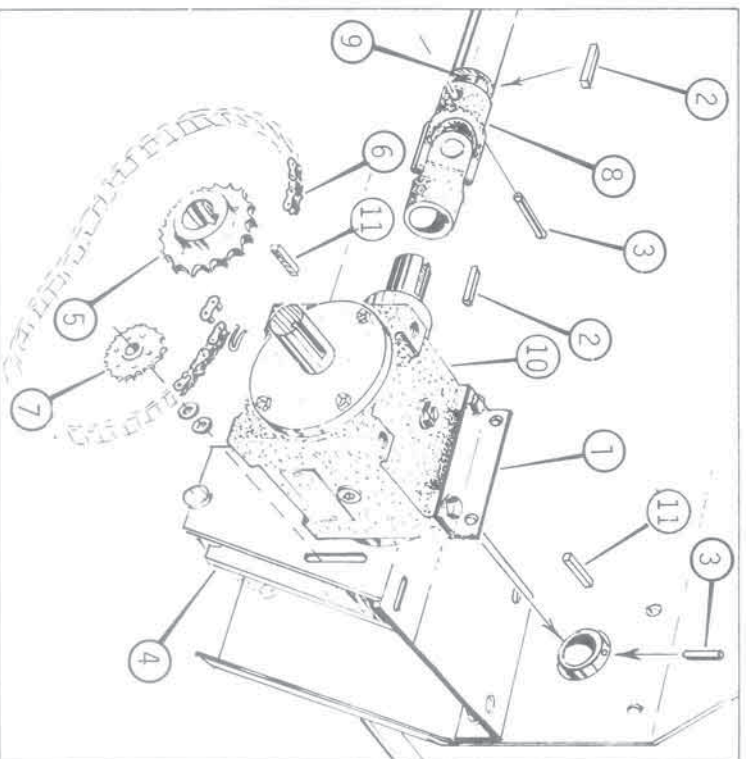


FIGURE 13



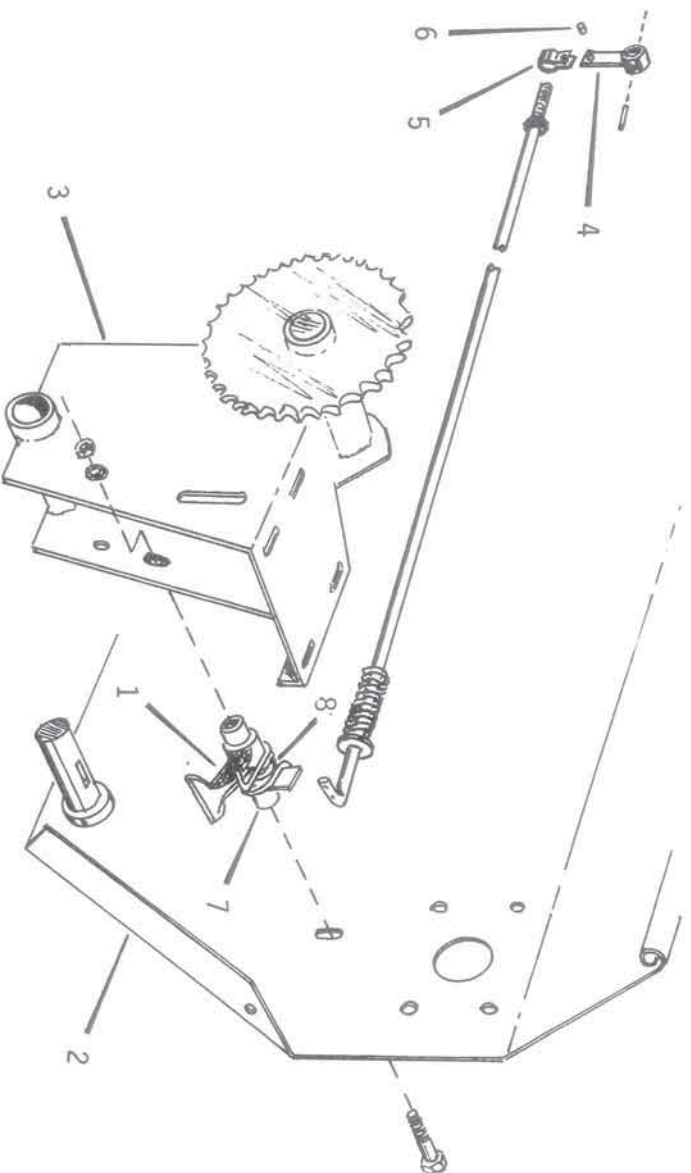


Figure 14

BACK UP DOG ASSEMBLY - Figure 14

Attach the back-up dog assembly (1) to the L/H side panel (2) and the pitman assembly (3), secure with 1/2 NC x 5 1/2" 1g cap screw (do not tighten) and four 17/32 ID SAE washers (on both sides of slotted holes).

P.T.O. SUPPORT - Figure 15

Attach the P.T.O. Support (1) to the hitch frame using two 1/2" NC x 1" 1g. cap screws. Attach the front Bearing Mount (2) to the P.T.O. Support using two 1/2" NC x 1" 1g. cap screws (do not tighten). Attach the Bearing Assembly (3) to the Bearing Mount (flange on bearing rearward) using three 5/16 NC x 3/4" 1g. carriage bolts (do not tighten).

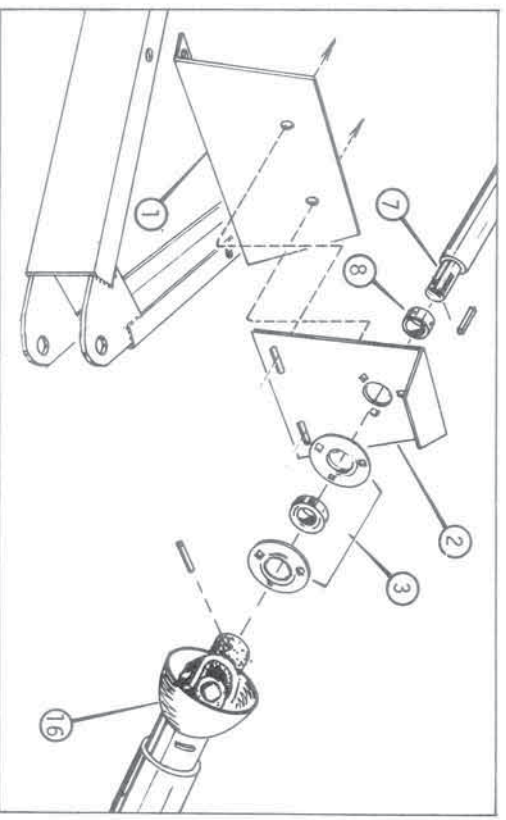


FIGURE 15

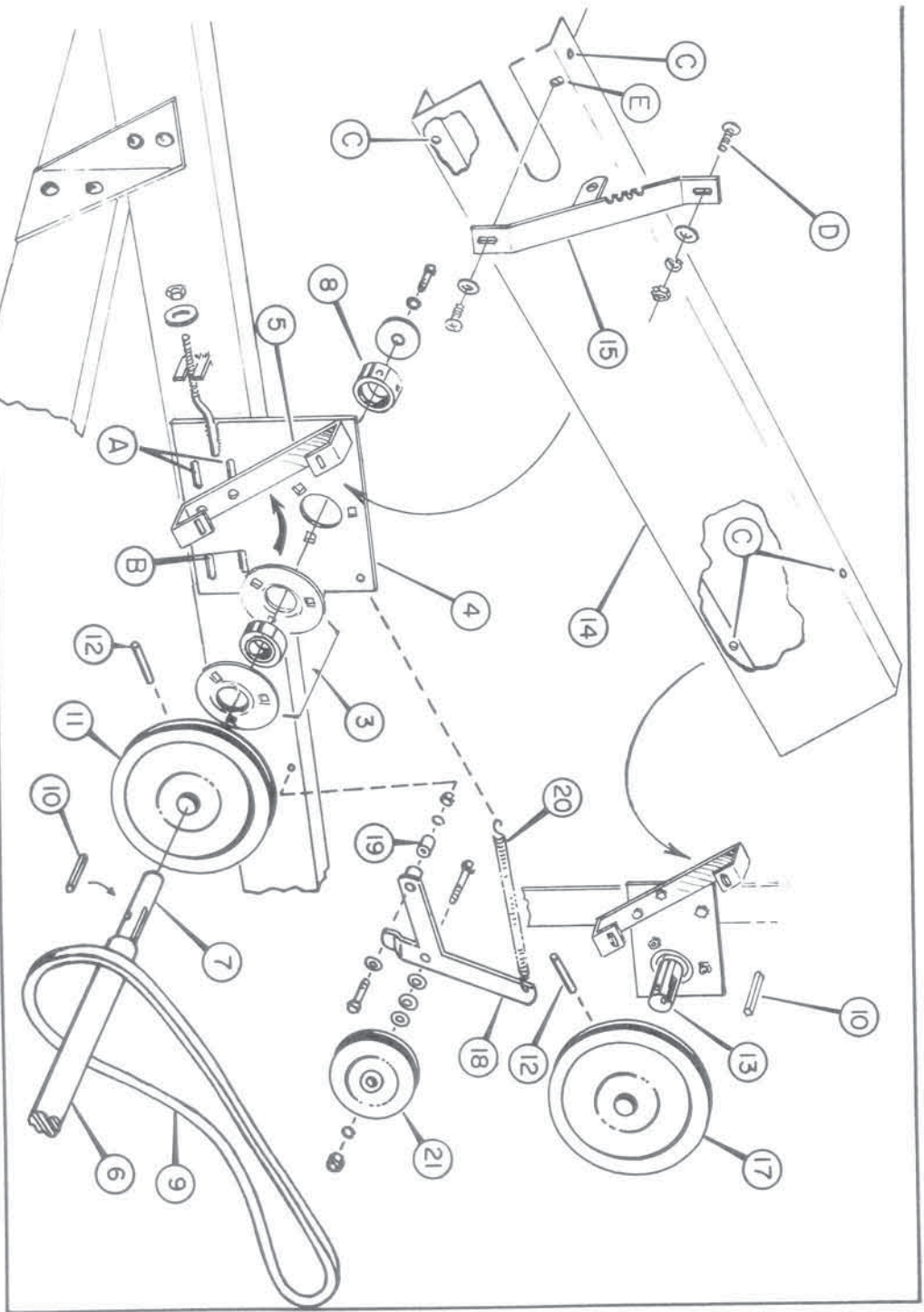


FIGURE 16

## END PULLEY - PRIMARY DRIVE - Figure 15 &amp; 16

Install a 7/16 NC hex nut approximately 3" on the belt adjuster (*welded on the rear bearing mount*) then attach the Rear Bearing Mount (4) and the Lower Shield Support (5) to the main frame using two 3/8 NC x 1-1/4" 1g. capscrews at location (A) and two 3/8 NC x 1" 1g. capscrews at locations (B). NOTE: Belt adjuster must be located in slot of tightener lug with a 15/32" ID flat washer against the slot. Attach the Bearing Assembly (3) to the front of the Bearing Mount (4)... (locking collar rearward) using three 5/16 NC x 3/4 1g. carriage bolts (*do not tighten*). Install the Bearing Locking Collar (8) on the front end of the shaft (*needed side toward bearing*) then insert the shaft between the strands of the Drive Belt (9) into the front bearing and then into the rear bearing. Install the locking collar on the rear bearing, and a 5/16 x 3/4 capscrew, lockwasher and 1-1/2 OD flatwasher in the end of the shaft.

Install the 1/4" sq x 1-1/4" Key (10) on the Secondary Drive Shaft (13) and install the Driven Pulley (17) onto the drive shaft and secure with a 1/4" dia. x 2" 1g. Spring Pin, tighten setscrew. Install the Drive Belt (9) on each pulley and align the pulleys by moving the shaft as required then lock the Bearing Locking Collars. Install the idler pulley assembly (18) to the front frame channel using 3/8 NCx 2 1g. capscrew and bushing (19). Hook tension spring (20) from idler arm to hole in rear bearing mount (4). Adjust the belt tension until a 25 pound force will deflect the center of the top strand of belt 1-1/4 to 1-1/2 inches. Tighten all bolts previously left loose. Position the Belt Shield (14) against the upper and lower shield supports then secure into position using four 1/4" NC x 3/4" 1g. Phillips Pan Head Screws and 9/32" ID washers (*against slots*) in location (C). Attach the Quadrant (15) to the shield and secure with one 1/4" NC x 3/4" 1g. Phillips Pan Head Screw and 9/32 ID washer at location (D) and one 5/16 x 3/4 capscrew at location (E). Attach the P.T.O. Shaft Assembly (16) to the Drive Shaft (7) using 1/4" sq. x 2" 1g. key and a 1/4" dia. x 2" 1g. roll pin.

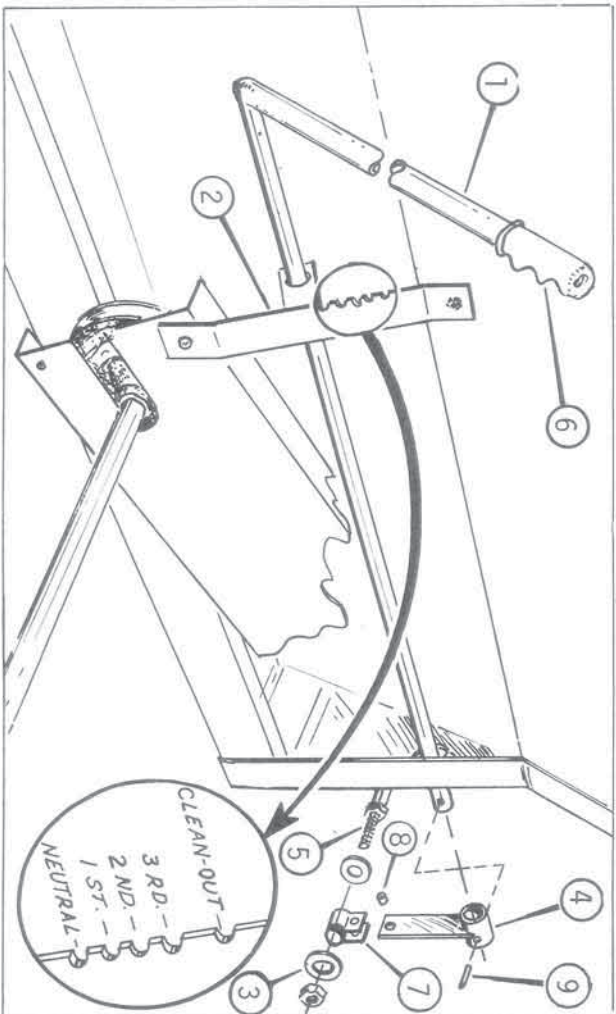


FIGURE 17

CONTROL LEVER - Apron speed - Figure 17

Insert the control lever (1) thru the hole provided in the quadrant (2) and thru the L/H side panel as shown. Position the control lever at the 1st notch in quadrant, see inset. Install a 21/32 ID S.A.E. washer (3) and the feed control arm assembly (4) on the end of the control lever shaft using a 3/16" dia. x 7/8" lg. spring pin (6). Install a 3/8 NC hex nut and a 13/32 ID S.A.E. washer on the feed control rod (5). Install feed control rod (5) on Feed control arm (4), then secure with a 13/32 ID SAE washer and a 3/8 NC hex nut (*do not tighten*).

ADJUSTMENT - Apron Speed  
Figures 17 & 18

1. With the feed dog at the bottom of a ratchet wheel tooth, rotate the beater until the feed dog is at the end of its forward travel.
2. Position the back up dog so there is a 1/16 to 1/8 inch clearance between the end of the back up dog and the ratchet wheel tooth. Tighten the back up dog bolt and spring.
3. Rotate the beater to back up the feed dog one tooth. Make sure the ratchet wheel also rotates backwards (counter clockwise) until stopped by the back up dog.
4. With the feed control lever in position 1, adjust the control rod length until the feed dog is just resting on the control ramp.
5. Check the operation at the other unloading speeds.

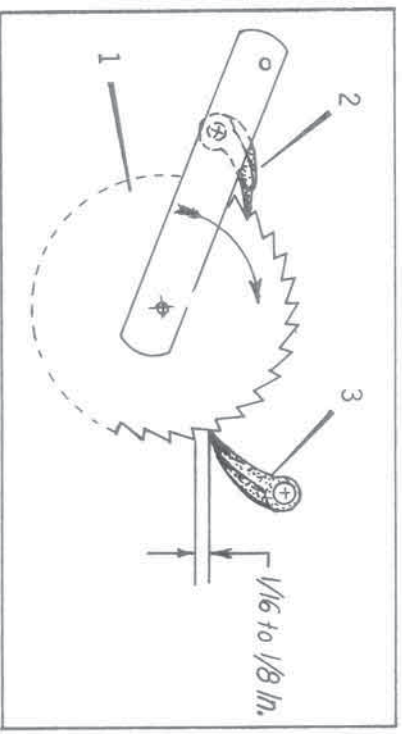


FIGURE 18

**NOTE:** To simulate loaded conditions, it is important that the ratchet wheel is rotated counter clockwise until the back up dog is fully engaged, before positioning the feed control ramp.

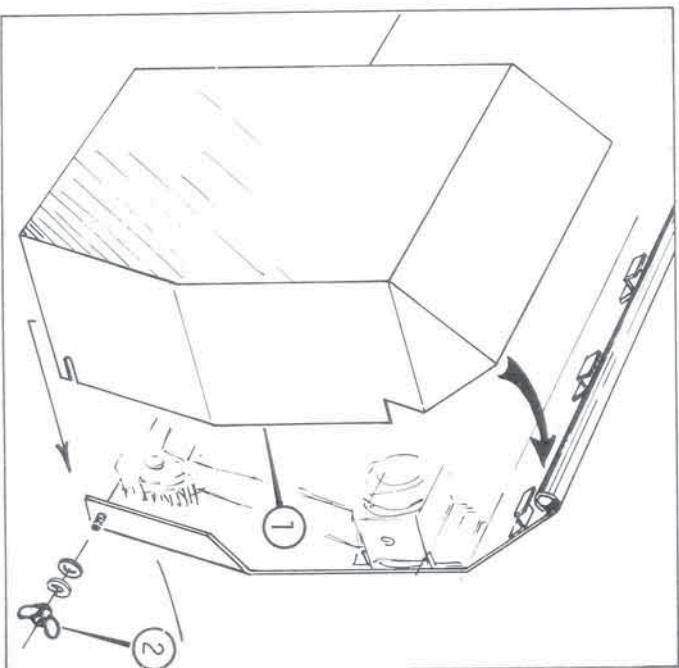


Figure 19

DRIVE SHIELD ( APRON DRIVE ) - Figure 19

Position the Drive Shield (1) on the retainers in such a manner that they engage slots in shield reinforcement. Secure at the bottom front and rear using 11/32 ID washers, lockwashers and 5/16 NC wing nuts.

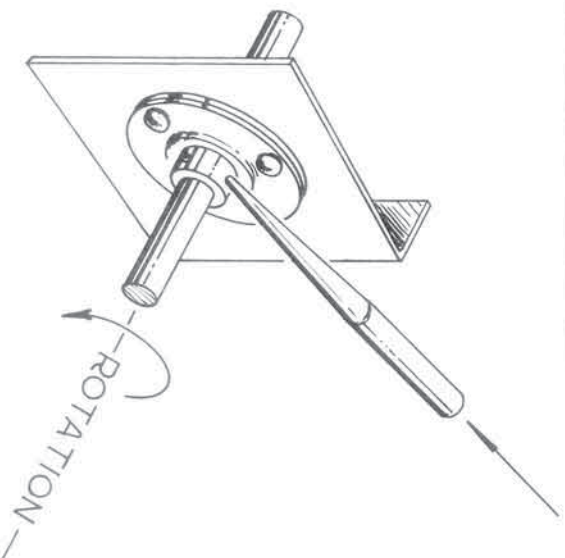


FIGURE 20

BEARING LOCKING COLLARS - Figure 20

1. Turn collar in direction of shaft rotation.
2. Using a punch in the manner illustrated, tap collar until tight.
3. Tighten the allen screws.
4. To loosen or to remove collar, reverse the previous steps.

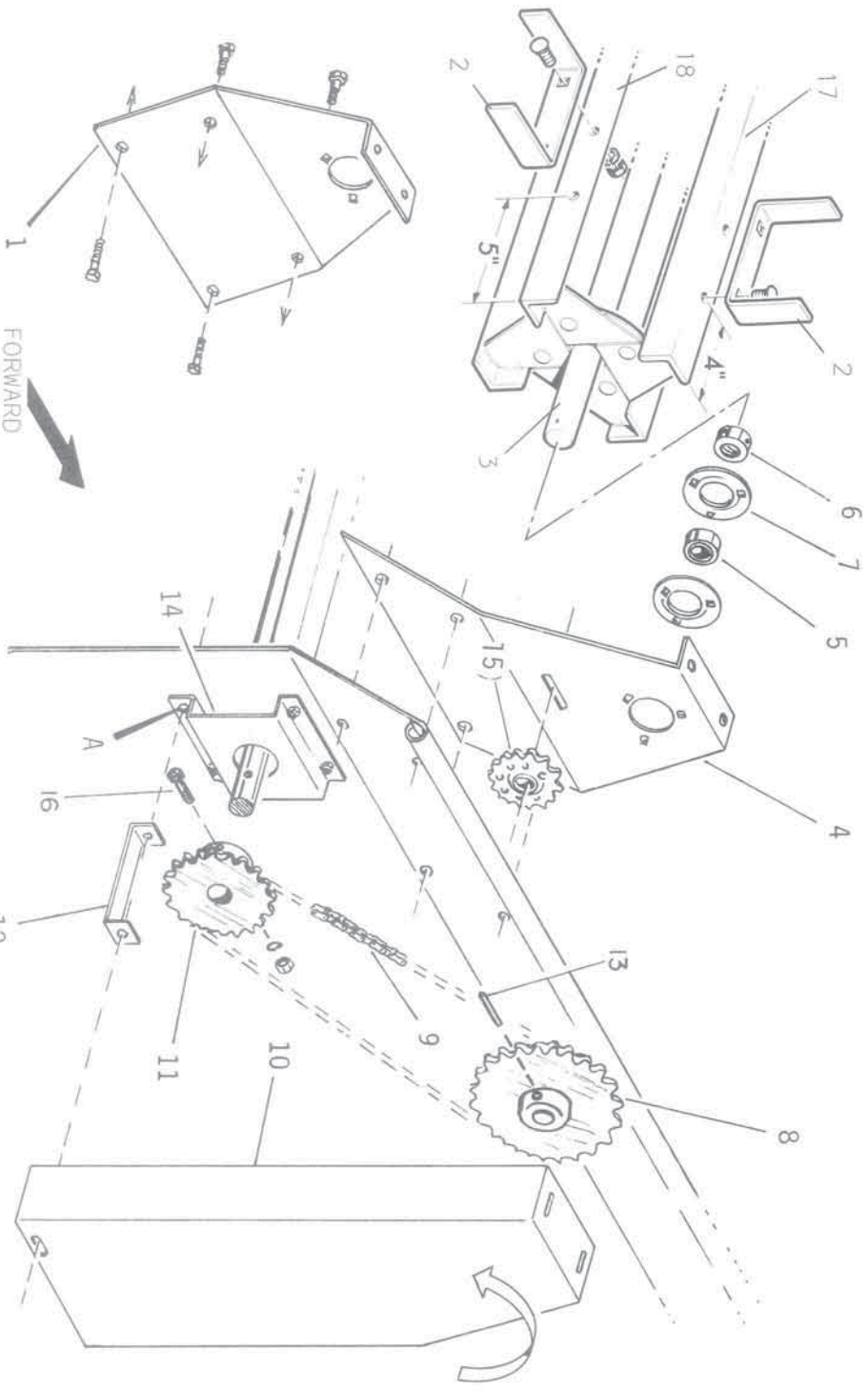


Figure 21

BEATER ASSEMBLY - Upper - Figure 21

Attach the L/H beater support (1) to the L/H side panel using four 3/8 NCx3/4" 1g. capscrews (heads as indicated). Attach the R/H beater support (4) to the R/H side panel using four 3/8 NC x 3/4" 1g. capscrews. Attach the flange bearing assemblies (5) to the inner side of the beater supports (lock collar on inside) using six 5/16 NC x 3/4" 1g. carriage bolts (do not tighten). Install the shaft beater assembly (3) into the R/H bearing (end of shaft with hole is R/H end). Then reverse the procedure and install shaft into L/H bearing. Install the 28 tooth sprocket (8) on the R/H beater shaft (hub out) and secure with one 5/16 dia. x 1-3/4" 1g. spring pin(13). Install drive sprocket (11) (14 tooth) on R/H end of lower beater using one 5/16 NC x 2-1/4" Lg. Gr.5 capscrew (16). Install the drive chain (9) on the drive sprocket (11) and the driven sprocket (8) using the connector link. NOTE: Beater may be moved left or right to achieve sprocket alignment. Attach the idler sprocket (15) to the R/H bracket using a 5/8 NC x 2" 1g capscrew (use 21/32 ID washer for alignment).Adjust the chain tension,tighten 5/8 NC bolt and lock all bearing collars.

DRIVE SHIELD - Figure 21

Remove the R/H rear capscrew from Bearing mount (14) as indicated at "A". Install the shield mount (12) at location "A" using existing capscrew. Attach the drive shield (10) to the shield mount (12) and to the R/H beater support (4) using three 1/4 NC x 3/4" 1g Phillips pan head screws with 9/32 ID SAE washers against slots.

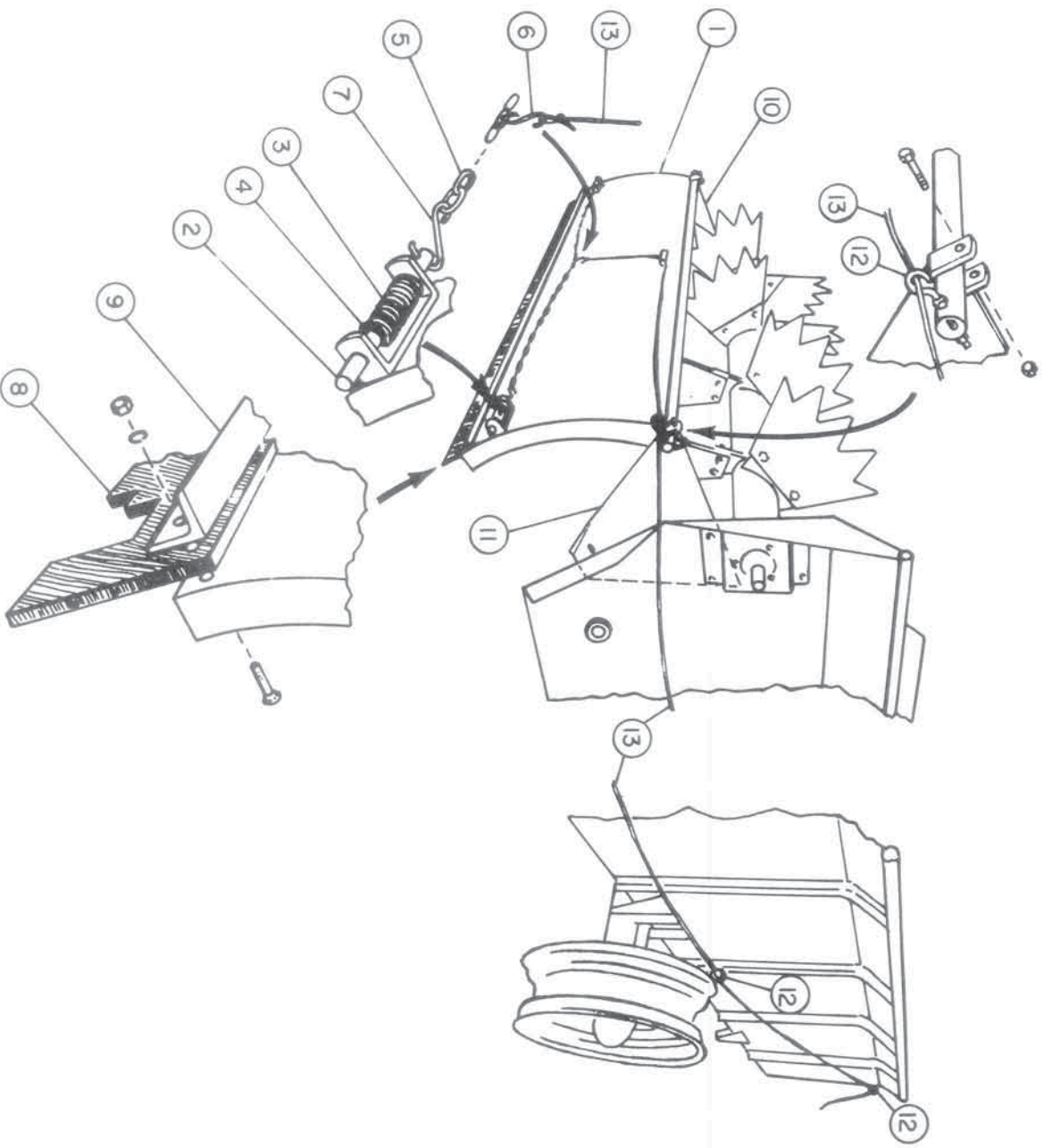
LITTER PAN - Figure 22

Remove the two bottom capscrews from the main beater bearing support on the R/H side and the two bottom capscrews from the gear box support on the L/H side. Secure the pan supports using hardware removed ("U" bracket on supports face outward).

Position the pan in the support pivots and secure with 3/8 NC x 2" 1g. capscrews.

Remove the top 3/8 NC capscrew from the center R/H side angle and the top 3/8 NC capscrew from the R/H front corner angle. Replace capscrews with 3/8 eye bolts.

Attach the rope to the "S" hook at the center of the latch chain and thread it through the eyebolts to the front of the spreader.



CAUTION: GEAR BOX, Figure 13, Item 10 is shipped "DRY" and must be filled up to the drain plug. S.A.E. #80 or 90 Gear oil is recommended.

IMPORTANT - Always be certain the Hitch Jack has been rotated into transport position before moving the Manure Spreader to prevent irreparable damage to the Jack Assembly.

Adjust Apron Drive speed to give the best spread pattern and coverage at the desired tractor ground speed. The Apron Speed Lever has five positions: neutral, 1st, 2nd, 3rd and cleanout. Use neutral during transport, use cleanout when spreading is completed.

During winter operation ensure that apron slats and chain are not frozen to floor before loading the spreader. A shear pin in the apron ratchet drive will prevent damage to the drive.

The Manure Spreader may be used on feedlots to spread hay bales for cattle and will reduce labour costs when used in this manner. Be sure to cut and remove bindings from the bales before spreading.

# CAUTION

"SAFETY FIRST" is a slogan that should not be forgotten by machinery operators. Most of the Accidents and injuries that occur around farm machines are a direct result of thoughtlessness and carelessness.

A moment's time of being thoughtful . . . and careful, may avoid a serious accident.

## ADJUSTMENTS ARE NECESSARY

### ACCIDENTS ARE NOT

#### SAFETY PAYS A

#### GENEROUS DIVIDEND

### TAKE TIME TO BE SAFE

#### MAINTENANCE

#### LUBRICATION

There is a total of 12 grease fittings on the manure spreader assembly and they must be serviced twice monthly or every 50 hours of operation using a Lithium Base, general purpose grease.

CHAINS - Oil all chains weekly or every 25 hours of operation using a good grade of clear gear oil, apply with a brush.

GEAR BOX - Check oil level annually and fill to drain plug using S.A.E. #80 or 90 Gear oil.

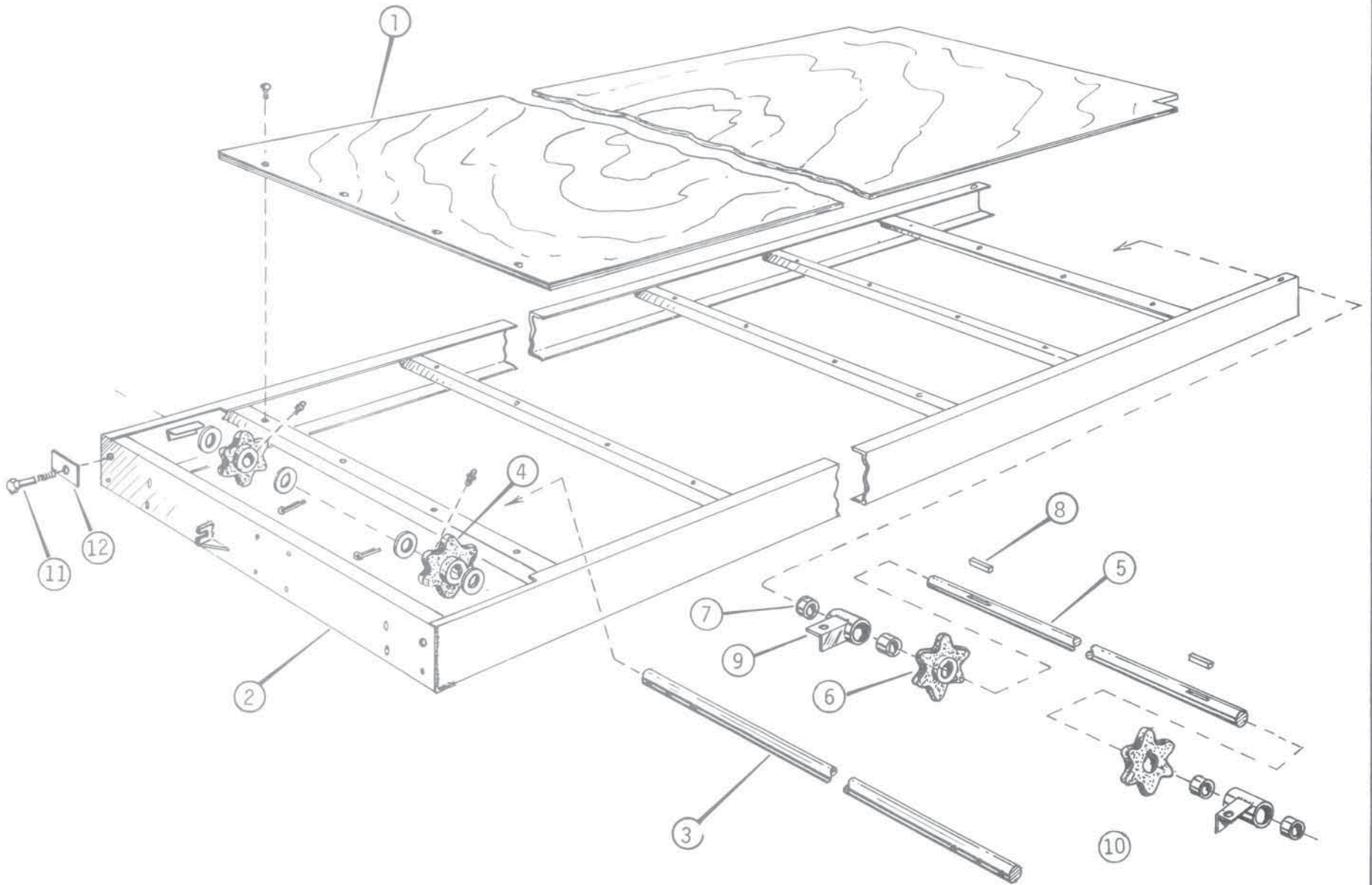


FIGURE 23



Figure 24

GEAR BOX

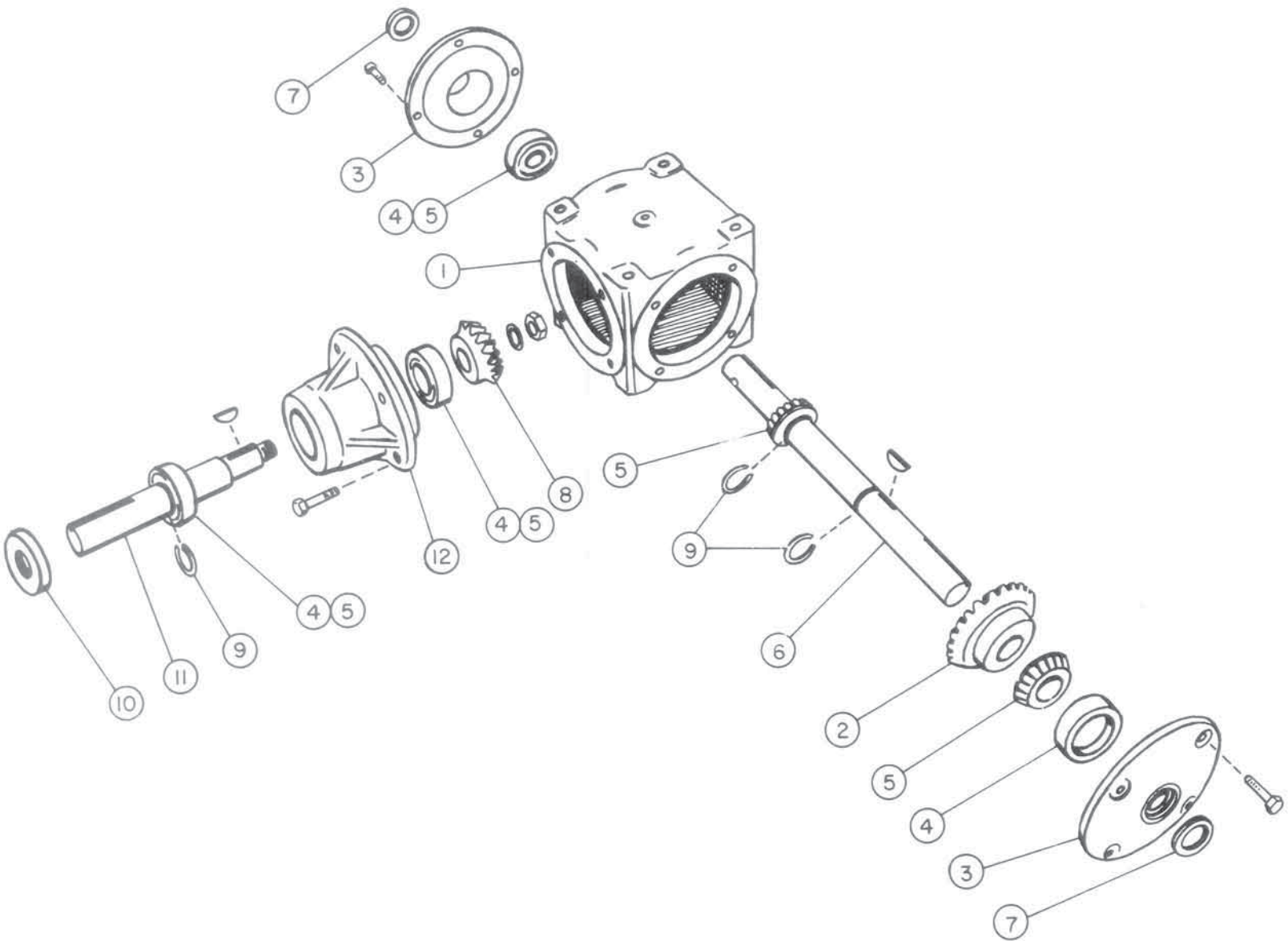


Figure 1 ( see illustration Figure23 )

REF.	PART NO.	DESCRIPTION	QTY.
1	K-19707-1	FLOOR - model 185	1
	K-20150-1	FLOOR - front section - model 285	1
	K-20097-1	FLOOR - rear section - model 285	1
2	K-20196-1	FRAME - model 185	1
	K-20090-1	FRAME - model 285	1
3	K-20151-1	SHAFT - idler sprockets	1
	K-20130-1	SPROCKET - idler	1
4	K-19592-1	SHAFT - apron drive	2
5	K- 395-1	SPROCKET - drive	1
6	P- 363	BUSHING - bronze	2
7	K- 7038-1	KEY - 1/4" sq. x 2" lg.	4
8	K-20185-2	HUB ASSEMBLY - R/H, apron drive shaft	2
9	K-20186-2	HUB ASSEMBLY - L/H, apron drive shaft	1
10	K-20172-1	BOLT - apron tension	1
11	K-20174-1	LOCK - tension bolt	1
12			2
	Figure 2		
1	K-20188-1	AXLE	1
2	P-18913	HUB ASSEMBLY	2
	P-18917	BEARING - inner	2
	P-18918	BEARING - outer	2
	P-18914	DUST CAP	2
	P-18915	SEAL - grease	2
	P-18916	WHEEL BOLTS	2
3	P-18897	WHEEL - 20" std. - model 185	16
	P-20203	WHEEL - 20" std. - model 285	2
	P-19911	WHEEL - 20" optional	2
	P-19878	NUT - 1" - 12 N.F. hex slotted	2
	P-18608	COTTER PIN - 3/16 dia. x 1-1/2" lg.	2
	P-18603	WASHER - 1-1/16" ID. SAE.	2
	Figure 3		
1	K-19592-1	SHAFT - apron drive	1
2		FRAME - see Fig. 1 and illustration Fig. 22	1
3	K- 274-1	WASHER - tapered cast	2
	Figure 4		
1	K-20215-2	APRON CHAIN ASSEMBLY - model 185 standard	2
	K-20374-2	APRON CHAIN ASSEMBLY - heavy duty model 185 (optional)	2
	K-20201-2	APRON CHAIN ASSEMBLY - model 285 standard	2
	K-20375-2	APRON CHAIN ASSEMBLY - heavy duty model 285 (optional)	2
2	P-20200	LINK - standard	A/R
	P-20372	LINK - incl. one connector	A/R
	P-20202	LINK - attachment	A/R
	P-20373	LINK - attachment	A/R
3	K-19586-1	SLAT - apron model 185 and 285	A/R
4	K- 395-1	SPROCKET - drive	16&19 2

Figure 5

REF.	PART NO.	DESCRIPTION	QTY.
1	K-20199-1	L/H SIDE PANEL - model "185"	1
	K-20086-1	L/H SIDE PANEL - model "285"	1
	K-20198-1	R/H SIDE PANEL - model "185"	1
	K-20087-1	R/H SIDE PANEL - model "285"	1
2	K-20354-1	CONTROL ROD - model "185"	1
	K-20355-1	CONTROL ROD - model "285"	1
3	K-20429-1	SPRING - compression	1
	<b>Figure 6</b>		
1	K-19638-1	END GATE	1
2	K-19589-1	SUPPORT - end gate	1
3	K-19724-1	FLAP - end gate, rubber	1
4	K-19699-1	REINFORCEMENT - corner	2
5		R/H SIDE PANEL (see Figure 5 parts sect.)	
6	K-20172-1	BOLT - chain tension	1
7	K-20174-1	LOCK - tension bolt	1
	<b>Figure 7</b>		
1	K-20183-1	HITCH SUPPORT - L/H Front	1
2	K-20182-1	HITCH SUPPORT - R/H Front (not shown)	1
3	K-20181-1	SUPPORT - L/H rear hitch	1
	K-20180-1	SUPPORT - R/H rear hitch (not shown)	1
3	K-20608-1	FRAME - hitch	1
	<b>Figure 8</b>		
1	K-20601-1	JACK ASSEMBLY	1
2	P 20603	PLUNGER HANDLE	1
3	P 20604	PLUNGER	1
4	P 20605	SPRING	1
5	P 20606	RETAINING RING	1
	<b>Figure 9 &amp; 10</b>		
1	K-19676-1	BEARING MOUNT - secondary drive shaft	1
2	K-19928-1	MOUNT - upper, belt shield	1
3	P- 6688	BEARING c/w collar	1
4	P- 8316	FLANGE STAMPING	2
	P- 6689	COLLAR	1
5	K-19720-1	SHAFT - secondary drive - model "185"	1
6	K-20085-1	SHAFT - secondary drive - model "285"	1
7	K-19709-1	SHIELD - front	1
8	K-19074-2	MOUNT - bearing	1
	P 5259	BUSHING	2
9	K-19710-1	SHIELD - rear, drive shaft model "185"	1
	K-20098-1	SHIELD - rear, drive shaft model "285"	1
	<b>Figure 11</b>		
1	K-19592-1	SHAFT - apron drive	1

Figure 11 cont'd

REF.	PART NO.	DESCRIPTION	QTY.
2	K-20158-1	PIVOT ARM	2
3	K-20168-1	WASHER - 1-9/32" ID. X 2 1/2" OD.	3
4	K-20165-1	FEED CONTROL	1
5	K-20354-1	CONTROL ROD - feed model 185	1
5	K-20355-1	CONTROL ROD - feed model 285	1
6	K-20167-1	RATCHET ARM	1
7	K-19726-1	RATCHET WHEEL	1
8	K-20169-1	WASHER - 2-1/32 ID. x 3" OD.	2
9	K-20344-2	PITMAN ASSEMBLY	1
	K-20343-1	BRACKET - mounting	1
	P-13235	SNAP RING	2
	P-18894	BEARING, Tress collar	2
	K-19420-1	SPROCKET #60 X 32 tooth - "B"	1
	K-19736-1	KEY 5/16 sq. X 1-1/4 lg.	1
	P-18671	GREASE FITTING	4
	P- 363	BUSHING - bronze	2
10	K-19671-1	BUSHING	2
11	K-19735-2	PITMAN SUB-ASSEMBLY	1
	P-18895	BEARING	1
	P-18898	SNAP RING	1
	P-18900	SNAP RING	2
	K-19729-1	ARM	1
	K-19619-1	CRANK	1
12	K-20348-1	FEED DOG	1
13	K-19737-1	SPRING - torsion	1
14	K- 7038-1	KEY 1/4" sq. X 2" lg.	1
15	K-20170-1	Washer - coned	1
	Figure 12		
1	P- 6686	BEARING c/w collar	1
2	P- 7701	FLANGE STAMPING	2
3	K-19702-1	BEARING MOUNT	1
4	K-19585-1	R/H SIDE PANEL - (see Figure 5 parts sect.)	1
5	P- 6687	BEATER TUBE	1
6	K-19578-1	COLLAR - bearing lock	1
		PADDLE	12
	Figure 13		
1	K-19590-1	SUPPORT - gear box	1
2	K- 1113-1	KEY 1/4" sq. X 1 1/4" lg.	2
3	P- 2148	SPRING PIN 1/4" dia. X 2" lg.	2
4	K-19734-2	PITMAN ASSEMBLY (see Fig. 11)	1
5	K-20468-1	SPROCKET #60 B X 14 tooth	1
6	P-20467	CHAIN c/w connector # 60 X 50 links	1
7	P- 7399	SPROCKET - idler # 60	1
8	K-19746-2	UNIVERSAL JOINT	1
	P-18919	YOKE - rear	A/R
	P-18920	YOKE - front	A/R
	P-18922	CROSS AND BEARING KIT	A/R
9	K-19720-1	SHAFT - secondary drive	1
10	K-19730-2	GEAR BOX (See Figure 24 for parts)	1
11	K- 7038-1	KEY 1/4" sq. X 2" lg.	2

Figure 14

REF.	PART NO.	DESCRIPTION	QTY
1	K-20348-1	BACK-UP DOG	1
2	K-20240-1	L/H SIDE PANEL -- (See fig. 5)	
3	K-20241-1	PITMAN ASSEMBLY -- (See fig. 11)	
4	K-20241-1	CONTROL ARM	1
5	K-20240-1	CLIP - control arm	1
6	K-11913-1	SPACER	1
7	K-20341-1	SPRING LATCH	1
8	K-19737-1	SPRING - back-up dog	1
9	K-20429-1	SPRING - feed control rod	1

REF.	PART NO.	DESCRIPTION	QTY
Figure 15 & 16			
1	K-19675-1	SUPPORT BRACKET - P.T.O.	1
2	K-19719-1	BEARING MOUNT - front	1
3	P- 6688	BEARING c/w collar	1
	P- 8316	FLANGE STAMPING	2
4	K-19841-1	BEARING MOUNT - rear	1
5	K-19929-1	BRACKET - tower primary drive	1
6	K-19708-1	SHIELD - primary drive shaft	1
7	K-20469-1	SHAFT - primary drive	1
8	P- 6689	COLLAR - bearing locking	2
9	K-20047-1	BELT C-Section x 109.2 eff. 1gth.	1
10	K- 7038-1	KEY 1/4" sq. x 2" 1g.	2
11	K-20466-1	PULLEY - C-Section x 13-1/2" dia.	1
12	P- 2148	SPRING PIN	2
13	K-19720-1	SHAFT - secondary drive	1
14	K-19930-1	SHIELD - primary drive	1
15	K-20190-1	QUADRANT - lever	1
16	K-19747-2	P.T.O. DRIVE SHAFT ASSEMBLY	1
	K-19771-1	REAR JOINT ASSEMBLY	A/R
	K-19773-1	SHIELD - rigid	A/R
	P-18922	CROSS & BEARING KIT	A/R
	P-18920	REAR YOKE	A/R
	K-19770-1	FRONT JOINT ASSEMBLY	A/R
	K-19772-1	SHIELD - telescoping	A/R
	P-18921	QUICK DISCONNECT YOKE	A/R
	P-20504	NYLON BEARINGS	A/R
17	K-20465-1	PULLEY - C-Section x 11-1/2" dia.	1
18	K-20617-1	IDLER PULLEY MOUNT	1
19	K-20613-1	BUSHING	1
20	K- 9413-1	SPRING	1
21	P- 7840	PULLEY - C-Section x 6" dia.	1
Figure 17			
1	K-19687-1	ENGAGING LEVER	1
2	K-20190-1	QUADRANT	1
3	P-18600	WASHER 21/32" ID SAE	1
4	K-20241-1	ARM - feed control	1
5	K-20354-1	ROD - feed control model "185"	1
6	K-20355-1	ROD - feed control model "285"	1
7	P- 836	GRIP - handle #109	1
8	K-20240-1	CLIP - feed control adjusting	1
9	K-11913-1	SPACER - feed control arm	1
	P-20079	SPRING PIN - 3/16" dia. x 7/8" 1g.	1

Figure 18

REF.	PART NO.	DESCRIPTION	QTY.
1	K-19726-1	RATCHET WHEEL	1
2	K-20348-1	FEED DOG (same as item 3)	1
3	K-20348-1	BACK-UP DOG (same as item 2)	1
Figure 19			
1	K-20176-1	SHIELD - apron drive	1
2	P-18903	NUT - wing type	1

Figure 21 - Optional Upper Beater Assembly

1	K-19782-1	L/H SUPPORT - upper beater	1
2	K-19781-1	"U" TOOTH	28
3	K-18160-1	BEATER SHAFT ASSEMBLY	1
4	K-20212-1	R/H SUPPORT	1
5	P- 6688	BEARING c/w collar	2
6	P- 6689	COLLAR	2
7	P-8316	FLANGE STAMPING	4
8	K-19788-1	SPROCKET - driven #50 x 28 tooth	1
9	P-18923	CHAIN c/w connector #50 x 87 links	1
10	K-20204-1	SHIELD - upper beater drive	1
11	K-20210-1	SPROCKET - #50 x 14 tooth	1
12	K-20211-1	MOUNT - upper beater drive shield	1
13	P-13321	SPRING PIN 5/16" dia. x 1-3/4 " lg.	1
14	K-19702-1	BEARING MOUNT	1
15	P- 8124	SPROCKET - idler #50 chain	1
16	P- 5252	HEX HD CAPSCREW 5/16 NC x 2-1/4 lg. Gr. 5	1
17	K-18162-1	BEATER ANGLE	2
18	K-18163-1	BEATER ANGLE	2

Figure 22 - OPTIONAL LITTER PAN ASSEMBLY

1	K-20636-1	PAN	1
2	K-20642-1	PIN	2
3	K-18349-1	SPRING	2
4	P-20606	RETAINING RING	2
5	P-21001	CHAIN (#2 x 50 links)	1
6	P-21002	"S" HOOK (#10)	1
7	K-20640-1	HOOK	2
8	K-20621-1	PAN SEAL (RUBBER)	1
9	K-20650-1	SUPPORT ANGLE	1
10	K-20648-1	PAN SUPPORT L/H	1
11	K-20649-1	PAN SUPPORT R/H	1
12	K-15637-1	EYEBOLT	3
13	P-21003	ROPE 3/16 dia. x 25 ft.	1

Figure 23 - See Figure 1 - PARTS SECTION

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Figure 24

REF.	PART NO.	DESCRIPTION	QTY.
1	K-19730-2	GEAR BOX	1
2	P-21013	CASE	1
3	P-21007	GEAR	1
4	P-21008	END PLATE	2
5	P-7900	BEARING CUP	4
6	P-18789	BEARING CONE	4
7	P-21011	CROSS SHAFT	1
8	P-21012	SEAL	2
9	P-21014	PINION	1
10	P-21015	RETAINING RING	3
11	P-21016	SEAL	1
11	P-21017	PINION SHAFT	1
12	P-21018	PINION HOUSING	1