

DR[®] TOWABLE BACKHOE

SAFETY & OPERATING INSTRUCTIONS



Serial No. _____

Order No. _____

DR Power Equipment
Toll-free phone: 1-800-DR-OWNER (376-9637)
Fax: 1-802-877-1213
Website: www.DRpower.com



Read and understand this manual and all instructions before operating the DR TOWABLE BACKHOE.

Table of Contents

Chapter 1: General Safety Rules	3
Chapter 2: Setting Up The DR TOWABLE BACKHOE	8
Chapter 3: Operating The DR TOWABLE BACKHOE	12
Chapter 4: Maintaining The DR TOWABLE BACKHOE	19
Chapter 5: Troubleshooting	22
Chapter 6: DR TOWABLE BACKHOE Accessories	24
Chapter 7: Parts Lists, Schematic Diagrams And Warranty	26

Conventions used in this manual



This indicates a hazardous situation, which, if not followed, will result in death or serious injury.



This indicates a hazardous situation, which, if not avoided, could result in death or serious injury.



This indicates a hazardous situation, which, if not avoided, could result in minor or moderate injury.



This information is important in the proper use of your machine. Failure to follow this instruction could result in damage to your machine or property.

Serial Number and Order Number

A Serial Number is used to identify your machine and is located on the Serial Number Label on your machine. An Order Number is used to check and maintain your order history and is located on the upper left portion of your packing slip. For your convenience and ready reference, enter the Serial Number and Order Number in the space provided on the front cover of this manual.

Additional Information and Potential Changes

DR Power Equipment reserves the right to discontinue, change, and improve its products at any time without notice or obligation to the purchaser. The descriptions and specifications contained in this manual were in effect at printing. Equipment described within this manual may be optional. Some illustrations may not be applicable to your machine.

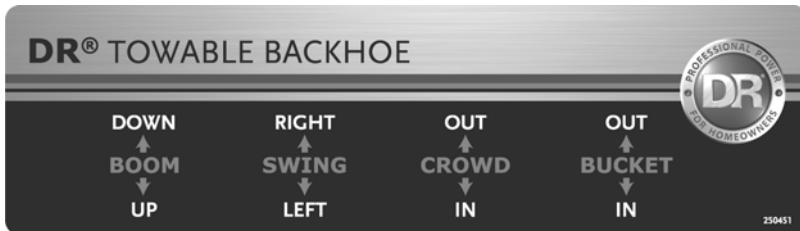
Chapter 1: General Safety Rules

! WARNING!

Read this safety & operating Instructions manual before you use the DR TOWABLE BACKHOE. Become familiar with the operation and service recommendations to ensure the best performance from your machine. If you have any questions or need assistance, please contact us at www.DRpower.com or call toll-free 1-800-DR-OWNER (376-9637) and one of our Technical Support Representatives will be happy to help you.

Labels

Your DR TOWABLE BACKHOE carries prominent labels as reminders for its proper and safe use. Shown below are copies of all the Safety and Information labels that appear on the equipment. Take a moment to study them and make a note of their location on your Backhoe as you set up and before you operate the unit. Replace damaged or missing safety and information labels immediately.



#256191

WARNING: Check Oil Before Starting Engine

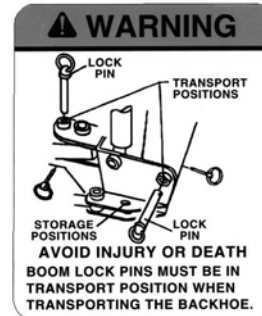
#137581

! WARNING
PINCH POINT

#250441

DR POWER EQUIPMENT
75 Meigs Road, Vergennes, VT 05491
1-800-DR-OWNER www.DRpower.com

#235451



#245871

! WARNING
TO AVOID INJURY OR DEATH
KEEP 15 FEET AWAY FROM BACKHOE WHEN IN USE

#245441

! WARNING
TO AVOID SEVERE INJURY
KEEP HANDS AND FEET AWAY FROM MOVING STABILIZERS

#245701

! WARNING
HIGH PRESSURE HYDRAULIC OIL LEAKS CAN PENETRATE SKIN
• CHECK FOR LEAKS WITH CARDBOARD; NEVER USE HAND.
• BEFORE LOOSENING FITTINGS: LOWER LOAD, RELEASE PRESSURE, AND BE SURE OIL IS COOL.
• CONSULT PHYSICIAN IMMEDIATELY IF SKIN PENETRATION OCCURS. SKIN PENETRATION CAN RESULT IN SERIOUS INJURY AND GANGRENE

#246041

! NOTICE!
DO NOT Overtighten the Hydraulic Fill Cap. It has tapered threads and will have about 1/2 inch of threads showing when it is installed properly. Overtightening will damage the fill cap. Tighten by hand only.

#257251

! WARNING
TO AVOID THE RISK OF ACCIDENTS, INJURY OR DEATH:

- READ OPERATOR'S MANUAL AND FOLLOW ALL SAFETY PRECAUTIONS.
- LOWER AND LOCK THE STABILIZERS ONTO FIRM GROUND BEFORE DIGGING.
- ALWAYS SIT IN BACKHOE OPERATOR'S SEAT WHEN OPERATING.
- KEEP BYSTANDERS AWAY FROM OPERATOR, STABILIZERS, AND MAXIMUM BUCKET SWING AREA.
- LOCATE AND AVOID CONTACTING ALL UNDERGROUND UTILITIES, OVERHEAD WIRES AND OTHER HAZARDS IN THE DIGGING AREA.
- DO NOT ALLOW RIDERS ON THE BACKHOE.
- MAKE SURE ALL SHIELDS AND GUARDS ARE PROPERLY INSTALLED.
- BEFORE LEAVING THE BACKHOE UNATTENDED, RAISE BOOM AND INSTALL BOOM AND SWING LOCK PINS AND SHUT ENGINE OFF.
- BOOM LOCK AND SWING LOCK PINS MUST BE INSTALLED BEFORE TRANSPORTING THE BACKHOE.

#245851

Protecting Yourself and Those Around You

WARNING!

This is a high-powered machine, with moving parts operating with high energy. You must operate the machine safely. Unsafe operation can create a number of hazards for you, as well as anyone else in the nearby area. Always take the following precautions when using this machine:

- Keep in mind that the operator or user is responsible for accidents or hazards occurring to other people, their property, and themselves.
- Always wear protective goggles or safety glasses with side shields while using the backhoe to protect your eyes from possible thrown debris.
- Avoid wearing loose clothing or jewelry, which can catch on moving parts.
- We recommend wearing gloves while using the backhoe. Be sure your gloves fit properly and do not have loose cuffs or drawstrings.
- Wear shoes with non-slip treads when using your backhoe. If you have safety shoes, we recommend wearing them. Do not use the machine while barefoot or wearing open sandals.
- Wear long pants while operating the backhoe.
- Use ear protectors or ear plugs rated for at least 20 dba to protect your hearing.
- Keep bystanders at least 100 feet away from your work area at all times. Lower the bucket and stop the engine when another person or pet approaches.
- Position a barricade around the work area.
- Never allow a person to work under a raised bucket.
- Never lift a person with the backhoe.

Safety for Children and Pets

WARNING!

Tragic accidents can occur if the operator is not alert to the presence of children and pets. Children are often attracted to the machine and the digging activity. *Never* assume that children will remain where you last saw them. Always follow these precautions:

- Keep children and pets at least 100 feet from the working area and ensure they are under the watchful care of a responsible adult.
- Be alert and turn the machine off if children or pets enter the work area.
- Never allow children to operate the backhoe.

Safety with Gasoline - Powered Machines

WARNING!

Gasoline is a highly flammable liquid. Gasoline also gives off flammable vapor that can be easily ignited and cause a fire or explosion. Never overlook the hazards of gasoline. Always follow these precautions:

- Never run the engine in an enclosed area or without proper ventilation as the exhaust from the engine contains carbon monoxide, which is an odorless, tasteless, and deadly poisonous gas.
- Store all fuel and oil in containers specifically designed and approved for this purpose and keep away from heat and open flame, and out of the reach of children.
- Replace rubber fuel lines and grommets when worn or damaged and after 5 years of use.
- Fill the gasoline tank outdoors with the engine off and allow the engine to cool completely. Don't handle gasoline if you or anyone nearby is smoking, or if you're near anything that could cause it to ignite or explode. Reinstall the fuel tank Cap and fuel container cap securely.

! WARNING!

- If you spill gasoline, do not attempt to start the engine. Move the machine away from the area of the spill and avoid creating any source of ignition until the gas vapors have dissipated. Wipe up any spilled fuel to prevent a fire hazard and properly dispose of the waste.
 - Allow the engine to cool completely before storing in any enclosure. Never store a machine that has gas in the tank, or a fuel container, near an open flame or spark such as a water heater, space heater, clothes dryer or furnace.
 - Never make adjustments or repairs with the engine running. Shut down the engine, disconnect the spark plug wire, keeping it away from the spark plug to prevent accidental starting, wait 5 minutes before making adjustments or repairs.
 - Never tamper with the engine's governor setting. The governor controls the maximum safe operation speed and protects the engine. Over-speeding the engine is dangerous and will cause damage to the engine and to the other moving parts of the machine. If required, see your authorized dealer for engine governor adjustments.
 - Keep combustible substances away from the engine when it is hot.
 - Never cover the machine while the muffler is still hot.
 - Do not operate the engine with the air cleaner or the carburetor air intake cover removed. Removal of such parts could create a fire hazard. Do not use flammable solutions to clean the air filter.
 - The muffler and engine become very hot and can cause a severe burn; do not touch.
-

Hydraulic Safety

! WARNING!

High fluid pressures are developed in hydraulic machines. Pressurized hydraulic fluid escaping through a pin hole opening can puncture skin and cause severe blood poisoning. Therefore, the following Instructions should be heeded at all times.

- Do not operate the unit with frayed, kinked, cracked or damaged hoses, fittings, or tubing. Stop the engine, wait 5 minutes and relieve hydraulic system pressure before changing or adjusting fittings, hoses, tubing, or other system components.
 - Do not change any backhoe relief valve settings. They are set at the factory for best backhoe performance and safety.
 - Do not check for leaks with your hand. Leaks can be located by passing cardboard or wood over the suspected area: Look for discoloration. If injured by escaping fluid, see a doctor at once. Serious infection or reaction can develop if proper medical treatment is not administered immediately.
 - Always wear safety glasses to protect your eyes from hydraulic fluid.
-

Safety When Digging Near Utilities

! DANGER!

Call 811 before you begin any digging project. A new, federally-mandated national "Call Before You Dig" number, 811 was created to help protect you from unintentionally hitting underground utilities while working on digging projects. Every digging job requires a call. If you hit an underground utility line while digging, you can harm yourself or those around you, disrupt service and potentially be responsible for fines and repair costs.

- There may be buried power, gas, and/or telephone lines in the work area. Electric shock, death, or explosion may occur.
 - Have the property or work area marked for buried lines and do not dig in marked areas.
 - There may also be overhead power lines in the work area. electric shock or death may occur if a power line is touched by the backhoe.
 - Survey and mark the area where there are overhead power lines and dig with caution under power lines to ensure that you do not touch them with the backhoe.
-

Towing

WARNING!

- ALWAYS check before towing to make certain your backhoe is correctly and securely attached to the towing vehicle. Be sure that the ball hitch you are using is the proper size for the hitch coupler on the backhoe. Be sure the safety chains are properly hooked to the vehicle leaving enough slack for turning.
- ALWAYS install the swing and boom transport hitch pins and lynch pins before transporting the backhoe.
- ALWAYS use accessory lights and devices when transporting on a road or highway to warn operators of other vehicles. Check your local government regulations for DOT information.
- ALWAYS allow for added length of the backhoe when turning, parking, crossing intersections, and in all driving situations.
- ALWAYS be careful when backing up. You could jackknife your backhoe if care is not taken.
- NEVER exceed 45 mph. when towing your backhoe. Obey all state and local regulations when towing on state and local roads and highways. Adjust your speed for terrain and conditions, as needed. Be extra cautious when towing over rough terrain, especially over a railroad crossing.
- NEVER allow anyone to sit or ride on your backhoe.
- NEVER carry any cargo on your backhoe.
- Do travel slowly over rough terrain, on hillsides, and around curves to prevent tipping.
- Do not tow the backhoe near the edge of a ditch or excavation.

General Safety

WARNING!

Operating this backhoe safely is necessary to prevent or minimize the risk of death or serious injury. Unsafe operation can create a number of hazards for you. Always take the following precautions when operating this backhoe:

- Your backhoe is a powerful tool, not a plaything. Exercise extreme caution at all times. The machine is designed to dig. Do not use it for any other purpose.
- Know how to stop the backhoe quickly; see “stopping the engine” in chapter 4.
- Operate this machine on a level surface only. Never operate your unit on a slippery, wet, muddy, or icy surface. Exercise caution to avoid slipping or falling.
- Never dig with the backhoe unless the stabilizers are properly set or the Backhoe could tip forward.
- Be sure the area is clear of underground obstructions. Call “811” before you dig.
- See manufacturer’s instructions for proper operation and installation of accessories. Only use accessories approved by DR Power Equipment.
- Never use the machine without ensuring that all guards and shields are in place.
- Never, under any conditions, remove, bend, cut, fit, weld, or otherwise alter standard parts on the backhoe. This includes all shields and guards. Modifications to your machine could cause personal injuries and property damage and will void your warranty.
- Always operate the backhoe from the operator seat only.
- Allow only one person to operate the backhoe at any time.
- Do not dig under the stabilizers. Soft ground or sandy soil can cause cave-ins.
- Do not use the backhoe bucket as a battering ram.
- Always lower the bucket to the ground before leaving the operator’s seat.
- Never leave the backhoe with the engine running. Stop the engine by turning the ignition switch to “off”.
- Use the steps provided when climbing on or off the backhoe to prevent slipping.
- If the machine should start making an unusual noise or vibration, shut down the engine, disconnect the spark plug wire, keeping it away from the spark plug to prevent accidental starting, wait 5 minutes, then inspect for damage. Vibration is generally a warning of trouble. Check for damaged parts and clean, repair and/or replace as necessary.
- Never tamper with safety devices. Check their proper operation regularly.

! WARNING!

- Before performing any maintenance/inspection procedure or before leaving the backhoe unattended, raise and center the boom, lower the crowd arm, pull in the bucket, adjust the throttle control lever to idle, turn the ignition switch to “off”, remove the spark plug wire, and install the swing and boom transport hitch pins and lynch pins.
 - Never allow people who are unfamiliar with these instructions to use the backhoe. Allow only responsible individuals who are familiar with these rules of safe operation to use your machine.
 - Never overload or attempt to move material beyond the manufacturer’s recommendation. Personal injury or damage to the machine could result.
 - While using the backhoe, don't hurry or take things for granted. When in doubt about the equipment or your surroundings, stop the machine and take the time to look things over.
 - Never operate the machine when under the influence of alcohol, drugs, or medication.
 - Use the machine only in daylight.
 - Stay alert for hidden hazards or traffic.
 - Keep all nuts and bolts tight and keep the equipment in good operating condition.
-

A Note to All Users

Under California law, and the laws of some other states, you are not permitted to operate an internal combustion engine using hydrocarbon fuels without an engine spark arrester. This also applies to operation on US Forest Lands. All DR® TOWABLE BACKHOES shipped to California, New Mexico and Washington State are provided with spark arresters. Failure of the owner or operator to maintain this equipment in compliance with state regulations is a misdemeanor under California law and may be in violation of other state and/or federal regulations. Contact your State Park Association or the appropriate state organization for specific information in your area.

No list of warnings and cautions can be all-inclusive. If situations occur that are not covered by this manual, the operator must apply common sense and operate this DR TOWABLE BACKHOE in a safe manner. Contact us at www.DRpower.com or call 1-800-DR-OWNER (376-9637) for assistance.

Chapter 2: Setting Up The DR TOWABLE BACKHOE

It may be helpful to familiarize yourself with the controls and features of your DR TOWABLE BACKHOE as shown in **Figure 1** before beginning these procedures. If you have any questions at all, please feel free to contact us at www.DRpower.com.

DR TOWABLE BACKHOE

Controls and Features

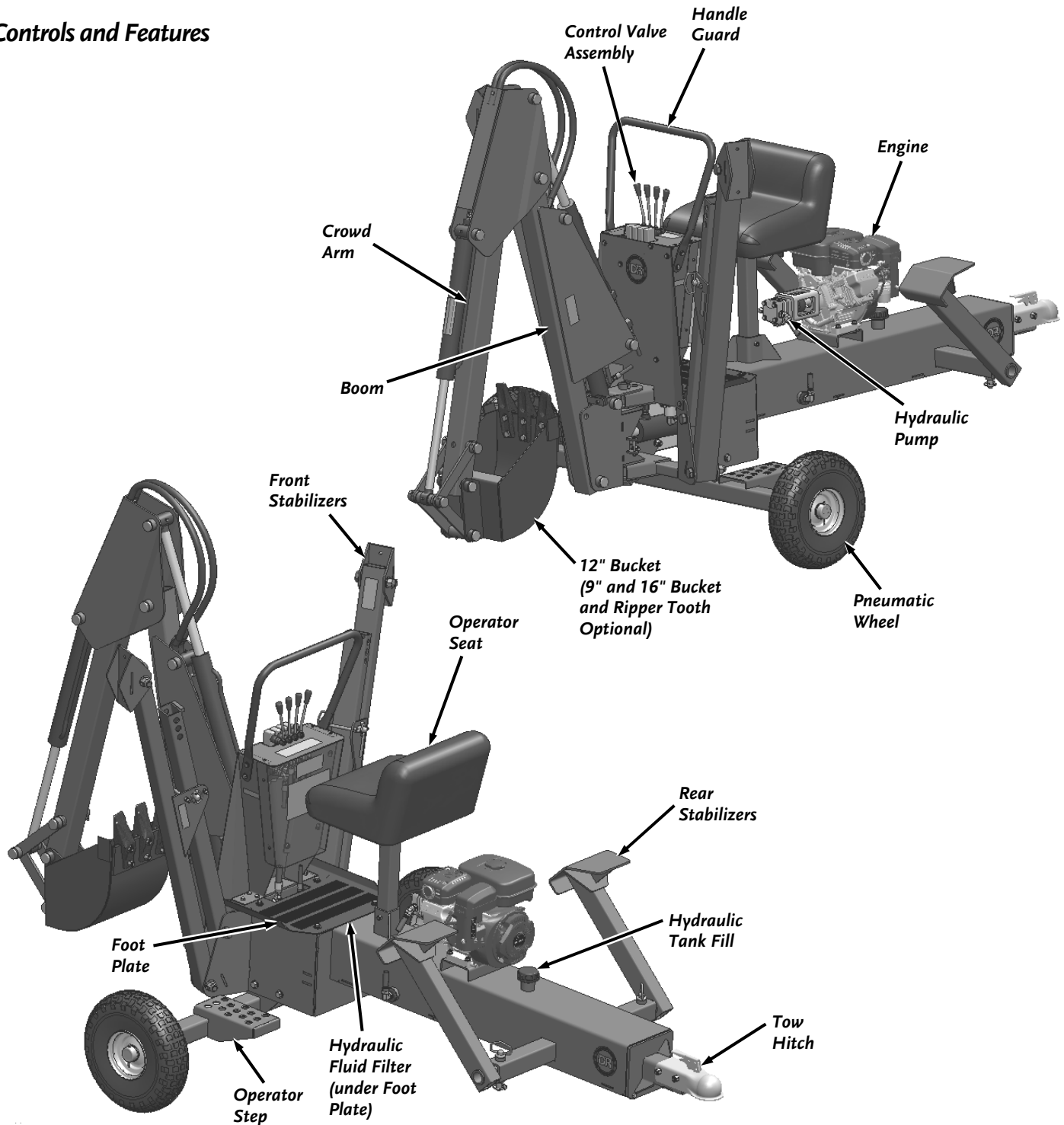


Figure 1

Specifications

MECHANICAL SPECIFICATIONS

Engine	6HP Subaru Manual-Start	9HP Subaru Manual-Start
Displacement	169cc	265cc
Max. HP	6 (4.5 kW)/4000 rpm	9 (6.71 kW)/4000 rpm
Torque	8.34 ft. lbs. (11.3 N.m.)/2500 rpm	13.74 ft. lbs. (13.74 Nm)/2500 rpm
Fuel Capacity	.90 Gallons (3.4 Liters)	1.59 Gallons (6.1 Liters)
Oil Capacity	1.3 pints (0.60 Liter)	33.8 oz. (1.0 Liter)
Tire Size	4.80/4.00-8 Pneumatic	4.80/4.00-8 Pneumatic
Digging Depth	76.5"	76.5"
Horizontal Reach	104.5"	104.5"
Bucket Size - Standard	12"	12"
Max. Digging Radius	128 degrees	128 degrees
Lubrication	15 Grease Fittings at pivot points	15 Grease Fittings at pivot points
Bucket Rotation	148 degrees	148 degrees
Tow Ball Size	2" Ball	2" Ball
Towing Speed	45 mph maximum	45 mph maximum
Front Stabilizers Width	Down 116"/Up 53"	Down 116"/Up 53"
Dry Weight	920 lbs.	932 lbs
Operating Weight	965 lbs.	977.lbs
Shipping Dimensions	101" l x 69" w x 69" h	101" l x 69" w x 69" h
Shipping Weight	940 lbs.	952

HYDRAULIC SPECIFICATIONS

Hydraulic Tank	8.5 gallons (maximum recommended)
Hydraulic System	9.4 gallon (including tank, cylinder, hoses, filter)
Hydraulic Fluid Filter	Spin-on type
Fluid Strainer	In-tank suction strainer
Gear Pump	Single stage, 2.788 gallons per minute
Hydraulic Fluid	Universal Hydraulic Fluid (ISO 32)

Unpacking the Backhoe

Tools Needed:

- Utility Knife
1. Cut the Plastic Wrap from the Backhoe and remove all cardboard.
 2. Cut all Plastic Straps that are securing the Boom and Bucket.

Adding Oil and Gasoline

Engine Oil	SAE 30: above 40 degrees F; 10w-30: 10-90 degrees F; 5w-30: 40 degrees F or below
Fuel	Unleaded gasoline

! NOTICE!

- You must add oil before starting the engine. This machine is shipped without oil. Traces of oil may be in the reservoir from factory testing, but you must add oil before starting the engine. Fill the reservoir slowly, checking the level frequently to avoid overfilling.
- To get an accurate reading when checking the oil level:
 - the machine should be on a level surface.
 - the dipstick should not be screwed down to ensure an accurate oil level reading.

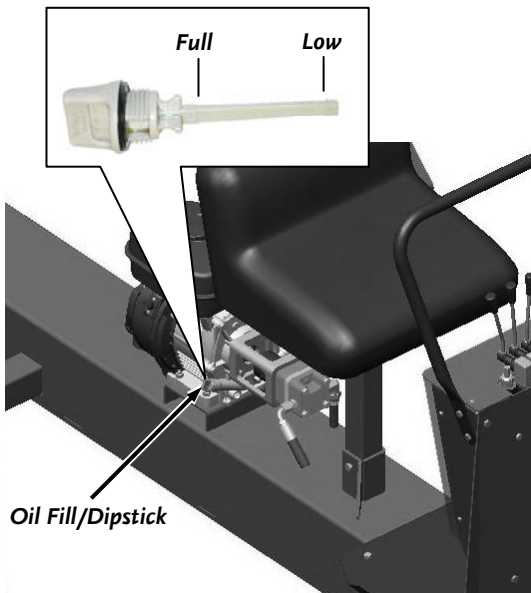


Figure 2

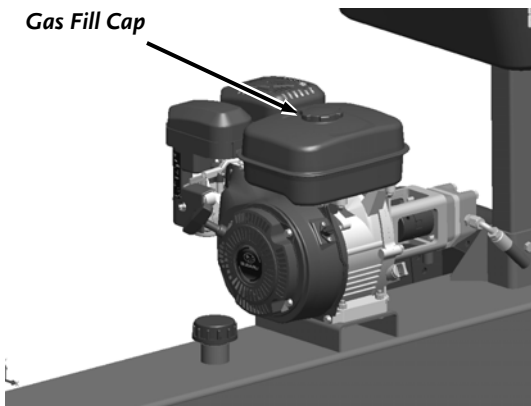


Figure 3

NOTE: Use only the recommended high detergent engine oil. Other types of oil could cause problems operating your machine. Please refer to your Engine Owner's Manual for detailed oil information.

1. Place the machine on a level surface, remove the Oil Fill/Dipstick (**Figure 2**) and clean the end of it with a rag.
2. Machines are shipped with no oil. Initially add 16 oz. of the oil recommended by the Engine Manufacturer. Wait one minute for the oil to settle.
3. Replace the Dipstick, but **DO NOT** screw it in, to ensure an accurate reading and then remove it to check the oil level (clean the Dipstick with the rag after checking).
4. Continue adding a few ounces of oil at a time, rechecking the Dipstick until the oil reaches the fill mark. Be careful not to overfill.
5. Replace the Dipstick and screw all the way down when full.
6. Remove the Gas Fill Cap and fill the Gas Tank with fresh, unleaded gas (with a minimum of 85 Octane) to approximately 1" to 1-1/2" below the top of the fill neck to allow for fuel expansion (**Figure 3**). Be careful not to overfill and reinstall the Gas Fill Cap before starting the engine. See your Engine Owner's Manual for more detailed information.

NOTE: To refill the gas tank, turn the engine OFF and let the engine cool at least five minutes before removing the gas fill cap.

Adding Hydraulic Fluid

NOTICE!

- You must add hydraulic fluid before using the backhoe. This machine is shipped without hydraulic fluid in the hydraulic tank. Fill the hydraulic tank slowly, checking the level frequently to avoid overfilling.
- To get an accurate reading when checking the hydraulic fluid level:
 - the machine should be on a level surface.
 - the dipstick should be screwed on to ensure an accurate fluid level reading.

TIP: Check the Fluid level by removing the Hydraulic Fluid Filler Cap and wiping the steel rod of the Dipstick with a clean Rag or Paper Towel. Reinsert and tighten the Cap to the proper position (1-3/4" from the bottom of the Cap to the top of the Tank) (**Figure 4**). Remove the Cap and lay the Steel Rod onto a dry Paper Towel or Rag and read the level by the wet mark that is transferred from the Steel Rod to the Rag.

1. Remove the Hydraulic Fluid Fill Cap Dipstick and fill the Hydraulic Tank with the recommended fluid (see the "Specifications" section, page 2).

NOTE: The tank is full when the fluid level is within the recommended level on the Dipstick. The recommended level is in the middle (2-3/8" up from the bottom) of the Steel Rod. Do not deviate more than 1/2" up or down from that point. If the fluid level is not within this range, fluid must be added or removed to bring it within that range.

NOTE: The total hydraulic system fluid capacity is 9.4 gallons. The operator should initially only need to add about 8 gallons before checking the level because some fluid has already been added to the Cylinders.

Check the Tire Pressure

Tools Needed:

- Tire Pressure Gauge
 - Air Compressor
1. Remove the Valve Stem Protective Cap (**Figure 5**) and check the tire pressure with a Tire Pressure Gauge.
 2. Check what the manufacturers recommended pressure is that is stamped on the side of the Tire.
 3. If the pressure is too low, add air through the Valve Stem with an air hose.
 4. Replace the Valve Stem Protective Cap when finished.

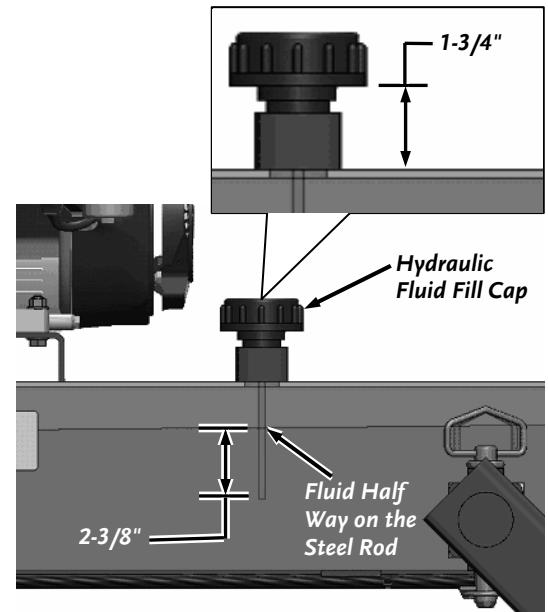


Figure 4

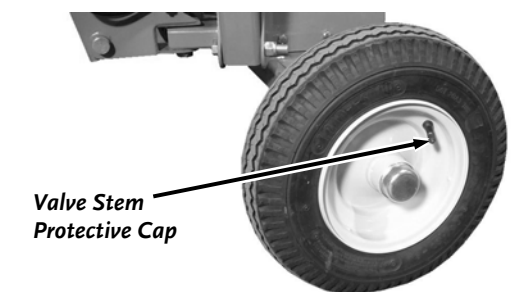


Figure 5

WARNING!

Do not over inflate the tires. Inflate to the manufacturers recommended pressure found on the tires.

Chapter 3: Operating The DR TOWABLE BACKHOE

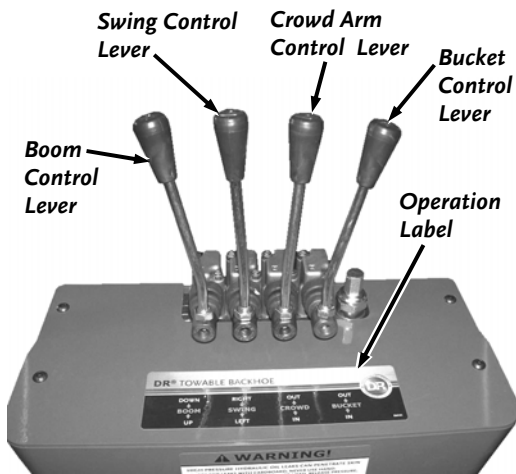


Figure 6

It may be helpful to better familiarize yourself with the features of your Backhoe by reviewing **Figure 1** in Chapter 2 before beginning the steps outlined in this chapter.

! DANGER!

Read and understand the dangers listed in the “Safety When Digging Near Utilities” section in “Chapter 2 General Safety Rules” before operating this Backhoe.

! WARNING!

Read and understand all warnings listed in “Chapter 2 General Safety Rules” before operating this backhoe.

Control Levers

1. Familiarize yourself with all of the Control Levers (**Figure 6**) and all of their functions by studying the Operation Label before operating the Backhoe. Figure 7 shows the Joystick option.

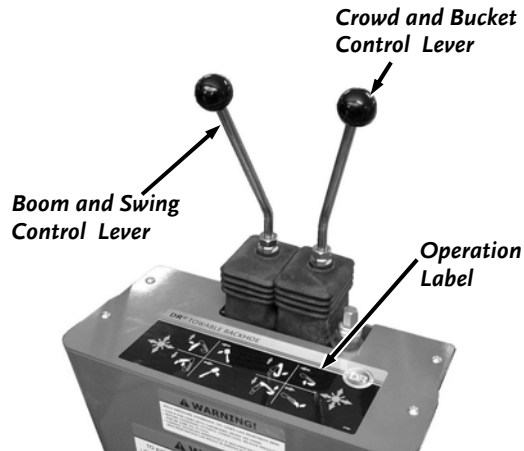


Figure 7

Starting the Engine

1. Turn the Ignition Switch to the “ON” position (**Figure 8**).
2. Make sure the Fuel Shut-off is in the “OPEN” position (**Figure 9**).

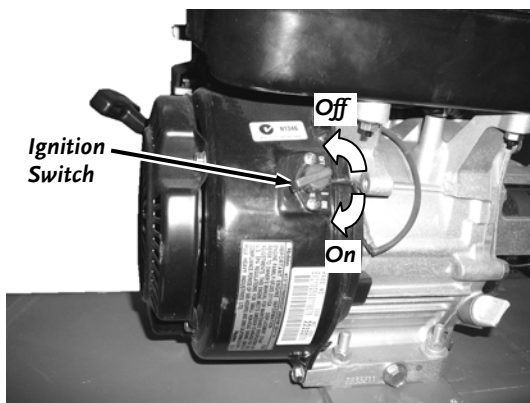


Figure 8

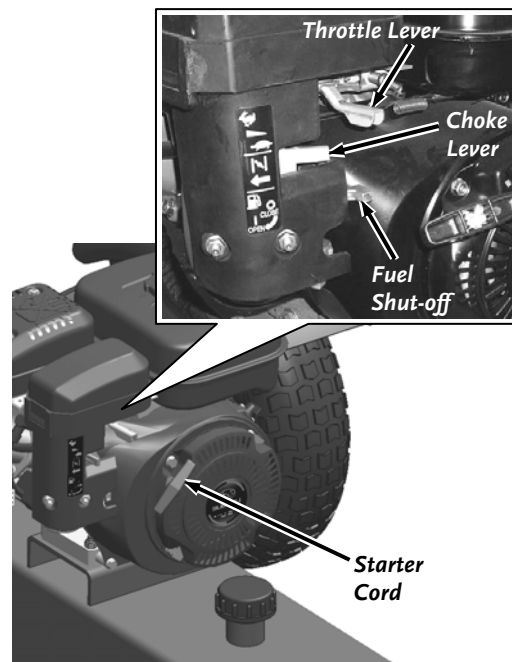


Figure 9

3. Move the Choke Control Lever to the left to the choke position (leave in the run position to the right if the engine is already warm).
4. Move the Throttle Control Lever to about half way between Slow and Fast position.
5. Slowly pull the Starter Cord until you feel resistance, then pull quickly. The Cord will recoil back into position.
6. As the engine warms up, slowly adjust the Choke to the right towards the run position. Wait until the engine runs smoothly before each Choke adjustment.
7. When the Engine is warmed up and running smoothly with the Choke in the run position, move the Throttle Control Lever to the appropriate position for operating the Backhoe.

Stopping the Engine

1. Slowly move the Throttle Control Lever to the idle position (**Figure 9**).
2. Turn the Ignition Switch to the "Off" position (**Figure 8**).

Stabilizing the Backhoe before Digging

! WARNING!

Never operate the Backhoe controls unless the front and rear stabilizers are locked in the down position.

A. LOWERING THE REAR STABILIZERS

1. Pull the Rear Stabilizer Lynch-Pin from the Hitch pin and remove the Hitch Pin (**Figure 10**).
2. Rotate the Rear Stabilizer towards the Tow Hitch until the Stabilizer is in the down position and the holes line up to allow you to reinstall the Hitch Pin. Secure the Hitch Pin with the Lynch Pin.
3. Repeat for the other Rear Stabilizer.
4. Unhook the Safety Chains and unlatch the Locking Trigger of the Latch Assembly (**Figure 11**).
5. Rotate the Latch Assembly up then lift the Tow Hitch from the Vehicle Tow Ball.
6. Move the Tow Hitch Assembly to the side and set the Backhoe down onto the Rear Stabilizers.

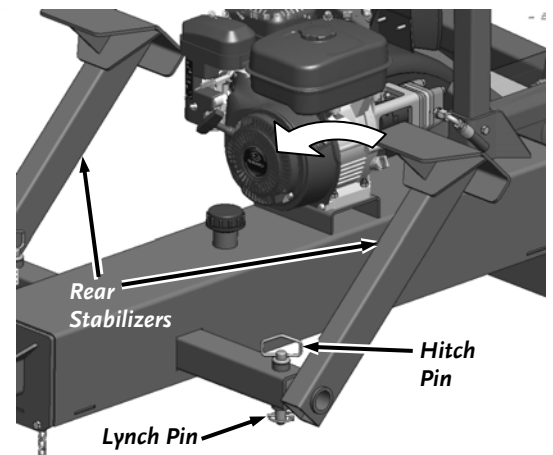


Figure 10

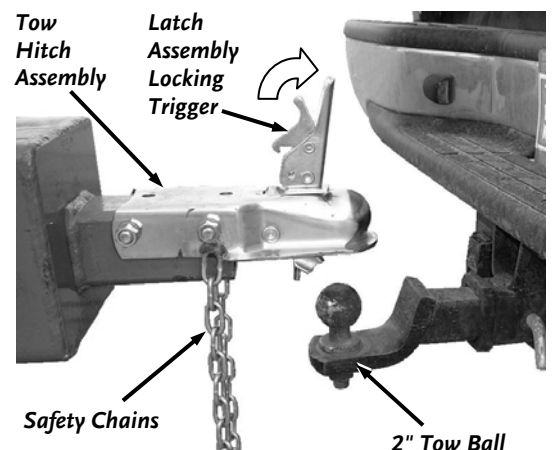


Figure 11



Figure 12

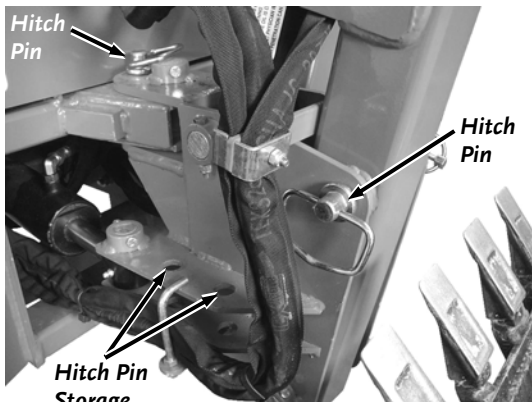


Figure 13

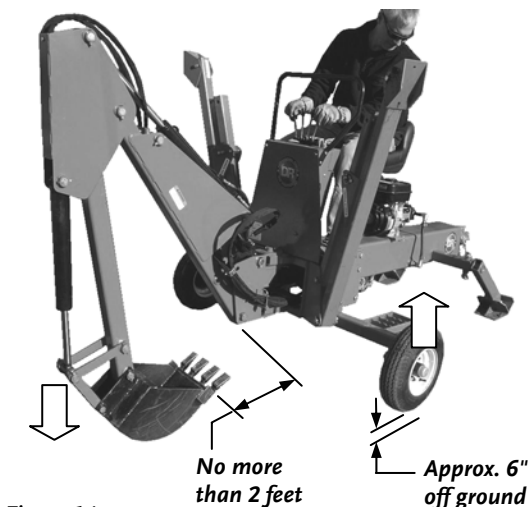


Figure 14

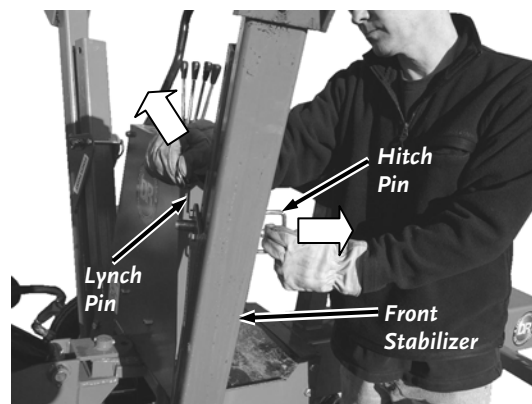


Figure 15

B. LOWERING THE FRONT STABILIZERS

! WARNING!

When the front stabilizers are lowered or raised there is a hazard of pinching your hands. Keep your hands clear of the pinch point areas as indicated by the labels.

1. Start the Engine as instructed in the "Starting the Engine" section in this chapter.

NOTE: Refer to Figures 6 and 7 for Control Lever functions. Adjust the Throttle to just above idle for this procedure to improve control (slower movement).

2. Pull back on the Boom Control Lever until you see the Boom move towards you (**Figure 12**). When the Boom is moved to this position, pressure is removed from the Boom Hitch Pin.
3. Remove the Lynch Pins from the two travel location Hitch Pins and remove the Hitch Pins from the Boom and Swivel (**Figure 13**) (the Pin for the swivel may already be removed if you are setting up your Backhoe for the first time).
4. Install the two Hitch Pins into the storage holes in the Swivel and secure with the Lynch Pins.

! WARNING!

When raising or lowering the Front Stabilizers do not position the Bucket out more than 2 feet from the Swing Pivot when lifting the front of the Backhoe (**Figure 14**) as this may cause the machine to tip forward.

5. Center the Boom and slowly lower the Bucket to the ground to lift the front of the Backhoe up until the Wheels are about 6" off the ground (**Figure 14**).
6. Leave the Backhoe in this position and carefully get off the Backhoe and shut down the engine.
7. Pull the Lynch-Pin of one of the Front Stabilizers from the Hitch pin and remove the Hitch Pin (**Figure 15**).
8. Lower the Front Stabilizer to the ground.

NOTE: Insert the Hitch Pin into the center hole of the Stabilizers for standard use to keep the Hydraulic Tank level. Adjust to the holes on either side of the center hole to keep the Tank level as needed.

9. Line up the holes in the Front Stabilizer and insert the Hitch Pin. Secure the Hitch Pin with the Lynch Pin (**Figure 16**).
10. Repeat the last three steps for the other Front Stabilizer.
11. Start the Backhoe engine and get into the Operator seat. Raise the Boom to lower the Backhoe onto the Front Stabilizers (**Figure 17**).

C. PRIMING THE SYSTEM

NOTE: When using the Backhoe for the first time after initial setup, you should first cycle the Hydraulic Fluid through the cylinders to remove any air that might be in the system (see the following steps). Recheck the Hydraulic Fluid Fill Cap Dipstick and add fluid as needed.

1. Push the Swing Control Lever slowly all the way forward and pull all the way back four to six times.
2. Push the Bucket Control Lever slowly all the way forward and pull all the way back four to six times.
3. Push the Crowd Arm Control Lever slowly all the way forward and pull all the way back four to six times.
4. Push the Boom Control Lever slowly forward to slowly lower the Boom.
5. Pull the Boom Control Lever slowly all the way forward and all the way back four to six times.

Digging with the Backhoe

It is not difficult (but it does take practice) to become an efficient operator. A control lever operating decal is located just under the control levers. Study this decal; it will help you become familiar with the controls. See Figures 6 and 7 for control locations and functions.

Smooth, light handling of the controls will result in the most efficient machine operation. Operate the backhoe control levers to become familiar with their speed and movements. The engine speed will determine the speed of the cylinder operation. Slower Engine speed means slower Boom, Swing Arm and Bucket movements.

Swing the boom several times to practice controlling the speed of the swing.

Best results are obtained by digging near the center of the swing arc so material can be dumped to either side.

CAUTION!

To avoid damage to the Backhoe, do not slam the swing unit into the end of the swing cylinder stroke.

Bucket Digging

WARNING!

Never dig with the Backhoe unless all Stabilizers are down and pinned securely.

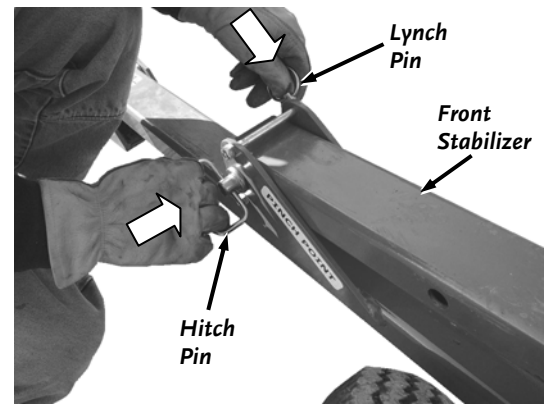


Figure 16



Figure 17

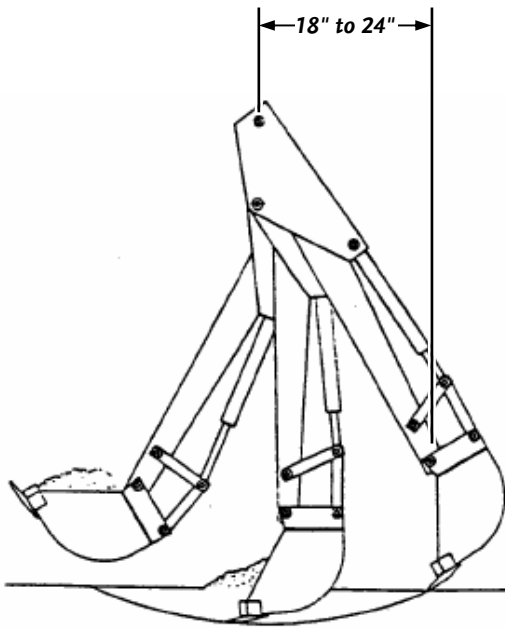


Figure 18

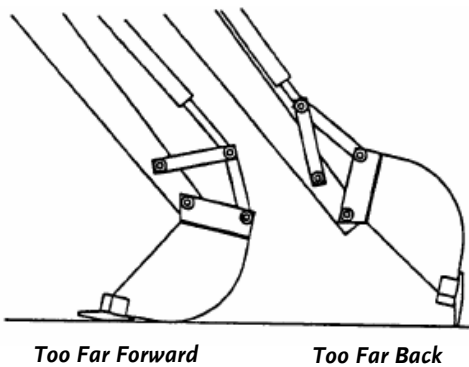


Figure 19

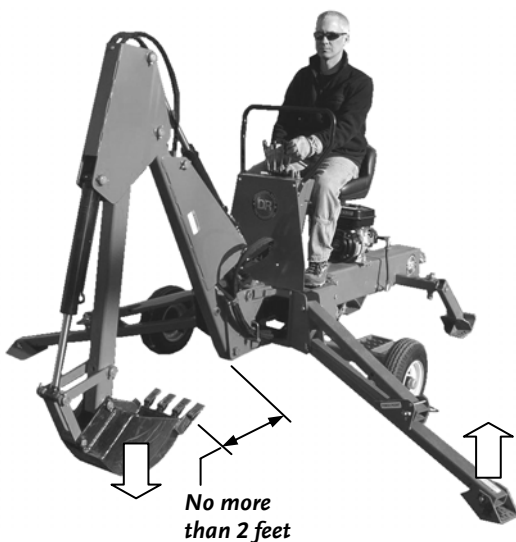


Figure 20

1. Lower the Bucket to the digging area with the Bucket pivot 18" to 24" forward of the Boom/Crowd Arm pivot (**Figure 18**).

NOTE: It is important for the Bucket to be in the proper position for digging efficiency. The Bucket will not dig as well if you attempt to dig with the Bucket in the wrong position, tilted too far forward or too far back (**Figure 19**).

2. Using down pressure on the Bucket bottom, force the Bucket into the ground.
3. With the Bucket in the ground, simultaneously retract the Crowd Arm and load the Bucket until it is full (**Figure 18**).
4. If the Bucket stalls, raise the Boom slightly and continue to dig until the Bucket is full.
5. Raise the Bucket to the top of the trench and dump it on the spoil pile.
6. When lifting the loaded Bucket high, continue rolling the Bucket in as it is being raised to prevent spilling the contents.

NOTE: With a little practice, raising, swinging, and dumping can be accomplished in one smooth operation.

Crowd Arm Digging

1. Lower the Bucket to the digging area with the Bucket pivot 18" to 24" forward of the Boom/Crowd Arm pivot.
2. Rotate the Bucket until the cutting edge teeth are flat on the ground.
3. Using only the Crowd Arm Control Lever, retract the Crowd Arm, dragging the Bucket through the trench until it is about half full. Roll the Bucket as you continue to retract the Crowd Arm.
4. Raise the Bucket and swing the Boom until the Bucket can be dumped in the spoil area.

Preparing the Backhoe for Moving/Towing

! WARNING!

When raising or lowering the Front Stabilizers do not position the Bucket out more than 2 feet from the Swing Pivot when lifting the front of the Backhoe (**Figure 20**) as this may cause the machine to tip forward.

1. Lift the front of the Backhoe by lowering the Boom until the Front Stabilizers lift slightly off the ground (**Figure 20**).
2. Move the Throttle Lever to the idle position (**Figure 9**) and turn the Ignition Switch of the Engine to the "OFF" position (**Figure 8**).

! WARNING!

When the front stabilizers are lowered or raised there is a hazard of pinching your hands. Keep your hands clear of the pinch point areas as indicated by the labels.

3. Pull the Front Stabilizer Lynch-Pins from the Hitch pins and remove the Hitch Pins (**Figure 21**).
4. Raise the Front Stabilizers to the Vertical position (**Figure 22**).
5. Line up the holes in the Front Stabilizers and insert the Hitch Pins. Secure the Hitch Pins with the Lynch Pins.
6. Start the Backhoe Engine and raise the Boom to lower the Backhoe onto the Wheels (**Figure 23**).
7. Use the Controls to center and pull in the Boom, pull the Crowd arm all the way towards you, and pull the Bucket in. This will line up the holes for the next step.

NOTE: You may need to check that the holes are aligned properly before you shut down the Engine.

8. Move the Throttle Control Lever to the idle position and turn the Engine Ignition Switch to "OFF".
9. Remove the Lynch Pins from the Hitch Pins and then remove the two Hitch Pins from the storage area. Install the Hitch Pins into their positions (**Figure 24**).
10. Insert the Lynch Pins into the Hitch Pins and secure them by snapping the Lynch Pin Ring over the Hitch Pin (**Figure 25**).
11. Rotate the Latch Assembly up and lift the Hitch Coupler of the Backhoe onto the tow vehicle's Tow Ball (must be a 2" tow ball) (**Figure 26**).

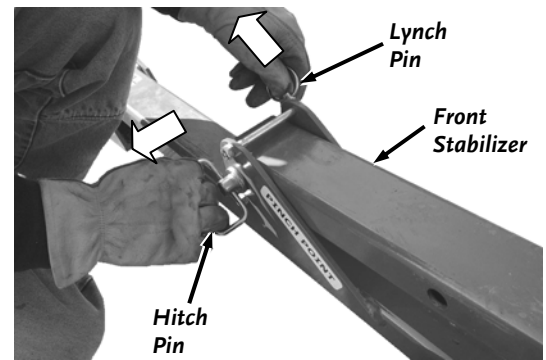


Figure 21

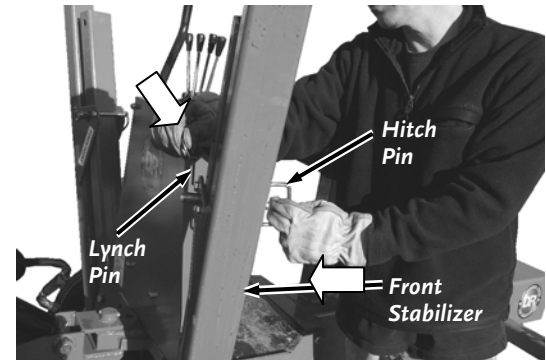


Figure 22

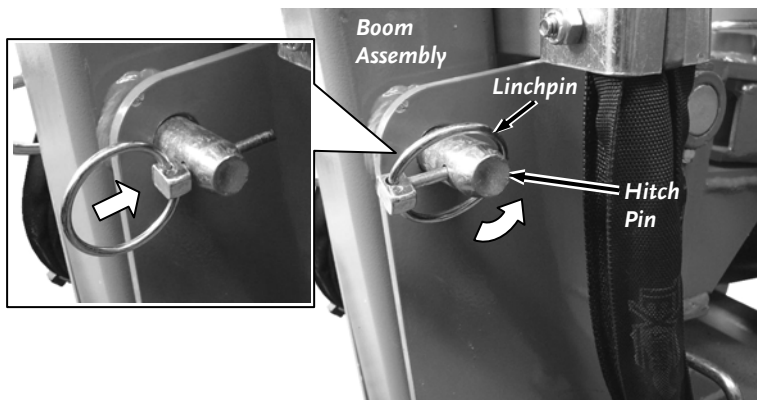


Figure 25



Figure 23

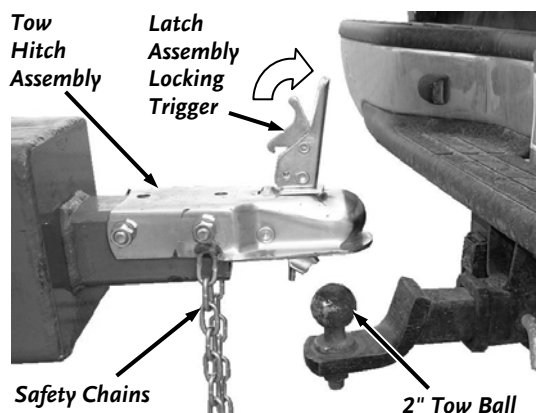


Figure 26

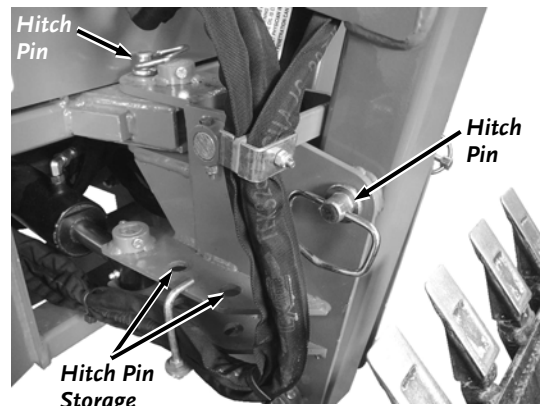


Figure 24

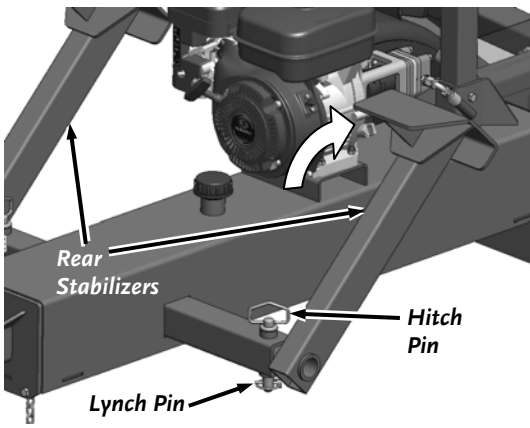


Figure 27

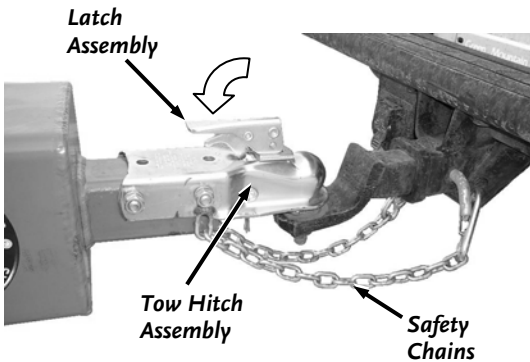


Figure 28

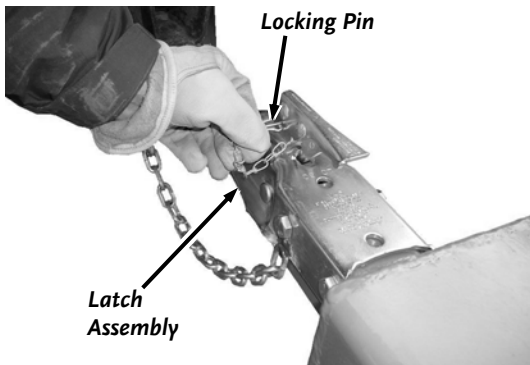


Figure 29

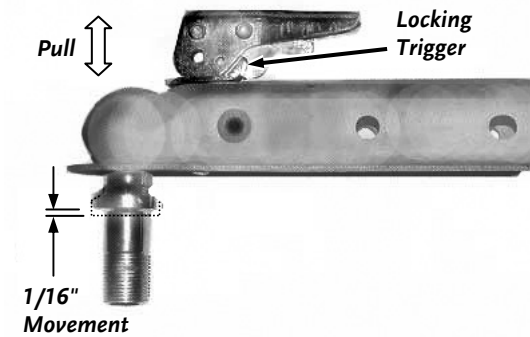


Figure 30

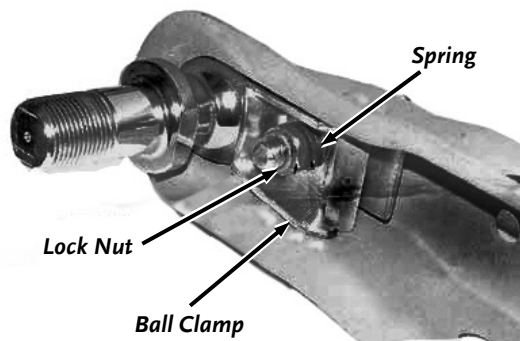


Figure 31

12. Remove the Hitch Pins of the Rear Stabilizers and rotate them into their upright position until the holes are aligned (**Figure 27**).
13. Reinstall Hitch Pins into the Rear Stabilizers and secure with the Lynch Pins.

! WARNING!

Making sure the backhoe is securely attached to the vehicle is the responsibility of the owner/operator. Failure to securely attach the backhoe can cause loss of control of the vehicle or the backhoe being separated from the towing vehicle, resulting in serious injury or death. ALWAYS use accessory lights and devices when transporting on a road or highway to warn operators of other vehicles. Check your local government regulations.

14. Close the Latch Assembly on the Tow Hitch Assembly to lock the Tow Hitch Assembly onto the Tow Ball (**Figure 28**). Attach the towing Safety Chains to the tow vehicle ensuring there is enough slack for turning.
15. Make sure the hitch coupler is properly and securely attached to the tow ball.
16. Insert the Locking Pin into the hole of the Latch Assembly to lock it in the closed position (**Figure 29**).
17. For extra safety and security, you may want to purchase a lock to install into the hole of the latch assembly.

Hitch Coupler Adjustment Check

1. Place the proper size ball in the socket of the coupler and close the latch assembly (**Figure 30**). Verify that the locking trigger is properly engaged in its detent.
2. Pull on the ball and/or coupler, trying to remove the ball from the socket. If the ball moves more than 1/16" in the coupler's socket, the clamp requires adjustment. Follow the proper adjustment procedure in the following steps.

Hitch Coupler Adjustment

1. With the proper size ball in the socket of the hitch coupler, close the latch of the coupler completely (**Figure 31**). Verify that the locking trigger is properly engaged in its detent.
2. Tighten the lock nut on the underside of the coupler until the spring between the nut and the clamp is fully compressed. Then back off the lock nut 1/2 turn or just enough that the latch is able to clamp and unclamp from the ball.

Chapter 4: Maintaining The DR TOWABLE BACKHOE

Regular maintenance is the way to ensure the best performance and long life of your machine. Please refer to this manual and the engine manufacturer's owner's manual for maintenance procedures. Service intervals listed in the checklist below supersede those listed in the engine manufacturer's owner's manual.



Center the boom. Retract the boom, crowd arm and bucket. Install the boom hitch pins and lynch pins to lock the boom in place. Shut down the engine, remove the spark plug wire and wait 5 minutes before performing any maintenance procedure or inspection on the backhoe.

Regular Maintenance Checklist

PROCEDURE	BEFORE EACH USE	EVERY 25 HOURS	EVERY 100 HOURS
Check Engine Oil Level	▲		
Check General Equipment Condition	▲		
Check Tire Pressure	▲		
Check Hydraulic Fluid Level	▲		
Check Hydraulic Hoses and Connections	▲		
Check and lubricate Grease Fittings as needed	▲		
Clean Air Filter		▲	
Clean Engine Exterior & Cooling Fins		▲	
Change Engine Oil	1 st time 5 hours	▲	
Replace Spark Plug			▲
Replace Hydraulic Fluid and Filter			▲
Replace Air Filter			▲

Changing Engine Oil

Tools and Supplies Needed:

- 14mm Wrench
- Rags and approved waste oil Container

1. Drain the used oil into an approved container by removing the Engine Drain Plug with a 14mm Wrench.
2. Replace the Drain Plug and go to Chapter 2 for instructions on adding Oil to the Engine.

Greasing the Backhoe

Economical and efficient operation of any machine is dependant upon regular and proper lubrication of all moving parts with a quality lubricant. All parts provided with grease fittings should be lubricated with a good quality chassis lube type grease. If any grease fittings are missing, replace them immediately.

NOTE: Moving the Swivel, Boom, Crowd Arm and Bucket to different positions first will provide better access for some fittings. You will need to remove the Foot Plate to access the rear Grease Fitting on the Swing Cylinder.

Tools and Supplies Needed:

- Grease Gun (general purpose grease)
- Rags

3. Wipe any grease or dirt from all Grease Fittings with a rag.
4. Grease the Backhoe at all fifteen Grease Fittings (**Figure 32**) until you notice grease escaping from the joint.
5. Wipe off any excess grease with a rag.

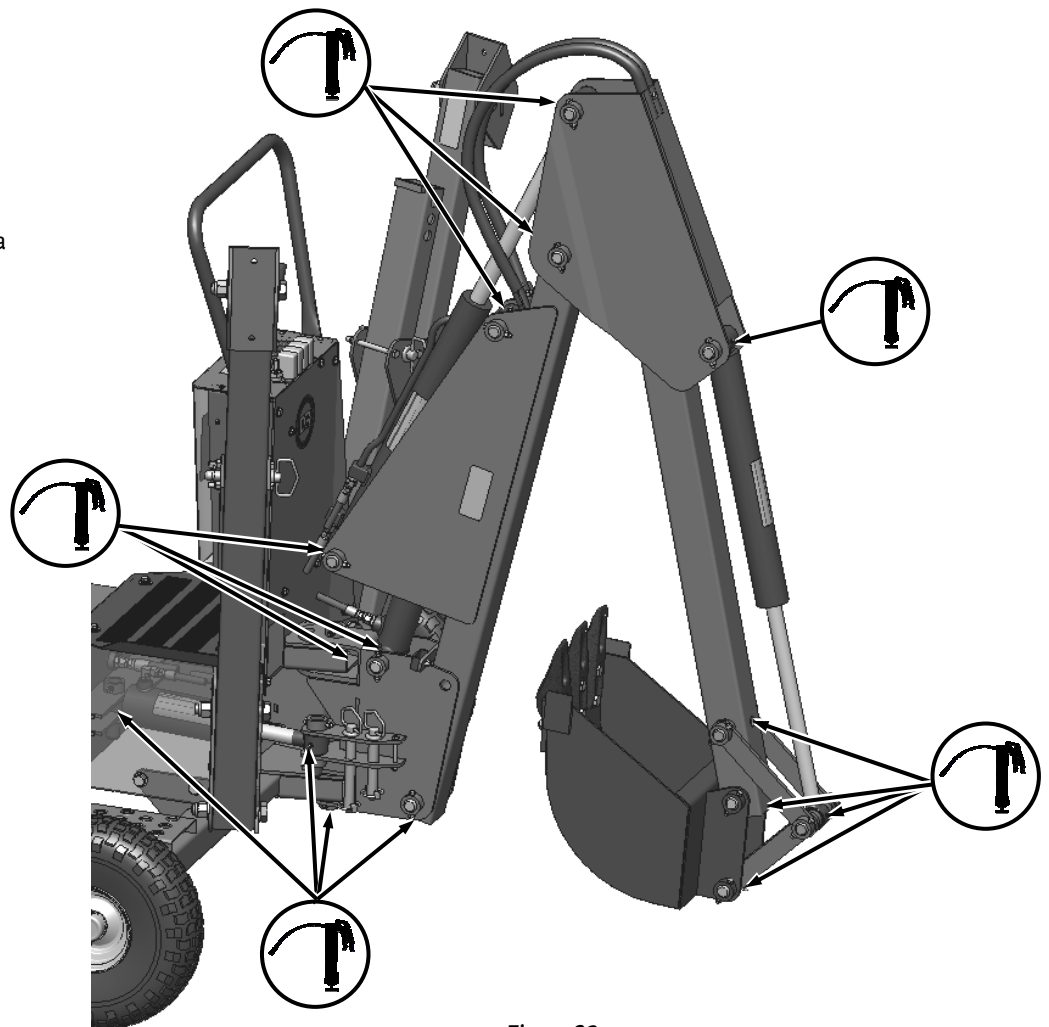


Figure 32

Changing the Hydraulic Fluid and Filter

NOTICE!

Never run the backhoe unless the hydraulic fluid tank is at the recommended level.

Changing the Hydraulic Fluid Filter

Tools and Supplies needed:

- 9/16" Wrench
- Filter Wrench
- Clean Waste Fluid Container (10 Gallon capacity)
- Hydraulic Fluid (see spec sheet on page 9)
- New Hydraulic Fluid Filter
- Safety Glasses
- Clean Rags

NOTE: If the Hydraulic Fluid needs to be changed also, drain the Fluid first (see "Changing the Hydraulic Fluid").

1. Place a Waste Fluid Container under Filter and Connections.
2. Set the Front Stabilizers to their highest position.
3. Lower the Tongue end of the Backhoe some to help reduce Fluid loss when changing the Filter.

NOTE: Be careful when lowering the tongue end of the Backhoe that hydraulic fluid does not escape from the Hydraulic Fluid Fill Cap.

4. Use a 9/16" wrench to remove the four Bolts, Lock Washers and Washers from the Foot Plate and remove the Foot Plate (**Figure 33**).
5. Apply a thin coat of fresh hydraulic fluid to the Rubber Seal of the new Hydraulic Fluid Filter.

NOTE: When the Filter is removed, fluid will continue to flow from the hoses. Install the new filter as soon as the old one is removed.

6. Remove the existing Hydraulic Fluid Filter with the Filter Wrench and properly dispose of it (**Figure 34**).
7. Screw the new Filter onto the Filter Head. Once the filter seal makes contact with the filter head, turn it an additional $\frac{3}{4}$ turn. Hand-tighten only.
8. Remove the Hydraulic Tank Fill Cap/Dipstick and fill the Hydraulic Tank with the recommended type of hydraulic fluid until the level is at the middle (2-3/8" up from the bottom) of the Steel Rod. Do not deviate more than 1/2" up or down from that point (**Figure 35**).

TIP: Check the Fluid level by removing the Hydraulic Fluid Filler Cap and wiping the steel rod of the Dipstick with a clean Rag or Paper Towel. Reinsert and tighten the Cap to the proper position (1-3/4" from the bottom of the Cap to the top of the Tank). Remove the Cap and lay the Steel Rod onto a dry Paper Towel or Rag and read the level by the wet mark that is transferred from the Steel Rod to the Rag.

9. Replace the Foot Plate and Hardware.

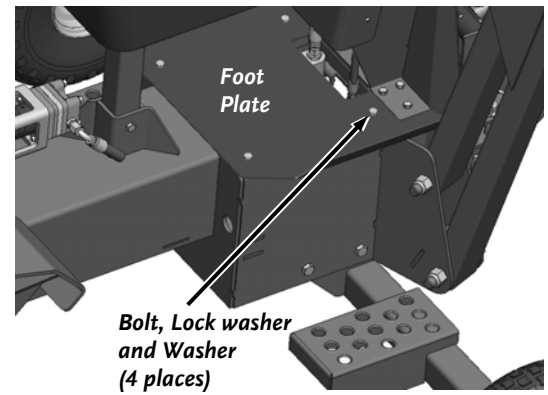


Figure 33

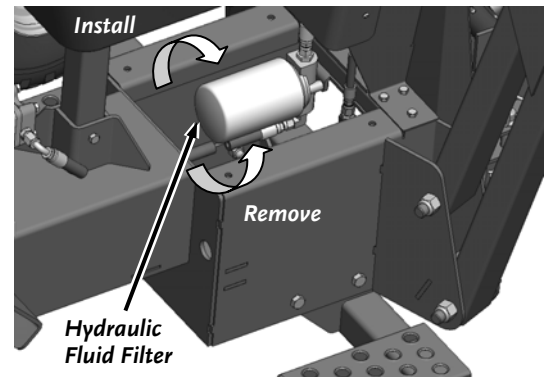


Figure 34

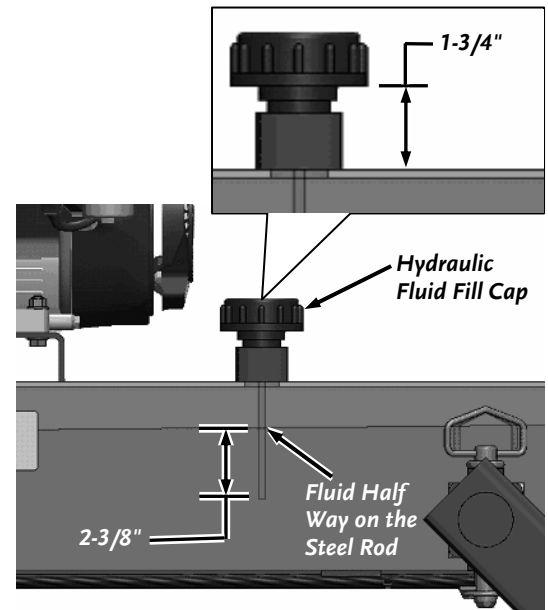


Figure 35

Changing the Hydraulic Fluid

Tools and Supplies needed:

- 7/8" Wrench
- 1-1/2" Wrench
- Safety Glasses
- Clean Waste Fluid Container
- Clean Rags

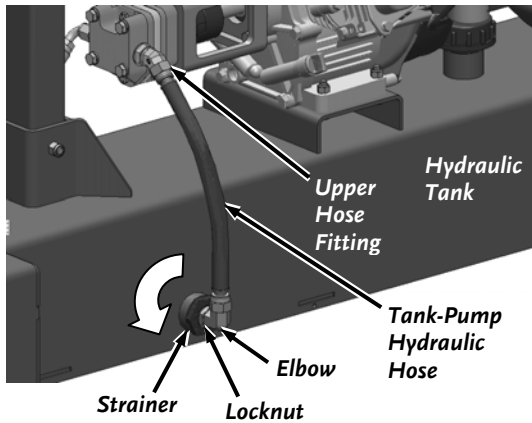


Figure 36

1. Position the Backhoe as level as possible and place a Waste Fluid Container under the area you will be working. Your container must be large enough to hold up to 8.5 gallons of fluid from the Tank.
2. Remove Hydraulic Fluid Fill Cap.
3. Disconnect the Upper Hose Fitting of the Tank-Pump Hydraulic Hose with a 7/8" Wrench (**Figure 36**).
4. Rotate the Elbow by loosening the Locknut with a 7/8" Wrench and turning the Elbow and the Hose counterclockwise until the Hose can be inserted into the Waste Fluid Container and let the Hydraulic Fluid drain until it stops.
5. When the Tank is empty, continue turning the Elbow and Hose until it is removed from the Strainer.
6. Remove the Strainer from the Tank with a 1-1/2" Wrench and wipe off any debris with a clean Rag.
7. Install a new Hydraulic Fluid Filter as described in the previous section.
8. Replace the Strainer, Elbow and Hose Assembly and tighten securely.
9. Remove the Hydraulic Tank Fill Cap/Dipstick and fill the Hydraulic Tank with the recommended type and quantity of hydraulic fluid until the level reaches the fluid full measurement on the Dipstick (**Figure 35**).

TIP: Check the Fluid level by removing the Hydraulic Fluid Filler Cap and wiping the steel rod of the Dipstick with a clean Rag or Paper Towel. Reinsert and tighten the Cap to the proper position (1-3/4" from the bottom of the Cap to the top of the Tank) (New Figure 35). Remove the Cap and lay the Steel Rod onto a dry Paper Towel or Rag and a wet mark will show the Fluid level.

Chapter 5: Troubleshooting

Most problems are easy to fix. Consult the Troubleshooting Table below for common problems and their solutions. If you continue to experience problems, contact us at www.DRpower.com or call toll-free 1-800-DR-OWNER (376-9637) for support.



WARNING!

Center the boom. Retract the boom, crowd arm and bucket. Install the boom hitch pins and lynch pins to lock the boom in place. Shut down the engine, remove the spark plug wire and wait 5 minutes before performing any maintenance procedure or inspection on the backhoe.

Troubleshooting Table

SYMPTOM	POSSIBLE CAUSE
<i>Backhoe fails to lift or swing.</i>	<ul style="list-style-type: none"> ⇒ Low hydraulic fluid supply; Level the Tank and add fluid. ⇒ Broken hydraulic line; Check for leaks, replace line. ⇒ Bent piston rod; Replace cylinder. ⇒ Pump damaged or worn; Replace pump.
<i>Backhoe lifting or swinging too slowly.</i>	<ul style="list-style-type: none"> ⇒ Engine speed too low; Open throttle ⇒ Cold hydraulic fluid; Warm fluid with engine at idle. ⇒ Pinched supply hose; Replace hose, route to prevent kinking or pinching. ⇒ Scored or bent Cylinder; Replace cylinder. ⇒ Pump damaged or worn; Replace pump.
<i>Backhoe fails to hold up the load.</i> NOTE: All loads will settle down over a period of time. This is normal.	<ul style="list-style-type: none"> ⇒ Broken hydraulic lines; Check for leaks and replace line. ⇒ Scored or bent Cylinders; Replace cylinders.
<i>Hydraulic Fluid Heating.</i>	<ul style="list-style-type: none"> ⇒ Dirty hydraulic fluid; Drain fluid and refill. ⇒ Control valve handle held open too long; Return control valve handle to neutral position when not in use. ⇒ Engine running too fast; Reduce throttle. ⇒ Damaged hydraulic lines; Replace damaged lines.
<i>External leakage.</i>	<ul style="list-style-type: none"> ⇒ Backhoe not level; Level Backhoe ⇒ Fittings loose; Tighten Fittings. ⇒ Damaged O-ring on adapter; Replace O-ring. ⇒ Broken hydraulic line; Check for leaks and replace line. ⇒ Cylinder seals damaged; Replace cylinder.
<i>Swing cylinder malfunctioning.</i>	<ul style="list-style-type: none"> ⇒ Needle Valve not adjusted properly; Contact us at www.DRpower.com.
<i>Control valve sticking or working hard.</i>	<ul style="list-style-type: none"> ⇒ Dirty hydraulic fluid; Drain fluid and refill. ⇒ Control Valve Faulty; Replace Control Valve.
<i>Spongy or jerking action of cylinders and/or very noisy pump action.</i>	<ul style="list-style-type: none"> ⇒ Low hydraulic fluid supply; Add fluid. ⇒ Cold hydraulic fluid too stiff; Use recommended fluid. ⇒ Air in system; Purge system of air by operating machine at maximum hydraulic fluid flow and through full movements. ⇒ Pinched suction line to pump; Replace hose, rout to prevent kinking or pinching.

! WARNING!

Center the boom. Retract the boom, crowd arm and bucket. Install the boom hitch pins and lynch pins to lock the boom in place. Shut down the engine, remove the spark plug wire and wait 5 minutes before installing any accessories onto the Backhoe.

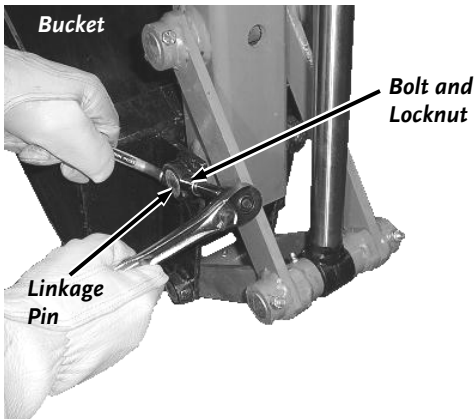


Figure 37

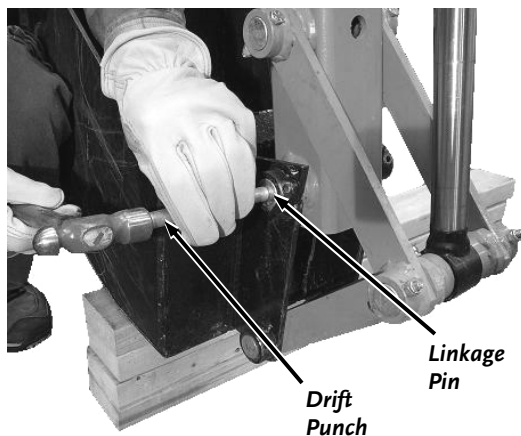


Figure 38

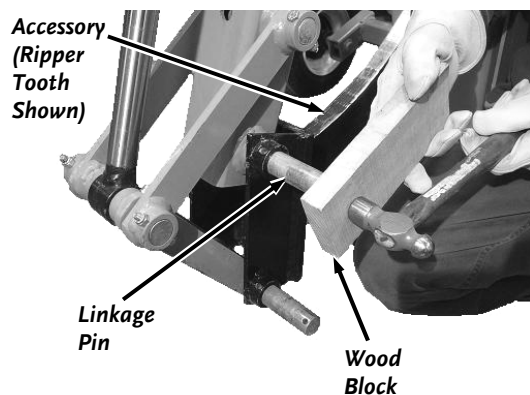


Figure 39

Bucket and Ripper Tooth Accessories

Tools and Supplies Needed:

- Two 7/16" wrenches
- Hammer
- Brass Drift Punch
- Wood Blocks
- Safety Glasses

Installing a Bucket or Ripper Tooth

1. Insert Wood Blocks under the Bucket for support.
2. Remove the two Bolts and Locknuts from the Bucket Linkage Pins (**Figure 37**).
3. Use a Drift Punch to remove the two Linkage Pins from the Bucket (**Figure 38**).
4. Remove the Bucket and position the accessory Bucket or Ripper Tooth at the same orientation as the original Bucket.
5. Install the two Linkage Pins into the Bucket or Ripper Tooth and Linkage (**Figure 39**).

NOTE: Do not hammer directly on the Linkage Pin. Use a block of wood so you do not damage the end of the Pin. Make sure the holes in the Linkage Pins are aligned with the holes in the Accessory.

6. Install the two Bolts into the Linkage and Bucket or Ripper Tooth and secure with two Locknuts (**Figure 40**).

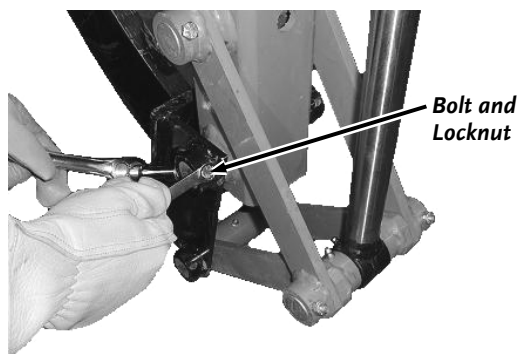


Figure 40

Road Towable Kit

Tools and Supplies Needed:

- 7/16" Wrench
- 1/2" Wrench
- 9/16" Wrench
- Wire Cutters

Installing the Road Towable Kit

1. Assemble the Mounting Bracket and Roadside Fender with four 5/16-18 x 3/4" Carriage Bolts and Locknuts using a 1/2" Wrench (**Figure 41**).
2. Position the Fender and Mounting Bracket onto the roadside of the Backhoe Axle so the Fender protrudes evenly over both sides of the Tire (**Figure 42**) and secure the Mounting Bracket with the two U-bolts and 3/8-16 Locknuts using a 9/16" Wrench. Repeat steps 1 and 2 for the Curbside Fender and Mounting Bracket.

NOTE: Push the Mounting Brackets towards the Tow Hitch side of the Axle as you tighten the U-Bolt Locknuts.

3. Place the Vehicle Connector end of the Wire Harness near the Tow Hitch. Push the Tail Light Connectors and Ground Wires through the hole in the Frame (**Figure 43**).
4. Guide the Wires between the Frame and Axle and then route the Yellow/Brown Wire Connector with a White Ground Wire along the Axle towards the roadside of the Backhoe and the Green/Brown Wire Connector with a White Ground Wire along the Axle towards the curbside (**Figure 44**).
5. Position the Curbside Tail Light (green/brown wires) and Roadside Tail Light (yellow/brown wires) onto the Fenders and secure each with one of the Locknuts on the outside stud using a 7/16" Wrench (**Figure 45**).
6. Place a Ground Wire from the Harness onto the other stud and secure with the second Locknut.
7. Plug in the two Harness Connectors to the Lights and secure the Wires with three Cable Ties on each side.
8. Let the Vehicle Connector extend about two feet past the Hitch and attach the Harness to the Backhoe with four Cable Ties at the locations shown (**Figure 43**).
9. Fasten the wires to the Axle with Cable Ties along with any excess wire from the Harness (**Figure 44**). Trim all Cable Ties with Wire Cutters.

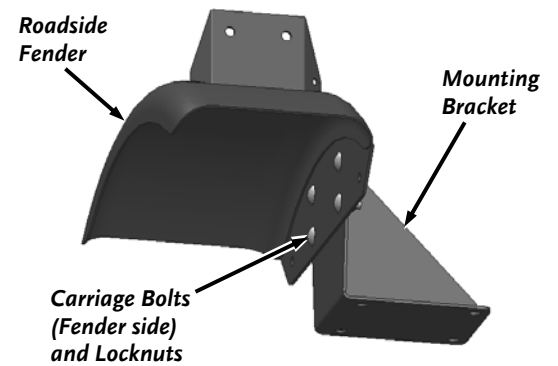


Figure 41

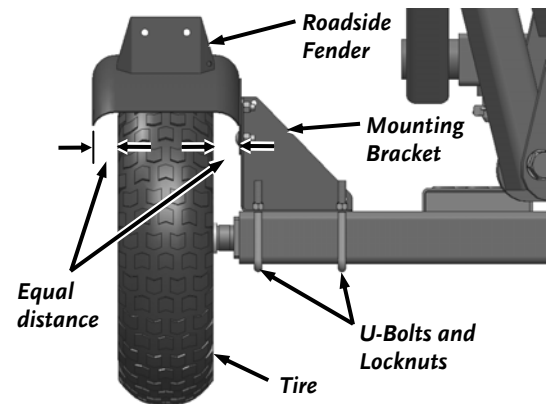


Figure 42

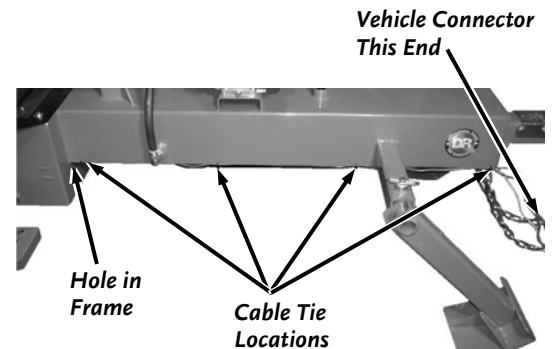


Figure 43

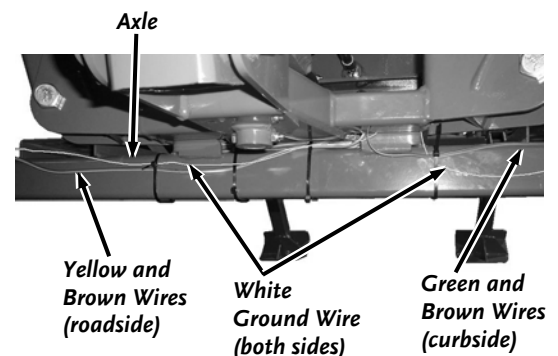


Figure 44

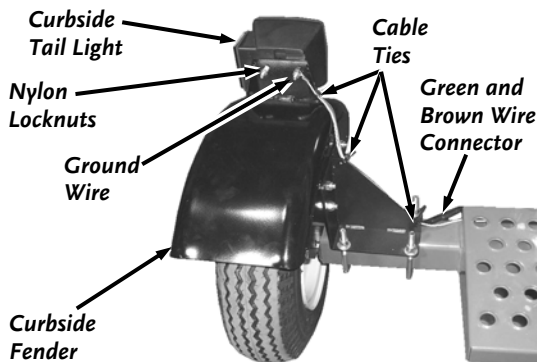


Figure 45

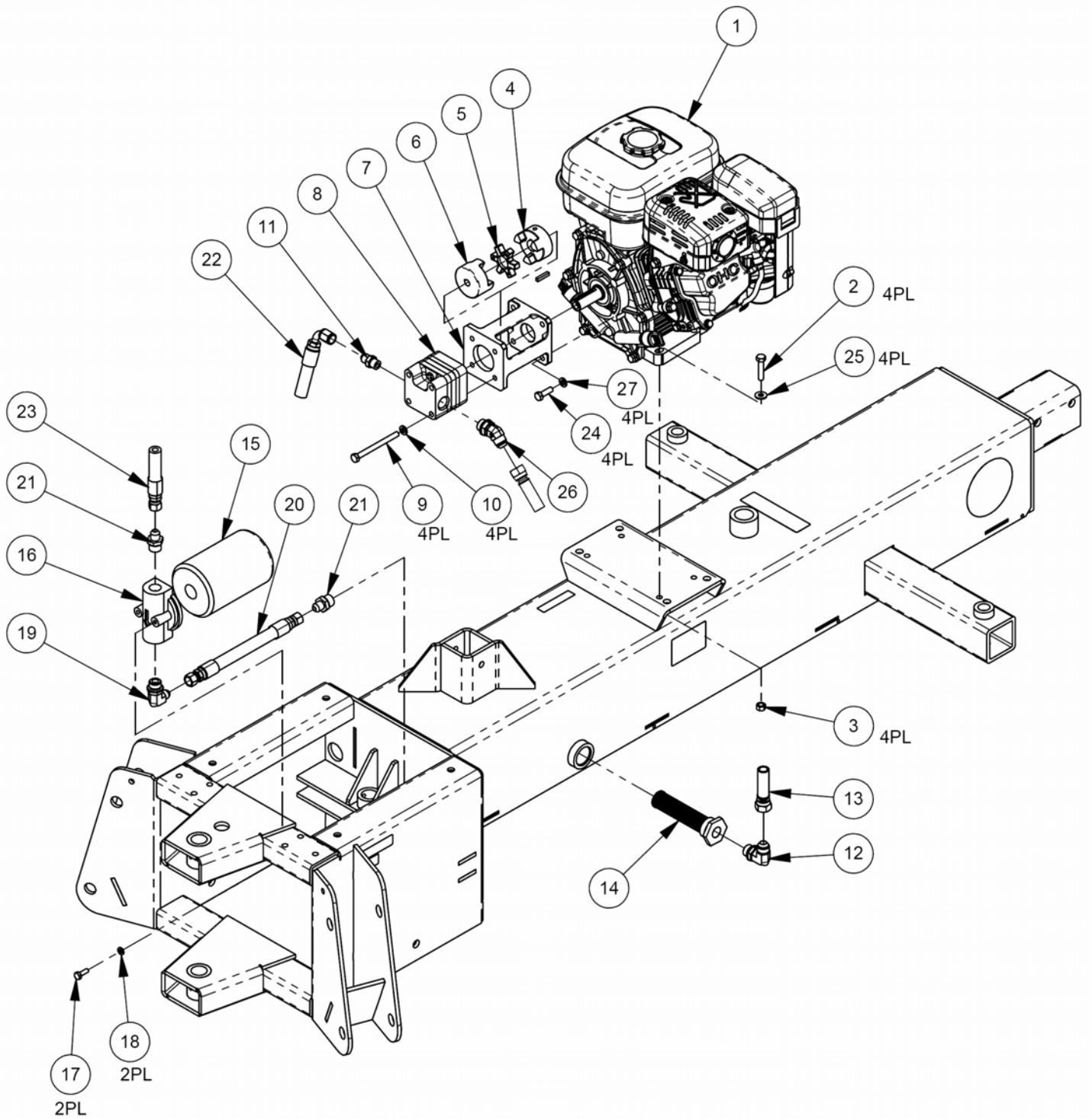
Chapter 7: Parts Lists, Schematic Diagrams And Warranty

Parts List and Schematic – ENGINE AND PUMP ASSEMBLY

NOTE: Part numbers listed are available through DR Power Equipment.

<u>Ref#</u>	<u>Part#</u>	<u>Description</u>	<u>Ref#</u>	<u>Part#</u>	<u>Description</u>
01	246701	Engine, 6 Hp Subaru, w/Key	15	245991	HYD Filter Element
	265611	Engine, 9Hp, Subaru, M/S	16	256741	HYD Mount, Filter
02	134431	Bolt, Hcs, 5/16-18 X 1-1/2", Gr5, Zp	17	119831	Bolt, Hcs, 1/4-20 X 1", Gr5, Zp
	123341	Bolt, Hcs, 3/8-16 X 1-3/4", Gr5, Zp (9Hp Engine)	18	101811	Washer, Split Lock, 1/4", Zp
03	110761	Nut, Nylon Lock, 5/16-18	19	253481	HYD Adapter, JCM06-OBM08-90
	110751	Nut, Nylon Lock, 3/8-16 (9Hp Engine)	20	253441	HYD Hose Assembly, Filter-Tank, 9.75"
04	246741	Coupling, 3/4" Bore	21	253461	HYD Adapter, JCM06-OBM08
	271371	Coupling, 1" Bore (9Hp Engine)	22	253341	HYD Hose Assembly, Pump-Valve, 44.5"
05	246761	Spider	23	253351	HYD Hose Assembly, Valve-Filter, 15.75"
06	246751	Coupling, 7/16"	24	178821	Bolt, Hcs, 5/16-24 X 1"
07	246721	HYD Mount, Pump		150431	Bolt, Hhcs, 3/8-16 X 1-1/4" (9Hp Engine)
	271361	HYD Mount, Pump (9Hp Engine)	25	112381	Washer, Flat, 1/4", USS
08	256731	HYD Pump, W/Key		112411	Washer, Flat, 5/16", USS (9Hp Engine)
09	222131	Bolt, Hcs, 5/16-18 X 3-5/8", Gr5, Zp	26	256521	HYD Adapter, JCM08-OBM08-45
10	112431	Washer, Lock, 5/16"	27	112431	Washer, Lock, 5/16"
11	253311	HYD Adapter, JCM06-OBM06		222531	Washer, Lock, 3/8" (9Hp Engine)
12	256161	HYD Adapter, JCM08-OBM08-90	<u>Not Illustrated</u>		
13	253331	HYD Hose Assembly, Tank-Pump, 11.5"		279201	Spacer Ring, HYD Pump Mount, 9HP
14	250561	HYD Strainer, In Tank			

Schematic – ENGINE AND PUMP ASSEMBLY

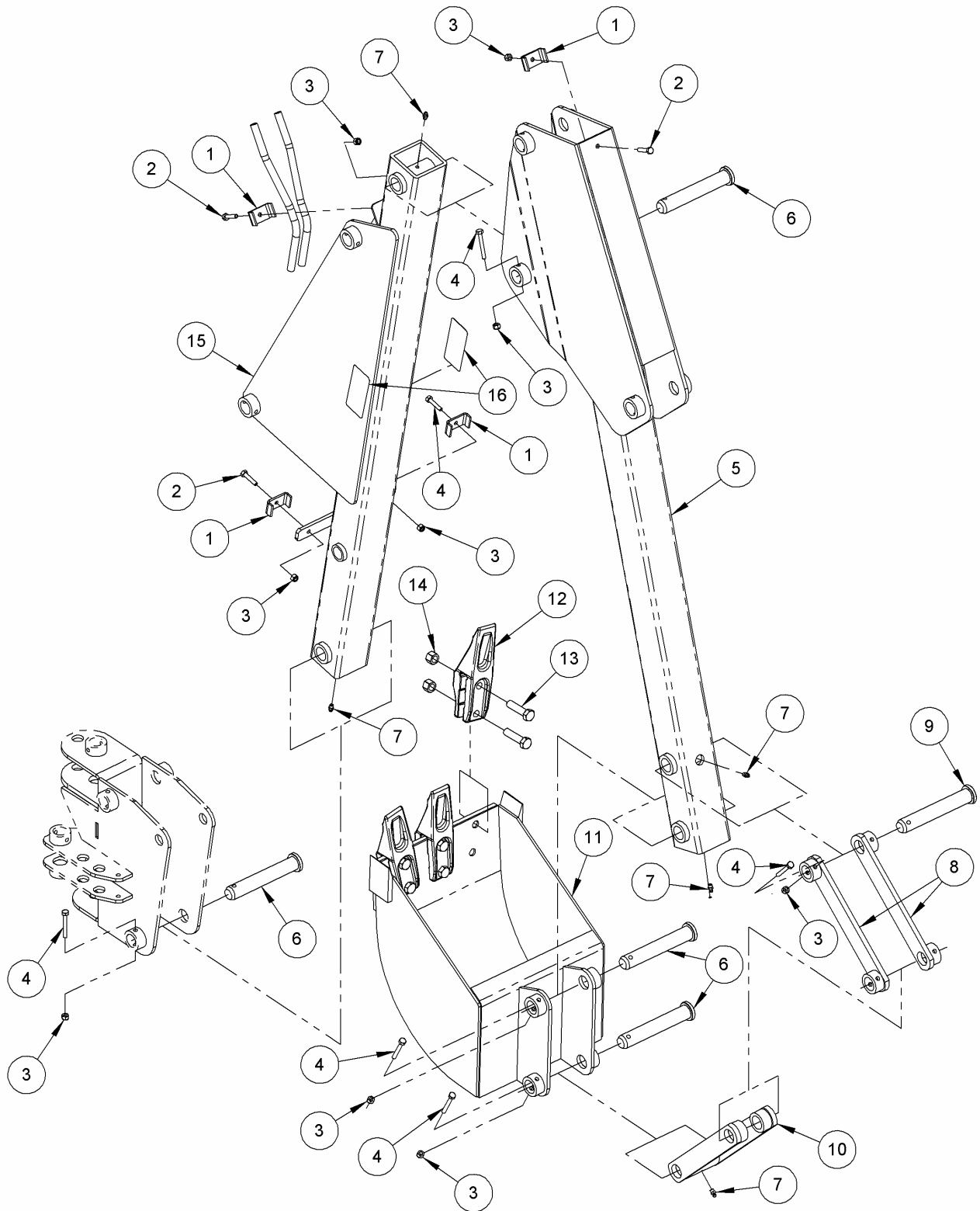


Parts List - LINKAGE, CROWD ARM AND BOOM ASSEMBLY

NOTE: Part numbers listed are available through DR Power Equipment.

<u>Ref#</u>	<u>Part#</u>	<u>Description</u>	Buckets and Ripper Tooth (optional accessories)		
01	245331	Bracket, Hose	<u>Kit#</u>	<u>Part#</u>	<u>Description</u>
02	114681	Bolt, Hhcs, 1/4-20 X 1.25", Gr2, Zp	253581		
03	110731	Nut, Nylon Lock, 1/4-20		256171	Bucket, 16"
04	256781	Bolt, Hhcs, 1/4-20 X 2", Gr8, Zp		253061	Tooth Bucket
05	245291	Arm, Crowd		110721	Nut, Nylon Lock, 1/2-13
06	252951	Pin, Headed, 1" X 6.05"		111441	Bolt, Hhcs, 1/2-13 x 2", GR5
07	101891	Grease Fitting, 1/4-28, Straight	253571		
08	245321	Strap, Linkage		256181	Bucket, 9"
09	253031	Pin, Headed, 1" X 6.25"		253061	Tooth Bucket
10	245311	Linkage		110721	Nut, Nylon Lock, 1/2-13
11	253191	Bucket, 12"		111441	Bolt, Hhcs, 1/2-13 x 2", GR5
12	253061	Tooth, Bucket	253551		
13	111441	Bolt, Hhcs, 1/2-13 X 2", Gr5, Zp		250731	Ripper Tooth
14	110721	Nut, Nylon Lock, 1/2-13		253071	Cap, Ripper Tooth
15	255651	Boom w/Labels		253541	Pin, Spring, 1/2" x 1-3/4"
16	245441	Label, Warning, Keep Away			

Schematic – LINKAGE, CROWD ARM AND BOOM ASSEMBLY

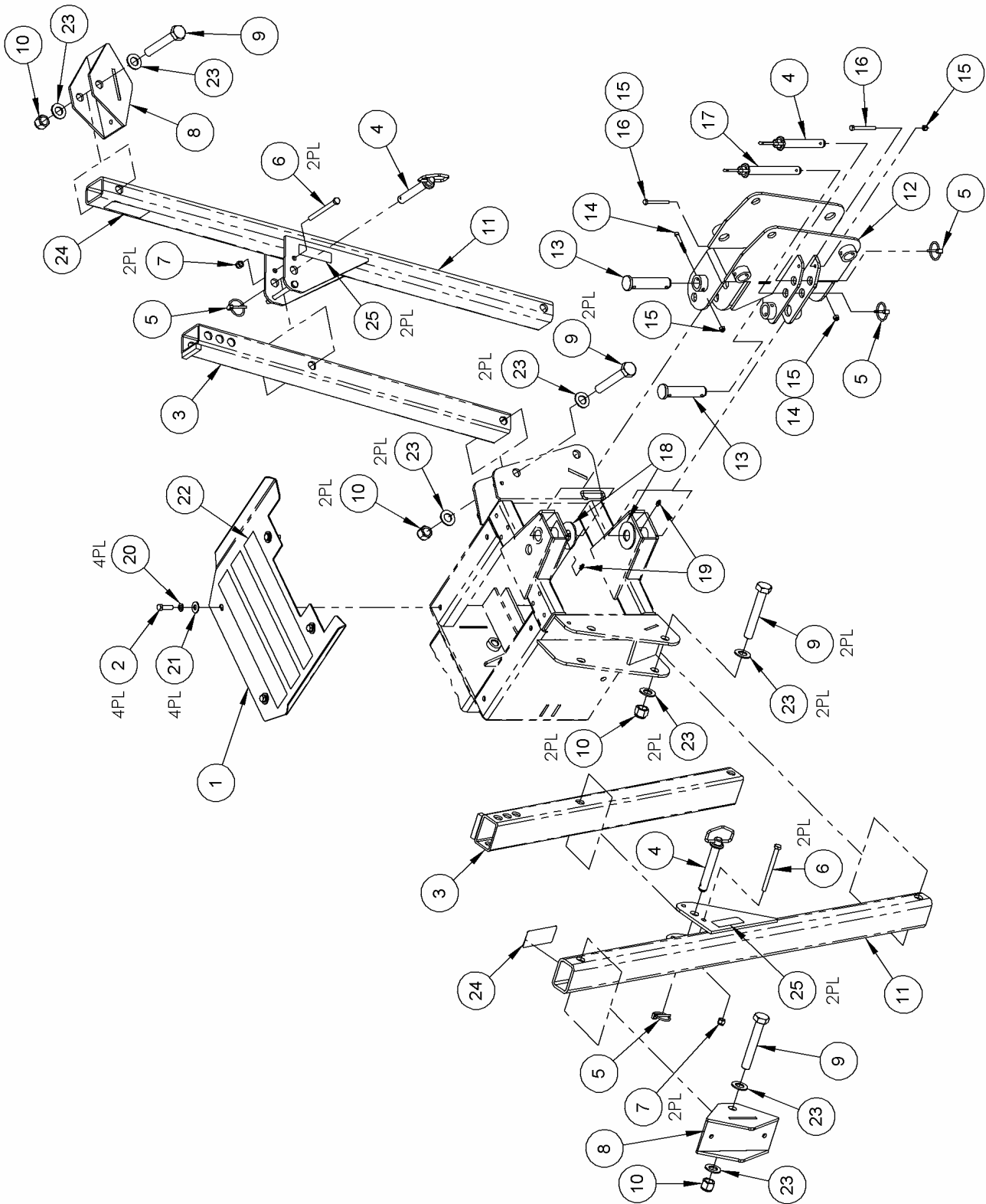


Parts List – SWIVEL AND STABILIZER ASSEMBLY

NOTE: Part numbers listed are available through DR Power Equipment.

<u>Ref#</u>	<u>Part#</u>	<u>Description</u>	<u>Ref#</u>	<u>Part#</u>	<u>Description</u>
01	255671	Plate, Foot, w/Antiskid Strip	14	256781	Bolt, Hcs, 1/4-20 X 2", Gr8, Zp
02	228861	Bolt, Hcs, 3/8-16 X 1-1/4", Gr8	15	110731	Nut, Nylon Lock, 1/4-20
03	253041	Link, Stabilizer, Adjustable	16	111461	Bolt, Hcs, 1/4-20 X 2-1/2", Gr5, Zp
04	245551	Pin, Hitch, 3/4" X 4-3/4"	17	245371	Pin, Hitch, 3/4" X 6"
05	245381	Pin, Linch, 3/16" X 1-9/16"	18	253021	Washer, Flat, 1", Uss, Gr8
06	229121	Bolt, Hcs, 3/8-16 X 4", Gr5	19	101891	Grease Fitting, 1/4-28, Straight
07	110751	Nut, Nylon Lock, 3/8-16	20	222531	Washer, Lock, 3/8", GR8, Zp
08	245501	Foot, Stabilizer	21	112391	Washer, Flat, 3/8", USS
09	253491	Bolt, Hcs, 3/4-10 X 5", Gr8, Zp	22	245681	Antiskid Strip, 2" X 15"
10	253501	Nut, Nylon Lock, 3/4-10	23	180641	Washer, .8" ID, 1-1/2" OD, .11" THK
11	255661	Stabilizer, w/Labels	24	245701	Label, Warning, Hands and Feet
12	253171	Swivel	25	250441	Label, Warning, Pinch Point
13	252941	Pin, 1" X 4.45"			

Schematic – SWIVEL AND STABILIZER ASSEMBLY

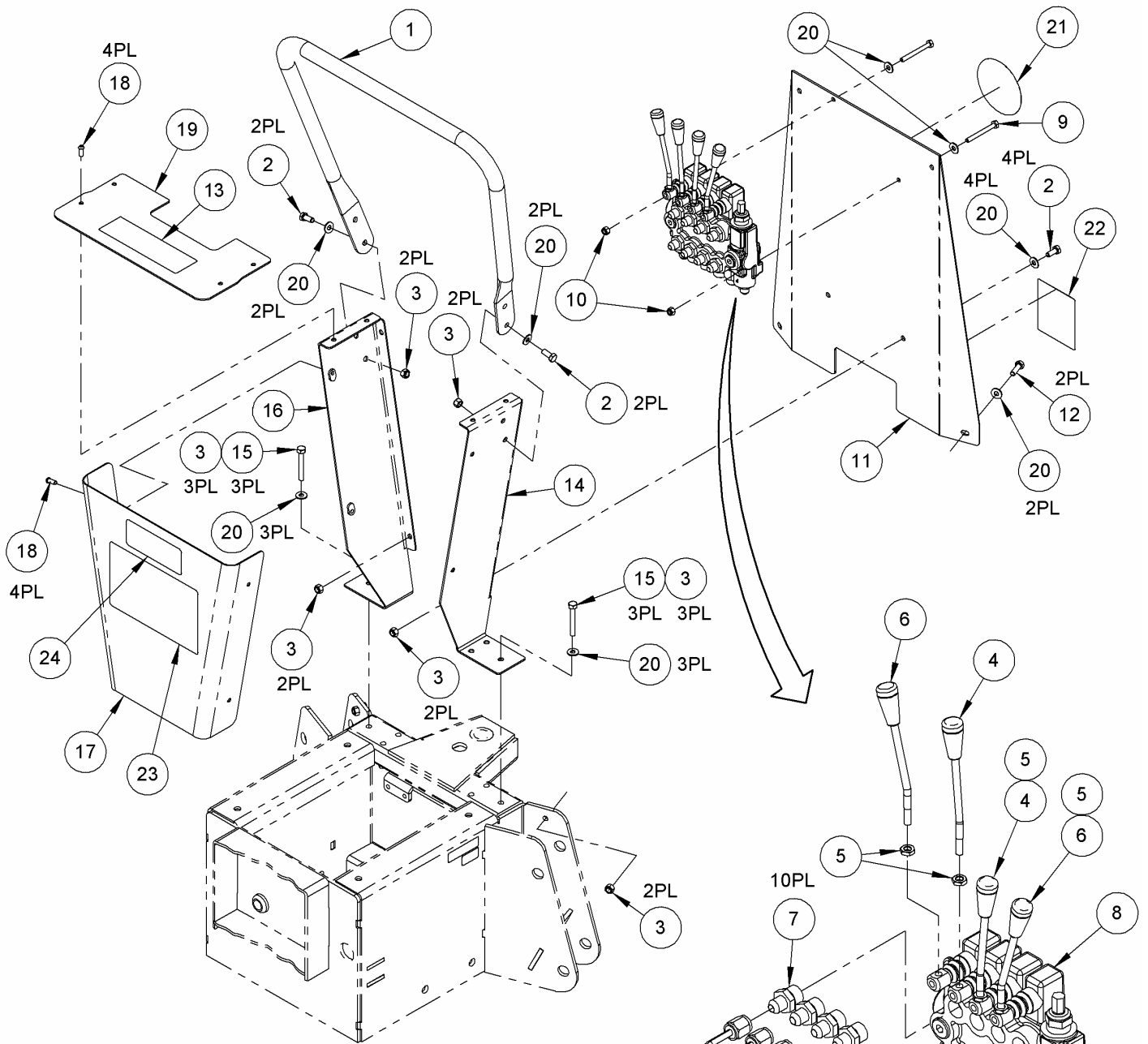


Parts List – HANDLE GUARD, VALVE MOUNT AND PANELS ASSEMBLY

NOTE: Part numbers listed are available through DR Power Equipment.

<u>Ref#</u>	<u>Part#</u>	<u>Description</u>	<u>Ref#</u>	<u>Part#</u>	<u>Description</u>
01	252901	Guard, Handle	14	252861	Console, Upright, Rh
02	123211	Bolt, Hcs, 5/16-18 X 3/4", Gr5, Zp	15	101471	Bolt, Hcs, 5/16-18 X 2-1/4", Gr5, Zp
03	110761	Nut, Nylon Lock, 5/16-18	16	252871	Console, Upright, Lh
04	246251	HYD Valve Lever, 5° W/Nut	17	255701	Guard, Hose, w/Labels
05	246281	Nut, Jam, M8-1.25	18	180311	Bolt, Bh, 1/4-20 X 5/8", Zp
06	246261	HYD Valve Lever, 15° W/Nut	19	255681	Cover, Valve, w/Label
07	253461	HYD Adapter, JCM06-OBM08		279191	Cover, Valve, w/Label (Joystick Option)
08	253161	HYD Valve	20	112381	Washer, Flat, 1/4", USS
	271381	HYD Valve, w/Joysticks	21	192021	Label, DR Logo, 4" Round, 4 Color
09	111461	Bolt, Hcs, 1/4-20 X 2-1/2", Gr2, Zp	22	245871	Label, Pin Placement
10	110731	Nut, Nylon Lock, 1/4-20	23	245851	Label, Warning, Read Manual
11	255691	Panel, Front, w/Labels	24	246041	Label, Warning, High Pressure
12	111581	Bolt, Hcs, 5/16-18 X 1", Gr5, Zp			
13	256191	Label, Operation			
	271681	Label, Operation (Joystick Option)			

Schematic – HANDLE GUARD, VALVE MOUNT AND PANELS ASSEMBLY



- REF 253381
- REF 253371
- REF 253411
- REF 253431

- REF 253391
- REF 253361
- REF 253401
- REF 253421

REF 253351

REF 253341

Parts List – TONGUE AND AXLE ASSEMBLY

NOTE: Part numbers listed are available through DR Power Equipment.

Ref#	Part#	Description
01	246481	Coupler, Class 2
02	246661	Bolt, Hcs, 1/2-13 X 4", Gr8
03	110721	Nut, Nylon Lock, 1/2-13
04	246531	Stabilizer, Rear, Lh
05	245551	Pin, Hitch, 3/4" X 4-3/4"
06	245381	Pin, Linch, 3/16" X 1-9/16"
07	246541	Cap, Vent W/Dipstick
08	246511	Seat
09	228861	Bolt, Hhcs, 3/8-16 X 1-1/4", Gr8
10	222531	Washer, Split, 3/8", Gr8, Zp
11	112391	Washer, Flat, 3/8", Uss
12	252931	Mount, Seat
13	129601	Bolt, Hcs, 3/8-16 X 3", Gr5, Zp
14	110751	Nut, Nylon Lock, 3/8-16
15	255711	Backhoe Frame, w/Labels
16	252921	Backhoe Axle, w/Castle Nuts and Cotter Pins
17	229091	Bolt, Hcs, 1/2-13 X 1-1/2", Gr5, Zp
18	252971	Wheel and Tire Assembly, W/Cap
19	253101	Nut, Castle, 1-14
20	253111	Pin, Cotter, 3/16" X 2.5"
21	253181	Cap, Dust
22	253121	Safety Chains , Pair, 36"
23	257251	Label, Do Not Over tighten
24	246521	Stabilizer, Rear, Rh

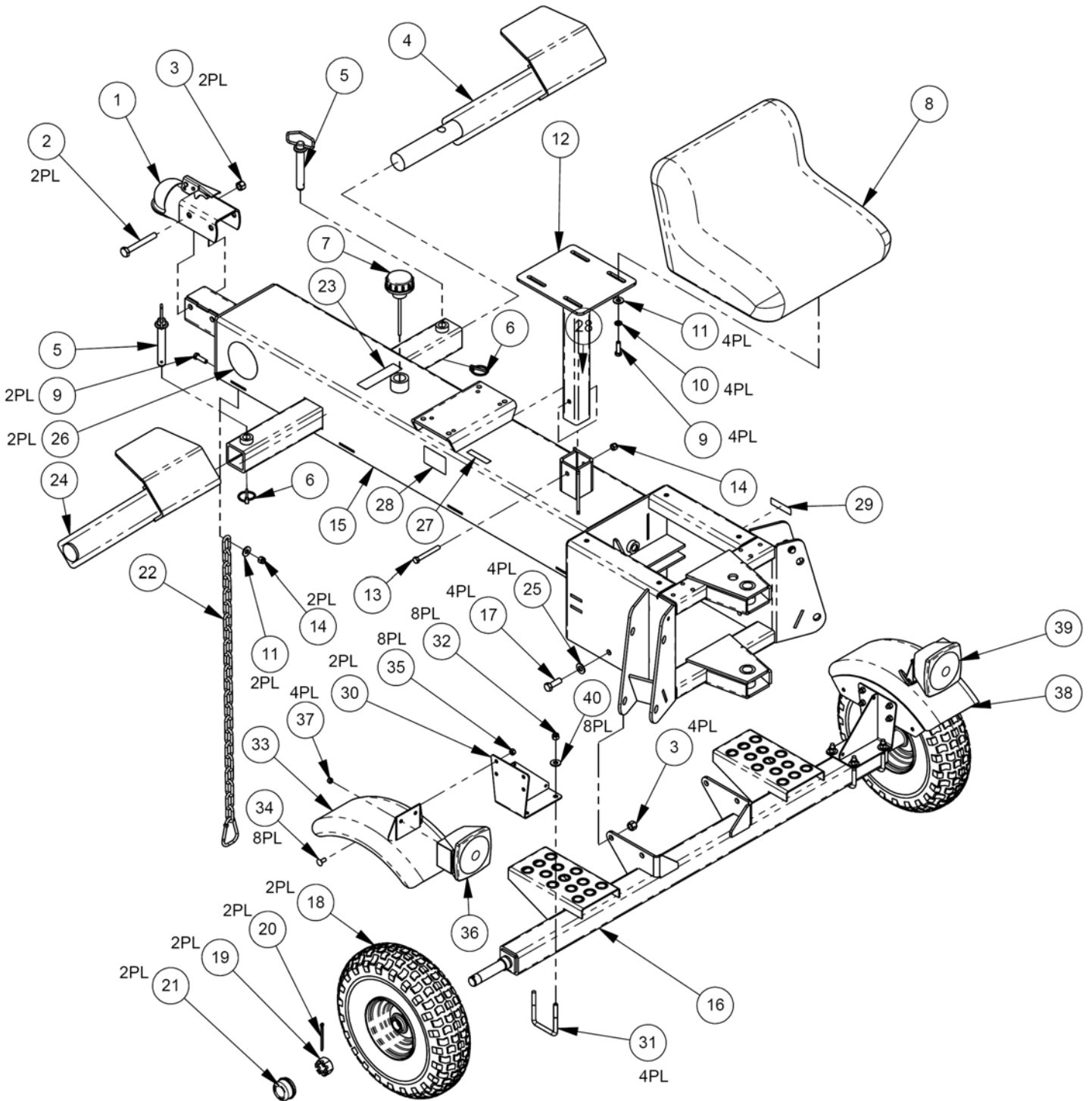
Ref#	Part#	Description
25	234991	Washer, SAE Flat, 1/2", ZP
26	192021	Label, DR Logo, 4" Round, 4 Color
27	137581	Label, Check Oil
28	124371	Label, American Flag
29	235451	Label, Address

Kit 256201, Road Towable (optional accessory)

Ref#	Part#	Description
30	253241	Bracket, Mount, Fender
31	256381	Bolt, Square "U", 3/8-16 x 3" x 3"
32	110751	Nut, Nylon Lock, 3/8-16
33	253081	Fender, Roadside
34	145291	Bolt, Carriage, 5/16-18 x 3/4"
35	110761	Nut, Nylon Lock, 5/16-18
36	253511	Light, Tail, Roadside
37	110731	Nut, Nylon Lock, 1/4-20
38	253051	Fender, Curbside
39	253521	Light, Tail, Curbside
40	112391	Washer, Flat, 3/8", Uss
NI	253531	Wire Harness
NI	112141	Cable Tie, Nylon, Black, 7.5"L x .187"W
NI	127971	Cable Tie, Nylon, 17"

NI=Not Illustrated

Schematic – TONGUE AND AXLE ASSEMBLY

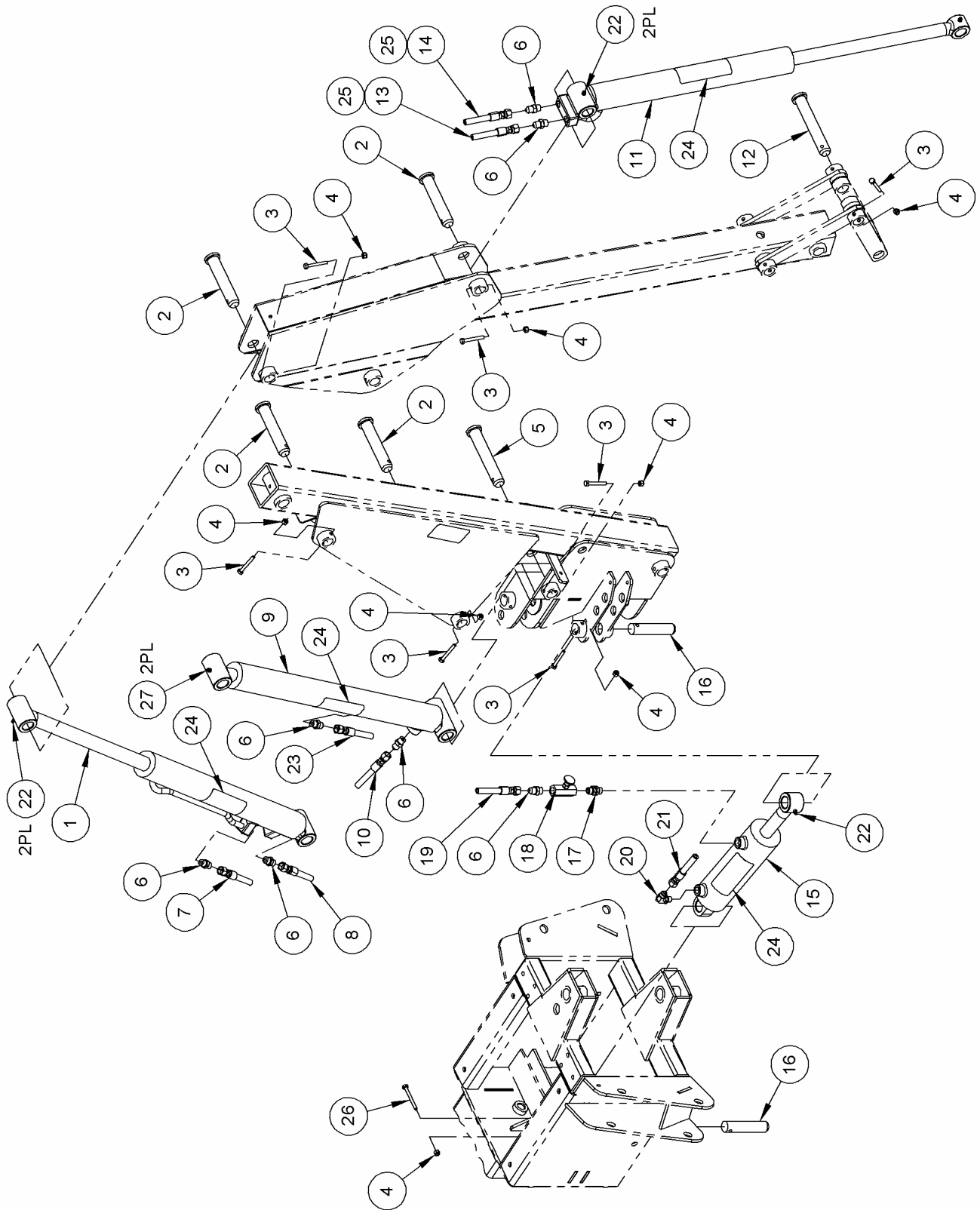


Parts List – CYLINDERS, PINS AND FITTINGS ASSEMBLY

NOTE: Part numbers listed are available through DR Power Equipment.

<u>Ref#</u>	<u>Part#</u>	<u>Description</u>	<u>Ref#</u>	<u>Part#</u>	<u>Description</u>
01	255731	HYD Cylinder, Crowd Arm, w/Label	14	253431	HYD Hose Assembly, Bucket Retract, 125"
02	252961	Pin, Headed, 1" X 5.25"	15	256801	HYD Cylinder, Swing, w/Label
03	256781	Bolt, Hcs, 1/4-20 X 2", Gr8, Zp	16	252941	Pin, 1" X 4.45"
04	110731	Nut, Nylon Lock, 1/4-20	17	253301	HYD Adapter, OBM06-OBM06
05	252951	Pin, Headed, 1" X 6.05"	18	253231	HYD Needle Valve
06	253311	HYD Adapter, JCM06-OBM06	19	253371	HYD Hose Assembly, Swing Retract, 22"
07	253411	HYD Hose Assembly, Crowd Retract, 77.75"	20	253271	HYD Adapter, JCM06-OBM06-90
08	253401	HYD Hose Assembly, Crowd Extend, 70.75"	21	253361	HYD Hose Assembly, Swing Extend, 25.75"
09	255741	HYD Cylinder, Boom, w/Label	22	101891	Grease Fitting, 1/4-28, Straight
10	253381	HYD Hose Assembly, Boom Extend, 55.5"	23	253391	HYD Hose Assembly, Boom Retract, 50"
11	255721	HYD Cylinder, Bucket, w/Label	24	246041	Label, Warning, High Pressure
12	253031	Pin, Headed, 1" X 6.25"	25	256691	Sheathing, Abrasion Resistant, 32"
13	253421	HYD Hose Assembly, Bucket Extend, 124"	26	256831	Bolt, Hcs, 1/4-20 X 2-1/2", Gr8, Zp
			27	126831	Grease Fitting, Zerk, 1/4-28 x 45 degrees

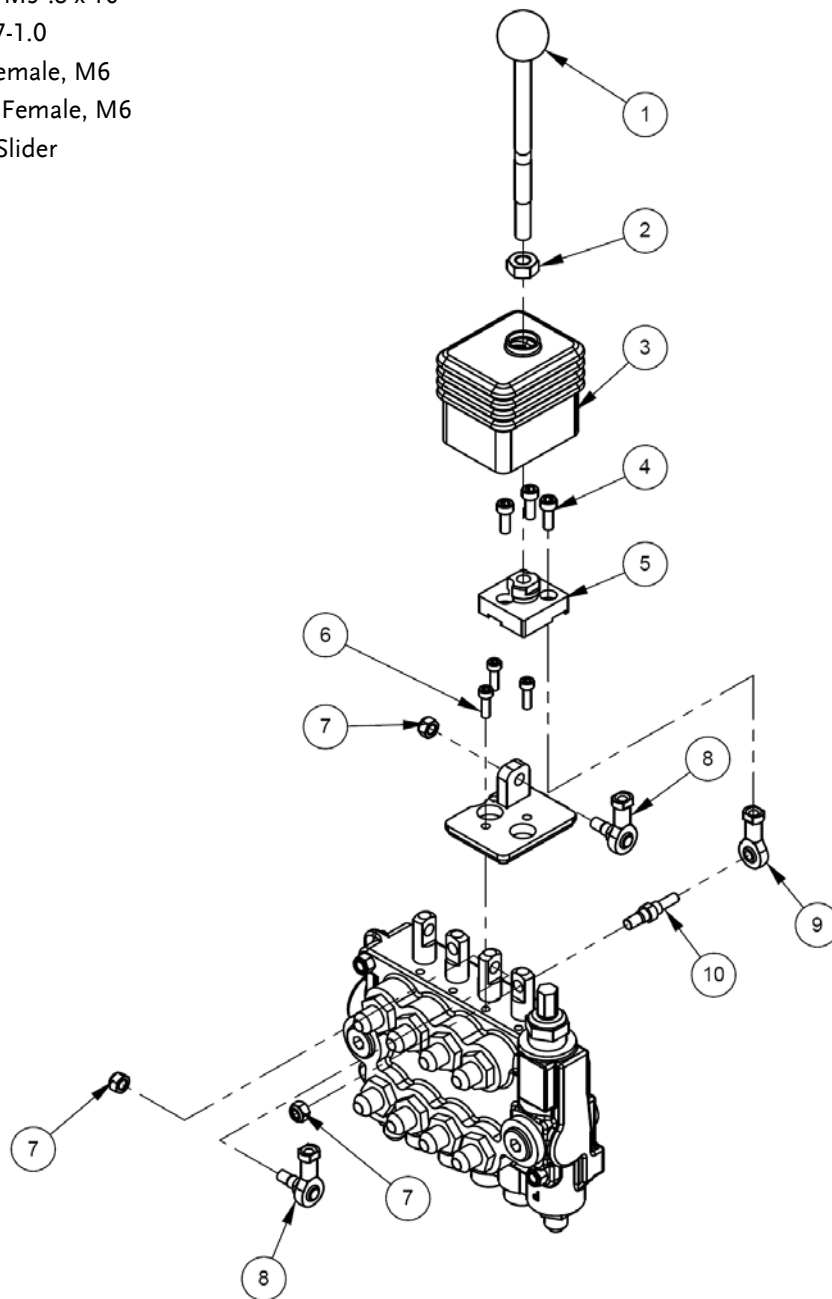
Schematic – CYLINDERS, PINS AND FITTINGS ASSEMBLY



Parts List and Schematic—JOYSTICK ASSEMBLY

NOTE: Part numbers listed are available through DR Power Equipment.

Ref#	Part#	Description
01	271311	Lever, w/Jam Nut
02	271341	Nut, Hex, M10 x 1.5, Zp
03	271291	Boot, Rubber
04	271261	Bolt, SHCS, M6-1 x 16
05	271281	Mount, Lever
06	271251	Bolt, SHCS, M5-.8 x 16
07	271271	Locknut, M7-1.0
08	271221	Ball Joint, Female, M6
09	271241	Heim Joint, Female, M6
10	271301	Heim Joint Slider



DR[®] TOWABLE BACKHOE



2-Year Limited Warranty

Terms and Conditions

The DR[®] TOWABLE BACKHOE is warranted for two (2) years against defects in materials or workmanship when put to ordinary and normal consumer use; ninety (90) days for any other use.

For the purposes of all the above warranties, "ordinary and normal consumer use" refers to non-commercial residential use and does not include misuse, accidents or damage due to inadequate maintenance.

DR Power Equipment certifies that the DR[®] TOWABLE BACKHOE is fit for ordinary purposes for which a product of this type is used. DR Power Equipment however, limits the implied warranties of merchantability and fitness in duration to a period of two (2) years in consumer use, ninety (90) days for any other use.

The 2-Year Limited Warranty on the DR[®] TOWABLE BACKHOE starts on the date the machine ships from our factory. The 2-Year Limited Warranty is applicable only to the original owner.

The warranty holder is responsible for the performance of the required maintenance as defined by the manufacturer's owner's manuals. The warranty holder is responsible for replacement of normally wearing parts such as the Air Filter, Hydraulic Oil Filters, Spark Plug, Bucket Teeth, Highway Tires and Hoses. Accessories to the machine are not covered by this warranty.

During the warranty period, the warranty holder is responsible for the machine transportation charges, if required. During the warranty period, warranty parts will be shipped by standard method at no charge to the warranty holder. Expedited shipping of warranty parts is the responsibility of the warranty holder.

SOME STATES DO NOT ALLOW LIMITATIONS ON THE LENGTH OF IMPLIED WARRANTIES, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.

DR Power Equipment shall not be liable under any circumstances for any **incidental or consequential damages or expenses** of any kind, including, but not limited to, cost of equipment rentals, loss of profit, or cost of hiring services to perform tasks normally performed by the DR[®] TOWABLE BACKHOE.

SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU ALSO HAVE OTHER RIGHTS, WHICH VARY FROM STATE TO STATE.

Daily Checklist for the DR TOWABLE BACKHOE

To help maintain your DR TOWABLE BACKHOE for optimum performance, we recommend you follow this checklist each time you use your Backhoe.

! WARNING!

Center the boom. Retract the boom, crowd arm and bucket. Install the boom hitch pins and lynch pins to lock the boom in place. Shut down the engine, remove the spark plug wire and wait 5 minutes before performing any maintenance procedure or inspection on the backhoe.

- Check the engine oil level.
- Check Hydraulic Fluid Level
- Check the general condition of the Backhoe, e.g.; nuts, bolts, welds, etc.
- Check Tire Pressure
- Check Hydraulic Hoses and Connections
- Lubricate Grease Fittings

End of Season and Storage

! WARNING!

Center the boom. Retract the boom, crowd arm and bucket. Install the boom hitch pins and lynch pins to lock the boom in place. Shut down the engine, remove the spark plug wire and wait 5 minutes before performing any maintenance procedure or inspection on the backhoe.

- Add stabilizer to the fuel tank as needed.
- Coat the exposed piston rods of all hydraulic cylinders with a grease or corrosion preventative.
- Lubricate all grease fittings (See page 20).
- Install boom and swivel safety hitch pins.
- Clean the exterior of the unit to remove all dirt, grease, and any other foreign material. To prevent rust, touch up painted surfaces that have been scratched or chipped.

If possible, store the Backhoe in a dry, protected place. If it is necessary to store the Backhoe outside, cover it with a protective material (especially the Engine and Seat).



75 MEIGS ROAD, P.O. BOX 25, VERGENNES, VERMONT 05491