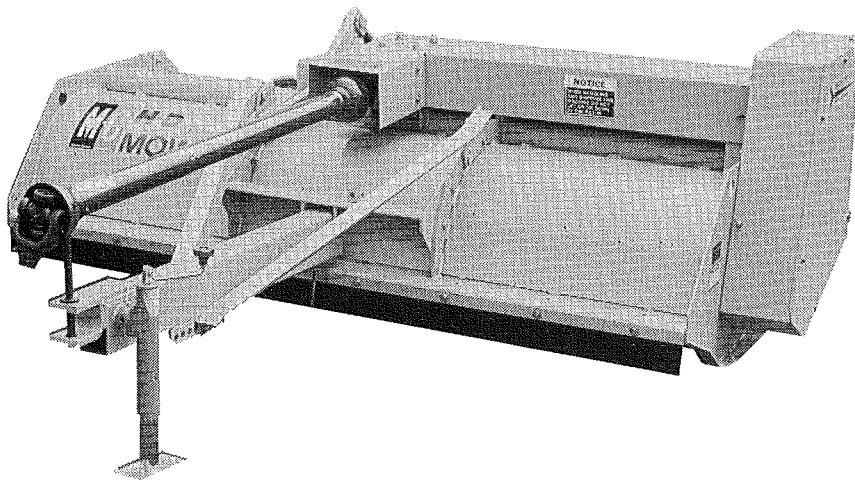
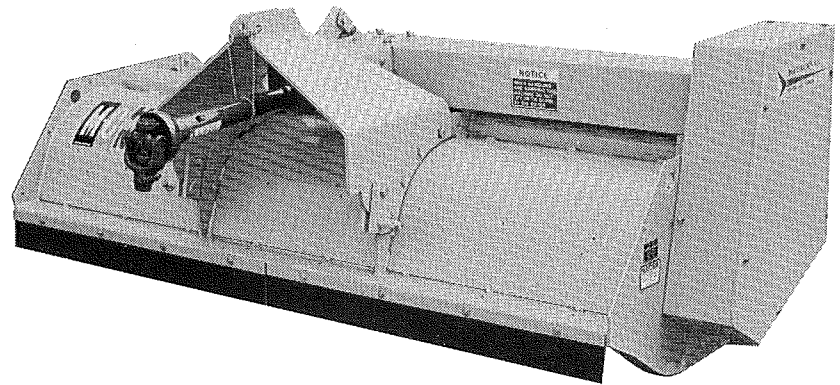




# Safeway Heavy Duty Mowers

Lift - Type Mower



Pull - Type Mower

## OPERATOR'S MANUAL

Model 7 HD, 8 HD, 10 HD and 12 HD

**Mathews Company /**

500 Industrial Ave., Crystal Lake, IL 60014, U.S.A.  
815/459-2210 Telex 72-2488



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# INTRODUCTION

## To The Owner

Before operating your Mower read the Operating, Adjustment and Maintenance instructions in this manual. Check each item referred to and become familiar with the adjustments and/or settings required to obtain efficient operation and maximum trouble free service.

## Work Safely



This symbol is used to call your attention to instructions concerning your personal safety. Be sure to observe and follow these instructions.

## Warranty Registration

Is it important to send in your warranty registration card as soon as your new Heavy Duty Mower is delivered. Not only does the card validate your machine warranty, but it is also our way of knowing who has purchased M-C equipment so that we can keep in touch with you.

## Model and Serial Number Location

The model and serial number of your Heavy Duty Mower are stamped on a plate located on the left side of the body, see Figure 1. For future reference, record the model and serial number in the blank spaces in Figure 2.

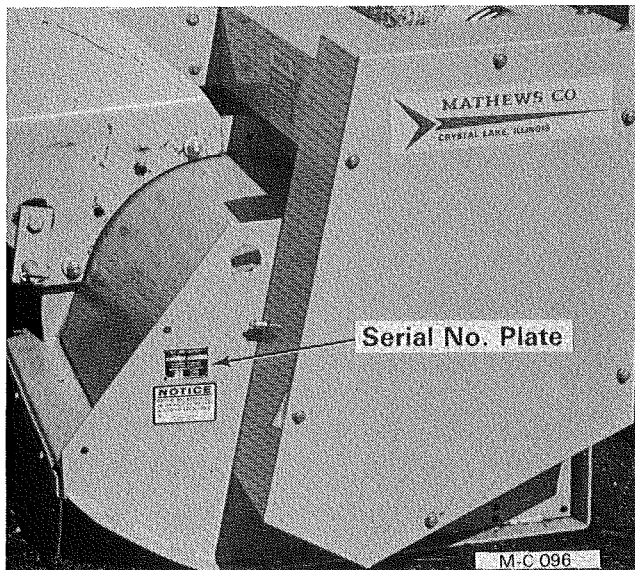


Figure 1

M-C FARM EQUIPMENT	
MODEL NO.	SERIAL NO.
MANUFACTURED BY	
<b>MATHEWS COMPANY</b>	
CRYSTAL LAKE, ILLINOIS, U.S.A.	
<b>OTHER PATENTS PENDING</b>	
2,999,346	3,159,957
3,035,393	3,159,959
3,831,359	3,831,357

M-C 011

Figure 2

## Parts Ordering Instructions





1. Order parts from your local M-C dealer or distributor.
2. Always furnish the machine name, model and serial numbers. This information is stamped on the serial number plate.
3. Service parts for your machine are listed in the "Parts" section of this manual. When ordering parts be sure to furnish the part number, description and quantity required.
4. Inspect all shipments upon receipt. If any packages and/or boxes are missing, or parts are damaged, file a claim with the carrier immediately. Failure to do so may void a claim. Check the shipment against the packing list carefully. Report any shortages to the shipper immediately.
5. Do not return any parts to the Mathews Company without a "Return Goods Authorization" from the factory. All return parts shipments must be shipped prepaid (COD shipments will not be accepted). Shipments must also include the following:
  - A. A letter of explanation including the "Return Goods Authorization Number," your name and address.
  - B. A list of all parts being returned. List must include part number, description, quantity and original invoice number.

## Capscrew Grade Identification

There are four grades of hex-head capscrews. Grade 1 and 2 are common capscrews, grade 5 and grade 8 are used when greater strength is required. Each grade can be identified by the marking on the head of the capscrew, see chart below.

When servicing the machine and/or replacing capscrews, be sure to use the correct size and grade. If in doubt, refer to the parts list. If a specific grade is not shown as part of the description, the capscrew is a grade 1 or 2.

### CAPSCREW GRADE IDENTIFICATION CHART

S.A.E. Grade	Description	Capscrew Head Marking*
1	WILL HAVE A PLAIN HEAD - NO RADIAL LINES	
2	Low or Medium Carbon Steel Not Heat Treated	
5	WILL HAVE 3 RADIAL LINES Quenched and Tempered Medium Carbon Steel	
8	WILL HAVE 6 RADIAL LINES Quenched and Tempered Special Carbon or Alloy Steel	

\*The center marking identifies the capscrew manufacturer.

## Metric (SI) Measurements

### (English Units & Metric (SI) Equivalents)

#### Area

1 square inch = 6.4516 square centimeters  
 1 square foot = 0.0929 square meters  
 1 square yard = 0.8361 square meters  
 1 acre = 4047 square meters  
 1 acre = 0.4047 hectare

#### Force

1 pound (force) = 4.45 newtons

#### Length

1 inch = 25.4 millimeters  
 1 inch = 2.54 centimeters  
 1 foot = 304.8 millimeters  
 1 foot = 30.5 centimeters  
 1 foot = 0.305 meters  
 1 yard = 0.9144 meters  
 1 mile = 1.6093 kilometers

#### Mass

1 ounce = 28.35 grams  
 1 pound = 0.454 kilograms  
 1 ton = 907.1848 kilograms

#### Power

1 horsepower = 0.7457 kilowatts

#### Pressure

1 psi = 6.89 kilopascals  
 1 psi = 0.00689 megapascals  
 1 inch of mercury = 3.377 kilopascals

#### Temperature

1 degree Fahrenheit ( $^{\circ}\text{F} - 32$ )  $\div 1.8 = ^{\circ}\text{Celsius}$

#### Torque

1 inch pound = 0.113 newton meters  
 1 foot pound = 1.356 newton meters

#### Velocity

1 mile per hour = 1.61 kilometers per hour

#### Volume

1 bushel = 35.24 liters  
 1 bushel = 0.0352 cubic meters  
 1 pint = 0.4731 liters  
 1 quart = 0.9464 liters  
 1 gallon = 3.7854 liters  
 1 cubic inch = 16.387 cubic centimeters  
 1 cubic foot = 0.0283 cubic meters  
 1 cubic yard = 0.7646 cubic meters

**NOTE:** The Mathews Company reserves the right to incorporate any changes in design without obligation to make these changes on units previously sold.

# SETTING-UP INSTRUCTIONS

## General

Before beginning to set-up your Mower, read the setting-up instructions carefully to become familiar with the machine.

Check to make sure that you have received all parts listed on your packing list and/or machine order. Make claims for any shortages immediately.

RIGHT or LEFT and FRONT or REAR of the Mower is determined by standing behind the Mower looking toward the tractor PTO.

Assemble the Mower on a solid flat level surface to insure safety and to aid in aligning parts during assembly.

The basic assembled Mower includes the body, rotor w/knives, gear box for 540 or 1000 RPM belt drive and stone guard. The accessories and/or kits ordered with the basic Mower will have to be installed. These setting-up instructions cover each accessory and/or kit. Follow the instructions that pertain to your Mower.



**CAUTION:** Get help if the parts are too heavy or difficult for you to handle.



**CAUTION:** Always use safety stands or blocking in conjunction with hydraulic jacks or hoists. Do not rely on the jack or hoist to carry the load, they could fail.

**IMPORTANT:** Never lift or handle the Mower by the rotor. Also, when shipping, never use the rotor as an anchor point to tie the Mower down.

## Gauge Roller Kit (Optional)

1. Lift the back of the mower just high enough to install the gauge roller. **DO NOT** lift the mower by the rotor. Place safety stands under the mower body.
2. Install the gauge roller hangers into the ends of the gauge roller and position the gauge roller under the mower, see Figure 3.
3. Install a 1/2-13 x 1 1/2" (Grade 5) hex-head capscrew thru the hanger into the lower rear

hole on both sides of the mower body, see Figure 4. Secure with lockwasher and hex-nut, do not tighten.

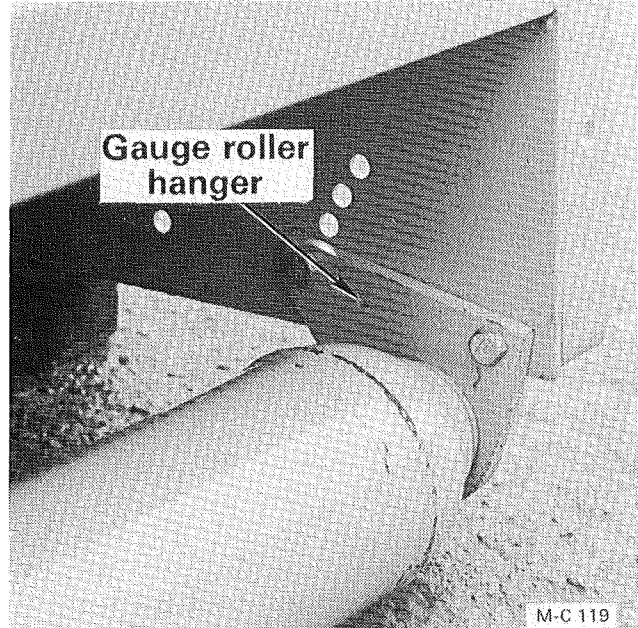


Figure 3

4. Raise the gauge roller to the height you want to cut and install a 1/2-13 x 1 1/2" (Grade 5) hex-head capscrew thru the hanger into the adjustment hole on both sides of the body, see Figure 4. These capscrews must be in the same hole on each side. Secure with lockwasher and hex-nut.
5. Tighten all four capscrews. Raise the mower, remove the jack stands and lower the mower to the ground.

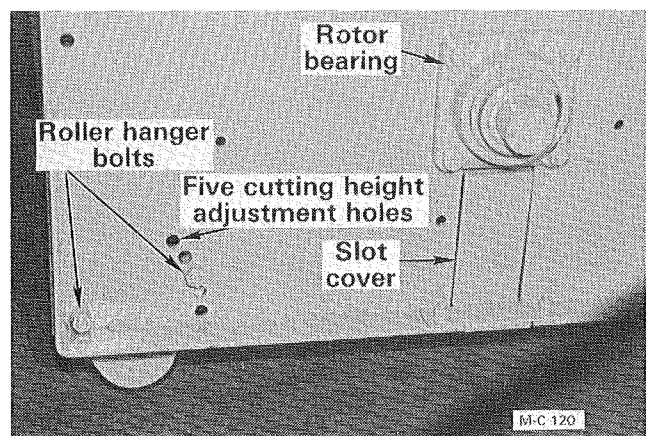


Figure 4

## Three-Point Hitch Kit (Optional)

1. Attach the left and right "A" frame brackets to the front four holes in the mower body with  $\frac{5}{8}$ -11 x 2" (Grade 5) hex-head capscrews, lockwashers and hex-nuts as shown in Figure 5. Do not use the fifth hole. The capscrews are to be left loose.
2. Install the "A" frame spreader between the "A" frame brackets using  $\frac{1}{2}$ -13 x  $1\frac{1}{2}$ " (Grade 5) hex-head capscrews, lockwashers and hex-nuts.
3. Tighten all capscrews evenly so that the "A" frame is true.
4. Install the hitch floating links and bushings as shown in Figure 5. Secure with  $\frac{3}{4}$  x 10 x 3" (Grade 5) hex-head capscrews, lockwashers and hex-nuts.

**NOTE:** Hitch floating links for category 2 ( $1\frac{1}{8}$ " OD) three-point hitch tractors are supplied with the kit. Category 1 ( $\frac{7}{8}$ " OD) hitch floating links are available. Refer to the parts section under "Three-Point Hitch Kit" page 37 for part number.

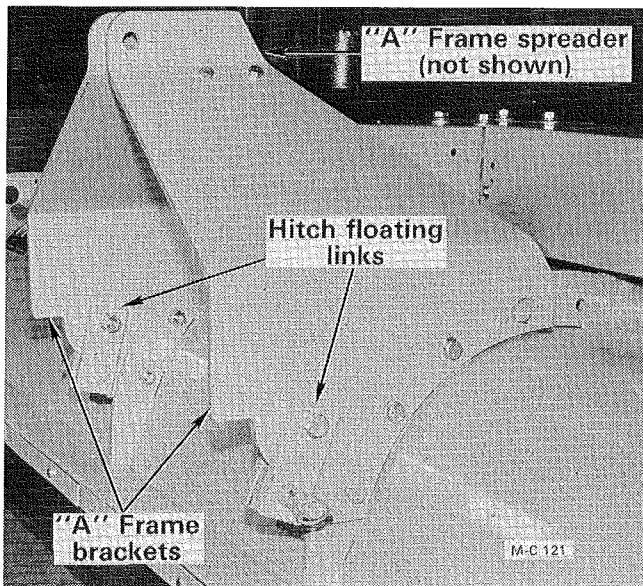


Figure 5

## Pull-Type Hitch Kit

1. Attach the pole mount to the two lower holes on the front wrapper ribs with  $\frac{5}{8}$ -11 x 2" (Grade 5) hex-head capscrews, lockwashers and hex-nuts, see Figure 6.

2. Attach the pole support angle mounts to the outside of the front wrapper ribs (use the second and third hole from the top) with  $\frac{5}{8}$ -11 x 2" (Grade 5) hex-head capscrews, lockwashers and hex-nuts, see Figure 6. Keep the capscrew heads to the outside.
3. Attach a sling to the lifting points shown in Figure 6. Lift the front of the mower with a chain hoist just high enough to install the pole. Install the pole and secure with the pole pin.

**IMPORTANT:** Do not lift the mower by the rotor.

4. Raise the front of the mower until the pole is at tractor drawbar height. There are seven pole support angle mounting holes on each side of the pole and three mounting holes in each pole support angle mount. Select the set of holes on each side that will set the pole at the desired height and install the pole support angles. Secure with  $\frac{3}{4}$ -10 x 2" (Grade 5) hex-head capscrews, lockwashers and hex-nuts.
5. Install the jack onto the mount and insert the retaining pin. Lower the jack to transfer the weight of the mower to the pole and frame. Remove the chain hoist.

## Gear Box and PTO Shaft

1. The gear box, has a 1.35:1 gear ratio and is designed to be used for either 540 or 1000 RPM tractor PTO use. The Mower was shipped from the factory with gear box mounted in the 540 RPM tractor PTO position.
2. With the gear box mounted in the 540 RPM position, the output shaft speed will be increased to 740 RPM. When the gear box is in the 1000 RPM position, the output shaft speed will be decreased to 740 RPM.
3. If the Mower is to be operated by a tractor with a 1000 RPM PTO the gear box mounting **MUST** be changed as outlined in steps 4 thru 10. If it does not have to be changed proceed to step 11.



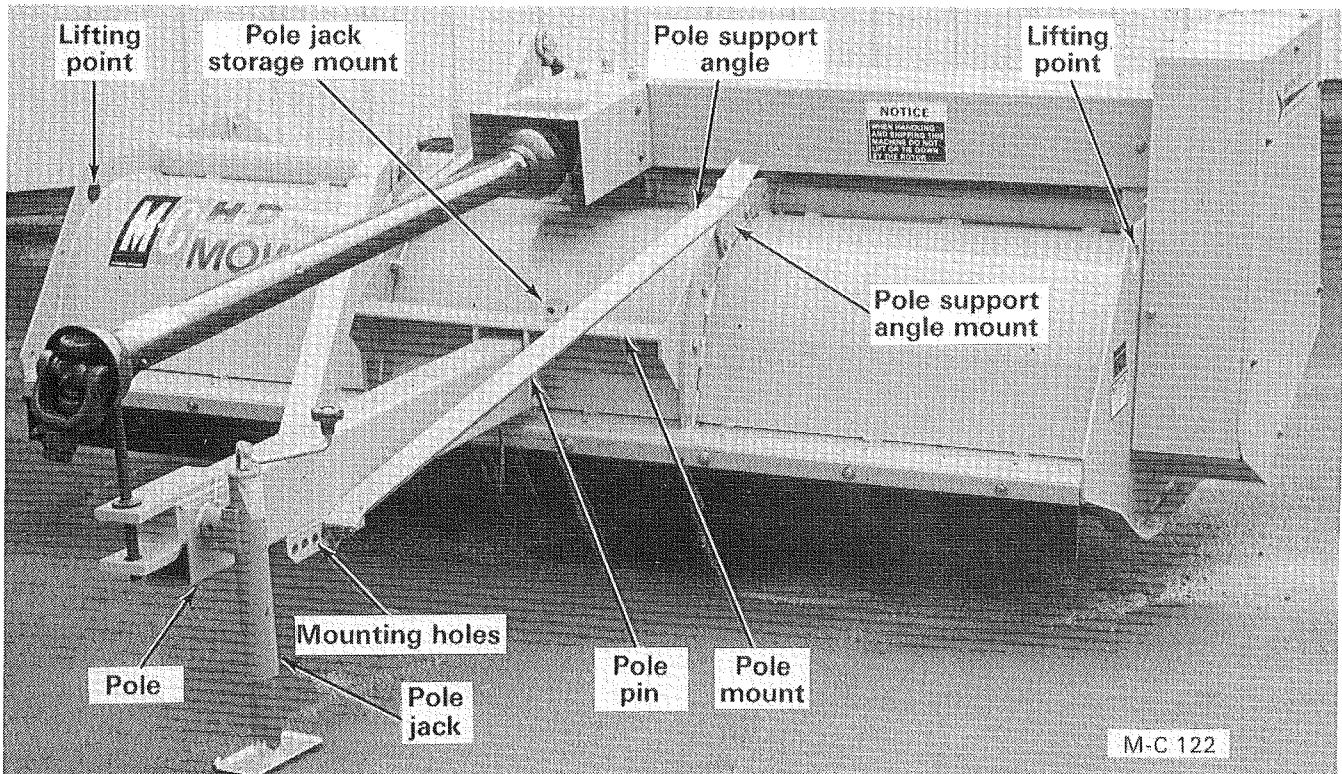


Figure 6

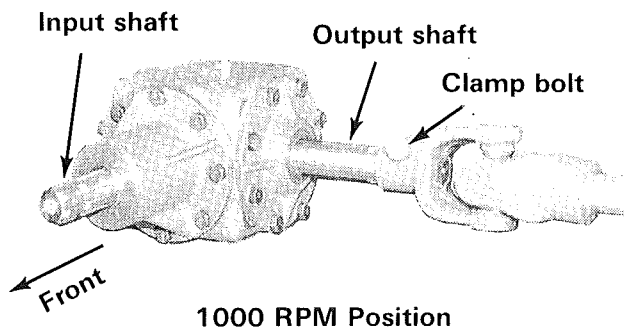
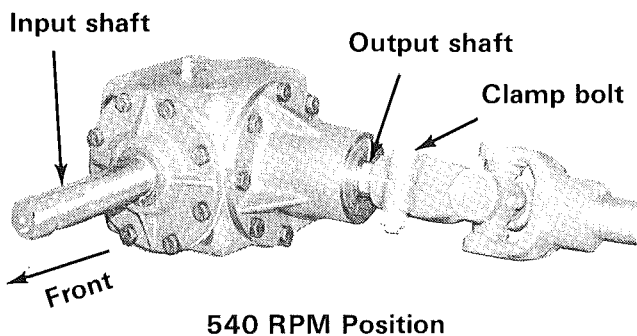


Figure 7

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**CAUTION:** Never operate the Mower with a 1000 RPM PTO when the gear box is installed in the 540 RPM position. To do so will greatly over-speed the rotor, and possibly cause bodily harm.

4. Remove the input and output shaft guards. Remove the clamp bolt, nut and lockwasher from the splined yoke on the gear box output shaft, see Figure 7.
5. Remove the four gear box mounting capscrews and pull the gear box off of the output shaft splined yoke.
6. Remove the drain plug at the bottom of the gear box and drain the oil. Remove the bushing, with vent, on top of the gear box and install the drain plug in this location. Install the bushing, with vent, in the drain plug location.
7. Invert the gear box to exchange the input and output shaft positions. In the 1000 RPM position, the short shaft is the input shaft, see Figure 7.
8. Slide the gear box output shaft (long shaft) into the mower output shaft splined yoke. Install the four gear box mounting

capscrews and tighten securely. Install splined yoke clamp bolt, lockwasher and nut. Tighten securely.

9. Fill the gear box with SAE 90 gear oil until it runs out of the level plug. **DO NOT OVERFILL.** See note.

**NOTE:** All mowers below S/N 42036 have SAE 90 gear oil in the gear box. All Mowers above S/N 42035 were filled with Mobilfluid 423. When changing lubricant in the gear boxes with SAE 90 gear oil, refill with a multipurpose transmission lubricant such as Mobilfluid 423 or equivalent.

10. Change the yoke assembly at the tractor end of the PTO shaft to a 1 $\frac{3}{8}$ " 21 spline for 1000 RPM operation. Install the input and output shaft guards.

**NOTE:** To convert from 1000 to 540 RPM operation, reverse the above procedure.

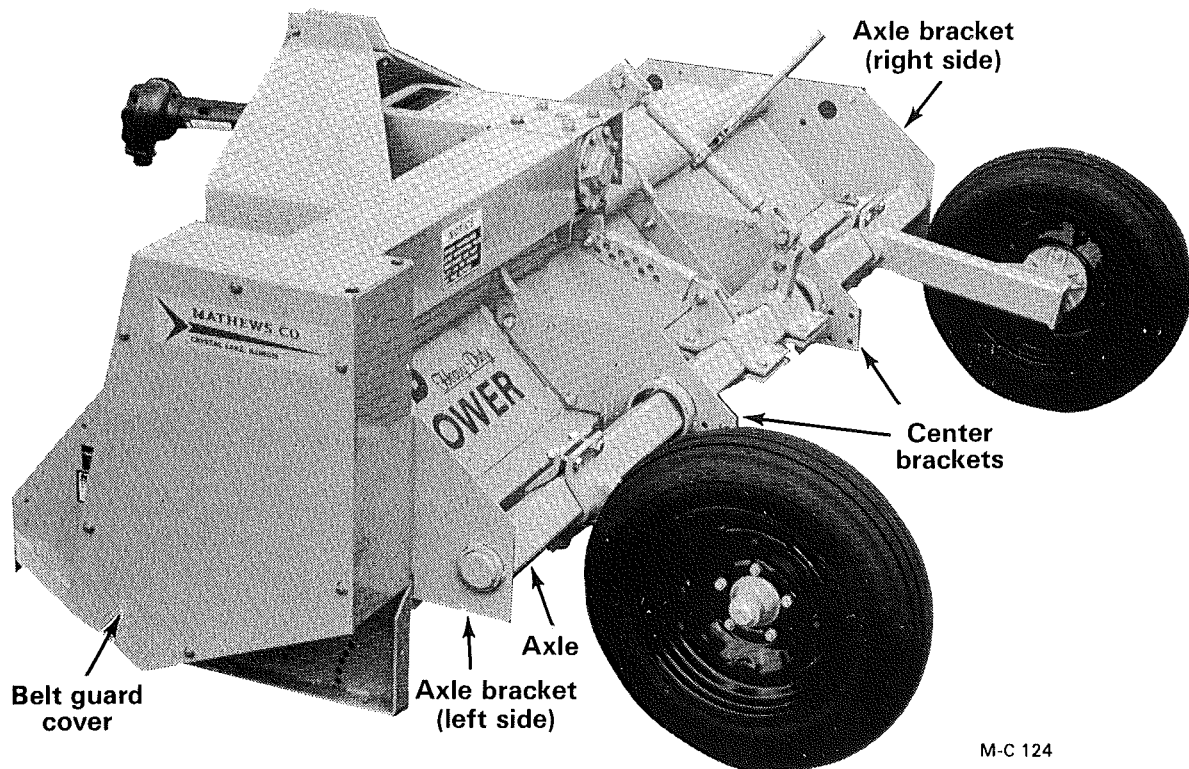
11. Remove all paint and foreign material from the gearbox splined input shaft and from both PTO shaft yokes. Be sure the quick disconnect devices on the PTO shaft

couplings are working smoothly to ease installation.

12. Apply a small amount of grease to the splines of the gear box input shaft and both PTO shaft yokes. Install the six spline yoke end of the PTO shaft onto the gear box input shaft. Be sure the Saf-T-Pin is fully engaged.

## Rear Axle Kit (Optional)

1. Remove the belt guard cover. Remove and discard the two capscrews securing the belt guard back plate to the rear of the mower body. These two holes will be used to mount the axle bracket. Mount the axle bracket as shown in Figure 8 with two  $\frac{1}{2}$ -13 x 1 $\frac{1}{4}$ " (Grade 5) hex-head capscrews, lockwashers and hex-nuts.
2. Install the two center brackets on the outside of the rear body ribs as shown in Figure 8. Use two  $\frac{5}{8}$ -11 x 1 $\frac{3}{4}$ " (Grade 5) hex-head capscrews, lockwashers and hex-nuts on each side. **Do not tighten.**



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Figure 8

- Slide the rear axle through the center brackets and into the axle bracket on the left side. Place the other axle bracket over the end of the axle and mount it to the right side of the mower body with two ½-13 x 1¼" (Grade 5) hex-head capscrews, lockwashers and hex-nuts, see Figure 8.
- Carefully tighten all four axle mounting brackets. Check to be sure that the axle does not bind as the capscrews are being tightened. Install the belt guard cover.
- Remove the two capscrews, hex-nuts and lockwashers from the pull hitch pole right support angle or the two top capscrews from the three point hitch right "A" frame bracket. Install the upper ram anchor on the inside of the front rib, see Figure 9. Use a ⅝-11 x 2" (Grade 5) hex-head capscrew in the top hole and two ⅝-11 x 2½" (Grade 5) hex-head capscrews in the other two holes. Secure with lockwashers and hex-nuts.

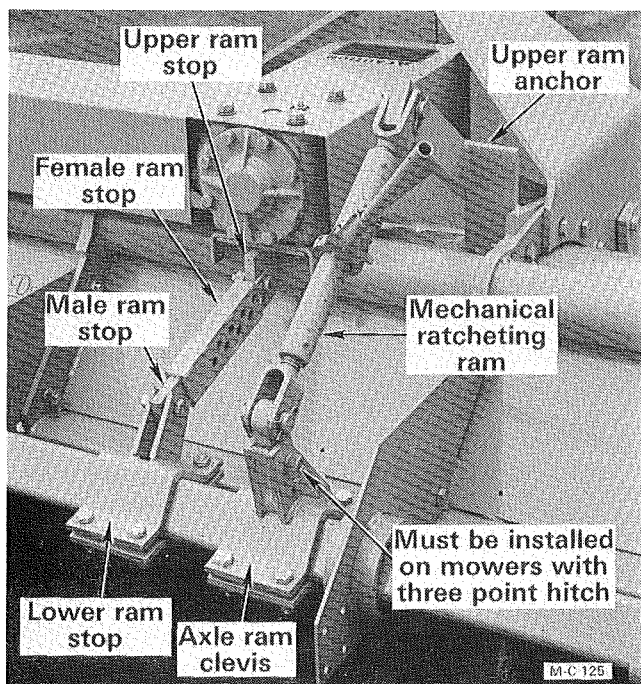


Figure 9

- Mount the axle ram clevis on the axle so it aligns with the upper ram anchor, see Figure 9. Install a mechanical ratcheting or hydraulic ram (to be supplied by the customer). A mechanical ratcheting ram is available, order M-C Part No. 001 8985.

- Remove the plate under the gear box and replace it with the upper ram stop, see Figure 9. Install the lower ram stop. Be sure it is aligned with the upper ram stop. Install the female and male ram stops as shown in Figure 9. Secure them with ⅝-11 x 2½" (Grade 5) hex-head capscrews, lockwashers and hex-nuts.
- Install the wheel mount and hub assemblies to the rear axle, see Figure 8. Tighten the wheel mount clamps so both wheels contact the ground at the same time. The position or spacing on the axle can be adjusted for your specific needs. Additional wheel mount assemblies can be added for increased floatation. See page 34 & 35 for part numbers.

**IMPORTANT:** If the mower is equipped with a three point hitch, it is necessary to secure the axle ram clevis floating link so that the axle cannot rotate when the mower is lifted. Use a ⅝-11 x 2½" (Grade 5) hex-head capscrew, lockwasher and hex nut, see Figure 9.

### Shredding Screen Kit (Optional)



**CAUTION:** Do not install the shredding screen kit with the mower connected to the tractor. Disconnect the tractor and move it away until you are ready to check the installation.

- Refer to Figure 10 to locate rows of holes at "A, B, C and D". All of the mowers have pilot holes at locations "A and B". Some mowers also have pilot holes at location "D". None of the mowers have pilot holes at location "C". Holes at locations "A and C" will be used to mount the shredding screen.

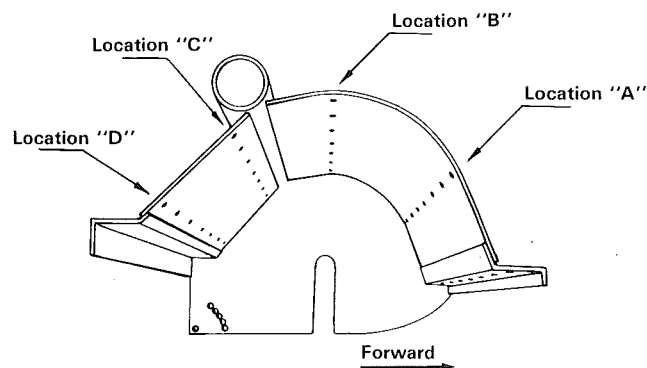


Figure 10

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2. Drill out the row of pilot holes at location "A" with a 17/32 inch drill.

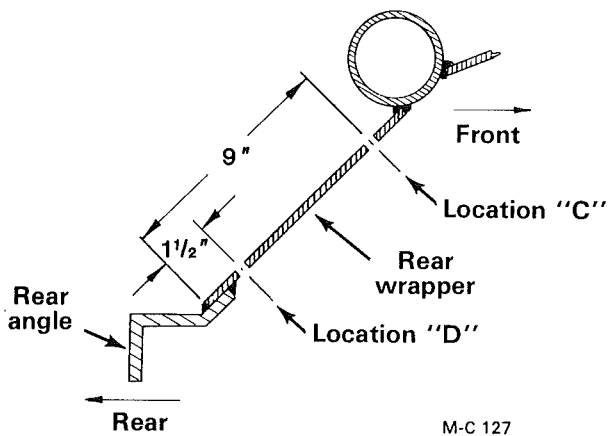


Figure 11

3. To locate holes at location "C", measure 9 inches up from the edge of the rear wrapper (where it is welded to the rear angle) see Figure 11. Drill a row of 17/32 inch holes to coincide with the holes in location "A". Holes are on 12 inch centers starting 6 inches from the end.

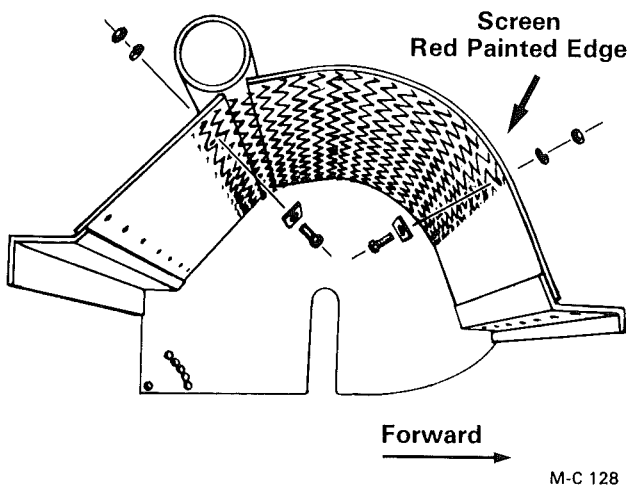


Figure 12

4. Install the screen with the edge **Painted Red** forward, as shown in Figure 12, to prevent clogging or possible damage to the screen.
5. Fasten the screen in place using the holes drilled in rows at locations "A & C", see Figure 10. Use 1/2-13 x 2" (Grade 5) hex-head capscrews, 1/4" x 2" square washers, lockwashers and hex-nuts. The capscrews

and square washers go to the inside, see Figure 12. Be sure the screen fits snug against the mower wrapper at location "B", see Figure 10, before fastening the screen securely into place.

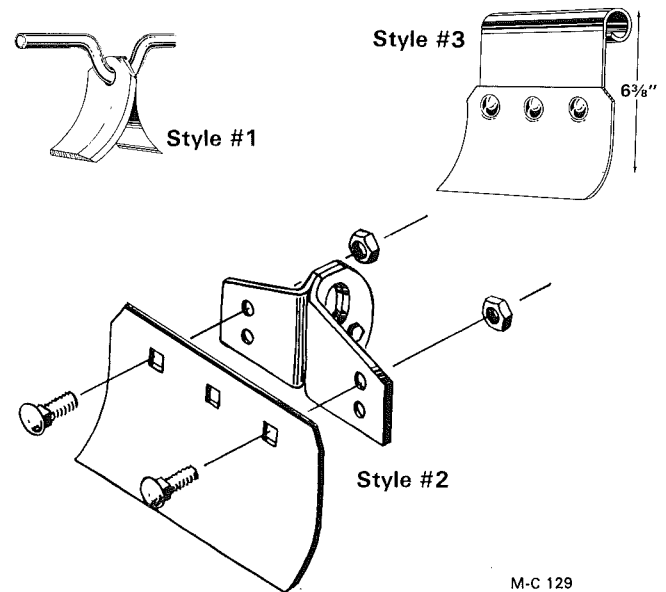


Figure 13

**IMPORTANT:** The shredding screen will work properly with Style 1 and Style 3 knives. Style 2 knives must be mounted to the upper set of holes in the knife hanger so that the knives clear the shredding screen, see Figure 13.

6. Connect the mower to the tractor and run the rotor **slowly** to be sure the knives are not striking any part of the screen or mounting bolts.



**CAUTION:** When checking for rotor clearance, do not stand behind the mower. Stay well clear and **listen** for possible interference.

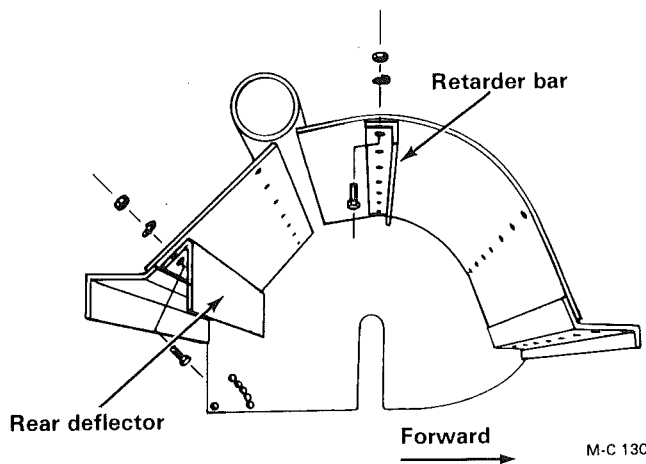
### Rear Deflector Kit (Optional)



**CAUTION:** Do not install the rear deflector kit with the mower connected to the tractor. Disconnect the tractor and move it away until you are ready to check the installation.

**NOTE:** The rear deflector kit consists of two primary parts - The Rear Deflector and a Retarder Bar.

1. If your mower has pilot holes at location "D", see Figure 10, drill them out with a 17/32 inch drill. If your mower does not have pilot holes at location "D", measure 1½ inches up from the edge of the rear wrapper (where it is welded to the rear angle). Refer to Figure 11.
2. Drill a row of 17/32 inch holes to coincide with the holes in location "B or C". Holes are on 12 inch centers starting 6 inches from the end.
3. Install the rear deflector using ½-13 x 1¼" (Grade 5) hex-head capscrews, lockwashers and hex-nuts. The heads of the capscrews go to the inside, see Figure 14.



**Figure 14**

**NOTE:** If the mower is equipped with a shredding screen, do not install the retarder bar as the knives will strike the retarder bar.

4. The retarder bar mounts at location "B", see Figure 10. Drill out the pilot holes with a 17/32 inch drill. Mount the retarder bar with ½-13 x 1¼" (Grade 5) hex-head capscrews, lockwashers and hex nuts as shown in Figure 14.

**IMPORTANT:** If style 2 knives are being used, they must be mounted to the upper set of holes in the knife hanger so that the knives clear the retarder bar, see Figure 13.

5. Connect the mower to the tractor and run the rotor **slowly** to be sure the knives are not striking any part of the retarder bar or rear deflector.



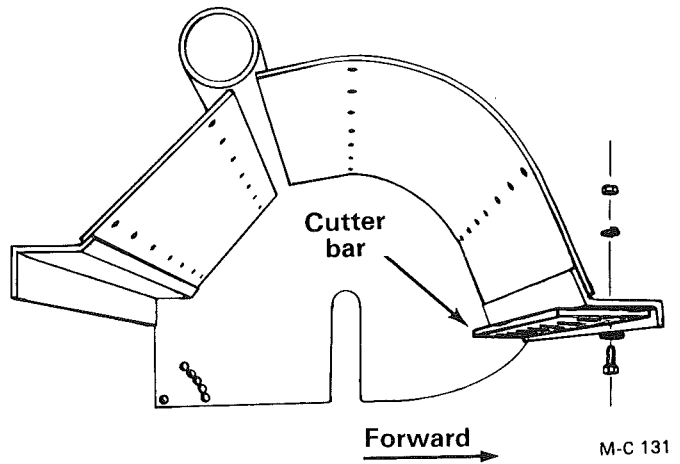
**CAUTION:** When checking for rotor clearance, do not stand behind the mower. Stay well clear and **listen** for possible interference.

### Cutter Bar Kit (Optional)



**CAUTION:** Do not install the cutter bar kit with the mower connected to the tractor. Disconnect the tractor and move it away until you are ready to check the installation.

1. The cutter bar(s) mount to the underside of the front stiffener bar on the mower, see Figure 15.



**Figure 15**

2. Mount the bar(s) so the adjusting slots in the bar(s) are forward (fully withdrawn). This will allow adjustment of the cutter bar to suit your cutting and shredding needs. Secure the bar(s) with ½-13 x 1¼" (Grade 5) hex-head capscrews, lockwashers and hex-nuts. The capscrew heads go to the inside.
3. Connect the mower to the tractor and run the rotor **slowly** to be sure the knives are not striking the cutter bar. Disconnect the power take-off and stop the tractor engine. Adjust the cutter bar to suit your mowing conditions.



**CAUTION:** When checking for rotor clearance do not stand behind the mower. Stay well clear and **listen** for possible interference.

## Lubrication

1. Remove the oil level plug on the right side (540 RPM) or the rear (1000 RPM) of the gear box. If the oil level is too low, remove the bushing, with vent, on top of the gear box and add SAE 90 gear oil (See note) until it runs out of the level plug. Install the level plug. Check to be sure the vent is not plugged with paint or dirt. Install the bushing with vent.

**NOTE:** All Mowers below S/N 42036 have SAE 90 gear oil in the gear box. All Mowers above S/N 42035 were filled with Mobilfluid 423. When adding, do not mix the two types of lubricant. When changing lubricant in the gear boxes with SAE 90 gear oil, refill with a

multipurpose transmission lubricant such as Mobilfluid 423 or equivalent.

2. There are eight (8) lubrication fittings on the Mower. For fitting locations refer to "Lubrication" page 18. Lubricate with a hand grease gun. Do not over lubricate. Too much grease may damage the bearing seals.

## Tractor Drawbar Adjustment

### (Pull Type Hitch)

1. To get the minimum amount of vibration and prolong the life of the bearings in the PTO shaft, adjust the tractor drawbar in or out so that the distance from the end of the tractor PTO shaft to the center of the hole in the drawbar is 16 inches for 1000 RPM or 14 inches for 540 RPM.
2. Connect the PTO shaft to the tractor PTO. Be sure the Saf-T-Pin or Safety Slide Lock is fully engaged.

### IMPORTANT

**NOW THAT YOUR MOWER IS SET UP AND ALL SAFETY EQUIPMENT IS INSTALLED, RUN IT AT A LOW RPM CHECKING TO MAKE SURE THAT ALL DRIVE LINE PARTS ARE MOVING FREELY.**

# OPERATION

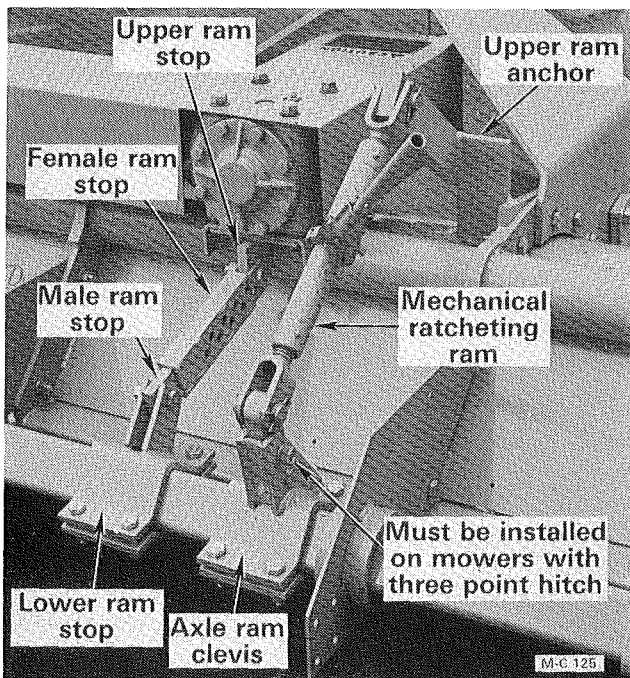
## General

1. It takes approximately 10 to 15 acres of mowing to get the inside of the mower and the knives polished to obtain the best performance. As the mower breaks in, performance will improve.
2. Always start and stop the mower slowly to prevent excessive shock loads to the belt drive assembly and rotor. Engage and disengage the tractor PTO at low engine RPM.



**CAUTION:** Do not operate the mower without all safety shields in place and secure.

3. Rotor rotation is clockwise when standing on the left side of the mower looking at the belt guard cover.



**Figure 16**

4. If the mower is equipped with a three point hitch and a rear axle kit, be sure to secure the axle ram clevis floating link so that the axle cannot rotate when the mower is lifted. Use a  $\frac{5}{8}$ -11 x 2 $\frac{1}{2}$ " (Grade 5) hex-head capscrew, lockwasher and hex-nut, see Figure 16.

5. Never operate the mower with missing or broken knives. If any knives are missing or broken, the rotor will be out of balance and the mower will vibrate. Replace missing or broken knives in sets. See "Knife Replacement" page 22 for procedure.



**CAUTION:** Before attempting to make any inspection, be sure to disengage the PTO and stop the tractor engine.

## Safety Check

1. A safety check should be made after the mower has been in operation a few hours.
  - A. Tighten all capscrews and locknuts.
  - B. Inspect all knives and knife hangers to be sure they are not damaged and are secure.
  - C. Check the be sure that all guards and shields are in place and secure.
  - D. Inspect the wheel mounts, gauge roller, rotor, gear box, output drive shaft, belt drive assembly and PTO shaft for signs of unusual wear or lubrication leaks that could lead to part failure.

## Power Take-Off Shaft

### Mowers With 3 Point Hitch

1. Attach the mower to the tractor and connect the PTO shaft. Raise the mower slowly (without the PTO running) and watch the PTO shaft to see that it does not pull apart when the mower is completely raised.
2. Most tractors have an adjustable stop on the hydraulic lift control lever that will stop the lift of the tractor hitch at a predetermined height. This stop should be adjusted so that the mower is off of the ground just high enough for transport.
3. Raising the mower higher than necessary can cause the PTO shaft universal joints to be at a severe angle. This could cause premature failure of the universal joints if the tractor PTO is engaged.

4. Lower the mower slowly and watch the PTO shaft telescope. Make sure it does not bottom out.

**IMPORTANT:** Never drop the mower, always lower it slowly. Constant dropping may cause premature gauge roller bearing failure.

5. Position the tractor with the front wheels up on the side of a bank. Lower the mower slowly the full travel of the tractor hitch. Inspect the PTO shaft to be sure it has not bottomed out.

**IMPORTANT:** If the PTO shaft bottoms out damage can occur to the mower gear box and/or PTO shaft.

## Cutting Height

### Mowers With 3 Point Hitch

1. There are a series of five holes at each end of the gauge roller, see figure 17. Loosen the bottom capscrew in each gauge roller hanger.

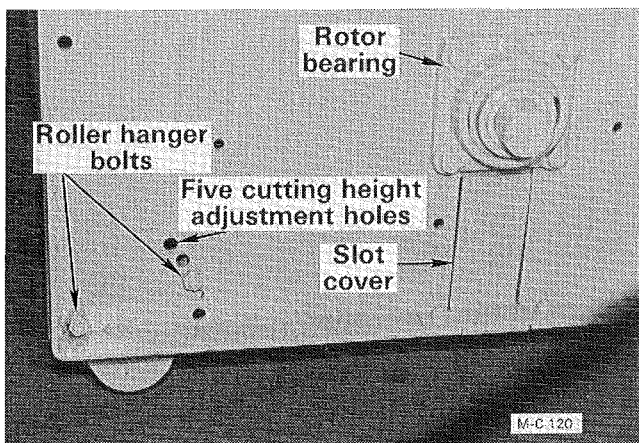


Figure 17

2. Lift the back of the mower and support it with safety stands. **DO NOT** lift the mower by the rotor. Remove the upper capscrew in each gauge roller hanger.
3. Rotate the gauge roller up or down to the desired cutting height and install the capscrews in the same hole on each side. Tighten all four capscrews and nuts securely. Remove the safety stands and lower the mower.

4. Additional cutting height adjustment can be made by lengthening or shortening the top link of the tractor three point hitch.
5. For best operation, the mower skids should be parallel to the ground when the mower is on the ground and all tractor hydraulic pressure is released.

### Mowers With Pull-Type Hitch

1. The mower body can be raised or lowered easily and quickly to the desired cutting height by rotating the mower axle.
2. The axle can be rotated with the optional mechanical ram or an owner supplied hydraulic ram. The hydraulic ram is preferred. The operator can quickly raise and lower the mower to avoid contacting the ground or other obstacles when mowing.
3. The mower must be kept as level as possible from front to rear to insure safe operation and proper mowing action. The mower can be leveled by moving the pole support angles forward or back. There are seven pole support angle mounting holes on each side of the pole and three mounting holes in each pole support angle mount, see Figure 18.
4. Moving the angles forward will lower the cutting height and moving the angles to the rear will raise the cutting height. For best operation, the mower skids should be parallel to the ground. Be sure to tighten all pole support angle capscrews after the adjustment has been made.

### Cutter Bar (If Equipped)

1. The adjustable cutter bar is located under the front stiffner bar of the mower body. There is one cutter bar on the Model 7HD, two on Models 8 HD & 10 HD and three on Model 12 HD.



**CAUTION:** Disengage the PTO and stop the tractor engine before adjusting the cutter bar.

2. Loosen the capscrews and nuts securing the cutter bar(s) to the front stiffner bar just enough to permit the cutter bar(s) to move in the adjusting slots.



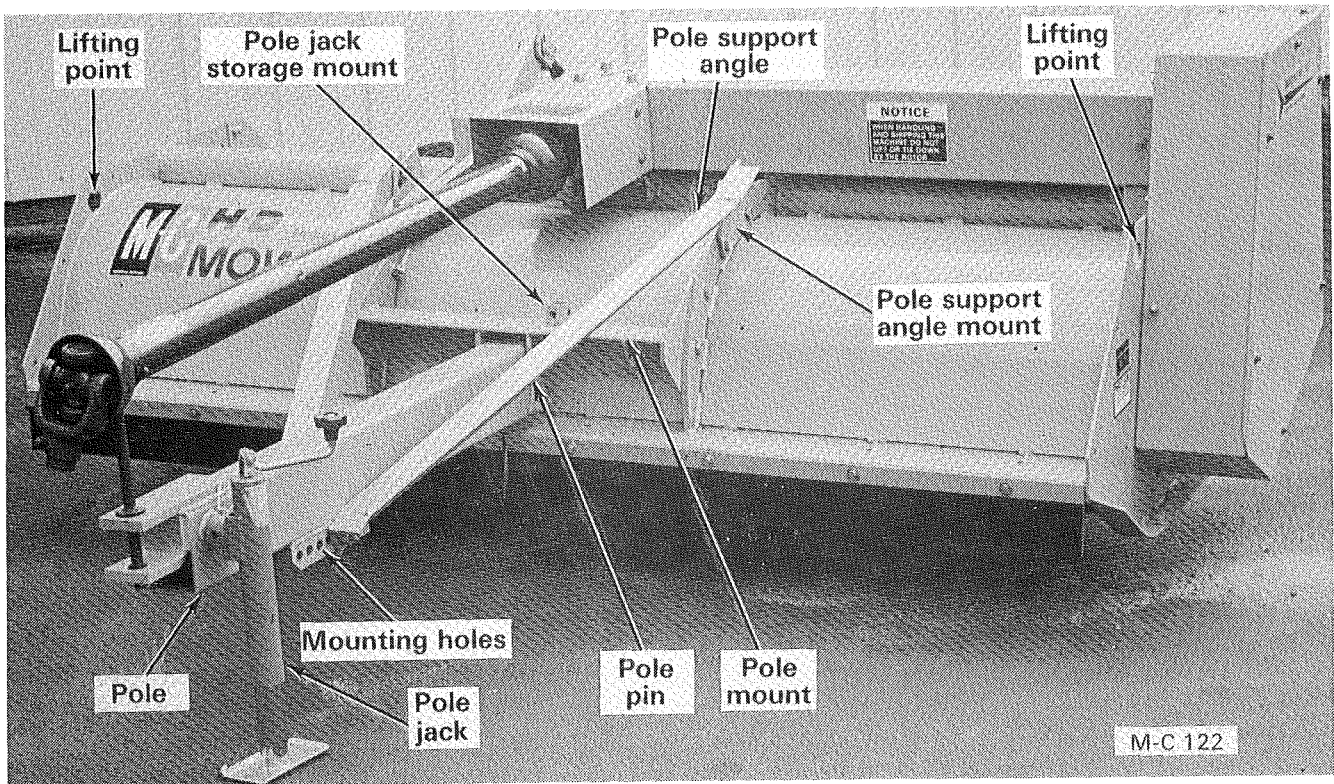


Figure 18

3. Slide the cutter bar(s) toward the back of the mower until the desired spacing is obtained between the knives and the cutter bar(s). Adjust evenly and tighten the capscrews and nuts.
4. Before operating the mower, rotate the rotor **slowly** to be sure the knives do not strike the cutter bar.



**CAUTION:** When checking for clearance, do not stand behind the mower. Stay well clear and **listen** for possible interference.

### Pole Jack

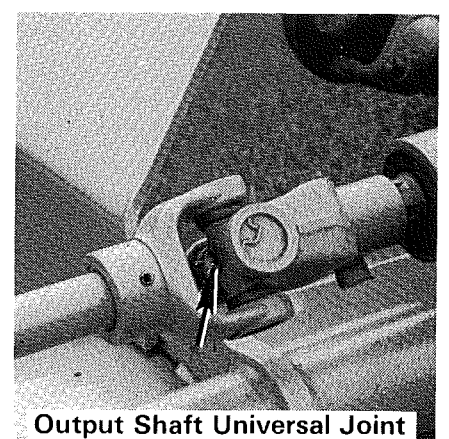
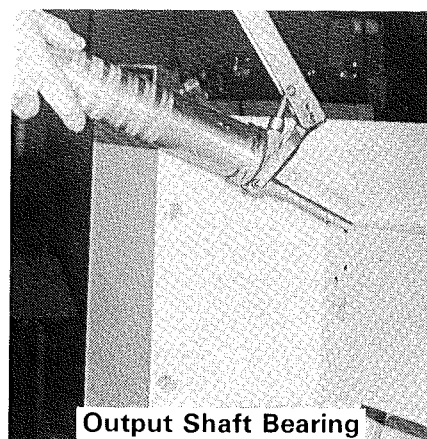
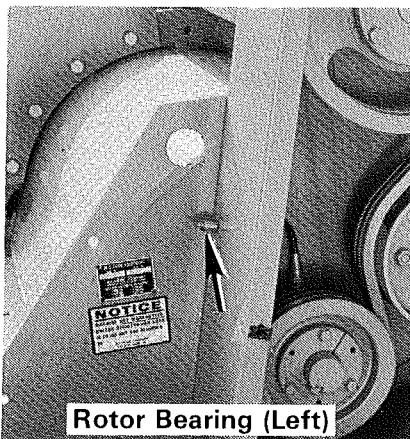
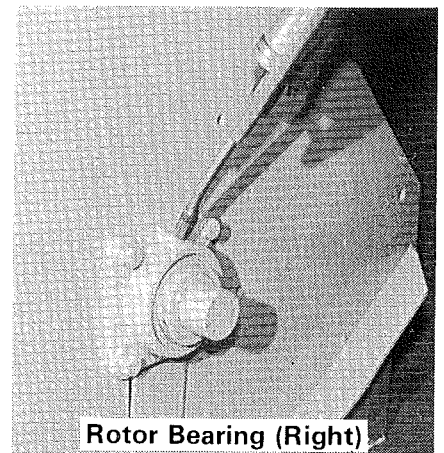
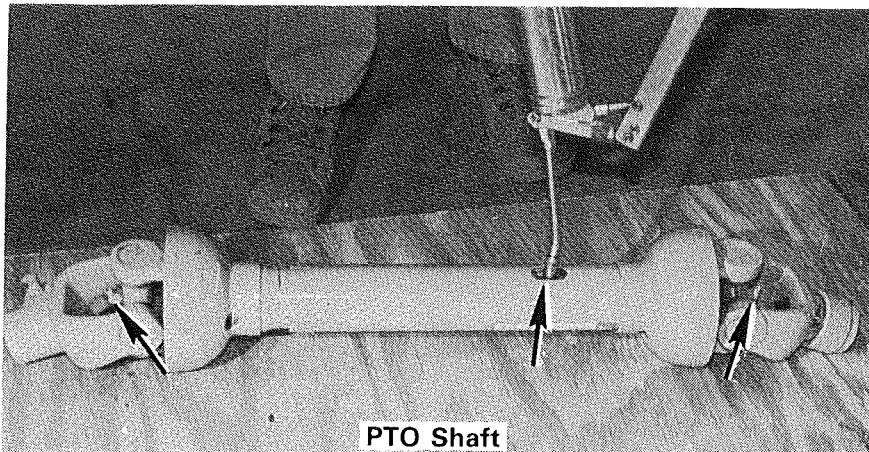
1. To prevent possible damage to the tractor tires when making sharp left turns, remove the pole jack from the pole. Store it on the jack mount located on the pole mount.

# MAINTENANCE

## Lubrication

1. There are 8 lubrication fittings on the mower. Lubricate with a hand grease gun. Use a good grade of bearing grease. Do not over lubricate. Too much grease may damage the bearing seals.
2. The two gauge roller bearings and the drive belt idler pulley bearings are sealed units and **DO NOT** require any lubrication.
3. Lubricate the 7 lubrication fittings shown in Figure 19 every 50 hours of operation.
4. Lubricate the idler arm bushings once a season or every 200 hours of operation whichever occurs first, see Figure 20.
5. Periodically check the oil level in the gear box. Remove the oil level plug on the right side (540 RPM) or the rear (1000 RPM) of the gear box, see Figure 21. The oil level should be even with the bottom of the level plug hole. If not, remove the bushing and vent on top of the gear box and add SAE 90 gear oil (See note).

**NOTE:** All Mowers below S/N 42036 have SAE 90 gear oil in the gear box. All Mowers above S/N 42035 were filled with Mobilfluid 423. When adding, do not mix the two types of lubricant. When changing lubricant in the gear boxes with SAE 90 gear oil, refill with a multipurpose transmission lubricant such as Mobilfluid 423 or equivalent.



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Figure 19

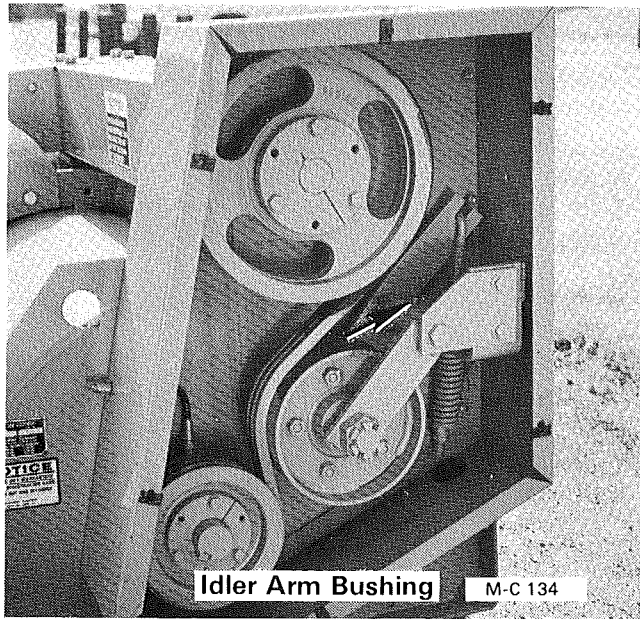


Figure 20

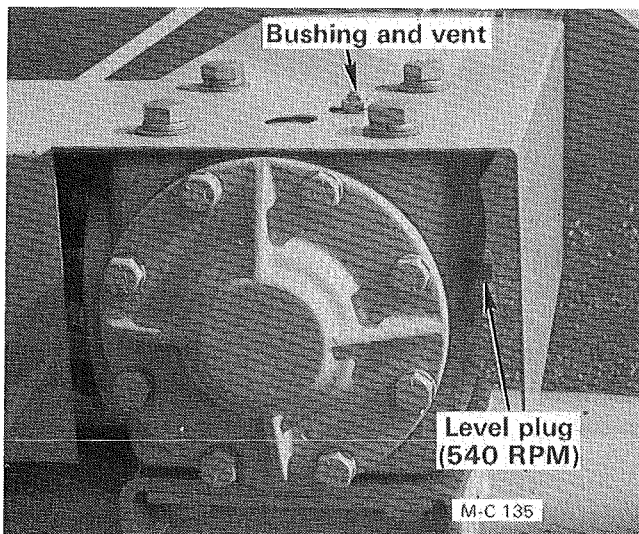


Figure 21

## Drive Belt Pulley Alignment

1. To check drive belt pulley alignment, remove the belt guard cover and place a straight edge across the face of the drive and driven pulley, see Figure 22.
2. If the pulleys are not in alignment, remove the input and output shaft guards, relieve idler spring tension and adjust the output shaft bearing as follows:
  - A. **Pulleys are out of alignment vertically**  
Raise or lower the output shaft and bearing as required by adding or removing shims under the bearing, see Figure 23.
  - B. **Pulleys are out of alignment horizontally**  
Loosen the bearing mounting

capscrews and move the output shaft and bearing forward or back as required. The bearing mounting holes are slotted for this purpose, see Figure 23.

3. Check idler pulley alignment, see "Idler Pulley Alignment" following.

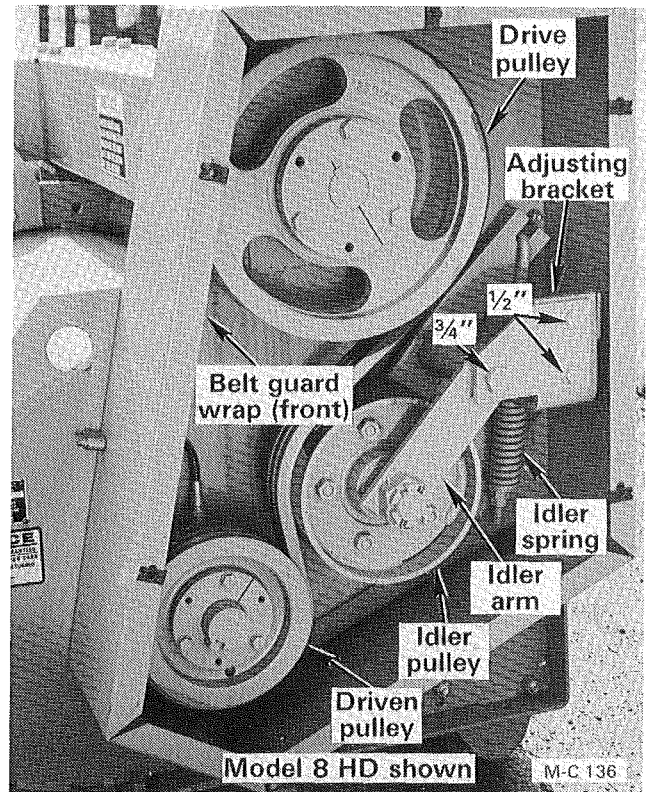
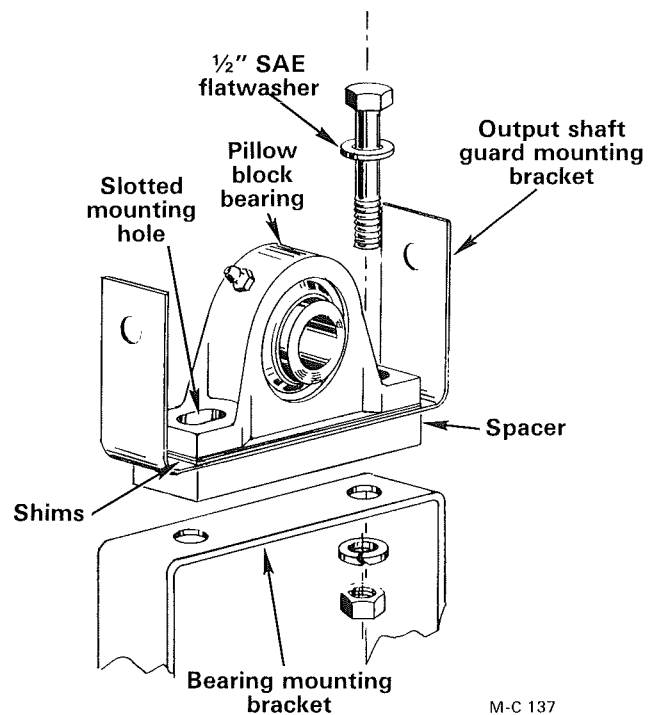


Figure 22



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Figure 23

## Idler Pulley Alignment

1. The belt idler pulley must run in line with the drive and driven pulleys so that the belt tracks flat on the idler pulley.

**IMPORTANT:** The drive belt pulleys must be in alignment before checking idler pulley alignment.

2. To check idler pulley alignment, place a straight edge across the face of the idler pulley up to the drive pulley. Measure the distance from the face of the drive pulley to the straight edge at two places. If the measurements are equal the idler pulley is aligned.

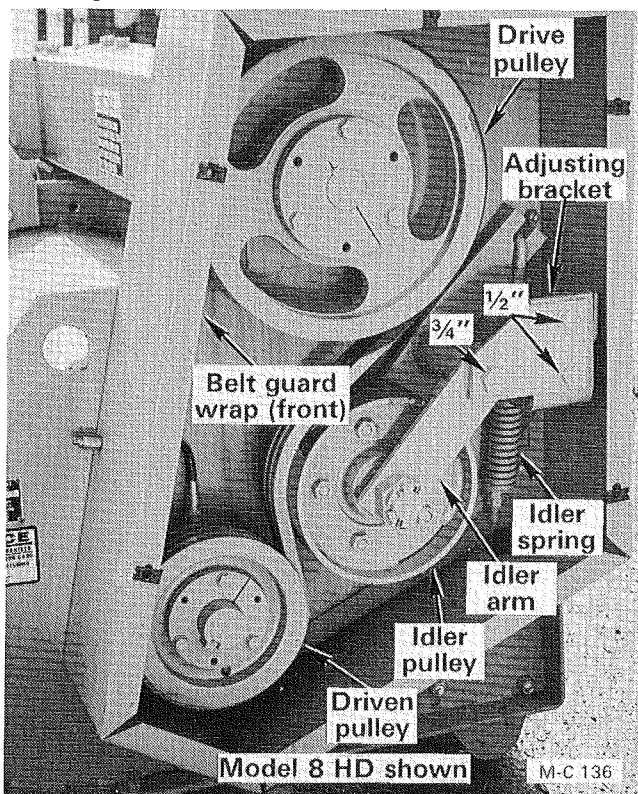


Figure 24

3. If the idler pulley is out of alignment, loosen the idler spring rod locknut and back off the idler spring adjustment nut to relieve all spring tension, see Figure 24.
4. Loosen the two  $\frac{1}{2}$ " and one  $\frac{3}{4}$ " cap screws in the adjusting bracket. Move the adjusting bracket forward, back, up or down as required until the idler pulley is in alignment. The  $\frac{1}{2}$ " cap screw holes in the adjusting bracket are slotted horizontally and the holes in its mounting are slotted vertically for this purpose.

5. When the idler pulley is aligned, tighten the two  $\frac{1}{2}$ " cap screws first, then the  $\frac{3}{4}$ " cap screw. Tighten the idler spring adjustment nut until the spring is compressed to 5 to  $5\frac{1}{4}$  inches long and secure locknut. Install the belt guard cover.

## Drive Belt Replacement

1. Remove the belt guard cover.
2. Before replacing a drive belt or belts determine what caused the belt failure. Three common causes of belt failure are:
  - A. If the belt is broken, this indicates a severe shock load or engagement of the tractor PTO at high engine RPM. Always engage and disengage the tractor PTO at low engine RPM.
  - B. If the belt is burned in places, this indicates that the belt is slipping. Adjust belt tension. Refer to "Drive Belt Adjustment" page 22.
  - C. If the belt has one segment turned over, is frayed or there is a great amount of powdered rubber in the belt guard, the drive and/or idler pulleys are misaligned. Refer to "Drive Belt Pulley Alignment" page 19 and "Idler Pulley Alignment" page 20.

To prevent another belt failure, correct the problem before installing a new belt or belts.

3. Loosen the idler spring rod locknut and back off the idler spring adjustment nut to relieve all spring tension. Remove the idler spring rod and spring, see Figure 25.
4. Push the idler pulley to the back of the belt guard and remove the old belt or belts.
5. Install new belt or belts depending on the model.

**IMPORTANT:** Model 10 HD and 12 HD have two belts. They are a matched set. If just one belt failed, both belts must be replaced.

6. If you have difficulty installing the new belt or belts on the pulleys proceed as follows:
  - A. Remove the input and output shaft guards.

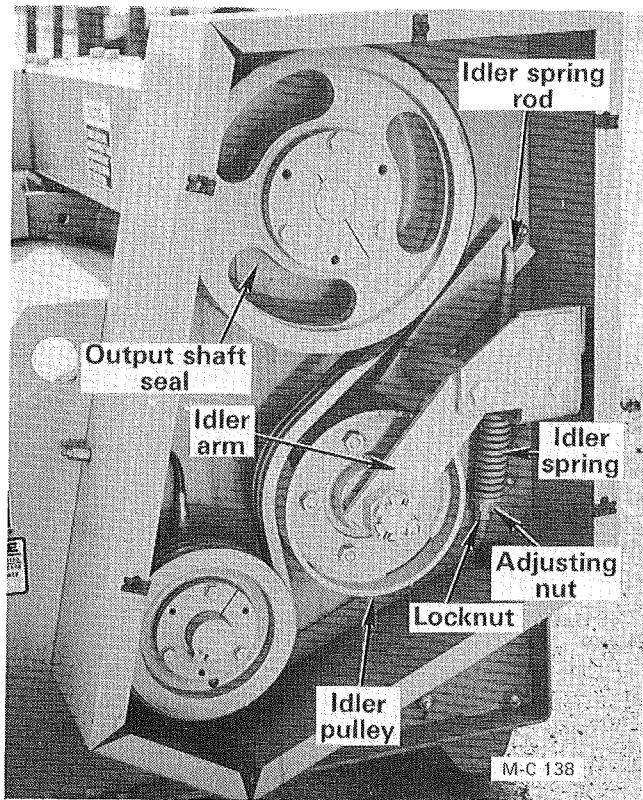


Figure 25

- B. Remove the two capscrews securing the output shaft seal, see Figure 25 and 26.
- C. If the pulleys are aligned, scribe a line on the output shaft bearing mounting bracket as shown in Figure 26 to establish the location of the bearing when reassembling.
- D. Remove the two capscrews, lock-washers and hex-nuts securing the output shaft bearing. Lift up on the output shaft and remove the spacer, output shaft guard bracket and shims from under the output shaft bearing, see Figure 27.
- E. Lower the output shaft. Install the belt or belts.
- F. Reverse steps "B thru E". Be sure to align the output shaft bearing with the mark made in step "C". Tighten the output shaft bearing capscrews.

**IMPORTANT:** Never run the mower without the bearing spacer in place.

- G. Check the drive and driven pulley alignment with a straight edge. Refer to "Drive Belt Pulley Alignment" page 19.
- H. Install the output and input shaft guards.

7. Install the idler spring rod and spring. Tighten the idler spring adjusting nut until the spring is compressed to 5 to 5¼ inches long and secure with the locknut. Check the idler pulley alignment. Refer to "Idler Pulley Alignment" page 20.
8. Install the belt guard cover.

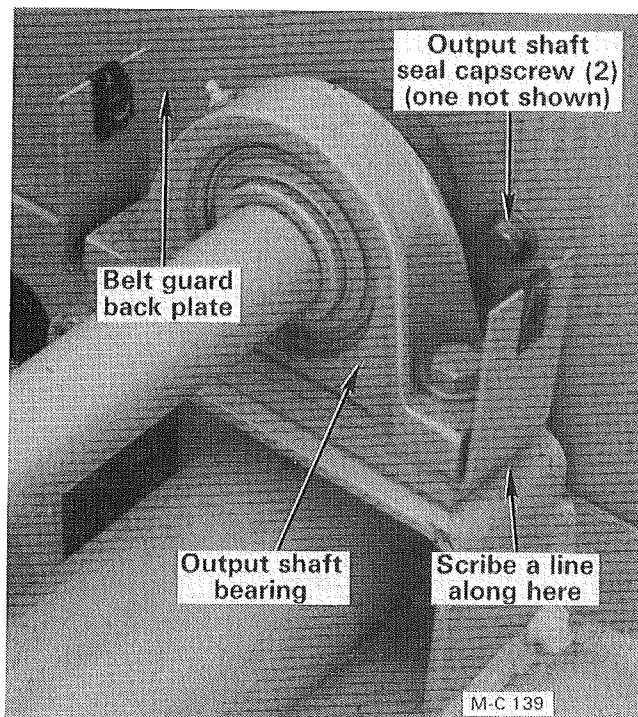


Figure 26

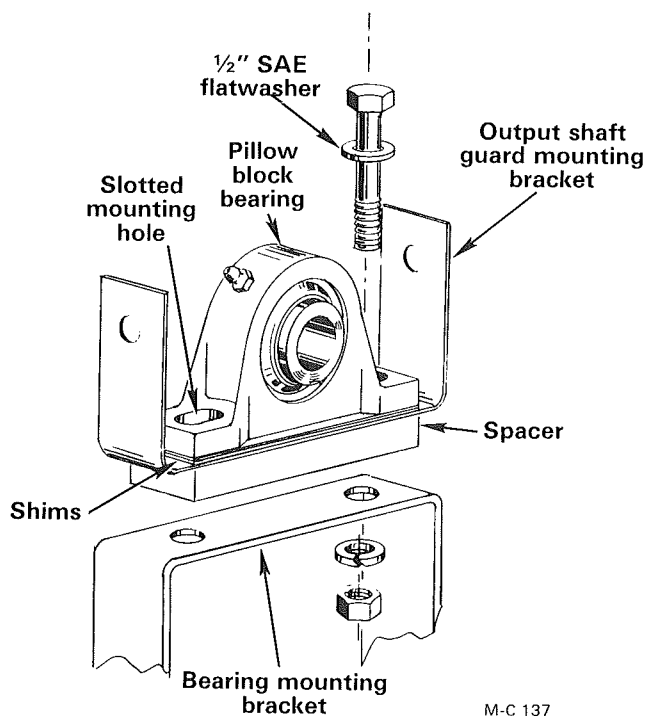


Figure 27

## Drive Belt Adjustment

1. Remove the belt guard cover.
2. Measure the compressed length of the idler spring. It should be 5 to 5 ½ inches long.
3. If not, loosen the locknut and tighten the idler spring adjusting nut, see Figure 28, until the compressed spring length is 5 to 5½ inches long.
4. Tighten the locknut and install the belt guard cover.

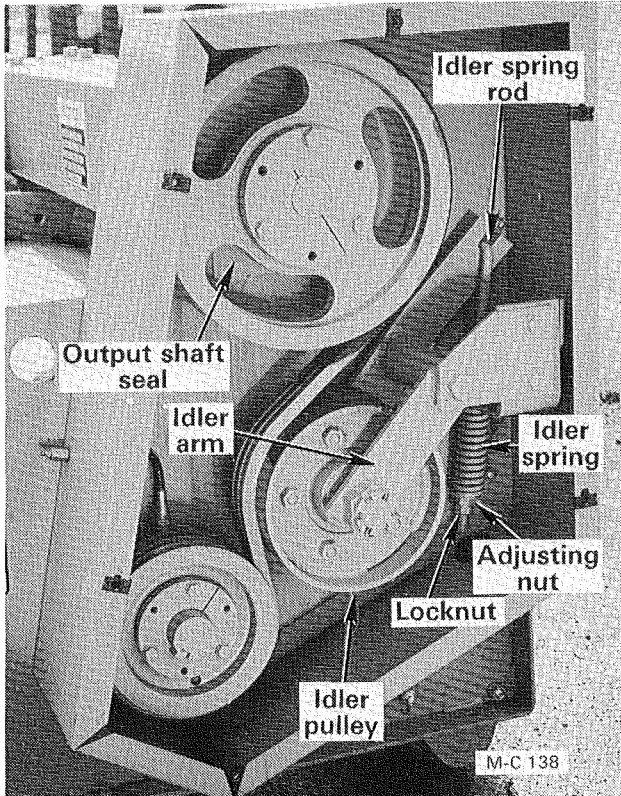


Figure 28

## Knife Replacement



**CAUTION:** Always use safety stands or blocking in conjunction with hydraulic jacks or hoists. Do not rely on the jack or hoist to carry the load, they could fail.

**IMPORTANT:** Never lift or handle the mower by the rotor.

### Knife Style 1

1. Remove the capscrew and locknut from the knife hanger retainer. Slide the knife hanger pin to the left and remove the hanger pin and knives, see Figure 29.

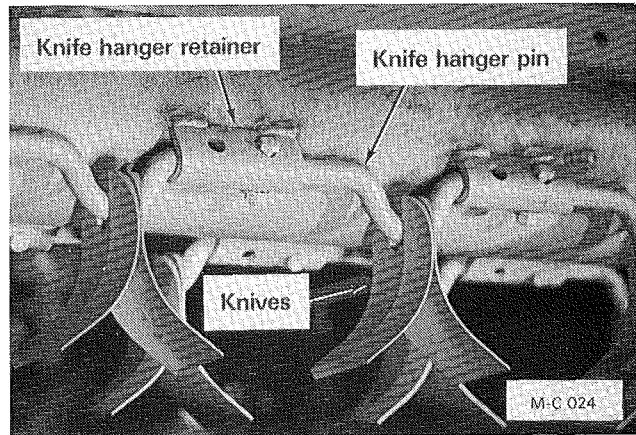


Figure 29

**IMPORTANT:** When replacing knives, always replace the knives on the opposite side to maintain rotor balance.

2. Installation of the knives and hanger pins is the reverse of the removal procedure. The cutting edge of the knives must face the front of the mower as they hang down from the rotor. If any knife hanger pins are to be replaced see "Knife Hanger Pin Replacement" page 24.
3. Tighten the capscrew and locknut securely. If the capscrew is being replaced, be sure to use a grade 5. Check to be sure that the whole knife assembly swings freely.

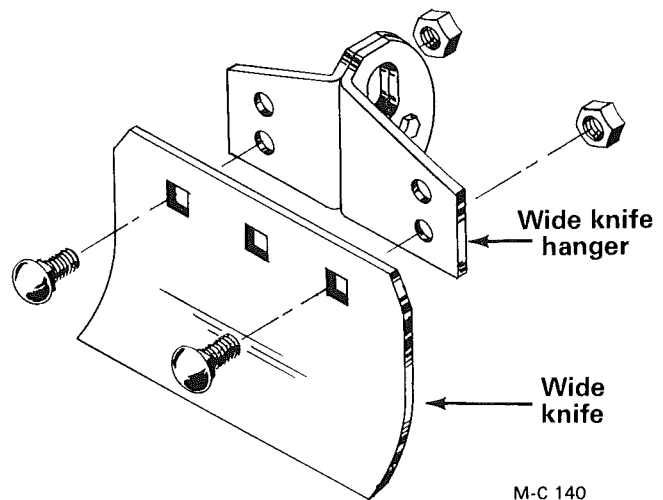


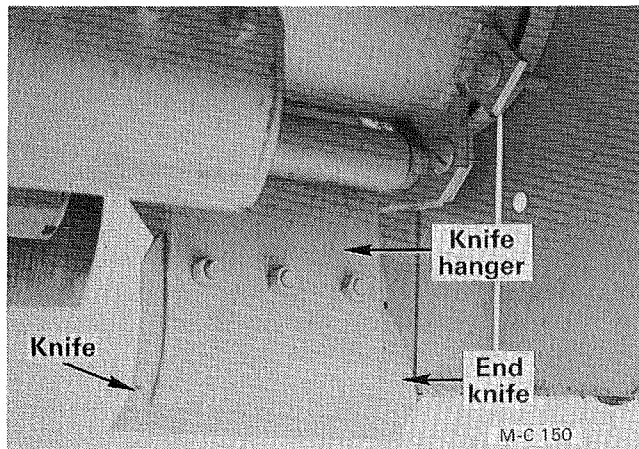
Figure 30

### Knife Style 2

1. Remove the two carriage bolts and locknuts securing the wide knife to the wide knife hanger, see Figure 30. The wide knife hangers can be removed as instructed in step 1 under "Knife Style 1".

**IMPORTANT:** When replacing knives, always replace the knife on the opposite side to maintain rotor balance.

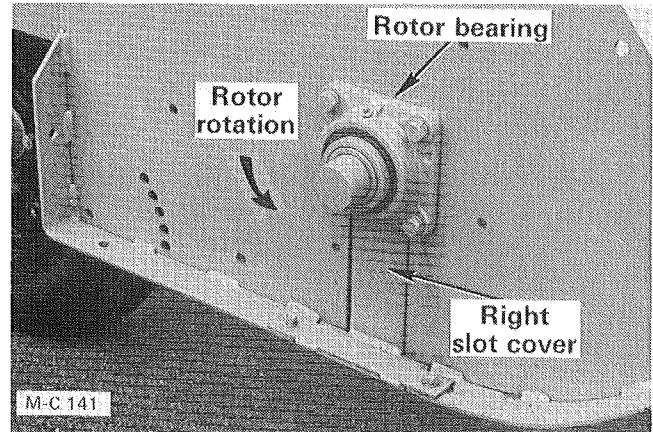
2. When installing, the wide knives bolt to the lower set of holes in the wide knife hanger as shown in Figure 30 unless the mower is equipped with a shredding screen. If the mower is equipped with a shredding screen, bolt the wide knives to the upper set of holes. In this position, the knives will clear the screen.
3. The dished or concave side of the knives must face the front of the mower when hanging down and swing freely.
4. If any knife hanger pins are to be replaced see "Knife Hanger Pin Replacement" page 24.



**Figure 31**

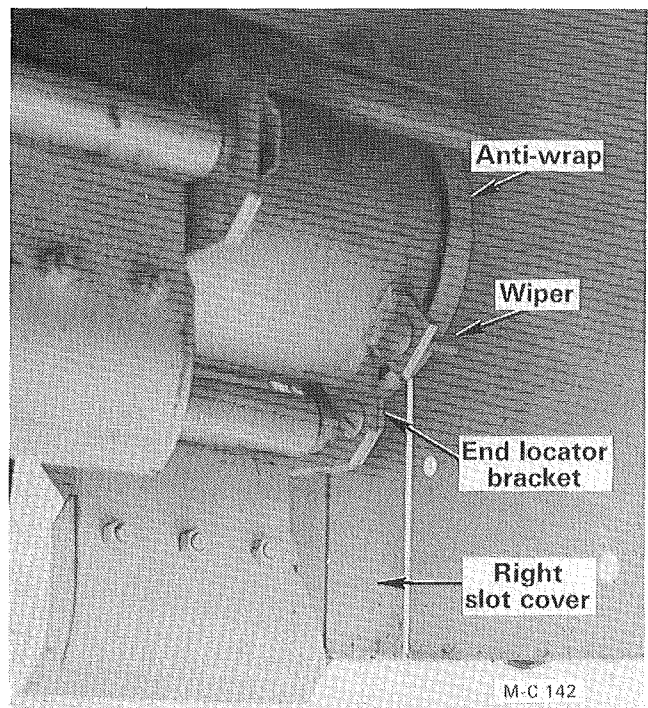
### Knife Style 3

1. Individual knives can be removed by removing the three carriage bolts and locknuts securing the knife to the knife hanger, see Figure 31.
2. A complete set of knives and knife hangers on one rotor hanger bar can be removed as follows:
  - A. Remove the right slot cover, see Figure 32. Remove the left slot cover and the belt guard cover.
  - B. Turn the rotor and line up the rotor hanger bar in the center of the right slot. Block the rotor in this position. Remove the right end locator bracket, see Figure 33.



**Figure 32**

- C. Place a  $\frac{3}{8}$  inch bar in the hole in the center of the left end locator bracket. Drive the rotor hanger bar out the right side as far as you can. Attach a vise grip plier to the hanger bar and pull the hanger bar out. The knife hangers and knives will drop off.



**Figure 33**

3. Installation of the knife hangers, knives and rotor hanger bars is the reverse of the removal procedure. When reassembling pay particular attention to the following:
  - A. The dished or concave side of the knives must face the front of the mower when hanging down and swing freely.

- B. The end knives must be opposite each other at each end of the rotor. The wide end knife faces the outside.

**IMPORTANT:** Whenever a knife is replaced, always replace the knife on the opposite side to maintain rotor balance.

## Knife Hanger Pin Replacement

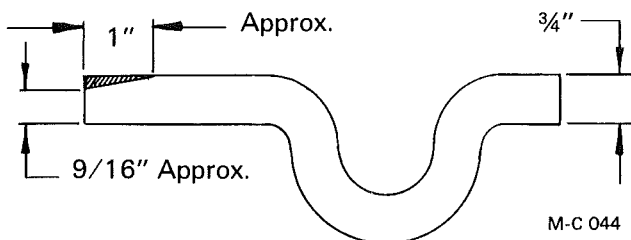
### Knife Styles 1 and 2



**CAUTION:** Always use safety stands or blocking in conjunction with hydraulic jacks or hoists. Do not rely on the jack or hoist to carry the load, they could fail.

**IMPORTANT:** Never lift or handle the Mower by the rotor.

1. Beginning with Serial No. 41936, the diameter of the long and short knife hanger pins was changed from  $\frac{5}{8}$ " to  $\frac{3}{4}$ ". The  $\frac{5}{8}$ " diameter knife hanger pins are no longer available.

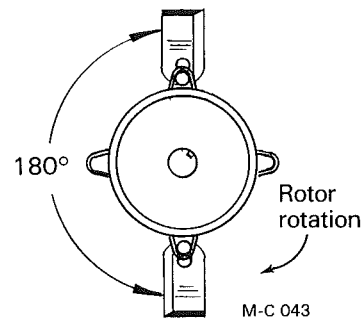


Suggested Dimensions To Grind Off Long End of  $\frac{3}{4}$ " Dia. Hanger Pins.

Figure 34

2. The new  $\frac{3}{4}$ " diameter knife hanger pins can be used as a replacement for the  $\frac{5}{8}$ " diameter knife hanger pins by grinding a small taper on the long end, see Figure 34.
3. If all knife hanger pins are replaced, no rotor balance problem will be experienced. However, if only some of the knife hanger pins are replaced, the same number of pins must be replaced on the opposite side to maintain rotor balance, see Figure 35.

**IMPORTANT:** To get the correct overlap of style 1 and 2 knives, the knife pins must be installed as shown in Figure 36.



Pins 180° Apart Must Be The Same Diameter.

Figure 35

4. Model 7 HD and 10 HD have four short knife pins ( $\frac{3}{4}$ " OD x  $6\frac{1}{2}$ " long) on the rotor and they must be installed at each end of row 1 and 3 as shown in Figure 36. These two rows are 180° apart. All other knife pins are  $\frac{3}{4}$ " OD x  $7\frac{1}{2}$ " long.
5. All of the knife pins on Model 8 HD and 12 HD are  $\frac{3}{4}$ " OD x  $7\frac{1}{2}$ " long.
6. The short end of all pins go to the left on rows 1 and 2 and to the right on rows 3 and 4 except the right side of row 1 and the left side of row 3 as shown in Figure 36.
7. This sequence of knife pin installation will provide an even cut the full width of the rotor.

## Knife Sharpening



**CAUTION:** Always use safety stands or blocking in conjunction with hydraulic jacks or hoists. Do not rely on the jack or hoist to carry the load, they could fail.

**IMPORTANT:** Never lift or handle the Mower by the rotor.

1. Under normal operating conditions the knives will give you many trouble free hours of service with only occasional maintenance. The knives are mounted so they are free to swing on the rotor. This gives the knives increased cutting action and shock absorbing ability.
2. It is important to check the knives occasionally for sharpness and/or possible damage from hitting rocks or prolonged



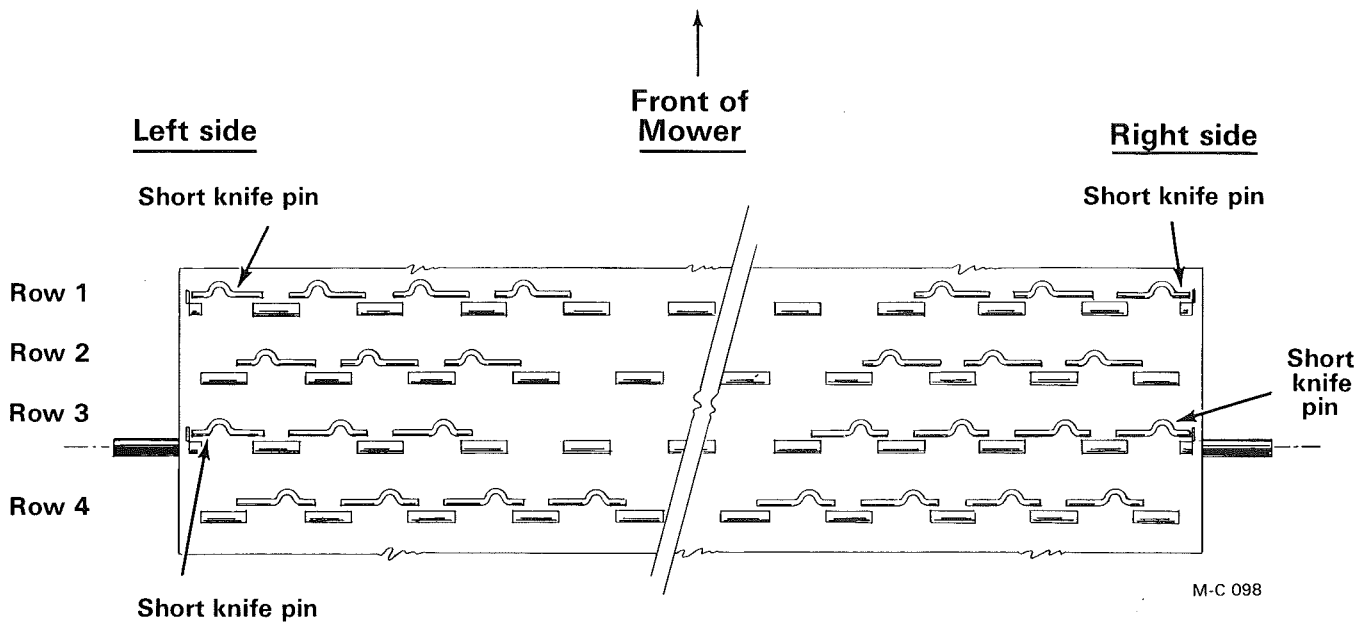


Figure 36

contact with the ground. Replace any damaged knives. Operating with damaged knives can cause vibration due to rotor unbalance.

3. Style 1 (slicer knives) are difficult to sharpen with conventional grinding equipment due to the curvature of the knife. Therefore, it is suggested that the knives be replaced as required. See "Knife Replacement" page 22.
4. Style 2 and 3 (wide knives) can be sharpened with a portable electric grinder or they can be removed (See "Knife Replacement" page 22) and sharpened on a bench grinder. The knives should be sharpened only on the back side. Be sure to retain the original 30° cutting angle.



**CAUTION:** Always wear safety glasses when sharpening knives with a grinder.

## Drive and Driven Pulley Replacement

**NOTE:** The drive and driven pulleys are held on the shaft by a tapered bushing. The bushings have jack screw holes that are used to remove them. Do not attempt to remove the pulleys with a gear puller as this could result in damage to the pulleys.

1. Remove the belt guard cover. Remove the drive belt(s). Refer to "Drive Belt Replacement" page 20 for procedure.

2. Remove the three mounting capscrews in the bushing, see Figure 37. Thread the capscrews into the three jack screw holes in the bushing. Tighten the three capscrews progressively and evenly until the bushing is loose on the shaft.
3. Remove the bushing and pulley from the shaft. If the bushing does not slip off of the

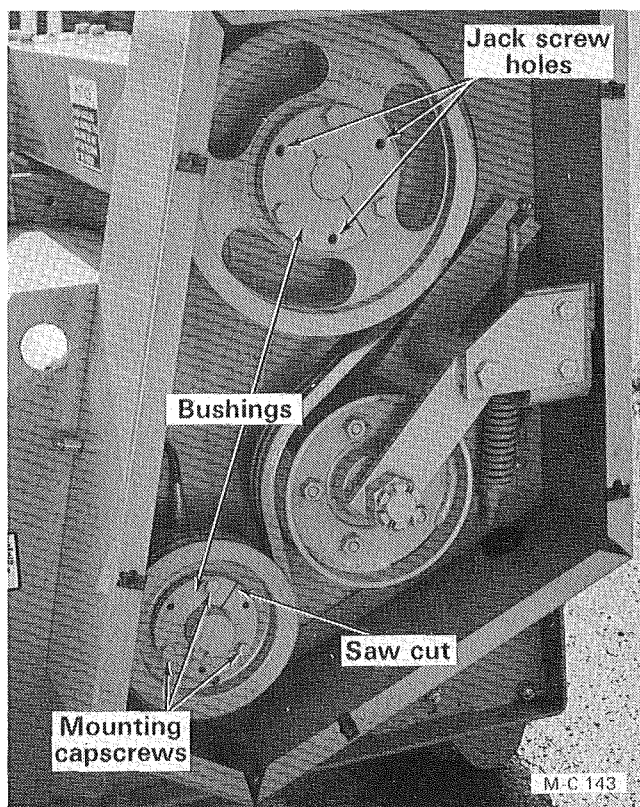


Figure 37

shaft, wedge a screwdriver blade in the saw cut in the flange of the bushing (not the tapered surface) to spread the bushing.

4. Before installing the pulley and bushing thoroughly inspect the tapered bore of the pulley and the tapered surface of the bushing. Any paint, dirt, oil or grease **must** be removed.

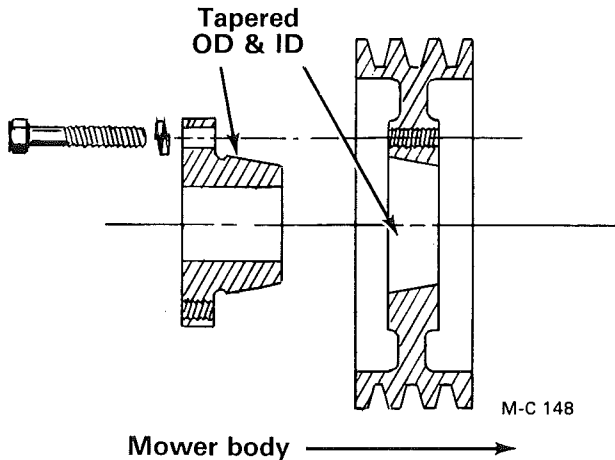


Figure 38

5. Place the bushing into the pulley from the front so that the bushing flange is to the outside, see Figure 38. The bushing and the bore of the pulley are tapered. Be sure to install the bushing into the large ID of the pulley tapered bore. If the bushing is installed into the small ID of the pulley, the pulley hub will crack when the mounting capscrews are tightened.

6. Place the three capscrews through the open holes in the bushing and thread them into the pulley by hand. Do not tighten the capscrews.

**IMPORTANT:** The capscrew and pulley threads must be clean and dry. Do not lubricate.

7. Install the key in the output drive and/or rotor shaft. Slide the pulley and bushing assembly onto the shaft. If the bushing is too tight on the shaft, wedge a screwdriver blade into the saw cut in the flange (not the tapered surface) to spread the bushing.

8. Install the belt(s) and move the pulley and bushing in or out until the belts are in alignment on the pulleys. Tighten the three capscrews evenly and progressively. Torque the capscrews as follows:

### Drive Pulley

Model 7 HD & 8 HD - 60 ft. lbs.

Model 10 HD & 12 HD - 75 ft. lbs.

### Driven Pulley

Model 7 HD & 8 HD - 30 ft. lbs.

Model 10 HD & 12 HD - 60 ft. lbs.

**IMPORTANT:** The tightening force on the three capscrews is multiplied many times by the wedging action of the bushing tapered surface. Do not exceed the specified torque, or use a lubricant on the capscrew threads. To do so may create bursting pressures in the hub of the pulley.

**NOTE:** There should be a  $\frac{1}{8}$  to  $\frac{1}{4}$  inch gap between the pulley hub and the flange of the bushing. If the gap is closed, the shaft is undersize.

9. Check "Drive Belt Pulley Alignment" page 19 and "Idler Pulley Alignment" page 20 and adjust if necessary. Adjust the drive belt tension. Refer to "Drive Belt Adjustment" page 22. Install the belt guard cover.

## Gauge Roller Bearing Replacement

1. Use an internal bearing puller, like those shown in Figure 39, to remove the bearing from the end of the gauge roller.
2. When installing the new bearing drive or press on the outer race only. Pressing on the inner race will damage the bearing. Press the bearing in until it seats on the shoulder in the gauge roller.

## Rotor Bearing Replacement

### Right Bearing

1. Lift the right side of the mower and block up the rotor so it cannot fall when the bearing is removed. Do not lift the mower by the rotor.



**CAUTION:** Always use safety stands or blocking in conjunction with hydraulic jacks or hoists. Do not rely on the jack or hoist to carry the load, they could fail.

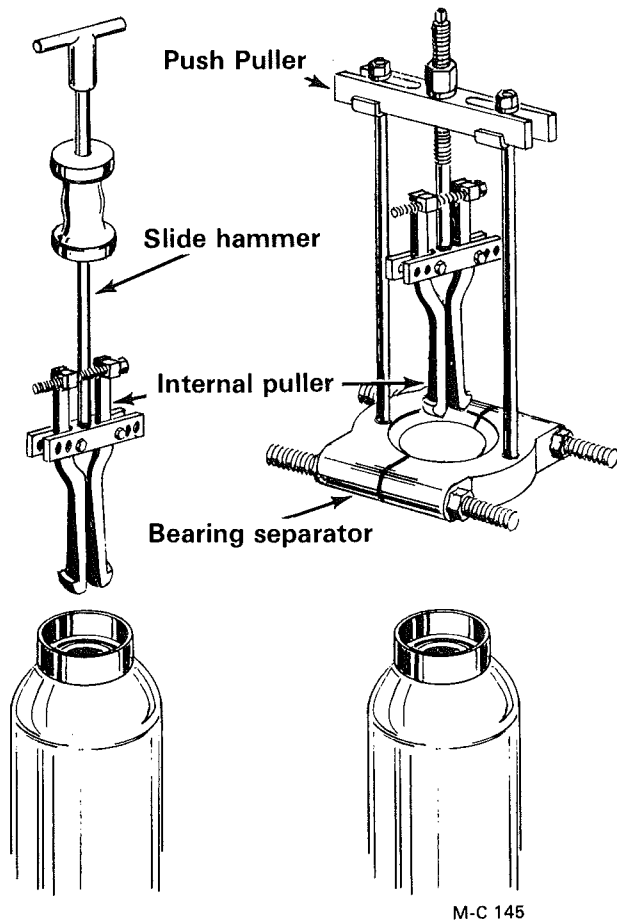


Figure 39

2. Clean the end of the rotor shaft with emery cloth. Remove the set screw and four capscrews securing the bearing to the mower body and slide the bearing off of the rotor shaft.
3. Lightly polish the rotor shaft with emery cloth. Lubricate the rotor shaft with motor oil and slide the new bearing onto the shaft with the lubrication fitting on top.

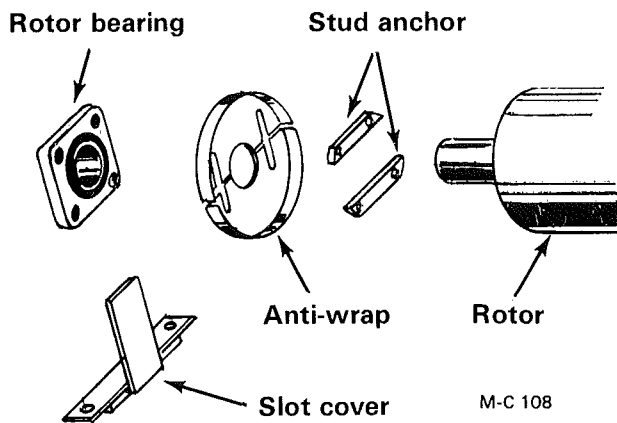


Figure 40

4. Place the four mounting capscrews through the bearing and mower body. Slide the anti-wrap and stud anchors into position as shown in Figure 40 and thread the capscrews into the stud anchors. Tighten the capscrews and set screw. Remove safety stands and lower the mower to the ground.
5. Lubricate the rotor bearing with a hand grease gun. Do not over lubricate. Too much grease may damage the bearing seal.

### Left Bearing

1. Lift the left side of the mower and block up the rotor so it cannot fall when the bearing is removed. Do not lift the mower by the rotor.



**CAUTION:** Always use safety stands or blocking in conjunction with hydraulic jacks or hoists. Do not rely on the jack or hoist to carry the load, they could fail.

2. Remove the belt guard cover, front belt guard wrap and bearing lubrication hose, see Figure 41. Remove the drive belt(s). Refer to "Drive Belt Replacement" page 20 for procedure.
3. Remove the driven pulley. Refer to "Drive and Driven Pulley Replacement" page 25 for procedure.

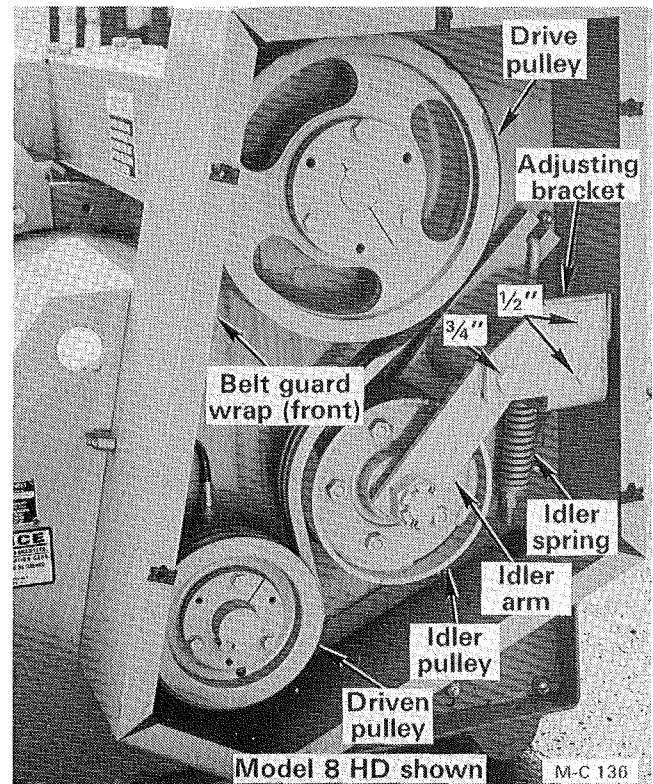


Figure 41

4. Clean the end of the rotor shaft with emery cloth. Remove the set screw and four capscrews securing the bearing to the mower body and slide the bearing off of the rotor shaft.
5. Lightly polish the rotor shaft with emery cloth. Lubricate the rotor shaft with motor oil and slide the new bearing onto the shaft with the lubrication fitting on top facing the front of the mower.
6. Place the four mounting capscrews through the bearing and mower body. Slide the anti-wrap and stud anchors into position as shown in Figure 40 and thread the capscrews into the stud anchors. Tighten the capscrews and set screw.
7. Install the driven pulley. Refer to "Drive and Driven Pulley Replacement" page 25 for procedure. Check "Drive Belt Pulley Alignment" page 19 and "Idler Pulley Alignment" page 20 and adjust if necessary. Adjust the drive belt tension. Refer to "Drive Belt Adjustment" page 22.
8. Install the front belt guard wrap, bearing lubrication hose and belt guard cover. Remove safety stands and lower the mower to the ground.
9. Lubricate the rotor bearing with a hand grease gun. Do not over lubricate. Too much grease may damage the bearing seal.

## Output Shaft Bearing Replacement

1. Remove the input and output shaft guards.
2. Remove the belt guard cover. Remove the drive belt(s) Refer to "Drive Belt Replacement" page 20 for procedure.
3. Remove the drive pulley. Refer to "Drive and Driven Pulley Replacement" page 25 for procedure.
4. Remove the output shaft seal and the belt guard back plate, see Figure 42 and 43.
5. Scribe a line on the output shaft bearing mounting bracket as shown in Figure 43 to establish the location of the new bearing when reassembling.
6. Remove the set screw, two capscrews, lockwashers and hex-nuts securing the

output shaft bearing. Lift up on the output shaft and remove the spacer, output shaft guard bracket and shims from under the output shaft bearing, see Figure 44.

7. Clean the output shaft with emery cloth and pull the output shaft bearing off of the output shaft.

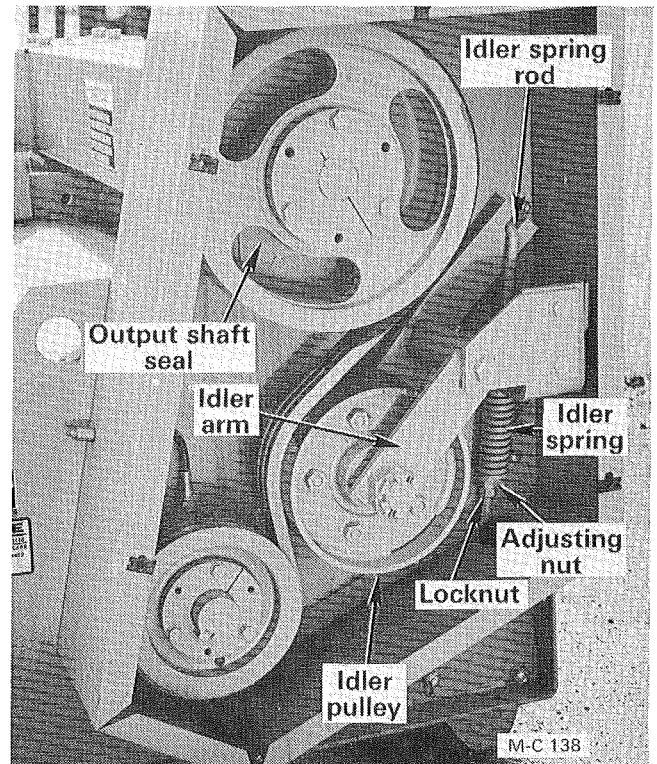


Figure 42

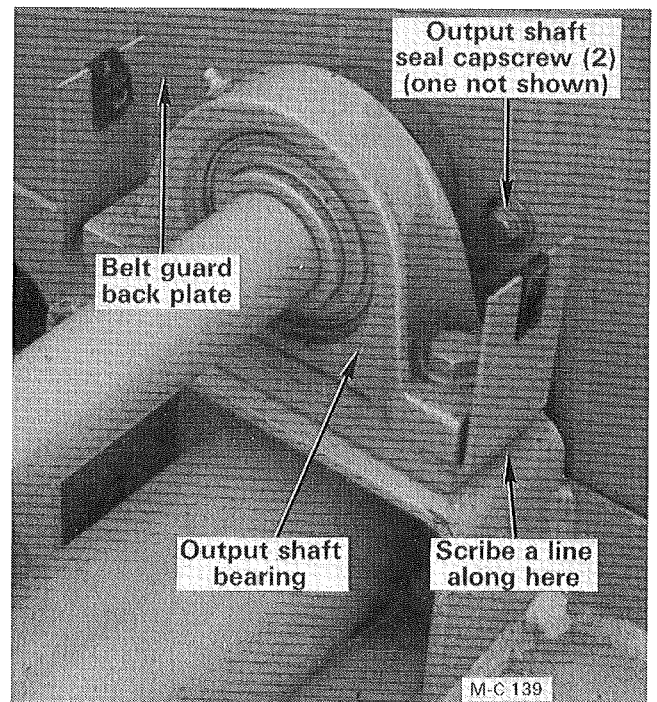
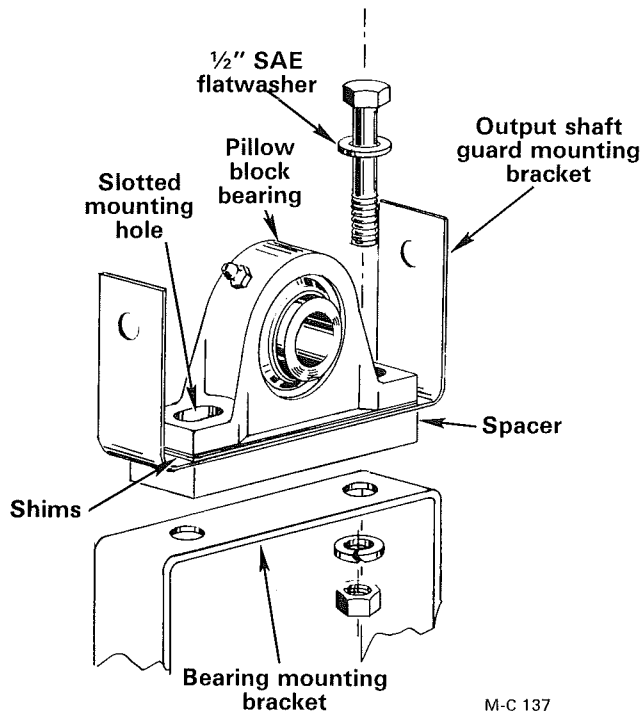


Figure 43

8. Lightly polish the output shaft with emery cloth. Lubricate the output shaft with motor oil and slide the new bearing onto the shaft. Be sure that the lubrication fitting faces the rear of the mower.
9. Install the belt guard back plate. Install the drive pulley. Refer to "Drive and Driven Pulley Replacement" page 25 for procedure. Do not tighten the capscrews in the pulley bushing until the drive belt(s) are installed and pulley alignment has been checked.



**Figure 44**

10. Install the drive belt(s). Install the output shaft seal, see Figure 43.
11. Lift up on the output shaft and place the spacer, output shaft guard bracket and shims on the output shaft bearing mounting bracket, see Figure 44. Install the cap screw, SAE flatwasher, lockwasher and hex-nut. Align the edge of the output shaft bearing with the mark scribed on the mounting bracket made in step 5, see Figure 43. Tighten the output shaft bearing cap screws and set screw.
12. Check drive and driven pulley alignment. Refer to "Drive Belt Pulley Alignment" page 19 for procedure (torque drive pulley bushing cap screws). Check idler pulley alignment. Refer to "Idler Pulley Alignment" page 20 for procedure. Adjust drive belt

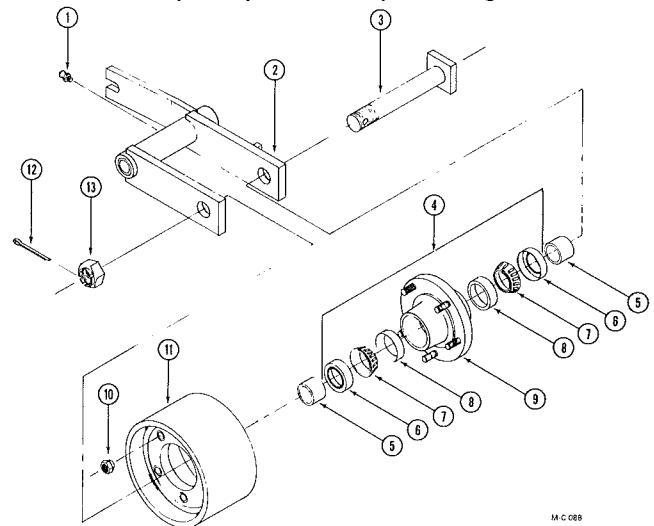
tension. Refer to "Drive Belt Adjustment" page 22. Install the belt guard cover.

13. Lubricate the output shaft bearing with a hand grease gun. Do not over lubricate. Too much grease may damage the bearing seal. Install the output and input shaft guards.

## Idler Pulley Bearing Replacement

(Reference Nos. Refer to Figure 45)

1. Remove the belt guard cover. Loosen the idler spring rod locknut and back off the idler spring adjustment nut to relieve all spring tension. Remove the idler spring rod and spring, see Figure 42.
2. Remove the two 1/2 inch and one 3/4 inch cap screw in the adjusting bracket and remove the idler arm and pulley assembly see Figure 46.



**Figure 45**

3. Remove cotter pin (12), castellated nut (13) and idler bolt (3) from the idler arm (2).
4. Use an internal puller, see Figure 39, to remove the bearing seals (6) and bearing cups (8).
5. Pack the new bearing cones (7) with a good grade of wheel bearing grease. Press the bearing cups (8) into the hub, install the bearing cones (7) and press in the bearing seals (6).
6. Put a hub spacer (5) on each side of the hub assembly and place the assembly in the idler arm (2). Install idler bolt (3) and castellated nut (13). Tighten the nut just enough to hold the assembly together.

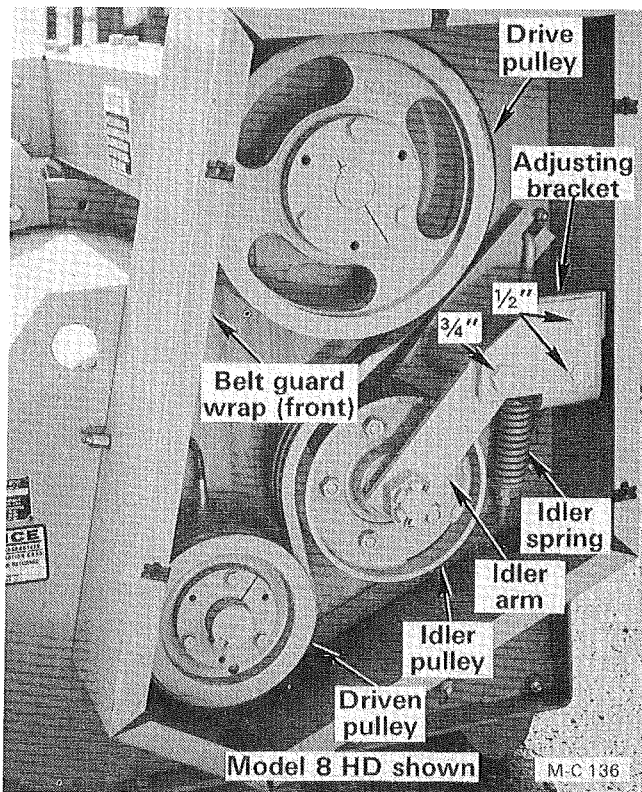


Figure 46

7. Put the idler pivot bushing in the idler arm and install the idler pulley assembly and adjusting bracket, see Figure 46. Do not tighten the two  $\frac{1}{2}$ " and  $\frac{3}{4}$ " capscrews until after the idler pulley alignment has been checked.
8. Tighten the idler bolt castellated nut until it is snug to take all end play out of the bearings. Back off the nut to the next slot that lines up with the cotter pin hole. Hit the end of the idler bolt with a mallet and check to see if there is any end play in the pulley. If there is no end play, install the cotter pin. If there is end play, repeat the procedure until all end play is taken up and install the cotter pin.
9. Check idler pulley alignment. Refer to "Idler Pulley Alignment" page 20 for procedure. Install the belt guard cover.

## Storing the Mower

1. When the mower is to be stored for an extended period of time or at the end of the season, lubricate all bearings with enough grease to eliminate any cavities where water condensation may occur and cause damage. Refer to "Lubrication" page 18 for location of all grease fittings. Be sure the vent on top of the gear box is open.

**IMPORTANT:** Use a hand grease gun. Do not over lubricate. Too much grease may damage the bearing seals.

2. Loosen the idler spring rod locknut and back off the idler spring adjustment nut to relieve all spring tension on the drive belt(s).

**NOTE:** Before next seasons use, be sure to adjust the drive belt tension. Refer to "Drive Belt Adjustment" page 22 for procedure.

3. Coat all exposed surfaces inside the mower with oil or grease to prevent rusting and pitting during storage.

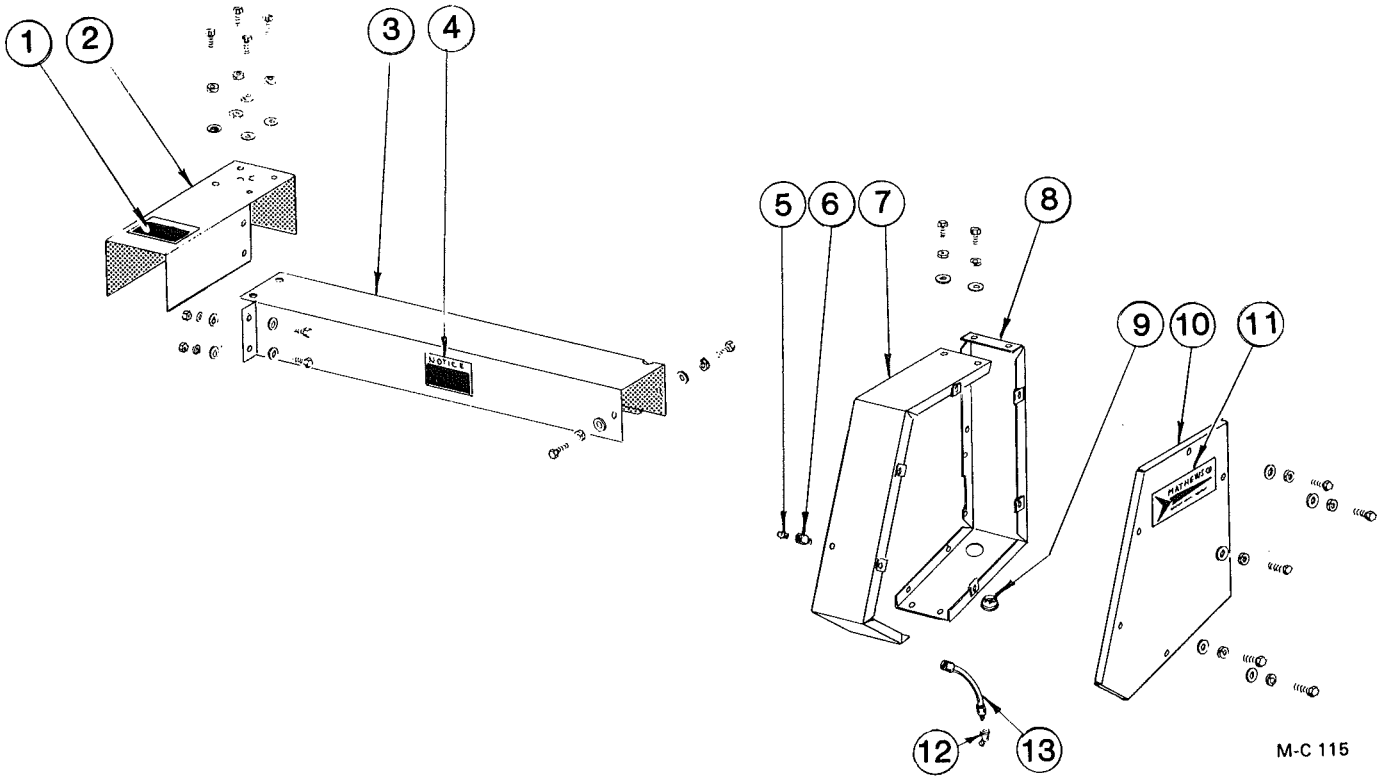
## Pre-Season Check

1. Check the oil level in the gear box and lubricate all bearings. Refer to "Lubrication" page 18 for location of all grease fittings.
2. Adjust the drive belt tension. Refer to "Drive Belt Adjustment" page 22.
3. Inspect for missing and/or broken knives. Replace as necessary. Refer to "Knife Replacement" page 22 and "Knife Sharpening" page 24.
4. Be sure all safety shields are in place and secure.
5. If the mower is equipped with a rear axle kit inflate the tires to 30-35 lbs.
6. Run the mower at a low RPM checking to make sure that all drive line parts are moving freely.

# PARTS

## Guards

**NOTE: Attaching hardware is listed, but not included with, the main part. It must be ordered separately.**

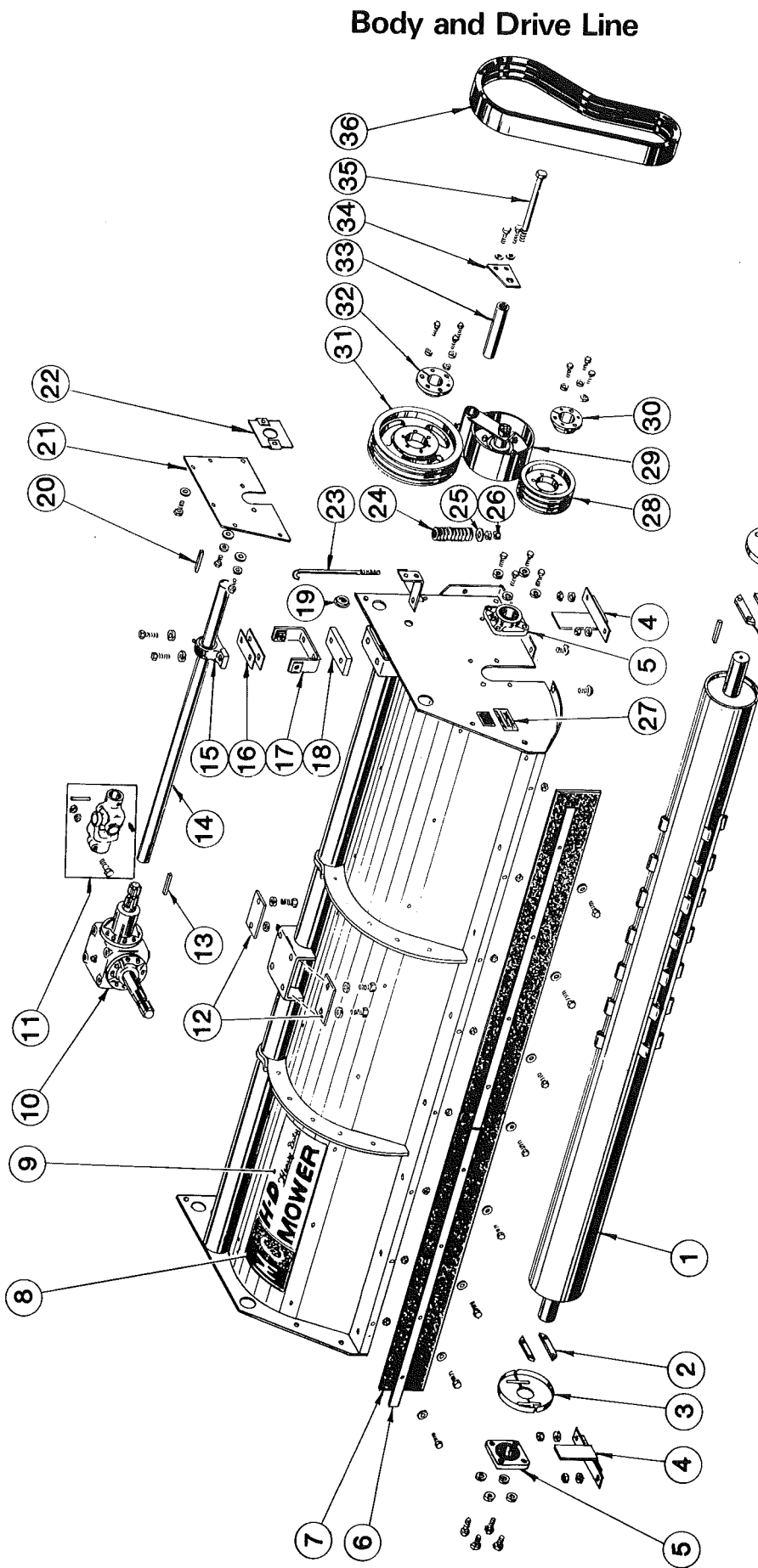


M-C 115

Ref.	Part No.	Qty.	Description
1	001 8314	1	Caution Decal
2	081 4652	1	Input Shaft Guard
	000 8145	4	5/8-11 x 1 1/4" Hex-Head Capscrew - Grade 5
	000 8181	4	5/8" Lockwasher
	000 8176	4	5/8" Flatwasher
3	081 4771	1	<b>7 HD</b> Output Shaft Guard
	081 4770	1	<b>8 HD &amp; 10 HD</b> Output Shaft Guard
	081 4769	1	<b>12 HD</b> Output Shaft Guard
	000 8106	4	5/16-18 x 3/4" Hex-Head Capscrew
	000 8173	6	5/16" Flatwasher
	000 8222	4	5/16" Lockwasher
	000 8159	2	5/16-18 Hex Nut
4	001 8318	2	Shipping Notice Decal
5	002 6604	1	Straight Zerk - 1/8" PT
6	123 7503	1	Coupling - Galv. - 1/8" Std.

Ref.	Part No.	Qty.	Description
7	081 4766	1	Belt Guard Wrap - Front
	000 8119	4	3/8-16 x 3/4" Hex-Head Capscrew
	000 8179	4	3/8" Lockwasher
	000 8174	4	3/8" Flatwasher
	000 8162	4	3/8-16 Hex Nut
	001 8111	3	5/16-18 Clip Nut
8	081 4765	1	Belt Guard Wrap-Rear
	001 8111	3	5/16-18 Clip Nut
9	128 6987	1	2" Hole Plug
10	081 4768	1	Belt Guard Cover
	000 8106	6	5/16-18 x 3/4" Hex-Head Capscrew
	000 8173	6	5/16" Flatwasher
	000 8222	6	5/16" Lockwasher
11	001 8303	1	M-C Arrow Decal
12	000 8989	1	1/8" NPT 90° Zerk Street El.
13	000 8985	1	Grease Hose - 10"

**NOTE:** This illustration and parts list covers all four models of Heavy Duty Mowers. Be sure to select the correct part number(s) for the model mower you have. Attaching hardware is listed, but not included with, the main part. It must be ordered separately.



M-C 144

Ref.	Part No.	Qty.	Description
1	---	1	Rotor Ass'y. (see pgs. 41 thru 45 for details)
2	001 5175	4	Stud Anchor
3	001 4652	4	Anti-wrap (half)
4	081 0016	2	Slot Cover
	000 8120	4	$\frac{3}{8}$ -16 x 1" Truss Head Screw
	000 8179	4	$\frac{3}{8}$ " Lockwasher
	000 8162	4	$\frac{3}{8}$ -16 Hex Nut
19	128 6987	1	2" Hole Plug
20	001 5139	1	$\frac{3}{8}$ " x 3" Key
21	081 4767	1	Belt Guard Back Plate
	000 8119	6	$\frac{3}{8}$ -16 x $\frac{3}{4}$ " Hex-Head Capscrew
	000 8174	6	$\frac{3}{8}$ " Flatwasher
	001 8149	6	$\frac{3}{8}$ -16 Two Way Special Locknut
22	081 4772	1	Output Shaft Seal



## Body and Drive Line

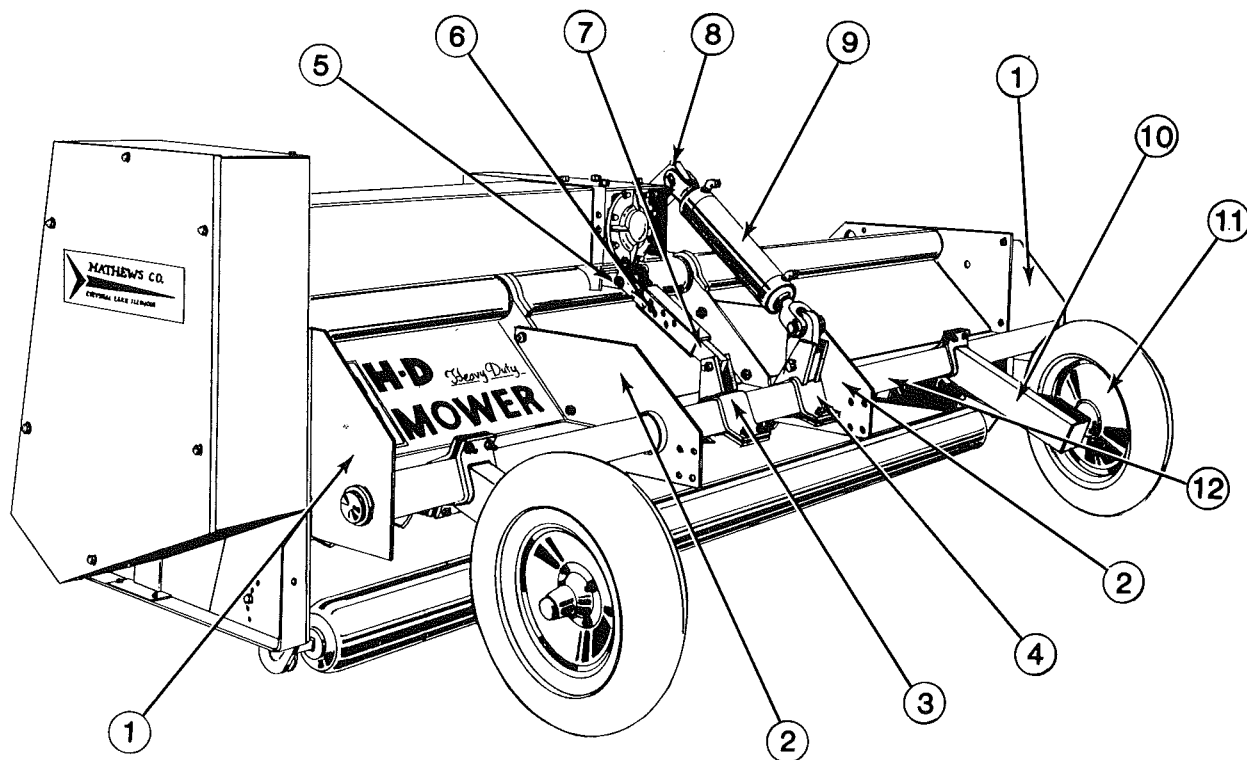
Ref.	Part No.	Qty.	Description	Ref.	Part No.	Qty.	Description
5	001 6010	2	4 Bolt Flange Bearing w/Zerk (1-5/16" Bore)		001 8111	2	5/16-18 Clip Nut
	001 8261	8	1/2-13 x 1 1/2" Hex-Head Capscrew Grade 5 w/NY-Patch (Special)		000 8106	2	5/16-18 x 3/4" Hex-Head Capscrew
	000 8180	8	1/2" Lockwasher		000 8173	2	5/16" Flatwasher
6	111 4208	1	7 HD Retainer Strip - 7'	23	081 5000	1	Idler Spring Rod
	111 4210	2	8 HD Retainer Strip - 4'	24	081 8250	1	Idler Spring 1 1/2" OD x 6"
	111 4207	2	10 HD Retainer Strip - 5'	25	000 8175	1	1/2" Flatwasher
	111 4210	3	12 HD Retainer Strip - 4'	26	000 8163	2	1/2-13 Hex Nut
	000 8119	†	3/8-16 x 3/4" Hex-Head Capscrew	27	001 8310	1	Machine Warranty Notice Decal
	000 8174	†	3/8" Flatwasher	28	141 6208	1	7 HD & 8 HD 5V/8.0 x 3 Grv. "SF" Sheave
	001 8149	†	3/8-16 Two-way Special Locknut		111 6210	1	10 HD & 12 HD 5V/8.0 x 6 Grv. "E" Sheave
7	081 5703	1	7 HD Rubber Stone Guard - 7'	29	- - - - -	1	Idler Ass'y. (see pg. 46 for details)
	081 5701	2	8 HD Rubber Stone Guard - 4'	30	141 6209	1	7 HD & 8 HD "SF" Bushing 1-15/16" Bore (incl. capscrews & lockwashers)
	081 5702	2	10 HD Rubber Stone Guard - 5'		111 6209	1	10 HD & 12 HD "E" Bushing 1-15/16" Bore (incl. capscrews & lockwashers)
8	001 8302	2	M-C Decal	31	081 6201	1	7 HD & 8 HD 5V/13.2 x 3 Grv. "E" Sheave
9	081 8300	2	Heavy Duty Mower Decal		081 6202	1	10 HD & 12 HD 5V/13.2 x 6 Grv. "F" Sheave
10	081 6600	1	Gear Box (see pg. 47 for details)	32	111 6205	1	7 HD & 8 HD "E" Bushing 1 3/4" Bore (incl. capscrews & lockwashers)
	091 8170	4	5/8-11 x 1 3/4" Hex-Head Capscrew Grade 5 w/NY Patch		111 6204	1	10 HD & 12 HD "F" Bushing 1 3/4" Bore (incl. capscrews & lockwashers)
	000 8181	4	5/8" Lockwasher	33	081 5601	1	Idler Pivot Bushing
11	081 6601	1	Output Shaft Universal Joint (see pg. 39 for details)	34	081 3523	1	Adjusting Bracket
12	127 3404	2	Gear Box Mount Stiffener		133 8161	2	1/2-13 x 1 1/2" Hex-Head Capscrew - Grade 5
13	001 5136	1	3/8" x 2 1/2" Key		000 8175	4	1/2" Flatwasher
14	081 5082	1	7 HD Output Shaft		000 8180	2	1/2" Lockwasher
	081 5081	1	8 HD & 10 HD Output Shaft		000 8163	2	1/2-13 Hex Nut
	081 5080	1	12 HD Output Shaft	35	081 8191	1	3/4-10 x 9" Hex-Head Capscrew - Grade 5
15	091 6001	1	Output Shaft Bearing w/Zerk - 1 3/4" Bore		000 8182	1	3/4" Lockwasher
	128 8166	2	1/2-13 x 2 1/2" Hex-Head Capscrew - Grade 5		000 8165	1	3/4-10 Hex Nut
	001 8257	4	1/2" SAE Flatwasher		081 6100	1	7 HD & 8 HD 3/5V 750 Banded Belt
	000 8180	2	1/2" Lockwasher		111 6100	1	10 HD & 12 HD 3/5V 750 Matched Set of 2 Banded Belts
	000 8163	2	1/2-13 Hex Nut				
16	125 2918	2	Bearing Shim (16 Ga.)				
17	081 4427	1	Output Shaft Guard Mtg. Bracket				
	001 8111	2	5/16-18 Clip Nut				
18	081 3576	1	Output Shaft Bearing Spacer				

† As Required

## Rear Axle Kit

Kit 083 9000 for Model 7 HD  
 Kit 083 9001 for Model 8 HD

Kit 083 9002 for Model 10 HD  
 Kit 083 9003 for Model 12 HD



Kits consist of the following:

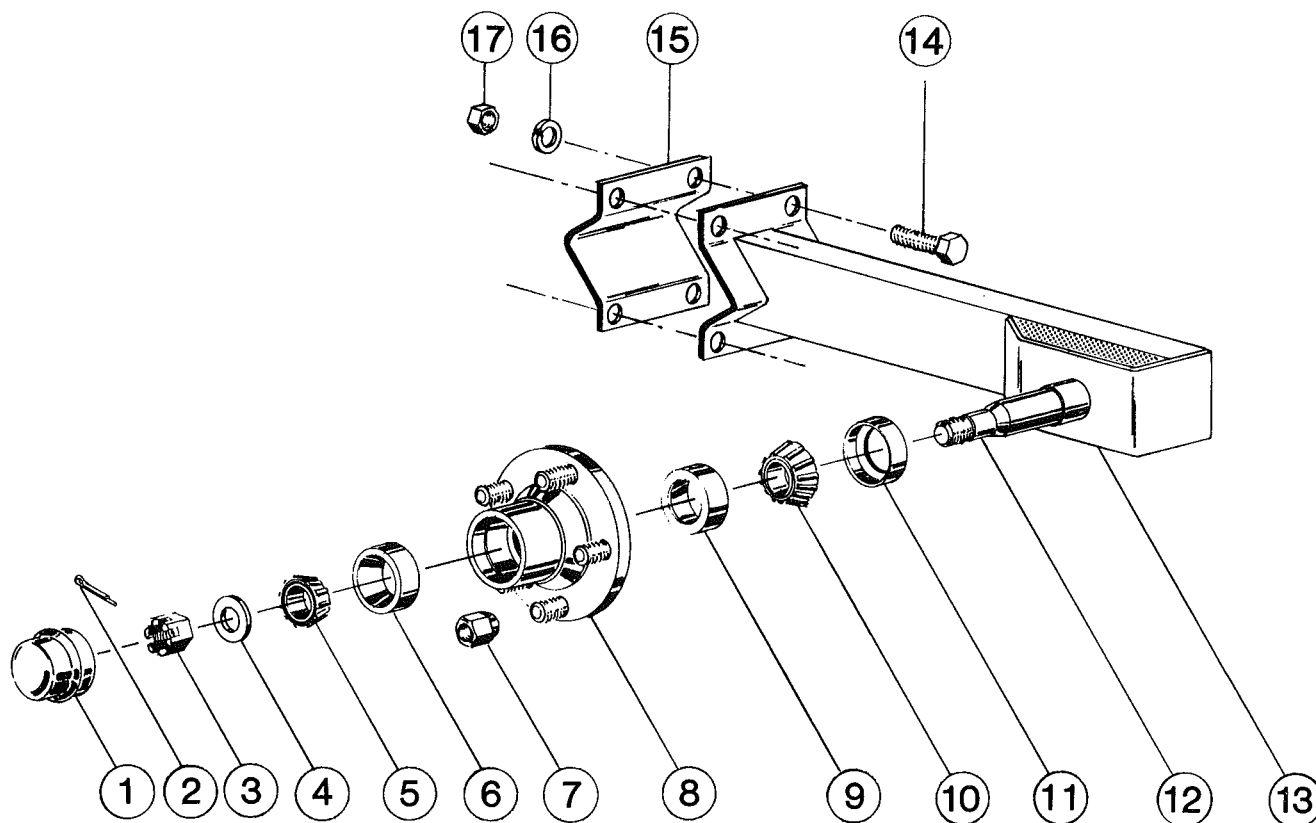
M-C 147

Ref.	Part No.	Qty.	Description	Ref.	Part No.	Qty.	Description
1	081 0029	2	Axle End Bracket	11	001 8993	2	Wheel - 5 Bolt 15" Rim (less tires see note 1)
2	111 0063	2	Center Bracket	12	083 0002	1	Axle for 7 HD (see note 2)
3	081 1010	1	Lower Ram Stop Mount Ass'y.		083 0003	1	Axle for 8 HD (see note 2)
4	081 1013	1	Axle Ram Clevis Ass'y.		083 0004	1	Axle for 10 HD (see note 2)
5	081 0033	1	Upper Ram Stop		083 0005	1	Axle for 12 HD (see note 2)
6	091 0225	1	Ram Stop - Female	—	000 8137	4	1/2-13 x 1 1/4" Hex-Head Capscrew Grade 5
7	091 3675	1	Ram Stop - Male	—	000 8180	4	1/2" Lockwasher
8	083 0006	1	Ram Anchor	—	000 8163	4	1/2-13 Hex Nut
9	-----	1	Standard 8" Stroke Hydraulic Ram (to be supplied by user). An Optional Hand Operated Mechanical Ram (Part No. 001 8985) is available.	—	000 8148	4	5/8-11 x 1 3/4" Hex-Head Capscrew Grade 5
10	111 1041	2	Wheel Mount & Hub Ass'y. w/Clamp (see pg. 35 for details)	—	000 8181	10	5/8" Lockwasher
				—	000 8164	10	5/8-11 Hex Nut
				—	128 8172	5	5/8-11 x 2 1/2" Hex-Head Capscrew Grade 5
				—	001 8279	1	5/8-11 x 2" Hex-Head Capscrew Grade 5

**NOTE 1:** 5.90 x 15" 4-ply tires with tubes are available, order separately. Order one of part number 000 8999 for each tire and tube required.

**NOTE 2:** All Rear Axle Kits contain the same parts with the exception of the axle. Be sure you have the proper axle for your HD Mower.

## Rear Axle Wheel Mount and Hub Assembly

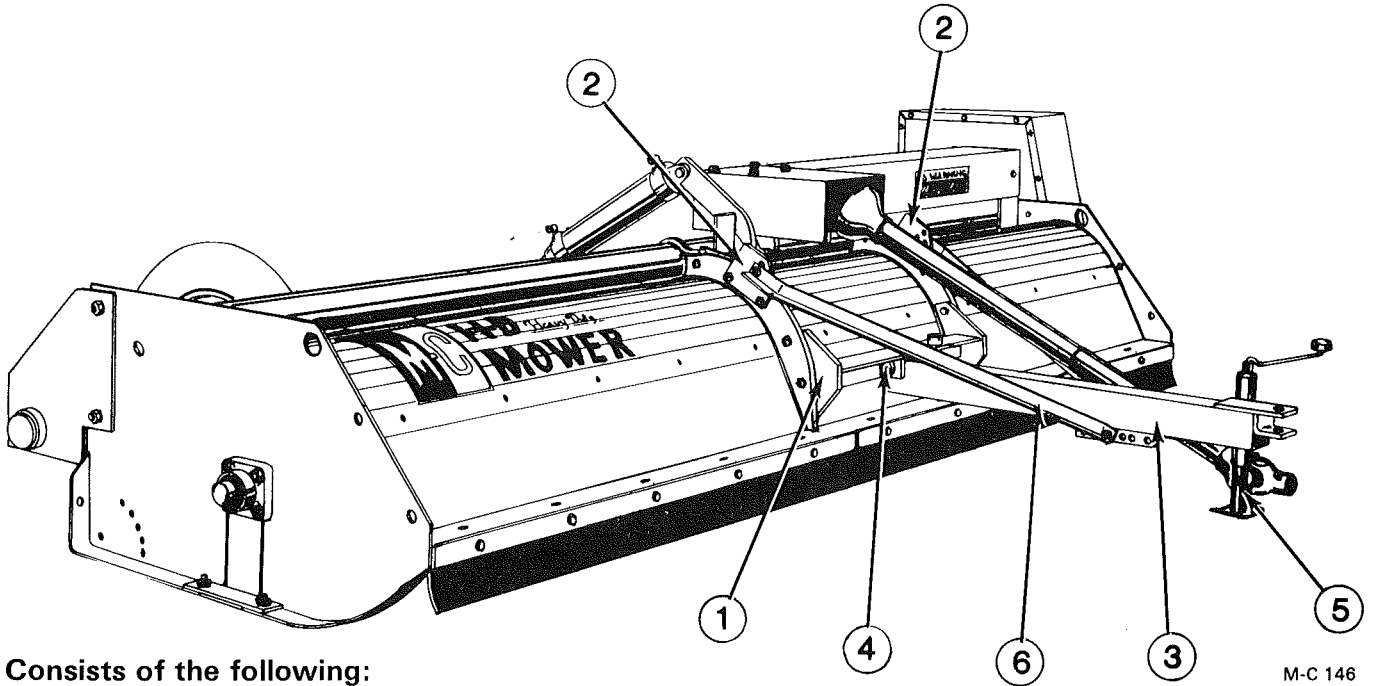


M-C 116

**NOTE:** There are two wheel mount assemblies in the Rear Axle Kit. Quantities shown are for one assembly.

Ref.	Part No.	Qty.	Description	Ref.	Part No.	Qty.	Description
—	<b>111 1041</b>	1	Wheel Mount Ass'y. w/Clamp (Includes ref. 1 thru 17)	9	002 6001	1	Bearing Cup (Inner)
—	<b>111 1066</b>	1	Wheel Mount Ass'y. (Includes ref. 1 thru 13)	10	001 6001	1	Bearing Cone (Inner)
1	001 8996	1	Hub Cap	11	001 8991	1	Seal
2	001 8252	1	Cotter Pin 1/8" x 1"	12	001 8990	1	Spindle Only (Must be welded in place)
3	001 8253	1	Spindle Nut	13	111 0130	1	Wheel Mount w/Spindle
4	001 8254	1	Spindle Washer	14	128 8172	4	5/8-11 x 2 1/2" HHCS Grade 5
5	001 6000	1	Bearing Cone - Outer	15	111 3590	1	Wheel Mount Clamp
6	002 6000	1	Bearing Cup - Outer	16	000 8181	4	5/8" Lockwasher
7	001 8989	5	1/2-20 NF Lug Nut - 90°	17	000 8164	4	5/8-11 Hex Nut
8	001 8992	1	Wheel Hub Ass'y. - 5 Bolt (Includes studs and ref. 6 & 9)				

## Pull-Type Hitch Kit 081 9013



M-C 146

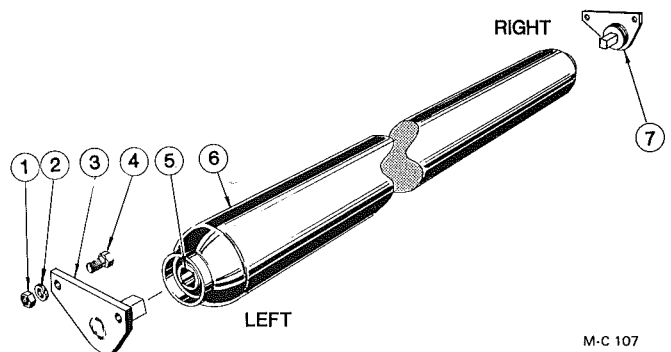
Consists of the following:

Ref.	Part No.	Qty.	Description	Ref.	Part No.	Qty.	Description
1	083 0007	1	Pole Mount	—	000 8182	4	3/4" Lockwasher
2	083 3570	2	Pole Support Angle Mount	—	000 8165	4	3/4-10 Hex Nut
3	111 0105	1	Pole	—	000 8148	8	5/8-11 x 1 3/4" Hex-Head Capscrews Grade 5
4	111 1035	1	Pole Pin	—	000 8181	8	5/8" Lockwasher
5	141 8997	1	Pole Jack	—	000 8164	8	5/8-11 Hex Nut
6	083 0009	1	Pole Support - Right	—	000 8994	1	Klick Pin - 1/4" Dia.
—	083 0008	1	Pole Support - Left				
—	128 8195	4	3/4-10 x 2" Hex-Head Capscrews Grade 5				

## Gauge Roller Kit

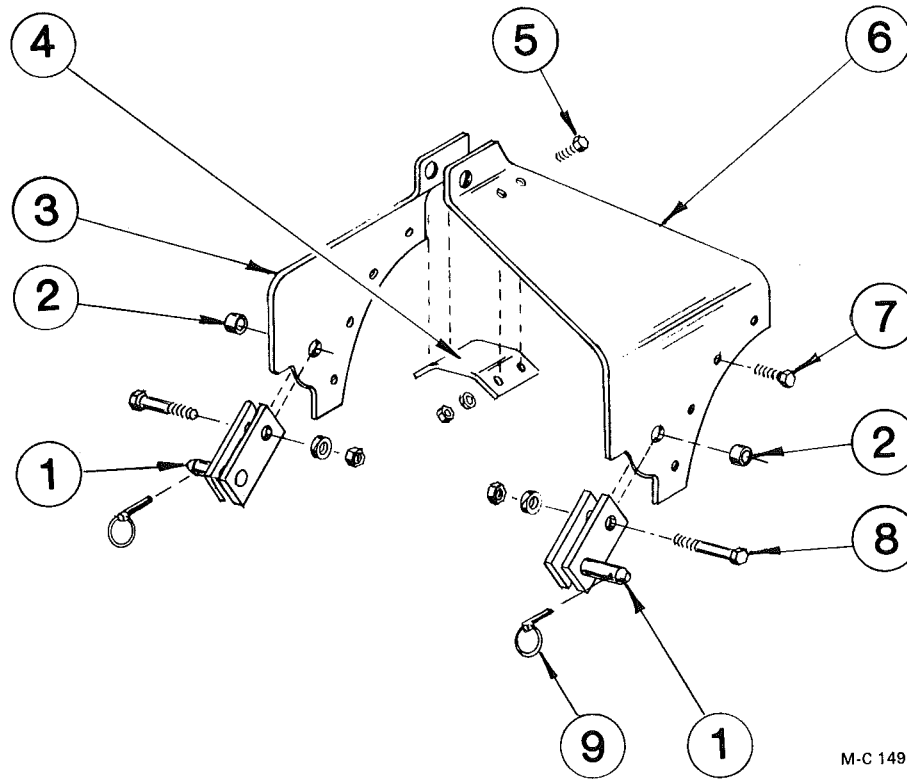
(Includes ref. 1 thru 7 in quantities shown)

Ref.	Part No.	Qty.	Description	Ref.	Part No.	Qty.	Description
			7 HD 081 9014				10 HD 081 9016
			8 HD 081 9015				12 HD 081 9017
1	000 8163	4	1/2-13 Hex Nut	7	081 0018	1	Gauge Roller Hanger - Right
2	000 8180	4	1/2" Lockwasher				
3	081 0017	1	Gauge Roller Hanger - Left				
4	133 8161	4	1/2-13 x 1 1/2" HHCS Grade 5				
5	081 6000	2	Gauge Roller Bearing				
6	081 0020	1	7 HD - Gauge Roller w/Brgs.				
	081 0021	1	8 HD - Gauge Roller w/Brgs.				
	081 0022	1	10 HD - Gauge Roller w/Brgs.				
	081 0023	1	12 HD - Gauge Roller w/Brgs.				



M-C 107

### 3 Point Hitch Kit 081 9012 (see note)

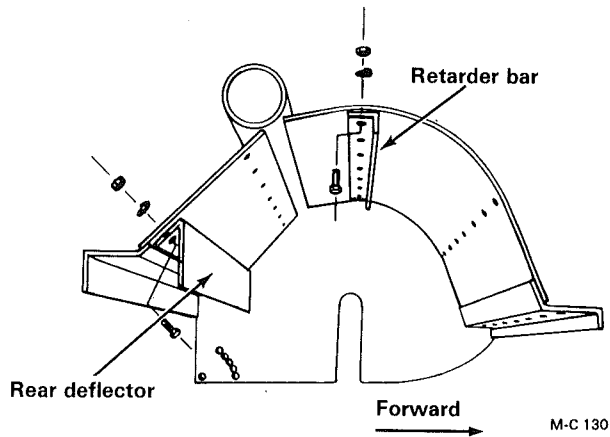


M-C 149

Ref.	Part No.	Qty.	Description
1	113 0007	2	Floating Link (Cat No. 2)
2	113 5681	2	Floating Link Bushing
3	081 3574	1	"A" Frame Bracket - Right
4	081 3524	1	"A" Frame Spreader
5	133 8161	4	1/2-13 x 1 1/2" Hex-Head Capscrew Grade 5
	000 8180	4	1/2" Lockwasher
	000 8163	4	1/2-13 Hex Nut
6	081 3573	1	"A" Frame Bracket - Left
7	001 8279	8	5/8-11 x 2" Hex-Head Capscrew Grade 5
	000 8181	8	5/8" Lockwasher
	000 8164	8	5/8-11 Hex Nut
8	001 8280	2	3/4-10 x 3" Hex-Head Capscrew Grade 5
	000 8182	2	3/4" Lockwasher
	000 8165	2	3/4-10 Hex Nut
9	000 8993	2	Klick Pin 7/16" Dia.

**NOTE:** This kit includes ref. 1 thru 9. Category 2 floating link 113 0007 (1 1/8" OD) comes with the kit. If category 1 floating link 083 0001 (7/8" OD) is required, it must be ordered separately.

## Rear Deflector Kit



### Kit 081 9008 for Model 7 HD

Consists of the following:

- 1 of 111 0082 Rear Deflector
- 1 of 111 3375 Retarder Bar
- 14 of 000 8137 ½-13 x 1¼" Hex-Head Capscrew  
Grade 5
- 14 of 000 8180 ½" Lockwasher
- 14 of 000 8163 ½-13 Hex Nut

### Kit 081 9009 for Model 8 HD

Consists of the following:

- 2 of 111 0085 Rear Deflector
- 2 of 111 3376 Retarder Bar
- 16 of 000 8137 ½-13 x 1¼" Hex-Head Capscrew  
Grade 5
- 16 of 000 8180 ½" Lockwasher
- 16 of 000 8163 ½-13 Hex Nut

### Kit 081 9010 for Model 10 HD

Consists of the following:

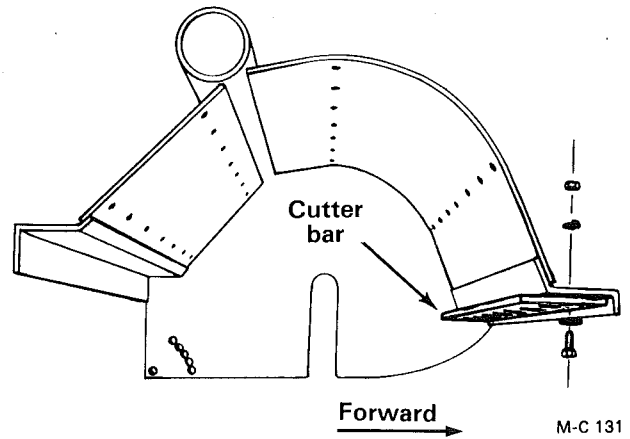
- 2 of 111 0084 Rear Deflector
- 2 of 111 3377 Retarder Bar
- 20 of 000 8137 ½-13 x 1¼" Hex-Head Capscrew  
Grade 5
- 20 of 000 8180 ½" Lockwasher
- 20 of 000 8163 ½-13 Hex Nut

### Kit 081 9011 for Model 12 HD

Consists of the following:

- 3 of 111 0085 Rear Deflector
- 3 of 111 3376 Retarder Bar
- 24 of 000 8137 ½-13 x 1¼" Hex-Head Capscrew  
Grade 5
- 24 of 000 8180 ½" Lockwasher
- 24 of 000 8163 ½-13 Hex Nut

## Front Cutter Bar Kit



### Kit 113 9014 for Model 7 HD

Consists of the following:

- 1 of 111 3480 Cutter Bar
- 7 of 000 8137 ½-13 x 1¼" Hex-Head Capscrew  
Grade 5
- 7 of 000 8175 ½" Flatwasher
- 7 of 000 8180 ½" Lockwasher
- 7 of 000 8163 ½-13 Hex Nut

### Kit 113 9015 for Model 8 HD

Consists of the following:

- 2 of 111 3478 Cutter Bar
- 8 of 000 8137 ½-13 x 1¼" Hex-Head Capscrew  
Grade 5
- 8 of 000 8175 ½" Flatwasher
- 8 of 000 8180 ½" Lockwasher
- 8 of 000 8163 ½-13 Hex Nut

### Kit 113 9016 for Model 10 HD

Consists of the following:

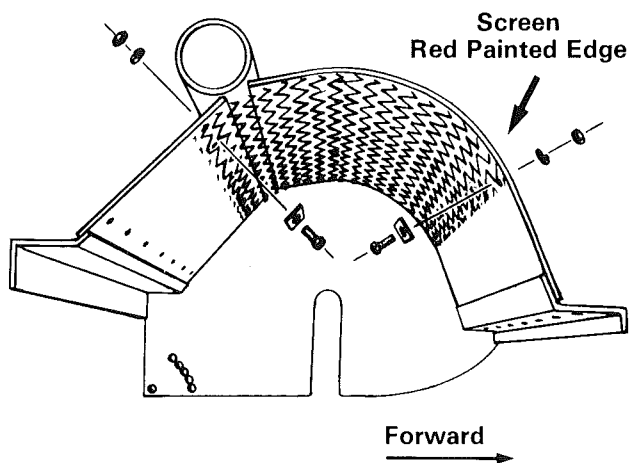
- 2 of 111 3479 Cutter Bar
- 10 of 000 8137 ½-13 x 1¼" Hex-Head Capscrew  
Grade 5
- 10 of 000 8175 ½" Flatwasher
- 10 of 000 8180 ½" Lockwasher
- 10 of 000 8163 ½-13 Hex Nut

### Kit 113 9017 for Model 12 HD

Consists of the following:

- 3 of 111 3478 Cutter Bar
- 12 of 000 8137 ½-13 x 1¼" Hex-Head Capscrew  
Grade 5
- 12 of 000 8175 ½" Flatwasher
- 12 of 000 8180 ½" Lockwasher
- 12 of 000 8163 ½-13 Hex Nut

## Shredding Screen Kit



M-C 128

### Kit 113 9009 for Model 7 HD

Consists of the following:

- 2 of 081 5704 Retarder Screen - 7'
- 14 of 000 8140 1/2-13 x 2" Hex-Head Capscrew  
Grade 5
- 14 of 081 3411 1/4" x 2" x 2" Square Washer
- 14 of 000 8180 1/2" Lockwasher
- 14 of 000 8163 1/2-13 Hex Nut

### Kit 113 9011 for Model 10 HD

Consists of the following:

- 2 of 081 5706 Retarder Screen - 10'
- 20 of 000 8140 1/2-13 x 2" Hex-Head Capscrew  
Grade 5
- 20 of 081 3411 1/4" x 2" x 2" Square Washer
- 20 of 000 8180 1/2" Lockwasher
- 20 of 000 8163 1/2-13 Hex Nut

### Kit 113 9010 for Model 8 HD

Consists of the following:

- 2 of 081 5705 Retarder Screen - 8'
- 16 of 000 8140 1/2-13 x 2" Hex-Head Capscrew  
Grade 5
- 16 of 081 3411 1/4" x 2" x 2" Square Washer
- 16 of 000 8180 1/2" Lockwasher
- 16 of 000 8163 1/2-13 Hex Nut

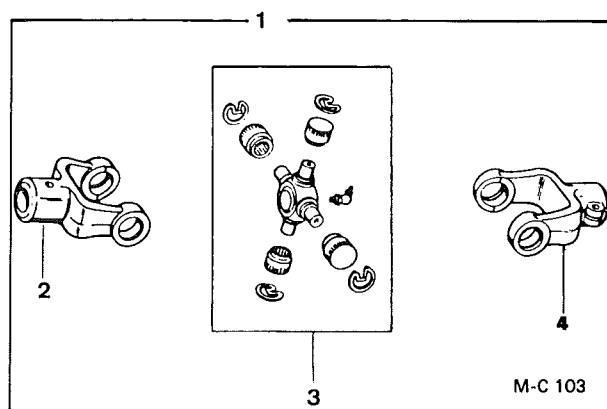
### Kit 113 9012 for Model 12 HD

Consists of the following:

- 2 of 081 5707 Retarder Screen - 12'
- 24 of 000 8140 1/2-13 x 2" Hex-Head Capscrew  
Grade 5
- 24 of 081 3411 1/4" x 2" x 2" Square Washer
- 24 of 000 8180 1/2" Lockwasher
- 24 of 000 8163 1/2-13 Hex Nut

## Output Shaft Universal Joint

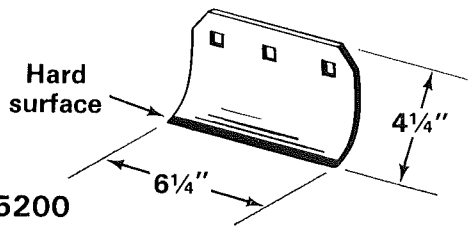
Ref.	Part No.	Qty.	Description
1	081 6601	1	Output Shaft Universal Joint Ass'y. (attaching hardware not included, order separately)
2	002 6688	1	End Yoke 1 3/4" Bore
	001 8281	1	3/8" x 3" Roll Pin
	000 8234	1	1/2"-13 x 3/8" Set Screw
3	002 6688	1	Universal Joint Repair Kit
4	002 6641	1	End Yoke 1 3/4"-6B Spline
	000 8268	1	5/8-11 x 3" Hex-Head Capscrew
	000 8181	1	5/8" Lockwasher
	000 8164	1	5/8-11 Hex Nut



# Heavy Duty Mower Knife Kits

(Nuts & bolts are not included with style 2 or 3 knife kits)

Model Number	Knife Style	Kit No.	Qty. to Order	Kit Consists of		
				Qty.	Part No.	Description
7 HD	1	081 9000	1	34	110 5200	Left Hand Slicer Knife
				34	110 5201	Right Hand Slicer Knife
7 HD	2	082 9007	1	34	001 5208	(HD) Wide Knife Blade
7 HD	3	092 9007	1	28	001 5208	(HD) Wide Knife Blade
				2	001 5206	End Knife - Left
				2	001 5207	End Knife - Right
8 HD	1	081 9002	1	38	110 5200	Left Hand Slicer Knife
				38	110 5201	Right Hand Slicer Knife
8 HD	2	082 9008	1	38	001 5208	(HD) Wide Knife Blade
8 HD	3	082 9005	1	32	001 5208	(HD) Wide Knife Blade
				2	001 5211	(HD) Wide End Knife - Left
				2	001 5212	(HD) Wide End Knife - Right
10 HD	1	081 9004	1	50	110 5200	Left Hand Slicer Knife
				50	110 5201	Right Hand Slicer Knife
10 HD	2	082 9009	1	50	001 5208	(HD) Wide Knife Blade
10 HD	3	082 9006	1	40	001 5208	(HD) Wide Knife Blade
				2	001 5211	(HD) Wide End Knife - Left
				2	001 5212	(HD) Wide End Knife - Right
12 HD	1	081 9006	1	58	110 5200	Left Hand Slicer Knife
				58	110 5201	Right Hand Slicer Knife
12 HD	2	082 9010	1	58	001 5208	(HD) Wide Knife Blade
12 HD	3	092 9012	1	48	001 5208	(HD) Wide Knife Blade
				2	001 5211	(HD) Wide End Knife - Left
				2	001 5212	(HD) Wide End Knife - Right

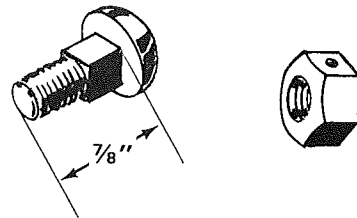


**003 5200**

Special Hard Surfaced Cutting Edge Wide Knife. This knife may be substituted for 001 5208 knife for longer knife life on machines that are used in non-rocky areas.

If substitution is done, it must be done as a complete set and it is **not** recommended that it be done on machines that operate in rocky fields. The hardening process causes the cutting edge to become brittle, which will have a tendency to chip and break when it comes in contact with a hard surface.

These knives are not listed in any kit and will need to be ordered in specific quantities needed.



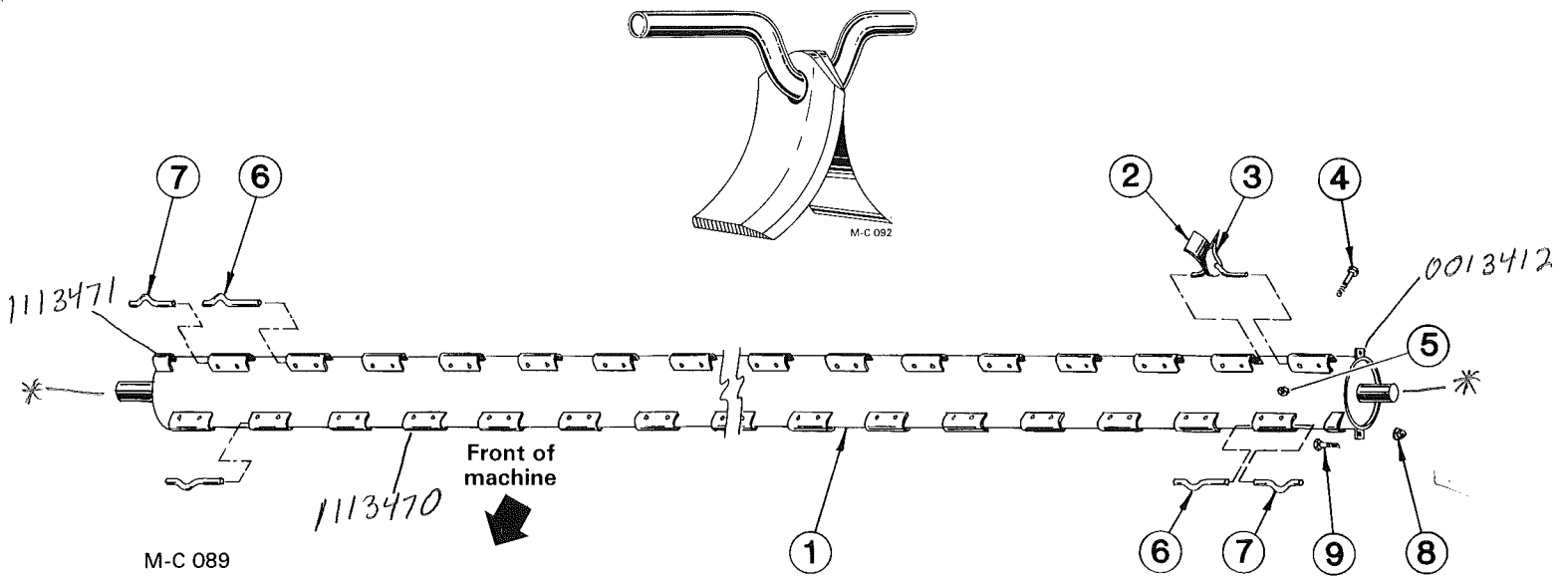
**Special Carriage Bolt Part No. 001 8131**  
( $\frac{3}{8}$ -16 x  $\frac{7}{8}$ " Grade 8)

**Special 2-Way Lock Nut Part No. 001 8149**

These special nuts and carriage bolts are used on knife styles 2 and 3. It is recommended that they be replaced whenever a wide knife or wide knife hanger is replaced.



## Rotor Assembly for Knife Style 1



**NOTE:** Heavy Duty Mower knife kits are shown on page 40.

\* 0015997 - JANL - Drive  
0015999 JANL Stub

### Model 7 HD

**Complete Assembly 081 1001**

(Consists of ref. 1 thru 7 in quantities shown)

Ref.	Part No.	Qty.	Description
1	081 0001	1	Balanced Rotor Weldment
2	110 5201	34	Right Slicer Knife
3	110 5200	34	Left Slicer Knife
4	001 8138	34	3/8-16 x 1 3/4" HHCS Grade 5
5	000 8205	34	3/8-16 Top Lock Flange Nut
6	110 5020	30	Knife Pin 3/4" OD x 7 1/2"
7	110 5021	4	Knife Pin 3/4" OD x 6 1/2"
8	000 8168	4	3/8-16 Whiz Nut
9	000 8125	4	3/8-16 x 1 1/2" Carriage Bolt

### Model 10 HD

**Complete Assembly 081 1003**

(Consists of ref. 1 thru 7 in quantities shown)

Ref.	Part No.	Qty.	Description
1	081 0002	1	Balanced Rotor Weldment
2	110 5201	50	Right Slicer Knife
3	110 5200	50	Left Slicer Knife
4	001 8138	50	3/8-16 x 1 3/4" HHCS Grade 5
5	001 8205	50	3/8-16 Top Lock Flange Nut
6	110 5020	46	Knife Pin 3/4" OD x 7 1/2"
7	110 5021	4	Knife Pin 3/4" OD x 6 1/2"
8	000 8168	4	3/8-16 Whiz Nut
9	000 8125	4	3/8-16 x 1 1/2" Carriage Bolt

### Model 8 HD

**Complete Assembly 081 1002**

(Consists of ref. 1 thru 6 in quantities shown)

Ref.	Part No.	Qty.	Description
1	081 0005	1	Balanced Rotor Weldment
2	110 5201	38	Right Slicer Knife
3	110 5200	38	Left Slicer Knife
4	001 8138	38	3/8-16 x 1 3/4" HHCS Grade 5
5	000 8205	38	3/8-16 Top Lock Flange Nut
6	110 5020	38	Knife Pin 3/4" OD x 7 1/2"
7	—————	——	Short Knife Pin Not Used
8	000 8168	4	3/8-16 Whiz Nut
9	000 8125	4	3/8-16 x 1 1/2" Carriage Bolt

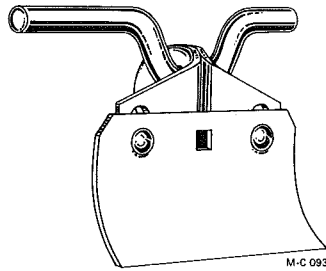
### Model 12 HD

**Complete Assembly 081 1004**

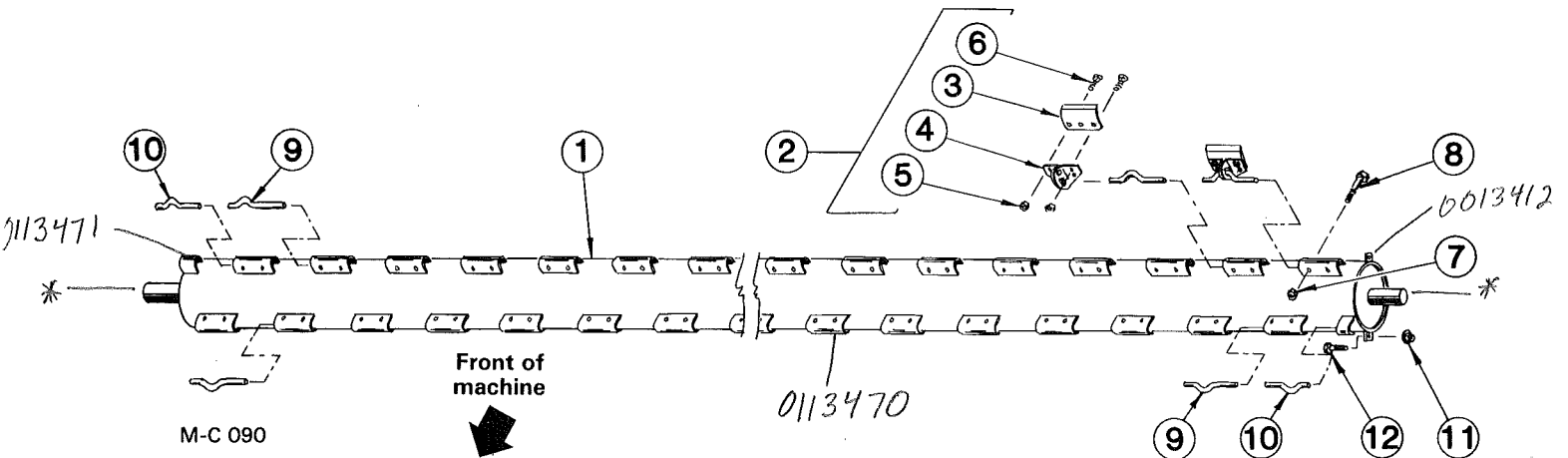
(Consists of ref. 1 thru 6 in quantities shown)

Ref.	Part No.	Qty.	Description
1	081 0006	1	Balanced Rotor Weldment
2	110 5201	58	Right Slicer Knife
3	110 5200	58	Left Slicer Knife
4	001 8138	58	3/8-16 x 1 3/4" HHCS Grade 5
5	001 8205	58	3/8-16 Top Lock Flange Nut
6	110 5020	58	Knife Pin 3/4" OD x 7 1/2"
7	—————	——	Short Knife Pin Not Used
8	00 8168	4	3/8-16 Whiz Nut
9	000 8125	4	3/8-16 x 1 1/2" Carriage Bolt

## Rotor Assembly for Knife Style 2



**NOTE:** If the Mower is equipped with a shredding screen, the knives must be bolted to the upper holes in the hangers so they will clear the screen.



**NOTE:** Heavy Duty Mower knife kits are shown on page 40.

\* 0015997 JRN Mach Drive  
\* 0015999 JRN Mach Stub

### Model 7 HD

#### Complete Assembly 081 1024

(Consists of ref. 1, 2 and 7 thru 10 in quantities shown)

Ref.	Part No.	Qty.	Description
1	081 0001	1	Balanced Rotor Weldment
2	081 1023	34	Wide Knife & Hanger Ass'y. (Consists of 1 ea. of ref. 3 & 4 and 2 ea. of ref. 5 & 6)
3	001 5208	34	(HD) Wide Knife
4	081 1022	34	Wide Knife Hanger Ass'y.
5	001 8149	68	3/8-16 Two Way Lock Nut
6	001 8131	68	3/8-16 x 7/8" Knife Carriage Bolt Grade 8 (special)
7	000 8205	34	3/8-16 Top Lock Flange Nut
8	001 8138	34	3/8-16 x 1 3/4" HHCS Grade 5
9	110 5020	30	Knife Pin 3/4" OD x 7 1/2"
10	110 5021	4	Knife Pin 3/4" OD x 6 1/2"
11	000 8168	4	3/8-16 Whiz Nut
12	000 8125	4	3/8-16 x 1 1/2" Carriage Bolt

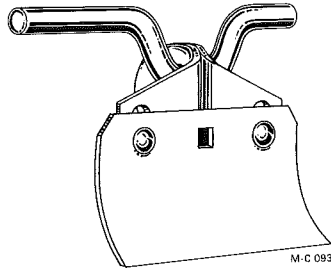
### Model 8 HD

#### Complete Assembly 081 1025

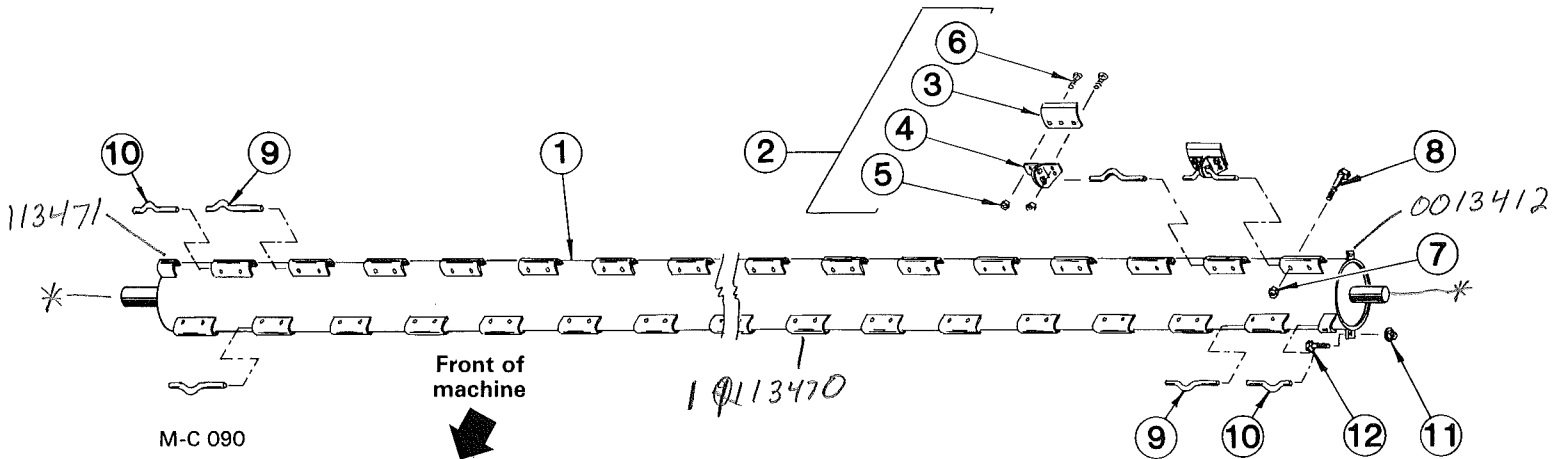
(Consists of ref. 1, 2 and 7 thru 9 in quantities shown)

Ref.	Part No.	Qty.	Description
1	081 0005	1	Balanced Rotor Weldment
2	081 1023	38	Wide Knife & Hanger Ass'y. (Consists of 1 ea. of ref. 3 & 4 and 2 ea. of ref. 5 & 6)
3	001 5208	38	(HD) Wide Knife
4	081 1022	38	Wide Knife Hanger Ass'y.
5	001 8149	76	3/8-16 Two Way Lock Nut
6	001 8131	76	3/8-16 x 7/8" Knife Carriage Bolt Grade 8 (special)
7	000 8205	38	3/8-16 Top Lock Flange Nut
8	001 8138	38	3/8-16 x 1 3/4" HHCS Grade 5
9	110 5020	38	Knife Pin 3/4" OD x 7 1/2"
10	————	————	Short Knife Pin Not Used
11	000 8168	4	3/8-16 Whiz Nut
12	000 8125	4	3/8-16 x 1 1/2" Carriage Bolt

## Rotor Assembly for Knife Style 2



**NOTE:** If the Mower is equipped with a shredding screen, the knives must be bolted to the upper holes in the hangers so they will clear the screen.



**NOTE:** Heavy Duty Mower knife kits are shown on page 40.

\* 0015997 JANI Mach Drive  
0015999 JANI Mach Stub

### Model 10 HD

#### Complete Assembly 081 1026

(Consists of ref. 1, 2, and 7 thru 10 in quantities shown)

Ref.	Part No.	Qty.	Description
1	081 0002	1	Balanced Rotor Weldment
2	081 1023	50	Wide Knife & Hanger Ass'y. (Consists of 1 ea. of ref. 3 & 4 and 2 ea. of ref. 5 & 6)
3	001 5208	50	(HD) Wide Knife
4	081 1022	50	Wide Knife Hanger Ass'y.
5	001 8149	100	$\frac{3}{8}$ -16 Two Way Lock Nut
6	001 8131	100	$\frac{3}{8}$ -16 x $\frac{7}{8}$ " Knife Carriage Bolt Grade 8 (special)
7	000 8205	50	$\frac{3}{8}$ -16 Top Lock Flange Nut
8	001 8138	50	$\frac{3}{8}$ -16 x $1\frac{3}{4}$ " HHCS Grade 5
9	110 5020	46	Knife Pin $\frac{3}{4}$ " OD x $7\frac{1}{2}$ "
10	110 5021	4	Knife Pin $\frac{3}{4}$ " OD x $6\frac{1}{2}$ "
11	000 8168	4	$\frac{3}{8}$ -16 Whiz Nut
12	000 8125	4	$\frac{3}{8}$ -16 x $1\frac{1}{2}$ " Carriage Bolt

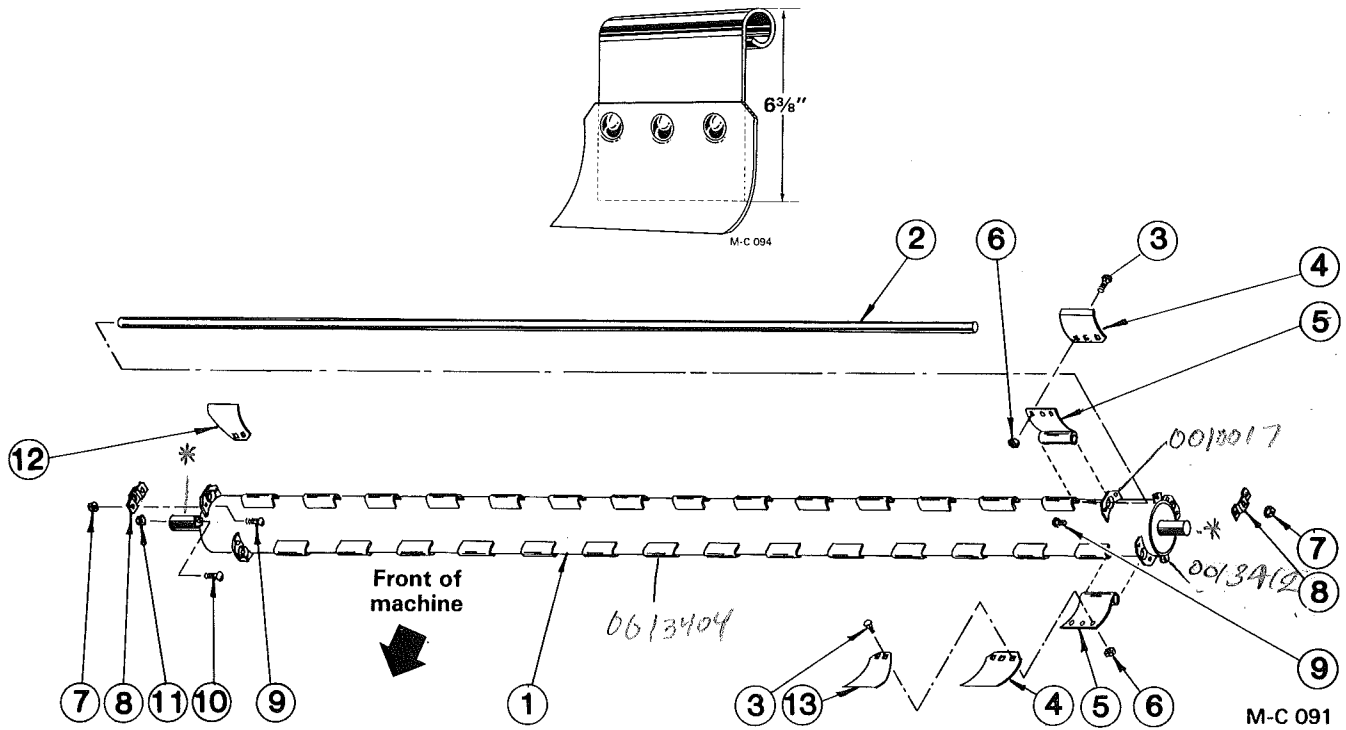
### Model 12 HD

#### Complete Assembly 081 1027

(Consists of ref. 1, 2 and 7 thru 9 in quantities shown)

Ref.	Part No.	Qty.	Description
1	081 0006	1	Balanced Rotor Weldment
2	081 1023	58	Wide Knife & Hanger Ass'y. (Consists of 1 ea. of ref. 3 & 4 and 2 ea. of ref. 5 & 6)
3	001 5208	58	(HD) Wide Knife
4	081 1022	58	Wide Knife Hanger Ass'y.
5	001 8149	116	$\frac{3}{8}$ -16 Two Way Lock Nut
6	001 8131	116	$\frac{3}{8}$ -16 x $\frac{7}{8}$ " Knife Carriage Bolt Grade 8 (special)
7	000 8205	58	$\frac{3}{8}$ -16 Top Lock Flange Nut
8	001 8138	58	$\frac{3}{8}$ -16 x $1\frac{3}{4}$ " HHCS Grade 5
9	110 5020	58	Knife Pin $\frac{3}{4}$ " OD x $7\frac{1}{2}$ "
10	————	——	Short Knife Pin Not Used
11	000 8168	4	$\frac{3}{8}$ -16 Whiz Nut
12	000 8125	4	$\frac{3}{8}$ -16 x $1\frac{1}{2}$ " Carriage Bolt

## Rotor Assembly for Knife Style 3



\* Drive - 0015997  
Stub - 0015999

**NOTE:** Heavy Duty Mower knife kits are shown on page 40.

### Model 7 HD

#### Complete Assembly 091 1037

(Consists of ref. 1 thru 9 in quantities shown. End knives, ref. 12 & 13, must be ordered separately).

Ref.	Part No.	Qty.	Description
1	001 0005	1	Balanced Rotor Weldment
2	091 8995	4	Rotor Hanger Bar 15/16" OD x 76"
3	001 8131	84	3/8-16 x 7/8" Knife Carriage Bolt Grade 8 (special)
4	001 5208	28	(HD) Wide Knife
5	001 5205	28	Wide Knife Hanger
6	001 8149	84	3/8-16 Two Way Lock Nut
7	000 8168	16	3/8-16 Flanged Whiz Lock Nut
8	001 2000	8	End Locator Bracket
9	000 8134	16	3/8-16 x 3/4" Truss Head Screw
10	000 8125	4	3/8-16 x 1 1/2" Carriage Bolt
11	000 8168	4	3/8-16 Flanged Whiz Lock Nut
12	001 5207	2	End Knife - Right
13	001 5206	2	End Knife - Left

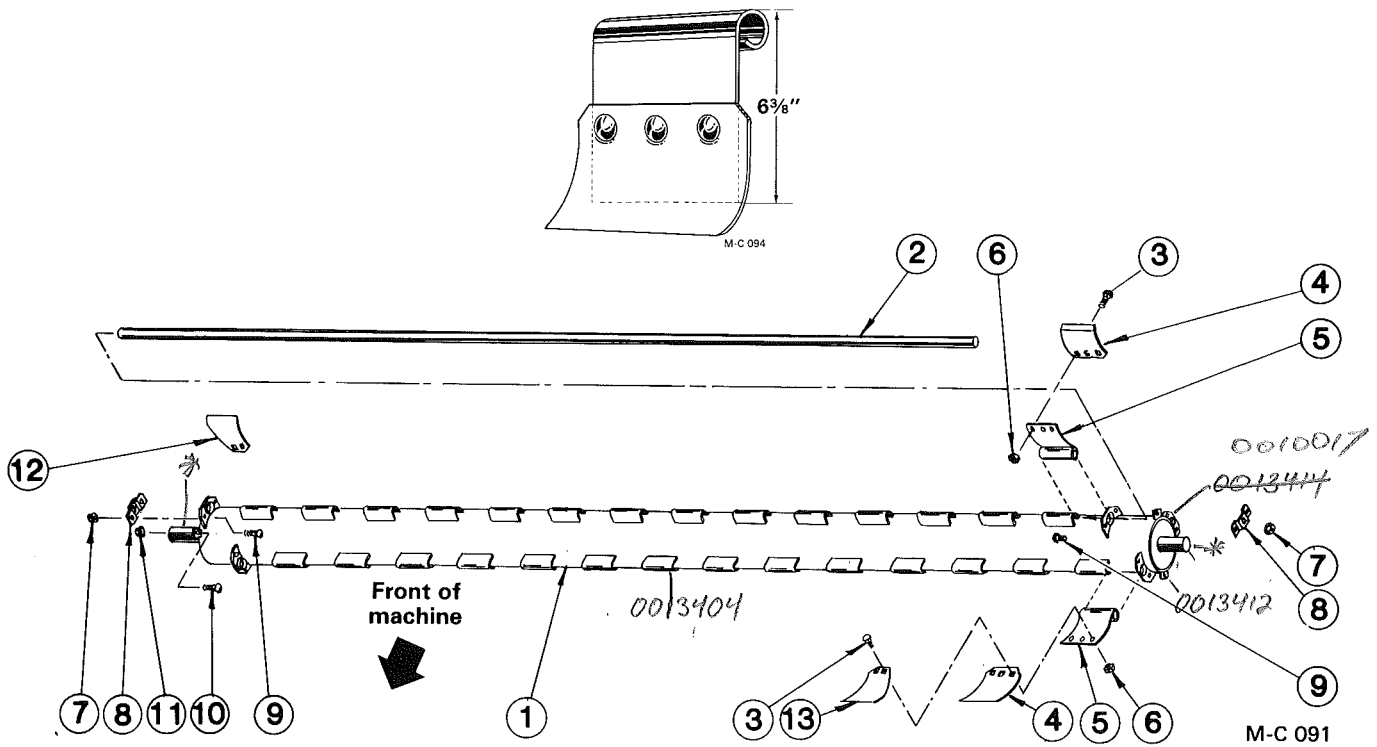
### Model 8 HD

#### Complete Assembly 001 1009

(Consists of ref. 1 thru 9 in quantities shown. End knives, ref. 12 & 13, must be ordered separately).

Ref.	Part No.	Qty.	Description
1	001 0023	1	Balanced Rotor Weldment
2	111 8991	4	Rotor Hanger Bar 15/16" OD x 90"
3	001 8131	96	3/8-16 x 7/8" Knife Carriage Bolt Grade 8 (special)
4	001 5208	32	(HD) Wide Knife
5	001 5205	32	Wide Knife Hanger
6	001 8149	96	3/8-16 Two Way Lock Nut
7	000 8168	16	3/8-16 Flanged Whiz Lock Nut
8	001 2000	8	End Locator Bracket
9	000 8134	16	3/8-16 x 3/4" Truss Head Screw
10	000 8125	4	3/8-16 x 1 1/2" Carriage Bolt
11	000 8168	4	3/8-16 Flanged Whiz Lock Nut
12	001 5212	2	End Knife - Right
13	001 5211	2	End Knife - Left

## Rotor Assembly for Knife Style 3



\* Drive - 0015997  
 stub 0015999

**NOTE:** Heavy Duty Mower knife kits are shown on page 40.

### Model 10 HD

#### Complete Assembly 001 1010

(Consists of ref. 1 thru 9 in quantities shown. End knives, ref. 12 & 13, must be ordered separately).

Ref.	Part No.	Qty.	Description
1	001 0022	1	Balanced Rotor Weldment
2	111 8990	4	Rotor Hanger Bar 15/16" OD x 114"
3	001 8131	120	3/8-16 x 7/8" Knife Carriage Bolt Grade 8 (special)
4	001 5208	40	(HD) Wide Knife
5	001 5205	40	Wide Knife Hanger
6	001 8149	120	3/8-16 Two Way Lock Nut
7	000 8168	16	3/8-16 Flanged Whiz Lock Nut
8	001 2000	8	End Locator Bracket
9	000 8134	16	3/8-16 x 1 3/4" Truss Head Screw
10	000 8125	4	3/8-16 x 1 1/2" Carriage Bolt
11	000 8168	4	3/8-16 Flanged Whiz Lock Nut
12	001 5212	2	End Knife - Right
13	001 5211	2	End Knife - Left

### Model 12 HD

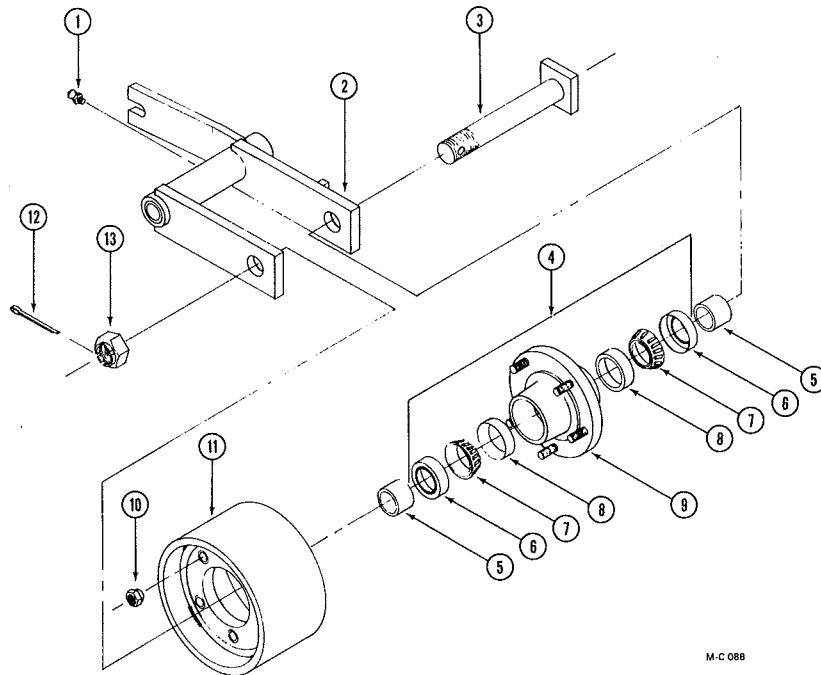
#### Complete Assembly 091 1073

(Consists of ref. 1 thru 9 in quantities shown. End knives, ref. 12 & 13, must be ordered separately).

Ref.	Part No.	Qty.	Description
1	001 0018	1	Balanced Rotor Weldment
2	001 8975	4	Rotor Hanger Bar 15/16" OD x 134 1/2"
3	001 8131	144	3/8-16 x 7/8" Knife Carriage Bolt Grade 8 (special)
4	001 5208	48	(HD) Wide Knife
5	001 5205	48	Wide Knife Hanger
6	001 8149	144	3/8-16 Two Way Lock Nut
7	000 8168	16	3/8-16 Flanged Whiz Lock Nut
8	001 2000	8	End Locator Bracket
9	000 8134	16	3/8-16 x 1 3/4" Truss Head Screw
10	000 8125	4	3/8-16 x 1 1/2" Carriage Bolt
11	000 8168	4	3/8-16 Flanged Whiz Lock Nut
12	001 5212	2	End Knife - Right
13	001 5211	2	End Knife - Left

## Idler Assembly 081 1031

(Includes ref. 1 thru 5 and 10 thru 13)

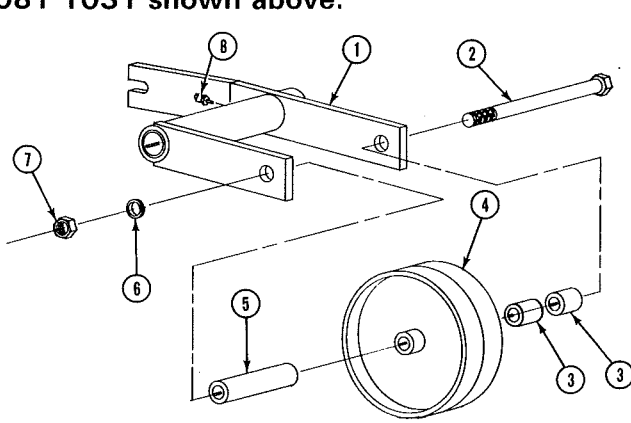


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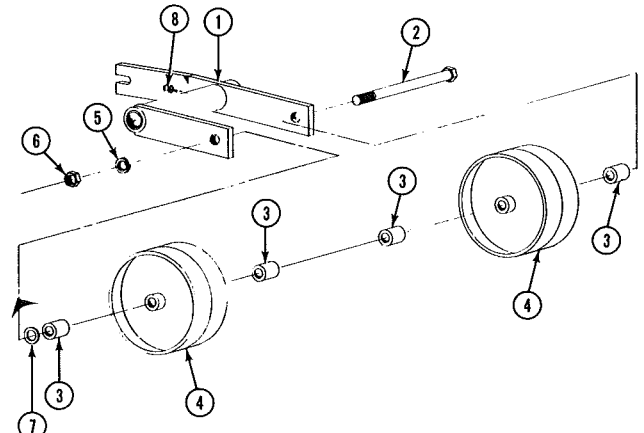
Ref.	Part No.	Qty.	Description	Ref.	Part No.	Qty.	Description
1	132 8990	1	Straight Drive-in Zerk	7	112 6002	2	Bearing Cone 1 3/8"
2	081 1032	1	Idler Arm w/Bushings	8	112 6001	2	Bearing Cup 1 3/8"
3	111 0145	1	Idler Bolt 1 3/8"-12 x 7 1/2"	9	112 8999	1	5 Bolt Hub (Includes 2 of ref. 8 & 5 bolts)
4	111 8986	1	Hub Ass'y. (Includes ref. 6 thru 9 in quantities shown)	10	001 8989	5	Lug Nut 1/2-20 (90°)
5	081 5603	2	Idler Hub Spacer	11	111 5710	1	Idler Pulley
6	112 6000	2	Bearing Seal 1 3/8"	12	000 8255	1	Cotter Pin 1/4" x 2"
				13	111 8252	1	Castellated Nut 1 3/8-12

### Obsolete Idler Assemblies

**NOTE:** Parts for idler assemblies shown below are no longer available. Order complete assembly 081 1031 shown above.

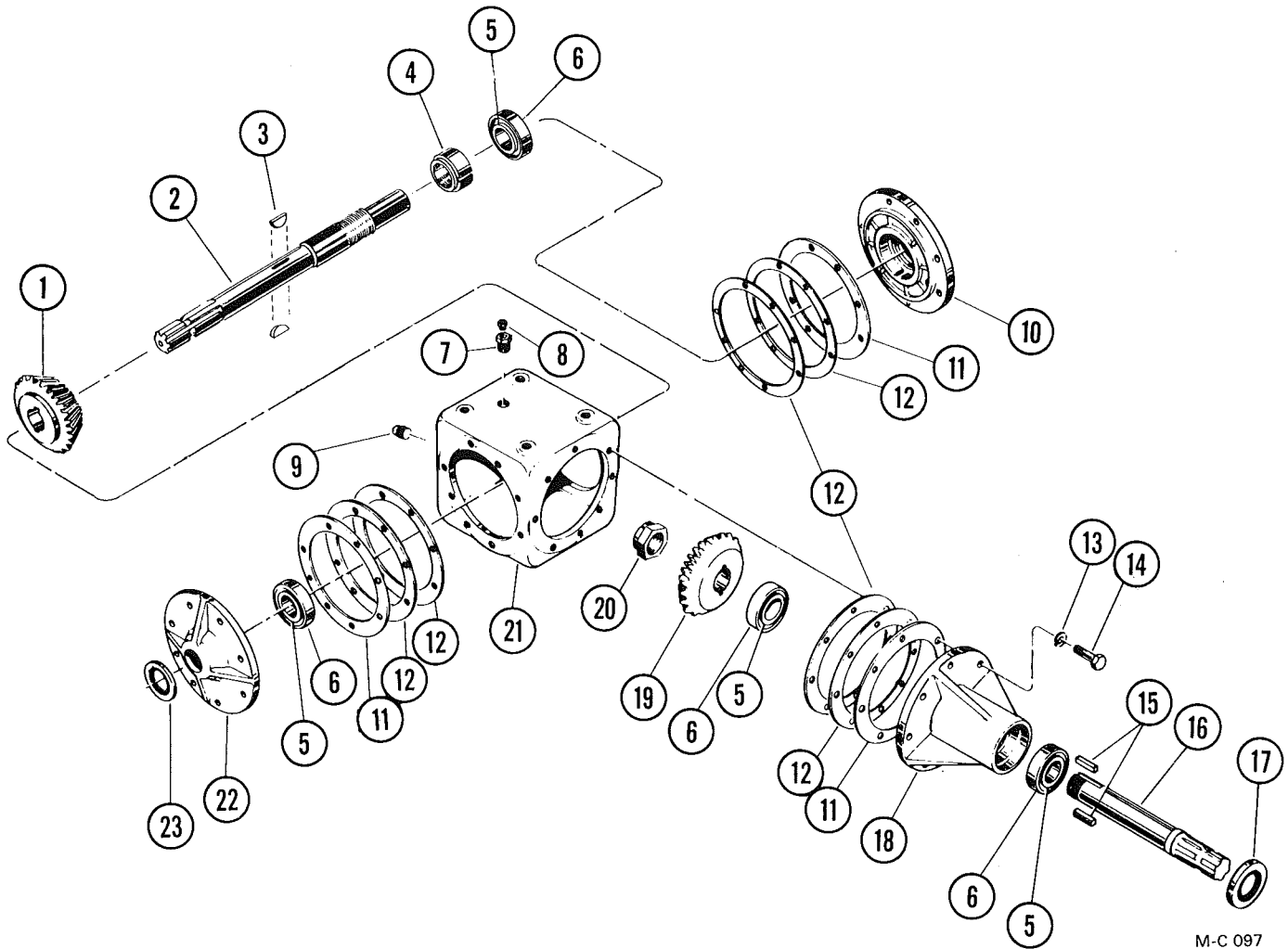


**Model 7 HD and 8 HD**



**Model 10 HD and 12 HD**

## Gear Box Assembly 081 6600

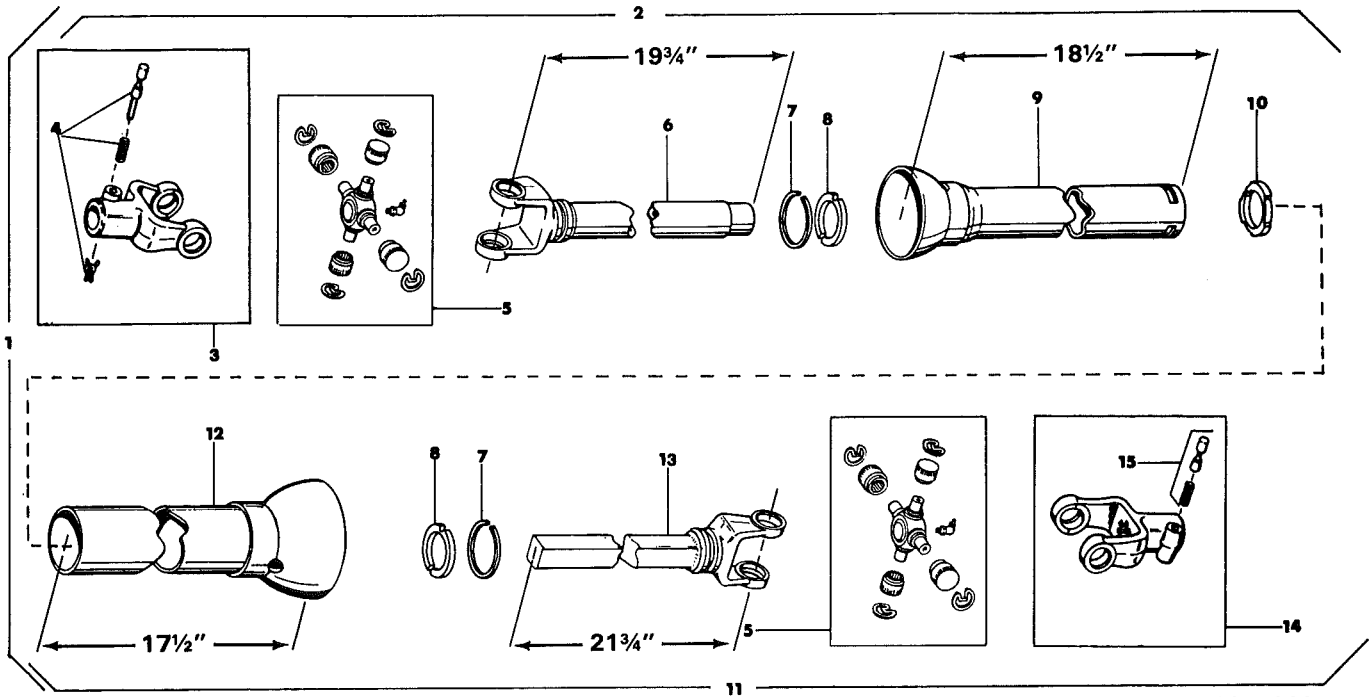


M-C 097

Ref.	Part No.	Qty.	Description	Ref.	Part No.	Qty.	Description
1	082 6610	1	Output Bevel Gear -23T	14	131 8163	24	Hex Head Capscrew 1/2-13 x 1 1/4" Grade 5 w/NY-Patch
2	082 6611	1	Output Shaft	15	001 8969	2	Key 3/8" x 3/8" x 1 3/8"(hard)
3	--- 7626	2	Woodruff Key 3/8" x 1 1/4" (hard)	16	002 6638	1	Input Shaft
4	112 8252	1	Output Shaft Stake Nut	17	002 6639	1	Input Shaft Seal
5	002 6011	4	Bearing Cone	18	002 7656	1	Hub (incl. 2 of ref. 6)
6	002 6010	4	Bearing Cup	19	082 6609	1	Input Bevel Gear - 17T
7	002 6678	1	Bushing 3/8" - 1/8" NPT	20	002 6668	1	Input Shaft Stake Nut
8	002 6677	1	Gear Box Vent	21	082 6607	1	Gear Box Housing
9	002 7500	1	Oil Level Plug 3/8-18 NPT	22	002 7657	1	Gear Box Cover - Output (incl. 1 of ref. 6 & 1 of ref. 23)
10	082 6608	1	Gear Box Cover - Solid (incl. 1 of ref. 6)	23	002 6667	1	Output Shaft Seal
11	092 6609	3	Gasket 1/32" Thick	Not Shown	122 8001	1	Drain Plug 3/8-18 NPT
12	002 6636	†	Shim .005"				
13	000 8180	24	Lockwasher 1/2"				

† As Required

## 540 RPM Power Take-Off Shaft for 3 Point Hitch Models

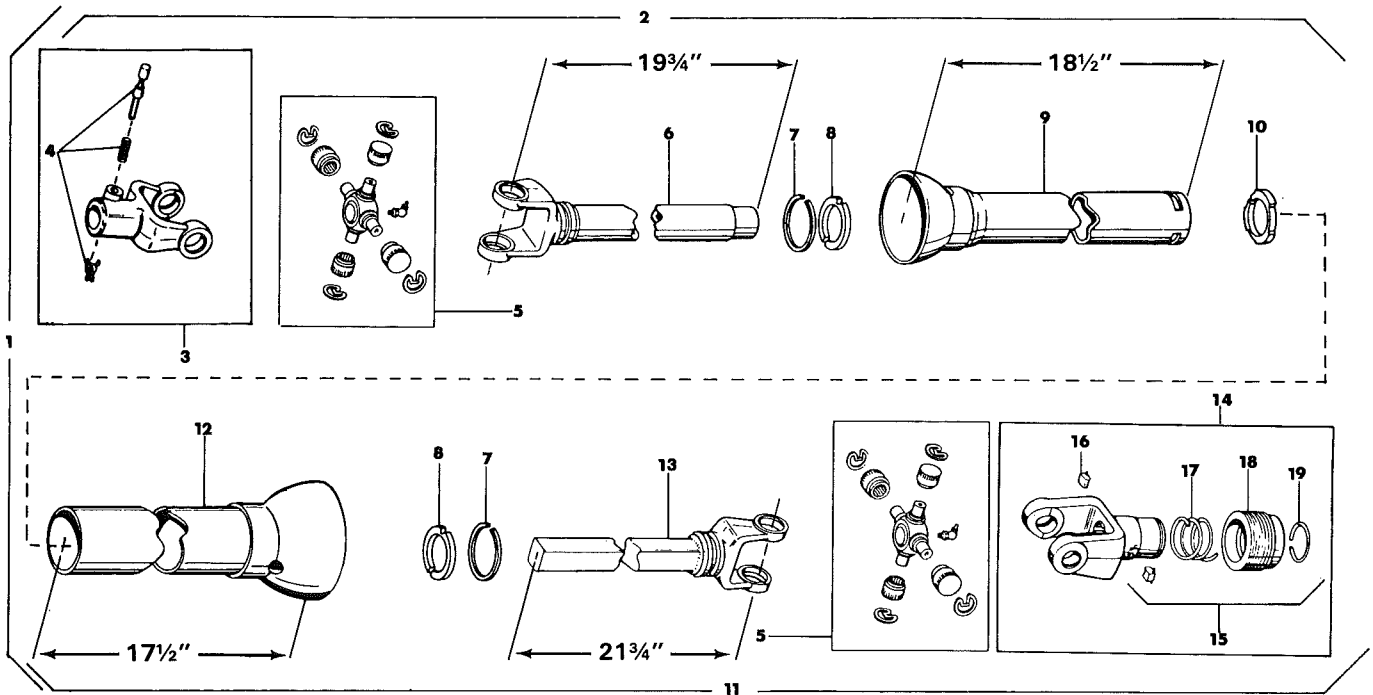


M-C 099

Ref.	Part No.	Qty.	Description
1	081 6602	1	PTO Shaft Complete
2	082 6600	1	PTO Shaft (Mower Half)
3	002 6686	1	Q.D. Yoke Ass'y. 1 3/4"-6B Spline
4	002 6684	1	Saf-T-Pin, Spring "x" Washer
5	002 6633	2	Universal Joint Repair Kit
6	082 6601	1	Yoke & Tube
7	002 8250	2	Nylon Bearing Retainer
8	002 6634	2	Nylon Bearing
9	082 6602	1	Male Guard Tube
10	002 6613	1	Nylon Centralizer
11	082 6603	1	PTO Shaft (Tractor Half)
12	082 6605	1	Female Guard Tube
13	082 6606	1	Yoke & Shaft
14	002 6656	1	Q.D. Yoke Ass'y 1 3/8"-6B Spline
15	002 6629	1	Saf-T-Pin & Spring Kit
—	001 8317	1	Danger - Rotating Drive Line-Decal



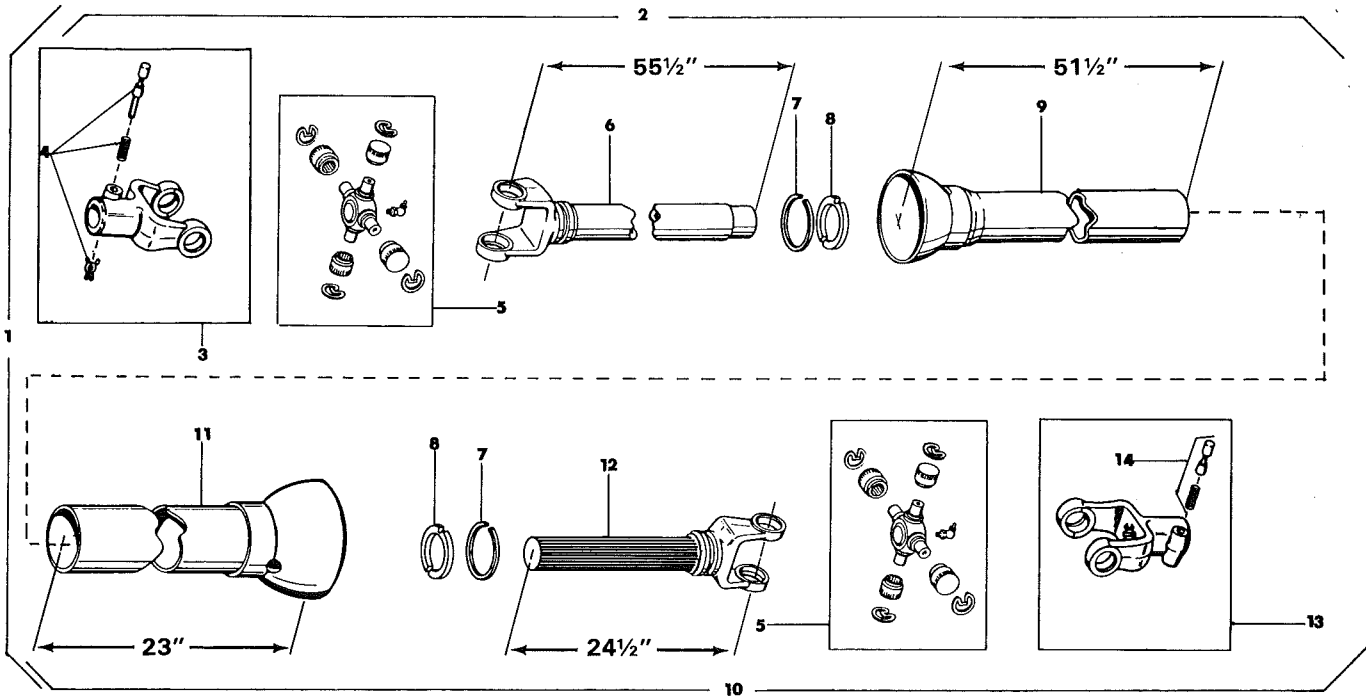
## 1000 RPM Power Take-Off Shaft for 3 Point Hitch Models



M-C 100

Ref.	Part No.	Qty.	Description
1	081 6603	1	PTO Shaft Complete
2	082 6600	1	PTO Shaft (Mower Half)
3	002 6686	1	Q.D. Yoke Ass'y. 1 $\frac{3}{4}$ "-6B Spline
4	002 6684	1	Saf-T Pin, Spring "x" Washer
5	002 6633	2	Universal Joint Repair Kit
6	082 6601	1	Yoke & Tube
7	002 8250	2	Nylon Bearing Retainer
8	002 6634	2	Nylon Bearing
9	082 6602	1	Male Guard Tube
10	002 6613	1	Nylon Centralizer
11	082 6604	1	PTO Shaft (Tractor Half)
12	082 6605	1	Female Guard Tube
13	082 6606	1	Yoke & Shaft
14	002 6674	1	Slide Lock Yoke Ass'y. 1 $\frac{3}{8}$ "-21 Spline
15	082 6612	1	Slide Lock Repair Kit
16	002 6632	2	Slide Lock Pawl
17	002 6630	1	Slide Lock Spring
18	002 6631	1	Slide Lock Collar
19	002 6655	1	Slide Lock Retaining Ring
—	001 8317	1	Danger - Rotating Drive Line-Decal

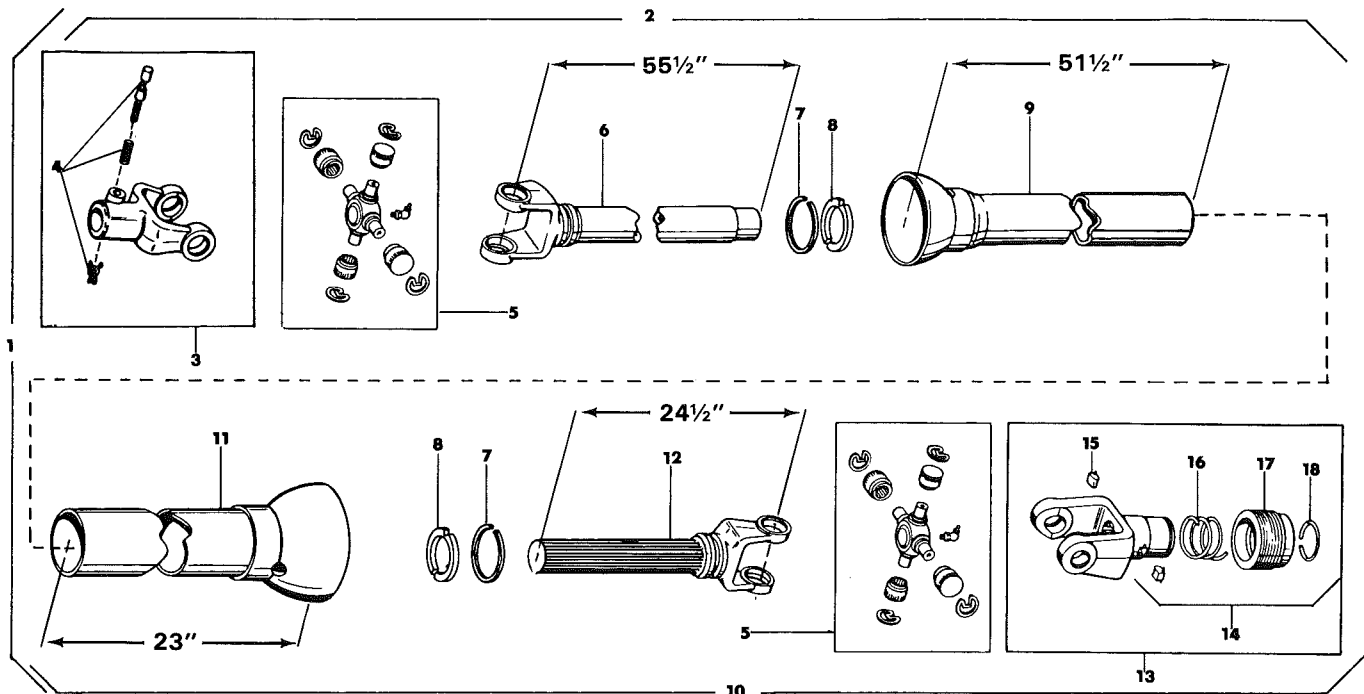
## 540 RPM Power Take-Off Shaft for Pull Type Models



M-C 101

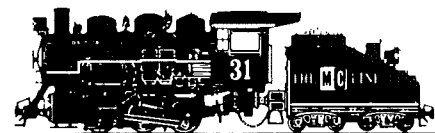
Ref.	Part No.	Qty.	Description
1	081 6604	1	PTO Shaft Complete
2	082 6613	1	PTO Shaft (Mower Half)
3	002 6686	1	Q.D. Yoke Ass'y. 1 3/4"-6B Spline
4	002 6684	1	Saf-T-Pin, Spring "x" Washer
5	002 6633	2	Universal Joint Repair Kit
6	082 6618	1	Yoke & Tube
7	092 6692	2	Nylon Bearing Retainer
8	092 6693	2	Nylon Bearing
9	082 6614	1	Male Guard Tube
10	082 6615	1	PTO Shaft (Tractor Half)
11	082 6616	1	Female Guard Tube
12	082 6617	1	Yoke & Shaft
13	002 6656	1	Q.D. Yoke Ass'y. 1 3/8"-6B Spline
14	002 6629	1	Saf-T-Pin & Spring Kit
—	001 8317	1	Danger - Rotating Drive Line-Decal

## 1000 RPM Power Take-Off Shaft for Pull Type Models



M-C 102

Ref.	Part No.	Qty.	Description
1	081 6605	1	PTO Shaft Complete
2	082 6613	1	PTO Shaft (Mower Half)
3	002 6686	1	Q.D. Yoke Ass'y. 1 <sup>3</sup> / <sub>4</sub> "-6B Spline
4	002 6684	1	Saf-T-Pin, Spring "x" Washer
5	002 6633	2	Universal Joint Repair Kit
6	082 6618	1	Yoke & Tube
7	092 6692	2	Nylon Bearing Retainer
8	092 6693	2	Nylon Bearing
9	082 6614	1	Male Guard Tube
10	082 6615	1	PTO Shaft (Tractor Half)
11	082 6616	1	Female Guard Tube
12	082 6617	1	Yoke & Shaft
13	002 6674	1	Slide Lock Yoke Ass'y. 1 <sup>3</sup> / <sub>8</sub> "-21 Spline
14	082 6612	1	Slide Lock Repair Kit
15	002 6632	2	Slide Lock Pawl
16	002 6630	1	Slide Lock Spring
17	002 6631	1	Slide Lock Collar
18	002 6655	1	Slide Lock Retaining Ring
—	001 8317	1	Danger - Rotating Drive Line-Decal



*Iron Horse Quality*