FILL AUGER
FITS JD 1690, 1890, 1990 CCS AIR DRILLS

Part No. 24034

Foreword

Your new FILL AUGER is designed and manufactured to give you years of dependable service. To keep it running efficiently, read the instructions in this operator's manual.

This manual covers operation, service, assembly, and parts for your FILL AUGER. Read and study manual completely before attempting to operate this implement. Take this manual to the field for handy reference when operating, adjusting, or servicing your machine.

"Right-Hand" and "Left-Hand" side of the machine are determined by standing behind the implement and facing in the direction of forward travel.

This symbol identifies important safety messages. When you see it, read the message that follows and be alert to the possibility of personal injury.

Remember, safety instructions stated in this manual are for your protection. Read them carefully and follow them closely when working around or using this machine.

IMPORTANT

- *The information, specifications, and illustrations in the manual are on the basis of information available at the time it was written. Due to continuing improvements in the design and manufacture of Unverferth products, all specifications and information contained herein are subject to change without notice.*

Product Information

Please fill out and retain this portion for your records. All products manufactured by Unverferth Mfg. Co., Inc. are warranted to be free from material and workmanship defects for one full year from time of consumer delivery. Your local dealer will gladly assist you with any warranty questions.

The serial number plate is located as shown in Fig. 1.

Product _____

Serial Number _____

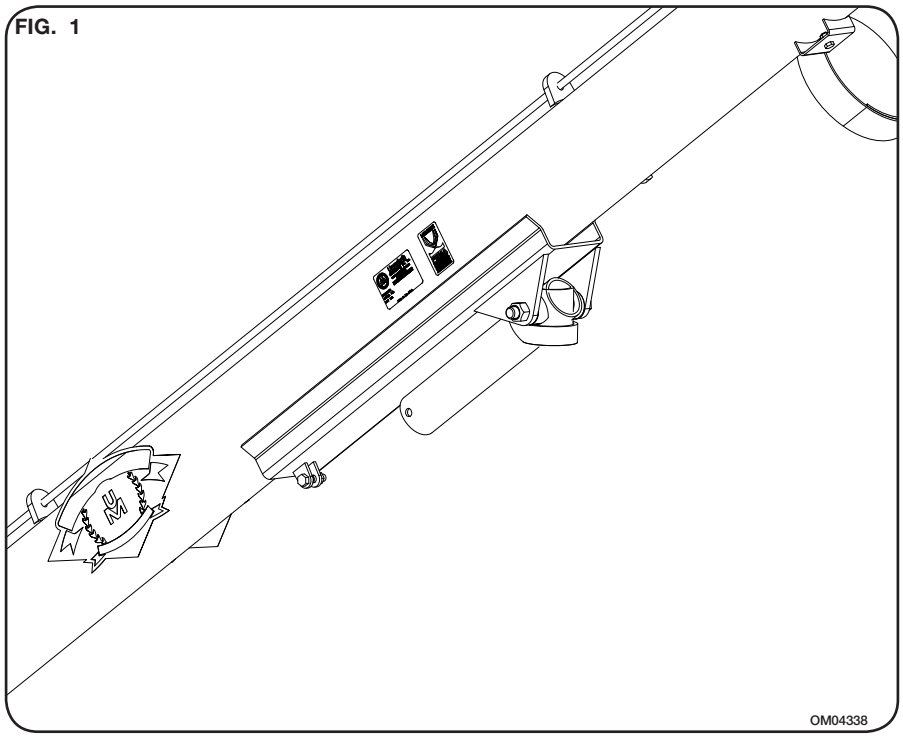
Date of Purchase _____

Dealer _____

City _____ State _____ Zip _____

Please supply this information when you have questions or when ordering repair or replacement parts. Your dealer needs this information to give you prompt, efficient service.

FIG. 1



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SECTION I

Safety

General Hazard Information

No accident-prevention program can be successful without the wholehearted cooperation of the person who is directly responsible for the operation of the equipment.

A large number of accidents can be prevented only by the operator anticipating the result before the accident is caused and doing something about it. No power-driven equipment, whether it be transportation or processing, whether it be on the highway, in the field, or in the industrial plant, can be safer than the person who is at the controls. If accidents are to be prevented--and they can be prevented--it will be done by the operators who accept the full measure of their responsibility.

It is true that the designer, the manufacturer, and the safety engineer can help; and they will help, but their combined efforts can be wiped out by a single careless act of the operator.

It is said that, “the best kind of a safety device is a careful operator.” We, at Unverferth Mfg. Co., Inc. ask that you be that kind of operator.

REMEMBER:

THINK SAFETY

A CAREFUL OPERATOR IS THE BEST INSURANCE AGAINST AN ACCIDENT!

SIGNAL WORDS

INDICATES AN EXTREMELY HAZARDOUS SITUATION OR ACTION THAT WILL RESULT IN SERIOUS INJURY OR DEATH.

INDICATES A HAZARDOUS SITUATION OR ACTION THAT COULD RESULT IN SERIOUS INJURY OR DEATH.

INDICATES AN UNSAFE SITUATION OR ACTION THAT MAY RESULT IN PERSONAL INJURY.

Is used for instruction on operating, adjusting, or servicing a machine.

Safety Decals

WARNING **REPLACE LOST, DAMAGED, PAINTED, OR UNREADABLE DECALS IMMEDIATELY. IF PARTS THAT HAVE DECALS ARE REPLACED, ALSO MAKE SURE TO INSTALL NEW DECALS. THESE DECALS INFORM AND REMIND THE OPERATOR WITH OPERATIONAL INFORMATION AND SAFETY MESSAGES.**

PART NO. 93558

PART NO. 97961

PART NO. 95839

PART NO. 93551

PART NO. 98766

PART NO. 93694

Following Safety Instructions

- Read and understand this operator's manual, and the towing vehicle's operator's manual, before operating.

- All machinery should be operated only by trained and authorized personnel.
- To prevent machine damage, use only attachments and service parts approved by the manufacturer.
- Always shut tractor engine off and remove key before servicing.

- Avoid personal attire such as loose fitting clothing, shoestrings, drawstrings, pants cuffs, long hair, etc., that may become entangled in moving parts.
- Never attempt to operate implement unless you are in driver's seat.

Before Servicing

- Avoid working under an implement; however, if it becomes absolutely unavoidable, make sure the implement is safely blocked.

- Ensure that all applicable safety decals are installed and legible.

Before Operating

- Always make certain everyone and everything is clear of the machine before beginning operation.
- Verify that all safety shields are in place and properly secured.
- Ensure that all applicable safety decals are installed and legible.

During Operation

- Never service or lubricate equipment when in operation.
- Keep away from overhead power lines. Electrical shock can cause serious injury or death.
- Use extreme care when operating close to ditches, fences, or on hillsides.

Before Transporting

- Install transport locks before transporting.
- Check for proper function of all available transport lights. Make sure that all reflectors are clean and in place on machine. Make sure the SMV emblem is visible to approaching traffic.

During Transport

- Comply with all laws governing highway safety when moving machinery.
- Use transport lights as required by all laws to adequately warn operators of other vehicles.
- Maximum speed of implement should never exceed 20 mph. Do not exceed 10 mph during off-highway travel.
- It is probable that this implement is taller, wider and longer than the towing vehicle. Become aware of and avoid all obstacles and hazards in the travel path of the equipment, such as power lines, ditches, etc.

Pressurized Oil

- Relieve the hydraulic system of all pressure before adjusting or servicing. See hydraulic power unit manual for procedure to relieve pressure.
- High-pressure fluids can penetrate the skin and cause serious injury or death. Use cardboard or wood to detect leaks in the hydraulic system. Seek medical treatment immediately if injured by high-pressure fluids.

- Hydraulic system must be purged of air before operating to prevent serious injury or death.
- Do not bend or strike high-pressure lines. Do not install bent or damaged tubes or hoses.
- Repair all oil leaks. Leaks can cause fires, personal injury, and environmental damage.
- Route hoses and lines carefully to prevent premature failure due to kinking and rubbing against other parts. Make sure that all clamps, guards and shields are installed correctly.
- Check hydraulic hoses and tubes carefully. Replace components as necessary if any of the following conditions are found:
  - End fittings damaged, displaced, or leaking.
  - Outer covering chafed/cut or wire reinforcing exposed.
  - Outer covering ballooning locally.
  - Evidence of kinking or crushing of the flexible part of a hose.

Preparing for Emergencies

- Keep a first aid kit and properly rated fire extinguisher nearby.

- Keep emergency numbers for fire, rescue, and poison control personnel near the phone.

Wearing Protective Equipment

- Wear clothing and personal protective equipment appropriate for the job.

- Wear steel-toed shoes when operating.

- Wear hearing protection when exposed to loud noises.

- Do not wear additional hearing impairing devices such as radio headphones, etc.

SECTION II
Setup

Assembly

This section contains all of the instructions required for the complete assembly of the entire FILL AUGER to your air drill.

For your safety, and the safety of others, use proper tools and equipment and always use safe working procedures. Refer to these instructions before starting any work on your machine.

⚠ WARNING

- **KEEP HANDS CLEAR OF PINCH POINT AREAS.**
- **FALLING OBJECTS CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT WORK UNDER THE MACHINE AT ANY TIME WHILE BEING HOISTED. BE SURE ALL LIFTING DEVICES AND SUPPORTS ARE RATED FOR THE LOADS BEING HOISTED. THESE ASSEMBLY INSTRUCTIONS WILL REQUIRE SAFE LIFTING DEVICES UP TO 500 LBS. SPECIFIC LOAD RATINGS FOR INDIVIDUAL LOADS WILL BE GIVEN AT THE APPROPRIATE TIME IN THE INSTRUCTIONS.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING THE IMPLEMENT.**

IMPORTANT

- *The procedures for assembling this unit are intended for two or more people.*
- *The installation procedures provided are for the most common setups on the included air drills. Accessories, options, and varying air drill set-ups may result in slight modifications from the recommended measurements given.*

Assembly (Continued)

For ease of assembly, install all hardware loosely until assembly is complete and then tighten according to "Torque Chart".

Place machine on a solid level surface with sufficient clear space to unfold the wings of the machine. Unfold wings (if present), lower unit to the ground, block from moving, set the tractor brakes, shut-off the engine, and removed the ignition key.

Be careful when handling the components. Keep hands and feet from pinch and crush points.

Use a safe lifting devices rated at 500 lbs. minimum when handling the lower and upper augers.

1. Remove the auger and flighting from the crate, see Fig. 3-1.

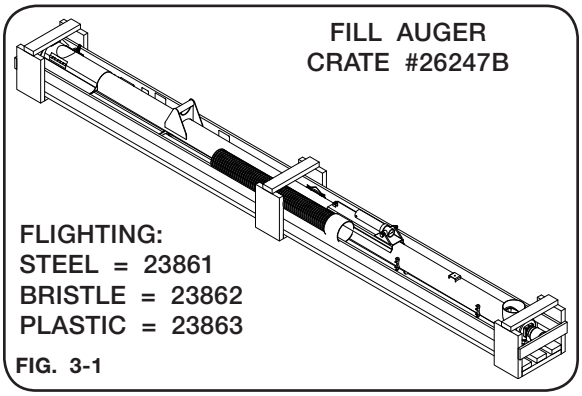
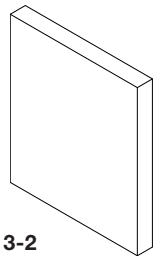
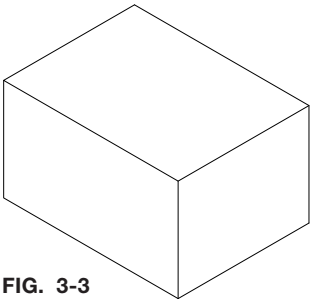


FIG. 3-1



HOPPER LID
#23664

FIG. 3-2



PARTS BOX
#24033

FIG. 3-3

Assembly (Continued)

2. On the spout end of the fill auger, remove end cap (2865B) by removing self-drilling screws (9512). Also, remove hydraulic motor (91604B) by removing capscrew (9390-058) and locknut (9928). Retain all hardware removed. See figure 3-4.

3. Insert the flighing into the spout end of the auger tube. See figure 3-4.

4. On the hopper end of the fill auger, install flange bearing (9735) provided in the part box (24033). Secure in place using capscrews (9390-056), flat washers (9405-076) and locknuts (9928) provided in parts box. See figure 3-5.

5. Insert the flighting shaft into the flange bearing (9735) and retain in place by tightening the set screw on the locking collar found on the flange bearing. See figure 3-5.

6. Reinstall hydraulic motor (91604B) and end cap (2865B) previously removed in Step 2.

FIG. 3-4

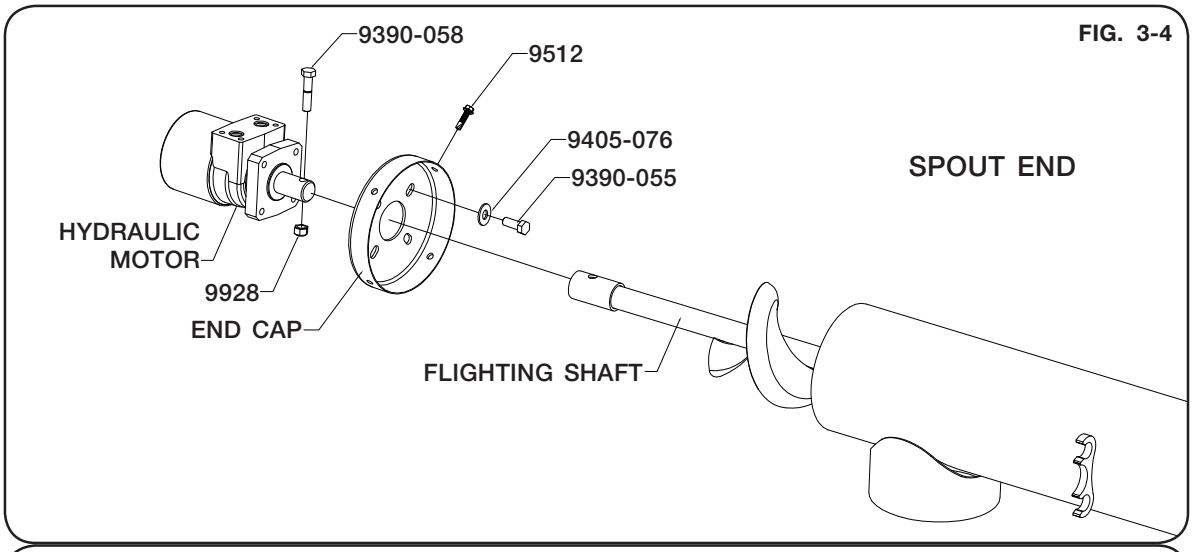
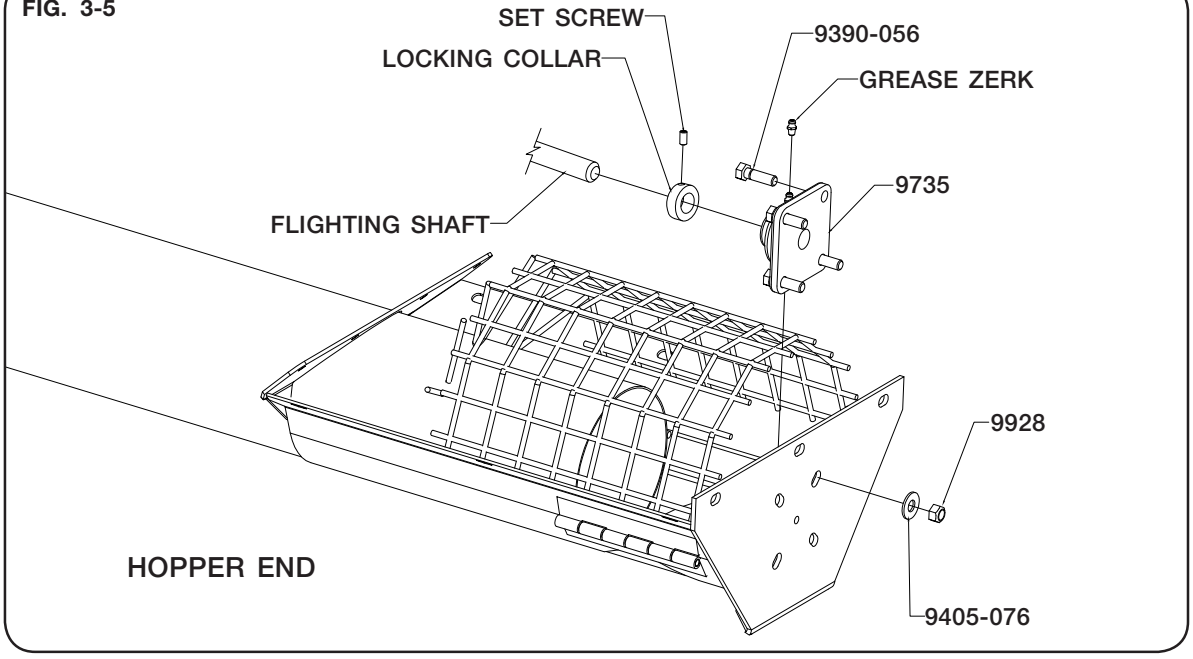


FIG. 3-5



Assembly (Continued)

7. Loosely assemble the back hopper panel (108020B) to the lower auger using 3/8”-16UNC x 3/4” lg. flange screws (93649) and flange nuts (91263) (Fig. 3-6).

8. Loosely assemble the hopper side panels (23150B & 23151B) to the lower auger and the back hopper panel using 3/8”-16UNC x 3/4” lg. flange screws (93649) and flange nuts (91263) (Fig. 3-7).

9. Tighten the hopper panel hardware according to “Torque Chart”.

10. Attach the hopper seal (108021) to the lid weldment (23661B) using plate (23270B), 1/4”-20 x 5/8” lg. capscrews (9390-002), 1/4” flat washers (9405-062), and locknuts (9936) (Fig. 3-8 & Fig. 3-9).

11. Attach the other end of the hopper seal (108021) to the lower auger using plate (23271B), capscrews 1/4-20 x 5/8” lg. (9390-002), flat washers 1/4” (9405-062), and locknuts (9936) (Fig. 3-8, Fig. 3-9 & Fig. 3-10).

NOTE: If the hopper lid does not fit properly, adjust the side hopper panels accordingly. Retighten hardware according to “Torque Chart”.

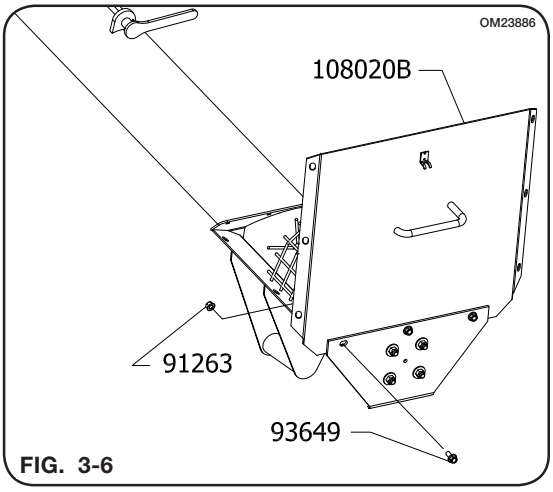


FIG. 3-6

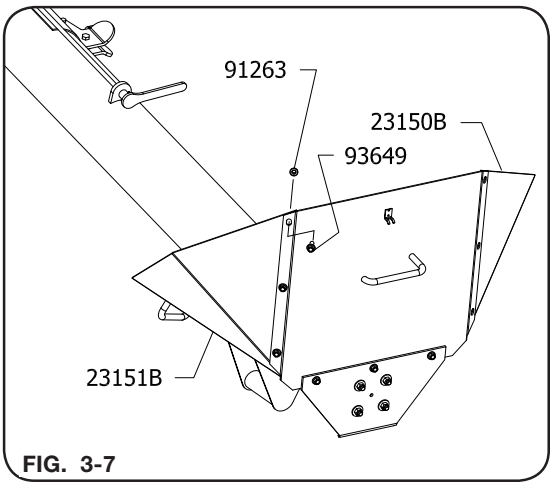


FIG. 3-7

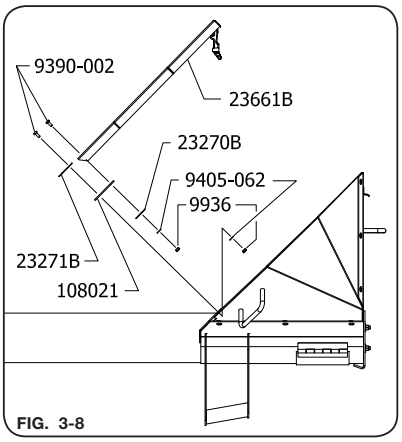


FIG. 3-8


FIG. 3-9


FIG. 3-10

Transport Support Stand

JD 1690 CCS Only

⚠ CAUTION

- **DO NOT USE LADDER TO ACCESS UPPER PLATFORM WHILE LADDER SUPPORT BRACKET IS NOT INSTALLED. FAILURE TO DO SO COULD CAUSE LADDER TO FAIL CAUSING DAMAGE OR SERIOUS PERSONAL INJURY.**

JD 1690 CCS Air drills require removal of the ladder bracket prior to installation of the transport bracket.

1. Remove the original ladder support bracket as provided from John Deere. Retain the u-bolt, washers, and nuts for reinstallation. (FIG. 3-11)

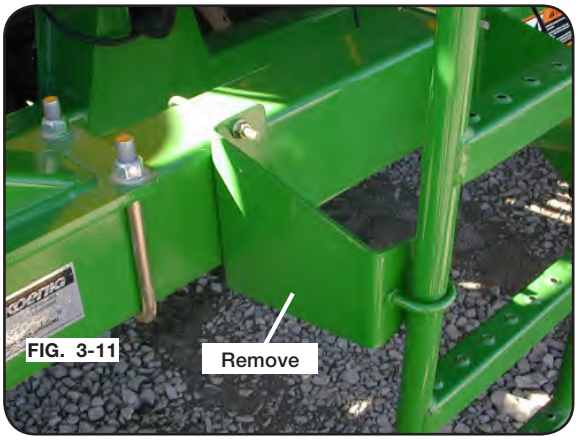


FIG. 3-11

2. Install transport arm weldment (2004077B) to left-rear side of air drill as shown in Fig. 3-12. Secure with plate (26694B), capscrews (9390-136), and locknuts (9801).

3. Attach the straps (2004251B) and ladder straps (2004250B) to the transport arm weldment (2004077B) with 5/16”-18UNC x 5” capscrews (9390-044), 5/16” flat washers (9405-070), and 5/16”-18UNC locknuts (9807) (FIG. 3-12). Position and attach the ladder support to the ladder straps as shown in Fig. 3-13. Secure with previously saved hardware.

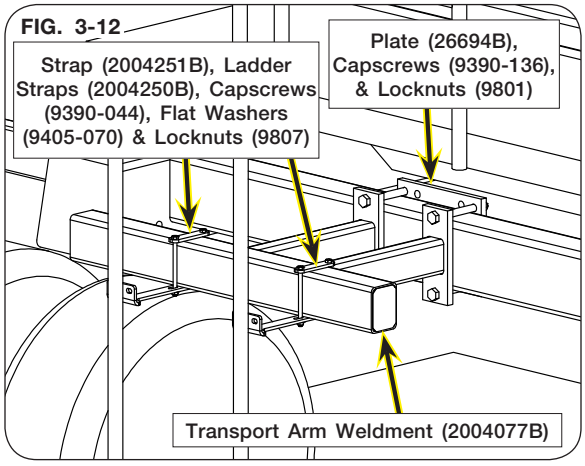


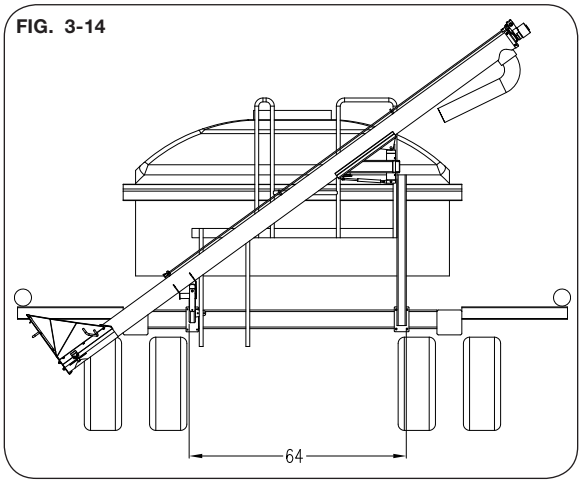
FIG. 3-12

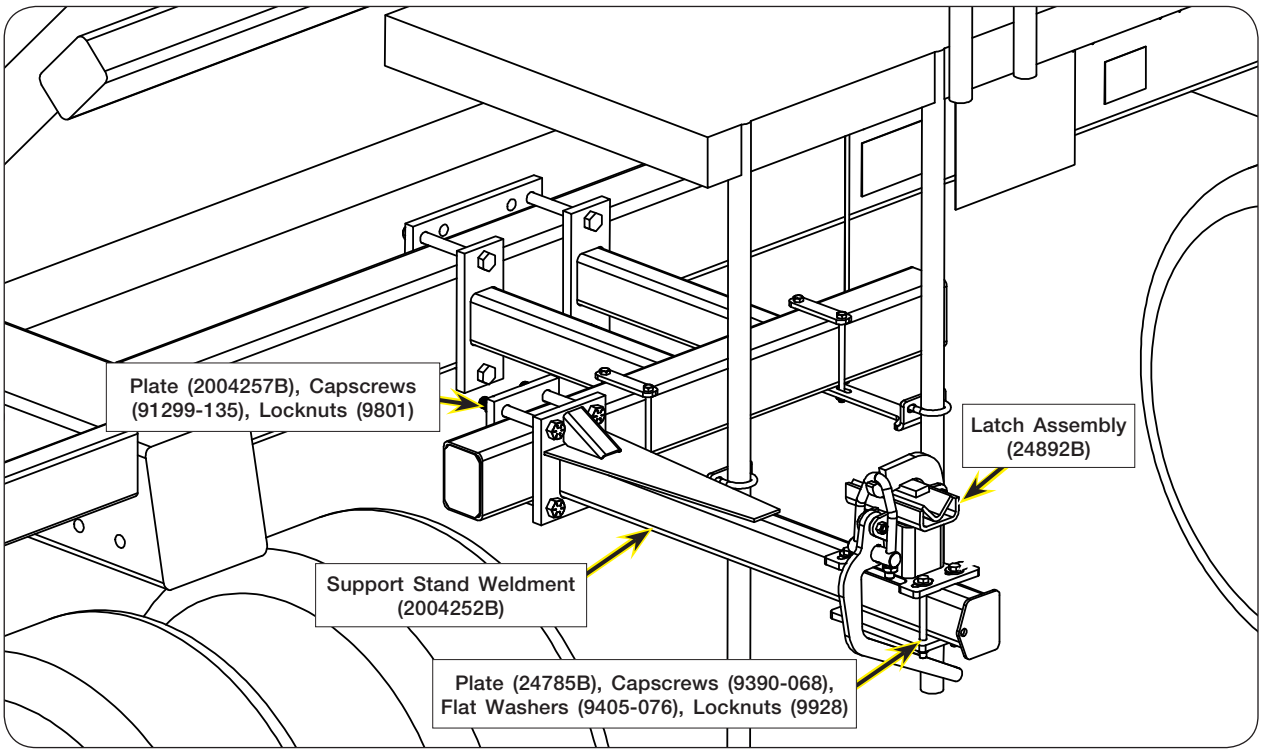
Transport Support Stand (Continued)

JD 1690 CCS Only (Continued)

4. Install support stand weldment (2004252B) to left-rear side of transport arm weldment (2004077B) as shown in Fig. 3-12 and Fig. 3-14. Secure with plate (2004257B), capscrews (91299-135) and locknuts (9801).

FIG. 3-14





5. Position latch assembly (24892B) on top of the support stand weldment (2004252B) being sure handle is to the left-hand side as shown in Fig. 3-9. Loosely secure latch assembly using 3/8" capscrews (9390-068), flat washers (9405-076), plate (24785B) and nuts (9928) provided. Latch will be adjusted once auger is mounted back on planter. Do not tighten hardware.

6. Tighten hardware according to "Torque Chart".

Transport Support Stand (Continued)

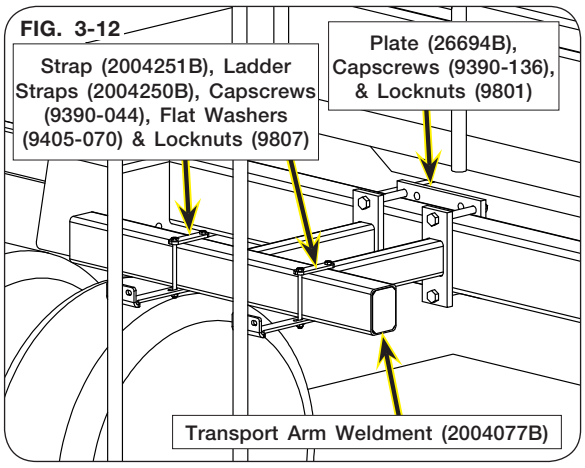
Installation Of Transport Stand On JD 1890/1990 CCS Only

JD 1890 and 1990 CCS Air drills require the transport stand be installed to the ladder as shown in Fig. 3-14.

1. Install transport arm weldment (2004077B) to left-rear side of air drill as shown in Fig. 3-12. Secure with plate (26694B), capscrews (9390-136), and locknuts (9801).

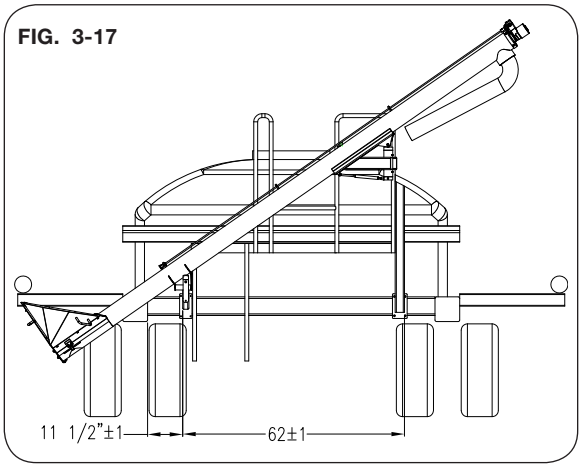
2. Attach the straps (2004251B) and ladder straps (2004250B) to the transport arm weldment (2004077B) with 5/16"-18UNC x 5" capscrews (9390-044), 5/16" flat washers (9405-070), and 5/16"-18UNC locknuts (9807) (FIG. 3-12). Position and attach the ladder support to the ladder straps as shown in Fig. 3-13.

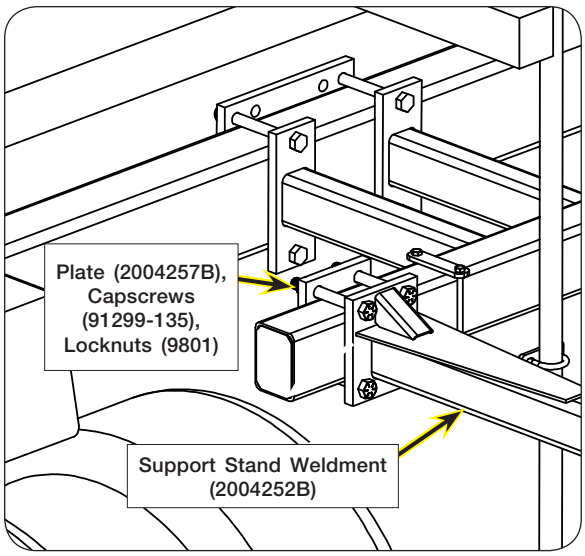
FIG. 3-12



3. Install support stand weldment (2004252B) to left-rear side of transport arm weldment (2004077B) as shown in Fig. 3-12 and Fig. 3-14. Secure with plate (2004257B), capscrews (91299-135) and locknuts (9801).

FIG. 3-17



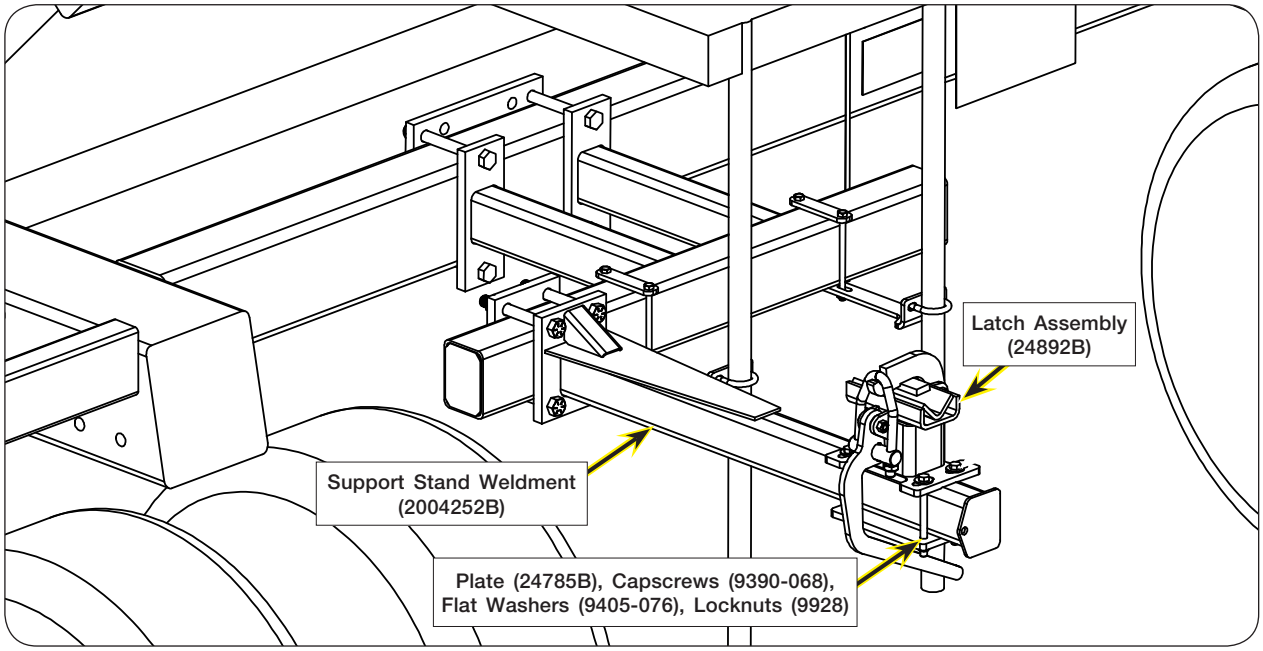


Transport Support Stand (Continued)

Installation Of Transport Stand On JD 1890/1990 CCS Only (continued)

4. Position latch assembly (24892B) on top of the support stand weldment (2004252B) being sure handle is to the left-hand side as shown in Fig. 3-9. Loosely secure latch assembly using 3/8" capscrews (9390-068), flat washers (9405-076), plate (24785B) and nuts (9928) provided. Latch will be adjusted once auger is mounted back on planter. Do not tighten hardware.

5. Tighten hardware according to "Torque Chart".



Pivot Support Stand

1. Install the pivot support arm weldment (26692B) to the rear tube (6”x4”) of air drill as shown in Fig. 3-18. Secure using 8 1/2” x 10” (26694B), plate 5 1/2” x 8 1/2” (26704B), capscrews (9390-136), and locknuts (9801).

2. Install the vertical/pivot tube assembly (24105B) to the top of the support arm weldment (26692B) and secure using plate (23761B), capscrews (9390-140), and locknuts (9801), see figure 3-20. Position vertical/pivot tube assembly approximately 10” from end of the tube on the 1690 air drill, and to the end on 1890 and 1990 air drills (Fig. 3-20). Secure all hardware.

3. Tighten hardware according to “Torque Chart”.

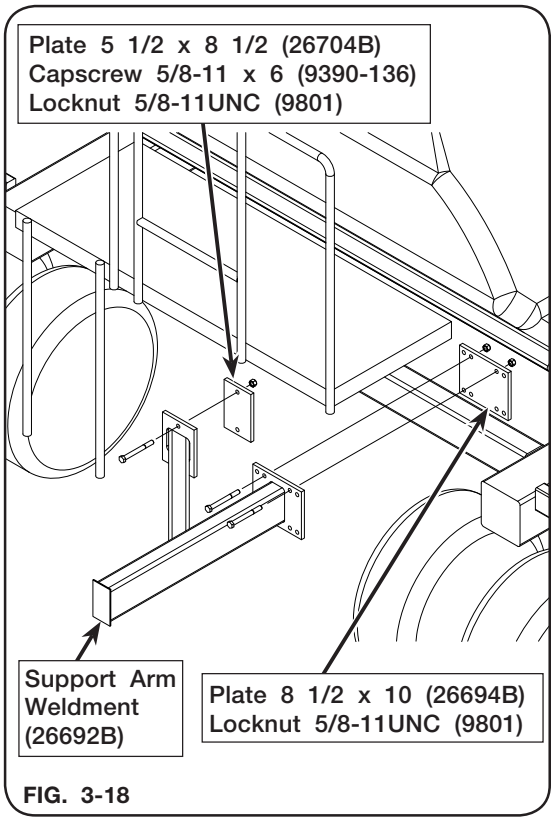


FIG. 3-18

FIG. 3-19

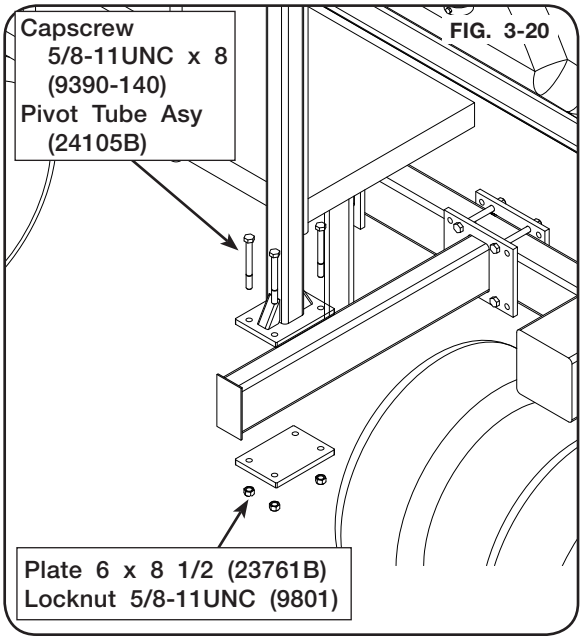


FIG. 3-20

Attaching The Conveyor

NOTE: Step 1 is a guide for proper assembly. New units which have this assembly together may skip to Step 2 unless adjustment of tension is required.

1. Apply a thin layer of grease around the entire post and slowly install pivot arm (25535B) onto the top of the vertical post. Position wavy spring washers under cap and install into arm. Secure with castle nut and cotter pin. Take note of proper position of arm according to decal on arm. Be careful not to damage seals on both sides of arm.

NOTE: The post and the taper roller bearings are a very tight fit, and will just slide over post. Do not force, bearings must be in alignment in order to assemble.

NOTE: It may be necessary to tighten or loosen castle nut for desired performance. Do not bend cotter pin until adjustments have been completed.

2. Secure all hardware. Be sure that all hardware attaching the posts and arms to drill is tight.

3. Position pivot arm so that the auger pivot is at the furthest point from the air drill. See Fig. 3-22.

4. Position auger assembly parallel to rear of air drill with the spout on the right-hand side. Remove shipping strap from pivot on auger. It will now be dangling from auger (Fig. 3-22).

5. Lift auger into position using a safe lifting device with a minimum rating of 500 lbs. Insert auger pivot into the journal on the pivot arm.

NOTE: Be sure to orient tube according to the model of air drill. See decal located on the tube for further instructions.

6. After installation of auger to pivot arm, secure using pivot collar (23718B), capscrew (9390-065), and locknut (9928) (Fig. 3-23).

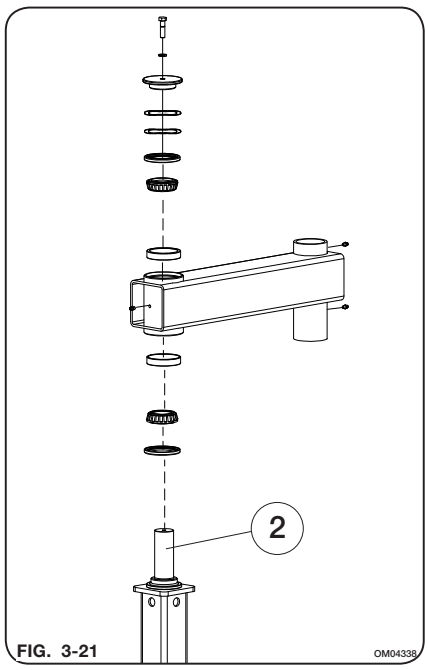


FIG. 3-21

FIG. 3-22

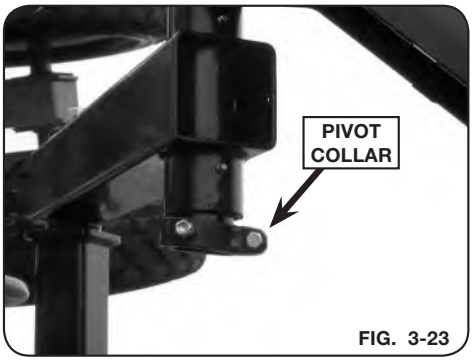


FIG. 3-23

Attaching The Conveyor (Continued)

7. Secure the rod end of the gas spring (98075) to pivot collar using a capscrew (9390-057) and locknut (9928) as shown in figures 3-23 & 3-24.

8. Secure safe lifting device to hopper end of auger and raise hopper end up high enough to install butt end of the gas spring to auger using a capscrew (9390-057) and locknut (9928).

9. Be sure gas spring hardware is secure. Proceed by slowly lowering the auger to the ground.

10. Grease all pivots with grease gun.

11. Raise auger and position it into the transport/latch mechanism. Be sure that tube rests securely in "V" (Fig. 3-25). Tighten hardware.

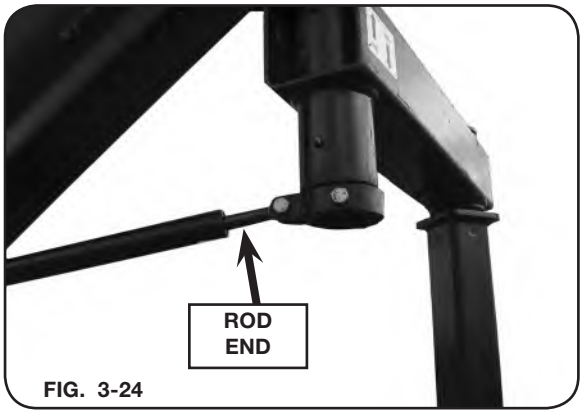


FIG. 3-24


FIG. 3-25

Attaching The Conveyor (Continued)

12. Slowly maneuver auger around from transport to operating position.

13. Install fluorescent (9003125) and red reflectors (9003126) to the extreme left-hand side of auger near hopper. Be sure that reflectors are clearly visible when looking at rear of unit.

⚠ WARNING

- **BE SURE THAT ALL SAFETY DECALS, REFLECTIVE DECALS, AND TRANSPORT LIGHTING ARE CLEARLY VISIBLE AND NOT OBSTRUCTED IN ANY WAY WHEN INSTALLING AUGER. REPLACE DECALS AS NEEDED.**

⚠ CAUTION

- **NEVER LOOSEN AUGER MOUNTING ARMS WITH AUGER INSTALLED. ALWAYS REMOVE AUGER BEFORE ADJUSTING OR LOOSENING ARMS TO PREVENT DAMAGE TO AUGER OR CAUSE BODILY INJURY.**

IMPORTANT

- *Be aware that if flood lights or additional accessories are installed, they may have to be relocated to gain clearance for maneuvering of auger. Also, on some units, wing gauge wheels may also be obstructions for auger. It is recommended that the auger mounts be readjusted to allow for clearance.*

FIG. 3-26

Attaching The Conveyor (Continued)

14. Prepare auger by installing spout (TAAU14170) and securing with tube clamp (98060). See Fig. 3-27.

15. Remove the cap plugs from the valve (99933) and insert the 90° elbows (9863) (Fig. 3-28).

16. Attach the hoses (95964) to the 90° elbows (9863) (Fig. 3-28). Route the hoses as shown and snap the hoses into the hose retainers located along the upper auger (Fig. 3-28).

17. Position hydraulic hose along vertical post as shown and loosely secure using 21 ½" cable ties (9000104) as required to hold hose. Maneuver auger around from transport to fill position being sure not to kink or pull on hoses which may cause hose damage. Once satisfied with hose placement tighten cable ties and snip off excess length.

18. Attach the adapters (9864) to the opposite ends of the hoses (95964) (Fig. 3-29). Attach the hoses to the side of the auger using the hose retainers.

19. Thread the hoses through the loop on the dust cap (91511) (Fig. 3-29).

20. Attach the male tip couplings (91383) to the adapter end of the hoses (Fig. 3-29). Tighten all the fittings completely.

21. Insert the coupling end of the hoses into the air drill auxiliary valve with a maximum 12 GPM. If not using an auxiliary valve, attach additional lines to use the tractor ports.

IMPORTANT

- *Hoses are provided to a remote outlet on the air drill. If your air drill is not equipped with a remote option, it is recommended that additional hoses (not provided) be run directly to the tractor ports. It is not recommended to tap into the air drill hydraulics unless you have the air drill's auxiliary port package as shown in Fig. 3-29.*

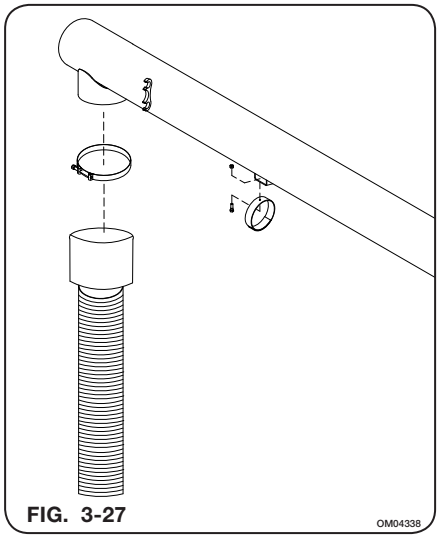


FIG. 3-27

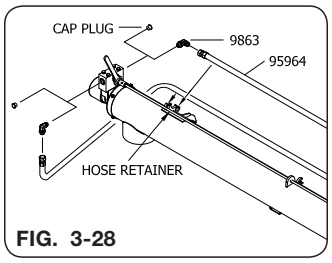


FIG. 3-28


FIG. 3-29

JD 1690/1890/1990 CCS Purging Hydraulic System

DANGER

- **CONTACT WITH UTILITY LINES CAN CAUSE SERIOUS INJURY OR DEATH. DO NOT OPERATE MARKERS NEAR UTILITY LINES.**

WARNING

- **KEEP CLEAR OF PINCH POINTS IN LINKAGE WHEN FOLDING AND UNFOLDING MARKERS.**

IMPORTANT

1. Purge air from system as follows:

   A. Disconnect the rod end of all cylinders in a circuit and block up cylinders so the rod can completely extend and retract without contacting any other component.
   B. Pressurize the system and maintain system at full pressure for at least 5 seconds after cylinder rods stop moving. Check that all cylinders have fully extended or retracted.
   C. Check oil reservoir in hydraulic power source and refill as needed.
   D. Pressurize system again to reverse the motion of step B. Maintain pressure on system for at least 5 seconds after cylinder rods stop moving. Check that cylinders have fully extended or retracted.
   E. Check for hydraulic leaks using cardboard or wood. Tighten connections according to directions in Torque Chart.
   F. Repeat steps B, C, D, and E 3-4 times.
   G. Depressurize hydraulic system and connect cylinder rod clevises to their mating lugs.

2. Be certain clearance to rafters, walls, machinery, etc. exists before unfolding auger. With a tractor hooked to the unit, activate the flighting to make sure everything moves freely. Do not pinch or kink hoses.

3. Check for and correct any leaks. Make sure hoses are not kinked, stretched, or twisted. Secure hoses to prevent cuts or chafing during operation.

Optional Hydraulic Flow Control Installation

Tractors having high-capacity hydraulic systems with 12 to 20 GPM flow, may cause your auger to run too fast, resulting in:

A. Excess Vibration
B. Excess Wear
C. Loss of Performance

To eliminate these problems, an adjustable flow control valve is offered for installation into the auger hydraulic system. This valve will allow the operator to adjust the flow to obtain the proper speed for your application.

NOTE: The speed control valve may be ordered through your Unverferth dealer.

⚠ WARNING

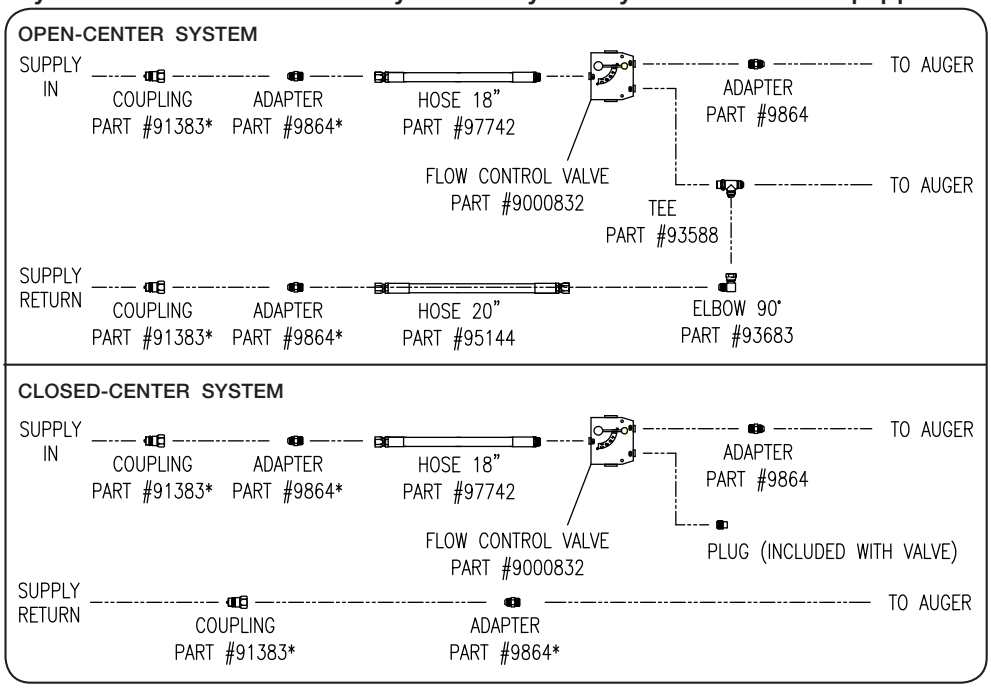
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING THE IMPLEMENT.**

- **HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.**

⚠ CAUTION

- **DO NOT DISCONNECT HYDRAULIC COUPLER WHEN HYDRAULIC SYSTEM IS PRESSURIZED. DISCONNECTING LINES UNDER PRESSURE COULD RESULT IN FLUID PENETRATING THE SKIN, CAUSING SERIOUS INJURY.**

1. Determine the type of hydraulic system and plumb according to the diagrams below. Contact your local dealer to identify which system your tractor is equipped with.



* Parts are included with auger/conveyor.

Optional Hydraulic Flow Control Installation (Continued)

FIG. 3-30

2. Once hydraulics are assembled, position valve on side of stairs and mark holes for drilling. Drill two 9/32" holes.

3. Mount valve and secure using two 1/4" bolts and locknuts provided.

4. Install handle onto valve as shown.

5. Once the control valve is installed, the auger/conveyor speed can be set as follows:

   A. Set flow control valve approximately 1/2 way on flow indicator (lock into position).

   B. Start oil flow and run auger/conveyor to check speed. Flighting/belt should run smooth, not lag or fluctuate in speed, adjust speed control valve if necessary.

NOTE: When auger is loaded with material, Auger/conveyor should not stall. Adjust speed to allow for smooth, even feeding of material through the unit.

Optional Check Valve Kit Installation

These instructions are for the installation of the Check Valve Kit (23336) for the FILL AUGER. This unit will allow the auger to only run forward.

⚠ WARNING

- **TIPPING OR MOVEMENT OF THE MACHINE CAN CAUSE SERIOUS INJURY OR DEATH. BE SURE MACHINE IS SECURELY BLOCKED.**

- **HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.**

Check Valve Kit Installation (Optional)

WARNING

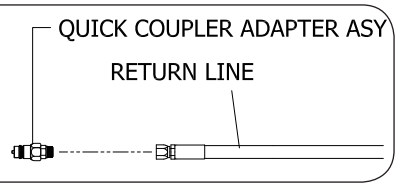
- **RELIEVE THE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE THE HYDRAULIC POWER UNIT OPERATOR'S MANUAL FOR PROPER PROCEDURES.**
- **EYE PROTECTION AND OTHER APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT MUST BE WORN WHILE SERVICING THE IMPLEMENT.**
- **HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.**
- **TIPPING OR MOVEMENT OF THE MACHINE CAN CAUSE SERIOUS INJURY OR DEATH. BE SURE MACHINE IS SECURELY BLOCKED.**

NOTE: Be sure to disconnect hydraulics while working in an environment clean of dirt and debris. If dirt should enter into system, flush system. Failure to remove dirt could result in motor failure or damage to system supply.

NOTE: The Check Valve must be installed on the return side of the motor in order to work properly.

1. Relieve hydraulic pressure and disconnect hydraulic RETURN line from the control valve.
2. Disconnect the quick coupler adapter assembly from the RETURN line (FIG. 2-49).

FIG. 2-49



3. Assemble the check valve (97740), adapter (96935), and adapter (9864) as shown in FIG. 2-50.

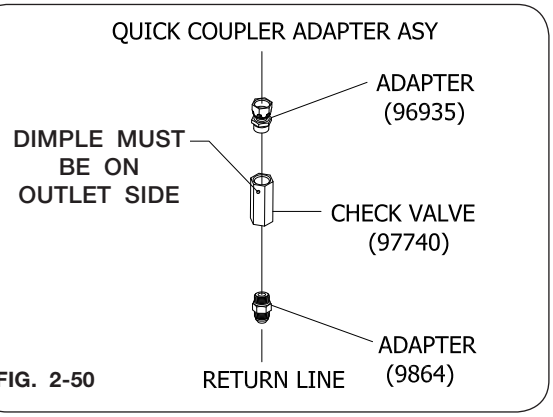
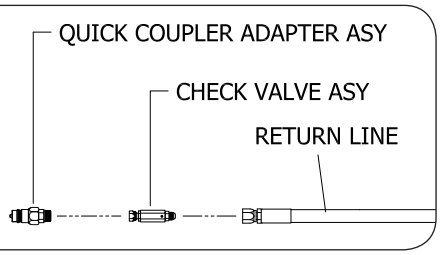


FIG. 2-50

4. Insert the check valve assembly between the quick coupler adapter assembly and the RETURN line (FIG. 2-51).
5. Check auger for proper rotation before loading with material.

FIG. 2-51



Notes

SECTION III
Operation

Preparing Air Drill

⚠ WARNING

- **KNOW AND UNDERSTAND SAFETY RULES BEFORE OPERATING OR SERVICING THIS MACHINE. REVIEW "SAFETY" SECTION IN THIS MANUAL IF NECESSARY.**

Read this operation section thoroughly. Acquaint yourself with the adjustments required to obtain efficient and trouble-free operations.

IMPORTANT

- *Before attempting to attach the planter to the tractor, familiarize yourself with operations and adjustments of the unit. To insure safe operating conditions, obey all safety notes outlined in the planter's operator's manual.*

Operating/Transporting Procedures

⚠ WARNING

- **THE AUGER HALVES MUST BE LOCKED INTO POSITION BEFORE SWINGING THE AUGER INTO THE OPERATING POSITION. FAILURE TO DO SO WILL DAMAGE THE AUGER OR CAUSE PERSONAL INJURY.**
- **SEED MAY BE TREATED WITH HAZARDOUS MATERIAL. AVOID CONTACTING SEED WITH SKIN, EYES, AND AVOID BREATHING DUST. FOLLOW MANUFACTURER'S RECOMMENDATIONS.**

⚠ CAUTION

- **KEEP ALL UNAUTHORIZED PEOPLE CLEAR OF WORK AREA.**

IMPORTANT

- *Do not move the fill auger while filling the air drill.*

Operating/Transporting Procedures (Continued)

1. Pull tractor and air drill into position, shift tractor into park (or neutral) and lock brakes on tractor.

2. Open the lid on the air drill tanks to allow the fill auger to be positioned.

3. Raise auger and position it into the transport/latch mechanism. Be sure that tube rests securely in “V”. Tighten 3/8” capscrews securing latch to tube.

4. Tighten the draw latch by flipping over the latch hook and attaching the U-bolt. Draw down with the handle. Be sure that the handle has pressure on the U-bolt at all times. Adjust draw on U-bolt by tightening or loosening the nuts on the U-bolt. The U-bolt should be taught enough to prevent the auger from bouncing in the field. U-bolt tension should be periodically check and tightened as needed after initial use.

5. Engage the tractor hydraulic system to allow the hydraulic oil to flow to the auger. Make sure the auger flighting is rotating in a forward direction. If flighting is rotating in a backward direction, either reverse the hoses going into the tractor or move the tractor control hydraulic lever in the opposite direction to reverse the flow.

6. Start the auger rotating and begin the flow of seed into the auger. Adjust the seed flow for a smooth, even flow of seed through the auger.

7. Fill the tank evenly by moving the adjustable spout from side-to-side while the auger is running. When the desired level is reached in the tank(s), close the transfer wagon door and empty out the fill auger.

8. Once finished filling, place the auger back in the transport bracket. Insert the hitch pin to keep the auger in place.

9. Place chute into chute strap as shown in Fig. 1-8.

Operating/Transporting Procedures (Continued)

FIG. 1-4

FIG. 1-8

Hydraulics

⚠ WARNING

- **HIGH-PRESSURE FLUIDS CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY OR DEATH. USE CARDBOARD OR WOOD TO DETECT LEAKS IN THE HYDRAULIC SYSTEM. SEEK MEDICAL TREATMENT IMMEDIATELY IF INJURED BY HIGH-PRESSURE FLUIDS.**

- **RELIEVE HYDRAULIC PRESSURE BEFORE SERVICING HYDRAULIC SYSTEM. SEE TRACTOR OPERATOR'S MANUAL FOR PROPER PROCEDURE.**

Check routing of all hydraulic hoses. Hoses should not be kinked, twisted, or rubbing against sharp edges. Hoses should be secured with tie straps. Check hose fittings for hydraulic leaks. Tighten and/or repair or replace as required.

FIG. 1-9

Notes

SECTION IV

Maintenance

Lubrication

Lubricate with an SAE multi-purpose grease. All fittings must be free from dirt and paint to insure entry of lubricant inside bearing..

Lower Auger Bearing

Lubricate the bearings every 100 hours of operation and at the end of each season before storage. Use only one stroke of grease per bearing.

⚠ CAUTION

- **DO NOT USE A HIGH-PRESSURE GREASE GUN TO LUBRICATE THIS BEARING, AS DAMAGE TO BEARING SEAL COULD OCCUR.**

NOTE: Excessive lubrication of these bearings will result in premature failure.

Miscellaneous Lube Points

Oil or grease periodically (or as needed) the following:
-- Hinge for clean-out door.
-- Swivel base on conveyor.
-- Latch pin housing.
-- Pivot bracket and arm.
-- On/Off control rod.

Storage/Maintenance

Your auger is an important investment. Spend a little time to protect it from destructive rust and corrosion. You will be repaid in longer service life and better performance.

DO THE FOLLOWING AFTER USE:
1. Clean out conveyor/hopper. Use pressurized water to wash out conveyor and hopper after use.
2. Wipe off the following:
-- Hydraulic valve, motor, hoses, and fittings.
-- Swivel base, cradle.
-- Reflectors and warning/caution decals.
3. Check the following:
-- Mounting bolts for tightness.
-- Cable ties for tightness.
-- Valve, motor, hoses, and fittings for leaks, etc.
-- Hydraulic hoses for wear-abuse.

DO THE FOLLOWING BEFORE PLACING THE CONVEYOR IN STORAGE:
-- Repaint any chipped or scraped areas.
-- Inspect for damaged or worn parts. Replace before next season.
-- Store unit inside, away from livestock.

Trouble Shooting

	SYMPTOMS		REMEDIES
A.	**AUGER WILL NOT TURN OVER OR DEVELOP PROPER SPEED OR TORQUE:**		
1.	Pump does not deliver sufficient pressure or volume	1.	Check output and delivery, change if necessary
2.	Auger jammed	2.	Shut-off and lock-out power, open clean-out door and remove excess material (make sure swivel spout is clear)
B.	**AUGER RUNS TOO SLOW:**		
1.	Engine running too slow	1.	Increase engine speed
2.	Pump not producing minimum required flow and pressure	2.	Check pump capacity and correct
3.	Pump is worn	3.	Repair or replace pump
4.	Internal leak in controls or motor	4.	Replace seals; repair or replace valves or motor
5.	Air in system	5.	Bleed system and tighten connections
6.	Improper hydraulic oil viscosity	6.	If auger starts slowly and speed increases after oil heats up, oil is too heavy weight. If auger slows down after oil heats up, oil is too light weight
C.	**AUGERS TURN IN WRONG DIRECTION:**		
1.	Control valve on tractor not set properly	1.	Reset
D.	**OIL HEATS EXCESSIVELY.**		
1.	Oil viscosity incorrect	1.	Drain and refill with proper weight oil
2.	Dirty oil	2.	Drain, flush, and refill with a clean oil and filter
3.	Oil level too low	3.	Fill to proper level
4.	Oil slipping through worn pump	4.	Repair or replace pump
5.	Restricted line or piping	5.	Reroute lines to eliminate restrictions
6.	Reservoir too small to provide adequate cooling	6.	Replace with larger reservoir or install oil cooler
E.	**PUMP / MOTOR SEALS BLOW-SHAFT / HOUSING BREAKS - HOSE BURST:**		
1.	When a standard control valve is returned to neutral, to stop, or start a motor, sudden pressure is created which may break seals, tear off motor shafts, burst housing or hoses. (Especially at speed under load.) This sudden shock cannot be relieved through the primary relief valve in the system.	1.	Avoid sudden and rapid starting and stopping (or convert to a free wheeling control valve (on the tractor) or a cushion valve may be installed)

*NOTE: BRISTLE FLIGHTING WILL RUN 25% SLOWER THAN STEEL OR PLASTIC FLIGHTING.

Troubleshooting (continued)

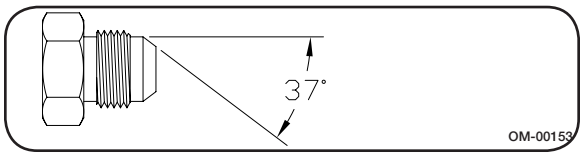
Occasionally when an auger has been connected into an auxiliary hydraulic system, it may not operate. When hydraulic pressure and flow gauges are not available, it may be difficult to determine if the fault is in the source hydraulic system, or the auger. A convenient method of determining this is to connect the auger hydraulic hoses to another tractor system and check the operation. If, for example, the auger operates from the other tractor system but not from the original tractor connection, or the original tractor system is not adequate. If the auger fails to operate; however, there is probably a fault with the auger control valve, motor or the auger itself. In this case, refer to the trouble shooting guide.

Torque Chart

IMPORTANT

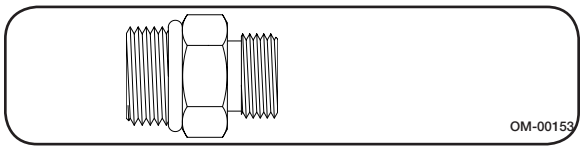
- *Do not use teflon tape or thread sealant as all fittings have mechanical or o-ring seals. This prevents contamination from tape or thread sealants entering the tractor's hydraulic system.*

SAE FLARE CONNECTION (JIC)



1. Tighten nut by hand until it bottoms the seat.
2. Using a wrench, rotate nut to tighten. Turn nut 1/3 turn to apply proper torque.

SAE STRAIGHT THREAD "O"-RING SEAL



1. Insure jam nut and washer are backed up to the back side of smooth portion of elbow adapter.
2. Lubricate "O"-Ring -- VERY IMPORTANT!
3. Thread into port until washer bottoms onto spot face.
4. Position elbows by backing up adapter.
5. Tighten jam nut.

Torque Chart (Continued)

Recommended torques for SAE Grade 5 hardware.
NOTE: Grade 5 capscrews can be identified by three radial dashes on the head.

SIZE	FOOT POUNDS	NEWTON METERS
1/4-20	8-10	11-13
1/4-28	9-11	12-15
5/16-18	15-17	20-23
5/16-24	17-19	23-26
3/8-16	25-28	34-38
3/8-24	28-31	38-42
7/16-14	40-45	54-61
7/16-20	45-50	61-68
1/2-13	62-68	84-92
1/2-20	68-75	92-102
9/16-12	90-98	122-133
9/16-18	100-110	134-148
5/8-11	120-135	162-183
5/8-18	124-137	168-186
3/4-10	200-220	270-300
3/4-16	210-230	285-310
7/8-9	330-350	425-475
7/8-14	360-380	460-515
1-8	500-525	675-710
1-14	540-560	730-760
1 1/8-7	600-635	815-860
1 1/8-12	665-700	920-950
1 1/4-7	850-895	1150-1215
1 1/4-12	940-990	1275-1340
1 3/8-6	1125-1175	1525-1590
1 3/8-12	1280-1335	1735-1810
1 1/2-6	1500-1560	2035-2115
1 1/2-12	1685-1755	2285-2380

IMPORTANT

- *Follow these torque recommendations except when specified in text.*

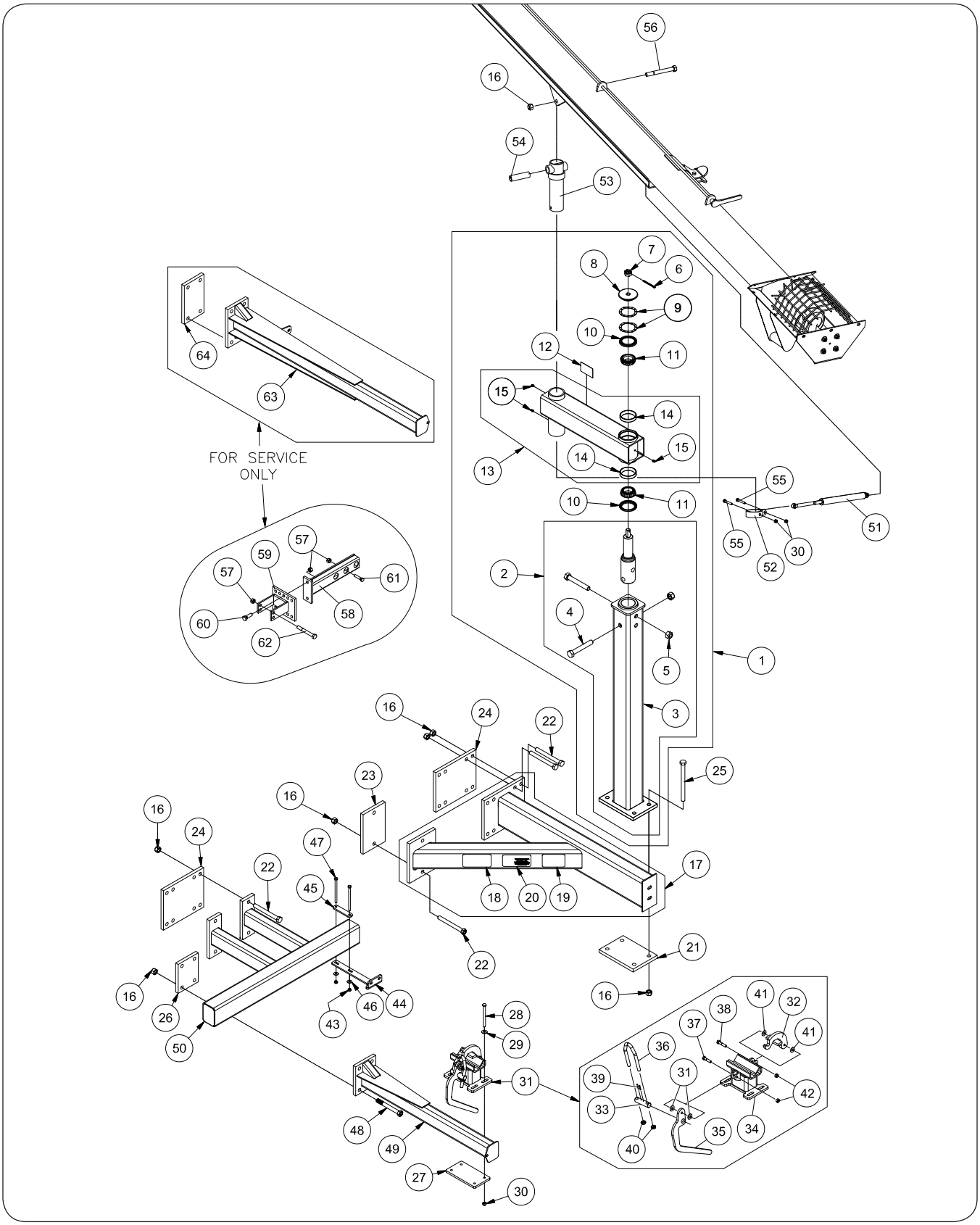
Notes

SECTION V
Parts

Please visit www.unverferth.com/parts/ for the most current parts listing.

Fill Auger Mounting Components

Please visit www.unverferth.com/parts/ for the most current parts listing.



Fill Auger Mounting Components (continued)

Please visit www.unverferth.com/parts/ for the most current parts listing.

ITEM	DESCRIPTION	PART NO.	QTY	NOTES
1	Pivot Arm Assembly	24105B	1	
2	Pivot Stand Weldment	27744B	1	
3	Vertical Post Weldment =Black=	2001845B	1	
4	Capscrew 3/4-10UNC x 5	9390-155	2	Grade 5
5	Locknut 3/4-10UNC	9802	2	
6	Cotter Pin, 3/16D x 2 1/2	9391-048	1	
7	Nut/Slotted, 3/4-10UNC	9393-015	1	
8	Retainer Cap	25804B	1	
9	Spring / Wave	901564	2	S/N A50470100 & Up
10	Seal, 3.061 OD x 2.25 ID x .25	9355	2	
11	Bearing	9247	2	
12	Decal	24106	1	
13	Arm Weldment Assembly	23784B	1	
14	Bearing Cup	9349	2	
15	Grease Zerk	91160	3	
16	Locknut, 5/8-11UNC	9801	20	
17	Support Arm Weldment w/Decals	26692B	1	Includes Items 46, 47, 48
18	Decal, “WARNING”	902084	1	
19	Decal, “CAUTION”	902085	1	
20	Decal, “WARNING”	95445	1	
21	Plate 6 x 8 1/2	23761B	1	
22	Capscrew 5/8”-11UNC x 6”	9390-136	12	Grade 5
23	Plate 5 1/2 x 8 1/2	26704B	1	
24	Plate 8 1/2 x 10	26694B	2	
25	Capscrew, 5/8”-11UNC x 8”	9390-140	4	Grade 5
26	Plate 5 x 6 1/4	2004257B		
27	Bar/Plate 4 x 7 1/4	24785B	1	
28	Capscrew, 3/8”-16UNC x 4-1/2”	9390-068	4	Grade 5
29	Flat Washer, 3/8”	9405-076	4	
30	Locknut, 3/8-16UNC	9928	6	

(Continued on next page)

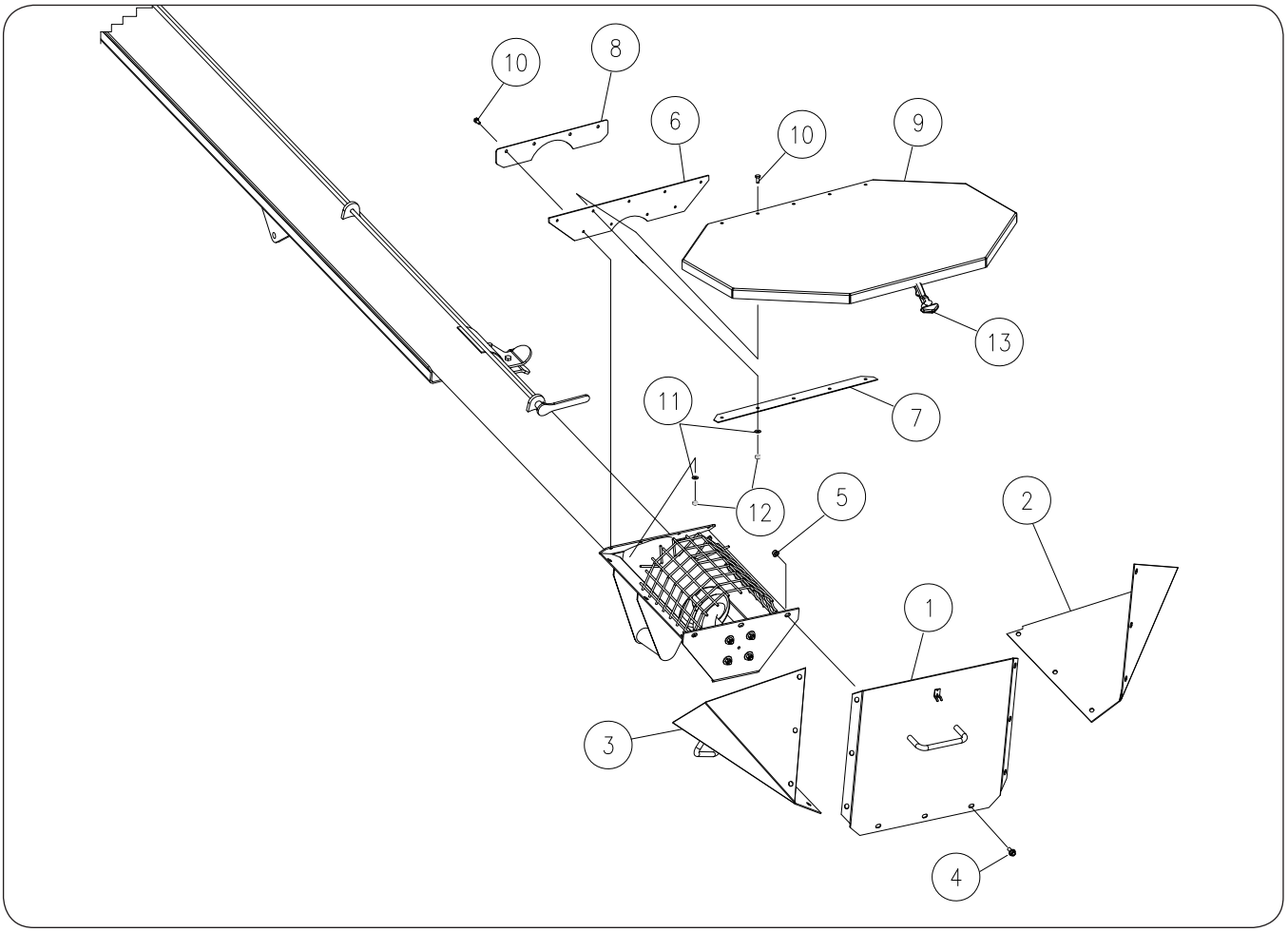
Fill Auger Mounting Components (continued)

Please visit www.unverferth.com/parts/ for the most current parts listing.

ITEM	DESCRIPTION	PART NO.	QTY	NOTES
31	Latch Assembly	24892B	1	
32	Latch Weldment	24893B	1	
33	Pin, 7/8" Dia. x 3 1/4"	24737	1	
34	Rest Weldment	24783B	1	
35	Plate 9 x 12 1/16	25542B	1	
36	U-Bolt, 1/2-20UNF	901080	1	
37	Capscrew, 3/8"-16UNC x 1-1/2"	9390-057	1	
38	Capscrew, 3/8"-16UNC x 1-3/4"	9390-058	1	
39	Roll Pin, 1/8" Dia. x 1"	9392-060	2	
40	Elastic Jam Nut, 1/2"-20UNF	9397-013	2	
41	Flat Washer, 3/8"	9405-076	4	
42	Locknut, 3/8"-16UNC	9928	2	
43	Locknut 5/16"-18UNC	9807	4	
44	Ladder Strap	2004250B	2	
45	Strap	2004251B	2	
46	Flat Washer 5/16" USS	9405-070	4	
47	Capscrew 5/16"-18UNC x 5"	9390-044	4	
48	Capscrew 5/8"-11UNC x 5 1/2"	91299-135	4	Grade 8
49	Support Stand Weldment	2004252B	1	
50	Transport Arm Weldment	2004077B	1	
51	Gas Spring with Clevis	98075	1	
52	Pivot Collar Weldment	23718B	1	
53	Pivot Weldment	23785B	1	
54	Tube	23523	1	
55	Capscrew, 3/8-16UNC x 1 1/2	9390-057	2	Grade 5
56	Capscrew, 5/8-11UNC x 5 1/2	9390-135	1	Grade 5
57	Locknut, 1/2-13UNC	9800	14	For Service Only
58	Arm Weldment	25628B	1	For Service Only
59	Clevis Weldment	25633B	1	For Service Only
60	Capscrew, 1/2-13UNC x 1 1/2	9390-101	4	For Service Only
61	Capscrew, 1/2"-13UNC x 3"	9390-107	2	For Service Only
62	Capscrew, 1/2"-13UNC x 4"	9390-111	2	For Service Only
63	Support Stand Weldment	26866B	1	For Service Only
64	Plate 5 x 8 1/4	23788B	1	For Service Only

Hopper Components

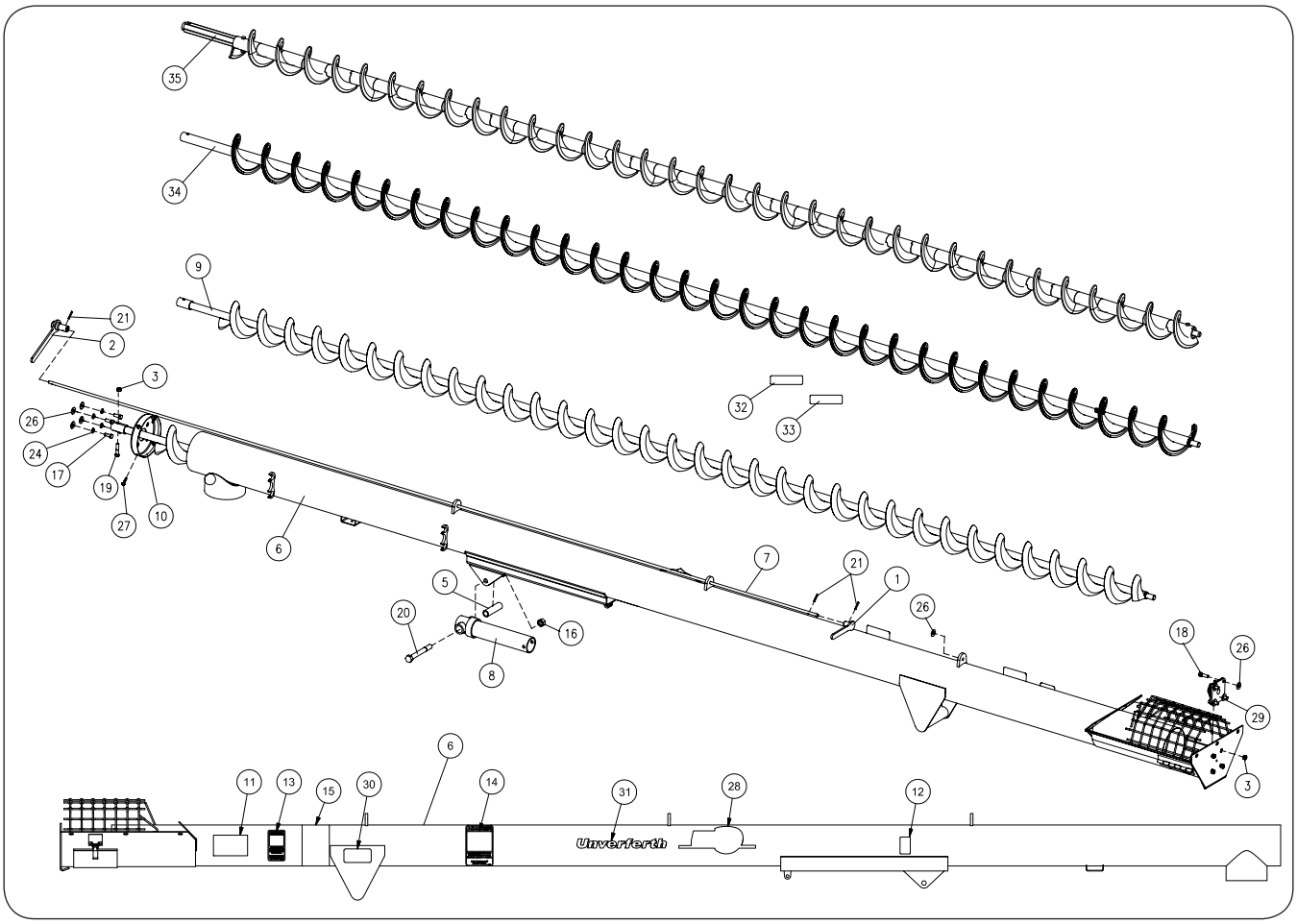
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	PART NO.	PART NO.	QTY	NOTES
1	Hopper Back Panel Weldment	108020B	1	
2	Hopper Panel Weldment	23150B	1	
3	Hopper Panel Weldment	23151B	1	
4	Flange Screw 3/8-16UNC x 3/4	93649	15	
5	Flange Nut 3/8-16UNC	91263	15	
6	Hopper Seal	108021	1	
7	Hopper Plate	23270B	1	
8	Hopper Plate	23271B	1	
9	Hopper Lid Weldment =Black=	23661B	1	
10	Capscrew, 1/4-20UNC x 5/8	9390-002	9	Grade 5
11	Flat Washer, 1/4	9405-062	9	
12	Locknut, 1/4-20UNC	9936	9	
13	Draw Latch	104988	1	

Auger Components

Please visit www.unverferth.com/parts/ for the most current parts listing.



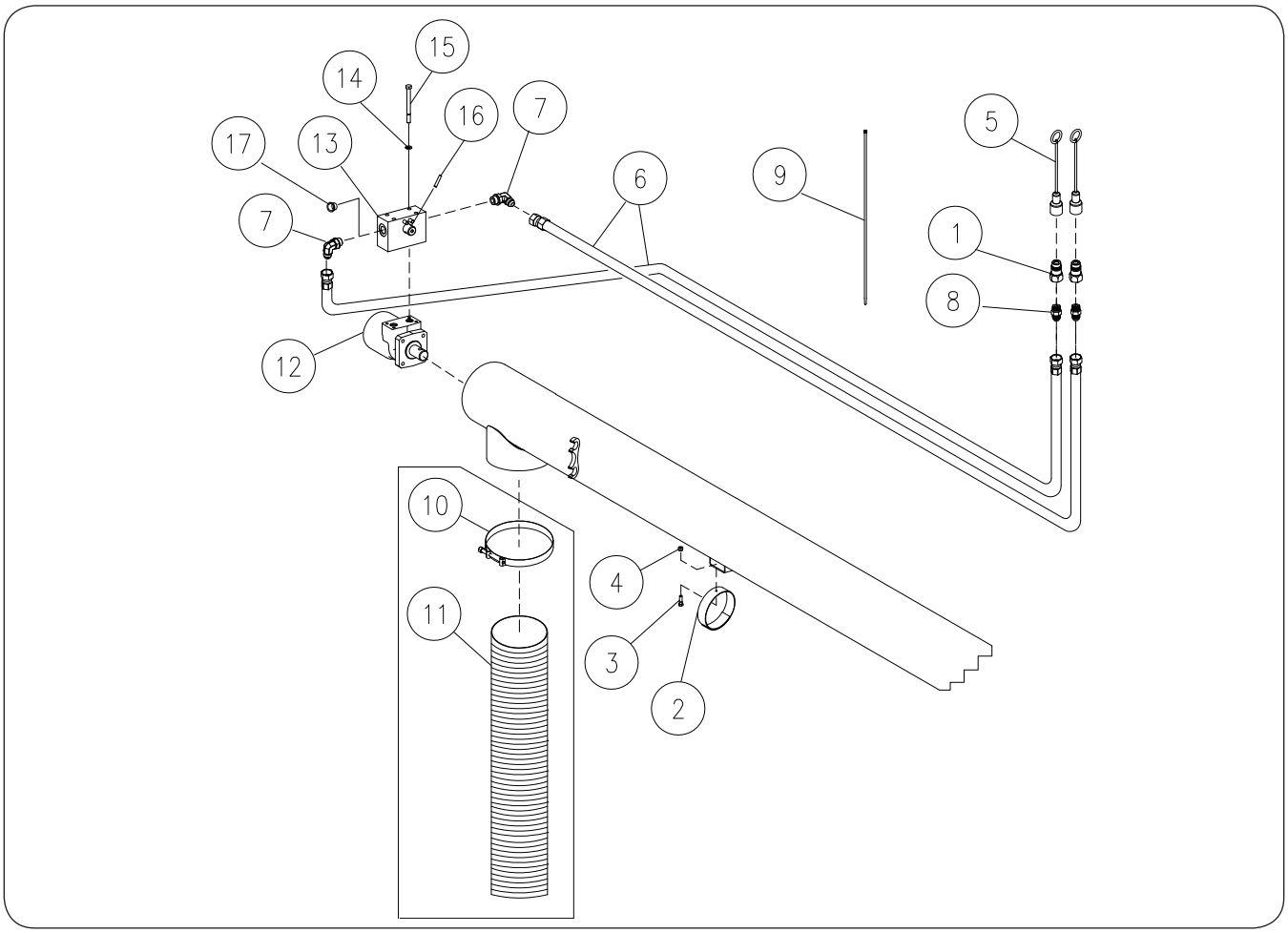
Auger Components

Please visit www.unverferth.com/parts/ for the most current parts listing.

ITEM	DESCRIPTION	PART NO.	QTY	NOTES
1	Handle Weldment =Black=	23486B	1	
2	Handle Weldment =Black=	23492B	1	
3	Locknut, 3/8-16UNC	9928	1	
5	Tube 3 11/16" Long	23523	1	
6	Auger Tube Weldment w/Decals	24230B	1	
7	Rod/Bar 3/8" Dia. x 135 1/8" Long	23758B	1	
8	Pivot Weldment =Black=	23785B	1	
9	Auger Flighting (Steel) Weldment =Black=	23856B	1	
10	End Cap =Black=	2865B	1	
11	Decal, WARNING (Rotating Auger)	98766	1	
12	Decal, FEMA	91605	1	
13	Decal, WARNING (High Pressure Fluids)	93551	1	
14	Decal, DANGER (Electrocution Hazard)	93558	1	
15	Decal, IMPORTANT (Maximize Auger Capacity)	93694	1	
16	Locknut, 5/8-11UNC	9801	1	
17	Capscrew, 3/8-16UNC x 1	9390-055	4	
18	Capscrew, 3/8-16UNC x 1 1/4	9390-056	4	
19	Capscrew, 3/8-16UNC x 1 3/4	9390-058	1	
20	Capscrew, 5/8-11UNC x 5 1/2	9390-135	1	
21	Roll Pin 3/16" Dia. x 1 1/8	9392-098	3	
22	Cable Tie 32" Long	94038	1	
23	Lock Washer, 5/16	9404-019	4	
24	Lock Washer, 3/8	9404-021	4	
26	Flat Washer, 3/8 USS	9405-076	5	
27	Self-Drilling Screw 1/4-14 X 1	9512	4	
28	Decal, UM Oval	901607	2	
29	Flange Bearing 3/4" ID	9735	1	Includes Collar & Set Screw
30	Decal, WARNING (Read & Understand Manual)	97961	1	
31	Decal, Unverferth (Gray)	901725	2	
32	Reflector, RED	9003126	1	
33	FLUORESCENT Stripe	9003125	1	
34	Auger Flighting (Brush/Bristle) Weldment	23895B	1	
35	Auger Flighting (Plastic) Complete	900320	1	
	Flight Section (Standard)	900199		
	Flight Section w/Gusset	901122		
	Capscrew 5/16-18UNC x 2 1/4	91484		
	Elastic Stop Nut 5/16-18UNC	92929-007		

Hydraulic & Spout Components

Please visit www.unverferth.com/parts/ for the most current parts listing.



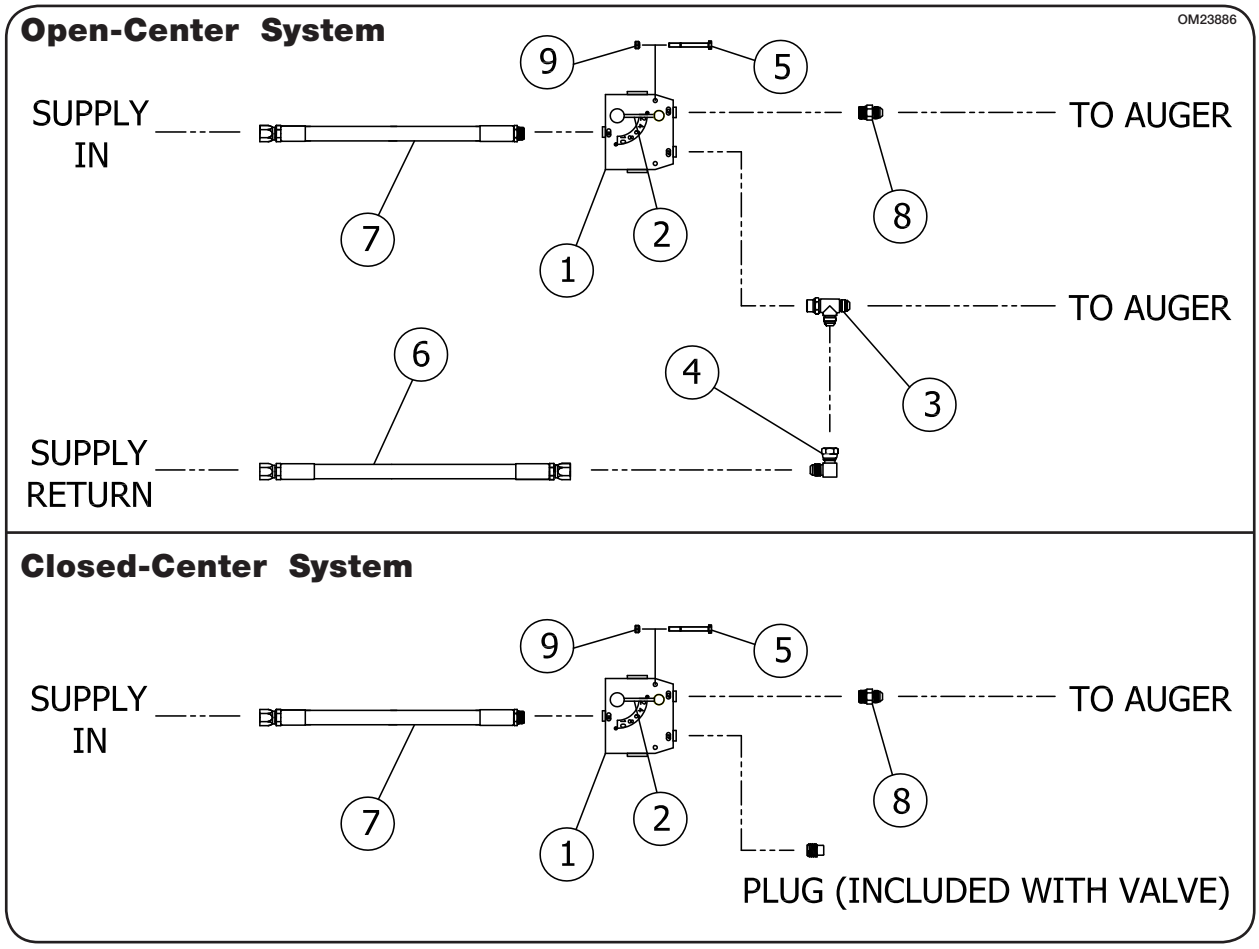
Hydraulic & Spout Components

Please visit www.unverferth.com/parts/ for the most current parts listing.

ITEM	DESCRIPTION	PART NO.	QTY	NOTES
1	Male Tip Coupling 3/4-16 O-Ring Female	91383	2	
2	Strap 2 x 28 w/6" Hook & Loop Ends	108088	1	
3	Capscrew, 1/4-20UNC x 5/8	9390-002	1	
4	Locknut, 1/4-20UNC	9936	1	
5	Dust Cap	91511	2	
6	Hose 1/2" Dia. x 185	95964	2	3000 PSI
7	90° Elbow 3/4-16 JIC Male x 3/4-16 O-Ring Male	9863	2	
8	Adapter 3/4-16 JIC Male x 3/4-16 O-Ring Male	9864	2	
9	Cable Tie 32" Long	94038	A/R	
10	Clamp	98060	1	
11	Flexible Hose 48" Long	TAAU14170	1	
12	Hydraulic Motor 6 Cu. In., 12 GPM	91604B	1	1800 PSI
	O-Ring	91306	-	Included w/Motor
13	Valve/Manifold Mount	99933	1	
14	Lock Washer, 5/16	9404-019	4	
15	Capscrew, 5/16-18UNC x 3 1/2	9390-040	4	
16	Pin, 3/8" Dia. x 2	23494	1	
17	Caplug	97394	2	

Optional Flow Control Valve Kit Components

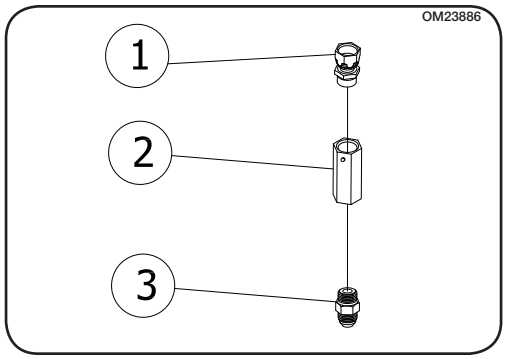
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	DESCRIPTION	PART NO.	QTY	NOTES
	Flow Control Valve Kit For Open-Center Systems & Closed-Center Systems	23669	-	
1	Flow Control Valve Less Handle	9000832	1	
2	Handle Assembly	900241	1	
3	Tee 3/4-16 JIC Male x 3/4-16 O-Ring Male x 3/4-16 JIC Male	93588	1	
4	90° Elbow 3/4-16 JIC Male x 3/4-16 JIC Female	93683	1	
5	Capscrew 1/4-20UNC x 2 1/2	9390-011	2	
6	Hose 1/2" Dia. x 20 (3/4-16 JIC Female x 3/4-16 JIC Female)	95144	1	
7	Hose 1/2" Dia. x 18 (3/4-16 JIC Female x 3/4-16 O-Ring Male)	97742	1	
8	Adapter 3/4-16 JIC Male x 3/4-16 O-Ring Male	9864	1	
9	Locknut 1/4-20UNC	9936	2	

Optional Check Valve Kit Components

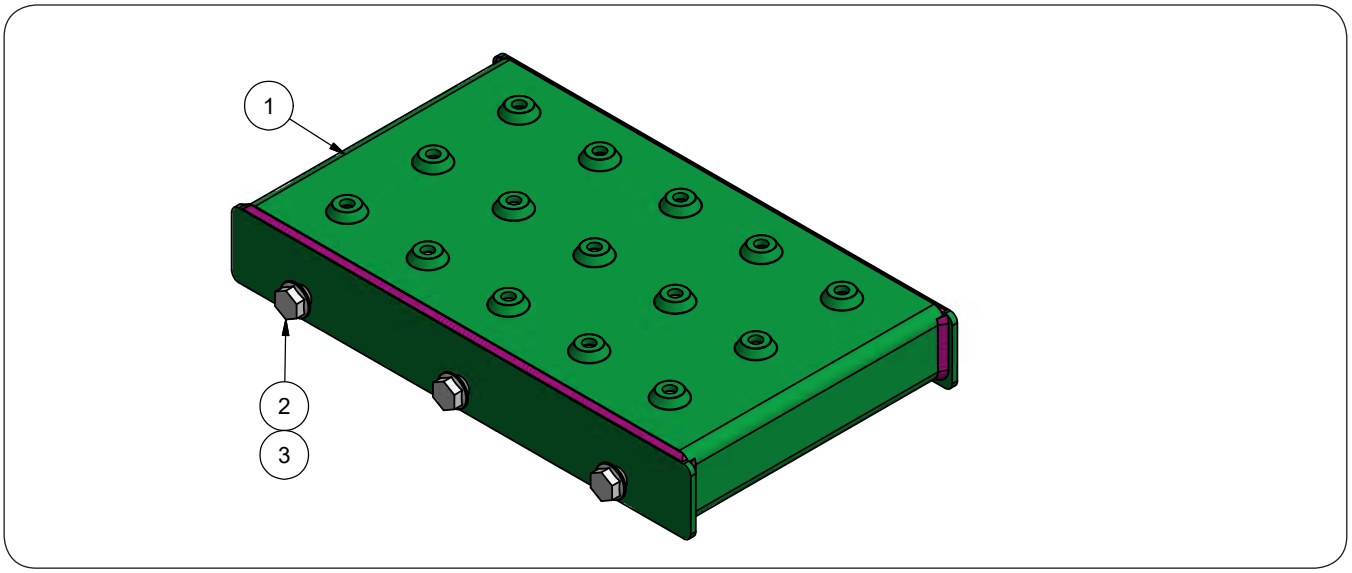
Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	DESCRIPTION	PART NO.	QTY
	Check Valve Kit (Anti-Reverse)	23336	-
1	Adapter 3/4-16 O-Ring Male x 3/4-16 JIC Female	96935	1
2	Check Valve	97740	1
3	Adapter 3/4-16 JIC Male x 3/4-16 O-Ring Male	9864	1

Optional Ladder Extension Components

Please visit www.unverferth.com/parts/ for the most current parts listing.



ITEM	DESCRIPTION	PART NO.	QTY	NOTES
1	Ladder Extension Assembly	2005431G	1	Includes Items 2 & 3
2	Flange Screw 1/2"-13UNC x 1 1/4"	91266	3	
3	Flange Nut 1/2"-13UNC	91267	3	

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