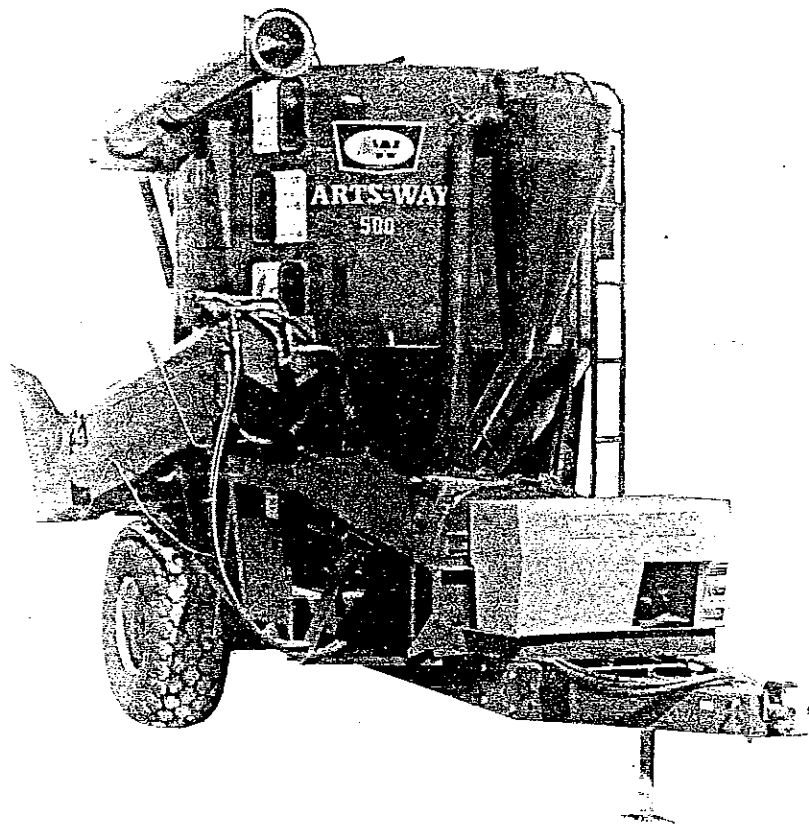


ARTS-WAY

OPERATOR'S MANUAL



Model 500

FEED GRINDER-MIXER

ARTS-WAY

Mfg. Company / Armstrong, Iowa 50514 / Phone (712) 864-3131

REV. A

Part No. 159990

ARTS-WAY

Manufacturing Company / Armstrong, Iowa 50514 / Phone [712] 864-3131

INFORMATION FOR ORDERING GRINDER-MIXER PARTS

Refer to Model 500 Parts Manual

OWNERS NAME _____

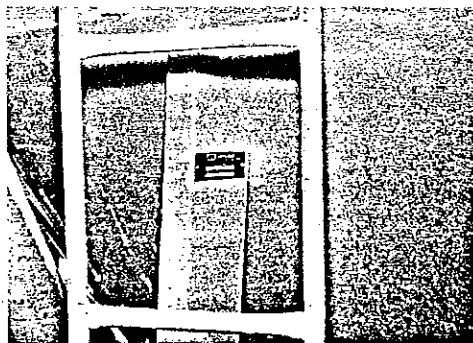
ADDRESS _____

DEALERS NAME _____

ADDRESS _____

SERIAL NUMBER _____

DATE PURCHASED _____



GRINDER MIXER SERIAL NUMBER

Arts-Way reserves the right to make changes or add improvements to its products at any time without incurring any obligation to make such changes to products manufactured previously. Arts-Way, or its dealers, accept no responsibility for variations which may be evident in the actual specifications of its products and the statements and descriptions contained in this publication.

TO THE OWNER

This Arts-Way unit is another one of the fine products made and the purpose of this manual is to assist you in realizing the benefits you anticipated when you purchased this unit. Many people have contributed to the production of this product. They all have an interest in its successful performance and we are providing this manual to give you the benefit of the experience we have gained through years of building and testing this equipment. The way you operate and the care you give this unit will have much to do with the successful performance of this unit. This operators manual has been carefully prepared and illustrated to make it as easy as possible for you in the operation of your unit. It will pay you to read the entire manual carefully and familiarize yourself with all operations "before operating" this unit. Keep this manual handy for reference. We will be glad to answer any questions you may have. For further information call or write Arts-Way Manufacturing Company, Inc. (712) 864-3131, Armstrong, IA 50514

LIMITED WARRANTY

The ART'S-WAY MANUFACTURING COMPANY, INCORPORATED warrants products sold by it to be free from defects in material and workmanship for a period of one (1) YEAR after the date of delivery to the first purchaser subject to the following conditions:

- (1) ART'S-WAY MANUFACTURING COMPANY, INCORPORATED'S obligation and liability under this warranty is to repair or replace at the company's option, any parts which upon manufacture were defective in material or workmanship.
- (2) All parts and repairs under this warranty shall be supplied at an authorized ART'S-WAY MANUFACTURING COMPANY, INCORPORATED dealer or at the factory at the option of ART'S-WAY MANUFACTURING COMPANY, INCORPORATED.
- (3) ART'S-WAY MANUFACTURING COMPANY, INCORPORATED'S warranty does not extend to parts and elements not manufactured by ART'S-WAY MANUFACTURING COMPANY, INCORPORATED and which carry the warranty of the other manufacturer.
- (4) Transportation or shipping to an authorized dealer for necessary repairs is at the expense of the purchaser.
- (5) ART'S-WAY MANUFACTURING COMPANY, INCORPORATED MAKES NO OTHER WARRANTY EXPRESS OR IMPLIED AND MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE BEYOND THAT EXPRESSLY STATED IN THIS WARRANTY. ART'S-WAY MANUFACTURING COMPANY, INCORPORATED'S LIABILITY IS LIMITED TO THE TERMS SET FORTH IN THIS WARRANTY AND DOES NOT INCLUDE ANY LIABILITY FOR DIRECT, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR EXPENSE OF DELAY AND THE COMPANY'S LIABILITY IS LIMITED TO REPAIR OR REPLACEMENT OF DEFECTIVE PARTS AS SET FORTH HEREIN IN THE WARRANTY.
- (6) Any improper use, including operation after discovery of defective or worn parts, operation beyond rated capacity, substitution or parts not approved by ART'S-WAY MANUFACTURING COMPANY, INCORPORATED, or any alteration or repair by other than an authorized ART'S-WAY MANUFACTURING COMPANY, INCORPORATED dealer which affects the product materially and adversely, shall void this warranty.
- (7) No dealer, employee or representative is authorized to change this warranty in any way or grant any other warranty unless such change is made in writing and signed by an officer of ART'S-WAY MANUFACTURING COMPANY, INCORPORATED at its home office.
- (8) Some states do not allow limitations on how long an implied warranty lasts or exclusions of or limitations on relief such as incidental or consequential damages so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may have other rights which vary from state to state.

WORK SAFELY - FOLLOW THESE RULES



INSTRUCTIONS GIVEN WITH THIS SYMBOL ARE FOR PERSONAL SAFETY. BE SURE YOU AND YOUR WORKERS FOLLOW THEM.

A CAREFUL OPERATOR IS THE BEST INSURANCE AGAINST AN ACCIDENT



CAUTION! Before handling ANY equipment, READ the OPERATOR'S MANUAL.

Misuse or modification of this machine can cause:

- mechanical breakdown,
- property damage,
- injury or death.

Always use proper safety precautions. Tell your workers how to work safely.

BEFORE OPERATING

Do not wear loose fitting clothing; it may catch in moving parts.

Make sure that all safety shields, including the tractor power take-off master shield, are in place and properly secured before operating the machine.

Be sure that the correct implement drive line parts are used and that they are properly secured.

After servicing, be sure that all tools, parts, or servicing equipment are removed from the machine.

Make sure that there is no one near the machine before starting it.

Be sure the tractor power take-off is disengaged before starting the tractor engine.

DURING OPERATION

Shut off the tractor engine and be sure to wait until the rotor, belts, etc, have come to a complete stop before adjusting, cleaning, or lubricating.

Do not attempt to remove any obstructions from the auger, or belts while the machine is running.

Do not open any covers and expose the rotor or belts while they are rotating.

Keep hands, feet, and clothing away from moving parts.

Keep children and bystanders away from the machine in operation.

Always disengage the auger feeder before transporting.

Shut off the tractor engine and wait for all moving parts to stop before making any adjustments.

Be careful when ascending or descending the ladder. Wet shoes or boots are slippery.

Hydraulic fluid escaping under pressure can have enough force to penetrate the skin. Hydraulic fluid may also infect a minor cut or opening in the skin. If injured by escaping fluid, see a doctor at once. Serious infection or reaction can result if medical treatment is not given immediately. Make sure all connections are tight and that hoses and lines are in good condition before applying pressure to the system. Relieve all pressure before disconnecting the lines or performing other work on the hydraulic system. To find a leak under pressure use a small piece of cardboard or wood: Never use hands.

NOTES

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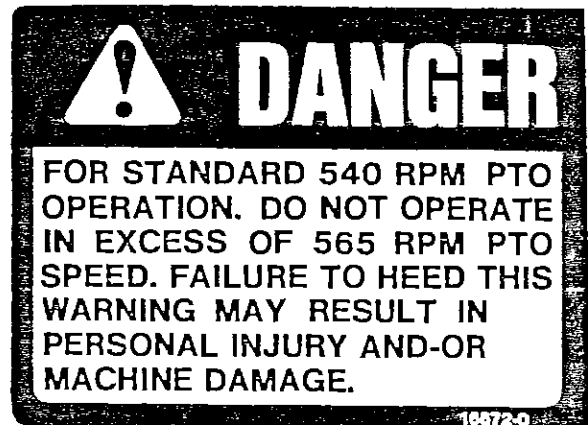
DESCRIPTION	PAGE	DESCRIPTION	PAGE
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SAFETY DECALS

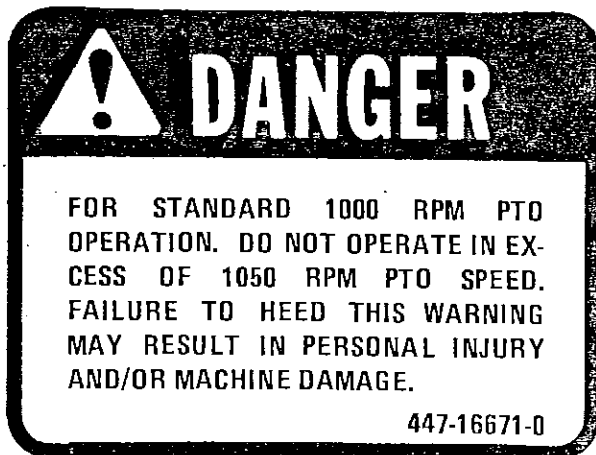
Located at strategic points on this machine are safety decals. These decals warn you of potential danger if the warnings on the decals are not followed.



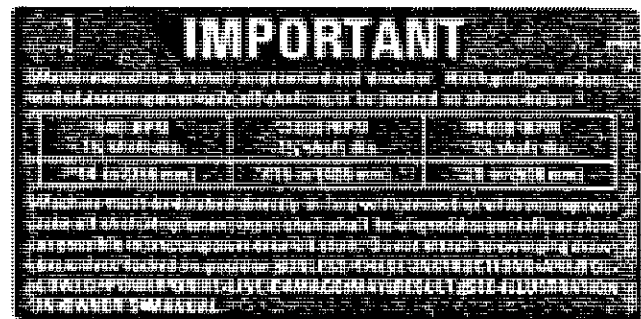
No. 1 — "CAUTION" — Safety Caution Decal, Part No. 447-14819-0. (Located on ring and worm gear shield and swivel motor shield). (Hydraulic option).



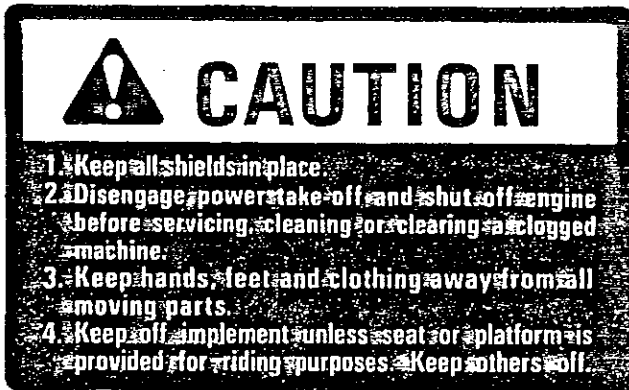
No. 3 — "DANGER" — FOR 540 R.P.M./ P.T.O. OPERATION — PART NO. 166720 — DO NOT OPERATE WITH 1000 RPM/PTO (LOCATED ON FRONT OF MAIN SHIELD AT BOTTOM EDGE OF PTO OPENING ON UNITS WITH 540 RPM/PTO OPERATION.)



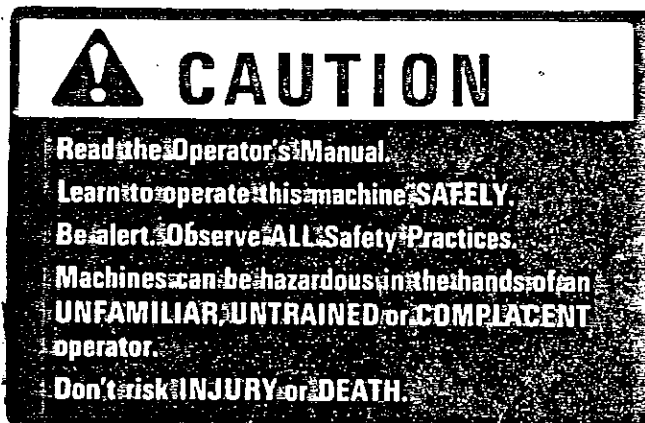
No. 2 — "DANGER" — DO NOT OPERATE IN EXCESS OF 1050 RPM PTO SPEEDS — Part No. 447-16671-0. DO NOT operate with 540 R.P.M./ P.T.O. (Located on front of main shield at top edge of P.T.O. opening).



No. 4 — "IMPORTANT" — Machine must be hitched to standardized drawbar. Unless these instructions are followed, power drive line damage may result. (Located on side of frame.) Part No. 447-11537-0.



No. 5 — "CAUTION" — Safety Shield Caution Decal, Part No. 447-11538-0, lists four basic rules to be observed at all times around this machine. (This is located on the front of the main shield next to P.T.O. opening and on the auger feeder shield.)



No. 6 — "CAUTION" — Safety Caution Decal, Part No. 447-11543-0. (Located on the front of the main shield next to P.T.O. opening.)



Stay off machine when it is running.
Shut off tractor engine and remove ignition key for safety while working in or around machine.

No. 7 — "DANGER" — Decal, Part No. 447-11777-0, warning of the danger to stay off of machine when it is running. (Located on the tank near the ladder.)



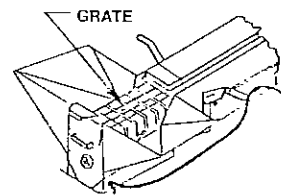
Always shut off tractor engine before engaging or disengaging flywheel drive pin. Refer to operator's manual.

No. 8 — "CAUTION" — Decal, Part No. 447-14563-0. Never leave tractor engine running while engaging or disengaging flywheel drive pin. (Located on the front of the main shield next to the P.T.O. opening.)



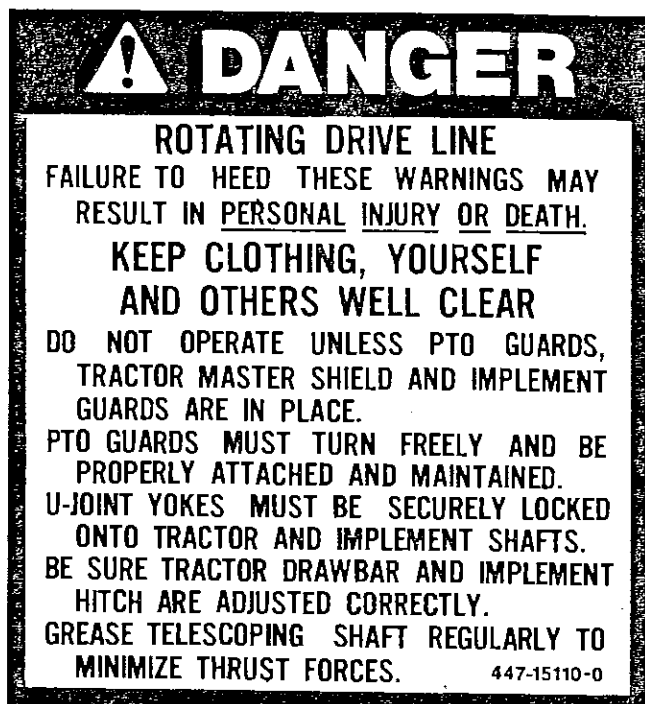
TO PREVENT PERSONAL INJURY

1. Keep hands and feet out of hopper.
2. Shut off auger when not feeding material.
3. Do not climb onto or over the machine at any time.
4. Grate is to cover the auger at all times. Exception: Ear Corn.

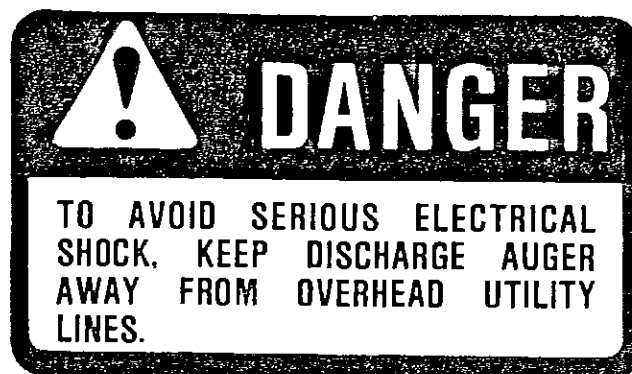


P/W 212540

No. 9 — "DANGER" — DECAL, PART NO. 212540 TO PREVENT PERSONAL INJURY, AUGER FEEDER GRATE (LOCATED ON THE TOP OF THE AUGER FEEDER UPPER COVER.)



No. 10 — "DANGER" — Decal, Part No. 447-15110-0, warning of the danger to stay away from rotating drive line. (Located on P.T.O. shaft.)



No. 11 — "DANGER" — Decal, Part No. 447-16430-0. Keep discharge auger away from overhead utility lines. (Located on right rear corner of mixing tank near discharge auger.)



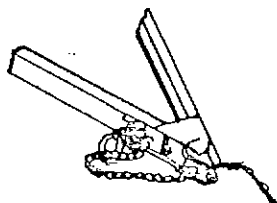
No. 12 — "CAUTION" — Decal, Part No. 447-04927-0. Never open any cover while the cutting mechanism inside is operating. (Located six places: Hammermill Door, Tank Cone Access Door, Top Tank Lid, Trough Cover, Supplement Hopper Lid, Back Hopper Cover.)

SAFETY CHAIN

TRANSPORTING GRINDER-MIXER BY ROAD

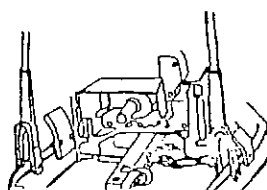
Whenever Grinder-Mixer is to be transported on a public thoroughfare, observe these instructions.

1. Always use safety chain and secure safely.
2. Keep road speed down to maximum of 10 M.P.H., especially over rough roads and when going down inclines.



MOUNTING INSTRUCTIONS

1. Mount chain on hitch channel by running chain through loop and running hook through the large ring at end of chain and pull tight as shown in Figure A.
2. Run the chain through a clevis pin bolted on the tractor drawbar, then wrap the chain around a supporting member of the tractor and hook as shown in Figure B.



6 — Identification Views

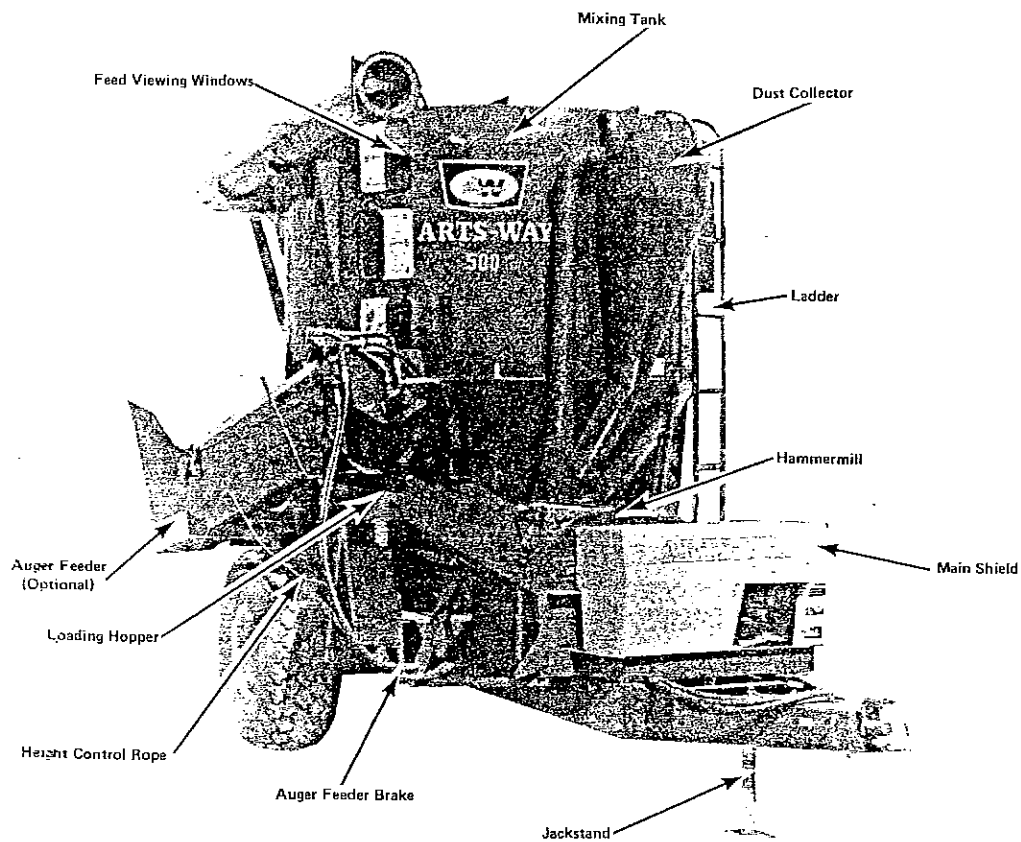


Figure 1 — Front Corner View of Model 500 Grinder-Mixer

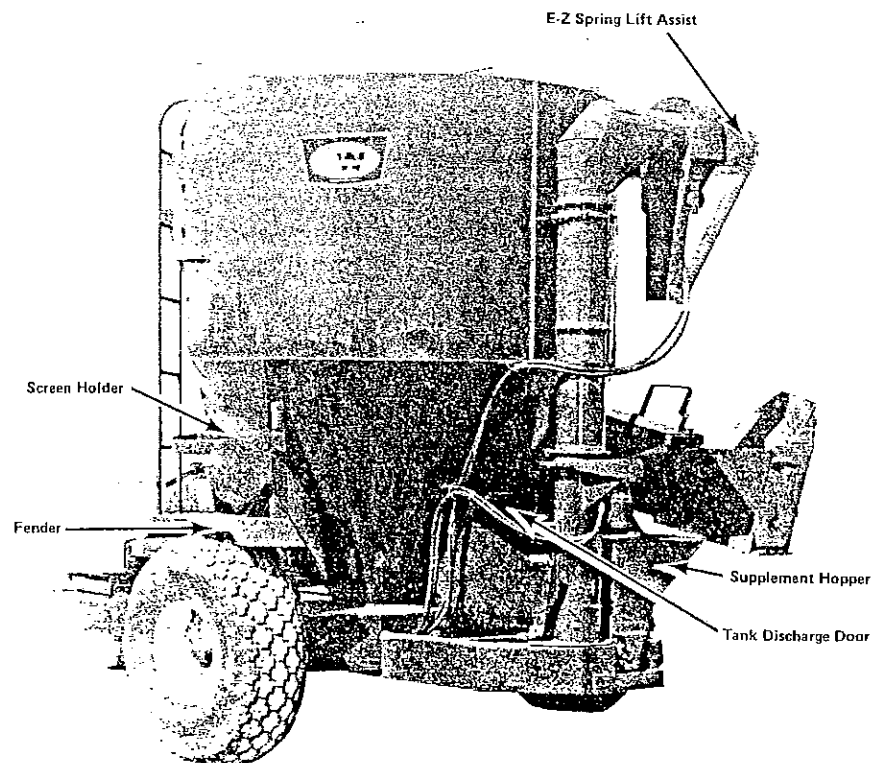


Figure 2 — Rear Corner View of Model 500 Grinder-Mixer


OPERATION

INTRODUCTION

This manual has been prepared to acquaint the new owners with the Arts-Way Model 500 Grinder-Mixer. It should help you better understand the efficient operation and care of your Portable Unit.

Whenever the terms "left" and "right" are used, it should be understood to mean from a position behind and facing the machine, looking in the direction of travel.

The Arts-Way 500 Grinder-Mixer is PTO driven with a 1000 RPM PTO drive. This speed should be maintained, as the grinder operates best at 2800 to 3000 RPM.

 **DANGER! DO NOT OPERATE PTO IN EXCESS OF 1050 RPM.**

Before operating your grinder-mixer, select and install the size screen desired. Two screens are furnished with the machine and additional sizes are available from 1/8 to 2 inch openings. The screen size is determined by the fineness desired.

All types of grain, as well as hay, can be ground with the grinder-mixer. Material is fed into the hammermill where it is ground until it can pass through the screen size you have selected. From the hammermill, the material is augered into the mixing tank. A suction fan takes air pressure out of the hammermill system and delivers feed fines

into the dust collector. The fines are separated and then augered into the mixing tank.

The ground feed is mixed continuously until the tractor PTO is disengaged. When grinding is completed, turn off the tractor ignition and disengage the hammermill. The feed can then continue to mix without running the hammermill.

If supplement is to be added to the ration, a hopper with sack cutter is located at the right rear of the mixing tank. Best mixing will result if supplement is added before grinding but it can be added during or after the grinding operation.

The unloading auger pivots at the rear center of the mixing tank and can swing 316 degrees in a horizontal arc and infinitely in a vertical arc. The auger tube can be positioned either to the right or left side of the tank in transport position. Unloading rates up to 28 bushels per minute can be obtained depending on type of material processed.

Three windows are located at the front right corner of the mixing tank to observe feed level while grinding and mixing. A ladder is located at the front left corner of the mixing tank to obtain access to the spring-loaded tank lid on top of the mixing tank.

A number of optional attachments are available for special conditions and are illustrated on pages 28 through 31. Some of the attachments include:

1. Hydraulic driven auger feeder
2. Rollfeed in mill throat — hydraulic drive
3. Digital electronic scale
4. Horn or light for electronic scale
5. Hydraulic lift and swing unloading auger
6. Additional vertical back auger extension
7. Discharge auger extensions; either clamp on or swing around type
8. Double discharge tube sacker
9. Self contained hydraulics

PREPARING THE GRINDER-MIXER

See page 32 for machines shipped dis-assembled.

Bolts and Nuts

Before starting to operate the grinder-mixer, check all nuts and bolts for tightness. Also check that all cotter pins are spread. After operating the grinder-mixer for several hours, check all bolts for proper torque. See bolt specifications in the chart on page 25.

All cap screws used in the grinder-mixer are "high-strength" and if replaced, cap screws of equal or higher strength should be used. "High-strength" cap screws are identified by three radial dashes on the hex head.

Tire Inflation

Check tires for proper inflation pressure. See Page 17 for recommended care of tires and inflation pressure.

Lubrication

Lubricate the grinder-mixer at regular intervals as instructed on pages 21 through 24.

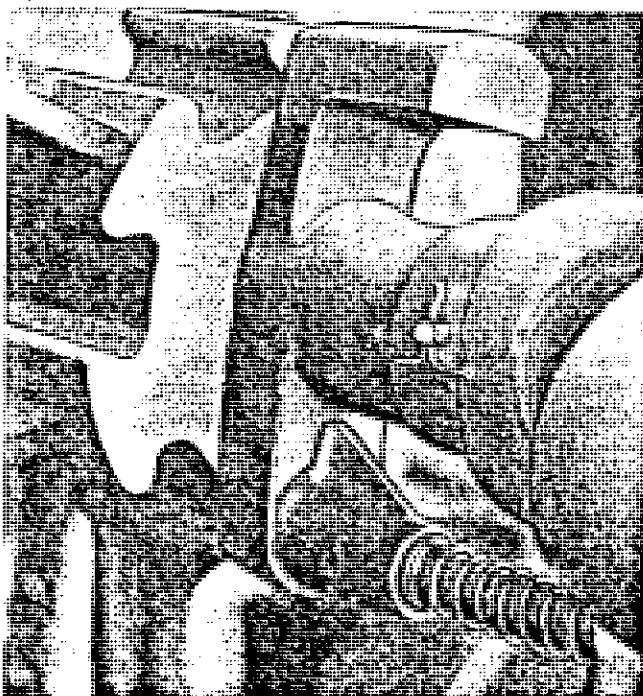


Figure 3 – Installing Powershaft

Assembly

Install implement end of power shaft by fastening to input jackshaft with 5/16 x 3-1/2 clevis pin and cotter pin provided. Spread cotter pin (Figure 3).

PREPARING THE TRACTOR

The grinder-mixer may be operated only on tractor having 1000 RPM PTO drive.

The PTO is rated for a maximum of 150 horsepower at 1000 RPM.

Tractor Hitch

The hitch of the grinder-mixer is designed to attach to any SAE-ASAE standardized tractor drawbar. Adjust the drawbar so that it is 13 to 17 inches above the ground. Extend or shorten the tractor drawbar so that the horizontal distance from the end of the tractor power take-off shaft to the center of the hitch pin hole is 16 inches for the 1000 RPM drives.

Lock the drawbar in its crossbar, parallel with the centerline of the powershaft. Place locking pins on each side of the drawbar. If the tractor has an offset drawbar, the offset should be down for PTO work.

IMPORTANT: An improperly located hitch point may cause damage to the universal joints of the power take-off.

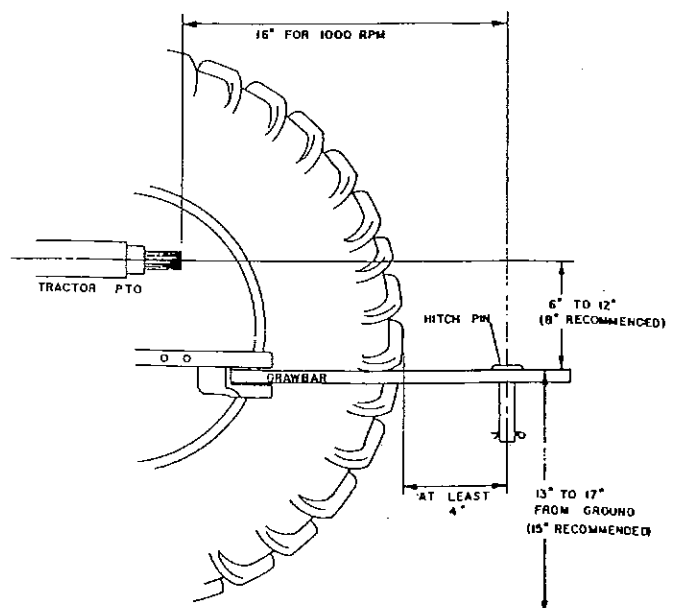


Figure 4 – Hitching Point Location

ATTACHING TO THE TRACTOR

Back the tractor up to the hitch. Use the handle of the jackstand to raise or lower the grinder-mixer hitch into position to engage the tractor drawbar. Fasten the grinder-mixer hitch to the drawbar with a hitch pin that cannot bounce out. Raise the jackstand and lock into transport position. See Figure 5.

IMPORTANT: Never transport the grinder-mixer until the hitch pin is secured into position and the safety chain is properly installed.

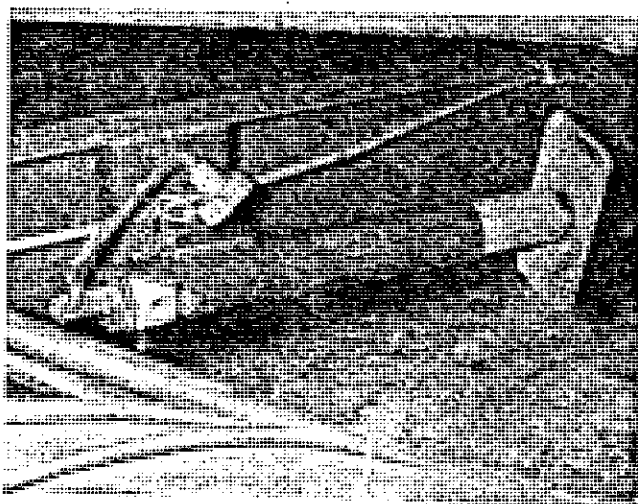


Figure 5 — Jackstand in Transport

If grinder-mixer is equipped with an electronic scale, plug the scale power supply cord into the electrical outlet on the tractor, unless scale is connected to battery on mixer frame.

IMPORTANT: On electronic scale applications, if a bolt and nut are used in place of a hitch pin, the nut must not be tightened such that it hits against the underside of the weigh bar clevis.

Connect hydraulic hoses to tractor. If the grinder-mixer is equipped with a hydraulic lift and swing back auger, or a hydraulic auger feeder, plug the hydraulic hoses into the tractor outlets as required for the following:

1. Hydraulic Auger Feeder
2. Hydraulic Roll Feed
3. Hydraulic Lift and Swing Discharge Auger

Connect the powershaft to the tractor 1000 RPM power take-off shaft.

Before engaging PTO and after making the connection, check to be sure spinner shields are free to rotate.

Before grinding, position tractor straight with frame of grinder-mixer. This will allow smoother PTO operation and prolong powershaft life.

IMPORTANT: When mixing while transporting, avoid sharp turns which may damage the powershaft.

DETACHING FROM TRACTOR

Be sure engine is shut off.

Disconnect powershaft from the tractor and place it in the PTO support bracket. See Figure 6.

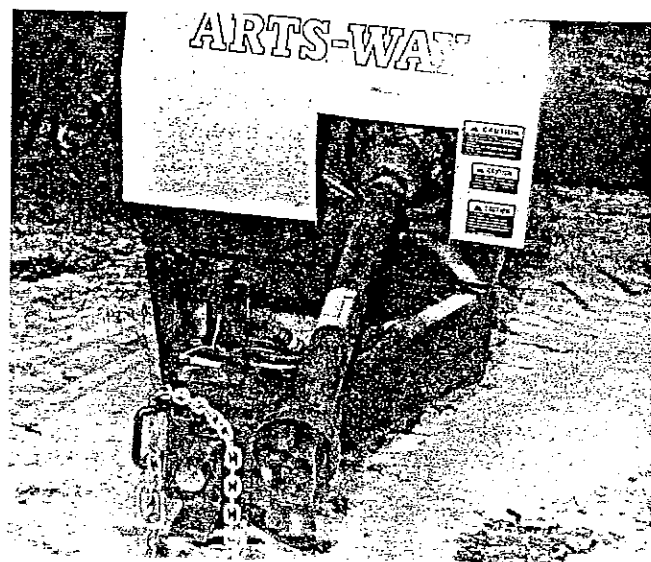


Figure 6 — PTO Support Bracket

Disconnect electronic scale power supply cord from tractor if so equipped.

Disconnect hydraulic hoses from tractor outlets if so equipped with hydraulic lift and swing back auger or hydraulic auger feeder or hydraulic rollfeed.

Block the tires. Lower the jackstand to its storage position. Turn the handle of the jackstand to raise the grinder-mixer tongue off the tractor hitch.

Remove the hitch pin. Drive the tractor away and replace the hitch pin into the grinder-mixer hitch tongue.

GENERAL OPERATION

New machines should be run in before feed preparation. A few hundred pounds of coarse material, such as shelled corn or ground corn cobs, should be run through the mixer. This will remove the protective oil coating from the mixer cone and any metal particles that may be in the machine. This will polish the cone and help prevent bridging. After several minutes of running, unload the mixture and discard. Do not feed this material to livestock.

HAMMERMILL CLUTCH PIN

The hammermill clutch pin, Figure 7, is located on the front of the flywheel. Shut off tractor engine before proceeding with this step. To engage, turn the flywheel by hand and push in the pin. When the pin is engaged in one of the six slots in the flywheel, turn it in either direction to lock in place.

IMPORTANT: Always operate PTO at the speed for which machine is rated: 1000 RPM. Note the speed decal on the front cover.

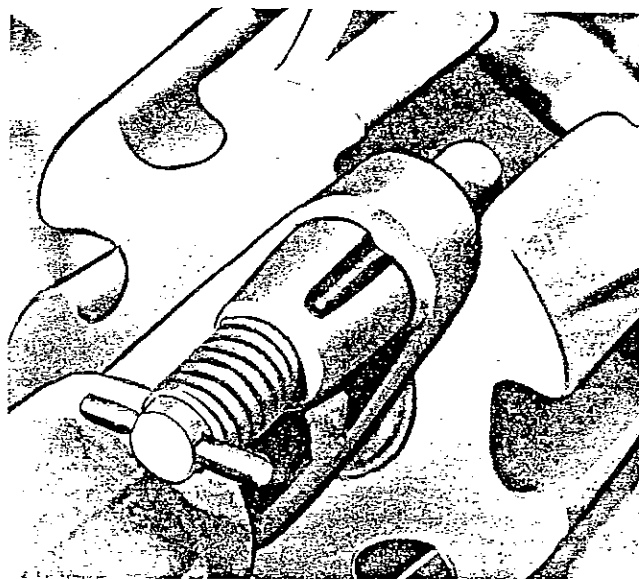


Figure 7 — Hammermill Clutch Pin

TRACTOR PTO LEVER

To operate the mill, make sure the clutch pin is engaged before engaging the tractor PTO. The mixer may be operated by engaging the PTO without engaging the clutch pin. Always engage the PTO with the tractor engine at idle speed. After it is engaged, increase engine speed gradually until operating speed is obtained.

AUGER FEEDER

The auger feeder is hydraulically operated from the tractor hydraulics. The tractor hydraulics must have a minimum flow of 8 GPM and the pressure required is 1500 PSI. If the grinder-mixer is not equipped with the discharge positioning hydraulics, the hoses run directly from the tractor to the control valve at upper end of auger feeder.

If the machine is equipped with discharge positioning hydraulics, the machine will be equipped with a selector valve as shown in Figure 60. The lever on this valve must be positioned out, as shown to direct oil to auger feeder.

Unlock the auger feeder from the fender transport lock by pulling out the clip pin.

Raising and Lowering

Using the handle, raise the auger feeder and swing it to the right; at the same time pull on the

position control rope, lifting slightly on auger feeder until it releases latch. While continuing to hold rope, lower auger feeder to desired position. Auger feeder can be raised to any desired position without releasing rope. See Figure 8.

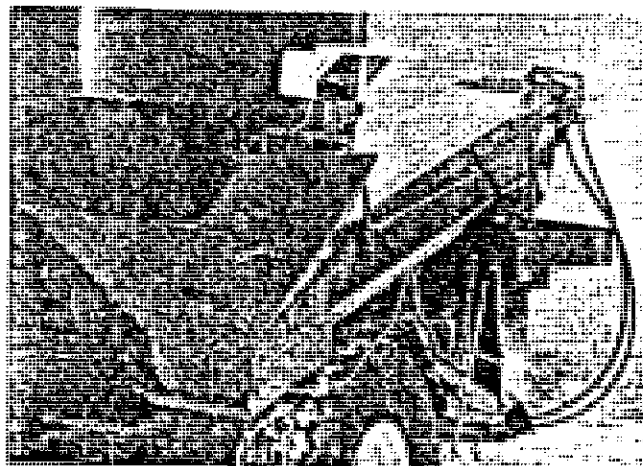


Figure 8 — Auger Feeder Handle and Rope

AUGER FEEDER OPERATION (See figure 10)

Operation — 11

To position auger feeder, remove clip pin from fender bracket, lift bottom of auger feeder slightly so brackets clear at fender. Swing out away from tank so it will clear fender when lowered. Lift slightly on auger feeder and pull on rope. While holding rope, lower auger feeder to desired height. Remove clip pin holding auger feeder hopper up and swing hopper down. Hinged grate must then be positioned down over the auger. When grinding material such as ear corn, grate must be left in the up position. If you must grind with grate up, use extreme care to stay clear of auger.



DANGER: TO PREVENT PERSONAL INJURY:

1. USE GRATE OVER AUGER AT ALL TIMES POSSIBLE.
2. IF GRATE CANNOT BE USED, AND EVEN WHEN IT IS IN USE OVER THE AUGER, KEEP HANDS AND FEET OUT OF THE HOPPER AREA AND DO NOT CLIMB ONTO OR OVER THE MACHINE AT ANY TIME.

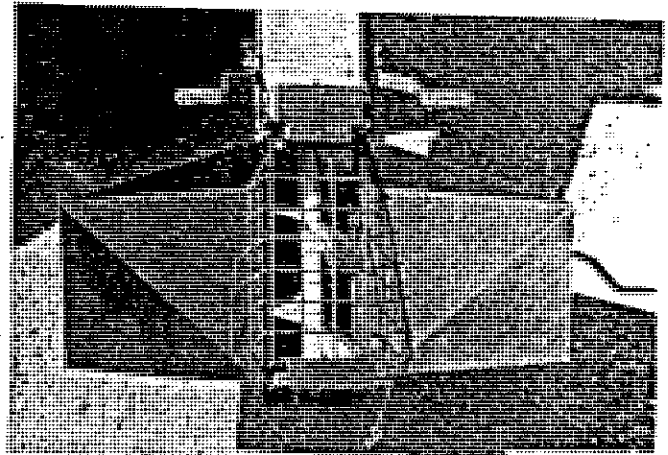


FIGURE 10 - AUGER FEEDER OPERATION

Auger Feeder Swing Brake

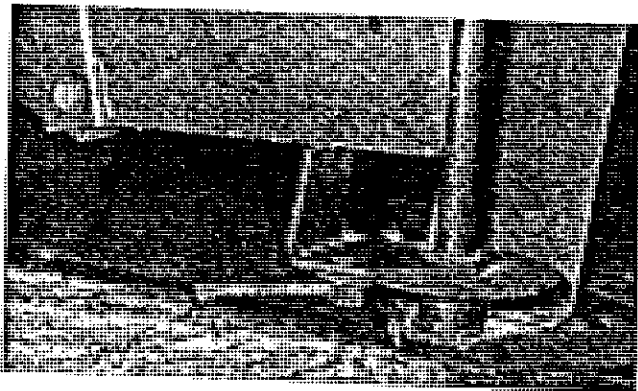


Figure 9 — Swing Brake

Brake

The auger feeder can be secured so it does not pivot by tightening bolt onto disk at base of pivot thus preventing any side to side movement. (See Figure 9.)

This is helpful with use of the electronic scale because the feeder housing can be held off the ground. The brake prevents the feeder housing from moving out of position.

Positioner

The auger feeder is equipped with a unique patented feature called a positioner (See Figure 11). This enables the hopper to be repositioned approximately 5 inches without moving tractor. To operate the positioner, hold the long handle auger feeder hopper more directly under spout or against building; then release handles.

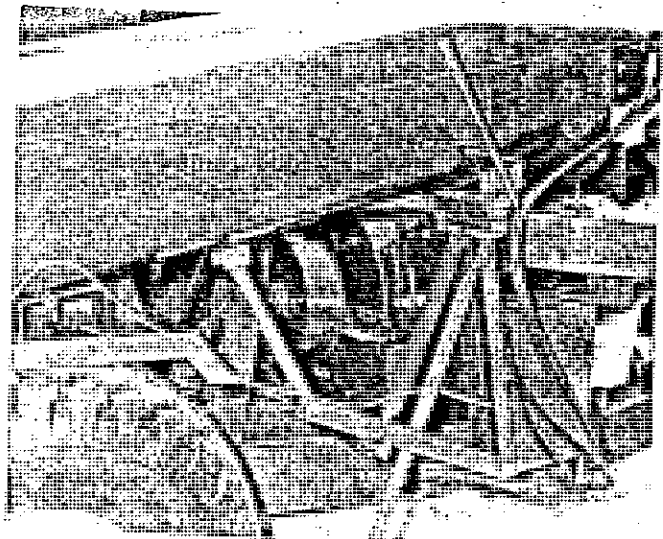


Figure 11 — Positioner and Spring Adjustment

Auger Feeder Balance Spring

Adjust auger feeder balance spring, Figure 11, by loosening jam nut, and rotating spring bolt. Rotate bolt clockwise to increase spring tension. Tighten jam nut when desired balance is obtained.

Operation

To engage the hydraulically driven auger feeder, move the valve control handle clockwise until desired speed is obtained. The control valve (See Figure 12) can be positioned at any point to vary auger speed from 0 to maximum RPM.

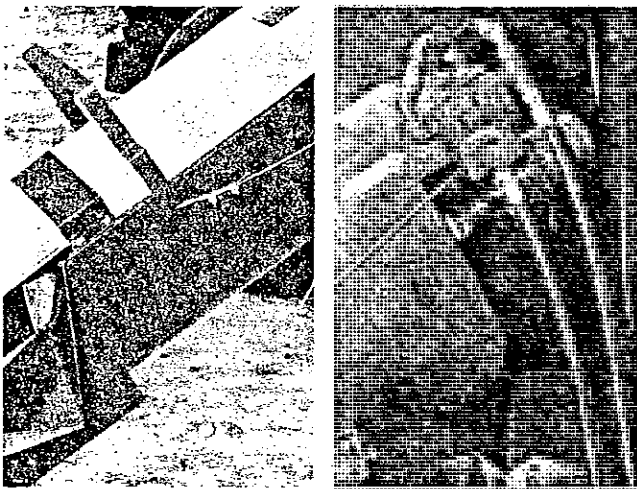


Figure 12 — Hydraulic Drag Controls

A cable is attached from the control valve to the handle shown on the lower end of the auger feeder. This enables the operator to stop the auger quickly if machine is overloading or in case of emergency. Operate by moving auger control handle to "OFF" or pulling on the cable.



CAUTION: If cable is broken or becomes frayed or worn, replace immediately.

Tractor Hydraulics

As standard, this machine is equipped for tractor "Open Center" hydraulic operation.

If operating of auger feeder is to be with a tractor that is equipped with a closed center hydraulic system, revision to the plumbing at the control valve by pass must be made. Refer to tractor operators manual or consult dealer to make sure which system the tractor has. (See Figure 12A)

For converting to "Closed Center" do the following:

At control valve upper right corner, disconnect hoses from motor and to tractor from tee and elbow; remove nipple. Install plugs in valve and tee where nipple was removed. Reconnect hoses to tee and elbow. Tie hoses together for support. (See Figure 12A).

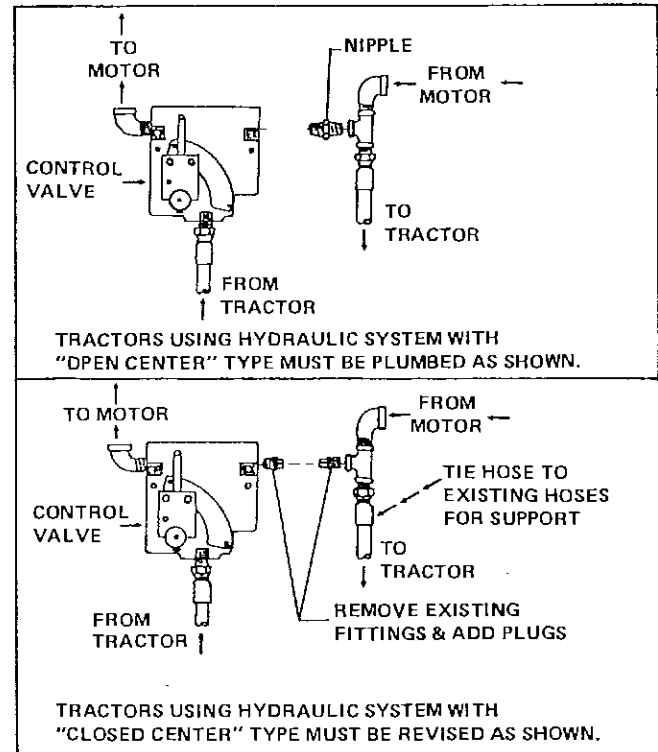


Figure 12A — Open and Closed Hydraulic Systems

FEEDROLL

The hydraulic roll feed is connected in series with the auger feeder hydraulic motor and runs approximately one-half the RPM that the auger feeder runs.

The feed roll may be operated independently of auger feeder by pulling out on selector valve handle. See Figure 52.

Feed Roll Crank

To maintain even feeding, the feed roll may be set at desired height by using the feed roll crank, Figure 13.

Feed roll settings will vary with the material being fed. Experience will indicate the best settings. Set the feed roll just high enough so that the material is being pulled in smoothly.

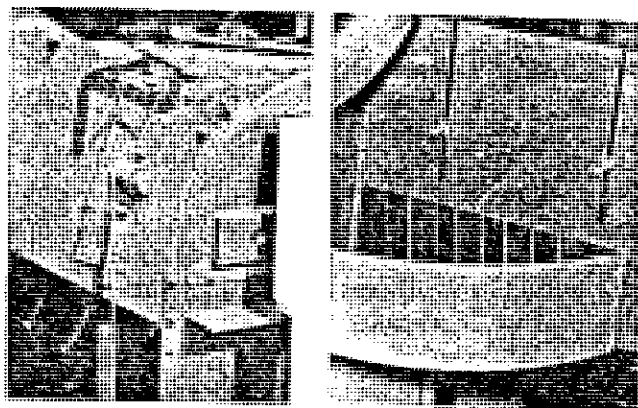


Figure 13 — Feed Roll Crank and Feed Baffles



CAUTION: Never force material into the feed roll with a stick or by hand.

FEED BAFFLE

A feed baffle, Figure 13, is provided in the mill throat to control the flow of grain to the hammermill. It is especially useful if the machine is not equipped with a feed roll or auger feeder. The baffle consists of a sliding door attached by spring tensioned bolts. The feed baffle may be adjusted to any desired height. Behind the door is a rubber and steel anti-kickback for grinding small grain without roll feed.

HAY RETARD BOLTS

The hay retard bolts, Figure 14, help to maintain uniform feeding while grinding hay. The degree of retard is adjusted by loosening the lock nuts on each of the four bolts and turning the bolts in or out to the desired position. Retarding action is

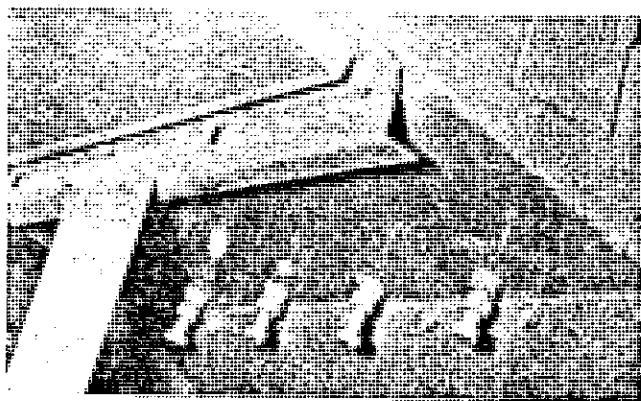


Figure 14 — Hay Retard Bolts

increased by turning the bolts in and is lessened by turning bolts out. Secure the bolts by again tightening the lock nuts.

HAMMERMILL SCREENS

Screens are available in 12 sizes ranging from 1/8 to 2 inch openings. The screen size will be determined by the type of material and the degree of fineness desired.

The following suggested screen sizes may be used as a guide for grinding different types of feed.

SCREEN SIZE	TYPE OF GRIND	MATERIAL	LIVESTOCK AND NORMAL RESULTS
1/8	Fine Small Grain	Oats, Milo, Corn	Chickens, Pigs, Fine
3/16	Medium Small Grain	Oats, Milo, Corn, Hay	Chickens, Pigs, More Hulls
1/4	Coarse Small Grain	Oats, Milo, Corn, Hay	Hogs, Sheep, More Coarse
5/16	More Coarse Small Grain	Oats, Corn, Hay	Hogs, Fine Cattle Feed
3/8	Coarse Shelled Corn	Corn, Hay Ear Corn	Cattle Feed, No Whole Kernels In Ear Corn
1/2	Coarse Ear Corn	Ear Corn, Hay	Cattle Feed, Will Leave Some Whole Kernels In Ear Corn Grind
5/8	More Coarse Ear Corn	Ear Corn, Hay	Cattle, Will Leave Some Whole Kernels
3/4	Coarse or High Moisture Ear Corn	Ear Corn, Hay	Cattle, Nice Cob Grind But Whole Kernels
1 and 1-1/4	Very Coarse	Corn Cobs, Hay	Medium Bedding, Cattle, Screen for Corncobs
1-1/2 and 2	Very Coarse	Corn Cobs, Hay	Recommended for Bedding, Cattle, Uniform Grind

Do not use finer screens than needed since they require more power and reduce mill capacity. Never grind wet corncobs or wet hay. This can cause auger problems in loading or unloading.

CHANGING SCREENS



CAUTION: Disengage all drives and shut off tractor engine before installing or changing hammermill screens. Never open the hammermill cover until the hammermill has completely stopped turning.

Extra screens are carried in the screen rack located over the left fender (See Figure 61).

To install or change the screen, open the hammermill door by removing the locking pins and releasing both latches (See Figure 15). Remove the screen with the wire hook provided (See Figure 16). The screen support bar will drop down to allow easier screen removal. Install the new screen; close the hammermill door; replace the screen hook; and latch the door shut. Be sure to replace the locking pins.

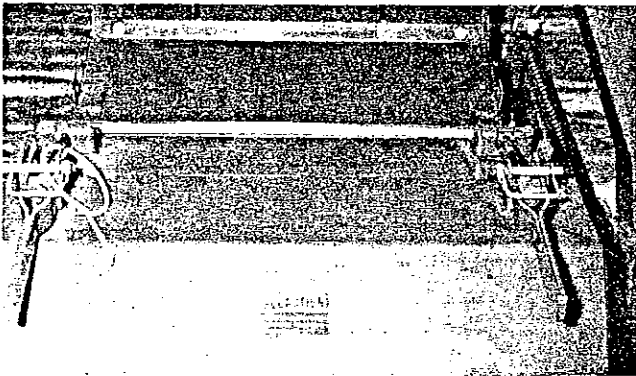


Figure 15 - Hammermill Door

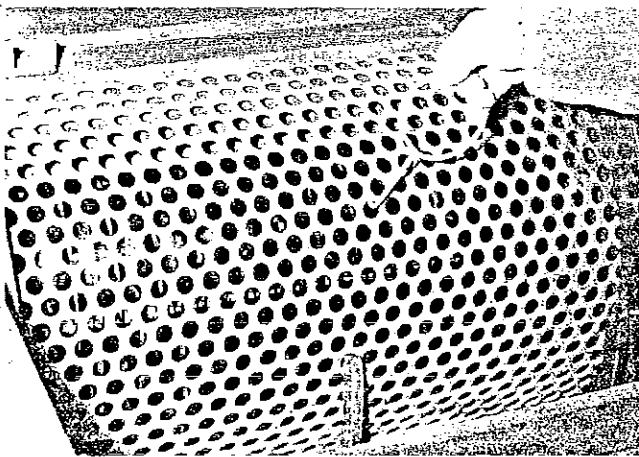


Figure 16 - Changing the Screen
[Door opened for clarity]

ADDING CONCENTRATE OR SUPPLEMENT

Concentrate or supplement should be added to the ground feed through the supplement hopper located at the right rear corner of the grinder-mixer. A serrated sack cutter is located in the hopper opening. A grate is positioned below the sack cutter to keep the bag from dropping into the conveyor auger.

For best results, add the concentrate or supplement at the beginning of the grinding operation or within a minute or two after grinding

has begun, to insure a thorough mixing. If micro-ingredients are to be added to the feed, the best results are obtained with a premix, or by adding the supplement and the micro-ingredients simultaneously. If the micro-ingredients are desired without a premix or other supplement, open the mixing tank lid and put the ingredients into the mixer. This should be done at the beginning of the operation. Be sure to close the lid "before starting". If strong additives are not wanted in the next batch, clean out the tank cone through the clean-out doors (See Figures A, B, and C). Supplement hopper should also be flushed with approximately a bushel of grain to remove any additives.

Close the cover over the supplement hopper when it is not in use. A latch is provided at the rear left of the cover to keep it closed.

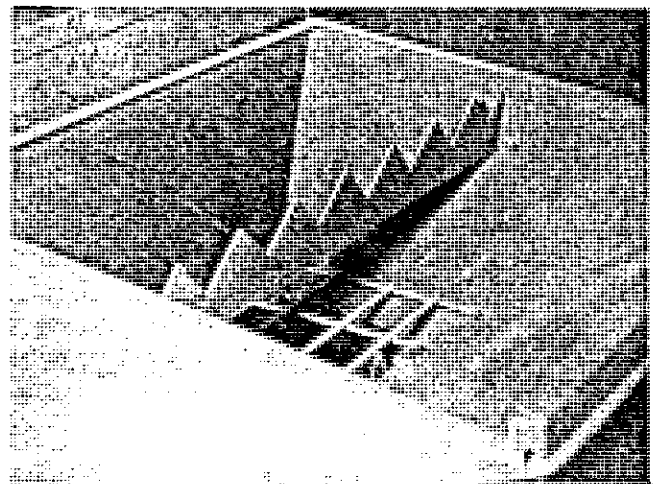


Figure 17 - Adding Supplement
[Cover removed for clarity]

CLEAN-OUT DOORS

Located at strategic points on this machine are different clean-out doors to aid in cleaning out strong additives which are not wanted in the next batch of feed.

CAUTION: Do not open cover until the mechanism has stopped. Shut tractor engine off and put key in pocket before opening or closing any of the clean-out covers.

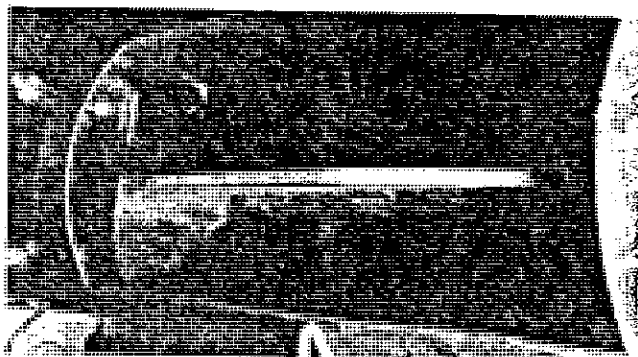


Figure A — Auger Trough Under Mixing Tank
[Door opened for clarity]

Located under the right side of frame and tank assembly is a hinged door on the bottom of the auger trough. Release two spring clamps and drop door. Keep away from opening. Run mixer slowly until trough and mixing tank are cleaned out. Keep all persons from under and around machine.

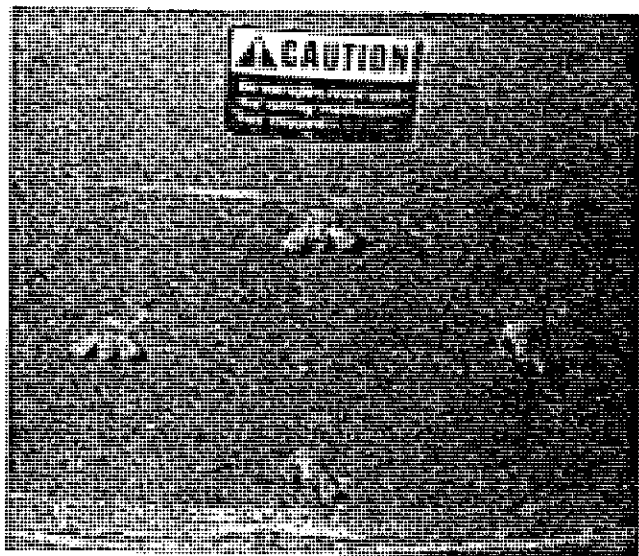


Figure B — Tank Cone Clean-out Doors

Located on bottom portion of tank cone are two clean-out doors.



Figure C — Discharge Hopper Clean-out Door

Recaulk doors after seal is broken.

GRINDING HAY

If hay is to be ground, grind grains first. Do not grind more than eight bales of hay per tank until familiar with results. Large amounts of hay, or coarse ground hay, can cause "bridging" in the tank, resulting in difficult unloading. Add at least twenty bushels of grain to each full tank which will aid in unloading. If large quantities of hay are to be ground, 3/4" or smaller screens should be used.

Do not grind wet hay!

GRINDING WITHOUT MIXING

To grind any material without mixing, engage the unloading auger lever (See Figure 29), open the tank discharge door (See Figure 2), and start the grinding operation. The feed will be augered into the mixing tank cone and then out through the unloading augers without mixing. Position the unloading auger tube as needed to direct the augered feed.

FILLING MIXER TANK

Be sure the mixing tank unloading door is closed. As the mixing tank is filling, watch the ground feed through the mixer windows. When the top window first becomes covered, the tank is not full since the mixing auger throws material away from the center of the tank. Continue grinding until the top window clears, then becomes covered again about half-way. Stop feeding material into the hammermill at this point, but continue operating until it has had time to clear. Do not overload the mixer; overloading can cause damage to the machine. See Figure 18.

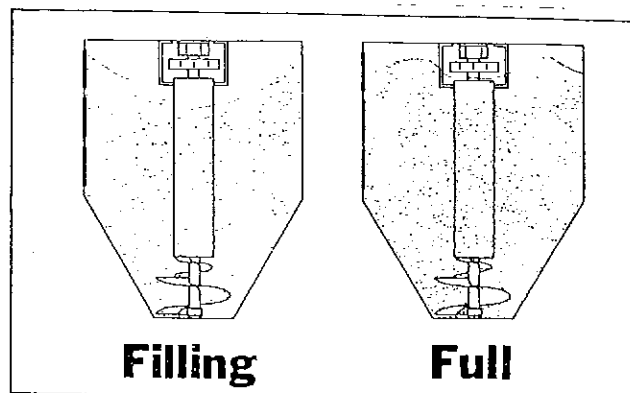


Figure 18 — Filling Patterns

For best mixing results, always add light weight or bulky materials last. Always add high moisture corn or grain last. Excessive amounts of wet material or bulky material can cause bridging in the mixing tank.

SPRING LOADED TANK LID

If the tank is accidentally overfilled, it is equipped with a spring loaded tank lid. This cover also allows access to the inside of the mixing tank. Keep the lid latched down at all times.

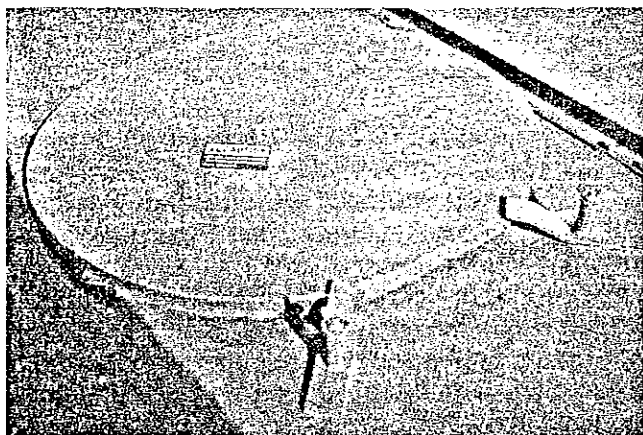


Figure 19 — Spring Loaded Tank Lid.

MIXING

After the grinding is completed and the desired ration is in the mixing tank, turn off the tractor engine, disengage the PTO and the hammermill clutch. Restart the engine and engage the PTO., allowing the mixer to operate until ready to unload. Run the mixer five minutes to insure a thorough mixing of feed and supplements. See Figure 20.

IMPORTANT: Do not make sharp turns when mixing while transporting.

SWINGING ARM HANDLE

A handle is clamped on the unloading auger tube. It is used to help pull around the unloading auger to position the discharge for unloading. In storage, it latches over the handle on the unloading elbow.

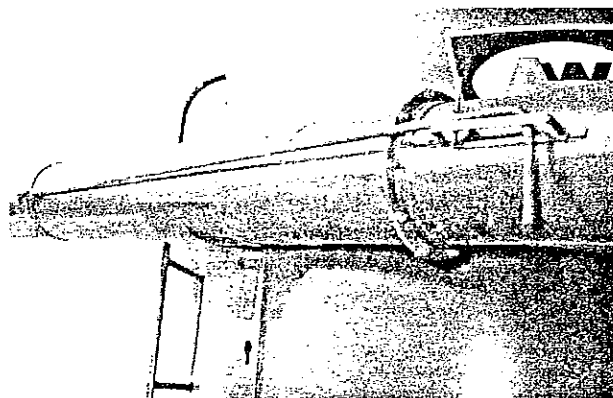


Figure 19A — Swinging Arm Handle

POSITIONING UNLOADING AUGER

The discharge unloading auger normally rests in a saddle either at the left or right side of the mixing tank. Insert the crank handle onto the worm gear shaft and crank to raise the discharge auger out of the transport saddle. Pull the discharge tube around to the desired position. The complete auger tube can be rotated and placed on the opposite side of the mixer frame. The discharge auger hood can also be rotated so that it points downward.

APPROXIMATE CAPACITY CALIBRATION — IN POUNDS

(Actual Weights Vary with Material, Moisture, Screen Size, etc.)

Window Number	Ground oats 22.5 lbs./bu.	Ground barley 36 lbs./bu.	Ground Milo 56 lbs./bu.	Ground shelled corn 50 lbs./bu.	Ground ear corn 38 lbs./bu.	Unground shelled corn 56 lbs./bu.
FULL	3427	5483	8529	7615	5787	8529
9	3254	5206	8098	7230	5495	8098
8	3002	4802	7470	6670	5069	7470
7	2747	4396	6838	6105	4640	6838
6	2468	3949	6143	5485	4169	6143
5	2228	3564	5544	4950	3762	5544
4	1987	3179	4945	4415	3355	4945
3	1685	2696	4194	3745	2846	4194
2	1444	2311	3595	3210	2440	3595
1	1204	1926	2996	2675	2033	2996

Figure 20

UNLOADING AUGER

After mixing, the finished feed may be unloaded into storage bins, wagons or feeders. To unload, engage unloading auger, before starting tractor, by pushing forward the unloading auger clutch handle (Figure 29). Open unloading door in tank so feed fills horizontal auger housing.

Several optional attachments for the unloading system are available. These include 3 foot and 6 foot swing around type and 3 foot and 5 foot clamp-on type discharge auger extensions. See pages 29 - 30.

Also available is a hydraulic lift and swing unloading auger as well as an additional two foot vertical auger extension. These options will custom tailor the grinder-mixer to unloading height shown. See chart on page 29, Figure D.

DISCHARGE AUGER HOOD

When the discharge auger tube becomes overloaded, a spring-loaded door opens on the end to prevent damage to the drive.

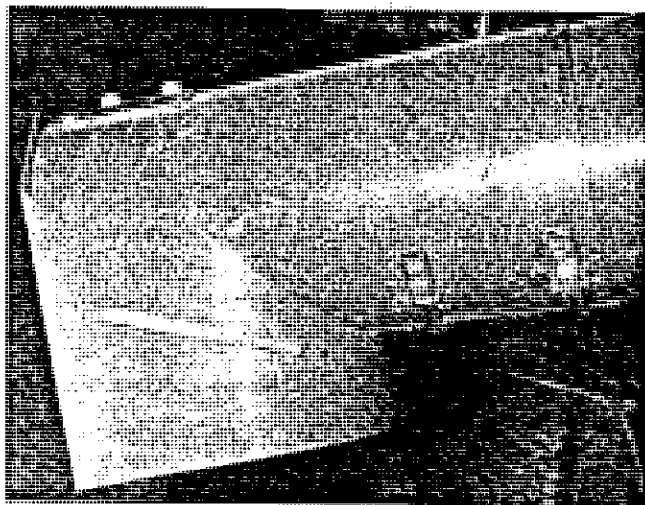


Figure 21 — Discharge Auger Hood

CARE OF RUBBER TIRES

Keep tires properly inflated. Lack of pressure can result in torn valve stems, fabric breaks and uneven tread wear. Too much pressure causes undue strain on the fabric, excessive tread wear and allows the tire to cut in more on wet surfaces, thus greatly increasing the draft load.

Recommended tire inflation pressure for the 13.50 - 16.1, 8-ply tires is 28 PSI.

Equal tire pressure helps prevent against sway when towing the grinder-mixer.

TRANSPORTING

Before transporting the grinder-mixer, be sure to read and follow these instructions carefully.

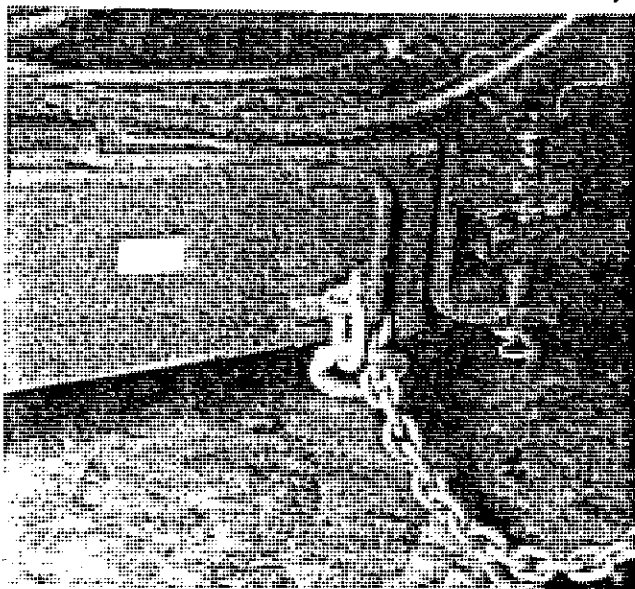


Figure 22 — Transporting with Tractor

CAUTION: Always transport a loaded grinder-mixer at slow speed [10 mph or less] and be extra careful in hilly country.

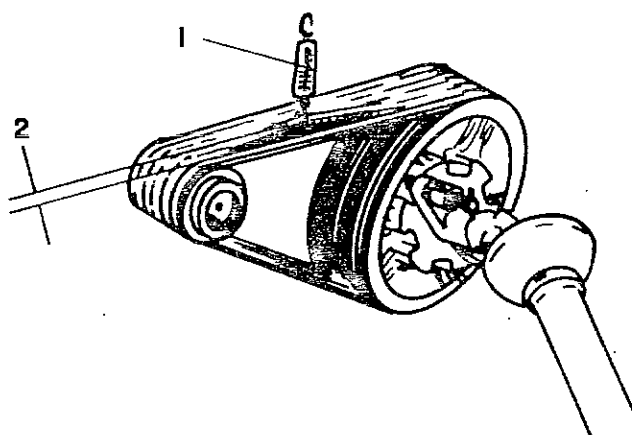
Be sure the hitch pin is locked in place and the safety chain is properly installed (Figure 22). Hook PTO to tractor or secure in transport position. Place jackstand in transport position (See page 5, Figure A and B; also page 9, Figure 5).

Make sure unloading auger is secured in saddle. If grinder-mixer is equipped with an auger feeder, make sure it is secured with pin into transport position.

When driving tractor and grinder-mixer on a road or highway, whether at night or during the day, use accessory lights and SMV Identification emblem. Use of a flashing amber light is acceptable in most localities. However, some localities prohibit use of them. Local laws should be checked for all highway lighting and marking requirements.

ADJUSTMENTS

CHECKING BELT TENSION



1 - 16 Pounds

2 - 5/16 Inch

Figure 23 - Checking Belt Tension
[Shield removed for clarity]

Belts on new machines have been properly tensioned at the factory. Belts should be checked for proper tension after the first few loads have been ground; thereafter approximately every 50 loads. To retension belts on machines which have been in operation, the following procedure should be followed:

Loosen bolts B and C (Figure 24); place a scale at the double V-belt midway on the pulleys; adjust bolts A (Figure 24) until sixteen pounds of pull on the scale raises the top of one double V-belt approximately 5/16 inch above the top of the remaining belts (See Figure 23). All six pairs of belts should have an average of 5/16 inch deflection at sixteen pounds. Also see Figure 25.

IMPORTANT: Proper alignment of pulleys must be maintained when adjusting belt tension.

Belts should be checked periodically for proper tension and alignment, especially when the machine is new or a new set of belts is installed. When operating, if the drive belts are very hot or smoking due to loose belts, allow machine to run empty for several minutes. **DO NOT** finish grinding with belts slipping; stop the machine to retension.

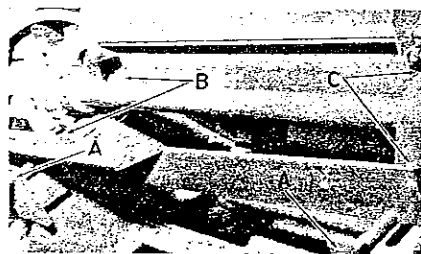


Figure 24 - Belt Tension Adjustment
[Drive shield removed for clarity]
[Bolts covered by shaft shield]

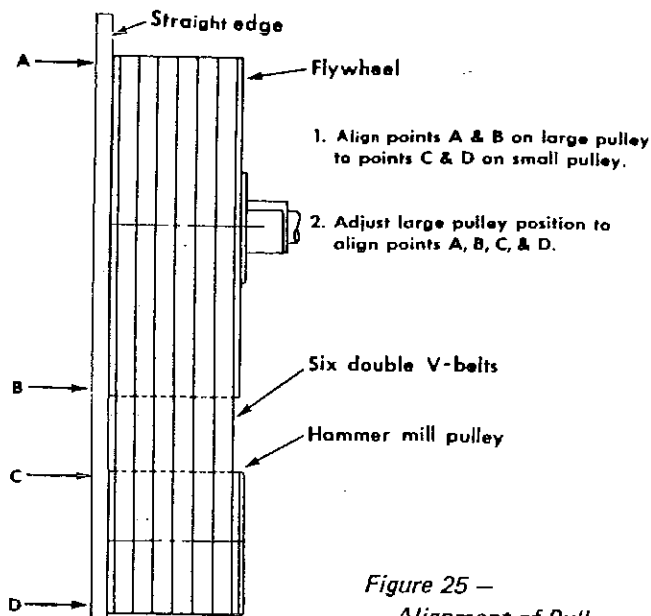
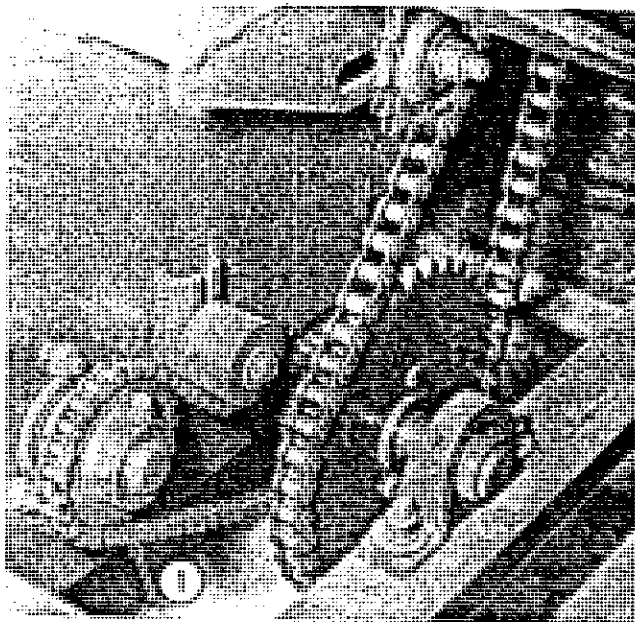


Figure 25 -
Alignment of Pulleys

MAIN DRIVE CHAIN

*Figure 26 — Drive Chain Adjustment
[Shields removed for clarity]*

Adjust the tension of the main drive chain (See Figure 26) by loosening the idler sprocket bolt and sliding the idler sprocket towards the chain. Retighten idler sprocket bolt. Chain deflection should be 1/2 inch total at center of span.

AUGER DRIVE CHAINS

The mill to tank auger drive chain (1-Figure 26) and the discharge auger drive chain (Figure 27) are tensioned with a wood block idler. Adjust the chain tension to 1/4 inch total deflection by positioning the wood block idler.

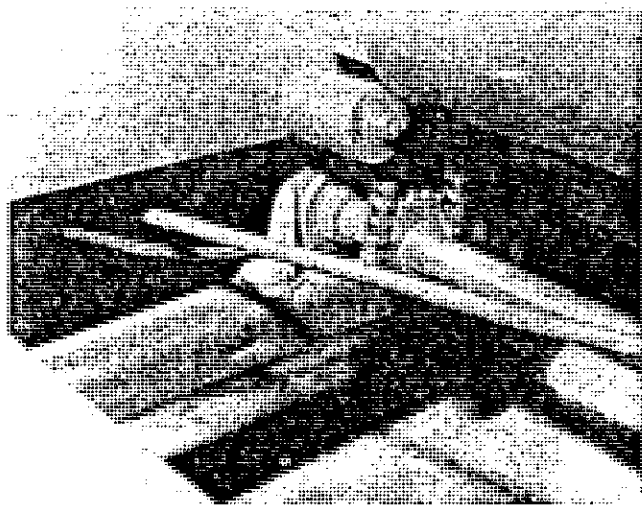


Figure 27 — Discharge Auger Drive Chain

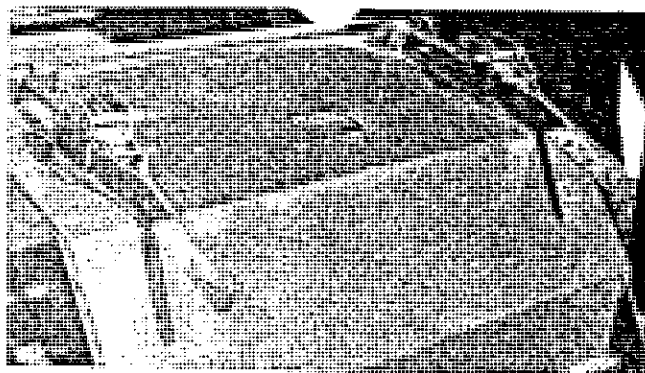
HAMMERMILL DOOR

Figure 28 — Hammermill Door Tension

To seal hammermill door tighter, increase pressure on the door, adjust the length of the T-handle threaded ends. Check adjustment and tighten locking nuts in place against pivot block.

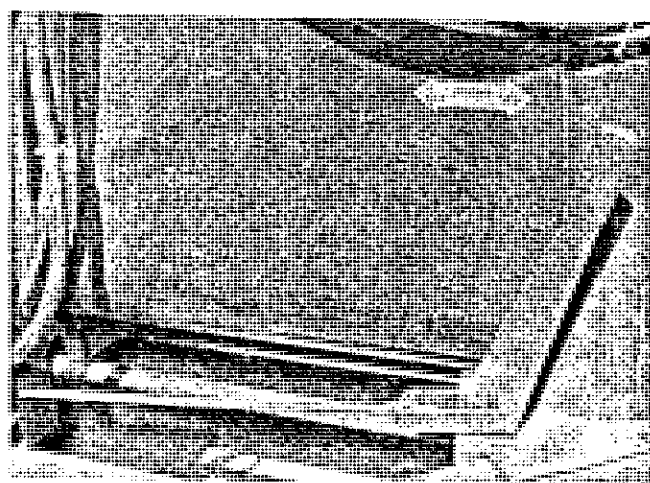
UNLOADING AUGER CLUTCH

Figure 29 — Unloading Auger Clutch Adjustment

The unloading auger clutch can be adjusted by turning the yoke on the threaded rod. With the auger clutch handle engaged, the jaws must be fully engaged. When clutch handle is disengaged the clutch halves must be separated by 1/4 inch minimum.

FEEDROLL

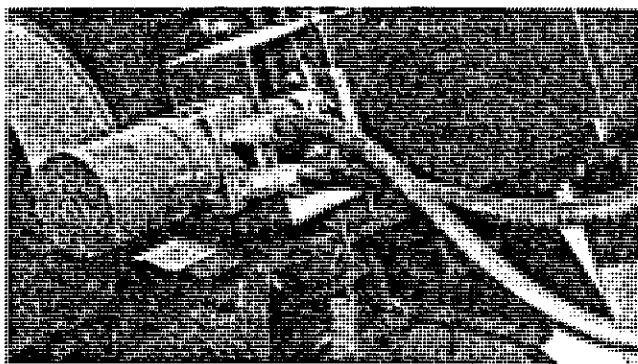


Figure 30 — Feedroll Adjustments

Five holes are provided at the upper end of the feedroll spring. Feedroll tension can be changed as desired. Generally, the top hole is used for hay.

If the feedroll does not crank up straight, check the cables at each side of the feedroll to see if they are both uniform on the feedroll crank shaft.

Cable lengths can be adjusted by loosening the nut with special cable washer and retightening after the cables are adjusted.

WHEEL BEARINGS

Securely block up frame so that wheel turns freely. To tighten the wheel bearing, first remove the hub cap. Remove the cotter pin from the slotted nut and tighten the slotted nut until there is a slight drag on the bearing while turning the wheel. Then loosen or back off the nut to the nearest slot and insert and spread cotter pin. There should be a slight drag on the bearing following the adjustment. Replace hub cap.

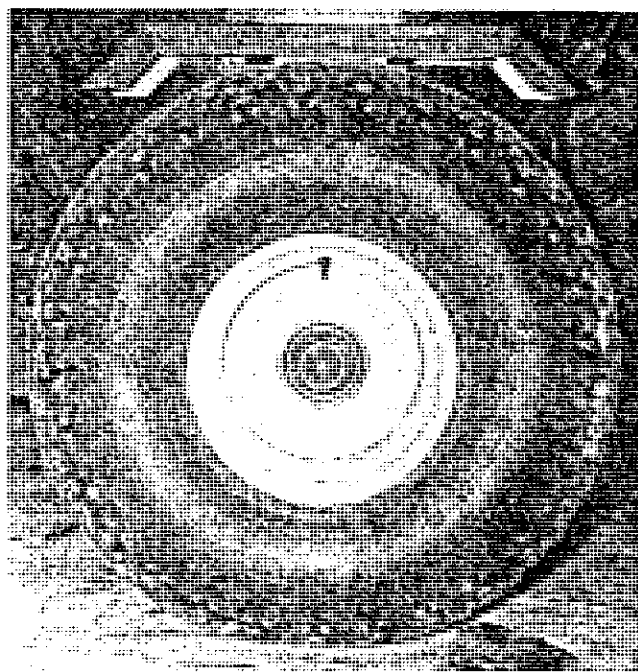


Figure 31 — Adjusting Wheel Bearings

LUBRICATION

CAUTION: Do not clean, lubricate or adjust your grinder-mixer while it is running. Shut tractor engine off and disengage tractor PTO lever; put key in pocket.

The grinder-mixer is designed to require a minimum amount of lubrication; however, the points that are to be lubricated should be serviced regularly at the intervals listed.

Keep your supply of lubricating oil and grease stored in clean containers and covered to protect from dust and dirt.

Keep lubricating gun nozzle clean and wipe dirt from grease fittings before lubricating.

Repack wheel bearings once a year or every 100 hours of operation with Arts-Way Super-Lube lubricant or an equivalent SAE multi-purpose type grease.

PTO SHAFT AND SPINNER SHIELDS

Grease bearing crosses and zerk on sliding shaft weekly or every 25 hours of operation with Arts-Way Super-Lube lubricant or an equivalent SAE multi-purpose type grease.

WHEELS

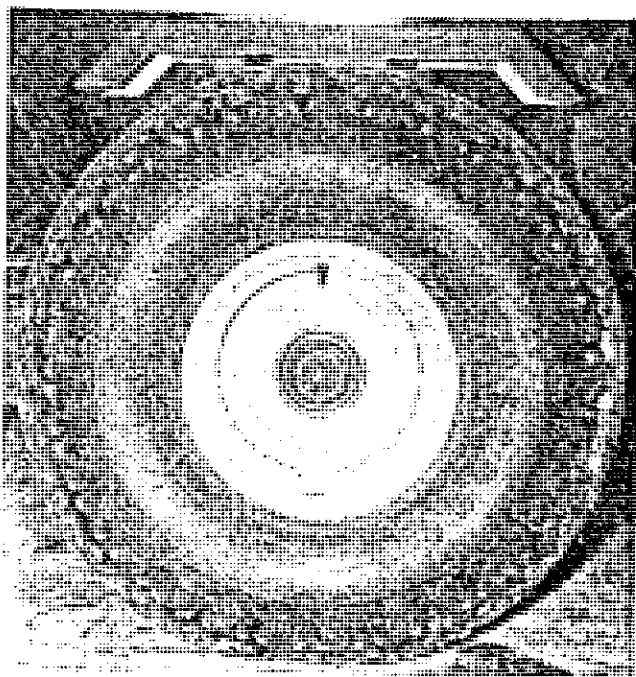


Figure 32 – Wheel Bearing Lubrication

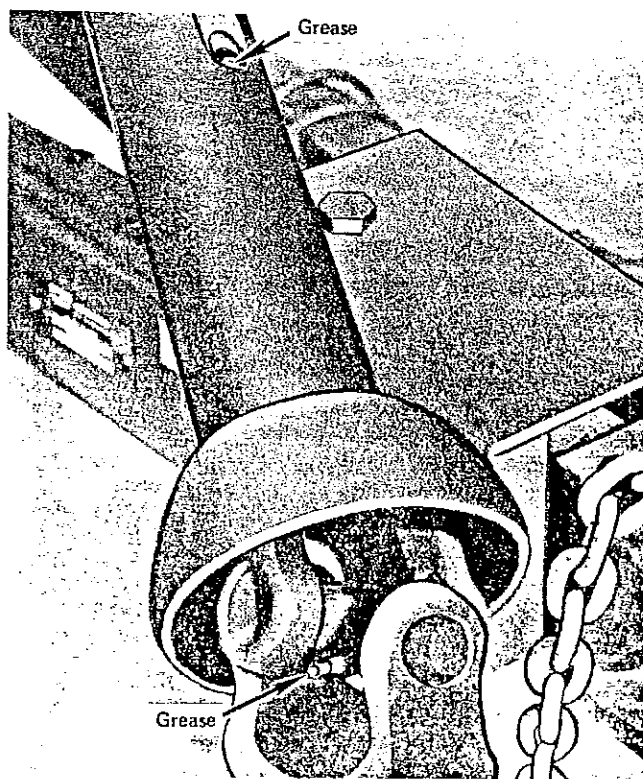


Figure 33 – PTO Lubrication

DRIVE SHAFT BEARINGS

Grease two pillow block bearings (1 & 2 - Figure 35) on grinder drive shaft and one pillow block bearing (2 - Figure 34)) on mixer drive shaft every 25 hours of operation with Arts-Way Super-Lube lubricant or an equivalent SAE multi-purpose type grease.

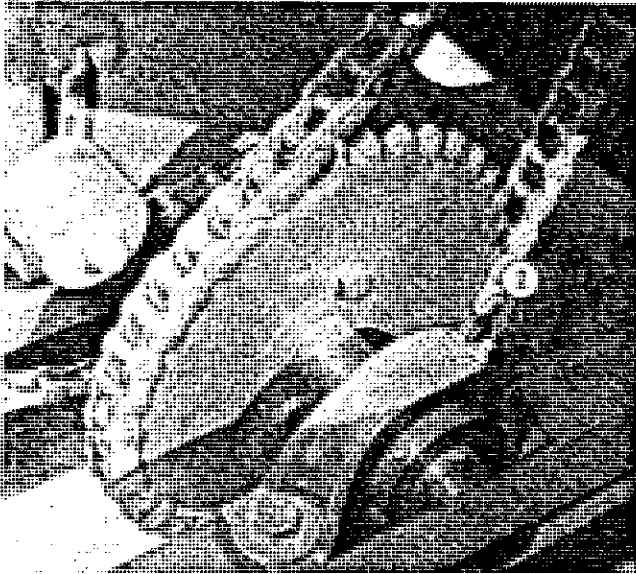


Figure 34 — Drive Shaft Bearing Lubrication
[Shield removed for clarity]



Figure 35 — Jack Shaft Bearings
[Shield removed for clarity]

HAMMERMILL SHAFT BEARINGS

Grease front and rear (2) pillow block bearings on hammermill cylinder shaft after every 10 hours of operation with Arts-Way Super-Lube lubricant or an equivalent SAE multi-purpose type grease. See Figure 36.

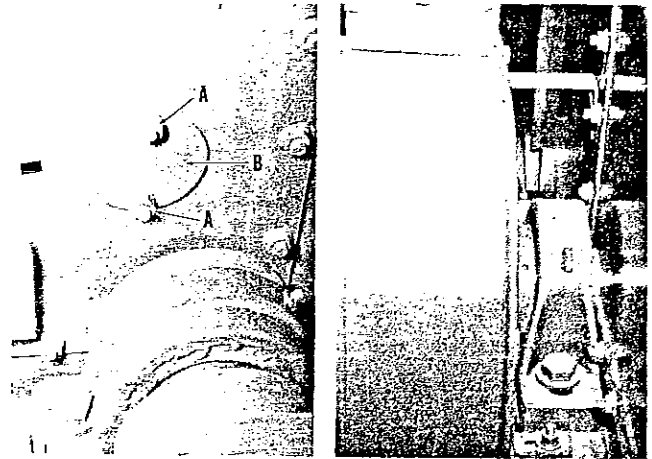


Figure 36 — Front and Rear Hammermill Shaft Bearing
[Shield removed for clarity]

LOWER VERTICAL MIXING AUGER

Repack the grease seal at the bottom of the vertical mixing auger every six months with Arts-Way Super-Lube lubricant or an equivalent SAE multi-purpose type grease. Access to this bearing is through the clean-out door in the mixing tank cone.

UPPER VERTICAL MIXING AUGER

Grease the upper vertical mixing auger brass bearing every 25 hours of operation with Arts-Way Super-Lube lubricant or an equivalent SAE multi-purpose type grease. Access to this bearing is through the spring loaded tank lid at the top of the mixing tank.

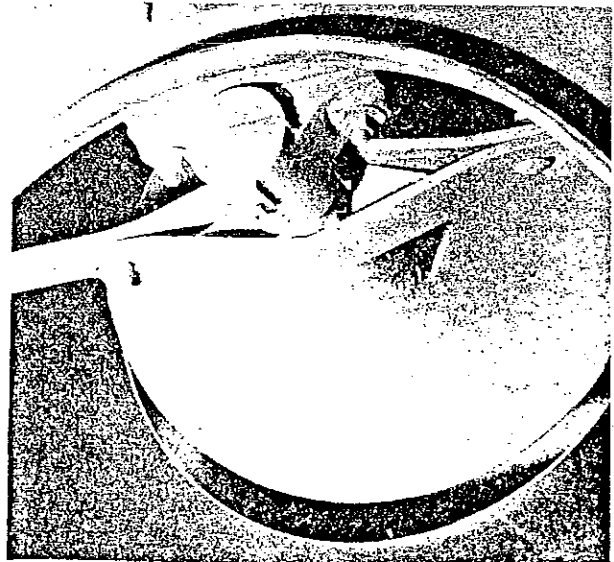


Figure 37 — Top of Mixer Auger Shaft
[Lid removed for clarity]

GEARBOX

Check oil level in gearbox at base of mixer tank every 6 months by removing check plug at side of gearbox. Add SAE 90 weight gear oil, if necessary, until oil runs out of filler hole.

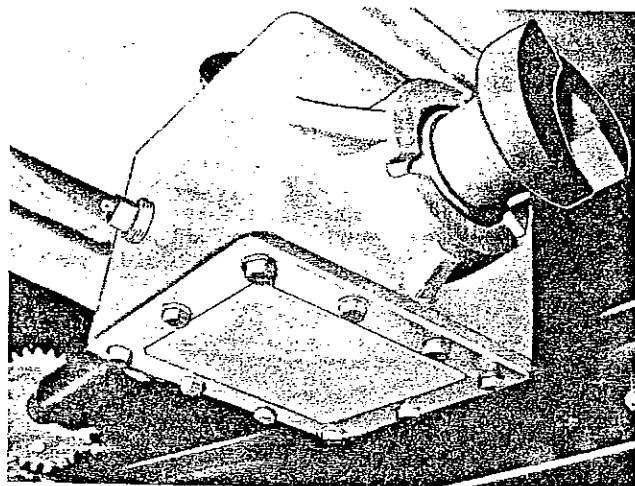


Figure 38 — Gearbox Lubrication

GRINDER ENGAGING PIN

Periodically oil the sliding pin which engages the large hammermill drive pulley. Use a light engine oil for lubrication.

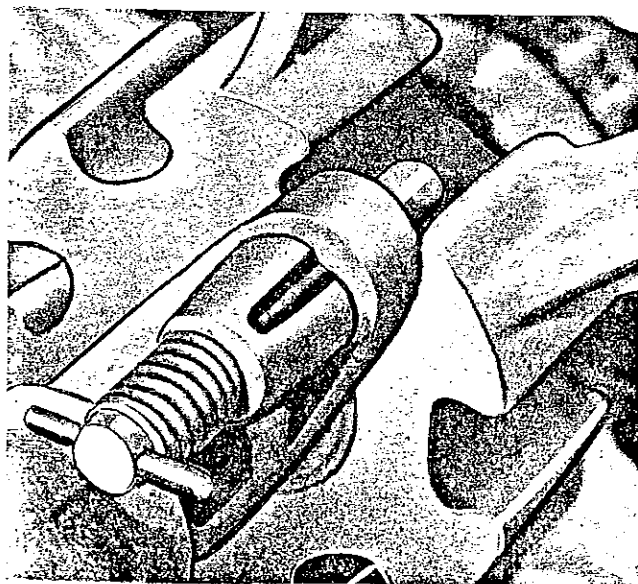


Figure 39 — Grinder Engaging Pin

RING AND WORM GEAR

Grease at two locations on large ring gear on unloading auger and wipe grease at ring gear and worm gear periodically. Use Arts-Way Super-Lube lubricant or an equivalent SAE multi-purpose type grease.

On units with hydraulic controlled back auger, keep the worm gear reservoir filled with oil up to the worm shaft. Use SAE 90 weight gear oil. Check periodically for leaks which could run reservoir dry (Figure 40A).

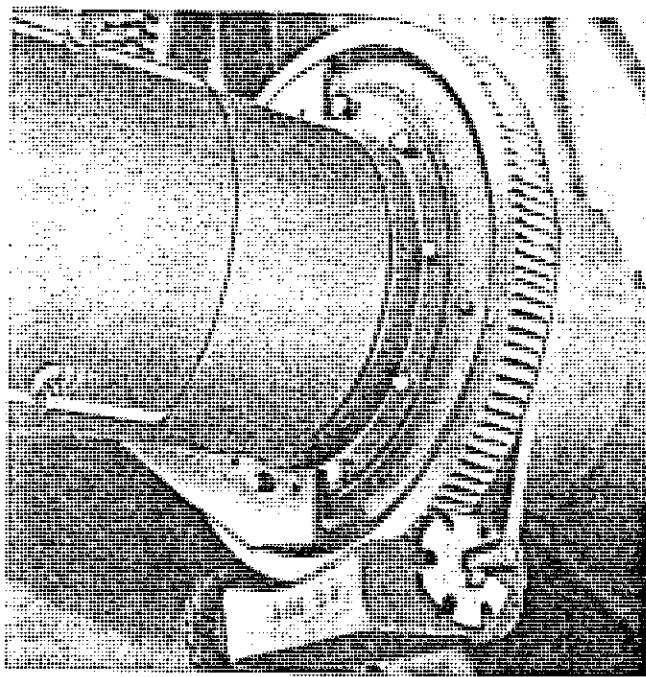


Figure 40 — Ring and Worm Gear Lubrication

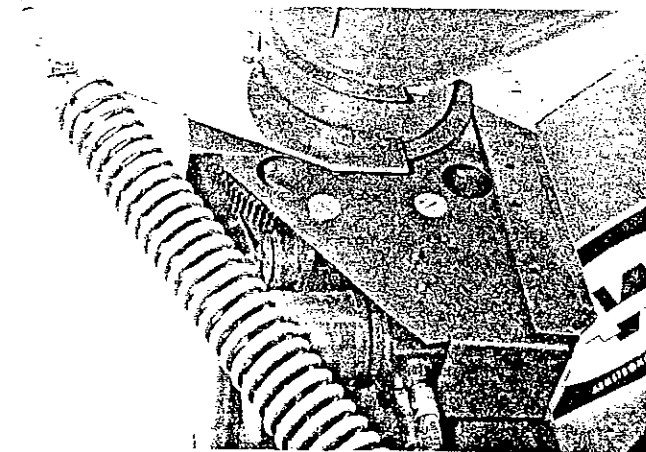


Figure 40A — Hydraulic Ring and Worm Gear Lubrication

UNLOADING AUGER CLUTCH

Brush shaft under sliding driven unloading auger clutch half periodically with Arts-Way Super-Lube or an equivalent SAE multi-purpose type grease.

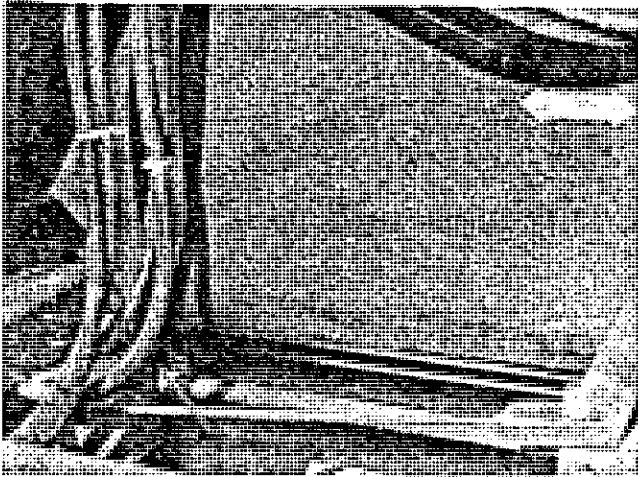


Figure 41 — Unloading Auger Clutch

GEARS

Periodically lubricate gear sets at each unloading auger transfer point. Use light oil and apply with a brush.

CHAINS

Chains should be lubricated at frequent intervals. A light engine oil should be used. A paint brush should be used for applying oil to the chain. Oil the chain on the inside (upper side of lower strand).



CAUTION: Disengage PTO and shut off tractor engine, put the key in pocket, before cleaning or lubricating the chains.

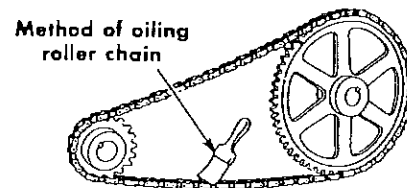


Figure 42 — Oiling Roller Chain

Chains should be cleaned regularly. Take the chains off and clean them well by soaking and dipping them in kerosene. Dry them well and oil thoroughly.

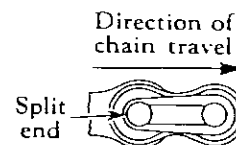


Figure 43 — Chain Spring Clip

The split end of the chain clip must face the direction opposite the chain travel. Be sure the clip is properly seated in the groove on the ends of the pin.

SERVICE

SERVICE

⚠ CAUTION: Disengage all drives and shut off tractor engine, put the key in pocket, before servicing grinder-mixer.

Bolt and Nut Torque Specifications



RECOMMENDED TORQUE IN FOOT POUNDS COARSE AND FINE THREADS		
		
BOLT	NO RADIAL DASHED	THREE RADIAL DASHES
1/4	6	9
5/16	11	18
3/8	19	31
7/16	30	50
1/2	45	75
9/16	66	110
5/8	93	150
3/4	150	250
7/8	202	378
1	300	583

Figure 44 – Torque Chart

SHEAR PLATES

The shear bolts make a loud noise when they shear. This is your warning to turn off the tractor ignition immediately and determine the cause of the shearing.

When replacing the shear bolts, use lock nut. The shear bolts must be of correct hardness (Grade 5 with three radial dashes) to assure proper shearing.

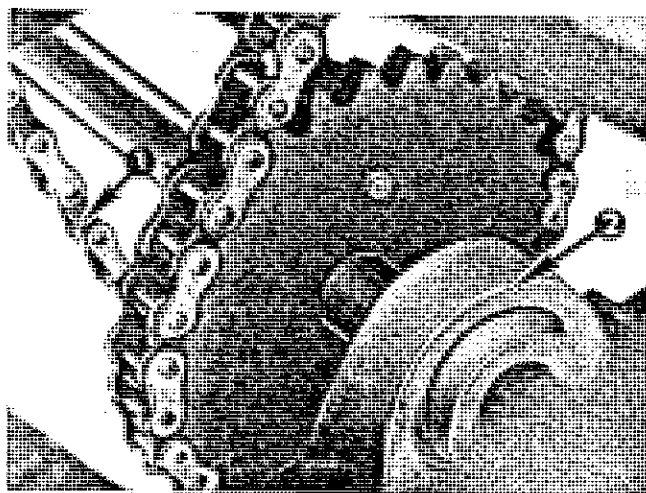


Figure 45 – Front Shear Sprockets
[Shields removed for clarity]

Use two 5/16 - 18 x 1-1/4 hex cap Gr. 5 shear bolts.

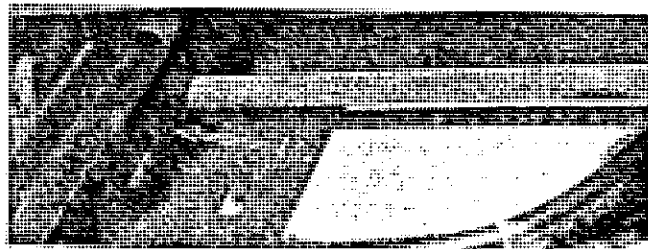


Figure 46 – Supplement Hopper, and Mill Auger Drive
Shear Sprockets [Shields removed for clarity]

Use two 1/4 - 20 x 3/4 hex cap Gr. 5 shear bolts.

SPROCKET AND CHAIN ALIGNMENT

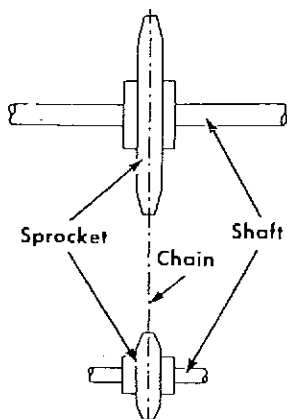


Figure 47 — Sprocket Alignment

Be sure the sprockets are in line on the shafts. If the sprockets are not aligned, a side pull develops which concentrates the load on the sides of the sprocket teeth and on the side of the chain. This faulty alignment results in excessive wear on both chain and sprockets.

REPLACEMENT OF DAMAGED HAMMERS

Hammers must be replaced in pairs to maintain balance. This is done by replacing the hammers opposite each other (180 degrees apart) with a matched pair.

REVERSING THE HAMMERS

CAUTION: Be sure hammermill has stopped rotating before opening hammermill door. Stop the tractor, disengage PTO, put key in pocket.

There are four rows of hammers in the rotor assembly with a total of 48 hammers. The hammers are reversible, but always replace hammers in exact sequence they were removed to preserve the balance of these specially matched units. All four corners can be used on each hammer. See Figure 51 for proper hammer spacing.

To remove the hammers, remove the two bolts "A" (Figure 48) from the side of the mill and plate "B" (Figure 48). Remove pins from each end of rod "C" (Figure 49) and pull rods out, making sure that the hammers "D" (Figure 49) are put back in the same place from which they were removed.

DO NOT pull more than one rod at a time to avoid mixup. Serious vibrations will occur if hammers are replaced in wrong position. See Figure 51 for proper hammer spacing on each of the four shafts.

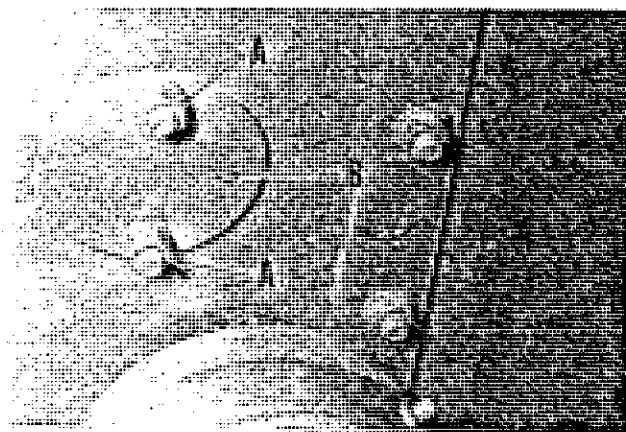


Figure 48 — Hammer Removal
[Shield removed for clarity]

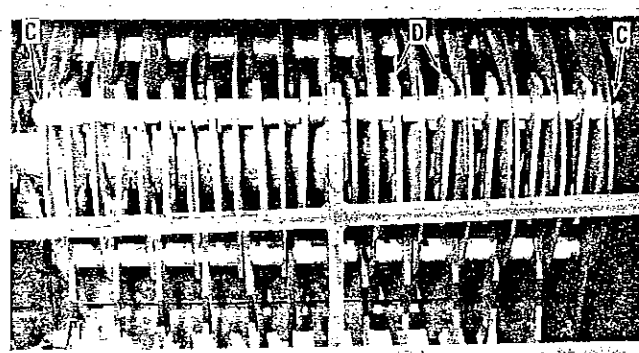


Figure 49 — Hammer Removal
[Door removed for clarity]

PROPER HAMMER SPACING



MAIN DRIVE BELT REPLACEMENT

To remove the drive belts, loosen bolts B and C (Figure 50). Then relieve the belt tension by loosening bolts A (Figure 50).

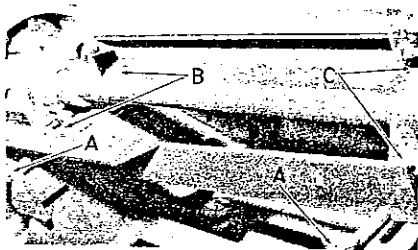


Figure 50 - Belt Removal, same as adjustments Fig. 24
[Shield removed for clarity]

After the tension is off the belts, remove belts and replace with the new set; tension and align belts as shown on page 18.

STORAGE

If the grinder-mixer is to be stored for any length of time, the following points should be followed:

1. Lubricate well all points covered on pages 21-24.
2. Place a coat of light oil on the inside of the tank cone to prevent rusting.
3. If possible, store inside in a dry place. If not, cover opening in dust collector and opening in hammermill throat.
4. Block up frame to allow tires to rotate. This will prevent tires from weathering.
5. Do not store near livestock, especially when equipped with the optional electronic scale.

SPACING FOR 48 HAMMERS

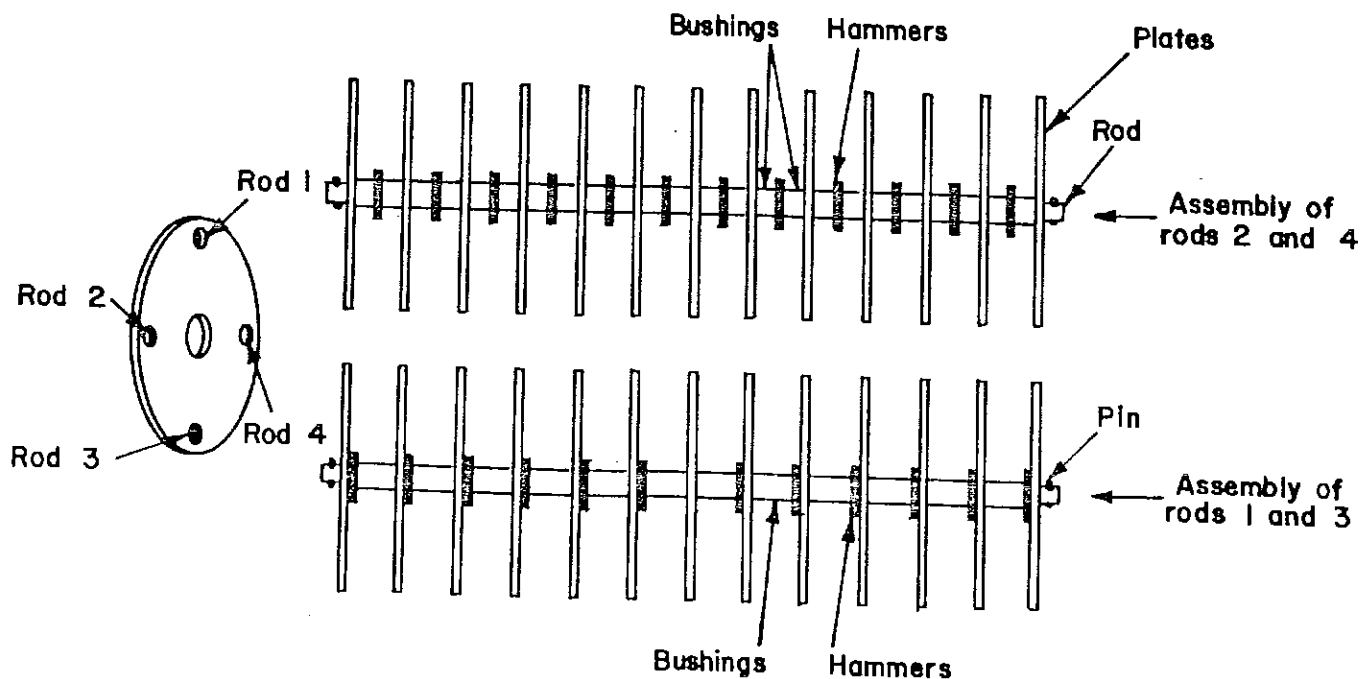


Figure 51 - Hammer Spacing Chart

ATTACHMENTS

SCREENS

Screens are available in 12 sizes ranging from 1/8" to 2". Two screens are provided as standard equipment. They are the 5/16" and 3/4" sizes unless otherwise specified.

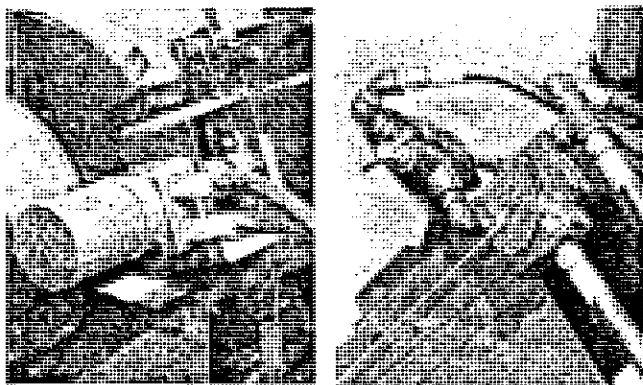


Figure 52 — Hydraulic Feed Roll

FEEDROLL

The feedroll provides easier feeding of exceptionally coarse material such as ear corn, corncobs or hay. For adjustment of the feedroll, see Figure 30; for operation of the feedroll, see page 12.

ELECTRONIC SCALE ATTACHMENT

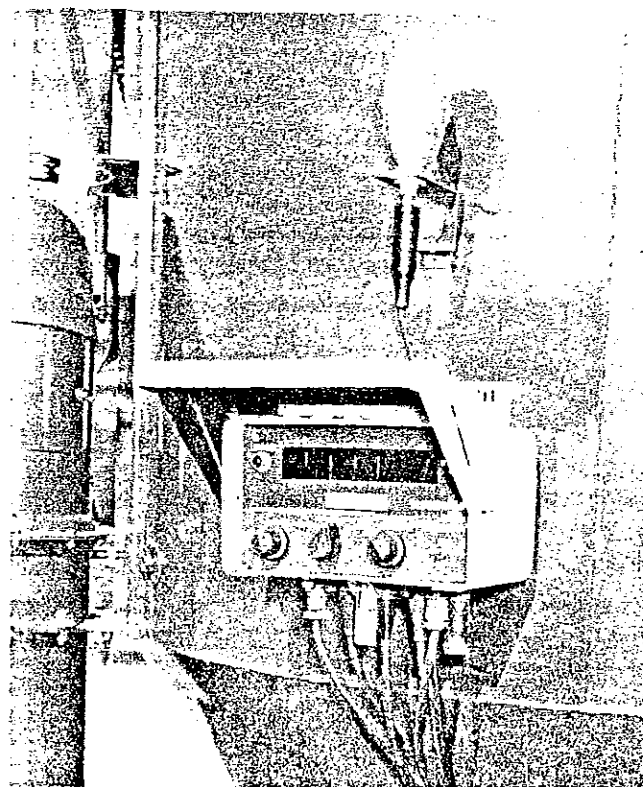


Figure 53 — Electronic Scale Attachment with Visible Alarm

A solid-state electronic scale attachment, digital type, is available for your grinder-mixer. The scale attachment consists of weigh bar sensors mounted on the grinder-mixer wheel spindles and hitch. They are electronically connected to the indicator box. A visible or audible alarm system is available with the electronic scale attachment. Scale accuracies of one percent or less are obtained. Complete

Installation and operating instructions are included with the attachment.

TUBE SACKER ATTACHMENT

The double discharge tube sacker replaces the standard discharge hood for easy sacking of feed. The lever on the end of the housing permits diverting the flow of feed for continuous filling of bags.

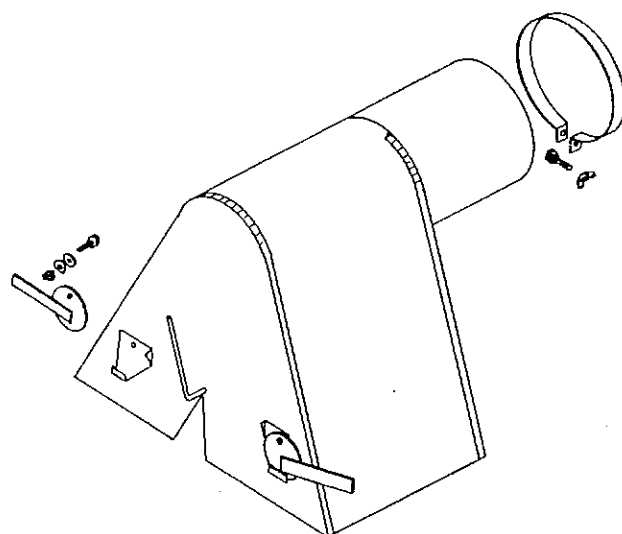


Figure 54 – Tube Sacker Attachment

DISCHARGE UNLOADING HEIGHTS OBTAINABLE ON LEVEL SURFACE (See Figure D)

Discharge auger configuration	Tube and elbow combined length	Discharge at 45 degrees		Discharge at 60 degrees	
		Standard 21" vertical auger	Optional 45" vertical auger	Standard 21" vertical auger	Optional 45" vertical auger
Standard – no extensions	113"	13' 6"	15' 6"	15'	17'
3-foot clamp-on or swing around auger extension	149"	15' 6"	17' 6"	17' 6"	19' 6"
5-foot clamp-on auger extension	173"	17'	19'	19' 4"	21' 4"
6-foot swing around auger extension	185"	17' 9"	19' 9"	20' 3"	22' 3"

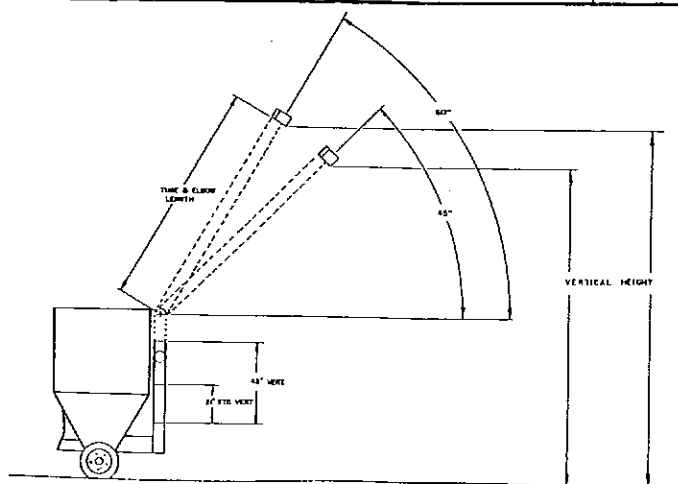


Figure D – Unloading Auger Heights

VERTICAL UNLOADING AUGER EXTENSION

A 24 inch vertical extension can be added to raise the unloading auger height for special applications. See Figure D for unloading heights obtainable with the 24 Inch vertical extension installed.

SWING AROUND AUGER EXTENSION

DISCHARGE UNLOADING AUGER EXTENSIONS

3-foot and 5-foot clamp-on type or 3-foot and 6-foot swing around auger extensions are available. See chart on page 29 for unloading heights obtainable with various extensions added to the unloading auger system.

Release the two spring clamps and screws to remove auger hood before assembling discharge extensions.

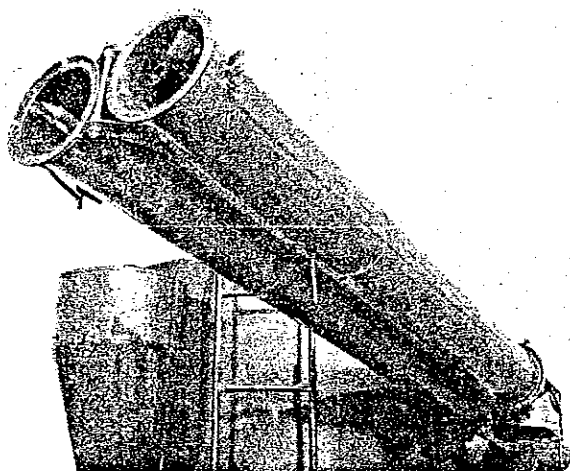


Figure 55 — Discharge Auger Extension
[Shown - swing around type]

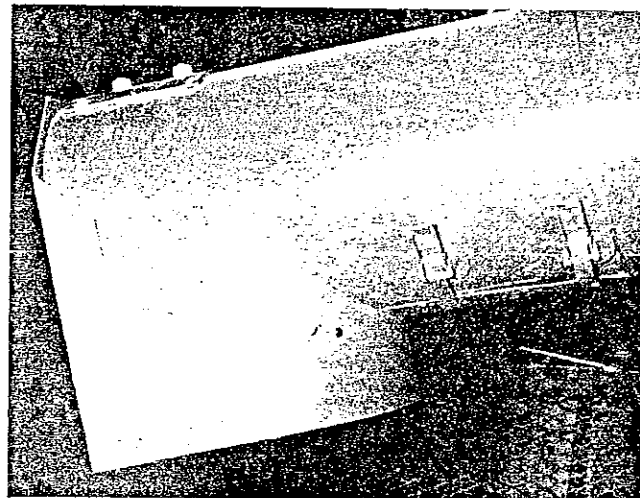
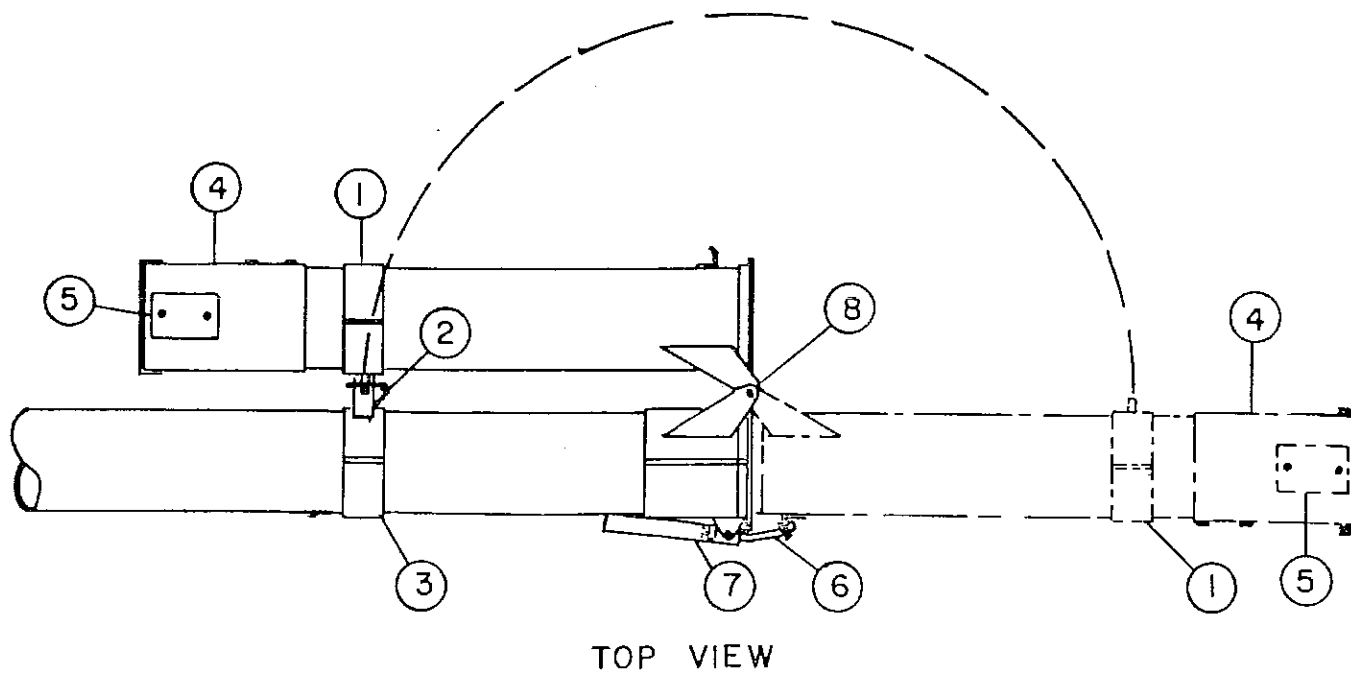


Figure 57 — Auger Hood

SWING AROUND TYPE AUGER EXTENSION



- | | |
|------------------|-----------------------|
| 1 - Clamp band | 5 - Reinforcing plate |
| 2 - Pin | 6 - "T" Bar |
| 3 - Mating Strap | 7 - Locking Handle |
| 4 - Auger Hood | 8 - Pivot Pin |

Figure 56

HYDRAULIC LIFT AND SWING

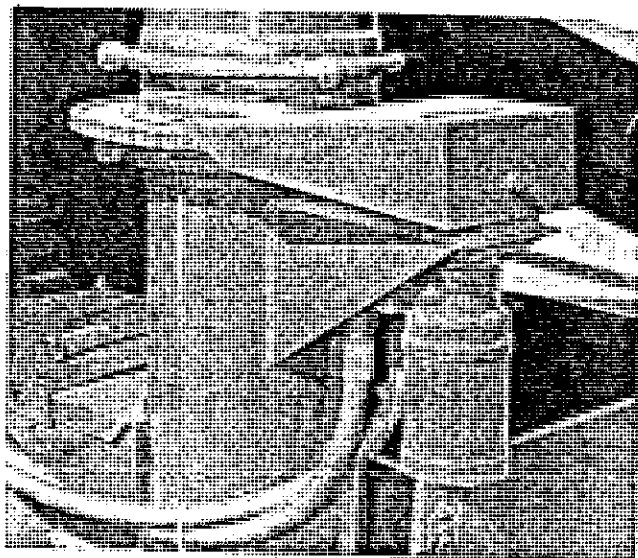


Figure 58 — Hydraulic Swing

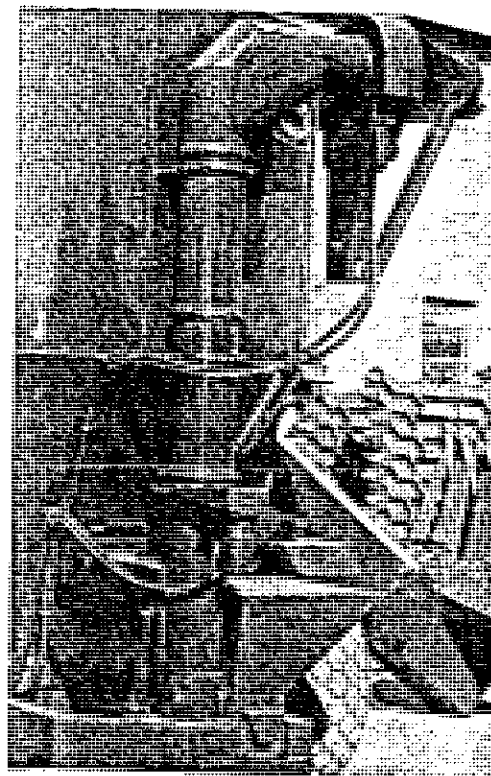


Figure 59 — Hydraulic Lift and Swing Back Auger with spring lift assist and optional 24" vertical extension.

HYDRAULIC LIFT AND SWING

Hydraulic motors can be attached to the lift and swing functions of the unloading auger system. This allows the operator to control the position of the unloading auger from the tractor seat. The motors are connected to 4 outlets on the tractor hydraulics.

If the machine is equipped with hydraulic lift and swing, the machine will be equipped with a selector valve as shown in Figure 60. The lever on this valve must be positioned "out" as shown, to direct oil to auger feeder; "in" to direct oil flow to hydraulic lift and swing.

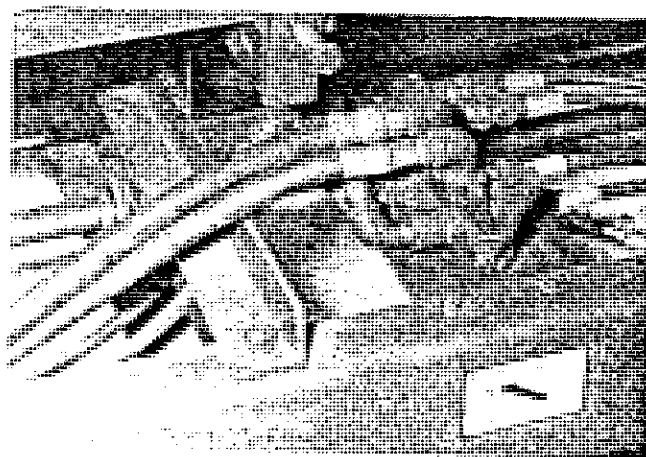


Figure 60 — Selector Valve

ASSEMBLING INSTRUCTIONS FOR MACHINES DISASSEMBLED FOR SHIPPING

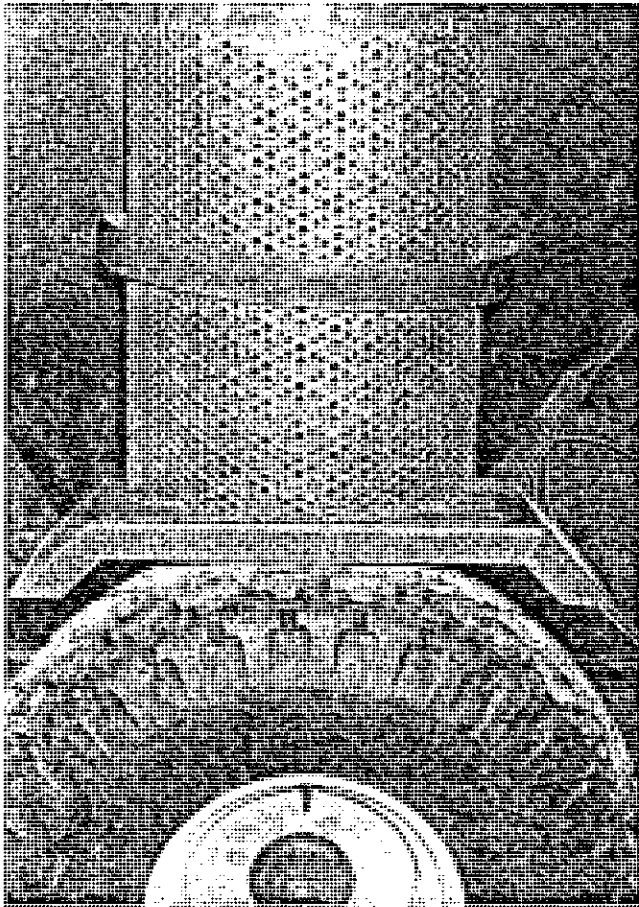


Figure 61 — Screen Rack, Fender Brackets, Fender & Wheel

For Grinder-Mixer Model 500, in order to ship on a truck, it must be partially disassembled in order to be within transporting width.

The following items have been taken off of the machine and must be reassembled on arrival:

1. Transport bracket and discharge auger has been removed from left side and mounted on the right side. Transport bracket may be used on left or right side of mixing tank. Rotate auger hood so that it points down.
2. Screen Rack
3. Left fender and two support brackets
4. Both wheels and tires
5. Left hub and axle assembly, see Figure 62 and 63.

NOTE: If axle is for electronic scale, take special attention not to cut or pinch scale wire; results could cause faulty scale operation.

6. Occasionally the front frame (hitch portion), see Figure 64.



Figure 62 — Rear Axle Bolt, 1 - 1/2 - 13 NC x 4" hex cap

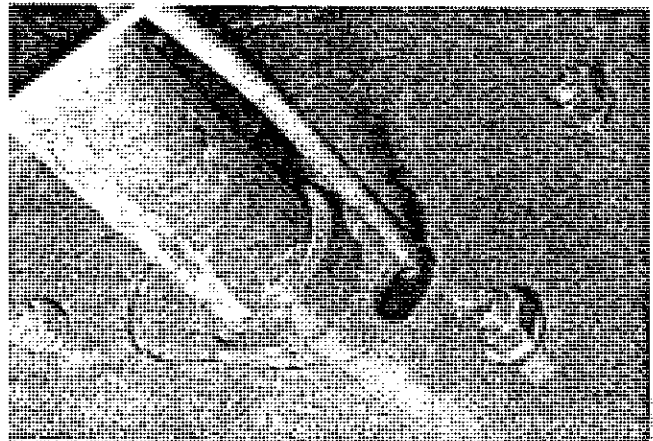


Figure 63 — Outer Axle Mounting Plate, 4 Bolts,
4 - 1/2 - 13 NC x 1-1/4" hex cap

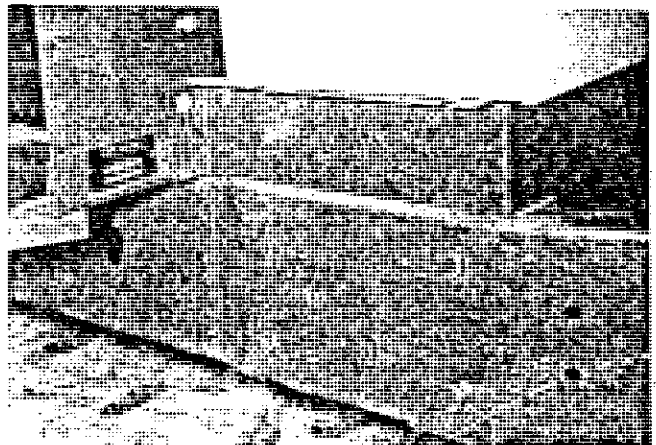


Figure 64 — Hitch Mounting Bolts, 4 on each side of frame,
5/8 - 11 NC x 1-1/2"

SPECIFICATIONS

TANK AND FRAME

Capacity of mixing tank	150 bu. (187 cu. ft.)
Height	119 inches
Width with auger drag feeder	111 inches
Overall length	175 inches

Discharge auger: 7 inch auger with 8 inch tube; 9 foot main auger has a 15 foot discharge height at 60 degree angle; distance from ground to main cross auger is 82 inches with an optional 24 inch vertical extension available; 316 degree horizontal operating arc; infinite vertical operating arc.

AUGER FEEDER

Auger length	8 feet
Auger diameter	12 inches
Hopper width open	48 inches
Height of hopper from ground in down position	18 inches

Infinitely variable hydraulic drive.

HAMMERMILL

Width of mill	Full 26 inches
Screen area	780 sq. inches
Operating speed of PTO	1000 RPM
Operating speed of mill	2800 - 3000 RPM
Screen sizes available (5/16 and 3/4 standard with machine, others optional)	1/8, 3/16, 1/4, 5/16, 3/8, 1/2, 5/8, 3/4, 1, 1-1/4, 1-1/2, 2
Type drive	Six double banded 3V belts for 1000 RPM
Power required	80 to 150 HP tractor

Throw-out clutch disengages mill, but mixer continues to operate. Hardened swinging hammers reversible four times. Heavy duty 2-1/4" main shaft with 2" self-aligning dust sealed heavy-duty pillow block bearings. Swing open door with over center latch allows quick removal and installation of screen.

Weight (incl. auger drag, roll feed, magnet)	4,050 lbs.
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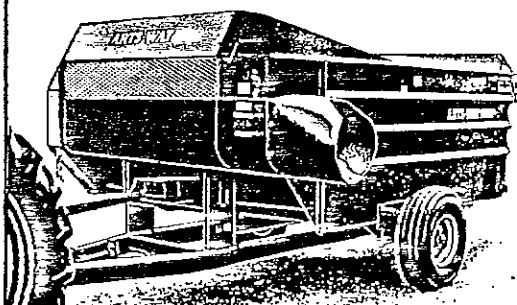
TROUBLESHOOTING

Most difficulties are caused by improper adjustments. When you encounter trouble, make a systematic check of all adjustments, using the following chart as a guide. If the difficulties cannot be corrected by making the adjustments given in this manual, consult your Arts-Way dealer.

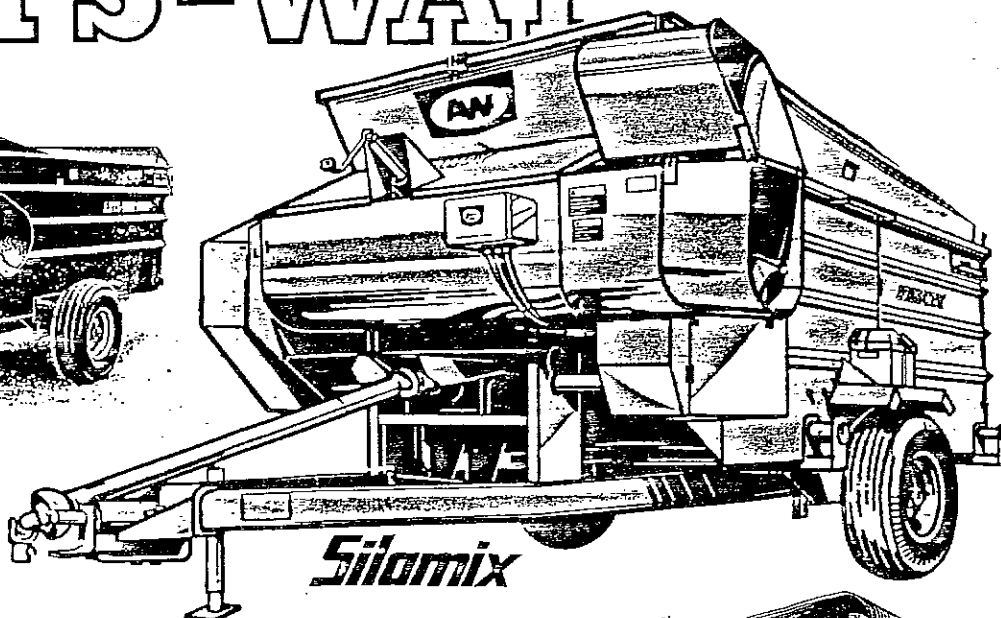
Problem	Possible Cause	Remedy
PTO shaft hard to telescope and hook up.	Shafts twisted due to overloading of mill.	Replace powershaft, if necessary. Load as uniformly as possible and adjust belts to prevent slipping.
	Lack of grease on sliding halves.	Lubricate - See Page 21.
Mill vibrates excessively while operating.	PTO shaft not aligned.	Front of grinder-mixer main-shield must be parallel to tractor axle.
	PTO shaft bent.	Replace PTO shaft.
	Missing or broken hammers.	Replace hammers (in pairs).
	Tractor drawbar improperly adjusted.	Adjust tractor drawbar as shown on page 8.
Excessive noise when turning with mixer in operation.	Turning too sharply.	Avoid sharp turns.
Low volume from hammer-mill.	Mill not operating at optimum speed of 2800 RPM.	Before grinding, set tractor throttle speed to obtain rated 1000 RPM PTO speed.
	Screen may be worn.	Turn screen around or replace if necessary.
	Hammers worn.	Reverse or replace.
	Mill not level.	Operate mill as near level as possible.
	Mill drive belts slipping.	Adjust drive belts.

Problem	Possible Cause	Remedy
Tractor engine RPM falls below rated PTO speed while grinding.	Overfeeding.	Reduce flow of material to mill.
	Screen size too small.	Increase screen size.
	Feed gate too high.	Lower gate.
Drive belts squeals when mill is engaged.	Drive belts too loose.	Tighten belts.
Drive belts wear excessively.	Belts out of alignment.	Align pulleys.
	Belts slipping.	Adjust belts.
Material bridges in tank.	High-moisture content ear corn or hay being ground.	Grind high-moisture ear corn last. Add about 15 bushels of grain per tankful of ground hay.
Feed roll will not draw hay slice into mill.	Feed roll too low.	Raise feed roll. Adjust hay retard bolts.
Mill runs but unloading auger and mixing auger do not run.	Pin(s) sheared in drive.	Correct cause of sheared pin and replace.
Unloading auger runs but feed is not unloaded.	Mixer tank door closed.	Open door.
Unloading auger does not disengage.	Unloading auger clutch linkage out of adjustment.	Adjust clutch linkage.
Auger drag runs full but little or no grain is delivered to mill.	Auger drag speed too low.	Increase speed of auger feeder.

ARTS-WAY

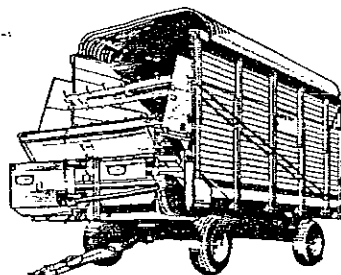


Feed-Way 155

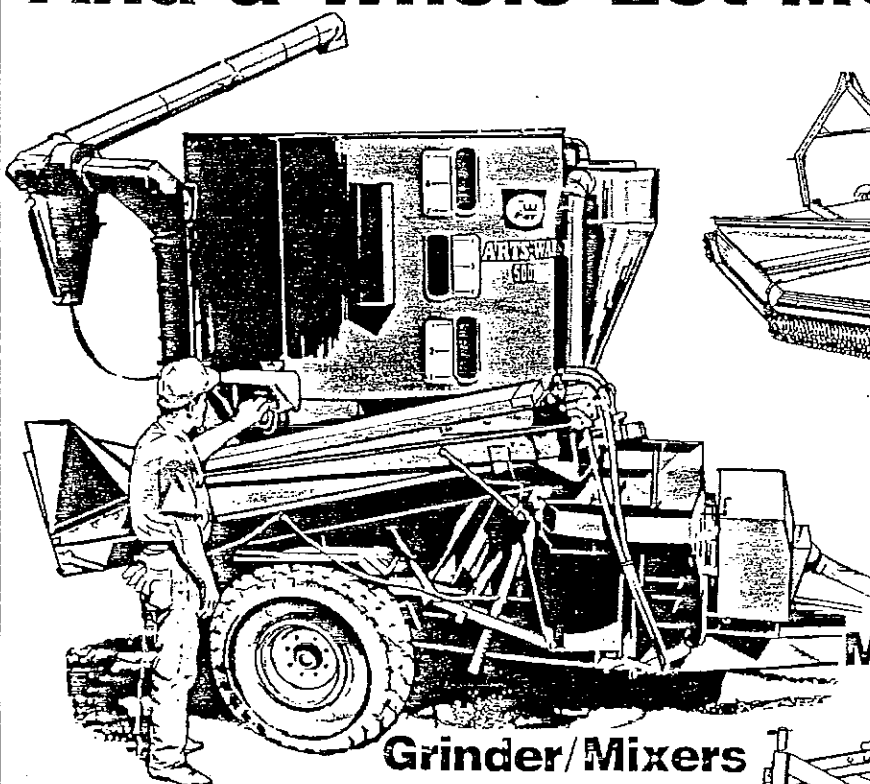


Silomix

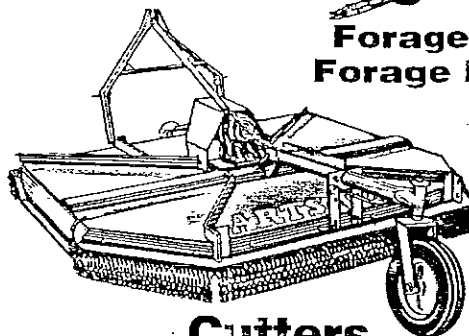
**Tops in Feed Handling
And a Whole Lot More**



**Forage Boxes
Forage Blowers**

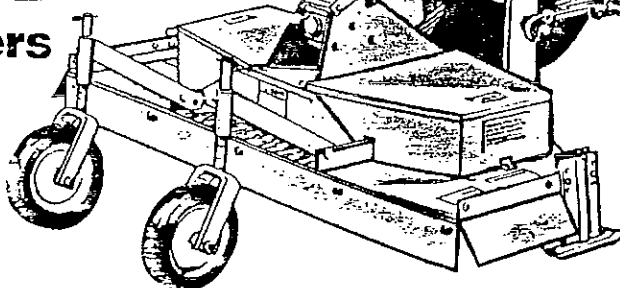


Grinder/Mixers



Cutters

Mowers



ARTS-WAY Mfg. Co., Inc.
Armstrong, Iowa 50514
(712) 864-3131