

AG SYSTEMS, INC.

EQUIPMENT FOR THE FERTILIZER INDUSTRY

PRESENTS
TYLER EQUIPMENT

MOONWALK

**260 SERIES
SPREADER**

OPERATOR'S MANUAL
AND PARTS LIST
OM-260MWS

AG SYSTEMS INC
1180 STATE HWY 7 EAST
HUTCHINSON, MN. 55350
(320) 587-4030

ISSUE
NOV 2014

TO THE DEALER :

Inspect the implement thoroughly after assembly to be certain it is functioning properly before delivering it to the customer. Check off each item as it is found satisfactory or after proper adjustment is made.

PRE-DELIVERY CHECKLIST

- ___ 1. All hardware properly tightened.
- ___ 2. Lubrication of grease fittings.
- ___ 3. All decals properly located and readable.
- ___ 4. Other adjustments, "level operation", "drawbar height", etc..
- ___ 5. Proper tongue weight after all options are mounted. Adjustments made if required.
- ___ 6. Overall condition. Touch-up paint any scratches. Clean and polish.
- ___ 7. Operator's manual.

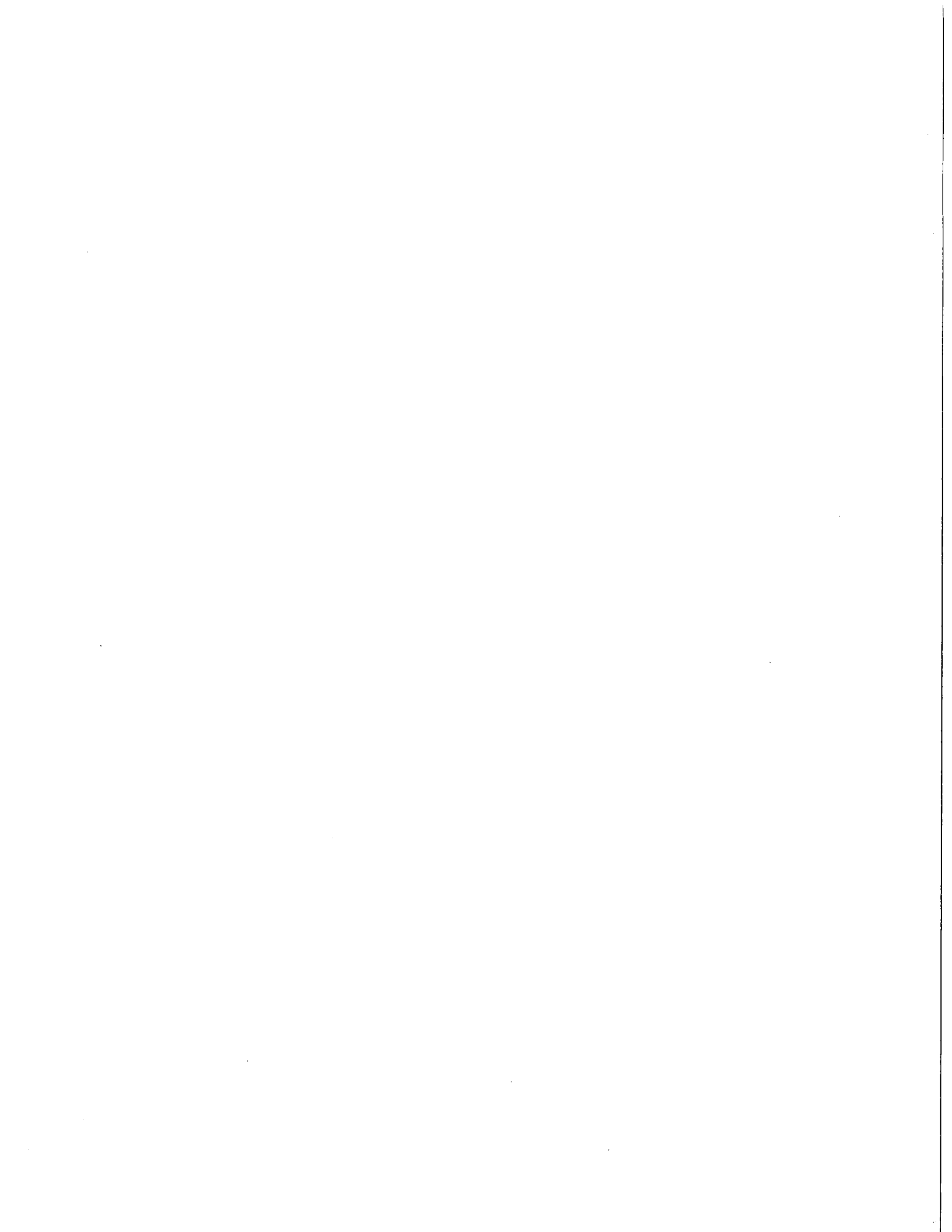
DATE SET-UP _____
SIGNATURE _____
Dealer Name _____
Address _____
City, State, Zip _____
Phone _____

Review the operator's manual with the customer. Explain the following:

- ___ 1. Safe operation and service.
- ___ 2. Correct machine installation and operation.
- ___ 3. Daily and periodic lubrication and maintenance.
- ___ 4. Daily and periodic inspection.
- ___ 5. Trouble shooting.
- ___ 6. Storing machine.
- ___ 7. Ag Systems, Inc. parts and service.
- ___ 8. Have the customer write the machine model and serial number in space provided in the manual introduction.
- ___ 9. Give the customer the operator's manual and encourage the customer to read the manual carefully.

DATE DELIVERED _____
SIGNATURE _____
MODEL NUMBER _____
SERIAL NUMBER _____

PLEASE FILL OUT THIS SHEET AND RETURN TO AG SYSTEMS, INC.
1180 STATE HIGHWAY 7 EAST HUTCHINSON, MN 55350



CONTENTS

Introduction	2		
Warranty	3 & 4		
Safety	5 to 10		
Operating Instructions	11 to 17		
Maintenance	18 to 21		
Spread Pattern Adjustment	22 to 25		
Rate Charts, Standard & Metric	26 to 29		
Decals	30 & 31		
Distributor Drive, PTO. (Gearbox Drive)	32 & 33		
540/1000 RPM. Option	34 & 35		
Single Distributor, Gearbox Drive	36 & 37		
Dual Distributor, Gearbox Drive	38 & 39		
Dual Distributor Chute Adjustment	40		
Gearbox Parts Illustration, single dist.	41 & 42		
Gearbox Parts Illustration, dual dist.	43 & 44		
Apron Drive, Henschen Axle & pivotal and (Hydraulic engaging)	45 & 46		
Apron Drive, (Rope trip engaging)	47		
		Moonwalk Body Assembly	48 & 49
		Henschen Axle and Brakes	50 & 51
		Pivotal Axle and Brakes	52 & 53
		Hub Assembly	54
		Brake Clusters and Actuator	55 & 56
		Brake Installation	57 & 58
		Brake Testing and Maintenance	59 to 66
		Troubleshooting Brakes	67
		Pole Jack	68
		PTO Shaft Parts	69 & 70
		Light Kit	71
		Box Extensions Kit	72
		Flip-Top Kit	73 & 74
		Tarp Cover and Supports	75

TO THE OWNER

This manual has been prepared to assist you in the assembly of your new equipment and contains information pertaining to safety, operating information and all its parts.

Our personnel in sales and service are always available to assist you when questions arise concerning the assembly and operation of your machine.

When ordering parts, please refer to part numbers and descriptions as listed throughout this book. All parts and whole goods will be shipped FOB Hutchinson, Minnesota. Always check merchandise immediately upon receipt for damage or shortage. Note any discrepancy on the carrier's bill of lading and notify Ag Systems Inc. within 10 days.

Any returned good will be subject to a 20 percent restocking charge.

Ag Systems Inc. reserves the right to make improvements and modifications on equipment without obligation to change previously built equipment. All prices are subject to change without notice.

AG Systems, Inc. New Equipment Limited Warranty for Agricultural Equipment

The company warrants the original purchaser of each new AG Systems, Inc. manufactured unit that the product will be free from defects in material and workmanship for the following periods:

Liquid Applicators, except tires	One Year
Spreaders and Tenders, except tires	One Year
Nh3 Wagons, except tires	One Year
Bumper Hitches	One Year
Disc Covers	One Year
Parts	90 Days
Tandem Wagons (except tires and main frame)	One Year
Tandem Wagon main frame	Five Year

Nitromaster Toolbars shall carry the following pro-rated warranty;

Year one, all components except tires	100%
Year two, center section and wings	80%
Year three, center section and wings	50%
Year four, center section and wings	25%
Year five, center section and wings	10%

This warranty does not cover replacement parts or tires. Tires on the company equipment are warranted through the respective manufacturer. Contact a dealer of the manufacturer in your local area on all warranty issues. Parts are warranted to be free of defects in material and workmanship for a period of 90 days from the date of delivery.

AG Systems, Inc. warrants all new manufactured products by AG Systems, Inc. to be free from defects in material and workmanship. This warranty does not cover normal wear or maintenance or repair resulting from accident, negligence, improper maintenance, misuse or improper use, or alteration of the product, or which shall have been repaired in any way so as to affect its performance and reliability.. The cost of normal maintenance, service, and repair items shall be paid by the owner.

The obligation of AG Systems, Inc. under this warranty is limited to the replacement or repair of faulty or defective parts to the original purchaser, subject to inspection of equipment by an authorized AG Systems, Inc. service technician or salesperson. Genuine AG Systems, Inc. parts or remanufactured assemblies that are furnished under this agricultural equipment warranty and installed by AG Systems, Inc. or an authorized AG Systems, Inc. service center, will be repaired or replaced as AG Systems, Inc. elects, without charge for parts or labor (except as where specifically excluded herein), if a defect appears therein, and is reported to AG Systems, Inc. prior to the expiration of the applicable original warranty period. All transportation costs are the responsibility of the original purchaser unless specified otherwise. All faulty parts must be returned to AG Systems, Inc. within 30 days of failure. Reimbursement will not be granted until inspection and determination of failed products. AG Systems, Inc. will not

be held liable or responsible for any repair charges made without prior written consent by an authorized AG Systems, Inc. sales or service technician.

AG Systems, Inc. makes no warranties in respect to parts, accessories, or components not manufactured by AG Systems, Inc. same ordinarily being warranted separately by their respective manufacturers.

This warranty shall not be interpreted to render liability for damages or injury of any kind, direct, consequential, or contingent to person or property. This warranty does not extend to loss of crops, loss because of delay in crop production, crop protection, or any expense incurred for the labor, supplies, substitute machinery, rental or for any other reason or delay in crop production. This warranty is subject to any existing conditions of supply which affect the manufacturer's ability to obtain materials or manufacture replacement parts.

The manufacturer reserves the right to make improvements in design or changes in specifications at any time without incurring any obligations to owners of products previously sold.

No one is authorized to alter, modify, or enlarge this warranty nor its exclusions, limitations, and reservations.

This warranty is in lieu of all other expressed warranties and representation any implied warranties, including merchantability or fitness for any particular purpose are expressly limited to the duration of this written warranty. AG Systems, Inc. shall not be liable for consequential damages.

The undersigned purchaser has fully read all terms and conditions of the AG Systems, Inc. new equipment warranty. The purchaser acknowledges and agrees that AG Systems, Inc. makes no warranties, expressed or implied, other than those specifically set forth herein.

Dated _____

Signed _____



THIS MESSAGE ALERT SYMBOL INDICATES IMPORTANT SAFETY MESSAGES IN THIS MANUAL. WHEN YOU SEE THIS SYMBOL, CAREFULLY READ THE MESSAGE THAT FOLLOWS AND BE ALERT TO THE POSSIBILITY OF PERSONAL INJURY OR DEATH.

Safety Decals on this machine use the words **Danger, Warning or Caution**, which are defined as follows:

- **DANGER:** Indicates an immediate hazardous situation which, if not avoided, will result in death or serious injury. The color associated with Danger is RED.
- **WARNING:** Indicates a potentially hazardous situation which, if not avoided will result in serious injury. The color associated with Warning is ORANGE.
- **CAUTION:** Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices. The color associated with Caution is YELLOW.



WARNING

IMPROPER OPERATION OF THIS MACHINE CAN CAUSE INJURY OR DEATH. BEFORE USING THIS MACHINE, MAKE CERTAIN THAT EVERY OPERATOR:

- Is instructed in safe and proper use of the machine.
- Reads and understands the Manual(s) pertaining to the machine.
- Reads and understands ALL Safety Decals on the machine.
- Clears the area of other persons.
- Learns and practices safe use of machine controls in a safe, clear area before operating this machine on a job site.

It is your responsibility to observe pertinent laws and regulations and follow Case Corporation instructions on machine operation and maintenance.

Safety Instructions

Safety First

Accidents can be prevented by recognizing the causes or hazards before an accident occurs. . . and doing something about them.

Regardless of the care used in the design and construction of this equipment, there are some areas that cannot be completely safe-guarded without interfering with accessibility and efficiency of operation.



THIS MESSAGE ALERT SYMBOL IDENTIFIES IMPORTANT SAFETY MESSAGES IN THIS MANUAL. WHEN YOU SEE THIS SYMBOL, BE ALERT TO THE POSSIBILITY OF PERSONAL INJURY AND CAREFULLY READ THE MESSAGE THAT FOLLOWS.

In this manual and on labels used on this machine the words "**DANGER**", "**WARNING**", and "**CAUTION**", are used to indicate the following:

DANGER: Indicates the most serious and immediate hazards with the highest potential for severe injury.

WARNING: Indicates serious hazards.

CAUTION: Indicates practices to be followed or to be avoided to prevent injury.



THIS MESSAGE ALERT SYMBOL IDENTIFIES INFORMATION THAT MUST BE HEEDED FOR PROPER OPERATION OF EQUIPMENT AND TO PREVENT DAMAGE OR DETERIORATION OF THE EQUIPMENT.

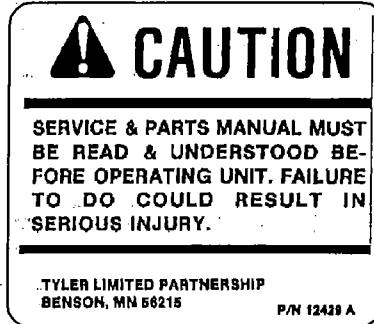
In this manual the words "**IMPORTANT**" and "**NOTE**" are used to indicate the following:

IMPORTANT: Highlights information that must be heeded.

NOTE: A reminder of other related information that needs to be considered.

Safety Instructions for Operation

Do not allow anyone to operate this Case Tyler Moonwalk granular fertilizer spreader until he/she has read this manual and is completely familiar with all safety and operation procedures



WARNING: Observe the **IMPORTANT SAFETY INSTRUCTIONS** listed below at all times.

THE BEST KIND OF SAFETY IS A CAREFUL OPERATOR.



WARNING: Always wear protective clothing, goggles, respirator and gloves when handling chemicals.



DANGER: Safety instructions furnished by chemical manufacturers must be followed exactly to prevent serious harm to individuals and/or the environment.



WARNING: Observe all federal and state EPA regulations and all local, state and federal codes and/or laws regarding licensing, handling, storage, transportation, application, and waste disposal of herbicides or other chemicals used.

Do **not** allow the following people to operate or repair this equipment:

- Children,
- Irresponsible persons,
- People under the influence of alcohol, medications or other drugs that can impair judgment or cause drowsiness,
- Persons unfamiliar with equipment, or
- People who are careless or unfamiliar with safe operating procedures.

People who are allergic to fertilizer or any of the chemicals used must never be allowed near the fertilizer spreader.

Always park the spreader on a level surface; and shut off the towing vehicle and lock the brakes before making adjustments or repairs.

Make sure everyone is clear of equipment before starting operation. Never allow anyone to climb on or stand on the fertilizer spreader while it is operating.



Before operating or towing this equipment, thoroughly inspect the unit to assure it is in good working order.

Do not operate or tow this unit if any defect or malfunction exists. Pay particular attention to safety features such as PTO guards and safety chains.

Keep all shields in place.



Material is discharged off the spinning distributors on the rear of the fertilizer spreader at a high velocity which could inflict injury and/or pain. Make sure none of this material is directed at humans or animals.

Hitching/PTO and Safety Chains



CAUTION: Do not allow safety chains to drag on road surfaces, but allow enough slack for turning. Provide as straight of a connection as possible.



CAUTION: When hitching a fertilizer spreader to a towing vehicle:

1. The hitch on the towing vehicle must have a rating equal to or greater than the GVW of the spreader.
2. Make sure safety pins are inserted in drawbar pin to prevent accidental uncoupling.

3. Connect safety chains, using crossed pattern under tongue, on bumper, hitch or frame of towing vehicle.

4. Connect breakaway chain S-hook to bumper or hitch of towing vehicle.

If this implement is attached to a tractor with a clevis hitch (hammer-strap) style drawbar, the hammer-strap must be removed to prevent damage to the IID (Implement Input Driveline) guarding and the IID telescoping members. See Figure 1.

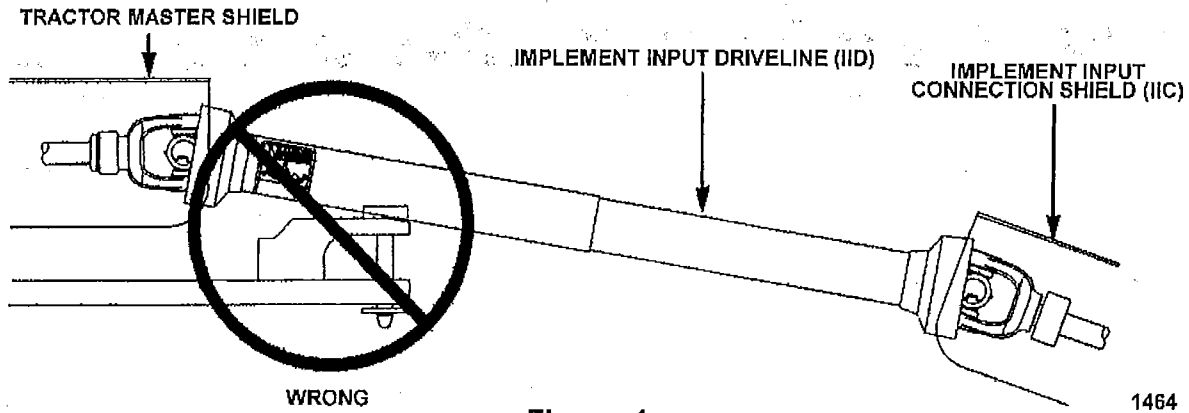


Figure: 1

If this implement is attached to a tractor with an offset in the drawbar, be certain it is in the down position to prevent damage to the IID guarding and the IID telescoping members. See Figure 2.

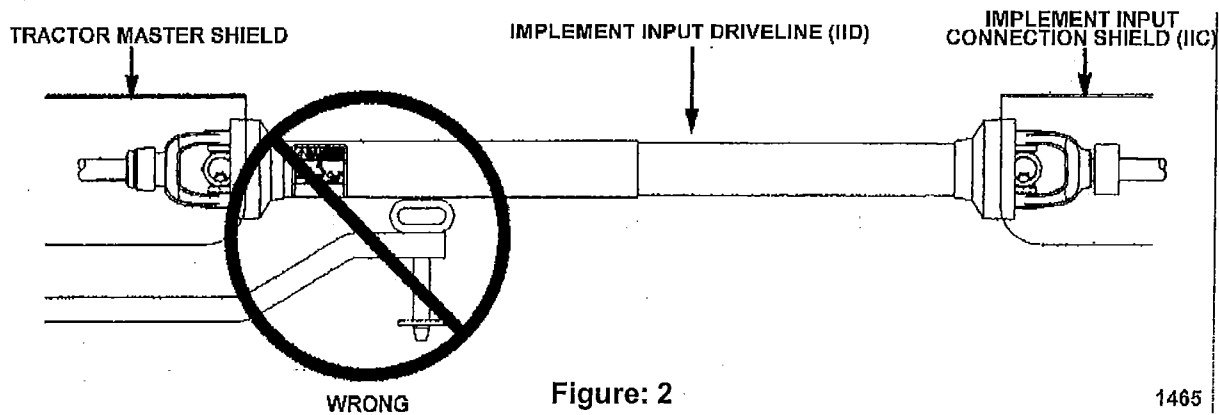


Figure: 2

Speed and Stopping Safety

Stopping distance increases as the square of the speed. For example: It will take twice as much distance to stop a unit traveling 21 mph as one going 15 mph; and four times the distance at 30 mph! (More than eight times the distance at 43 mph!): Road surface will influence stopping distance. Dry pavement is usually considerably better than a gravel road. Materials (such as ice, snow, water, oil or mud) on the surface can greatly increase stopping distance.

Road slope has a significant impact on stopping distance and can greatly magnify the other factors mentioned above. Under some downhill conditions stopping can be very difficult or impossible. When stopping on an up hill, remember that only the brakes on the towing vehicle prevent rolling back down hill. Therefore, a heavier towing vehicle is needed to tow a fertilizer spreader traveling up and down hills than is needed on level roads, especially when the surface is less than ideal.



CAUTION: Units without surge brakes should not exceed 15 mph, while those with brakes should not exceed 20 mph.

If any safety devices on the spreader itself are not functioning properly, do not use the fertilizer spreader. Remove it from service until it has been properly repaired by a qualified service technician.

Do not replace components or parts with those other than genuine Case Tyler Factory Service Parts. To do so may reduce the effectiveness of safety features or decrease the accuracy of the unit.



Read the operation instructions section of this manual for further necessary information relating to the safe operation of the spreader.



CAUTION: Fertilizer is very corrosive and will oxidize steel over a period of time. This weakens steel parts and can cause failure to perform as intended, resulting in possible safety hazards. Periodically check all safety shields and structural members for corrosion. Replace or repair anything that could cause a potential safety hazard.



WARNING: DO NOT weld to wheel or rim when a tire is installed. Welding will cause an explosive air/gas mixture that will be ignited with high temperatures. This can happen to tires inflated or deflated. Removing air or breaking bead is not adequate. Tire **MUST** be completely removed from rim prior to welding

Operating Instructions



CAUTION: Read the Safety and Operation Instructions section of this manual before operating the Tyler Moonwalk fertilizer spreader.

Inspect Unit

Be sure that all shipping fasteners are removed. Check machine thoroughly for screws, bolts, fittings, etc., which may have come loose during shipping. Check wheel lug nuts for tightness before using the machine. Check tire pressure--see MAINTENANCE, page 16, for correct pressure. Check conveyor chain for correct tension--it should sag 2" to 3" underneath.

Hitching

The spreader should always be hooked up so the tongue is level when loaded. The PTO shaft should be approximately one-half extended when the spreader is attached to the tractor. This spreader is designed to comply with ASAE standard S203.10 which indicates that the center of the tractor's PTO shaft should be approximately 8" above the drawbar and the distance from the end of the tractor's PTO to the center of hitch pin hole in drawbar is 14" to 16".

Maximum Load Capacity

We do not recommend loads over six tons in the MW260 and over eight tons in the MW280 even though the spreader will hold more than that depending upon fertilizer density (lbs./cu. ft.).

Spreading

The single distributor is set to spread a 50 foot pattern. The distributor should be run at 750 rpm. The dual distributor is set to spread a 40 foot pattern. The distributor should be run at 750 rpm.



IMPORTANT: Because of the differences inherent in fertilizer products, it is extremely important to test the accuracy of the spread pattern of your spread pattern using the same fertilizer you intend to spread.



NOTE: Always check spread patterns for the various types of material most common to your application. A Tyler test kit P/N 5323 is available through your distributor.

Operators with dual distributors generally drive at 40 foot intervals, while those with single distributors generally should drive at 50 foot intervals to achieve uniform application. The application rate charts are calculated on these standard intervals.

Procedure

1. Select product and desired application rate.
2. Determine actual product density, using density scale or procedure outlined on page
3. Correctly hitch spreader to prime mover, see page
4. Close slide gate. Fill spreader. Do not allow contents to stand over night in spreader.
5. Travel to spreading site, observing safety and pre-operating instructions.
6. Open slide gate and set conveyor speed. Engage conveyor.

Forward Speed

Variation in forward speed will not affect the rate of application because the conveyor is ground driven. When spreading at rates over 600 pounds per acre do not exceed 8 mph.

Unit Without Brakes

Stopping Distance

Read the safety operation section of this manual (page) which details the stopping distance of spreaders on various landscapes.



CAUTION: Without brakes, do not tow your spreader at speeds over 15 MPH on the highway.

Tow Vehicle Weight

The American Society of Agricultural Engineers Tentative Standard: ASAE S365.1T "Brake Test Procedure and Brake Performance Criteria for Agricultural Equipment" indicates that a trailer without brakes should be towed with a vehicle with at least as large of a gross weight as that of the trailer and speed should be limited to 15 MPH. (For example, A 12,000 pound fertilizer spreader without brakes should be towed with a vehicle that weighs at least 12,000 pounds.) The trailer and vehicle should stop within 50' from an initial speed of 15 MPH on a level surface. Of course the brakes on the towing vehicle must be in good working order in all cases!

Unit With Brakes

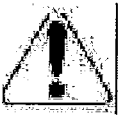
Installation and Maintenance

For Brakes - Refer to Dico Instruction and Service Manual #24039. For parts refer to page 603.

For Actuator - Refer to Dico Installation Instruction and Service Manual #24029. For parts refer to page 603.

Stopping Distance

Read the safety instruction section of this manual (page 5) which details the stopping distance of spreaders using surge brakes on various landscapes.



CAUTION: Do not tow your spreader at speeds over 20 MPH on the highway.

Tow Vehicle Weight

The gross vehicle weight (GVW) of a towing vehicle attached to a fertilizer spreader with its brakes in good working order should weigh at least 25% of the total combined weight of the spreader and the towing vehicle. (For example, if the combined weight of the spreader and towing vehicle is 16,000 pounds, then the weight on the tires of the towing vehicle should be at least 4,000 pounds with the spreader attached.)

Actuator Breakaway

The actuator breakaway is activated only by the breakaway chain with S-hook--SEE CAUTION, page 3. The breakaway system will operate only after both the drawbar pin and safety chains have failed. The breakaway is not a parking brake--"free backing" brakes do not hold in reverse. Should the breakaway be accidentally applied while unhitching, pry the spring clips out to release lever.

Calculating Size and Weight of Load



IMPORTANT: The Moonwalk 260 is designed to hold loads of 6 tons or less, even though the spreader is capable of accommodating more than that of certain types of dense fertilizers.

Determine the Density of the Material to be Spread

Either use a density scale or mathematically determine (refer to How to Determine Weight Per Cubic Foot of Material) the density of the material to be spread.



IMPORTANT: With each change of material, recalculate the density.

MW260 -

How to Determine Weight Per Cubic Foot of Material

1. Weigh an empty one gallon container. (Use a one gallon oil can or anti-freeze can with the top removed.)
2. Fill container level with desired material. (Remember to wear protective clothing when handling fertilizers.)
3. Weigh container with material; subtract weight of container from gross weight.
4. Multiply this weight by 7.5 (7.5 gallons equals 1 cubic foot.) This yields the correct pounds per cubic foot.

EXAMPLE--Typical material= phosphate; weight of empty one gallon container=2 lbs.

Gross weight of container and materials= 9.95 lbs., minus 2.0 lbs.= 7.95 lbs. net weight of materials.

Density= $7.95 \times 7.5 = 59.62$ lbs. per cubic foot (round off to 60 lbs.)

For Canada Using Liters:

1. Weigh an empty 4 liter container. (Use a 4 liter oil can or anti-freeze can with the top removed.)
2. Fill container level with desired material.
3. Weigh container with material. Subtract weight of container from gross weight.
4. Multiply this weight by 7.08 (28.3 liters equals 1 cubic foot.) This yields the correct pounds per cubic foot.

Application Rate--Slide Gate Height

The application rate is determined by the height of the metering gate and the rate of speed of the conveyor-high or low.

The marker for the gate is designed so that when the gate reading is 2 inches, the gate is 2 inches from the floor. These settings hold true throughout the gate settings. Each setting can be measured from the floor.

Once the density of the material has been verified, consult the correct table to determine the height of the slide-gate opening. (This manual includes charts for 40 and 50 foot patterns in both application/cubic foot or application/cubic decimeter. Application rate decals are also present on the spreaders themselves.)

Use the measuring scale attached above the metering gate to adjust the opening to the desired height.

Conveyor Speed

The operator must determine which conveyor speed--low or high--to use to achieve the correct rate of application. This is determined after looking at the rate chart. Each box of the rate chart includes an application rate figure for low speed and for high speed.

Low speed - application requires the chain (item 25, on reference drawing M-C-828) to be positioned on the inner sprockets - 15 tooth to 96 tooth.

High speed - application requires the chain (item 25, on reference drawing M-C-828) to be positioned on the outer sprockets - 25 tooth to 84 tooth.

To move the chain, loosen the tightener block, item 26 (ref. drawing M-C-828), place the chain on the correct set of sprockets, and tighten the tightener block.

Conveyor Belt

Be sure that the heavy duty stainless steel conveyor belt has the proper tensions at all times. After use, the conveyor belt will sag. Keep it between 2 inches and 3 inches at the center of the conveyor belt for proper operation. Do not allow excess sag to continue while operating. Conveyor belt is tightened by loosening locknut on tightener (in front of machine) and turning nut clockwise, thereby tightening conveyor belt.



NOTE: Be sure to tighten both sides evenly.

Checking Accuracy of Gate Settings

To check the accuracy of the gate settings, turn the conveyor drive wheel (small wheel on the left rear end of machine) 28-1/2 turns on machines set at 50' spread pattern, catching and weighing the fertilizer that comes off the rear conveyor. Twenty-eight and one-half turns equals 1/10 of an acre. (For machines with dual distributors, set at 40' spread pattern; 35 turns equals 1/10 of an acre.) For instance, if 11 pounds of fertilizer are accumulated, multiply this by 10 to determine that fertilizer is being spread at the rate of 110 pounds per acre. (11 lbs. x 10 = 110 lbs.)

The rate decal for setting the gate height is accurately installed during production of the equipment. However, vibrations could cause the rate decal to move. If adjustment is necessary, slide the rate decal to the correct position and tighten the fasteners. Retest the accuracy of the setting.

Spread Pattern Adjustment

Single Distributor Units

The rear chute (single distributor only) and distributor blades on Tyler spreaders have been designed to be adjustable in order to yield an accurate spread pattern with virtually all fertilizer used in agriculture today. Because of the differences inherent in these products, it is **extremely important** to test the accuracy of the spread pattern of your spreader using the same fertilizer you intend to spread. Adjustment of the rear chute (single dist. only) and/or the distributor blades is frequently required.

Chute Adjustment

The following figure illustrates the factory settings:

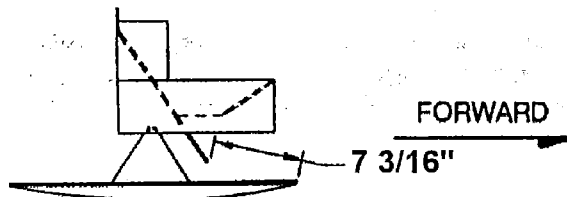


Figure: 3

If the results of the spread pattern test indicate an unequal balance, movement of the chute forward will increase the amount of product spread to the left while rearward movement will increase the amount of product spread to the right. (Adjustments of 1/8" and less will have a significant effect on the balance of the pattern.)

Distributor Blade Adjustment



CAUTION: Adjust blades only after correctly performing the spread pattern test.

The following figure illustrates the factory settings:

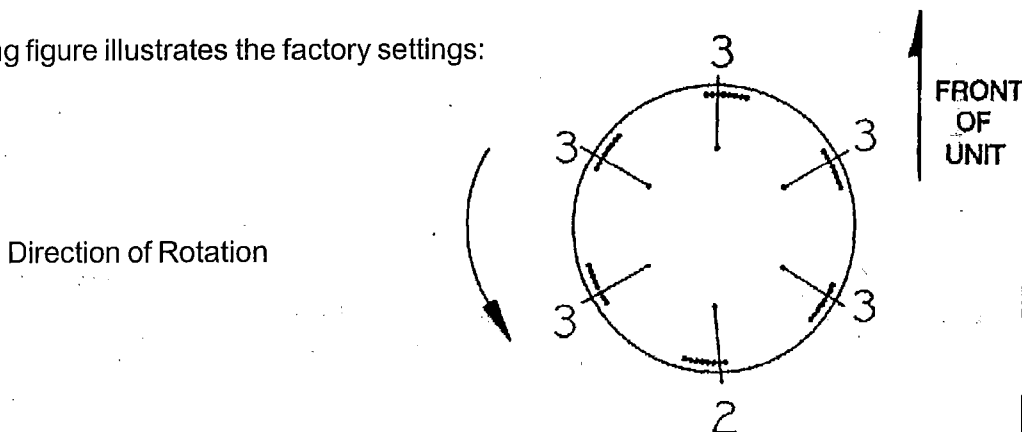


Figure: 4

The factory blade setting is five (5) blades on 3rd hole back from the rotation of distributor, and one (1) blade on 2nd hole back. Adjusting the blades toward the rotation (in holes 1 and 2) of the distributor will tend to move the material around to the right hand side of the pattern. Adjusting the blades back from the rotation (in holes 4,5,6,7,8) will tend to move material around to the left hand side of the pattern.

Decals on Single Distributor Units

- Standard Rate Decal--Part No. 30906B
- Metric Rate Decal--Part No. 32530A

The single distributor normally spreads a 50' pattern.
The distributor should be run at 750 RPM.

Decals on Dual Distributor Units

- Standard Rate Decal--Part No. 30853B
- Metric Rate Decal--Part No. 32529A

The dual distributors spread a 40' pattern.
The distributors should be run at 750 rpm.

Dual Distributor Units

The distributor blades on Tyler spreaders have been designed to be adjustable in order to yield an accurate spread pattern with virtually all fertilizer used in agriculture today. Because of the differences inherent in these products, it is **EXTREMELY IMPORTANT** to test the accuracy of the spread pattern of your spreader using the same fertilizer you intend to spread. Adjustment of the distributor blades is frequently required.

Distributor Blade Adjustment



CAUTION: Adjust blades only after correctly performing the spread pattern test.

The following figure illustrates the factory settings:

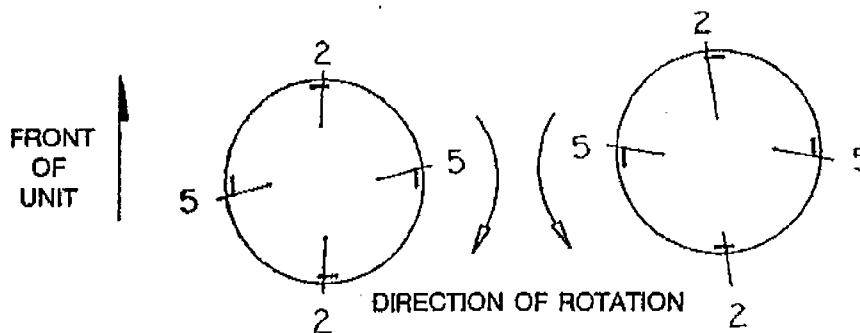


Figure: 5

The factory setting is (2) blades on the 5th hole and (2) blades on the 2nd hole back from rotation of distributor. Adjusting the blades forward (toward the rotation of the distributors) will tend to move the material to the outside ranges of the pattern. Adjusting backward (opposite the rotation of the distributors) will tend to move the material back to the middle ranges of the pattern.

Normally, most fertilizers can be effectively spread at the recommended pattern width. However, in some instances, a narrower width may be advisable. Urea is one of the products where a narrower spread pattern may be advisable due to the characteristics of the product (light weight, small pellet size, etc.). Spread pattern testing the unit will determine the most effective width. This may be in the area of 30-36 feet. It may be necessary to make blade adjustments for best results.

Maintenance

Brake Maintenance



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.

Refer to Surg-o-matic Actuator Manual - (Dico #24029)

Refer to Surg-o-matic Brake Manual - (Dico #24039)

Refer to Surg-o-matic Brake Technical Bulletin - (Dico #215)

Daily Care

Wheel Lug Nuts: Check wheel lug nuts daily for tightness.

Pivotal Axle: Grease the pivotal shafts on the undercarriage daily.

Roller Chains: Brush roller chains with a 50-50 mixture of fuel oil and motor oil daily.

Safety Shields: Make sure that all safety shields are properly in place--including PTO shields, belt shields, etc.

PTO Shaft Care: Grease the PTO shaft daily and oil the telescoping shaft and tubes at least three times a day.



CAUTION: Check PTO shaft shields. If shields are damaged, replace at once. Do not operate with damaged PTO shields.

Metering Slide Gate: Keep metering slide gates clean at all times. Always close the metering gate before loading the spreader.

Build-up of Material on Chutes: Keep the chute free from build-up so that the fertilizer will fall correctly onto the distributor blades. Always clean the top of the chute thoroughly. If build-up occurs, a streak will be left under the spreader while operating.

Build-up of Material on Conveyor Bed:



CAUTION: Follow chemical manufacturer's instructions and local, state and federal regulations for proper handling and disposal of fertilizer and chemical residue.

MW260 -



IMPORTANT: Inspect conveyor bed daily for build-up of excess fertilizer material under conveyor belt. Excessive build-up first appears on the skid plate between the rear roller and the gate. This condition can most easily be noted by sighting through the gate opening.

Hosing the machine out with water after each day's run will eliminate build-up if done before the material has hardened. However, if build-up has already occurred, remove the conveyor belt and scrape the floor clean.

Overnight Storage: Avoid overnight storage of material in machine to prevent excessive compaction. In the event the spreader does stand overnight, or is subjected to rain or high humidity with a small amount of material on the floor, move the conveyor belt in the proper direction by turning small drive wheels manually to ensure free movement prior to actual operation.



IMPORTANT: All units should be washed daily. Do not use a pressure washer as you will force fertilizer into the bearings.

See above brake maintenance section for recommended daily care.

Weekly Care

Lubrication: Grease all grease points every 75 hours of operation with the exception of the conveyor belt bearings, which should be greased every 200 hours, and the PTO shaft, which should be greased daily.

V-belt Maintenance: Check and adjust after first two hours of operation, then after another 10 hours of use. Thereafter, check weekly to insure proper operation and even spreading of material.

To determine proper tension: place a 7 pound force (such as a fish scale) mid-way between two pulleys, and measure the belt deflection. Measure the distance between the two pulleys and multiply by $1/64$ ". For example: if the distance between the two pulleys is 16", the maximum deflection should be $16/64$ " or $1/4$ ". If the measured deflection is greater than/or less than that calculated allowance, the belt must be tightened or loosened. See Figure 6.

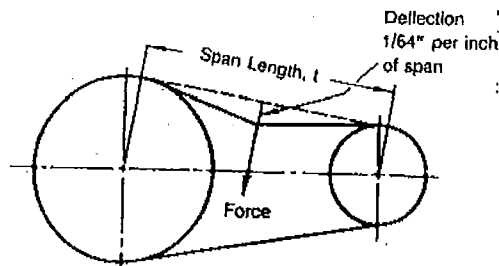


Figure: 6

Perform this test for both front and rear sets of pulleys.

Maintenance -

Tire Maintenance: Be sure that tires are properly inflated at all times. Recommended tire pressure is as follows:

- 16.5L-16.1: 24 PSI for 6-ply, and 36 PSI for 10-ply tires.
- 19L: 32# pressure.
- 4.10/3.50 x 6: 35# pressure.

Brakes: See the section on brake maintenance, page ..

Care Between Seasons

Care of Roller Chain: To prevent freezing of the roller chain due to rusting, remove and store, submerged in fuel oil between seasons. Do not use regular oil for this purpose.

Care of Shear Hub: As a safety measure, the shear hub and sprocket are designed with a pin which will shear at predetermined pressure. However, care must be taken so that the hub and sprocket do not become rusted or frozen together, negating the value of the shear pin. Keep the shear hub clean and well lubricated at all times to protect the conveyor system. Occasionally take the shear pin out and grease the hub with a grease gun, then rotate the sprocket of the hub several times to make sure that grease is spread all around the hub.

Pivotal Axles: If the spreader has pivotal suspension, make sure that the pivot shaft of the axle is very well greased before storing. To properly do this, the spreader should be jacked up to take the pressure off the pivot shaft; this will allow the grease to get to the side of the shaft that has pressure on it when it is sitting on the wheels. If possible, use an air gun to grease it.

Fan Blade Maintenance: Check fan blades, straighten or replace them when needed. Also be sure to keep fan blades free from material build-up, otherwise the quality of the spread will be affected. Keep the blades clean.

Spreader Storage: Always store the spreader with the tarp removed. Otherwise, moisture may be confined within the box, causing the unit to rust.

Inspect Machine: Look for loose bolts, excessive wear, cracked welds, bent parts and any potential safety hazard. Make all necessary repairs before using the machine.

Brakes: See the section on brake maintenance, Page ..

Distributor Gearboxes: Gearboxes should be checked for oil level before and after each busy season and if low, refilled with #90 gear lube to top plug on gearbox.

Wheel Bearing Maintenance: Remove, clean and inspect all wheel bearings after each busy season, or at least twice a year. Replace any worn bearings and repack with wheel bearing grease and adjust for proper tension. Never let a machine set for any period of time with old grease in the bearings.

Lubrication Points Listing

Daily Care

- Page 013, Ref.No. 6a,7a Grease fittings on both ends of PTO shaft and the telescoping shaft and tubes at least 3 times a day.
- Page 028, Ref.No. 3 Grease the axle pivotal shafts on the undercarriage daily.
- Page 828, Ref.No. 3, 6, 28 Brush roller chains with a 50-50 mixture of fuel oil and motor oil daily.

Weekly Care

- Page 022, Ref.No. 9, 21 Grease fittings on bearings.
- Page 023, Ref.No. 9, 16 Grease fittings on bearing.
- Page 023, Ref.No. 28 Grease fittings on universal joints.
- Page 023, Ref.No. 2 Grease fittings on actuator pole assembly.
- Page 023, Ref.No. 21 & 34 Grease fittings on pivot bushings.
- Page 182, Ref.No. 19 Grease fittings on gearbox .
- Page 187, Ref.No. 11 Remove cap and oil jack periodically.
- Page 190, Ref.No. 31 Grease fittings on gearbox.
- Page 247, Ref.No. 5 Grease fittings on bearing.
- Page 247, Ref.No. 18 Grease fittings on bushings.
- Page 515, Ref.No. 7 Grease fittings on universal joints.
- Page 599, Ref.No. 3 Grease fittings on gearbox.
- Page 828, Ref.No. 1, 25 Grease fittings on bearings.

Seasonal Care

- Page 828, Ref.No. 3, 6, 28 Between seasons remove roller chain and store submerged in fuel oil to prevent rusting and freezing. Do not use regular oil.

Spread Pattern Testing

Equipment Required

Tyler Spread Pattern Test Kit No. 5323 includes--

- Scale
- 11 boxes
- 11 tubes in rack
- funnel
- width marker for setting boxes
- instructions for spread pattern test
- 4 flags
- 100 spread pattern test charts

Procedure to Set Machine and Course



WARNING:

Always wear protective clothing and goggles when performing spread pattern test. Conduct spread pattern test in a manner that does not cause an environmental problem.

1. Select site - flat level ground preferably, 900 feet long and wide enough for two passes at selected pattern width.
2. Clean spreader - chip fertilizer from rear conveyor floor, gate, chute area and distributor blades.
3. Check distributor shaft centers (dual distributors) from center of chute. The proper dimension is 10 1/8".
4. Check for bent or worn blades, blade settings and curved deflectors.
5. Check belts and chain tension front and rear.
6. Check gate opening in closed position. There should be 1 1/2" from bottom of gate to floor.
7. Check material weight per cubic foot using scale.
8. Select rate per acre and set gate to correct setting.
9. Use tractor or other prime mover with wide front wheel spread (to clear boxes) - hook up spreader. **Note:** Spreader should be as level as possible.
10. Check distributor rpm with tachometer per manual. **Note:** tractor with PTO to be run at 540 rpm.

6. Record tube level in inches or other units on data sheet for boxes 1 through 11 and complete data sheet information. Pattern on graph should be level within plus or minus 10%. If the graph is not acceptable, readjust blades per manual.
7. After an acceptable pattern is recorded on graph, pour all of the fertilizer from boxes 1 through 11 together into one tube and compare left hand pass with results from right hand pass. If one is higher than the other, more fertilizer is going to one side than the other. (This means the chute has to be adjusted.)



NOTE:

- Spread at accurate widths, failure to do so will cause poor spread patterns resulting in field streaking and failure to meet a rate per acre application.
- ASAE and TFI recommends a spreader capacity calculation based on a standard material density of 65# per cubic foot.
- It is necessary to confirm actual material density (pounds per cubic foot) in order to be assured of correct rate per acre.

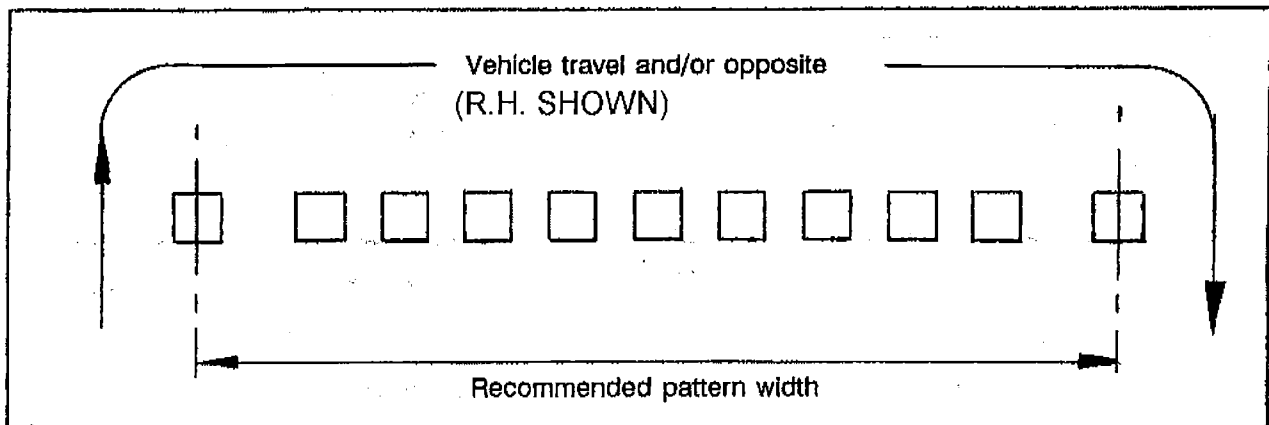
Field Demonstration Spread Pattern Test Procedure

Check List

- Power source - tractor with wide front and PTO shaft.
- Set tractor tachometer at 540 PTO speed.
- Ground speed for testing trailer spreader unit, 5 mph, spreader trucks truck, 8 mph.
- Always know the exact weight per cubic foot of the material to be spread (recommended seedburrow-type scale.)

Spread Pattern Test - Overlap Pass

Set boxes in a straight line on smooth, level ground, per graph below:



11. Lay out course and set boxes per "Spread Pattern Test" procedure (with direction of travel in to and away from wind).
 - a. Find wind direction (do not spread if wind velocity is over 5 mph).
 - b. Using width marker set boxes at 90° (within 15°) to wind direction, if possible, at spacings required per data sheet. **Note:**-for all spread widths, box 1 and 2 and 10 and 11 are spaced at 72" (6'0") center to center of box for wheel clearance, and boxes 2 through 10 are spaced per "x" dimension on data sheet using marker. Allow 450' of spreader travel on each side (forward and aft) of boxes.
 - c. Set four flags, two in line with box 2 and two in line with box 10, 450' from center line of boxes per data sheet.

Material used for spread pattern should be sized and enough in the hopper to assure a full amount at the gate at test completion. EXAMPLE--450' before boxes and 450' after boxes plus 40' between boxes plus 900' (second pass) = 1,840 lineal feet of spreader travel x 40' spread width = 73,600 square feet divided by 43,560 square feet per acre = 1.69 acres x 300# per acre = 507# material used for one completed test.

Procedure - Spread Pattern Test

1. Drive prime mover off course at least 450' with conveyor drive disengaged to settle spreader contents. Turn conveyor drive to bring material to rear roller.
2. Drive towards center of box 1 or 11, for right hand or left hand pattern, with conveyor drive engaged and distributors turning at correct rpm, at 5 mph.
 - a. Tractor tachometer at 540 rpm PTO speed (gives 740 distributor rpm).
 - b. Power pack set for 740-750 distributor rpm; engine governor controls rpm; engine governor controls rpm (output shaft speed is 540 rpm).
 - c. Hydraulic drive set for 740-750 distributor rpm per manual.
 - d. Truck spreader or hydraulic drive requires at least 1,700 engine rpm. Spread material for 450' before passing boxes.
3. Drive 450' beyond boxes with spreader operating, turn right or left at flag and around opposite flag and line up with center of box 1 or 11 and continue pass for 450' past boxes to original starting line.
4. Depending on rate per acre, one or more complete passes may be run to obtain at least 1" of material in test tubes. (At 100# per acre at least two completed passes are required to obtain a measurable quantity of material in the tubes).
5. Starting with box 1 pour contents into test tube #1 using funnel and continue through box 11.

1. Set boxes so test can be run driving directly into the wind.
2. Drive over boxes as shown. (right hand overlap pattern shown - left hand opposite).
3. For low rates per acre, run at least two passes.
4. Ideal pattern would be a pattern that has an equal amount of fertilizer in each tube.

RATE DECAL - STANDARD 40 FOOT PATTERN FERTILIZER

Gate Opening	MATERIAL WEIGHT PER CUBIC FOOT															
	45	50	52	54	56	58	60	62	64	66	68	70	72	74	76	
1 1/2	81	90	94	97	101	104	108	112	115	119	122	126	130	133	137	
	110	122	127	132	137	142	147	152	156	161	166	171	176	181	186	
2 1/2	141	157	163	169	175	182	188	194	201	207	213	219	226	232	238	
	170	189	196	204	212	219	227	234	242	249	257	264	272	280	287	
3 1/2	203	226	235	244	253	262	271	280	289	298	307	316	325	334	343	
	231	257	267	277	287	298	308	318	329	339	349	359	370	380	390	
4	440	489	508	528	548	567	587	606	626	645	665	684	704	724	743	
	262	291	303	314	326	338	349	361	373	384	396	408	419	431	442	
4 1/2	499	554	577	599	621	643	665	688	710	732	754	776	798	821	843	
	292	324	337	350	363	376	389	402	415	428	441	454	467	480	493	
5	555	617	641	666	691	715	740	765	789	814	839	863	888	913	937	
	321	357	371	385	399	414	428	442	457	471	485	499	514	528	542	
5 1/2	612	680	707	734	762	789	816	843	870	898	925	952	979	1006	1034	
	353	392	408	424	439	455	471	486	502	518	533	549	565	580	596	
6	671	746	775	805	835	865	895	925	954	984	1014	1044	1074	1103	1133	
	383	426	443	460	477	494	511	528	545	562	579	596	613	630	647	
6 1/2	731	812	845	877	910	942	975	1007	1040	1072	1105	1137	1170	1202	1235	
	412	458	476	494	513	531	549	568	586	604	623	641	659	677	696	
7	785	872	907	942	977	1012	1047	1082	1116	1151	1186	1221	1256	1291	1326	

LOW RANGE — Using 15 tooth to 96 tooth sprockets — For rate per acre use top number in box
 HIGH RANGE — Using 25 tooth to 84 tooth sprockets — For rate per acre use bottom number in box

30853C

12/90

TYLER LIMITED PARTNERSHIP — BENSON, MN 56215

TCI P/N 30853 C

RATE DECAL - STANDARD 50 FOOT PATTERN FERTILIZER

Gate Opening	MATERIAL WEIGHT PER CUBIC FOOT														
	45	50	52	54	56	58	60	62	64	66	68	70	72	74	76
1 1/2	65	72	75	78	81	84	87	90	92	95	98	101	104	107	110
2	88	98	102	106	110	113	117	121	125	129	133	137	141	145	149
2 1/2	113	126	131	136	141	146	151	156	161	166	171	176	181	186	191
3	136	151	157	163	169	175	181	187	193	199	206	212	218	224	230
3 1/2	259	288	299	311	322	334	345	357	368	380	391	403	414	426	437
4	162	180	187	194	202	209	216	223	230	238	245	252	259	266	274
4 1/2	308	342	356	370	383	397	411	424	438	452	465	479	493	506	520
5	185	206	214	222	230	238	247	255	263	271	280	288	296	304	312
5 1/2	352	391	407	422	438	454	469	485	501	516	532	548	563	579	594
6	210	233	243	252	261	271	280	289	299	308	317	327	336	345	355
6 1/2	399	443	461	479	497	514	532	550	567	585	603	621	638	656	674
7	233	259	269	280	290	300	311	321	331	342	352	362	373	383	394
7 1/2	444	493	513	533	553	572	592	612	631	651	671	691	710	730	750
8	257	286	297	308	320	331	343	354	366	377	388	400	411	423	434
8 1/2	490	544	566	588	610	632	653	675	697	719	740	762	784	806	828
9	282	313	326	338	351	363	376	389	401	414	426	439	451	464	476
9 1/2	537	597	621	644	668	692	716	740	764	788	811	835	859	883	907
10	307	341	355	368	382	396	409	423	437	450	464	478	491	505	518
10 1/2	585	650	676	702	728	754	780	806	832	858	884	910	936	962	988
11	329	366	380	395	409	424	439	453	468	483	497	512	526	541	556
11 1/2	628	698	726	754	781	809	837	865	893	921	949	977	1005	1033	1061

LOW RANGE — Using 15 tooth to 96 tooth sprockets — For rate per acre use top number in box
 HIGH RANGE — Using 25 tooth to 84 tooth sprockets — For rate per acre use bottom number in box

TYLER INDUSTRIES, INC. - BENSON, MN 56215

P/N 30906B

7/87

RATE DECAL - STANDARD 12.19 Meter Pattern (40 Foot) FERTILIZER

Gate Opening	MATERIAL WEIGHT - PER CUBIC DECIMETER (KILO/1000 CM ³)															
	.721	.801	.833	.865	.897	.929	.961	.993	1.025	1.057	1.089	1.121	1.153	1.185	1.217	
1 1/2	91	101	105	109	113	117	121	125	129	133	138	142	146	150	154	
2	173	192	200	208	215	223	231	238	246	254	261	269	277	284	292	
	123	137	142	148	153	159	164	169	175	180	186	191	197	202	208	
2 1/2	235	261	272	282	292	303	313	324	334	345	355	366	378	386	397	
	158	176	183	190	197	204	211	218	225	232	239	246	253	260	267	
3	303	337	350	364	377	391	404	417	431	444	458	471	485	498	512	
	191	212	221	229	238	246	255	263	272	280	289	297	306	314	323	
3 1/2	363	403	419	436	452	468	484	500	516	532	549	565	581	597	613	
	228	253	263	274	284	294	304	314	324	334	345	354	365	375	385	
4	432	480	499	518	538	557	576	595	614	634	653	672	691	710	730	
	259	288	299	311	322	334	345	357	368	380	391	403	414	426	437	
4 1/2	493	548	570	592	613	635	657	679	701	723	745	767	789	811	833	
	294	327	340	353	366	379	392	405	418	431	444	457	470	483	497	
5	559	621	646	671	696	720	745	770	795	820	845	870	894	919	944	
	327	363	378	392	407	421	436	451	465	480	494	509	523	538	552	
5 1/2	622	691	719	746	774	802	829	857	885	912	940	968	995	1023	1050	
	360	400	416	432	448	464	480	496	512	528	544	560	576	592	608	
6	686	762	793	823	854	884	915	945	976	1006	1037	1067	1098	1128	1159	
	396	440	458	475	493	510	528	546	563	581	598	616	634	651	669	
6 1/2	752	836	869	902	936	969	1003	1036	1069	1103	1136	1170	1203	1237	1270	
	429	477	496	515	534	553	572	591	610	629	648	667	686	705	725	
7	819	910	946	983	1019	1055	1092	1128	1165	1201	1238	1274	1310	1347	1383	
	482	513	534	554	575	595	616	637	657	678	698	719	739	760	780	
	580	978	1017	1056	1095	1134	1173	1212	1252	1291	1330	1369	1408	1447	1486	

LOW RANGE - Using 15 tooth to 96 tooth sprockets - For kilograms per hectare use top number in box
 HIGH RANGE - Using 25 tooth to 84 tooth sprockets - For kilograms per hectare use bottom number in box

TYLER INDUSTRIES, INC. - BENSON, MN 56215

7/82

32529A

RATE DECAL - STANDARD

15.24 Meter Pattern (50 Foot)

FERTILIZER

Gate Opening	MATERIAL WEIGHT - PER CUBIC DECIMETER (KILO/1000 CM ³)														
	.721	.801	.833	.865	.897	.929	.961	.993	1.025	1.057	1.089	1.121	1.153	1.185	1.217
1 1/2	73	81	84	88	91	94	97	101	104	107	110	114	117	120	123
2	99	110	111	119	123	128	132	136	141	145	150	154	158	163	167
2 1/2	127	141	147	152	158	164	169	175	181	186	192	198	203	209	214
3	152	169	176	182	189	196	203	209	216	223	230	236	243	250	257
3 1/2	182	202	210	218	226	235	243	251	259	267	275	283	291	299	307
4	207	230	239	248	258	267	276	285	294	304	313	322	331	340	350
4 1/2	235	261	272	282	292	303	313	324	334	345	355	366	376	386	397
5	261	290	302	313	325	336	348	360	371	383	395	406	418	429	441
5 1/2	288	320	333	346	358	371	384	397	410	422	435	448	461	474	486
6	316	351	365	379	393	407	421	435	449	463	478	492	506	520	534
6 1/2	344	382	398	413	428	443	459	474	489	505	520	535	550	566	581
7	369	410	426	443	459	476	492	508	525	541	558	574	590	607	623
	704	782	814	845	876	907	939	970	1001	1033	1064	1095	1126	1158	1189

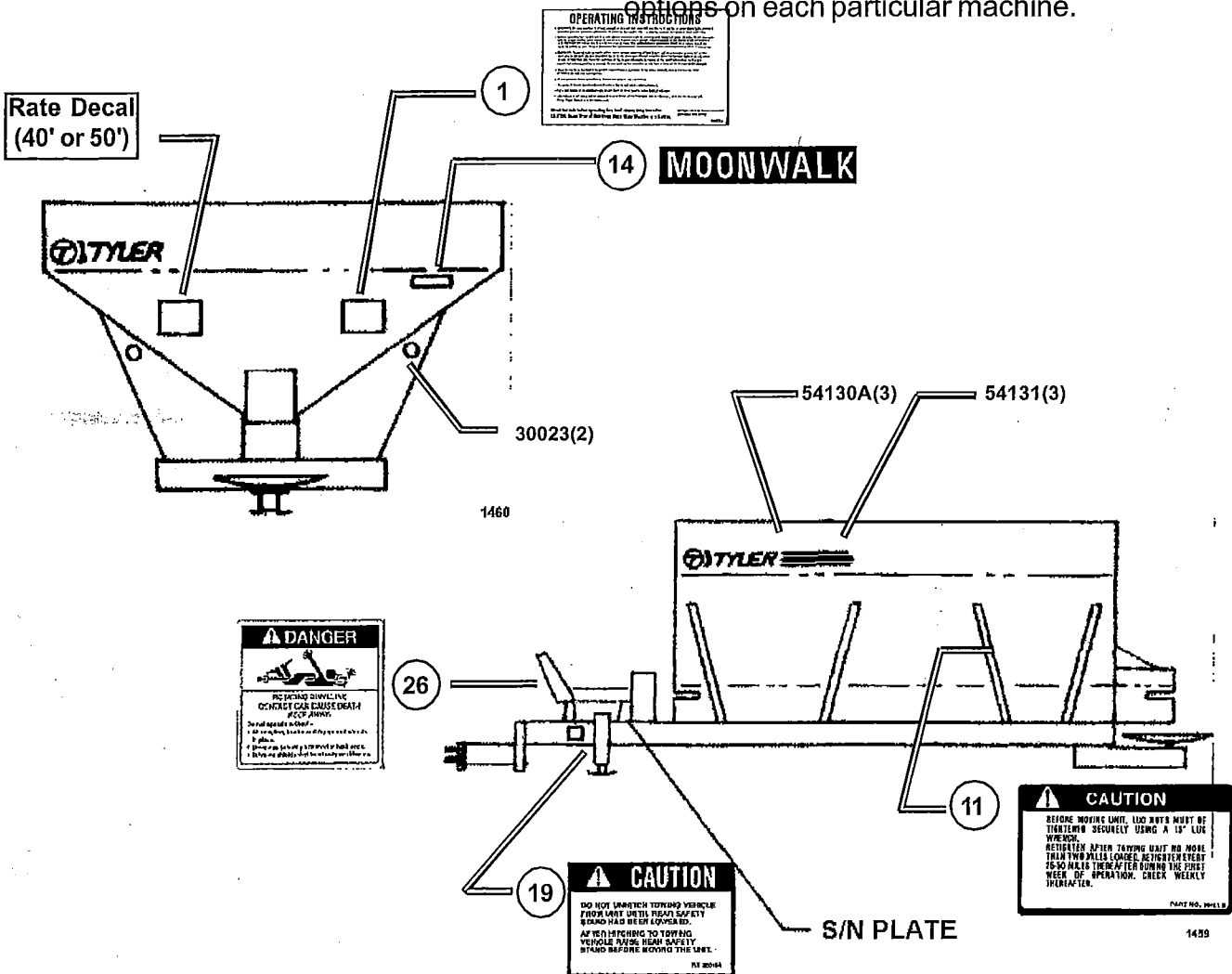
LOW RANGE - Using 15 tooth to 96 tooth sprockets -- For kilograms per hectare use top number in box
 HIGH RANGE - Using 25 tooth to 84 tooth sprockets -- For kilograms per hectare use bottom number in box

TYLER INDUSTRIES, INC. - BENSON, MN 56215

Decals

1.	10163A	Operating Instructions	15.	31819A	Patent Pivotal Axle
2.	10346B	PTO 540 RPM	16.	31820A	Patent Two Pin Hitch
3.	10551A	PTO 1000 RPM	17.	31868A	Do Not Back Up
4.	10554A	Important, Lubricate	18.	31894A	Caution, Disengage PTO
5.	12181A	Caution, Guards In Place	19.	32016A	Caution, Do Not Unhitch
6.	12182B	Danger, Stay Clear	20.	32529A	Rate Decal
7.	12429A	Read Manual	21.	32530A	Rate Decal
8.	29369	Made by Tyler	22.	32987A	540-1000 RPM
9.	30023	Red Reflector	23.	37578	Caution, Slow Engine RPM's
10.	30243A	Rope Pull	24.	37864	Max. Load (6 Ton)
11.	30481B	Wheel Nut	25.	37865	Max. Load (8 Ton)
12.	30853B	Rate Decal	26.	39384	Danger Rotating Driveline
13.	30906B	Rate Decal	27.	54130A	Rear Tyler w/Logo
14.	31020A	Moonwalk	28.	54131	Rear Tyler w/Logo
			29.		Serial Number Plate

NOTE: Not all of the decals listed above may appear on your machine. Decals vary with the options on each particular machine.



CAUTION

DISengage P.T.O. BEFORE DISMOUNTING FROM UNIT. DO NOT REMOVE P.T.O. SHIELD, BELT SHIELD, ETC. EXCEPT WHEN SERVICING UNIT OR REPLACING BELT AND CHAINS. ALWAYS REPLACE SHIELDS BEFORE OPERATING UNIT AGAIN. IT IS EXTREMELY DANGEROUS TO LEAVE SHIELD OFF OF P.T.O. BELLSHOE BECOME DAMAGED DO NOT OPERATE REPLACE THEM AT ONCE.

CAUTION

SLOW ENGINE RPM'S BEFORE ENGAGING OR DISENGAGING PTO — TO PREVENT DAMAGE TO DRIVE

IMPORTANT

DO NOT BACK UP UNLESS DRIVE WHEEL IS DISENGAGED

CAUTION

SERVICE & PARTS MANUAL MUST BE READ & UNDERSTOOD BEFORE OPERATING UNIT. FAILURE TO DO COULD RESULT IN SERIOUS INJURY.

MAX LOAD 6 TON

MAX TOWING SPEED 20 MPH

DANGER

STAY CLEAR OF ALL MOVING PARTS WHILE UNIT IS RUNNING OR SERIOUS INJURY COULD OCCUR.

MAX LOAD 8 TON

MAX TOWING SPEED 20 MPH

THIS UNIT COVERED UNDER PATENT 3,716,250

TYLER LIMITED PARTNERSHIP
DEPT 0011, P.O. BOX 55215 #31819A

THIS UNIT COVERED UNDER PATENT 3,664,686

#31820A

OPERATING INSTRUCTIONS

1. Thread 1/2" Bolt in Place Approximately 1/4 inch into through Hole Guide and Set in Engaging Lever.
2. The Engage Drive Pull the lever forward as far as possible and LOCK IT.
3. To Disengage Drive Pull the lever forward as far as possible and LOCK IT.
4. Grease All Drive Shaft Splines with one Shot of Grease.

IMPORTANT

LUBRICATE P.T.O. SHAFT BEFORE USE. CLEAN AND LUBRICATE INNER SHAFT AT LEAST TWICE A DAY. GREASE U-JOINTS DAILY. DO NOT OVER GREASE U-JOINT.

CAUTION

BELT & DRIVE CHAIN GUARDS MUST BE KEPT IN PLACE FOR YOUR PROTECTION.

540 RPM (PTO)

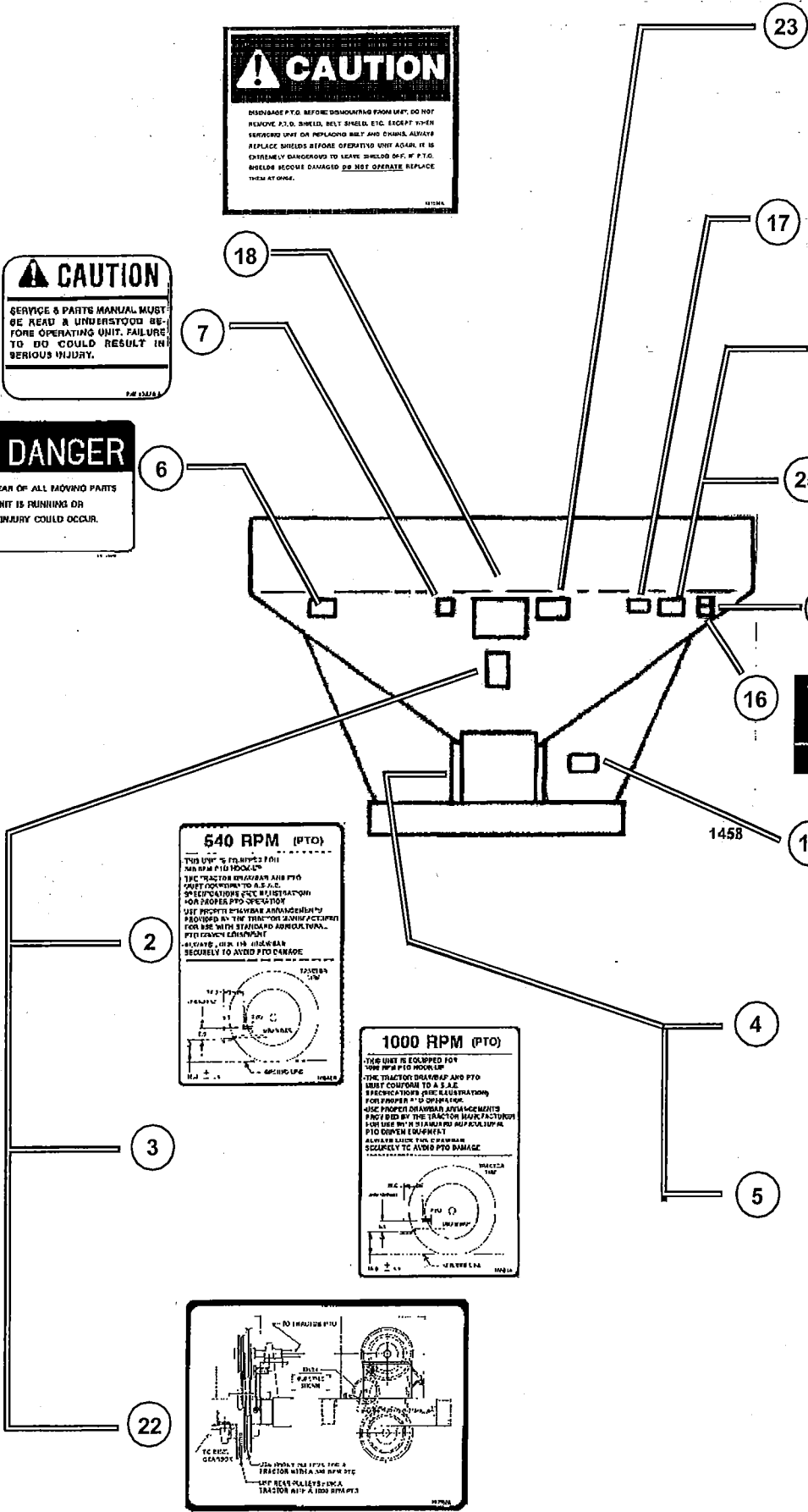
THIS UNIT IS EQUIPPED FOR 540 RPM PTO HUBS.

THE TRACTOR DRIVESHAP AND PTO MUST CONFORM TO A S.A.E. SPECIFICATION FOR REGISTRATION AND PROPER PTO OPERATION. USE PROPER TENSION ARRANGEMENTS PROVIDED BY THE TRACTOR MANUFACTURER FOR USE WITH STANDARD AGRICULTURAL PTO DRIVEN EQUIPMENT. ALWAYS LOCK THE CHAIN AND SECURELY TO AVOID PTO DAMAGE.

1000 RPM (PTO)

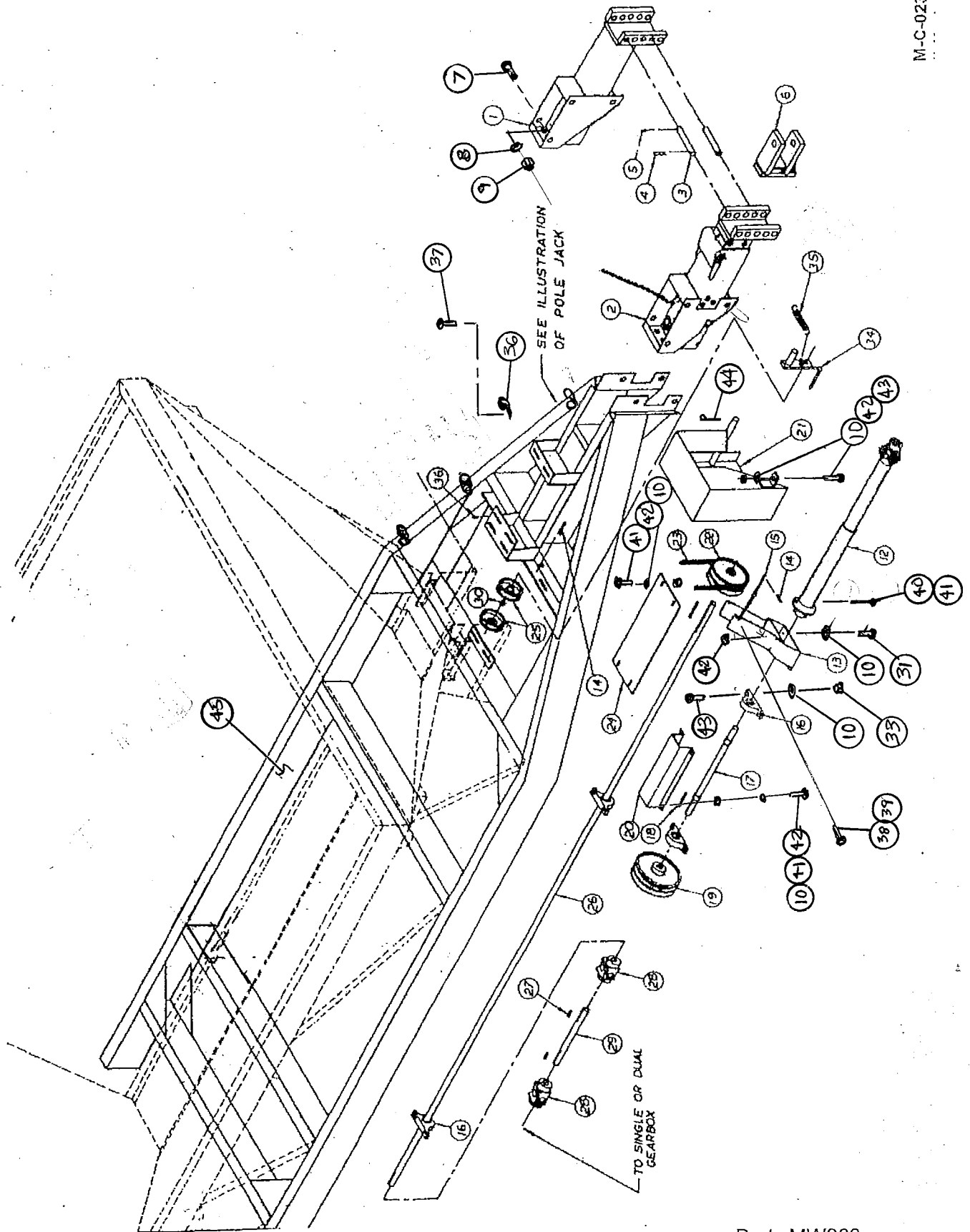
THIS UNIT IS EQUIPPED FOR 1000 RPM PTO HUBS.

THE TRACTOR DRIVESHAP AND PTO MUST CONFORM TO A S.A.E. SPECIFICATION FOR REGISTRATION AND PROPER PTO OPERATION. USE PROPER TENSION ARRANGEMENTS PROVIDED BY THE TRACTOR MANUFACTURER FOR USE WITH STANDARD AGRICULTURAL PTO DRIVEN EQUIPMENT. ALWAYS LOCK THE CHAIN AND SECURELY TO AVOID PTO DAMAGE.



PTO Drive (Gearbox)
(M-C-023)

M-C-023



260 MOONWALK PTO DRIVE

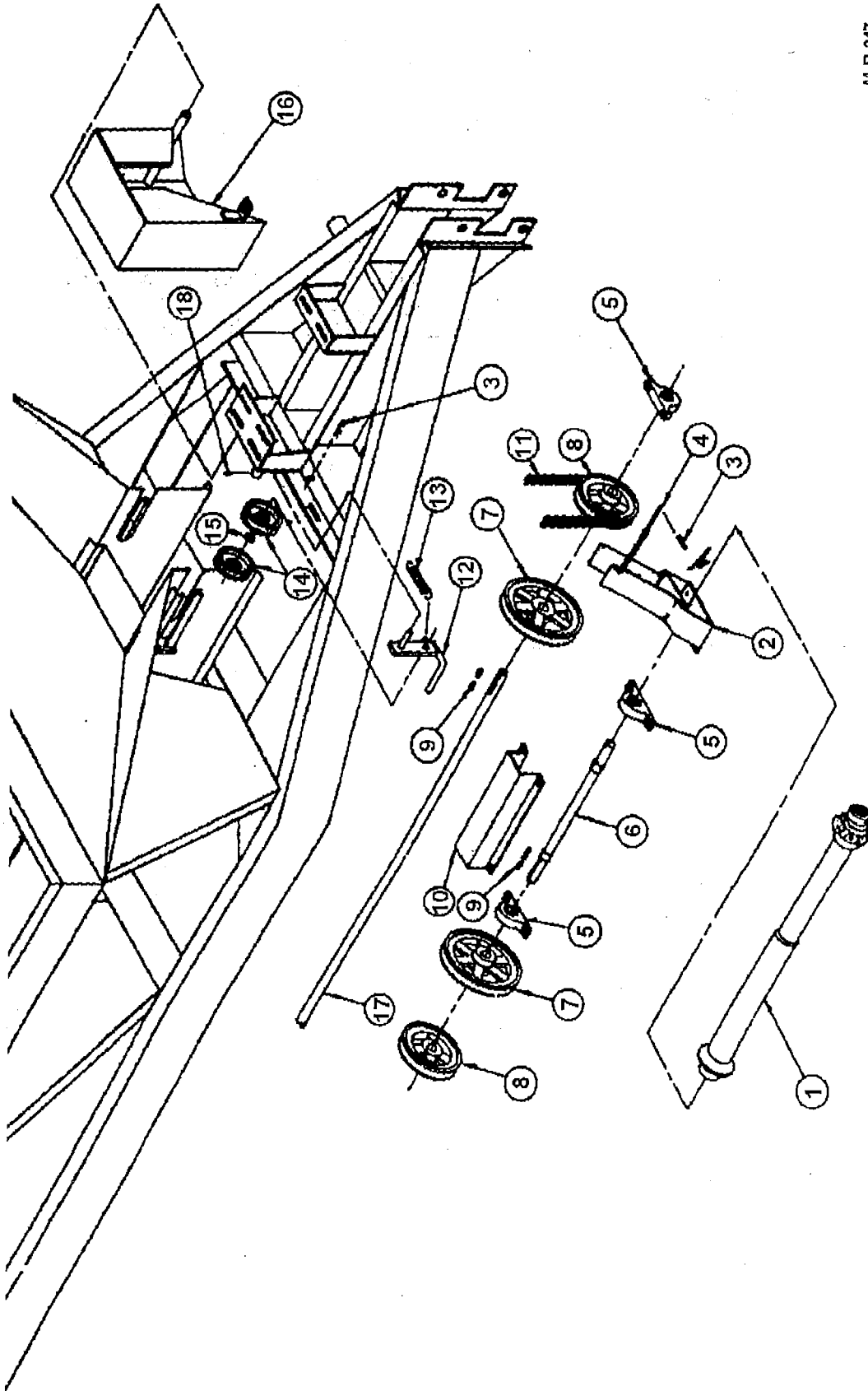
(SEE M-C-023) R2

260MWPTOLST

ITEM	PART NO.	DESCRIPTION	QTY.
1	5383	POLE WELDT STR. PIV OR HEN AXLE	1
2	5057*	OPTIONAL BRAKE ACTU. POLE WELDT	1
3	30576	PIN DOUBLE HITCH	2
4	18590916	HAIRPIN BRIDGE #11 X 2 9/16	3
5	18560826	PIN 3/16 X 1 1/2 COTTER	2
6	3241	CLEVIS WELDMENT	1
7	18058430	BOLT, HEX 3/4-10 X 2 ZP	4
8	18891800	LOCKWASHER, 3/4 ZP	4
9	18418400	NUT, HEX 3/4-10 ZP	4
10	18811200	FLATWASHER 3/8 USS	17
11	10465	GREASE ZERK 1/4-28 UNF	2
12	01041A	PTO SHAFT(SEE ILLUSTR. M-A-013)	1
13	27125	PTO SHAFT CARRIER	1
14	71006	CLIP 1/8 HAIRPIN	2
15	3097	PIN ASSY, PTO W CHAIN	1
16	10076	BEARING, PILLOW BLOCK 1" BORE	6
17	3258	SHAFT, NEW STYLE 24 3/4" LONG	1
18	10083	KEY, 1/4 X 3"	2
19	10093	PULLEY 7.4 X 1" BORE	2
20	30839	SHIELD, PTO DRIVE	1
21	05164D	SHIELD WELDT, FRONT	1
22	10328	PULLEY 5.4 X 1" BORE	2
23	31208	BELT 85-460 (B43)	2
24	31944	SHIELD, LINE SHAFT	1
25	71403	PULLEY, FLAT IDLER	2
26	31040	LINE SHAFT TCI 1" X 106 1/2"	1
27	10031	KEY, 1/4 SQ X 1 1/2 LONG	2
28	53087C	UNIVERSAL JOINT, 1 X 1 SPECIAL	2
29	31737	LINE SHAFT (FOR SINGLE DISTR)	1
	31288	LINE SHAFT (FOR DUAL DISTR)	1
30	31945	SPACER	1
31	18056826	BOLT, HEX HD 3/8-16 X 1 1/2 ZP	4
32	10346B	DECAL 540 RPM	1
33	18457800	LOCKNUT, HEX 3/8-16	8
34	6446	IDLER MOUNT	1
35	71134	TENSION SPRING	1
36	COV-1011Z1	CABLE SUPPORT LOOP	10
37		BOLT, SELF TAPPING 1/4 X 1	4
38	18025718	BOLT, HEX 1/4-20 X 3/4 SS	1
39	18018	FLANGE NUT 1/4-20 SS	1
40	18056834	BOLT HEX 3/8-16 X 2 1/2 ZP	2
41	18056822	BOLT HEX 3/8-16 X 1ZP	8
42	18496800	FLANGENUT 3/8-16 ZP	13
43	18051628	BOLT, HEX 3/8-16 X 1 3/4 ZP	9
44	18560722	COTTER PIN, 5/32 X 1	1
45	38781	FRAME WELDMENT MOONWALK 260	1

PTO Drive 540 - 1000 RPM (Optional) Kit (GBX)
(M-B-247)

M-B-247



PTO Drive 540 - 1000 RPM (Optional) Kit (GBX)

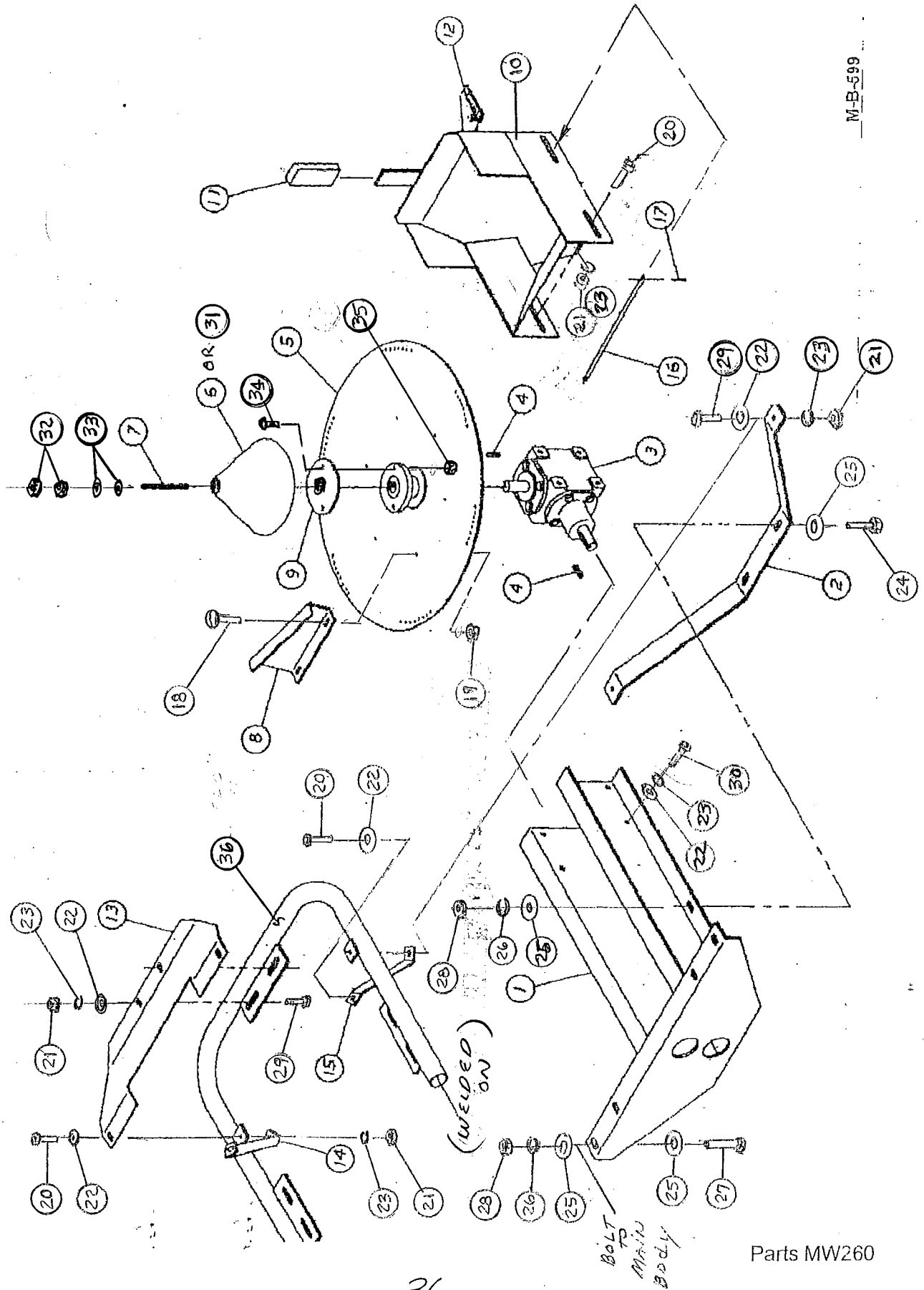
(M-B-247)

<u>Ref.</u>	<u>Part No.</u>	<u>Qty.</u>	<u>Description</u>
1.			See Illustration of PTO Shaft (M-A-013)
2.	27125	1	Carrier Bracket Widmt. - PTO
3.	71006	4	Hairpin Clip - 1/8"
4.	3097	1	Pin Weldment - PTO
5.	10076	3	Bearing - Pillow Block
	10485		Bearing Insert
6.	3258	1	Jackshaft Widmt. - PTO
7.	32473	2	Sheave - 7.4 Pitch Dia. (Cast)
8.	32472	2	Sheave - 5.4 Pitch Dia. (Cast)
9.	10031	4	Key
10.	30839	1	Shield - PTO Drive
11.	31208	1	Belt - HB43
12.	6446A	1	Mount Widmt. - Idler (See Note Below)
13.	71134	1	Tension Spring
14.	71403	2	Pulley - Flat Idler
15.	31945	1	Spacer
16.	5164C	1	PTO Shield - Complete (Includes 37378 - PTO Shield - Rear (Shown) and 37370 - Auxiliary Shield - Bolt On (Not Shown))
17.	31040	1	Shaft - Long Line
18.	30060	2	Grease Zerk

NOTE: Old style idler mount #5160 is shown.

Distributor - Single Package (Gear Box Drive)
(M-B-599)

M-B-599



260 MOONWALK

NOTE:
ALL HARDWARE IS
STAINLESS STEEL

DISTRIBUTOR- SINGLE PACKAGE (GEAR BOX DRIVE)

260MWSPIN

SEE (M-B-599)

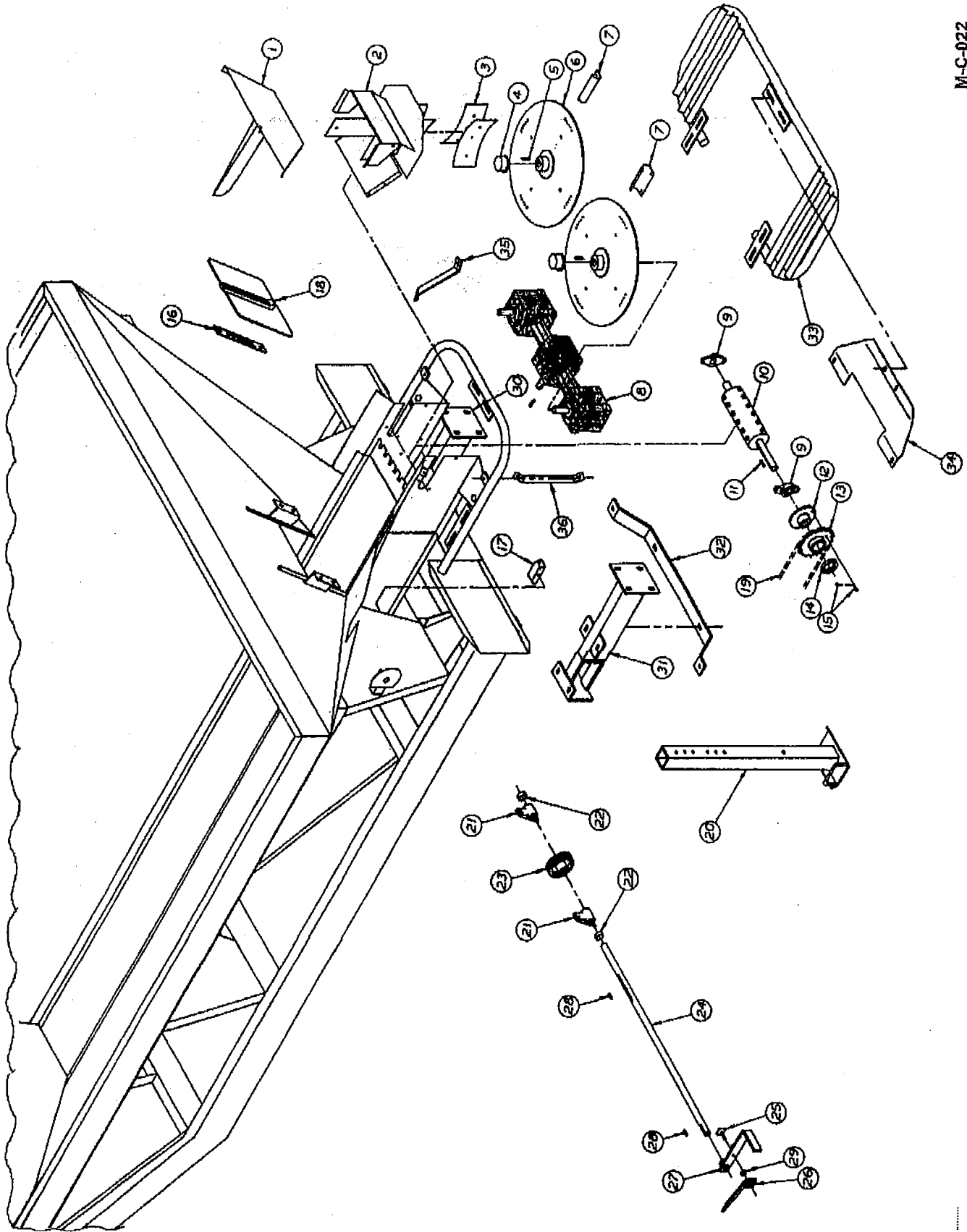
PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY.
1	2860	DISTRIBUTOR MOUNT WELDMENT 409SS	1
2	34598	BRACE 409SS	1
3	5359A	GEARBOX ASSEMBLY	1
4	10031	KEY, 1/4 X 1/4 X 1 1/2	2
5	05157A	DISTRIBUTOR DISC ASSY (includes item 9)	1
6	36378	CENTER CONE	1
7	37037	CENTER CONE HOLD DOWN	1
8	31366	FAN BLADE- HIGH LIFT 409SS	6
9	34760	CONE MOUNT	1
10	02297	CHUTE WELDMENT SINGLE DIST. 409SS	1
11	10269	GRIP HANDLE- RUBBER	1
12	30906C	DECAL, RATE 50 FT PATTERN	1
13	37024	FILLER BUMPER 409SS	1
14	34473	BRACE RH 409SS	1
15	34474	BRACE LH 409SS	1
16	37036	FRONT SLIDE PIN 3/8 DIA SS X 12	1
17	18560622	COTTER PIN 1/8 X 1 ZC	2
18	18706421	TRUSS HD SL BOLT 5/16-18 X 3/4 SS	12
19	18476350	NUT HEX 5/16-18 SS	12
20	18026822	BOLT HEX HD 3/8-16 X 1 SS	4
21	18476800	NUT, HEX 3/8-16 SS	8
22	18811210	FLATWASHER 3/8 SS	14
23	18881201	LOCKWASHER 3/8 SS	10
24	18022026	BOLT HEX HD 1/2-13 X 1 1/2 SS	2
25	18824800	FLATWASHER 1/2 SS	20
26	18991100	LOCKWASHER 1/2 SS	8
27	18027417	BOLT HEX HD 1/2-13 X 2 SS	4
28	18997400	NUT 1/2-13 SS	4
29	18026824	BOLT HEX HD 3/8-16 X 1 1/4 SS	12
30	18026822	BOLT HEX HD 3/8-16 X 1 SS	8
31	34761	DISTRIBUTOR CONE ASSEMBLY INCLUDES ITEMS 6,7,9, AND 32 THRU 35	1
32	18476800	NUT HEX 3/8-16 SS	3
33	18881201	FLATWASHER 3/8 SS	2
34	18026824	BOLT HEX 3/8-16 X 1 1/4 SS	2
35	18476800	FLANGED NUT HEX 3/8-16 SS	2
36	05935	BUMPER ASSY (WELD ON UNIT)	1

Distributor - Dual Package (Gear Box Drive)

(M-C-022)

M-C-022



Distributor - Dual Package (Gear Box Drive)

(M-C-022)

<u>Ref.</u>	<u>Part No.</u>	<u>Qty.</u>	<u>Description</u>
1.	3337	1	Divider Wldmt.- Rear Chute - Dual Dist.-409
	3336	1	Divider Wldmt.- Rear Chute - Dual Dist.-304
2.	3335	1	Chute Wldmt. - Dual Dist. - 409
	3334	1	Chute Wldmt. - Dual Dist. - 304
3.	30741	2	Curved Deflector - 409
	30308	2	Curved Deflector - 304
4.	34664	2	Vinyl Cover
5.	10031	3	Key - 1/4" x 1/4" x 1 1/2"
6.	3380	2	Distributor Wldmt.
7.	10339	8	Fan Blade
8.	5350	1	Dual Gearbox Ass'y
9.	30708	2	Bearing - 2-Hole Flange
	20366		Bearing Insert
10.	3301	1	Drive Roller Wldmt.
11.	10189	1	Key
12.	11281	1	Hub & Plate
13.	11282	1	Sprocket - #50-40 Tooth
14.	11280	1	Collar
15.	10220	1	Shear Pin & Cotter Pin
	1503		Sprocket Ass'y - #40 Tooth Shear (Includes Ref. No's 12, 13, 14 & 15)
16.	30927	1	Plate - Gate Opening
17.	10113	1	Wood Block
18.	5576	1	Metering Gate Wldmt. - 409
	5577	1	Metering Gate Wldmt. - 304
19.			Chain - #20-50 (See Ref. Pgs. 030, 270 & 602) 30668
20.	5492	1	Stand Wldmt. - Rear Safety (Pivotal Axle & Single Axle Units) 12 3 3/4"
21.	10494	2	Bearing - 3/4" Pillow Block
22.	10054	2	Set Collar - 3/4"
23.	10051	1	Pinion Gear
24.	32304	1	Shaft - Metering Gate
25.	1677	1	Lock Wldmt. - Handle
26.	34712	1	Arm
27.	2131	1	Handle Wldmt.
28.	10171	2	Key - 3/16" x 3/16" x 1"
29.	50146	1	Flatwasher - 3/8" SS
30.	5884	1	R.H. Mount Wldmt.
31.	5885	1	L.H. Mount Wldmt.
32.	34452	1	Brace
33.	5936	1	Safety Bumper Wldmt.
34.	37024	1	Filler - Bumper - 409
	37076	1	Filler - Bumper - 304
35.	34473	1	R.H. Brace - 409
	34475	1	R.H. Brace - 304
36.	34474	1	L.H. Brace - 409
	34476	1	L.H. Brace - 304
			Not Illustrated
	5074	1	V-Hood Wldmt. - 409
	5075	1	V-Hood Wldmt. - 304

DUAL DISTRIBUTER CHUTE DEFLECTOR SETTINGS

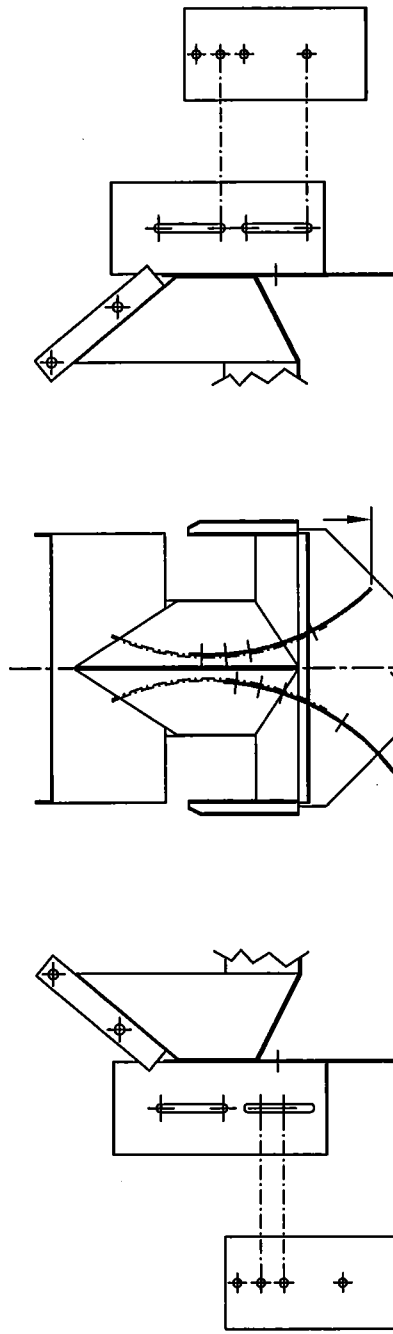
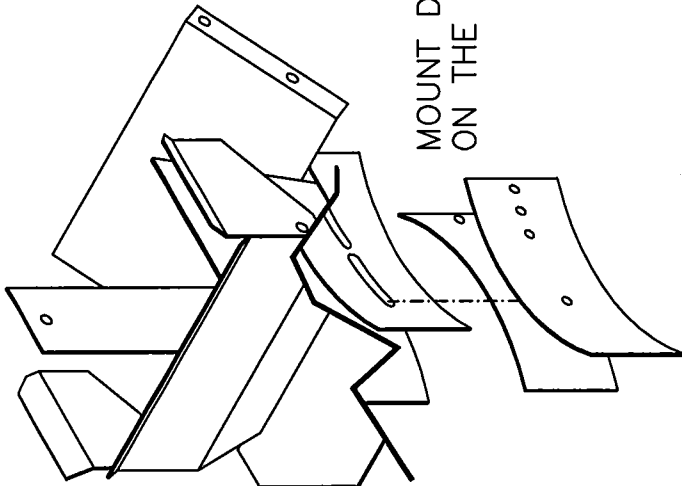
50 FT. PATTERN

FOR APPLICATION
RATE SEE DECAL
P.N. 30906C

40 FT. PATTERN

FOR APPLICATION
RATE SEE DECAL
P.N. 30853C

MOUNT DEFLECTORS
ON THE OUTSIDE



SIDE VIEW OF CHUTE
SHOWING DEFLECTOR
AND BOLT POSITIONS

SIDE VIEW OF CHUTE
SHOWING DEFLECTOR
AND BOLT POSITIONS

TOP VIEW OF CHUTE
SHOWING POSITION
OF DEFLECTOR FOR

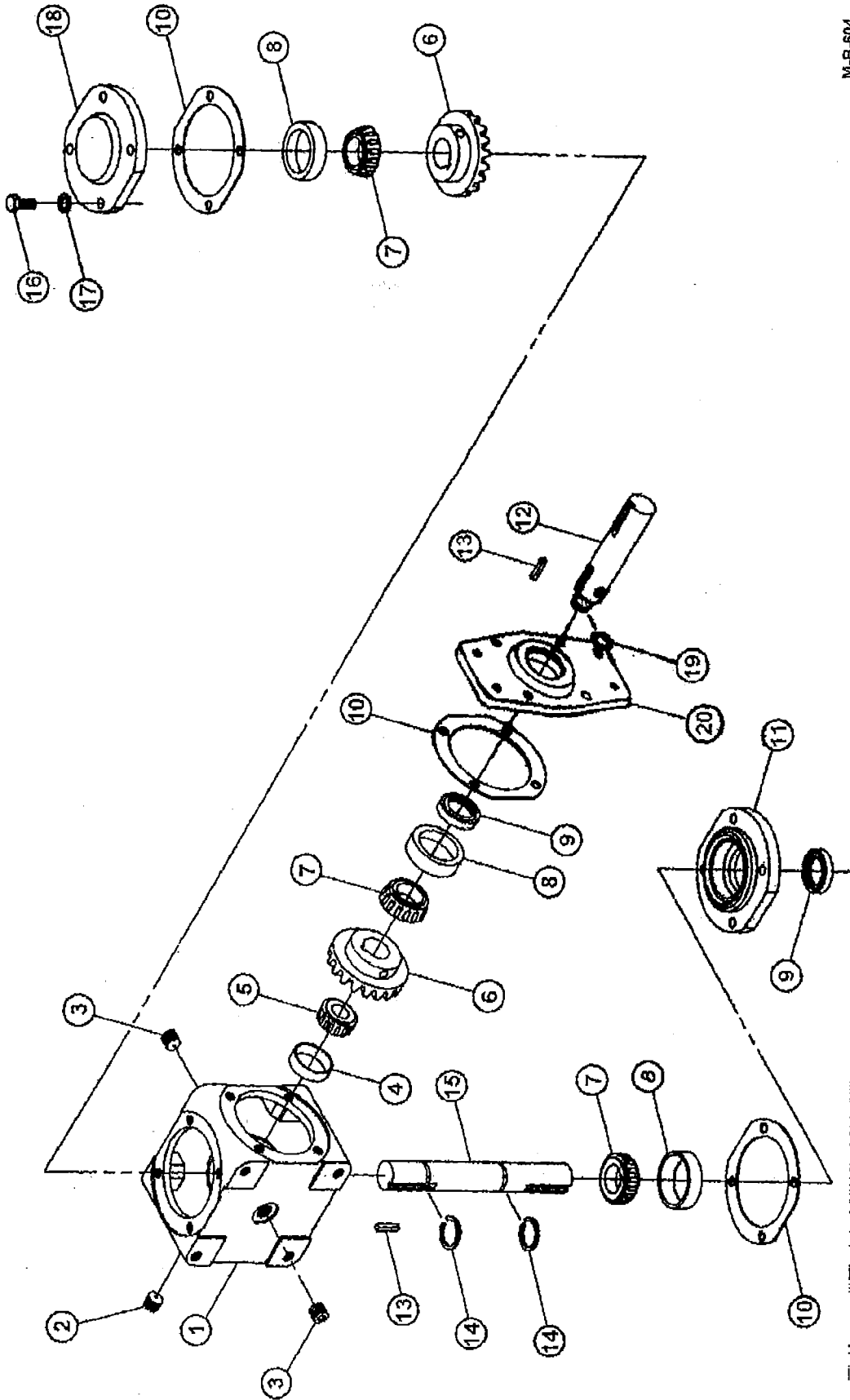
50 FT. PATTERN

40 FT. PATTERN

40A

Gearbox - Single Prairie

(M-B-604)



M-B-604

41

Parts MW260

PRAIRIE GEAR BOX

(1 TO 1 RATIO) SINGLE SPINNER

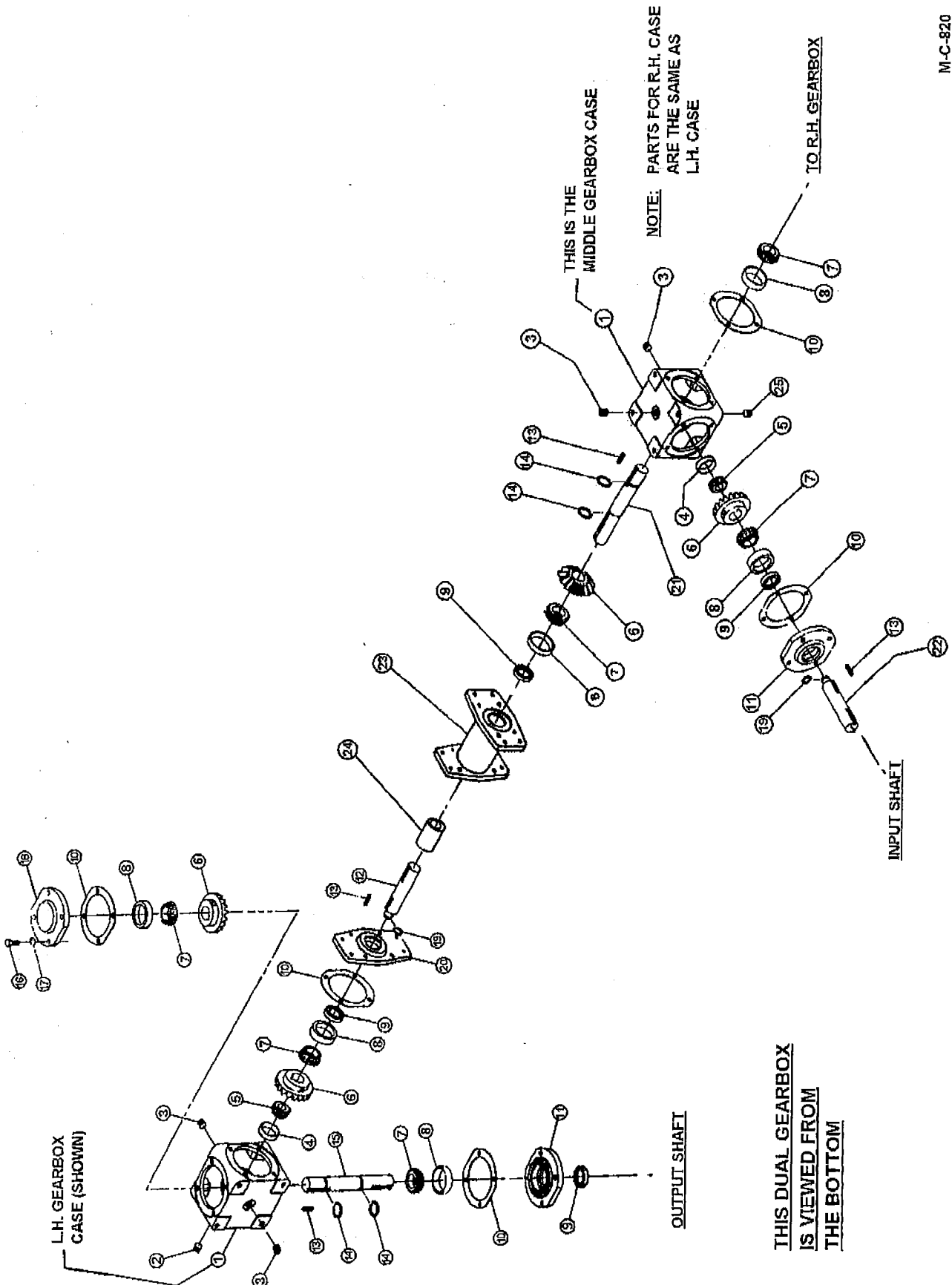
AG400 TO AG800

REF. DRAWING M-B-604

ITEM	PART NO.	DESCRIPTION	QTY
	5359A	PRAIRIE GEARBOX COMPLETE	
1	95282	CASE	1
2	11106	PIPE PLUG, VENTED	1
3	11105	PIPE PLUG	1
4	11096	BEARING CUP	1
5	11095	BEARING CONE	1
6	11098	GEAR	2
7	10659	BEARING CUP	3
8	10658	BEARING CONE	3
9	11099	SEAL	2
10	11103	GASKET, .005	?
	95283	GASKET, .020	?
	95284	GASKET, .0075	?
11	11091	CAP	1
12	11092B	SHAFT	1
13	11101	KEY	2
14	95285	RETAINING RING	2
15	95265	SHAFT	1
16	50232	CAP SCREW, 5/16-18NC X 1 S.S.	12
17	50144	LOCKWASHER, 5/16 S.S.	12
18	95287	CAP	1
19	95286	RETAINING RING	1
20	98376	COVER, ADAPTER	1

Gearbox - Dual Prairie (1 to 1)

(M-C-820)



THIS DUAL GEARBOX IS VIEWED FROM THE BOTTOM

Parts MW260

M-C-820

43

PRAIRIE GEAR BOX

(1 TO 1 RATIO) DUAL SPINNER

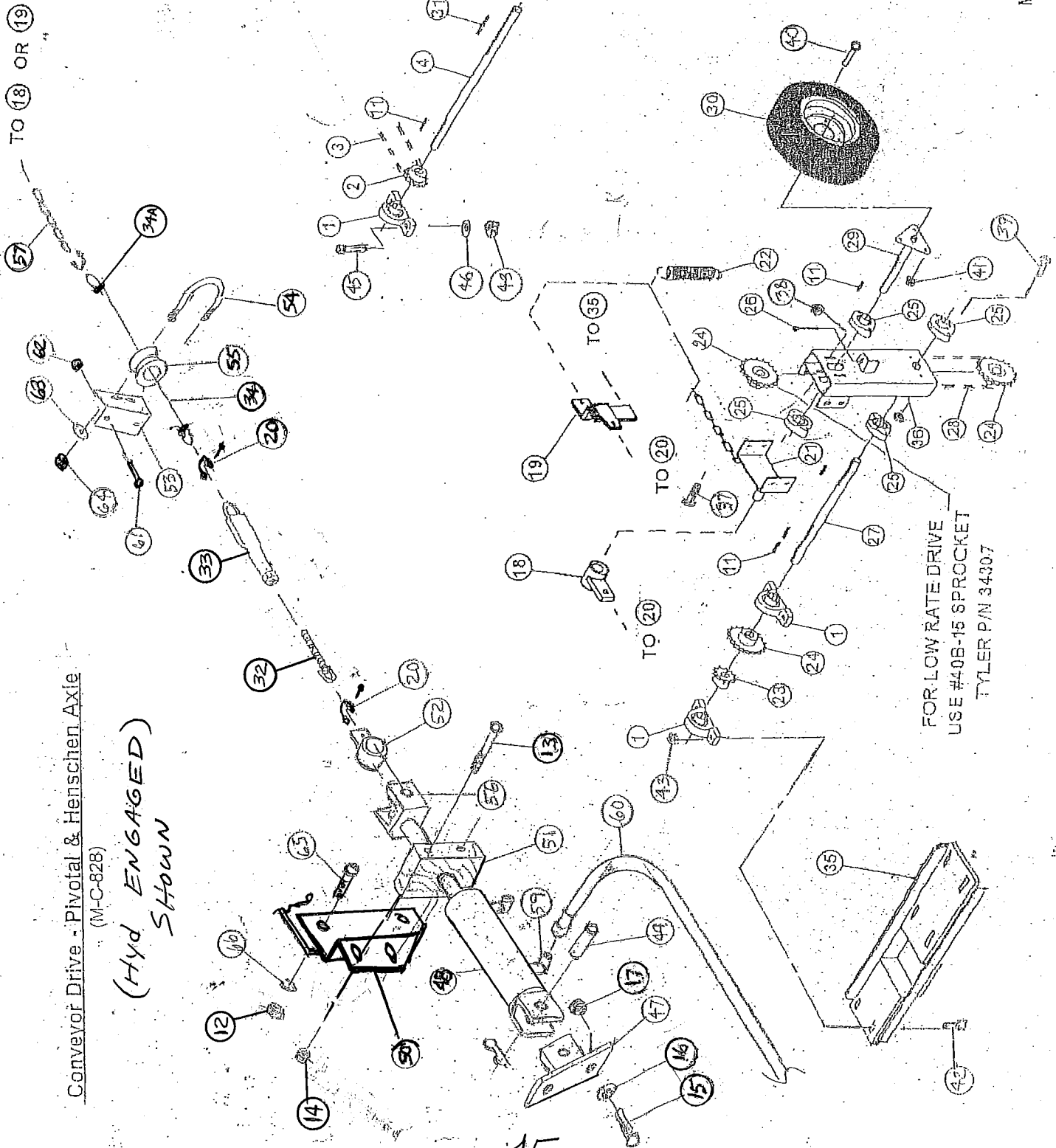
AG400 TO AG800

REF. DRAWING M-C-820

ITEM	PART NO.	DESCRIPTION	QTY
	5350A	PRAIRIE GEARBOX COMPLETE	
1	98377	CASE	3
2	11106	PIPE PLUG, VENTED	2
3	11105	PIPE PLUG	6
4	11096	BEARING CUP	3
5	11095	BEARING CONE	3
6	11098	GEAR	6
7	10659	BEARING CUP	9
8	10658	BEARING CONE	9
9	11099	SEAL	7
10	11103	GASKET, .005	?
	95283	GASKET, .020	?
	95284	GASKET, .0075	?
11	11091	CAP	3
12	11092B	SHAFT	2
13	11101	KEY	6
14	95285	RETAINING RING	6
15	95265	SHAFT	2
16	50232	CAP SCREW, 5/16-18NC X 1 S.S.	28
17	50144	LOCKWASHER, 5/16 S.S.	28
18	95287	CAP	2
19	95286	RETAINING RING	3
20	98376	COVER, ADAPTER	2
21	98378	SHAFT, THRU	1
22	98379	SHAFT, INPUT	1
23	98380	HOUSING, CONNECTING	1
24	98381	COUPLING	2
25	98382	T-VENT	1

Conveyor Drive - Pivotal & Henschen Axle
(M-C-828)

(HYD ENGAGED)
SHOWN



SEE M-C-828

260 MOONWALK CONVEYOR DRIVE PARTS LIST

260MWCD

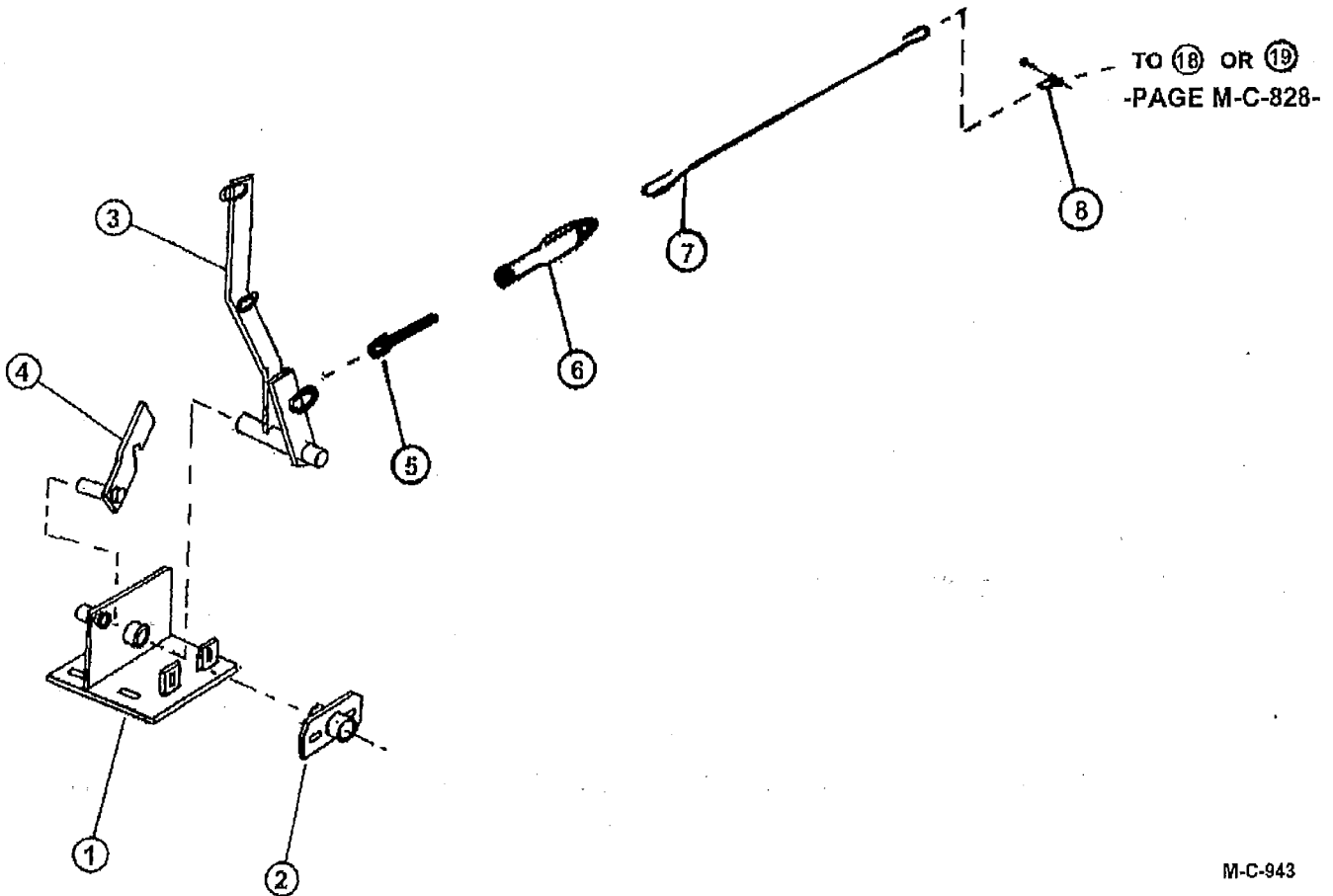
* FOR HYD ENGAGED UNITS ONLY
SEE PAGE M-A-943 FOR ROPE PULL ENGAGED UNITS

ITEM	PART NO.	DESCRIPTION	QTY.	ITEM	PART NO.	DESCRIPTION	QTY.
1	5239	BEARING 1" BORE	5	35	38893	MOUNT WELDT, PIVOT DRIVE	1
2	10106	SPROCKET #50 B13	1	36	3757	TUBE WELDMNT (GROUND WHL DR)	1
3	53870	CHAIN #20-50 SS (89 LINKS)	1	37	18176424	CARR BOLT 5/16-18 X 1 1/4 ZP	4
4	30678	CONNECTING LINK	1	38	18496400	NUT, FLANGE 5/16-18 ZC	8
5	32570	SHAFT	1	39	18056424	BOLT HEX HD 5/16-18X1 1/4 ZC	4
6	31515	SPROCKET	1	40	18057522	WHEEL BOLT 1/2-20NF X 1	3
7	53869	CHAIN #40 SS (60 LINKS)	1	41	47005011	WHEEL NUT 1/2-20NF	3
8	31028	CONNECTING LINK	1	42	18056830	BOLT HEX 3/8-16 X 2 ZC	6
9	38772	IDLER SUPPORT WELDMNT	1	43	18496800	NUT, FLANGE 3/8-16 ZC	12
10	5066	BOLT TIGHTENER	2	44	18026822	BOLT, HEX 3/8-16NC. X 1 ZC	2
11	34325	WOOD BLOCK	2	45	18056826	BOLT, HEX 3/8-16NC. X 1 1/2 ZC	4
12	6446A	TAIL NUT WELDMNT	2	46	18811200	FLAT WASHER, 3/8 ZC	8
13	10031	KEY 1/4" SQ X 1 1/2 LONG	5				
HYDRAULIC							
18	38784	PIVOT WELDT (PIV & 77" HENSCH)	1	12*	18497400	ENGAGING ITEMS 12-17 & 47-66	4
19	38803	MOUNT WELDT, (60" HENSCHEN)	1	13*	18056842	NUT FLANGE 1/2-13 ZC	2
20	32478	CLEVIS WITH PIN	2	14*	18496800	BOLT HEX 3/8-16 X 3 1/2 ZC	2
21	3756	LIFT BRKT (PIV & 77" HENS)	1	15*	18056424	NUT, FLANGE 3/8-16 ZC	2
22	71050	EXTENSION SPRING	1	16*	18811100	BOLT HEX HD 5/16-18X1 1/4 ZC	2
23	34307	SPROCKET #40B15-1"BORE	3	17*	18496400	FLATWASHER 5/16" ZC	2
24	30894	SPROCKET #40B25-1"BORE	4	47*	38945	NUT, FLANGE 5/16-18 ZC	2
25	10500	BEARING- FLANGE TYPE 1" BORE	4	48*	51461	ANCHOR WELDMNT	1
26	30831	BEARING INSERT	2	49*	98180	HYD CYLINDER	1
27	32210	BOLT WELDT	2	50*	439-51644	SEAL KIT	1
28	38880	SHAFT (60" HENSCHEN)	1	51*	38944	PIN	2
29	53084	CHAIN #40 SS	1	52*	38948	CYL GUIDE MOUNT	1
30	31028	CONNECTOR LINK	1	53*	38949	GUIDE, WOOD	1
31	5594	SHAFT WELDMNT (WHEEL DRIVE)	1	54*	38951	PIVOT WELDMNT	1
32	10209	TIRE ONLY	1	55*	34458	U-BOLT MOUNT	1
33	10211	WHEEL ONLY	1	56*	47005546	U-BOLT	1
34	10083	KEY 1/4"SQ X 3"	1	57*	63116	GUIDE GLASS	1
35	24504	TAKEUP WELDMNT	1	58*	39290	CLEVIS FOR HYD CYLINDER	1
36	38897	LINKAGE MOUNT	1	59*	1501-8-4	CHAIN 3/16" (5 LINKS)	1
37	38785	CABLE	1	60*	609140	TRANSPORT HOOK, DOUBLE-SNAP	1
38	71074	CABLE CLAMPS	4	61*	18056422	UNION 90° ADAPTER	2
				62*	18496400	HOSE ASSEMBLY	2
				63*	18811000	BOLT, HEX 5/16-18 X 1 ZC	2
				64*	18435700	NUT, FLANGE 5/16-18 ZC	2
				65*	18057426	FLATWASHER 1/4" ZC	2
				66*	18891400	NUT HEX 1/4-20 ZC	2
						BOLT HEX 1/2-13 X 1 1/2 ZC	2
						LOCKWASHER 1/2" ZC	2

Conveyor Drive - Rope Pull Engaging

(Ref. Drwg. M-A-943)

<u>Ref.</u>	<u>Part No.</u>	<u>Qty.</u>	<u>Description</u>
1.	39130	1	Mount Wedment
2.	39140	1	Support Weldment
3.	39136	1	Arm Weldment - Engaging
4.	3047	1	Latch Weldment
5.	24504	1	Take-Up Weldment
6.	38897	1	Linkage Weldment
7.	39164	1	Cable - S.S.
	71074	4	Clamp - Cable (Not Shown)
8.	32478	2	Clevis - (Includes



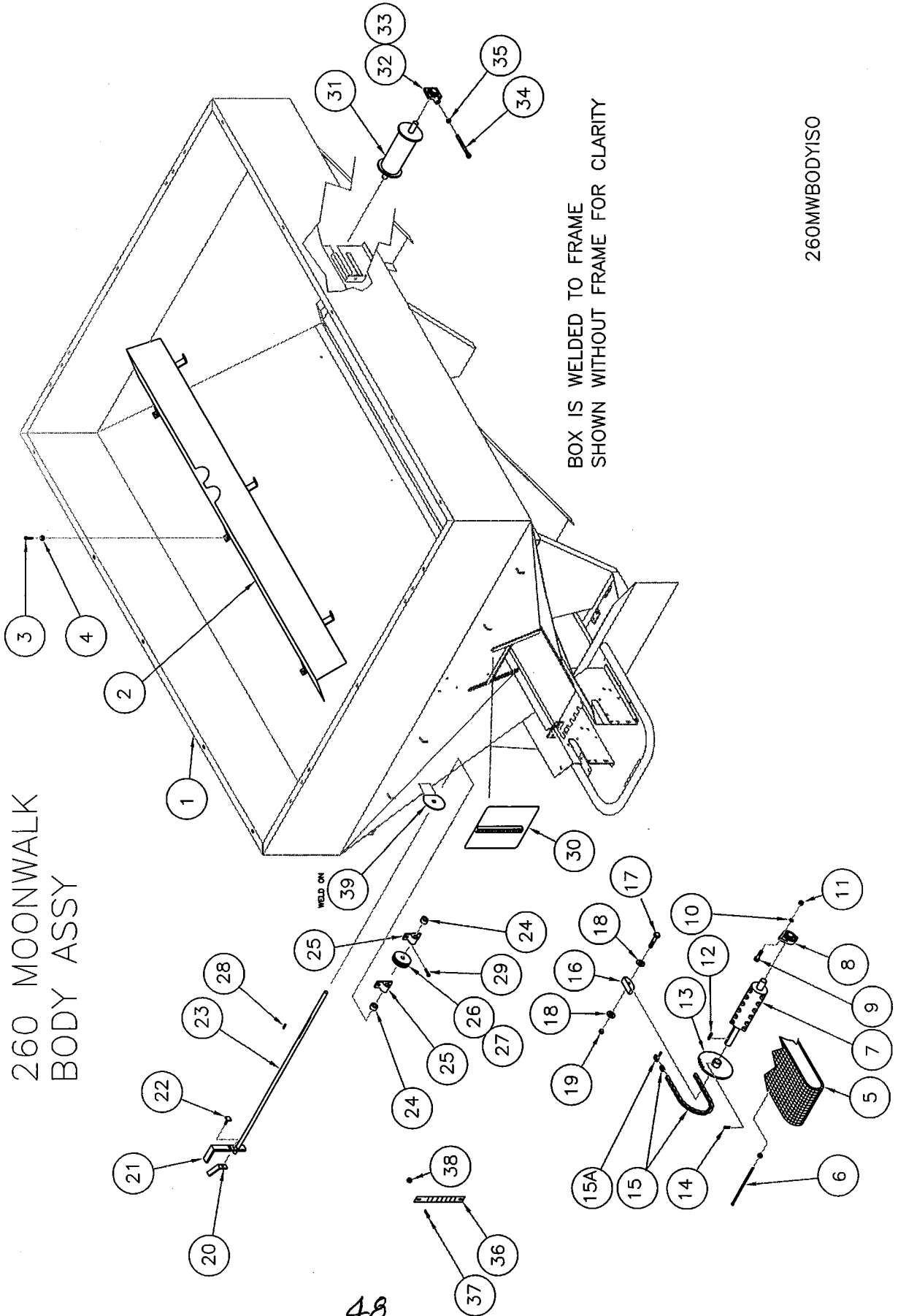
M-C-943

MW260 -

47A

FERTILIZER SPREADER BOX

260 MOONWALK BODY ASSY



BOX IS WELDED TO FRAME
SHOWN WITHOUT FRAME FOR CLARITY

260MMWBODY150

260 MOONWALK BODY ASSY

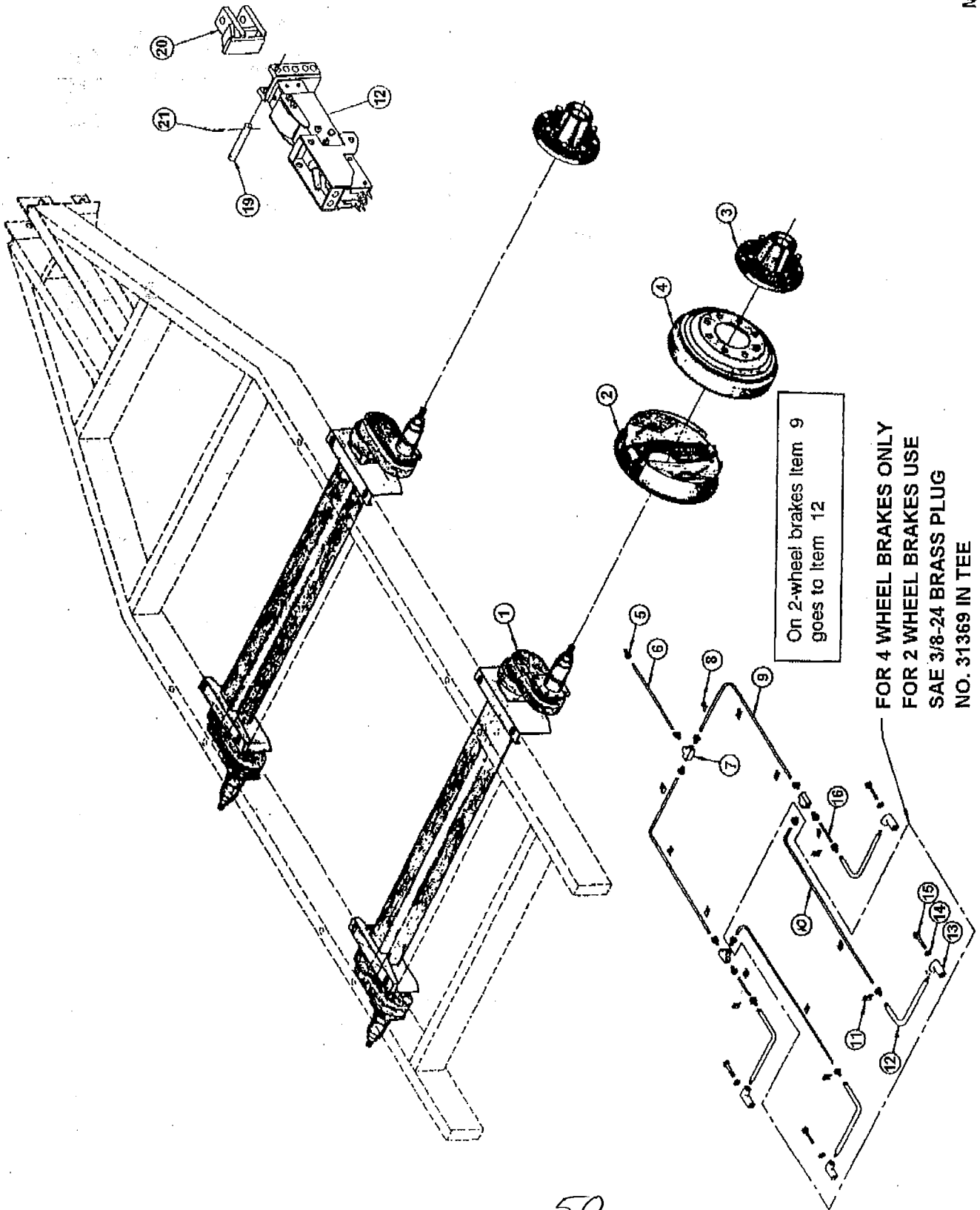
DRY FERTILIZER BOX

260MWBODYLST

ITEM	PART NO.	DESCRIPTION	QTY.	ITEM	PART NO.	DESCRIPTION	QTY.
1	38902	MAIN BODY WELDT (TANK)	1	29	18706420	SCREW, TRUSS HD 5/16 X 1/2 SS	4
2	05074D	CONVEYOR HOOD	1	30	05576	METERING GATE WELDMNT 409SS	1
3	18706621	BOLT, TRUSS HD. 3/8-16NC. X 3/4 S.S.	6	31	3005	FRONT ROLLER	1
4	18987900	FLANGE NUT, 3/8-16NC. S.S.	6	32	03308	FRONT TAKEUP ASSY	2
5	30934	CONVEYOR CHAIN, 21 FT. 8 1/2 IN.	1	33	10024	REPLACEMENT BEARING ONLY	2
6	10275	SPLICE PIN WITH NUT	1	34	1055	TAKEUP BOLT WELDT	2
7	03301	DRIVE ROLLER	1	35	18997400	HEX. NUT, 1/2-13NC. S.S.	4
8	30708	FLANGE BLOCK WITH BEARING	2	36	30927	GATE SCALE	1
9	18026824	BOLT, 3/8-16NC. X 1 1/4 S.S.	4	37	18706421	TRUSS H BOLT 5/16-18 X 3/4 SS	2
10	18881201	LOCKWASHER, 3/8 S.S.	4	38	18987700	FLANGE NUT 5/16-18 SS	2
11	18476800	HEX. NUT, 3/8-16NC. S.S.	4	39	20834	DIAL PLATE (WELD ON)	1
12	47006360	DRIVE KEY, 1/4 X 1/4 X 1 1/2	1				
13	31515	DRIVE SPROCKET,	1				
14	18767450	SQ. HD. SET SCREW, 5/16-18NC. X 3/4	2				
15	53870	ROLLER CHAIN, #20-50 X 89 LINKS	1				
	31028	CONNECTOR LINK	1				
15A	30688	OFFSET LINK, NO. 20-50 CHAIN	1				
16	34325	CHAIN TIGHTENER BLOCK	2				
17	18476834	BOLT, 3/8-16NC. X 2 1/2 S.S.	1				
18	18811210	FLATWASHER, 3/8 S.S.	4				
19	18987900	FLANGE NUT, 3/8-16NC. S.S.	1				
	37117	COMPLETE METERING GATE SHAFT ASSY INCLUDES OF ITEMS 20-29 & ITEM 39	1				
20	34712	TAIL NUT	1				
21	02131B	HANDLE LOCK WELDMNT	1				
22	01677	HANDLE LOCK BOLT WELDMNT	1				
23	32304	SHAFT, METERING GATE	1				
24	10054	SET COLLAR	2				
25	10496	BEARING 3/4"	2				
26	10051	PINION GEAR	1				
27	32632	KEY 3/16 SQ X 1/2	1				
28	10171	KEY, 3/16 SQ X 1	2				

Axle - Henschen - 61" Wheel Track w/Brake Plumbing
 (M-C-671)

M-C-671



50

Parts MW260

Axle - Henschen - 61" Wheel Track w/Brake Plumbing

(M-C-671)

<u>Ref.</u>	<u>Part No.</u>	<u>Qty.</u>	<u>Description</u>
1.	37326	2	Henschen Axle Ass'y - MW260-60" WHL TRK
	5254	2	Henschen Axle Ass'y - MW260-77" WHL TRK
2.			See Illustration of 13" Brakes (Page 31)
3.	5025	4	Hub Ass'y - Q819 (Complete)-60" WHL TRK
	3130	4	Hub Ass'y - Q813 (Complete)
4.	30354		Drum - 13" Brakes
17.	5492	1	Rear Safety Stand Wldmt
18.	5057	1	Pole Wldmt - Actuator
	5383	1	Pole Wldmt - Straight
19.	30576	2	Pin
20.	3241	1	Clevis Wldmt
21.	50600	4	Cotter Pin - 3/16" x 1 1/2"

Used on 77"
Hen. Only

BRAKE FITTING KIT - 2 WHEEL

5.	30422	1	Tube Nut
6.	51694	3	Bundyweld - 3/16" x 41"
7.	30423	1	Frame Tee
8.	30424	8	Tube Clip
9.	51691	2	Bundyweld - 3/16" x 113"
11.	30425	2	Hose Clip
12.	30426	2	Hydraulic Hose - 18 7/8"
13.	30427	2	Connector - Wheel Cylinder
14.	30428	2	Gasket
15.	30429	2	Connector Bolt
	5053		Surge Brakes (Complete) - 2 Wheel Hyd.

BRAKE FITTING KIT - 4 WHEEL

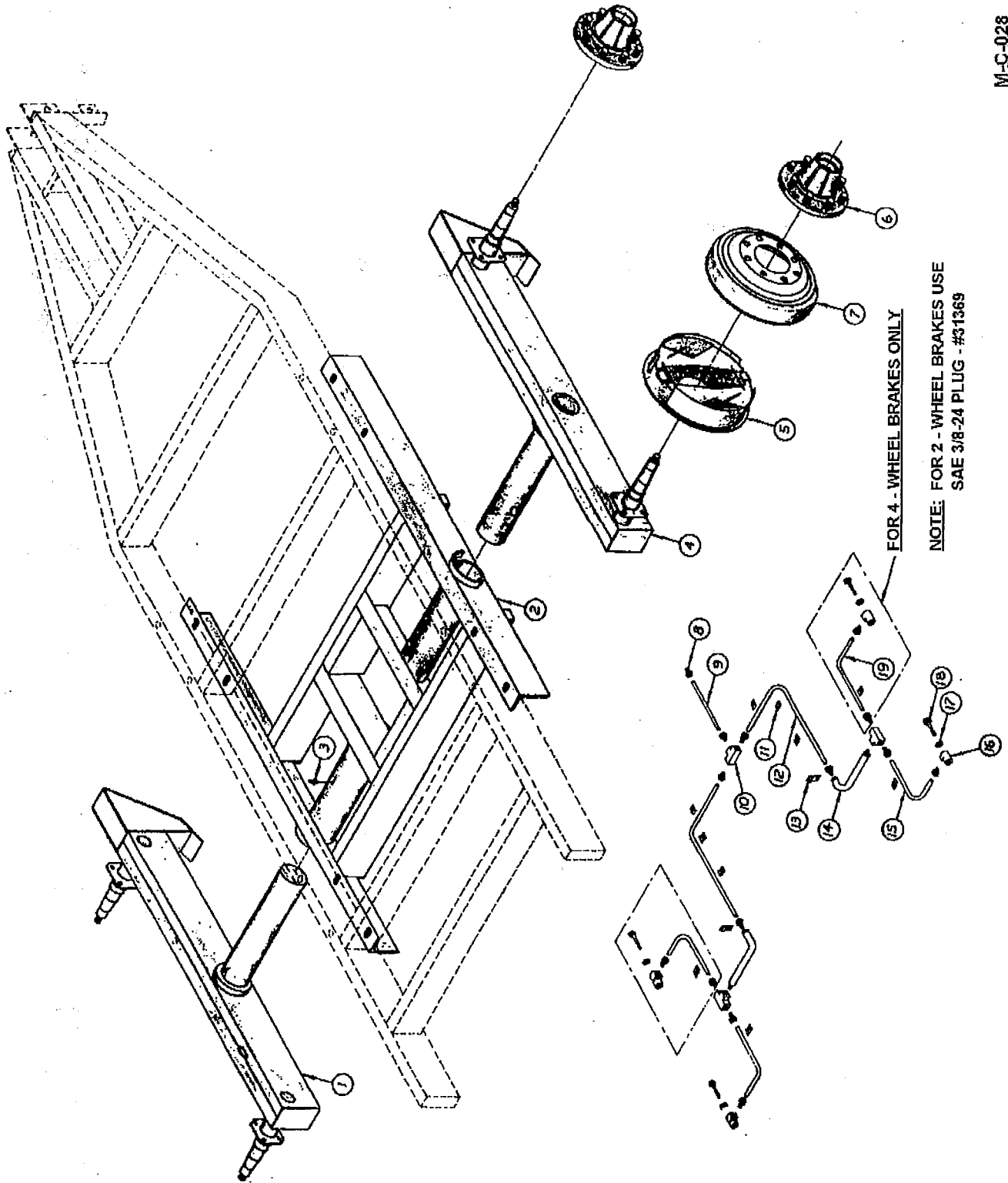
5.	30422	1	Tube Nut
6.	51694	1	Bundyweld - 3/16" x 41"
7.	30423	3	Frame Tee
8.	30424	10	Tube Clip
9.	51719	2	Bundyweld - 3/16" x 58"
10.	51720	2	Bundyweld - 3/16" x 61"
11.	30425	4	Hose Clip
12.	30426	4	Hydraulic Hose - 18 7/8"
13.	30427	4	Connector - Wheel Cylinder
14.	30428	4	Gasket
15.	30429	4	Connector Bolt
16.	51721	2	Bundyweld - 3/16" x 14"
	5054		Surge Brakes (Complete) - 4 Wheel Hyd.

TIRE & WHEEL OPTIONS

30459	16.5L x 16.1 8 Ply Tire
56077	19L x 16.1 10 Ply Tire
30458	W11L x 16.1 Rim

Axle Pivotal - 77" Wheel Track w/Brake Plumbing
(M-C-028)

M-C-028



Parts MW260

260 MOONWALK

AXLE - 77" PIVOTAL W BRAKE PLUMBING

260MMAXLST

SEE (M-C-028)

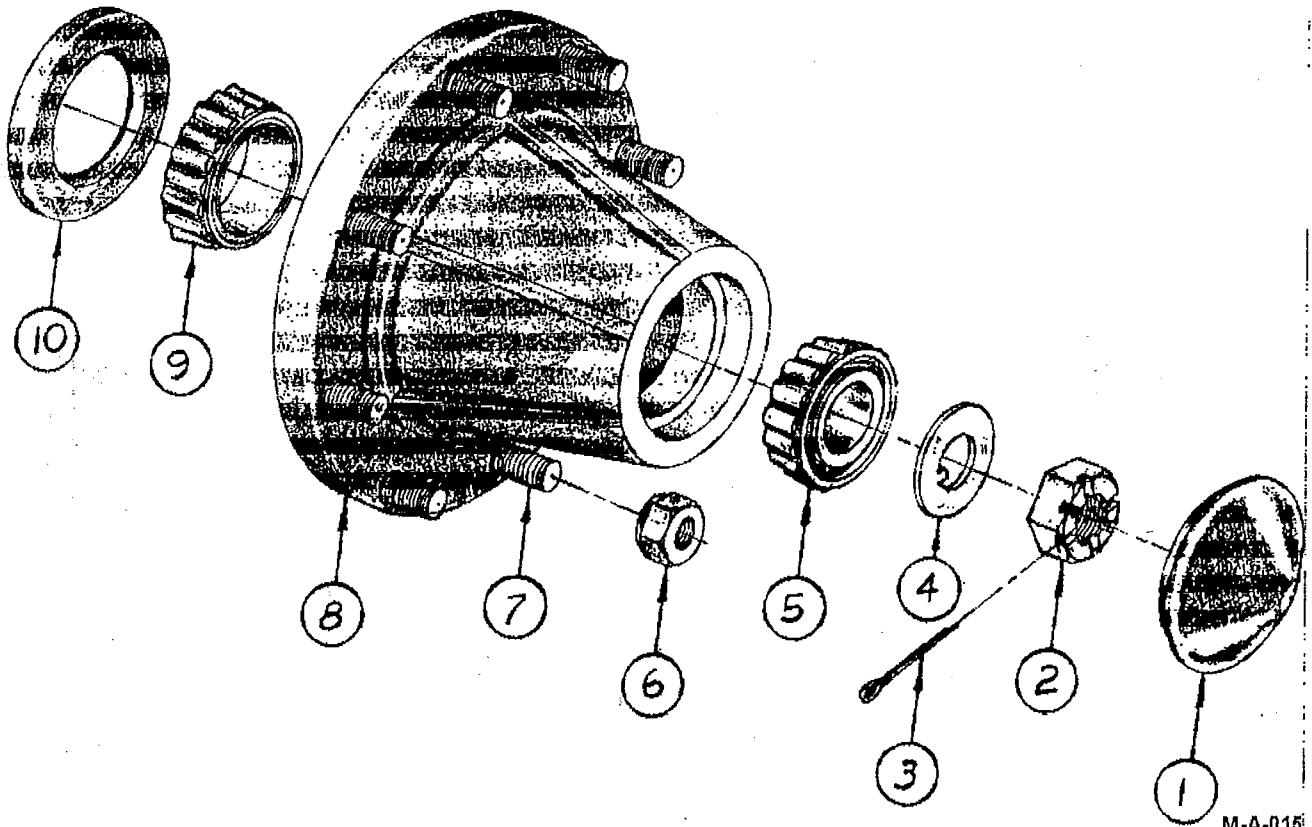
PARTS LIST

ITEM	PART NO.	DESCRIPTION	QTY.
1	3753	AXLE WELDMENT LH	1
2	37667	FRAME WELDMENT PIVOTAL AXLE 42 INCH.	1
3	10451	GREASE ZERK 1/4-28 X 45°	2
	10057	GREASE ZERK 1/4-28 X 90°	6
4	5574	AXLE WELDMENT RH	1
5		(SEE ILLUSTRATION OF 13" BRAKES)	
6	5025	HUB ASSY Q819	4
7	47005650	DRUM ASSEMBLY	4
		BRAKE FITTING KIT- 2 WHEEL BRAKES	
8	50076	BRAKE LINE NUT	12
9	51694	BRAKE LINE 41"	1
10	47005685	FRAME TEE	3
11	30424	TUBE CLIP	14
12	47005697	BRAKE LINE 96"	2
13	47005664	HOSE CLIP	2
14	30426	BRAKE LINE HOSE 20"	2
15	47005697	BRAKE LINE 30"	2
16	30427	CONNECTOR, WHEEL CYLINDER	2
17	30428	GASKET	2
18	30429	CONNECTOR BOLT	2
	5043	SURGE BRAKES, HYD 2 WHL COMPLETE KIT	1
		BRAKE FITTING KIT- 4 WHEEL BRAKES	
8	50076	BRAKE LINE NUT	16
9	51694	BRAKE LINE 41"	3
10	47005685	FRAME TEE	3
11	30424	TUBE CLIP	16
12	47005697	BRAKE LINE 96"	2
13	47005664	HOSE CLIP	2
14	30426	BRAKE LINE HOSE 20"	2
15	47005697	BRAKE LINE 30"	2
16	30427	CONNECTOR, WHEEL CYLINDER	4
17	30428	GASKET	4
18	30429	CONNECTOR BOLT	4
19	51704	BRAKE LINE 33"	2
	5044	SURGE BRAKES- 4 WHL HYD COMPLETE KIT	
		TIRE AND RIM OPTIONS	
	40012	16.5 X 16.1 TIRES AND RIMS	
	40030	19L X 16.1 TIRES AND RIMS (PIVOTAL AXLE ONLY)	

Hub Assembly - 8 on 8 (Q819)

(M-A-015)

Ref.	Part No.	Description
1.	30446	Grease Cap - Push On
2.	11076	Nut - Slotted 1"-14
3.	50603	Pin - Cotter <i>18590916</i>
4.	11077	Washer - Spindle
5.	31072	Bearing - Outside
6.	30356	Nut - Lug
7.	30358	Bolt - Lug
8.	5031	Housing & Race Assembly
9.	31073	Bearing - Inside
10.	31074	Seal
	31232	Race - Inside
	31233	Race - Outside
	5025	Hub Ass'y (Complete)

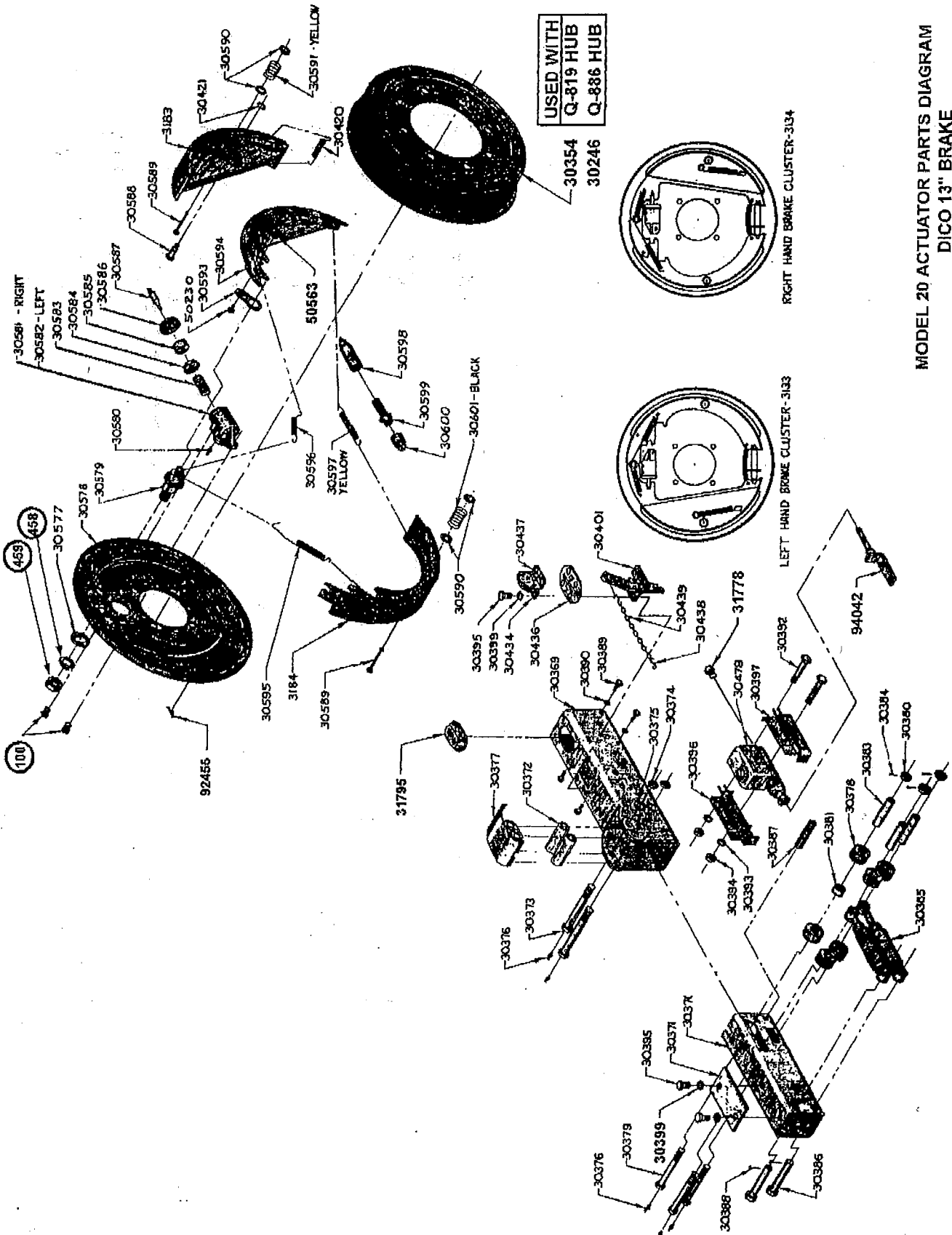


M-A-015

54A

Brakes - 13" Dico Model 20 Actuator

(M-C-032)



MODEL 20 ACTUATOR PARTS DIAGRAM
DICO 13" BRAKE
M-C-032

Brakes - 13" Dico Model 20 Actuator

(M-C-032)

Model 20 Actuator			For Dico Brake		
Part No.	Qty.	Description	Part No.	No. Req'd Per Assy.	Description
30369	1	Outer Case Ass'y.-Act.	30580	1	Fluid Insert
30370	1	Slide - Inner-Act.	30581	1	Cylinder - Wheel Right
30371	1	Centering Rail-Act.	30582	1	Cylinder - Wheel Left
30372	1	Roller Ass'y - Front-Act.	30583	1	Spring - Wheel Cylinder
30373	2	Bolt - Front Roller-Act.	30584	1	Seal - Rubber Wheel Cylinder
30374	2	Nut - 1/2" NC Hex-Act.	30585	1	Piston - Wheel Cylinder
30375	2	Lockwasher - 1/2"-Act.	30586	1	Cover - Rubber Wheel Cylinder
30376	5	Grease Fitting - Act.	30587	1	Plunger - Wheel Cylinder
30377	1	Cover - Front Roller-Act.	30588	1	Pin - Front Shoe
30378	6	Rear Roller Ass'y.-Act.	30589	2	Pin - Shoe Hold Down
30379	3	Bolt - Rear Roller-Act.	30590	4	Cup - Shoe Hold Down
30380	3	Nut--Slotted 5/8" NF-Act.	30591	1	Spring - Front Hold Down (Yellow)
30381	1	Spacer-Act.	50230	1	Bolt - 5/16"-18 x 3/4" (Grade 5)
30383	3	Spacer-Act.	30593	1	Travel Link
30384	3	Cotter Pin-Act.	30594	1	F Shoe Lever
30385	2	Damper-Act.	30595	1	Spring - Rear Shoe (Orange)
30386	2	Bar - Damper-Act.	30596	1	Spring - Front Lever (Red)
30387	1	Block - Push Rod-Act.	30597	1	Spring - Adjusting Screw (Yellow)
30388	4	Cotter Pin - 1/8" X 3/4"-Act.	30598	1	Nut - Pivot
30389	4	Bolt - 5/16" NC X 1/2"-Act.	30599	1	Screw - Adjusting
30390	6	Lockwasher--5/16" Ext. Star-Act.	30600	1	Socket - Adjusting Screw
31795	1	Cylinder Cover-Act.	30601	1	Spring - Rear Hold Down (Black)
30392	2	Bolt - 3/8" NC X 3"-Act.	50563	1	Nut - 5/16"-18 Centerlock
30393	2	Lockwasher - 3/8" Ext. Star-Act.	92455	1	Cover - Adjusting Hole
30394	2	Nut - 3/8" NC Hex-Act.			
30395	6	Bolt - 5/16" NC X 5/8"-Act.			<u>Assemblies</u>
30396	1	Cylinder Bracket Ass'y.-Right-Act.	3133	1	Brake Cluster - L.H.
30397	1	Cylinder Bracket Ass'y.-Left-Act.	3134	1	Brake Cluster - R.H.
31067	1	Master Cylinder Kit-Act.	3152	1	Brake Ass'y. R.H. Complete
30399	6	Lockwasher-Act.	3153	1	Brake Ass'y. L.H. Complete
31778	1	Adapter-Act.	3183	1	Front Brake Shoe Ass'y
30401	1	Brake Lever Ass'y.-Act.	3184	1	Right Shoe Ass'y
30434	1	Breakaway Lock--Right-Act.	94005		Repair Kit - Wheel Cylinder (Includes 2 boots & 2 cups)
30436	1	Weather Seal-Act.			
30437	1	Breakaway Lock--Left-Act.			
30438	2	S-Hook-Act.			
30439	1	Chain-Act.			
30479	1	Master Cyl. Ass'y.-1-1/4" Bore-Act.			
94042	1	Bracket Ass'y - Push Rod-Act. (Incl. w/Master Cyl.)			

REFERENCE NUMBERS

DESCRIPTION

<u>For Dico Brake</u>		100	Bolt - 1/4" x 1/2"
No. Req'd Per Assy.		458	Lockwasher - 3/4"
		459	Nut - 3/4"

30354	1	Drum - Brake 13"
30420	1	Spring - Brake Shoe
30421	1	Ring - Truarc Retaining
30577	1	Spacer
30578	1	Back Plate
30579	1	Pivot Post

REFERENCE NUMBERS ARE LISTED FOR IDENTIFICATION PURPOSES ONLY. WE SUGGEST YOU BUY LOCALLY AS NEEDED RATHER THAN FROM THE FACTORY.

13" BRAKE INSTALLATION

1. Brake Mounting Flange

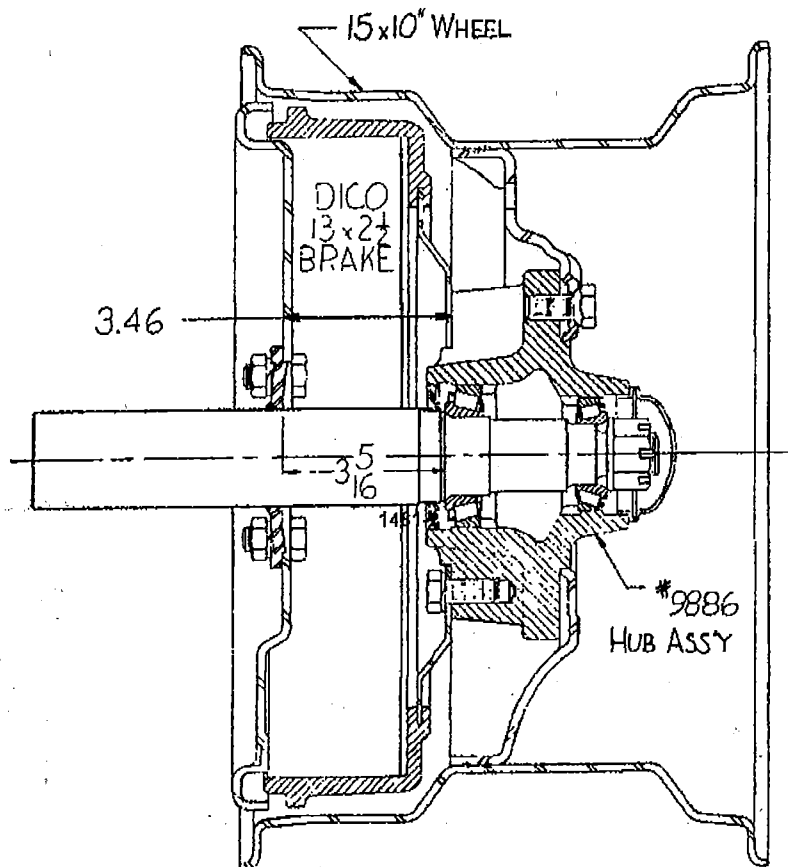
To assure correct brake action, the mounting flange must be square and concentric with the axle spindle. A flange that is not properly installed will contribute to rapid lining wear and improper brake action.

Use a flange welding fixture to properly position the flange for welding. Bolt the flange to the welding fixture securely with all bolts.

Install the fixture (and flange) onto the spindle and tighten spindle nut. If flange is being installed on a round axle, be certain the two top holes are horizontal when the axle is installed.

It is best not to make a continuous weld around the flange. First, tack weld on all four sides between the bolts. Follow this with a full weld up each side of the axle. It is usually not advisable or necessary to weld across the top and bottom of the axle. The bottom of the axle is its most highly stressed area and a weld at this point will weaken the axle. Allow the axle, spindle and flange to cool before removing welding fixture.

The drawing below is of a typical installation. The actual installation will depend on the spindle, hub and wheel used.



13" BRAKE INSTALLATION

2. Installing Brakes

Place the brake against spindle flange. Mounting bolts are supplied with the brake. Nuts and lockwashers are provided. In mounting the brake, be sure the hydraulic wheel cylinder is at the top.

Brakes are also marked as "RIGHTS" and "LEFTS". The brake designated as "LEFT" travels on the drivers side of the road.

3. Installing Brake Drum

When the brakes have been correctly assembled to the axle flanges, the hub and drum assemblies may be mounted on the axle spindle.

Pack the inside bearing with suitable wheel bearing grease. Force grease through and around the rollers. Place the bearing in the hub and install the grease seal flush with the end of the hub using an arbor press or soft mallet. Remove excess grease.

To avoid injury to bearing seal, lubricate seal seat prior to putting on the brake drum. Grease pack and install the outer bearing on spindle. Place flat washer and spindle nut on spindle. Turn drum as you tighten nut. When a pronounced drag is felt in the bearings, back off nut one complete slot and install cotter pin and dust cap.

Caution: Do not pack hub full of grease. Excessive grease may leak into brake drums causing brake failure.

Wheel may now be mounted on the trailer.

4. Adjusting Brakes

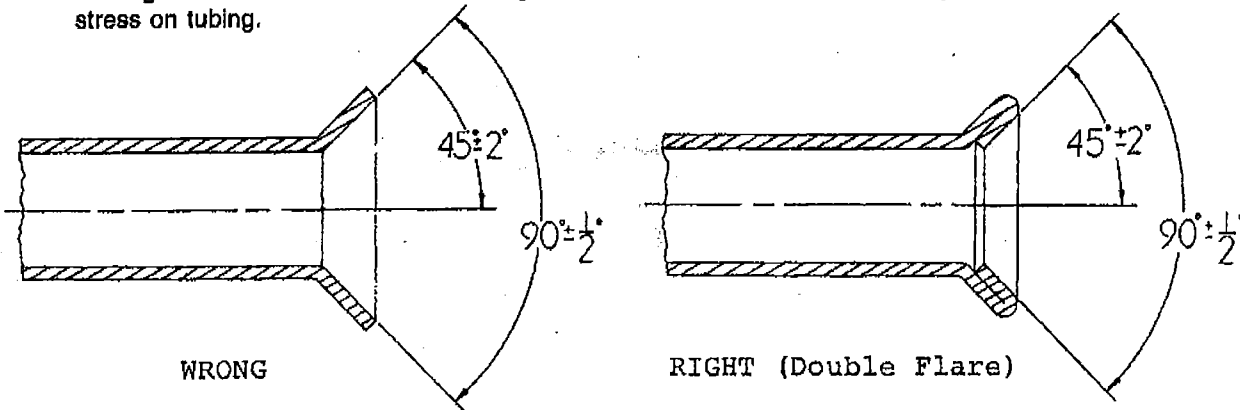
Before removing the jacks, adjust the brakes. DICO "Surg-O-Matic" trailer brakes incorporate a patented "Back up" feature that makes it necessary to rotate the wheels in the direction of forward rotation only when making adjustments.

The brake adjustment nut is located behind a slot at the bottom of the backing plate. Tighten until you cannot rotate wheel by hand, then back off the adjustment 10 to 12 notches.

ALWAYS ROTATE DRUM IN DIRECTION OF FORWARD ROTATION ONLY.

5. Hydraulic Lines

Use care in forming tubing to avoid sharp bends or kinks. Be sure and use a "Double Flaring" type of tool on steel tubing to assure tight leakproof connections. Anchor all hydraulic lines at two foot intervals to prevent chafing and vibration. Be sure and use hydraulic rubber hose at points of flexing. Anchor hose ends to avoid stress on tubing.



1481-3

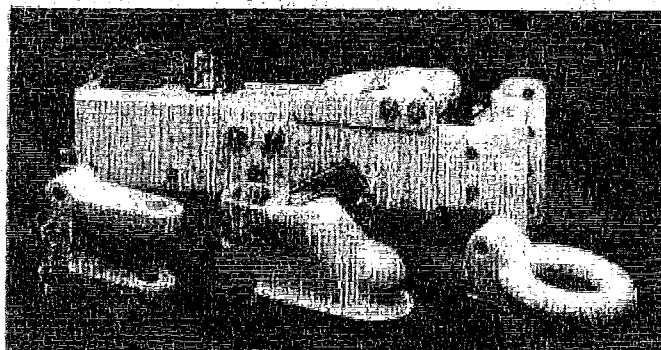
Dico Surg-O-Matic Actuator #24029

INSTALLATION INSTRUCTION AND SERVICE MANUAL
Actuator/Trailer Dealer - Please provide these instructions to the consumer.
Consumer - Read and follow these instructions. Keep them with the trailer for future reference.

TITAN MODEL 20 SURG-O-MATIC ACTUATOR FOR TRAILER BRAKES



1055100



1899100, 1811700, 1889800, 1777800

INTRODUCTION TO SURGE BRAKING

Surge braking is accomplished by replacing a trailer's standard tongue coupler with an actuator and adding hydraulic brake assemblies. The "surge" or "push" of the trailer toward the tow vehicle during deceleration automatically synchronizes these trailer brakes with the tow vehicle brakes. As the trailer pushes against the vehicle, the actuator telescopes together and applies force to its master cylinder, supplying hydraulic pressure to the trailer's brakes.

Surge actuators of this type provide a service life of approximately five years with proper installation, usage, and maintenance. However, a well cared-for actuator can often exceed this estimate. To get the most benefit from your TITAN surge actuator, follow the instructions given in this manual and use common sense in caring for the TITAN Model 20 actuator and your entire trailer brake system.

⚠ WARNING ⚠
Do not exceed these ratings.

RATED CAPACITY AND USAGE

MAXIMUM GROSS LOAD is the weight of the trailer fully loaded with all cargo and equipment. To find your trailer's Gross Load, use a commercial vehicle scale at a truck weigh station, grain elevator, etc.

MAXIMUM TONGUE LOAD is the weight applied downwards by the fully loaded trailer's coupler onto the tow vehicle's hitch. Measure your trailer's Tongue Load with the tongue in the horizontal towing position, using either a commercial scale or a bathroom scale if the load is small enough. Upwards tongue loads are not permissible.

Model 20 with:

- Fixed Coupler: 20,000 LB Max. Gross Load, 2000 LB Max. Tongue Load
- Adjustable Clevis Hitch: 20,000 LB Max. Gross Load, 2000 LB Max. Tongue Load
- Adjustable 2-5/16" Ball: 12,000 LB Max. Gross Load, 1200 LB Max. Tongue Load
- Adjustable 3" Lunette Eye: 12,000 LB Max. Gross Load, 1200 LB Max. Tongue Load

Recommended Use: For heavy or frequent-use applications, and for trailers pulled by trucks larger than standard pickups. Typical uses include but are not limited to industrial equipment trailers, agricultural spreaders, tank trailers and wagons, utility reel and pole trailers, and military ground support equipment.

TITAN

Titan Wheel Corporation
2346 East Market Street
Des Moines, IA 50317
800-247-1781
515/265-9200, FAX: 515/265-9301

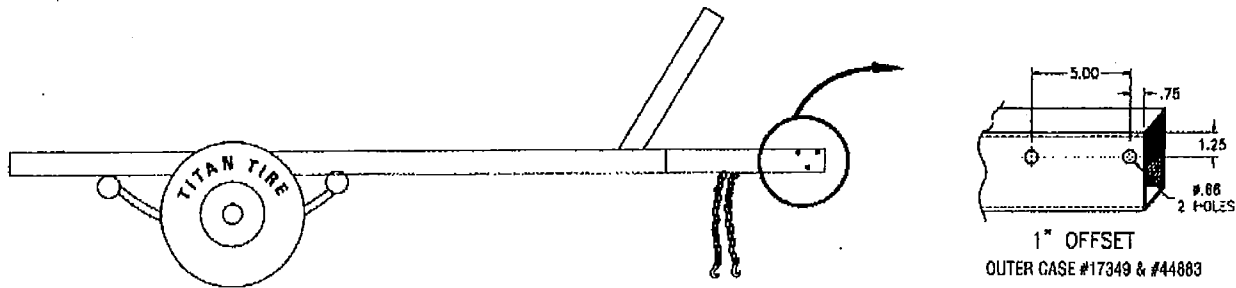
⚠ WARNING: ⚠

DO NOT submerge the actuator. Internal corrosion may result and cause brake failure. Salt water, granular fertilizers, and other corrosive materials are destructive to metal. To minimize the damaging effect of corrosion on a braking system used under corrosive conditions, we recommend that the actuator be externally flushed after use with a high pressure water hose. Be sure to lubricate all moving parts after the unit has dried. Whenever the unit will be out of service for an extended period of time, or after hard use, remove the brake drums and clean inside the brakes. Pack wheel bearings with grease before the drum is installed. Failure to properly and adequately grease and maintain the actuator could weaken it and/or cause it to fail and result in serious injury and/or property damage.

INSTALLATION*

1. The MODEL 20 Actuator is completely assembled and ready to bolt or weld into place onto straight three inch wide trailer tongues. Welding will make repair or replacement difficult but may be preferred. If the actuator must be painted for aesthetic reasons, then TITAN recommends painting **ONLY** the outer case and disassembling the unit prior to painting. Application of heavy coats of paint may interfere with component operation. If the actuator is welded on, then be sure to weld in a well ventilated area. Confirm the coupler and break-away mechanisms work properly before operation. Store actuators indoors and in their original shipping carton until the time of installation.

FIG. 1 - TRAILER AND TRAILER TONGUE BOLT PATTERN
(SIDE VIEW SHOWN)



2. For bolt on applications, bolt the actuator to the tongue using two 5/8 inch by 4 inch grade 5 or better bolts, nuts, and lockwashers if using outer case #17349 or #44883 <1>. Figure 1 shows the standard mounting patterns used on three inch wide trailer tongues. Light weight tongues require spacer tubes inside for reinforcement when bolting. Using a torque wrench, tighten mounting bolts to eighty (80) foot-pounds torque.
3. Install the hydraulic brakes and brake lines on the trailer as described in the installation manual supplied with the brakes. TITAN recommends 3/16 inch brazed double wall tubing per S.A.E. J527 for use with all our actuator and brake products. Use forty-five degree (45°) double-flare tube ends per S.A.E. J533. **DO NOT** remove or modify the orifice connector <42> at the rear of your actuator's master cylinder. It connects directly to the brake tubing and ensures proper fluid flow characteristics. **FLEXIBLE BRAKE LINE HOSE MUST BE USED** to connect the orifice connector at the master cylinder to the hydraulic brake line on the trailer. This is necessary because the master cylinder is spring mounted to provide overload protection and thus moves relative to the outer case.
4. After installation of the actuator, brake, and brake lines as described above, proceed immediately to the "**BRAKE FLUID FILLING AND BLEEDING**" instructions.



⚠ WARNING: ⚠

Failure to complete the "**BRAKE FLUID FILLING AND BLEEDING**" procedures promptly after installation may result in internal master cylinder corrosion and cause brake failure.

*NOTE: <#> is the reference number shown in the assembly diagram of the actuator located at the end of this manual.

BRAKE FLUID FILLING AND BLEEDING

1. After completing the "INSTALLATION" instructions, remove the master cylinder's cap and fill the reservoir to three-quarters full with DOT-3 or DOT 4 brake fluid. DO NOT allow brake fluid to contact painted surfaces since it will damage the finish. Wipe up any spills immediately and wash the area with water.



 **WARNING:** 

Use only fresh brake fluid from a sealed container. DO NOT reuse fluid. After filling and bleeding, remember to refill the actuator. Failure to maintain an adequate fluid level may cause brake failure.

2. Bleed the brake system either manually or with a pressure bleeder. Pressure bleeding equipment simplifies the process, and is available at your local automotive supply store. Use the instructions provided with the pressure bleeder. If you chose to manually bleed the system, an assistant is required. Use the following steps to manually bleed the brake system:
 - A. Disconnect the trailer from the tow vehicle and jack the trailer's tongue until it is horizontal. Make sure that the wheels are blocked so that the trailer will not roll away.
 - B. Fill the master cylinder with fluid as described above. Loosen the four break-away mounting bolts <27> enough to keep the break-away locks <32 & 33> from restricting the lever motion. Rotate the break-away lever <30> forward using small strokes until the bubbling stops inside the master cylinder.
 - C. Install a bleeder hose on the bleeder screw of the farthest wheel cylinder from the actuator. If the trailer has tandem axles, bleed the rear axle first. Submerge the other end of the hose in a glass container of brake fluid, so that air bubbles can be observed.
 - D. Open the bleeder screw and have your assistant stroke (but not release) the break-away lever. Brake fluid and/or air bubbles will flow into the jar. Close the bleeder screw. The helper can then allow the break-away lever to return to its rest position.
 - E. Repeat the process until no more bubbles are released with the stroke. Air trapped in the brake lines will greatly reduce your braking efficiency. Be sure to close the bleeder screw securely when the cylinder is fully bled.
 - F. Repeat the bleeding operation at each wheel cylinder. During the bleeding process, replenish the master cylinder reservoir with fresh brake fluid so that the level does not fall below half full. This will ensure that no air is drawn into the system.
3. After all brakes have been bled, refill the master cylinder reservoir to three-quarters full before operating. Retighten the four bolts <27> using a torque wrench to 90-120 inch-pounds of torque. Screw the filler cap back into position and replace the cylinder cover <23>. The filler cap only needs to be finger tight.

TESTING TITAN SURGE BRAKE SYSTEMS

Hydraulic surge actuator systems provide automatic and smooth trailer braking without special application by the tow vehicle driver. While this is extremely convenient it can sometimes be difficult to determine if the surge setup is functioning properly. The following steps provide a quick field-test to confirm that the trailer brake system is operational.

 **WARNING:** 

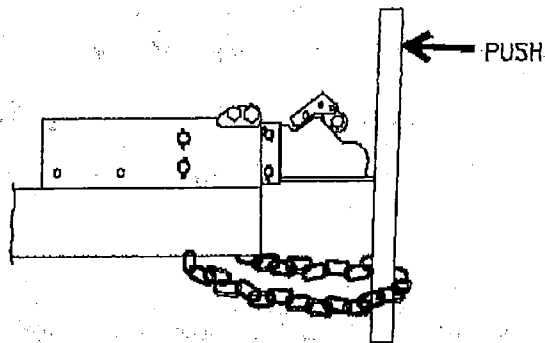
It should be noted that the field-test procedure indicates only if the trailer brake system is functional, but DOES NOT provide information on how efficiently it will operate. Regular inspection, maintenance, and adjustment of all brake system components (including the surge actuator, tubing, hoses, brake clusters, drums, and associated hardware/support structure) are still required to ensure maximum brake performance and smooth, even brake operation.

1. Move the trailer to flat, level ground, pulling **FORWARD** several feet before parking. This forward motion will ensure trailers equipped with free-backing brakes are in their normal operating mode. Disconnect the trailer from the tow vehicle and jack up the trailer's tongue until it is horizontal.

*NOTE: <#> Is the reference number shown in the assembly diagram of the actuator located at the end of this manual.

- Hook the trailer's safety chains (**NOT** the actuator's break-away cable/chain) together to form a loop, which is centered below the actuator's coupler as shown in Figure 2.
- Place a sturdy board, such as a 2 inch by 4 inch piece of lumber, into the chain loop below the coupler. The board should be 4 feet or longer so it will extend several feet above the actuator. Keep the end of the board a few inches off the ground, and position it to press against the front end of the actuator's coupler. Press the board towards the rear of the trailer.
- Keep pressing the top of the board to stroke the actuator and its internal master cylinder. If the trailer brake system is operational, the brakes will apply and keep the trailer from rolling away from you. Properly adjusted uni-servo or duo-servo type brakes will prevent you from moving the trailer back more than a few inches. Free-backing type brakes will initially provide rolling resistance, but continued force on the board will switch them into free-backing mode, and you'll be able to move the trailer backwards.

FIG. 2 - TESTING SURGE BRAKE



- If you have uni-servo or duo-servo brakes, and stroking the actuator (as described above) causes the trailer to roll away from you freely or with only minimal resistance, the brakes are **NOT** applying properly. If you have free-backing brakes and stroking the actuator (as described above) causes the trailer to roll away without initial resistance, then the brakes are **NOT** applying properly. The brake system **MUST** be evaluated to determine the cause of the problem and corrective action **MUST** be taken before the trailer is used.

Use this procedure each time you tow your trailer to check your surge brake system operation.

HITCHING TRAILER

- Confirm the towing hitch and ball have a rating equal to or greater than the trailer G.V.W.R. and are properly and securely attached to the tow vehicle. The hitch **MUST** be installed so the trailer tongue is level (horizontal) when coupled to the tow vehicle.

⚠ WARNING: ⚠
To ensure proper engagement of the actuator's coupler to the tow ball, DO NOT use a multi-piece ball, an incorrectly sized ball, or a worn/damaged ball.

- To hitch the 2-5/16 inch coupler to the tow vehicle, perform the following procedure. Open the coupler by lifting the handle assembly's lock trigger so it unhooks from the locked position, and then by swinging the top of the handle toward the rear of the actuator. Lower the coupler onto the ball confirming that the ball is fully seated in the coupler socket. Swing the handle back forward until the lock trigger hooks into the locked position to secure the ball. Check that the ball has been trapped in the coupler socket. A properly adjusted coupler will have between 1/64 inch and 1/32 inch of free play between the ball and ball socket. **Do not tow the trailer if the coupler is damaged.**
- Check that the actuator's coupler, lunette eye, or clevis is securely attached to the tow vehicle by extending the trailer's tongue jack to the ground. Use it to lift the trailer tongue and tow vehicle hitch two to four inches. The actuator and hitch should remain engaged. **DO NOT tow the trailer unless the actuator is securely connected to the tow vehicle.** Retract the trailer tongue jack before towing.

⚠ WARNING: ⚠
The break-away system is not designed to operate if the trailer does not separate completely from the tow vehicle, or if the trailer tongue "submarines" and goes beneath the tow vehicle. DO NOT use the break-away system as a parking brake.

- The 2-5/16 ball coupler mechanism may be further secured by performing the following steps. With the handle in the locked (down) position, insert either a standard padlock or spring pin through the hole in the

*NOTE: <#> is the reference number shown in the assembly diagram of the actuator located at the end of this manual.

side of the handle assembly. This will lock the handle in the down position and further prevent the handle ball latch assembly from swinging upward and opening. Do not use padlocks or pins which interfere with the telescoping action of the actuator and thereby compromise braking performance.

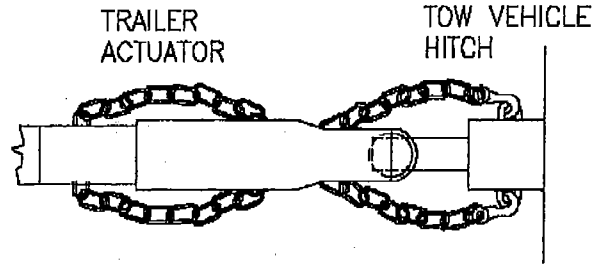
5. To uncouple the trailer, first block the wheels to keep the trailer from rolling. Lift the actuator handle fully to allow the ball latch to rotate. Lift the trailer tongue off the tow ball using a tongue jack if necessary.

⚠ WARNING: ⚠

The trailer safety chains' length **MUST** be set short enough so the actuator's break-away cable is **NOT** pulled if the coupler separates from the tow vehicle's hitch but remains connected by the safety chains. The break-away system should only be activated after **BOTH** the trailer's coupler **AND** safety chains have failed and allowed the trailer to completely separate from the tow vehicle. Provide just enough slack in the trailer safety chains to allow tight turns. The chains should not drag on the ground. Safety chains must be used. When towing, **AVOID** sharp turns which can cause the actuator to bind against the tow vehicle. This can damage the actuator and trailer, causing brake failure. **AVOID** towing across severe bumps or dips which may cause the tow hitch to lever against the actuator/coupler and compromise the connection.

6. As shown in Figure 3, your tow vehicle's hitch provides a safety chain hole or ring on each side. Consult your trailer manufacturer for proper safety chain recommendations. Attach your trailer's safety chains securely to these connection points, being sure to cross the chains **UNDER** the trailer tongue. Safety chains **MUST** be used. This will prevent the trailer tongue from dropping to the road if the coupler separates from the tow vehicle's hitch. If your tow vehicle's hitch does not provide safety chain connection points, have appropriate ones added by a reputable hitch installer.

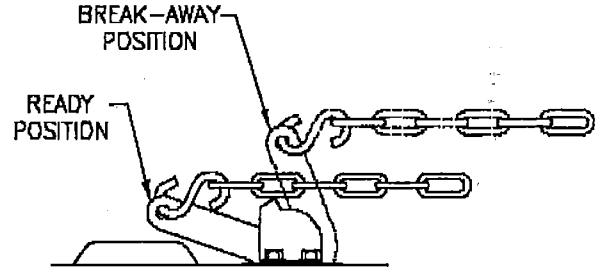
FIG.3 - SAFETY CHAIN ATTACHMENT (TOP VIEW SHOWN)



7. Attach the actuator's break-away chain S-hook securely to one of the tow vehicle hitch's safety chain connection points. Confirm that the trailer's safety chains are adjusted relative to the actuator's break-away chain as noted above. **DO NOT** loop the break-away chain around a bracket and hook it back onto itself.

8. Before towing, check that the break-away lever and chain are properly positioned as shown in Figure 4. If the break-away lever and chain are not located correctly as described above, due to either the cable being pulled during use or by accident, it **MUST** be reset prior to the trailer being moved.

FIG.4 - BREAK-AWAY LEVER AND CABLE POSITION



9. Resetting is accomplished by first removing the two rearward bolts <27>, one located on each side of the breakaway lever <30>. These two bolts hold down the break-away locks <32 & 33>. Loosen, but do not remove the two remaining bolts <27>. This will allow the two locks to be swung aside and the lever can be pushed back into its resting position. Replace the break-away locks to their original positions and retighten the four bolts using a torque wrench to 90-120 Inch-pounds of torque.

⚠ WARNING: ⚠

The hydraulic pressure held in the system may cause the lever to snap back quickly. Keep hands and fingers clear as you reset the break-away mechanism.

10. Using TITAN Actuators with Weight Distributing Hitches

Weight distributing (equalizing) hitches have been an important part of trailering for many years. They shift excess tongue weight from the end of the tow vehicle by distributing it across all vehicle and trailer axles. Leveling the tow vehicle and the trailer reduces the stress on the suspension components and increases towing stability.

*NOTE: <#> is the reference number shown in the assembly diagram of the actuator located at the end of this manual.

All TITAN surge brake actuators are fully compatible with equalizing hitches. When using weight distributing hitches with TITAN actuators, observe the following rules:

- 1) Allow six to eight inches of free chain length,
- 2) The chains must be vertical (straight up and down) under pulling load, and
- 3) Tongue weight beyond the specified actuator rating WILL interfere with brake performance.

This statement summarizes TITAN's three "rules of thumb" for equalizer/actuator compatibility. Each rule contributes to optimum trailer braking.

RULE #1: Allow six to eight inches of free chain length. This means that the equalizer's chains must be at least six to eight inches long between the spring bars and the hook-up brackets (which attach the chains to the trailer). Surge brake actuators must be free to compress their internal master cylinder. Shorter lengths of chain will limit the distance the actuator can move, and this restricts the unit's braking.

RULE #2: The chains must be vertical (straight up and down) under pulling load. During towing, these chains must be aligned straight up and down. This should be confirmed on level ground with the trailer coupled (using the equalizing hitch) to the tow vehicle. After checking that the actuator is in its towing position (not compressed), adjust the position of the hook-up brackets on the trailer until the chains are vertical. If the chains are angled forward or back on the TITAN actuator, they have a tendency to either impede the braking action by limiting the distance the actuator can stroke or prematurely apply the brakes by pulling the trailer forward relative to the tow vehicle.

RULE #3: Tongue weight beyond the specified actuator rating WILL interfere with brake performance. Weight distributing hitches spread tongue weight over the axles of both the tow vehicle and the trailer by applying leverage against the trailer tongue and actuator/coupler. This additional force and torque on the trailer system approximately doubles the load on the actuator, potentially exceeding its load rating.

For example, a fully-loaded trailer with a hitched tongue weight of 350 pounds might be equipped with a TITAN Model 20 actuator. A weight distributing hitch would then cause the actuator to receive the equivalent of a 700 pound tongue load. Since 700 pounds is less than the TITAN Model 20 actuator's tongue load rating, this set-up would be acceptable. If a similar trailer has a 1100 pound tongue weight, and once again an equalizer is hooked up, the actuator would perceive a 2200 pound tongue load. That would put the system above the tongue load rating of the actuator. Since the excess tongue load on a surge actuator can cause it to stroke less freely (resulting in less effective braking), this would be an inappropriate set-up.

Two factors in selecting towing equipment are gross trailer weight (GTW) and tongue load (TL). GTW is the weight of the trailer fully loaded in its actual towing condition. This can be measured by placing the fully loaded trailer on a vehicle scale. TL is the downward force exerted on the trailer hitch ball by the trailer coupler. In most cases it is 10% to 15% of the GTW.

With a heavier tongue load, roller kits are available. The roller kit attaches directly to the actuator, and extends back to a roller which rides on the trailer's tongue, allowing a higher tongue weight by shifting the equalizer's added load to the tongue roller instead of the actuator/coupler. Consult your trailer manufacturer, or your equalizer manufacturer for more information on roller kits.

11. Sway control devices that restrict operation of the actuator CANNOT be used. The actuator MUST be free to telescope in response to braking requirements.

MAINTENANCE

1. Before each towing, perform the following steps:

- Check that the brake fluid reservoir is three-quarters full of DOT-3 or DOT-4 brake fluid. Check for leaks and repair as required.

- Examine the actuator for wear, bent parts, corroded/seized parts, or other damage. Have the affected components replaced with genuine TITAN service parts. Check to determine that the actuator mounting bolts (where applicable) are tightened to eighty (80) foot-pounds torque using a torque wrench.

- Test the actuator and brake function as described in the "TESTING TITAN SURGE BRAKE SYSTEMS" section of this manual. Actuator travel over one inch indicates that the brakes need adjustment (or that the actuator has been structurally damaged). Actuator travel is the distance the coupler case assembly <2> moves relative

*NOTE: <#> is the reference number shown in the assembly diagram of the actuator located at the end of this manual.

to the outer case <1> during braking. Adjust the brakes following the instructions given in the brake installation manual. In general, back off adjusters ten clicks from locked drum rotation. Adjust free-backing brakes by rotating in the forward direction only. Failure to adjust brakes will result in loss of braking.

2. A film of clean grease on the ball will minimize squeaking. Wipe the ball clean and renew film each time the trailer is used.
3. Before storage or after extended use, TITAN recommends applying motor oil to the coupler components and the internal rollers to keep them moving freely and to prevent corrosion. Also apply grease to the front roller <4> via the zerk fitting <8>. Grease every 5000 miles or 90 days of use.

MODEL 20 ASSEMBLY



WARNING:



An incorrect lever or chain position may cause the trailer brakes to drag and overheat, or may keep the brakes from being applied in a break-away situation. After any usage of the break-away mechanism, either real or accidental, check all system components (lever, chain, S-hooks, spring, push rod assembly, etc.) for damage. Replace any damaged items with genuine TITAN service parts.

1. Over time, you may need to disassemble your TITAN Model 20 for service or to replace components. Use the following steps to put the actuator back together, checking this manual's assembly diagram and parts list for reference.
2. With the actuator completely disassembled, place the front roller cover <9> into position. Hold the front roller <4> from the bottom, lining up the holes and thread the front roller bolt <5> through the cover and roller into place. Secure bolt <5> with lock washer <7> and nut <6>. Repeat for rear roller. Tighten nuts to 75 ft-lbs.
3. Place the centering plate on the inner slide <2> and secure in place with two 5/16 bolts <27> and lockwashers <41>. Reach through from the rear of the inner slide with the damper <17>. Using a damper pin <18>, secure the small end into the top hole. Repeat this with the second damper in the bottom hole. Insert a spacer tube <15> into the top slot of the inner slide. Reach in from the rear of the inner slide with one of the rear rollers <10> (chamfered edge out) and thread it onto the spacer tube. Next on the spacer tube place the end of the damper, and finally the other rear roller (chamfered edge out). Repeat the above for the bottom damper. Insert the third and final spacer tube <15> into the top slot of the inner slide. Reach in from the rear of the inner slide with one of the rear rollers <10> (chamfered edge out) and thread it onto the spacer tube. Next on the spacer tube place a spacer <13>, then the final roller (chamfered edge out). Carefully insert the inner slide <2> into the outer case <1> so as not to dislodge the spacer tube assemblies. Insert a rear roller bolt <47> into the front top spacer tube and loosely secure the bolt with a castle nut <12>. Repeat the above for the bottom spacer tube. Thread the final top bolt <11> through the final spacer tube and loosely secure. Run down the castle nuts on the three bolts and secure with cotter pins <16>.
4. Next assemble the breakaway. Place the breakaway lever assembly <30> into the appropriate hole. Position the weather seal <31> on top of it. Attach the left <33> and right <32> breakaway locks next using the 5/16 bolts <27> and lockwashers <41>.
5. Finally slide the master cylinder into place. Secure it with the four 5/16 bolts <21> and lockwashers <22>. Screw the cap onto the master cylinder, and finally, replace the cylinder cover <23>.
6. The actuator should now be fully assembled and ready for installation as described in this manual.

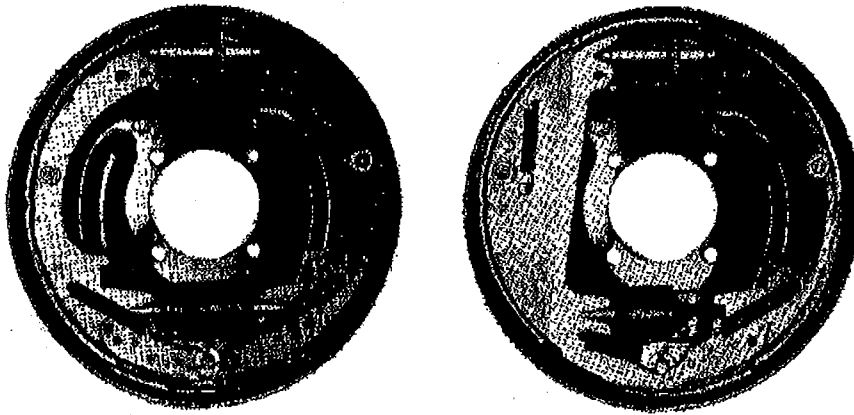
*NOTE: <#> is the reference number shown in the assembly diagram of the actuator located at the end of this manual.

INSTALLATION INSTRUCTION AND SERVICE MANUAL

DICO

13" x 2 1/2" BRAKES

FREE BACKING • NON-SERVO INDUSTRIAL



DICO LIMITED WARRANTY

Limited Warranty DICO Inc. ("DICO") warrants its products to be free from defects in material and workmanship for one year from date of delivery to the original purchaser when properly installed, used and maintained by the purchaser.

DICO warrants its complete braking systems (DICO PREMIER, MARINE & STANDARD brakes, DICO hubdrums, and DICO actuators) to be free from defects in material and workmanship for two years when properly installed, used and maintained.

DICO warrants that the PREMIER BRAKE will be free from a corrosion-related failure of brake components for two years when properly installed, used and maintained.

This warranty does not apply to damage or loss caused by any or all of the following circumstances or conditions:

- Freight damage.
- Parts, accessories, materials or components not obtained from or approved in writing by DICO.
- Misapplication, misuse and failure to follow the directions or observe cautions and warnings on installation, operation, application, inspection or maintenance specified in any DICO quotation, acknowledgment, sales literature, specification sheet or installation instruction and service manual ("applicable literature").

If any DICO products are found upon DICO's examination to have been defective when supplied, DICO will either credit the purchaser's account for the purchase price of the DICO product; replace the DICO product; or repair the product. DICO has sole discretion in choosing which option to provide. For this LIMITED WARRANTY to apply, DICO must receive notice of the alleged defect within 30 days of either the discovery of the alleged defect or the expiration of the warranty period, whichever is earlier. Any claim not made within this period shall conclusively be deemed waived.

If requested by DICO, purchaser shall return the alleged defective product to DICO for examination at DICO's direction and expense. DICO will not pay for expenses incurred in returning a product to DICO without DICO's prior written authority. DICO shall not be liable for any other expenses purchaser incurs to remedy any defect. Purchasers waive subrogation on all claims under any insurance.

Limitation of Liability It is expressly agreed that the liability of DICO is limited and DICO does not function as an insurer. THE REMEDIES SET FORTH IN THIS WARRANTY SHALL CONSTITUTE THE EXCLUSIVE REMEDIES AVAILABLE TO THE PURCHASER OR USER AND ARE IN LIEU OF ALL OTHER REMEDIES, EXPRESS OR IMPLIED. THE LIABILITY OF DICO, WHETHER IN CONTRACT, IN TORT, UNDER ANY WARRANTY OR OTHERWISE, SHALL NOT EXCEED THE PURCHASE PRICE OF THE PARTICULAR PRODUCT MANUFACTURED, SOLD OR SUPPLIED BY DICO.

To Obtain Technical Assistance To enable DICO to respond to a request for assistance or evaluation of customer or user operating difficulty, please provide at a minimum the following information by calling 1-800-247-1781 or within Iowa 1-515-265-9200:

- Model number, serial number and all other data on the specific component which appears to be involved in the difficulty.
- The date and from whom you purchased your DICO product.
- State your difficulty, being sure to mention at least the following: Application, Nature of load involved, and Weight of the load.

Field Service If field service at the request of the purchaser is required and the difficulty is found not to be with DICO's product, the purchaser shall pay the time and expense (at the prevailing rate at the time of service) of dealer's field representative(s). Charges for service, labor and other expenses that have been incurred by the purchaser, its customer or agent without prior written authorization of DICO will not be accepted.

DICO EXTENDS NO WARRANTY, EXPRESS OR IMPLIED, ON PRODUCTS NOT MANUFACTURED BY DICO OR TO DICO'S DESIGN SPECIFICATION, INCLUDING BUT NOT LIMITED TO SUCH ITEMS AS NON-DICO TIRES, BEARINGS, HOSE AND TUBING. PURCHASER'S RECOURSE SHALL BE LIMITED TO ANY WARRANTY OF THE RESPECTIVE MANUFACTURERS.

THIS WARRANTY EXCLUDES ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY PURPOSE.

THIS WARRANTY DOES NOT COVER NOR EXTEND TO INCIDENTAL OR CONSEQUENTIAL DAMAGE. Some states do not allow the exclusion or limitation of incidental or consequential damage, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

No representative has authority to make any representation, promise or agreement except as stated in this Limited Warranty. DICO reserves the right to make design and other changes upon its products without any obligation to install the same on any previously sold or delivered products.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THOSE DESCRIBED ABOVE. EFFECTIVE JULY 1, 1991 THIS WARRANTY SUPERSEDES ALL PRIOR WARRANTIES, WRITTEN OR IMPLIED.

DUE TO THE WIDE VARIATION IN USES TO WHICH DICO PRODUCTS (WHEELS, HUBS, BRAKES, ETC.) ARE SUBJECTED BY USERS, WE ARE INABLE TO SPECIFY CARRYING CAPACITIES OR SPEEDS FOR A PARTICULAR APPLICATION. THEREFORE, THE MANUFACTURER MUST TEST HIS EQUIPMENT UNDER THE MOST SEVERE CONDITIONS TO DETERMINE THAT DICO PRODUCTS ARE SUITABLE.

PNEUMATIC TIRE WARNING

Danger—Only specially trained persons using proper equipment shall mount or demount pneumatic tires. Serious or fatal injuries can result from using improper mounting procedures.



DICO Inc.
Titan Distribution
2345 E. Market St.
Des Moines, IA 50317
515/265-9200, FAX: 515/265-9301

66

Dyneer

Dico Company, Inc.
A Subsidiary of Dyneer Corporation
P.O. Box 1344
Des Moines, Iowa 50305

Technical Bulletin #215

TROUBLE SHOOTING BRAKES

SYMPTOM

SOLUTION

BRAKE NOISE

Shoe chatter, lining coated with grease.

Correct cause of grease leakage, reline & grind for proper lining-to-drum contact.

Vibration with loose bolts, out-of-round drums.

Tighten hub bolts, recondition or replace drums.

Vibration with loose bearing adjustment or rough bearing.

Adjust bearings or replace.

Worn or cracked drums or machined beyond allowable oversize limits.

Replace drums.

EXCESSIVE TRAVEL OF ACTUATOR

Leaks in hydraulic lines.

Replace defective lines.

Low fluid in master cylinder reservoir; air in hydraulic lines.

Refill master cylinder and bleed system.

Leaking wheel cylinders.

Repair or replace.

Leaking primary cup in master cylinder; ports closed or restricted with dirt; defective hoses; leaking check valve fails to keep hydraulic system preloaded.

Check all components and make corrections required.

Excessive lining-to-drum clearance.

Adjust brakes or replace linings.

PRESSURE BUILD-UP IN SYSTEM

Contaminated fluid causing cup swelling.

Drain, flush, and replace fluid. Replace cups.

Master cylinder piston fails to stop, keeping compensating port closed.

Check all components and make corrections required.

Hose collapsed, keeping fluid from returning to master cylinder.

Replace defective hose.

Master cylinder ports closed or restricted with dirt, or weak return spring.

Overhaul or replace.

DICO, a name synonymous with quality.

Save this Technical Bulletin for future reference

6/86

67

AG SYSTEMS JACK

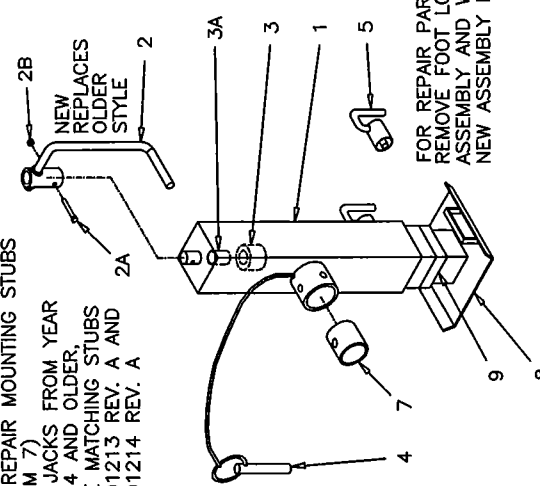
JACKO7150
REV 09-25-12



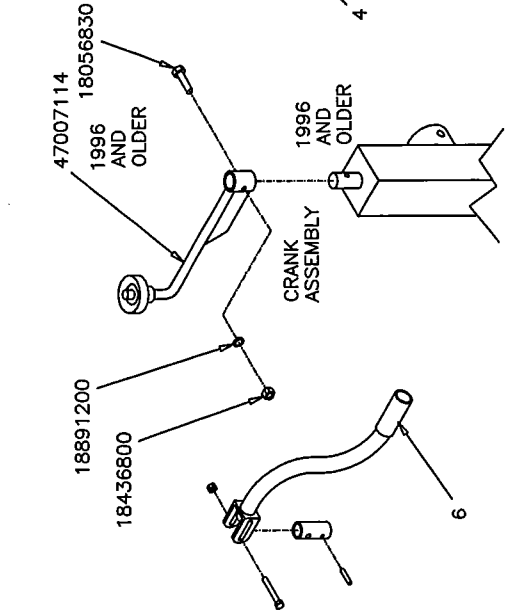
OLDER STYLE

10,000 LB. CAPACITY

TO REPAIR MOUNTING STUBS (ITEM 7) ON JACKS FROM YEAR 2004 AND OLDER, USE MATCHING STUBS 4701213 REV. A AND 4701214 REV. A



FOR REPAIR PART REMOVE FOOT LOCK PIN ASSEMBLY AND WELD NEW ASSEMBLY IN PLACE



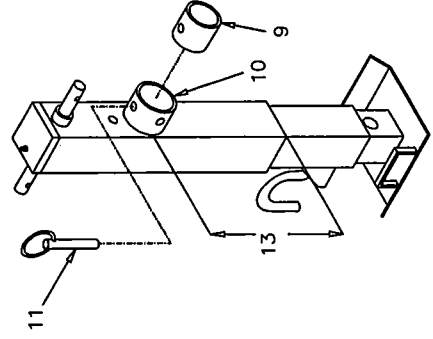
FOR REPAIR PART REMOVE FOOT LOCK PIN ASSEMBLY AND WELD NEW ASSEMBLY IN PLACE

12,000 LB. CAPACITY

(2007 TO PRESENT)
(6300, 6400 & 6500 MODELS ONLY)

ITEM PART NO.	DESCRIPTION (10,000# CAP.)
1 6020502	JACK COMPLETE, (FINISH PAINTED) WITHOUT MOUNTING STUB TUBE
47004000	JACK COMPLETE, (PRIMED ONLY) INCLUDES MOUNTING STUB TUBE
2	REPAIR PARTS AVAILABLE
2A 18056430	AG/TCHA256WG SWIVEL HANDLE (STANDARD)
2B 18457600	BOLT, 5/16-18 X 2.00" ZC LOCKNUT, 5/16-18 ZC
3 PA/TB64T64 PA/TBT126	THRUST BEARING 1" ID X 2" OD X 5/8" THRUST BEARING (1998-2000 YEARS ONLY)
3A PA/111038 PA/AA12143	BUSHING, 1" ID X 1 1/8" OD X 3/8 LONG BUSHING, (1998 - 2000 YEARS ONLY)
4 PA/DP584	(1 1/8" ID X 1 1/4" OD X 3/4 LG) LANYARD AND PIN
5 AGSLAT12N	FOOT LOCK PIN ASSY (1 1/4)
6 AGSLAT12NH	2005 AND OLDER FOOT LOCK PIN ASSY (7/8) 2006 TO PRESENT
AG/HWN79P	SWIVEL HANDLE
SPECIAL, USED IN YR 2002 & 2003	FOR REPAIR USE ITEM 2
7 47010213	INNER MOUNTING STUB SPECIFY REV. A 2 7/8 O.D.
8 AG/DFA318NSP	BOTTOM FOOT ASSEMBLY (1)
9 PA/BBH1412	FOOT TUBE COLLARS (2 HALVES)

ITEM PART NO.	DESCRIPTION (12,000# CAP.)
1 6020512	JACK COMPLETE, (FINISH PAINTED) WITH MOUNTING PLATE
47004002	JACK PRIMED ONLY - NO MTG. PLATE, NO MTG. STUBS
2 47010154	U-BOLT, 5/8-11NC..
3 18911600	LOCK WASHER, 5/8
4 18449100	HEX. NUT, 5/8-11NC.
5 PA/HWN7P	SWIVEL HANDLE
6 18056826	BOLT, 3/8-16NC. X 2 1/2
7 18457800	HEX. LOCKNUT, 3/8-16NC. REPAIR PARTS AVAILABLE
8 AGSLAT12N	FOOT LOCK PIN ASSY (1 1/4) REPAIRS FOR 2005 AND OLDER
AGSLAT12NH	FOOT LOCK PIN ASSY (7/8) REPAIRS FOR 2006 TO PRESENT
9 47010213	INNER MOUNTING STUB
10 47015014	OUTER MOUNTING STUB
11 600178	CLEVIS PIN (3/4 X 6) WITH HAIRPIN
12 AG/DFA318NSP	BOTTOM FOOT ASSEMBLY (1)
13 PA/BBH1412	FOOT TUBE COLLARS (2 HALVES)



REPAIR PARTS FOR JACK FROM 1996 THRU 2006

PTO Shaft - Standard
G & G With Black Guard

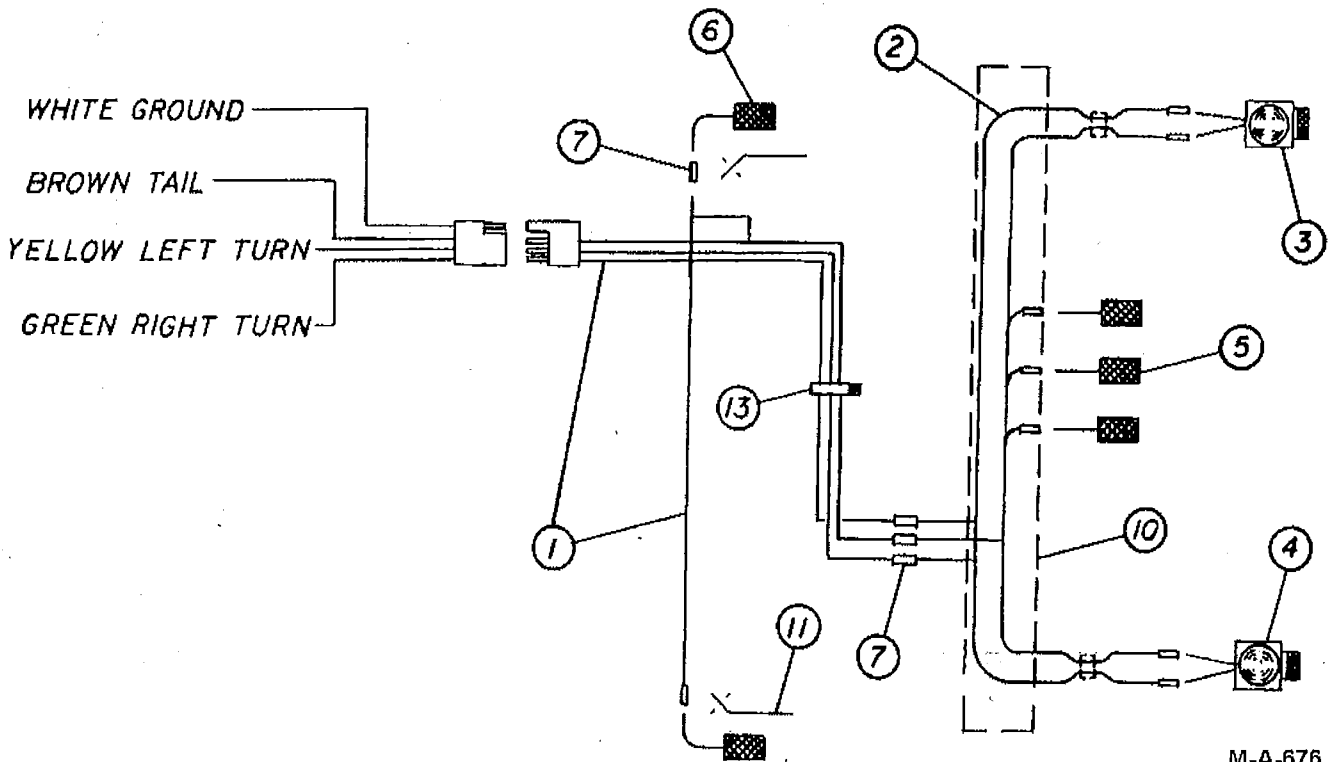
(M-A-013)

<u>Ref.</u>	<u>Part No.</u>	<u>Qty</u>	<u>Description</u>
1.	31147	1	PTO Shield - Tractor Half
2.	31146	1	PTO Shield - Spreader Half
3.			Included in Bearing Shield Kit
4.			Included in Bearing Shield Kit
5.			Included in Bearing Shield Kit
6.	10221	1	PTO Yoke & Tube Ass'y - Spreader Half
7.	10224	1	PTO Yoke & Shaft Ass'y-Tractor Half (540 RPM)
7A.	98856	1	End Yoke w/Pin (540 RPM)
7B.	98857	1	End Yoke w/Pin (1000 RPM)
8.	1082	2	Repair Kit - Universal Joint
9.	No Longer Available		Snap Hitch Pin Kit Use 7A or 7B
	92409	2	Bearing Shield Kit
	92410		PTO Shaft - Tractor Half - Includes Ref. No's 1, 3, 4, 5 & 7 (540 RPM)
	92411		PTO Shaft - Spreader Half - Includes Ref. No's 2, 3, 4, 5 & 6 (540 & 1000 RPM)
	1041		PTO Shaft Ass'y - Complete (540 RPM)
	5261		PTO Shaft - Tractor Half - Includes Ref. No's 1, 3, 4, 5 & 7 (1000 RPM)

Lights w/ Wire Diagram

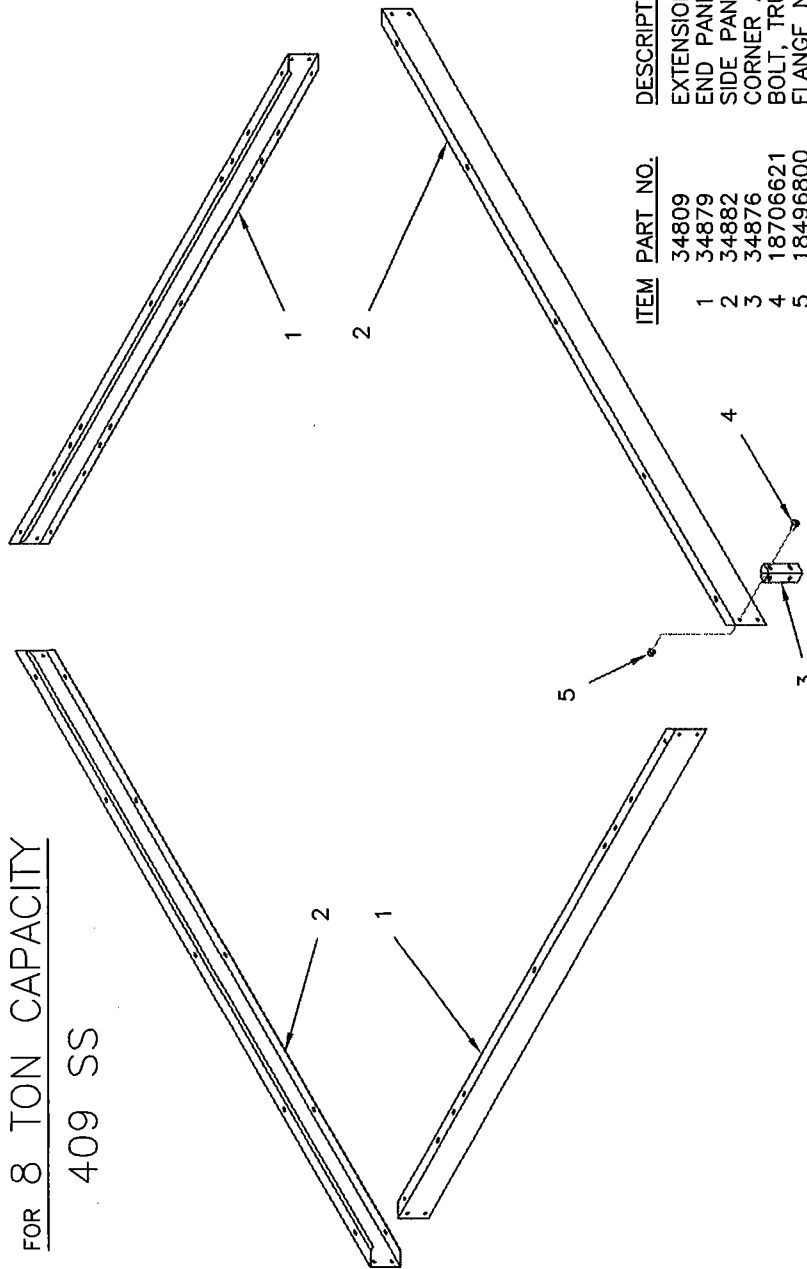
(M-A-676)

<u>Ref.</u>	<u>Part No.</u>	<u>Qty.</u>	<u>Description</u>
1.	57179	1	Wire Harness w/Loom
2.	57176	1	Wire Harness w/Loom
3.	1836	1	Tail Light w/o Lic. Ill.
4.	1829	1	Tail Light w/o Lic. Ill.
5.	18103	3	Clear Light--Red
6.	18104	2	Clear Light--Amber
7.	42448	5	Butt Connector
10.	2714	1	Light Bar Wldmt. (Mtd. On Ext.)
11.	32704	2	Bracket--Clearance Light
13.	41859	19	Vinyl Clamp
	33165	1	<u>Complete Package</u>
	34064	1	NOT ILLUSTRATED License Bracket



MOONWALK BOX EXTENSIONS
FOR 8 TON CAPACITY
 409 SS

MWXT8T

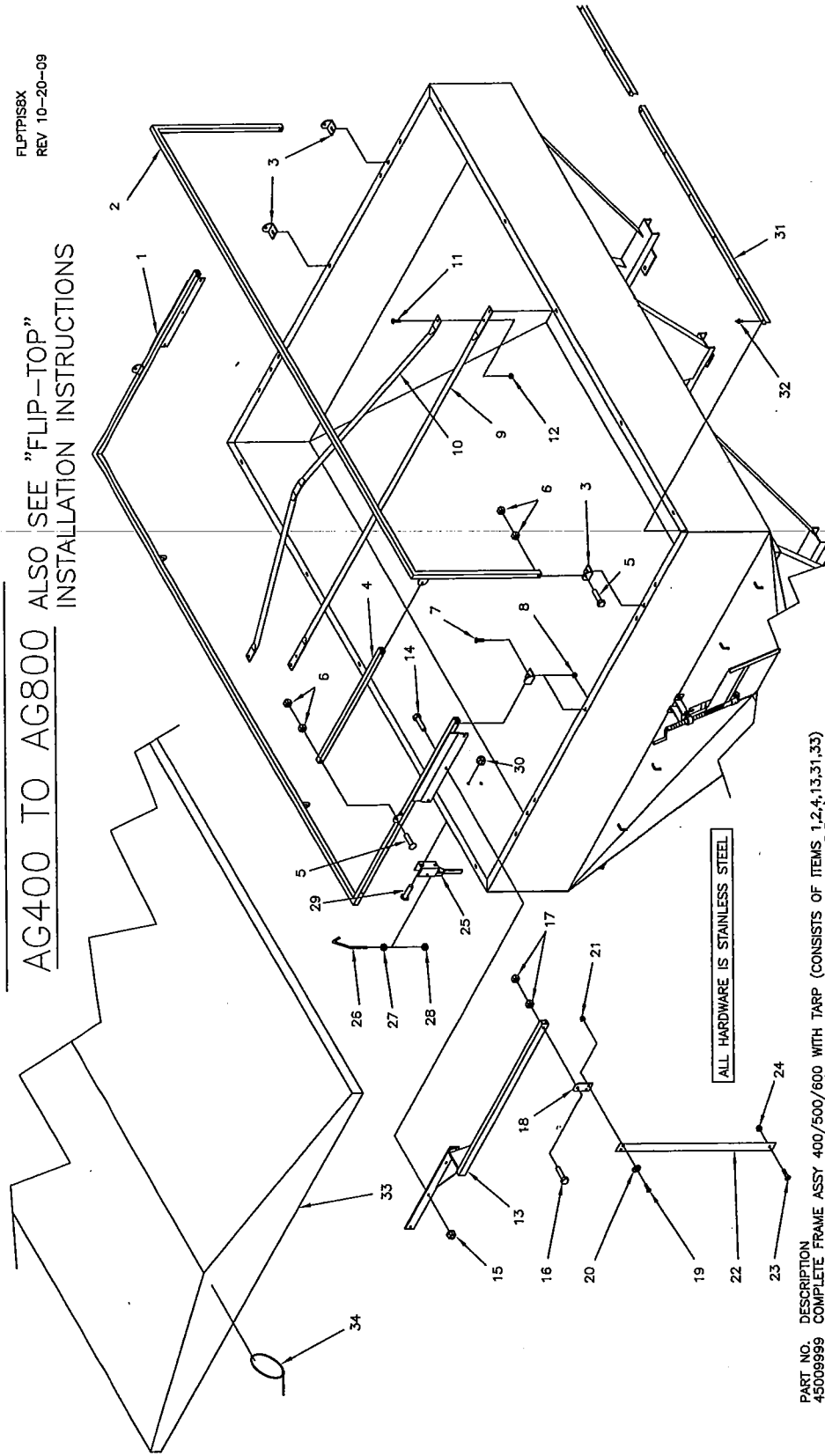


<u>ITEM</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>409 S.S.</u>	<u>QTY</u>
1	34809	EXTENSION PKG. COMPLETE		2
2	34879	END PANEL		2
3	34882	SIDE PANEL,		4
4	34876	CORNER ANGLE		4
5	18706621	BOLT, TRUSS HD. 3/8-16NC. X 3/4	S.S. 36	36
	18496800	FLANGE NUT, 3/8-16NC.	Z.P.	36

FLIP-TOP TARP

FLPTPISBX
REV 10-20-09

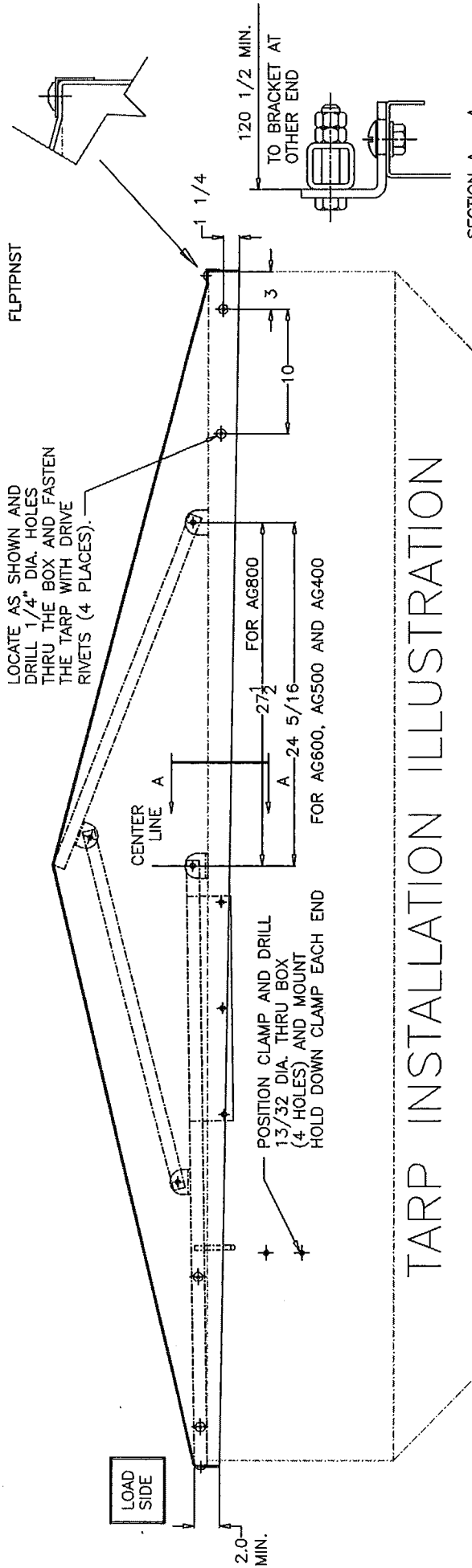
ALSO SEE "FLIP-TOP"
AG400 TO AG800
INSTALLATION INSTRUCTIONS



ALL HARDWARE IS STAINLESS STEEL

- PART NO. DESCRIPTION
- 45009999 COMPLETE FRAME ASSY 400/500/600 WITH TARP (CONSISTS OF ITEMS 1,2,4,13,31,33)
- 45019999 FRAME ASSY 400/500/600 ONLY (CONSISTS OF ITEMS 1,2,3,4,9,10,13,31)
- 48009999 COMPLETE FRAME ASSY 800 ONLY WITH TARP (CONSISTS OF ITEMS 1, THRU 4,9,10,13,31 and 33)
- 48019999 FRAME ASSY 800 ONLY (CONSISTS OF ITEMS 1 THRU 4,9,10,13,31)
- 48999999 BOLT PACKAGE 800 ONLY (CONSISTS OF ITEMS 3, 5 thru 8, 11, 12, 14 thru 30, 32, and 34)
- 45999999 BOLT PACKAGE 400/500/600 (CONSISTS OF ITEMS 3, 5 thru 8, 11, 14 thru 30, 32, and 34)

ITEM	PART NO.	DESCRIPTION	QTY.
1	47037866	FOLDING FRAME, OUTSIDE AG800 ONLY	1
2	47037477	FOLDING FRAME, OUTSIDE AG600, AG500 AND AG400	1
3	47037687	FOLDING FRAME, CENTER AG800 ONLY	1
4	47037480	FOLDING FRAME, CENTER AG500, AG500 AND AG400	4
5	47037345	PIVOT BRACKET	2
6	47034833	PIVOT TUBE, (29 5/8") AG800 ONLY	2
7	47032926	PIVOT TUBE, (26 5/16") AG600, AG500 AND AG400	8
8	18033812	BOLT, 3/8-16NC X 2 TRUSS HEAD	16
9	18476800	HEX NUT, 3/8-16NC	16
10	18706622	BOLT, 3/8-16NC X 1 TRUSS HEAD	4
11	18987900	FLANGE NUT, 3/8-16NC	4
12	47037866	FOLDING FRAME, CENTER AG800 ONLY	1
13	47005747	TARP HANDLE, (AG800, AG500 & AG400)	1
14	18025822	BOLT, 3/8-16NC X 1 HK, HD	3
15	18987900	FLANGE NUT, 3/8-16NC	3
16	18075854	BOLT, 3/8-16NC X 2 1/2	2
17	18476800	HEX NUT, 3/8-16NC	2
18	47032816	END BRACKET, STRAP	2
19	18706421	BOLT, 3/8-16NC X 3/4 TRUSS HEAD	2
20	18991100	FLATWASHER, 5/16	2
21	18987700	FLANGE NUT, 5/16-18NC	2
22	47032836	STRAP FOR HANDLE	1
23	18706622	BOLT, 3/8-16NC X 1 TRUSS HEAD	1
24	18987900	FLANGE NUT, 3/8-16NC	1
25	47002270	CLAMP HANDLE	2
26	47034559	HOLD-DOWN ROD	2
27	18476850	HEX NUT, 5/16-18NC	2
28	18476851	HEX NUT, SELF-LOCKING 5/16-18NC	2
29	18987900	FLANGE NUT, 3/8-16NC	4
30	18987900	FLANGE NUT, 3/8-16NC	4
31	47037477	TARP HANDLE, NYLON	32
32	47037477	TARP HANDLE, NYLON	32
33	3733748	TARP, 84" X 120" (AG800, AG500 & AG400)	1
34	609629	CABLE TIE, NYLON	5

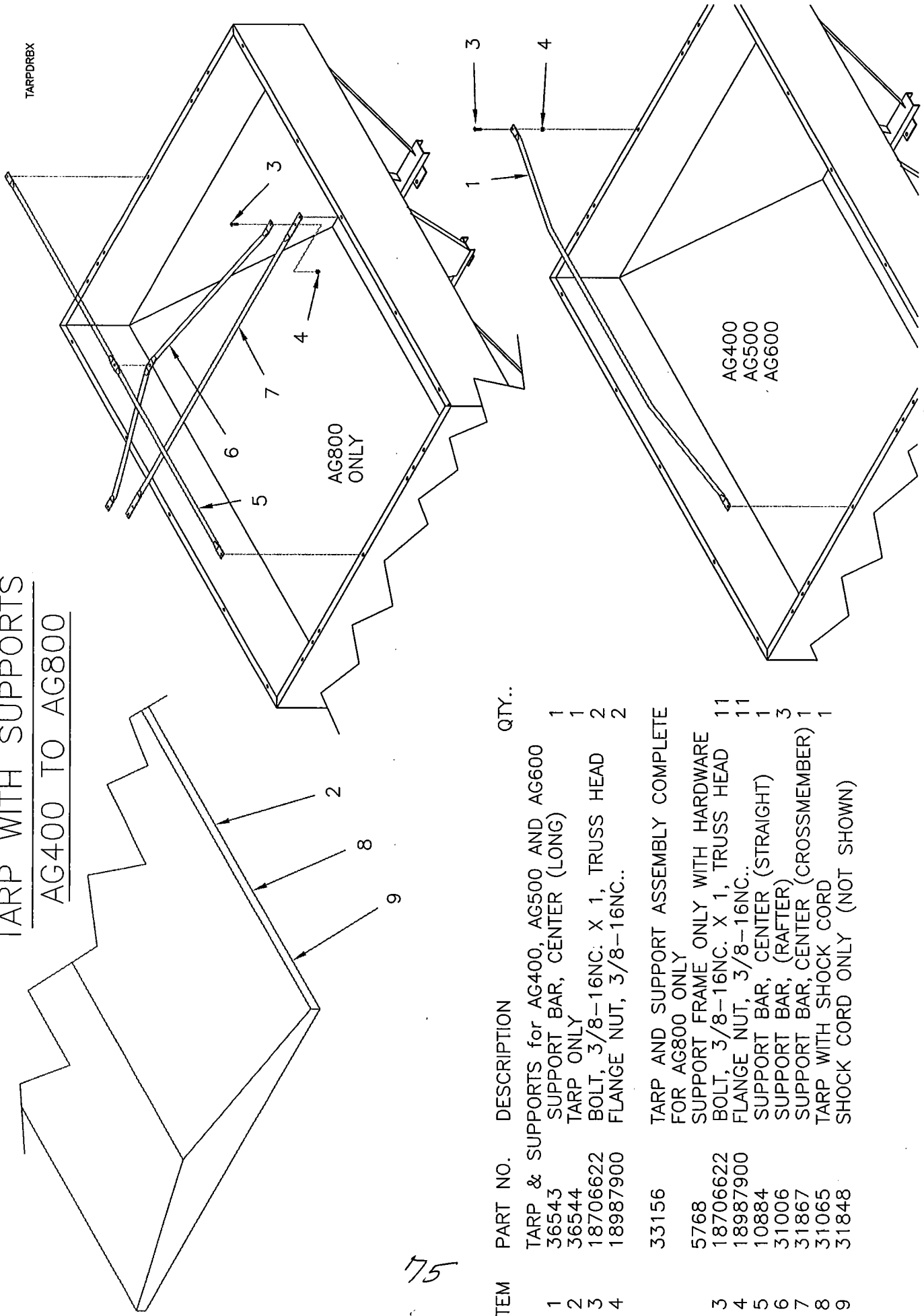


SECTION A - A

1. Refer to the "FLIP-TOP TARP PARTS LIST" for parts listing and description etc..
2. For AG800 only. Install the "crossmembers" items 9 and 10 with hardware items 11 and 12 (4 bolts and 4 flange nuts).
3. Fasten the "pivot brackets" item 3 to the top flange of the box with hardware items 7 and 8 (4 bolts & 4 flange nuts). Locate as shown above.
4. Assemble the "folding frames" items 1 and 2 to the "pivot brackets" with the hardware items 5 and 6 (4 bolts and 8 hex. nuts).
5. Assemble the "pivot tubes" item 4 to the "folding frames" with the hardware items 5 and 6 (4 bolts and 8 hex. nuts).
6. Drape the "tarp" item 32 over the "folding frames" and attach to the center folding frame with the "cable ties" item 34.
7. Standing on the "load side" stretch the tarp evenly along the side maintaining a minimum of 2" of overhang as shown. Note: there should be a 2" overhang on the opposite side also. If there is a 2" overhang on one side and a 3" overhang on the other side, split the difference by using a 2 1/2" overhang on each side. Check the overhang on the ends and maintain an equal overhang on each end.
8. With the overhang properly measured, locate and punch holes thru the tarp corresponding with the 1/4" holes the "outside folding frame" item 1 (12 places only) - DO NOT PUNCH HOLES FOR THE ENDS AT THIS TIME. Fasten the tarp using the "drive rivets" item 32 (12) places.
Note: start at the center and work towards the ends.
9. On the opposite side, stretch the tarp evenly along the side of the box and punch holes thru the tarp corresponding with the 1/4" holes in the top flange of the box. Place the edge support angle item 31 over the tarp and the top flange of the box. Sandwich the tarp between the frame and the support angle and fasten with (6) "drive rivets" item 32 in each angle. Note: start in the center and work towards the ends.
10. Locate and drill 1/4" diameter holes in the ends of the box using the 3" and 10" dimensions. Fasten with (4) "drive rivets" item 32. Maintain an equal overhang each end.
11. Locate and punch holes thru the tarp corresponding with the 1/4" holes in the ends of the "folding frame" item 1. Fasten with (4) "drive rivets" item 32. DO NOT STRETCH THE TARP TIGHT AROUND THE FRAMEWORK CORNERS.
12. Attach the "handle" item 13 to the folding frame with the hardware items 14 and 15 (3 hx. hd. bolts and 3 flange nuts). Assemble the "strap" item 22 and the "end bracket" item 18 with hardware items 19, 20 and 21 and assemble to the handle with hardware items 16 and 17. Fasten the other end at a convenient place on the box with hardware items 23 and 24.
13. Assemble the "hold-down clamp" parts item 25 to 28. Position the clamp assembly with the hook on the folding frame and mark and drill 13/32" diameter holes in the ends of the box. Mount the clamp assembly with hardware items 29 and 30.
14. Adjust the "hold-down rod" item 26 in the clamp assembly to get the desired locking effect.

74

TARP WITH SUPPORTS AG400 TO AG800



175

ITEM	PART NO.	DESCRIPTION	QTY..
1	TARP & SUPPORTS for AG400, AG500 AND AG600		1
2	36543	SUPPORT BAR, CENTER (LONG)	1
3	36544	TARP ONLY	2
4	18706622	BOLT, 3/8-16NC. X 1, TRUSS HEAD	2
	18987900	FLANGE NUT, 3/8-16NC..	2
	33156	TARP AND SUPPORT ASSEMBLY COMPLETE FOR AG800 ONLY	
	5768	SUPPORT FRAME ONLY WITH HARDWARE	
3	18706622	BOLT, 3/8-16NC. X 1, TRUSS HEAD	11
4	18987900	FLANGE NUT, 3/8-16NC..	11
5	10884	SUPPORT BAR, CENTER (STRAIGHT)	1
6	31006	SUPPORT BAR, (RAFTER)	3
7	31867	SUPPORT BAR, CENTER (CROSSMEMBER)	1
8	31065	TARP WITH SHOCK CORD	1
9	31848	SHOCK CORD ONLY (NOT SHOWN)	

