

Operation & Maintenance Manual





QuattroPlow™ Model HD



REMEMBER: Register your product! No claims for warranty shall be considered unless your product registration card is completed online within 30 days of purchase. Go to: snowwolfplows.com/registration.

MANUFACTURER'S WARRANTY

Two-Year Limited Warranty

SNOWWOLF International, hereinafter referred to as SNOWWOLF, warrants new SNOWWOLF SNOW PLOWS at the time of delivery to the original purchaser, to be free from defects in material and workmanship when properly set up and operated in accordance with the recommendations set forth by SNOWWOLF.

SNOWWOLF'S liability for any defect with respect to accepted goods shall be limited to repairing the goods at a SNOWWOLF designated location or at an authorized dealer location, or replacing them as SNOWWOLF shall elect. The above shall be in accordance with SNOWWOLF warranty adjustment policies. SNOWWOLF'S obligation shall terminate twenty-four (24) months after the delivery of the goods to original purchaser including cutting edge breakage or wear. This warranty shall not apply to any machine or attachment which shall have been repaired or altered outside the SNOWWOLF factory or authorized SNOWWOLF dealership or in any way so as in SNOWWOLF'S judgment, to affect its stability or reliability, nor which has been subject to misuse, negligence or accident beyond the Company recommended machine rated capacity.

Warranty Claim

To submit a warranty claim, a return authorization from SNOWWOLF must be obtained. The failed part may then be returned. Tampering with the failed part may void the warranty. This warranty does not include freight or delivery charges incurred when returning machinery for servicing. Dealer mileage, service calls, and pickup/delivery charges are the customers' responsibility.

Exclusions of Warranty

Except as otherwise expressly stated herein, SNOWWOLF makes no representation or warranty of any kind, expressed or implied, AND MAKES NO WARRANTY OF MERCHANTABILITY IN RESPECT TO ITS MACHINERY AND/OR ATTACHMENTS ARE FIT FOR ANY PARTICULAR PURPOSE. SNOWWOLF shall not be liable for incidental or consequential damages for any breach of warranty, including but not limited to inconvenience, rental of replacement equipment, loss of profits or other commercial loss. Upon purchase, the buyer assumes all liability for all personal injury and property resulting from the handling, possession, or use of the goods by the buyer.

No agent, employee, or representative of SNOWWOLF has any authority to bind SNOWWOLF to any affirmation, representation or warranty concerning its machinery and/or attachments except as specifically set forth herein.

This warranty policy supersedes any previous documents.

No claims for warranty shall be considered unless warranty registration is sent to SNOWWOLF within 30 days of purchase!

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Introduction	3
Owner Information	
Serial Number Location	
Attachment Identification, HD Models	
Safety	5
Safety Information	
Safe Operation Needs A Qualified Operator Importance of Safety	
Operation	9
General Information	
Pre-Operation Inspection	
Attachment Inspection	
Daily Inspection	
Attachment Installation	
Entering The Operator's Position	
Leaving The Operator's Position	
Connecting Attachment To The Machine	
Hydraulic Couplers	
Operating The Attachment	
Operation	
Attachment Removal	
Maintenance	17
Maintenance Safety	17
General Maintenance	
QuattroPlow Maintenance	
Lubrication	
Cutting Edge Replacement	
Cutting Edge Trip Spring Adjustment / Replacement Side Wing Cutting Edge Replacement	
Troubleshooting	
Storage And Return To Service	
Parts	25
Models QPHD146, QPHD170	
Parts	



Options (QPHD Models)	
Side Wing (QPHD Models)	
Hydraulics QPHD146, QPHD170	
Hydraulic Hoses (QPHD Models)	
Hydraulic Components (QPHD Models)	
Decal Identification (QPHD Models)	
Options	
Hydraulic Manifold AutoWing (HD Models)	
Power Wing Upgrade QPHD-PW (HD Models)	
ActivEdge	
Spill Guard	
Mount, MT100 Kit, CAT-IT	
Mount, MT200 Kit, CAT-FUSION	
Mount, MT300 Kit, JRB-416	
Mount, MT500 Kit, VOLVO	
Mount, MT600 Kit, Volvorsal Weld On	
Specifications	47
Attachment Specifications (QPHD Models)	47
Dimensions (QPHD Models)	
Torque Specifications	40



Owner Information

Thank you for your decision to purchase a SnowWolf QuattroPlow. To ensure maximum performance of your equipment, it is mandatory that you thoroughly study the Operator's Manual and follow the recommendations. Proper operation and maintenance are essential to maximize equipment life and prevent personal injury.

Operate and maintain this equipment in a safe manner and in accordance with all applicable local, state, and federal codes, regulations and / or laws. Follow all on-product labeling and instructions.

Make sure that all personnel have read this Operator's Manual and thoroughly understand safe and correct operating, installation and maintenance procedures.

SnowWolf is continually working to improve its products. SnowWolf reserves the right to make any improvements or changes as deemed practical and possible without incurring any responsibility or obligation to make any changes or additions to equipment sold previously.

Although great care has been taken to ensure the accuracy of this publication, SnowWolf makes no warranty or guarantee of any kind, written or expressed, implied or otherwise with regard to the information contained within this manual. SnowWolf assumes no responsibility for any errors that may appear in this manual and shall not be liable under any circumstances for incidental, consequential or punitive damages in connection with, or arising from the use of this manual.

Keep this manual available for frequent reference. All new operators or owners must review the manual before using the equipment and annually thereafter. Contact your SnowWolf Attachments Dealer for assistance, information, or additional copies of the manual. Contact www.snowwolfplows.com or call 1-800-905-2265 for a complete list of dealers in your area.

Serial Number Location

Please record attachment information in the space provided for future reference.

Model Number:	
Serial Number:	
Dealer Name:	
Dealer Number:	
Date of Purchase:	

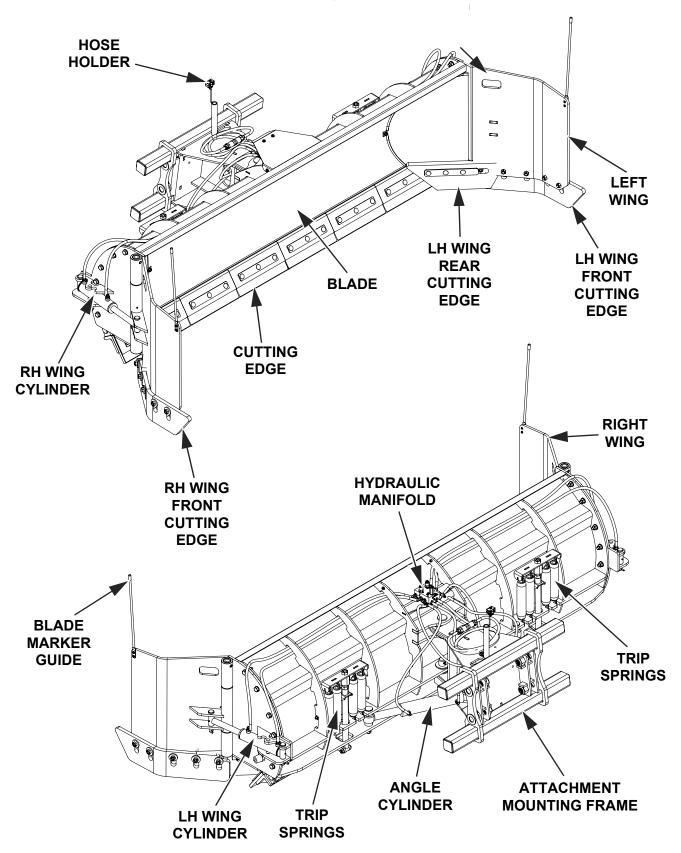
Always use the serial number of the QuattroPlow when requesting service information or when ordering parts. Early or later models (identification made by serial number) may use different parts, or may require a different procedure in doing a specific service operation.

NOTE: This document and the information provided are the property of SnowWolf and may only be used as authorized by SnowWolf.

The serial number plate is located on the rear of the QuattroPlow moldboard.



Attachment Identification, HD Models





Safety Information



Safety Alert Symbol

This SAFETY ALERT SYMBOL identifies important safety messages on the equipment and in the owner's manual. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.

DANGER

The signal word DANGER on the machine and in the manuals indicates a hazardous situation which, if not avoided, will result in death or serious injury.

MARNING

The signal word WARNING on the machine and in the manuals indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

The signal word CAUTION on the machine and in the manuals indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

⚠ IMPORTANT

The signal word IMPORTANT identifies procedures which must be followed to avoid damage to the machine.

Safe Operation Needs A Qualified Operator

MARNING

AVOID SERIOUS INJURY OR DEATH

Operators must receive instructions before operating the machine. Untrained operators can cause serious injury or death.

For an operator to be qualified, he or she must not use drugs or alcoholic drinks which impair alertness or coordination while working. An operator who is taking prescription drugs must get medical advice to determine if he or she can safely operate a machine and the equipment.

Owner's Responsibility

Operate and maintain this machine in a safe manner and in accordance with all applicable local, state, and federal codes, regulations and/or laws; and in compliance with on-product labeling and this owner's manual instructions.

Make sure that all personnel have read this owner's manual, and thoroughly understand safe and correct installation, operation and maintenance procedures

Give operating instructions to the operators before allowing them to operate the machine, and at least annually thereafter.



Importance of Safety

Operating Safety

- Read and follow instructions in this manual and the machine's Operators Manual before operating.
- The QuattroPlow attachment is intended for use in snow removal. Use of this equipment in any other manner is considered to be contrary to the intended use of the attachment.
- Under no circumstances should children be allowed to work with this equipment.
- This equipment is dangerous to persons unfamiliar with its operation.
- Check for overhead and / or underground lines before operating equipment (if applicable).
- In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.
- Check that the attachment is securely fastened to the machine.
- Make sure all the machine controls are in the NEUTRAL before starting the machine.
- Operate the equipment only from the operator's position.
- Operate the equipment according to the Operator's Manual.
- When learning to operate the equipment, do it at a slow rate in an area clear of bystanders.
- DO NOT permit personnel to be in the work area when operating the equipment.
- The equipment must be used ONLY on approved machines.

- DO NOT modify the equipment in any way. Unauthorized modification may impair the function and / or safety and could affect the life of the equipment.
- DO NOT make any adjustments or repairs on the equipment while the machine is running.
- Keep shields and guards in place. Replace if damaged.
- DO NOT operate equipment in poor visibility conditions such as fog, darkness, or any conditions that limit clear visibility less than 300 feet (100 m) in front of and to the sides of the equipment.
- DO NOT operate in a work area that has not been inspected for foreign debris and obstacles.
- Remove any foreign objects and clearly mark any objects that cannot be removed.
- Wear safety glasses, gloves, hard hat, hearing protection and other protective clothing when operating or maintaining this equipment.



Importance of Safety Cont'd

Fire Prevention Safety

 All fuels, most lubricants and some coolant mixtures are flammable. Flammable fluids that are leaking or spilled onto hot surfaces or onto electrical components can cause a fire.

Transporting Safety

- Comply with state and local laws governing highway safety and movement of machinery on public roads.
- Check local laws for all highway lighting and marking requirements.
- Always yield to oncoming traffic and move to the side of the road so any following traffic may pass.
- Never allow riders on either machine or equipment.
- If transporting the attachment on a truck or trailer, make sure it is properly secured to the transport vehicle.

Hydraulic Safety

- Always disconnect hydraulic connections between the machine and the QuattroPlow before performing maintenance to the QuattroPlow.
- Always clean fluid spills. Do not use gasoline or diesel fuel for cleaning parts. Use commercial nonflammable solvents.
- Check hydraulic tubes, hoses and fittings for damage and leakage. Never use open flame or bare skin to check for leaks. Hydraulic tubes and hoses must be properly routed and have adequate support and secure clamps. Tighten or replace any parts that show leakage.





Leaking fluids under pressure can enter the skin and cause serious injury or death. Immediate medical attention is required. Wear goggles. Use cardboard to check for leaks.





General Information

Pre-Operation Inspection

Before operating the QuattroPlow for the first time and each time thereafter, use the following list as a guideline during equipment inspection.

- 1. Use only a machine of adequate power and weight to operate the QuattroPlow.
- 2. Check the QuattroPlow and machine's quick tach mounts for damaged, loose or missing parts. Repair as needed before operation.
- 3. Lubricate the QuattroPlow, see Lubrication on page 19.
- 4. Check that the QuattroPlow is properly attached to the machine. Be sure retainers are used on the mounting pins.
- 5. Check that wear shoes (if equipped) are set at the same working depth.
- 6. Make sure that all guards and shields are in place, secured and functioning as designed.
- 7. Check oil level in machine's hydraulic reservoir.
- Check that the hydraulic hoses and couplers are securely attached to the QuattroPlow and to the machine. Make sure hoses are routed and secured to avoid pinch points or strain during movement of the machine/attachment.
- 9. Check cutting blade for wear or damage.
- 10. Check hydraulic lines, connections and fittings for hydraulic oil leaks.

MARNING



Leaking fluids under pressure can enter the skin and cause serious injury or death. Immediate medical attention is required. Wear goggles. Use cardboard to check for leaks.



Attachment Inspection

Daily Inspection

NOTE: Inspect the attachment by performing a walk around daily before and after use.
Use the following inspection checklist as a guideline.

Check the following items every 10 hours of operation:

- Verify that the QuattroPlow is properly connected to the machine.
- Check that all shields and guards are in place.
- Check for damaged or leaking hydraulic hoses or fittings. Replace if necessary.
- Check moldboard cutting edge for wear or damage. Replace if necessary.
- Check moldboard cutting edge for wear or damage. Replace if necessary.
- Check QP wing.
- Check that all cotter pins that retain pivot/ anchor pins are in place and not damaged or missing.
- Check the QuattroPlow to ensure that all components are secure and that all bolts and nuts are thoroughly tightened.
- Check the QuattroPlow mounting hardware for wear or damage. Inspect the pins and mount (on the attachment) for wear or damage. Repair or replace damaged parts if necessary.

Monthly Inspection

- Inspect the QuattroPlow for cracks, bends, or excessive wear.
- · Check wear shoes (if equipped) for wear.
- Check that all bolts are tight.
- Check moldboard cutting edge and mounting plate for cracks or damage. Replace if necessary.
- Check the wing cutting edge's for cracks or damage. Replace if necessary.
- Check hydraulic lines, connections and fittings for hydraulic oil leaks. Repair or replace damaged parts if necessary.
- Check for damaged or missing decals.
 Replace if necessary.
- Lubricate as required.



AVOID SERIOUS INJURY OR DEATH

Before servicing the attachment:

- · Always park on a flat level surface.
- Lower lift arms and place attachment flat on the ground.
- Place all controls in NEUTRAL.
- Engage the park brake.
- Wait for all moving parts to stop.
- Stop the engine and remove the key.

SEE MACHINE'S OPERATOR'S MANUAL FOR ADDITIONAL INFORMATION.



Attachment Installation

MPORTANT



See the machine's Operator's Manual for detailed information on operating the loader.

Entering The Operator's Position

Use the attachment safety treads, handles and steps (on the machine) to enter the operator's position.

When in the operator's position, lower safety seat bar, start the engine and release the parking brake.

Leaving The Operator's Position



AVOID SERIOUS INJURY OR DEATH

Before leaving the operator's position:

- Always park on a flat level surface.
- Lower lift arms and place attachment flat on the ground.
- Place all controls in NEUTRAL.
- Engage the park brake.
- Stop the engine and remove the key.
- Wait for all moving parts to stop.

SEE MACHINE'S OPERATOR'S MANUAL FOR ADDITIONAL INFORMATION.

Connecting Attachment To The Machine







CRUSH HAZARD

- Before moving the machine, look in all directions and make sure no bystanders, especially small children are in the work area. Do not allow anyone between the machine and attachment when approaching the attachment for connecting.
- Keep fingers and hands out of pinch points when connecting and disconnecting attachment.

Before connecting to the attachment, inspect the machine's mounting plate. (See the machine's Operator's Manual for inspecting the mounting frame).

Enter the operator's position. See "Entering The Operator's Position" on page 11.

Lower the machine's lift arm and tilt the machine's mounting plate forward.

Drive the machine slowly forward until the top edge of the machine's mounting frame is completely under the mounting flange of the QuattroPlow mounting frame.

Slowly raise and tilt the machine's mounting plate back until the QuattroPlow is slightly off the ground and attachment mounting frame fully contacts the front of the machine's mounting plate.



Connecting Attachment To The Machine (Cont'd)

MARNING

AVOID INJURY OR DEATH

Always shut off the machine's engine and apply the parking brake before exiting the machine.

Stop the engine and engage the parking brake.

Leave the operator's position. See "Leaving The Operator's Position" on page 11.

Engage machine's locking levers / wedges to securely fasten the attachment to the machine's mounting frame. (See the machine's Operation Manual for the correct procedure.)

Visually inspect that the wedge pins are securely fastened into the attachment mounting frame.

MARNING

AVOID SERIOUS INJURY OR DEATH

The locking pins / wedges must extend through the holes in the attachment mounting frame. Failure to secure locking pins / wedges can allow attachment to come off.

SEE MACHINE'S OPERATOR'S MANUAL FOR ADDITIONAL INFORMATION.

Engage machine's locking levers / wedges (See the machine's Operator's Manual for detailed information).

Hydraulic Couplers

MPORTANT

 Thoroughly clean the quick couplers before making connections. Dirt can quickly damage the hydraulic system.



AVOID BURNS

Hydraulic fluid, fluid tubes, fittings and quick couplers can get hot when running the machine and attachments. Be careful when connecting and disconnecting quick couplers.

Connecting Hydraulic Couplers:

Remove any dirt or debris from the surface of both the male and female couplers, and from the outside diameter of the male coupler. Visually check the couplers for corroding, cracking, damage, or excessive wear. If any of these conditions exist, replace the coupler(s).

NOTE: The QuattroPlow is supplied with flush face couplers.

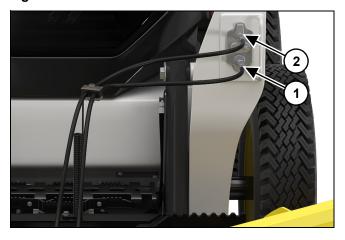
NOTE: DO NOT attach hoses to high flow lines on a machine equipped with the High Flow Option.

NOTE: DO NOT hammer on or heat up couplers to connect or disconnect. Doing so will damage couplers resulting in leaks.



Hydraulic Couplers (Cont'd)

Figure 1



Install the QuattroPlow male coupler (Item 1) [Figure 1] into the female coupler. Pull on the coupler connection to verify that the male and female couplers are securely fastened.

Install the QuattroPlow female coupler (Item 2) [Figure 1] onto the male coupler. Pull on the coupler connection to verify that the male and female couplers are securely fastened.

Checking QuattroPlow Operation

NOTE: After installing the QuattroPlow, test all functions before operating the QuattroPlow in the work area.



AVOID INJURY OR DEATH

- Never start the machine from outside the cab.
- Never operate the machine if any safety device is damaged, disconnected or missing.
- Never exit the machine with the engine running.

MPORTANT

It is the operator's responsibility to know which machine control operates each function of the attachment prior to operating the attachment in the work area.

Engage the machine's auxiliary hydraulics. (See the machine's Operation Manual for correct procedure).

Raise the engine RPM.

Check the controls of the QuattroPlow for proper operation.

Exit the machine. (See "Leaving The Operator's Position" on page 11.)

Move the machine and QuattroPlow to the work area.



Operating The Attachment

Operation



AVOID INJURY OR DEATH

While operating the machine:

- Always keep seat belt fastened.
- Safety seat bar lowered (if equipped)

Always keep your feet on the pedals or footrests and hands on the controls

Enter the machine. (See "Entering The Operator's Position" on page 11.)

Start the engine and release the parking brake.

Engage the machine's auxiliary hydraulics. (See the machine's Operation Manual for correct procedure.)

Raise the QuattroPlow slightly off the ground.

Set the desired left/right blade angle and up/down tilt.

Regulate the scraping ability of the QuattroPlow by increasing or decreasing the down pressure applied via the tilt cylinders. The angle of the QuattroPlow can be changed at any time by using the auxiliary circuit.

NOTE: Always be sure the A-frame of your QuattroPlow is level (parallel) with the ground when plowing, to insure proper cutting edge wear.

NOTE: The machine speed is determined by the depth and density of the material being moved.

NOTE: On extremely uneven ground, raise the boom arms slightly, lower the QuattroPlow to the ground using the tilt cylinders, then put the boom arms in the float position (if machine is equipped) to follow the contours of the ground.



AVOID SERIOUS INJURY OR DEATH

Always be aware of overhead obstacles or power lines when stacking snow.



Attachment Removal

NOTE: Put the QuattroPlow on planks or blocks before removing it from the machine to prevent it from settling or sinking in soft / wet ground.

Park the machine and attachment on a flat level surface.

Lower the lift arms and put the QuattroPlow flat on the ground.

Stop the engine and engage the parking brake.

Relieve auxiliary hydraulic pressure. (See the machine's Operator's Manual for correct procedure.)

Leave the operator's position. (See "Leaving The Operator's Position" on page 11.)

Disconnect the auxiliary hydraulic hoses. (See "Hydraulic Couplers" on page 12.)

Disengage the attachment locking levers / wedges. (See the machine's Operator's Manual for correct procedure.)



AVOID BURNS

Hydraulic fluid, tubes, fittings and quick couplers can get hot during operation. Be careful when connecting and disconnecting hydraulic hoses.

Enter the machine. (See "Entering The Operator's Position" on page 11.)

Start the engine and release the parking brake.

Engage the machine's auxiliary hydraulics. (See the machine's Operation Manual for correct procedure.)

Slowly tilt the machine's mounting plate forward until the attachment mounting frame is free from the machine's mounting plate.

Drive the machine slowly backward, away from the attachment.





Maintenance Safety

MARNING

AVOID SERIOUS INJURY OR DEATH

Never operate the machine in a closed building. Proper ventilation is required when operating the machine under all circumstances.

MARNING

AVOID SERIOUS INJURY OR DEATH

Stop the engine, release auxiliary hydraulic pressure and disconnect the auxiliary hydraulic hose quick couplers before performing maintenance on the QuattroPlow.

- Always keep the work area clean and dry.
- Always use personal protection devices such as eye, hand and hearing protection when performing any service or maintenance.
- A fire extinguisher and first aid kit should be readily accessible while performing maintenance on this machine.
- Always relieve hydraulic system pressure before disconnecting the QuattroPlow.
- Always disconnect hydraulic connections between the machine and the QuattroPlow before performing maintenance.
- Before working or doing maintenance on this machine, shut off the engine and remove the key. Make sure the machine's wheels are blocked.
- Never work under the machine or attachment unless the machine or equipment is blocked or supported securely.

- Disconnect the battery (both terminals) before welding on any part of the machine. Failure to do so may cause damage to electrical components.
- When working around batteries, remember that all of the exposed metal parts are "live". Never lay a metal object across the terminals because a spark, short circuit, explosion or personal injury may result.
- Battery posts, terminals and related accessories contain lead and lead compounds.
 Wash hands after handling.
- Never search for leaks with your hands. (See "Hydraulic Safety" on page 7.)
- When replacement parts are necessary, genuine factory replacement parts must be used to restore your equipment to original specifications. SnowWolf will not be responsible for injuries or damage caused by use of unapproved parts and / or accessories.
- When completing service or maintenance on this machine, make sure all shields and guards are installed before placing the machine into service.



General Maintenance

MARNING

AVOID SERIOUS INJURY OR DEATH

Before operating or servicing system: Read and understand the machine's owners manual. Follow the warnings and instructions in the manual when making repairs, adjustments, or servicing. Check for correct function after adjustments, repairs or service. Untrained operators and failure to follow instructions can cause injury or death.

To ensure efficient operation, you should inspect, lubricate, and make necessary adjustments and repairs at regular intervals. Keep good maintenance records and adequately clean your machine after each use.

Proper lubrication is important. Follow all lubrication instructions and schedules included in this section.

Daily Inspection:

- All components and hardware to ensure equipment is secure and thoroughly tightened.
- Frame and all welds for cracks or damage.
- Wear shoes (if equipped) for wear or damage.
- Mounting frame for proper operation and signs of damage or unusual wear.
- Safety signs and reflectors for damage.
 Replace any missing or damaged decals.
- Cutting edge for wear or damage.
- Hydraulic hoses and fittings for wear, damage or leaks.

NOTE: Repair or replace any damaged parts.

NOTE: After initial use, or repair/replacement of damaged parts, it is important to check the repaired or replaced parts for proper bolt torque, operation and leaks.



QuattroPlow Maintenance

MARNING

AVOID SERIOUS INJURY OR DEATH

Always turn off and lockout power before servicing the attachment.

MARNING

AVOID SERIOUS INJURY OR DEATH

Always disconnect hydraulic connections between the attachment and the machine before performing any type of maintenance to the QuattroPlow.

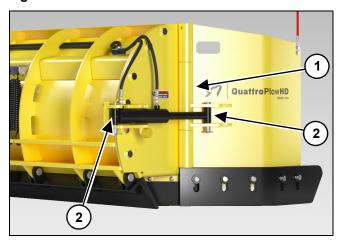


AVOID SERIOUS INJURY OR DEATH

Securely block up the attachment before working underneath.

Lubrication

Figure 1



Apply 3-4 pumps of grease to the wing hinge zerk (Item 1) **[Figure 1]** both sides **every 40 hours** of operation.

Apply 1-2 pumps of grease to the wing cylinder ends (Item 2) **[Figure 1]** both sides **every 40 hours** of operation.



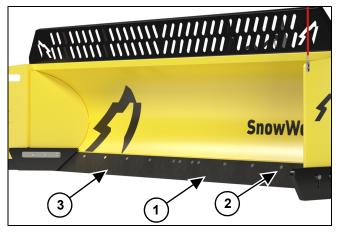
Cutting Edge Replacement

NOTE: Replace or flip the bolt-on cutting edge when it wears within 1/2" - 3/4" of the bolt head securing it to the trip-edge. Replace only with genuine SnowWolf cutting edge and hardware.

- 1. Park the machine on a level surface with the QuattroPlow properly attached.
- 2. Lower the QuattroPlow approximately three to four inches off the ground.
- 3. Engage the parking brake.
- 4. Shut off the machine's engine, remove the ignition key (if equipped), wait for all moving parts to come to a stop and relieve all pressure in the hydraulic lines.
- 5. Block and/or support the QuattroPlow with proper lifting device capable of sufficiently supporting the unit's weight.
- 6. Disconnect hydraulic connections between the attachment and the machine.

NOTE: The cutting edge and hardware quantity will vary depending upon the QuattroPlow model.

Figure 2



7. Block the cutting edge (Item 1) [Figure 2], remove the fasteners (Item 2) and remove the cutting edge.

NOTE: Be cautious as the cutting edge and hardware may be sharp.

- 8. Repeat procedure for the cutting edge (Item 3) [Figure 2].
- 9. Properly dispose of the old cutting edge's and install the new cutting edge's by reversing the steps listed here.

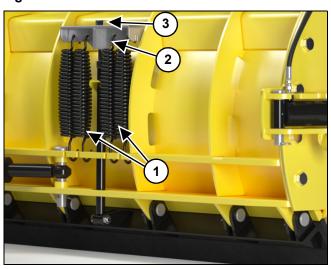
NOTE: Replace worn or damaged fasteners as needed.

Cutting Edge Trip Spring Adjustment / Replacement

MPORTANT

Set trip springs after first use, then twice per year thereafter.

Figure 3



Cutting edge trip springs (Item 1) **[Figure 3]** are adjusted by loosening the jam nut (Item 2) located on the rod between each spring, then tightening or loosening the threaded bolt (Item 3).

Springs are adjusted correctly when there is a .001" gap between the coils. Tighten jam nut.

NOTE: Use grease or "Anti Seize" on the rod and jam nut to prevent rusting.

NOTE: Adjust trip springs evenly on both sides.



Side Wing Cutting Edge Replacement

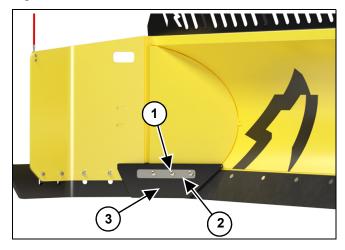


AVOID SERIOUS INJURY OR DEATH

Securely block up the attachment before working underneath. Be cautious as the cutting edge and hardware may be sharp.

Place blocks under the QuattroPlow (both sides) to hold the side wing cutting edges off the ground.

Figure 4

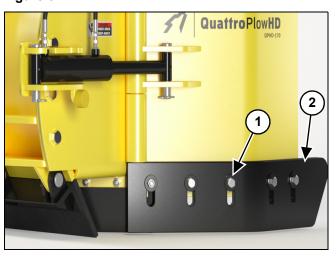


Remove the three nuts and bolts (Item 1) [Figure 4], hold down strip (2) and inner cutting edge (Item 3).

Install new cutting edge, hold down strip, nuts and bolts. Tighten hardware.

Repeat procedures on the opposite side.

Figure 5



Remove the five bolts (Item 1) [Figure 5] washers, bushings, nuts and cutting edge (Item 2).

Install new cutting edge, bolts, washers, bushings and nuts. Tighten hardware.

Repeat procedures on the opposite side.



Troubleshooting

PROBLEM	CAUSE	SOLUTION	
QuattroPlow leaving snow	Cutting edge worn or damaged.	Replace main cutting edge wing cutting edges.	
behind.	Blade tilted too high.	Adjust machines lift and tilt controls.	
	No hydraulic flow.	Check quick coupler connections.	
QuattroPlow does not rotate.		Engage auxiliary hydraulics.	
Qualifornow does not rotate.	Plugged or kinked hose	Replace hose.	
	Hydraulic fluid low.	Check machine hydraulic oil level.	
QuattroPlow tilt/rotate functions inconsistent.	Hydraulic fluid low.	Check machine hydraulic oil level.	
functions inconsistent.	Faulty angle cylinder.	Replace cylinder.	
QuattroPlow wings won't function on older machine.	Lack of pressure to operate the wing function.	Contact SnowWolf on guidance for valve adjustment.	
QuattroPlow wings drift slowly while pushing or back dragging.	Wing Relief Pressure too low on Auto wing manifold.	Contact SnowWolf on guidance for valve adjustment.	
QuattroPlow wing will not move or moves slow.	Wing hinge pin seized.	Lubricate and free wing hinge pin.	
INOVE OF THOVES SIOW.	Faulty wing cylinder.	Replace wing cylinder.	



Storage And Return To Service

Storage

After the seasons use or when the QuattroPlow will not be in use for a period of time, perform the following steps.

- Thoroughly wash the QuattroPlow.
- Make sure all covers, guards and shields are installed.
- Inspect all components and hardware to ensure everything is secure and thoroughly tightened.
- Inspect the frame and all welds for cracks or damage.
- Apply a light coat of grease to the cylinder rods and pivot pins to prevent rust.
- Lubricate the power wing hinges or QP wing hinges.
- Lubricate wing mount bushings.
- Inspect the attachment mounting frame for wear or damage.
- Check that all decals and/or reflectors are in good condition and legible. Replace any damaged or missing decals.
- Cap all loose hose ends.
- Place the QuattroPlow in a dry protected shelter.

NOTE: Replace or repair any damaged parts

Return to Service

After the QuattroPlow has been in storage, it is necessary to follow a list of items to return the QuattroPlow to service.

- Make sure all covers, guards and shields are installed.
- Inspect all components and hardware to ensure everything is secure and thoroughly tightened.
- Inspect the decals and reflectors for missing or damage.
- Install and operate the QuattroPlow and check for correct function.
- Check for leaks. Clean and repair as needed.



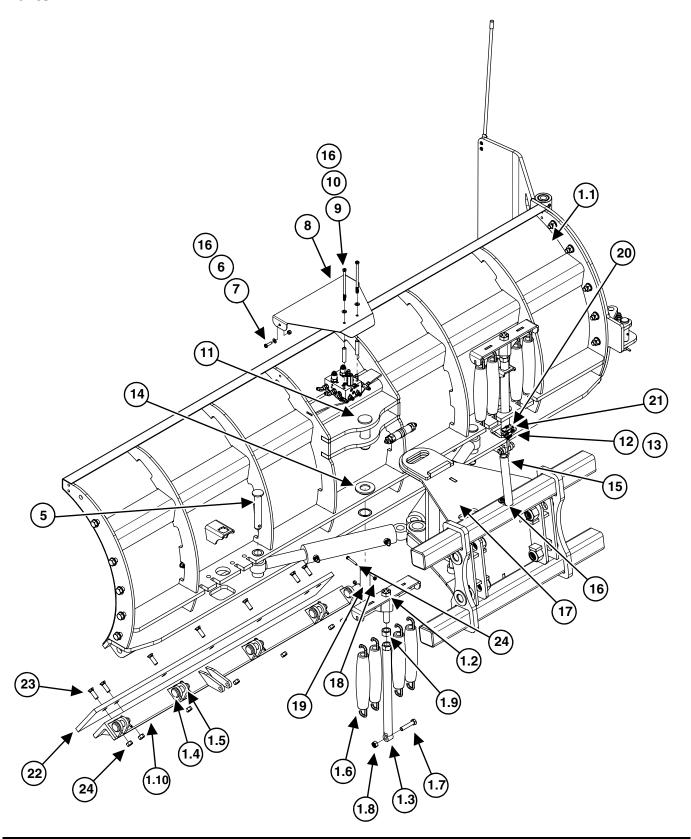


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Models QPHD146, QPHD170

Parts



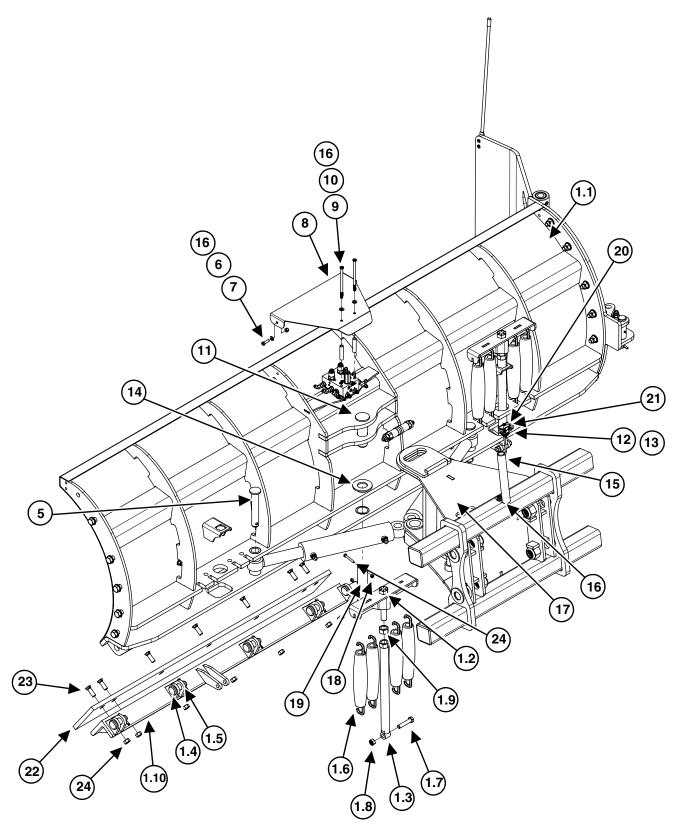


ITEM	PART#	DESCRIPTION	QPHD-146 QTY	QPHD-170 QTY
1	P80074	MOLDBOARD ASSEMBLY 120" 10FT HD	1	0
1	P80075	MOLDBOARD ASSEMBLY 144" 12FT HD	0	1
1.1	P80100	MOLDBOARD ONLY, 120" 10FT HD	1	0
1.1	P80101	MOLDBOARD ONLY, 144" 12FT HD	0	1
1.2	P80080	SPRING ADJUSTER ASSEMBLY, HD	2	2
1.3	P80081	WELDMENT, SPRING BAR, HD	2	2
1.4	P40006	PIN, UPPER PIVOT/TRIP EDGE 1-3/16" x 3"	9	11
1.5	P40007	PIN, COTTER, 1/4" x 2", ZINC	9	11
1.6	P40010B	SPRING, TRIP, 6'-10' NEW STYLE	8	8
1.7	P40013	BOLT, HEX, 5/8-11 x 3, GR 8	2	2
1.8	P40012	NUT, LOCK, 5/8-11, GR C	2	2
1.9	P60065	JAM NUT, HEX, 1"- 8, GR 8	2	2
	P70008L-A	TRIP EDGE WELDMENT, LEFT HAND 120" (10FT)	1	0
1.10	P70008R-A	TRIP EDGE WELDMENT, RIGHT HAND 120" (10FT)	1	0
1.10	P70008L-B	TRIP EDGE WELDMENT, LEFT HAND 144" (12FT)	0	1
	P70008R-B	TRIP EDGE WELDMENT, RIGHT HAND 144" (12FT)	0	1
5	P80004	PIN, RAM ANCHOR 1.25 X 7.5 BLADE OR FRAME END	4	4
6	P60210	BOLT, HEX, 3/8" x 1-1/4"	2	2
7	P60211	NUT, HEX, NYLOCK, 3/8", GR 8	6	6
8	P80086	MANIFOLD SHROUD, QUATTRO HD	1	1
9	P60089	MANIFOLD SHROUD BOLT SPACER	2	2
10	P80052	BOLT, HEX, 3/8" x 6-1/2", GR 5	2	2
11	P80002	PIN, UPPER PIVOT, 1.75" x 6.00"	1	1
12	P60209	WASHER, FLAT, 1/2" USS	3	3
13	P60094	BOLT, HEX, 5/16-18 x 2-1/2", GR 5	1	1
14	P80116	WASHER, CUSTOM, LOWER PIVOT	1	1
15	P60084	SPRING, HOSE HOLDER	1	1
16	P60088	WASHER, FLAT, 3/8"	6	6



Models QPHD146, QPHD170 (Cont'd)

Parts (Cont'd)





ITEM	PART#	DESCRIPTION	QPHD-146 QTY	QPHD-170 QTY
17	P80087	A-FRAME, HD	1	1
18	60211	NUT, HEX, NYLOCK, 3/8"-16	2	2
19	P80003	PIN, LOWER PIVOT, 1.75" x 8.5"	1	1
20	P60159	HOSE CLAMP	1	1
21	P60160	PLATE, HOSE CLAMP	1	1
22	P81011	BOLT, CARRIAGE, GR8	14	16
23	P60009	NUT, HEX, 5/8-11 x 2 1/2"	14	16
24	P60235	BOLT, HEX, 3/8"-16 x 2", YELLOW ZINC, GR 8	2	2

For items above 24: See "Options (QPHD Models)" on page 30.

For hydraulic hoses: See "Hydraulic Hoses (QPHD Models)" on page 34.

For hydraulic components: See "Hydraulic Components (QPHD Models)" on page 35.



Options (QPHD Models)

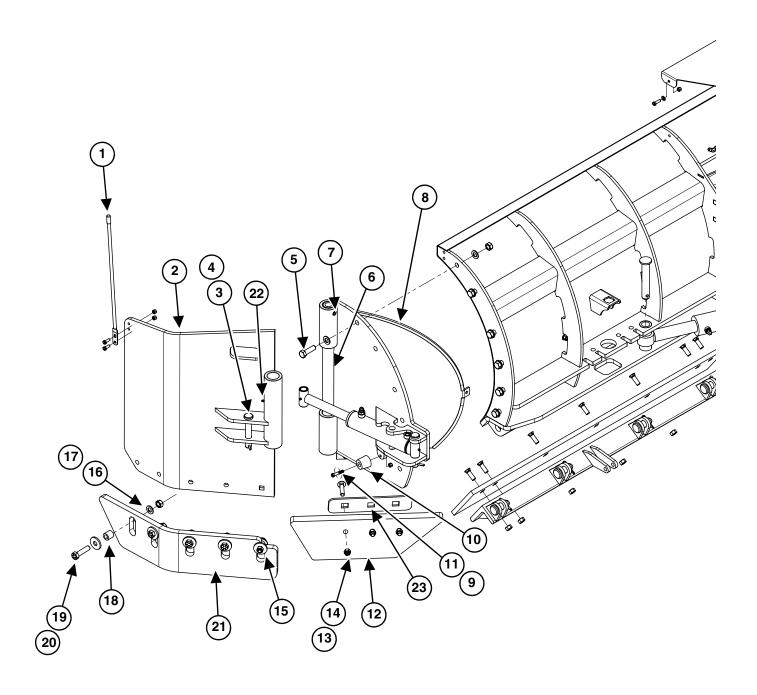
ITEM	PART#	DESCRIPTION	QPHD-146 QTY	QPHD-170 QTY
	MOUNT OPTIONS SEE PAGES 41-46			
NS	P60028	WING EDGE KIT, STEEL, w/ HW	1	1
NS	80013	WOLFWINGS W/ TRIP EDGE	1	1
	STANDARD BLADE			
24	P80011-A	CUTTING EDGE, 10' w/ HW	1	0
24	P80011-B	CUTTING EDGE, 12' w/ HW	0	1
	ActivEdge, AR400, SE	E PAGE 39		
NS	P80011-A-SEC	10' COMPLETE KIT	1	0
NS	P80011-B-SEC	12' COMPLETE KIT	0	1
NS	P80011-A-REK	10' REPLACEMENT EDGES w/ HW	1	0
NS	P80011-B-REK	12' REPLACEMENT EDGES w/ HW	0	1
	CARBIDE ActivEdge, AR400 WITH CARBIDE, SEE PAGE 39			
NS	P80124-A-SEC	10' COMPLETE KIT	1	0
NS	P80124-B-SEC	12' COMPLETE KIT	0	1
NS	P80124-A-REK	10' REPLACEMENT CARBIDE EDGES w/ HW	1	0
NS	P80124-B-REK	12' REPLACEMENT CARBIDE EDGES w/ HW	0	1
	SPILL GUARD (OPTION)			
NS	P80102-K	SPILL GUARD, 10'	1	0
NS	P80103-K	SPILL GUARD, 12'	0	1



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Side Wing (QPHD Models)



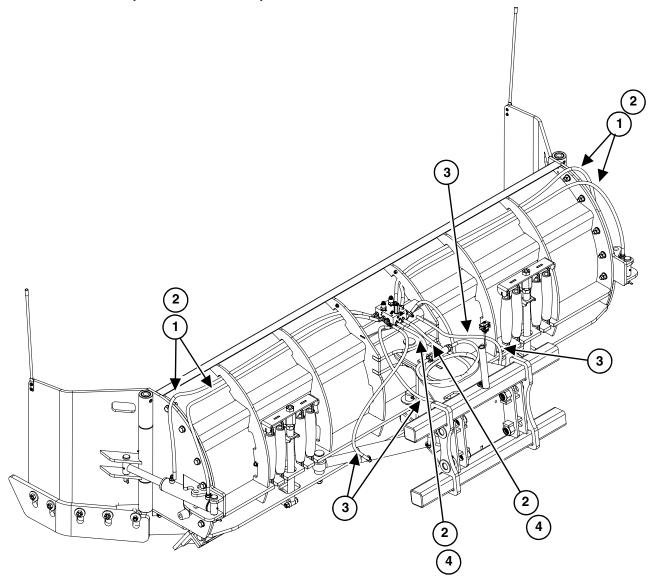


ITEM	PART#	DESCRIPTION	QPHD-146 QTY	QPHD-170 QTY
1	P50001	BLADE MARKER GUIDE SET	1	1
2	P80083	WING, QUATTRO PLOW HD, LH	1	1
NS	P80085	WING, QUATTRO PLOW HD, RH	1	1
3	P50004	PIN, RAM ANCHOR (BLADE END) 1" x 6'	4	4
4	P40007	PIN, COTTER, 1/4" x 2"	4	4
5	P80039	BOLT, HEX, 3/4-10 x 2-1/2", GR 8	12	12
6	P80097	HINGE PIN, FOR QPHD WING	2	2
7	P80047	PIN, ROLL, 3/4" x 3"	2	2
8	P80082	WING, QUATTRO PLOW HD, LEFT REAR WELDMENT	1	1
9	P60211	NUT, HEX, NYLOCK, 3/8", GR 8	6	6
10	P60158	WING BUMP STOP, 2"W x 1-3/4"H 3/8" BOLT DIA	2	2
11	P60235	BOLT, HEX, 3/8" x 2", ZINC, GR 8	2	2
12	P80061	CUTTING EDGE, URETHANE, LEFT OR RIGHT (REAR ONLY) HD	2	2
13	P80035	BOLT, CARRIAGE, 5/8-11 x 3", GR 5	6	6
14	P40012	NUT, LOCK, 5/8-11, ZINC, GR C	6	6
15	P60095	WASHER, FLAT 3/4" USS	10	10
16	P20028	NUT, LOCK, 3/4-10, GR C	22	22
17	P30051	WASHER, FLAT, 3/4	24	24
18	P60019	BUSHING, Ø1.25" x 1.20"	10	10
19	P60015	WASHER, CUSTOM, 2.25" STEEL EDGE	10	10
20	P70005	BOLT, HEX, 3/4-1/4" x 3" GR 8	10	10
21	P60017	WING EDGE, STEEL, LEFT SIDE	1	1
NS	P60018	WING EDGE, STEEL, RIGHT SIDE	1	1
22	P25562	GREASE ZERK, 3/16" POUND IN	2	2
23	P80062	HOLD DOWN STRIP, (REAR ONLY)	2	2
NS	P80084	WING, QUATTRO PLOW HD, RIGHT REAR WELDMENT	1	1
For hydraulic hoses: See "Hydraulic Hoses (QPHD Models)" on page 34.				



Hydraulics QPHD146, QPHD170

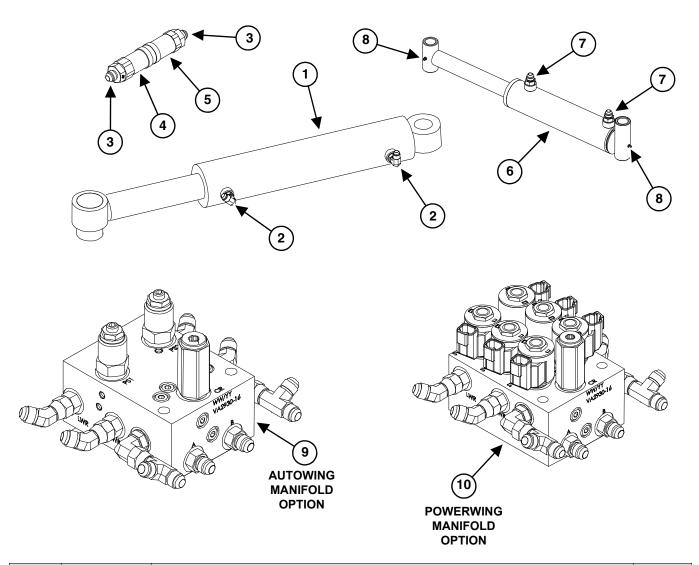
Hydraulic Hoses (QPHD Models)



ITEM	PART#	DESCRIPTION	QPHD-146 QTY	QPHD-170 QTY
1	P50008	HOSE, 3/8" x 78", 4800 PSI, 6FJIC-8FJIC	4	0
2	P50008-D	HOSE, 3/8" x 94", 4800 PSI, 6FJIC-8FJIC	2	6
3	P60082	HOSE, 3/8" x 38", 4800 PSI, 6FJIC-6FJIC	2	2
4	P80065	HOSE, 90DEG, 3/8" x 38.5", 1AAFJ6-1AAFJB6	2	2



Hydraulic Components (QPHD Models)



ITEM	PART#	DESCRIPTION	QTY
1	P80006-1	ANGLE CYLINDER, STEEL 3" BORE, DOUBLE ACTING	2
2	P60085	FITTING, 90 DEG, #6MORB-#6MJIC	4
3	P50009-A	FITTING, #8 MJIC X #12 MORB	2
4	P50010F	COUPLER,1/2" FEMALE FLAT FACE 1/2" BODY x 3/4" PORT	1
5	P50010M	COUPLER, 1/2" MALE FLAT FACE 1/2" BODY x 3/4" PORT	1
6	P80056	CYLINDER, STEEL, QUATTRO WING, DUAL ACTING, LEFT & RIGHT	2
7	P38077	FITTING, #8 MJIC - #8MORB, STR	4
8	P25562	GREASE ZERK, 3/16" POUND IN	2
9	P80051-K	MANIFOLD, AUTOWING ASSY, HD W/VALVES (with fittings) See page 37	1
10	P80057-K	POWERWING MANIFOLD WITH FITTINGS & DIODE HARNESS See page 38	1



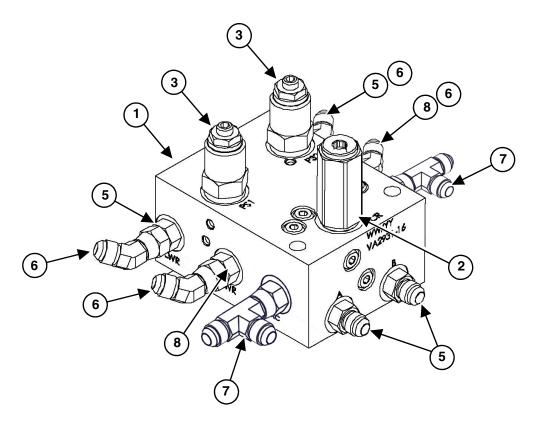
Decal Identification (QPHD Models)

PART#	DESCRIPTION	QPHD-146 QTY	QPHD-170 QTY
DC72	DECAL, QUATTROPLOW, HD-146	1	0
DC73	DECAL, QUATTROPLOW, HD-170	0	1
DC74	DECAL, WING, QPHD-146 20.5" x 3.7"	1	0
DC75	DECAL, WING, QPHD-170 20.5" x 3.7"	0	1
DC77	DECAL, "PATENTS PENDING" BLACK	2	2
DC79	DECAL, WOLFHEAD, LARGE, LEFT SIDE, QPHD	1	1
DC28	DECAL, SNOWWOLF, MOLDBOARD LEFT	1	1
DC29	DECAL, WOLFHEAD, MOLDBOARD RIGHT	1	1
DC68	DECAL, TAG US, BLACK W/YELLOW	1	1
P20019	DECAL, "DANGER PINCH AREA"	4	4
SWSN	DECAL, SERIAL #	1	1



Options

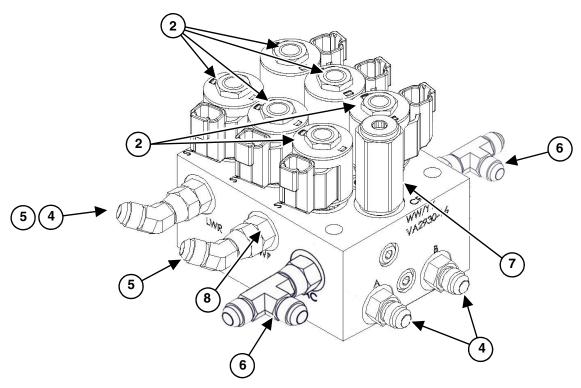
Hydraulic Manifold AutoWing (HD Models)



ITEM	PART#	DESCRIPTION	QTY
	P80051-K	MANIFOLD, AUTOWING ASSEMBLY, HD W/VALVES (ITEMS 1-5,8)	1
1	P80051	MANIFOLD, AUTOWING, W/VALVES (no fittings)	1
2	P60132	CROSS OVER RELIEF VALVE, 2750 PSI	1
3	P60126	WING CONTROL VALVE, 2250 PSI	2
5	P60069	FITTING, #6MORB - #6MJIC, STRAIGHT	4
6	P38078	FITTING, #6MJIC - #6 FJIC, 45 DEG	4
7	P80060	FITTING, TEE	2
8	P81009	FITTING, STRAIGHT CONNECTOR, RESTRICTED, .095	2



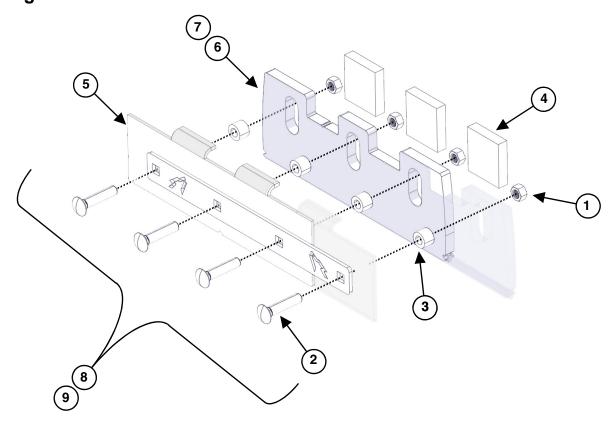
Power Wing Upgrade QPHD-PW (HD Models)



ITEM	PART#	DESCRIPTION	QTY
	P80057-K	MANIFOLD, POWERWING ASM W/VALVES, FITTINGS, DIODE HARNESS	1
NS	MFJC	CONTROLLER, MULTI-FUNCTION	1
NS	P60103	HARNESS, MANIFOLD DIODE	1
1	P80057	MANIFOLD, W/VALVES (NO FITTINGS)	1
2	P30188	SOLENOID VALVE & E-COIL	6
4	P60069	FITTING, #6MORB - #6MJIC, STRAIGHT	4
5	P38078	FITTING, 45 DEG, #6MJIC - #6 FJIC	4
6	P80060	FITTING, TEE	2
7	P60132	CROSS OVER RELIEF VALVE, 2750 PSI	1
8	P81009	FITTING, STRAIGHT CONNECTOR, RESTRICTED, .095	2



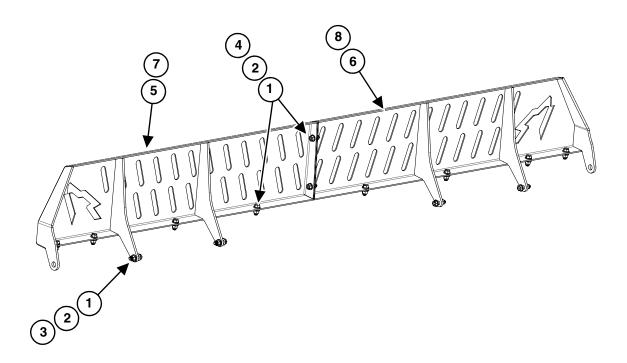
ActivEdge



ITEM	PART #	DESCRIPTION	QTY 18"	QTY 24"
1	P40012	NUT, LOCK, 5/8-11	3	4
2	P80036	BOLT, CARRIAGE, 5/8-11 x 3"	3	4
3	P80107	BUSHING, STANDOFF	3	4
4	P80108	SPRING, FOAM	2	3
5	P60255	RETAINING WELDMENT, SINGLE	1	-
5	P60252		-	1
6	P80109	AR400 BLADE, SINGLE	1	-
6	P80106		-	1
7	P80109-CARB	CARBIDE BLADE, SINGLE	1	-
/	P80106-CARB			1
0	P80112-K	AD 400 KIT CINCLE OF CTION	1	-
8	P80110-K	AR400 KIT, SINGLE SECTION	-	1
_	P80112-CARB-K	CARRIDE KIT CINCLE CECTION	1	-
9	P80110-CARB-K	- CARBIDE KIT, SINGLE SECTION	-	1



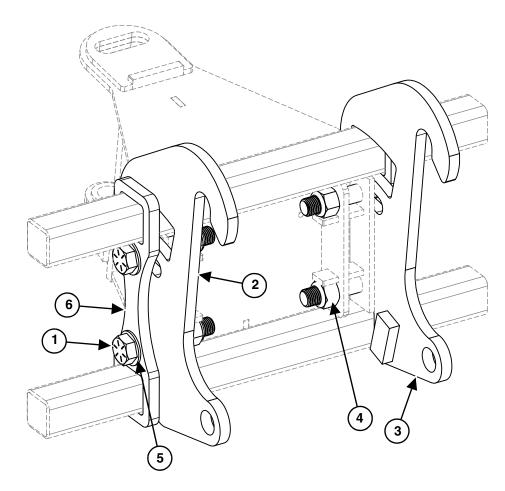
Spill Guard



ITEM	PART#	DESCRIPTION	QTY
1	P25045	NUT, LOCK, 1/2"	14
2	P60222	WASHER, FLAT, 1/2"	28
3	P60233	BOLT, 1/2" x 2", GR8	4
4	P60232	BOLT, 1/2" x 1-1/2", ZINC, GR8	10
	P80102-K	SPILL GUARD KIT 10 FT for QPHD-146 w/ HW	1
5	P80102-L	SPILL GUARD, LEFT 10 FT.	1
6	P80102-R	SPILL GUARD, RIGHT 10 FT.	1
	P80103-K	SPILL GUARD KIT 12 FT for QPHD-170 w/ HW	1
7	P80103-L	SPILL GUARD, LEFT 12 FT.	1
8	P80103-R	SPILL GUARD, RIGHT 12 FT.	1



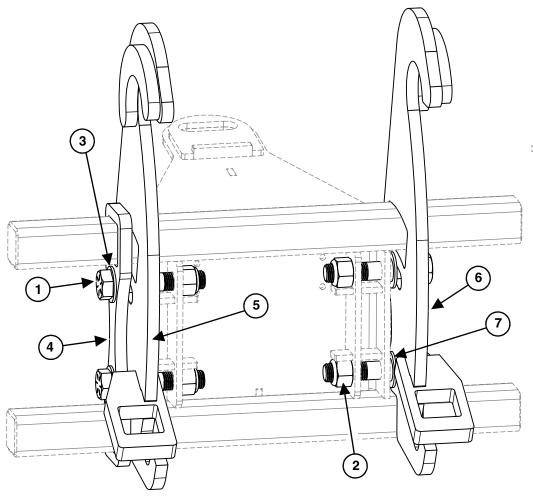
Mount, MT100 Kit, CAT-IT



ITEM	PART#	DESCRIPTION	QTY
1	P80048	BOLT, HEX, 1-1/2"-6 X 8", GRADE 8	4
2	P80072	MOUNT PLATE, ALPHA CAT IT LEFT SIDE	1
3	P80073	MOUNT PLATE, ALPHA CAT IT RIGHT SIDE	1
4	P80088	NUT, HEX, NYLOCK, 1-1/2"-6	4
5	P80089	WASHER, FLAT, 1-1/2"	4
6	P80096	WISHBONE, MOUNTING PLATE KEEPER	2



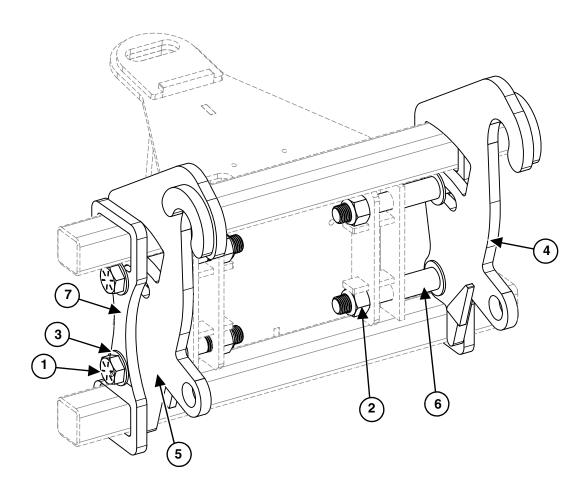
Mount, MT200 Kit, CAT-FUSION



ITEM	PART#	DESCRIPTION	QTY
1	P80048	BOLT, HEX, 1-1/2"-6 X 8", GRADE 8	4
2	P80088	NUT, HEX, NYLOCK, 1-1/2"-6	4
3	P80089	WASHER, FLAT, 1-1/2"	8
4	P80096	WISHBONE, MOUNTING PLATE KEEPER	2
5	P80094	MOUNT PLATE, CAT FUSION, LEFT HAND	1
6	P80095	MOUNT PLATE, CAT FUSION, RIGHT HAND	1
7	P81008	MOUNT SPACER, CAT FUSION	4



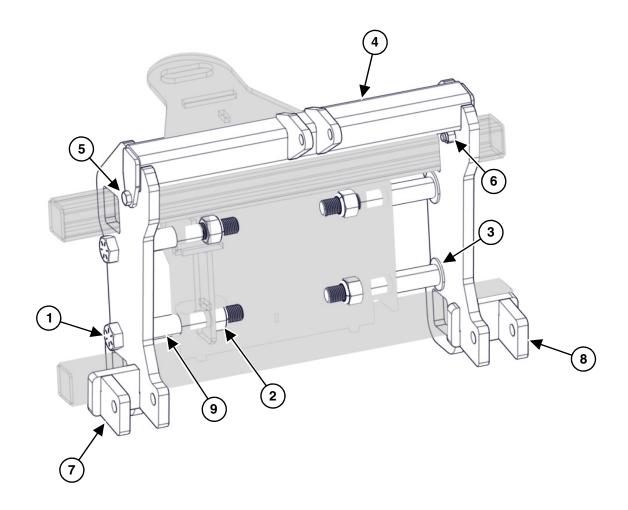
Mount, MT300 Kit, JRB-416



ITEM	PART#	DESCRIPTION	QTY
1	P80053	BOLT, HEX, 1-1/2"-6 X 12", GRADE 8	4
2	P80088	NUT, HEX, NYLOCK, 1-1/2"-6	4
3	P80089	WASHER, FLAT, 1-1/2"	8
4	P80090	MOUNT PLATE, JRB, RIGHT HAND	1
5	P80091	MOUNT PLATE, JRB, LEFT HAND	1
6	P80092	MOUNT SPACER, JRB	4
7	P80096	WISHBONE, MOUNTING PLATE KEEPER	2



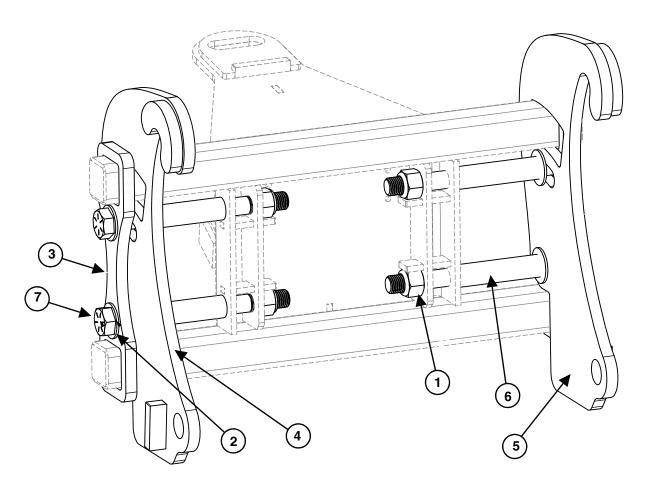
Mount, MT400 Kit



ITEM	PART#	DESCRIPTION	QTY
1	P80053	BOLT, HEX, 1-1/2"-6 X 12", GRADE 8	4
2	P80088	NUT, HEX, NYLOCK, 1-1/2"-6	4
3	P80089	WASHER, FLAT, 1-1/2"	4
4	P80120	UPPER BRACKET CROSSMEMBER	1
5	P80039	BOLT, HEX, 3/4"-10 X 2-1/2"	2
6	P20028	NUT, LOCK, 3/4"-10	2
7	P80122	3-POINT HITCH, LEFT SIDE	1
8	P80121	3-POINT HITCH, RIGHT SIDE	1
9	P81010	MOUNT SPACER, 3-POINT	4



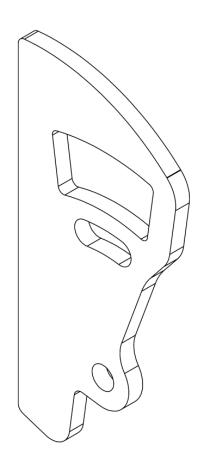
Mount, MT500 Kit, VOLVO



ITEM	PART#	DESCRIPTION	QTY
1	P80088	NUT, HEX, NYLOCK, 1-1/2"-6	4
2	P80089	WASHER, FLAT, 1-1/2"	8
3	P80096	WISHBONE, MOUNTING PLATE KEEPER	2
4	P80098	MOUNT PLATE, VOLVO, LEFT HAND	1
5	P80099	MOUNT PLATE, VOLVO, RIGHT HAND	1
6	P81005	MOUNT SPACER, VOLVO	4
7	P81006	BOLT, HEX, 1-1/2"-6 X 16"	4



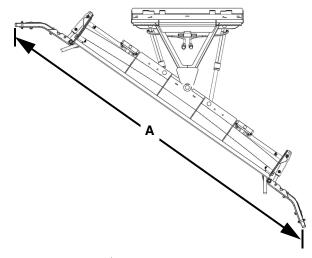
Mount, MT600 Kit, Universal Weld On



ITEM	PART#	DESCRIPTION	QPHD-146 QTY	QPHD-170 QTY
	UNIVERSA	L WELD ON MOUNT (MT600 KIT) (UNPAINTED)		
NS	P80048	BOLT, HEX, 1-1/2"-6 x 8"	4	4
NS	P80088	NUT, HEX, NYLOCK, 1-1/2"-6	4	4
NS	P80089	WASHER, FLAT, 1-1/2"	8	8
NS	P80096	WISHBONE	2	2
NS	P81008	MOUNT SPACER	4	4
NS	P81012	MOUNT PLATE, FOR UNIVERSAL	2	2



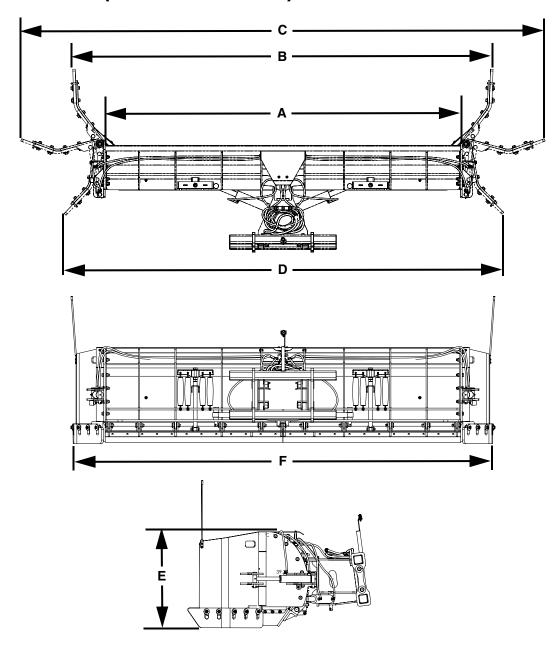
Attachment Specifications (QPHD Models)



DECORIDEION	FOR MACHINES WEIGHING 15,000 TO 30,000 LBS.			
DESCRIPTION	QPHD-146	QPHD-170		
Blade Width	10.0'	12.0'		
Clearing Width at Wide Angle (A)	144" (12')	164" (13' 8")		
Blade Height	38"	38"		
Weight (lbs.)	2,995	3,385		
Moldboard Gauge	10 ga.	10 ga.		
Trip Springs	8 Ext.	8 Ext.		
Wear Shoes	N/A	N/A		
Moldboard Cutting Edge	3/4" x 8" Top Punch High Carbon Standard (Carbide Insert Optional)			
Angle Rams	3" x 13" D/A Steel-Double Acting Cylinder			
Vertical Ribs	8	10		
Moldboard Radius	19"	19"		
Full Down Pressure	Yes	Yes		
Universal Skid Steer Compatible	N/A			
Crossover Relief Value	Standard			
Wing Thickness	5/8" Grade 50			
Wing Wear Shoes	1" x 8" AR400 Floating Steel			
Wing Hinge Pin	1-7/8" x 29-3/4"			
Wing Cylinder	2-1/2" x 8" Double Acting Cylinder			
PowerWing Upgrade	Optional			



Dimensions (QPHD Models)



DESCRIPTION	QPHD-146	QPHD-170
Blade Width (A)	10'	12'
Width In Pusher Position (B)	146" (12' 2")	170" (14' 2")
Maximum Width (C)	176" (14' 8")	200" (16' 8")
Width In Backdrag Position (D)	146" (12' 2")	170" (14' 2")
Blade Height (E)	39"	39"
Overall Width (F)	148"	172"



Torque Specifications

Standard Hardware And Lock Nuts

BOLT TYPE	SAE GRADE 5		SAE GRADE 8		LOCK NUTS			
Nominal Size	Plated or Unplated	Plated W / ZnCr	Plated or Unplated	Plated W / ZnCr	Plated or Unplated	Plated W / ZnCr	W / Grade 5 Bolt	W / Grade 8 Bolt
	Silver	Gold	Silver	Gold	Silver	Gold		
1/4	55 in / lb	72 in / lb	86 in / lb	112 in / lb	121 in / lb	157 in / lb	61 in / lb	86 in / lb
	(6.2 N•m)	(8.1 N•m)	(9.7 N•m)	(12.6 N•m)	(13.6 N•m)	(17.7 N•m)	(6.9 N•m)	(9.8 N•m)
5/16	115 in / lb	149 in / lb	178 in / lb	229 in / lb	250 in / lb	325 in / lb	125 in / lb	176 in / lb
	(13 N•m)	(17 N•m)	(20 N•m)	(26 N•m)	(28 N•m)	(37 N•m)	(14 N•m)	(20 N•m)
3/8	17 ft / lb	22 ft / lb	26 ft / lb	34 ft / lb	37 ft / lb	48 ft / lb	19 ft / lb	26 ft / lb
	(23 N•m)	(30 N•m)	(35 N•m)	(46 N•m)	(50 N•m)	(65 N•m)	(26 N•m)	(35 N•m)
7/16	27 ft / lb	35 ft / lb	42 ft / lb	54 ft / lb	59 ft / lb	77 ft / lb	30 ft / lb	42 ft / lb
	(37 N•m)	(47 N•m)	(57 N•m)	(73 N•m)	(80 N•m)	(104 N•m)	(41 N•m)	(57 N•m)
1/2	42 ft / lb	54 ft / lb	64 ft / lb	83 ft / lb	91 ft / lb	117 ft / lb	45 ft / lb	64 ft / lb
	(57 N•m)	(73 N•m)	(87 N•m)	(113 N•m)	(123 N•m)	(159 N•m)	(61 N•m)	(88 N•m)
9/16	60 ft / lb	77 ft / lb	92 ft / lb	120 ft / lb	130 ft / lb	169 ft / lb	65 ft / lb	92 ft / lb
	(81 N•m)	(104 N•m)	(125 N•m)	(163 N•m)	(176 N•m)	(229 N•m)	(88 N•m)	(125 N•m)
5/8	83 ft / lb	107 ft / lb	128 ft / lb	165 ft / lb	180 ft / lb	233 ft / lb	90 ft / lb	127 ft / lb
	(112 N•m)	(145 N•m)	(174 N•m)	(224 N•m)	(244 N•m)	(316 N•m)	(122 N•m)	(172 N•m)
3/4	146 ft / lb	189 ft / lb	226 ft / lb	293 ft / lb	319 ft / lb	413 ft / lb	160 ft / lb	226 ft / lb
	(198 N•m)	(256 N•m)	(306 N•m)	(397 N•m)	(432 N•m)	(560 N•m)	(217 N•m)	(306 N•m)
7/8	142 ft / lb	183 ft / lb	365 ft / lb	473 ft / lb	515 ft / lb	667 ft / lb	258 ft / lb	364 ft / lb
	(193 N•m)	(248 N•m)	(495 N•m)	(641 N•m)	(698 N•m)	(904 N•m)	(350 N•m)	(494 N•m)
1	213 ft / lb	275 ft / lb	547 ft / lb	708 ft / lb	773 ft / lb	1000 ft / lb	386 ft / lb	545 ft / lb
	(289 N•m)	(373 N•m)	(742 N•m)	(960 N•m)	(1048 N•m)	(1356 N•m)	(523 N•m)	(739 N•m)





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