



# OWNER'S MANUAL

## CLIPPERS 200 & 250 DRY FERTILIZER APPLICATORS

### OPERATION SERVICE



Serial Numbers 11000 & Later

- 540 RPM PTO BELT FAN DRIVE
- 540/1000 RPM PTO BELT FAN DRIVE
- HYDRAULIC FAN DRIVE
- GALOLINE ENGINE FAN DRIVE

FORM#: 160-0-4000 01/2018

**DEMPSTERS LLC. Beatrice, Nebraska 68310 (402) 806-4800**

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## GENERAL INFORMATION

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The Dempsters Clippers 200 and 250 Dry Fertilizer Spreader Applicators utilize the same general design and operational components. The basic units are intended for operation with a fan drive shaft speed of not more than 540 RPM such as a tractor or other unit with a 6-splined 540 RPM power takeoff. The 540/1000 RPM double-belt drive allows use of either PTO speed. The gasoline engine drive or Hydraulic drive models are for operating the spreader without the power takeoff.

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The SPREAD WIDTH is determined by the speed of the spreading fan (810 RPM) and weight of the product. Adjustable chutes regulate the SPREAD PATTERN distribution. The APPLICATION RATE is set by the 2-speed gearbox and the jack-operated metering gate. The ground-wheel-driven conveyor chain operates in direct relationship to ground travel. A live axle throw-out pin disengages drive for road travel. A guard bar encircles the spreader fan area.

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The Clipper 200 & 250 are equipped with a fully-enclosed oil bath 2-speed conveyor drive gear box which contains the throw-out clutch and dual rate drive assembly. An equalizer-mount half-rate drive is available on the 200 and 250 to reduce live axle revolutions and standard application rate by 50%. The rope-operated or hydraulic clutch throw-out provides application on/off control from the operators' seat.

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The unit is mounted on Timken wheel bearing equipped equalizer-type suspension with 12.5Lx15 or 16.5Lx16.1 tires for the Model 200 and 16.5L or 19LX16.1 tires for the Model 250. Two-wheel brakes are optional on both the 200 and 250.

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Fixed or Adjustable Wheel Track spacing capability is built in to the 200 and 250 spread frames. Both the 200 and 250 spreader fixed wheel track width are set at 7 inches. Adjustable track width for the model 200 and 250 spreader can be set at 60", 68", 70" and 78".

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The optional Tarpaulin is easily mounted on the support and attached to hopper-studs with rubber hold down straps fitted with "S" hooks. SRT-2 RollTop tarp option is also available.







# LIMITED WARRANTY

## Equipment - Fertilizer



**Dempsters 200 – 6 Ton  
(PTO Drive)**



**Dempsters 250 – 8 Ton  
(Hydraulic Drive)**

DEMPSTERS LLC,  
PO Box 516, 711 South 6<sup>th</sup> Street  
Beatrice, Nebraska 68310

### FERTILIZER EQUIPMENT LIMITED WARRANTY

ALL DEMPSTERS FERTILIZER PRODUCTS ARE WARRANTED FOR 18 MONTHS AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP AND TO PERFORM ACCORDING TO SPECIFICATIONS FURNISHED BY DEMPSTERS, WHEN PROPERLY OPERATED AND MAINTAINED AS SHOWN IN THE OWNERS MANUAL.

Should any part prove defective within 548 days from date of purchase, the part will be replaced F.O.B. our factory without charge, provided the part is returned to us, transportation charges prepaid. No allowance will be made for labor, transportation or other charges incurred in the replacement of the defective part. DEMPSTERS LLC will not be responsible for labor charges, loss or damage caused by a defective part. Component parts, equipment, accessories and items not manufactured by DEMPSTERS are warranted only to the extent of the original manufacturer's warranty. CONSEQUENTIAL DAMAGES IF ANY, ARE SPECIFICALLY EXCLUDED FROM THIS WARRANTY. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you.

Any implied warranties with the purchaser may have are limited to the warranty period. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

Contact DEMPTSERS LLC. at the address above if you have any questions about the coverage of this warranty or service under this warranty. This warranty gives you specific legal rights may also have other rights which vary from state to state.

04-18-16

# SAFETY INFORMATION

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## SAFETY

### TAKE NOTE

This safety alert symbol found throughout this manual is used to call your attention to instructions involving your personal safety and the safety of others. Failure to follow these instructions can result in injury or death.

### SIGNAL WORDS

Note the use of the signal words **DANGER**, **WARNING**, **CAUTION** and **NOTICE** with the safety messages. The appropriate signal word for each has been selected using the following guidelines:

**DANGER:** (Red) Indicates a hazardous situation which, if not avoided, will result in death or serious injury. This signal word is limited to the most extreme situations.

**WARNING:** (Orange) Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

**CAUTION:** (Yellow) Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used without the safety alert symbol as an alternative to "Notice".

**NOTICE:** (Blue) Indicates a situation that, if not avoided, could result in damage to the equipment or equipment to operate improperly. Notice is the preferred signal word to address Practices not related to personal injury.



If you have questions not answered in this manual or require additional copies or the manual is damaged, please contact:

**DEMPSTERS LLC.**, 29107 S Hwy 77, Beatrice, Nebraska 68310.

By Phone: (402) 806-4800 or By Fax: (402) 806-4801

By Email: [sales@dempstersllc.com](mailto:sales@dempstersllc.com)

# IMPORTANT NOTICE

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**FAMILIARIZE ALL INVOLVED PERSONNEL WITH APPLICATION EQUIPMENT!!**

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## **BEFORE FIELD OPERATION OF YOUR NEW DEMPSTERS EQUIPMENT THE FOLLOWING STEPS SHOULD BE TAKEN!!!**

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1. Visually inspect equipment for shipment or transit damage.
2. ALL personnel involved with the operation of this equipment should thoroughly study the Owner's Manual provided and operate the unit controls to become familiar with the primary design, safety features and related functions of all system components.
3. Perform any necessary final assembly.
4. Visually check for fluid or oil leaks.
5. Visually and physically check all oil and fluid levels, tire pressure, hardware security and safety equipment.
6. Physically test all control & operating functions to be certain of free and proper movement (speed, direction, rotation, pressure, application rates, etc.), as specified in the Owner's Manual included with the equipment.

**1. PINCHING**



**2. RIDING**



**- KEEP CLEAR FROM REAR OF MACHINE**

**3. HYDRAULIC PRESSURE**



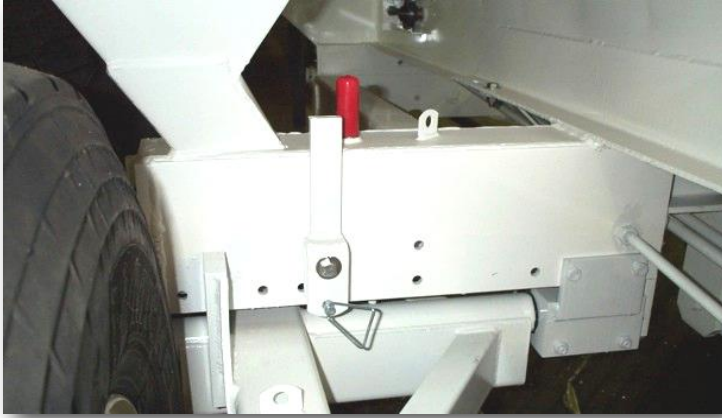
**4. STAY CLEAR WHEN RUNNING**



**- KEEP HANDS OUT !!!**

# SAFETY TIP - BACK STOP BLOCK

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STOP BLOCK IN STOWED POSITION



STOP BLOCK IN ENGAGED POSITION

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## SAFETY TIP - BACK STOP BLOCK

The safety tip - back stop block is designed to prevent “tip-back” of a partially loaded spreader. Upon pulling the lock pin, it can then swing to fill the gap between equalizer stop and frame. The spring loaded lock pin will automatically lock the stop block into the engaged position when rotated 90°.

If a partially loaded unit has tipped back and is resting on the stop block, enter the hopper from the front and move enough product forward to provide positive weight on the tongue jack. **ALWAYS** attach to a towing unit before releasing and stowing the stop block on a partially loaded unit.

Always stow stop block before raising the tongue with jack. To raise the tongue of an empty (or front-loaded) unit, place the stop block in stowed position before raising jack to prevent transferring weight to both the tongue jack and rear tires.

### TO ENGAGE SAFETY TIP - BACK STOP BLOCK

1. Pull the Lock pin on the stop block.
2. Swing stop block to fill gap between equalizer stop and frame.
3. Release lock pin to secure stop block in position.

### TO STOW SAFETY TIP - BACK STOP BLOCK FOR TRAVEL

4. If no weight is on the stop block, simply pull lock pin and swing stop block to stowed position.
5. If weighted, move product to the front of the unit to remove weight from the stop block.



# HYDRAULIC DRIVE FAN / CONVEYOR THROWOUT

Clippers 200 & 250



The hydraulic-powered spreader fan models are equipped with the control system shown above, left. It is designed for use with tractors or operating vehicles with either OPEN or CLOSED center hydraulic systems capable of producing a minimum of 10.5 GPM (gallons per minute) or 40 liters per minute delivery. The System is factory-set to operate the spreading fan at the optimum 810 RPM spreading speed. No further flow adjustment is required.

The Hydraulic Throw-out feature, shown at right above, may be controlled by tractor hydraulic system to start and stop the conveyor drive.

## **NOTICE:**

If hydraulic drive fan feature is installed, before moving, activate hydraulic system to bring fan up to speed. If hydraulic conveyor throw-out feature is installed, before moving, fully retract clutch cylinder to engage gearbox. Then proceed forward.

## **USE THE FOLLOWING INSTRUCTIONS FOR OPEN OR CLOSED CENTER HYDRUALIC HOSE HOOKUP**

### **• OPEN CENTER OPERATION**

Attach pressure hose to INBOARD coupler as noted by decal.

### **• CLOSED CENTER OPERATION**

Attach pressure hose to OUTBOARD coupler (stamped "CC") as noted by decal.

### **• NOTICE**

Return hose is always attached to check valve .

Secure hoses in support to prevent contact with tractor tires.

ALWAYS replace dust cap on coupler not used.



This system provides hydraulic motor power for the spreading fan on this Dempsters Dry Fertilizer Applicator. It is designed for efficient operation and control of the fan speed, from a tractor or other hydraulic system equipped towing unit. The system incorporates bypass relief to allow spreading fan to run-down when system is deactivated and a check valve to prevent reverse rotation in the event the control lever is moved opposite required direction.

Swivel connectors are provided at the forward end of the short motor hoses for convenient removal to allow on-the-bench servicing.



# FINAL ASSEMBLY

To facilitate the most efficient, economical and safest delivery of your DEMPSTERS DRY SPREADER and components, the following items are packaged in separate cartons or securely stored during shipping.

Complete the steps described in this section to prepare your unit for field operation. All are completed with minimum tool requirements.

**SPREADER FAN & CHUTES** - Packed in a separate carton for protection.

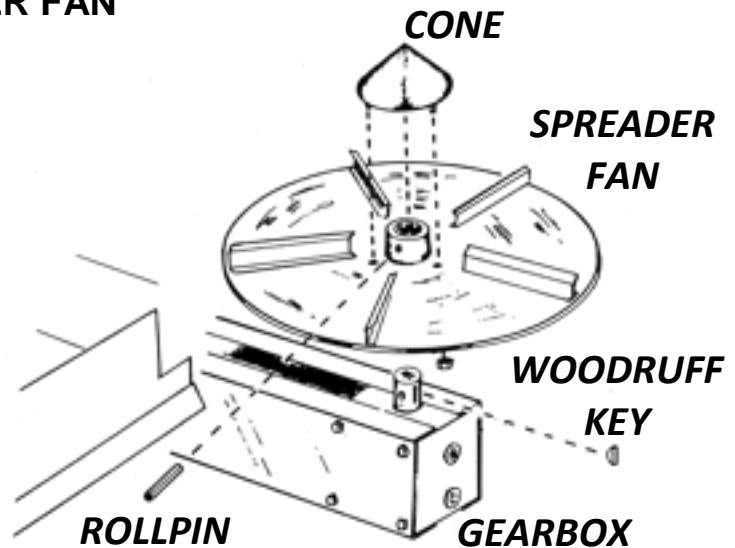
**PTO SHAFT** - Banded to a board and stored in the hopper.

**SPREADER FAN GUARD** - This unit is attached to hopper in storage position.

**FITTED TARPAULIN** - This item is shipped as a separate package.

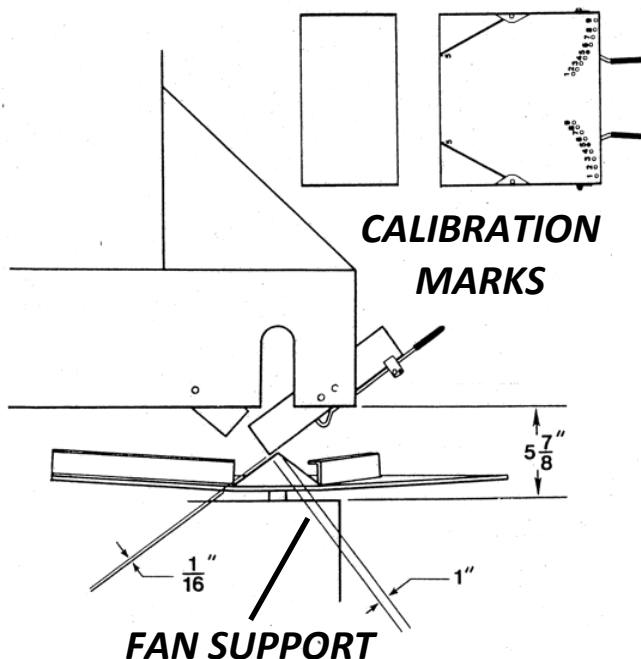
## SPREADER FAN

1. Remove the cone from the spreader fan.
2. PTO FAN DRIVE: Clean sealer from fan gearbox shaft. Install Woodruff key and seat fully.  
HYDRAULIC FAN DRIVE: Install hydraulic motor key and seat fully.
3. PTO FAN DRIVE: Install fan and drive rollpin through the hub and shaft to secure.  
HYDRAULIC FAN DRIVE: Install fan and secure both set screws to motor shaft.
4. Replace cone on fan securely. Be sure it is down against disc all around.



PTO FAN DRIVE SHOWN ►

## FRONT & REAR CHUTES



1. Measure from hopper edge to fan support. This must be 5-7/8". If necessary, loosen bolts at main support and adjust rails to achieve this spacing. Retighten all bolts.
2. Install front chute first - rear chute next. Use flat-washers at slotted holes. Leave nuts loose for chute adjustment.
3. ADJUST REAR CHUTE FIRST – Position lower edge chute approximately 1" below tip of cone and parallel to cone surface at 1/16" spacing. Tighten hardware snugly.
4. ADJUST FRONT CHUTE NEXT - Align this chute with a point midway between lower edge of rear chute and end of the fan vanes. Tighten hardware snugly.
5. Check tab registration of rear chute. Reset lock-bolt to FREE position (lower), if necessary. Move levers to holes 5-5. Tabs MUST ALIGN with calibration marks (5). If they do not, move tab to align with mark.
6. Operations section will further describe adjustment of the rear chute.



# FINAL ASSEMBLY

## PTO SHAFT

1. Clean approximately 3" of end of shaft. Install Woodruff key fully into seat.
2. Be sure both holes in end of PTO are aligned. Slide PTO on shaft, align all holes and attach with 5/16" x 2-1/2" hex head screw.
3. Turn PTO slightly, if necessary, to raise PTO into stowage yoke. Secure with 3/8" x 3-1/4" lockpin.

**NEVER ATTEMPT TO TURN SPREADER FAN WITH PTO SHAFT STORED IN SUPPORT!!**



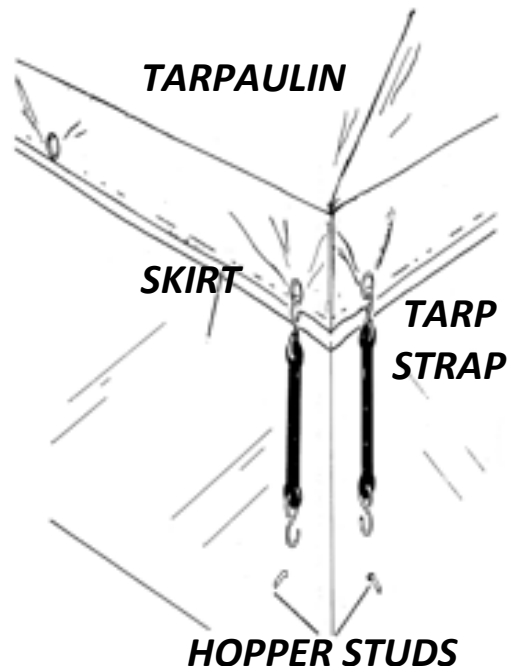
## SPREADER FAN GUARD



1. Remove the stored bolts and loosen the bolts holding the guard as much as possible.
2. Spread guard against the bolts to prevent scratching hopper and lower into position. Align all holes.
3. Install the bolts in open holes.
4. Tighten all hardware securely.

## FITTED TARPAULIN

1. Install the tarpaulin with skirt inside. Pull skirt down to protect hopper finish.
2. Attach the "S" hooks to tarp straps and hook one into each eyelet.
3. Close these three loops on each strap completely for security.
4. Attach each lower hook to individual hopper stud all the way around.



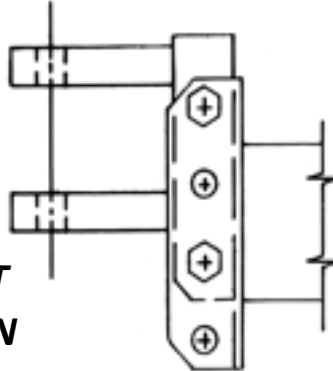
# OPERATION

## HITCH POSITION

Attach the reversible hitch clevis to tongue bracket as designated below. For tire sizes not shown, attach the clevis to operate conveyor chain as level as possible.

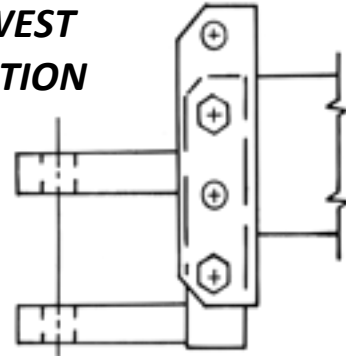
**CLIPPER 200 –**  
**11" X 15" Tires**  
**12.5L X 15" Tires**

**HIGHEST  
POSITION**



**CLIPPER 200 – 16.5L X 15" Tires**  
**9.00 x 20" Tires**  
**CLIPPER 250 – 16.5L X 16.1 Tires**  
**19L x 16.1 Tires**  
**9.00 x 20" Tires**

**LOWEST  
POSITION**



**WARNING** TORQUE ATTACHING BOLTS TO 90FT/LBS!!!



## LIVE AXLE THROWOUT PINS LEFT REAR ILLUSTRATED

### ENGAGE:

Pull & turn to insert short rollpin into DEEPEST notch.

### DISENGAGE:

Pull and turn to insert short rollpin into SHALLOW notch.

USE 1" X 5" SAFETY-TYPE HITCH PIN !!!

SECURE SAFETY CHAINS TO A SUBSTANTIAL VEHICLE CHASSIS MEMBER, OTHER THAN HITCH, FOR ROAD TRAVEL OR OPERATION OTHER THAN SPREADING OPERATIONS!!!

TORQUE WHEEL BOLTS TO 90 FT./LBS!!!

CHECK OIL LEVEL IN CONVEYOR AND FAN DRIVE GEARBOXES TO BE SURE THEY ARE LUBED!!!

LUBRICATE ALL GREASE FITTINGS – SEE THE MAINTENANCE CHART FOR LOCATION!!!

DOUBLE CHECK **BEFORE** OPERATION

## **WARNING**

- TIGHTEN WHEEL BOLTS BEFORE EACH MOVE WHEN UNIT IS NEW
- TORQUE TO RECOMMENDATION IN MANUAL
- CHECK WHEEL BOLTS REGULARLY THEREAFTER
- CHECK TIRE INFLATION PRESSURE REGULARLY SEE MANUAL FOR RECOMMENDED PRESSURE
- ADJUST WHEEL BEARINGS AFTER 600 MILES

185 3 0079 DECAL



## USING THE TONGUE JACK

Pull lock pin and rotate jack 90° into support or stowage position. Shake jack slightly to be sure pin is fully seated. Turn the handle CLOCKWISE to RAISE tongue - counter clockwise to lower. Use large surfaced block or plate under jack foot for soft or sandy soil. Block wheels before detaching the unit from vehicle or tractor

## ATTACHING THE TOWING UNIT - ROAD TRAVEL

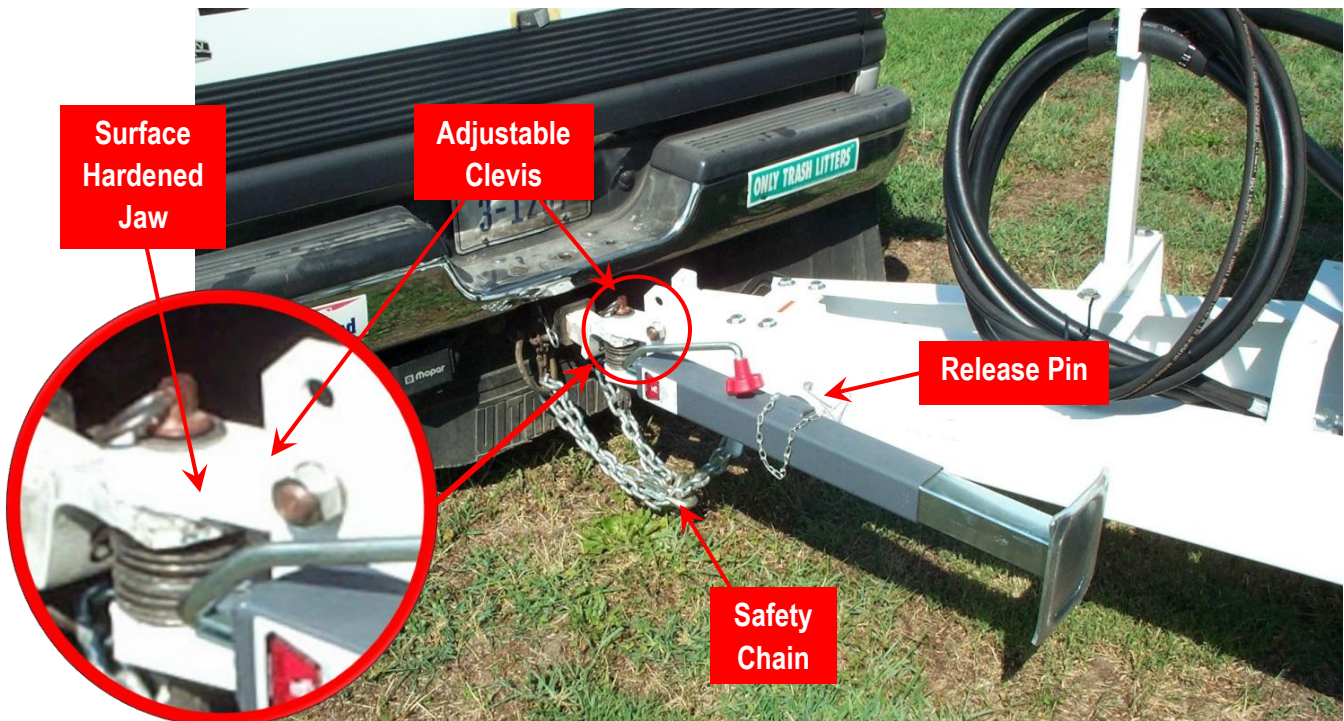
A 1" X 5" hitch pin, with safety latch, is required. ALWAYS USE this type (or equivalent) hitch pin for attachment. BE SURE safety latch is in retaining position. Secure safety chains to substantial structural member, separate from hitch. Allow sufficient slack for unrestricted turning. Secure actuator unit breakaway chain to towing unit. This will set the brakes on the applicator in the event of total release from the vehicle.

### NOTICE

Disengage conveyor drive (LR wheel) and fan drive on "G" models (RR wheel) before pulling at road speed. Be sure PTO shaft is safely stowed in bracket.

### CAUTION

DO NOT EXCEED SPEED RECOMMENDATIONS BY TIRE MANUFACTURER DURING ROAD TRAVEL



## PRECAUTIONS WHEN PARKING OR STORING YOUR UNIT

Park on level ground, if possible. If NOT, block the wheel securely.

Be sure there is not side load on the jack before pulling the hitch pin.

Make certain, if unit is not empty, there is not too much tail weight – material in rear of hopper.

Move the product forward before unhitching unit.

**ALWAYS LOWER SAFETY TIP – BACK STOP BLOCK INTO POSITION**



## PTO SAFETY SHIELD

This shield is provided to protect the PTO shaft rear U-joint area during field operation. When the shaft is removed and raised, the flexible cover will then raise open to allow the shaft to be stowed.

---

## ATTACH THE PTO SHAFT

### ***540 RPM PTO***

The telescoping power takeoff shaft is for 6-spline, 1-3/8" OD PTO shaft. Slip protections is provided by 540 RPM belt drive. Covered with orange plastic outer safety shield.

Remove stowage pin and lower shaft into operating position. Pull to slide retaining collar, align splines, slide yoke onto shaft until retaining collar seats. Replace stowage pin.

---

### ***540/1000 RPM PTO***

This telescoping power takeoff set includes three sections - Rear half, one 6-spline 1-3/8" front half for 540 RPM shafts - One 21-spline 1-3/8" front half for 1000 RPM shaft. Covered with orange plastic outer safety shield. Slip protection is provided by 540/1000 RPM belt drive.

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## STOW THE PTO SHAFT

Pull to slide retaining collar and slide yoke off PTO shaft. Remove the stowage pin. Raise shaft until it contacts stowage bracket. Replace pin.

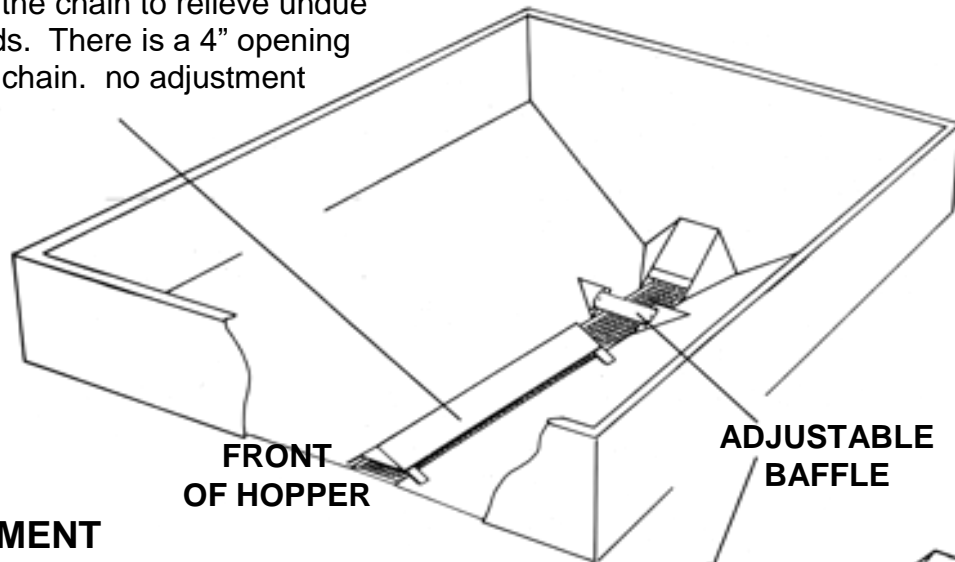
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## LOADING PRODUCT INTO HOPPER

1. Attached unit to towing vehicle before loading the product.
2. Load evenly, or slightly toward the front of the hopper.
3. **DO NOT OVERLOAD.**

## CONVEYOR HOOD

The inverted-V conveyor hood is fixed directly above the front 2/3 of the chain to relieve undue starting/operating loads. There is a 4" opening under each side to fill chain. no adjustment is required.



## BAFFLE ADJUSTMENT

The cut-off baffle located inside the hopper is Factory set @ 2-1/8" above the conveyor chain. For best unloading during field spreading, adjust the baffle as indicated in the chart below to match the gate jack index number being used. See illustration.

GATE INDEX NUMBER	VERTICAL HEIGHT OF BAFFLE ABOVE CHAIN
2-3	1-1/8"
3-4	1-5/8"
4-5	2-1/8" (factory setting)
5-6	2-5/8"
6-7	3-1/8"

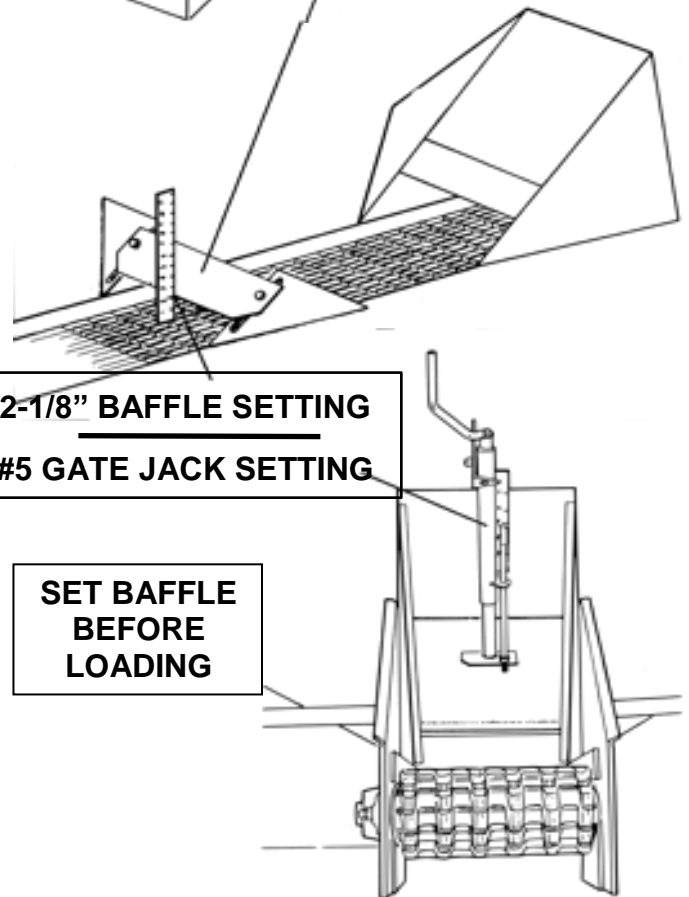
## NOTICE

IF hopper unloads Rear End First (tongue heavy) or starves gate - \*\*\* **RAISE BAFFLE** \*\*\*

IF hopper unloads Front End First (rear heavy) - \*\*\* **LOWER BAFFLE** \*\*\*

**2-1/8" BAFFLE SETTING**  
**#5 GATE JACK SETTING**

**SET BAFFLE BEFORE LOADING**



IF UNIT IS UNHITCHED WITH A PARTIAL LOAD IN THE REAR HEAVY CONDITION, YOU MUST ALWAYS ENGAGE THE SAFETY TIP-BACK STOP BLOCK AT THE LEFT REAR OF THE SPREADER FRAME TO PREVENT REARING OR TIP-BACK AND POSSIBLE DAMAGE OR PERSONAL INJURY!!!

## ADJUSTING THE REAR CHUTE

The Clipper 200 & 250 are equipped with the new indexed, adjustable rear chute to control spread pattern distribution throughout high to low range application rates and for varying characteristics of fertilizer materials.

### NOTICE

**THE LEVELERS MUST ALWAYS BE IN MATCHING HOLES  
... 1-1, 2-2, 3-3, ETC.**

As a general rule, the best settings will move towards **LOWER** numbers as the rate **INCREASES** - towards **HIGHER** numbers as the rate **DECREASES** - to properly direct product into the fan vanes. For maximum accuracy, consistency, and efficiency; perform a spread pattern test, as described at the end of this manual for your most commonly used products. Record the settings determined for later use as various materials are applied. If desired, levers can be locked in any paired positions by inserting lock bolt through **UPPER** holes in the chute tabs. Lock bolt in **LOWER** holes allows lever adjustment.

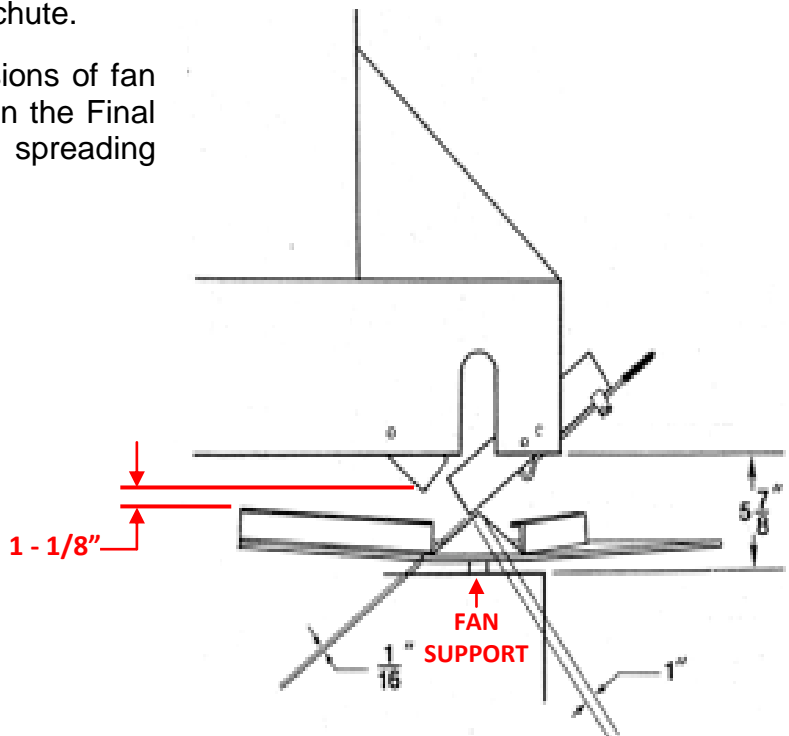
The Spreading Fan rotating speed **MUST BE MAINTAINED** at 810 RPM for all drives. Mark or record tractor engine RPM or travel speeds required for ground drive units to produce this optimum speed. **ALWAYS** remove spreader fan when checking the gearbox shaft output speed with a hand tachometer. Use reverse procedure as shown in Final Assembly on lead page for removal and replacement.

The spread pattern adjustment decal, shown on the next page supplies the basic adjustment procedure for setting the rear chute to provide the best spread pattern. This is located on the rear of the hopper. If a replacement is required, order by P/N number shown.

Periodically check tab calibration. They must align with the (5) marks on the lower edge of the chute, when the handles are indexed at #5 holes. If they do not, move tab until it aligns. Cycle handles to either extreme and back to #5 to double check calibration. If alignment will not hold, check for damage and repair or replace chute.

Also, periodically check location dimensions of fan support, fan & rear chute as described in the Final Assembly instructions to maintain spreading accuracy.

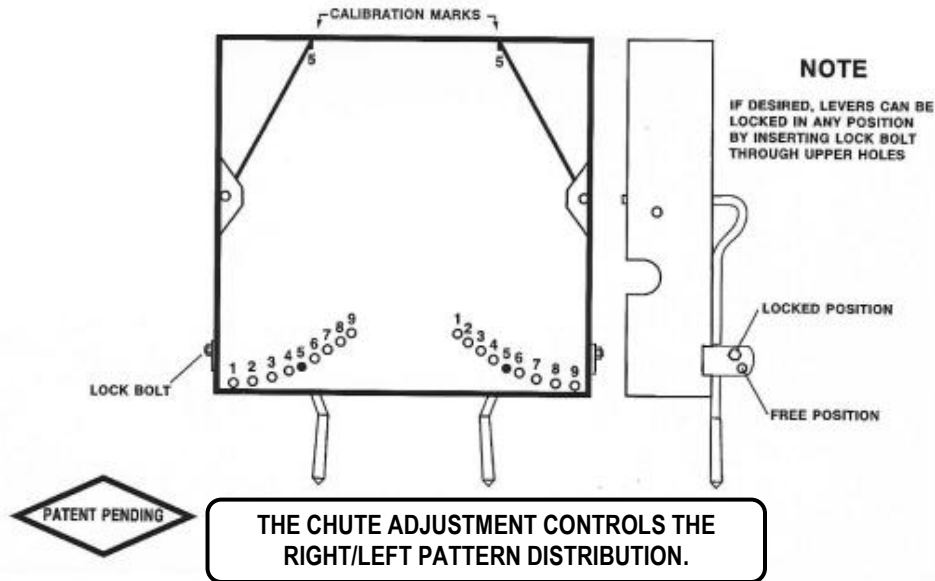
**DO NOT USE  
SPREADER FAN,  
CHUTE OR  
FAN GUARD  
AS A STEP !!!**





## SPREAD PATTERN ADJUSTMENT

ADJUSTING LEVERS **MUST BE** IN MATCHING HOLES – 1-1, 2-2, 3-3, ETC.  
TO CHECK THE CHUTE FOR PROPER ALIGNMENT, SET LEVERS IN HOLE SET 5-5.  
TABS **MUST** ALIGN WITH CALIBRATION MARKS 5-5.



1. **CAUTION:** SPREADING CHARACTERISTICS WILL VARY WITH DIFFERENT TYPES OF FERTILIZER MATERIALS AT VARIOUS RATES – EVEN IDENTICAL MATERIALS OBTAINED FROM DIFFERENT PRODUCERS CAN PRODUCE WIDE VARIATIONS IN SPREAD PATTERNS. THEREFORE; FOR OPTIMUM SPREAD PATTERN RESULTS, **WE RECOMMEND** YOU TEST AND ADJUST THIS MACHINE FOR THE TYPE OF MATERIAL AND RATES YOU WILL BE USING. AS INDICATED IN THESE INSTRUCTIONS
2. WITH ANY GIVEN MATERIAL, THE BEST SETTING WILL MOVE TOWARD **LOWER** NUMBERS AS THE RATE PER ACRE **INCREASES** AND VICE VERSA.
3. WITH **PLOW DOWN** BLENDS, USE THE FOLLOWING SUGGESTED SETTINGS **AS A STARTING POINT**, AND CORRECT AS NECESSARY:

150 to 300 LBS/ACRE – SETTING “6”  
300 to 450 LBS/ACRE – SETTING “5”  
450 to 600 LBS/ACRE – SETTING “4”  
(SEE INSTRUCTIONS IN ILLUSTRATIONS BELOW)

4. WITH STRAIGHT UREA, USE THE FOLLOWING SUGGESTED SETTINGS **AS A STARTING POINT**, AND CORRECT AS NECESSARY:  
40 to 80 LBS/ACRE – SETTING “6”  
80 to 100 LBS/ACRE – SETTING “5”  
100 to 220 LBS/ACRE – SETTING “4”  
(SEE INSTRUCTIONS IN ILLUSTRATIONS BELOW)

5. **IMPORTANT:**

- (A) **DRIVE ON 60 FT. CENTERS**
- (B) **MAINTAIN 810 SPINNER RPMI DOUBLE CHECK . . .**

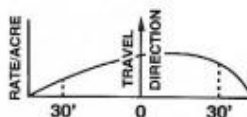
CHECK TRACTOR THROTTLE AND PTO PULLEYS (**PTO UNITS**),  
FORWARD TRAVEL SPEED (**GROUND-DRIVEN UNITS**) OR  
ENGINE THROTTLE SETTING (**ENGINE-DRIVEN UNITS**)  
SO AS TO MAINTAIN CORRECT SPINNER RPM.

PATTERN HEAVY  
LEFT OF CENTERLINE



IF PATTERN IS HEAVY ON THE  
LEFT SIDE, MOVE CHUTE  
ADJUSTMENT LEVERS TO A  
HIGHER SET OF NUMBERS.

PATTERN HEAVY  
RIGHT OF CENTERLINE



IF PATTERN IS HEAVY ON THE  
RIGHT SIDE, MOVE CHUTE  
ADJUSTMENT LEVERS TO A  
LOWER SET OF NUMBERS.

Replace if damaged or defaced – P/N 185 3 0130



## BASIC OPERATION CHART

This chart is located near the metering gate and provides the basic operation sequence, plus maintenance information. For detailed procedures, study the following pages carefully!



## DRY FERTILIZER APPLICATOR

### OPERATING INSTRUCTIONS

#### VEHICLE ATTACHMENT

1. POSITION VEHICLE AND TONGUE.
2. INSERT HITCH PIN.
3. CAUTION: CONNECT SAFETY CHAINS.
4. LOWER TONGUE WITH JACK, STOW JACK.

#### ROAD TRAVEL

1. DISENGAGE CONVEYOR DRIVE (LEFT REAR WHEEL).
2. DISENGAGE SPINNER DRIVE, GROUND DRIVE SPINNER UNITS (RIGHT REAR WHEEL).
3. DETACH AND STOW PTO SHAFT OR DISENGAGE PTO.
4. CAUTION: DO NOT EXCEED SPEED RECOMMENDED BY TIRE MANUFACTURER.

#### LOADING

1. CAUTION: CLOSE BAFFLE BEFORE LOADING.
2. DO NOT OVERLOAD UNIT.

#### SPREADING

1. USE RATE CHART TO FIND GATE OPENING.
2. USE GEARBOX RATE WHICH GIVES LARGEST GATE OPENING.
3. SET GEARBOX AT REQUIRED RATE.
4. SET GATE TO CORRECT OPENING.
5. ENGAGE CONVEYOR DRIVE (LEFT REAR WHEEL).
6. ENGAGE SPINNER DRIVE, GROUND DRIVE SPINNER UNITS (RIGHT REAR WHEEL).
7. ATTACH PTO. CHECK THAT PTO SPEED SET-UP IS CORRECT FOR 540/1000 RPM UNITS.
8. ATTACH CLUTCH ROPE AT OPERATOR'S POSITION.
9. FROM THE OPERATOR'S POSITION, ENGAGE PTO SLOWLY.
10. TO START CONVEYOR, PULL CLUTCH ROPE.
11. TO STOP CONVEYOR, PULL CLUTCH ROPE AGAIN.
12. CAUTION: DO NOT ALLOW ANYONE AROUND REAR OF THE UNIT WHILE THE PTO IS ENGAGED.
13. WHEN REAR OF UNIT IS EMPTY, OPEN BAFFLE TO EMPTY FRONT HALF.

### MAINTENANCE INSTRUCTIONS

#### GREASE DAILY

1. PTO SLIDE (MT).
2. PTO U-JOINTS (MT).
3. SPINNER SHAFT U-JOINTS (MT).
4. SPINNER SHAFT BEARINGS (MT).
5. TELESOPING SHAFT SHEAR PIN (MT).
6. TELESOPING SHAFT U-JOINTS (MT).
7. TELESOPING SHAFT SLIDE (MT).
8. GEARBOX CONNECTOR SHAFT U-JOINTS (860 ONLY) (MT).
9. BAFFLE SHAFT (MT).
10. BRAKE ACTUATOR (MT).
11. EQUALIZER PIVOTS (EP MOLY).
12. CONVEYOR GEARBOX SHIFTER (EP MOLY).

#### DAILY SERVICE

1. CLEAR AFTER USE WITH HIGH PRESSURE WATER.
2. CHECK TIRE PRESSURE & CONDITION.
3. CHECK HITCH PIN CONDITION.
4. CHECK CONVEYOR CHAIN TENSION.
5. CHECK WHEEL BOLTS (TORQUE 90 FT/LBS).

#### SPREADING

1. LIVE AXLE THROWOUT-PIN (MT).
2. CONVEYOR TAKE-UP BEARINGS (MT).
3. REAR CONVEYOR SHAFT BEARINGS (MT).
4. GROUND DRIVE IDLER BRACKET (MT).
5. PTO SLIP CLUTCH (MT).
6. GATE JACK (EP MOLY).

#### WEEKLY SERVICE

1. CHECK SPINNER GEARBOXES LUBE LEVEL (MP 140).
2. CHECK CONVEYOR GEARBOXES LUBE LEVEL (MP 140).
3. CHECK BRAKE MASTER CYLINDER LEVEL.
4. CHECK BRAKE ADJUSTMENT.

#### LUBRICANTS

MT - TEXACO MOLYTEX #2 OR EQUAL.  
EP MOLY - SINCLAIR LITHOLENE EP MOLY OR EQUAL.  
MP 140 - AMERICAN MULTI-PURPOSE GEAR LUBE #140 OR EQUAL.

Form 2286 A

Most tractors in the field today have very effective PTO brakes. A rotating spreader fan acts as a flywheel, keeping the driveline in rotation. Sudden or inadvertent application of the PTO brake will impart extreme, damaging loads to the drivetrain, especially the universal joints and gearbox.

## NOTICE

ALWAYS START & STOP THE SPREADING FAN GRADUALLY!!

**DO NOT APPLY PTO BRAKE UNIT SPREADING FAN IS STOPPED !!!**

**PRACTICE SAFETY FIRST – ALWAYS !**

## TIRE SIZE:

11 X 15

12.5 X 15

## 2-SPEED GEAR BOX RATE CHARTS



RATE CHART (Pounds Per Acre - 60' Swath)

GATE INCHES OPEN	Low Rate								High Rate							
	POUNDS PER CUBIC FOOT								POUNDS PER CUBIC FOOT							
	45	50	55	60	65	70	75	80	45	50	55	60	65	70	75	80
7"	230	256	281	307	332	358	383	409	576	640	704	764	828	890	960	1024
6 1/2"	214	238	261	285	309	333	357	380	534	580	640	700	760	820	884	944
6"	200	222	244	267	288	311	333	356	500	556	612	664	720	776	836	890
5 1/2"	185	206	226	247	267	288	308	329	462	512	564	614	666	718	774	826
5"	170	189	208	227	246	265	283	302	426	472	520	566	614	662	714	762
4 1/2"	155	172	189	207	224	241	258	276	388	432	478	520	564	608	656	700
4"	141	157	172	188	204	219	235	251	352	380	430	468	508	548	590	630
3 1/2"	125	139	153	166	181	194	208	222	316	346	380	414	448	484	522	568
3"	111	123	135	148	166	173	185	197	278	308	340	370	395	427	460	501
2 1/2"	97	107	119	129	140	151	161	172	241	267	295	321	342	370	399	434
2"	82	91	100	109	118	128	136	146	204	226	249	271	290	313	337	367

160-3-5460

FORM 2463

WEIGHTS SHOWN ON CHART GIVE APPROXIMATE POUNDS PER ACRE AT STANDARD 60 FT SWATH. HEAVY MATERIALS WILL SPREAD MORE THAN 60 FT. LIGHT MATERIALS WILL SPREAD LESS THAN 60 FT.

\* TO SET RATES FOR SWATH WIDTH OTHER THAN 60 FT: **MULTIPLY** DESIRED RATE BY NEW SWATH AND **DIVIDE** BY 60. LOCATE CALCULATED RATE IN CHART AND USE GATE SETTING INDICATED

TO SET GATE INDICATOR, CLOSE GATE TO 7/8" ABOVE CONVEYOR, SET POINTER ON NO.2 AND TIGHTEN LOCKNUTS.

# KNOW YOUR PRODUCT WEIGHT!

## TIRE SIZE:

19L X 16.1

16.5L X 16.1

9.00 X 20

385 X 22.5

RATE CHART (Pounds Per Acre - 60' Swath)

GATE INCHES OPEN	Low Rate								High Rate							
	POUNDS PER CUBIC FOOT								POUNDS PER CUBIC FOOT							
	45	50	55	60	65	70	75	80	45	50	55	60	65	70	75	80
7"	173	192	211	230	250	269	288	307	432	480	528	574	620	670	720	768
6 1/2"	160	178	196	213	231	249	267	284	400	435	480	525	570	615	663	708
5 1/2"	139	154	170	185	200	216	232	247	347	384	423	460	500	540	580	620
5"	128	142	156	170	185	199	213	228	320	354	390	424	460	497	535	572
4 1/2"	117	130	143	156	169	182	194	208	291	324	357	390	423	456	492	525
4"	105	117	128	140	152	163	175	187	264	293	322	351	381	411	442	472
3 1/2"	94	104	115	125	136	146	157	167	234	260	285	310	335	363	392	419
3"	84	93	103	112	121	130	140	149	209	231	255	278	300	324	350	372
2 1/2"	73	81	89	97	105	113	122	130	181	200	221	241	260	281	303	322
2"	62	69	76	82	90	96	103	110	153	169	187	204	220	237	256	273

160-3-5461

(SAME INSTRUCTIONS AS ABOVE)

FORM 2464

## 2 – SPEED GEARBOX

The standard Clippers 200 & 250 are equipped with a 2-speed conveyor chain drive gearbox. This gearbox provides a wide range of rate applications.

The high / low range is operated by an over-centering spring linkage.



---

## OPERATION – SETTING THE RANGE

### FRONT – Clutch Lever

1. Place clutch throw out lever in released (back) position. Extend Hydraulic Cylinder if equipped with Hydraulic Conveyor throwout.
2. Loosen locknut and turnbuckle slightly, as needed.
3. Slide spring to high indent for high rate application, low indent for low rate application.
4. Tighten turnbuckle until slack is JUST removed. Set locknut.

---

### CORRECT SPRING BALANCE -Clutch Lever

1. The two matching return springs must have only MINIMUM balance tension. Too much will tend to partially disengage clutch during operation and cause clutch “ratcheting”.
2. The connecting rod turnbuckle must be tightened ONLY enough to remove all slack. Too much will over- tension pull-in spring and not allow the clutch to fully disengage into neutral.

# OPERATION

## SETTING THE RATE

1. Check the jack indicator, as shown on the rate chart. Be sure the locknuts are set for 7/8" space between gate edge and conveyor chain with jack on #2 setting. Gate/chain contact will lock the chain and cause damage.
2. Locate application rate line in the lbs/cu. ft column of the Low or High rate groups to give widest gate opening. Determine the gate setting from the extreme left hand column.
3. Open metering gate until pointer aligns with this number on the jack indicator. Always set to index number while cranking the jack down to remove slack.
4. Slide gearbox engagement spring to appropriate (L or H) end of clutch lever for low or high rate.
5. Engage left rear live axle pin (deep notch) on all models - also right rear pin on "G" models.
6. Always start PTO or forward travel of "G" models, GRADUALLY to allow easy fan speed buildup.
7. Since the conveyor chain is controlled by the ground travel of the applicator, the rate per acre will be constant, regardless of ground speed.

### NOTICE

**ALWAYS** disengage live axle pin(s) for road travel!

## DOUBLE CHECK GATE/CHAIN CLEARANCE

Periodically check the clearance between the lower gate edge and the chain with the gate closed. If it is less than the 7/8", as noted; check for floor build-up under the chain. If this is clear and no mechanical damage is present, reset the locknuts for proper spacing

## "RULE OF THUMB"

APPLICATION RATE CHECK: Catch ALL the material delivered through the chutes in 50' of ground travel. Weigh and multiply by 14.52 to approximate the rate in pounds per acre on a 60' swath.

## VARIABLES

Operation in soft ground or low tires pressure will cause higher application rates.

Swath widths must be driven accurately.

Operation in irregular fields will normally increase overall application rate.

## SWATH WIDTHS OTHER THAN 60'

The rate chart is calculated for a 60' wide spreading swath. To adjust for the changing spreading widths due to the varying densities, multiply the desired rate by the new swath and divide by 60. Find the calculated rate on the chart and set gate.

Example:

16.5 or 19L X 16.1 Tires Low Rate  
170#/Acre - 60# Material - 50' Swath  
 $170 \times 50 / 60 = 142 \text{ Lbs./Acre}$   
142 in 60# column = 4" Gate Set.

## ACCURACY

### KNOW YOUR PRODUCT WEIGHT

This is very important for accurate rates. Many custom applicators check each load, especially blended materials. A 4 or 5 pound variation can result in an 8 - 12% loss of accuracy. Ask about the inexpensive Dempsters Product Meter (904 06550).

## PHOSPHATE WARNING

NOTE: Fertilizer with a high phosphate content, such as 0-20-0 and 0-46-0, under certain conditions, have a tendency to build up on the floor under the chain. Since the effective metering area is that between the chain and the gate, any decrease will affect the metering accuracy. If this condition goes unnoticed, it can raise the chain into the gate, where locking will occur with resulting drive train damage. If this should occur, the company cannot assume liability under the warranty.



The basis of a good maintenance program is regular and thorough lubrication, cleaning and painting. Use only high quality lubricants and other materials as specified in this manual, or the equal thereof as recommended by your local supplier and his particular brand of product.

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## CORROSION PREVENTITIVE SPRAY

This Spray has proven most effective in resistance to weather and fertilizer corrosion.

Spray on unpainted exposed or drive mating areas during assembly, after a repair has been made or a new part installed. This will prevent seizure of parts, ease disassembly and assure functioning of such areas as the live axle / telescoping shaft shear bolt connection, which protects the conveyor chain drivetrain.

Apply to such areas as:

1. The ends of the fan driveshaft where the PTO shaft and U-joint are attached.
2. The gearbox shafts where the fan, U-joints or telescoping shaft are attached.
3. The live axle shear area where the telescoping shaft is connected.
4. The conveyor gearbox shaft / telescoping shaft connection
5. The conveyor gearbox / driveshaft/conveyor sprocket mating area.
6. Any shaft / bearing mating area.

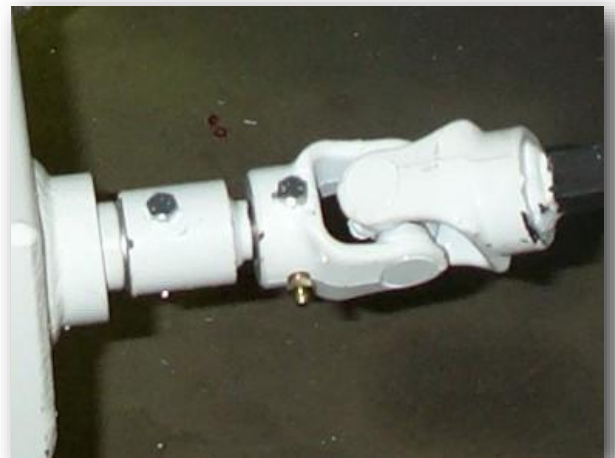
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## SHEAR AREA

### Telescoping Driveshaft – Conveyor Drive

---

This shaft is attached to the live axle with a 5/16" x 2-1/4" Gr 5 bolt. The axle / shaft connection is the protective shear area. **THIS MUST NOT BE ALLOWED TO SEIZE UP DUE TO RUST OR CORROSION.** A grease fitting is provided for lubrication. IN ADDITION, periodically remove this bolt, turn the shaft by hand to be sure this area is free. Relube and secure with Gr 5 bolt.





# HALF RATE DRIVE

## OPERATION



1. Attach the telescoping shaft to the lower output shaft for original application rates.
2. Transfer it to the upper shaft for one-half rate application. Set the gate at the index number shown for double the quantity desired.

### NOTICE

**DO NOT** double the index number as this is not proportional – **ALWAYS** determine the setting by reading across from the quantity. See example at right.

### LUBRICATION

Put approximately 1 (one) pint of 140 gear lubricant in housing – to plug level

### APPLICATION –

16.5L or 19L Tires 82 lbs / Acre of 60# material

USE RATE CHART – LOW RATE SIDE

STANDARD DRIVE LOWER SHAFT

**Read chart directly**

**Line indicates 2" gate setting**

REDUCTION DRIVE – UPPER SHAFT

Application (82) x2 – 164 lbs.

164 – SHOWN between 4-1/2 & 5

4-1/2 = 156 setting

5 = 170 setting

SO 4-3/4" gate setting is indicated

(To illustrate **NOTICE** at left)

Original gate setting (2") x 2 = 4

4" gate setting would deliver

140 lbs / Acre of product

### NOTICE

**-- KEEP SHAFT ENDS CLEAN & PROTECTED --**  
**ALWAYS SPRAY LIVE AXLE & REDUCTION SHAFT ENDS**  
**WITH FLUID FILM TO PRECENT CORROSION / RUST.**

**THIS WILL MAINTAIN EFFICIENT TELESCOPING SHAFT CHANGE**  
**AND WILL KEEP THE PROTECTIVE SHEAR FEATURE FREE TO OPERATE**

**DEMPSTERS LLC. Beatrice, Nebraska 68310 (402) 806-4800**

www.dempstersllc.com \* sales@ dempsters.com

# 540 and 540/1000 BELT DRIVE

## OPERATION

The Spinner belt drive is designed to allow safety protection slip for the PTO powertrain to the spinner fan. High Torque that can occur from sudden starts and stops of the PTO drive is reduced. A pair of heavy duty 3V belts are used.

A shield 6-spline PTO shaft is supplied for 540 RPM belt drive operation. A shielded 21-spline front half PTO shaft is also supplied with the 540/1000 RPM belt drive option both front sections of the PTO shaft are interchangeable with common rear section and can easily be exchanged. Install the appropriate power takeoff sections for PTO RPM being used.

The dual speed V-belt drive provides a simple, efficient powertrain for either 540 or 1000 RPM power takeoff equipped units. In addition, the attaching point of the telescoping PTO shaft is raised 8"- 9", providing additional clearance at the shaft cover/tongue clevis area



### BELT SETTING

540 RPM Position – Rear set of grooves  
(5-1/2" OD to 5-1/2" OD – 1 : 1)

1000 RPM Position – Front set of grooves  
3-3/4"OD to 7"OD – 1 : 54)

### BELT ADJUSTMENT / REPLACEMENT FEATURE

Both the 540 and 540/1000 RPM belt drive is equipped with adjustable belt tension bracket. The upper and lower shafts must be parallel to tighten the belts evenly.

### SPEED CHANGE

1. Remove tension from belts until belts can be moved to other set of pulleys.
2. Tighten tension on the belts evenly, keeping the shafts parallel.

### BELT REPLACEMENT

1. Remove tension from belts until belts can be removed from pulleys.
2. Remove rear bearing on upper shaft.
3. Replace belts and place belts on correct set of pulleys.
4. Secure rear bearing on upper shaft.
5. Tighten tension on the belts evenly, keeping the shafts parallel.

## NOTICE

Engage the power takeoff slowly at low engine speed and open The throttle gradually. As in bringing any equipment up to speed, moderation is the key to long life & trouble-free operations.

## WARNING

- **ALWAYS** keep the belts evenly tightened
- **ALWAYS** keep the access cover in place during operation.

# GASOLINE ENGINE DRIVE

---

## DESCRIPTION / OPERATION

The Gasoline Engine Drive unit utilizes a 9 H.P. Honda engine, equipped with a 12-volt starter/generator system. The direct-drive powertrain uses 2 V-belts through a pulley belt drive to convert engine RPM to the standard 540 RPM PTO speed required to operate the spreader fan at 810 RPM. No clutch is used. Keep safety shields in place. The basic drive requires only normal engine maintenance.



This drive is also available in kit form to convert the basic Clippers 200 & 250 to gasoline engine drive for use with a pickup or other non-PTO equipped towing unit.

### **WARNING**

READ AND UNDERSTAND GAS ENGINE OPERATING MANUAL **BEFORE** OPERATING GAS ENGINE.

### **WARNING**

BE SURE SPREADER FAN AREA IS CLEAR **BEFORE** STARTING GAS ENGINE.

### **NOTICE**

ADJUST NO-LOAD ENGINE SPEED TO OBTAIN FAN DRIVE SPEED OF 550 RPM

## FAN DRIVE CONVERSION

---

The following bundles or components are required for complete conversion and installation on the Clipper 200 or 250 series Dry Fertilizer Applicator units.

**1 only** 160-1-4826 9 H.P. Honda Engine w/electric start

**1 only** 160-1-4829 Honda Gas Engine drive Kit

### **NOTICE**

**BATTERY NOT INCLUDED**

# SPREAD PATTERN ADJUSTMENT

## ADJUSTING THE SPREAD PATTERN CLIPPERS 200 & 250

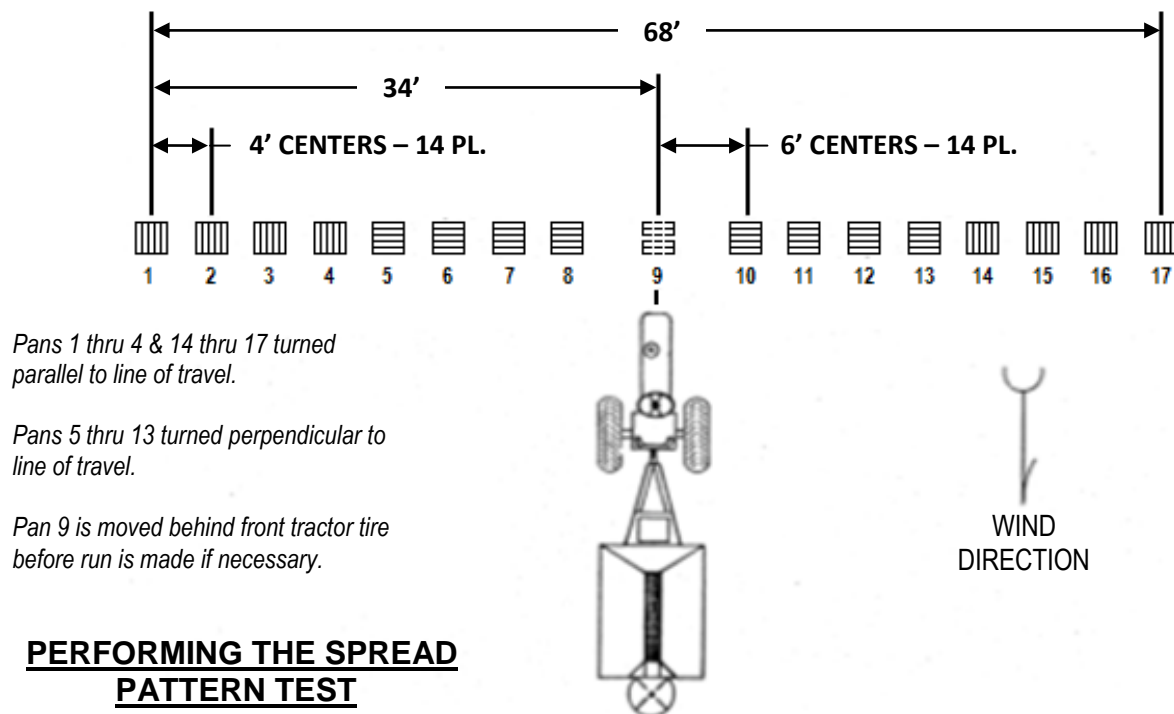
Your Dempsters Spreader has been designed to give the best possible 60' spread pattern using the adjustable chutes. Nearly all application rates and materials can be spread with excellent results with minimum adjustment necessary.

When checking your spread pattern, we suggest that all of the factors bellow be controlled as much as possible to eliminate chances of error and to accurately stimulate your field application.

### FACTORS THAT CAN AFFECT A SPREAD PATTERN

1. Spinner speed (optimum 810 RPM)
2. Material weight or density.
3. Granule size & shape
4. Particle flow characteristics
5. Application rate
6. Particle location on spinner disc.
7. Cleanliness of spinner & vanes
8. Level of spinner relative to ground.
9. Wind speed & direction
10. Ground Speed of applicator

The following illustration shows a typical layout of collection pans to test your spread pattern. Louvered pans shown are recommended, but not necessary.



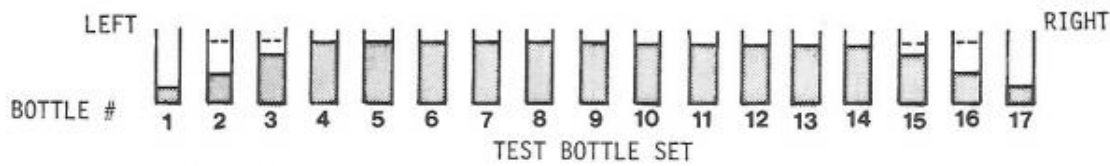
Set the spinner RPM's at 810 and choose a gear that will allow you to drive through the pans at a normal field speed. Continue driving straight past the pans until the product no longer enters the line of pans. Empty the product in the pans into a row of bottles. The results then can be visually inspected or weighted for more accurate results.

Adjusting the various pattern problems can be accomplished by moving the two rear chute tabs to paired holes as recommended in the following instructions.

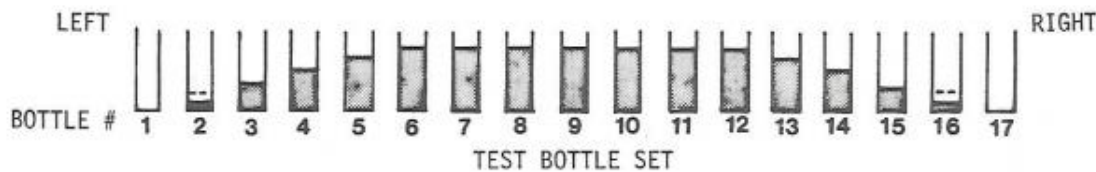
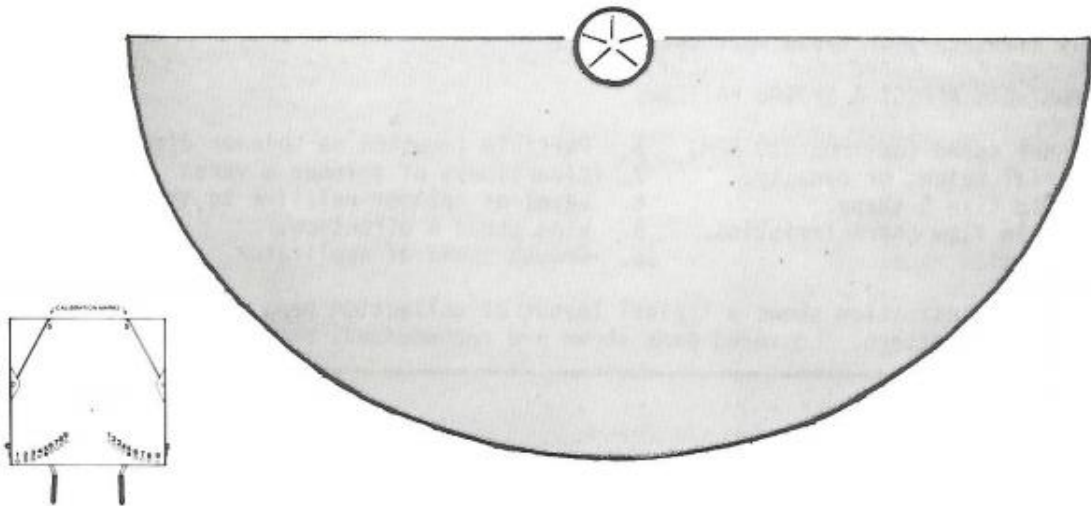


# SPREAD PATTERN ADJUSTMENT

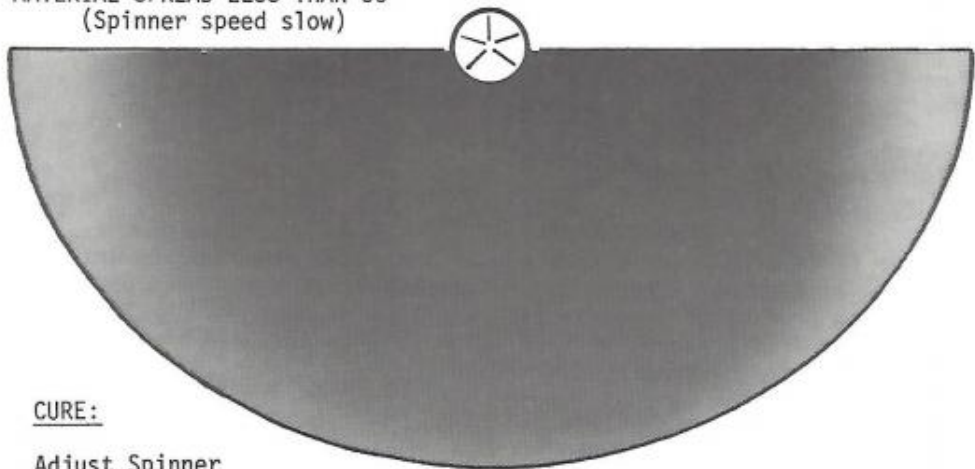
## SPREAD PATTERN TEST CHARTS



NORMAL SPREAD PATTERN - CHUTES CORRECT - SPINNER SPEED 810 R.P.M.



MATERIAL SPREAD LESS THAN 60'  
(Spinner speed slow)



### CURE:

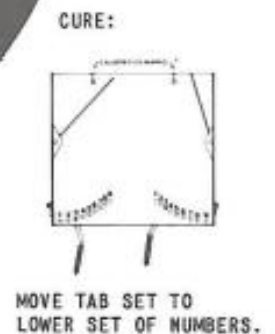
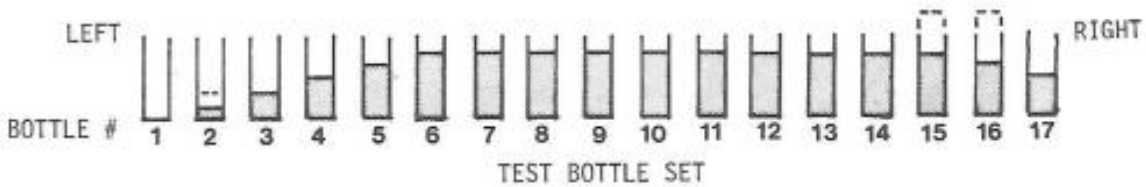
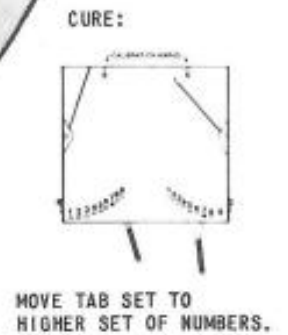
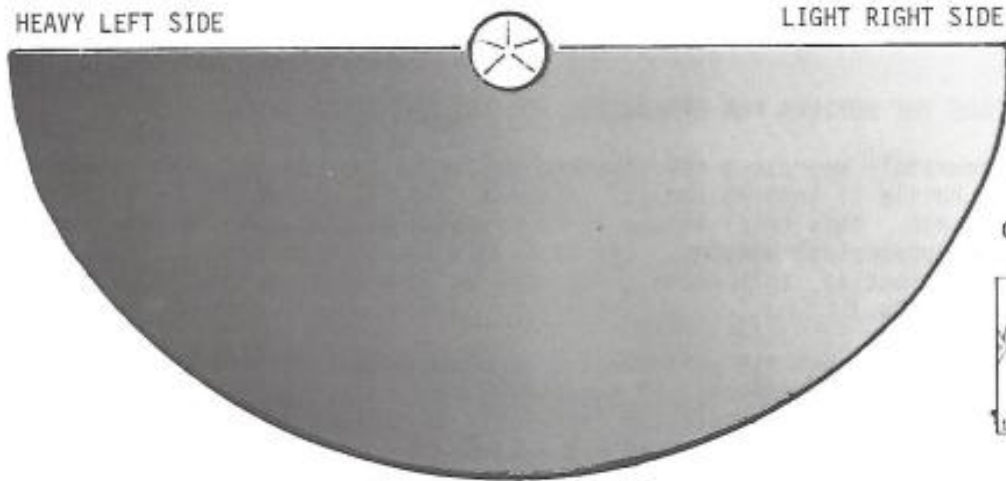
Adjust Spinner  
to 810 R.P.M.

+ SEE PAGE 29 FOR DETAILS



# SPREAD PATTERN ADJUSTMENT

## SPREAD PATTERN TEST CHARTS



+ SEE PAGE 29 FOR DETAILS

# SPREAD PATTERN ADJUSTMENT

## SPREAD PATTERN TEST PROCEDURE

The quantity of product actually delivered into each test pan, on the single pass described on page 1, is shown in the corresponding numbered bottle by the shaded volume. The total width of the test pans is 68'. Since the actual swath width is 60', the pattern on the return swath will overlap Bottles #1,2,3 and # 15, 16, & 17 in a normal pattern.

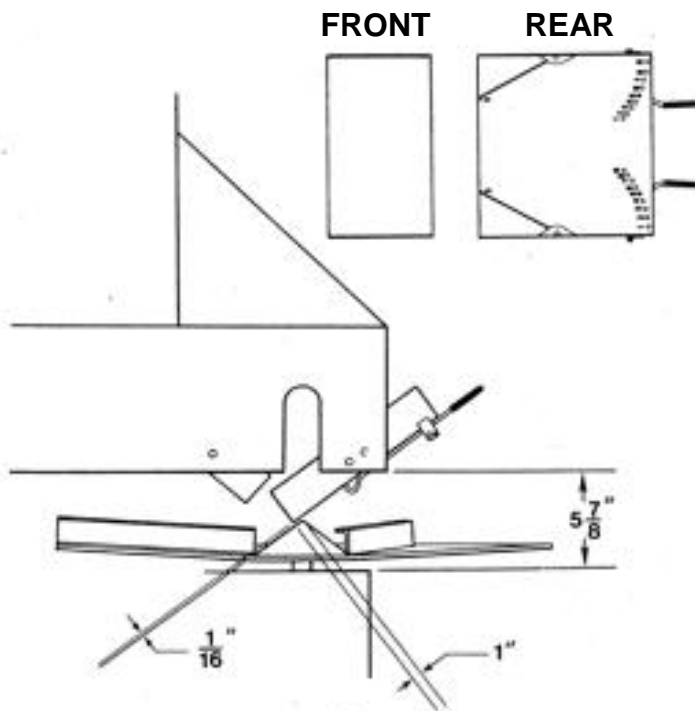
### PREPARE THE BOTTLES FOR EVALUATION FOR THE 60' SWATH WIDTH:

To accurately represent the coverage delivered for the 60' swath width, empty Bottle #1 into #3 and #17 into #15. Double the volume of Bottles #2 and #16. This total volume is represented by the upper dotted lines on the appropriate bottles. (If #1, 2, 16 # 17 catch no product, shown by empty bottles, this means there will be no product or overlap at these points.)

Bottles #2 through #16 will not indicate the actual pattern delivered over the 60' swath width. If necessary, make adjustments for spinner speed or to the rear chute tab locations, as designated for the noted deviation illustrated on pages 2 & 3.

## CHUTES & SPREADER FAN ADJUSTMENT

### FRONT & REAR CHUTES



1. Spacing **MUST BE 5-7/8"** from hopper edge to fan support. If necessary, loosen bolts at main support and adjust rails to achieve this spacing.
2. **ADJUST REAR CHUTE FIRST** – Position the lower edge of chute approximately 1" below top of cone and parallel to cone surface at 1/16" spacing.
3. **ADJUST FRONT CHUTE NEXT** – Align this chute with a point midway between the lower edge of rear chute and end of the van vanes.
4. Check tab registration of rear chute. Reset lockbolt to FREE position (lower), if necessary. Move levers to holes 5-5. Tabs Must Align with calibration marks noted (5). If they do not, move tab to align with mark.

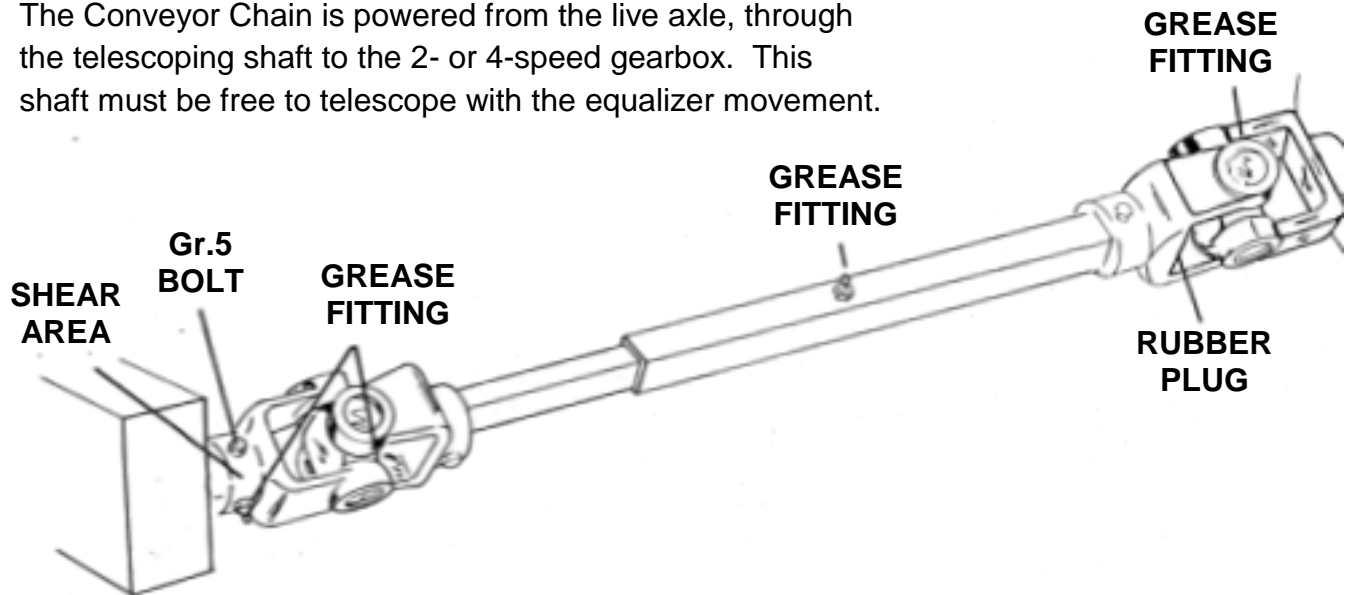
The following pages supply basic service information for the operating components used in the Clipper 200 and 250 dry fertilizer applicators described in this Owner's Manual

For identification of individual components and assemblies, consult the Parts Lists. These exploded-type drawings provide parts, numbers and descriptions of the items, plus the hardware used to install them. They will also show any components or complete assemblies which replace or update original equipment.

In addition, they illustrate the relative positioning or sequence of the parts, plus assembly or service instructions in many cases, as shown in the clutch throw out group example.

# TELESCOPING SHAFT

The Conveyor Chain is powered from the live axle, through the telescoping shaft to the 2- or 4-speed gearbox. This shaft must be free to telescope with the equalizer movement.



**LUBRICATION:** Grease the 2 journal and 1 tubing fittings every 8 hours – use Moly #2 grease or equivalent. This shaft must be able to telescope as freely as possible under load to minimize end thrust on the live axle and gearbox shafts. (A spacer is used on the 200 to further contain this end thrust.) A rubber plug is inserted in the inboard end of the tube to seal it from dirt, fertilizer or water.

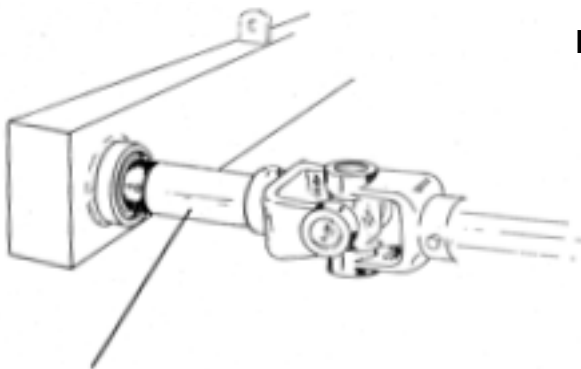
**SHEAR AREA:** The connection of the live axle / telescoping shaft is intended as a shear point to protect the drivetrain. This bolt will shear before major damage can occur. Always use a **Gr.5** bolt at this point.

**NOTICE:** THIS SHEAR AREA MUST NOT BE ALLOWED TO SEIZE.  
LUBRICATE AS FOLLOWS:

1. Remove bolt Grease journal & tubing fittings to slight excess.
2. Turn shaft to spread lubricant. Telescope shaft several times.
3. Replace 5/16" x 2-1/4" **Gr.5** bolt. Use NO OTHER type.

## LINE AXLE SPACER

**Model 200 only**

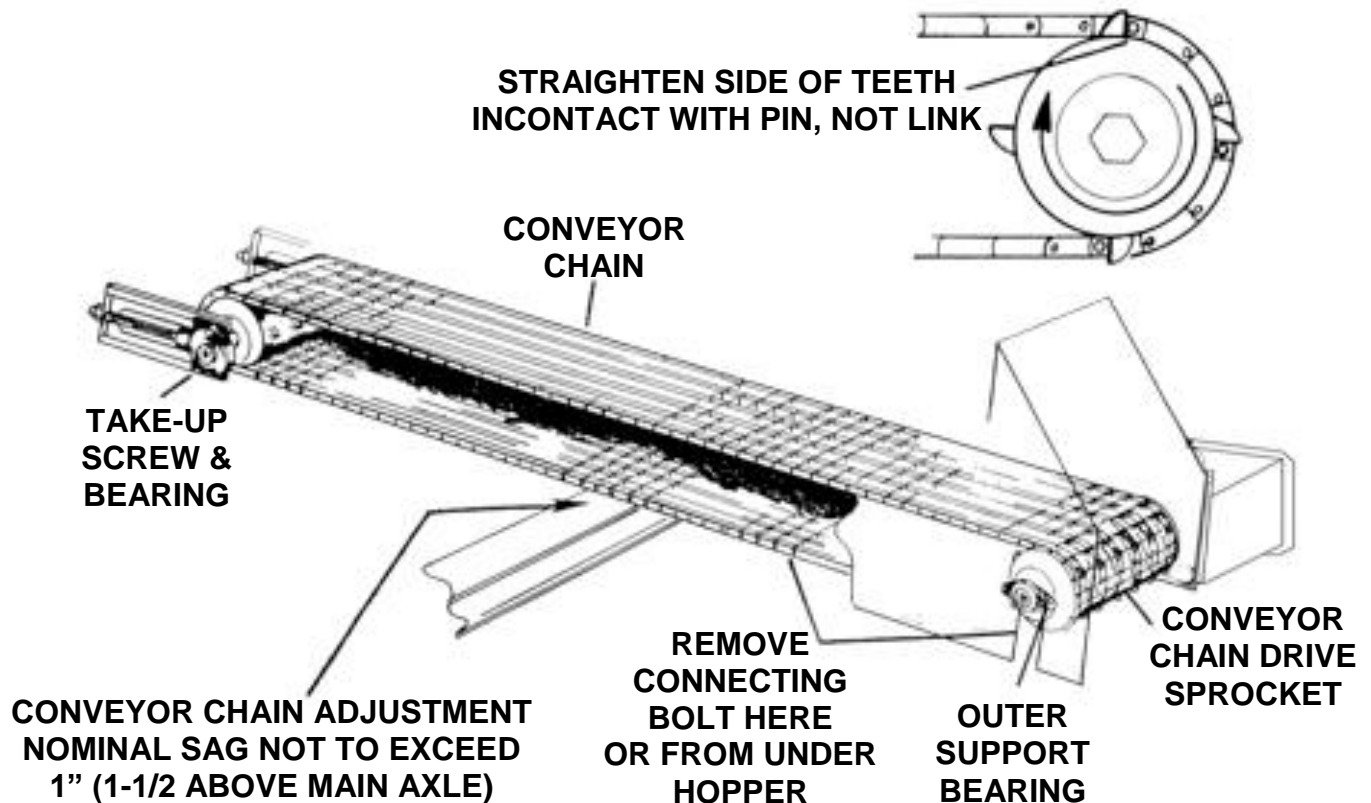


A 2-5/16" spacer (160 3 5509) is installed between the lock collar and the universal joint on the longer live axle used on the Model 200 to facilitate installation of the half rate drive. This spacer will contain the endthrust and prevent the live axle from moving out enough to disengage the throwout pin.



# CONVEYOR CHAIN

## SERVICE



## CONVEYOR CHAIN REMOVAL

Loosen the conveyor chain tension. Move the chain until the connecting bolt appears at the rear roller installation slots or under the hopper. Remove the bolt. Pull the chain out the back

Wear and stretch of the conveyor chain should be checked periodically to prevent rubbing across any adjacent parts.

## TO REPLACE CONVEYOR CHAIN

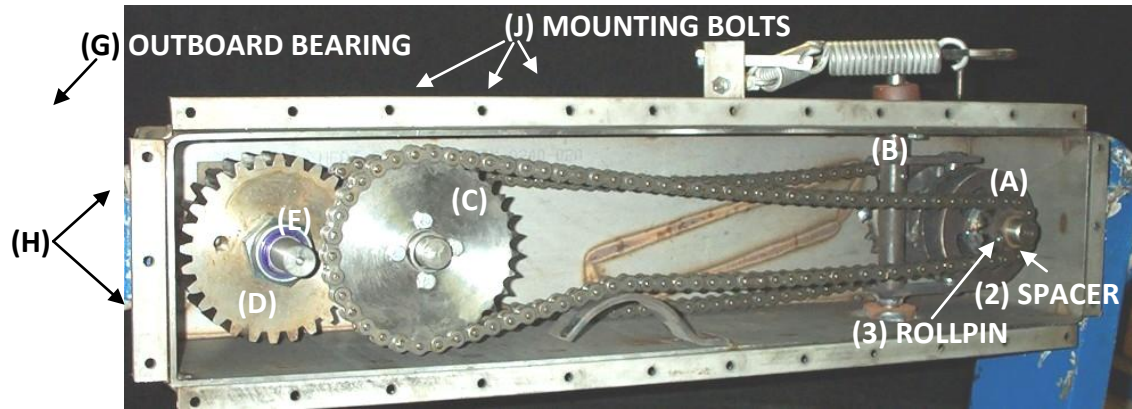
Slide the top forward in the floor and use a rope to pull the lower 1/2 into the area under the floor. Replace connecting bolt. Peen the end slightly to secure nut.

To adjust, loosen the jam nut on both sides of the unit, move the chain roller forward by moving the bearings with the take-up screws. These screws **MUST** be adjusted equally to keep the roller at 90° to the spreader channel, so the chain will run on center. After adjusting the roller, tighten the jam nut on the take-up screw.

## NOTICE

After adjustment, operate the unit to determine that the conveyor belt is running on the center of the roller. If the chain rides to one side, release belt tension on the opposite side.

## 2-SPEED GEAR BOX



### COMPLETE GEARCASE REMOVAL

All components of the gearcase may be serviced with housing in place on unit.

For on-the-bench service of the unit, use following dismounting procedure:

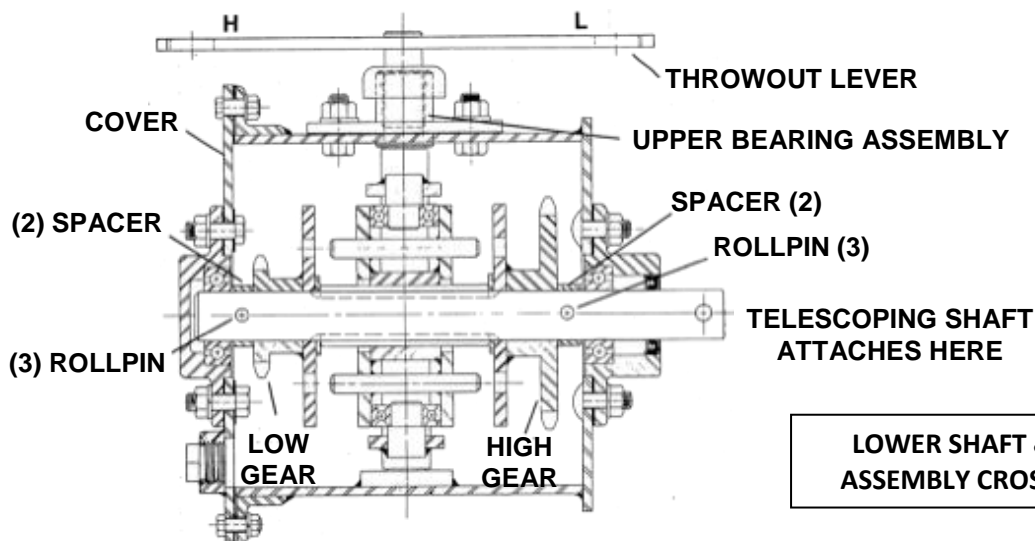
1. Remove telescoping shaft.
2. Detach right deflector section.
3. Remove outer conveyor shaft bearing (G).
4. Remove the two bolts at rear angle (H).
5. Support gearcase and remove 3 bolts (J) from rear support angle.

### NOTICE

**DO NOT REMOVE DEFLECTOR CLIP WITH COVER IN PLACE. BOLTS ARE NOT LOCKED AND MAY FALL INSIDE GEARCASE.**

### DISASSEMBLY OF GEARCASE

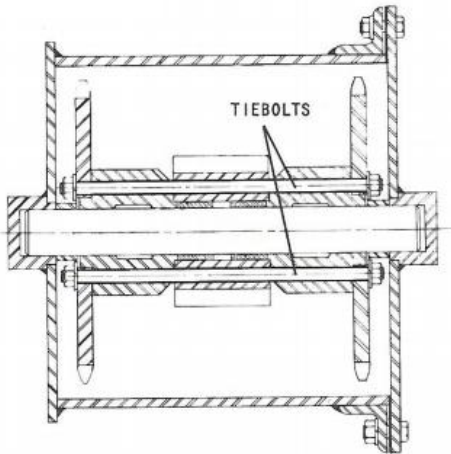
1. COVER: Drain gearcase completely. Remove right deflector and cover
2. LOWER SHAFT & CLUTCH ASSEMBLY (A): Detach telescoping shaft. Remove both drive chains. Drive two roll pins out of clutch throwout and withdraw clutch assembly.
3. CLUTCH: To dismantle clutch assembly, drive a rollpin (3) out of spacer (2) and slide unit apart.
4. THROWOUT SHAFT ASSEMBLY (B): Detach both springs & unbolt upper bearing from gearcase top. Remove shaft and bearing from the top of the case.



**LOWER SHAFT & CLUTCH  
ASSEMBLY CROSS SECTION**

# 2-SPEED GEAR BOX

## SERVICE



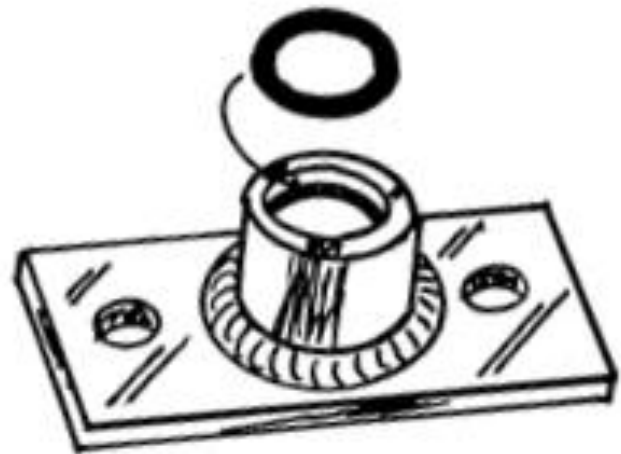
### REVERSE CLUSTER CROSS SECTION

5. REVERSING CLUSTER (C): Pull slightly forward & outward. Remove 4 retaining bolts for complete disassembly.
6. MAIN DRIVE GEAR (D): Remove nut and flat washer. Gear is a slip fit as it is used to adjust Timken bearings in upper housing. Slide gear off the two key shaft end.
7. Remove 4 bolts holding bearing housing and loosen set screws retaining outer end of driveshaft. Remove the shaft & housing through gearcase.
8. Secure housing and press on shaft so the bearing lockring will force the O-ring mount out of place in housing.

9. Remove bearing and snapping from shaft. Smooth any burrs on groove or keyway. Slide O-ring mount off shaft.

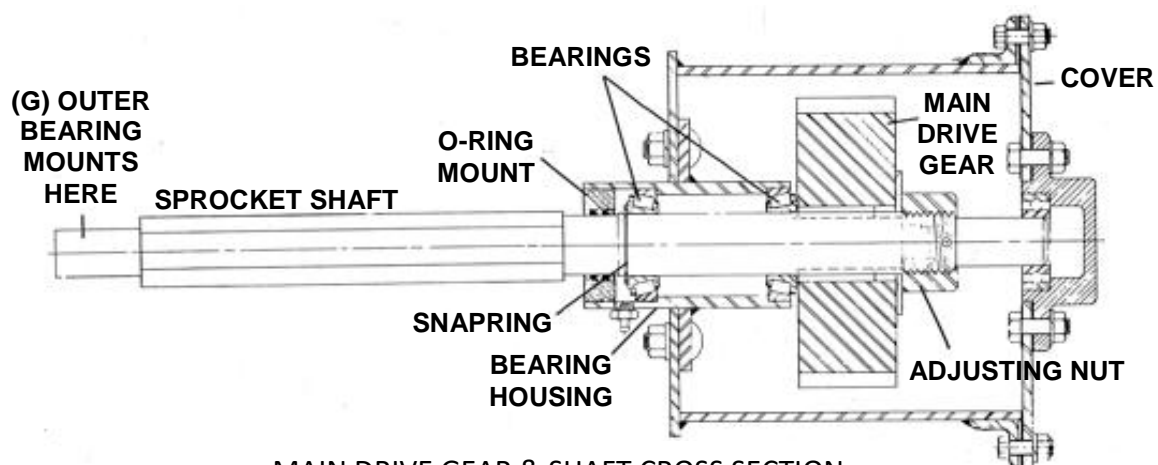
Thoroughly clean all components and determine replacement items required.

### VERTICAL SHAFT GUIDE



### VERTICAL SHAFT GUIDE WITH O-RING

The vertical shaft guide uses an O-ring to enclose a lubricant cavity between it and a narrow shaft bearing surface. Lubricate weekly to force some grease under the shield to be sure cavity is kept full for sealing purposes.



MAIN DRIVE GEAR & SHAFT CROSS SECTION

## SERVICE

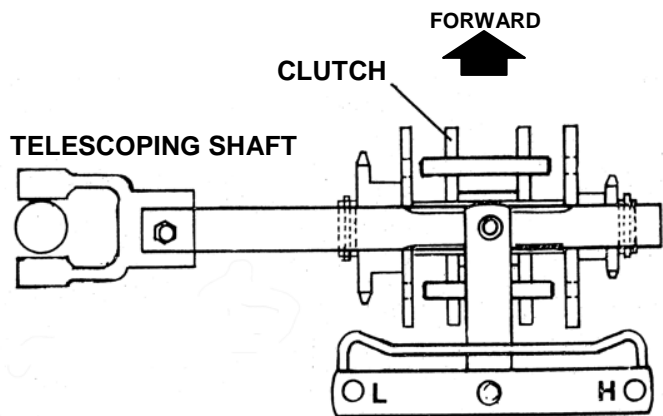
### ADJUSTING THE THROWOUT CLUTCH

10. Reassemble in reverse order. Install 2 o-rings in mount, lubricate and slide onto shaft. Position locking in groove and slide bearing into place on shaft. Slide shaft assembly into housing and locate o-ring mount flush with end. The conveyor sprocket must be positioned to place straight edges of teeth with pins NOT LINKIS.

#### NOTICE

**Main drive gear must slide FREELY on shaft with two keys in place for accurate bearing adjustment. Double check before gear installation.**

11. ADJUST BEARINGS: Tighten shaft nut slowly until endplay is removed. DO NOT over-tighten as this will force locking out of place. Be sure to use new cotter key.
12. Install outboard bearing on left end of main shaft. DO NOT force the end into place. If necessary, shim the main box or vertical support angle to align the sprocket parallel with box floor before securing bearing. Lock both set screws.
13. Assemble reversing cluster group and slide into position in gearcase.
14. Assemble lower shaft and clutch group and install in position.
15. Install new O-ring in shaft guide and attach to gearcase with new gasket.
16. Place throwout assembly in position. Insert shaft through leather shield and install through bearing into the assembly. Align with spring loop to the front, throwout in clutch unit and turned into position. Install the rollpins through throwout & shaft.
17. Attach return springs loosely. For final adjustment, see following page.
18. Install drive chains and secure the connection links. Outer chain has ramp type tightener. Try cover on both shafts (without gasket). Remove excess slack in chains by raising the ramp with prybar.
19. Be sure deflector clip is bolted to cover before permanent installation.
20. Install cover & gasket. Replace MP140 lubricant to check plug level.
21. Use wrench on telescoping shaft to turn gearcase and check for binding in both ranges.
22. Lubricate telescoping shaft and shear area. Secure to live axle with bolt.



TOP VIEW OF CLUTCH ASSEMBLY

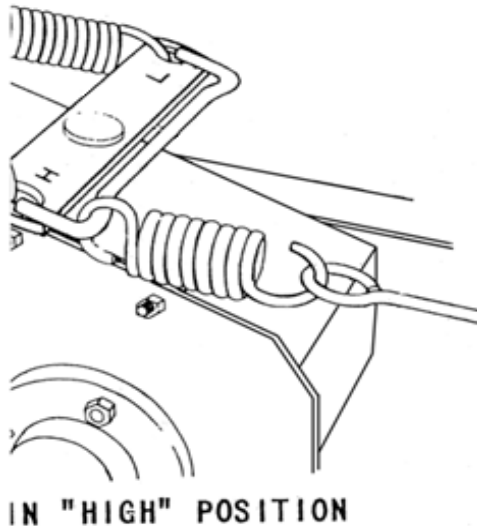
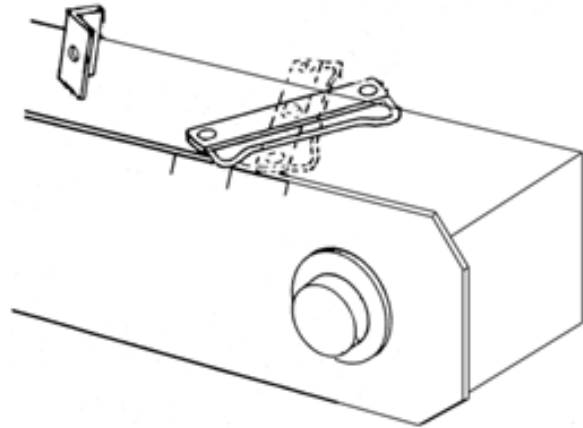


# 2-SPEED GEAR BOX

## SERVICE

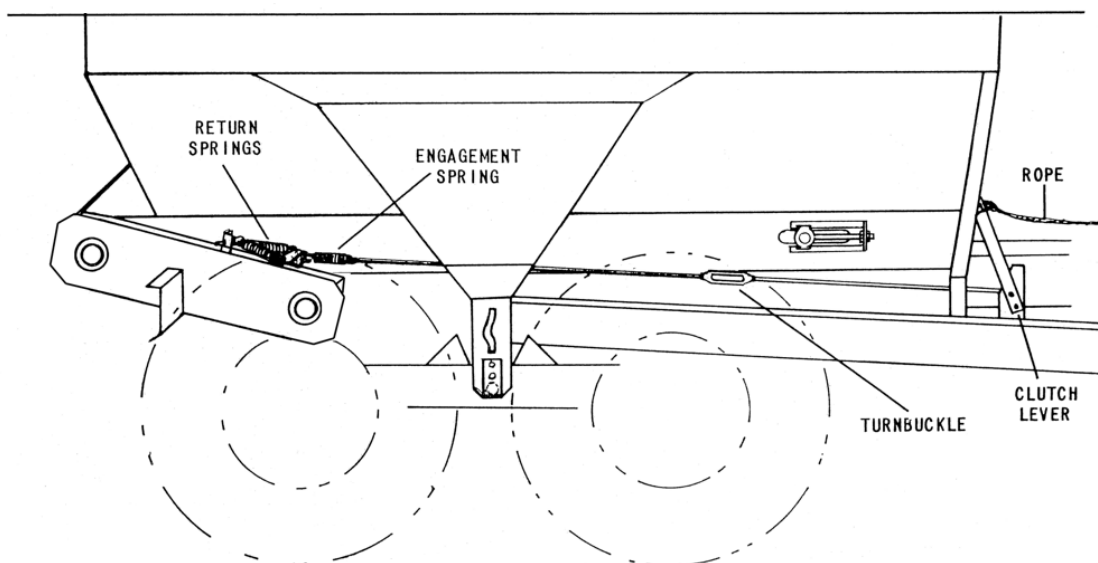
### ADJUSTING THE THROWOUT CLUTCH

1. Loosen eyebolts (a) holding the two return springs. Loosen turnbuckle.
2. Unhook engagement spring to free the clutch for full travel.
3. Move outboard end of lever forward until completely in gear. Mark the forward edge of clutch lever.
4. Move end back as far as possible. Mark rear edge of clutch lever.
5. Move clutch lever until center of lever is halfway between marks.

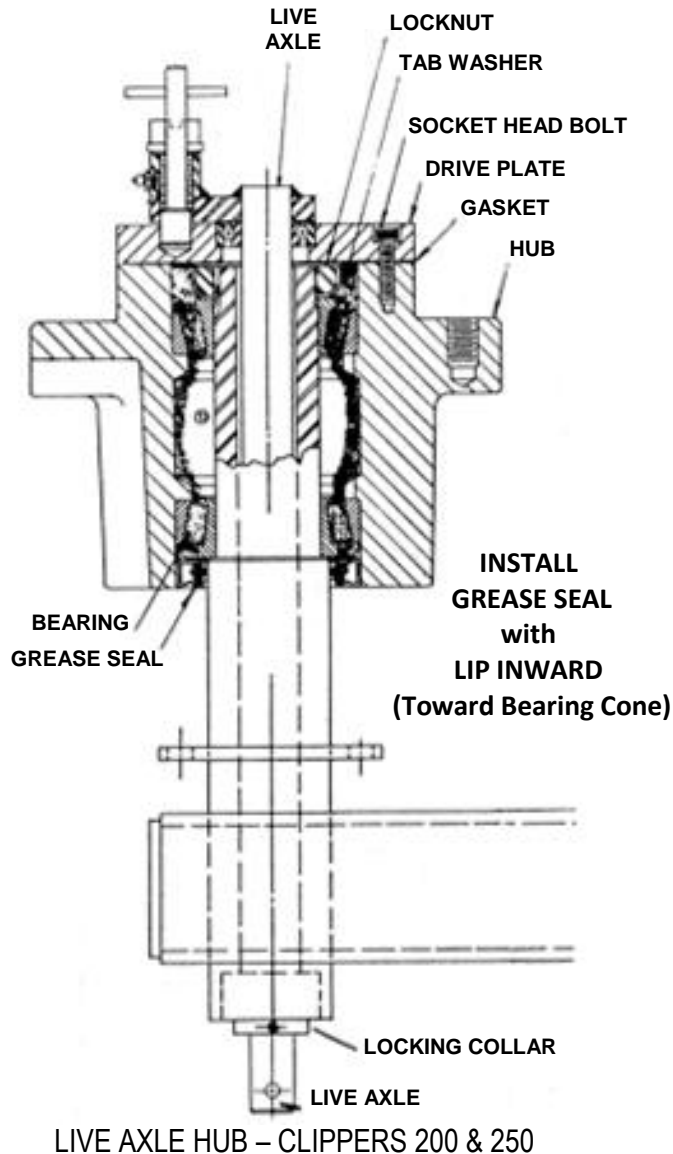


### LOCATING CENTER (NEUTRAL) OR CLUTCH TRAVEL

6. Tighten nuts on return springs to put slight, equal tension on each spring.
7. Turn telescoping shaft to be sure the clutch is in neutral and that pins are not rubbing on clutch plates.
8. Replace engagement spring in clutch lever in position (I or H) desired.
9. Adjust turnbuckle until slack is just removed. Too much tension may result in clutch "ratcheting" (not fully set)



## SERVICE



## DISASSEMBLY

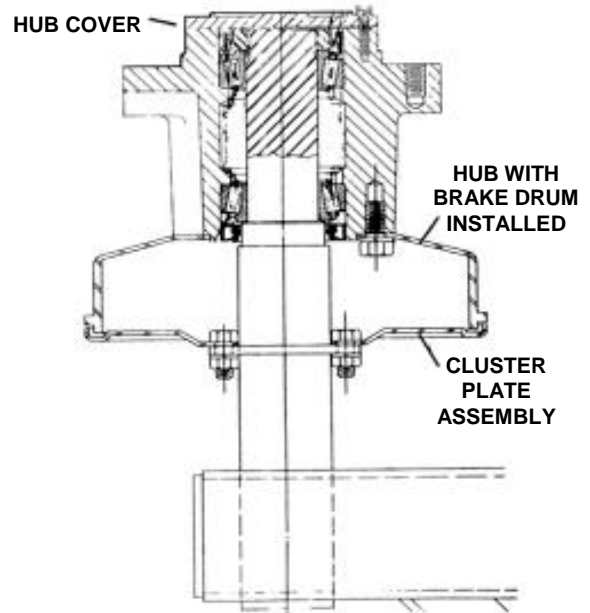
1. Detach the telescoping shaft from the live axle. Remove the locking collar from the inboard axle bearing. (Loosen the set screw and use a punch to release the collar by driving opposite rotation.)
2. Remove the six socket head bolts and detach the drive plate and live axle, or hub cover, from the hub. Bend the lockwasher tab away from the bearing nut. Remove the nut and outer bearing. Slide hub off spindle carefully.
3. Use a wooden or brass dowel to drive the inner bearing and grease seal out of hub.

## LUBRICATION

1. Grease bearing cones by machine or hand. Force grease between rollers, cone & cage.
2. Shading indicates the recommendation for the correct amount of grease in wheel hub. Fill wheel hub with grease to inside diameter of outer races and also fill hub cap.

## ASSEMBLY

1. Install the inner bearing and grease seal. Slide hub onto spindle and install outer bearing, lockwasher and locknut. (install nut with chamfered edge inward).



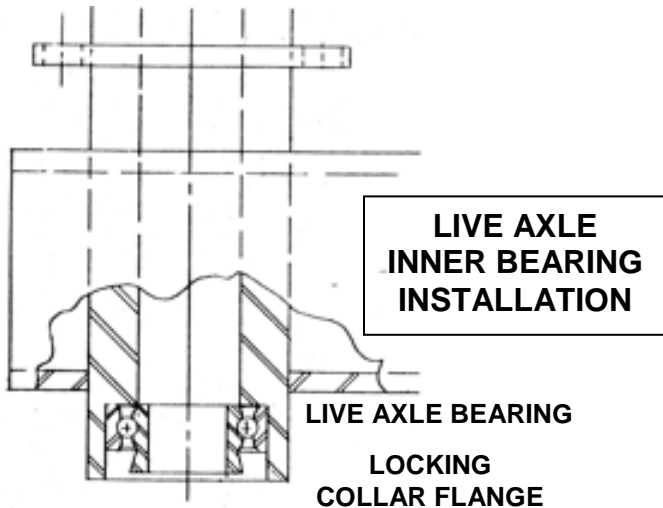
## BEARING ADJUSTMENT

1. Tighten the adjusting nut, while rotating the wheel, until there is a slight bind to be sure all bearing surfaces are in contact. Then back off locking nut to the nearest locking tab, or sufficiently to allow the wheel to rotate freely within the limits of .001" to .010" end play. Lock the nut at this position by bending tab into groove.

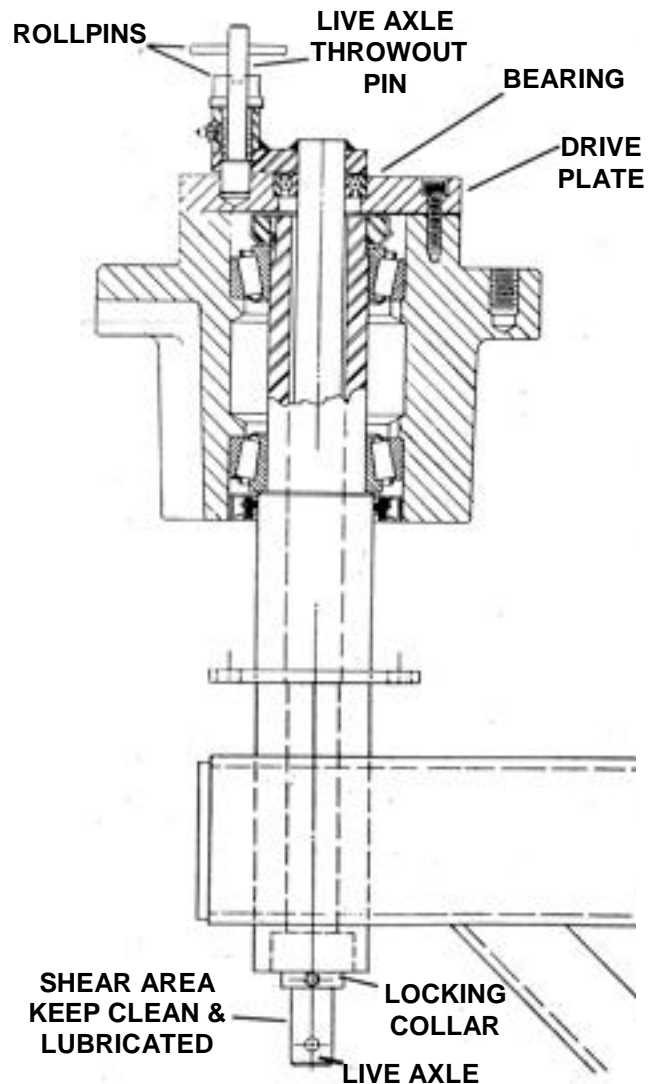
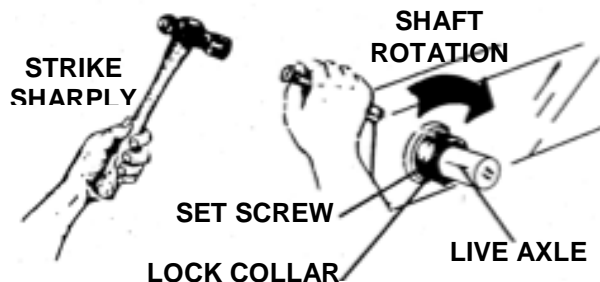
(This information is based on Timken Bearing Company recommendations.)

## LIVE AXLE ASSEMBLY

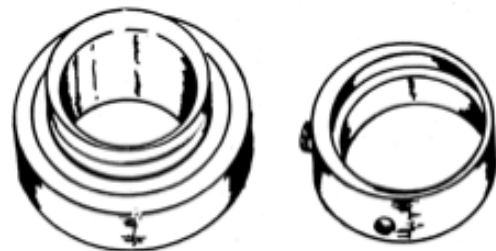
1. Knock out the replace the inner and outer live axle assembly bearings, if necessary. The inner bearing is a sealed type and requires no lubrication. Lightly pack the drive plate bearing from the inside.



2. To replace the throwout pin or spring in the axle assembly, drive the two rollpins out of position. Replace the necessary parts and replace rollpins.
3. Install the drive plate and axle assembly. Secure the drive plate using the six socket head bolts and lockwashers.
4. Slide the axle tightly against the drive plate, back out slightly and set the locking collar as shown below.
5. Engage collar cam fully on bearing cam. Turn collar IN THE DIRECTION TO SHAFT ROTATION. Use a drift punch in the pin hole. Strike sharply several times to set the collar. Tighten the set screw.



LIVE AXLE INSTALLATION

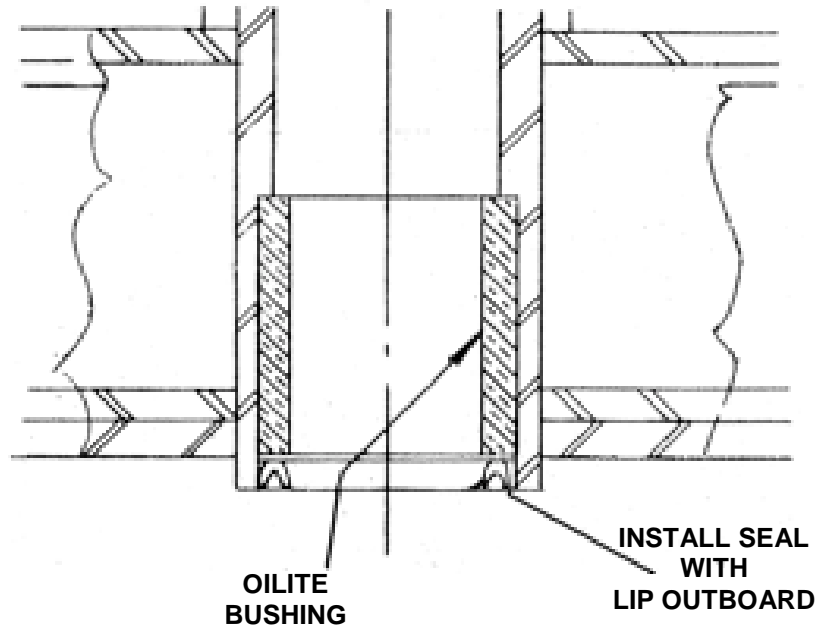


CAM LOCK BEARING & COLLAR (LIVE AXLE)

6. Clean the end of the axle and inner surface of the telescoping shaft joint. **THIS AREA MUST NOT BIND!!** Grease very lightly, install universal joint and secure with 5/16" x 2-1/4" heat-treated bolt ONLY for proper drive protection.

## PIVOT BUSHINGS & SEAL

Replace the pivot bushings and seals as a set only for best results. Worn seals may cause premature wear of the pins & bushings.



1. Use a press to install bushings, if possible. If they must be driven in, reaming may be necessary to assure a slip for the equalizer pin. Pins **MUST NOT** be driven into place when mounting equalizers. See note below for easier mounting.
2. Install the grease seals with the lips **OUT** to prevent dirt entry into bushing.

## ATTACHING THE EQUALIZERS

1. Raise the equalizer into the main axle.
2. Start pin through from outside leg
3. Align equalizer to allow pin to be PUSHED through the center boss.  
**DO NOT DRIVE PIN INTO PLACE.** Push pin as near the inner leg as possible.

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### \*\*\* PIN INSTALLATION TIP \*\*\*

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4. Use a chain-type Vise Grip or similar tool, to apply steady pressure on pin. Shake equalizer. Pin will enter inner leg easily. NOW, tap the pin into place and secure with bolts and hardware.



# PTO & TELESCOPING SHAFTS

## SERVICE

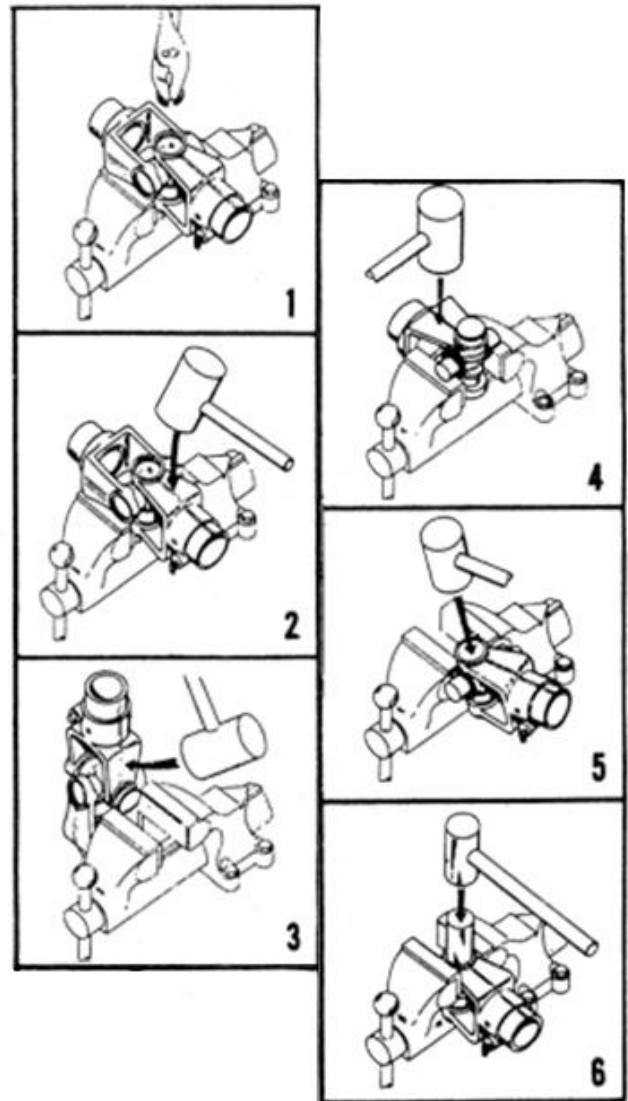
### REPLACING THE SAFETY LOCK PIN

NOTE: The edge of the hole is turned in to retain the lockpin.

1. Insert the end of the punch in the hole and drive the lockpin or part out.
2. With the spring in place, push the new lockpin into the hole.
3. Using the punch, crimp the edge of the hole to hold the lockpin in place.

### REPAIR UNIVERSAL JOINT (Auto type)

1. Remove grease fitting & snap rings
2. Use a universal joint press, or large vise, a spacer with 1-1/8" minimum diameter hole & a 7/8" maximum diameter driver pin.
3. Carefully press one of the journals into the spacer. If they will not release after moderate pressure is applied, use a hammer & punch to tap on the yokes. Alternate pressure and tapping as required. If the bearings are not damaged, be sure none of the needle bearings are lost.
4. Reverse the drive pin and spacer. Press in the opposite direction to remove the second journal.
5. Repeat the procedure for the second set of bearings.
6. Be sure there is sufficient lubricant in the bearings to hold the needles in place. Install the first pair lightly in yoke. Be sure any cork washers or seals are in place.
7. Install cross, align with bearings and press bearings into place. Yokes may have to be tapped during this step.
8. Continue pressing until bearing grooves will accept lock rings. (If a snap ring cannot be installed, it is possible one of the needle bearings may have fallen out of place)



# FAN DRIVE GEARBOX

1 gearbox is used in the Clipper Series to drive the spreading fan.

The basic 1.5 : 1 ratio gearbox is used to drive the spreader fan on all models, EXCEPT the Hydraulic Drive Units.



THE FOLLOWING BASIC SERVICE INSTRUCTIONS  
APPLY TO ALL UNIT EXCEPT HYDRAULIC DRIVE

## REMOVE CROSSHAFT – ALL UNITS

1. Drain oil & detach pinion assembly.
2. Remove end plate and bearing.
3. Smooth burrs or rust from shaft, hole and keyway. Push shaft toward opening.
4. Slide bearings and gear off open ends of shaft.

NOTE: Snapping must be removed from “G” model cross shaft in pulley unit to remove or bevel gear.

## PINION GROUP DISASSEMBLY – ALL UNITS

1. Remove self-locking nut, pinion gear and key from shaft. Check for wear.
2. Press shaft toward outer end. Lockring will push grease seal out of position. Check bearings for wear.

## ASSEMBLY

ALWAYS install new grease seals with reassembling the gearboxes

## CROSSHAFT ASSEMBLY

1. Install new grease seal in case.
2. Press bear & bearings onto cross shaft.  
NOTE: DOUBLE KEYED UNITS - Modified key MUST BE USED in cross shaft gear only. Install to clear snap ring gap (either keyway).
3. Insert shaft into case and install end plate. See adjustment below.

## PINION ASSEMBLY

1. Installed bearing cups in housing.
2. Slide outer bearing come against ring.
3. Install shaft & bearing into housing
4. Place bearing cup, keys and gear onto shaft. Install self-locking nut. Replace grease seal. See adjustment below.

## SERVICE ADJUSTMENT

### CROSSHAFT BEARING ADJUSTMENT

Remove shims from behind end plate until shaft binds. Replace until shaft frees-up.

### PINION SHAFT BEARING ADJUSTMENT

Set the self-locking nut until the shaft binds. Loosen nut slightly and tap end of shaft to be certain cones are free. Adjust until shaft rotates freely

## BEVEL & PINION GEAR MESH ADJUSTMENT

Remove shim gaskets until gears bind when bolts are tightened. Replace on shim and retighten. See adjustment check at right for proper clearance. Turn shaft several times to test for free rotation.

## LUBRICATION

Fill gearbox to level plug with Multi-Purpose Gear Lubricant 140.

Turn shaft several times to thoroughly coat gears and bearings.

Coat Shaft with anti-seize or grease before installing the fan to prevent corrosion.

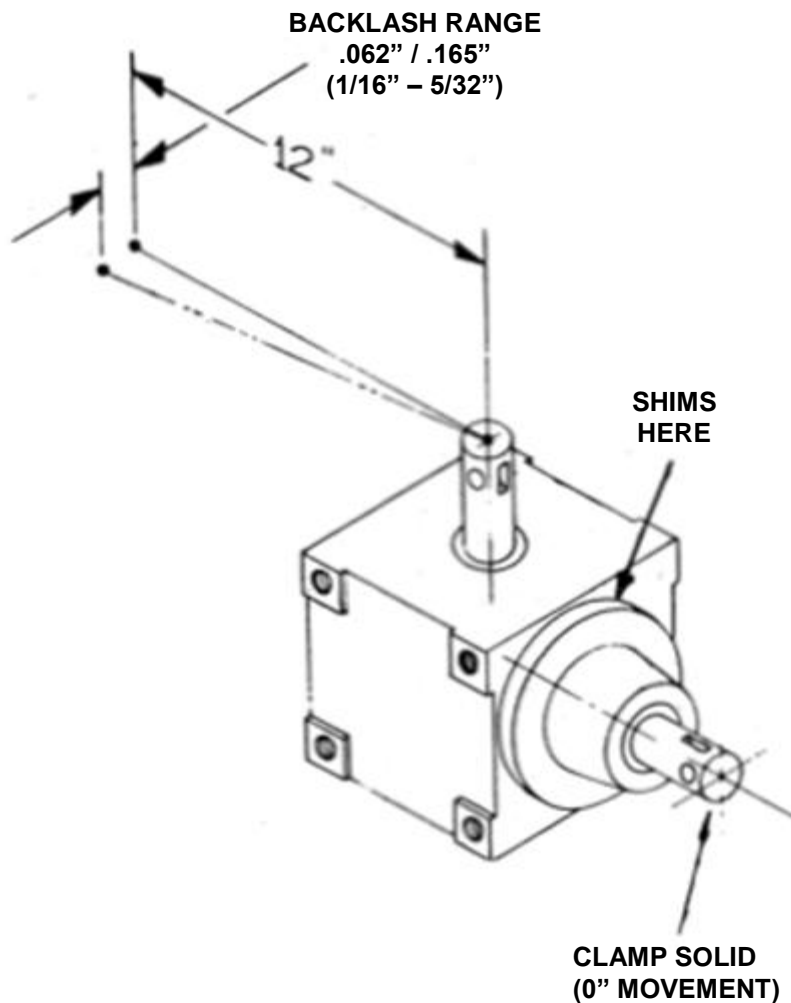
# SPINNER GEARBOX ADJUSTMENT

## GEAR MESH (BACKLASH ADJUSTMENT CHECK)

### METHOD OF ADJUSTMENT

Set mesh adjustment by inserting/removing shims at pinion housing. Consult previous page for sequence. Following test checks for correct backlash range.

1. Hold gearbox securely in vise or stand.
2. Clamp input shaft solidly. Protect shaft from scoring. Do not damage key or hole.
3. Attach 12" lever to fan shaft (use same precaution). A point 12" from CENTER of fan shaft should move within .062" / .165" ( $1/16"$  -  $5/32"$ ) range. Add or remove shims to accomplish this.
4. Turn shaft several times to double check for smooth operation.



# BRAKE SECTION

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The Dico Surge-O-Matic Brake System utilizes the momentum and weight of the unit being towed to provide the timing & energy to apply or release the brakes AT THE APPROPRIATE TIME. As the tow vehicle slows, the trailing unit's momentum is transmitted through the actuators internal linkage to apply pressure to the master cylinder plunger, proportional to the rate of slowing of the tow vehicle. The harder the operator brakes, the harder the trailing unit brakes are applied. As the relative speed of the units become equalized, the trailer braking action progressively decreases until fully released at complete stop or an increase of the towing vehicle forward speed.

A "Back-Up" feature is incorporated into the brake shoe mounting plate. When the tow vehicle backs up, the brakes are applied. However, slotted holes in the shoe mounting plates allow the brake linings to move away from the drums sufficiently to release any braking action during this reverse drum rotation.

---

This necessary "back-up" feature dictates that EXTREME CAUTION be observed for the following circumstances or service procedure:

1. BACKING LOADED UNIT DOWNGRADE: in this case, only the tow vehicle will supply braking action and may not be able to stop or control a loaded unit.
  2. Brake shoe mounting plates **MUST BE CORRECTLY** installed, relative to normal forward travel of the towed unit. If **incorrectly** installed, forward braking action will be eliminated and brakes will lock when back-up of the unit is attempted.
- 

## SERVICE ADJUSTMENT REPAIRS

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This section contains information which applies to an Dempsters Unit equipped with the Dico Surg-O-Matic Hydraulic Brake System.

Specific installation and component data relative to individual units will be found in the manual for that particular applicator or unit.

Variations of the basic cluster group pertains to assembly for right or left installation and the center hole sizes.

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### **NOTICE**

**RIGHT & LEFT ARE DETERMINED FROM BEHIND THE UNIT, FACING DIRECTION OF TRAVEL**

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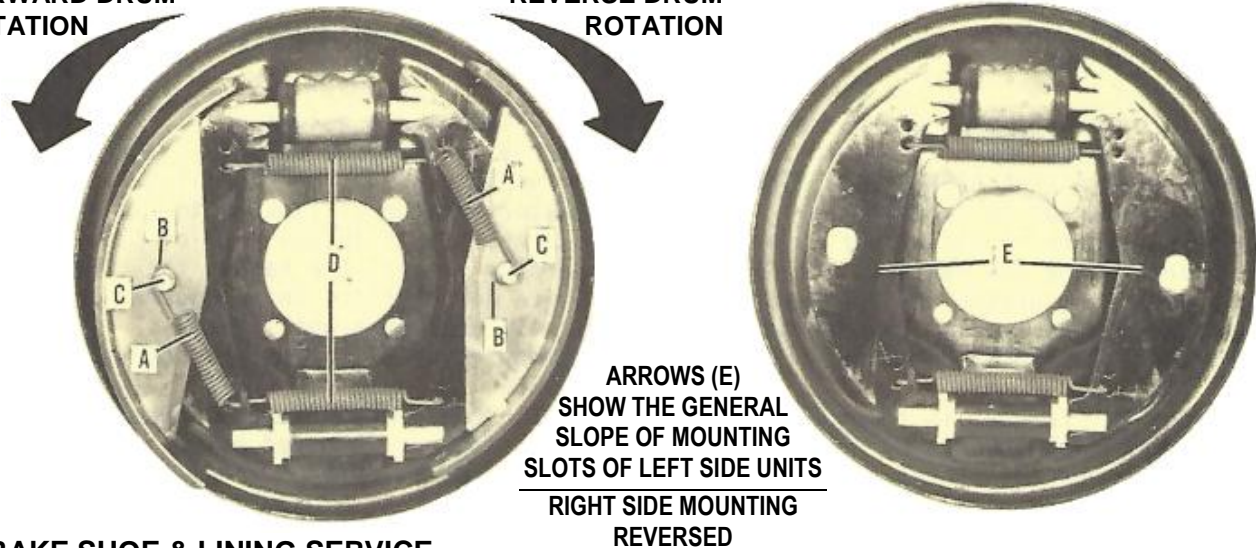
FORM 2524-4/81



# SURG-O-MATIC HYDRAULIC BRAKE SERVICE

FORWARD DRUM  
ROTATION

REVERSE DRUM  
ROTATION



## BRAKE SHOE & LINING SERVICE

Raise the wheel off the ground and support securely. Remove the tire from the hub for more convenient procedure. Clean the hub cap area and detach from the hub. Remove the axle nut, washer, outer wheel bearing, hub & drum assembly. (It may be necessary to loosen brake lining adjustment to allow removal of the drum.)

## REMOVE BRAKE SHOES

1. Release two springs (A) with brake tool cam end.
2. Remove lock rings (B) with snapping pliers and detach pins (C).
3. Remove brake shoes from mounting plates.

## WHEEL CYLINDER SERVICE

1. Release springs (D) with rake tool tongs and remove mounting plate/adjusting screw assembly as a unit. **NOTE CAREFULLY POSITION & SLOPE OF MOUNTING PLATE SLOTS (E) BEFORE REMOVAL OF ASSEMBLY!!!**
2. Detach brake fluid line on rear of backing plate and remove two mounting bolts. Repair cylinder per kit manufacturer's instructions.
3. Mount repaired cylinder on backing plate and reattach the fluid line.
4. Replace mounting plate unit in EXACTLY the same position as originally installed. (it will look like the right illustration above for left side mounting - plates & slots will be in opposite positions for right.)
5. Position brake shoes on mounting plates and secure with pins & lockings.
6. Attach brake shoe return springs (A) with brake tool.
7. Replace hub/drum assembly and adjust bearing to remove all wheel play. Replace cotter key and hub cap securely.

## BRAKE KIT INSTALLATION

The illustration and plumbing schematics for a particular unit is shown in that unit manual. The illustration on page BR-5 shows an exploded view of a cluster unit. All parts are the same for right or left - only the assembly of the brake shoe mounting plates are different.

**SEE BRAKE SHOE ADJUSTMENT & BLEEDING PROCEDURE ON OPPOSITE PAGE.**

## 1. ADJUSTING BRAKES

Raise the wheel with jack to adjust brakes. DICO "Surg-O-Matic" trailer brakes incorporate a patented "Back up" feature that makes it necessary to rotate the wheels in the direction of **forward rotation only** when making adjustments.

The brake adjustment nuts are located behind slots at the bottom of the backing plate. There are individual adjustments for both the front and rear shoe. Tighten front shoe until lining drags slightly on the drum, then back off until drum rotates freely. Repeat on back shoe.

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**ALWAYS ROTATE DRUM IN DIRECTION OF FORWARD ROTATION ONLY**

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## 2. HYDRAULIC LINES

Available tubing fittings are suggested system layouts are illustrated in this manual. Choose the appropriate diagram that applies to your trailer.

## 3. BLEEDING THE SYSTEM

The first requisite for safe, sure hydraulic braking is the use of quality brake fluid. Use only SAE 70R1 or 70R3 heavy duty fluid.

If pressure bleeding equipment is available, follow the manufacturer's instructions in bleeding the system.

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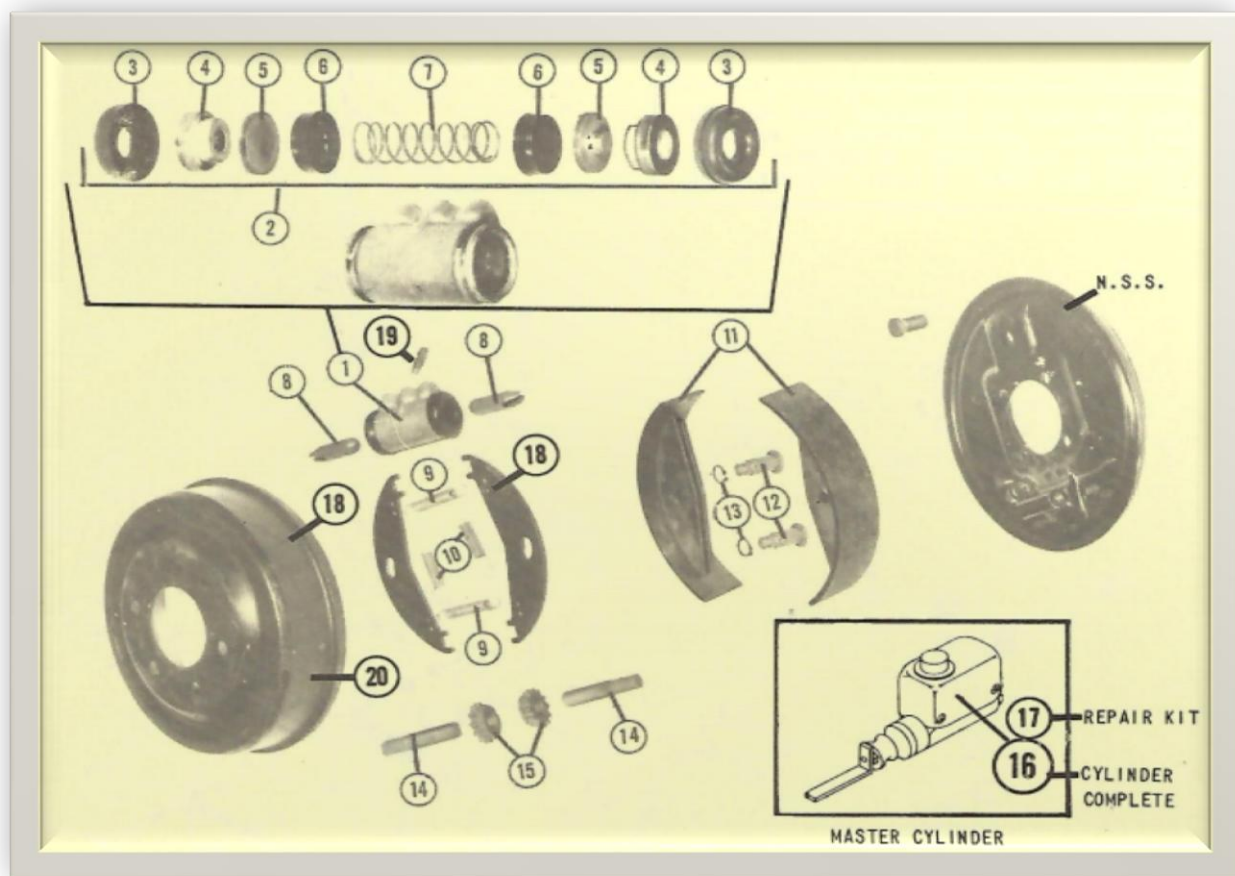
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If system MUST be bled manually, proceed as follows:

- Remove damper pin to facilitate manual bleeding.
- Fill master cylinder with fluid. Install bleeder hose on first wheel cylinder to be bled, if Tandem axle trailer, bleed rear axle first. Have loose end of hose submerged in brake fluid in glass container to observe bubbling.
- By loosening the bleeder screw located in the wheel cylinder one turn, the system is open to the atmosphere through the passage drilled in the screw. Pump actuator with long steady strokes. The bleeding operation is completed when bubbles no longer rise to the surface of the fluid. Be sure and close bleeder screw securely.
- Repeat bleeding operation at each wheel cylinder. During the bleeding process, replenish the brake fluid, so the level does not fall below the 1/2 full level in the master cylinder reservoir. After bleeding is completed, make sure master cylinder reservoir is filled and filler cap securely in place.

- 
- Replace damper pin on Actuator and secure with snap ring or cotter pin as necessary.

# CLUSTER PLATE ASSEMBLY



Ref No.	Part Number	No. Used	Description
1	907 01092	1	Wheel Cylinder Complete – Dico #6817
2	160 1 4614	1	Wheel Cylinder Kit – Includes Items 3-7
3	907 01094	2	Wheel Cylinder Boot – Dico #4554
4	907 01096	2	Wheel Cylinder Piston – Dico #4504
5	907 01095	2	Piston Guide – Dico #6818
6	907 01097	2	Wheel Cylinder Cup – Dico #7781
7	907 01098	1	Wheel Cylinder Spring – Dico #7782
8	907 01093	2	Push Rod – Dico #6819
9	907 01085	2	Lever Spring – Dico #6813
10	907 01086	2	Brake Shoe Spring – Dico #6814
11	907 01087	2	Brake Shoe w/Lining – Dico #6804
12	907 01088	2	Anchor Pin – Dico #6809
13	907 01089	2	Truarc Retaining Ring – Dico #7778
14	907 01090	2	Adjusting Screw – Dico #6815
15	907 01091	2	Adjusting Nut – Doc #6816
16	907 01084	1	Master Cylinder Ass'y, 1" bore – Dico #8989
17	907 01105	1	Repair Kit – Master Cylinder – FC11301
18	907 01106	2	Shoe Mounting Plate
19	907 01107	1	Bleeder Screw
20	160 3 4353	A.R.	Brake

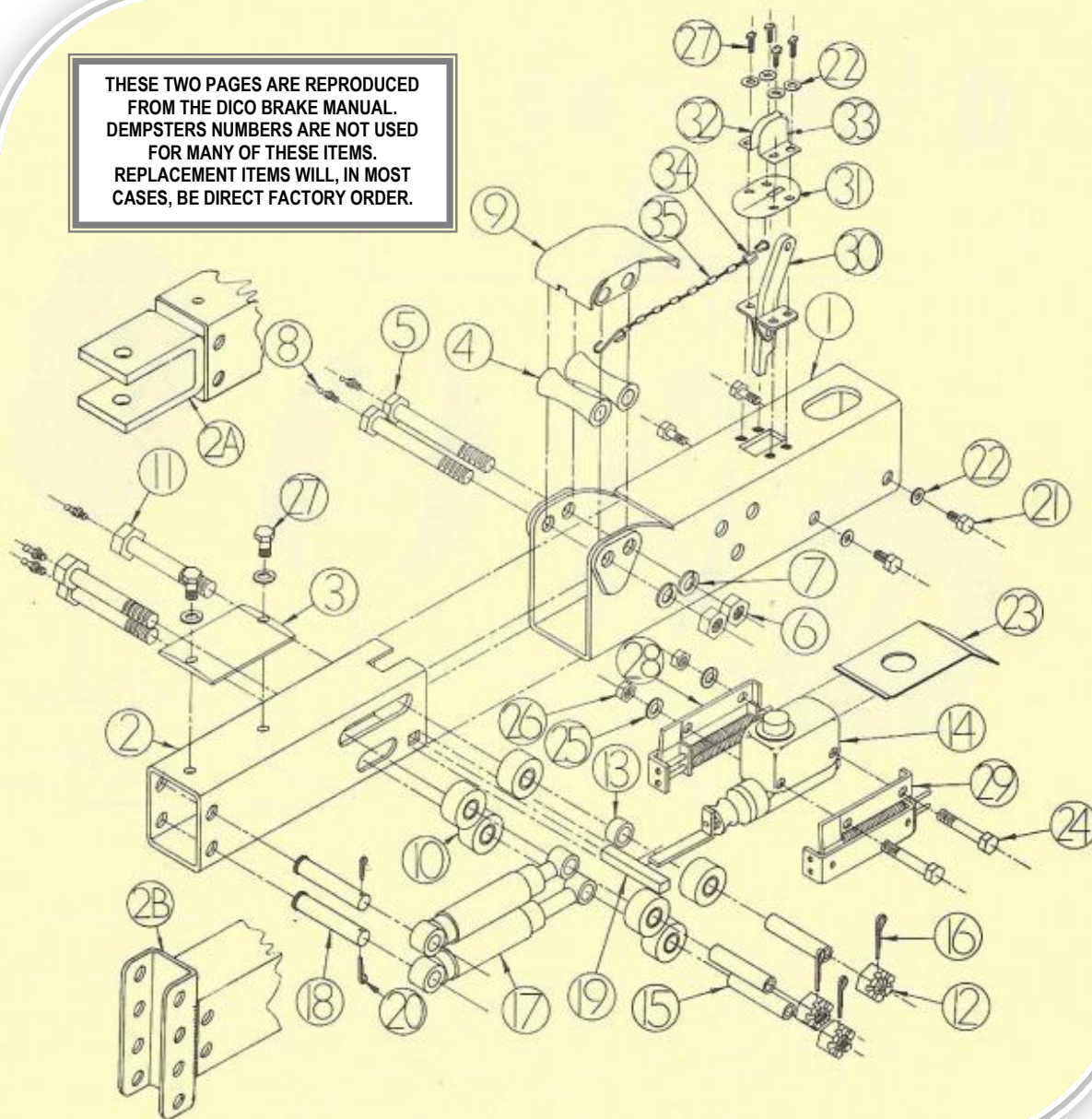
**N.S.S.** – Not Serviced Separately

**A.R.** – As Required



## MODEL 5000

THESE TWO PAGES ARE REPRODUCED  
FROM THE DICO BRAKE MANUAL.  
DEMPSTERS NUMBERS ARE NOT USED  
FOR MANY OF THESE ITEMS.  
REPLACEMENT ITEMS WILL, IN MOST  
CASES, BE DIRECT FACTORY ORDER.



Ref No.	DICO Part Number	Description	Quantity Required
1	10553	Outer case assembly	1
2	10554	Inner slide	1
2a	10581	Inner slide assembly	1
2b	10582	Inner slide assembly	1
3	8284	Centering rail	1
4	8285	Front roller assembly	2
5	8288	Front roller bolt	2



# ACTUATOR PARTS LIST

## MODEL 5000 - *parts list continued...*

Ref No.	DICO Part Number	Description	Quantity Required
6	7985	Hex Nut	2
7	7937	Lockwasher	2
8	1449a	Grease fitting	5
9	8289	Front roller cover	1
10	8291	Rear roller assembly	6
11	8294	Rear roller bolt	3
12	7971	Slotted nut	3
13	3328	Spacer	1
14	8989	Master cylinder assembly 1" Bore	1
14	8420	Master cylinder assembly 1-1/4" Bore	1
15	8297	Spacer	3
16	7994	Cotter pin	3
17	7784	Damper	2
18	8298	Damper bar	2
19	8301	Push rod block	1
20	7997	Cotter pin	2
21	7948	Bolt	4
22	12489	Lockwasher	10
23	8307	Cylinder cover	1
24	8271	Bolt	2
25	12552	Lockwasher	2
26	7976	Hex Nut	2
27	7949	Bolt	6
28	8388	Cylinder bracket assembly – Right	1
29	8389	Cylinder bracket assembly – Left	1
30	10541	Brake lever assembly	1
31	10552	Weather Seal	1
32	10527	Breakaway lock – Right	1
33	10526	Breakaway lock – Left	1
34	10555	S Hook	2
35	7768	Chain	1

The Model 5000 Actuator is completely assembled and ready to weld into place.

- (A) The case should be welded to the tongue utilizing mounting illustrations covering either A-Frame or Drawbar Mount shown.
- (B) Grease all fitting liberally.
- (C) Attach hose to rear of master cylinder and install lines and fittings following the appropriate diagram in the Brake Installation Manual.

### **WARNING**

Granular fertilizers and other corrosive materials are destructive to metal. To prolong the life of a braking system used under corrosive conditions, we recommend that the Actuator be flushed periodically with a high pressure water hose. Be sure to re-grease bearings and oil all moving parts after the unit has dried. At the end of the season, when unit is to be stored, remove the brake drums and clean inside the brakes. Pack wheel bearings before drum is installed.

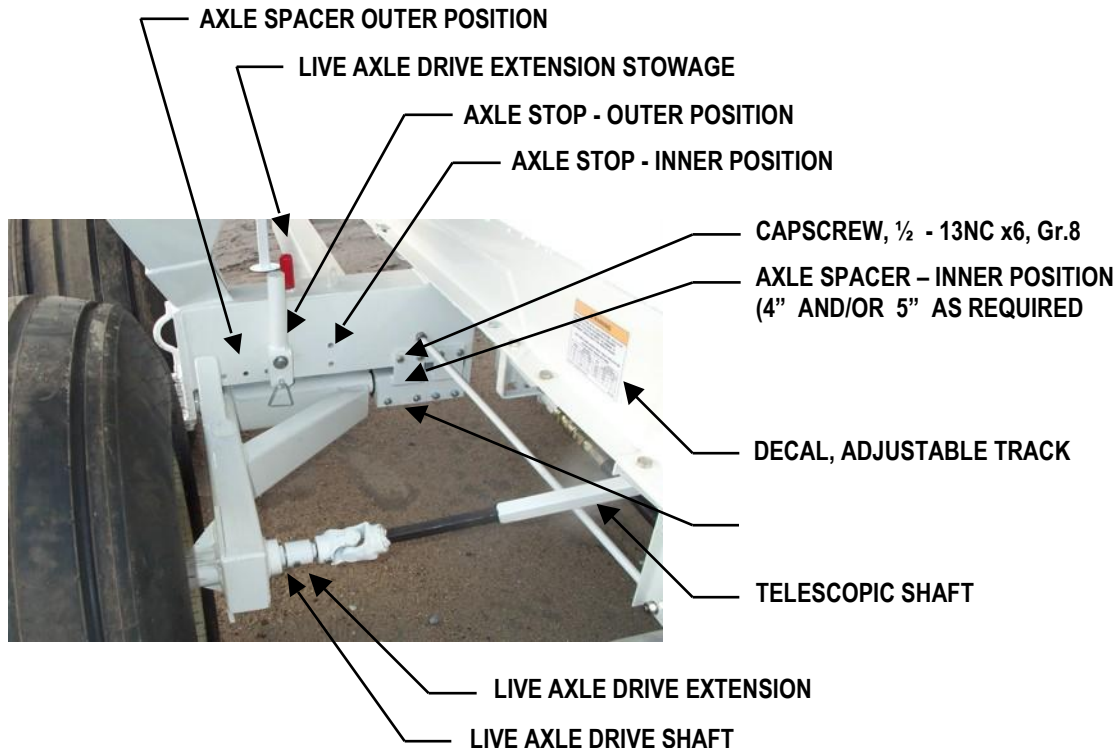
# DESCRIPTION ADJUSTABLE TRACK SYSTEM

The Dempsters Clipper 200/250 Dry Fertilizer Adjustable Track Spreader is designed to allow pre- field adjustment of the walking beam suspension to be set on 60, 68, 70 or 78 inch wheel track spacing for the 200 model and 60 or 72 inch wheel track spacing for the 250 model spreaders. The sliding walking beam axle is fixed into the appropriate track width with axle spacers on both left and right sides of applicator to block side to side movement of the walking beam during field operation. The model 200 has 4" and 5" spacer blocks on each side and the model 250 spreader has 6" block on each side of the spreader.

To accommodate the range of wheel tracking spacing, adjustments are also needed for the axle stop and the live axle drive shaft located on the left rear side of the applicator. Two locations for the axle stop at the left rear of the frame are designated as the inner and outer positions.

The standard Adjustable Track Model 200 Spreader comes with a 2-inch extension for the live axle drive shaft on the left rear wheel for the 78-inch wheel track position. The 2-inch live axle drive shaft extension is not to be used for the 70, 68 and 60-inch wheel track positions. All track spacing settings are summarized on decals shown below.

For the 200 adjustable track spreader with the 1/2 rate drive option, a 6-inch live axle drive shaft extension is used for the 78-inch wheel track position, or a 4-inch live axle drive shaft extension is used for the 70 and 68-inch wheel track positions. No live axle drive shaft extension is to be used for the 60-inch wheel track position.



# ADJUSTABLE TRACK SYSTEM

## MODEL 200 and 250 – ADJUSTABLE TRACK SETTINGS

The following chart summarizes the proper settings for the 200 adjustable track spreader for 60, 68, 70 or 78 inch wheel track spacing

TRACK SPACING	ADJUSTABLE TRACK SPACER		AXLE STOP	LIVE AXLE DRIVE EXTENSION	
	OUTER	INNER		STANDARD	HALF RATE
60"	4" & 5"	NONE	INNER	NONE	NONE
68"	5"	4"	INNER	NONE	4"
70"	4"	5"	OUTER	NONE	4"
78"	NONE	4" 5"	OUTER	2"	6"

1. Check chart above for proper locations of axle spacers, axle stop and live axle drive extension.
2. Secure and raise jack under jack pad on left side of applicator, enough to remove rear tire of the walking beam
3. Remove axle spacers, axle stop and live axle drive extension as required for proper position.
4. Sliding walking beam on Axle pin, locate and install and secure axle spacers, axle stop and live axle drive extension as required for proper position. Keep inside diameter of axle spacers lubricated to avoid spacers from seizing onto axle pin. Use 1/2" - 13NC x 6" Gr .8 cap screws on top holes of spacer assembly. Use 1/2 -13NC x 5-1/2" Gr .5 cap screws on bottom holes of spacer assembly.
5. Cover unused shaft end (s) with plastic cap.
6. Place unused live axle drive shaft extension(s) on extension mount at top of frame beam, left side.
7. Install and secure tire lower applicator to ground.
8. Repeat steps 2 through 4 and 7 relocating axel spacers as required on right side of applicator.



*Thank You For Your Business!*