Fill Auger
Fits JD 1790 CCS- 12/23, 12/24, 16/31, 16/32 Row - 30/15” Row Spacing & 1790 CCS - 24 Row - 20” Row Spacing

Part No. 23539

Foreword

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.

Read and study this manual completely before attempting to operate this implement. Take this manual to the field for handy reference when operating, adjusting, or servicing your machine.

When referenced, "Right-Hand" (RH) and "Left-Hand" (LH) side of the machine are determined by standing behind the machine and facing in the direction of travel.

PRE-OPERATION CHECKLIST

☐ Safety and operating procedures reviewed	☐ Field adjustment information reviewed
☐ Hardware tightened	☐ Lubrication procedures reviewed
☐ Machine lubricated	☐ Warranty information reviewed
	☐ Hydraulic hoses properly routed/fittings tight

Product Information

When ordering parts or when requesting further information or assistance, always give the following information:

- Serial number

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.

Please fill out and retain this portion for your records. The serial number plate is located on the outside of the bracket for the winch mounting (Fig. 1).

Purchase Date _____ Model _____Serial No.'s_____

Dealer _____ City _____

Dealer Contact _____ Phone _____

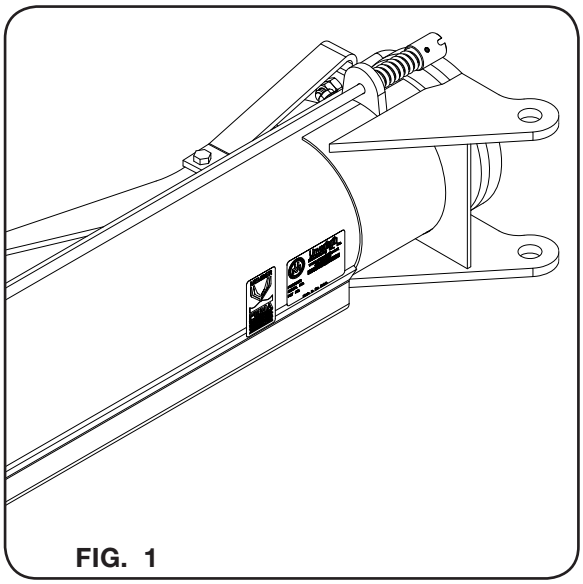

FIG. 1

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.

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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

DANGER

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

WARNING

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

CAUTION

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

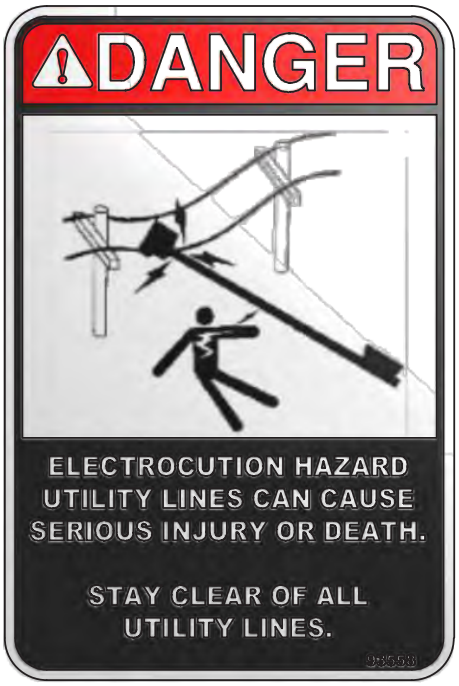
IMPORTANT

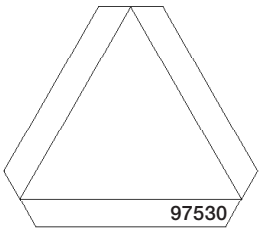
Is used for instruction on operating, adjusting, or servicing a machine.

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.**

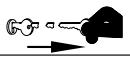




Following Safety Instructions

- Read and understand this 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.
- Do not allow anyone to ride on the implement. Make sure everyone is clear before operating machine or towing vehicle.

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.
- When working around the implement, be careful not to be cut by sharp edges.

Before Operating

- Do not stand between towing vehicle and implement during hitching.
- 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.
- When working around the implement, be careful not to be cut by sharp edges.

During Operation

- Regulate speed to field conditions. Maintain complete control at all times.
- 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.
- Do not leave towing vehicle unattended with engine running.
- Seed being transported may contain seed treatment. Read and follow all requirements for personal protective equipment and first aid as outlined on seed tags.

Before Transporting

- Secure transport chains to towing vehicle before transporting. DO NOT transport without chains.
- 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.

During Transport

- Comply with state and local laws governing highway safety when moving machinery.
- Use transport lights as required by local laws to adequately warn operators of other vehicles.
- Use good judgment when transporting equipment on highways. Regulate speed to road conditions and maintain complete control.
- Maximum speed of implement should never exceed 20 mph. Do not exceed 10 mph during off-highway travel.

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:
    - o End fittings damaged, displaced, or leaking.
    - o Outer covering chafed/cut or wire reinforcing exposed.
    - o Outer covering ballooning locally.
    - o 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

Notes

SECTION II
Setup

Auger Assembly

WARNING

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

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

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.

IMPORTANT

- *The procedures for assembling this unit were intended for two or more people.*

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 hoist and lifting devices rated at 500 lbs. minimum when handling the lower and upper augers.

1. Remove the auger halves and flighting from the crate (Fig. 2-1).

You should receive the following bundles:

FILL AUGER CRATE #23665

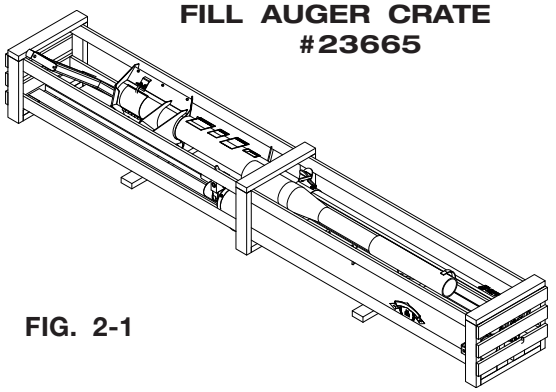
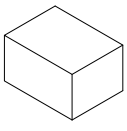


FIG. 2-1

HOPPER LID BUNDLE #23664



PARTS BOX #23662

FLIGHTING BUNDLES:
STEEL - 23469B & 23479B
BRISTLE - 23528B & 23534B
PLASTIC - 26869, 900301, & 900302

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Auger Assembly (Continued)

2. On the hopper end of the fill auger, install flange bearing (9735) provided in the part box (23662). Secure in place using capscrews (9390-056), flat washers (9405-076) and locknuts (9928) provided in parts box. See Fig. 2-2.

3. 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 Fig. 2-2.

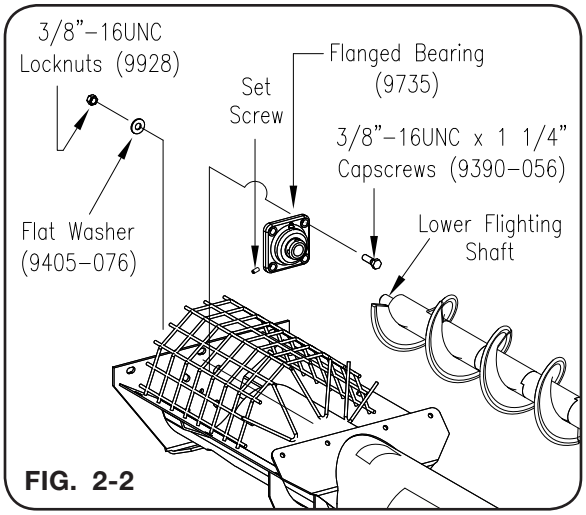


FIG. 2-2

Auger Assembly (Continued)

Brush & Steel Flighting Only

4. Attach the flighting to the opposite end of the lower auger with large flange capscrews (95585) and locknuts (9928) provided in parts box. See Fig. 2-3.

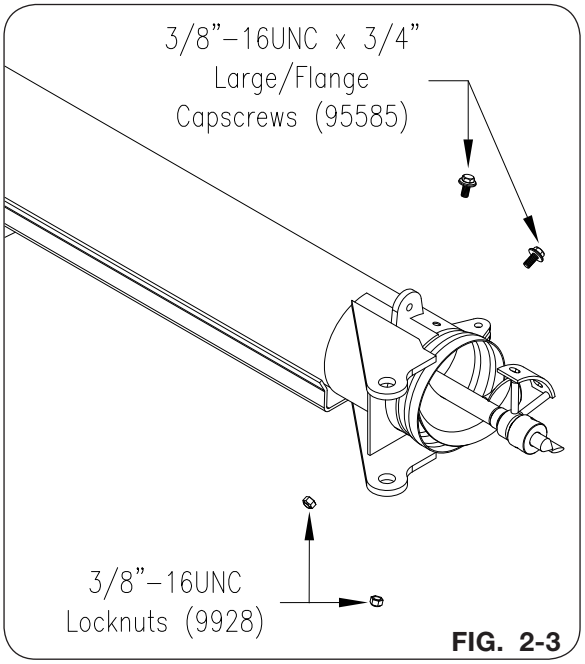


FIG. 2-3

Plastic Flighting Only

Remove the two capscrews and nuts from the end of the plastic flighting and insert the shaft weldment (25561B). Secure into position with the previously removed capscrews and nuts. Attach the plastic flighting to the opposite end of the lower auger with large flange capscrews (95585) and locknuts (9928) provided in parts box. See Fig. 2-4.

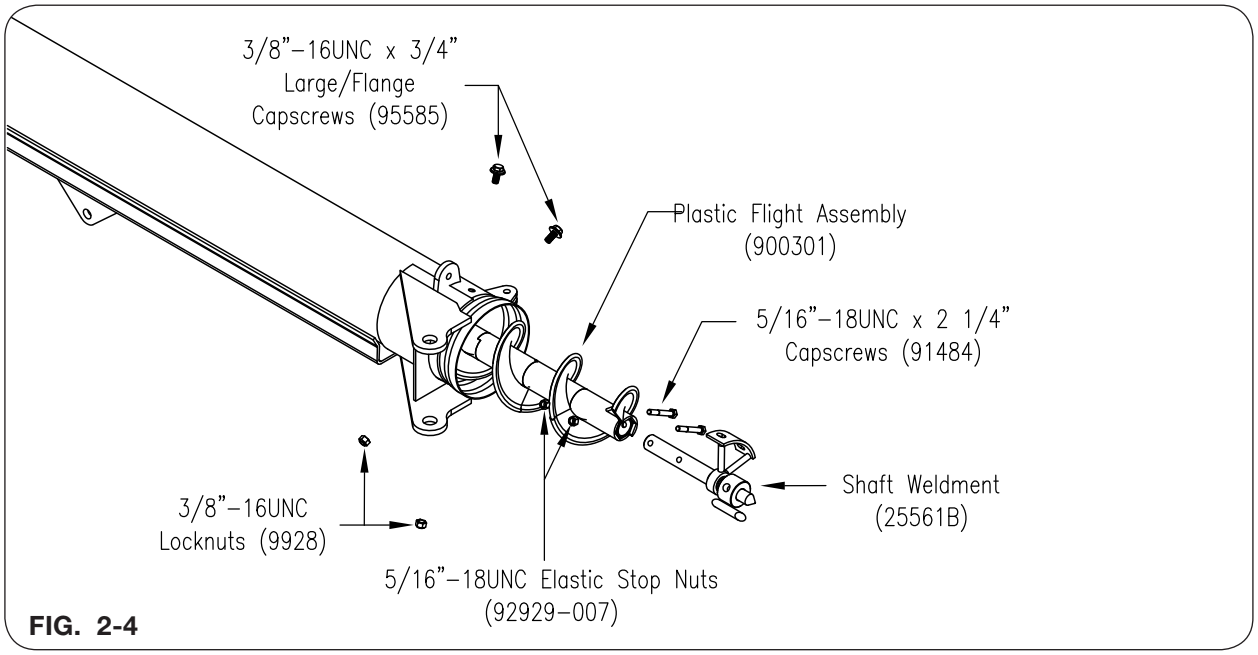


FIG. 2-4

Auger Assembly (Continued)

5. Remove the two capscrews and nuts from the end of the upper plastic flighting and insert the drive coupler weldment (23885). Secure into position with the previously removed capscrews and nuts. See Fig. 2-5.

6. On the spout end of the fill auger, remove end cap (2865B) by removing self-drilling screws (9512). Also, remove the capscrew (9390-058) and locknut (9928) from the hydraulic motor (91604B). Retain all hardware remove. See Fig. 2-6.

7. Attach the flighting to the hydraulic motor (91604B) with the capscrew (9390-058) and locknut (9928) previously removed (Fig. 2-7).

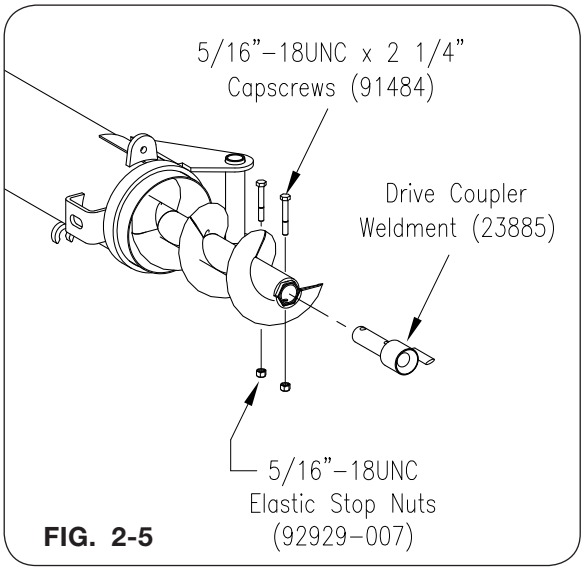


FIG. 2-5

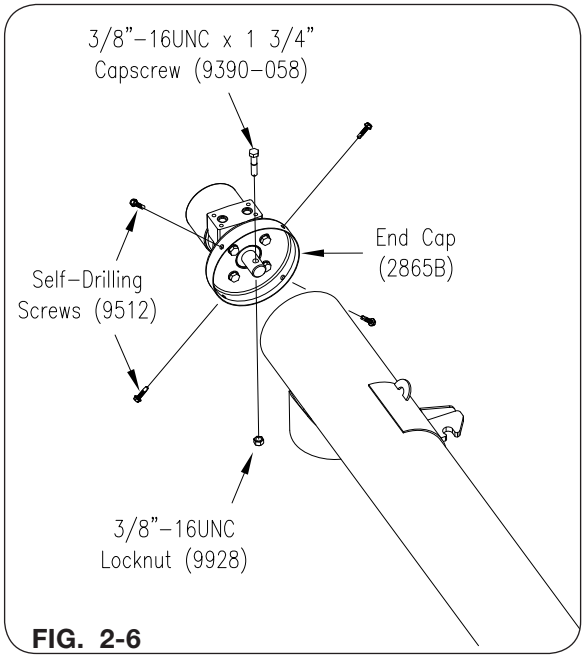


FIG. 2-6

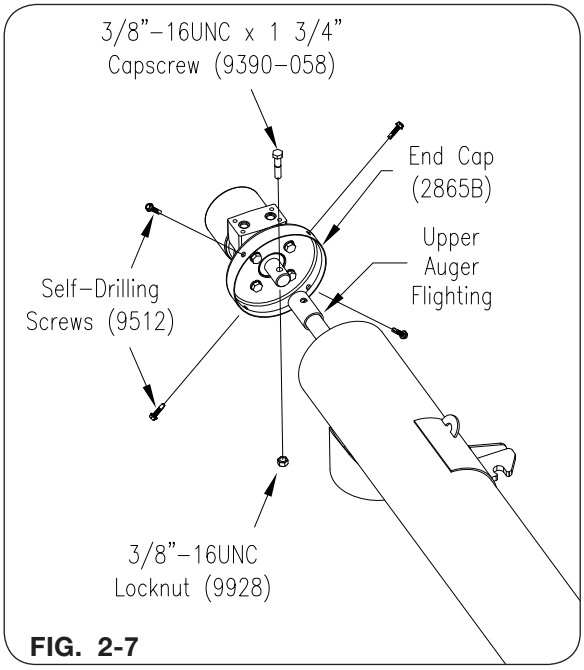


FIG. 2-7

Auger Assembly (Continued)

8. Assemble the upper and lower auger together using the 7/8" dia. x 7 7/8" pin (23975) and locknuts (96976-036) (Fig. 2-8). Tighten according to "Torque Chart".

9. Latch both halves together (Fig. 2-9).

10. Loosely assemble the back hopper panel (108020B) to the lower auger using 5/16"-18 x 3/4" lg. flange screws (91256) and flange nuts (91257) (Fig. 2-10).

11. Loosely assemble the hopper side panels (23150B & 23151B) to the lower auger and the back hopper panel using 5/16"-18 x 3/4" lg. flange screws (91256) and flange nuts (91257) (Fig. 2-11).

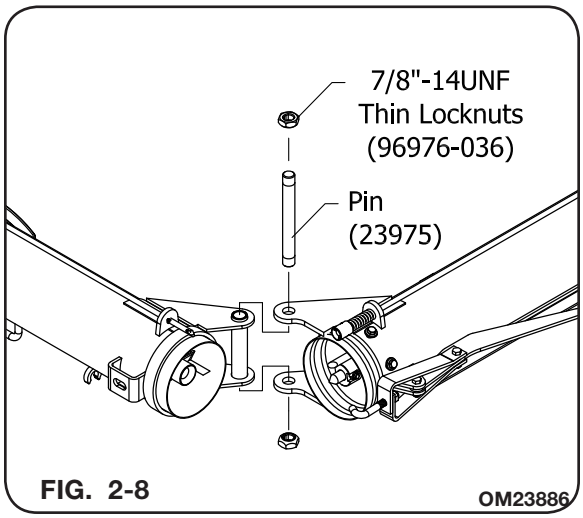


FIG. 2-8 OM23886

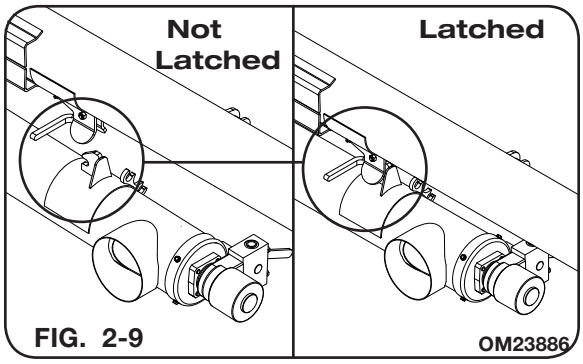


FIG. 2-9 OM23886

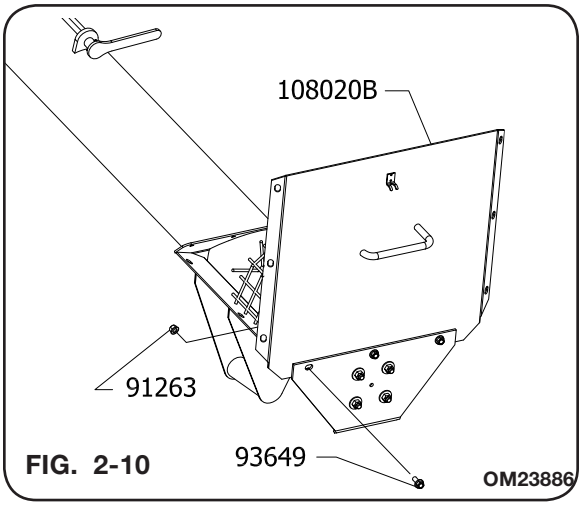


FIG. 2-10 OM23886

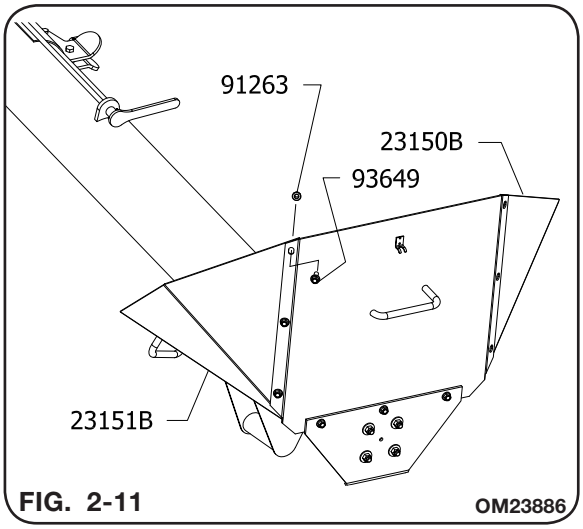


FIG. 2-11 OM23886

Auger Assembly (Continued)

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

13. Attach the hopper seal (108021) to the lid weldment (23661B) using plate (23270B), 1/4-20 x 5/8” lg. capscrews (9390-002), flat washers 1/4” flat washers (9405-062), and locknuts (9936) (Fig. 2-12 & Fig. 2-13).

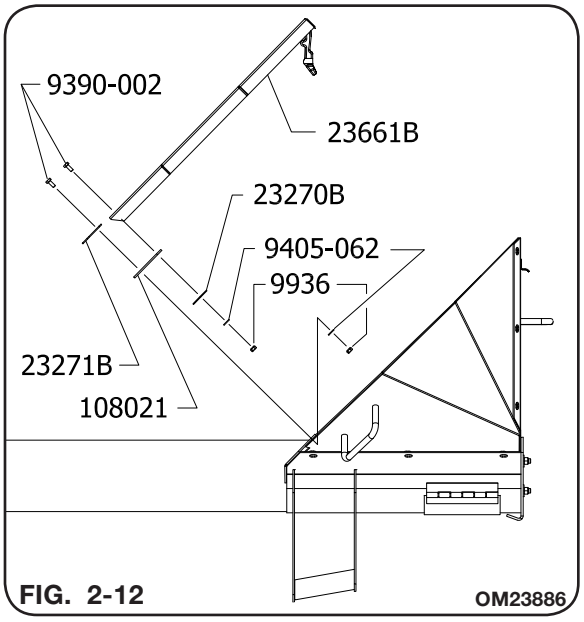


FIG. 2-12 OM23886

14. 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. 2-12 & Fig. 2-13).

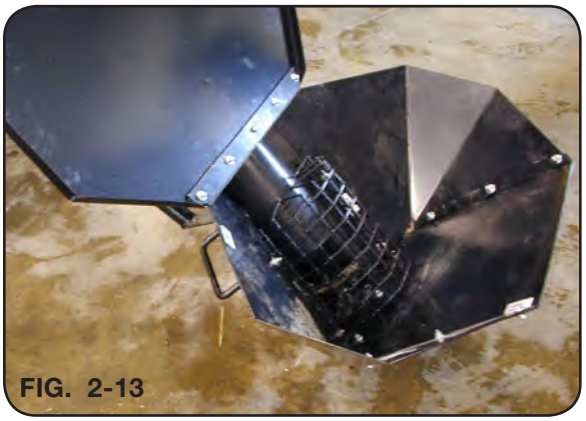


FIG. 2-13

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

15. Assemble the pivot weldment (23452B) to the lower auger. Insert the tube (23523) into the pivot weldment (23452B) and secure it to the lower auger with capscrew 5/8-11 x 5 1/2” lg. (9390-135) and locknut (9801) (Fig. 2-14). Tighten hardware according to “Torque Chart”.

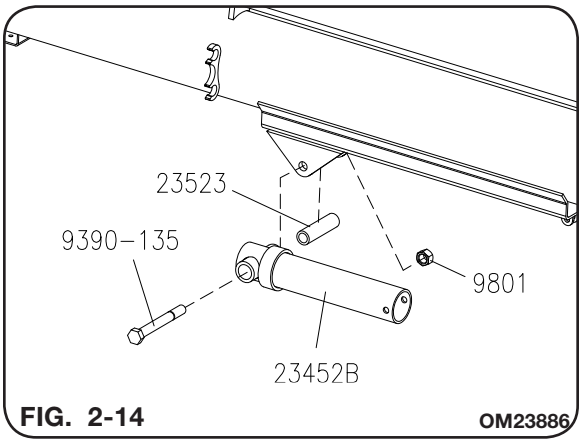


FIG. 2-14 OM23886

Auger Assembly (Continued)

JD 1790 CCS - 30/15'' Row Spacing Only

16. JD 1790 CCS Planters with 30/15" row spacings require the transport bracket weldment to be installed on the outside of planter wheels as shown in Fig. 2-15 & Fig. 2-16 and Overhead Layout on page 21.

ROWS	ROW SPACING
12/23	30/15"
12/24	30/15"
16/31	30/15"
16/32	30/15"

a. The transport bracket weldment (23499B) will be located on the outside of the planter wheel. The strap (23639B) and plate (23512B) will be located on the opposite side of the planter wheel.

b. Attach the transport bracket weldment (23499B), strap (23639B), and plate (23512B) to the planter wheel with capscrews 5/8-11 x 3 3/4" lg. (9390-131) and locknuts (9801).

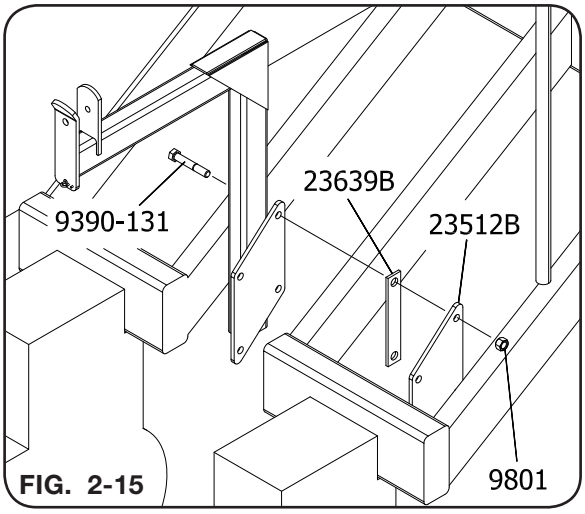


FIG. 2-15

c. Tighten hardware according to "Torque Chart".


FIG. 2-16

Auger Assembly (Continued)

17. JD 1790 CCS Planters with 30/15" row spacings require the pivot arm tube weldment to be installed on the outside of planter wheels as shown in Fig. 2-18 & Fig. 2-19 and Overhead Layout on page 21.

    a. The pivot arm tube weldment (23511B) will be located on the outside of the planter wheel. The strap (23639B) and plate (23512B) will be located on the opposite side of the planter wheel.
    b. Attach the pivot arm tube weldment (23511B), strap (23639B), and plate (23512B) to the planter wheel with capscrews 5/8-11 x 3 3/4" lg. (9390-131) and locknuts (9801).
    c. Tighten hardware according to "Torque Chart".

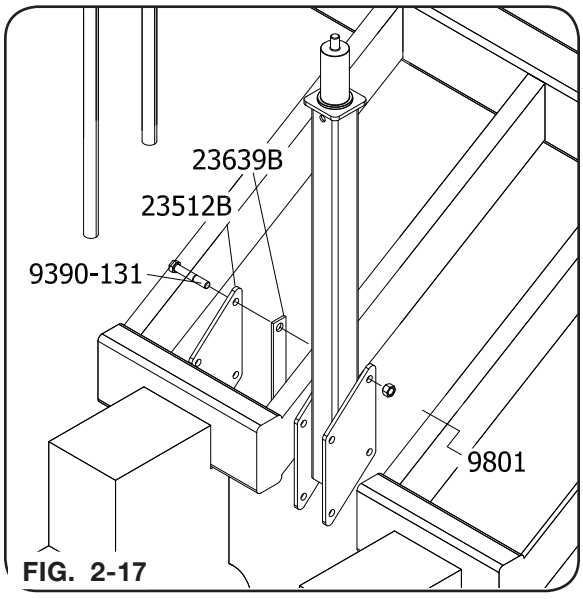


FIG. 2-17


FIG. 2-18

Auger Assembly (Continued)

JD 1790 CCS - 20'' Row Spacing Only

18. JD 1790 CCS Planters with 20" row spacings require the transport bracket weldment to be installed on the toolbar of the planter as shown in Fig. 3-19 & Fig. 3-20 and Overhead Layout on page 21.
    a. The transport bracket weldment (23499B) and strap (23639B) will be located on the inside of the planter wheel. The plate (23512B) will be located on the opposite side of the planter wheel.
    b. Attach the transport bracket weldment (23499B), strap (23639B), and plate (23512B) to the planter wheel with capscrews 5/8-11 x 3 3/4" lg. and locknuts (9801).
    c. Tighten hardware according to "Torque Chart".

19. JD 1790 CCS Planters with 36" spacings require the pivot arm tube weldment to be installed on the inside of the planter wheels as shown in Fig. 2-21 & Fig. 2-22 and Overhead Layout on page 21.
    a. The pivot arm tube weldment (23511B) and strap (23639B) will be located on the inside of the planter wheel. The plate (23512B) will be located on the opposite side of the planter wheel.
    b. Attach the pivot arm tube weldment (23511B), strap (23639B), and plate (23512B) to the planter wheel with capscrews 5/8"-11UNC x 3 3/4" lg. and locknuts (9801).
    c. Tighten hardware according to "Torque Chart".

Rows	Row Spacing
24	20"

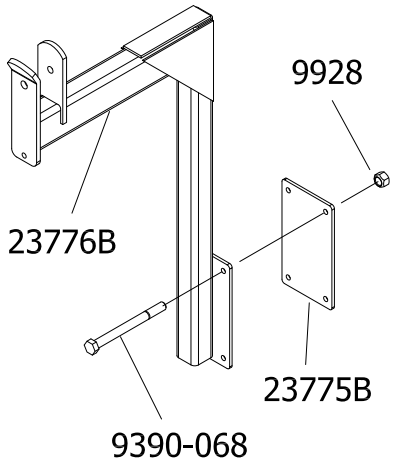


FIG. 2-19 OM23886

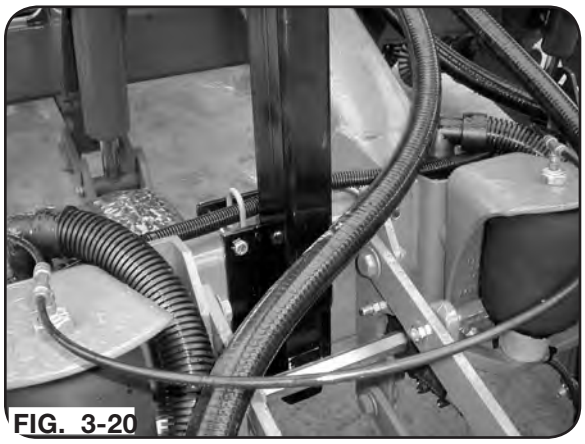


FIG. 3-20

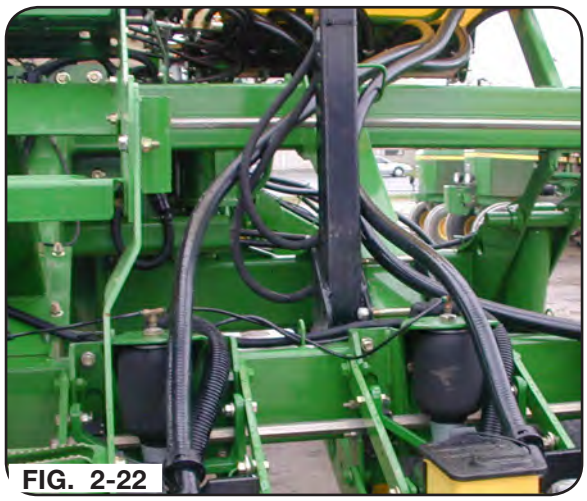


FIG. 2-22

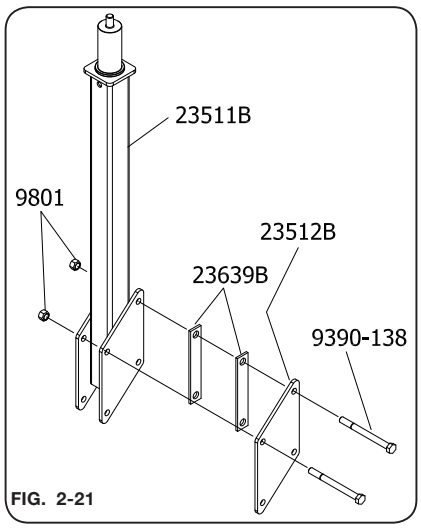
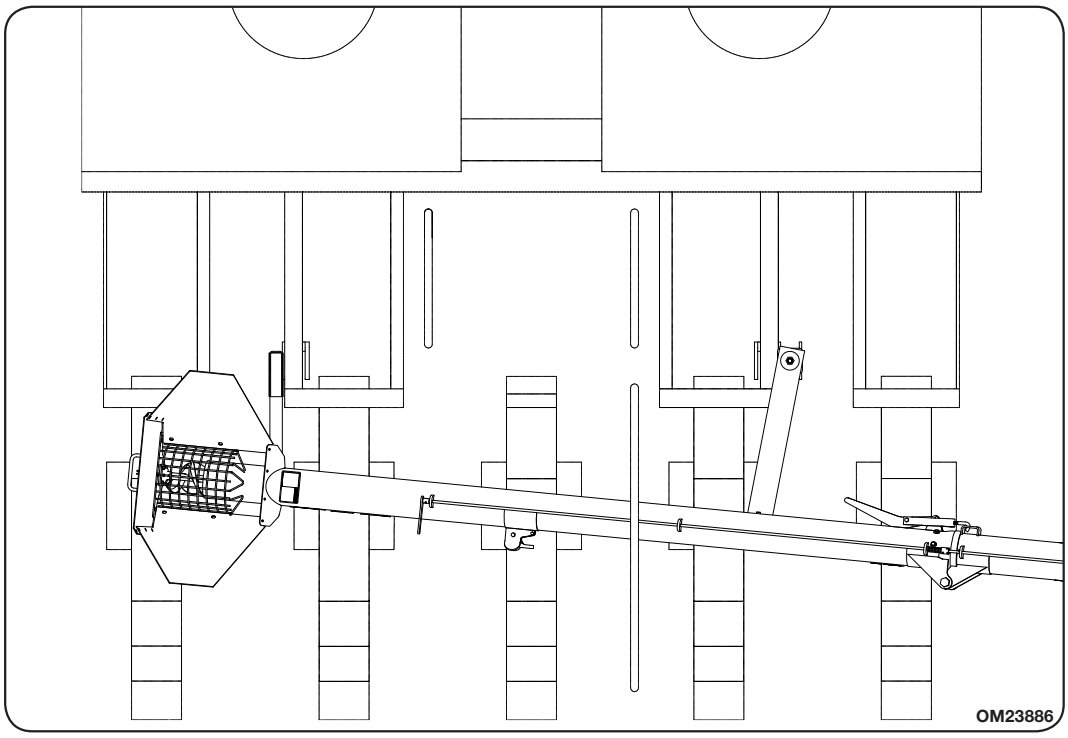


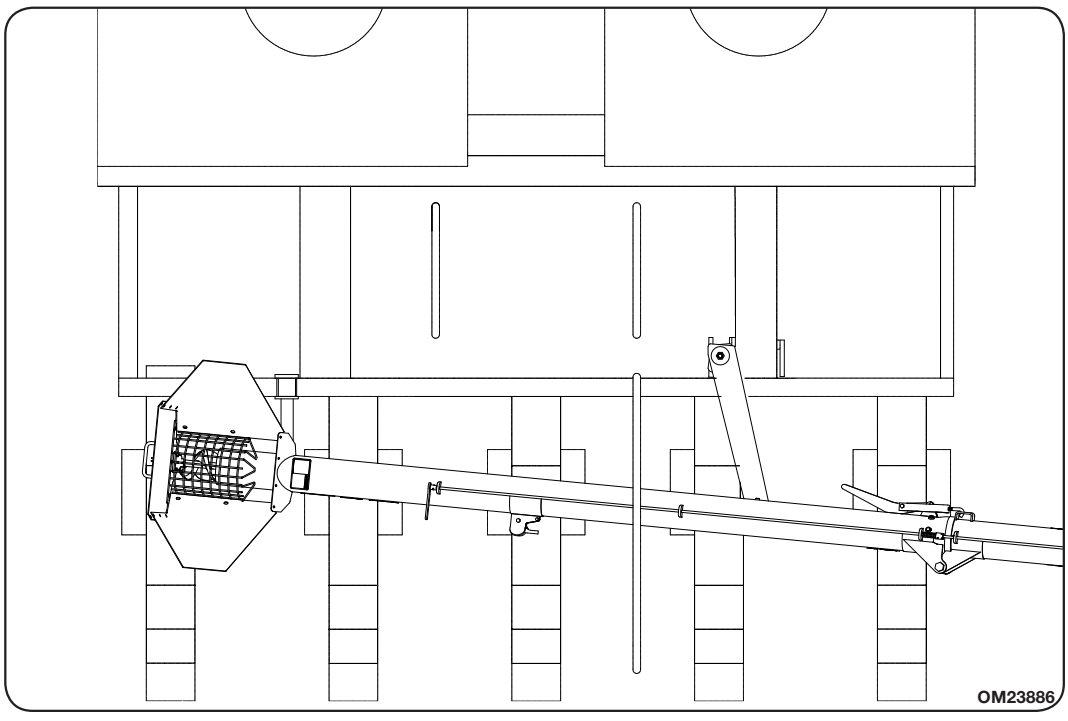
FIG. 2-21

Overhead Layout

JD 1790 CCS - 12/23, 12/24, 16/31, 16/32 Row - 30/15” Row Spacing



JD 1790 CCS - 24 Row - 20” Row Spacing



Auger Assembly (Continued)

JD 1790 CCS - 30/15” & 20” Row Spacings

20. Attach one end of the sash chain (23660) to the S-hook (98054) and crimp the end. Attach the other end of the sash chain to the hitch/ball pin (99697) and crimp the end. Attach the S-hook end of the sash chain assembly to the transport bracket weldment (23639B) as shown in Fig. 2-23.

21. Attach the pivot weldment and pivot arm weldment (23508B) to the pivot arm tube weldment (23511B) as shown in Fig. 2-24. Secure into position using a plate/washer (23515B) and locknut (9802). Tighten hardware according to “Torque Chart”.

FIG. 2-23

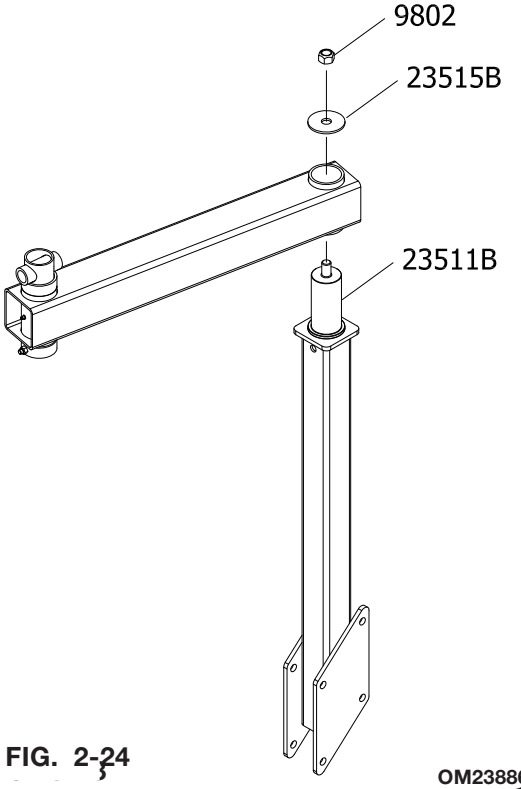


FIG. 2-24

Auger Assembly (Continued)

JD 1790 CCS - 20" Row Spacing Only

The railing located on the rear of the planter has to be revised to accommodate the Fill Auger.

22. Remove the left-hand railing from the rear of the planter. Save existing hardware and brackets.

23. The railing will be cut perpendicular to the railing as shown in Fig. 2-26.

FIG. 2-25

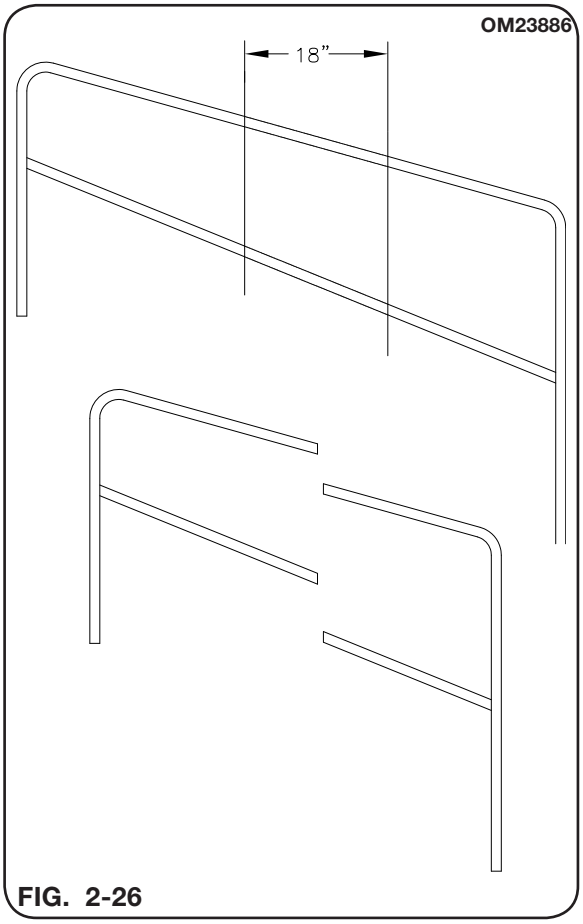


FIG. 2-26

Auger Assembly (Continued)

24. Loosely assemble the capscrew 5/16-18 x 3 3/4" lg. (900139), bar (23768B), rubber tube (23770), lock washer (9404-019), and flange hex nut 5/16-18 (91257) (Fig. 2-27).

25. Insert the rubber tube assembly into one end of the cut railing tube. Tighten the hardware to expand the rubber in the tube railing.

26. Repeat steps 24 and 25.

27. Reattach the railing to the planter at the top in the same location with the original hardware and bracket removed in step #22 (Fig 2-28).

28. Using the bottom bracket as a template, align the railing and mark the bottom bracket locating holes as shown in Fig. 2-29.

29. Drill two 7/16" holes at the marked locations and secure using the original hardware and bracket (Fig. 2-30).

30. Remove the right-hand railing.

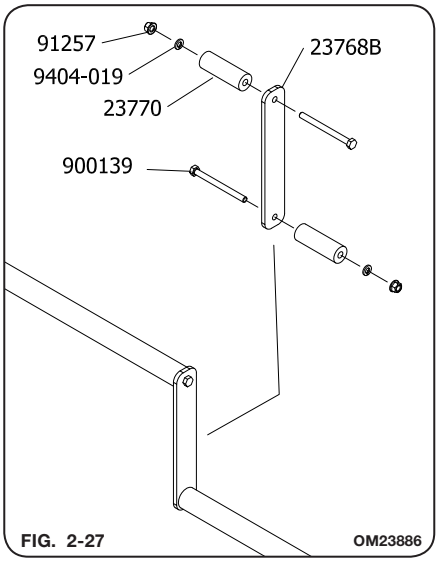


FIG. 2-27

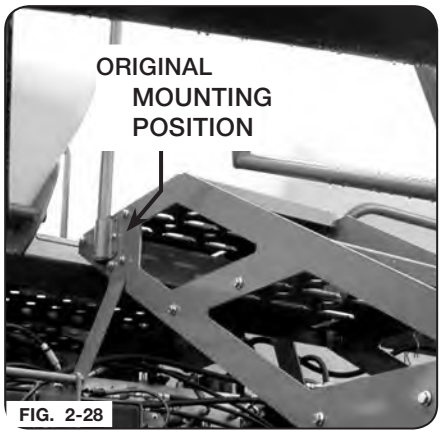


FIG. 2-28

⚠ CAUTION

- **THE FILL AUGER MUST BE IN THE OPERATING POSITION WHEN USING THE PLANTER REAR STEPS TO PREVENT FALLING.**

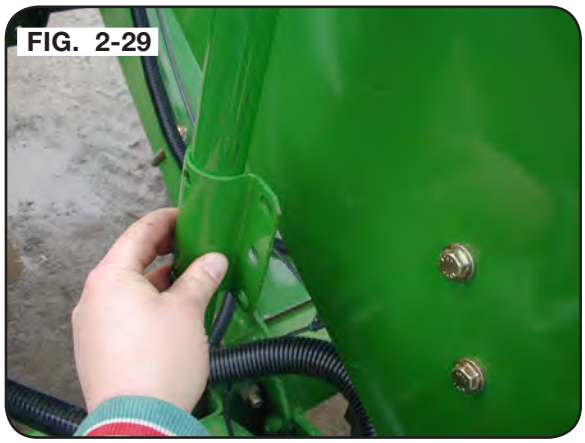


FIG. 2-29

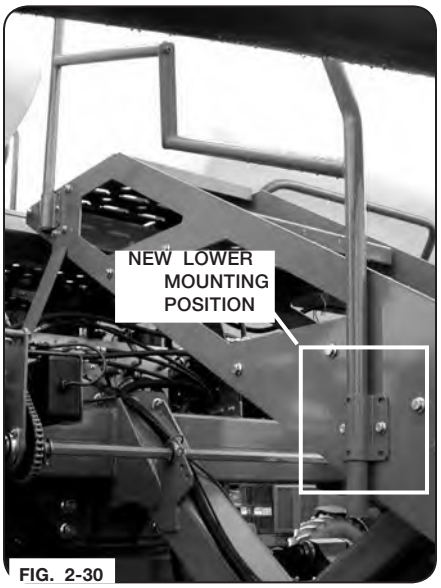


FIG. 2-30

Auger Assembly (Continued)

31. Using a hoist and lifting devices rated at 500 lbs. minimum, lift the auger assembly into the mounting position as shown in Fig. 2-31.

    a. The hopper end of the auger assembly will rest in the transport bracket weldment (23499B). Insert the hitch/ball pin (99697) for transporting purposes.

    b. The other end of the auger assembly with pivot weldment (23452B) will be inserted into the pivot arm weldment (23508B) as shown in Fig. 2-31. Place the collar (22409B) onto the bottom of the pivot weldment (23452B). Secure collar with capscrew 3/8-16 x 3 1/2" lg. (9390-065) and locknut (9928). Tighten hardware according to "Torque Chart".

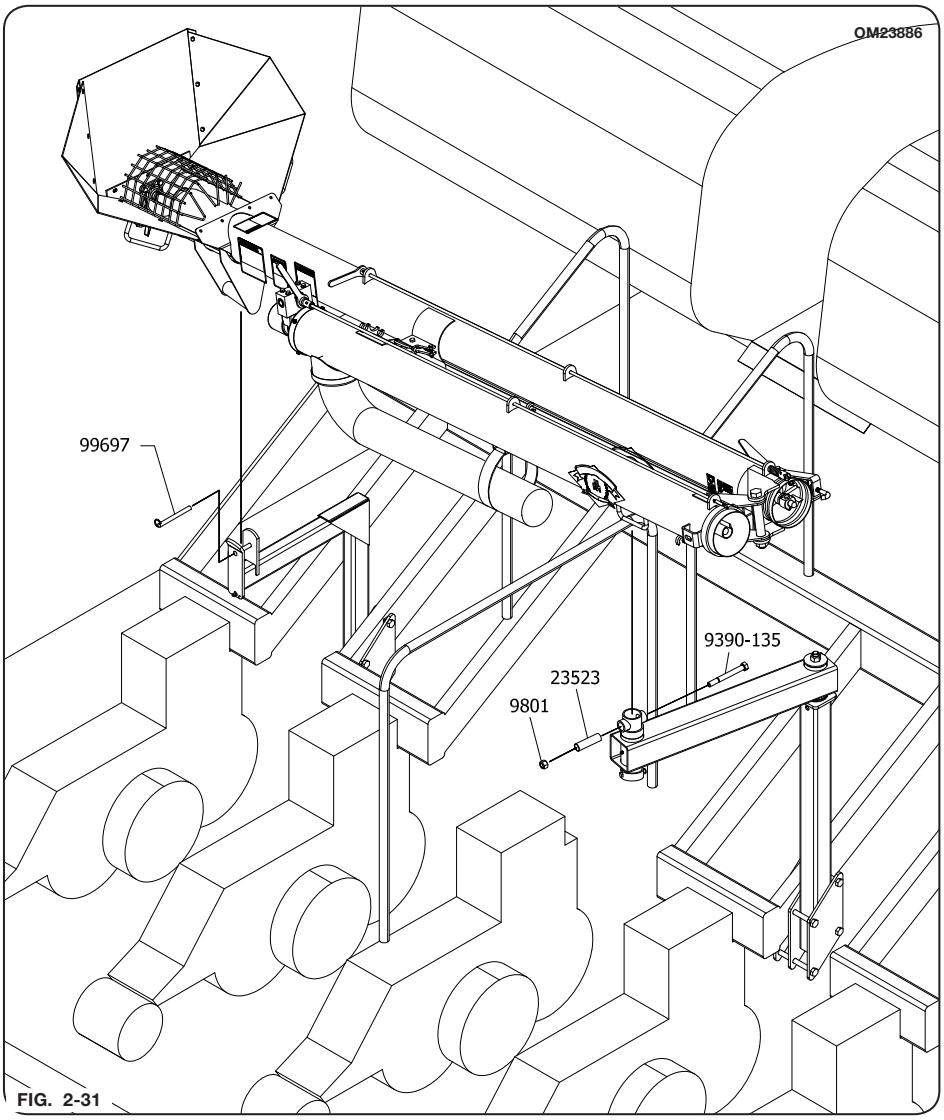


FIG. 2-31

Auger Assembly (Continued)

32. Attach the telescopic spout assembly to the upper auger using clamp (98060). Slide the spout on until it connects with the main auger and secure (Fig. 2-32).

33. Attach the strap (108088) to the upper auger assembly using capscrew 1/4-20 x 5/8" lg. (9390-002) and locknut (9936) (Fig. 3-27). Retain telescopic spout assembly into transport position by separating the two velcro straps (108088) and looping one strap through the nylon handle on the spout. Wrap the strap around the spout and velcro the strap ends together as shown in Fig. 2-33.

34. Remove the cap plugs from the valve (99933) and insert the 90° elbows (9863) (Fig. 2-34).

35. 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. 2-34).

36. Attach the adapters (9864) to the opposite ends of the hoses (95964) (Fig. 2-35). Attach the hoses to the side of the auger using the hose retainers.

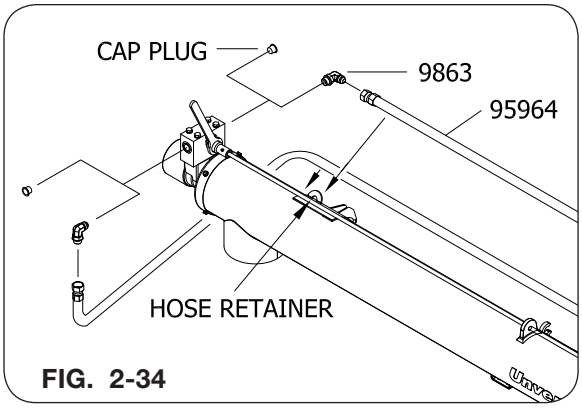


FIG. 2-34

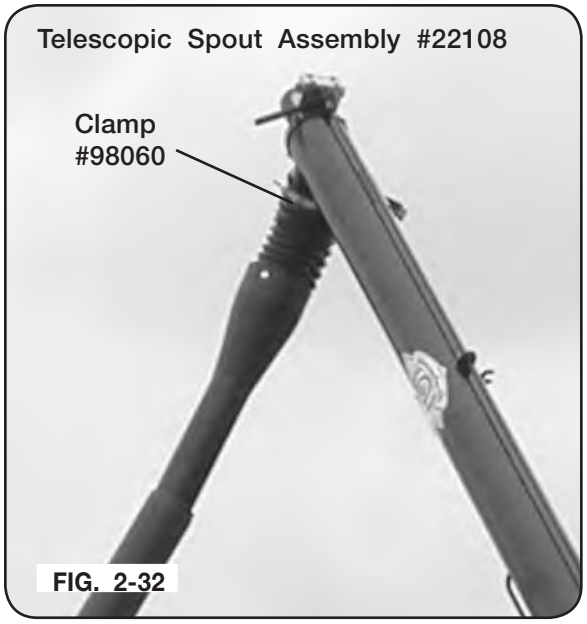


FIG. 2-32

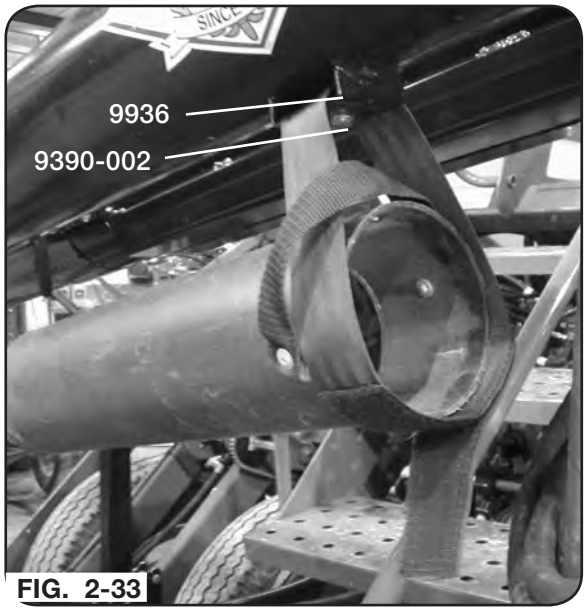


FIG. 2-33

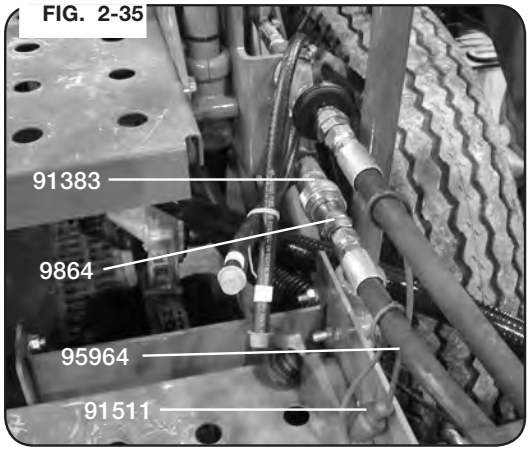


FIG. 2-35

Auger Assembly (Continued)

37. Thread the hoses through the loop on the dust cap (91511) (Fig. 2-36).

38. Attach the male tip couplings (91383) to the adapter end of the hoses (Fig. 2-36). Tighten all the fittings completely.

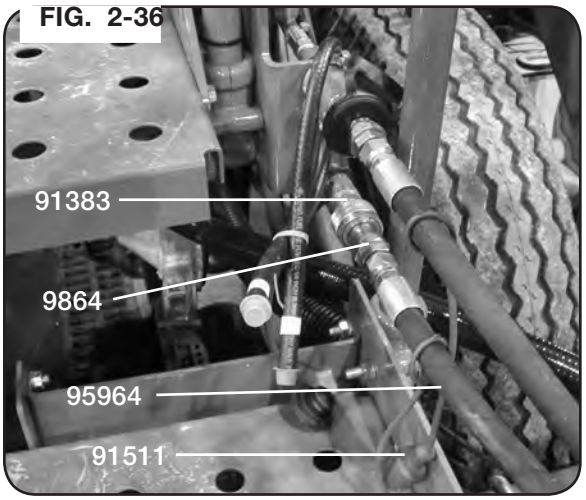
39. Insert the coupling end of the hoses into the planter auxiliary valve with a maximum 12 GPM. If not using an auxiliary valve, attach additional lines to use the tractor ports.

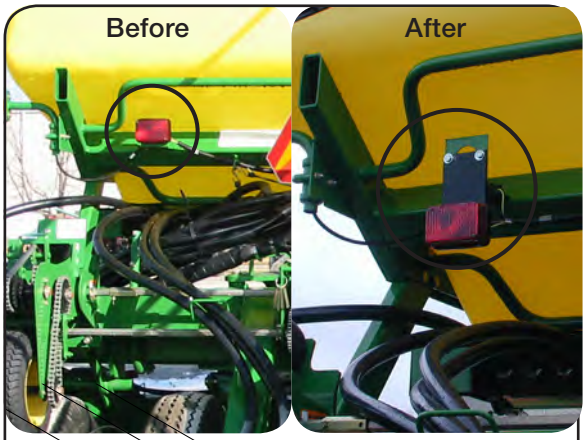
IMPORTANT

- *Hoses are provided to a remote outlet on the planter. If your planter 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 planter hydraulics unless you have the planter's auxiliary port package as shown in Fig. 2-37.*

40. The lights on the back of the JD 1790 CCS Planter will have to be repositioned so all lighting devices are still visible. Loosen the light from the planter and attach the light plate (23640B) using the existing hardware. Attach the light to the new light plate using capscrew 5/16-18 x 1" lg. (9390-030) and locknut (9807) (Fig. 3-30).

FIG. 2-36





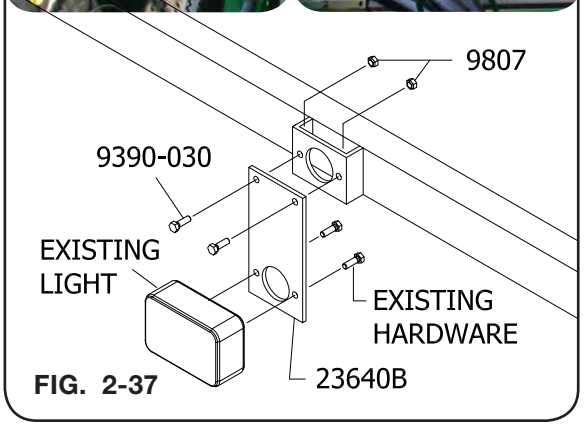


FIG. 2-37

Auger Assembly (Continued)

JD 1790 CCS - 30/15" Row Spacing Only

41. Apply rubbing alcohol to the entire area before applying decal. Attach the SMV Emblem decal (97530) to the rear side of the left tank for optimum visibility (Fig. 2-38).

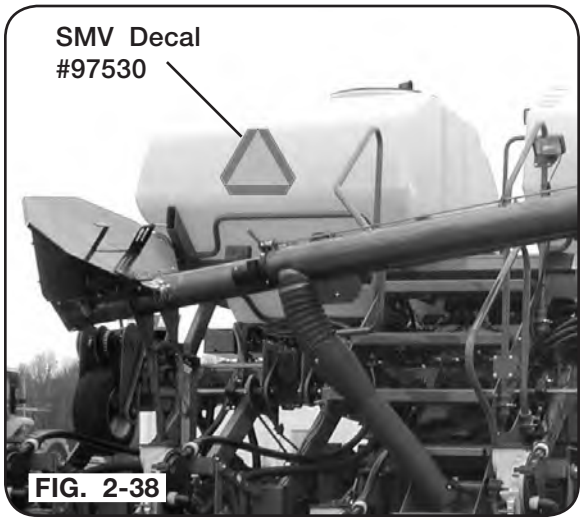


FIG. 2-38

JD 1790 CCS - 20" Row Spacing Only

42. The SMV Emblem and bracket has to be moved for optimum visibility. Remove the SMV bracket from the top of the railing steps and reattach to the bottom of the steps as shown in Fig. 2-39 & Fig. 2-40.

43. Mount the SMV bracket in one of the existing holes. Using the SMV bracket as a template, mark the position for the additional hole (Fig. 2-40 & Fig. 2-41).

44. Drill a 7/16" hole at the marked location and secure using the original hardware.

FIG. 2-39

FIG. 2-40

FIG. 2-41

Auger Assembly (Continued)

DANGER

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

WARNING

- **KEEP ALL PERSONS CLEAR OF MACHINE WHEN FOLDING AND UNFOLDING THE AUGER.**

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

IMPORTANT

- *Machine damage will occur if the cylinder is incorrectly installed.*

45. 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.

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

Hydraulic Flow Control Installation (Optional)

Tractors having high-capacity hydraulic systems with 12 to 20 GPM flow, may cause your conveyor or 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/conveyor 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

- **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 Flow Control Installation (Optional)

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.**

OPEN CENTER SYSTEM

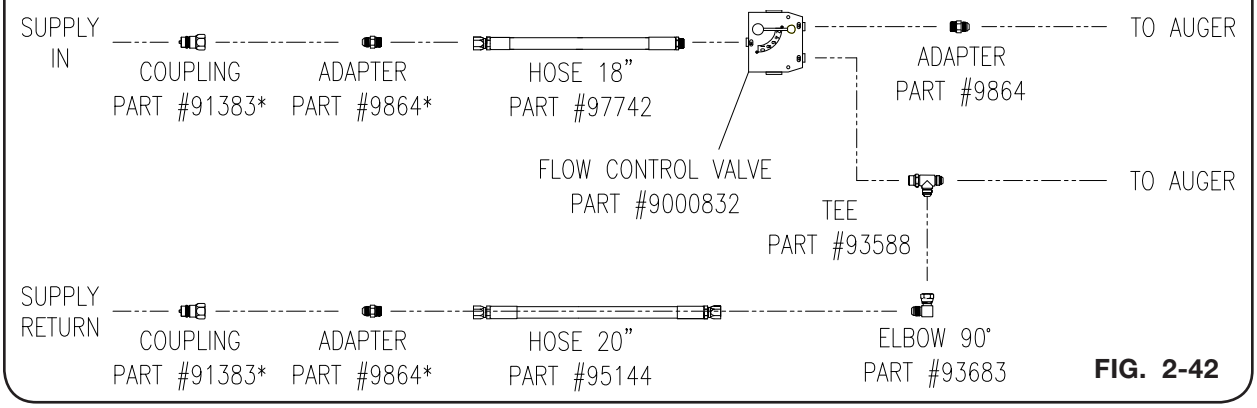


FIG. 2-42

CLOSED CENTER SYSTEM

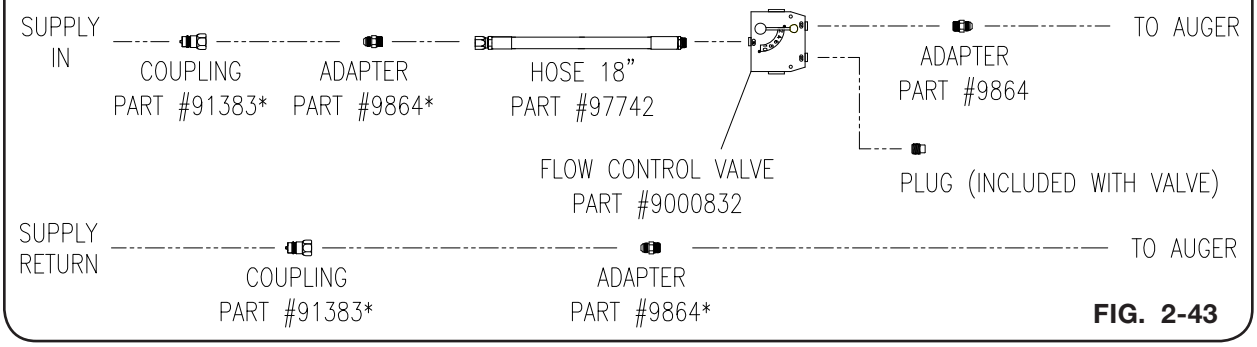


FIG. 2-43

*** Parts are included with auger/conveyor.**

Hydraulic Flow Control Installation (Optional)

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.

Check Valve Kit Installation (Optional)

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

- **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 THE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE THE HYDRAULIC POWER UNIT OPERATOR'S MANUAL FOR PROPER PROCEDURES.**

⚠ CAUTION

- **BEFORE INSTALLATION, BE SURE THAT THE AUGER AND IMPLEMENT IT IS INSTALLED ON ARE SECURELY BLOCKED TO PREVENT MOVEMENT. THIS WILL PROVIDE A SAFE WORKING ENVIRONMENT DURING INSTALLATION.**

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 adapter from the hose (Fig. 2-45).
3. Assemble the check valve (97740), adapter (96935), and adapter (9864) as shown in Fig. 2-46.
4. Insert the check valve assembly between the orifice and adapter (Fig. 3-47).
5. Reconnect the hydraulic RETURN line.
6. Check auger for proper rotation before loading with material.

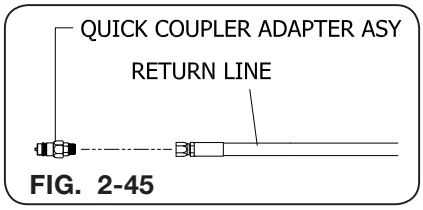


FIG. 2-45

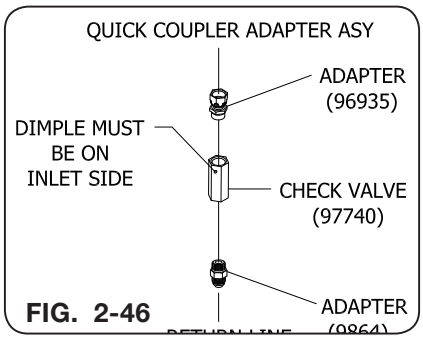


FIG. 2-46

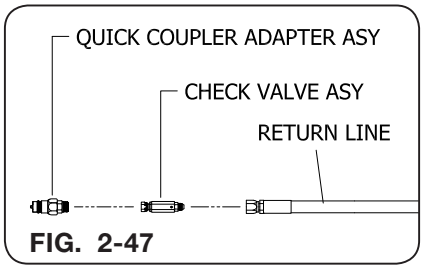


FIG. 2-47

SECTION III
Operation

Preparing Planter

WARNING

- **READ 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" and "Cautions" outlined in the planter's operator's manual.*

Operating Procedures

CAUTION

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

1. Pull tractor and planter into position, shift tractor into park (or neutral) and lock brakes on tractor. Planter must be lowered to the ground to fill.
2. Open the lid on the planter tanks to allow the fill auger to be positioned.
3. Release the latch handle on the FILL auger (Fig. 3-1), and unfold the two auger halves.
4. Latch the upper and lower augers together as shown in Fig. 3-2.

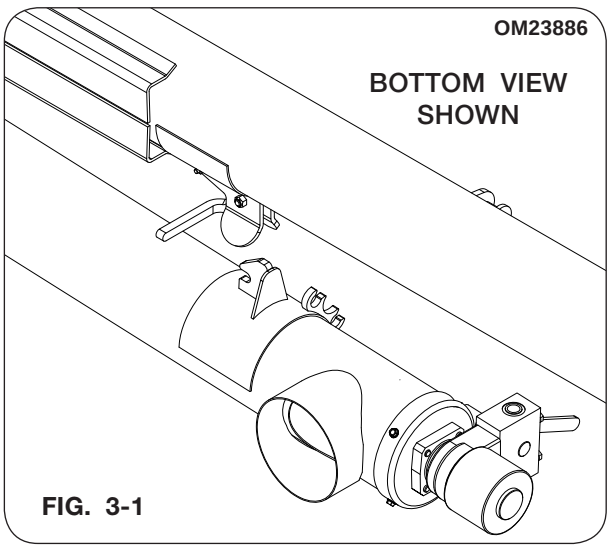


FIG. 3-1

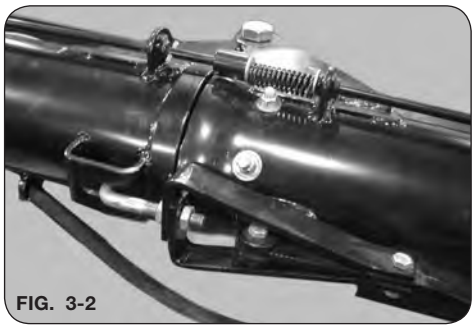


FIG. 3-2

FIG. 3-3

Operating Procedures (Continued)

⚠ 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.**

5. Remove the hitch pin (99697) from the transport bracket as shown in Fig. 3-3.

6. Swing auger into operating position as shown in Fig. 3-4.

7. 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.

FIG. 3-4

⚠ WARNING

- **SEED BEING TRANSPORTED MAY CONTAIN SEED TREATMENT. READ AND FOLLOW ALL REQUIREMENTS FOR PERSONAL PROTECTIVE EQUIPMENT AND FIRST AID AS OUTLINED ON SEED TAGS.**

8. 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.

9. 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.

Transporting

10. Place the auger back in the transport bracket. Insert the hitch pin to keep the auger in place.

11. Unlatch the two auger halves and swing the upper auger back into transport position as shown in Fig. 3-5.

12. Secure the two auger halves together with the latch handle Fig. 3-6.

13. Separate the two velcro straps (108088) and loop one strap through the nylon handle on the spout. Wrap the strap around the spout and velcro the strap ends together as shown in Fig. 3-7.

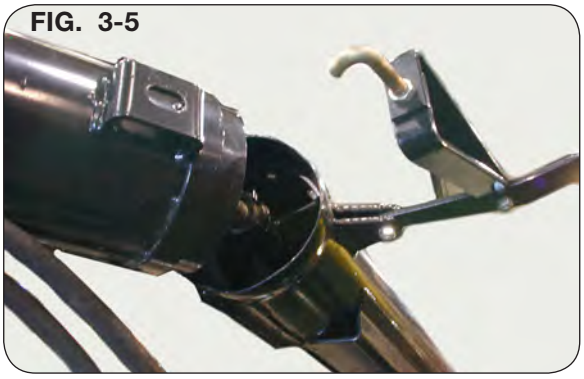


FIG. 3-5

IMPORTANT

- *Always fold the fill auger when not filling the planter.*

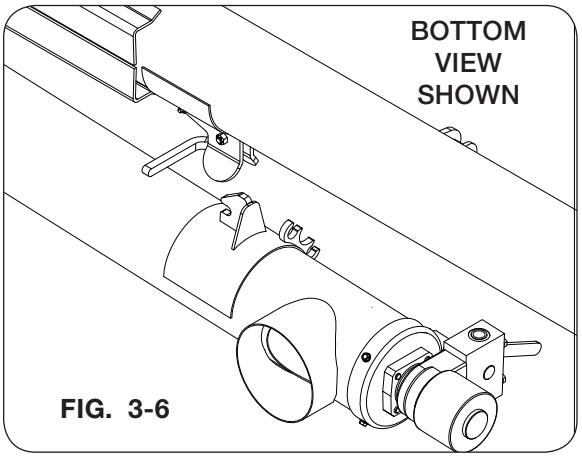


FIG. 3-6

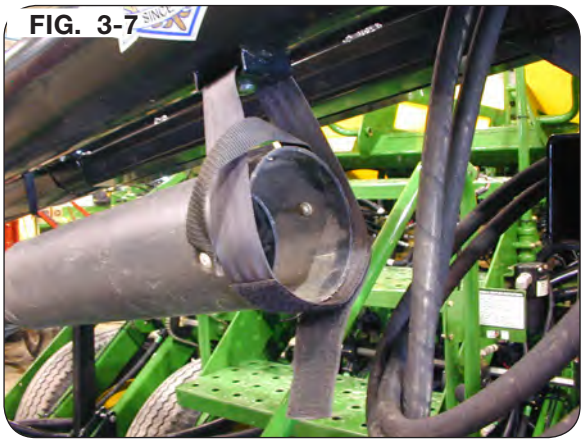


FIG. 3-7

Preparing Fill Auger

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 THE HYDRAULIC SYSTEM OF ALL PRESSURE BEFORE ADJUSTING OR SERVICING. SEE THE HYDRAULIC POWER UNIT OPERATOR'S MANUAL FOR PROPER PROCEDURES.**

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

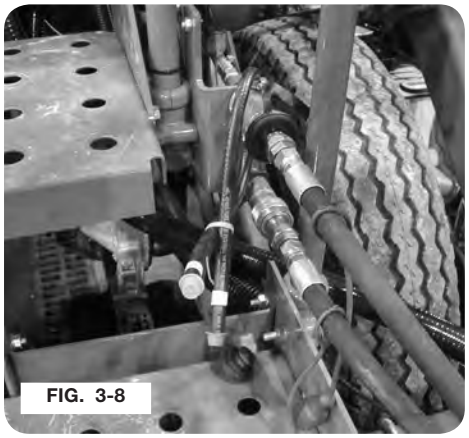


FIG. 3-8

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 this bearing 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 this bearing 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 fill auger.
-- Latch pin housing.
-- Pivot bracket and arm.
-- Auger folding hinge and latch mechanism.
-- 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 auger/hopper. Use pressurized water to wash out auger 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 AUGER IN STORAGE:
   -- Repaint any chipped or scraped areas.
   -- Inspect for damaged or worn parts. Replace before next season.
   -- Store unit inside, away from livestock.
   -- Replace all worn, torn or faded decals and reflectors.

Troubleshooting

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. AUGER 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

CAPSCREWS - GRADE 5

NOTE: Grade 5 capscrews can be identified by three radial dashes on 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

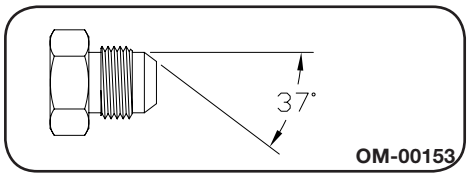
U-BOLTS - GRADE 7

NOTE: Tighten U-bolts evenly and equally to have the same number of threads exposed on each end.

NOTE: Torque 3/4-10 U-bolts to 240 ft. lbs.

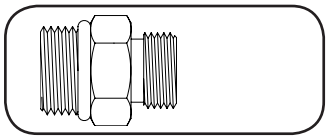
HYDRAULIC FITTING-TORQUE AND INSTALLATION PROCEDURES

SAE FLARE CONNECTION (J.I.C.)



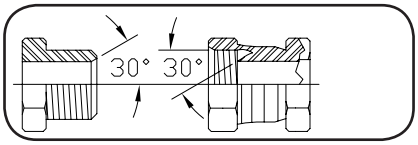
1. Tighten nut finger tight until it bottoms the seat.
2. Using a wrench, rotate nut to tighten. Turn nut 1/3 turn to apply proper torque.

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.

MALE NPTF / FEMALE NPSM



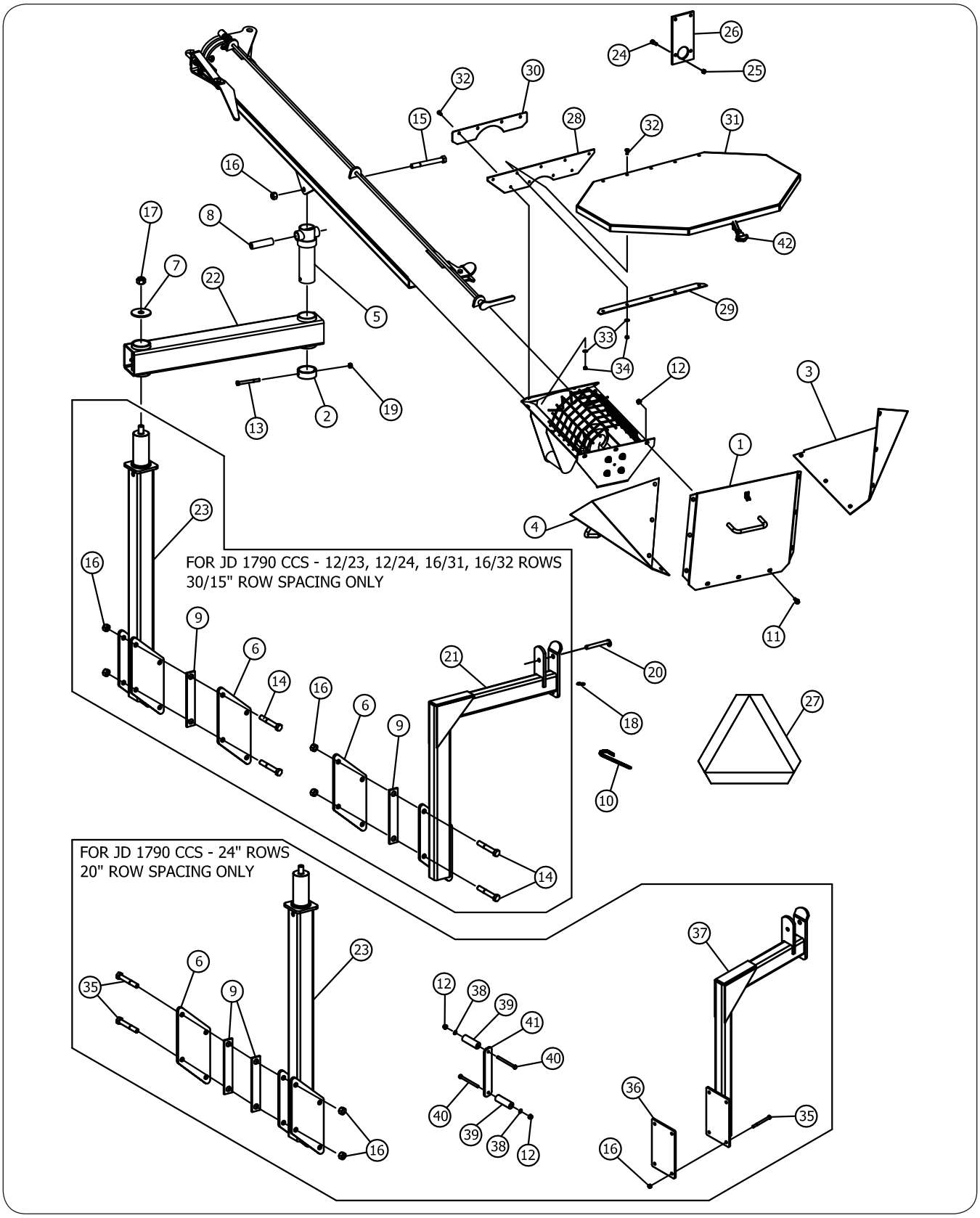
1. Tighten nut finger tight until it bottoms the seat.
2. Using a wrench, rotate nut to tighten. Turn nut 1/3 turn to apply proper torque.

SECTION V
Parts

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

FIll Auger Components

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



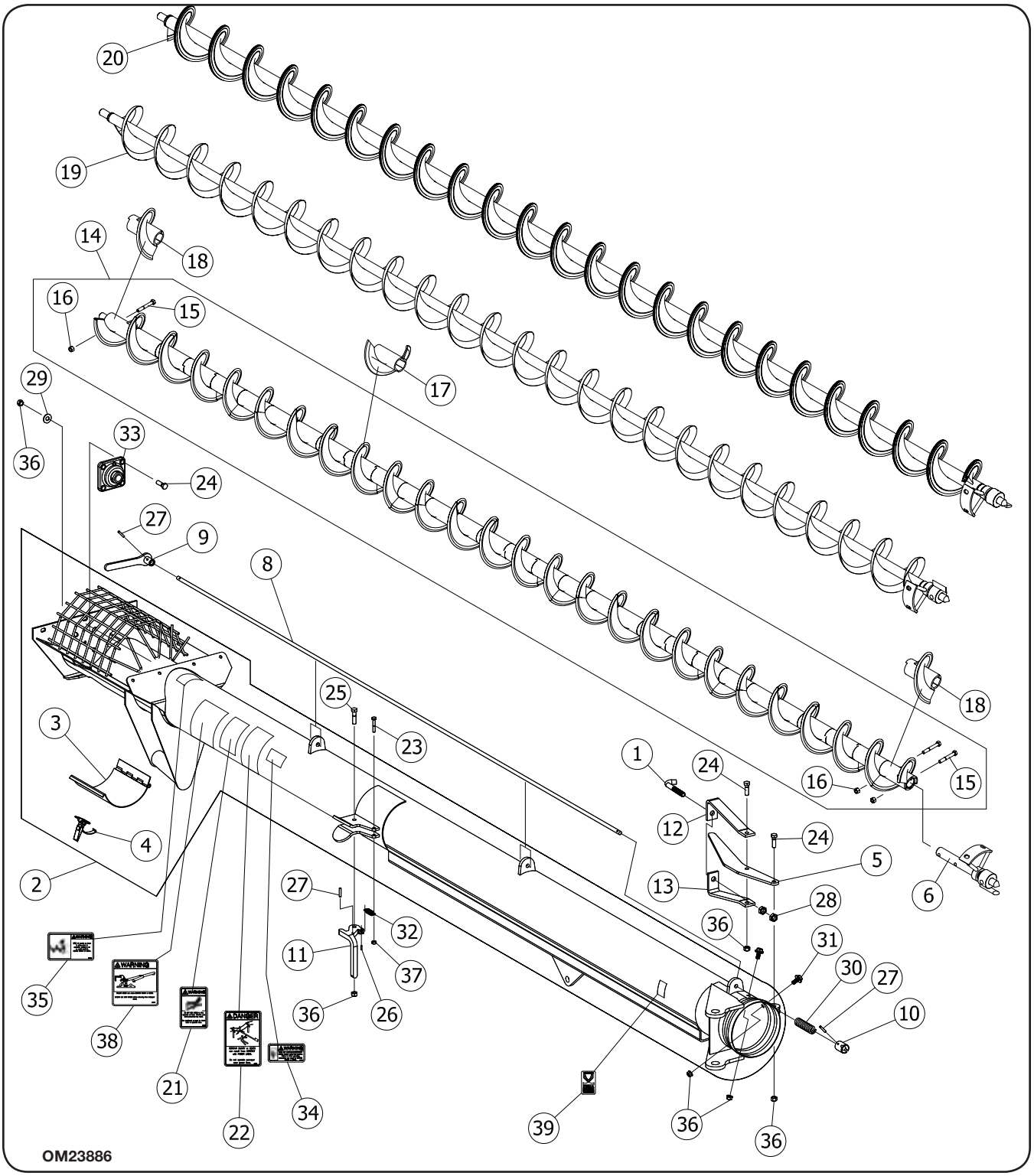
Fill Auger Components (Continued)

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

ITEM	PART NO.	DESCRIPTION	NOTES
1	108020B	Hopper Back Panel Weldment	
2	22409B	Collar 2 1/2" Dia.	
3	23150B	Hopper Panel Weldment	
4	23151B	Hopper Panel Weldment	
5	23452B	Pivot Weldment	
6	23512B	Plate 6 x 14	
7	23515B	Plate/Washer 3" Dia.	
8	23523	Tube 3 11/16" Long	
9	23639B	Strap/Bar 1 1/2 x 9 1/16	
10	23660	Sash Chain #35 x 12" Long	
11	91256	Screw/Large Flange 5/16-18UNC x 3/4	
12	91257	Nut/Large Flange 5/16-18UNC	
13	9390-065	Capscrew 3/8-16UNC x 3 1/2	
14	9390-131	Capscrew 5/8-11UNC x 3 3/4	
15	9390-135	Capscrew 5/8-11UNC x 5 1/2	
16	9801	Locknut 5/8-11UNC	
17	9802	Locknut 3/4-10UNC	
18	98054	S-Hook	
19	9928	Locknut 3/8-16UNC	
20	99697	Hitch Pin 1/2" Dia. x 4 1/4	
21	23499B	Transport Bracket Weldment	For 30/15" Spacing
22	23508B	Pivot Arm Weldment	
23	23511B	Pivot Arm Tube Weldment	
24	9390-030	Capscrew 5/16-18UNC x 1	
25	9807	Locknut 5/16-18UNC	
26	23640B	Light Plate 4 x 8	
27	97530	Decal, SMV Emblem	
28	108021	Hopper Seal	
29	23270B	Hopper Plate	
30	23271B	Hopper Plate	
31	23661B	Hopper Lid Weldment	
32	9390-002	Capscrew 1/4-20UNC x 5/8	
33	9405-062	Flat Washer 1/4	
34	9936	Locknut 1/4-20UNC	
35	9390-138	Capscrew 5/8-11UNC x 7	For 20" Spacing Hardware Kit #23769
36	23775B	Plate 5 x 9	
37	23776B	Transport Bracket Weldment	
38	9404-019	Lock Washer 5/16"	
39	23770B	Rubber Tube 3" Long	
40	900139	Capscrew 5/16-18UNC x 3 3/4 Full Threaded	
41	23768B	Strap/Bar 1 1/2 x 9	
42	104988	Draw Latch	

Lower Auger Components

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



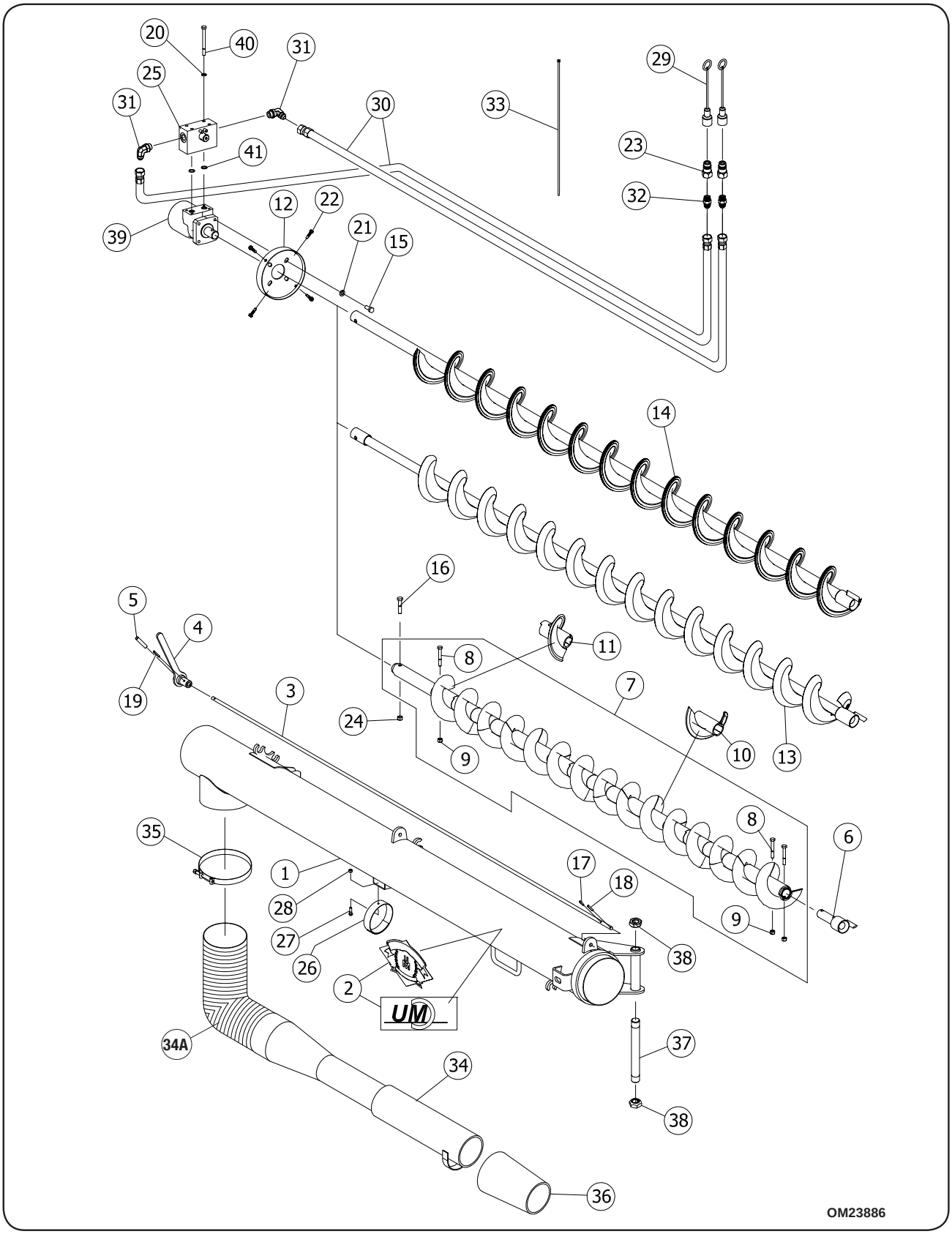
Lower Auger Components (Continued)

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

ITEM	PART NO.	DESCRIPTION	NOTES
1	21501	Hook 1/2" Dia.	
2	23443B	Lower Auger Weldment	Includes Items 3 & 4
3	2537	Clean-Out Door Weldment	
4	9220	Draw Latch	
5	23463B	Handle	
6	25561B	Shaft Weldment	For Plastic Flighting Only
7	99936	Bronze Bearing	
8	23483B	Bar 3/8" Dia. x 85 1/4	
9	23486B	Handle Weldment	
10	23493B	Coupler 1" Dia.	
11	23505B	Latch/Plate	
12	23518B	Strap 1 1/4 x 10 9/32	
13	23519B	Strap 1 1/4 x 10	
14	900301	Plastic Flighting Assembly	
15	91484	Capscrew 5/16-18UNC x 2 1/4	
16	92929-007	Elastic Stop Nut 5/16-18UNC	
17	900199	Plastic Flight Section	
18	901122	Plastic Flight Section w/Gusset	For Ends Only
19	23469B	Steel Flighting Weldment	
20	23528B	Brush Flighting Weldment	
21	93551	Decal, WARNING (Hydraulic Leaks)	
22	93558	Decal, DANGER (Electrical)	
23	9390-007	Capscrew 1/4-20UNC x 1 1/2	Grade 5
24	9390-056	Capscrew 3/8-16UNC x 1 1/4	Grade 5
25	9390-057	Capscrew 3/8-16UNC x 1 1/2	Grade 5
26	9392-051	Roll Pin 1/8" Dia. x 7/16	
27	9392-097	Roll Pin 3/16" Dia. x 1	
28	9395-010	Hex Jam Nut 1/2-13UNC	Grade 5
29	9405-076	Flat Washer 3/8	
30	95043	Compression Spring 3" Long	
31	95585	Capscrew/Large Flange 3/8-16UNC x 3/4	Grade 5
32	95831	Extension Spring 1 3/4" Long	
33	9735	Flange Bearing w/ 4 Holes	
34	97961	Decal, WARNING (Read & Understand)	
35	98766	Decal, WARNING (Rotating Auger)	
36	9928	Locknut 3/8-16UNC	
37	9936	Locknut 1/4-20UNC	
38	99960	Decal, WARNING (Falling Auger)	
39	91605	Decal, FEMA	

Upper Auger Components

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



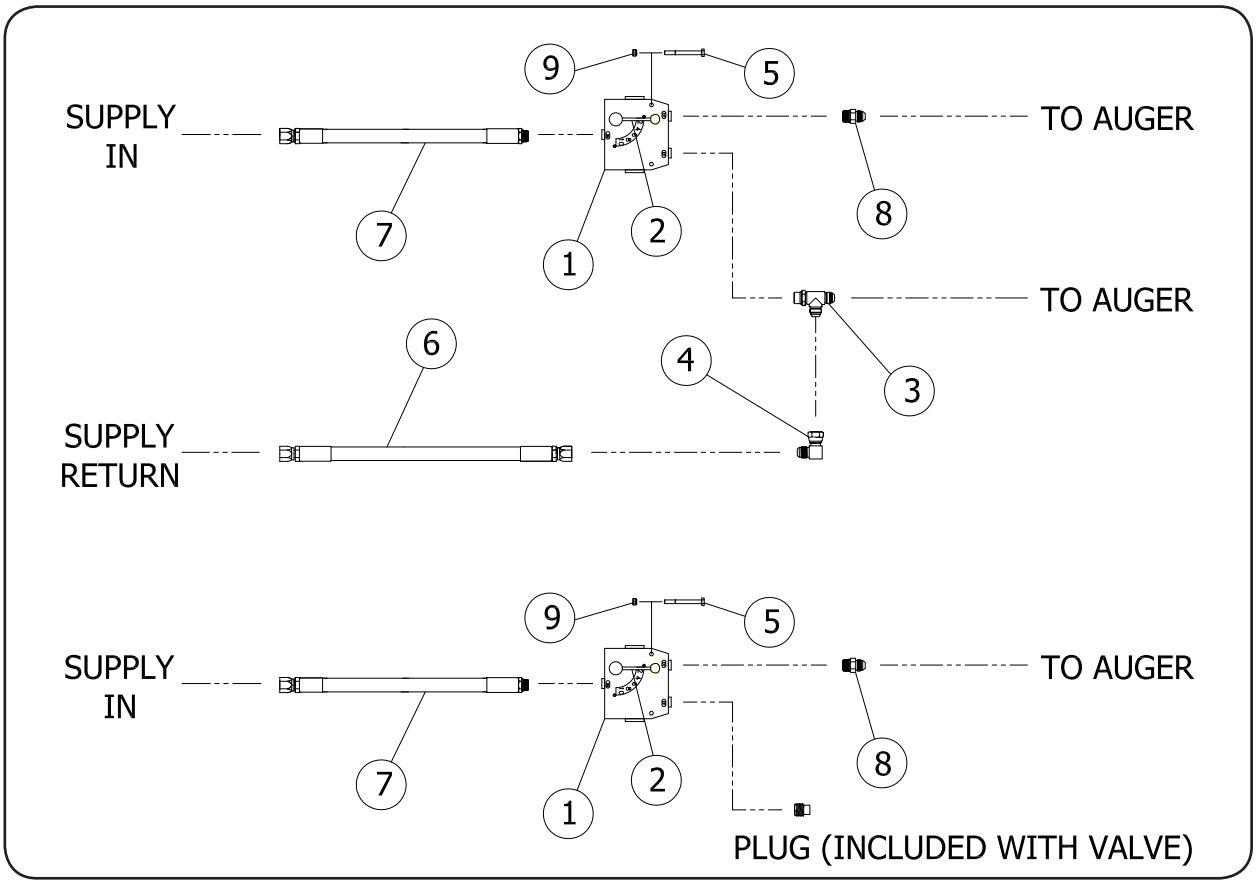
Upper Auger Components (Continued)

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

ITEM	PART NO.	DESCRIPTION	NOTES
1	23739B	Upper Auger Weldment w/Decal	
2	901607	Decal, UM Oval Logo	
	97001	Decal, UM Diamond Logo	
3	23487B	Shaft 3/8" Dia. x 85	
4	23492B	Handle Weldment	
5	23494	Pin 3/8" Dia. x 2	
6	23885	Coupler Weldment	For Plastic Flighting Only
7	900302	Plastic Flight Assembly	
8	91484	Capscrew 5/16-18UNC x 2 1/4	
9	92929-007	Elastic Stop Nut 5/16-18UNC	
10	900199	Plastic Flight Section	
11	901122	Plastic Flight Section w/Gusset	Ends Only
12	2865B	End Cap	
13	23479B	Steel Flighting Weldment	
14	23534B	Brush Flighting Weldment	
15	9390-055	Capscrew 3/8-16UNC x 1	
16	9390-058	Capscrew 3/8-16UNC x 1 3/4	
17	9392-093	Roll Pin 3/16" Dia. x 3/4	
18	9392-097	Roll Pin 3/16" Dia. x 1	
19	9392-098	Roll Pin 3/16" Dia. x 1 1/8	
20	9404-019	Lock Washer 5/16"	
21	9404-021	Lock Washer 3/8"	
22	9512	Self-Drilling Screw 1/4-14 x 1	
23	91383	Male Tip Coupling 3/4-16	
24	9928	Locknut 3/8-16UNC	
25	99933	Valve, Manifold Mount	
	96918	Seal Kit	
26	108088	Strap 2 x 28 w/6" Hook & Loop Ends	
27	9390-002	Capscrew 1/4-20UNC x 5/8	
28	9936	Locknut 1/4-20UNC	
29	91511	Dust Cap	
30	95964	Hose 1/2" Dia. x 185	
31	9863	90° Elbow 3/4-16 JIC Male x 3/4-16 O-Ring Adj. Male Boss	
32	9864	Adapter 3/4-16 JIC Male x 3/4-16 O-Ring Male Boss	
33	94038	Cable Tie 32" long	
34	95870	Telescopic Spout Assembly	Includes Item 34A
34A	21759	Flexible Spout	
35	98060	Clamp	
36	22109	Spout Sock	
37	23975	Pin 7/8" Dia. x 7 7/8	
38	96976-036	Locknut/Thin 7/8-14UNC	
39	91604B	Hydraulic Motor	
	91687	Seal Kit	
40	9390-040	Capscrew 5/16-18UNC x 3 1/2	
41	91306	O-Ring	

Flow Control Valve Kit Components (Optional)

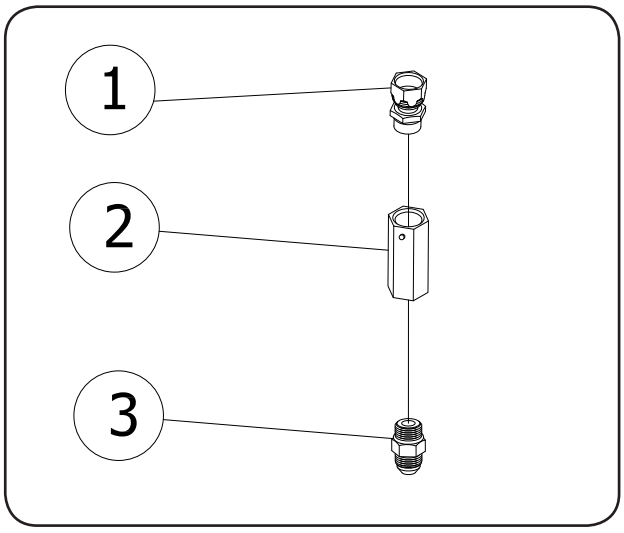
Please visit www.unverferth.com/parts/ for the most current parts listing.



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

Check Valve Kit Components (Optional)

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



ITEM	PART NO.	DESCRIPTION
	23336	Check Valve Kit (Anti-Reverse)
1	96935	Adapter
2	97740	Check Valve
3	9864	Adapter

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