ENSILMIXER

MODEL

180

TRUCK MOUNTED

1830

TRAILER MOUNTED

1830

STATIONARY

OWNERS MANUAL

OSWALT

BUTLER

SERIAL NUMBER

WARRANTY

IN GENERAL

The OSWALT DIVISION, BUTLER MANUFACTURING COMPANY, ("OSWALT"), manufactures cattle feeding and materials handling equipment and component parts for the beef and dairy industries. These products are then sold to independent dealers ("Oswalt Dealers") in the United States and various foreign countries for resale to the ultimate end use customer.

Oswalt Dealers are furnished product specifications, literature, and technical assistance as well as operating and maintenance instructions for the owner. Oswalt does not control or supervise either the sale or delivery of Oswalt products to end users nor does Oswalt make post delivery inspections to ensure dealer or owner compliance with operating instructions.

WARRANTY

Oswalt warrants to the initial purchaser of a new Oswalt product from an authorized Oswalt dealer that the product and components thereof manufactured by Oswalt are free from defects in material and workmanship at the time of shipment. Oswalt further warrants to such purchaser that each new Oswalt product will perform without structural or operational failure if the product is assembled and mounted in accordance with Oswalt's instructions and drawings and is then operated and maintained as described in the Owner's Manual.

WARRANTY PERIOD

The above warranty shall be effective for a period of one year from the date of delivery by the Oswalt Dealer to the initial purchaser.

PURCHASER'S REMEDIES

If a warranted Oswalt product or component (except an Electronic Scale) fails to conform to the above warranty during the one year warranty period, Oswalt will furnish the parts necessary to correct such failure, provided Oswalt is notified through the selling Oswalt dealer of said failure within 30 days of the discovery of the failure.

If a warranted Electronic Scale fails to conform to the above warranty during the first 90 day period, Oswalt will furnish the parts and labor necessary to correct such failure, provided the scale is returned, freight prepaid, to the nearest designated Oswalt Electronic Scale repair facility within 30 days of the discovery of the failure. During the remaining 9 months of one year warranty period, parts only will be provided.

The above remedies express the purchaser's exclusive remedies and Oswalt's sole liabilities in connection with the purchase and use of Oswalt products. Oswalt shall not be liable for consequential or incidental damages including damages for the loss of dairy or livestock production, or delay in harvesting crops, or for expenses for labor, supplies, substitute machines and the like. Nor shall Oswalt furnish parts for products which have been negligently handled, misused, or altered.

ITEMS FOR WHICH OSWALT IS NOT RESPONSIBLE

Oswalt does not warrant and shall not be liable for loss or damage arising from shipping or storage; improper installation, use or maintenance; acts of the Oswalt Dealer, purchaser, or others not employed by Oswalt; design, modification and installation procedures not approved in writing by Oswalt; acts of God; or other circumstances beyond its reasonable control.

The above warranty does not apply to, and Oswalt makes no warranty in connection with motors, trucks, truck components, attachments or other trade accessories which are not manufactured by it.

WARRANTY IS EXCLUSIVE AND NONASSIGNABLE

The above warranty is extended only to the initial purchaser from an authorized Oswalt Dealer and may not be assigned. This express warranty is given in lieu of all other warranties, expressed or implied, including the warranties of merchantability and fitness for a particular use.

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SAFETY FIRST

FARM AND INDUSTRIAL EQUIPMENT INSTITUTE SAFETY ALERT SYMBOL
This symbol is used preceding all CAUTION (a general safety reminder), WARNING (denotes a potential hazard) and DANGER (denotes a potential injury) notices!

Most farm accidents, like industrial, home and highway accidents, are caused by the failure of some individuals to observe simple and fundamental safety rules or precautions. For this reason farm accidents, just as other types of accidents, can be prevented by recognizing the causes of accidents and doing something about them before an accident occurs.

Regardless of the care used in the design and construction of farm equipment, there are many points that cannot be completely safeguarded without interfering with accessibility and efficient operation.

A careful operator is the best insurance against an accident.

The complete observance of one simple rule would prevent many thousand serious injuries each year. That rule is "NEVER ATTEMPT TO CLEAN, OIL, OR ADJUST A MACHINE WHILE IN MOTION."

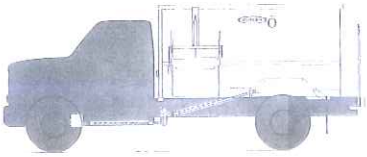
NATIONAL SAFETY COUNCIL

BEFORE ATTEMPTING TO OPERATE YOUR NEW ENSILMIXER BE SURE TO READ THIS OWNERS MANUAL AND FAMILIARIZE YOURSELF WITH THE MACHINE!! OBSERVE THE FOLLOWING PRECAUTIONS FOR SAFE OPERATION OF THIS MACHINE!!

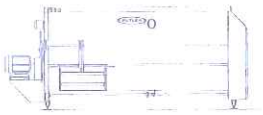
SAFETY TIPS

- Keep Hands, Feet and Clothing away from Power Take-Off Shaft!
- DO NOT climb on or enter machine while in operation.
- DO NOT make high speed manuevers with the machine.
- Disengage Power Take-Off and remove keys before servicing.
- KEEP ALL SHIELDS IN PLACE.
- DO NOT allow riders on outside of vehicle.
- DO NOT attempt to clean, oil or adjust machine while in motion.
- DO NOT exceed 540 RPM Power Take-Off speed on trailer mounted units.
- Properly ground all electrical Stationary applications.

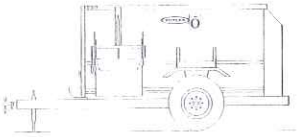
INTRODUCTION



180 TRUCK MOUNTED



1830 STATIONARY MOUNTED



1830 TRAILER MOUNTED

Your 1830 Ensilmixer is a well engineered product that has evolved through years of research and testing into a machine that will give superb high speed mixing and blending of most types of feed ration. It was originally developed for the long life requirements of large western feedlots which accounts for its heavy gage construction and heavy duty enclosed oil bath drive.

PROTECT YOUR INVESTMENT AND GET MAXIMUM VALUE THROUGH:

PROPER ADJUSTMENT . . Make all the adjustments according to the instructions set forth in this manual. Pay particular attention to the line up of sprockets and chains. Out of line drive components will cause undue wear.

PROPER MAINTENANCE . . Preventative Maintenance is the key to getting maximum life and service out of your Ensilmixer. Check your machine regularly to detect worn, lost, damaged, or inoperative parts. Promptly replace them with genuine OSWALT replacement parts available through your OSWALT Dealer.

PROPER OPERATION . . . Be completely familiar with and follow the operational instructions that are provided in this manual. It is important to know and understand the operational characteristics and limitations of your machine.

PROPER LUBRICATION . . Carefully follow the lubrication recommendations set in this manual. Use only high grade lubricants and oils. The extra care pays! It does not cost!

MIXING CAPACITY

The mixing capacity of the 180 or 1830 has a level volume of 180 cubic feet. The mixing capacity of the machine is 170 cubic feet volume not to exceed 5800 pounds weight. 170 cu. ft. of the average ration will weigh around 3500 lbs. (20 lbs. per cu. ft.). Only high grain rations weighing 34 lbs. per cubic foot or more will be limited by the 5800 lb. maximum weight. Stationary units may be limited in capacity by the size of the electric motor used to drive it. Refer to Stationary Performance Specifications on Page 8.

THIS MACHINE IS DESIGNED TO MIX COMPLETE RATIONS INCLUDING ROUGHAGES WHICH FALL WITHIN THE FOLLOWING LENGTH LIMITATIONS:

1). AT LEAST 75% OF MATERIALS IS 1-1/2" OR SHORTER
2). LESS THAN 20% OF MATERIAL EXCEEDS 2-1/2"
3). MAXIMUM FIBER LENGTH DOES NOT EXCEED 4"

ATTEMPTING TO MIX MATERIALS WHICH EXCEED THESE LIMITATIONS WILL VOID THE WARRANTY ON THIS MACHINE.

PROPER MIXING ACTION

Augers are designed to circulate the feed as follows: The bottom auger moves the material from the rear of the machine to the front. If the discharge door is closed, the material will "boil" up into the top augers. The top augers then carry the material to the rear of the machine where it drops back down into the bottom auger to start the cycle over.

While mixing, there should be a visible cavity, approximately 10 cubic feet, in the rear portion of the mixing chamber. It is very important that the material can fall freely into the bottom auger at the rear of the mixer. Overfilling the unit with fine stemmed materials such as haylage or grass can cause excessively high torques to be built up by the top augers because this material has a tendency to bridge against the end wall and not fall down into the bottom auger. This can result in damage to the drive train. Overfilling can also result in some of the feed ingredients lying dormant in the top auger area, therby preventing a balanced blend of ingredients throughout the load.

MIXING TIME

Normal mixing time is from 3 to 6 minutes AFTER THE LAST INGREDIENT HAS BEEN ADDED. The exact mixing time for each ration can be determined by analyzing samples taken from the bunk at several times during the discharge cycle. You should strive for the shortest possible mixing time. Overmixing actually reduces the quality of the feed and shortens the life expectancy of your machine. Having the augers running while filling is not necessary and does not shorten the time necessary to mix.

CAUTION! Total running time (Filling, Mixing and Discharging) should not exceed 15 minutes per batch (Except Stationary units - 30 minutes). Overmixing will cause deterioration in quality of the mixed feed and excessive wear of the mixer parts.

LOADING THE MIXER

It is usually best to load the roughage portion of the ration first and then load the grain and trace ingredients last. If the amount of trace ingredient being added is less than 10 pounds, we recommend that it be pre-mixed with a suitable carrier so that the total amount added is 50 pounds or more. This will assure even distribution throughout the ration.

GENERAL SPECIFICATIONS

BASIC ENSILMIXER SIZE

Width of Mixing Chamber	70"
Length of Mixing Chamber	120"
Depth of Mixing Chamber	53"
Level Full Volume of Mixing Chamber	180 cubic feet
Weight (Ensilmixer Only)	3400 pounds
Overall Length (Mixer only)	133"
Overall Height (Mixer only)	59-1/2"
Overall Width (With Short Conveyor)	86"
Overall Width (With Extended Conveyor)	97"

CONSTRUCTION

Bottom	3/16" High Tensile Steel
Sides	12 Gage Steel
Rear Structure	3/16" Steel
Front Structure	10 Gage Steel

Bottom Auger . .1/4" thick x 20" O.D. Sectional Flighting on a 4-1/2" diameter steel tube

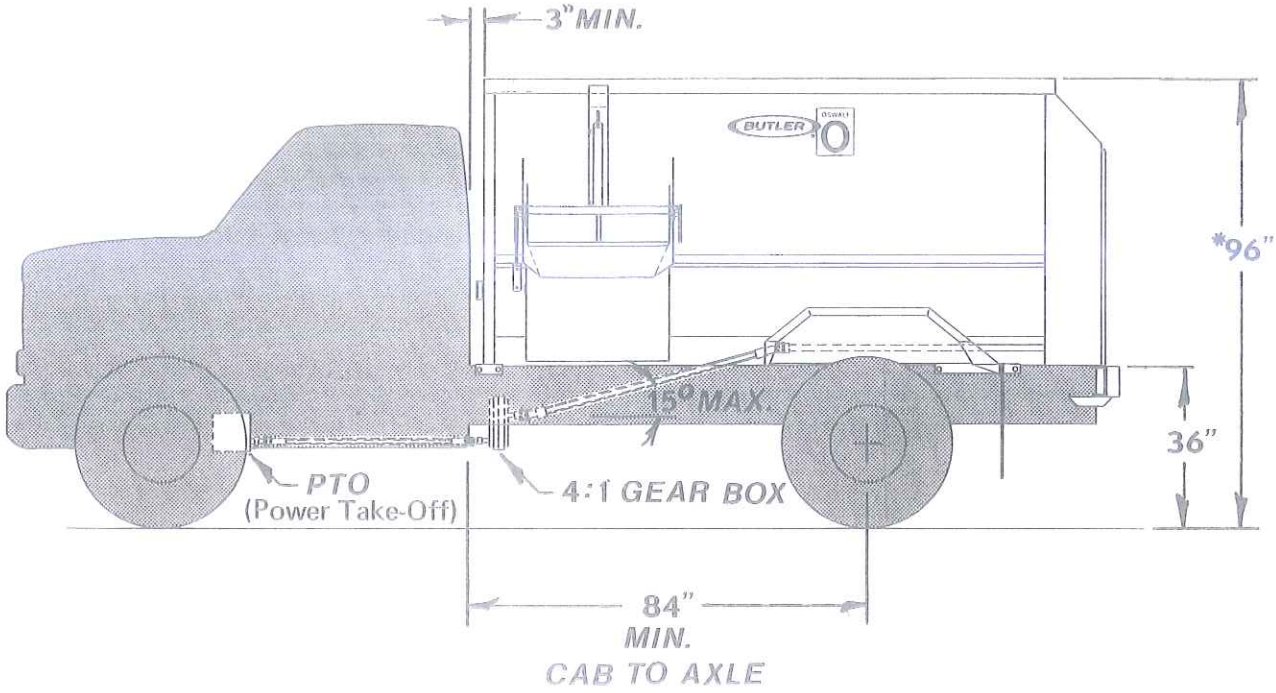
Top Augers . . . 3/16" thick x 20" O.D. Sectional Flighting on a 4" diameter steel tube

Drive Components . . Combination of No. 80 and No. 100 chains and sprockets totally enclosed and running in oil. All bearings are heavy duty relubricable ball bearings.

Conveyor Unloading Chain . . . Special design C-56 combination chain with excellent life

The Mixer is a bolt together design which allows for the easy replacement of any component that should wear out or become damaged.

TRUCK SPECIFICATIONS



Mixing Time . . . . . 3 to 6 minutes

*Conveyor Discharge Height . . . . . 34" and 40" (Adjustable)

Minimum Engine Horsepower . . . 57 H.P. net @ 2000 RPM (Total HP required to mix load and move vehicle)

Engine to Ground Ratio . . . . The engine to ground ratio is obtained by multiplying the transmission low gear ratio times the rear axle ratio. For best feeding results we recommend an engine to ground ratio of 50 or more.

PTO . . PTO selected should be rated at least 100 lb-ft torque with a speed of 70% to 90% of engine RPM rotating the same direction as the engine.

Truck Minimum GVWR . . 14,000 pounds (GVWR necessary to carry full 5800 lb. load mixer)

Rear Axle . . . . . 9800 pounds

Front Axle . . . . . 4200 pounds

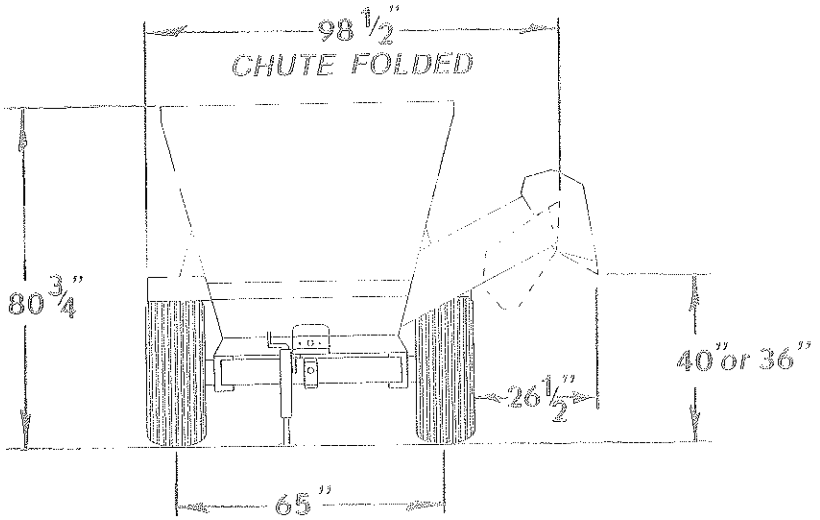
Frame . . . 350,000 lb-in Resistive Bending Moment (Section Modulas X Yield Strength)

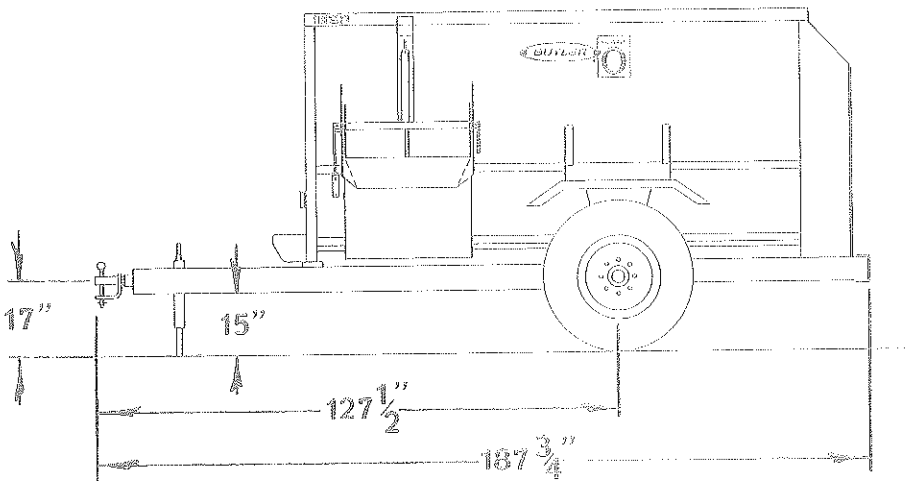
Cab to Axle . . . . . 84" to 90"

Optional Equipment . . Power Steering, Heavy Duty radiator and oil bath air cleaner are desirable

* Based on 36" truck frame.

TRAILER SPECIFICATIONS





Weight . . . . . 3880 pounds (with fenders)

Tires . . . . . 40" x 14" used aircraft tires (14:00 x 16)

PTO SHAFT . . . . . Heavy Duty, Series 14, fully shielded (540 RPM)

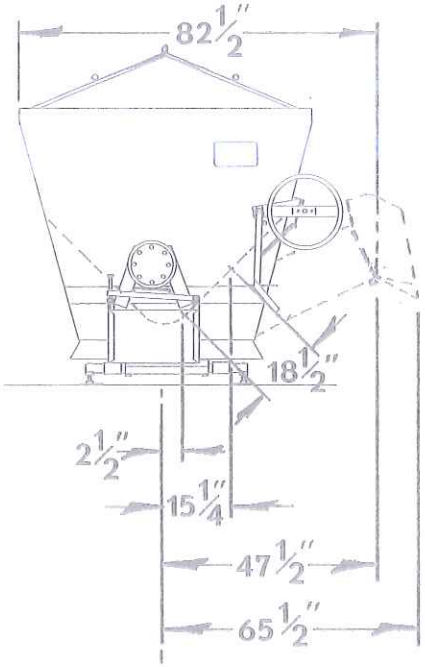
TRACTOR RECOMMENDATIONS . . . 60 H.P., 10,000 pounds 540 RPM PTO
NOTE: For acceptable braking performance the weight of the trailer/mixer and its load must not exceed the weight of the towing tractor.

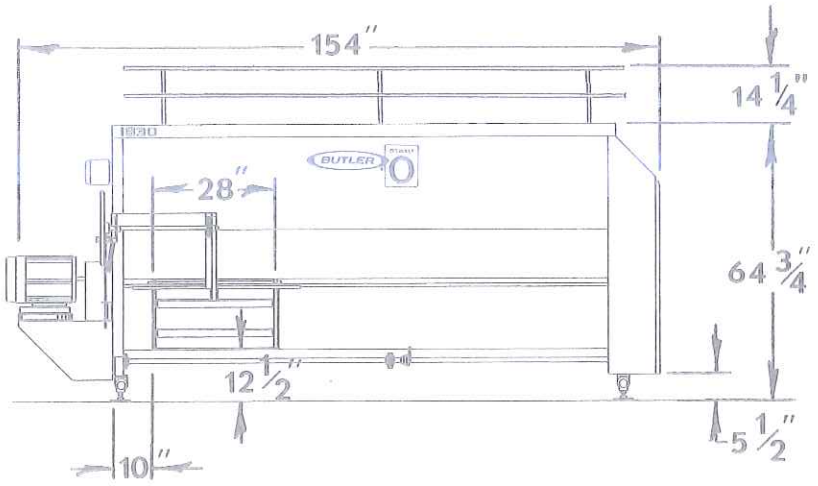
Discharge Height . . . . . 36" to 40" (Adjustable)

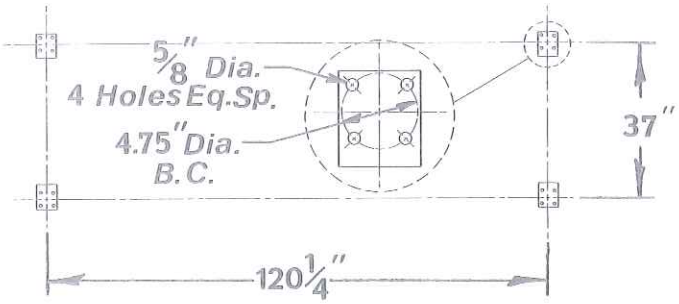
Electronic Scales (Optional). . . 1% accuracy (Not Legal for Trade) 3 Point weigh bar system. 2-1/2" axle and 2-1/8" hitch weigh bars.

Mixing Time . . . . . 3 to 6 minutes

STATIONARY SPECIFICATIONS







FOOT PAD MOUNTING PATTERN

Weight . . . . . 3180 pounds

Mixing Time . . . . . 5 to 8 minutes with Standard Speed Drive

7 to 11 minutes with Slow Speed Drive

Standard Drive . . . . . Standard speed drive for 5, 7½, 10 or 15 H.P. electric motors

Optional Drive . . . . . Slow speed drive for 5, 7-1/2 or 10 H.P. electric motors

Motor Frame Size . . . . The mounting plate is drilled for the following NEMA frame sizes: 213, 213T, 213TZ, 215, 215T and 215TZ. It will also accept 254U, 254T, 256U and 256T frames by field drilling their mounting pattern in the plate.

Mixing Capacity . . . . . The mixing capacity of the machine is dependent on the motor H.P. available and the drive speed selected. Refer to performance specifications on Page 8 .

1830 STATIONARY ENSILMIXER PERFORMANCE SPECIFICATIONS

There is a great variety of materials that can be processed in the Ensilmixer and the power required to mix the many combinations of these materials can vary a great deal. The data presented below is derived from actual tests performed on average rations with particle lengths of 1-1/2" or less. You will probably find situations where more power will be required to do a specific job and others where less is required. These figures are not "absolute" but are intended to represent the Most Probable performance of your machine.

1830 STATIONARY MIXER MOST PROBABLE PERFORMANCE

ELECTRIC MOTOR H.P. & DRIVE SPEED	ALLOWED MIXING CAPACITY IN LBS.	VOLUME OF FEED FOR DIFFERENT RATION DENSITIES				
		35 lb/cu.ft. (Ration Density)	30 lb/cu.ft. (Ration Density)	25 lb/cu.ft. (Ration Density)	20 lb/cu.ft. (Ration Density)	15 lb/cu.ft. (Ration Density)
15 H.P. Standard Speed (Optional Drive)	5800 lbs. (full weight)	165 cu.ft.	(193 cu.ft.)	(232 cu.ft.)	(290 cu.ft.)	(386 cu.ft.)
10 H.P. Slow Speed (Optional Drive)	5800 lbs. (full weight)	165 cu.ft.	(193 cu.ft.)	(232 cu.ft.)	(290 cu.ft.)	(386 cu.ft.)
7-1/2 H.P. Slow Speed (Optional Drive)	4800 lbs. (80% of Full wt.)	137 cu.ft.	160 cu.ft.	(192 cu.ft.)	(240 cu.ft.)	(320 cu.ft.)
10 H.P. Standard Speed (Standard Drive)	4500 lbs. (80% of Full wt.)	128 cu.ft.	150 cu.ft.	(180 cu.ft.)	(225 cu.ft.)	(300 cu.ft.)
7-1/2 H.P. Standard Speed (Standard Drive)	3300 lbs. (60% of Full wt.)	94 cu.ft.	110 cu.ft.	132 cu.ft.	165 cu.ft.	(220 cu.ft.)
5 H.P. Slow Speed (Optional Drive)	3150 lbs. (60% of Full wt.)	90 cu.ft.	105 cu.ft.	126 cu.ft.	158 cu.ft.	(210 cu.ft.)
5 H.P. Standard Speed (Standard Drive)	2100 lbs. (40% of Full wt.)	60 cu.ft.	70 cu.ft.	84 cu.ft.	105 cu.ft.	140 cu.ft.

Do not plan to use the 1830 in the shaded area – More than 170 cubic feet.

The mixing capacities are listed in pounds of weight. The right hand portion of the chart lists the volume of that weight of feed for different ration weights. The maximum volume that an 1830 should mix is 170 cubic feet. There must be a 10 cubic foot end cavity at all times for proper mixing action. The shaded areas of the chart are volumes above 170 cubic feet. In most of the lighter rations your 1830 will be full (170 cubic feet) before the weight capacity is obtained.

NOTICE: The Ensilmixer is designed to mix short chopped particles 1-1/2" or less in length. Longer materials take more horsepower, will not mix properly, and may damage the machine. The capacities listed above should be reduced in rations with high moisture grass or hay.

We recommend the installation of an amp meter on the motor to be used as a tool to obtain the maximum possible capacity from your machine by monitoring the current draw of the

OPERATION

TRUCK MOUNTED UNITS

1. Before attempting to fill the Ensilmixer, make sure that the discharge door is completely closed, the chute is in the up position and the mixing chamber is free of any foreign objects.

CAUTION: If the door is left open during the mixing operation the conveyor will become very tightly plugged and may be damaged.

2. Engaging the Mixer. Power for truck mounted Ensilmixers is obtained from the PTO of the truck. The control of the PTO is generally an OFF-ON switch located on the dash or a PUSH-PULL cable or lever actuator on the floor.

CAUTION: Avoid high speed engagement of the Ensilmixer. It will cause the shear pin to shear.

3. Engine Speed. The "design speed" of the Ensilmixer is 2000 RPM on the truck engine. Running the engine slower will increase the mixing time. Running the engine faster will decrease the mixing time. Do Not exceed 2700 RPM with the mixer engaged.

4. Discharging Feed. To discharge the feed it is first necessary to lower the discharge chute. Lowering the chute engages the conveyor's dog clutch. For the longest dog clutch and conveyor life they should be engaged at the lowest possible speed. After the discharge conveyor is running the door is opened. The discharge rate can be controlled by the position of the door and the transmission gear selected.

   On units with hydraulics, the chute and door are controlled by two small PUSH-PULL levers mounted under the dash. On manual units the chute is pulled down by hand and the door is operated by a handwheel on the front left corner of the mixer. There is a spring loaded brake that holds the handwheel to keep the door in the selected position.

5. Discharge Height. The discharge height can be adjusted to fit your application. Refer to Page 12 for proper adjusting procedure.

TRAILER MOUNTED UNITS

1. Before attempting to fill the Ensilmixer, make sure that the discharge door is completely closed, the chute is in the up position and the mixing chamber is free of any foreign objects.

CAUTION: If the door is left open during the mixing operation the conveyor will become very tightly plugged and may be damaged.

2. Engaging the Mixer. Power for trailer mounted Ensilmixers is obtained from the tractor PTO. Refer to the Tractor's Operating Instructions for the PTO engagement method.

CAUTION: Use 540 RPM PTO only. Avoid high speed sudden engagement of the Ensilmixer. It will cause the shear pin to shear.

3. PTO Speed. The "design speed" of the Ensilmixer is 400 RPM on the tractor PTO. Running the PTO slower will increase the mixing time. Running the PTO faster will decrease the mixing time.

CAUTION: DO NOT EXCEED 540 RPM PTO SPEED.

4. Discharging Feed. To discharge the feed it is first necessary to lower the discharge chute. Lowering the chute engages the conveyor's dog clutch. For the longest dog clutch and conveyor life, they should be engaged at the lowest possible speed. After the discharge conveyor is running the door is opened. The discharge rate can be controlled by the position of the door and the transmission gear

selected. On manual units the chute is pulled down by hand and the door is operated by a handwheel on the front left corner of the mixer. There is a spring loaded brake that holds the handwheel to keep the door in the selected position. On units with hydraulics, the chute and door are controlled from the tractor by hooking the mixer's hydraulic lines to the tractor's remote hydraulic system. Due to the load conditions inherent in their operation, the chute and door operate in sequence as follows:

Moving the tractor's remote hydraulic control lever one way will cause the chute to lower first and then the door will open. Moving this lever the other direction will cause the door to close first and then the chute will fold up.

5. Discharge Height. The discharge height can be adjusted to fit your application. Refer to Page 12 for proper adjustment procedure.

6. Special Considerations. It is best not to mix the feed when cornering. During cornering the tumbler shaft u-joints induce vibrations in the drive line which tend to "hammer out" the shear pins. If it is necessary to mix when cornering it should be done at reduced speed and on gradual corners only.

⚠ CAUTION: Keep tumbler shaft well lubricated so that it can slide freely during operation. If sliding is sticky damage may result to main drive line.

STATIONARY UNITS

1. Before attempting to fill the Ensilmixer make sure that the discharge door is completely closed and the mixing chamber is free from any foreign objects. If the unit is equipped with a discharge conveyor, put the dog clutch shifter lever in the disengaged position or the discharge chute up.

2. Engaging the Mixer. Power is supplied to the Stationary unit by the electric motor and drive mounted to the front of the mixer.

⚠ CAUTION: Be sure your electrician has properly wired the motor and has instructed you on how to start it.

If your unit has Electronic Scales, flexible power cord must be used for the motor to allow the mixer to float freely on its' weigh bars.

3. Motor Current. We recommend the installation of an amp meter in the line where it can monitor motor current. When the motor is first started, the current will be quite high until it reaches operating speed (1750 RPM). Once it has obtained this speed, the current must not exceed the full load current rating stamped on the motor name plate. It may be necessary to adjust the amount of feed you process in the unit to obtain an amp draw equal to or less than this rating. Refer to the Stationary Performance Specifications, Page 8, for more guidelines.

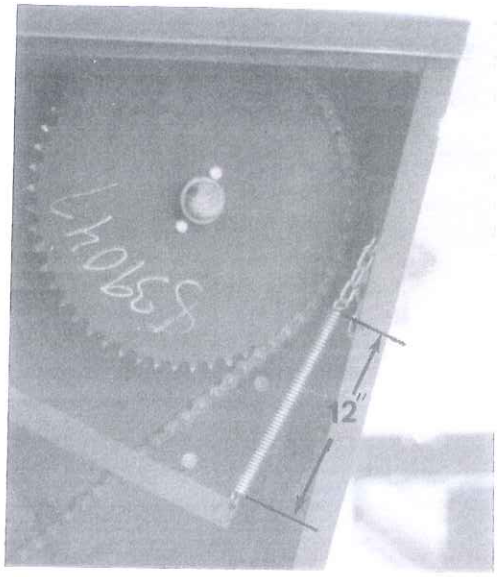
4. Discharging Feed. On units with the optional discharge it is first necessary to engage the conveyor dog clutch. Conveyors without chutes have a spring loaded lever shifter on the end of the conveyor. The lever is pulled toward the end of the conveyor and rests in a notch to engage the conveyor dog clutch. On conveyors with chutes, the chute is pulled down by hand to engage the dog clutch. After the conveyor is running, the door is opened by turning the handwheel on the front left corner of the mixer. Discharge rate is controlled by the position of the door. A spring loaded brake holds the handwheel to keep the door in the selected position.

5. Stationary Guarding. A top guard assembly has been supplied with your stationary unit to assist in preventing accidental entry into the mixing chamber. Because of wide variations in the methods these feed mixers are filled, the guard has been made adjustable and

The proper maintenance of your 1830 is very important to protect your investment and extend its life.

IDLER SPRINGS

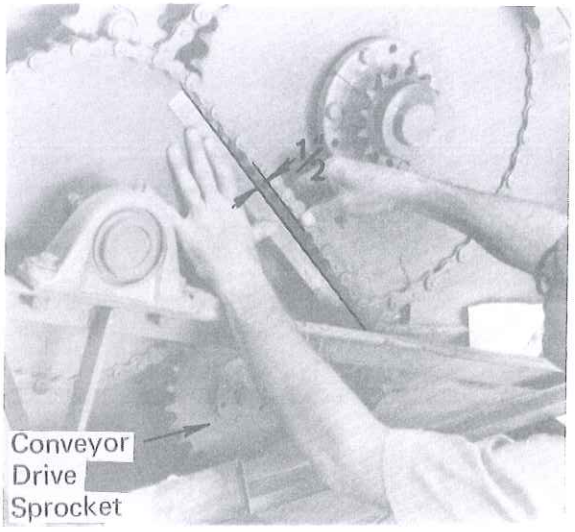
Two spring loaded idlers are located inside the rear structure



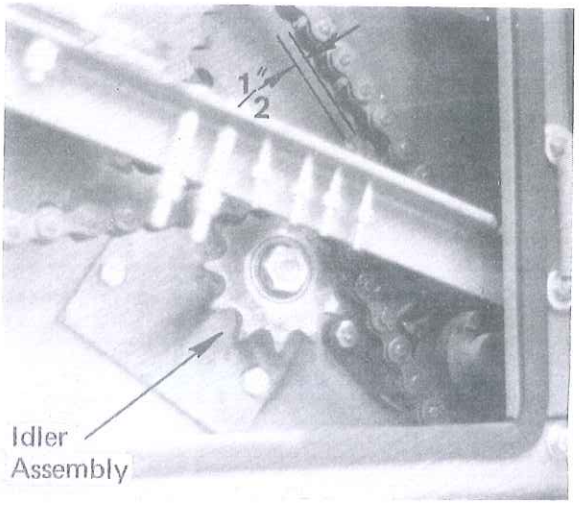
To maintain the proper idler tension the springs should be stretched approximately 11" to 12" as shown. Adjustment is made by hooking the proper chain link on the appropriate hook.

PRIMARY CHAIN TENSION

The conveyor drive sprocket also serves as the chain tensioner for the Primary Drive Chain.



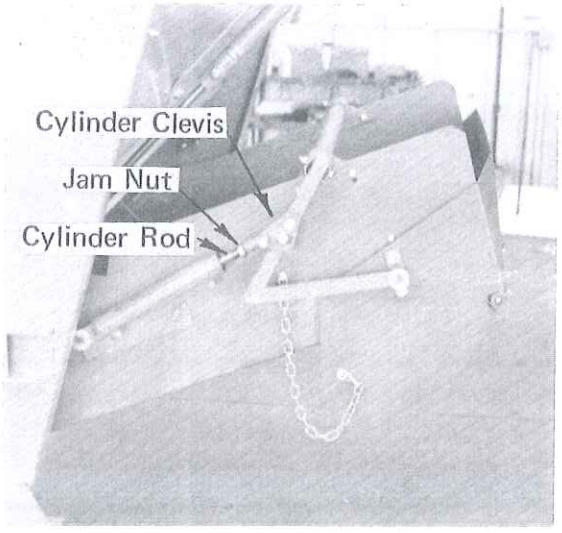
It is adjusted by loosening the 2 bolts that fasten the conveyor shaft bearing to the rear sheet and raising the shaft and sprocket until the chain has 1/2" or less slack. The right hand bearing bolt hole is slotted in the rear sheet which allows the shaft to be adjusted. On Stationary units without a conveyor, there is an idler assembly in place of the bearing and shaft, and sprocket.



It is adjusted by loosening the two bolts that fasten it to the rear sheet and raising the assembly until there is 1/2" or less slack in the chain.

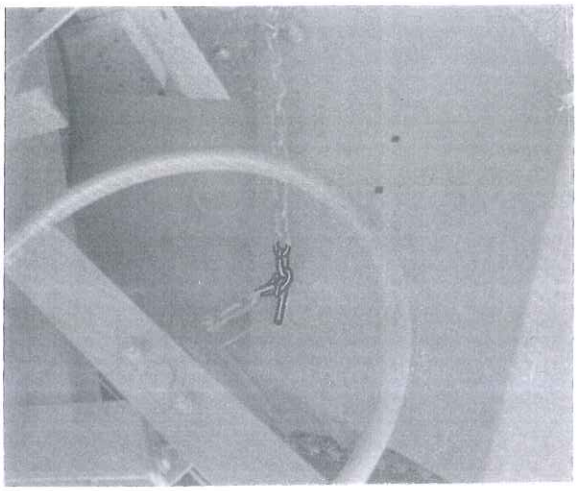
CHUTE FOLD UP (Hydraulic)

The discharge chute should be adjusted so that when it is folded up it is firmly against the end of the conveyor.



This should be done by observing the hydraulic cylinder as it is retracting and folding the chute up. When the chute is fully folded up the cylinder should have only 1/16" to go before it is fully retracted. The adjustment is made by loosening the jam nut on the cylinder clevis and turning the cylinder rod. After the adjustment is made the jam nut must be re-tightened to maintain the setting.

A chain and hook is furnished on manual chutes to hold the chute when folded up or down.



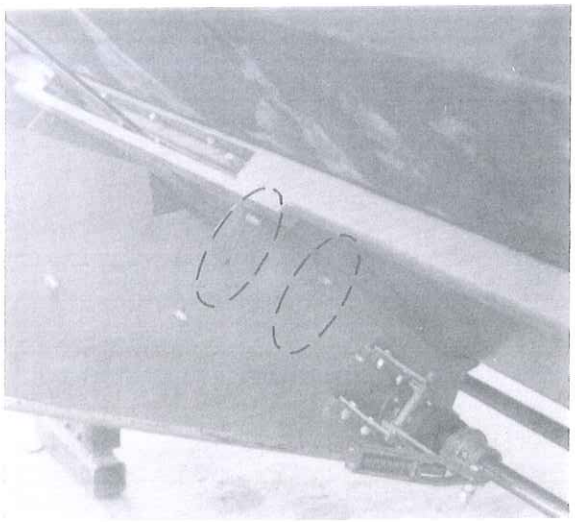
When the chute is folded up the slack chain is hooked onto the hook to keep the chute from folding down. The incline of the chute when folded down can be adjusted by changing the length of the chain.

DOG CLUTCH LINKAGE

The engagement of the dog clutch is controlled by a spring loaded shifter rod attached to the chute. When the chute is folded down this rod and linkage pulls the front dog clutch half into engagement with the rear half. Any adjustment to the dog clutch should be made after the chute has been adjusted. Using the adjusting nuts on the end of the shifting rod, the linkage should be adjusted so that the dog clutch halves are fully engaged with the chute down. The brass yoke on the sliding dog clutch half must move freely in its groove. There should be no tension on the spring and washer in the clevis assembly. If the spring compresses after the dogs are fully engaged, the brass shifting yoke will wear out because of the pressure being applied to it by the spring. If the dogs on the clutch become worn or tapered and will not stay engaged without spring tension they should be replaced.

DISCHARGE HEIGHT

The discharge height of the conveyor can be set at one of 2 positions. To change the



discharge height it is first necessary to brace the end of the conveyor so it will not drop. Then remove the two bolts on each side that fasten the conveyor to the door frame. Select the height that suits your application and bolt the conveyor securely back in place.

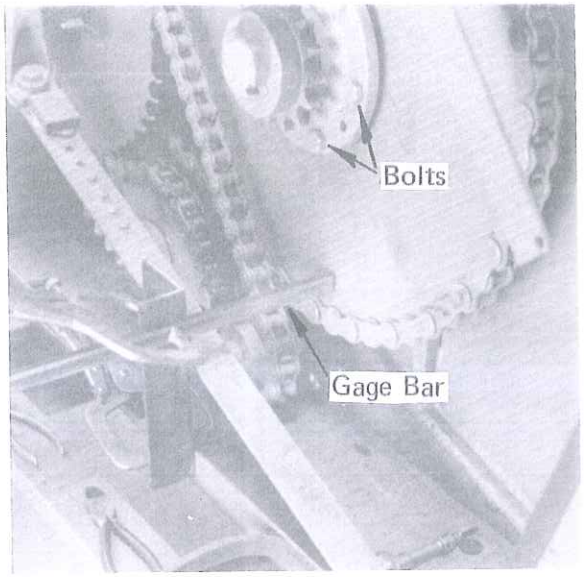
DRIVE LINE-UP

The importance of keeping the drive properly aligned cannot be overstressed. A drive in proper alignment will run smoothly and last much longer than one that is not. Some symptoms of an out-of-line drive are:
Chains jumping the sprocket, excessive wear on one side of the sprocket teeth, and "snapping" or "growling" sounds coming from the rear structure.

Out of line drives can cause chains to break, shafts to bend, shear pins to shear excessively or bearings to go out.

CAUTION: NEVER ATTEMPT TO LINE UP DRIVE COMPONENTS WHILE THEY ARE ROTATING.

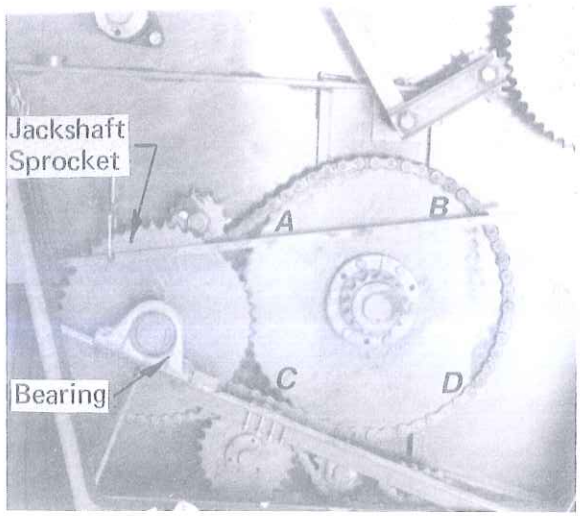
To check the line up of the drive it is first necessary to make certain that the large bottom auger sprocket is running true without any wobble. To determine this, clamp a



gage bar to a stationary part of the rear structure. Position the gage bar about 1/16" away from the sprocket at the outer edge and rotate the auger. The sprocket should have no more than 1/8" wobble. If more than 1/8" wobble is present, tighten the appropriate bolts on the sprocket's squeeze hub until it is running true.

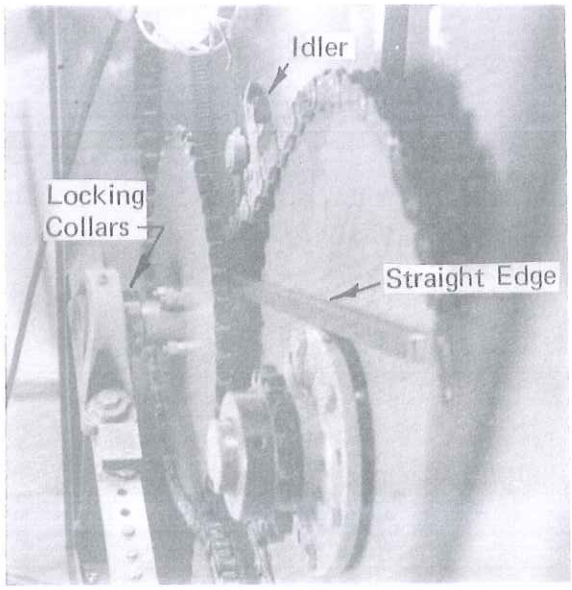
The next step is to determine if the large diameter jackshaft sprocket is running parallel to the bottom auger sprocket. On routine line up checks, this step is not necessary because it is set at the factory and does not change unless the jackshaft has been disassembled.

Clamp a straight edge on the upper portion of the jackshaft sprocket so that it lays across the top portion of the bottom auger sprocket as shown above. Measure the distance between the straight edge and the bottom auger sprocket at points A and B. These measure-

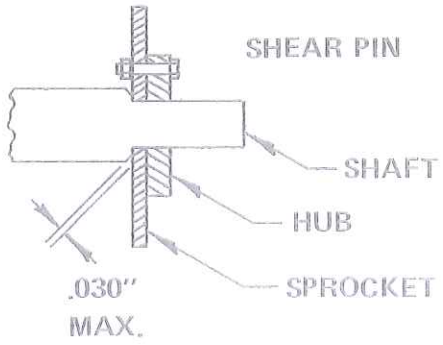


ments should be within 1/8" of each other. If not, loosen the two bolts that hold the pillow block bearing to the support angle and slide the bearing up or down the angle until the two dimensions are within tolerance. Securely re-tighten the bearing bolts. Then clamp the straight edge to the lower portion of the jackshaft sprocket running across the lower part of the bottom auger sprocket. The distance between the straight edge and sprocket at points C and D should be within 1/16" of A and B respectively. If not, add or remove shims under the pillow block bearing until the measurements are within tolerance.

The next step is to determine if all the sprocket pairs are in line. This is done by laying the straight edge against the larger sprocket and checking to see if it will hit the edge of the small sprocket. They should be in line within 1/16".

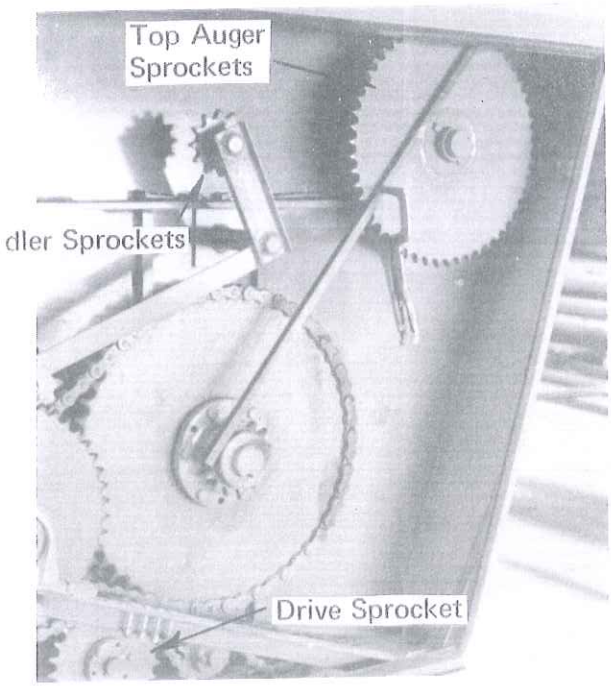


Start with the No. 100 sprockets on the bottom auger and jackshaft. If the pinion sprocket on the jackshaft is not in line with the bottom auger sprocket, loosen the jackshaft bearing's locking collars and move the whole jackshaft until they line up. The spring loaded idler must also be lined up. Next lay the straight edge on the 48 tooth No. 80 jackshaft sprocket and line the conveyor drive sprocket (or idler) and the powershaft shear sprocket within 1/16". The powershaft shear sprocket is moved by loosening all the locking collars on the bearings that support the shaft and moving the whole shaft assembly.



The sprocket must remain tightly sandwiched between the hub and the machined shoulder on the shaft as shown above.

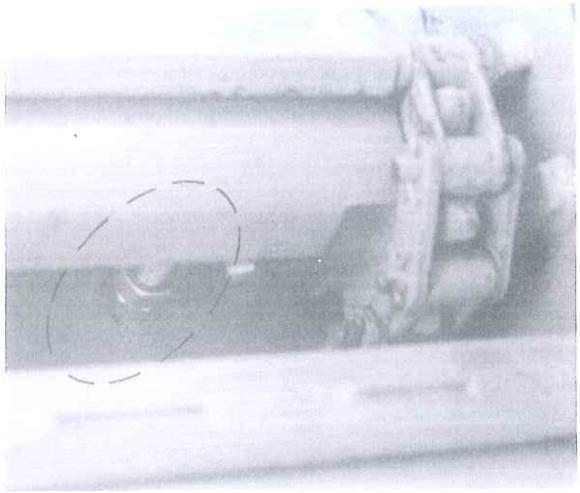
It is also important that the conveyor drive sprocket is running true with no wobble. It can be trued in the same manner as the bottom auger sprocket.



The final step is to put the straight edge on the top auger sprockets and line them up within 1/16" with the pinion sprocket on the bottom auger shaft. The spring loaded idler sprockets must also be lined up.

CONVEYOR DRAG CHAIN TENSION

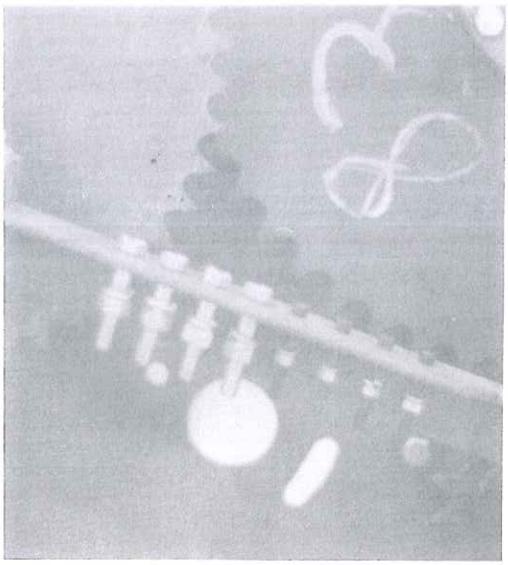
Remove the access covers on the underneath side of the conveyor.



Adjust the take up assembly until there is a minimum of 1/8" clearance between the slack side of the chain and the bottom of the conveyor. Both sides of the chain must have the same clearance.

POWERSHAFT SHEAR PIN

Overload protection for the conveyor and bottom auger is given by the powershaft shear pin.

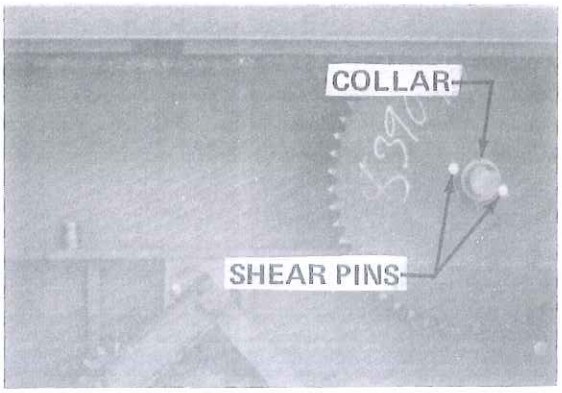


The factory furnishes extra 1/4" x 2" calibrated shear pins in the rack shown above. It is best to obtain your shear pins

from the factory because they are closely controlled to shear at the proper torque. If necessary to use bolts from a local source, USE GRADE 8 BOLTS 1/4" DIAMETER. When installing a new shear pin, torque it to 8 ft. lbs..

TOP AUGER SHEAR PINS

Torque protection for the top augers is afforded by 2 Grade 5 shear bolts 7/16" diameter x 2-1/4" long.



These bolts must be assembled with the heads to the outside, and nuts on the inside so that the shear location is not on the threads. Torque the bolts to 55 lb-ft. Keep the retaining collar against the sprocket.

UNIVERSAL JOINTS

All universal joints on the Ensilmixer MUST BE in correct alignment. The yokes on either end of a shaft must be symetrical (aligned as shown below).

CORRECTLY ALIGNED U-JOINTS

Universal joints out of line will induce severe vibrations in the drive and will wear out prematurely.

BEARING REPLACEMENT

When installing a new bearing polish the shaft so that it only takes light tapping to slide the bearing in position. DO NOT FORCE IT ON WITH A LARGE HAMMER. To do so will damage the bearing and cause premature failure.

LUBRICATION

Refer to the chart on Page 16 for the proper lubricant and intervals.

CAUTION: IT IS NECESSARY TO ENTER THE MIXING CHAMBER TO GREASE BOTH BOTTOM AUGER BEARINGS AND THE FRONT TOP AUGER BEARINGS.

DANGER: BEFORE YOU ENTER THE CHAMBER, MAKE SURE THAT THE MIXER CANNOT BE STARTED WHILE YOU ARE IN IT.

STORAGE

If for any reason the ENSILMIXER is stored for a month or more, a complete lubrication should be made to insure against rust and other contamination. Due to the high acidity and moisture content of many feeds, which are corrosive to steel, the mixer bottom should be thoroughly cleaned before storing. If the mixer is stored outside, be sure rain and moisture will drain towards the front where a drain plug is positioned. NOTE: Keep this drain open at all times.

WELDING!

If for any reason welding becomes necessary to facility repairs, extreme caution should be taken when grounding the machine. NEVER ground the mixer where current must pass through a load cell or bearing in order to complete the welding circuit. To do so will reduce the life or cause immediate failure of these parts. Always place the ground lead immediately adjacent to the area or part being welded.

LUBRICATION

ITEM	LUBRICATION	INTERVAL
* Rear Structure Oil	SAE 30W Motor Oil	Every 60 Days
Conveyor Chain	Light Weight Oil	Brush on Lightly Every 40 Hours of Operation
All Drive Shaft Bearings	Standard All Purpose Gun Grease	One pump every 40 Hours of Operation
All Auger Bearings	Standard All Purpose Gun Grease	One pump every 40 Hours of Operation
Drive Shaft Slip Joints	Standard All Purpose Gun Grease	One pump every 40 Hours of Operation
** All Universal Joints	Standard All Purpose Gun Grease	One pump every 40 Hours of Operation
Conveyor Flangette Bearings	Standard All Purpose Gun Grease	One pump every 40 Hours of Operation
Bearings in or on Rear Structure	Standard All Purpose Gun Grease	One pump every 40 Hours of Operation
Guides for Discharge Door	Standard All Purpose Gun Grease	Every 40 Hours of Operation
***Gear Box	SAE 90 All Purpose Gear Lube	Every 40 Hours of Operation
**** Tumbler Shaft	Standard All Purpose Gun Grease	Every 40 Hours of Operation For U-Joints Every 40 Hours For Sliding Members
Wheel Bearings	Pack with Lithium base Gun Grease	Every 12 months
Dog Clutch	Standard All Purpose Gun Grease	Every 40 Hours of Operation

*Refill the rear drive to a point 1" up on the lowest sprocket. On stationary units with the slow drive option, the oil is not readily thrown up to the top auger chain. Manually brush the oil up to the chain every 60 days.

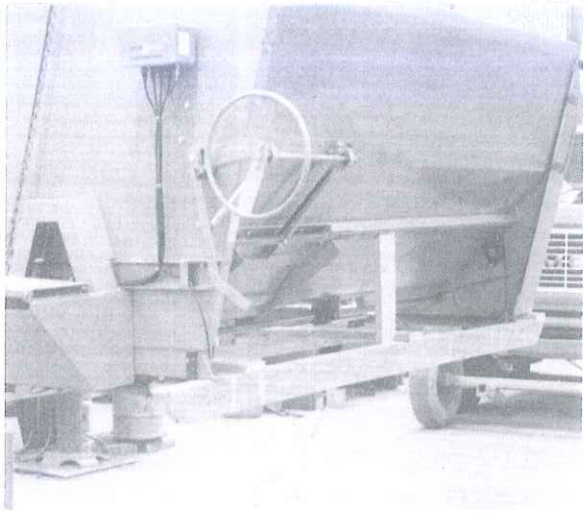
**On some automotive drive lines it is necessary to loosen one half of the U-Joint and slide back to grease.

***The gearbox should be 1/2 full of oil. When mounted vertically, remove one of the top bolts from the input shaft end cap on the back of the gearbox. Fill up to that bolt. On stationary units (Refer to Page 44), remove the 1/2" NPT pipe plug, item 20, to check the oil level.

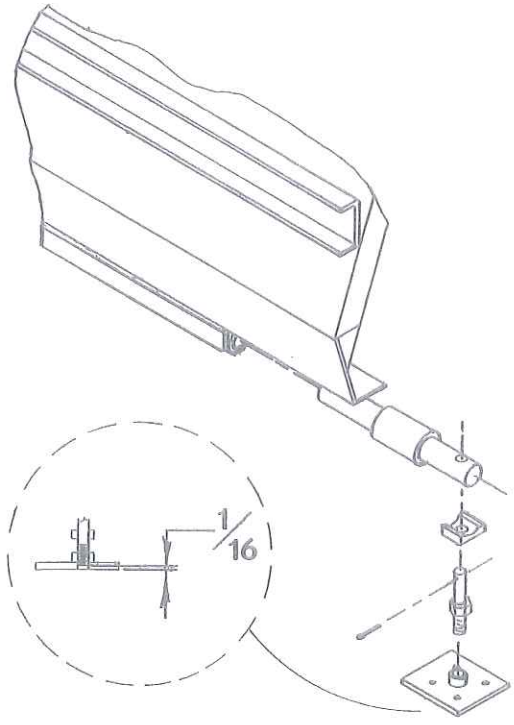
****IMPORTANT: At each lubrication make sure the tumbler shaft slides in and out freely. Failure of the shaft to slide freely will result in drive train damage.

STATIONARY INSTALLATION

For ease of shipping and handling your 1830 Stationary is mounted on wooden shipping skids.

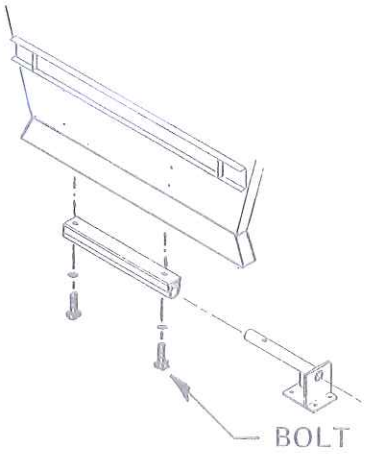


After moving the unit into position, remove the skids and install the adjustable feet into the hole at the end of the weigh bars.



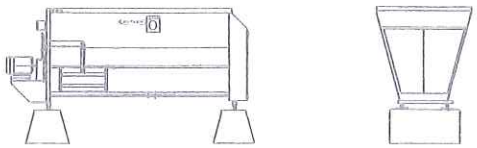
The threaded adjustment peg should be screwed into the base until it lacks approximately 1/16" from being flush with the bottom of the base.

On units without scales slip the foot weldments into the mounting tubes and install the 3/4" x 3" bolt as shown to retain the feet in tube.



Refer to the Stationary Specifications on Page 7 for all dimensional information.

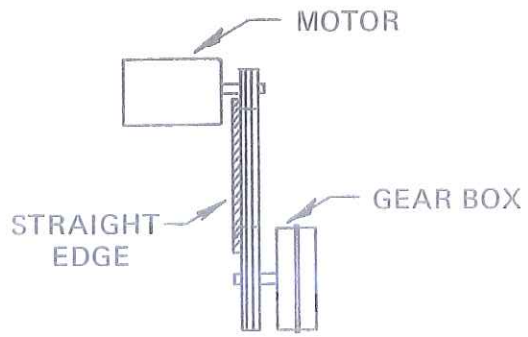
If additional height is needed the unit can be mounted on piers as shown below.



On units with electronic scales it is important to use the leveling adjustment on the feet to assure that all four feet are carrying their share of the weight.

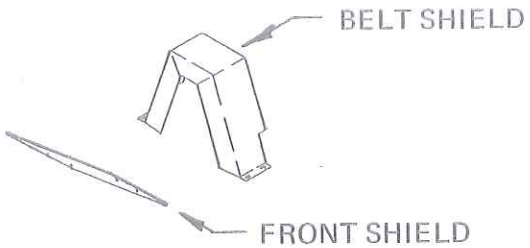
The holes drilled in the motor mounting plate fit all 213 and 215 series electric motors. If a 254 or 256 series motor is used new holes must be drilled at the time of installation.

Install the large sheave on the gear box and the smaller sheave on the electric motor. Refer to Page 7 for motor selection information.



Line the sheaves up to within 1/32". Use only matched sets of 3 belts. Belt size is 3V - 600. To determine matched lengths, there is a length code stamped on each belt. If the belt is exact size it will be stamped 50. If it is under nominal length it will be stamped 49, 48, 47 etc. All 3 belts of a set must have the same length code.
NOTE: If 254 or 256 Frame motors are used, it will be necessary to purchase (3) 3 V 630 belts, part number 838672.

CAUTION: BE SURE THAT THE DRIVE SHIELDS FURNISHED WITH YOUR MACHINE ARE PROPERLY INSTALLED.



CAUTION: Your Stationary Ensilmixer was designed for ground level installation. If it is mounted overhead or on tall piers, shields should be fabricated for the powershaft and couplings.

Have a qualified electrician wire in the electric motor according to the electrical codes in your area.

CAUTION: PROPERLY GROUND THE ENSILMIXER BODY TO ELIMINATE SHOCK HAZARDS.

We recommend that you install an amp meter with your machine. Have an electrician wire it in the power line where it will monitor the current draw of the motor.

DOG CLUTCH SHIFTER LEVER ADJUSTMENT

On units with the Optional Discharge Conveyor there is a dog clutch shifter lever furnished, if no chute is ordered. This lever controls the engagement of the dog clutch which starts the conveyor. To adjust the dog clutch pull the lever forward until it rests in the engaged notch. Then using the adjusting nuts on the end of the shifting rod, adjust the dog clutch halves so they are fully engaged. The brass yoke on the sliding dog clutch half must move freely in its groove. There should be no tension on the spring and washer in the clevis assembly. If the spring compresses after the dogs are fully engaged, the brass shifting yoke will wear out because of the pressure being applied to it by the spring. If the dogs on the clutch become worn or tapered and will not stay engaged without spring tension they should be replaced.

MOTOR ROTATION

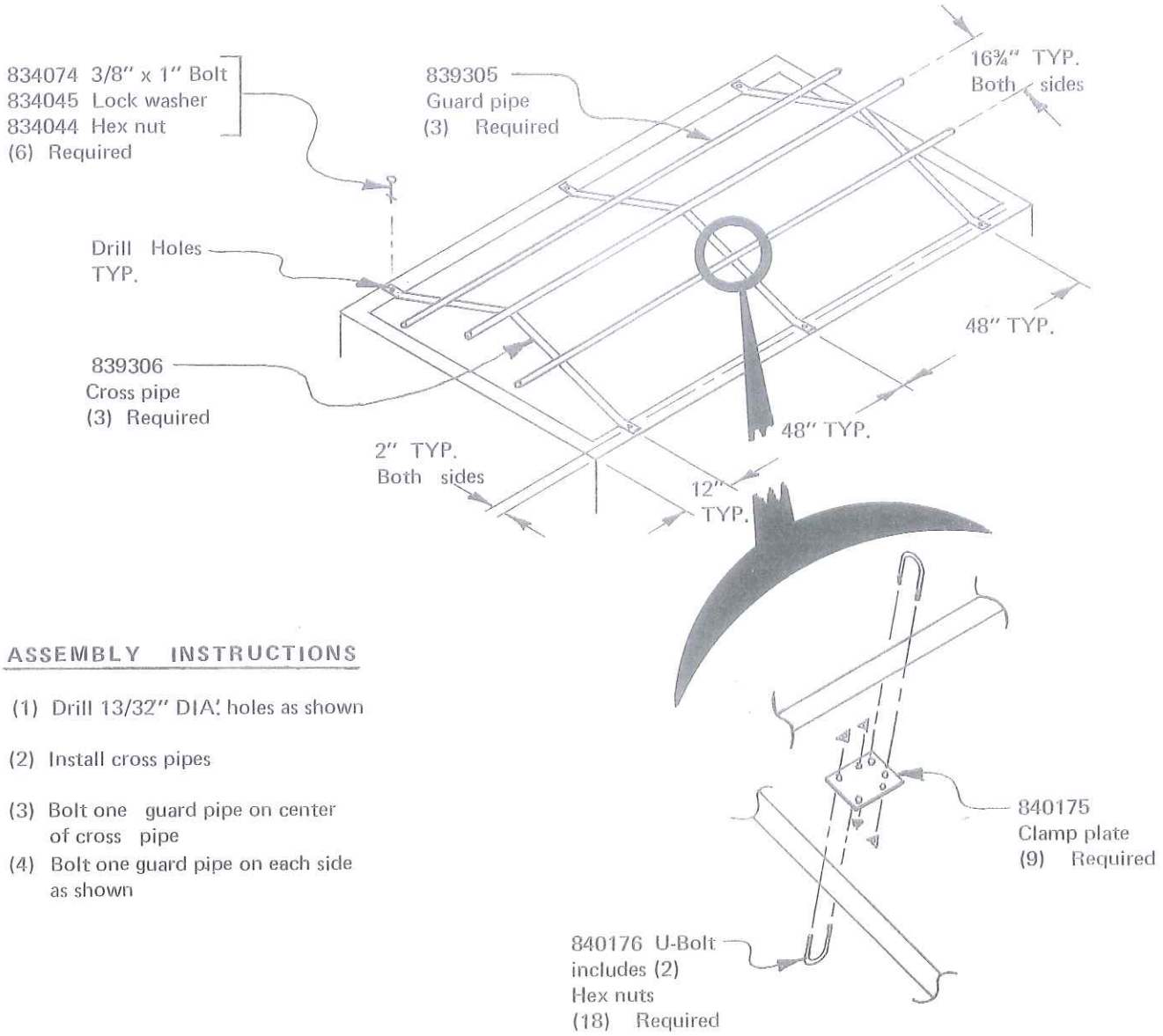
The electric motor must be set up to rotate counterclockwise when facing the shaft end.

The Stationary Mixer/Feeder is supplied with an unattached safety top guard. This top guard is intended to assist in preventing accidental entry into the mixing chamber while at the same time allowing normal loading of the unit.

The uniqueness of the feed mixer inhibits the exact manner in which the top loading area of the mixer can be guarded. The guard supplied with your mixer is adjustable to allow for different methods of loading the unit. The illustration below shows the intended method of installation.

WARNING: Because of the application variations of the Stationary feed mixer, the top guard can not be installed until final unit installation. RESPONSIBILITY FOR THE INSTALLATION OF THIS SAFETY DEVICE IS THAT OF THE OWNER–OPERATOR.

Location of the Stationary feed mixer may require ADDITIONAL guarding of the mixing chamber. A mixer installed in an overhead position may have sufficient protection against accidental entrance, whereas, a mixer installed below ground level may require additional guarding for personnel protection.



TYP. (9) PLACES

ASSEMBLY INSTRUCTIONS

(1) Drill 13/32" DIA. holes as shown

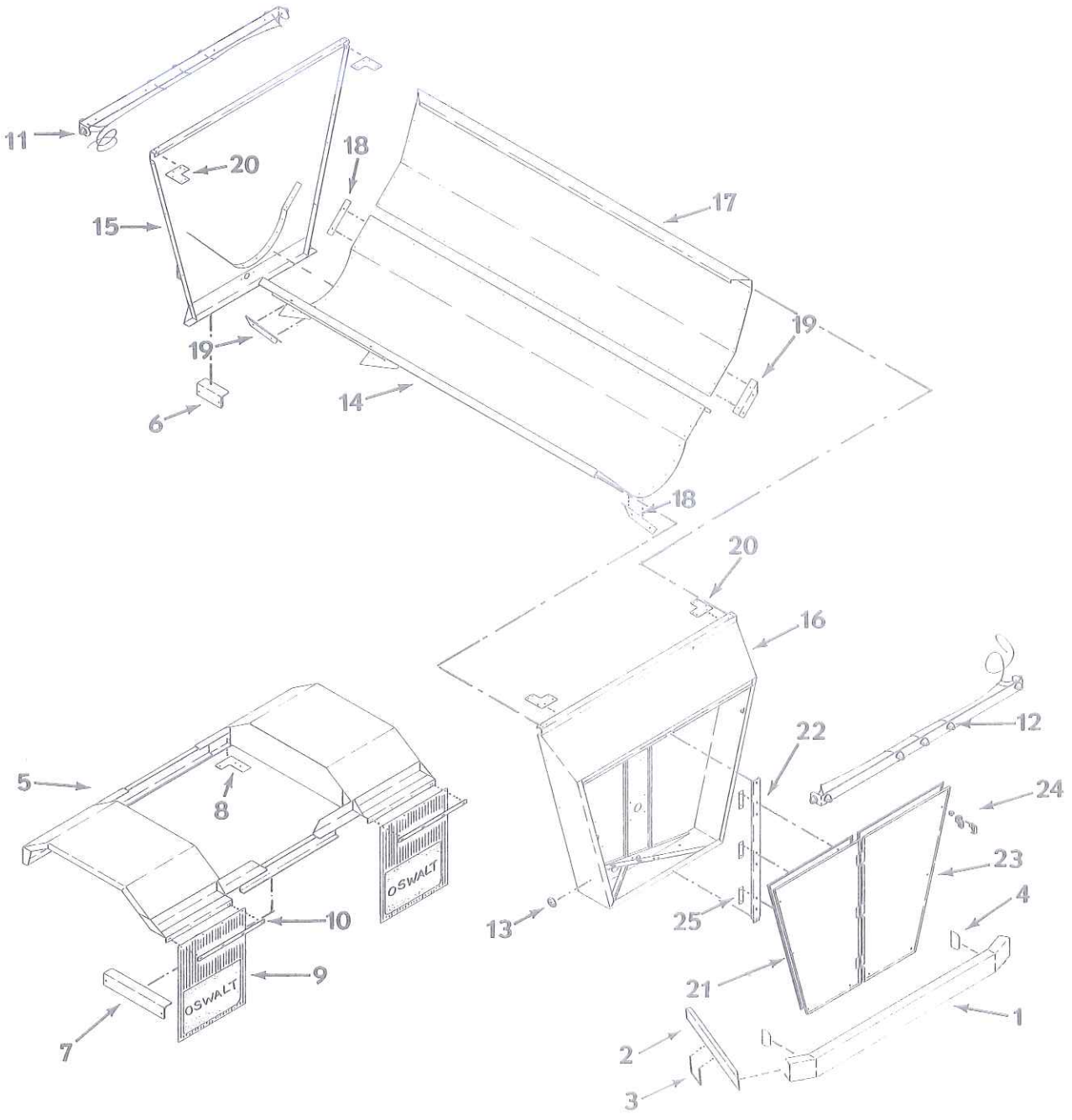
(2) Install cross pipes

(3) Bolt one guard pipe on center of cross pipe

(4) Bolt one guard pipe on each side as shown

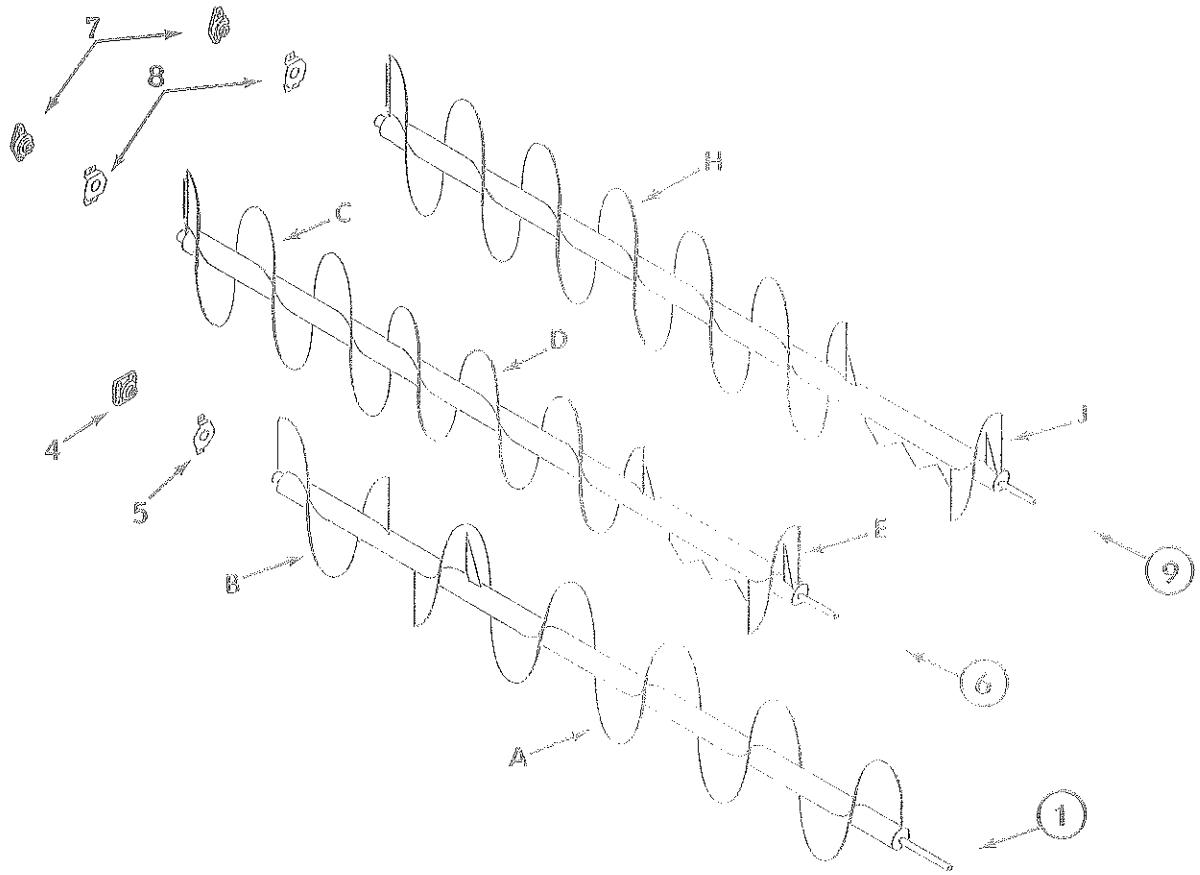
Excessive Shearing of Powershaft Shear Pin	1. High speed engagement of PTO or conveyor. 2. Wrong Shear Pin. 3. High moisture thin stemmed materials and/or not fine enough chopped length. 4. Conveyor plugging.	1. Decrease RPM of the engine before engaging PTO or lowering discharge chute. 2. Use only special grade 1/4" x 2" pins available from factory. (1/4" x 2" Grade 8 acceptable for emergency use only). 3. Decrease the size of load being mixed and/or use materials chopped to 1-1/2" or less length. 4. The conveyor must be running before the door is opened.
Vibration or Growling in Rear Structure	1. Drive sprockets out of line. 2. Universal joints out of alignment. 3. Worn out bearing.	1. Check and line up according to instructions on Pages 12, 13 and 14. 2. Line up as shown on Page 15. 3. Replace bearing. (See Page 15)
Chains Jumping Sprocket Teeth	1. Idler springs loose. 2. Drive sprockets out of line. 3. Worn sprocket teeth.	1. Adjust Idlers as instructed on Page 15. 2. Check and line up according to instructions on Pages 12, 13 and 14. 3. Replace sprocket.
Excessive Wear on Brass Dog Clutch Shifter Yoke	1. Improper adjustment. 2. Dog clutch not sliding freely.	1. Adjust as instructed on Page 12. 2. Check for keyway distortion. Clean and lubricate sliding surfaces. Avoid high-speed engagement of dogs.
Dog Clutch will not Remain Engaged	1. Improper adjustment. 2. Dogs on clutch tapered and worn.	1. Adjust as instructed on Page 12. 2. Replace dog clutch halves.
Drive Chains Breaking	1. Sprocket misalignment. Usually causes side bar breakage due to chain riding up on sprocket teeth. 2. Chains jumping sprocket teeth.	1. Align sprockets as instructed on pages 12, 13 and 14. 2. See Chains Jumping Sprocket Teeth solution above.
Shear Pin Sprocket Shifting out of Line with Jackshaft Sprocket	1. Bearing locking collars not tight on powershaft. 2. Tumbler shaft not telescoping freely on trailer mount units.	1. Tighten locking collars. 1. Check that tumbler shaft is not bent, is clean, and is well lubricated.

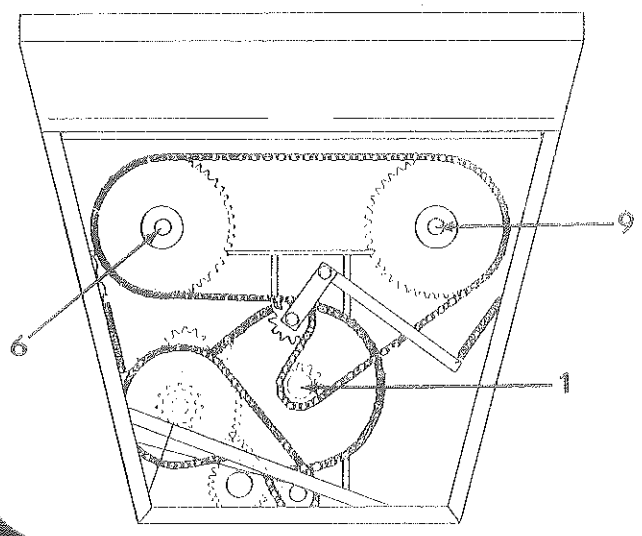
BODY GROUPING



NO.	NO.	DESCRIPTION	QTY.
1	830804	CHANNEL, BUMPER	1
2	840145	CHANNEL, SUPPORT BUMPER	2
3	840146	STEP, REAR BUMPER	2
4	830749	BUMPER GUSSET	2
5	820230	FENDER	1
6	830742	MOUNTING ANGLE	2
7	830746	FENDER, REAR BRACKET	2
8	830745	FENDER, FRONT BRACKET	2
9	835682	MUD FLAP	2
10	835683	MUD FLAP STRAP	2
		FRONT CLEARANCE LIGHT ASSEMBLY (Truck only)	1
11	823438	AMBER MARKER LIGHT (Bulb Part no. G-E 57)	7
	838886	AMBER LENS	
		REAR CLEARANCE LIGHT ASSEMBLY (Truck only)	1
12	823429	RED MARKER LIGHT (Bulb Part no. G-E 57)	7
	838887	RED LENS	
13	837756	RED REFLECTOR	2
14	820203	BOTTOM WELDMENT	1
15	820205	FRONT STRUCTURE	1
16	820206	REAR STRUCTURE	1
17	830621	RIGHT HAND AND LEFT HAND SIDES	2
18	830670	LEFT HAND REAR AND RIGHT HAND FRONT SIDE SUPPORT	2
19	830671	RIGHT HAND REAR AND LEFT HAND FRONT SIDE SUPPORT	2
20	830672	CORNER GUSSET	4
21	830848	DOOR SEAL	1
22	820238	REAR DOOR SUPPORT	1
23	820234	REAR DOOR	1
24	830212	DOOR FASTENERS	8
25	836816	DOOR BOLTING FILLER	3
	839300	LINER, BOTTOM STAINLESS STEEL 14 GA. (NOT SHOWN) (OPT.)	1
	839301	LINER, SIDE STAINLESS STEEL 14 GA. (NOT SHOWN) (OPT.)	2

AUGERS & COMPONENT PARTS

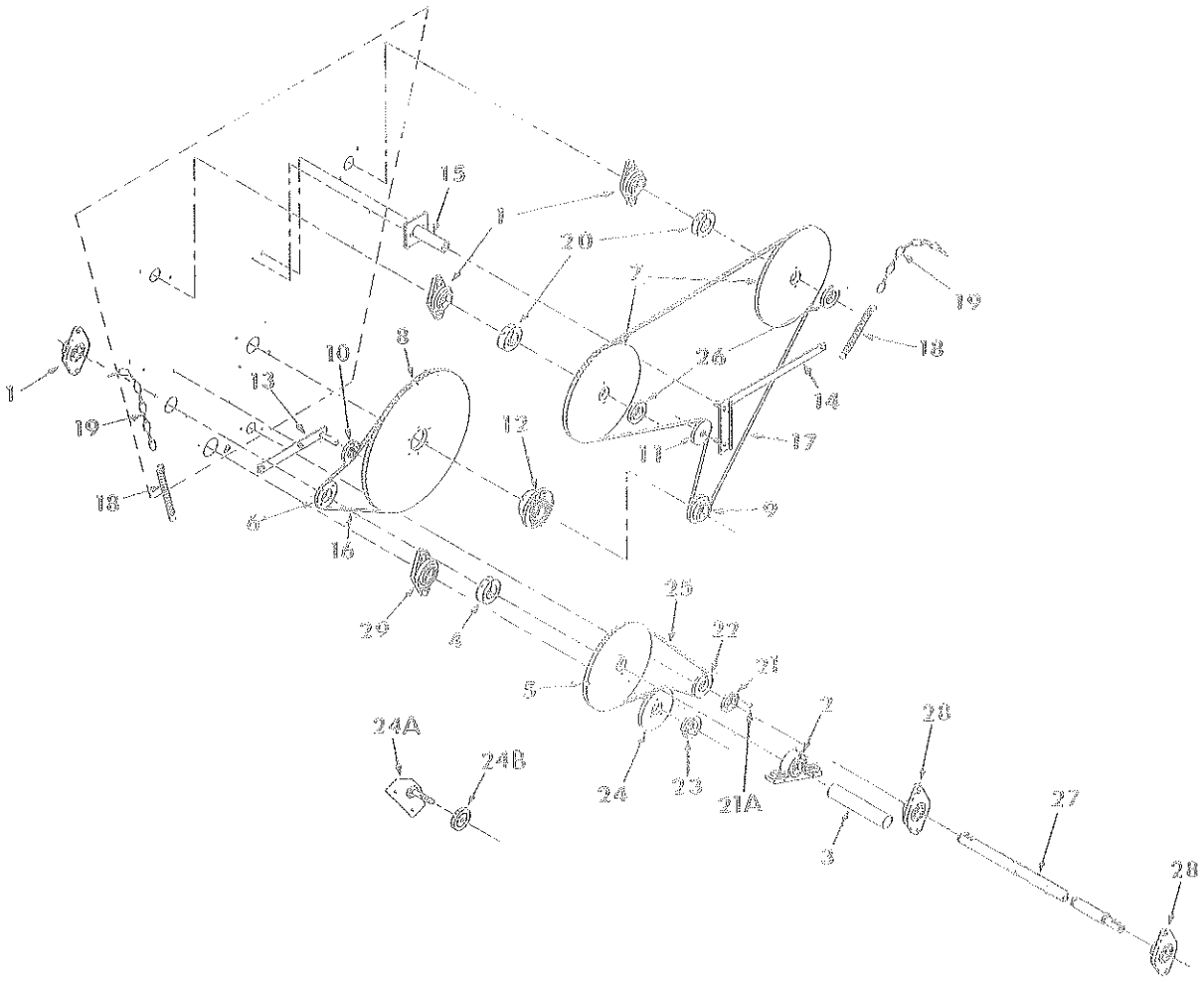


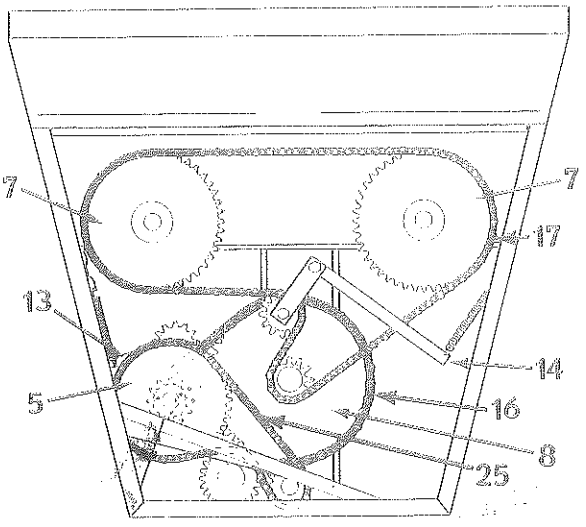


NOTE: REFER TO PAGE 26 FOR TOP AUGER REAR BEARINGS.

NO.	NO.		
1	820208	BOTTOM AUGER	1
A	830646	AUGER FLIGHT 20" OD Full Pitch L.H.	4.5
B	830648	AUGER FLIGHT 20" OD Full Pitch R.H.	1
2	820261	BEARING W/COLLAR 2-3/16"	1
3	833870	BEARING SHIELD	1
4	820260	BEARING W/COLLAR 1-11/16"	1
5	833871	BEARING SHIELD	1
6	820212	LEFT HAND TOP AUGER	1
C	830669	AUGER FLIGHT 20" OD 3/4 Pitch R.H.	2
D	830660	AUGER FLIGHT 16" OD Full Pitch R.H.	3.5
E	830662	AUGER FLIGHT 20" OD Full Pitch L.H.	.5
7	820258	BEARING W/COLLAR 1-7/16"	2
8	834412	BEARING SHIELD	2
9	820216	RIGHT HAND TOP AUGER	1
H	830669	AUGER FLIGHT 20" OD 3/4 Pitch R.H.	6
J	830662	AUGER FLIGHT 20" OD Full Pitch L.H.	.5

REAR DRIVE ASSEMBLY



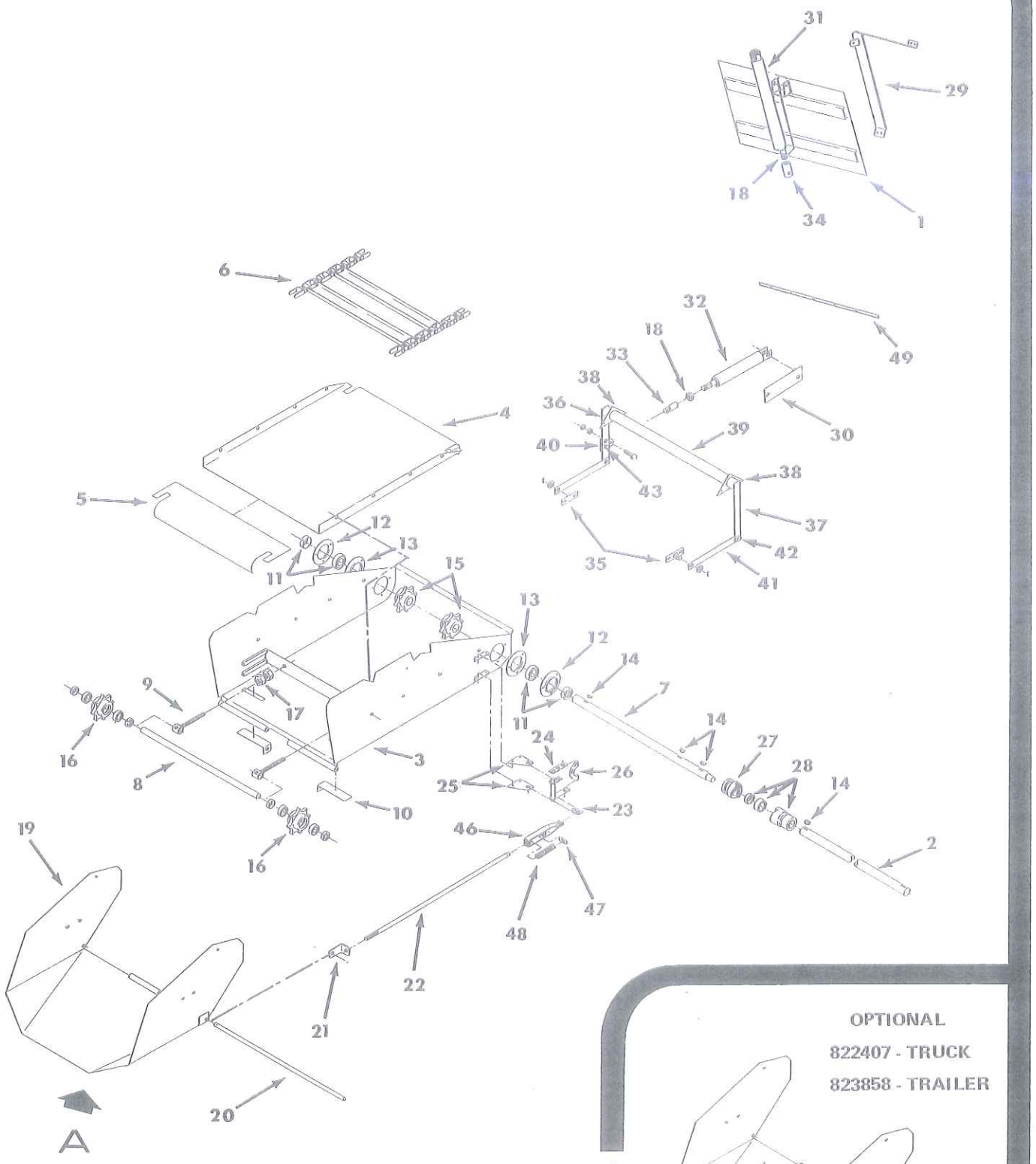


NO.	NO.		
1	820259	BEARING W/COLLAR 1-15/16"	3
2	820204	BEARING W/COLLAR 1-15/16"	1
3	830723	IDLER JACKSHAFT	1
4	839281	SPACER, JACKSHAFT SQUEEZE	1
5	839282	SPROCKET, JACKSHAFT 80 A 48	1
6	839283	SPROCKET, JACKSHAFT 100 A 13H	1
7	839047	TOP AUGER SPROCKET 80A54	2
	834139*	HEX HEAD CAP SCREW 7/16" - 14NC x 2-1/4"	8
	834048	LOCK WASHER 7/16" Dia.	8
	834047	HEX NUT 7/16" - 14NC	8
8	830852	BOTTOM AUGER SPROCKET 100A54	1
9	831290	AUGER PINION SPROCKET 80B15H	1
	831076	STRAIGHT KEY 1/2" x 1/2" x 4"	1
10	820273	BOTTOM IDLER SPROCKET 100A12	1
11	830859	IDLER SPROCKET 80A12	1
12	830847	SQUEEZE HUB 2-3/16" Bore	1
13	820218	BOTTOM IDLER ARM	1
14	820217	TOP IDLER ARM	1
15	820235	IDLER ARM MOUNT	1
16	820277	BOTTOM AUGER CHAIN No. 100 64 Pitches	1
17	820276	TOP AUGER CHAIN No. 80 148 Pitches	1
18	830843	SPRING	2
19	830841	CHAIN	2
20	839046	TOP AUGER SHEAR HUB (Use Grade 5 Bolts)	2
	839050	STRAIGHT KEY 1/2" x 1/2" x 1-1/4"	2
21	839043	SHEAR PIN HUB	1
	839048	STRAIGHT KEY 5/16" x 5/16" x 1"	1
21A	839221**	CALIBRATED SHEAR PIN 1/4" - 20NC x 2"	5
	834041	LOCK WASHER 1/4" Dia.	5
	834039	HEX NUT 1/4" - 20NC	5
22	839044	MAIN DRIVE SHEAR SPROCKET 80A13H	1
23	830845	SQUEEZE HUB 1-1/4" Bore (Truck and Trailer Only)	1
	833810	WOODRUFF KEY 5/16" x 1-1/8"	1
24	830850	CONVEYOR DRIVE SPROCKET 80A24 (Truck and Trailer Only)	1
24A	823870	IDLER BRACKET (Stationary Only)	1
24B	830859	IDLER SPROCKET 80A12 (Stationary Only)	1
25	820354	MAIN DRIVE CHAIN No. 80 73 Pitches	1
26	839045	RETAINER SLEEVE	2
27	839040	REAR POWER SHAFT	1
28	820258	BEARING W/COLLAR 1-7/16"	2
29	820257	BEARING W/COLLAR 1-1/4"	1
	833057	OFFSET LINK No. 80	
	833058	CONNECTOR LINK No. 80	
	830872	CONNECTOR LINK No. 100	
	830873	OFFSET LINK No. 100	

*4 Bolts in rack, 2 in each top auger

**4 Bolts in rack, 1 in Shear Pin Hub, Ref. No. 21

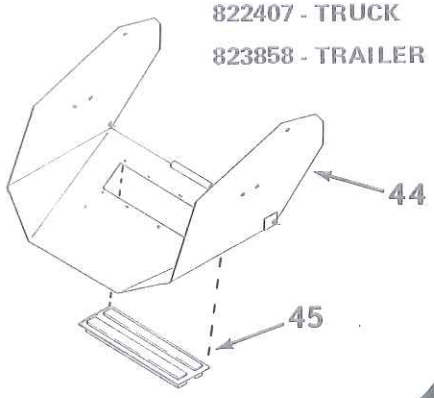
DISCHARGE ASSEMBLY



OPTIONAL

822407 - TRUCK

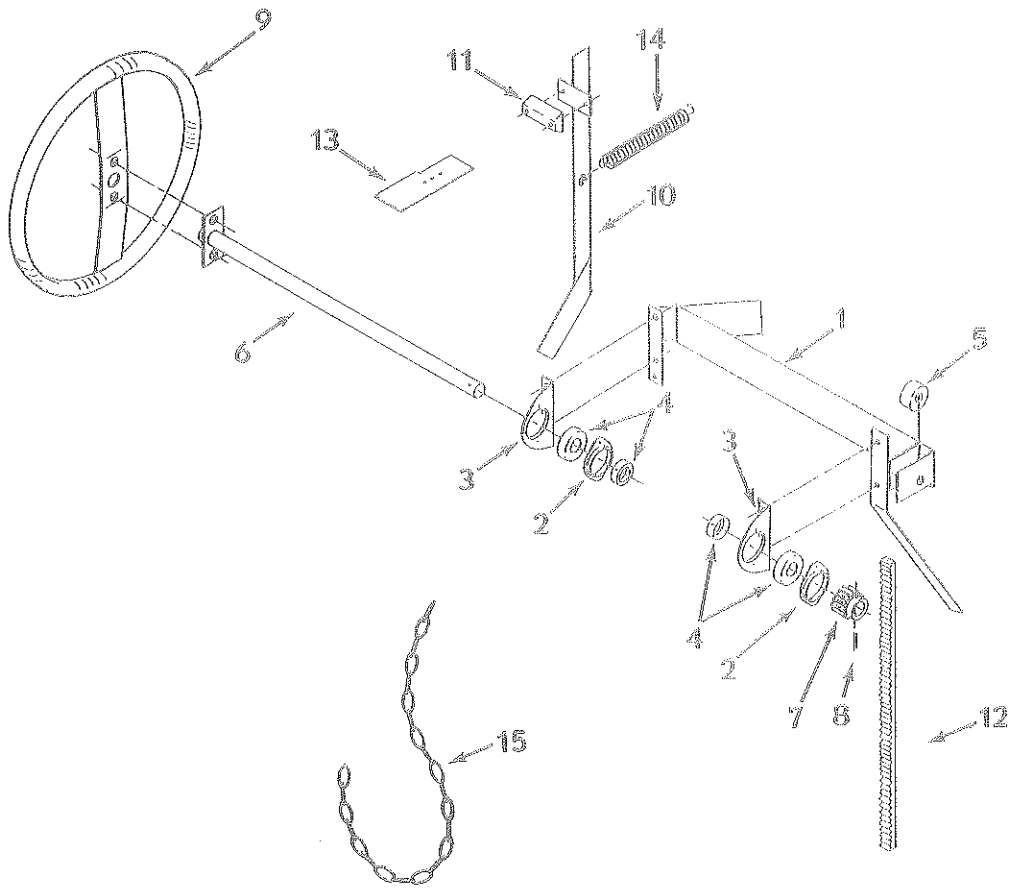
823858 - TRAILER



1	820219	DISCHARGE DOOR	1
2	830722	CONVEYOR SHAFT	1
	821215	DISCHARGE CONVEYOR ASSEMBLY – TRUCK (See Note)	1
	821542	13" EXTENDED DISCHARGE CONVEYOR ASSEMBLY – TRAILER	1
3	821213	CONVEYOR BOTTOM – TRUCK	1
	821541	EXTENDED CONVEYOR BOTTOM – TRAILER	1
4	833008	CONVEYOR PAN – TRUCK	1
	834416	EXTENDED CONVEYOR PAN – TRAILER	1
5	820224	CONVEYOR FLOOR EXTENSION	1
6	821214	CHAIN AND SLAT ASSEMBLY – TRUCK (Repair Slat Assembly No. 820339)	1
	821578	EXT. CHAIN AND SLAT ASSY. – TRAILER (Repair Slat Assembly No. 820339)	1
	820547	CHAIN REPAIR LINK	
	823773	CHAIN OFFSET REPAIR LINK	
7	830705	CONVEYOR DRIVE SHAFT	1
8	830706	CONVEYOR IDLER SHAFT	1
9	820226	CHAIN TAKE-UP (Stainless Steel)	2
10	830710	ACCESS COVER	2
11	820762	BEARING W/COLLAR 1-1/4" Dia.	2
12	830802	FLANGETTE W/ZERK	2
13	830803	FLANGETTE	2
14	833810	WOODRUFF KEY 5/16" x 1-1/8"	4
15	831298	CONVEYOR DRIVE SPROCKET	2
16	820243	CONVEYOR IDLER SPROCKET ASSEMBLY (820244 - Bearing w/Collar)	2
17	839244	HEX NUT 5/8" - 11 NC (Stainless Steel)	2
18	834089	JAM NUT 3/4" – 16 NF	2
19	820229	DISCHARGE CHUTE – TRUCK	1
	823848	SHORT DISCHARGE CHUTE – TRAILER	1
20	830729	CHUTE HINGE ROD	1
21	830718	ROD END ANGLE	1
22	833009	CLUTCH ROD – TRUCK	1
	834783	EXTENDED CLUTCH ROD – TRAILER	1
23	820227	CLUTCH SHIFTER LEVER	1
24	830719	YOKE RETAINER PLATE	1
25	830721	SUPPORT PLATE	2
26	830837	BRONZE YOKE	1
27	823612	SLIDING HALF CLUTCH	1
28	820266	HALF DOG CLUTCH	1
29	820202	LONG CYLINDER BRACKET	1
30	821217	SHORT CYLINDER BRACKET	1
31	822765	DOOR HYDRAULIC CYLINDER 1-1/2" x 18" Repair Kit No. 822549	1
32	822767	CHUTE HYDRAULIC CYLINDER 1-1/2" x 8" Repair Kit No. 822549	1
33	833025	CYLINDER CLEVIS	1
34	830001	CYLINDER CLEVIS	1
35	820004	CHUTE BRACKET	2
36	821902	ROCKER ARM	1
37	821903	SOLID ARM	1
38	830002	HINGE BRACKET	2
39	830003	TORQUE TUBE	1
40	830006	ROCKER PLATE	1
41	833026	SWIVEL ARM	2
42	835561	ROCKER PLATE BUSHING	2
43	835562	SWIVEL ARM BUSHING	2
	822407	DISHCARGE CHUTE MAGNET ASSEMBLY – TRUCK (OPTIONAL)	1
	823858	SHORT CHUTE MAGNET ASSEMBLY – TRAILER (OPTIONAL)	1
44	822406	DISCHARGE CHUTE FOR MAGNET – TRUCK (OPTIONAL)	1
	823857	SHORT CHUTE – TRAILER (OPTIONAL)	1
45	835721	30 OUNCE MAGNET – TRUCK & TRAILER (OPTIONAL)	1
46	820228	CLUTCH SHIFTER CLEVIS	1
47	830720	CLUTCH ROD WASHER	1
48	830844	COMPRESSION SPRING	1
49	830883	DOOR BOTTOM PLATE (Stationary only)	1

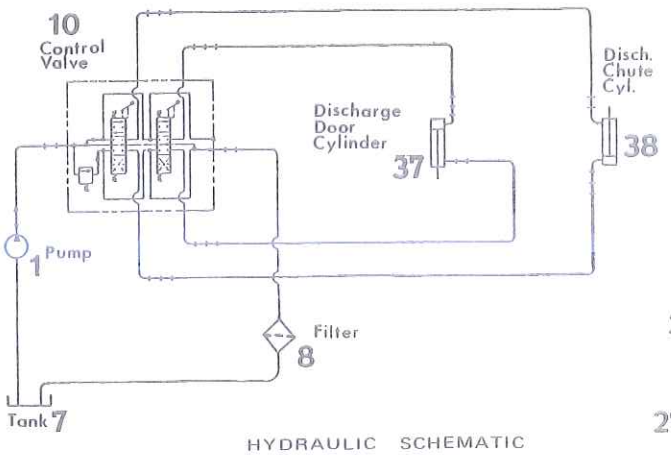
NOTE: Optional 13" Extended Conveyor Assembly for TRUCK is P/N 823418.

OPTIONAL MANUAL DISCHARGE

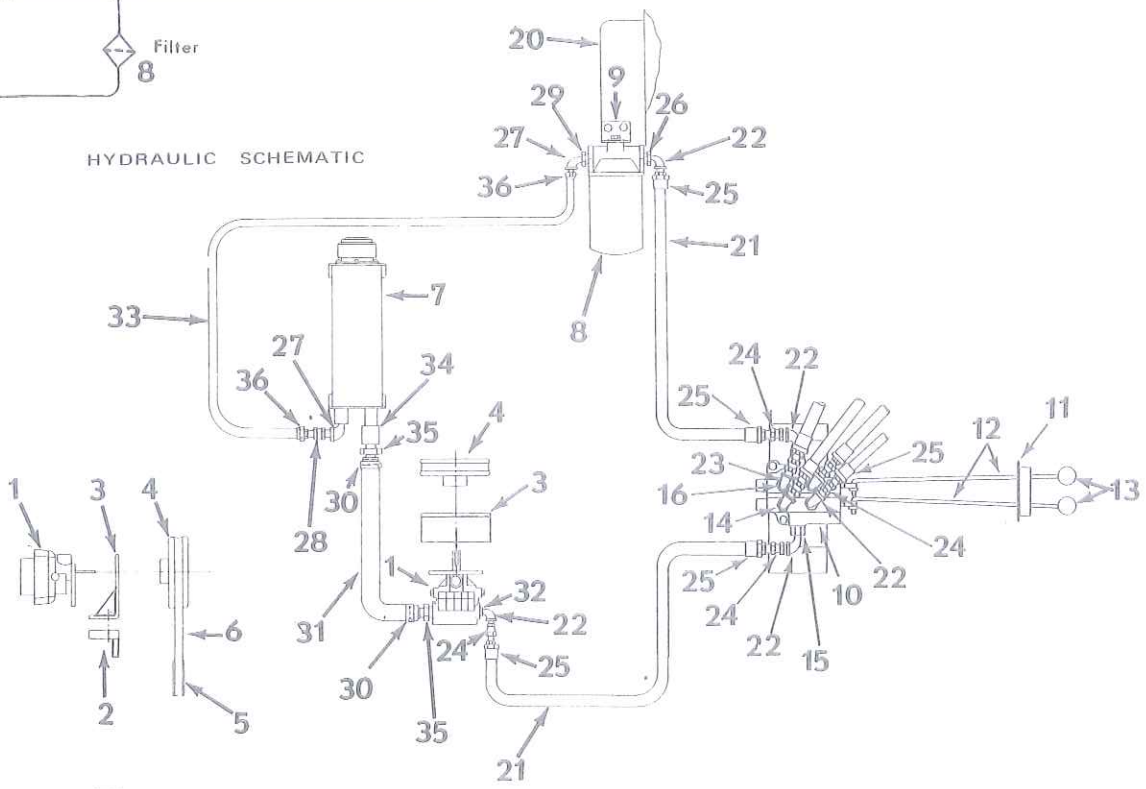


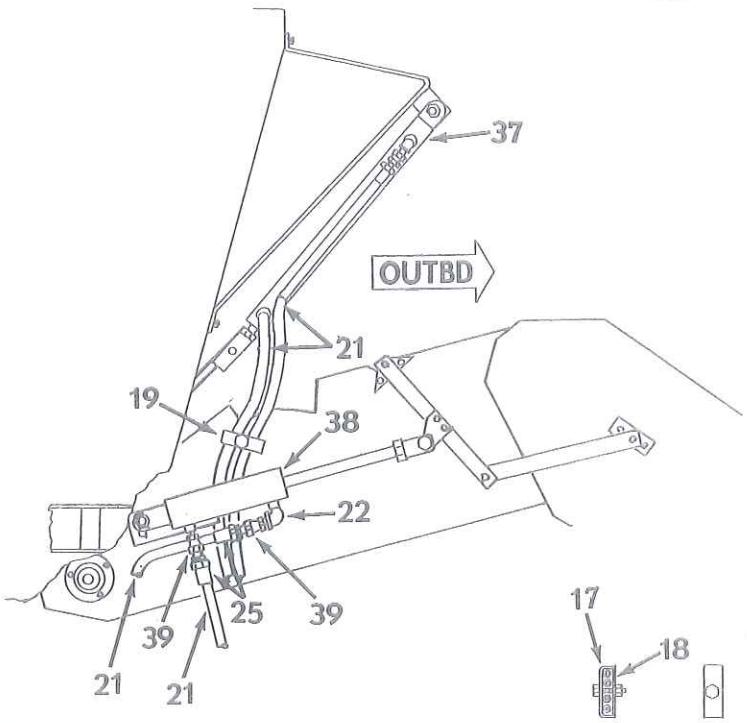
1	820236	HANDWHEEL MOUNT	1
2	830345	FLANGETTE	2
3	830815	FLANGETTE	2
4	820252	BEARING W/COLLAR	2
5	830684	ROLLER DISC	1
6	820220	HANDWHEEL SHAFT	1
7	831066	PINION GEAR	1
8	830833	ROLL PIN	1
9	820221	HANDWHEEL	1
	820338	HANDWHEEL BRAKE ASSEMBLY	1
10	820233	HANDWHEEL BRAKE	1
11	830567	BRAKE SHOE	1
12	830838	DISCHARGE DOOR RACK	1
13	830769	BRAKE LEVER STOP	1
14	830843	SPRING	1
15	830842	CHAIN	2

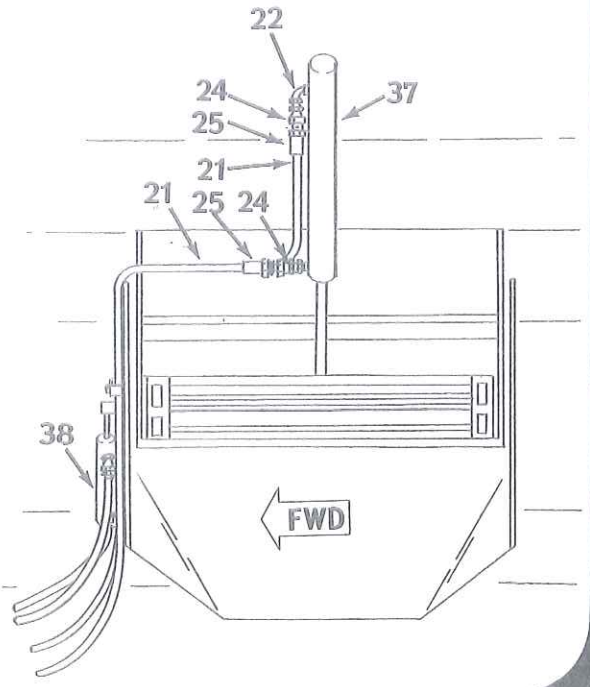
HYDRAULICS & FILTRATION - TRUCK



HYDRAULIC SCHEMATIC



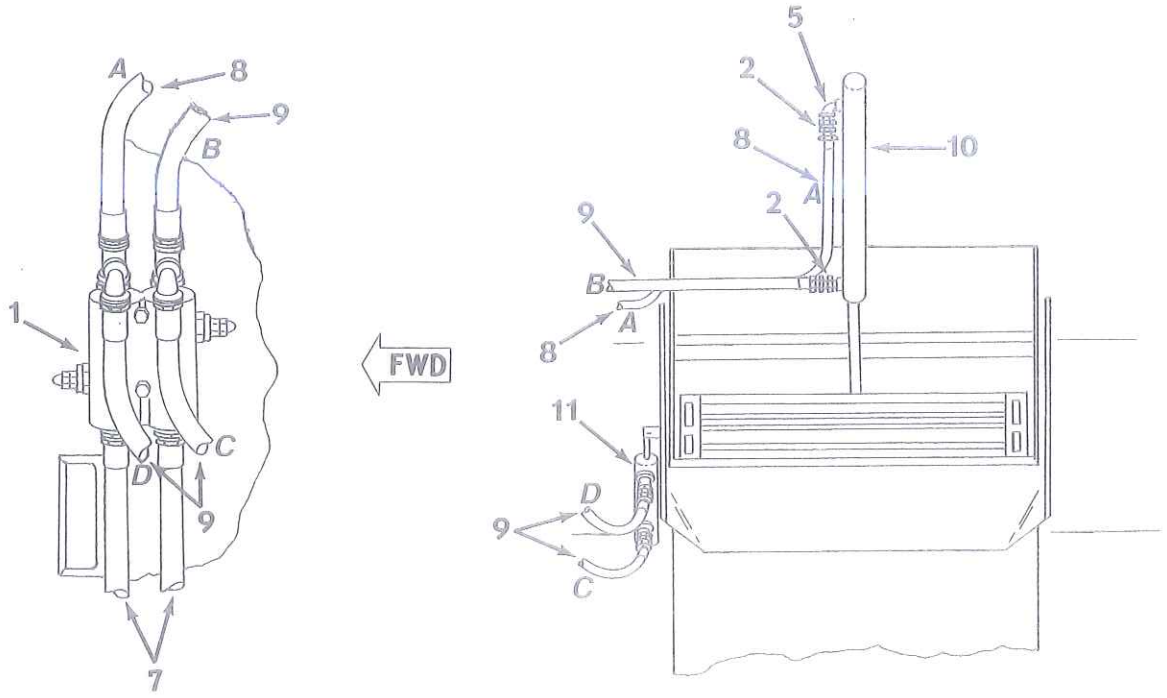


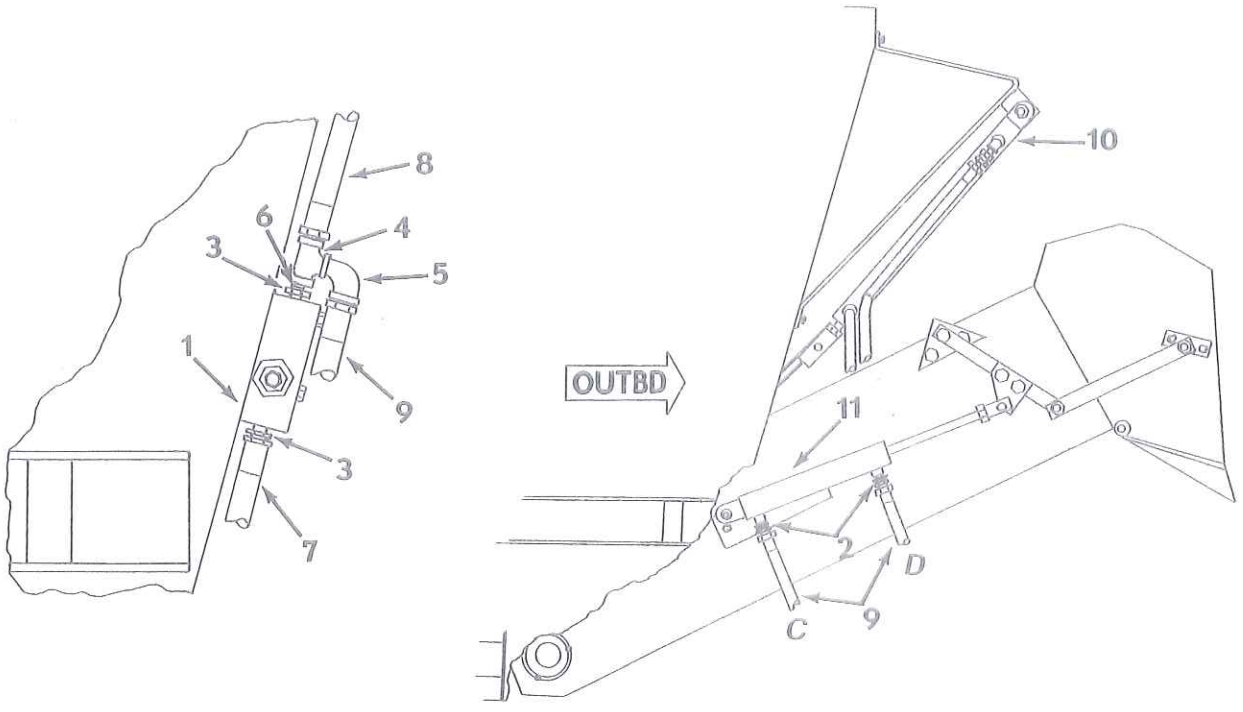


NO.	NO.		
1	823860	PUMP, HYDRAULIC	1
2	823861	PUMP MOUNT	1
	839304	PUMP MOUNT FOR 1979 FORD'S	1
3	839072	BRACKET, PUMP MOUNT	1
4	839162	PULLEY 5¼" 9/16" BORE.	1
5	839074	ALTERNATOR PULLEY, CHEVROLET - GMC (1 Groove Pulley).	1
	839075	ALTERNATOR PULLEY, FORD (2 Groove Pulley)	1
6	839076	V-BELT A-26.	1
7	823859*	TANK, HYDRAULIC	1
8	823377	FILTER, SPIN-ON	1
	837637	REPLACEMENT FILTER	1
9	837322	FILTER MOUNT BRACKET.	1
10	820002	HYDRAULIC CONTROL VALVE.	1
	839256	DUKE'S VALVE HANDLE	2
	835777	BRACKET, HYDRAULIC VALVE	1
11	833760	BRACKET, HYDRAULIC CONTROL	1
12	836477	ROD, CONTROL.	2
13	836476	KNOB, VALVE	2
14	839239	O-RING ADAPTOR	4
15	838864	¾" SAE - ¼" NPT ADAPTOR	2
16	831978	¼" x 2" NIPPLE	2
17	834998	CLAMP, TUBING	2
18	834999	SPACER, TUBING	2
19	831169	BRACKET, HOSE	1
20	837330	BRACKET, ADAPTOR	1
21	839324	HOSE, HYDRAULIC	51'
22	830256	ELL, STREET ¼".	8
23	831434	ELL, COMMON ¼"	2
24	830857	SWIVEL, HOSE	9
25	839325	CONNECTOR, HOSE	12
26	835277	BUSHING, PIPE	1
27	830204	ELL, STREET ½".	2
28	831402	ADAPTER, SWIVEL ½".	1
29	832047	BUSHING, ¾" MPT	1
30	838754	CLAMP, HOSE #16	2
31	839079	HOSE, ¾" SUCTION	4'
32	833649	BUSHING, PIPE	1
33	839250	RETURN HOSE ½"	4'
34	832042	COUPLING	1
35	839222	COUPLING	2
36	839251	RETURN COUPLING ½"	2
37	822765	HYDRAULIC CYLINDER - DOOR 1-½" x 18".	1
38	822767	HYDRAULIC CYLINDER - CHUTE 1-½" x 8"	1
39	839215	ADAPTER RESTRICTOR	2

* With system cold, oil level in tank should be 1" deep in the filter screen. This will allow for expansion room to prevent oil from overflowing as it warms to operating temperature.

HYDRAULIC ASSEMBLY–TRAILER

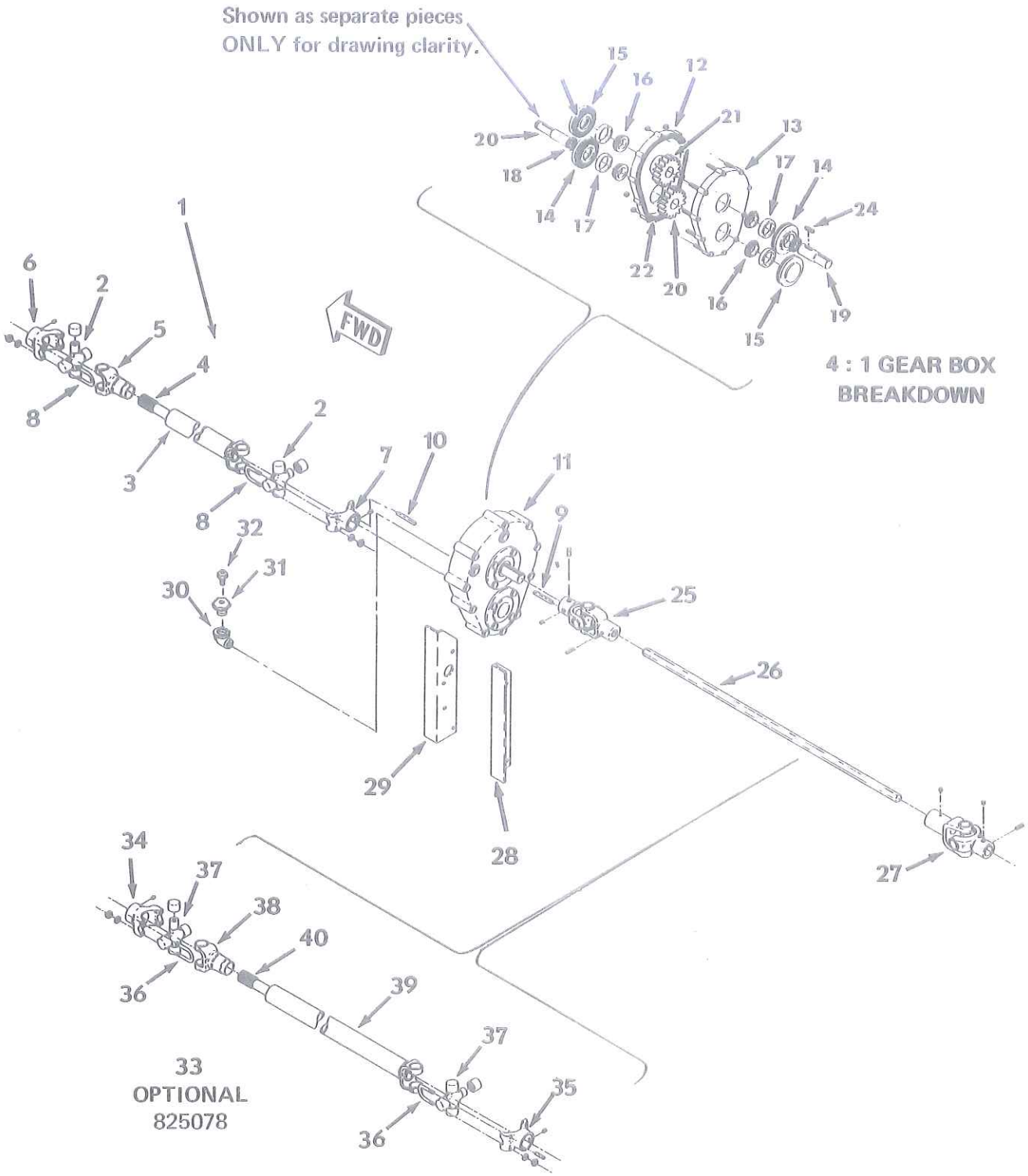




HYDRAULIC ASSEMBLY–TRAILER

REF. NO.	PART NO.	DESCRIPTION	QTY.
1	821769	RELIEF VALVE	1
2	830857	SWIVEL ADAPTOR UNION	4
3	834476	PIPE BUSHING 1/2" NPTM – 1/4" NPTF	4
4	834795	PIPE TEE 1/4" NPT	2
5	830256	STREET ELL 1/4" NPT	3
6	833655	CLOSE NIPPLE 1/4" NPT x 7/8"	2
7	835271	HYDRAULIC HOSE 3/8" Hose x 92"	2
8	835270	HYDRAULIC HOSE 3/8" Hose x 50"	1
9	835268	HYDRAULIC HOSE 3/8" Hose x 28"	3
10	822765	DOOR HYDRAULIC CYLINDER 1-1/2" x 18"	1
11	822767	CHUTE HYDRAULIC CYLINDER 1-1/2" x 8"	1

MAIN DRIVE ASSEMBLY–TRUCK



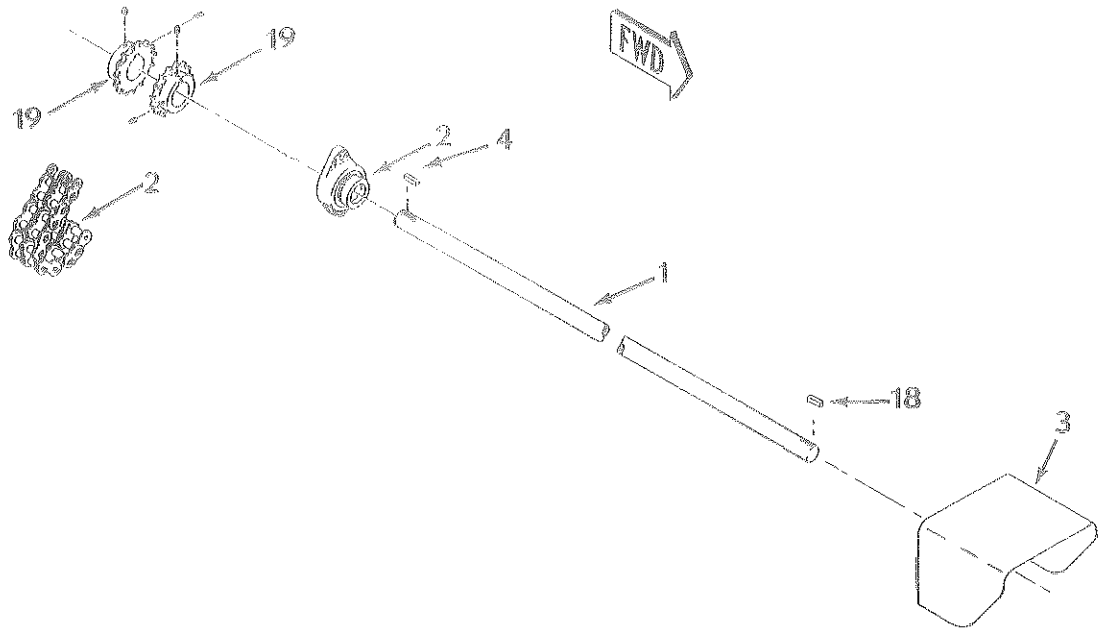
NOTE: DO NOT TIGHTEN U–BOLTS
BEYOND 35 FT/LBS..

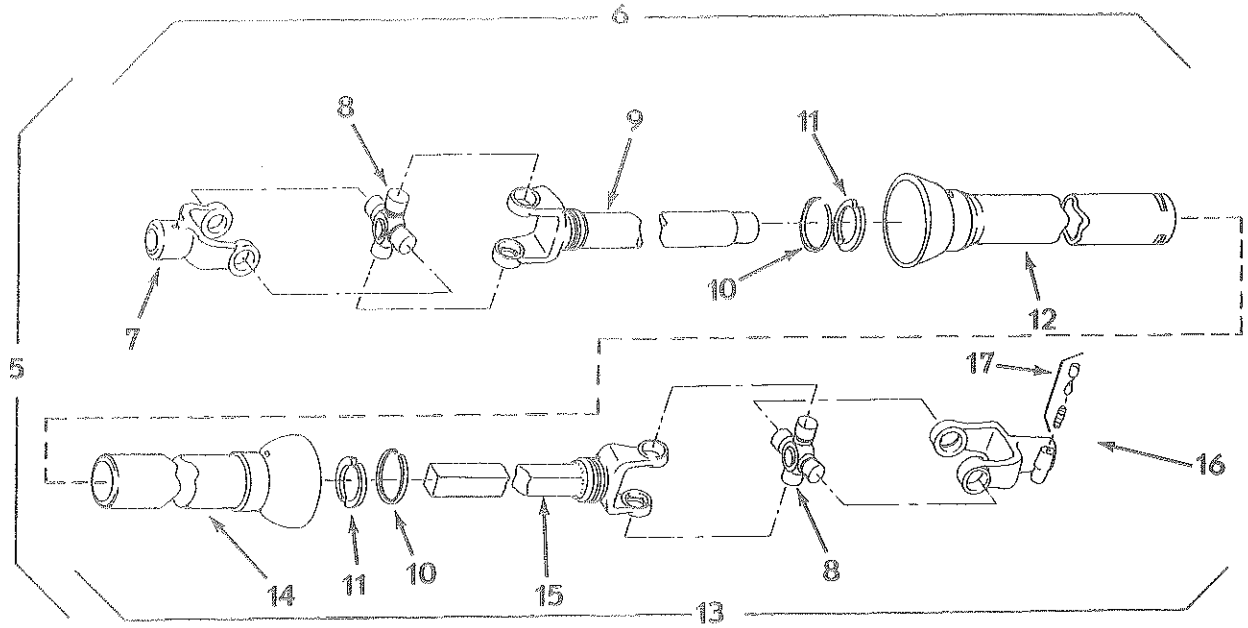
MAIN DRIVE ASSEMBLY–TRUCK

REF. NO.	PART NO.	DESCRIPTION	QTY.
1	823334	HEAVY DUTY AUTOMOTIVE DRIVE LINE	1
	823184	TUBE AND SPLINE ASSEMBLY	1
2	837228	CROSS AND BEARING KIT	2
3	837230	STUB YOKE AND TUBE ASSEMBLY	1
4	837231	SLIP STUB AND SHAFT	1
5	837229	SLEEVE YOKE ASSEMBLY	1
6	837225	YOKE 1-1/4"	1
7	839181	YOKE 1-3/8"	1
8	837227	U-BOLT	4
9	831071	STRAIGHT KEY 3/8" x 2"	1
10	833102	STRAIGHT KEY 5/16" x 2"	1
11	821263	4:1 GEAR BOX	1
12		CASE	1
13		CASE	1
14		OPEN END CAP	2
15		CLOSED END CAP	2
16	831722	BEARING CUP	4
17	831723	BEARING CONE	4
18	831724	SEAL	2
19	831727	OUTPUT SHAFT	1
20	833781	INTEGRAL GEAR AND SHAFT	1
21	831726	GEAR	1
22	831728	GASKET	1
23	831729	GASKET	4
24	834944	PRATT & WHITNEY KEY 3/8" x 1-7/16"	1
25	823408	UNIVERSAL JOINT ASSEMBLY	1
	831055	CROSS AND BEARING KIT	1
26	833113	PTO EXTENSION SHAFT	1
27	823407	UNIVERSAL JOINT ASSEMBLY	1
	831055	CROSS AND BEARING KIT	1
28	833110	REAR GEAR BOX MOUNT	1
29	833111	FRONT GEAR BOX MOUNT	1
30	830204	STREET ELL 1/2" NPT	1
31	831731	BUSHING 1/2" NPT M - 1/8" NPT F	1
32	831732	PRESSURE RELIEF VENT 1/8" NPT	1
33	825078**	AUTO DRIVE LINE KIT (OPTIONAL) Replaces Ref. No.s 25,26,27	1
34	823182	YOKE 1-1/2")OPTIONAL)	1
35	823180	YOKE 1-7/16" (OPTIONAL)	1
36	837227	U-BOLT (OPTIONAL)	4
	823184	TUBE AND SPLINE ASSEMBLY (OPTIONAL)	1
37	837228	CROSS AND BEARING KIT(OPTIONAL)	2
38	837229	SLEEVE AND YOKE ASSEMBLY (OPTIONAL)	1
39	837231	SLIP STUB SHAFT (OPTIONAL)	1
40	837230	STUB YOKE AND TUBE (OPTIONAL)	1

** ORDER WELDED OR UNWELDED ASSEMBLY. WHEN ORDERING WELDED ASSEMBLY, SPECIFY TOTAL LENGTH. (From end of Gearbox shaft to Mixer Power Shaft)

MAIN DRIVE ASSEMBLY-TRAILER

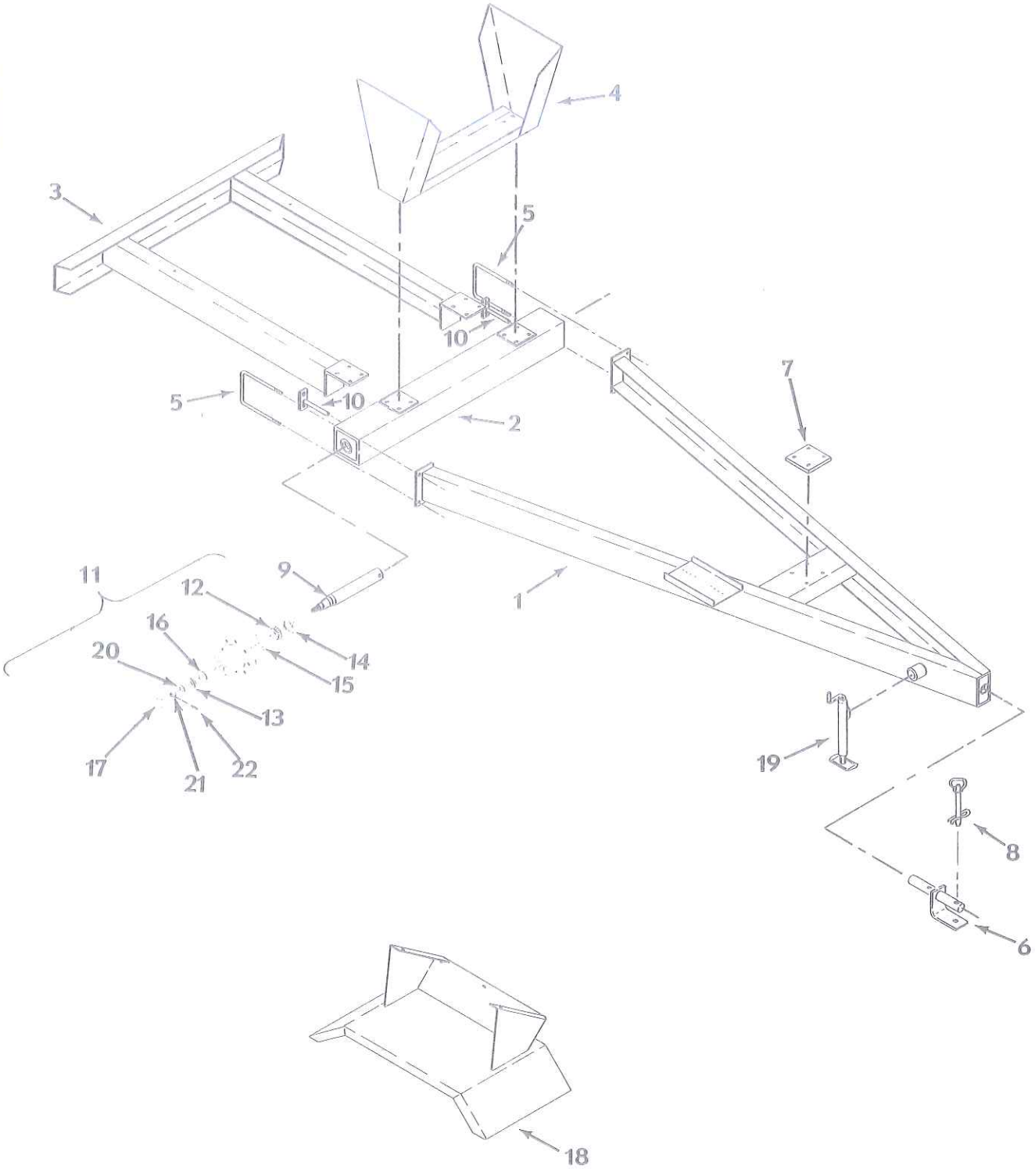




MAIN DRIVE ASSEMBLY–TRAILER

REF. NO.	PART NO.	DESCRIPTION	QTY.
1	839091	FRONT POWER SHAFT	1
2	820258	BEARING W/COLLAR 1-7/16" Dia.	1
3	823275	PTO SHIELD	1
4	834455	STRAIGHT KEY 3/8" x 3/8" x 1"	1
5	823928	TUMBLER SHAFT ASSEMBLY	1
6	823909	JOINT AND TUBE HALF	1
7	839206	YOKE	1
8	839214	CROSS AND BEARING KIT	2
9	839207	YOKE AND TUBE	1
10	839208	BEARING RETAINER	2
11	839209	NYLON BEARING	2
12	839210	MALE GUARD TUBE	1
13	823910	JOINT AND SHAFT HALF	1
14	839211	FEMALE GUARD TUBE	1
15	839212	YOKE AND SHAFT	1
16	823911	YOKE ASSEMBLY	1
17	839213	SAF-T-PIN AND SPRING KIT	1
18	831071	STRAIGHT KEY 3/8" x 3/8" x 2"	1
19	838775	COUPLING SPROCKET 40B18H	2
20	823191	COUPLING CHAIN 40 Double 18 Pitches w/connector	1

TRAILER & MOUNTING COMPONENTS
STANDARD OR 1% SCALES

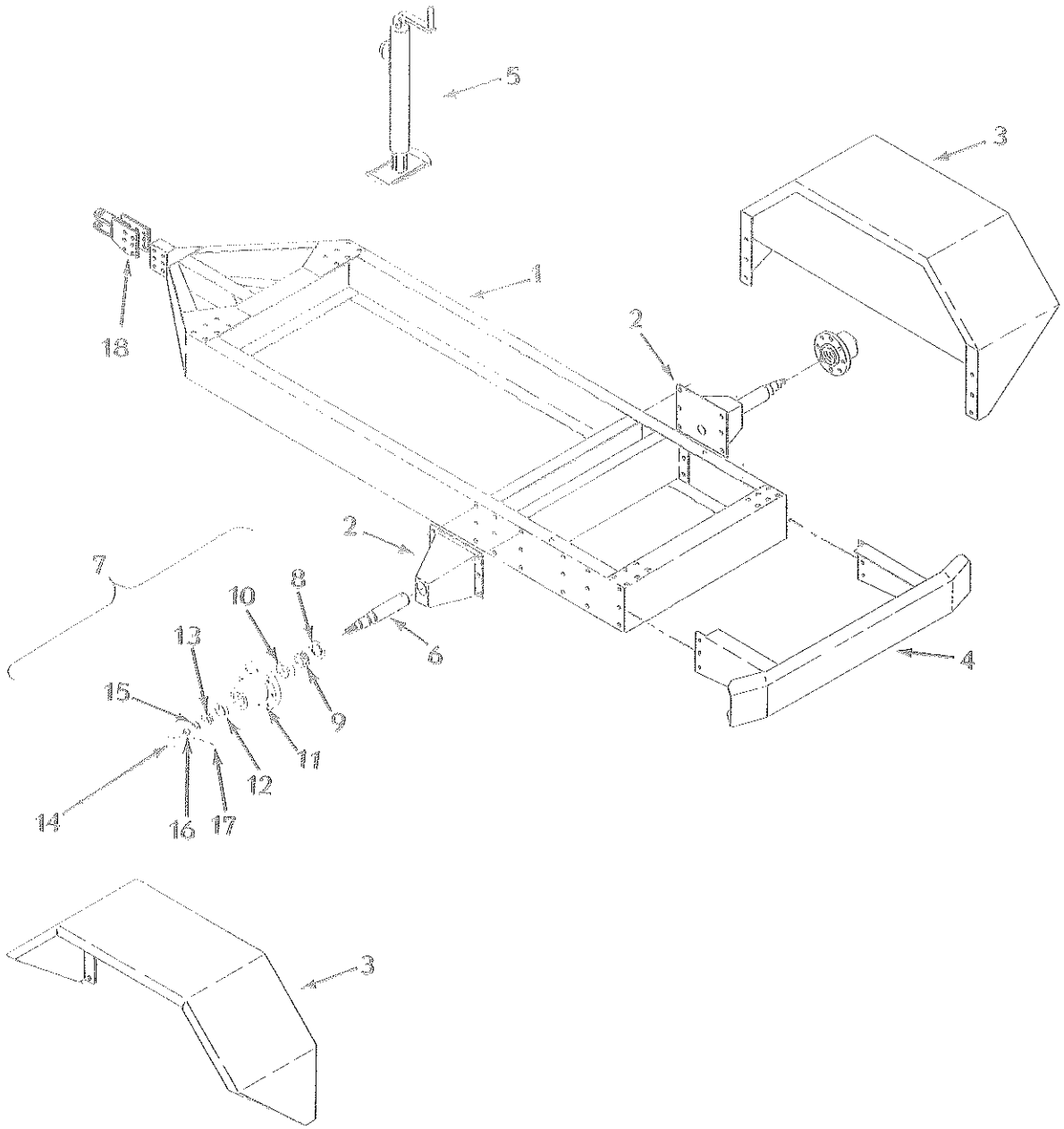


TRAILER & MOUNTING COMPONENTS

REF. NO.	PART NO.	DESCRIPTION	QTY.
1	823836	TRAILER FRAME	1
2	823838	TRAILER AXLE	1
3	823842	BUMPER	1
4	823840	MOUNTING PEDESTAL	1
5	838850	AXLE U–BOLT	2
6	823862	CLEVIS WELDMENT	1
7	830410	MOUNTING PLATE SHIM	1
8	838955	DRAWBAR PIN	1
9	839008	TRAILER SPINDLE	2
10	823841	RETAINER PIN	2
11	820166	HUB	2
12	832981	INNER BEARING CONE	1
13	832982	OUTER BEARING CONE	1
14	832983	SEAL	1
15	834477	INNER BEARING CUP	1
16	834478	OUTER BEARING CUP	1
17	835272	CAP, HUB	1
N/P	837460	LUG BOLTS	8
18	823843	1830 TRAILER FENDER	2
19	823926	TUBE MOUNT JACK	1
20	833073	AXLE FLAT WASHER	2
21	833072	NUT 7/8" – 14 NF	2
22	835087	COTTER PIN 1/8" x 1-1/2"	2
N/P	821277	WHEEL AND TIRE ASSEMBLY 14:00 x 16	2

N/P – NOT PICTURED

TRAILER & MOUNTING COMPONENTS FURNISHED WITH 1/4% SCALES

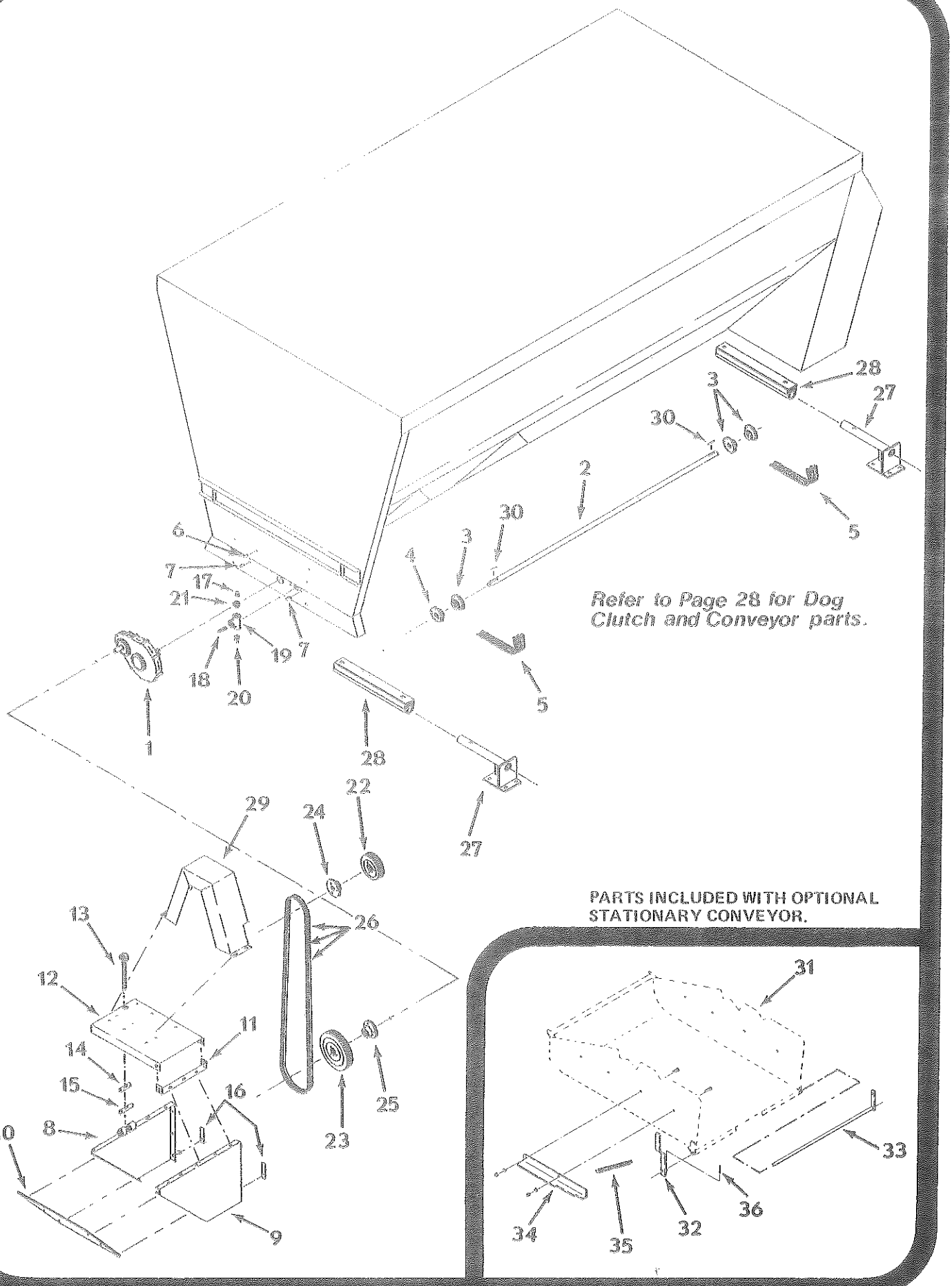


TRAILER & MOUNTING COMPONENTS FURNISHED WITH 1/4% SCALES

REF. NO.	PART NO.	DESCRIPTION	QTY.
1	820161	TRAILER FRAME	1
2	821446	WHEEL PEDESTAL	2
3	820462	TRAILER FENDER	2
4	820191	REAR BUMPER	1
5	823926	TUBE MOUNT JACK	1
6	833753	WHEEL SPINDLE	2
7	820166	HUB ASSEMBLY	2
8	832983	BEARING SEAL	1
9	832981	INNER BEARING CONE	1
10	834477	INNER BEARING CUP	1
11	833062	TRAILER HUB	1
12	834478	OUTER BEARING CUP	1
13	832982	OUTER BEARING CONE	1
14	835272	CAP, HUB	1
N/P	837460	LUG BOLTS	8
15	833073	AXLE, FLAT WASHER	2
16	833072	NUT 7/8" – 14 NF	2
17	835087	COTTER PIN 1/8" x 1-1/2"	2
18	823250	CLEVIS	1
N/P	821277	WHEEL AND TIRE ASSEMBLY 14:00 x 16	2

N/P – NOT PICTURED

STATIONARY MIXER COMPONENTS

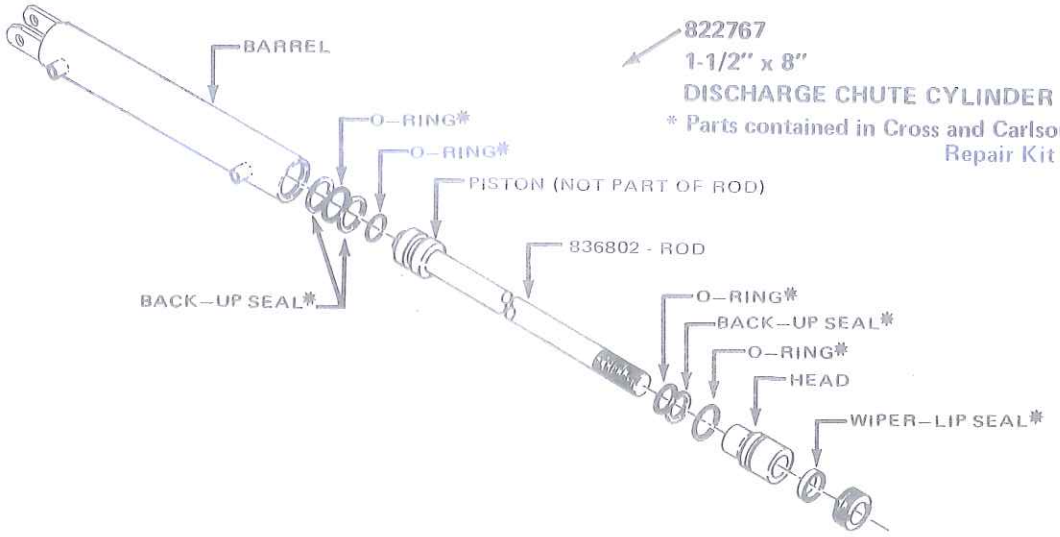


Refer to Page 28 for Dog Clutch and Conveyor parts.

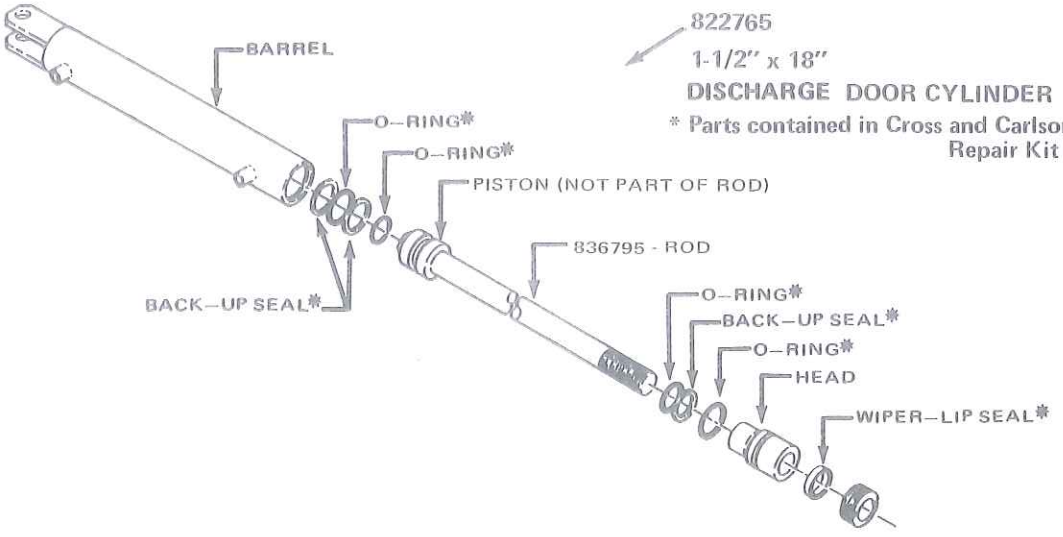
PARTS INCLUDED WITH OPTIONAL STATIONARY CONVEYOR.

STATIONARY MIXER COMPONENTS

REF. NO.	PART NO.	DESCRIPTION	QTY.
1	821263	4:1 GEAR BOX W/EXTENSION SHAFT	1
2	839092	FRONT POWER SHAFT	1
3	838775	COUPLING SPROCKET 40B18H	3
4	839093	COUPLING SPROCKET 40B18H	1
5	823191	CHAIN COUPLING No. 40 Double 18 Pitches	2
6	839095	SHORT GEAR BOX SPACER	1
7	839094	LONG GEAR BOX SPACER	2
8	823866	RIGHT HAND MOTOR SUPPORT	1
9	839097	LEFT HAND MOTOR SUPPORT	1
10	839098	FRONT SHIELD PLATE	1
11	839099	MOTOR PIVOT BAR	1
12	823865	MOTOR MOUNT	1
13	823864	MOTOR TAKE - UP	1
14	839101	TAKE - UP LIFT	1
15	839102	TAKE - UP HOLDER	1
16	839103	MOTOR SUPPORT SHIM	2
17	831732	PRESSURE RELIEF VENT	1
18	830203	PIPE NIPPLE 1/2" NPT x 2-1/2"	1
19	832040	PIPE TEE 1/2" NPT	1
20	831712	PIPE PLUG 1/2" NPT	1
21	831731	PIPE BUSHING 1/2" NPT - 1/8" NPT	1
22	837272	3 - GROOVE SHEAVE 3V - QD - 5" *(All Drives)	1
	838670	3 - GROOVE SHEAVE 3V - QD - 3.65" (Optional Slow Drive)	1
23	839117	3 - GROOVE SHEAVE 3V - QD - 10.6" *(All Drives)	1
24	836836	QD BUSHING SDS - 1-3/8" Bore (For use w/213T,215T,254,256 fr. motors)	1
	839118	QD BUSHING SH - QD - 1-3/8" Bore (Optional Slow Drive)	1
	839144	QD BUSHING SDS 1-1/8" Bore (For use w/254T,256T frame motors)	1
	838671	QD BUSHING SH - QD 1-1/8" Bore (Optional Slow Drive)	1
	836827	QD BUSHING SDS 1-5/8" Bore (For use w/254T,256T frame motors)	1
25	835143	QD BUSHING SK - 1-3/8" Bore *(All Drives)	1
26	839278	V-BELT 3V - 600 - Matched set of 3 (All 5 & 7½ Hp. Drives)	3
	838672	V-BELT 3V - 630 - Matched set of 3 (Optional for 15 Hp. Drives).	3
27	823881	STATIONARY MOUNTING FOOT	4
28	823868	WEIGH BAR MOUNT	2
29	839114	DRIVE SHIELD	1
30	831077	STRAIGHT KEY 5/16" x 5/16" x 2-1/4"	2
31	821215	CONVEYOR (OPTIONAL)	1
32	823885	CLUTCH SHIFTER	1
33	823884	ROCKER SHAFT	1
34	823883	LEVER LATCH	1
35	830843	EXTENSION SPRING	1
36	830833	ROLL PIN 1/4" x 1-3/4"	1



822767
1-1/2" x 8"
DISCHARGE CHUTE CYLINDER
* Parts contained in Cross and Carlson Cylinders
Repair Kit No. 822549



822765
1-1/2" x 18"
DISCHARGE DOOR CYLINDER
* Parts contained in Cross and Carlson Cylinders
Repair Kit No. 822549