

# STX2 & XTA 10 Series

# Portable Grain Auger Assembly Manual

# This manual applies to:

AGI Westfield STX2 10 (61)

**AGI XTA 10 (61)** 

AGI Hutchinson STX2 10 (61)

AGI Mayrath STX2 10 (61)





Part Number: 31136 R4

Revised: June 2025
Original Instructions

# **New in this Manual**

The following changes have been made in this revision of the manual:

Description	Section
Added elbow for hydraulic filter.	Section 4.26 – Install the Hydraulic Filter on page 61
Flipped bolts and nuts on the SP reach arms.	Section 4.28 – Install the Undercarriage on page 62

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# 1. Introduction

Before assembling, please read this manual. Familiarize yourself with the process and the necessary precautions for efficient and safe assembly of this AGI Portable Grain Auger.

Everyone present at the assembly site is required to be familiar with all safety precautions.

Keep this manual available for frequent reference and review it with new personnel. Call your local distributor or dealer if you need assistance or additional information.

# 2. Safety

# 2.1. Safety Alert Symbol and Signal Words



This safety alert symbol indicates important safety messages in this manual. When you see this symbol, be alert to the possibility of injury or death, carefully read the message that follows, and inform others.

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

**A** DANGER

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

**⚠ WARNING** 

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

**⚠ CAUTION** 

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

NOTICE

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

# 2.2. General Safety Information

Read and understand all safety instructions, safety decals, and manuals and follow them when assembling the equipment.

 Only experienced personnel who are familiar with this type of assembly and installation should perform this work. Untrained assemblers/installers expose themselves and bystanders to possible serious injury or death.



- Do not modify the auger in any way or deviate from the instructions in this manual without written
  permission from the manufacturer. Unauthorized modification or methods may impair the function and/or
  safety. Any unauthorized modification will void the warranty.
- Follow a health and safety program for your worksite. Contact your local occupational health and safety organization for information.
- Contact your local representative or AGI if you need assistance or additional information.
- Always follow applicable local codes and regulations.

# 2.3. Rotating Flighting Safety

## **A DANGER**

- KEEP AWAY from rotating flighting.
- DO NOT remove or modify flighting guards, doors, or covers. Keep in good working order. Have replaced if damaged.
- DO NOT operate the auger without all guards, doors, and covers in place.
- NEVER touch the flighting. Use a stick or other tool to remove an obstruction or clean out.
- Shut off and lock out power to adjust, service, or clean.



# 2.4. Rotating Parts Safety

#### **WARNING**

- Keep body, hair, and clothing away from rotating shafts, pulleys, belts, chains, and sprockets.
- Do not operate with any guard removed or modified. Keep guards in good working order.
- Shut off and lock out power source before inspecting or servicing machine.



# 2.5. Hydraulic Winch Safety

#### When Equipped:

- \* Keep away from rotating cable drum and winch cable. Do not touch or grab cable while winch is being operated or use hands to guide the cable.
  - Inspect cable and cable clamps before using hydraulic winch. Replace cable if frayed or damaged. Tighten cable clamps if necessary.
  - Check the cable anchor on the winch drum is tight.
  - Confirm hydraulic hoses are in good condition.
  - Do not continue to supply power to hydraulic winch after the auger has reached full up position.
  - Do not disconnect hydraulic quick couplers when lines are pressurized.
  - Make sure lift cable is seated properly.
  - Always keep a minimum of 3 cable wraps on the cable drum.

# 2.6. Drives and Lockout Safety

Inspect the power source(s) before using and know how to shut down in an emergency. Whenever you service or adjust your equipment, make sure you shut down the power source and unplug or remove the key (as applicable) to prevent inadvertent start-up and hazardous energy release. Know the procedure(s) that applies to your equipment from the following power source(s). Ensure that all personnel are clear before turning on power to equipment.



# 2.6.1 Gas Engine Safety

## **⚠ WARNING** Power Source

- Keep guards in place and secure.
- Properly ventilate surrounding area.
- Never fill the fuel tank with the engine running, while smoking, or near an open flame. Always shut down and allow engine to cool before filling with fuel.
- Never overfill the tank or spill fuel. If fuel is spilled, clean it up immediately.
- Be sure to use the correct type and grade of fuel. Ground the fuel funnel or nozzle against the filler neck to prevent sparks that could ignite fuel vapors.
- Be sure to replace the fuel fill cap when you are done.

#### Lockout

- For engines with an electric start, remove the ignition key, the spark plug wire, or the spark plug.
- For engines with a rope or crank start, remove the spark plug wire or the spark plug.



# 2.6.2 Electric Motor Safety

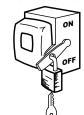
# **↑ WARNING** Power Source

- Electric motors and controls shall be installed and serviced by a qualified electrician and must meet all local codes and standards.
- Use a magnetic starter to protect the electric motor.
- You must have a manual reset button.
- Reset and motor starting controls must be located so that the operator has full view of the entire operation.
- Locate main power disconnect switch within reach from ground level to permit ready access in case of an emergency.
- Motor must be properly grounded.
- Ensure electrical wiring and cords remain in good condition; replace if necessary.

#### Lockout

- · The main power disconnect switch should be in the locked position during shutdown or whenever maintenance is performed.
- If reset is required, disconnect all power before resetting motor.





# 2.6.3 Hydraulic Power Safety

## **↑ WARNING** Power Source

- Refer to the rules and regulations applicable to the power source operating the hydraulic system.
- Do not connect or disconnect hydraulic lines while system is under pressure.
- Keep all hydraulic lines away from moving parts and pinch points.
- Escaping hydraulic fluid under pressure will cause serious injury if it penetrates the skin surface (serious infection or toxic reaction can develop). See a doctor immediately if injured.
- Use metal or wood as a backstop when searching for hydraulic leaks and wear proper hand and eye protection.
- Check all hydraulic components are tight and in good condition. Replace any worn, cut, abraded, flattened, or crimped hoses.
- Clean the connections before connecting to equipment.
- Do not attempt any makeshift repairs to the hydraulic fittings or hoses with tape, clamps, or adhesive. The hydraulic system operates under extremely high pressure; such repairs will fail suddenly and create a hazardous and unsafe condition.

#### Lockout

• Always place all hydraulic controls in neutral and relieve system pressure before disconnecting or working on hydraulic system.



# 2.6.4 Tire Safety



Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion that may result in serious injury or death.



- DO NOT attempt to mount a tire unless you have the proper equipment and experience to do the job.
- Have a qualified tire dealer or repair service perform required tire maintenance.
- When replacing worn tires, make sure they meet the original tire specifications. Never undersize the replacement tire.
- DO NOT weld to the tire rim with the tire mounted on the rim. This action may cause an explosion which could result in serious injury or death.
- Inflate tires to the manufacturer's recommended pressure.
- Tires should not be operated at speeds higher than their rated speed.
- Keep wheel lug nuts tightened to manufacturer's recommendations.
- Never reinflate a tire that has been run flat or seriously under-inflated without removing the tire from the wheel.
   Have the tire and wheel closely inspected for damage before remounting.



# 2.6.5 Battery Safety

#### **⚠ WARNING**

- Wear safety glasses and protective gloves when working near batteries.
- Make certain the battery or terminal covers are in place and in good working order.
- Keep all sparks and flames away from batteries; gas given off by electrolyte is explosive.
- Avoid contact with battery electrolyte. Wash off any spilled electrolyte immediately.
- Do not tip batteries more than 45° to avoid electrolyte loss.
- To avoid injury from sparks or short circuits, disconnect battery ground cable before servicing any part of an electrical system.

# 2.6.6 Personal Protective Equipment

The following Personal Protective Equipment (PPE) should be worn when assembling the equipment.

#### **Safety Glasses**

• Wear safety glasses at all times to protect eyes from debris.



#### **Coveralls**

Wear coveralls to protect skin.



#### **Hard Hat**

• Wear a hard hat to help protect your head.



#### **Steel-Toe Boots**

Wear steel-toe boots to protect feet from falling debris.



#### **Work Gloves**

• Wear work gloves to protect your hands from sharp and rough edges.



# 2.6.7 Safety Equipment

The following safety equipment should be kept on site.

#### **Fire Extinguisher**

 Provide a fire extinguisher for use in case of an accident. Store in a highly visible and accessible place.



#### First-Aid Kit

 Have a properly-stocked first-aid kit available for use should the need arise, and know how to use it.



# 2.7. Safety Decals

- Keep safety decals clean and legible at all times.
- Replace safety decals that are missing or have become illegible. See decal location figures that follow.
- Replaced parts must display the same decal(s) as the original part.
- Replacement safety decals are available free of charge from your distributor, dealer, or factory as applicable.

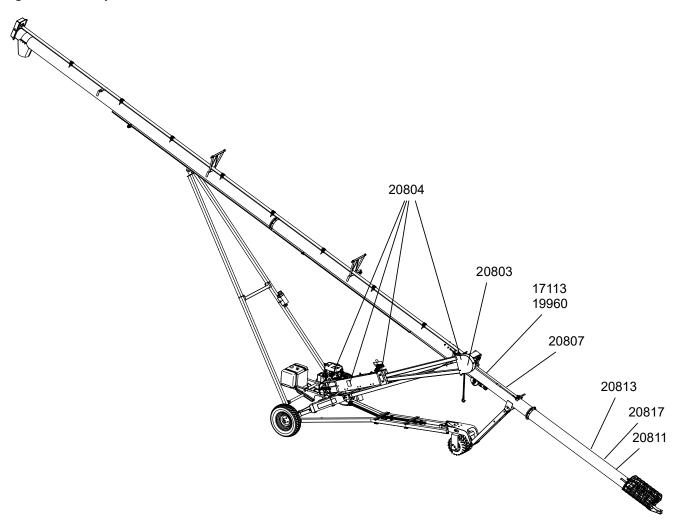
# 2.7.1 Decal Installation/Replacement

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

# 2.7.2 Safety Decal Locations and Details

Replicas of the safety decals that are attached to the auger and their messages are shown in the figure(s) that follow. Safe operation and use of the auger requires that you familiarize yourself with the various safety decals and the areas or particular functions that the decals apply to, as well as the safety precautions that must be taken to avoid serious injury, death, or damage.

Figure 1. Safety Decal Locations



28128

Figure 2. Safety Decal Locations

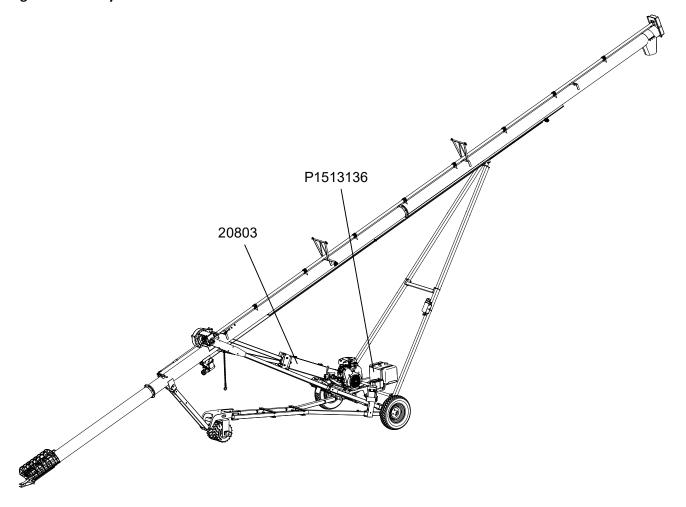


Figure 3. Hydraulic Steering Safety Decal Locations

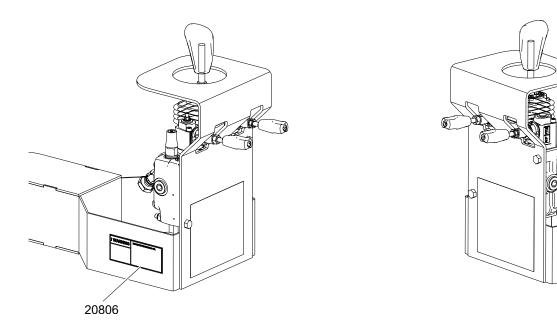


Figure 4. Hydraulic Winch Safety Decal Locations

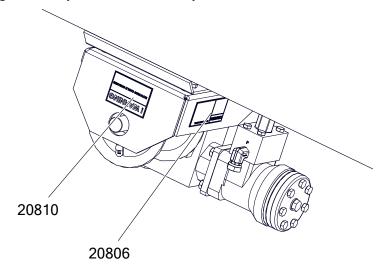


Table 1. Safety Decals

Part Number	Description
20817	DANGER
	ELECTROCUTION HAZARD  To prevent death or serious injury:  • When operating or moving, keep equipment away from overhead power lines and devices.  • Fully lower equipment before moving.  This equipment is not insulated.  Electrocution can occur without direct contact.
20813	ROTATING FLIGHTING HAZARD  To prevent death or serious injury:  KEEP AWAY from rotating auger flighting.  DO NOT remove or modify auger flighting guards, doors, or covers. Keep in good working order. Have replaced if damaged.  DO NOT operate the auger without all guards, doors, and covers in place.  NEVER touch the auger flighting. Use a stick or other tool to remove an obstruction or clean out.  Shut off and lock out power to adjust, service, or clean.

Table 1 Safety Decals (continued)

Part Number	Description	
20803 (inside)	WARNING  MISSING GUARD HAZARD  To prevent serious injury or death, shut off power and reattach guard before operating machine.	
20804	<b>⚠ WARNING</b>	
	ENTANGLEMENT HAZARD	
	<ul> <li>To prevent serious injury or death:</li> <li>Keep body, hair, and clothing away from rotating pulleys, belts, chains, and sprockets.</li> </ul>	
	Do not operate with any guard removed or modified. Keep guards in good working order.	
	Shut off and lock out power source before inspecting or servicing machine.	
20806	HIGH PRESSURE FLUID HAZARD Hydraulic fluid can cause serious injury if it penetrates the skin. If it does, see a doctor immediately.  • Relieve system pressure before repairing, adjusting or disconnecting. • Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.	

Table 1 Safety Decals (continued)

Part Number	Description
20807	WARNING
	To prevent serious injury or death:  Read and understand the manual before assembling, operating, or maintaining the equipment.
	Only trained personnel may assemble, operate, or maintain the equipment.
	<ul> <li>Children and untrained personnel must be kept outside of the work area.</li> <li>Do not modify the equipment. Keep in good working order.</li> </ul>
	If the manual, guards, or decals are missing or damaged, contact factory or representative for free replacements.
	Lock out power before performing maintenance.
	To prevent equipment collapse or upending, support equipment tube while disassembling certain components.
	Follow grain storage structure manufacturer's warnings when loading and unloading.
	Electric motors must be grounded. Disconnect power before resetting overloads.
20810	<u> </u>
	To prevent death or serious injury:  • Keep away from rotating cable drum and winch cable.  • Inspect lift cable periodically; replace if damaged.  • Inspect cable clamps periodically; tighten if necessary.

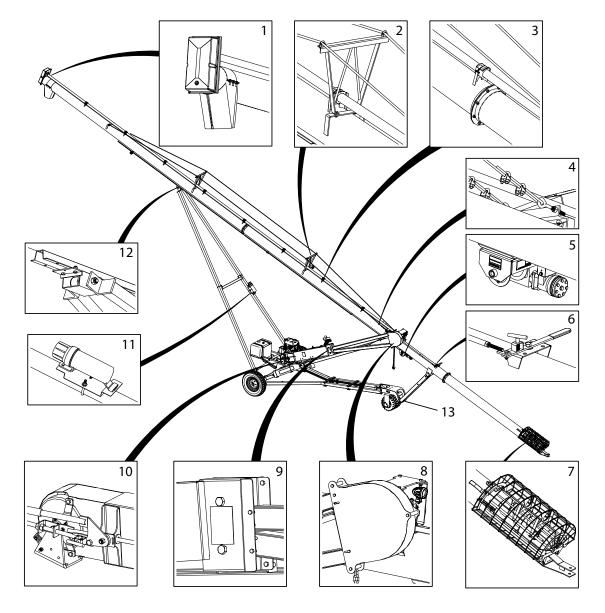
Table 1 Safety Decals (continued)

Part Number	Description	
20811	<b>⚠ WARNING</b>	
	UPENDING HAZARD	
	To prevent death or serious injury:	
	Anchor intake end and/or support discharge end to prevent upending.	
	<ul> <li>Intake end must always have downward weight.         Do not release until attached to tow bar or resting on ground.     </li> </ul>	
	Do not raise intake end above tow bar height.	
	Empty tube and fully lower before moving.	
17113	<b>↑ WARNING</b>	
	TRANSPORT HAZARD  To prevent serious injury or death:  • Securely attach equipment to vehicle with correct pin and safety chains.  • Use a tow vehicle to move equipment.	
28128		
	TRANSPORT HAZARD  To prevent serious injury or equipment damage, before towing:  Lift up wheel frame completely and secure with safety chain.  Pull handle to disengage drive wheel motors.	

Table 1 Safety Decals (continued)

Part Number	Description	
P1513136	<b>⚠ WARNING</b>	
	CONTENTS MAY BE UNDER PRESSURE	
	As part of the fuel vapour retention system, it is normal for your tank to expand from internal pressure. Use the vent screw to relieve pressure and before refueling.	
	To remove cap:	
	Open VENT SCREW on top of cap FULLY.	
	Locate Pressure Relief Tab under cap.     Turn cap until Pressure Relief Tab Lock     engages.	
	3. Press down on tab, rotate cap 1/4 turn (to relieve pressure before opening tank) and release tab. STOP. Lock may engage again.  3. Press down on tab, rotate cap 1/4 turn (to relieve pressure before opening tank) and release tab. STOP. Lock may engage again.	
	PRESS Pressure Relief Tab down again and turn slowly to remove cap.	
	To tighten cap:	
	Turn Closure caps until an audible "click" is heard.	
	Failure to follow may result in fuel spillage.	
19960		
	NOTICE	
	To prevent damage, wheels must be free to move when raising or lowering equipment.	
	When equipment is positioned, chock all wheels.	

# 3. Features



1	discharge and upper chain drive	8	pulley guarding
2	cable bridge	9	belt idler
3	shaft guarding	10	belt tension adjustment
4	cable adjustment	11	manual holder
5	hydraulic winch	12	track
6	reversible gearbox control	13	hydraulic HDSP kit
7	intake and intake guarding		·

Also included: electric clutch and light kit

# 4. Assembly

# 4.1. Assembly Safety

- MARNING Do not take chances with safety. The components can be large, heavy, and hard to handle. Always use the proper tools, rated lifting equipment, and lifting points for the job.
  - Do not stand on, under, or near any component that is not secured.
  - Carry out assembly in a large open area with a level surface.
  - Always have two or more people assembling the auger.
  - Make sure you have sufficient lighting for the work area.
  - Tighten all fasteners according to their specifications. Do not replace or substitute bolts, nuts, or other hardware that is of lesser quality than the hardware supplied by the manufacturer.

# 4.2. Check the Shipment

Unload the auger parts at the assembly site and compare the packing slip to the shipment contents. Ensure that all items have arrived and that none are damaged. Take pictures of shipments prior to, or just after, unloading if there are any damages.

Report missing or damaged parts immediately to ensure that proper credit is received from AGI or your representative, and to ensure that any missing parts can be shipped quickly to avoid holding up the assembly process.

#### **Important**

Do not assemble or install damaged components.

# 4.3. Before You Begin

Before you assemble the auger:

- Familiarize yourself with all the sub-assemblies, components, and hardware that make up the equipment.
- Have all parts and components on hand, and arrange them for easy access.
- Separate the hardware (bolts, nuts, etc.) and lay them out into groups for easier identification during assembly.
- If assembling inside, confirm the ceiling and door width/height provide enough clearance when installing the undercarriage and to remove the auger from the building.
- Ensure there is adequate space to remove the assembled auger from the assembly area.

# 4.4. Hydraulic Fittings and Bolt Tightening

Remember the following basic considerations when tightening hydraulic fittings and bolts:

- Tighten all fasteners to the torque specified in Section 6.1 Bolt Torque on page 82. Do not replace or substitute bolts, nuts, or other hardware that is of lesser quality than the hardware supplied by the manufacturer.
- All hydraulic fittings should be torqued to the recommended specifications. See Section 6.2 Fittings Torque Values on page 83.

NOTICE

Do not overtighten fittings. Overtightening hose fittings can crack the fittings or motor body and will void the warranty.

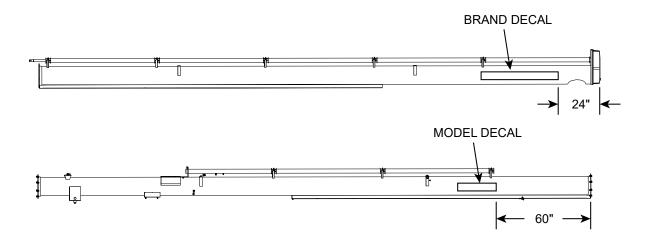
# 4.5. Brand and Model Decal Placement

#### **Important**

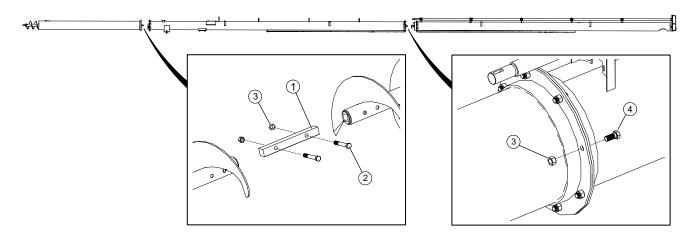
Do not cover any existing safety or instruction decals with the model decals.

- 1. Apply decals to both sides of auger tube.
- 2. Center decals vertically and apply to auger tube.

#### **Brand and Model Decal Locations**

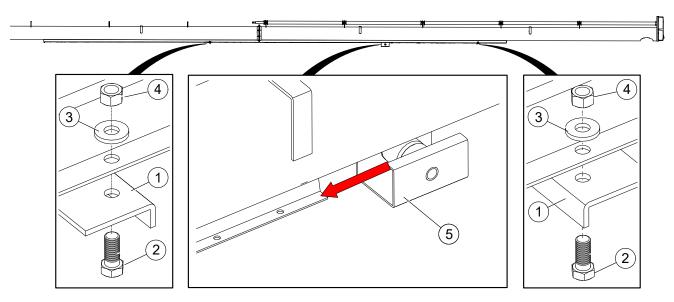


# 4.6. Assemble the Tube & Flighting



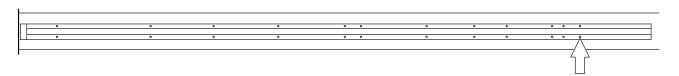
1	flight connector shaft	3	lock nut, 7/16"
2	bolt, 7/16" x 3"	4	bolt, 7/16" x 1"

# 4.7. Install the Track Stops



# Assembly Note: • Slide the track shoe onto the track before attaching the upper track stop. 1 track stop 4 lock nut, 7/16" 2 bolt, 7/16" x 1" 5 track shoe 3 track washer, 7/16"

# **Upper Tube**



#### **Middle Tube**

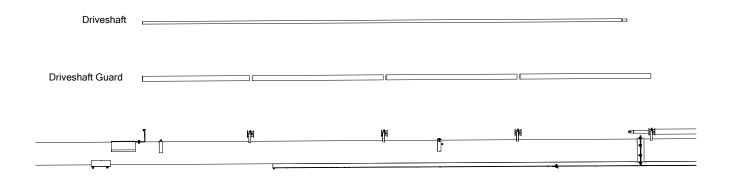


# 4.8. Install the Driveshaft

To use this section:

- 1. Locate and review the driveshaft layout drawing for the auger you are assembling in Section 4.8.1 Driveshaft Layout Drawing on page 27.
- 2. Follow the instructions in Section 4.8.2 Assemble the Driveshaft on page 27 while referring to the layout drawing for the auger you are assembling.

# 4.8.1 Driveshaft Layout Drawing

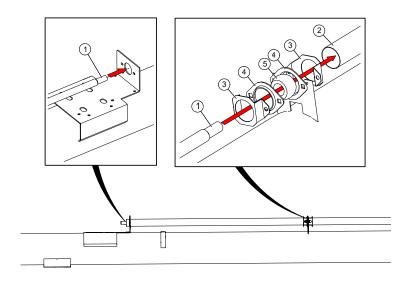


# 4.8.2 Assemble the Driveshaft

#### Overview

Step	Description
1	Slide on Driveshaft and Driveshaft Guards
2	Connect the Driveshafts
3	Slide up the Driveshaft Guard
4	Install the Bearing
5	Install the Lower Driveshaft Guard
-	Repeat steps 3–4 until all lengths of driveshaft and driveshaft guard are installed

Step 1: Slide on Driveshaft and Driveshaft Guards

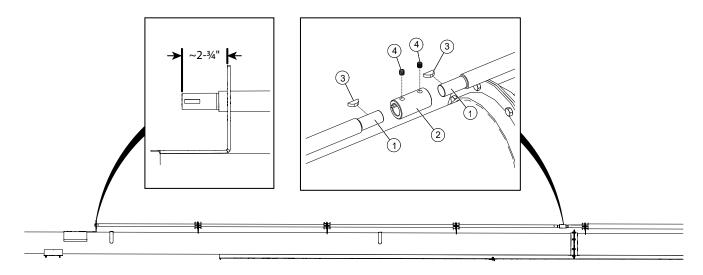


### **Assembly Notes:**

- The wood bearing, flange and flange bearing bracket are pre-installed; these will need to be removed before installing the driveshaft.
- Slide the driveshaft through the wood bearing assembly and upper driveshaft guard, then slide the guard down to connect the middle and lower driveshafts.

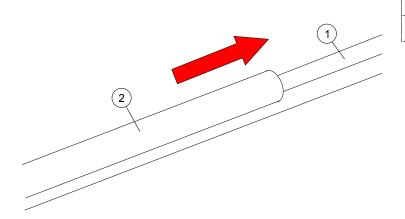
1	lower driveshaft
2	driveshaft guard
3	flange bearing hanger bracket
4	flange, 1-1/4"
5	wood bearing

**Step 2: Connect the Driveshafts** 



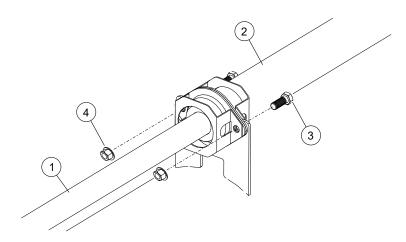
1	driveshaft	3	woodruff key, 1/4" x 1"
2	driveshaft connector	4	set screw, 3/8" x 3/8"

Step 3: Slide up the Driveshaft Guard



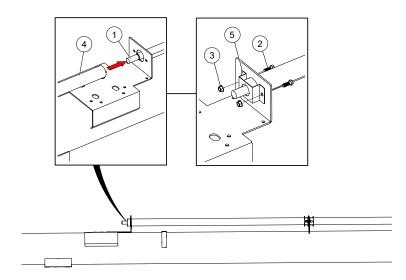
1	driveshaft
2	driveshaft guard

Step 4: Install the Bearing



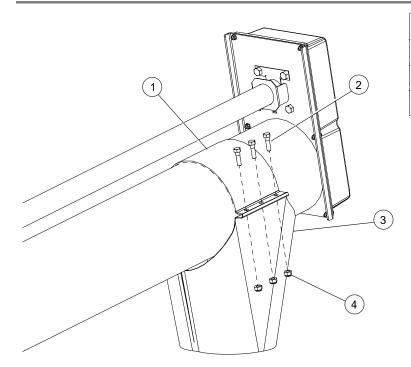
1	lower driveshaft
2	driveshaft guard
3	bolt, 3/8" x 1"
4	whiz nut, 3/8"
	2

Step 5: Install the Lower Driveshaft Guard



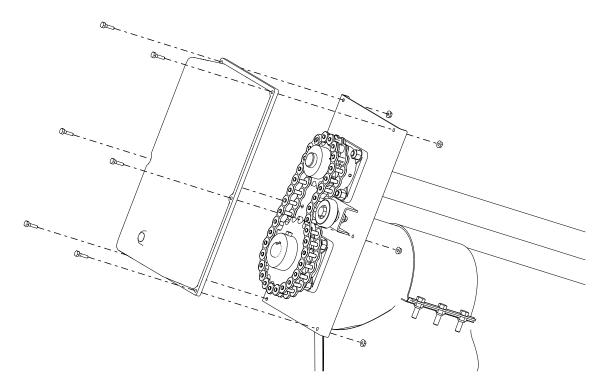
1	lower driveshaft
2	bolt, 3/8" x 3/4"
3	whiz nut, 3/8"
4	lower driveshaft guard
5	guard hanger bracket

# 4.9. Install the Spout



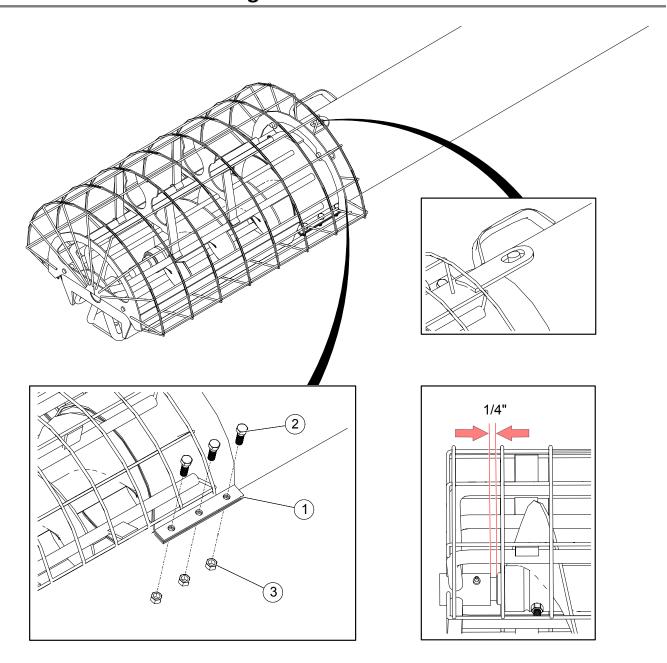
1	half clamp
2	bolt, 7/16" x 1-1/2"
3	spout
4	lock nut, 7/16"

# 4.10. Add Grease to the Head Cover



- 1. Remove the head cover from the discharge end.
- 2. Fill the head cover half full of grease.
- 3. Lubricate the chain.
- 4. Re-install the head cover.

# 4.11. Install the Intake Cage

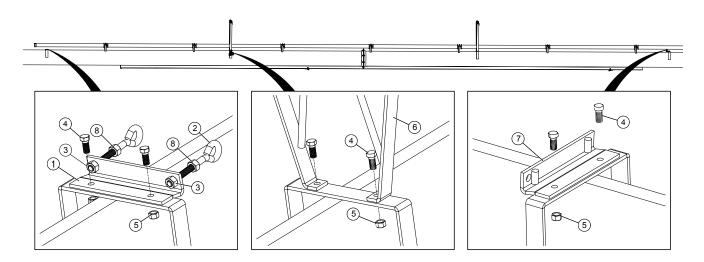


# **Assembly Notes:**

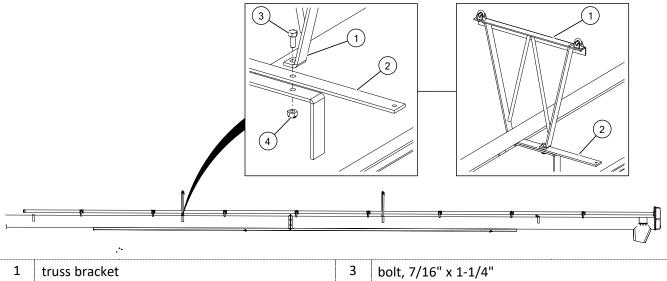
- Ensure the slot on the intake cage engages the retention pin on the lower tube.
- Maintain a 1/4" clearance between the bushing and the end of the flight.

1	intake cage	3	lock nut, 7/16"
2	bolt, 7/16" x 1-1/4"		

# 4.12. Install the Truss Tower and Cable

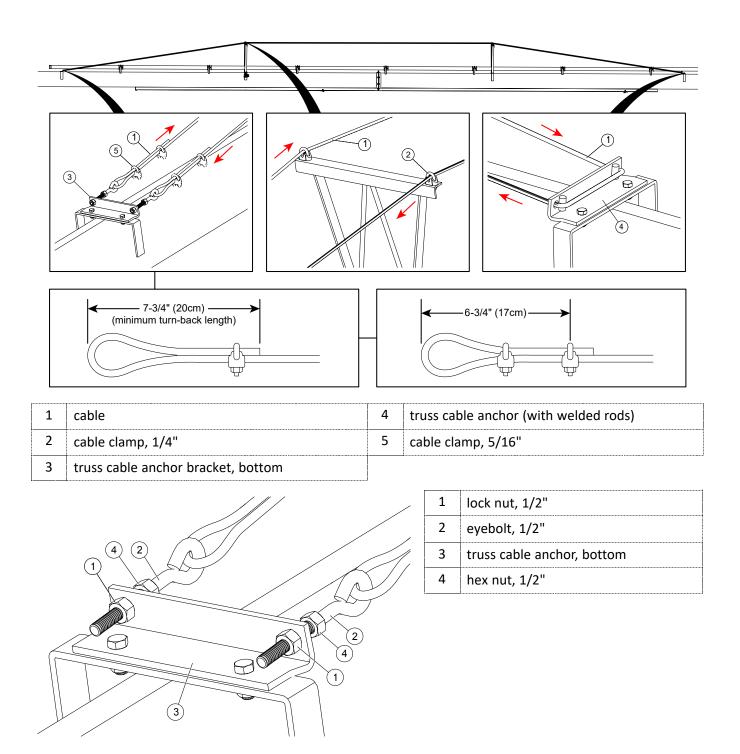


1	truss cable anchor bracket, bottom	5	lock nut, 7/16"
2	eyebolt, 1/2"	6	truss bracket
3	lock nut, 1/2"	7	truss cable anchor (with welded rods)
4	bolt, 7/16" x 1"	8	hex nut, 1/2"



 1
 truss bracket
 3
 bolt, 7/16" x 1-1/4"

 2
 light bracket
 4
 lock nut, 7/16"



- 1. Thread truss cable through eyebolt and double-back 7-3/4" (20 cm) of cable. Secure the cable in place by installing and tightening two 5/16" cable clamps.
  - a. Apply the first clamp 6-3/4" from the cable loop with the u-bolt over the dead end. The live end rests in clamp saddle. Tighten nuts firmly but do not fully tighten.
  - b. Apply the second clamp as close to the loop as possible in the same orientation as the first clamp. The live end rests in clamp saddle. Apply tension and tighten nuts firmly but do not fully tighten.
- 2. Tighten the lock nuts evenly to take the remaining slack out of the truss cable.

#### **Important**

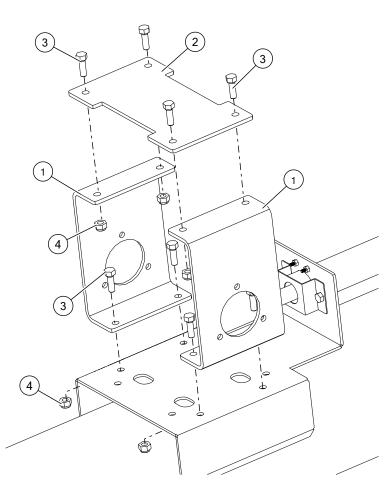
Take slack out of the truss cable only (DO NOT tension the cable). Tension in the cable will cause the auger to droop at the flange when in the lowered position.

- 3. Check for proper side-to-side alignment.
- 4. Tighten all cable clamps to the recommended torque.

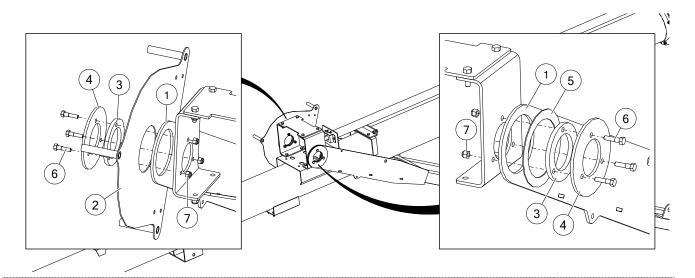
Cable Clamp	Nut Torque
1/4"	15 ft∙lb
5/16"	20 ft·lb

5. Tighten the hex nuts against the cable anchor bracket.

# 4.13. Attach the Lower Frame to the Tube



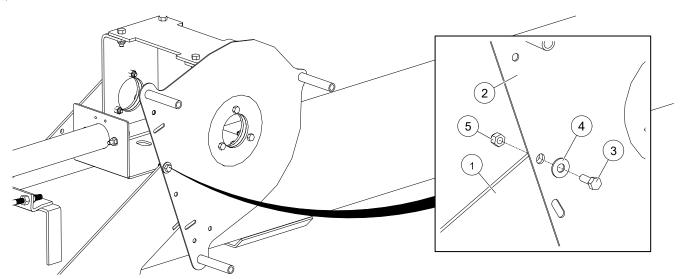
	1	lower frame connect bracket
ĺ	2	top cover bracket
	3	bolt, 7/16" x 1-1/4"
İ	4	lock nut, 7/16"



# **Assembly Note:**

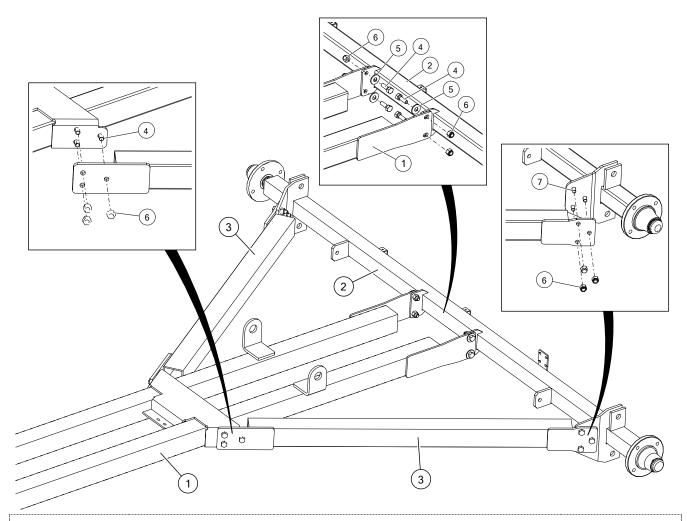
• Center the pulley shim guard on the lower arm bolt holes.

, ,		, ,		
	1	lower frame	5	spacer
	2	pulley shim guard	6	bolt, 3/8" x 1-1/2"
	3	bolt plate, small	7	lock nut, 3/8"
	4	bolt plate, large		



	1	lower frame	4	flat washer, 3/8"
	2	pulley shim guard	5	lock nut, 3/8"
ĺ	3	bolt, 3/8" x 1"		

# 4.14. Attach the Lower Frame to the Axle

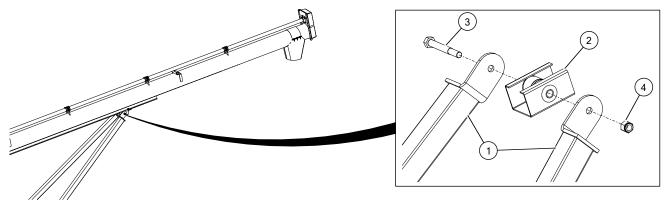


#### **Assembly Notes:**

- Loosely install the lower frame to the axle assembly.
- Loosely install all the lower support frame hardware.
- Tighten all hardware once all of the hardware has been placed.

1	lower frame	5	flat washer, 1/2"
2	axle assembly	6	lock nut, 1/2"
3	lower support frame	7	bolt, 1/2" x 1-3/4"
4	bolt, 1/2" x 1-1/2"	İ	

# 4.15. Attach the Upper Frame to the Tube

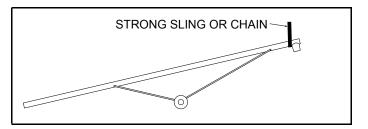


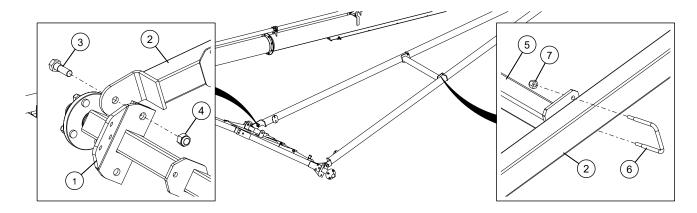
1	upper frame arm	3	bolt, 3/4" x 6-1/2"
2	track shoe (installed in a previous section)	4	lock nut, 3/4"

# 4.16. Attach the Upper Frame to the Axle

#### **Important**

Be sure to use proper hoisting equipment and procedures when raising the discharge end of the auger. Lock out the hoist apparatus prior to working around or under the raised tube.

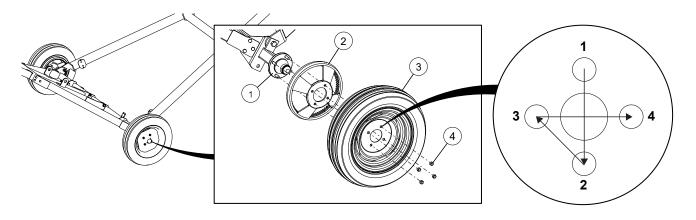




#### **Assembly Note:**

• Remove the stand from the intake end of the auger tube and raise the discharge end with a block and tackle or a front end loader and a strong sling or chain. Height should be sufficient so the frame can be easily attached to the axle.

1	axle	5	upper frame cross member
2	upper frame arm	6	square U-bolt, 3/8" x 3-1/16" x 4"
3	bolt, 3/4" x 2-1/2"	7	lock nut, 3/8"
4	lock nut, 3/4"		



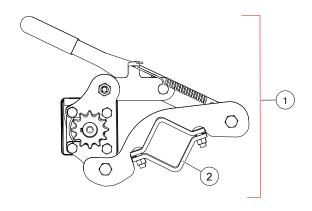
#### **Assembly Notes:**

- Check that air pressure in the tires match pressure indicated on the tire sidewall.
- Torque the wheel nuts to 80 ft·lb ± 10 ft·lb (108.5 N·m ± 13.5 N·m) using the pattern shown.

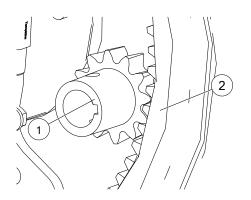
1	hub	3	wheel
2	ring gear	4	wheel nut, 1/2"

# 4.17. Install the Over-Center Drive

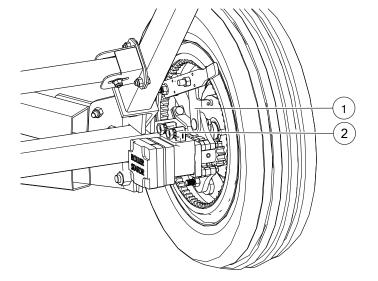
- 1. Position the axle cap of the over-center drive assembly squarely on the axle tube.
- 2. With the pinion gear flush with the ring gear, bolt the axle cap to the axle tube using four carriage bolts and lock nuts.
- 3. Attach fittings to hydraulic motors.



1	over-center drive assembly
2	bolt-on axle cap



1	pinion gear
2	ring gear



1	over-center drive assembly		
2	steel fitting, 90, 8MNPT x 6 FNPSM		

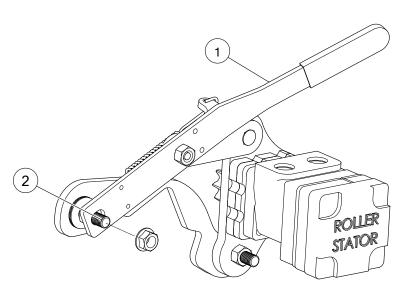
# 4.18. Adjust the Pinion Gear

NOTICE

Failure to ensure proper gear meshing will result in gear damage. The pinion gear should mesh with the ring gear to provide maximum tooth contact.

#### **Insufficient meshing**

- If the pinion gear will barely mesh with the ring gear, loosen the slot bolt jam nuts and slide the handle towards the tire until the pinion gear teeth mesh with the ring gear teeth without binding.
- If the pinion gear does not mesh fully with the ring gear, adjust the handle slot bolt (which bolts to the drive mount clamp) so full meshing of pinion gear is achieved when handle is in over-center position.

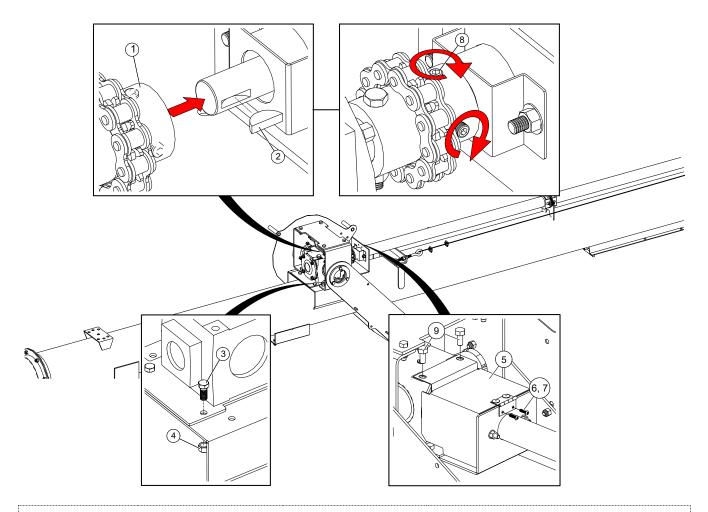


1	handle
2	handle slot bolt

#### **Gear teeth binding**

• If the handle will not 'lock' into over-center position, loosen the slot bolt nuts and slide the handle away from the tire.

## 4.19. Install the Reversible Gearbox



#### **Assembly Notes:**

- Check the gearbox oil level; gearbox should be half full. Use only EP90 lube oil and fill to HALF FULL only.
- The ends of the gearbox shaft and the driveshaft should be flush with the inside of the chain coupler sprockets.
- If the driveshaft is too long or too short, do the following:
  - If the driveshaft is too long, take up the extra length in the driveshaft connector.
  - If the driveshaft is too short, remove the headcover, chain, sprocket, and lock collar at the top of the upper tube to adjust the two driveshafts.

1	gearbox assembly	6	bolt, #10 x 3/4"
2	woodruff key, 1/4" x 1"	7	lock nut, #10
3	bolt, 7/16" x 1"	8	set screw, 3/8" x 3/8"
4	lock nut, 7/16"	9	bolt, 1/2" x 3/4"
5	chain coupler guard assembly		

#### Note

During assembly, ensure the reversible gearbox components do not interfere with any other auger components.

- 1. Mount the detent lever assembly to the auger tube.
- 2. Use the gearbox shifter to move the gearbox into either forward or reverse position.
- 3. Move the detent lever to the same position as the gearbox shifter (forward or reverse). Ensure the lock pin is engaged with the bracket.
- 4. Attach the gearbox push rod to the straight gearbox handle extension.
- 5. Thread the adjust lug roughly halfway into the straight gearbox handle extension.
- 6. Connect the gearbox push rod to the gearbox shifter. This joint must pivot—do not overtighten.
- 7. Loosely attach the adjust lug to the detent lever.
- 8. Disengage the lock pin and move the detent lever from forward to reverse a few times.
  - Ensure the gearbox fully engages in both directions when moving the lever back and forth.
  - The gearbox should be fully engaged when the lock pin is in the hole.
- 9. If the gearbox does not shift evenly in both directions, use the adjust lug to increase or decrease the length of the gearbox handle extension as required.

Figure 5. Detent Lever and Offset Tube Attachment

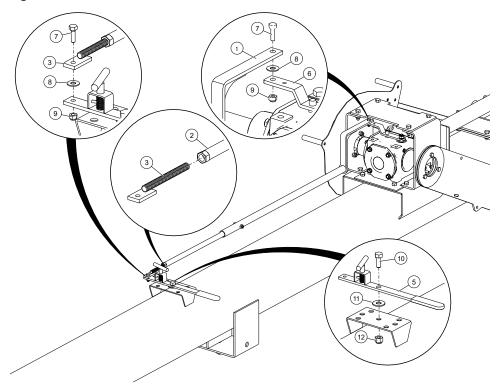
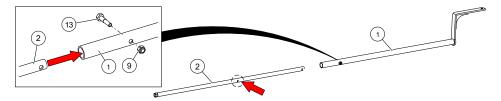
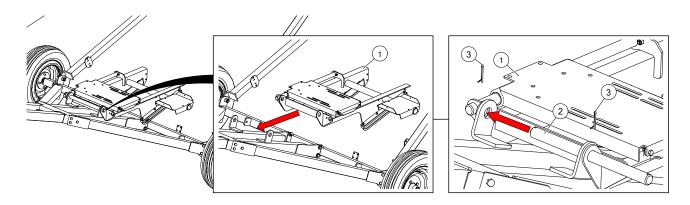


Figure 6. Hole Positions in Straight Gearbox Handle Extension

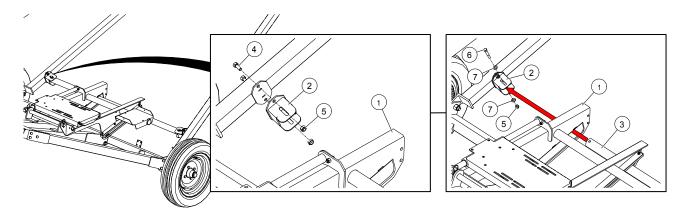


1	gearbox push rod	8	flat washer, 5/16"
2	gearbox handle extension, straight	9	lock nut, 5/16"
3	adjust lug	10	bolt, 1/2" x 1-1/4"
4	lock pin	11	flat washer, 1/2"
5	detent lever assembly	12	lock nut, 1/2"
6	gearbox shifter	13	bolt, 5/16" x 1-1/2"
7	bolt, 5/16" x 1"		

# 4.20. Install the Motor Mount



1	engine slider assembly	3	cotter pin, 3/16" x 1-3/4"
2	motor pivot pin		



#### **Assembly Note:**

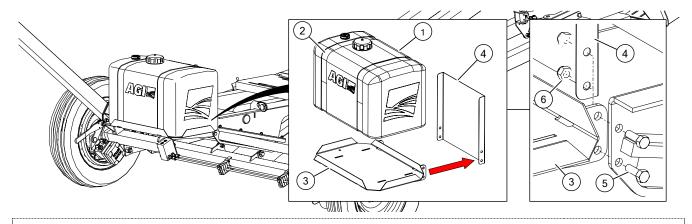
• Ensure leveller tube is through slots in the engine slider assembly before attaching to leveller tube mount brackets.

1	engine slider assembly	5	lock nut, 7/16"
2	leveller tube mount bracket	6	bolt, 7/16" x 3"
3	leveller tube	7	flat washer, 7/16"
4	bolt, 7/16" x 1"		

# 4.21. Install the Gas Drive

# 4.21.1 Install the Battery and Fuel Tank

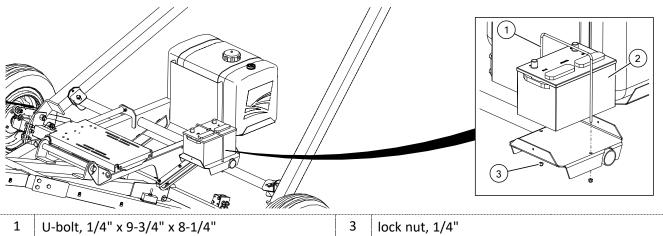
#### **Fuel Tank**



# Assembly Note: Route the fuel line between the heat shield and gas tank. non-EPA fuel tank fuel tank straps bolt, 7/16" x 1-1/4"

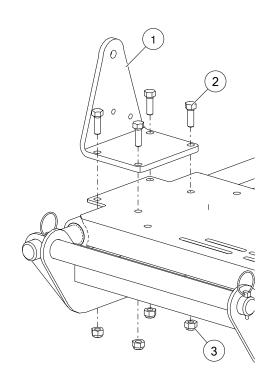
# 3 gas tank mount 6 lock nut, 7/16"

#### **Battery**



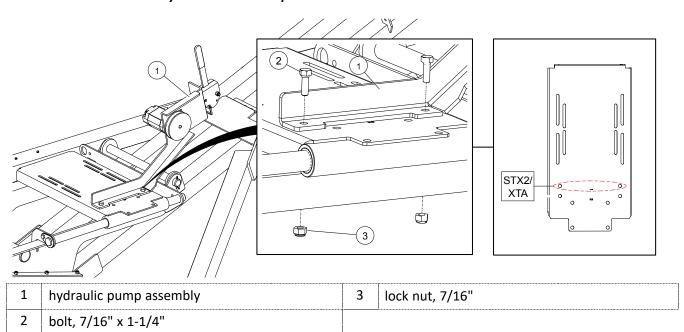
1 U-bolt, 1/4" x 9-3/4" x 8-1/4" 3 lock nut, 1/4"
2 battery

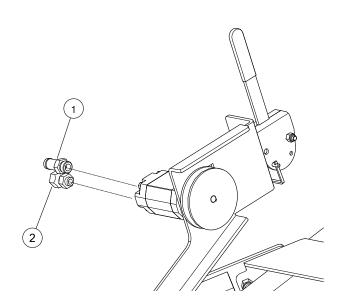
# 4.21.2 Install the Engine Slider Mount Bracket



1	engine slider mount bracket
2	bolt, 7/16" x 1-1/4"
3	lock nut, 7/16"

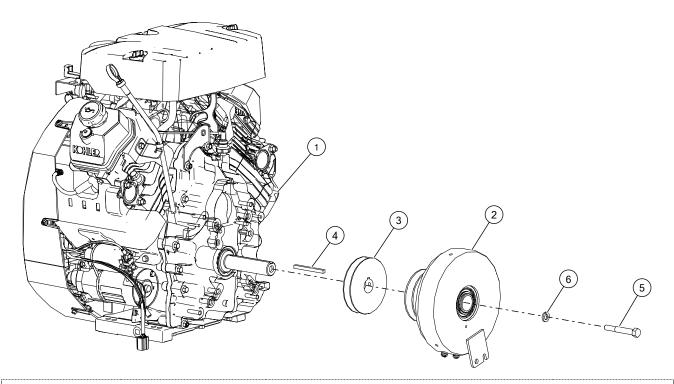
# 4.21.3 Install the Hydraulic Pump





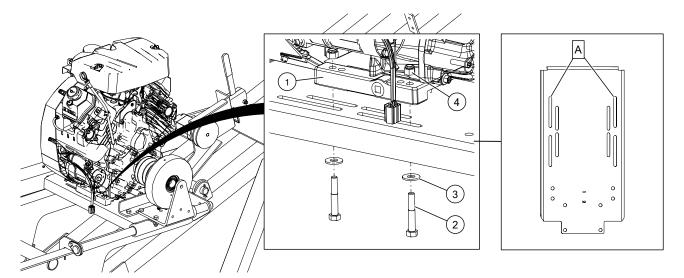
1	steel fitting, 3/4" HB x 10 MORB
2	steel fitting, 8 MORB x 1/2" FNPSM

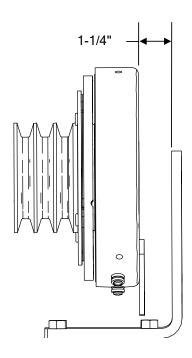
# 4.21.4 Install the Electric Clutch



Asse	Assembly Note:				
• 4	Apply anti-seize to the engine shaft where the electric clutch will slide on.				
1	gas engine motor	4	square key, 1/4" x 3"		
2	electric clutch, triple	5	bolt, 7/16" x 3"		
3	pump pulley, 4-1/2" x 1-1/8" single	6	lock washer, 7/16"		

## 4.21.5 Install the Motor



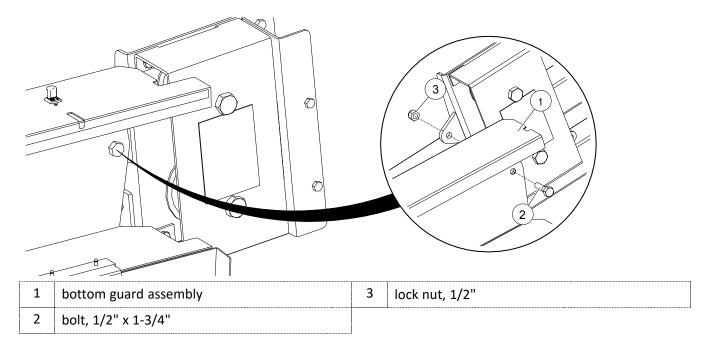


#### **Assembly Notes:**

- Place the motor so that the gap between the face of the electric clutch and the inside face of the guard attach bracket is 1-1/4".
- Install the exhaust pipe, muffler and muffler shield to the engine.
  - If using a Vanguard motor for installation, there is a possible interference with the (standard) muffler hitting the belt guards. If this happens, then please contact your local AGI dealer for an alternative.
- Perform all the engine wiring.
- Run a fuel hose from the brass fitting to the fuel filter and secure with hose clamps.

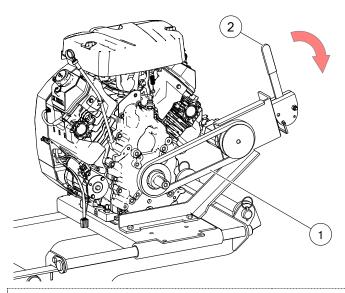
1	gas engine motor
2	bolt, 3/8" x 2-1/4"
3	flat washer, 3/8"
4	lock nut, 3/8"
٨	Kohler, 38 HP EFI
A	Vanguard, 37 HP EFI

# 4.21.6 Install the Guard Assembly



## 4.21.7 Install the Belt

### **Pump Belt**

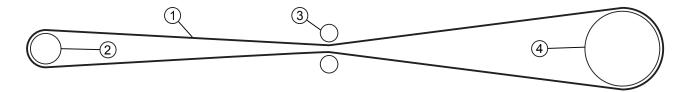


#### **Assembly Note:**

• Rotate the pump handle clockwise to apply tension to the pump belt and pull down the handle to lock the belt in place.

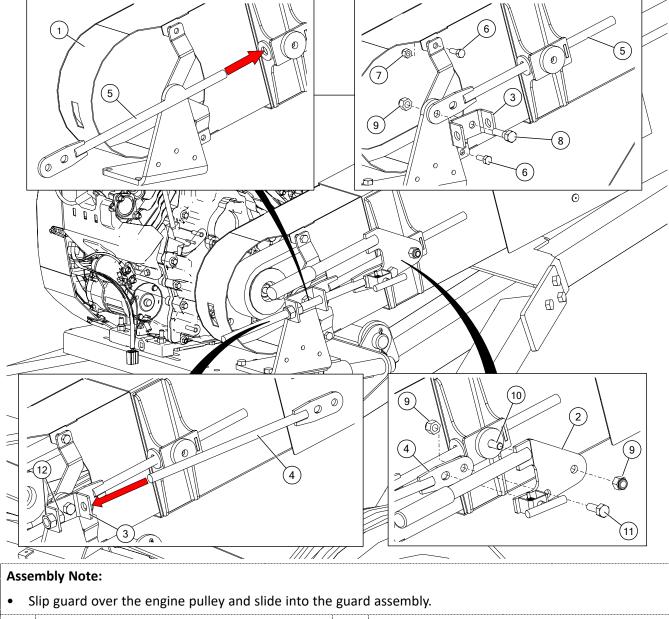
ļ				ŀ
1	pump belt, BX35	2	pump handle	

## **Drive Belt**

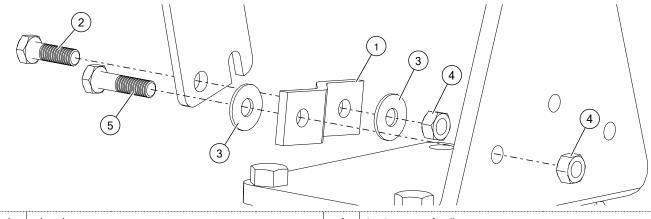


Assembly Note:					
• T	The belt must run straight. Check the alignment of the pulleys and adjust if necessary.				
1	belt	3	flat idler pulley		
2	engine pulley	4	gearbox pulley		

# 4.21.8 Install the Engine Pulley Guard

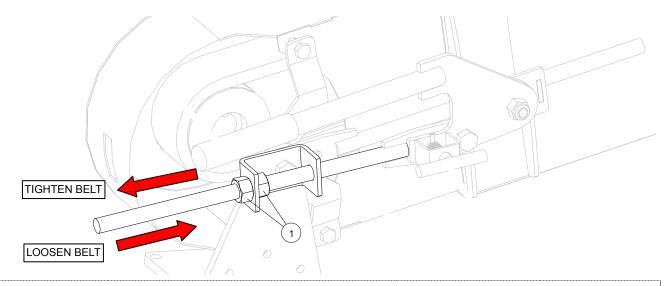


#### 1 guard lock nut, 3/8" manual belt engage handle assembly 2 8 bolt, 1/2" x 1-3/4" 3 manual belt engage mount bracket 9 lock nut, 1/2" 4 manual belt engage threaded rod 10 bolt, 1/2" x 1-1/2" manual belt engage guide rod 5 bolt, 1/2" x 1-1/4" 11 bolt, 3/8" x 1" 6 12 hex nut, 5/8"



	1	clutch stop	4	lock nut, 5/16"
	2	bolt, 5/16" x 1"	5	bolt, 5/16" x 1-1/4"
ĺ	3	flat washer, 5/16"		

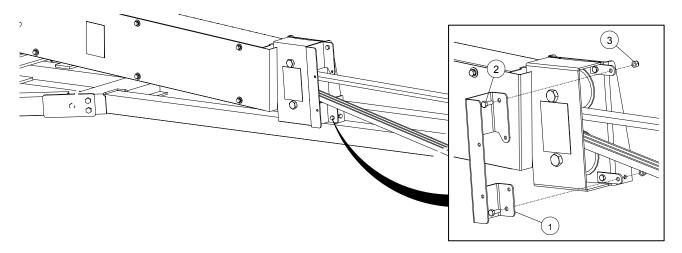
## 4.21.9 Tension the Belt



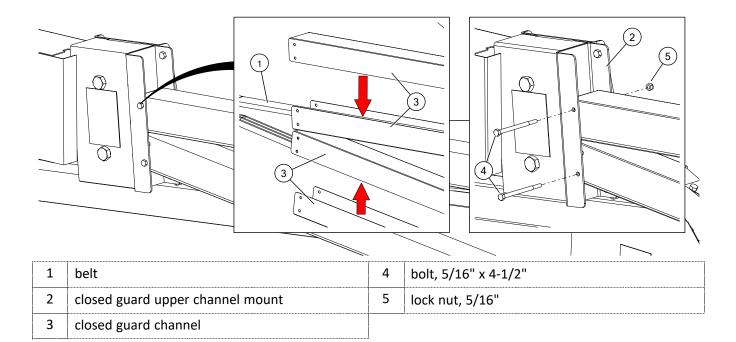
## **Assembly Notes:**

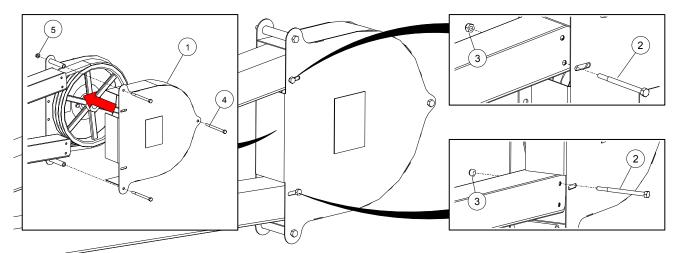
- Use the two hex nuts to apply tension to the drive belt prior to closing the guard cover.
- Close the guard using the rubber draw latches after the belt has been tensioned.
  - 1 hex nut, 5/8"

# 4.21.10 Install the Fully Enclosed Guarding



1	closed guard upper channel mount	3	lock nut, 3/8"
2	bolt, 3/8" x 1"		

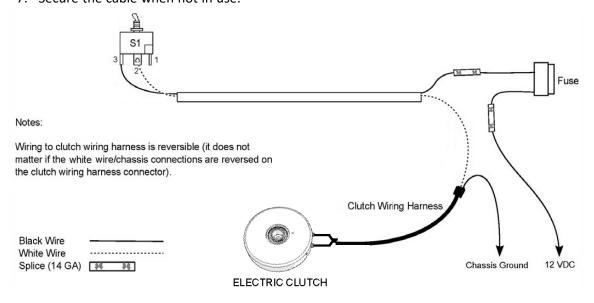




1	pulley cover guard	4	bolt, 3/8" x 5"
2	bolt, 5/16" x 4-1/2"	5	whiz nut, 3/8"
3	lock nut, 5/16"		

#### 4.21.11 Wire the Electric Clutch

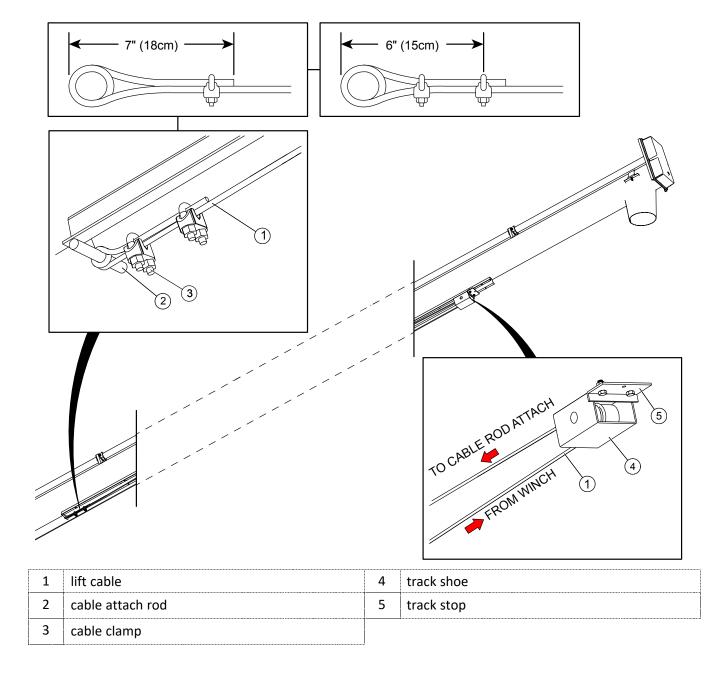
- 1. Remove (cut off) the clutch harness connector that includes a connection clip on one side.
- 2. Prepare the cut end for connection by trimming harness jacket and wire insulation as needed, crimp ring terminals to the two wires on that end, and connect them to the screw terminals on the clutch (it does not matter which wire connects to which terminal).
- 3. Complete the remaining electrical connections, using 14 gauge crimp connectors (splice, spade, and ring terminal) as needed:
  - connect the white switch cable wire to one of the clutch harness connector terminals;
  - connect the black switch cable wire to the fuse, and from there to 12 VDC power:
  - connect the remaining clutch harness connector terminal to ground.
- 4. Test the switch to ensure that the electric clutch engages and disengages properly.
- 5. Use electrical tape to seal and secure any electrical connections that might require weather-proofing.
- 6. Run the electrical cable through the lower frame to prevent accidental disconnection of wiring if the cable is pulled tight.
- 7. Secure the cable when not in use.



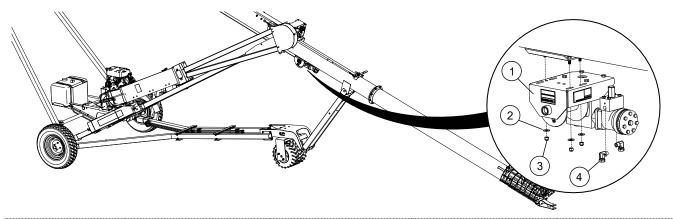


## 4.22. Install the Lift Cable

- 1. Attach the cable to the cable attach rod welded to the bottom of the track by wrapping it around the rod and doubling-back about 7" (18 cm) of cable.
- 2. Secure the cable in place by installing and tightening two 1/4" cable clamps.
  - a. Apply the first clamp 6" (15.2 cm) from the cable loop with u-bolt over the dead end. Live end rests in clamp saddle. Tighten nuts evenly to recommended torque of 15 ft·lb.
  - b. Apply second clamp as close to loop as possible with the u-bolt over the dead end. Live end rests in clamp saddle. Apply tension and tighten nuts evenly to recommended torque of 15 ft·lb.
- 3. Run cable between the track stop and the auger tube.
- 4. Thread the cable over and around the track shoe. Make certain it is properly seated in the cable groove.

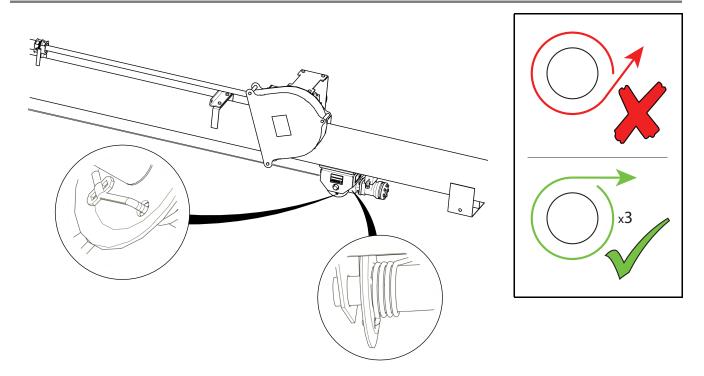


# 4.23. Install the Hydraulic Winch



1	hydraulic winch assembly	3	lock nut, 3/8"
2	flat washer, 3/8"	4	steel fitting, 90, 6 MNPT x 6 FNPSM

## 4.24. Connect the Lift Cable

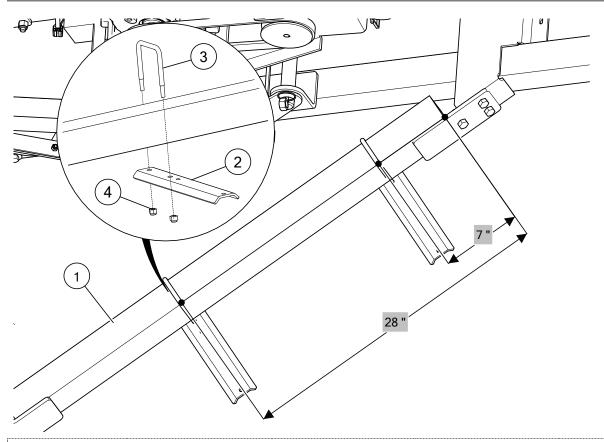


#### **Important**

Make sure there is a minimum of three wraps of cable on the winch drum when the auger is in transport position.

- 1. Pull cable to the winch.
- 2. Wrap the cable over and around the winch drum.
- 3. Thread the cable through the hole in the side of the winch drum and secure it using a cable clamp.

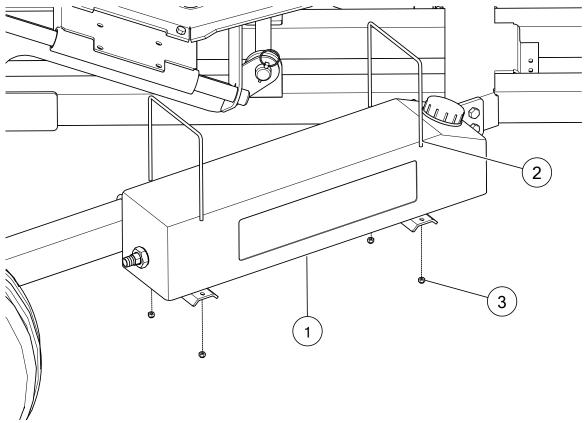
# 4.25. Install the Hydraulic Oil Tank



#### **Assembly Notes:**

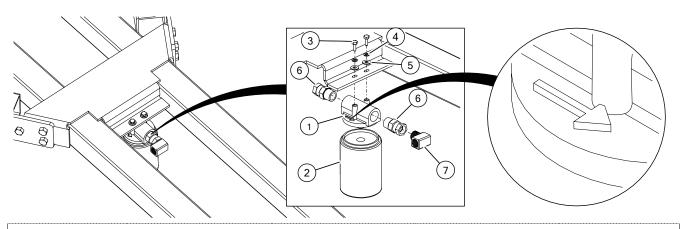
- Place the first hydraulic tank mount 7" from the end of the tube.
- Place the second hydraulic tank mount 28" from the end of the tube.

1	lower support frame, right	3	square U-bolt, 3/8" x 3-1/16" x 4"
2	hydraulic tank mount	4	lock nut, 3/8"



# Assembly Note: • Ensure the cap is located on the raised side. 1 hydraulic tank 3 lock nut, 1/4" 2 square U-bolt, 1/4" x 7-1/4" x 7-5/8"

# 4.26. Install the Hydraulic Filter

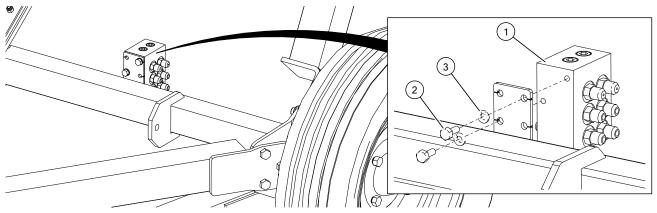


#### **Assembly Note:**

• The hydraulic hoses MUST be installed to ensure that the oil flows to the tank in the same direction as the arrow on the filter head.

1	hydraulic filter head	5	flat washer, 1/4"
2	hydraulic filter	6	steel fitting, 3/4" MNPT x 1/2" FNPSM
3	bolt, 1/4" x 3/4"	7	elbow
4	lock washer, 1/4"		

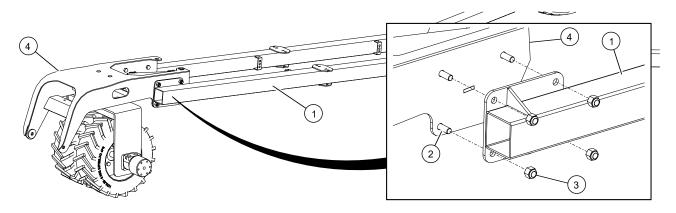
# 4.27. Install the Hydraulic Manifold



1hydraulic manifold3lock washer, 5/16"2bolt, 5/16" x 3/4"

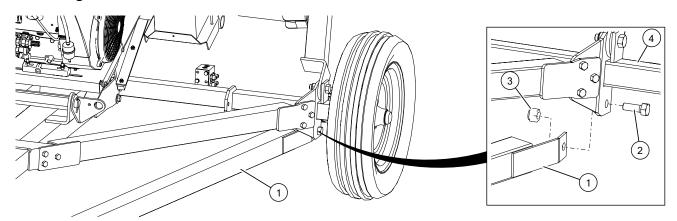
# 4.28. Install the Undercarriage

## Connecting the SP Reach Arms to the Mover Assembly



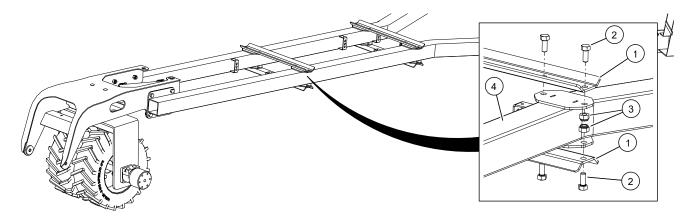
1	AWD SP reach arm	3	lock nut, 1/2"
2	bolt, 1/2" x 1-1/4"	4	AWD SP mover assembly

### Connecting the SP Reach Arms to the Axle



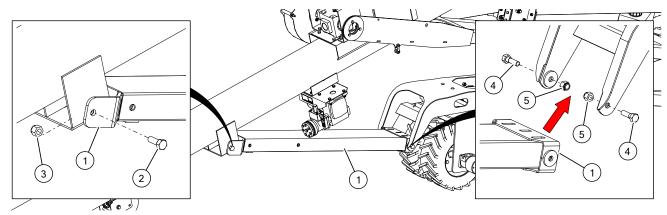
Asse	Assembly Note:				
• 1	This connection must rotate—do not overtighten.				
1	AWD SP reach arm	3	lock nut, 3/4"		
2	bolt, 3/4" x 2"	4	axle		

## **Installing the SP Reach Arm Tie Braces**



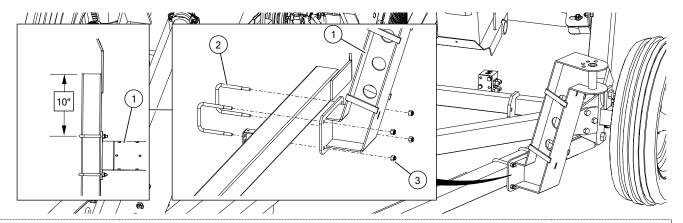
1	tie brace	3	lock nut, 7/16"
2	bolt, 7/16" x 1"	4	AWD SP reach arm

## Installing the Slider Assembly onto the Tube and Mover Assembly



Assembly Note:					
These joints must pivot—do not overtighten.					
1	AWD mover slider assembly	4	bolt, 5/8" x 2"		
2	bolt, 3/4" x 2"	5	lock nut, 5/8"		
3	lock nut, 3/4"				

#### **Installing the Controls Tower**

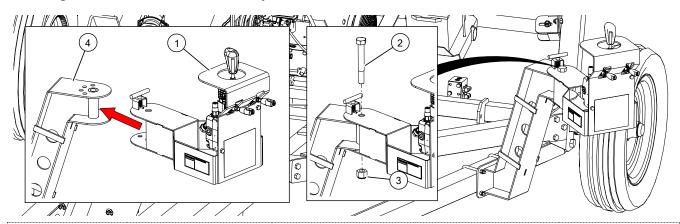


#### **Assembly Notes:**

- Install the tower 10" from the end of the SP reach arm tube.
- Install the tower on the right SP reach arm (looking from the intake, towards the discharge).

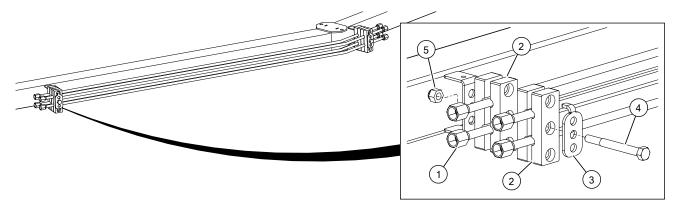
1	controls tower	3	lock nut, 3/8"
2	square U-bolt, 3/8" x 3-1/16" x 4"		

#### **Installing the Mover Controls Assembly**



# Assembly Note: This connection must rotate—do not overtighten. mover controls assembly bolt, 3/4" x 5-1/2" 3 lock nut, 3/4" 4 controls tower

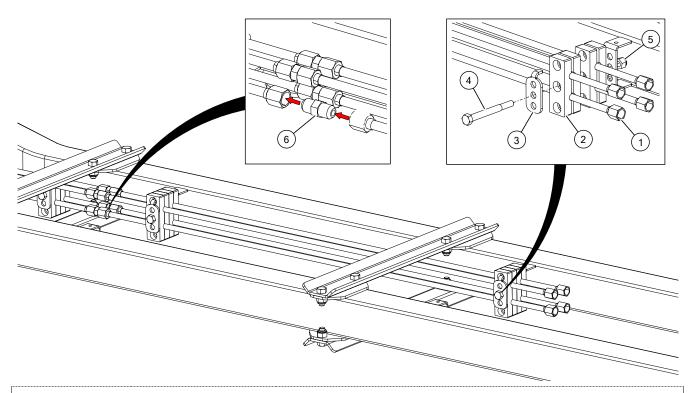
## **Installing the Bent Steel Hydraulic Lines**



# Assembly Notes:

- Install on the same side as the controls.
- Install clamp bracket with the bend tab pointing inside of the bolt hole.

1	hydraulic steel line, bent	4	bolt, 3/8" x 3-1/2"
2	double tube clamp	5	lock nut, 3/8"
3	hydraulic tube clamp bracket		

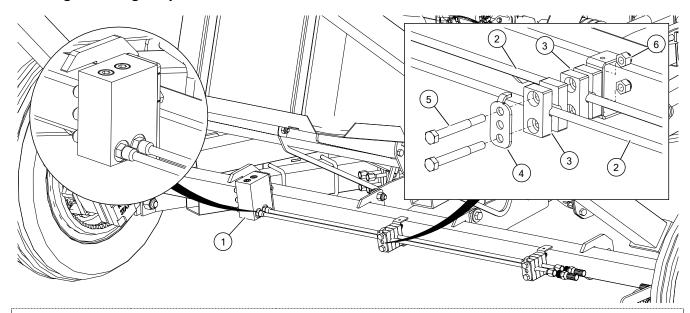


## **Assembly Notes:**

- Install on the same side as the controls.
- Install clamp bracket with the bend tab pointing inside of the bolt hole.

1	hydraulic steel line, straight	4	bolt, 3/8" x 3-1/2"
2	double tube clamp	5	lock nut, 3/8"
3	hydraulic tube clamp bracket	6	straight adapter

## Installing the Straight Hydraulic Steel Lines onto the Axle



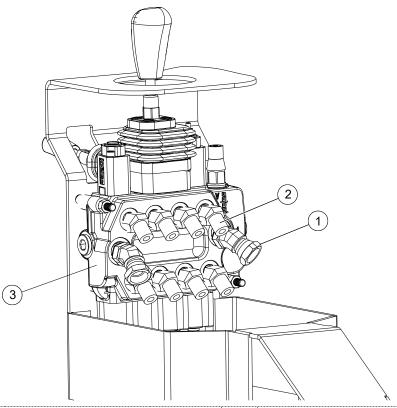
### **Assembly Note:**

Install the clamp bracket with the bend tab pointing towards the axle.

		,	
1	hydraulic manifold	4	hydraulic tube clamp bracket
2	hydraulic steel line, straight	5	bolt, 3/8" x 3-1/4"
3	single tube clamp	6	lock nut, 3/8"

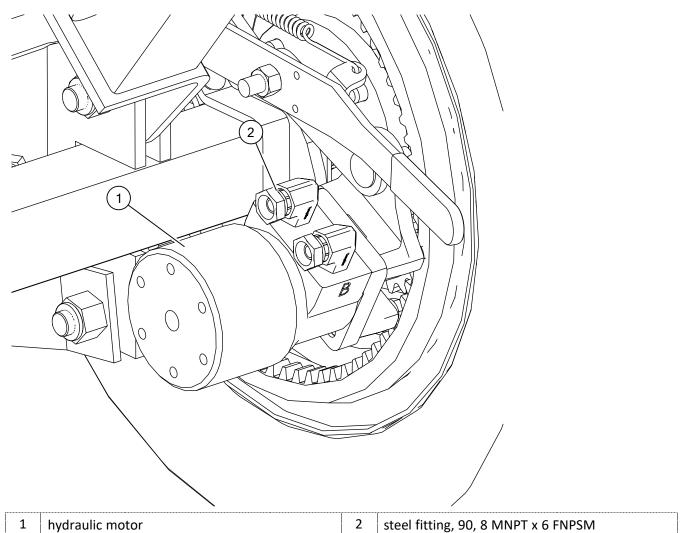
# 4.29. Install the Hydraulic Adapters

# Installing Adapters at the Valve

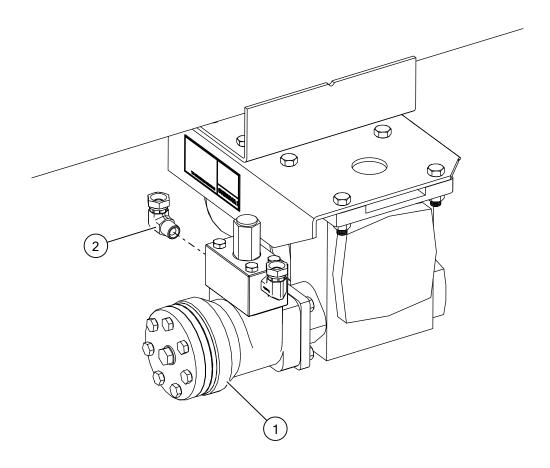


ſ	1	steel fitting, 45, 8 MORB x 1/2 FNPSM	3	hydraulic valve
	2	steel fitting, 45, 6 MORB x 6 MJIC		

## **Installing Adapters at the Hydraulic Motors**

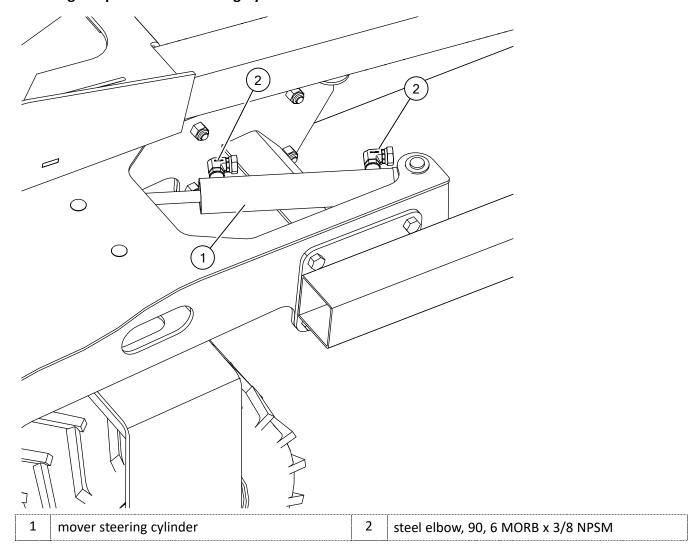


# Installing Adapters at the Hydraulic Winch

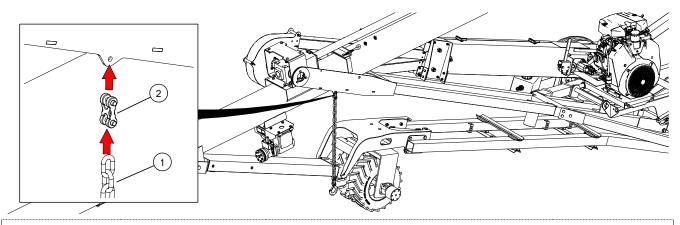


1	hydraulic winch	2	steel fitting, 90, 6 MNPT x 6 FNPSM	
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## **Installing Adapters at the Steering Cylinder**



# 4.30. Attach the Transport Chain



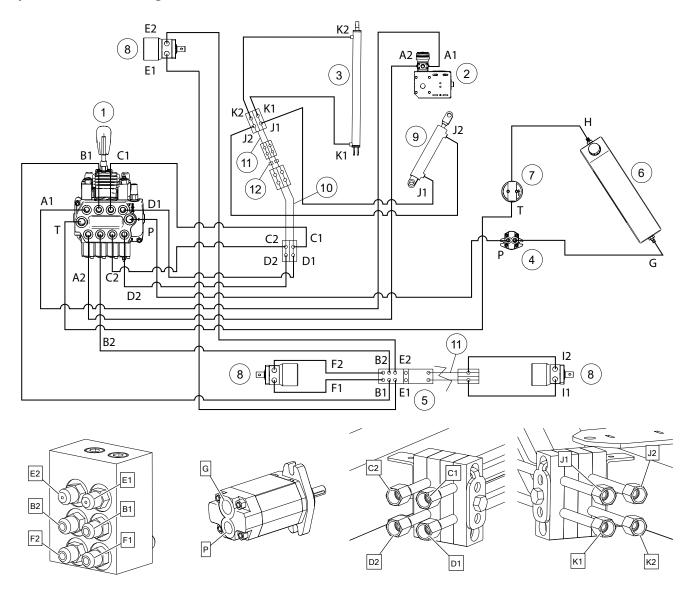
#### **Assembly Note:**

- If necessary, the transport chain assembly can be shortened.
  - Remove mid link from chain.
  - Attach mid link to the appropriate chain link.

1 transport chain 2 mid link

# 4.31. Attach the Hydraulic Hoses

#### **Hydraulic Hose Routing**



#### **Hydraulic Components**

1	hydraulic valve	7	oil filter
2	hydraulic winch	8	drive motor
3	hydraulic cylinder, slider	9	hydraulic cylinder, steering
4	hydraulic pump	10	steel hydraulic lines, bent
5	hydraulic manifold	11	steel hydraulic lines, straight
6	oil tank	12	straight adapter

#### **Hydraulic Hoses**

Item	Hose Ends	Length
A1/A2	3/8" MNPT x #6 FJIC	3/8" x 296"
B1/B2	#6 FJIC x #6 FJIC	3/8" x 60"
C1/C2	#6 FJIC x #6 MJIC	3/8" x 54"
D1/D2	#6 FJIC x #6 MJIC	3/8" x 54"
E1/E2	#6 FJIC x 1/2" MNPT	3/8" x 242"
F1/F2	#6 FJIC x 3/8" MNPT	3/8" x 18"
G	N/A	3/4" x 78"
Н	1/2 MNPT x 1/2 FNPSM	1/2" x 22"
11/12	#6 MJIC x 3/8" MNPT	3/8" x 18"
J1	#6 MJIC x 3/8" MNPT	3/8" x 28"
J2	#6 MJIC x 3/8" MNPT	3/8" x 32"
K1	#6 MJIC x 3/8" MNPT	3/8" x 82"
K2	#6 MJIC x 3/8" MNPT	3/8" x 102"
Р	1/2" MNPT x 1/2" MNPT	1/2" x 110"
Т	1/2" MNPT x 1/2" MNPT	1/2" x 110"

#### **Hose Routing**



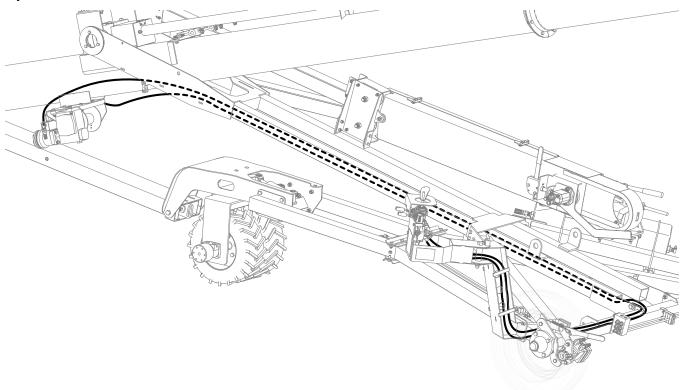
Serious operator injury could occur if the transport unit and hydraulic hoses are not assembled correctly. If necessary, disconnect the hoses and re-assemble.

The SP Transport unit MUST operate as indicated on the control panel decal. The auger MUST move in the direction that the handle is moved.

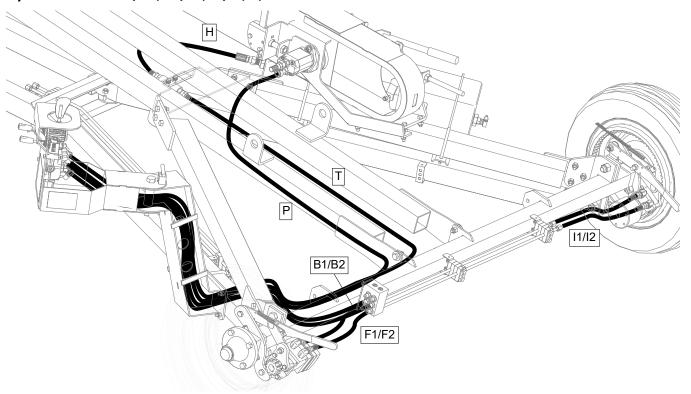
#### **Assembly Notes:**

- Assemble hoses as illustrated.
- · Keep hoses free of dirt while assembling.
- Keep pressure and return sides aligned.
- Tighten after being satisfied that the hoses are in the proper position.
- Check operation.
- Secure hoses in place with the cable ties supplied.

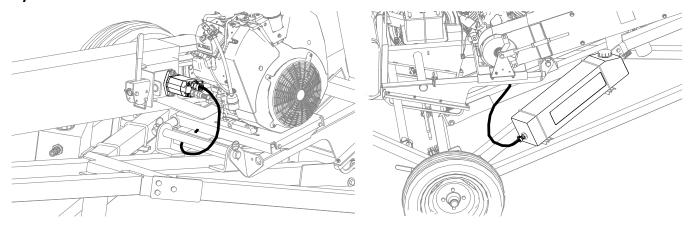
## Hydraulic Hoses A1 & A2



## Hydraulic Hoses B1/B2, F1/F2, I1/I2, P, T & H



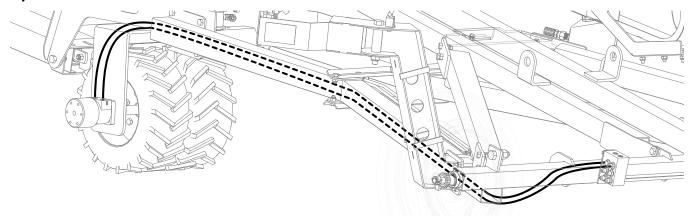
#### **Hydraulic Hose G**



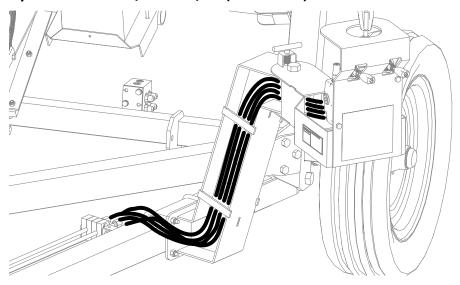
Note

Route hose G under the engine slider assembly along the lower frame.

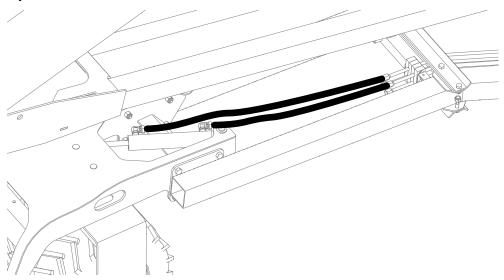
#### Hydraulic Hoses E1 & E2



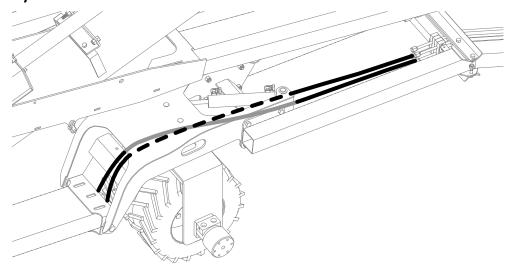
#### Hydraulic Hoses C1/C2 & D1/D2 (from Valve)



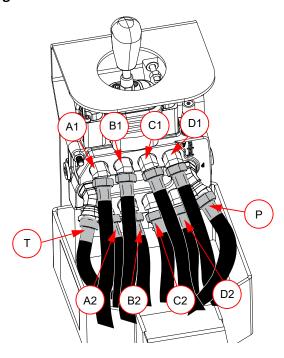
# Hydraulic Hoses J1 & J2



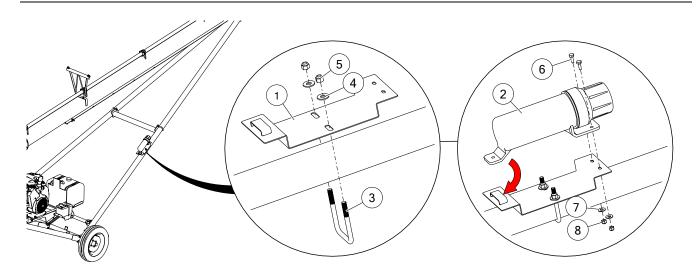
#### Hydraulic Hoses K1 & K2



## **Hydraulic Steering Valve**

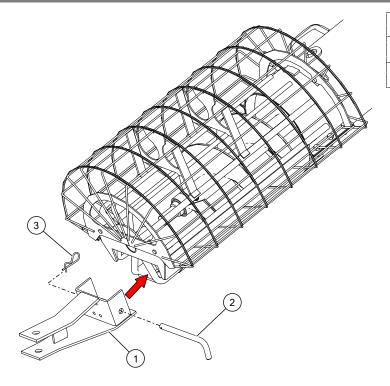


# 4.32. Install the Manual Holder



1	manual holder mount	5	lock nut, 3/8"
2	manual holder	6	bolt, 1/4" x 3/4"
3	square U-bolt, 3/8" x 3-1/16" x 4"	7	flat washer, 1/4"
4	flat washer, 3/8"	8	lock nut, 1/4"

#### 4.33. Install the Hitch



1	clevis hitch
2	clevis pin
3	grip clip

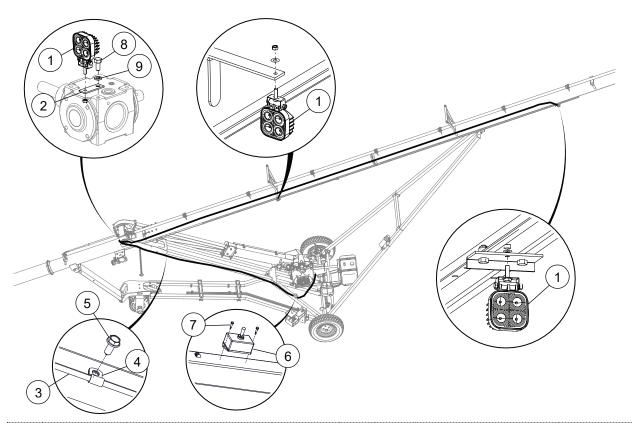
## 4.34. Install the Work Lights

- 1. Install the discharge-area flood lamp to the track stop with a bolt, washer, and lock nut, then plug the wiring harness connector into the flood lamp connector. Ensure that the connectors are fully engaged.
- 2. Run the wiring harness down the tube to the location of the engine-area lamp. Travel through the opening in the bearing brackets.
- 3. Install the engine-area flood lamp to the bracket using a bolt, washer, and lock nut, then plug the wiring harness connector into the flood lamp connector. Ensure that the connectors are fully engaged.
- 4. Run the wiring harness down the tube to the gearbox.
- 5. Secure the lamp bracket to the gearbox.
- 6. Install the intake-area flood lamp to the gearbox mount bracket using a bolt, washer, and lock nut, then plug the wiring harness connector into the flood lamp connector. Ensure that the connectors are fully engaged.
- 7. Run the wiring harness down the lower frame to the engine. Secure using P-clamps and Tek screws.
- 8. Connect the wiring-harness eyelet (white wire) to the motor frame (ground). Connect the butt splice to the motor power (positive).

#### Note

If no motor power lead is available to connect the butt splice it may be necessary to use the provided tap splice connector to draw power from another power or accessory wire. Ensure all connections are fused appropriately.

9. Install the switch box to the lower frame arm with two Tek screws.



1	flood lamp (includes hardware)	6	switch box
2	lamp bracket	7	tek screw, #8 x 3/4"
3	wiring harness	8	bolt, 1/2" x 1"
4	P-clamp, 1/4"	9	lock washer, 1/2"
5	tek screw, #14 x 5/8"		

# 5. Specifications

Specification	10-61				
Tube Size	10" (254 mm)				
CAPACITIES					
Unlanding Date	Up to 6000 Bu/Hr				
Unloading Rate	(212 m³/Hr)				
TRANSPORT DIMENSIONS					
Length	61'6" (18.7 m)				
Width	8' (2.44 m)				
Height	14'4" (4.37 m)				
DISCHARGE CLEARANCE DIMENSIONS	<u> </u>				
Min	11'10" (3.61 m)				
Max	39'9" (12.12 m)				
TIRES	·				
Туре	15" Radial				
Inflation Pressure	See Manufacturer Recommended Pressure on Tire Sidewall				
WEIGHT					
Hitch Weight (no engine)	329* lb (149 kg)				
Total Weight	3683* lb (1671 kg)				
POWER RECOMMENDATIONS	·				
Gas Engine	38 HP				
PART SPECIFICATIONS					
Gas Tank Capacity	12 Imp Gal (45 L)				
Gearbox Oil Capacity	0.9 US Quarts (0.85 L)				
Upper Drive Housing Grease Quantity	1100 g (40 oz)				
Belt Size	3B360				
Mover Kit Hydraulic Oil	ISO 32 Hydraulic Oil				

<sup>\*</sup> Weights are estimated.

# 6. Appendix

## 6.1. Bolt Torque

Table 2 gives the correct torque values for various hardware. Tighten all bolts to the torque specified, unless otherwise noted. Check tightness periodically, using Table 2 as a guide. Replace the hardware with the same strength bolt, contact AGI if you are unsure.

Table 2. Recommended Bolt Torque<sup>1</sup>

	Dry or Lubricated	Threads per inch (Course/ Fine)	Area of Bolt (sq in.)		Recommended Torque (ft-lb)							
Size					Grade	e 2	Ć Grad		Grad		8.8 S	
		i iliej	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine
1/4"	Dry	20/28	0.0310	0.0364	5.5	6.3	8	10	12	14	6.3	7.8
1/4	Lubricated	20/28	0.0318	0.0364	6.3	4.7	6.3	7.2	9	10	-	-
5/16"	Dry	18/24	0.0524	0.058	11	12	17	19	24	27	11	11.8
3/10	Lubricated	10/24	0.0324	0.036	8	9	13	14	18	20	-	-
3/8"	Dry	16/24	0.0775	0.0878	20	23	30	35	45	50	20	22
3/8	Lubricated	10/24	0.0773	0.0676	15	17	23	25	35	35	-	-
7/16"	Dry	14/20	0.1063	0.1187	32	36	50	55	70	80	31	33
7/10	Lubricated	14/20 0.1003	0.1107	24	27	35	40	50	80	-	-	
1/2"	Dry	13/20	0.1419	0.1599	50	55	75	85	110	120	43	45
1/2	Lubricated	13/20	0.1419		35	40	55	65	80	90	-	-
9/16"	/16" Dry	12/18	0.182	0.203	70	80	110	120	150	170	57	63
3/10	Lubricated	12/10			55	60	80	90	110	130	-	-
5/8"	Dry	11/18	0.226 0.	0.256	100	110	150	170	210	240	93	104
3/0	Lubricated	11/10	0.220	0.230	75	85	110	130	160	180	-	-
3/4"	Dry	10/16	0.334	0.373	175	200	260	300	380	420	128	124
3/ 4	Lubricated	10/10	0.554	0.575	130	140	200	220	280	310	-	-
7/8"	Dry	9/14	0.462	0.508	170	180	430	470	600	670	194	193
770	Lubricated	3/ 17	0.402	0.500	125	140	320	350	180	180	-	-
1"	Dry	8/14	0.606	0.679	250	280	640	720	910	1020	287	289
	Lubricated	0,11	0.000	0.073	190	210	480	540	680	760	-	-
1-1/8"	Dry	7/12	0.763	0.856	350	400	790	890	1290	1440	288	290
1 1/0	Lubricated 7/12 0.70	0.703	0.030	270	300	590	670	970	1080	-	-	
1-1/4"	Dry	7/12	0.989	1.073	500	550	1120	1240	1820	2010	289	291
	Lubricated	-,	0.505	1.07.5	380	420	840	930	1360	1510	-	-
1-1/2"	Dry	6/12	1.405	1.581	870	960	1950	2200	3160	3560	-	-
1-1/2	Lubricated	0, 12	1.405	1.501	650	730	1460	1640	2370	2670	-	-

<sup>1.</sup> Torque value for bolts and cap screws are identified by their head markings. Established at 75% of yield strength of bolt given the cross-sectional area.

#### Note

Torque figures in table are valid for non-greased or non-oiled threads and head unless otherwise specified. Therefore, do not grease or oil bolts or cap screws unless otherwise specified in this manual. When using locking elements, increase torque values by 5%.

## **6.2. Fittings Torque Values**

These specifications are for carbon steel. With Zinc plating always lubricate threads and seals. For stainless steel, use the high value of the torque range of steel. For brass, use 70% of the torque value of steel. For mixed metals, use the torque of the lower of the two metals. Torque range is normally calculated +/- 10%.

Table 3. Pipe Rigid - Tapered Pipe Threads (NPTF, N/NF) - Carbon Steel

Pipe Size	Turns-from-finger	Max ft-lbs	Max N-m
1/8" (-2)	3/4 - 1 3/4	12	16
1/4" (-4)	3/4 - 1 3/4	25	34
3/8" (-6)	3/4 - 1 3/4	40	54
1/2" (-8)	1/2 - 1 1/2	54	73
3/4" (-12)	1/2 - 1 1/2	78	106
1" (-16)	1/2 - 1 1/2	112	152
1 1/4" (-20)	1/2 - 1 1/2	154	209
1 1/2" (-24)	1/2 - 1 1/2	211	286
2" (-32)	1/2 - 1 1/2	300	407

Table 4. Pipe Swivel - Straight Pipe Threads (NPSM, N/NFS) - Carbon Steel

Pipe Size	Max ft-lbs	Max N-m			
1/8" (-2)	12	16			
1/4" (-4)	25	3			
3/8" (-6)	40	54			
1/2" (-8)	54	73			
3/4" (-12)	78	106			
1" (-16)	112	152			
1 1/4" (-20)	154	209			
1 1/2" (-24)	211	286			
2" (-32)	300	407			
Note: seals on an internal male 30° seat					

Table 5. Stud End O-Ring Boss (ORB) SAE (U/UF) – Carbon Steel

Tube Size	Thread UNF-2A	Max ft-lbs	Max N-m
-2	5/16" - 24	6-7	8-9
-3	3/8" - 24	8-9	11-12
-4	7/16" - 20	13-15	18-20
-5	1/2" - 20	17-19	23-26

Table 5 Stud End O-Ring Boss (ORB) SAE (U/UF) – Carbon Steel (continued)

Tube Size	Thread UNF-2A	Max ft-lbs	Max N-m
-6	9/16" - 18	22-24	29-33
-8	3/4" - 16	40-43	49-53
-10	7/8" - 14	43-48	59-64
-12	1 1'16" - 12	68-75	93-102
-14	1 3/16" - 12	90-99	122-134
-16	1 5/16" - 12	112-123	151-166
-20	1 5/8" - 12	146-161	198-218
-24	1 7/8" - 12	154-170	209-231

Table 6. JIC 37° Flare Tube Fitting (J/JFS)

Tube Size	Thread UNF-2A	Torque ft-lbs	Torque N-m
-2	5/16 - 24	6-7	8-9
-3	3/8 - 24	8-9	11-12
-4	7/16 - 20	11-12	15-16
-5	1/2 - 20	14-15	19-21
-6	9/16 - 18	18-20	24-28
-8	3/4 - 16	36-39	49-53
-10	7/8 - 14	57-63	77-85
-12	1 1/16 - 12	79-88	107-119
-14	1 3/16 - 12	94-103	127-140
-16	1 5/16 - 12	108-113	147-154
-20	1 5/8 - 12	127-133	172-181
-24	1 7/8 - 12	158-167	215-226
-32	2 1/2 - 12	245-258	332-350

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