WESTFIELD

GRAIN AUGERS

MK 100 X 36’
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: 30549

Revised: 26/11/08

This product has been designed and constructed according to general engineering standards[a]. 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.

Date	Employee Signature	Employer Signature

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. Introduction

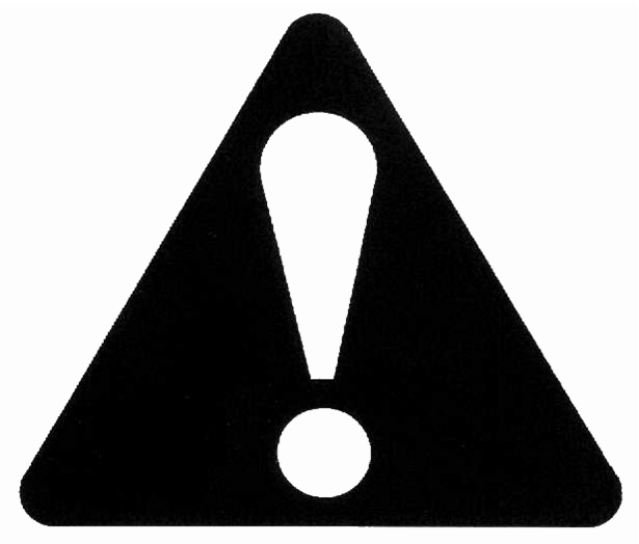
Congratulations. As the new owner of a Westfield Grain Auger, you will be working with equipment designed to complement and improve your farming operation. Before using this auger, please read this manual and familiarize yourself with the various features of the machine and the necessary precautions for efficient and safe operation.

In addition, anyone using this auger is required to be familiar with all safety precautions. A sign-off form is supplied on the inside front cover to record your safety reviews.

Thank you.

Serial Number:	
*Serial number is located on the lower tube.	

2. Safety First



The Safety Alert symbol 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 safety as a guideline.

This Safety Alert symbol means ATTENTION, BE ALERT!, YOUR SAFETY IS INVOLVED.

DANGER
 **DEFINITION:** Indicates an imminently hazardous situation that, if not avoided, will result in serious injury or death. This signal word is limited to the most extreme situations.

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

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

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

YOU are responsible for the **SAFE** use and maintenance of your product. **YOU** must ensure that you and anyone else who is going to work around the product be familiar with 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.

- Product owners must give instructions to employees before allowing them to operate or use the product.
- The most important safety device on this product is a **SAFE** user or operator. It is the user/operator's responsibility to read and understand

ALL safety instructions in the manual and to follow them. All accidents can be avoided.

- A person who has not read and understood all safety instructions is not qualified to operate or use the product. Untrained users/operators expose themselves and bystanders to possible serious injury or death.
- Do not modify the product in any way. Unauthorized modification may impair the function and/or safety, and could affect the life of the product. Any modification to the product voids the warranty.
- Use this product for its intended purposes only.
- Think SAFETY! Work SAFELY!

2.1. 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.*

- Read and understand all safety instructions, safety decals, and manual(s) before assembling or operating equipment.
- Only trained, competent people shall operate or use the product. An untrained operator is not qualified to operate equipment.

- 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.

- Do not allow children, spectators, or bystanders within the work area.
- Wear appropriate protective gear. This list includes, but is not limited to:
  - a hard hat
  - protective shoes with slip-resistant soles
  - protective goggles
  - hearing protection

- For powered products: before servicing, adjusting, or repairing, 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.
- Review safety information initially and annually with all personnel who will be using the product.
- 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.

2.2. ASSEMBLY SAFETY

- Read through the instructions to get to know the subassemblies and hardware that make up the equipment.
- Do not take chances with safety. The components are large, heavy, and can be hard to handle. Always use the proper tools, stands, jacks, and hoists for the job.
- Always have 2 or more people assembling the equipment. Because of the weight, do not attempt assembly alone.

2.3. OPERATIONAL SAFETY

- Have another trained person nearby who can shut down the auger in case of accident. Always work with a second trained person around augers.
- Do not operate with any of the safety guards removed.
- Keep body, hair, and clothing away from moving parts. Stay away from intake during operation.
- Inspect lift cable before using auger. Replace if frayed or damaged. Make sure it is seated properly in the cable sheaves and that cable clamps are secure.
- Operate auger on level ground free of debris. If ground is uneven, anchor the auger to prevent tipping or upending.
- Augers are not insulated. Keep away from electrical lines. Electrocution can occur without direct contact.
- Support the discharge end and/or anchor the intake end before operating to prevent upending.
- Do not use auger as a hoist.
- Ensure that auger is empty before raising or lowering.
- Lower auger at completion of operation or when not in use. Auger could drop rapidly in case of cable break or hydraulic failure (where applicable).
- Do not operate auger with the service or clean-out doors open or unlatched.
- Do not get on or beneath auger when raising or lowering intake hitch jack, or when auger is supported by hitch jack.

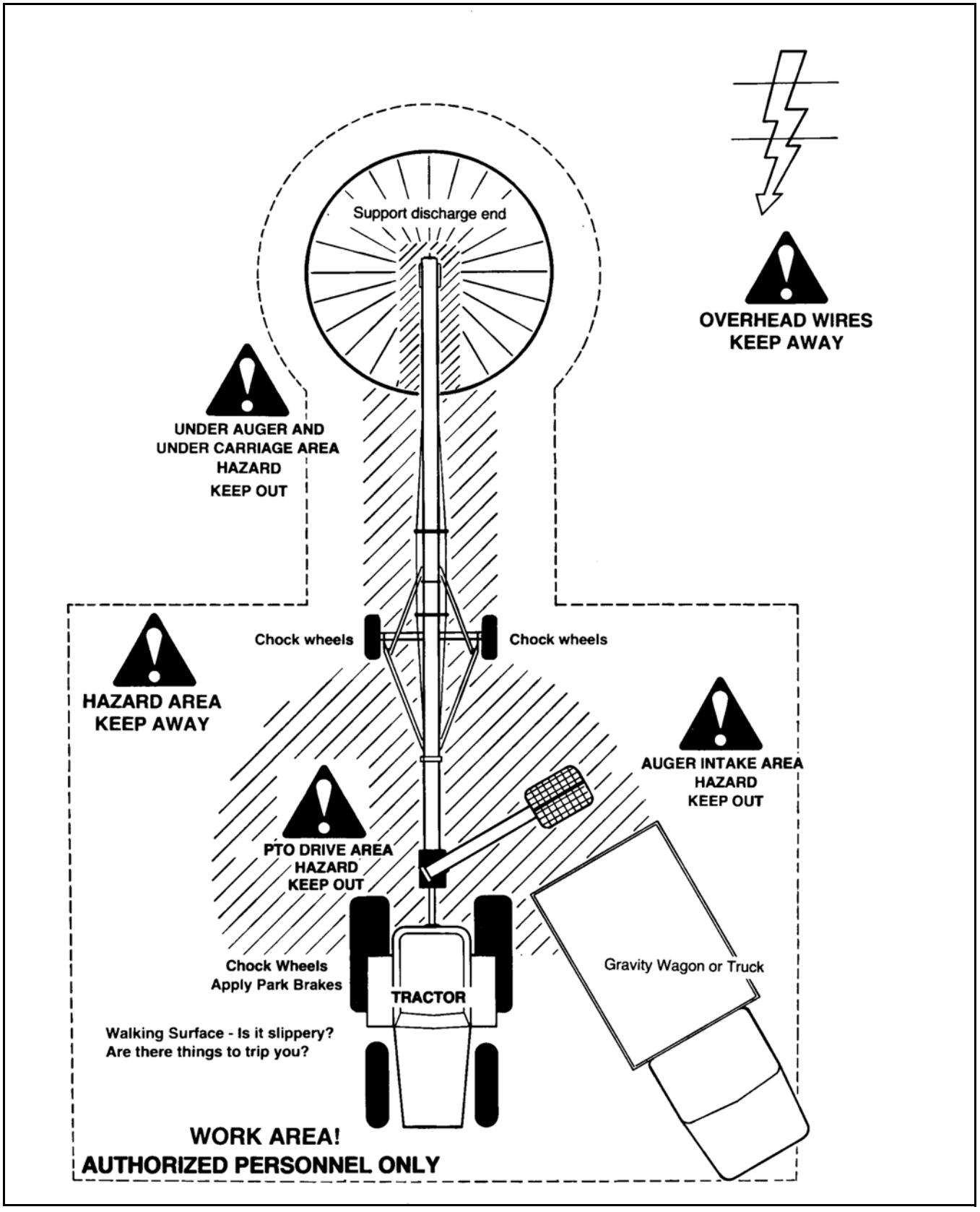

Support discharge end
OVERHEAD WIRES
KEEP AWAY
UNDER AUGER AND
UNDER CARRIAGE AREA
HAZARD
KEEP OUT
Chock wheels
Chock wheels
HAZARD AREA
KEEP AWAY
AUGER INTAKE AREA
HAZARD
KEEP OUT
PTO DRIVE AREA
HAZARD
KEEP OUT
Chock Wheels
Apply Park Brakes
TRACTOR
Gravity Wagon or Truck
Walking Surface - Is it slippery?
Are there things to trip you?
WORK AREA!
AUTHORIZED PERSONNEL ONLY

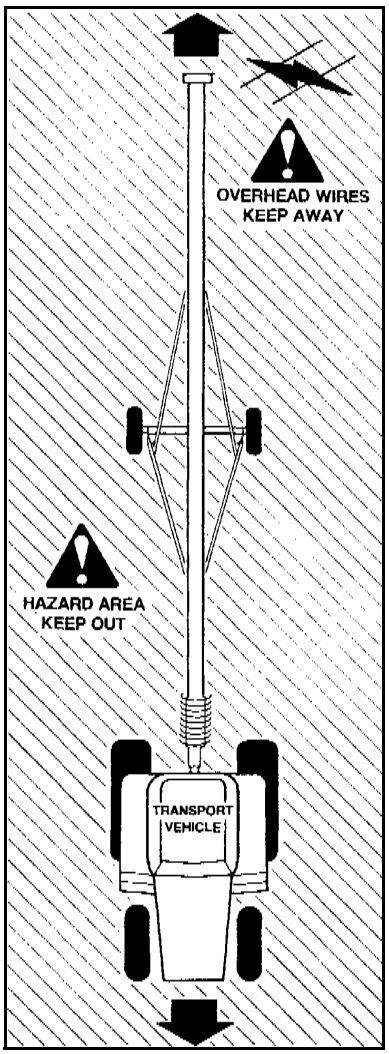
Figure 2.1

2.4. PTO SAFETY

- Never use a PTO driveline without a rotating guard in good working order.
- Ensure PTO driveline is securely attached at both ends.
- Before starting tractor, turn power to PTO to the off position (where applicable).

2.5. TRANSPORT AND PLACEMENT SAFETY

- Transport auger in full down position with slight tension on cable.
- Properly place hitch pin and securely attach safety chain. Use a type of hitch pin that will not allow auger to separate from towing vehicle.
- Always attach an SMV (slow moving vehicle) sign before transporting auger. Equip the auger with the necessary lights for transportation where required by law. Always use hazard warning flashers on the tractor/towing vehicle when transporting unless prohibited by law.
- Always travel at a safe speed, never exceeding 15 mph (24 km/hr). Reduce speed on rough surfaces and be cautious when turning corners or meeting traffic.
- Before raising/lowering/moving the auger, make sure the area around the auger is clear of obstructions and/or untrained personnel. Never allow anyone to stand on or beneath auger while transporting or placing auger.
- Do not transport auger on slopes greater than 20°.
- Wheels must be free to move when raising or lowering auger.



- Never attempt to move auger manually. To do so will result in serious injury.

- Before moving auger, check for overhead obstructions and/or electrical wires. Electrocution can occur without direct contact.
- Raise intake feed hopper into transport position and lock hopper lift winch before transporting or moving auger. Intake feed side of hopper must face main auger when in transport position.
- Disconnect PTO driveline from tractor for transport or placement. Secure in transport saddle.
- Do not operate auger with intake hopper in transport position. This will cause damage to the u-joint.

2.6. MAINTENANCE SAFETY

- Shut down and lock out all power before attempting maintenance of any kind. If applicable, disconnect PTO driveline from tractor or hydraulic hoses on units with hydraulic drive hoppers.
- After maintenance is complete, replace and secure all safety guards and safety devices, and if applicable, service doors and cleanout covers.
- Support auger tube before attempting maintenance on the undercarriage assembly or when removing gearbox. Auger should be in full down position for maintenance.
- Use only genuine Westfield replacement parts or equivalent. Replacement parts such as intake guards, pulley guards, PTO driveline shields, winches, and lift cables must meet ASAE standards or serious injury may result. Use of unauthorized parts will void warranty. If in doubt, contact Westfield or your Westfield dealer. Do not modify any auger components.

2.7. SAFETY DECAL LOCATIONS

- Keep safety decals clean and legible at all times.
- Replace safety decals that are missing or have become illegible.
- Replaced parts must display the same decal(s) as the original part.
- Safety decals are available from your distributor, dealer, or factory.

2.7.1. DECAL INSTALLATION

1. Installation area must be clean and dry, with a temperature above 10°C (50°F).
2. Decide on the exact position before you remove the backing paper.
3. Align the decal over the specified area and carefully press the small portion with the exposed sticky backing in place.
4. Slowly peel back the remaining paper and carefully smooth the remaining portion of the decal in place.
5. Small air pockets can be pierced with a pin and smoothed out using the piece of sign backing paper.

2.7.2. DECAL LOCATIONS

The types of safety decals and locations on the equipment are shown below. Good safety requires that you familiarize yourself with the various safety decals, the type of warning, and the area or particular function related to that area that requires your **SAFETY AWARENESS.**

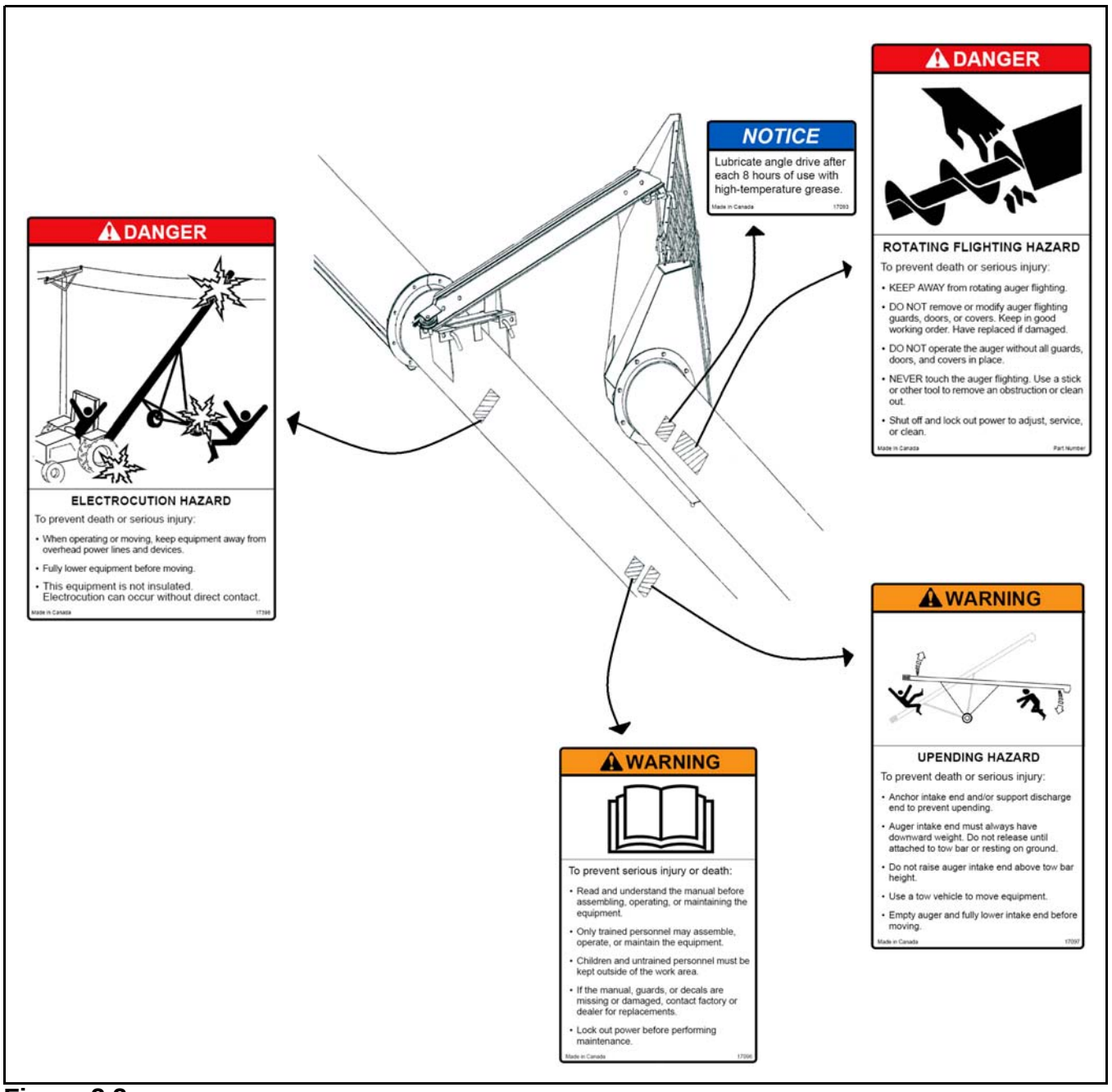

DANGER
ELECTROCUTION HAZARD
To prevent death or serious injury:
• When operating or moving, keep equipment away from overhead power lines and devices.
• Fully lower equipment before moving.
• This equipment is not insulated. Electrocution can occur without direct contact.
NOTICE
Lubricate angle drive after each 8 hours of use with high-temperature grease.
DANGER
ROTATING FLIGHTING HAZARD
To prevent death or serious injury:
• KEEP AWAY from rotating auger flighting.
• DO NOT remove or modify auger flighting guards, doors, or covers. Keep in good working order. Have replaced if damaged.
• DO NOT operate the auger without all guards, doors, and covers in place.
• NEVER touch the auger flighting. Use a stick or other tool to remove an obstruction or clean out.
• Shut off and lock out power to adjust, service, or clean.
WARNING
To prevent serious injury or death:
• Read and understand the manual before assembling, operating, or maintaining the equipment.
• Only trained personnel may assemble, operate, or maintain the equipment.
• Children and untrained personnel must be kept outside of the work area.
• If the manual, guards, or decals are missing or damaged, contact factory or dealer for replacements.
• Lock out power before performing maintenance.
WARNING
UPENDING HAZARD
To prevent death or serious injury:
• Anchor intake end and/or support discharge end to prevent upending.
• Auger intake end must always have downward weight. Do not release until attached to tow bar or resting on ground.
• Do not raise auger intake end above tow bar height.
• Use a tow vehicle to move equipment.
• Empty auger and fully lower intake end before moving.

Figure 2.2

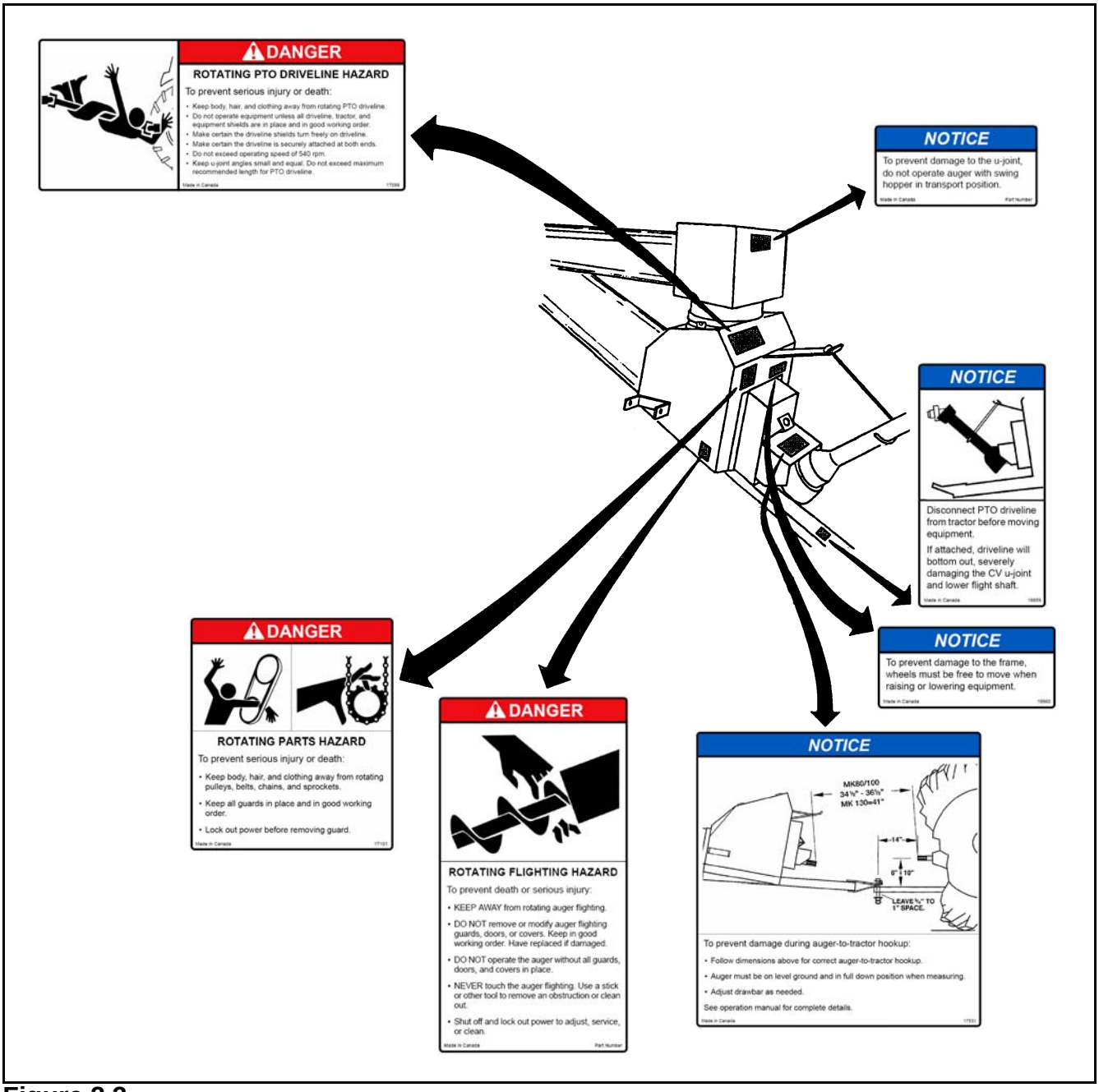

DANGER
ROTATING PTO DRIVELINE HAZARD
To prevent serious injury or death:
• Keep body, hair, and clothing away from rotating PTO driveline.
• Do not operate equipment unless all driveline, tractor, and equipment shields are in place and in good working order.
• Make certain the driveline shields turn freely on driveline.
• Make certain the driveline is securely attached at both ends.
• Do not exceed operating speed of 540 rpm.
• Keep u-joint angles small and equal. Do not exceed maximum recommended length for PTO driveline.
NOTICE
To prevent damage to the u-joint, do not operate auger with swing hopper in transport position.
NOTICE
Disconnect PTO driveline from tractor before moving equipment.
If attached, driveline will bottom out, severely damaging the CV u-joint and lower flight shaft.
DANGER
ROTATING PARTS HAZARD
To prevent serious injury or death:
• Keep body, hair, and clothing away from rotating pulleys, belts, chains, and sprockets.
• Keep all guards in place and in good working order.
• Lock out power before removing guard.
NOTICE
To prevent damage to the frame, wheels must be free to move when raising or lowering equipment.
DANGER
ROTATING FLIGHTING HAZARD
To prevent death or serious injury:
• KEEP AWAY from rotating auger flighting.
• DO NOT remove or modify auger flighting guards, doors, or covers. Keep in good working order. Have replaced if damaged.
• DO NOT operate the auger without all guards, doors, and covers in place.
• NEVER touch the auger flighting. Use a stick or other tool to remove an obstruction or clean out.
• Shut off and lock out power to adjust, service, or clean.
NOTICE
MK80/100
34 ½" - 36 ½"
MK 130=41"
14"
6" - 10"
LEAVE ¼" TO 1" SPACE.
To prevent damage during auger-to-tractor hookup:
• Follow dimensions above for correct auger-to-tractor hookup.
• Auger must be on level ground and in full down position when measuring.
• Adjust drawbar as needed.
See operation manual for complete details.

Figure 2.3

3. Assembly

WARNING

Before continuing, please reread the safety information relevant to this section at the beginning of this manual. Failure to follow the safety instructions can result in serious injury, death, or property damage.

Before beginning assembly, please read the following instructions carefully and familiarize yourself with all the sub-assemblies and hardware making up the auger. Have all parts on hand and arrange them for easy access. Carry out assembly in a large open area with a level surface.

Important: *Always have 2 or more people assembling the equipment. Because of the weight, do not attempt assembly alone.*

➡ Augers are available in various combinations. In most cases, the following instructions will apply to all augers. Where the assembly information varies, additional instructions will be included, and will be indicated with an arrow.

3.1. PRE-ASSEMBLY

Tool list to be included when/if supplied by Westfield.

3.2. TUBES AND FLIGHTINGS

1. Correctly position tube sections. Align tube sections on a flat surface or on a series of benches.

CAUTION	
	Block tube sections to prevent rolling. Do not drop. Damage to equipment or personal injury will result.

2. Screw or slide lower flight shaft onto upper flight shaft until flight ends butt together and flighting spiral matches up. Secure with hardware listed in table below. Repeat, if necessary, for any remaining flight shafts.

Note: *When assembling more than 2 sections, start from spout end and work towards hopper.*

3. Slide tube sections together and secure. Make sure to align upper and lower track ends and then tighten bolts. Secure with hardware listed in table below.

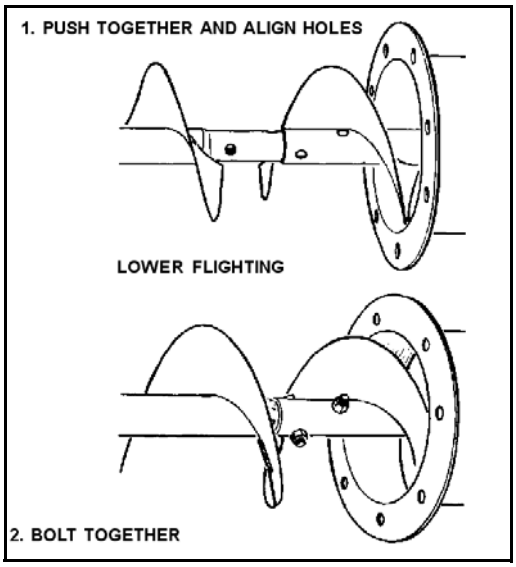


Figure 3.1

Details for fastenings:				
Auger	**For Flighting**	**Amt.**	**For Tubes**	**Amt.**
All	• 1/2" x 2-3/4" GR 8 bolts and locknuts	2	• 7/16" x 1" bolts and locknuts	8

Important: *Track ends must align to allow track shoe to smoothly slide over track joint. Misalignment may cause jamming.*

3.3. TRACK SHOE AND TRACK STOP

1. Slide the roller track shoe onto track.
2. Attach the lower track stop to the correct position on the track (Figure 3.2) with two 7/16" x 1-1/4" bolts and locknuts.

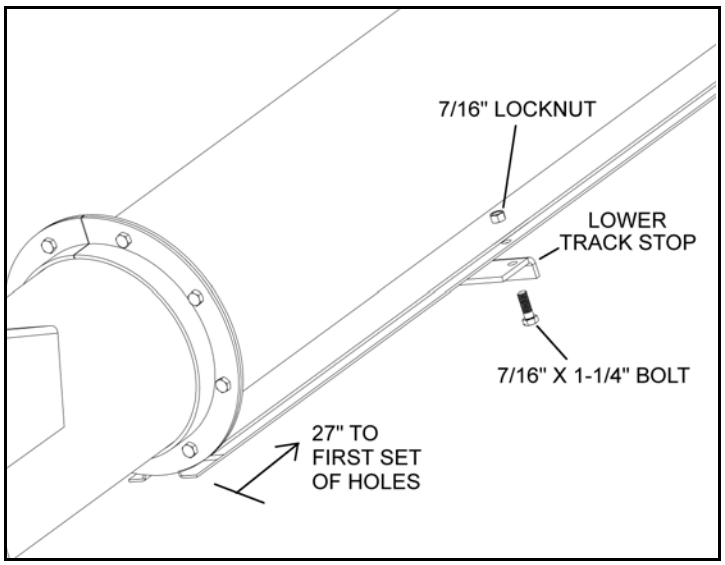


Figure 3.2

3. Attach the upper track stop to the correct position (Figure 3.3) with two 7/16" x 1-1/4" bolts, locknuts, and heavy flat washers. The washers must be on top of the track as shown in Figure 3.3, and the track stop must be centered on the track.
4. Slide track shoe along full length of track to make sure there is no binding.

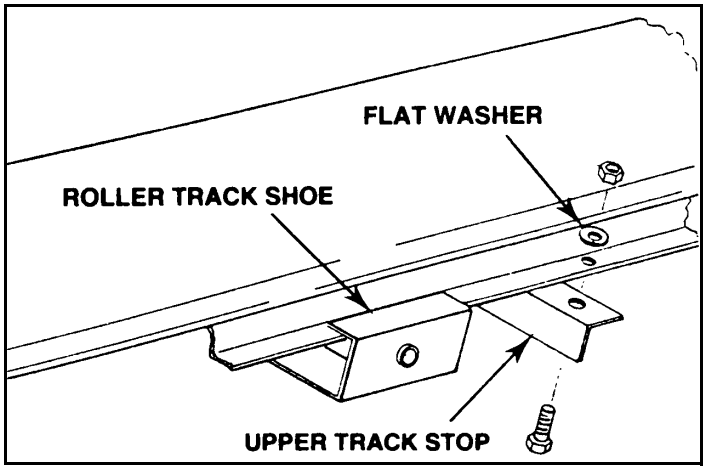


Figure 3.3

3.4. BOOT

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.*

Important: *Complete assembly in the order listed to prevent premature failure of the lower bearing.*

1. Remove lower bearing from boot assembly.

2. Slide short flight section onto lower flight shaft and secure. Make sure flight ends butt together and spiral matches up.
3. At upper end, loosen set screw and remove lock collar from upper bearing.
4. Slip boot over lower flight shaft and attach to flange on lower tube. Tighten securely.
5. Slide the wide rim flat washer onto lower flight shaft.
6. Install lower bearing. Grease zerk must be positioned on the left (when standing behind boot, facing auger discharge).

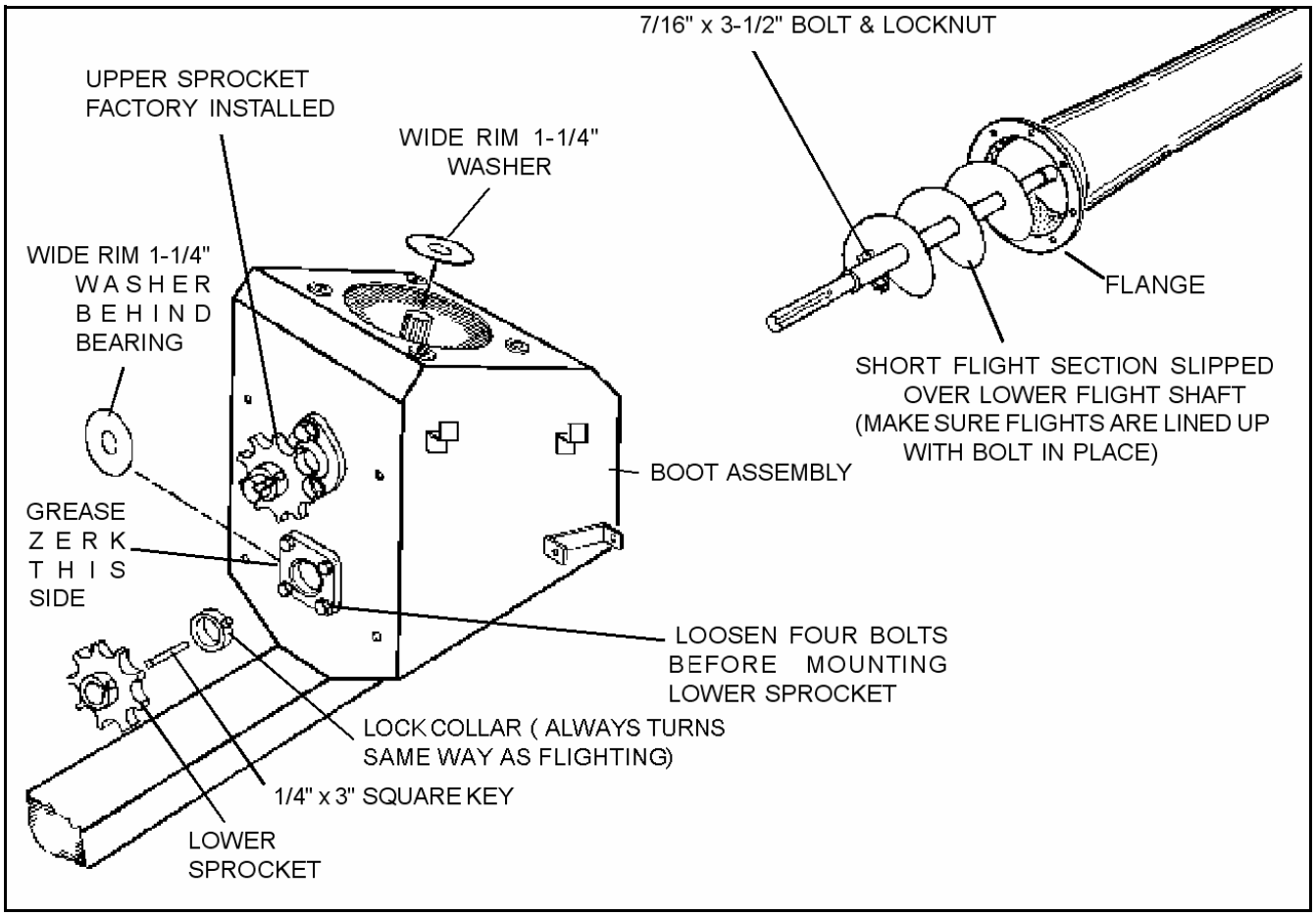


Figure 3.4

7. Seat flight shaft shoulder against washer and lower bearing.
8. Secure lock collar and tighten set screw on lower bearing.

9. For mechanical drive units only:
   a. Install square key and slide sprocket onto flight shaft.
   b. Align lower sprocket with upper sprocket using straight edge, then tighten set screws.
   c. Install drive chain on sprockets and adjust tension to about 1/4" deflection. Tighten the 4 bolts on lower bearing. Oil chain lightly.

Note: *Attach sprocket guard after installing the PTO driveline.*

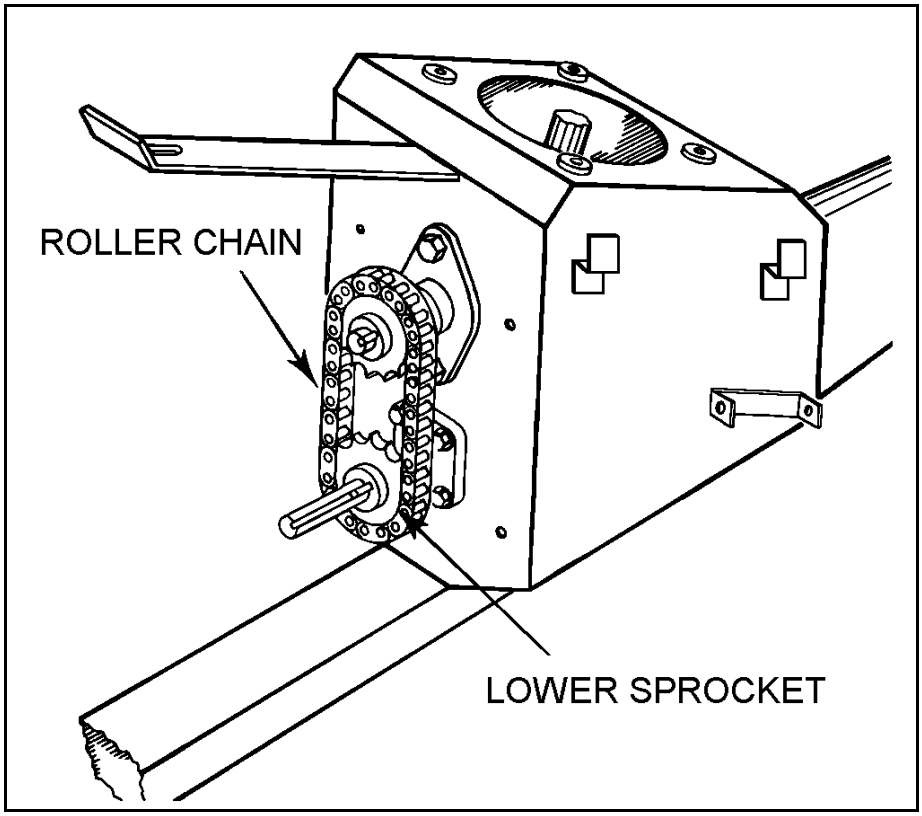


Figure 3.5

10. Secure lock collar and tighten set screw on bearing at upper end of auger tube.

Part	Hardward	Amt.
To attach flighting	• 7/16" x 3-1/2" bolt and locknu	1
To attach boot to flange	• 7/16" x 1" bolts and locknuts	8
Wide rim flat washer	• 1-1/4"	1
To install lower bearing	• 1/2" x 1-1/2" bolts and locknuts	4
Square key	• 1/4" x 3"	1

3.5. DISCHARGE SPOUT

Attach discharge spout with two 7/16" x 1-3/4" bolts and locknuts.

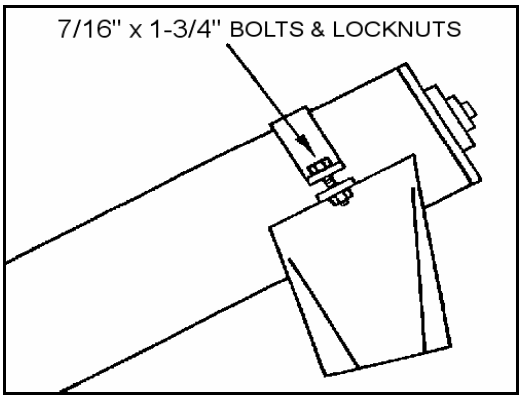


Figure 3.6

3.6. TRANSPORT UNDERCARRIAGE

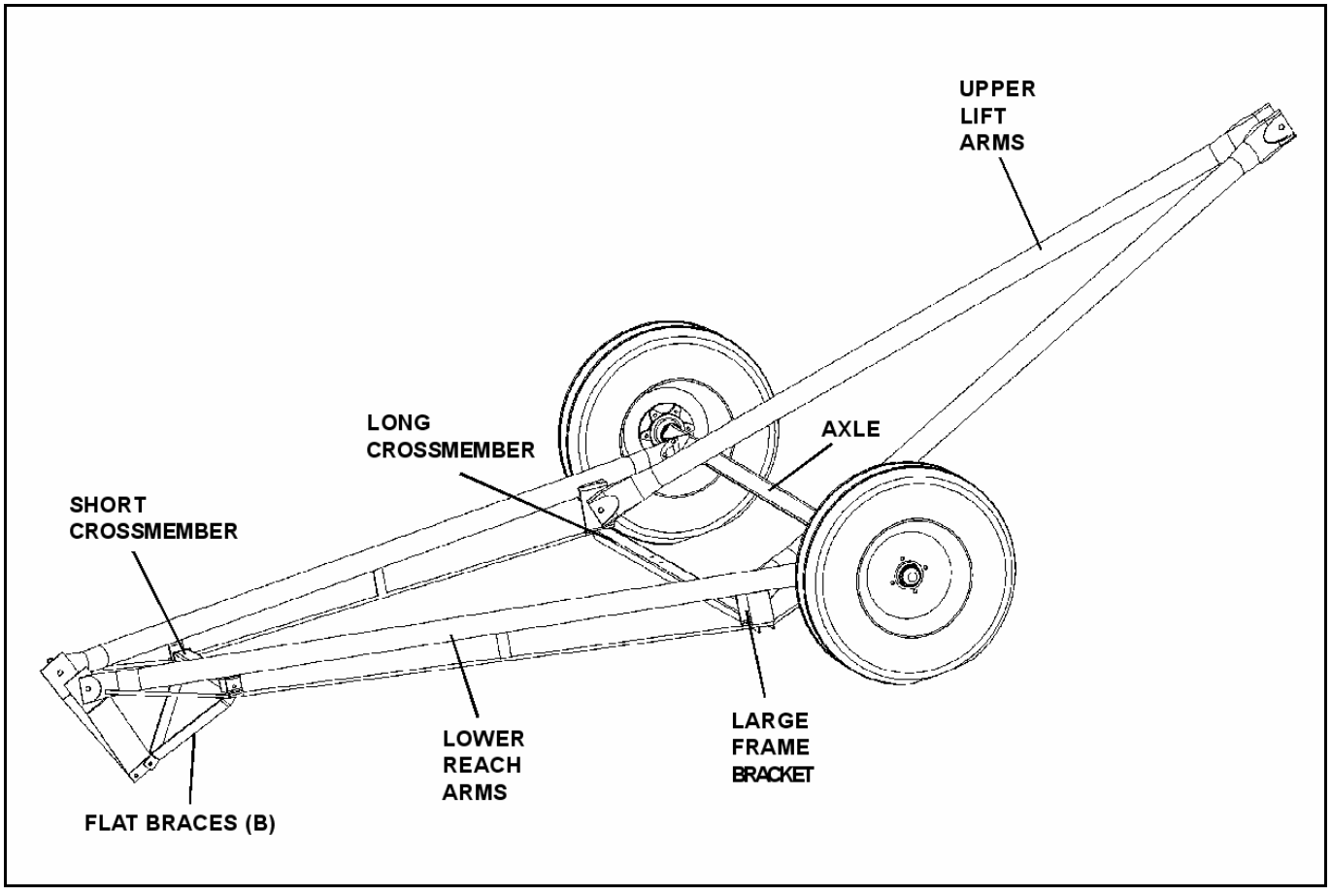


Figure 3.7

1. Fasten the lower reach arms to the axle with three 1/2" x 1-1/4" bolts and locknuts on each side.
2. Attach the long crossmember to the bottom of the large frame brackets (1.) with two 7/16" x 1" bolts and locknuts.
3. Loosely attach the short crossmember to the small frame brackets with two 1/2" x 1-1/2" bolts and locknuts, sandwiching the flatbraces (B) between the short crossmember and small frame brackets on each side (Figure 3.7). Leave loose until Step 7.
4. Wheel hub assembly:
   a. Remove any dirt or paint from spindle and hub.
   b. Thoroughly pack wheel bearings and cups with a good grade of bearing grease.
   c. Place large bearing into hub and carefully tap in seal.
   d. Slip hub onto spindle and insert small bearing.
   e. Tighten slotted spindle nut until hub drags slightly. Back off nut about 1/4 turn until hub turns freely.
   f. Install cotter pin and dust cap.

Note: *Installing tires may not leave you with enough clearance to position and attach undercarriage once auger tube is raised. If so, install wheels after assembly is complete.*

   g. Install tires and tubes on the wheels provided. Inflate to 18–24 psi (124–165 kPa). Wheels may be mounted on hubs at this time with four 1/2 x 1-1/4" wheel bolts.

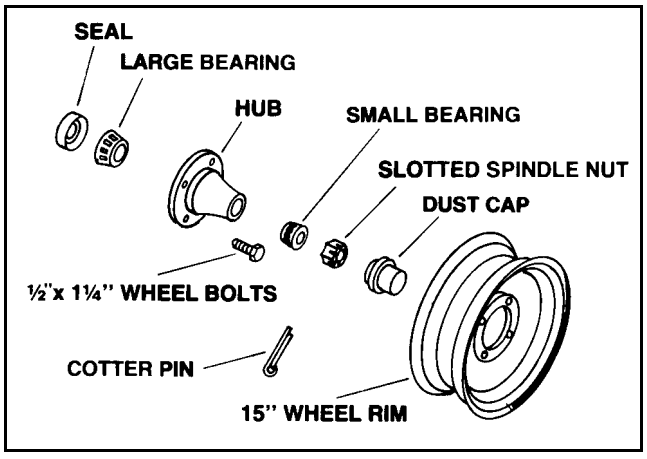
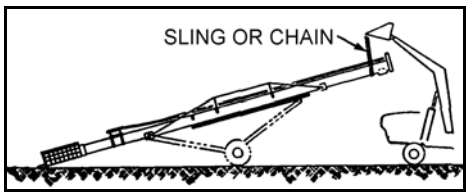


Figure 3.8

5. Fasten upper lift arms to lower reach arms with two 3/4" x 2" bolts and locknuts. **Do not over-tighten**. Tighten snug only; these bolts act as pivot points.

6. Raise the discharge end of auger with a front end loader and a strong sling/chain or block and tackle. The height should be sufficient to clear undercarriage assembly.



CAUTION

Do not remove tube support until the assembly in this section has been completed.

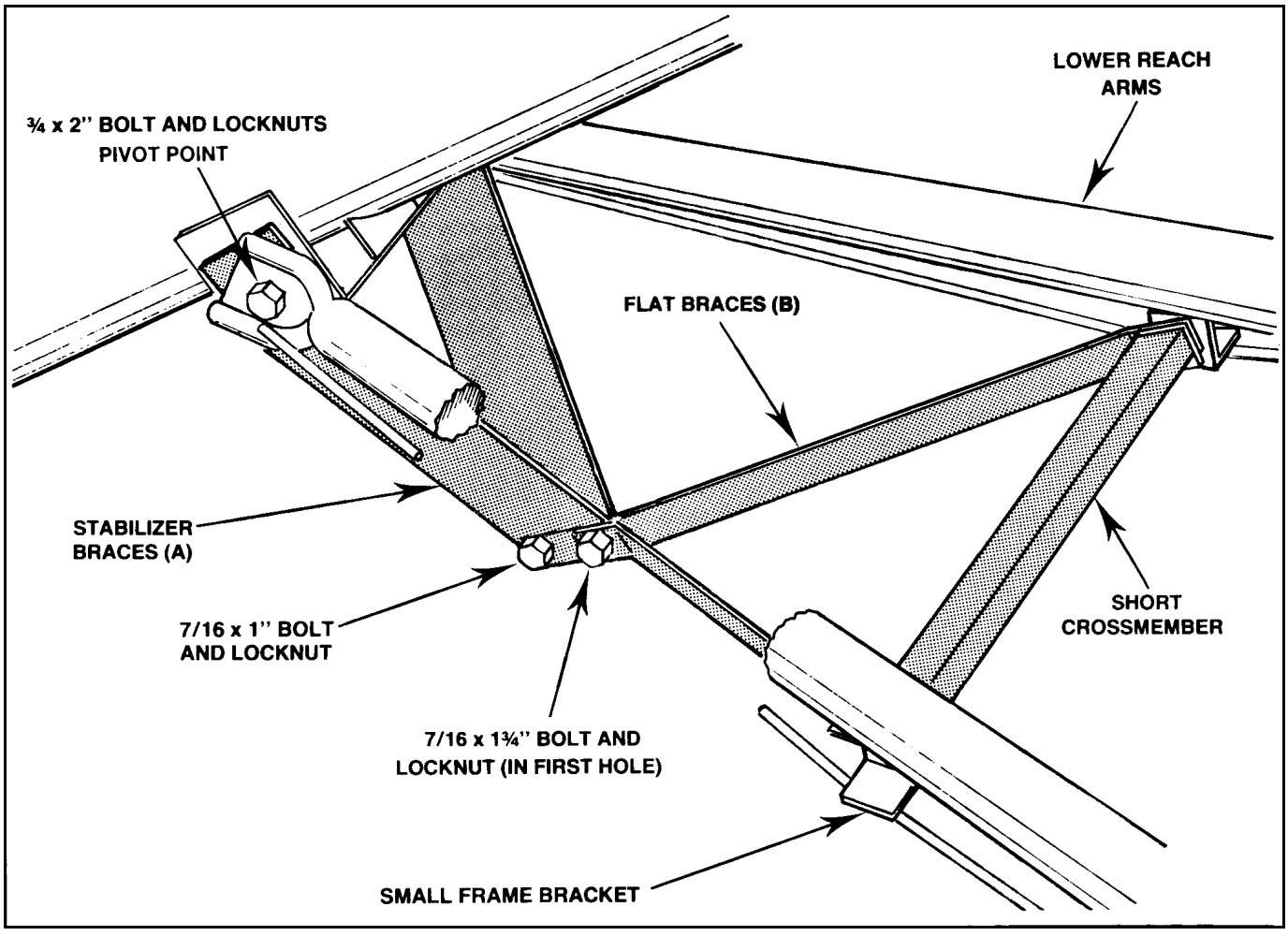


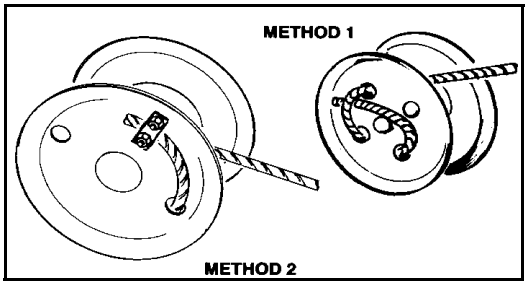
Figure 3.9

7. Place undercarriage beneath tube assembly.

8. Position stabilizer braces (A) and attach lower reach arms to bracket welded on lower end of auger tube with two 3/4" x 2" bolts and locknuts (Figure 3.9). **Do not over-tighten**. Tighten snug only; these bolts act as pivot points.
9. Fasten flat braces (B) to first set of holes (furthest from intake) on stabilizer braces (A) with a 7/16" x 1-3/4" bolt and locknut. Place a 7/16" x 1" bolt and locknut in the other hole in the stabilizer brace.
10. Attach upper lift arms to the roller track shoe with one 3/4" x 6-1/2" bolt and locknut. **Do not over-tighten**. Tighten snug only; this bolt acts as a pivot point.
11. Lower upper end of auger slowly until track shoe rests against upper track stop.

3.7. WINCH AND LIFTCABLE

1. Attach cable to winch using one of the two methods shown, depending on supplied winch.
   - If method 2 is used, the nut must be on the outside of the drum to prevent damage to the cable. Leave about one inch of cable extending past the clamp.



2. Ensure winch has a minimum of three wraps of cable on drum for when auger is in transport position.
3. Attach winch to winch mount with three 3/8" washer-locknuts (Figure 3.10).

Important: *Winch handle must be positioned on the left side of the auger (determine left by standing at the intake end, facing the discharge end).*

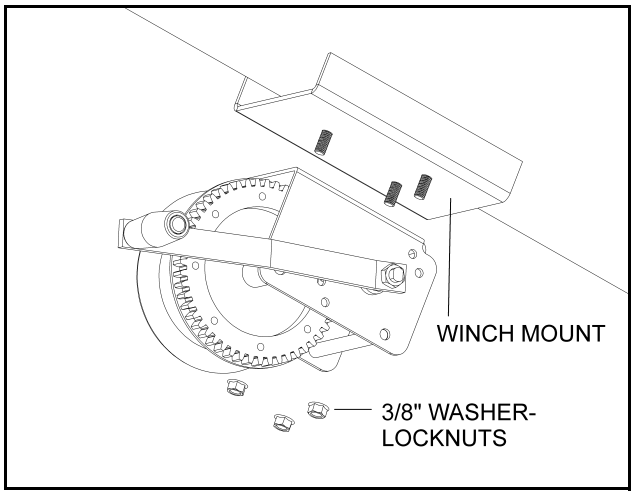


Figure 3.10

4. Attach lift cable anchor bracket to the mounting bracket on the lower tube with two 7/16" x 1" bolts and locknuts (Figure 3.12).
5. Attach lift cable anchor bracket to the mounting bracket on the lower tube with two 7/16" x 1" bolts and locknuts (see Figure 3.11 and 3.12).

Note: *Cable must be properly seated in cable groove before raising auger*

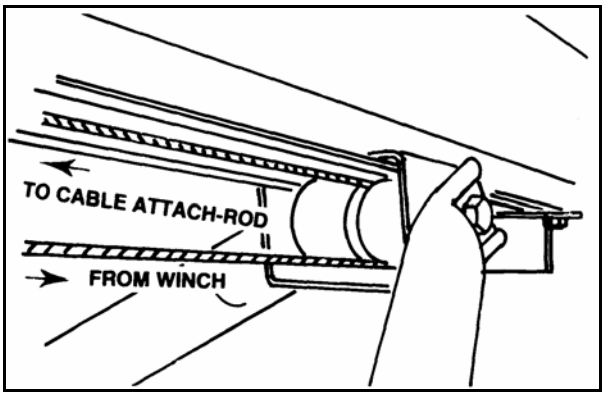


Figure 3.11

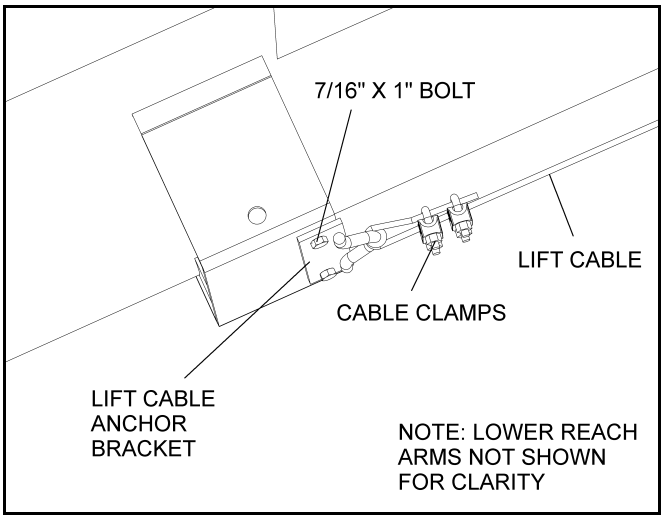


Figure 3.12

6. Thread lift cable under and around roller on track shoe, then back to lift cable anchor bracket. The cable must be threaded between the lower track stop and the auger tube.
7. Wrap cable 1-1/2 times around the rod on the lift cable anchor bracket and secure with two 1/4" cable clamps. Position cable clamps as shown (Figure 3.12 and 3.13). Tighten clamps **securely**.

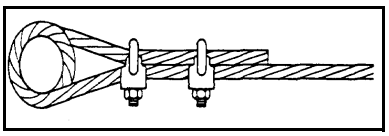


Figure 3.13

3.8. WINCH HANDLE

Important: *Winch handle must be assembled as per instructions. Failure to do so will result in sudden winch failure causing damage to equipment and/or personal injury.*

1. Slide handle over flat sides of input shaft.
2. Fasten with 1/2" locknut (Figure 3.14).

Important: *Do not remove or loosen the double locknut on input shaft; it is an important part of the brake system of the winch.*

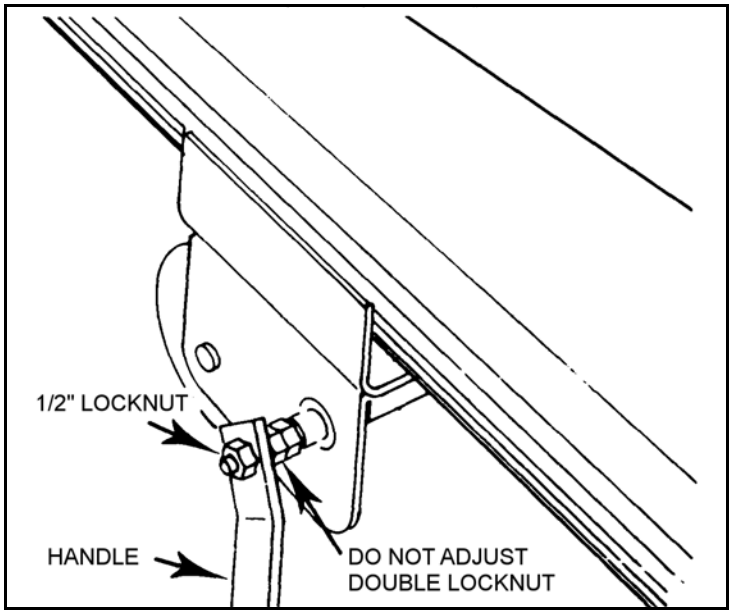


Figure 3.14

3.9. PTO (CV) DRIVELINE

1. Clean PTO driveline and flighting shaft ends of any paint or dirt.
2. Slide plain end of PTO driveline onto flighting shaft. Make sure that the holes for the roll pin are lined up and square key is in place (where necessary).
   - use a 5/16" roll pin

CAUTION	
	Protect your eyes when performing this operation.

3. Making sure eyes are protected, carefully tap in roll pin. Tighten set screw.

4. Install sprocket guard on boot with four 5/16" x 3/4" bolts.
5. Slide PTO transport saddle through support strap on boot and rest PTO driveline in it until connected to tractor.

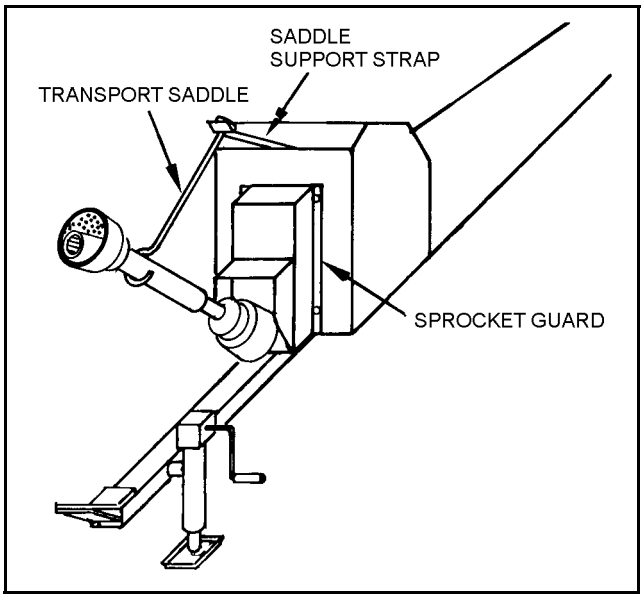


Figure 3.15

3.10. STANDARD INTAKE HOPPER

See Figure 3.16 and 3.17.

1. Remove access covers, then clean paint and dirt from flight shaft end. Insert Woodruff key into flight shaft end.
2. Raise hopper tube to correct angle[1] (22.5°) and then bring hopper and tube section together, carefully sliding the flight shaft end with Woodruff key into the angle drive.
3. Connect the hopper and tube section.
   - eight 7/16" x 1" bolts and locknuts.

NOTICE

To prevent damage, you must maintain the correct angle when inserting flight shaft end into angle drive until tube is secured to the hopper section. Allowing tube or hopper to drop will bend the flight shaft end causing it to bind in the angle drive.

1.Correct angle is achieved when the flight shaft end is inserted in the angle drive and its weight is fully supported by the black and stand.

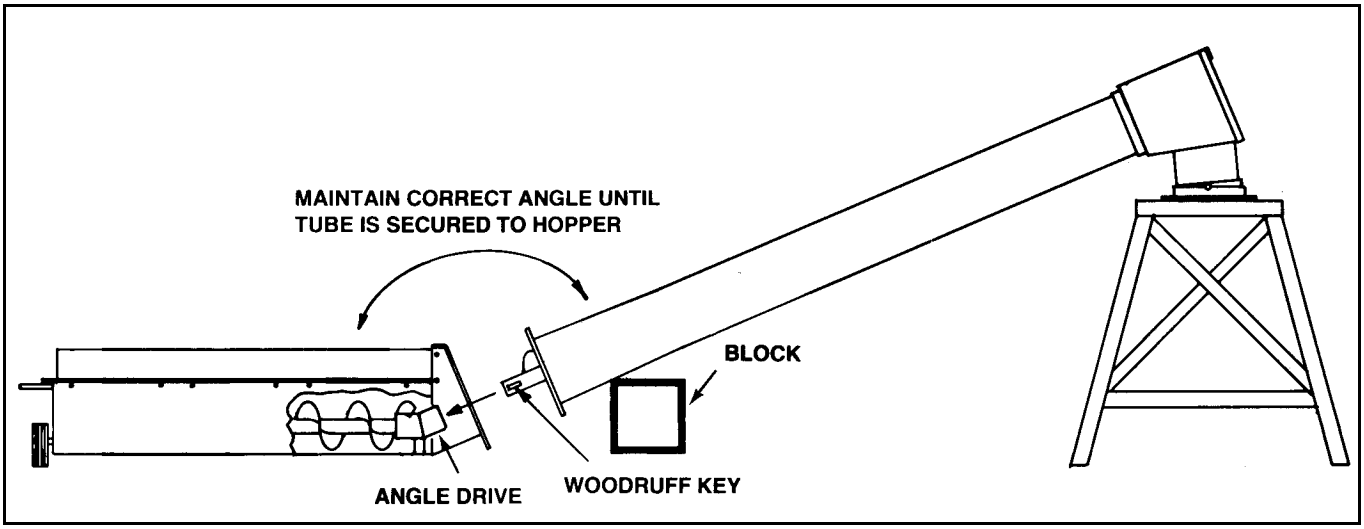


Figure 3.16

4. Thoroughly lubricate the angle drive, then replace access doors. Keep angle drive well lubricated (after every 8 hours of operation) with high-temperature grease.

Important: *Check alignment! You should be able to rotate the hopper flight by hand. If not aligned, see Section 6.2. on page 51 for adjustment instructions.*

Note: *The angle drive will require a break-in period of at least 2 to 3 loads.*

5. Clean any dirt or paint from the wheel axles on the hopper bottom.
6. Install the 2 wheels to the hopper bottom with a washer and cotter pin each (Figure 3.17).

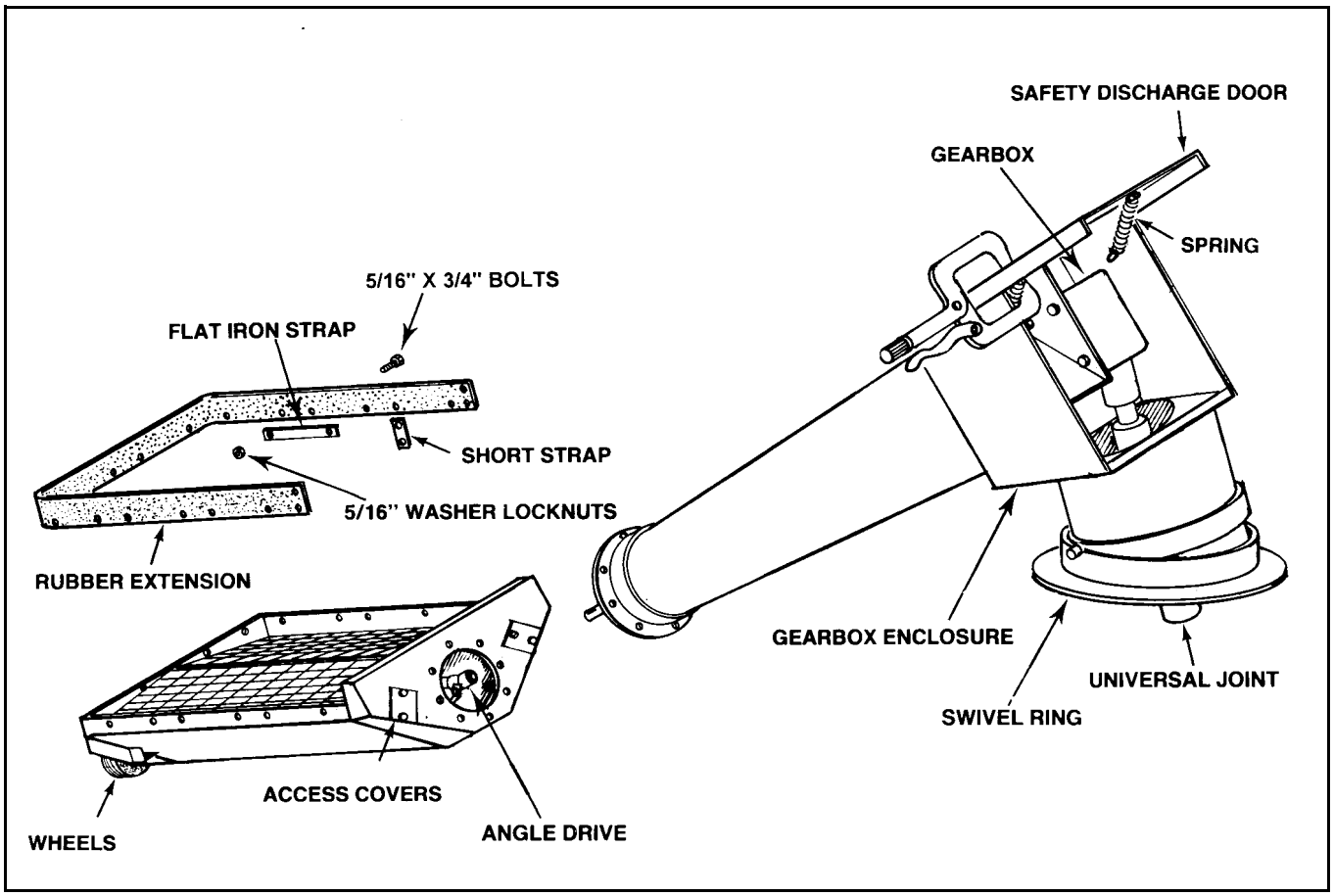


Figure 3.17

7. Install rubber extension on inside hopper lip with twenty 5/16" x 3/4" bolts and washer locknuts, and 8 long and 2 short flat iron straps with bow facing inward.
8. Open safety discharge door to connect intake hopper to auger boot.
   - This door is held in place internally with two springs. To open, pull the door down and then up and over the gearbox enclosure. Hold open with a C-clamp vise grip.
9. Clean u-joint spline and lower gearbox spline, then apply a light film of grease on splined shaft.
10. Slide wide rim 1-1/4" flat washer over splined shaft on lower gearbox (for reference, see Figure 3.4 on page 22).
11. Guide splined universal joint onto splined shaft as the intake hopper is lowered onto the boot. Once positioned, the swivel ring rests flat on the boot surface and inside the four spacer nuts.
12. Install four large washers with 3/8" x 3/4" bolts to keep the intake hopper in place on the boot.
13. Lubricate the universal joint and close the safety discharge door.

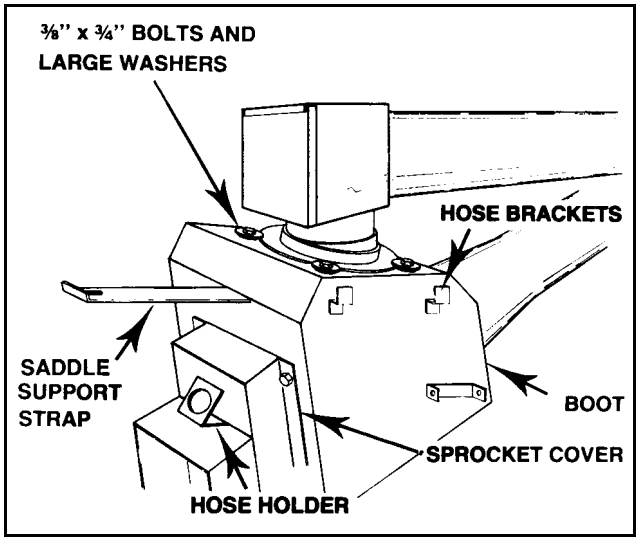


Figure 3.18

3.10.1. HOPPER LIFT ARM / WINCH

1. Choose either the right or left side; secure hopper lift arm assembly to the mount bracket on top of the lower auger tube with 2 mount pins and hairpin.

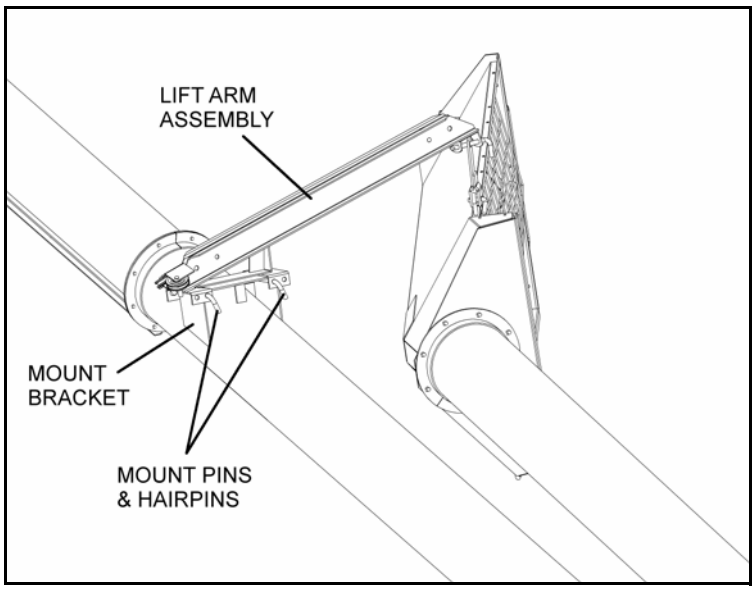
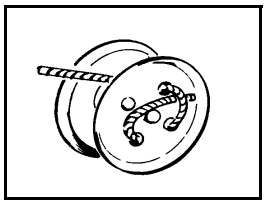


Figure 3.19

2. Thread cable through hopper lift arm assembly and attach to winch.



Note: *Intake feed side of hopper must face away from main auger when in transport.*

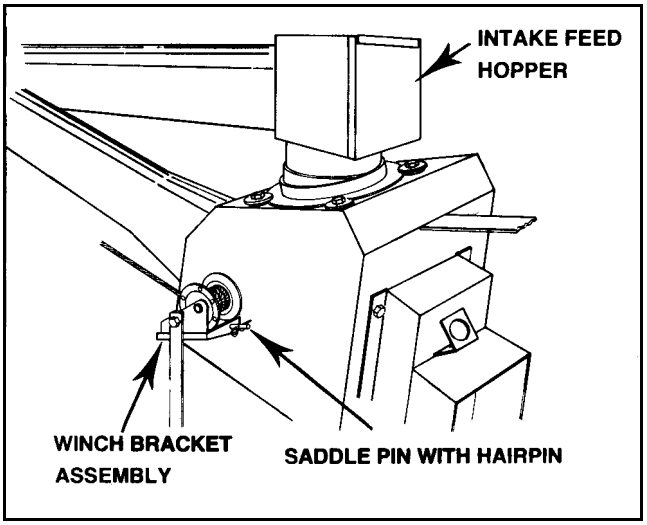


Figure 3.20

3. Install winch and winch bracket assembly to auger boot (opposite to side of hopper operation) with a saddle pin and a hairpin.

TO PLACE HOPPER INTO TRANSPORT POSITION: CHANGE MADE - IS IT IN THE RIGHT ORDER?

1. Lock in transport position with the handles on the side of the hopper.
2. Attach cable hook to the loops inside the hopper.
3. Fully raise hopper with intake side facing away from the main auger as shown.
4. Secure hopper to lift arm with the hopper lock, saddle pins, and hairpins provided.

If you want to change side of intake feed hopper operation:

1. Raise auger hitch with jack and disconnect tractor.
2. Swing intake feed hopper to opposite side of auger.
3. Reverse the position of the hopper lift arm assembly and move the winch to the other side of the boot.
4. Reconnect to tractor.

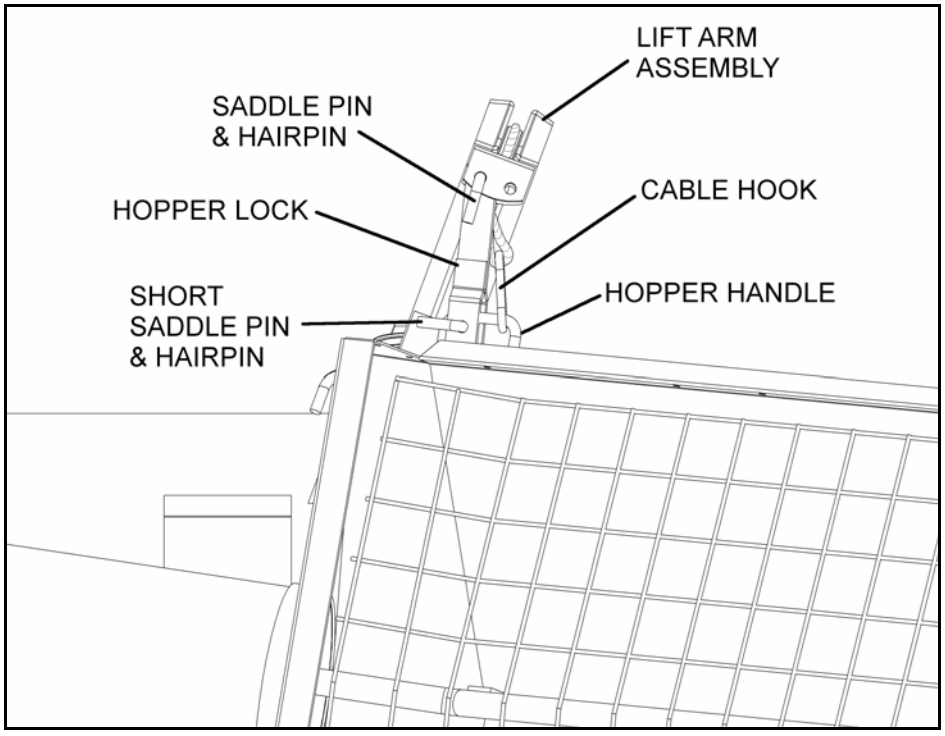


Figure 3.21

3.11. OPTIONAL LOW PROFILE HOPPER

See Figure 3.22–3.24

1. Attach the pivot-connector to the appropriate holes in hopper with two 5/8" x 1-1/2" bolts and locknuts. **Do not over-tighten.** Tighten snug only; these bolts act as pivot points.
2. Loosely secure the service door with the 2 square latch-washers and 3/8" locknuts.

Note: *These must be tightened securely after hopper assembly is completed.*

3. Clean dirt and paint from inside u-joint and flight shaft end, then insert Woodruff key.
4. Raise and support hopper tube at about 50" under spout.
5. Open service door on hopper, then bring tube and hopper together guiding flight shaft into u-joint.
6. Secure tube to pivot-connector on hopper.
   - use 7/16" x 1" bolts and locknuts

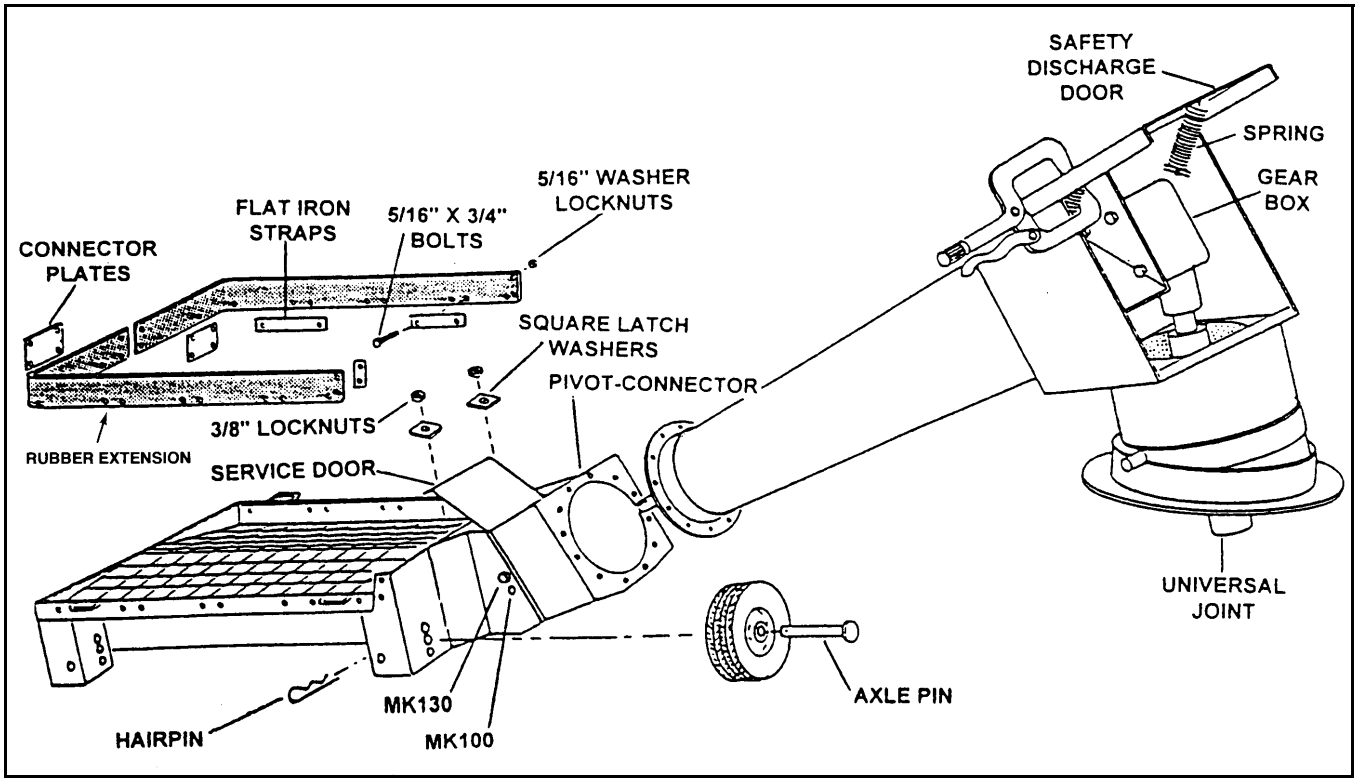


Figure 3.22

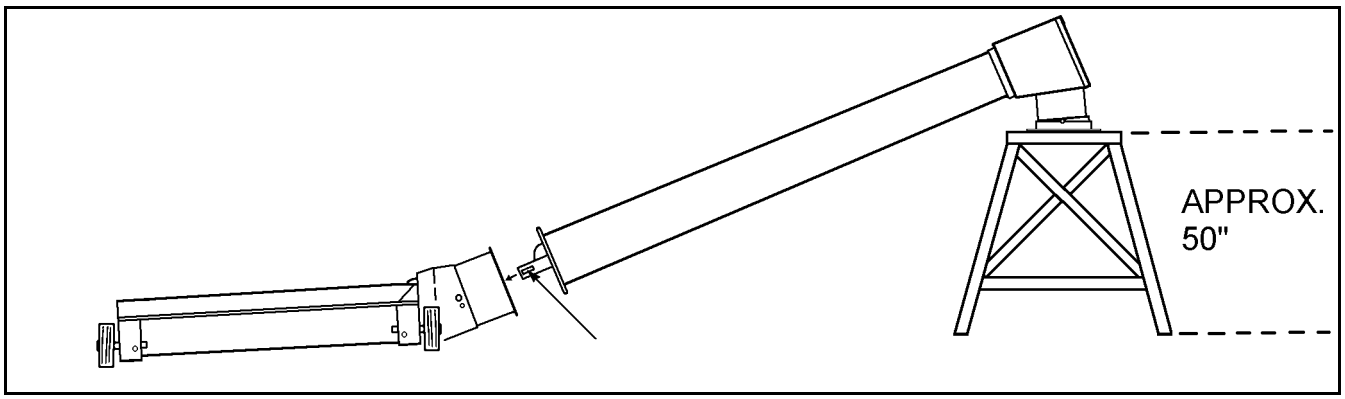


Figure 3.23

7. Tighten set screws on u-joints, then close and secure the service door.
8. Remove the two 5/16" washer locknuts that secure the chain drive guard. Attach the 2-piece rubber extension to inside of hopper lip with 5/16" x 3/4" bolts and washer locknuts and the flat iron straps provided, plus the 2-piece extension connector plates.
9. Attach the 4 pneumatic wheels to the 4 hopper corners with the axle pins and hairpins. The offset portion of the wheel must rest against the hopper.
   - You have a choice of 3 height settings.

10. Open the safety discharge door to connect the intake hopper to the auger boot.
    - This door is held in place internally with 2 springs. To open, pull the door down, and then up and over the gearbox enclosure. Hold open with C-clamp vise grip.
11. Place wide rim 1-1/4" washer guard over splined shaft on lower gearbox.
12. Clean u-joint spline and splined shaft on lower gearbox, then apply a light film of grease on this splined shaft.
13. Guide the splined universal joint onto splined shaft while intake hopper is lowered onto the boot. Once positioned, the swivel ring rests flat on the boot surface and inside the four spacer nuts.
14. Install 4 large washers with 3/8" x 3/4" bolts to keep the intake hopper in place on the boot.
15. Lubricate the universal joint and then close the safety discharge door.

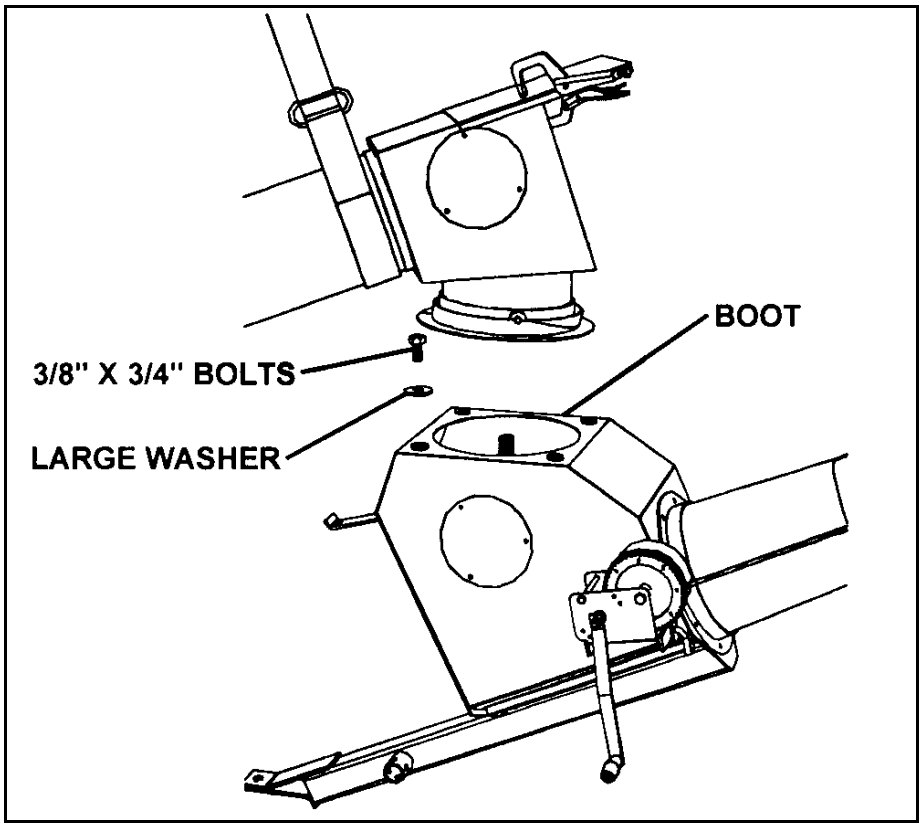


Figure 3.24

DANGER	
	Rotating flighting inside. Do not operate auger with the service or clean-out door open or unlatched. Shut off and lock out power to adjust, service, or clean. Use stick or other tool to clean out. Failure to heed will result in serious injury or death.

3.11.1. LOW PROFILE HOPPER LIFT ARM

Note: *The low profile hopper requires a different lift arm mounting point. This is achieved by using a clamp-on mount on the upper tube.*

1. Place the clamp-on hopper lift arm mount on the upper tube.
2. Attach the two bands to the lift arm mount with four 7/16" x 1-1/4" bolts and locknuts (Figure 3.25).

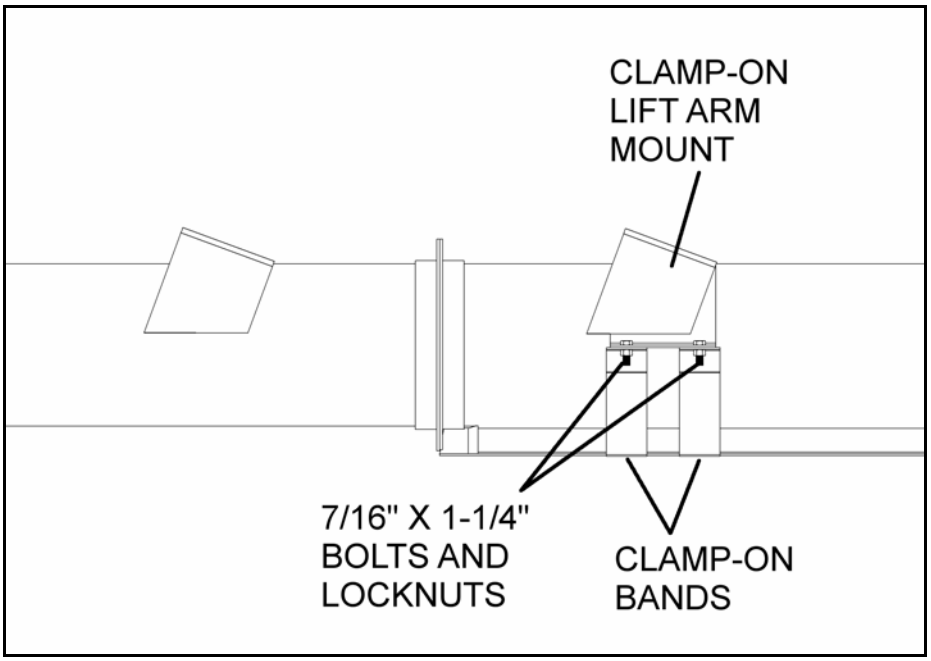


Figure 3.25

3. Position the clamp-on mount 27" from the standard hopper lift arm mount on the lower tube and tighten all bolts (Figure 3.25).
4. Attach the hopper lift arm to the clamp-on mount as described on page 33 in Section 3.10.1.

3.12. HITCH JACK INSTALLATION

The jack is attached to the auger with a pin at the pivot point. To install:

1. Elevate the auger boot (intake end) approximately 2' with a front-end loader and sling, and install the jack in a vertical position. Secure it with the supplied pin.
2. Place a board beneath the jack before setting it on the ground, then lower the auger until the jack is seated. Remove front-end loader from auger.

Note: *Jack can be rotated 90° for transport or operation.*

CAUTION	
	Jack is designed for raising or lowering auger hitch only. Do not get on or beneath auger while supported by, or while jack is being operated.

3.13. AUGER-TO-TRACTOR HOOKUP

Important: *Auger must be hooked up to tractor for all operations including transport, raising, placement, and augering grain.*

3.13.1. PTO DRIVELINE / DRAWBAR

The final stage of the MK assembly is attaching the auger to the tractor.

HITCH PIN

When attaching the MK auger to your tractor, you must leave space between the bottom of the tractor drawbar and the top of the securing device on the hitch pin.

- The securing device could be 2 nuts locked against each other or a washer and sturdy hairpin.
- The space should be about 3/4" to 1" as shown below.

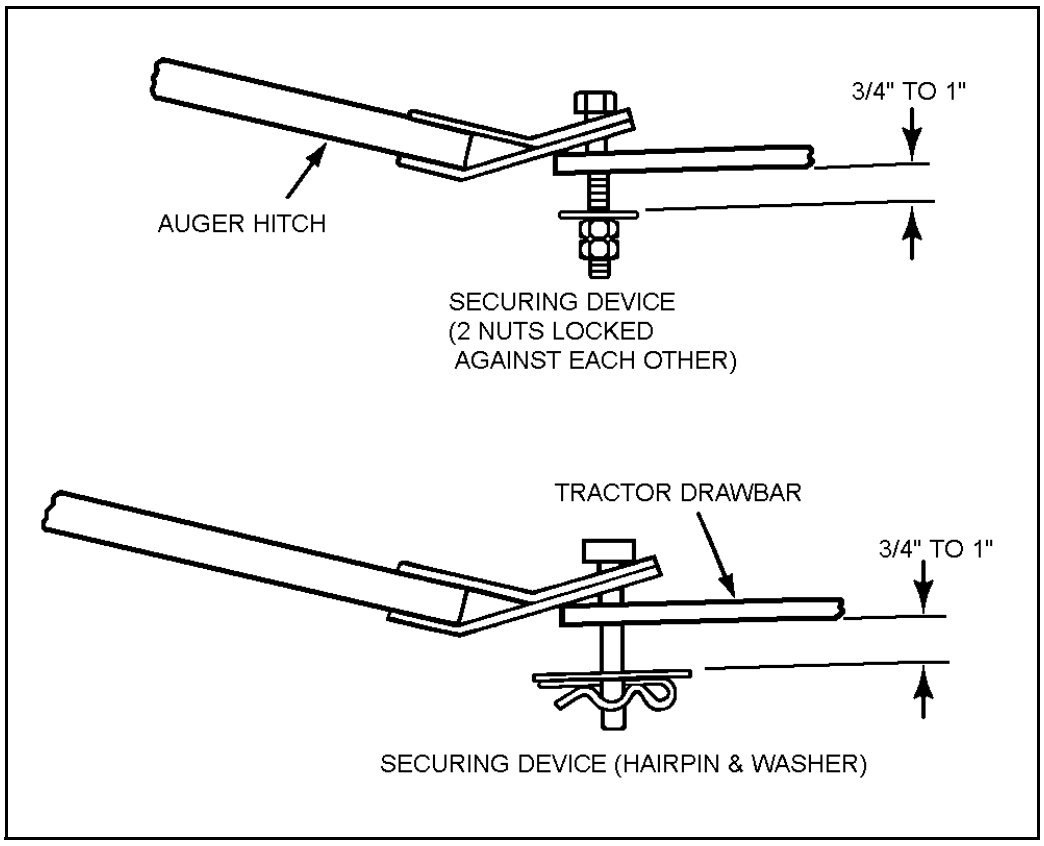


Figure 3.26

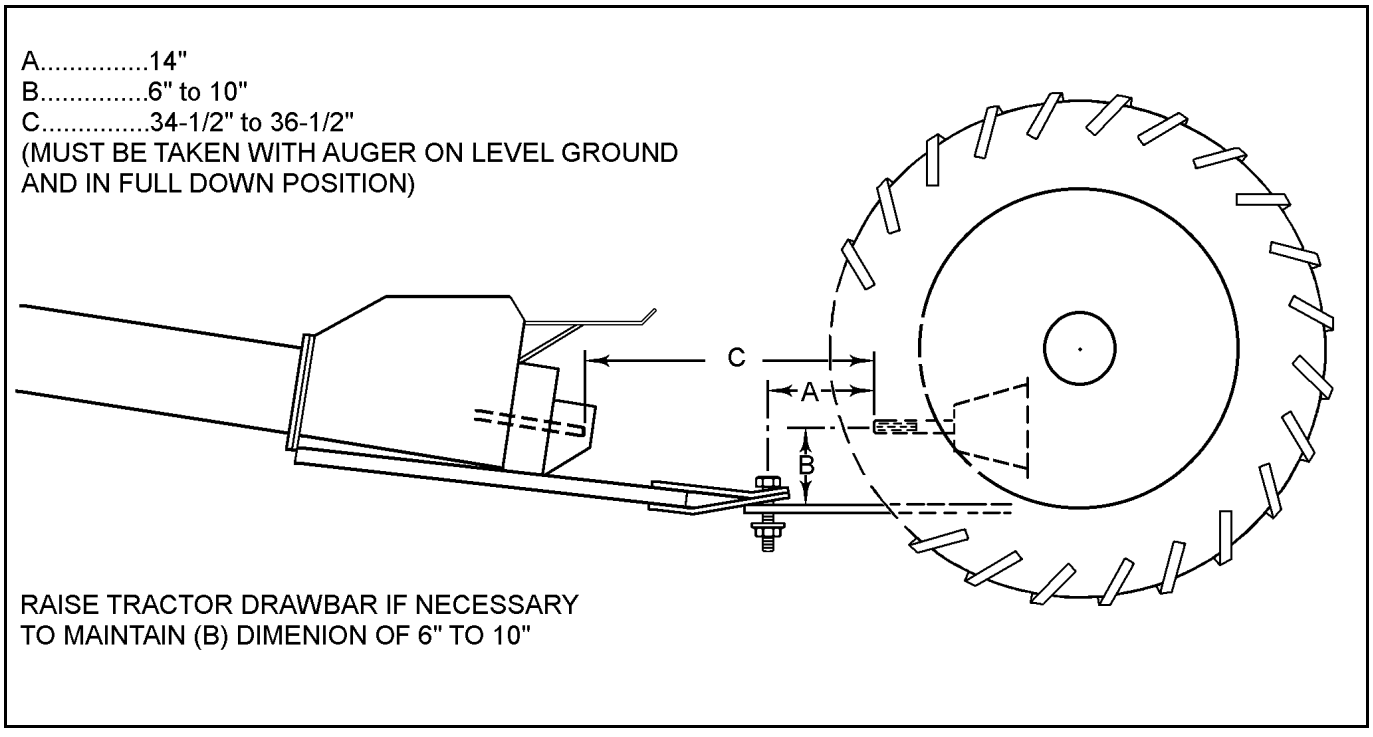


Figure 3.27

MEASUREMENTS BETWEEN DRAWBAR AND DRIVELINE

Since the auger and tractor become an integral unit during transport, placement, and operation, the configuration and measurements between the tractor drawbar and the tractor PTO driveline are very important.

Figure 3.27 illustrates the ideal measurements. Most tractors fall into this range.

- Dimension (B) may range from 6" to 10" with 8" being ideal.
- If dimensions (A) and (B) on your tractor are as shown, then dimension (C), which is critical, will be correct.
- If (A) and (B) vary on your tractor from the recommended dimensions, consult the table below for potential problems and their solutions.

Table 3.1

MEASUREMENT	PROBLEM	SOLUTION
If (A) is less than 14" • (C) will be less than the recommended 34-1/2" to 36-1/2"	• The PTO driveline will bottom out when auger is in raised position. • This will cause damage to the PTO driveline, the bearing, or the boot housing.	• Pull out or lengthen the tractor drawbar as needed to make (C) 34-1/2" to 36-1/2" when the auger is in full down position.
If (A) is more than 14" • (C) may be more than the recommended 34-1/2" to 36-1/2"	• The PTO driveline will separate from the auger in the lowered position. • This will cause damage to equipment and/or injury to personnel.	• Shorten distance (C) to the recommended 34-1/2" to 36-1/2" by attaching hitch to tractor drawbar at a point closer to the tractor PTO shaft.
If (B) is more than 10" • (C) (between tractor PTO shaft and auger input shaft) shortens more quickly when auger is being raised	• The u-joint angle on the PTO driveline will be too severe in the raised position. • The PTO driveline will bottom out before auger is fully raised. • This will cause damage to the PTO driveline, flight shaft, bearing, and boot.	• Raise the tractor drawbar until dimension (B) is within the recommended 6" to 10".

3.14. PLASTIC MANUAL HOLDER

Before beginning installation, ensure that all winch / auger lift controls are locked in place. Shut down and/or lock out tractor.

1. Attach holder to the lower frame arms. Manual holder be accessible at all times, regardless if frame is up or down.
2. The manual holder's cap must face up (towards the intake end). Attach manual holder with supplied zip ties. Tighten the zip ties, securing the holder in place.

Note: *Where possible, attach the zip ties around a frame brace tab to prevent the manual holder from slipping down the lower frame arms.*

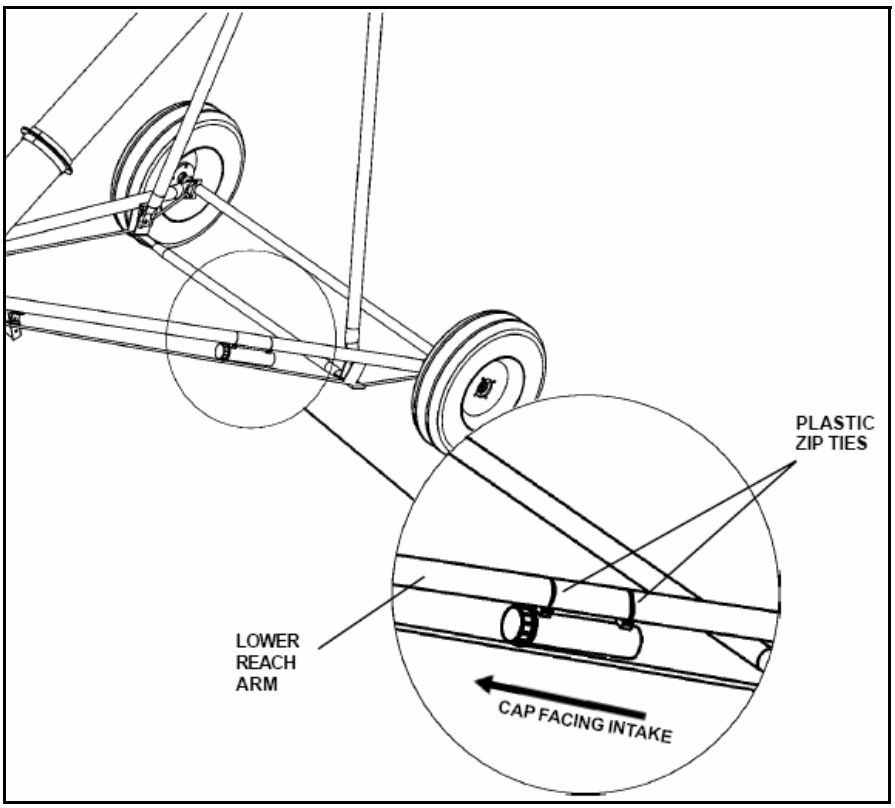


Figure 3.28

4. Transport & Placement

This auger is designed to be transported and/or operated without unhitching unit from tractor. Observe all safety precautions before transporting or placing auger.

4.1. TRANSPORT PROCEDURE

1. Place auger in full down position.
   - disconnect PTO driveline from tractor
   - seat roller track shoe against the upper track stop with slight tension on the lift cable.
2. Lock winch: turn handle clockwise until 2 clicks are heard.

Important: *The winch must have a minimum of 3 wraps of cable on drum when auger is in transport position.*

3. Position and secure hitch pin and safety chain. Place safety chain through clevis welded to auger hitch tube and bolt together before attaching to tractor.

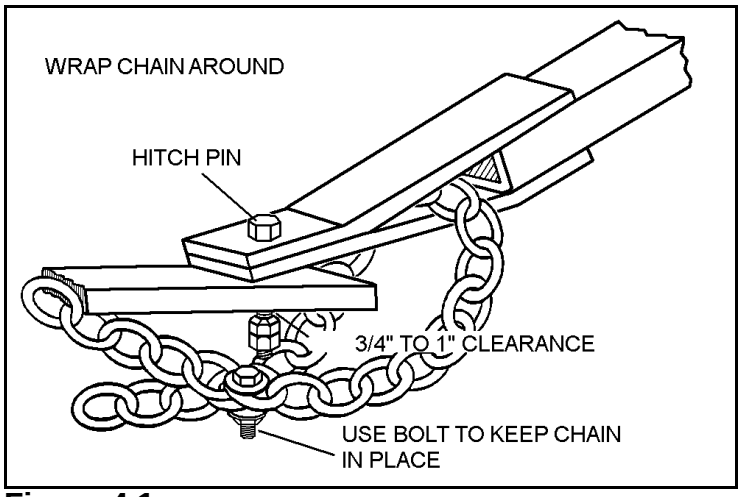


Figure 4.1

4. Raise intake feed hopper into transport position and secure with saddle pin and hairpin.

NOTICE

Do not operate auger with intake hopper in transport position. This will damage the u-joint.

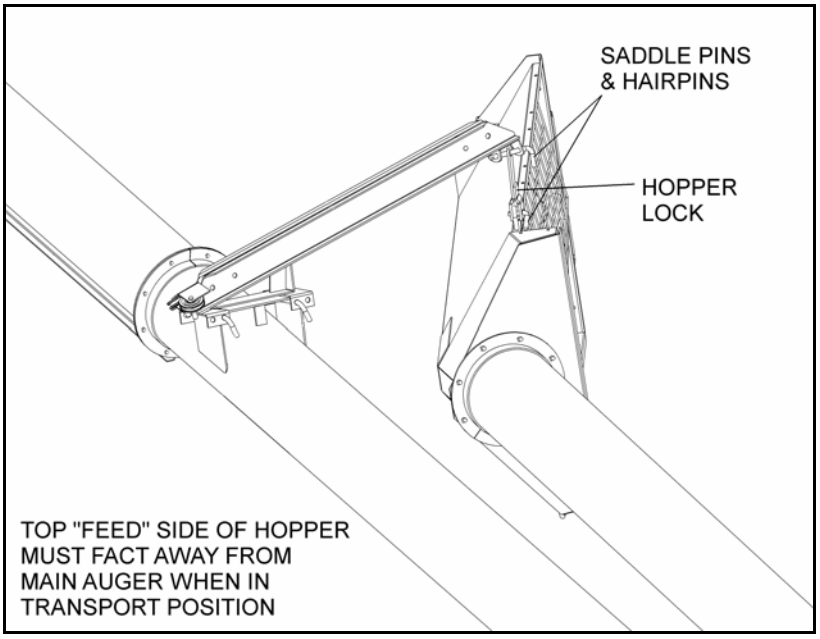


Figure 4.2

5. Place swivel jack (on side of hitch) in transport position and lock.

CAUTION	
	If auger wheels are partially or fully buried in snow or grain, failure to clear the area around the wheel before moving may cause damage to the auger or result in serious injury.

Important: *Intake feed side of hopper must face away from main from main auger when in transport to prevent jamming against the lower frame arms (Figure 4.2).*

6. Clear all untrained personnel from transport zone.
7. Disconnect PTO driveline from tractor and secure in transport saddle.

NOTICE
If PTO is not disconnected, driveline will bottom out, severely damaging the CV u-joint end lower flight shaft. See manual for maintenance.

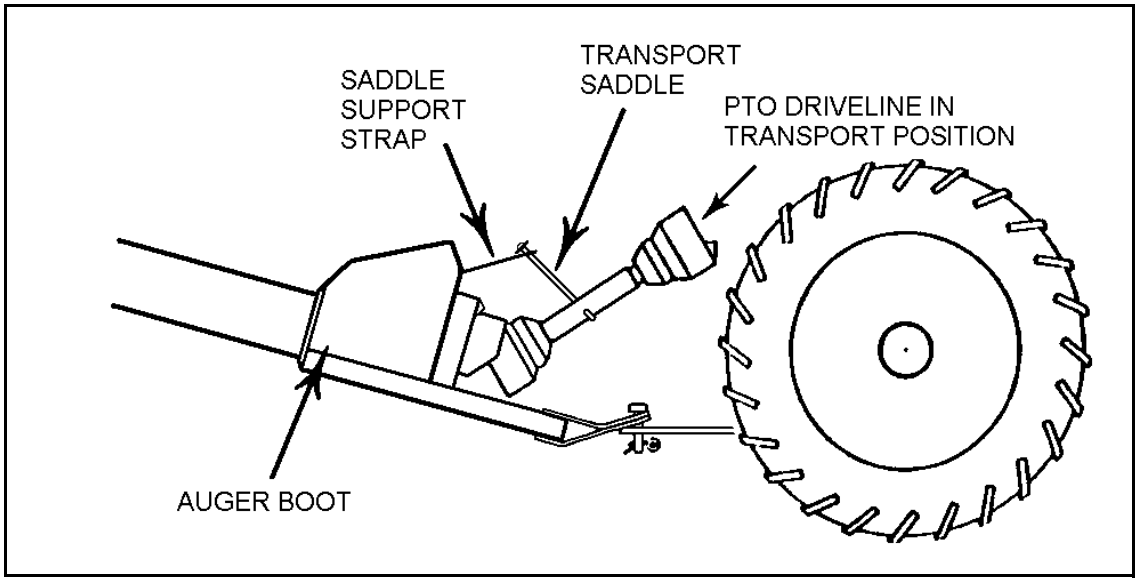


Figure 4.3

8. To place hopper in transport position, attach cable hook to the handle on the side of the hopper, then fully raise hopper with intake side facing away from main auger. Secure hopper to lift arm with the hopper lock, saddle pins, and hairpins provided.

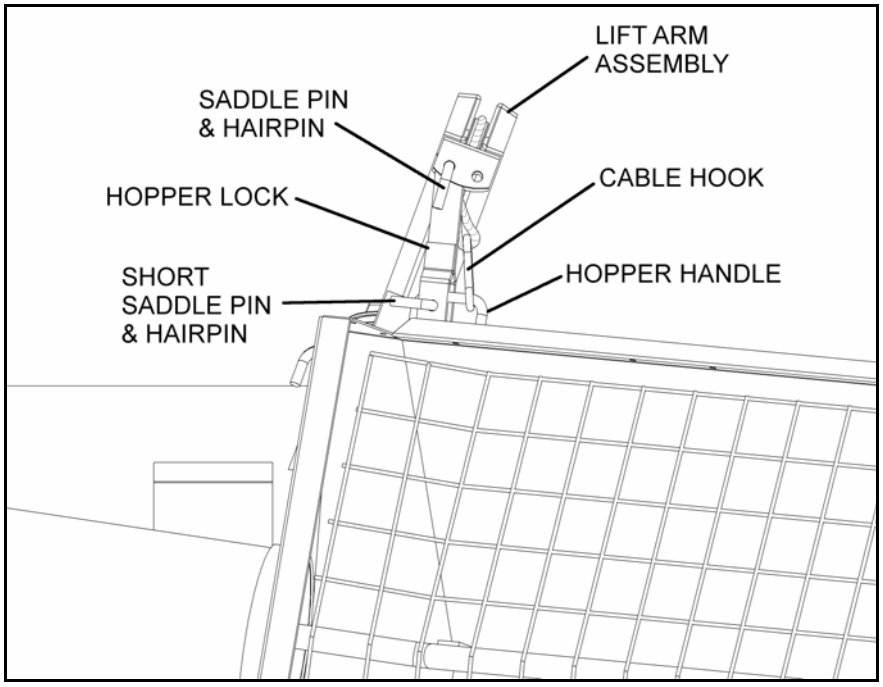


Figure 4.4

4.2. PLACEMENT PROCEDURE

WARNING	
	Auger must be hooked up to tractor for all operations, including transport, raising, placement, and augering grain. Never attempt to move auger manually; to do so will result in serious injury.

1. Disconnect PTO driveline from tractor and secure in transport saddle.
2. Position and secure towing hitch.

Note: *Use a type of hitch pin that will not allow auger to separate from towing vehicle.*

3. Place auger on reasonably level ground when raising, lowering, or positioning.

NOTICE
Auger could topple if ground is too uneven, damaging equipment and/or causing injury.

4. Before raising or positioning auger, make sure that entire area in line of travel, both on the ground and overhead, is clear on any obstructions or electrical wires.

CAUTION	
	If auger wheel are partially or fully buried in snow or grain, failure to clear the area around the wheels before moving may cause damage to the auger or result in serious injury.

5. If the auger must be raised for positioning:
   a. Check that valve on hose to lift cylinder is open.
   b. Raise auger to the desired height.
   c. Close hose valve (after auger is positioned).

NOTICE

Do not turn winch handle counter-clockwise except when lowering auger or severe damage to winch will occur.

Important: *Winch must make clicking sound when raising auger. If clicking stops, retain grip on handle, lower auger fully, and repair ratchet.*

6. Move the auger into working position slowly, making sure that there is no one in the hazard zone. Do not unhitch and attempt to move auger by hand.

NOTICE

When positioning the auger, the PTO driveline must be disconnected from the tractor and placed in the transport saddle to prevent damage to the auger and PTO driveline.

7. Once auger is in position, chock wheels on both sides and apply the park brake on the tractor (or chock its wheels as well) to prevent movement during operation.
8. Fully lower hopper to the ground and remove lift cable from the hopper.
   - See Lowering/Completion on page 52 for the correct lowering procedure.

WARNING

Never attempt to increase height of auger by positioning wheels on lumber, blocks, or by any other means. To do so will result in damage to equipment and/or personal injury.

5. Operation

Operators must observe safety procedures at all times and follow the checklist before each start-up. To do otherwise is endangering life and limb and is a misuse of the equipment.

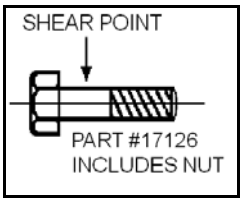
5.1. PRE-OPERATIONAL CHECKLIST

Before operating auger each time, the operator must follow the checklist, which should confirm the following:

- All fasteners are secure as per assembly instructions.
- Lift cable is not frayed or damaged.
- Cable clamps are secure.
- PTO driveline is connected and secure.
- PTO driveline guard rotates freely.
- Tractor and auger are in line or as close to being in line as possible.
- Tube alignment is reasonably straight.
- Intake area and discharge spout are free of obstructions.
- Auger wheels are chocked, and if necessary, tractor wheels are chocked or the parking brake has been engaged.
- Proper maintenance has been performed.

PTO DRIVELINE

Note: *If shearbolt in the PTO driveline fails, shut down and lock out tractor to replace bolt. The MK100 uses a 5/16" x 1" grade 8 bolt through the shank shear.*



For correct operation:

- pre-inspect drive system
- know how to shut down the system
- monitor system during operation

Drive Type	Before Operation	Lockout
PTO Driveline	Before starting, ensure • PTO driveline is securely attached to the tractor and jack-shaft • tractor park brake is engaged and/or wheels are chocked • you are not exceeding the maximum operating length of 40-5/8" [figure 3.27 says that the recommended operating length is 34-1/2" to 36-1/2". Is the max. length listed here (40-5/8") accurate?] of the PTO driveline [should max. angle be included, if so, what is it?] • PTO drive on the tractor is in the off position • driveline, tractor, and equipment shields are in place and in good working order • driveline shields turn freely on driveline	Shut off tractor's engine and remove key or coil wire from tractor. • If removing key is impossible, remove PTO driveline from tractor.

5.2. OPERATING PROCEDURE

5.2.1. INITIAL START-UP

BREAK IN

CAUTION	
	Auger must be hooked up to tractor for all operations, including transport, raising, placement, and augering of grain.

The angle drive requires a break-in period of at least 2 or 3 loads of grain.

1. Properly place auger and complete the pre-operational checklist. If everything is satisfactory, prepare for one hour of operation at half speed.[for first time only? why one hour in the MK manuals, but 30 minutes in others?]
2. Correctly position intake hopper.
3. Ensure that the PTO drive on the tractor is in the OFF position.

Important: *When starting auger for the first time, be prepared for an emergency shutdown in case of excessive vibration or noise. Auger may run rough until tube is polished.*

4. Start tractor and idle at low rpm. Slowly engage PTO drive and hydraulics (where applicable).
5. Gradually begin feeding grain into hopper, bringing auger speed up to about 300 rpm.
   - Do not overfeed the hopper on initial loads; keep feed of grain at about half capacity.
6. After auger tube is polished and runs fairly smoothly, proceed to unload at full speed of 540 rpm.
7. After initial run, slow auger down until empty of grain and then stop.
8. Lock out tractor and conduct a complete inspection of auger following the checklist.
9. After initial start-up and inspection, auger should be operated and inspected at least 3 more times during the first 10 hours of operation.

Note: Running auger empty at high speeds results in excessive wear. Do not exceed 540 rpm.

10. **After Break-in:** Maintain auger speed of 300 to 540 rpm under normal use for maximum efficiency and to reduce chance of plugging.

5.2.2. OPERATING WITH A FULL LOAD

- **Monitor the auger** during actual operation for abnormal noises or vibrations.

WARNING	
	Do not exceed 540 rpm on the PTO. Do not remove or open cleanout / safety discharge doors while auger is in operation. Do not operate if cleanout doors / safety discharge doors have been removed.

- **If grain overflows** through safety discharge door, then the auger is loaded beyond its capacity; reduce volume of feed to intake hopper. Remember, auger capacity will decrease at steeper angles of operation.
- **Engage and disengage PTO drive** with tractor engine at idle speed. This will reduce stress on drive components and on shear bolts.

5.2.3. SHUTDOWN

NORMAL SHUTDOWN:

1. Near the end of a load, decrease auger speed until all grain is clear of machine.
2. When auger is clear of grain, disengage PTO drive.
3. Shut down and lock out tractor.

EMERGENCY / FULL-TUBE RESTART:

1. If cleanout covers or safety doors have been opened or removed, close or replace them before restarting the unit.
2. If the auger is shut down for an emergency, lock out tractor before correcting the problem.
   - If the problem is plugging, clear as much of the grain as possible using a piece of wood, vacuum cleaner,[shop vac or grain vac?] or other tool before restarting auger. **Do not reach in and use your hands** (see above for lockout procedure.)
3. If auger is full of grain, do not restart at full speed. Engage PTO at low rpm, gradually increasing power until normal operating speed is reached.

NOTICE
Starting the auger under load may result in damage to unit. Be sure there is no blockage.

5.3. LOWERING/COMPLETION

After operation, move auger to the next work area or to a storage area and clean out.

1. Clean entire work area.
2. Remove all supports and chocks.
3. Move auger out of working position and lower fully.

LOWERING [PLEASE CHECK TO SEE IF PROCEDURE IS ACCURATE]

1. Raise the intake feed hopper. Do not attempt to lift by hand.
   - Never operate auger with intake feed hopper in transport position. This will damage the universal joint.
2. For PTO drives: disconnect driveline from tractor before lowering.
3. Ensure area beneath auger is clear.
4. Turn winch counterclockwise to lower (there will be no clicking sound when lowering).
5. After lowering, turn handle clockwise until you hear 2 clicks to lock brake.
   - Use a firm grip on handle. Do not release unless the ratchet pawl is fully engaged.
   - The winch is designed for manual operation only.
   - When lowering, never continue to turn handle counterclockwise if the cable does not keep moving out under load. This will disengage the brake mechanism and create an unsafe condition. If this happens, winch in slack cable and correct problem.

Do not leave auger in raised position when not in use. Auger could drop rapidly due to a cable break.

4. Clean out auger.
   a. Shut off tractor engine and lock out power.
   b. If necessary, open cleanout cover on the boot and manually clean out grain with a piece of wood, vacuum cleaner, or other tool. Do not use hands.
   c. Replace cleanout cover.
   d. Winch intake feed hopper into transport position and clean out remaining grain suing a piece of wood or other tool.
5. Prepare for transport and placement or storage (see appropriate chapters for more information).

6. Maintenance & Storage

6.1. GENERAL MAINTENANCE PROCEDURE

Please follow the guidelines below.

Area	Maintenance	Frequency
General	While auger is in use, observe the checklist in Section 5.2.	Daily
General	Check all operating, lifting, and transport components. Replace damaged or worn parts before using auger. • For replacement instructions, see Chapter 3.	Regularly
Intake Hopper Angle Drive	Lubricate the angle drive with high-temperature grease. • If the angle drive in hopper runs hot AFTER the recommended break-in period, this may mean the angle drive is not properly aligned. **To align**, lock out power, loosen the bolts securing the angle drive, and then adjust or shim up until the flight can be easily rotated by hand.	After every 8 hours of use
Lift Cable	Check and replace if frayed or damaged. Make sure cable clamps are secure.	Periodically
Wheel Hubs	Repack with lithium-based grease.	Every 2–3 years
Tire Pressure	Check with a pressure gauge. Pressure should be maintained at 18–24 psi (124–165 kPa).	Monthly, or if it seems low
Hopper Lift Cable	Check and replace if frayed or damaged.	Periodically
Hopper Lift Cable Pulleys	Oil lightly for easier raising of hopper.	Several times a year
Winch	Keep a film of grease on gears.	Regularly
	Oil the bushings, drum shaft, and ratchet. • Take care not to get oil or grease on brake discs. Service winch with auger in fully lowered position and cable slack.	Occasionally
	Replace brake discs if less than 1/16" thick.	As required
	Service winch with auger in fully lowered position and cable slack.	Regularly

Area	Maintenance	Frequency
PTO Driveline	Lubricate all 5 grease fittings (Figure 6.1) with good quality Lithium Soap Base E.P. Grease meeting NLGI #2 specifications and containing no more than 1% molybdenum disulfide (example: Shell Super Duty). • Grease fittings No. 2 and 3 can be reached through hole in implement end portion of the driveline guard. • Grease fitting No. 4 can be reached through hole in center portion of the driveline guard. • The first lube interval should be 16-24 hours of operation after initial start-up, then follow the schedule.	After the first 16–24 hours and then regularly afterward
General	Ensure that the set screws and shear-bolt are tight.	Regularly

LUBE RECOMMENDATIONS		
Interval	**Location**	**Amount**
8 hours[a]	Cross & Bearing	1 pump
8 hours	Telescoping Members	4-8 pumps
8 hours[a]	CV Ball & Socket	1-2 Pumps

a. Constant angle applications must have lube interval of four hours.

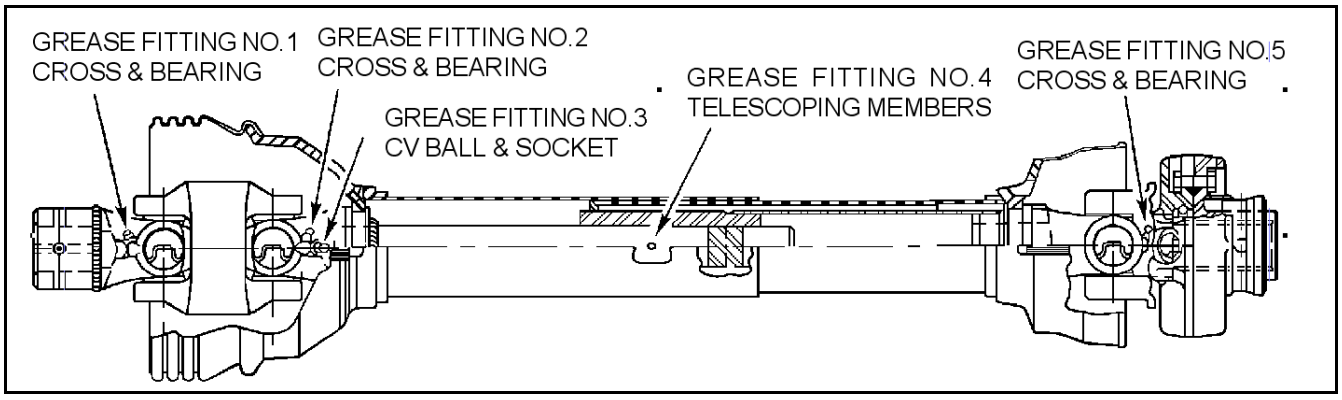


Figure 6.1

NOTICE

Replacement parts are not lubricated!

Replacement parts must be lubricated at time of assembly. Use amount listed above per location, then follow lube recommendations outlined above for lubing intervals.

MECHANICAL DRIVE SYSTEM MAINTENANCE

Area	Maintenance to Perform	Frequency
Bottom Chain Drive • Replace sprocket guard after maintenance!	Keep drive chain tension adjusted to about 1/4" deflection by loosening the four bolts on lower bearing, then re-tighten.	Regularly
	Oil chain often enough to keep film of oil on it (this can be done through the hole in the top of the sprocket guard).	Frequently
Universal Joint	Flip up safety discharge door and lubricate grease fitting in the u-joint. Check set screws and re-tighten if necessary.	After every 8 hours of operation
	Check set screws and re-tighten if necessary.	Regularly
Gearboxes	Check oil levels in both gearboxes. They should be half full of EP90 lube oil. • Fill as needed; you may need a flexible funnel. If you notice excessive loss of oil, check more frequently and repair problem. • Each gearbox requires 355 mL or 12-1/2 fl oz. Do not overfill.	At least once a year, depending on use
	Upper Gearbox: flip up safety discharge door or open round service door and service gearbox.	As required
	Lower Gearbox: open round service door and service gearbox.	As required
	For more extensive servicing or repairs, remove hopper from boot assembly by removing the 3/8" x 3/4" bolts and large washers. Lift hopper with front-end loader or other secure method.	As required
	Check and re-tighten set screws and connecting bolts. Clean and lightly grease the splined shaft. Reattach hopper to boot assembly as per instructions in Section 3.10.	As required
Bearing • Replace sprocket guard after maintenance!	Lubricate grease fitting on lower flight bearing.	As required

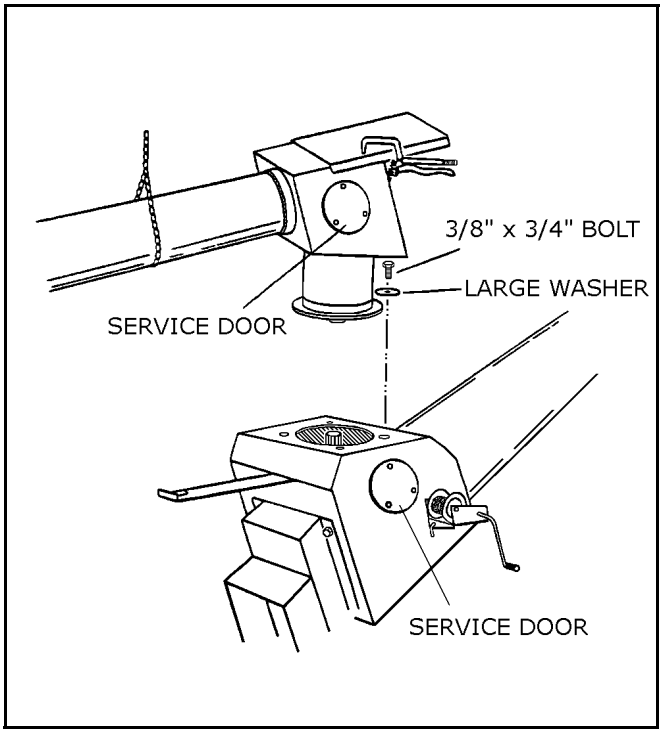


Figure 6.2

WARNING

Do not operate auger with intake hopper not in place. Replace and secure service doors before operating auger.

6.2. GENERAL STORAGE PROCEDURE

TO PROTECT AUGER IN STORAGE DURING THE OFF-SEASON:

1. Lower the auger to full down position with slight tension on the cable.
2. Lubricate all grease fittings according to the maintenance procedure.
3. Inspect auger for damage and note any repairs required. Order replacement parts from your dealer.
4. Check tire pressure and inflate to 18–24 psi (124–165 kPa) if necessary.
5. Clean and re-lubricate the spline on PTO driveline. Cover PTO driveline with a plastic bag to protect it from the weather and place it in the transport saddle.

6. Tow auger to storage area. Park and chock wheels.

CAUTION	
	Support discharge end of auger before removing or replacing any parts on the undercarriage.

TO PREPARE AUGER FOR USE AFTER STORAGE:

1. Check tire pressure and inflate to 18–24 psi (124–165 kPa) if necessary.
2. Tow auger to work site.
3. Remove cover from spline of PTO driveline and re-lubricate.
4. Check oil level in gearbox and refill is necessary (half full only).
5. Replace any damaged parts and decals.
6. Check and perform general maintenance before using auger.
7. Before raising auger after storage, make certain cable is in good condition, replacing it if frayed or damaged. Also make sure cable is properly seated in roller track and that cable clamps are secure.

7. Appendix

7.1. TUBE DECAL LOCATIONS

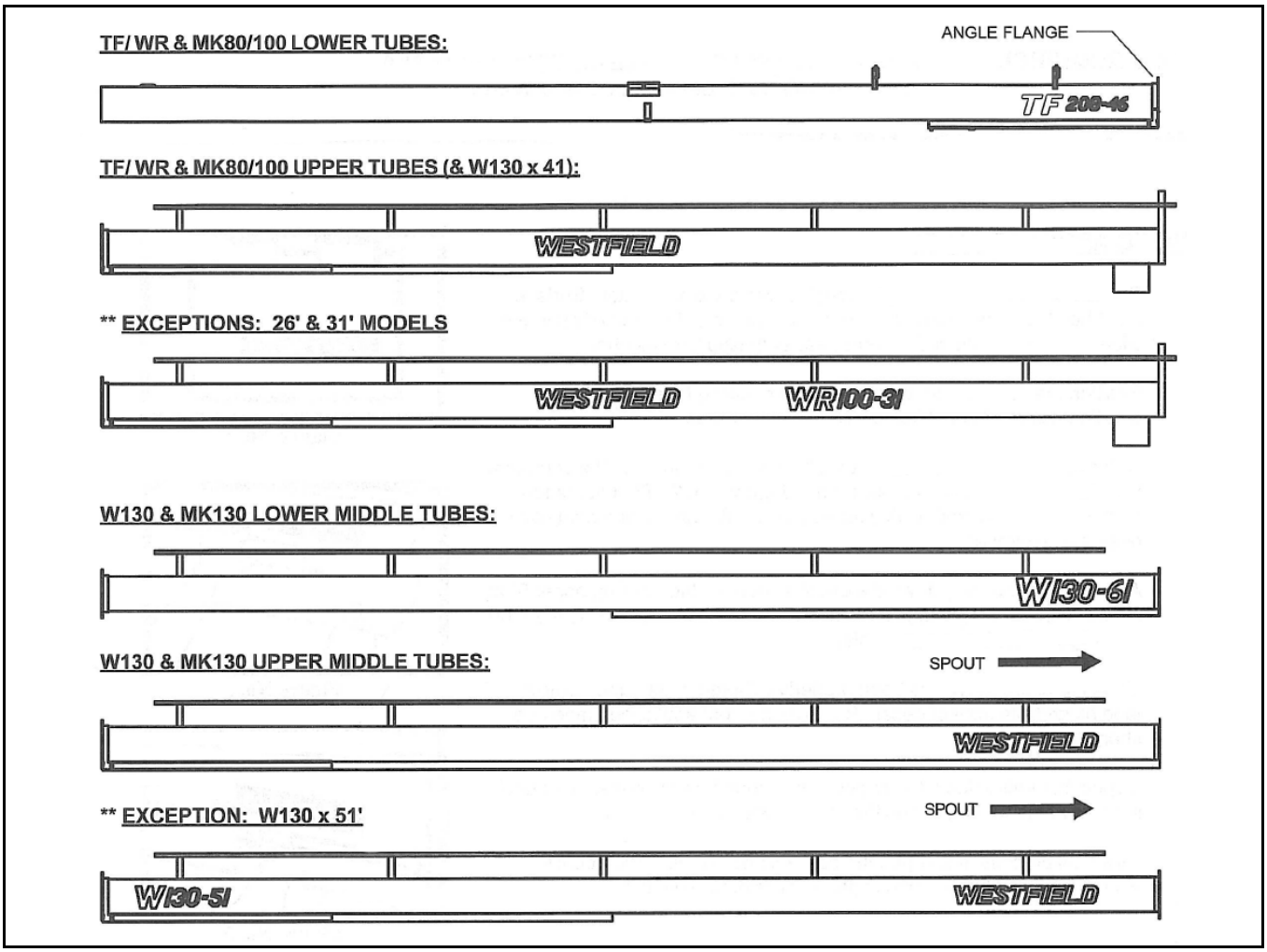


Figure 7.1

Important: *Do not cover any existing safety or instruction decals with the model decals.*

For most decal placement, follow the figure above. Apply decals to both sides of auger tube.

Lower Tubes: Place decals just below the angle flange, centered on the tube. Decals must be easily seen from the ground when auger assembly is complete. (For 36' augers, the model decal can be located in the center of the lower tube.)

Upper Tubes: Place Westfield decals in the center of the upper tube, where they are easily seen from the ground when auger assembly is complete. For the W130 & MK130 series, the Westfield decal is located at the top end of the upper middle tube.

Picture of flighting and tube sections to be added to appendix when supplied by Westfield.

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.

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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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