

Auger Installation, Operation and Service Manual

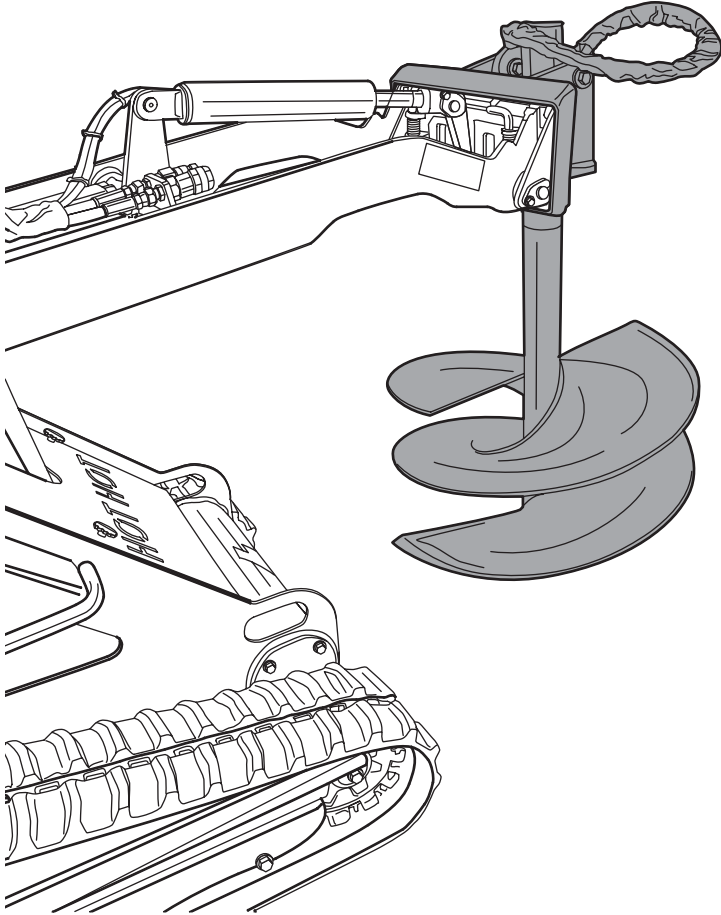


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Section 1 – Installation of Power Auger Attachment

CAUTION

Before installing the Auger or any other powered attachment, be sure to refer to the “Pre-Start Inspection” and “Machine Start-up” sections of the power units Operator's Manual.

There are many hydraulically powered attachments available that are very easy to install. To install any of these attachments:

1. Position the attachment on a level surface.
2. Start the machine engine, lower the loader arm and tilt the mounting plate forwards.

NOTE: Make sure that both of the attachment lock pins (Item 1, [Figure 1-1](#)) are in the “unlocked” position.

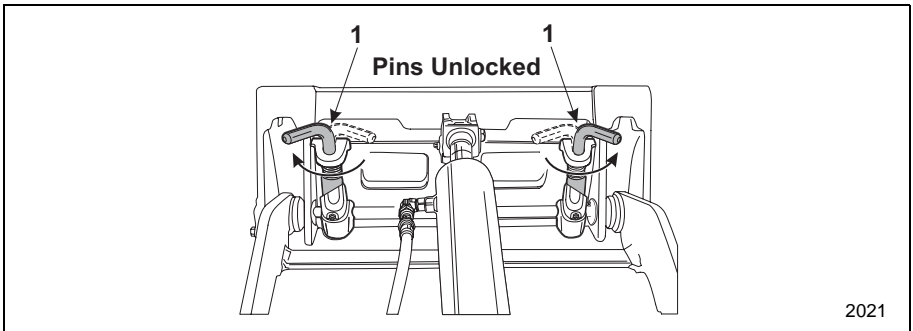


Figure 1-1 Attachment Locks in Unlocked Position

3. Slowly drive towards the attachment and align the top edge of the male mounting plate (Item 1, [Figure 1-2](#)) and the upper lip of the female attachment mounting plate (Item 2, [Figure 1-2](#)).

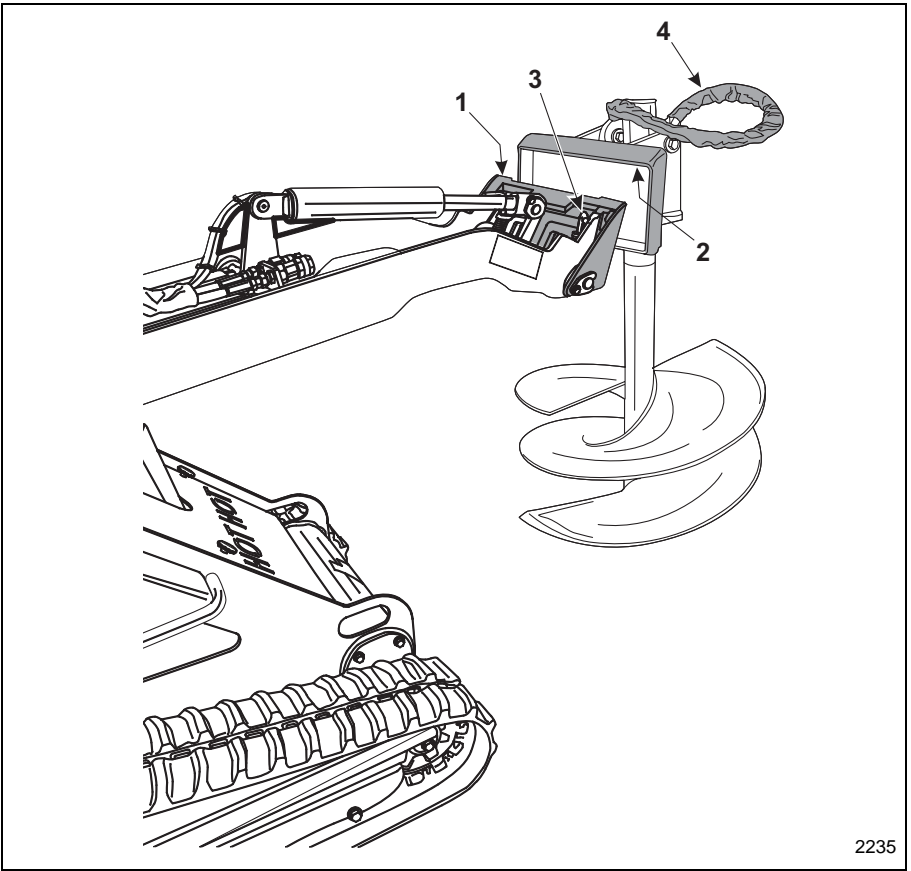
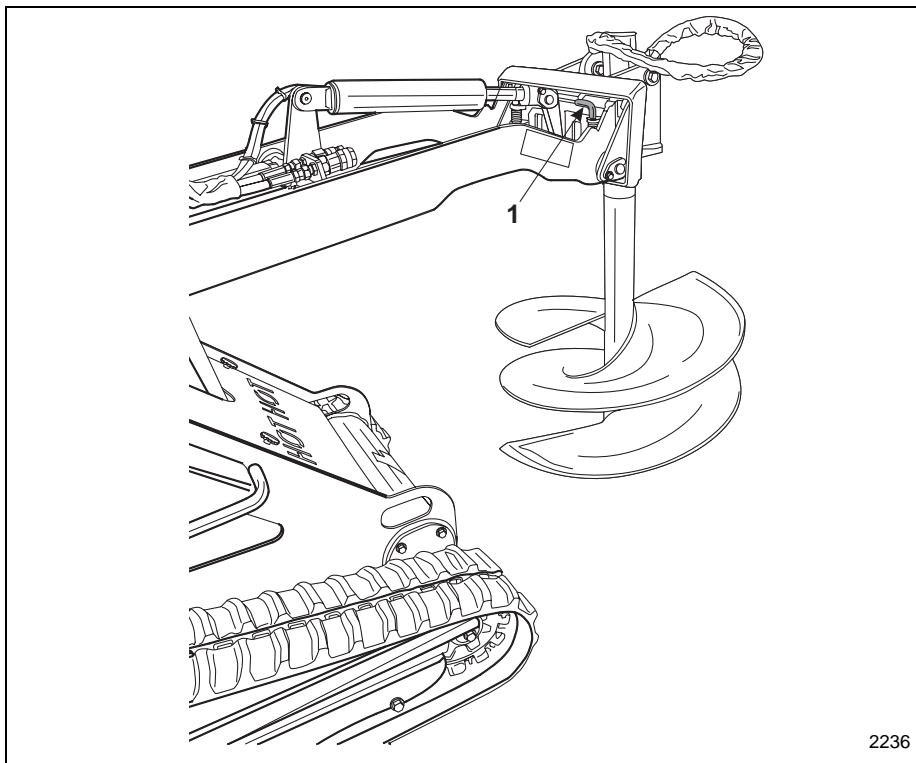


Figure 1-2 Hydraulically Powered Attachment Installed

NOTE: Make sure to position the attachments hydraulic hoses (Item 4, [Figure 1-2](#)) so that they are not damaged during the installation process. Tuck the upper edge of the male mounting plate into the upper lip of the female attachment mounting plate.

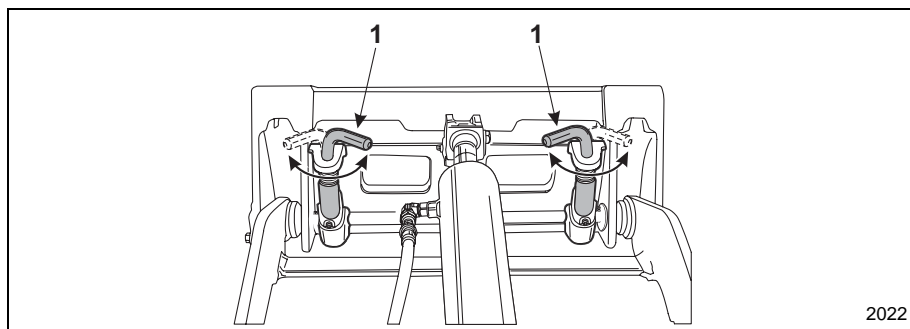
4. When the machines mounting plates top edge is seated in the attachment mounting plate, curl the machines mounting plate backwards slightly to allow the lower edge of the machines mounting plate to slide into position.



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Figure 1-3 Hydraulically Powered Attachment Installed

5. Shut the engine off.
6. Rotate the attachment lock pins (Item 1, [Figure 1-3](#), and Item 1, [Figure 1-4](#)) into the locked position securing the attachment to the machine.



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Figure 1-4 Attachment Locks in Locked Position

7. Start the engine and slowly tilt the attachment upwards and inspect to make sure that the attachment lock pins are visible through the holes in the bottom of the attachment plate. When the inspection has been completed, lower the auger assembly to the ground.
8. Shut off the engine.
9. Move any of the main hydraulic controls forward and backward to release any stored hydraulic pressure.
10. Attach the hydraulic hoses to the quick connects. See **Figure 1-5**.
11. There are two hydraulic hoses that need to be connected. The quick connect system prevents you from incorrectly connecting the hydraulic hoses, but both hoses need to be connected for the attachment to operate.
 - a. With the engine OFF, move the AUXILIARY control lever (Item 1, **Figure 1-5**) toward the hand hold, or the FORWARD position, or move the lever BACKWARD into the REVERSE detent position. This will release the hydraulic pressure locked in the auxiliary hydraulic lines. Leave the control lever in the REVERSE detent position.

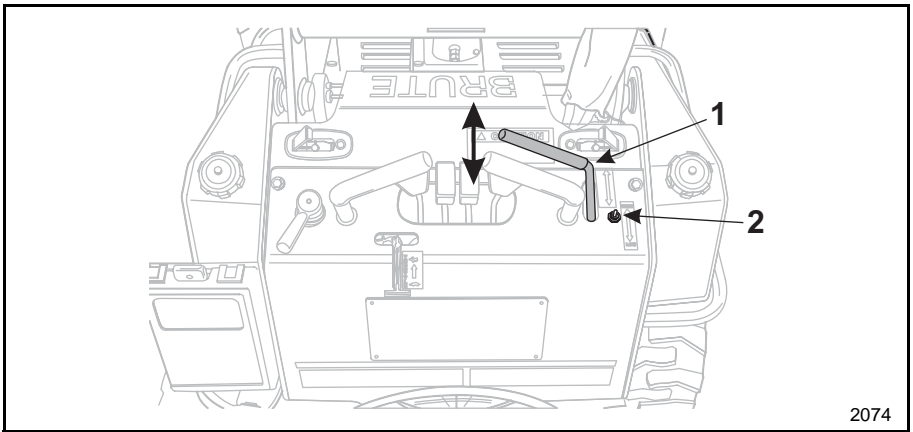


Figure 1-5 Auxiliary Attachment Controls

- b. Remove the protective covers (Items 2, 6, **Figure 1-6**) from the attachment quick connectors.
- c. Wipe off the end of each of the connectors (Items 3 and 5, **Figure 1-6**) to remove any dirt or debris.

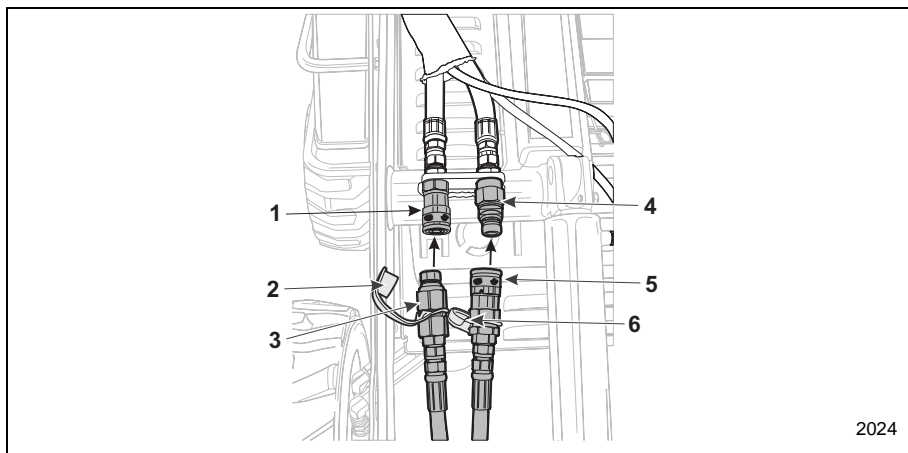


Figure 1-6 Auxiliary Hydraulic Quick Connects

- d. Insert the attachments' male coupling (Item 3, **Figure 1-6**) into the female bulkhead quick connect coupling (Item 1, **Figure 1-6**) on the machine and push until the connector locks into position.
- e. Repeat the above process to connect the attachments' female quick connect (Item 5, **Figure 1-6**) on the other hose to the male bulkhead connector (Item 4, **Figure 1-6**) on the machine.
- f. Check the security of both connections by gently tugging on the attachment hoses to make sure that the quick connects are seated properly.

12. Make sure that the hydraulic hoses are routed so that they will not be in the way or damaged during machine operation. **Figure 1-7** shows how the hoses might be routed to keep them out of the way during operation and prevent them from being damaged.

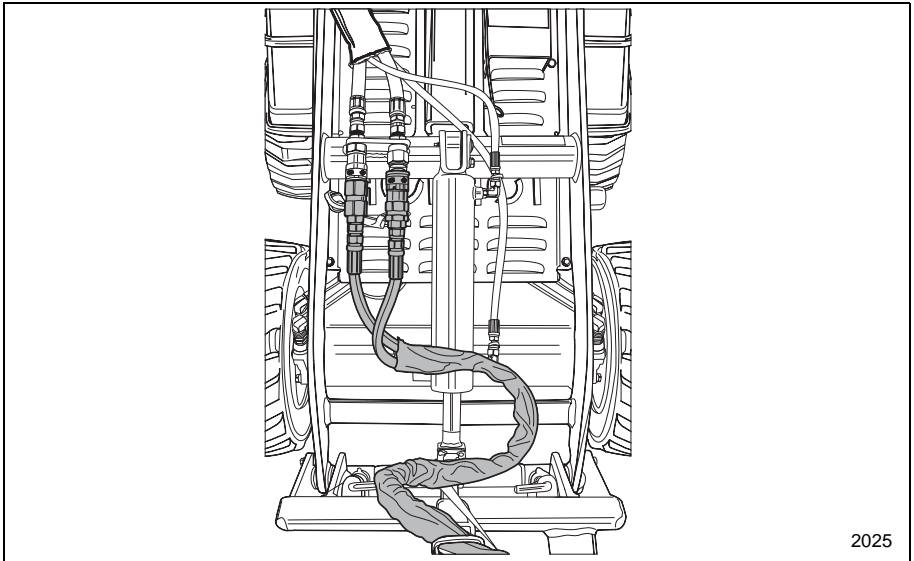


Figure 1-7 Attachment Hydraulic Hose Routing

13. The attachment is now ready to use.

⚠ CAUTION

Before starting the engine, make sure that the Auxiliary Hydraulic control lever is in the NEUTRAL position. If this control is left in either the forward or reverse position and the engine is started, the attachment will begin to function.

Operating Instructions for Power Auger Attachment

⚠ CAUTION

The instructions in this manual refer to a power unit that has an operator presence control that when released, automatically shuts off the attachment, but allows the engine to continue to operate. Other operator presence systems may have an electrical interface designed into the operator's platform. This type of system will shut off the engine if the operator leaves the control position. Make sure that you know which system is installed on the power unit to which the accessory will be attached.

1. Move the engine throttle to the full speed setting and set “high-low” switch (Item 2, [Figure 1-8](#)) to the High setting.
2. Raise the attachment off the ground and position it for use.

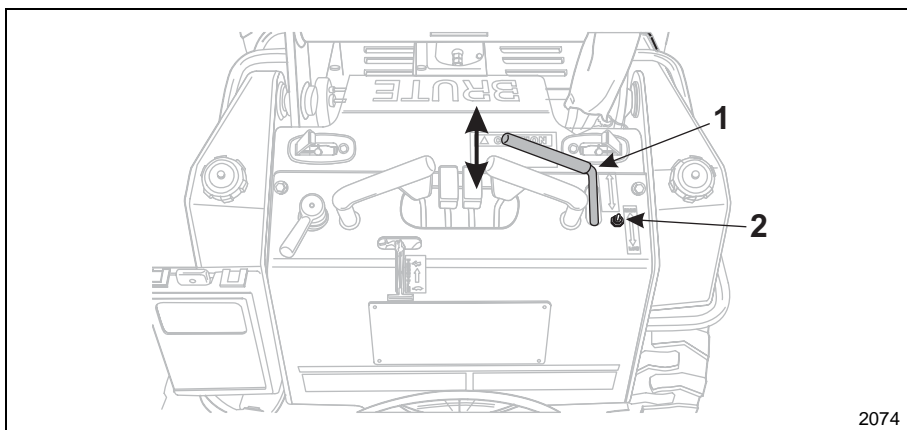


Figure 1-8 Auxiliary Attachment Controls

⚠ CAUTION

- Have all buried lines such as; gas, electric, water, telephone and cable TV, marked by the proper authorities.
- Make sure that you are standing on the operator's platform. (Item 1, [Figure 1-9](#))
- **DO NOT** step off of the platform when the auxiliary attachment's power is engaged.
- If you release the **AUXILIARY** hand control/operator presence control, the attachment will automatically stop all motion.

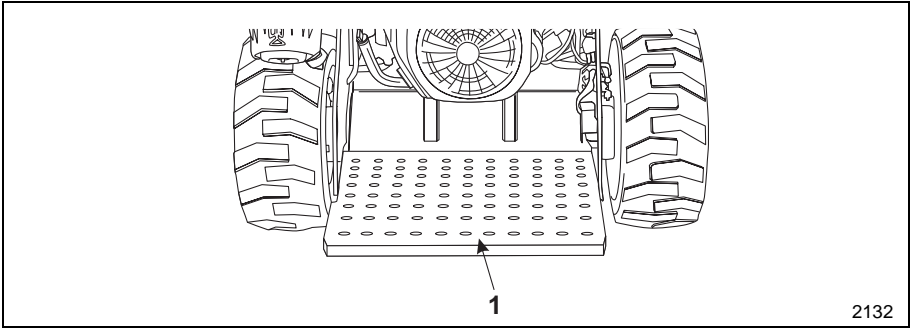


Figure 1-9 Operator's Platform

3. Slowly lower auger to ground at center of hole to be dug.
4. Using the attachment Tilt lever, be sure that the auger is hanging freely in the vertical position, See [Figure 1-10](#).

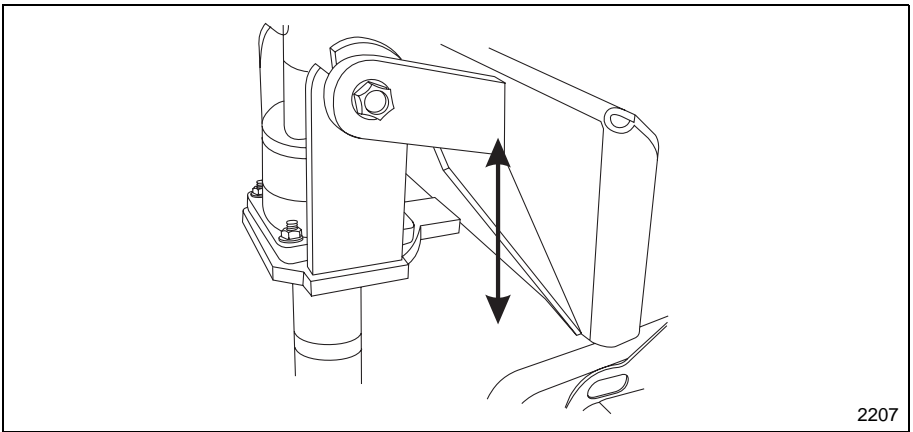


Figure 1-10 Auger in Vertical Position

5. With your right hand, squeeze the AUXILIARY control lever (Item 1, [Figure 1-11](#)) towards the hand hold to activate the auger in the FORWARD (Clockwise) motion.

NOTE: The AUXILIARY control lever is spring loaded and when released, will automatically move from the FORWARD motion position to NEUTRAL, stopping attachment motion.

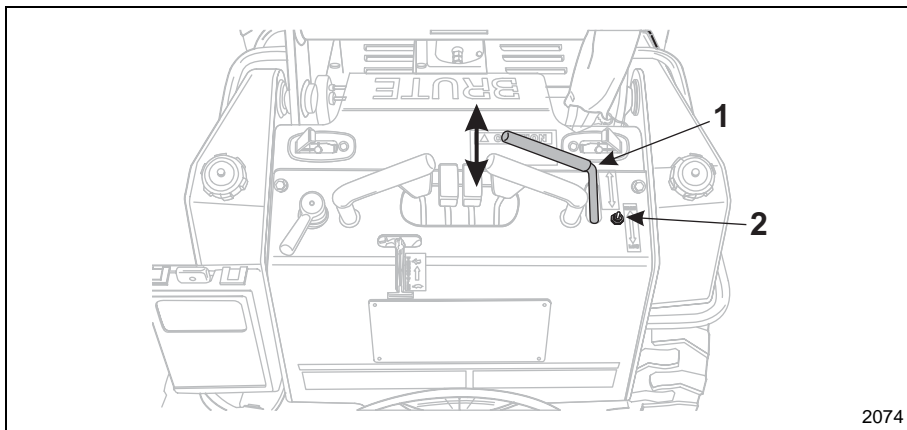


Figure 1-11 Auxiliary Attachment Controls

- Using the Boom Raise & Lower Lever, slowly lower the auger to begin drilling. As needed, lift auger out of hole. Move machine to a location away from hole & “shake” off excess dirt using forward and reverse rotation of the auger.

NOTE: To reverse the operation of the attachment, move the auxiliary control lever (Item 1, [Figure 1-11](#)) to the REVERSE (toward front of machine) position. The control lever will remain in the REVERSE position detent until it is moved to the NEUTRAL position.

- When finished drilling, shut off the engine and de-pressurize hydraulic system by moving the main hydraulic control forward and backward to release any stored hydraulic pressure.

Removal of Hydraulically Powered Attachments

⚠ CAUTION

After use, the quick couplers and hydraulic fluid will be very hot. Wear gloves when disconnecting the auxiliary hydraulic lines.

To remove a hydraulically powered attachment:

1. Return Auger assembly to storage rack on trailer and shut off the engine.
2. Move the auxiliary hydraulic control lever forward or backward to release any stored hydraulic pressure.
3. Some of the female couplings will have a lock button preventing accidental disconnection. To release this type of quick connect, rotate the collar on the female quick connect (Item 1, [Figure 1-12](#)) to align the notch on the collar with the lock button (Item 2, [Figure 1-12](#)).
4. Slide the collar backwards on the female quick connect (Item 4, [Figure 1-12](#)) until it stops against the lock button. The male connector will be released. Move the attachment hose away from the bulkhead fitting.
5. If the female connector does not have the lock pin type collar, just slide the collar backwards until the male connector is released.

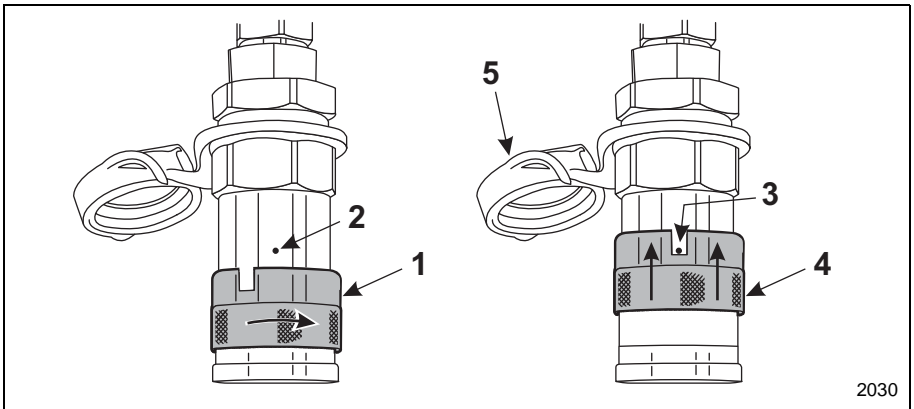


Figure 1-12 Quick Connect Locking Collar

6. Repeat this procedure on the other hydraulic line.
7. Cover the hose connections with the dust caps (Item 5, [Figure 1-12](#)) and store the hydraulic hoses to prevent damage.
8. Follow the instructions in “Removal of Power Auger Attachment”.

Removal of Power Auger Attachment

1. Lower the attachment onto a firm, level surface.
2. Shut off the machine engine.
3. Rotate the attachment lock pins to the UNLOCKED position (Item 1, **Figure 1–13**).

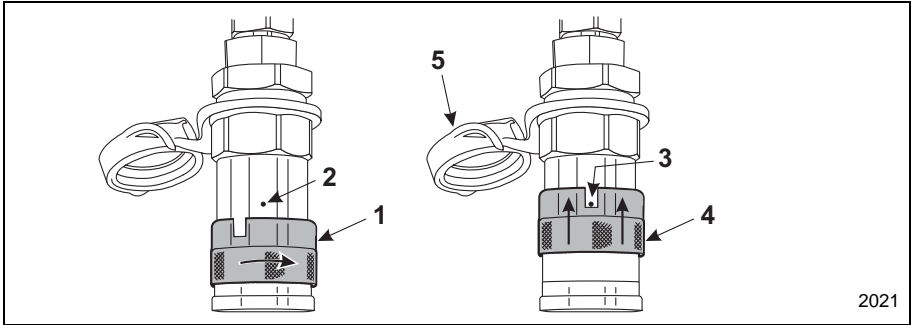


Figure 1–13 Attachment Locks in Unlocked Position

4. Start the engine and rotate the mounting plate downwards.
 5. Back away from the attachment.
- NOTE:** It may be necessary to lower the loader arm assembly slightly to fully disengage from the attachment.

Removal of Power Auger from Drive Motor

1. Lower the Auger into storage rack on the trailer.
2. Slightly raise or lower boom so the shaft is neither suspended nor bearing weight from the boom.
3. Shut off the engine.
4. Remove nut (Item 4, [Figure 1-14](#)) and horizontal bolt (Item 3, [Figure 1-14](#)) from drive shaft. (Item 1 [Figure 1-14](#))
5. Raise boom to disengage drive motor shaft (Item 1, [Figure 1-14](#)) from Auger shaft. (Item 2, [Figure 1-14](#)).
6. Reinstall bolt and nut onto drive motor shaft for storage.

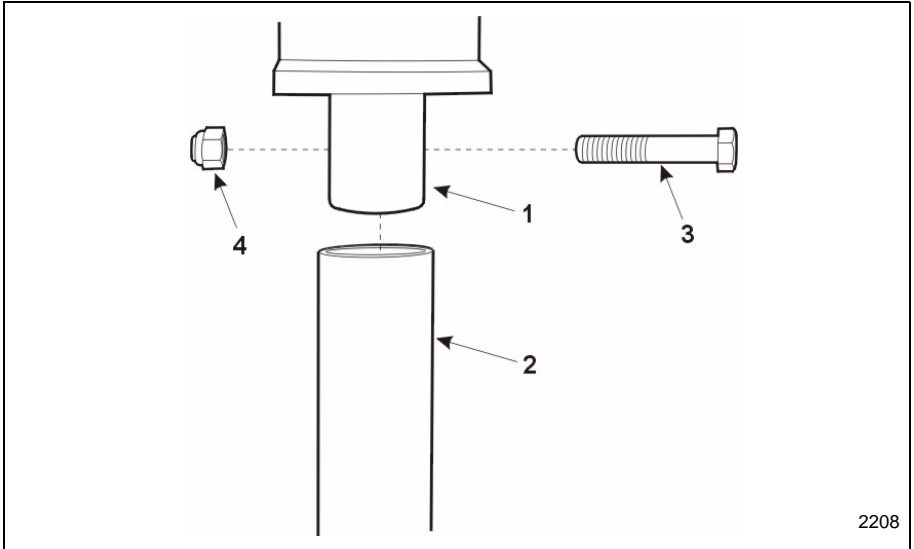
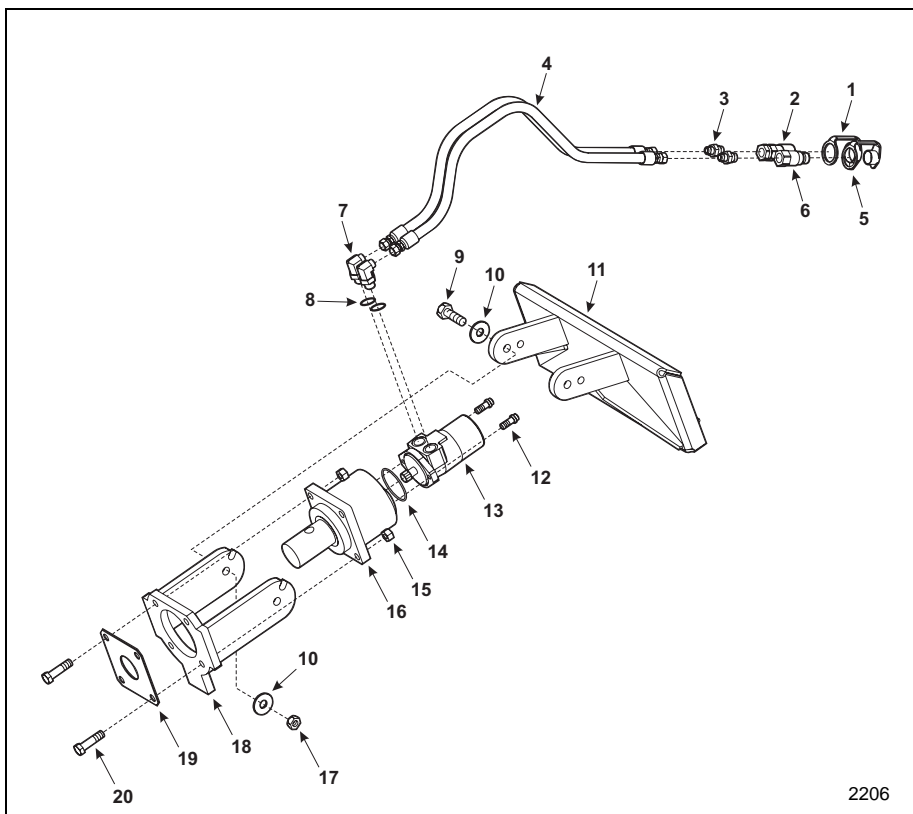


Figure 1-14 Auger Drive Shaft

Section 2 – Parts List



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Auger Parts

Item No	Description	Quantity	Part No.
1	DUST CAP, FEMALE COUPLING	1	2410354
2	FEMALE QUICK CONNECT FITING	1	2416626
3	FITTING	2	2290143
4	HOSE ASSEMBLY	2	3500132-065.92
5	DUST CAP, MALE COUPLING	1	2410353
6	MALE QUICK CONNECT FITTING	1	2416627
7	FITTING	2	2293502
8	O-RING, #10	2	2394885
9	BOLT	2	1913390C
10	FLAT WASHER	4	230149
11	AUGER MOUNTING ARMS	1	3011045
12	BOLT	2	1912940C
13	HYDRAULIC MOTOR	1	2391376
14	O-RING SEAL	1	2297834
15	NUT	4	B045436
16	PLANETARY AUGER DRIVE	1	2414661
17	NUT	2	2294406
18	AUGER MOUNTING WELDMENT	1	3011040
19	AUGER DRIVE SPACER	1	3011037
20	BOLT	4	1913379C

Section 3 – Troubleshooting

WARNING

Hydraulic oil under pressure can penetrate body tissue causing serious injury and possible death. When troubleshooting a hydraulic system for leaks, always use cardboard or wood as a detector. DO NOT USE YOUR BARE HANDS. If you are injected with hydraulic oil or any other fluids, immediately seek treatment by a doctor trained in the treatment of penetrating fluid injuries.

Problem	Cause	Remedy
Auger does not turn	<ul style="list-style-type: none"> a. Auxiliary hydraulic lines not connected. b. Power unit has more than one set of auxiliary hydraulic lines. c. High/Low switch not in proper setting. d. Engine not at rated speed. e. Auxiliary control lever not in the proper position. f. Power unit is low on hydraulic fluid. g. Auger drive motor is leaking hydraulic fluid. h. Planetary auger drive may have failed. 	<ul style="list-style-type: none"> a. Connect auxiliary hydraulic lines. b. Connect auger hydraulic lines to the correct auxiliary hydraulic lines. c. Set High/Low switch to the High position. d. Move throttle to maximum RPM setting. e. Hold Auxiliary control lever in the activation position. f. Refer to power units Operator's Manual g. Replace hydraulic auger drive motor. h. Separate hydraulic drive motor from planetary auger drive. Start power units engine and activate the auger drive motor. If the auger drive motors drive shaft rotates, replace the planetary
Engine does not start with auger attached.	<ul style="list-style-type: none"> a. Auxiliary control lever in activation position. b. Operator not standing on operator platform. c. Electric operator presence control system not functioning. 	<ul style="list-style-type: none"> a. Move control lever to Neutral position. b. Stand on operator platform at all times when using auxiliary attachments. c. Refer to power units Operator's Manual.
Auger rotates, but not smoothly or stops and starts.	<ul style="list-style-type: none"> a. Soil may contain rocks or other items that are preventing smooth operation. b. Power unit is low on hydraulic fluid. c. Auger hydraulic drive motor is failing. d. Planetary auger drive may have failed. 	<ul style="list-style-type: none"> a. Raise auger from hole to clear contact with the obstruction. b. Refer to power units Operator's Manual. c. Replace hydraulic drive motor. d. Replace planetary auger drive.
Auger rotates in reverse direction when auxiliary control is activated.	<ul style="list-style-type: none"> a. Auxiliary hydraulic lines are reversed. 	<ul style="list-style-type: none"> a. Reverse hydraulic lines. CAUTION - make sure to shut off the engine and release pressure in the hydraulic lines before removing the hydraulic lines from the quick connects.

Problem	Cause	Remedy
Hydraulic drive motor is turning but the auger does not move	<ul style="list-style-type: none"> a. Auger connection bolt not installed. b. Planetary auger drive has failed. 	<ul style="list-style-type: none"> a. Install and secure connection bolt. b. Replace planetary auger drive.
Hydraulic fluid is leaking from auger drive motor.	<ul style="list-style-type: none"> a. Hydraulic fitting loose. b. Internal hydraulic motor seals leaking. 	<ul style="list-style-type: none"> a. Tighten hydraulic fittings. b. Replace hydraulic drive motor.
Engine starts but does not continue to run when using auxiliary attachment.	<ul style="list-style-type: none"> a. Operator steps off operator platform, operator presence system shuts engine off. b. Too much downward force is being applied to attachment, stalling engine. c. Power unit low on fuel. 	<ul style="list-style-type: none"> a. Remain on operator's platform with using any auxiliary attachment. b. Raise attachment slightly. c. Refuel power unit.
Poor auger performance, does not penetrate soil easily.	<ul style="list-style-type: none"> a. Worn outside teeth. The outside tooth on each auger blade must be square. 	<ul style="list-style-type: none"> a. Replace auger tooth

Section 4 – Service and Maintenance

WARNING

Hydraulic oil under pressure can penetrate body tissue causing serious injury and possible death. When troubleshooting a hydraulic system for leaks, always use cardboard or wood as a detector. **DO NOT USE YOUR BARE HANDS.** If you are injected with hydraulic oil or any other fluids, immediately seek treatment by a doctor trained in the treatment of penetrating fluid injuries.

Daily Maintenance and Inspection

1. Inspect all hoses and connections for damage or wear. Replace any item that is showing signs of damage.
2. Check outer auger teeth. Replace if the tooth is rounded off and not square.

Monthly Maintenance and Inspection

1. Check oil level in planetary auger drive. See Planetary Auger Drive Gear Oil Check and Replacement later in this section.

Annual Maintenance and Inspection

1. Drain lubricant from auger drive.
 - a. Position auger drive over a container.
 - b. Remove drain plug and allow all fluid to drain out of auger drive.

Hydraulic Drive Motor Replacement

If the hydraulic drive motor has failed, it needs to be replaced. To replace the hydraulic motor:

1. Mark both hydraulic fittings, hoses, and hydraulic motor ports so that when the unit is reassembled the hydraulic lines are installed on the correct ports.
2. Remove both hydraulic lines (Item 1, [Figure 1–15](#)) from the hydraulic motor fittings.
3. Remove both 90° fittings (Item 2, [Figure 1–15](#)) and O-rings (Item 3, [Figure 18](#)) from the hydraulic motor and set aside for reinstallation.

NOTE: Inspect the O-rings for signs of damage or wear. If any is noted, replace the O-rings.

4. Remove the two hydraulic motor mounting bolts (Item 1, [Figure 1–15](#)).

5. Remove the hydraulic motor (Item 5, **Figure 1-15**) from the top of the final gear drive (Item 7, **Figure 1-15**).

NOTE: Inspect the large O-ring (Item 6, **Figure 1-15**) for signs of wear or damage. If any is noted, replace the O-ring.

6. Install new hydraulic drive motor by reversing steps 2 thru 5.

NOTE: When installing the O-ring seals, lubricate the O-ring using a small amount of hydraulic fluid before reinstalling.

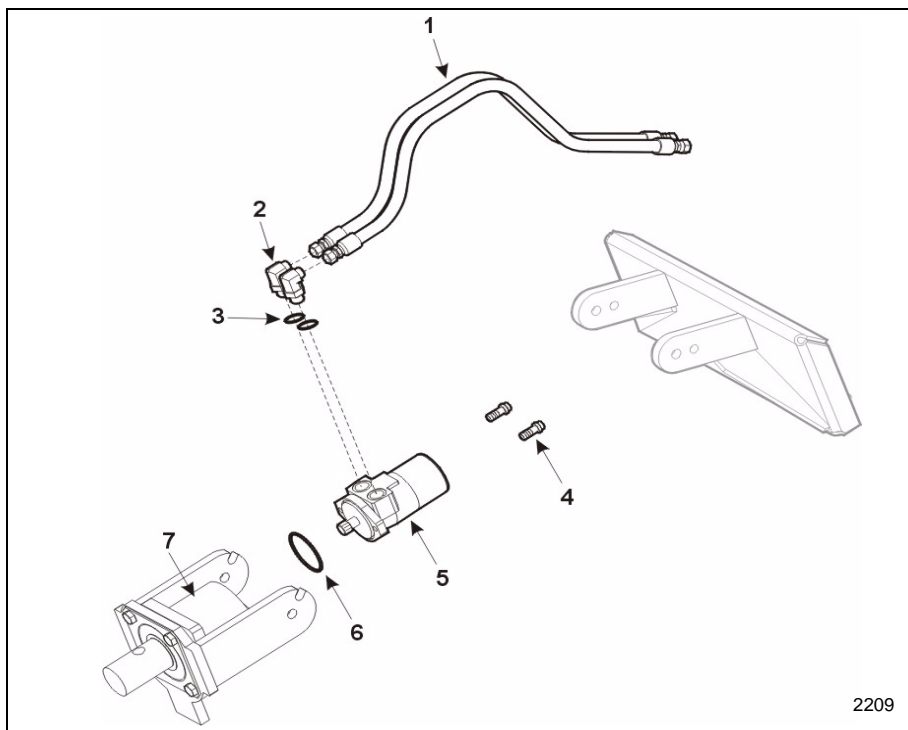


Figure 1-15 Hydraulic Drive Motor Removal

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Planetary Auger Drive Gear Oil Check

Position auger assembly in a perpendicular position.

Remove the oil drain plug (Item 1, **Figure 1–16**). Proper oil level should be at the bottom edge of the oil plug drain hole.

Add standard gear lube, SAE 80/130 until the level is at the bottom of the oil drain plug hole.

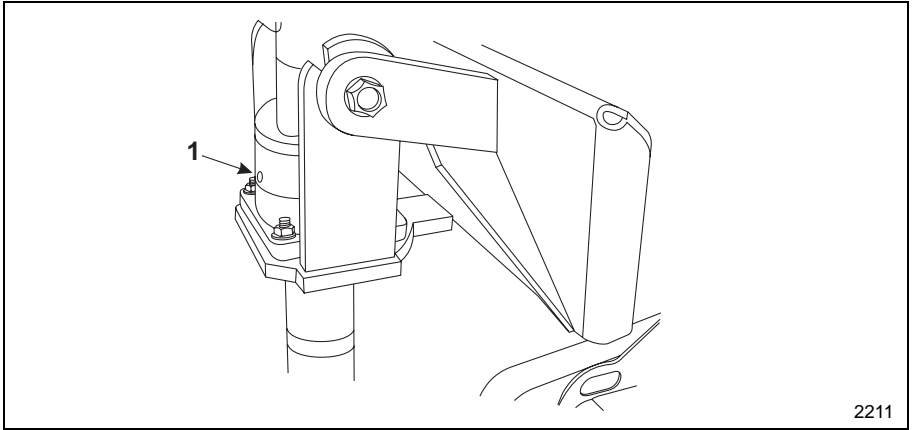


Figure 1–16 Oil Drain Plugs

Planetary Auger Drive Gear Oil Replacement

1. Position auger assembly in a perpendicular position.
2. Remove the both oil drain plugs (Item 1, **Figure 1–16**), located on the front and rear of the gear case.
3. Allow gear oil to drain from the gear case.
4. Using a gooseneck funnel, fill the gear case with SAE 80/130 gear oil through one of the oil drain ports.
5. Proper oil level should be at the bottom edge of the oil plug drain hole.
6. When the gear oil begins to drip out of the second oil drain port, stop filling and reinstall and secure both of the oil drain plugs.

Planetary Auger Drive Replacement

If the planetary auger drive has failed, it needs to be replaced. To replace the auger drive:

1. Separate the hydraulic drive motor (Item 1, [Figure 1-17](#)) and O-ring (Item 2, [Figure 1-17](#)) from the planetary auger drive (Item 4, [Figure 1-17](#)). See Hydraulic Motor Replacement earlier in this manual.
2. Remove the four bolts (Item 7, [Figure 1-17](#)) and nuts (Item 3, [Figure 1-17](#)), releasing the auger final drive from the auger mounting weldment (Item 5, [Figure 1-17](#)).

NOTE: The auger drive spacer (Item 6, [Figure 1-17](#)) will fall free. Keep this part for reassembly.

3. Install new auger final drive by reversing steps 1 and 2 above.

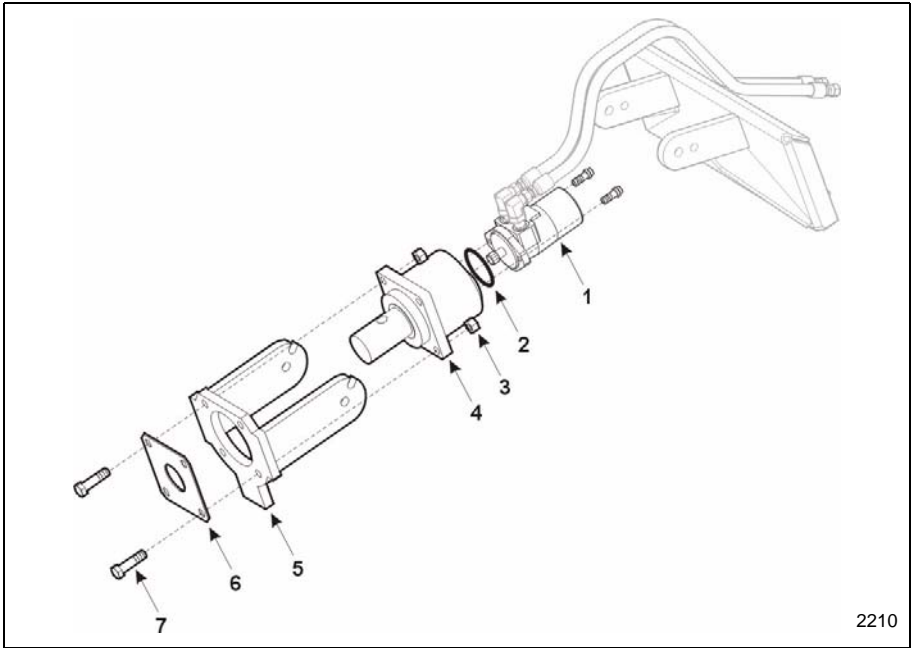


Figure 1-17 Replacing Auger Final Drive

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Part Number XXX-XXX