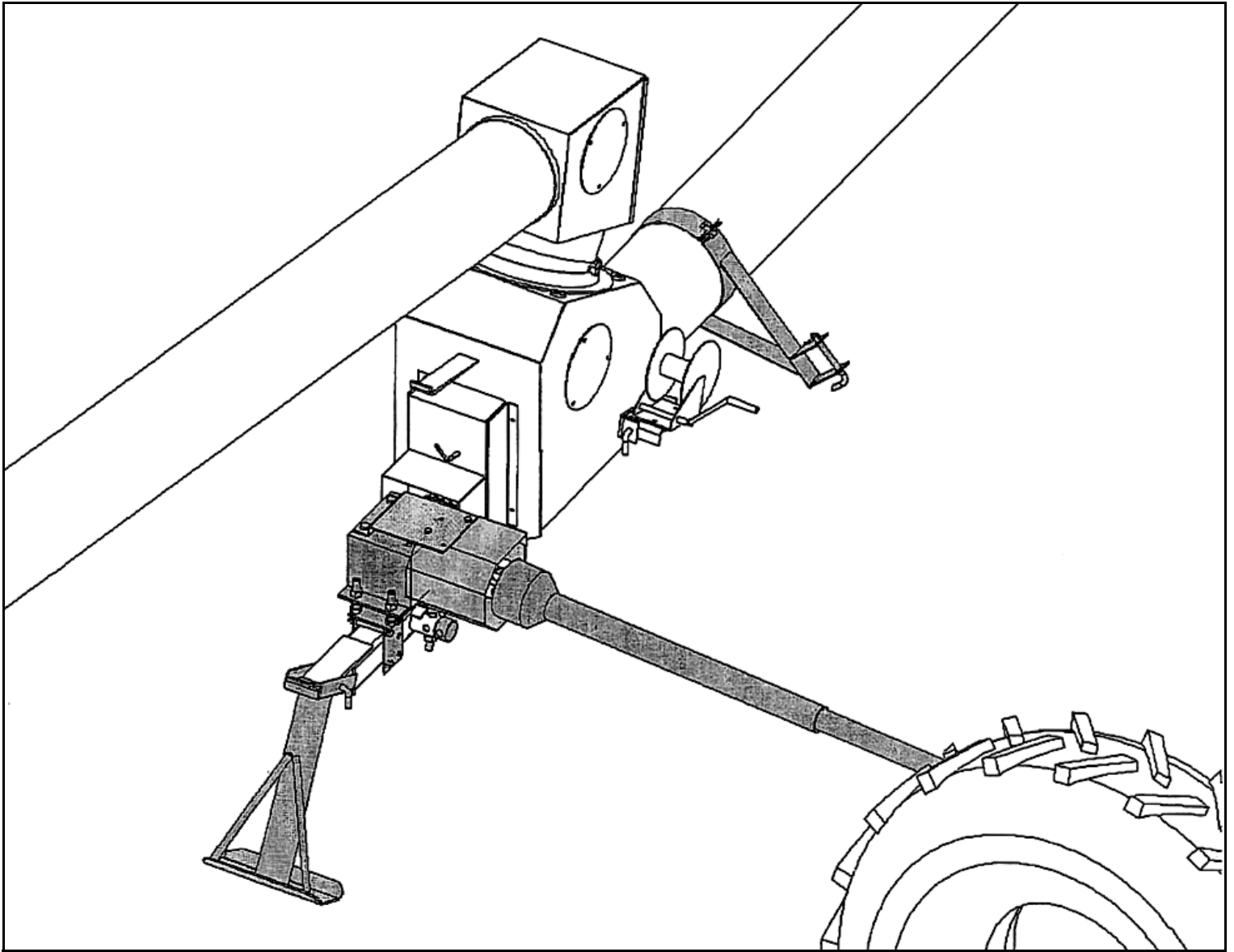




## MK RIGHT ANGLE DRIVE KIT

ALL MODELS

ASSEMBLY & OPERATION MANUAL



Read this manual before using product. Failure to follow instructions and safety precautions can result in serious injury, death, or property damage. Keep manual for future reference.

Part Number: 30456 R1

Revised: 10/5/11

This product has been designed and constructed according to general engineering standards<sup>a</sup>. Other local regulations may apply and must be followed by the operator. We strongly recommend that all personnel associated with this equipment be trained in the correct operational and safety procedures required for this product. Periodic reviews of this manual with all employees should be standard practice. For your convenience, we include this sign-off sheet so you can record your periodic reviews.

<b>Date</b>	<b>Employee Signature</b>	<b>Employer Signature</b>

a. Standards include organizations such as the American Society of Agricultural and Biological Engineers, American National Standards Institute, Canadian Standards Association, International Organization for Standardization, and/or others.

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# 1. Safety First



The Safety Alert symbol to the left identifies important safety messages on the product and in the manual. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety messages. Why is SAFETY important to you?

Three big reasons:

- Accidents disable and kill.
- Accidents cost.
- Accidents can be avoided.

## SIGNAL WORDS

Note the use of the signal words **DANGER**, **WARNING**, **CAUTION**, and **NOTICE** with the safety messages. The appropriate signal word for each message has been selected using the definitions below as a guideline.

The Safety Alert symbol means: "ATTENTION, BE ALERT! YOUR SAFETY IS INVOLVED".

### DANGER



Indicates an imminently hazardous situation that, if not avoided, will result in serious injury or death.

### WARNING



Indicates a hazardous situation that, if not avoided, could result in serious injury or death.

### CAUTION



Indicates a hazardous situation that, if not avoided, may result in minor or moderate injury.

### NOTICE

Indicates a potentially hazardous situation that, if not avoided, may result in property damage.

## 1.1. GENERAL SAFETY

**Important:** *The general safety section includes instructions that apply to all safety practices. Any instructions specific to a certain safety practice (e.g., assembly safety), can be found in the appropriate section. Always read the complete instructional sections and not just these safety summaries before doing anything with the equipment.*

**YOU** are responsible for the **SAFE** use and maintenance of your equipment. **YOU** must ensure that you and anyone else who is going to work around the equipment understands all procedures and related **SAFETY** information contained in this manual.

Remember, **YOU** are the key to safety. Good safety practices not only protect you, but also the people around you. Make these practices a working part of your safety program.

- It is the equipment owner and the operator's responsibility to read and understand **ALL** safety instructions, safety decals, and manuals and follow them before assembling, operating, or maintaining the equipment. All accidents can be avoided.
- Equipment owners must give instructions and review the information initially and annually with all personnel before allowing them to operate this product. Untrained users/operators expose themselves and bystanders to possible serious injury or death.
- Use this equipment for its intended purposes only.
- Do not modify the equipment in any way. Unauthorized modification may impair the function and/or safety, and could affect the life of the equipment. Any modification to the equipment voids the warranty.
- Do not allow children, spectators, or bystanders within the work area.
- Have a first-aid kit available for use should the need arise, and know how to use it.
- Provide a fire extinguisher for use in case of an accident. Store in a highly visible place.
- Wear appropriate protective gear. This list includes, but is not limited to:
  - a hard hat
  - gloves
  - protective shoes with slip-resistant soles
  - protective goggles
  - hearing protection
  - dust mask or respirator
- For Powered Equipment: before servicing, adjusting, or repairing powered equipment, unplug, place all controls in neutral or off position, stop the engine or motor, remove ignition key or lock out power source, and wait for all moving parts to stop.



- Follow good shop practices:
  - keep service area clean and dry
  - be sure electrical outlets and tools are properly grounded
  - use adequate light for the job at hand
  - Think SAFETY! Work SAFELY!



Refer to the MK manual for full safety instructions. Also, note the revised work area shown in Figure 1.1. Keep all children and untrained personnel away from the work area.

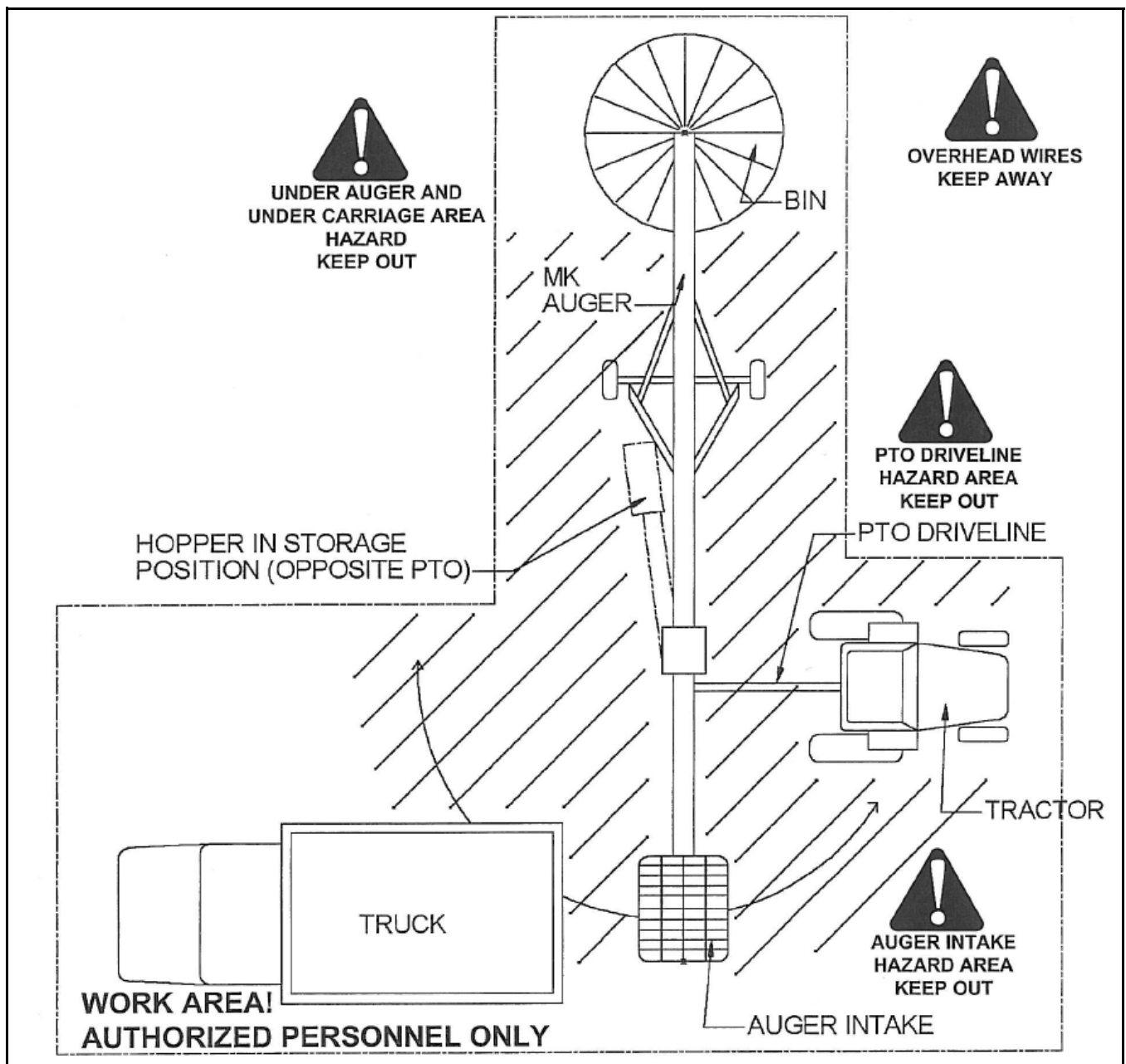


Figure 1.1

**Note:** *The MK Right Angle Drive Kit is pre-assembled so the tractor is positioned on the right side of the auger intake and the hopper on the left side (as determined by standing at the auger intake and facing the discharge end). If you would like a left side drive, refer to Section of this manual as you follow the assembly instructions.*



# 2. Assembly

**Warning:** Before continuing, please read the safety information relevant to this section in the safety section of this manual. Failure to follow the safety instructions can result in serious injury, death, or property damage.

Before starting assembly familiarize yourself with all the required hardware. Arrange all parts for easy access.

➔ If assembly information for a particular set-up varies, additional instructions are indicated by an arrow at the side of the text.

**Note:** *The MK Right Angle Drive Kit will not work with the MK Reverser Kit.*

## 2.1. PRE-ASSEMBLY

To prepare auger for kit installation:

1. Park auger on level ground. Lower auger to full down position.
2. Chock auger wheels to prevent rolling.
3. Relieve pressure in hydraulic hose(s) and disconnect them from tractor.
4. Position the hitch jack to support auger intake, then unhook tractor from auger.
5. Install support leg as shown in Figure 2.1.

**Note:** *The pin must be placed through the auger hitch clevis.*

**Important:** *Do not use support leg without pin in place!*

6. Remove hitch jack.
7. Remove sprocket guard from boot.
8. Remove CV-PTO Driveline from auger. When removing roll pin, PROTECT YOUR EYES.

➔ 9. **MK130 ONLY:** Install jack extension with jack extension bolt and 5/8" locknut provided as shown in Figure 2.1 (inset). Tighten securely.

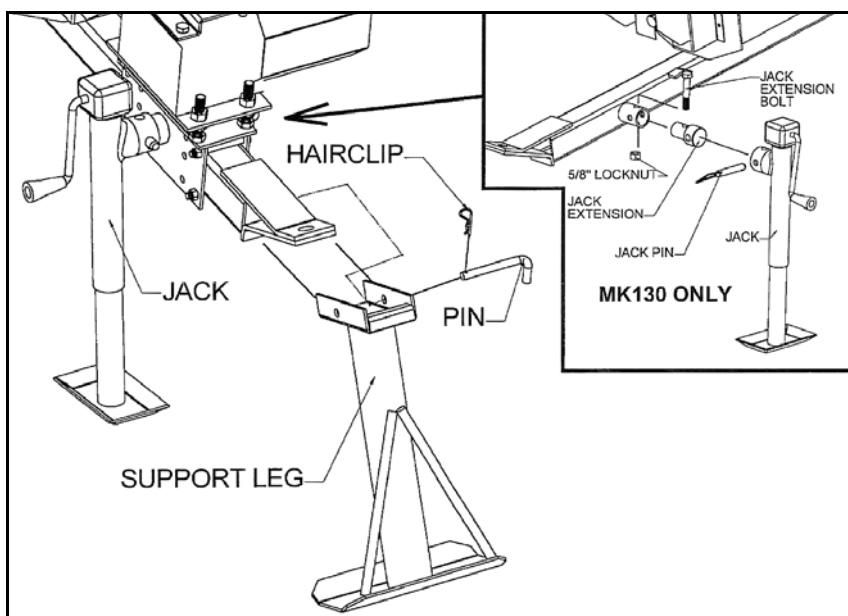


Figure 2.1

## 2.2. GEARBOX

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**Note:** *The gearbox is sent from the factory filled halfway with EP90 oil. Before further assembly, check oil level to make certain the gearbox is half full. Add oil if necessary. Do not use grease.*

1. If necessary, adjust bottom drive chain to about 1/4" (0.64 cm) deflection by loosening the 4 bolts on the lower bearing, then retighten. (Oil the drive chain as required.)
2. Remove coupler chain from coupler sprockets as shown in Figure 2.2
3. Slide coupler sprocket onto end of flight shaft with existing square key. Place outside face of sprocket flush with end of shaft, then tighten set screws.
4. Position the gearbox mount assembly over intake hitch tube straddling the jack mount tube.
5. Position the jack mount below the intake hitch tube, as shown. Loosely install bolts and locknuts through mount in the appropriate locations and numbers as shown in the inset in Figure 2.2. Do not tighten these bolts until step 9.
  - ➔ • For the MK80, use two 7/16" x 4-1/2" bolts and locknuts.
  - For the MK100, use four 7/16" x 4" bolts and locknuts in upper holes  
For the MK100, use four 7/16" x 4-1/2" bolts and locknuts in lower holes.
  - For the MK130, use two 5/8" x 6-1/2" bolts and locknuts.
6. Loosen the bolts securing gearbox to adjust plate.
7. Loosen the 5/8" adjust nuts.
- ➔ 8. Align the coupler sprockets by adjusting gearbox vertically and horizontally. Leave about 1/16" clearance between the sprockets on the MK80/100, and 3/8" clearance between sprockets on the MK130.
9. Tighten bolts and locknuts holding gearbox mount assembly to intake hitch tube.
10. Recheck the coupler sprocket alignment and make further adjustments if needed.
11. Tighten all gearbox and adjust plate bolts and nuts; also tighten set screws on the sprockets.
12. Install the coupler chain on coupler sprockets and replace the sprocket guard.

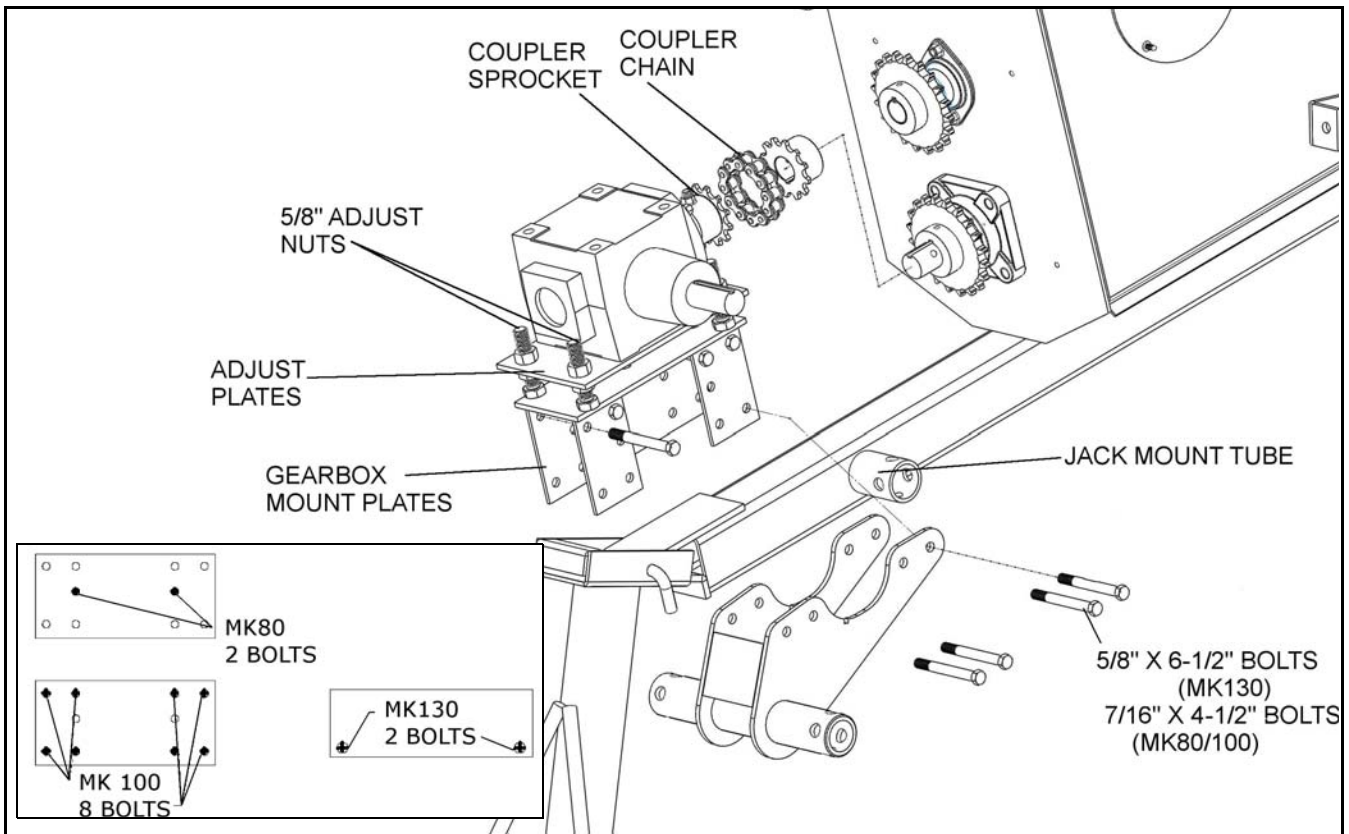
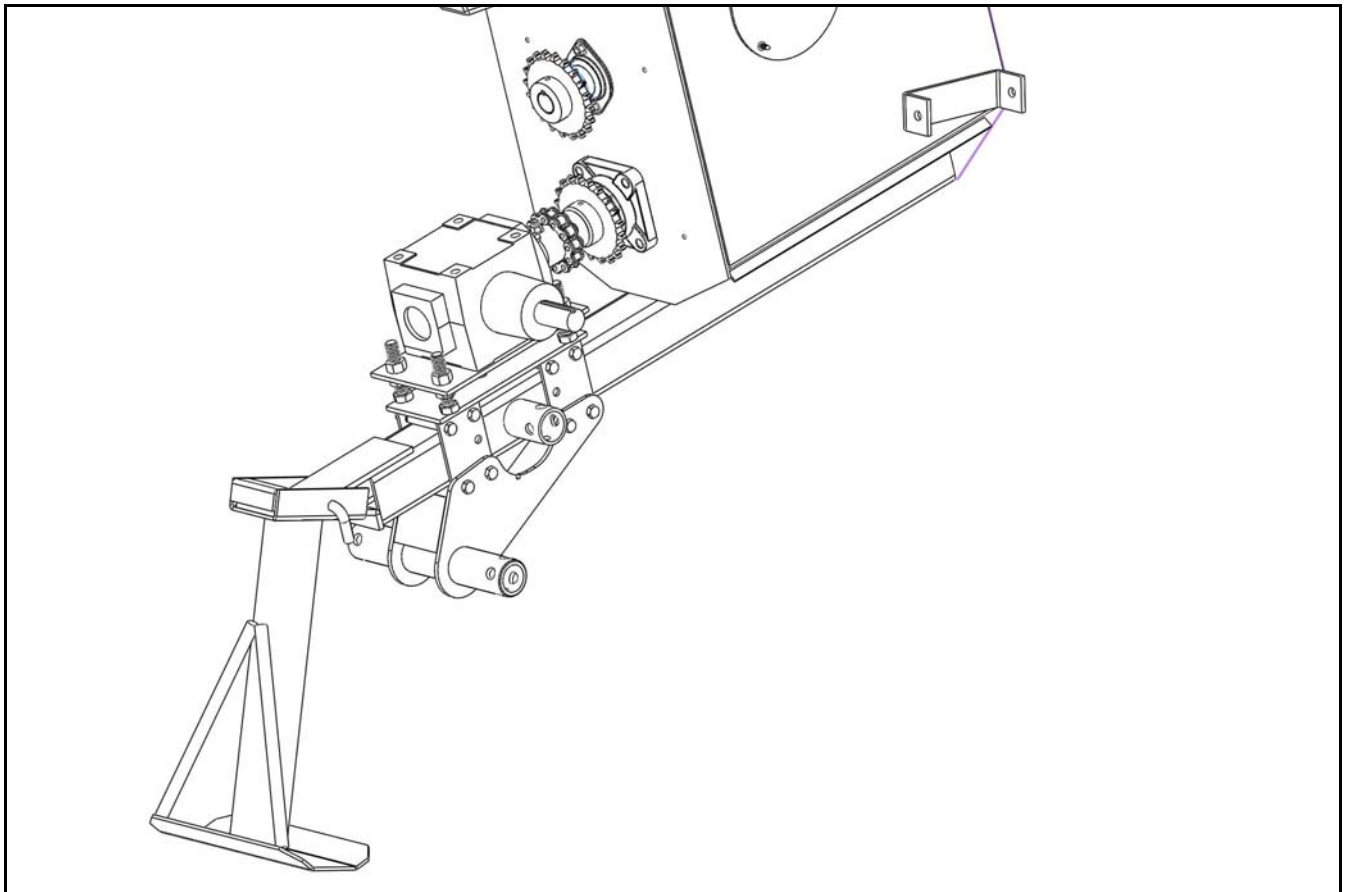


Figure 2.2



## 2.3. PTO DRIVELINE

1. Clean paint from gearbox input shaft.
- ➔ 2. Slide plain end of 60" non-separable PTO driveline (72" on MK130) onto gearbox input shaft. Use a 1/4" x 1-1/2" square key on the MK80 and MK100, and a 3/8" x 1-3/4" square key on the MK130. Tighten set screws securely.
3. Install the transport saddle with halfband on auger tube about 24" (61.0 cm) above boot. Use 7/16" x 1-1/4" bolts and locknuts.
4. Rotate transport saddle upwards or downwards until the PTO driveline clears the hopper winch handle. Tighten bolts.
5. Secure the PTO drive guard to guard attach plate using 3/8" x 3/4" bolts and washer locknuts. Tighten bolts.
- ➔ 6. Slide guard assembly over PTO driveline, then attach to gearbox using two 1/2" x 1" bolts and lock washers (or two 5/8" x 1-1/4" on the MK130). See inset for bolt location.

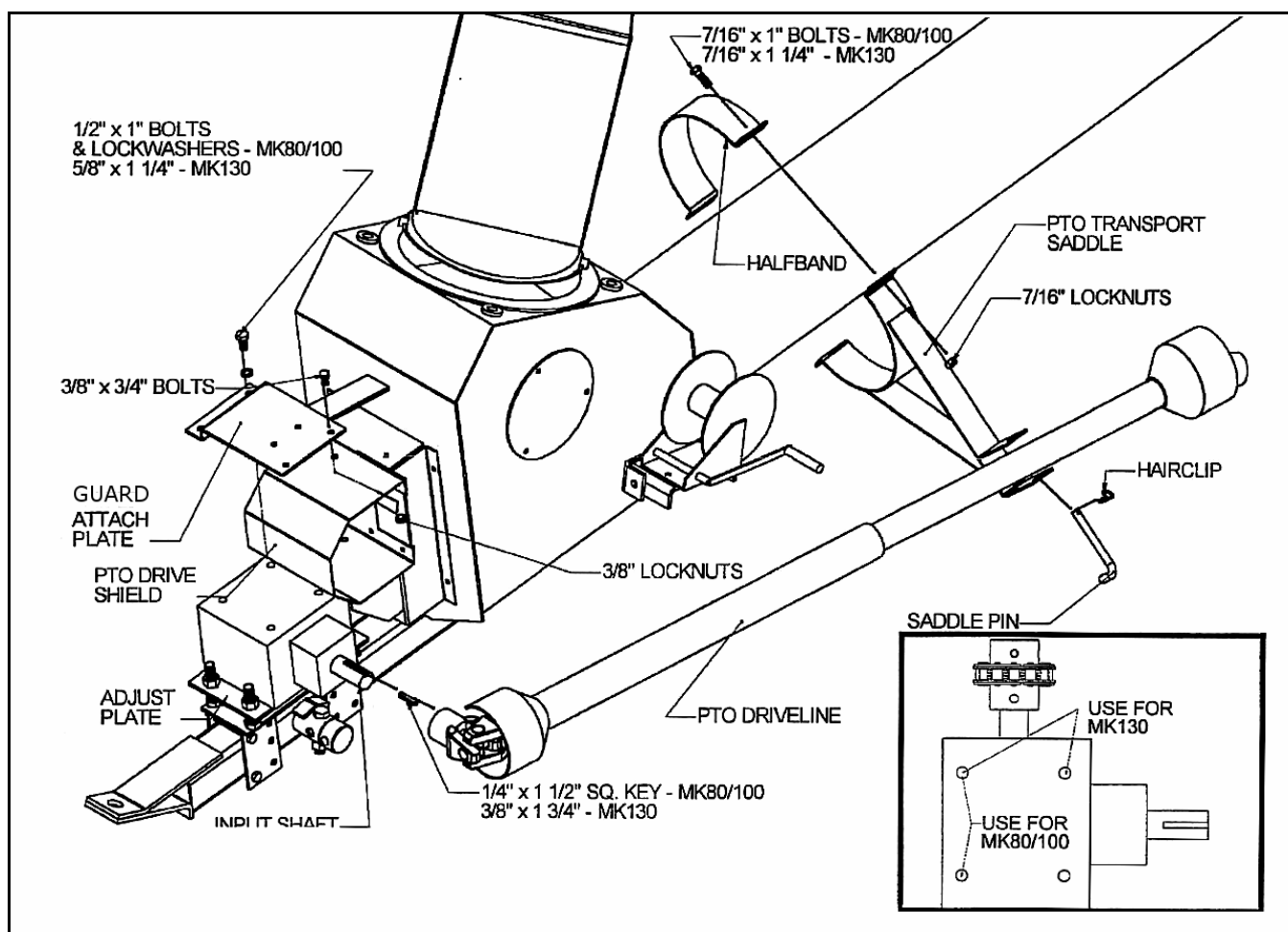


Figure 2.4

# 3. Transport & Placement

**Warning:** Before continuing, please read the safety information relevant to this section in the safety section of this manual. Failure to follow the safety instructions can result in serious injury, death, or property damage.

## 3.1. TRANSPORT PROCEDURE

Auger must be properly connected to tractor for transporting and positioning. Use appropriate hitch pin and safety chain.

**Important:** See operation manual for transport procedures and safety instructions.

- Place swing hopper on opposite side of PTO driveline for transport.
- Store the support leg as shown. Remove before lowering swing hopper to prevent damage.
- Secure PTO driveline in transport saddle.

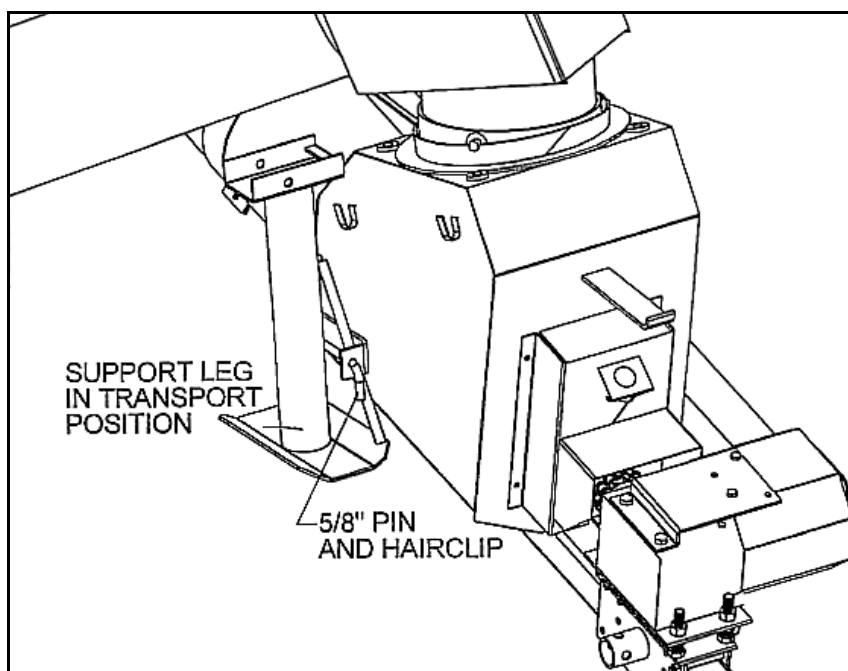


Figure 3.1


## 3.2. PLACEMENT PROCEDURE

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Auger must be properly hooked up to tractor for all raising and placement procedures with hydraulic hoses securely in place.

**Note:** See operation manual for placement procedures and safety information.

**Important:** Wheels must be free to move when raising or lowering auger.

DANGER	
	<p>Keep equipment away from overhead power lines and obstructions.</p> <p>Machine is not insulated and electrocution may occur without direct contact.</p> <p>Failure to keep away will result in serious injury or death.</p>

# 4. Operation

**Warning:** Before continuing, please read the safety information relevant to this section in the safety section of this manual. Failure to follow the safety instructions can result in serious injury, death, or property damage.

## 4.1. OPERATION PROCEDURES

### PRE-OPERATION CHECKLIST

1. After positioning auger at the bin, securely chock auger wheels and close valve on hose to lift cylinder.
2. Position hitch jack with board underneath, then raise auger hitch slightly.
3. Relieve pressure in hydraulic hose, then disconnect from tractor and store in auger hose rack.

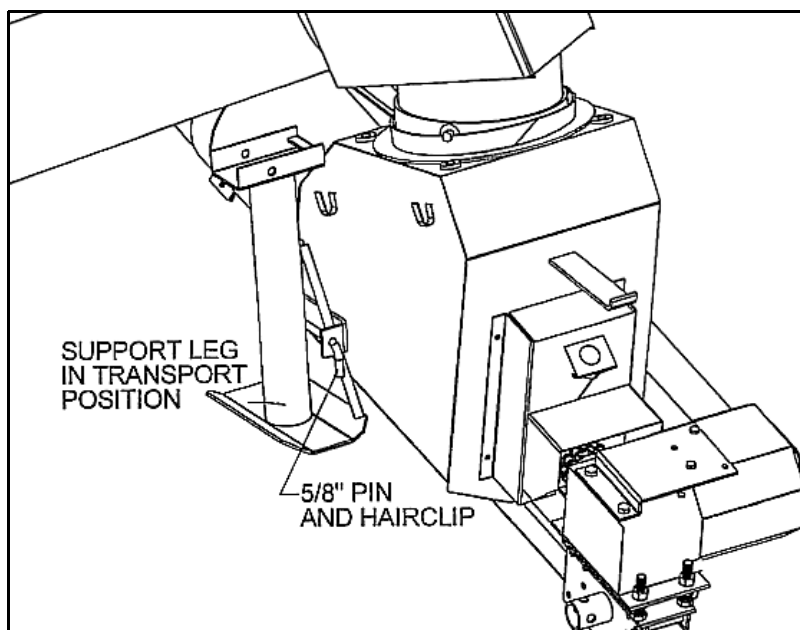



Figure 4.1

4. Remove safety chain and hitch pin, then move tractor.
5. Attach the support leg as shown in Figure 4.1 with pin and hairclip.
6. Place board under support leg as needed, then lower hitch jack until auger intake weight is supported with the support leg. Place hitch jack into transport position.

### 4.1.1. TRACTOR HOOKUP TO RIGHT ANGLE DRIVE

1. Position tractor at right angle to auger intake; chock tractor wheels and apply brakes.
2. Securely connect the non-separable PTO driveline to tractor (maximum rpm is 540). Make sure all guards and master guards are in place.

**Note:** *If swing hopper is hydraulic drive, also connect appropriate hydraulic hose to the tractor .*

<b>DANGER</b>	
	<p><b>Rotating PTO Driveline Hazard!</b></p> <p>Make certain the driveline shields turn freely on driveline.</p> <p>Make certain the driveline is securely attached at both ends.</p> <p>Do not exceed operating speed of 540 rpm.</p> <p>Keep u-joint angles small and equal. Do not exceed maximum recommended length.</p> <p>Failure to heed will result in serious injury or death.</p>

### 4.1.2. OPERATION

---

See operation manual for full operating procedures and safety instructions.

1. Securely attach PTO driveline to the tractor and gearbox.
2. Do not use PTO driveline without a rotating guard in good working order.
- ➔ 3. Do not exceed the maximum operating length of 80"(2.03 m) on the **MK80/100** and 92" (2.34 m) on the **MK130** of the PTO driveline, or a maximum angularity of 15°.
4. Place PTO drive in the off position before starting tractor.
5. Start tractor and idle at low rpm. Slowly engage PTO drive (and hydraulics on units with a hydraulic hopper).
6. Gradually begin feeding grain into hopper, bringing auger speed up to about 300 rpm.

**Important:** *Do not overfeed hopper on initial loads; keep feed of grain at about half capacity.*

7. After auger tube is polished and runs fairly smoothly, proceed to unload at full speed of 540 rpm.
8. After initial run, slow auger down until empty of grain and then stop.
9. Lock out tractor and conduct a complete inspection of the auger.
10. After initial start-up and inspection, auger should be operated and inspected at least 3 more times during the first 10 hours of operation.
11. Stay clear of PTO hazard area.

**Important:** *The PTO driveline is non-separable. Remove it from tractor and secure it in transport saddle on auger before moving tractor away from auger.*

If shearbolt in the PTO driveline fails, shut down and lock out tractor to replace bolt.



The MK80 uses a 5/16" x 1" grade 8 bolt.

- through thread shear (as per drawing)

The MK100 uses a 5/16" x 1" grade 8 bolt.

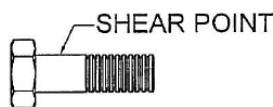
- through shank shear (as per drawing)

The MK130 uses a 3/8" x 1" grade 8 bolt.

- through shank shear (as per drawing)



PART# 17125  
INCLUDES NUT



PART# 17126  
INCLUDES NUT



PART# 18454  
INCLUDES NUT

### 4.1.3. HYDRAULICS

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See operation manual for details.

**Note:** *For transport or placement of auger, hook up auger to tractor with appropriate hitch pin and safety chain, and connect hydraulic lift hose as per manual instructions.*

### 4.1.4. LEFT SIDE DRIVE

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To change to left side drive:

1. Remove PTO drive shield and the shield attach plate.
2. Remove chain from chain coupler.
3. Remove gearbox from adjust plate, flip over and reattach to adjust plate.
4. Check sprocket alignment, adjust if necessary and reattach coupler chain.
5. Reposition the PTO drive shield to the shield attach plate for left side use.
6. Slide shield assembly over PTO driveline and attach to gearbox.
7. Position the transport saddle and winch on the left side.
8. Reposition the hopper and hopper lift arm on the right side of auger as per the instructions in the MK auger manual.

## 4.2. MAINTENANCE PROCEDURES

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1. PTO driveline
  - Lubricate both universal joints after each 8 hours of operation. Lubricate center portion of the driveline on a yearly basis (grease fitting is accessible through hole in guard).
2. Gearbox
  - Check oil level at least once a year, depending on use. Maintain oil at half full level (center of cross shaft) using EP90 oil. **Do not overfill.**

For other maintenance instructions, see operation manual.

## 4.3. STORAGE PROCEDURES

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To move auger into storage, reconnect to tractor and follow instructions in operation manual.

# WARRANTY

Westfield Industries Ltd. warrants products of its manufacture against defects in materials or workmanship under normal and reasonable use for a period of one year after date of delivery to the original purchaser.

Our obligation under this warranty is limited to repairing, replacing, or refunding defective part or parts which shall be returned to a distributor or a dealer of our Company, or to our factory, with transportation charges prepaid. This warranty does not obligate Westfield Industries Ltd. to bear the cost of labor in replacing defective parts. Any defects must be reported to the Company before the end of the one year period.

This warranty shall not apply to equipment which has been altered, improperly assembled, improperly maintained, or improperly repaired so as to adversely affect its performance. Westfield Industries Ltd. makes no express warranty of any character with respect to parts not of its manufacture.

The foregoing is in lieu of all other warranties, expressed or implied, including any warranties that extend beyond the description of the product, and the IMPLIED WARRANTY of MERCHANTABILITY is expressly excluded.

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