PIERCE

1 984- I 993 DODGE 2-TON DUMP HOIST

Installation Instructions & Owner's Manual

Please thoroughly read all instructions before beginning installation.

For technical help, call the tech support office at 800-658-6301

Monday-Friday 8:00AM to 5:00PM Central Time

DK2UDKPD Parts Listing

- 1 PM-3551 Hydraulic Pump (gravity down option will contain PM-319 Hydraulic Pump)
- 1 Scissor Assembly (Contains black scissor frame and hydraulic cylinder)
- 1 Upper Frame (Brown 23" x 19-3/8")
- 1 Lower Frame (Brown, 11" x 7")
- 2x Backup Supports

Front support: Angle Iron, 23"_L x 2"_W x 2-½"_H Rear support: Flat Bar, 18"_L x ¼"_W x1"_H

- 2x Upper Frame Spacers
- 1 Parts box
 - Installation/Owner's Manual
 - Electrical/Hydraulic/Hardware Bag

Electrical

- 20' #4 Black Wire
- 20' #4 Red Wire
- 6x 5/16" Battery Eye
- 1x 200 Amp Breaker
- 1x 2-Button Pendant Control

Hydraulic

- 1x 5' Hydraulic Hose
- 1x 7' Hydraulic Hose
- 1x 90° ¼" Pipe Pump Fitting (Standard only with gravity down kits)
- 2x 90° O-Ring Pump Fitting

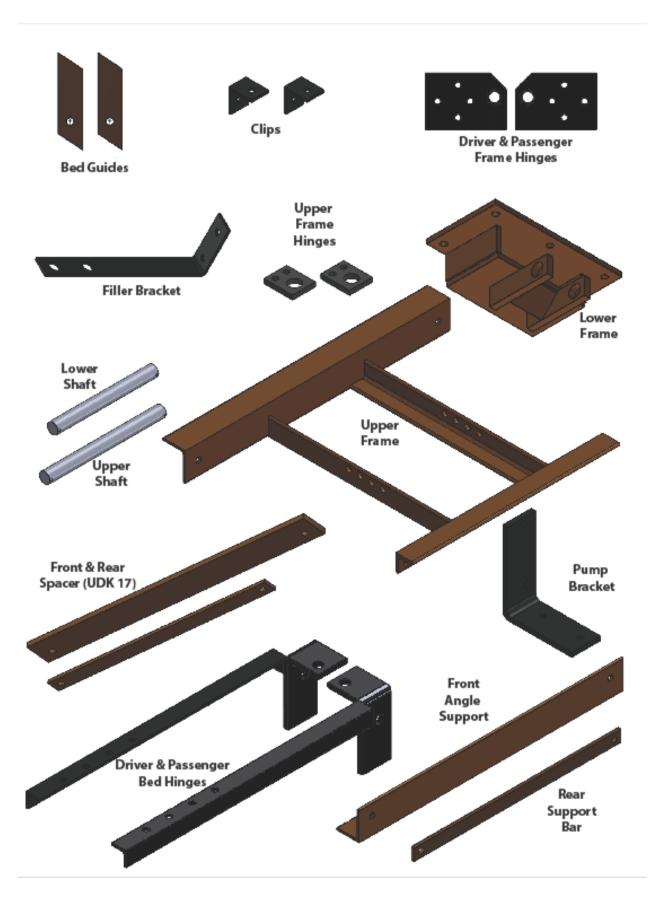
Hardware

2x Hex Screw, 5/8"-11 x 2-1/2" Grade 8

- 2x Flat Washer, 5/8"
- 2x Lock Nut, 5/8"-11 Grade 8
- 16x Hex Screw, 3/8"-16 x 1" Grade 8
- 30x Lock Nut, 3/8"-16 Grade 8
- 8x Hex Screw, 3/8"-16 x 3"
- 8x Hex Screw, 3/8"-16 x 1.25"
- 4x Flat Washer, 3/8"
- 4x Cotter Pin, 1/8" x 2"
- 2x 1/8" Cable Clamp
- 2x Rubber Bumper
- 1x 3" Hose Clamp
- 1x Scissor Support Cable

Steel Parts Assortment

- 2x Frame Hinge (Black, 5" x 4", w/Welded Pipe)
- 2x Hinge Arm (5.25" x 21.5")
- 2x Upper Frame Hinge (2.5" x 2")
- 1x Lower Shaft (15/16" x 8.75")
- 1x Upper Shaft (15/16" 10-1/8")
- 2x Guides (Black, Parallelogram, 6" x 1.5")
- 1x Fuel Filler Bracket (Black, 4" x 12")
- 1x Pump Bracket (Black, L-Bracket, 7" x 6")



Important Safety Rules

- Follow all safety rules provided with the power tools used to install your kit.
- Use correctly sized lifting equipment to raise the bed of your truck.
- Always have a backup device in place when working under the bed on your truck. This is in addition to the primary hoist or prop mechanism.
- Wear safety glasses.
- Use UL rated grounded electrical cords and tools.
- Your gas tank is located very close to the scissors and other kit components. Cover with a fireproof tarp and do not allow any sparks in this area. Clean any spills with water.
- Check bed clearance after the hinges are installed to ensure that the bed will not hit the cab during operation.
- Always level the load in your bed.
- > Be sure no one is close enough to be injured when you dump the load from your bed.
- ➤ Do not exceed the cargo capacity as listed by the truck manufacturer. The kit will lift a level, evenly distributed load of 4000 lbs., including the weight of the bed.
- Dump the load in your truck when your truck is level.
- Grease pins and all moving components monthly.
- > Tow trailers only with an appropriated classified receiver hitch. Do not use the bumper for any towing.

Tools and Equipment

Hacksaw or reciprocating saw

Welder or weld shop availability

Correctly rated hoist or lifting device

Cutting torch

Portable electric drill and various sized drill bits

Various Sockets, wrenches, and a slotted screwdriver

Tape measure

C Clamps and vise grips

Safety glasses

Welders mask/helmet

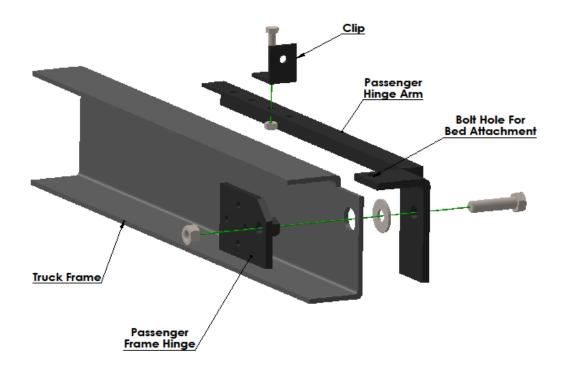
1 gallon of automatic transmission fluid

INSTALLATION OVERVIEW

Read all safety rules. Check the parts list. Disconnect the battery. Remove your bumper. Remove the gas filler from the bed. Disconnect or remove wiring between the frame and the bed. Remove or shorten any spare tire lowering device that would interfere with bed rotation. Remove the bolts holding the bed to the frame. It is not necessary to completely remove your bed. It must be raised high enough in the rear to install the hinges safely. Install the hinges per the directions provided later in this manual. Install the upper frame between the two bed cross members located directly above the main frame. The main frame cross member is located near the front spring hangers for the rear suspension. The left to right position for the upper frame should be as close to the truck centerline as possible, but offset enough that the scissors assembly will clear the gas tank by $\frac{1}{2}$ " or more. See the directions provided later. The scissors will extend forward of the differential assembly. Move any brake lines from the top of the differential to a point lower than the top surface of the differential. This will prevent any accidental damage to your brake system. Always check clearance of brake lines and electrical components to prevent any accidental damage. The position of the scissor assembly will be adjusted up and down by either moving the scissor assembly fore or aft. When the bed is down, the scissor assembly is about level. We provide a cable to support the back end of the scissor to prevent excess movement up/down when your truck hits bumps.

REAR HINGES:

Installation of this kit requires that the bed must be installed 1.5" rearward from the original location to prevent bed/cab interference when raising the bed. Remove the gas filler assembly from the bed. If equipped, remove the spare tire lowering mechanism from the bumper. Remove the rear bumper. Disconnect the wiring to the bed. Remove the bed to frame bolts. Move the bed rearward 1.5". Raise the rear of the bed 7 or 8 inches above the frame. Using the original bed to frame bolts, attach the hinge arms to the bed. The vertical part of the hinge arm will be outside the frame and parallel. The 1" x 1" angle support will extend toward the cab on the outside of the frame rails, under the next bed cross member. Attach the right hinge arm to the right rear of the bed as done on the left side. Note that the hinge arm prevents the bed from dropping completely onto the frame. Mark the top of the frame so you can cut a rectangular notch into the frame 3/4" down and 2" front to back from the rear edge of the frame on both sides. Lower the bed. Keep the bed centered and straight with the truck frame, while making sure the bed is 1.5" back from its original location. The hinges will attach to the inside of the frame with the welded pipe aligned with the pivot hole on the hinge arms. You will need to drill or cut the frame where the welded pipe projects through the frame, toward the pivot hole. The hole should be about 1.5" in diameter. It may extend off the rear edge of the frame rail so you have a partial circle. Set the hinges on the inside of the of the frame rail with the welded pipe extending through the newly drilled hole. Place a washer between the welded pipe and the hinge arm Insert the 5/8" pivot bolt through the hinge arm pivot hole and the welded pipe on the hinge. Install the 5/8" locknut until there is no play, but the bolt can still rotate. Mark the frame for "hinge to frame" bolt holes. Drill the frame for (4) 3/8" x 1" bolts at each hinge. Install the bolts with the bolt heads on the outside of the frame with the locknuts on the hinge side. The bed will now pivot. Check bed-cab clearance first to ensure the bed will not hit the cab during lift. If the hinge arms are straight and there is no binding by a chain lift or cherry picker, then the hinge arms should be re-tightened. You may opt to weld to the hinges to the bed frame. This will enhance the hinge arm to bed connection. All pivot points should be heavily greased at final assembly. Reconnect the wiring.

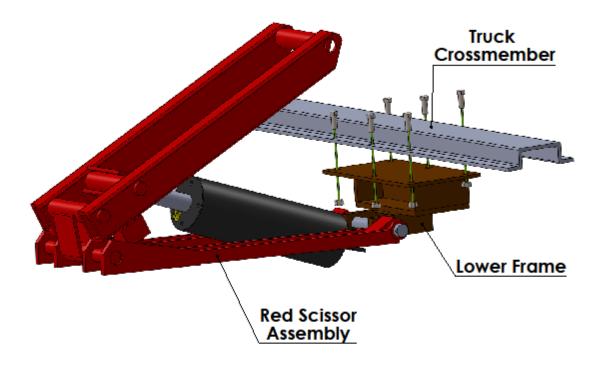


LOWER FRAME:

The lower frame mounts under the main frame cross member with the pin holes pointing towards the rear of the truck. There is a 13" section readily available beside the fuel tank. The lower frame is 11" long. Install the lower frame so that the scissor assembly will safely clear the tank, but as close to the centerline of the truck as possible. Temporarily attach the lower frame to the main frame crossmember with clamps. Attach the lower section of the scissor assembly to the lower frame using the 8-3/4" pin. Move the scissor assembly up and down to check for clearance. Move the lower frame as close to the truck centerline as possible, while allowing $\frac{1}{2}$ " $-\frac{3}{4}$ " clearance from the fuel tank. Once adjusted, mark all 6 holes. Remove the scissor assembly and then remove the lower frame. Drill the holes where marked, and install the lower frame using the six (6) $\frac{3}{8}$ "- $\frac{16}{2}$ x $\frac{1.25}{2}$ " bolts.

SCISSOR ASSEMBLY A:

Attach the bottom section of the scissor assembly to the lower frame using the 15/16" x 8.75" pin. Allow the assembly to rest in a location that will not be in the way and will not cause any damage where it rests.

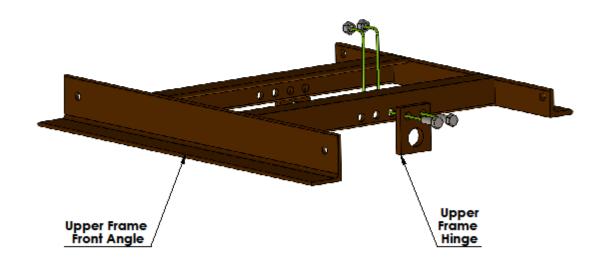


UPPER FRAME:

Insert the upper frame so that the larger angle (23" long) is toward the front. Align it with the lower frame. Clamp in place temporarily. Remove the plastic plug from the hydraulic cylinder and raise the scissor assembly to check fit. Re-align upper frame as needed. Lower the scissor assembly back to a safe resting position and mark the upper frame mounting holes for drilling. Remove the upper frame and drill holes. Bolt the upper frame in place using 3/8" tap bolts horizontally through the bed cross member and through the , 23" $_{\rm L}$ x 2" $_{\rm W}$ x 2- $^{\rm L}$ 2" $_{\rm H}$ " back up plate on the front side, and the 18" $_{\rm L}$ x $^{\rm L}$ 4" $_{\rm W}$ x1" $_{\rm H}$ back up plate on the rear side. This will help reinforce the upper frame and keep from crushing the thin material used in the bed cross member.

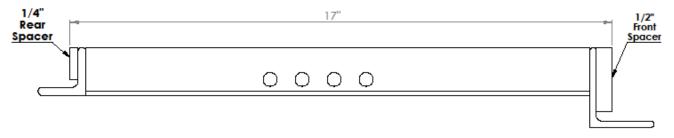
UPPER FRAME HINGE / SCISSOR ASSEMBLY B:

Install the upper frame hinges to the upper frame. There are four holes in the upper frame for adjustment purposes. Start with the pair of holes furthest from the longer, 23" angle. Temporarily attach the scissor assembly to the upper frame using the 10-1/8" pin and lower the bed. When the bed is down, it should lay flat as it would without the kit installed. The scissor assembly should be close to level. The scissors will extend rearward above the differential. Be sure no brake lines are located on the top of the differential. If they are, they should be relocated to prevent damage. The scissors should clear the differential by the amount of spring travel, or more. If not, Remove the upper frame hinges and move them forward, one bolt section at a time to allow proper clearance of the differential.

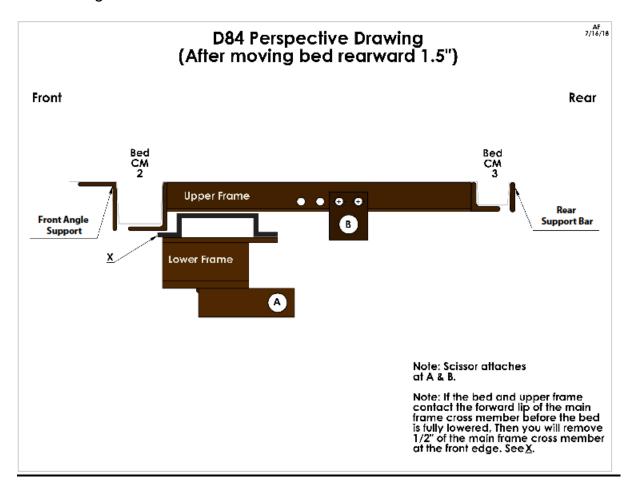


Note: On some trucks, Dodge made the distance between the bed cross members 17" instead of the standard 16-3/8". For this instance, we have provided a set of spacers to fill the gap between the upper frame and the bed cross members. There is a $\frac{1}{2}$ " thick piece that will install on the front angle side, and a $\frac{1}{4}$ " piece that will install on the rear angle side.

UDK17 UPPER FRAME



Note: When lowering the bed back to the resting position, the upper frame may make contact with the main frame cross member before the bed can be fully lowered. If contact is made, you must remove $\frac{1}{2}$ of the main frame cross member at the front edge for clearance.



RUBBER BUMPER PADS:

The bed should contact these for a quieter operation. Clean off the desired location on the truck or bed frame, near the front of the bed. Remove the adhesive back, and attach the rubber bumper pads.

FUEL FILLER:

The curve of the bed will not allow you to use the OE fuel door to fill your tank. On most trucks, the fuel filler can be cut, shortened and left in place at the front of the

bed. Simple, but requires raising the bed a short distance to add fuel. The alternative is to install the filler in the wheel well, as high as possible and clear of the wheel. On most trucks, you can loosen the rubber hose at the tank inlet and rotate the filler into the wheel well. Use the filler bracket to secure the filler tube. On some trucks, this would require you to extend the fuel filler pipe to extend the filler neck to the wheel well. This piece is not provided. If necessary, cut the rubber hose between the fuel tank and the filler so there is enough hose at the tank end for the short end of the extension to enter the hose and clamp with hose clamps. Attach the filler and remaining hose to the long end of the rear wheel well. You must shorten the hose for an exact fit. The filler should be in the upper forward part of the wheel well opening, at an angle to meet a fuel pump nozzle from a fuel pump. The filler must be located so the tire will not touch it at any point. The vent hose must also be extended from the tank to the filler. The third small vent hose can be relocated to the back of the cab where it will not interfere with movement of the bed when dumping.



SUPPORT CABLE:

There is some slack in the scissor assembly when installed. The provided cable can go under the scissors, attaching to both left and right main longitudinal frame members. Alternatively, a ¼" x 2" flat bar (not included) can be welded to both left and right frame members toward the end of the scissors furthest from the lower frame. A covering of rubber or hose will prevent rattles. This supports the weight of the scissors and unloads the hinge pins. This will also help to keep the scissor assembly from hitting the rear differential.

PUMP:

It is recommended that the pump mount to the outside of the right frame, just

forward of the rear spring hanger (This is only recommended, not required. The pump can mount to any "safe" location) using the 8" x 7" L-bracket. The pump should be mounted level, with the vent/filler up, using (2) 3/8"-16 x 1" screws.

You may have to remove the magnetic coil in order to attach the adapter fitting to the pump body. Install the pump fitting and attach the hydraulic hose. Attach the opposite end of the hydraulic hose to the base end of the hydraulic cylinder.

On power down kits, the pump will have (2) ports. The port marked C1 is the high-pressure port. The port marked C2 is the low pressure (return) port. If the pump ports are not labelled, the port on the left-hand side (with the motor pointing towards you, and the reservoir pointing away from you) is the high-pressure port, and the port on the right side is the low-pressure (return) port

The pump's reservoir is supplied with a temporary plastic plug in the fill opening. Fill with up to 1.5 gallons of automatic transmission fluid (Actual amount will vary by pump supplied). After filling the reservoir, install the vented plastic plug into the fill opening. The vented plug is packed in the pump box.

Note* Some pumps interfere with the vertical frame when the pump bracket is bolted to the frame. A spacer may be required to space the pump bracket out from the frame for clearance. It generally will not be needed.

GUIDES:

The guides are the 2 parallelogram shaped pieces that attach to the bed and provide alignment of the bed to the truck, side to side. They attach to the front of the bed and contact the frame, either inside or outside. They also prevent any side to side movement when the bed is down. The bottom of the guides are pointed, so be sure that they do not contact anything other than the edge of the left and right frames.

WIRING:

Control:

Mount the switch in the dash, or somewhere convenient from the driver's seat. The switch will mount in a ½" hole. Orient the switch so it moves up and down, vertically. Using the 18/3 ribbon wire, connect the brown wire to the center terminal on your toggle switch. The yellow wire will mount to the top terminal, and the green wire will connect to the bottom terminal.

*Optionally, there may be a wired pendant control or a wireless control. The power wire (green) on the pendant control will connect to the large power terminal on the solenoid. The "start" wire (black) will connect to the small terminal on the solenoid. The "down" wire (white) will connect to the small terminal on the magnetic coil on the

C1 port. The "up" wire (red) will connect to the magnetic coil on the C2 port. Always check manufacturers specs to ensure proper control wiring. To install a wireless remote, refer to the manufacturers installation instructions.

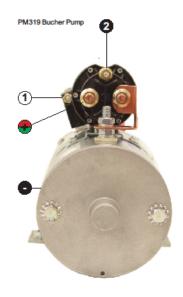
Positive:

Mount the circuit breaker as close as possible to the battery. Cut the #4 gauge red wire so there is enough cable to reach from the battery's positive terminal to the circuit breaker with a little slack. Connect the short cable to the positive terminal and the circuit breaker terminal marked "BAT LINE". Using the remainder of the red wire, connect from the circuit breaker terminal marked "AUX LOAD" to the large terminal on the pump solenoid. Be sure that the red wire does not rub on anything that has a sharp edge, generates heat, or has moving parts.

Negative:

Connect the #4 gauge black wire to the mounting bolt on the side of the pump labelled "GND". Route the black wire parallel to the red cable, back to the battery. Connect the black wire directly to the negative terminal of the battery. Reattach the negative terminal to the battery post. The ground wire MUST be attached as described to the pump and to the battery. Do NOT cut the black wire short and ground to the frame.

NOTE* Be sure not to connect any wire to the solenoid terminal that has a large copper buss bar connecting to the single pump motor terminal. Do not allow any wiring to touch the buss bar, or it's connections. It is NOT a ground, it is the final connection to the motor.



76631 Breaker

To protect your pump, please use a safety cutoff switch or ampere breaker



REMOTE CONNECTIONS

Pierce wired or wire less remotes Induding the P040 and CP271 connect to a PM319. Wired remotes will have three wires whereas the wireless connections will have four.

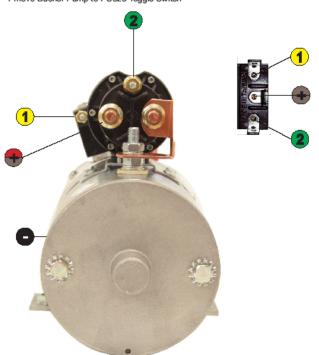


DOWN (White)



BUCHER PUMP

Pm319 Bucher Pump to PS525 Toggle Switch



PIERCE

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CATEGORY

PUMP

PART NO.

Pm319, PM3196P

PRODUCT DESCRIPTION

Bucher Pump to Toggle Switch

WIRING DESCRIPTION

This chart depicts wiring from a Bucher PM319 pump to the Pierce PS525 Toggle Switch.

NOTE: Place breaker as dose to battery as install allows. Use #4 gauge cable for all connections. Use a 5/16-18" x 3/4" bolt for the ground connection. Wiring not included.

WIRING CHART

Connect the wires to the corresponding signs.



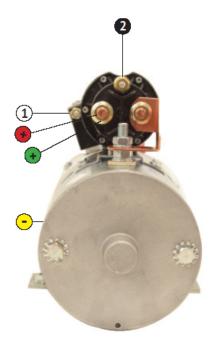
NEGATIVE (Black #4 Cable)





BUCHER PUMP

PM319 Bucher Pump





CATEGORY

PUMP

PART NO.

PM319

PRODUCT DESCRIPTION

Bucher Pump

WIRING DESCRIPTION

This chart depicts wiring from a Bucher PM319 pump to the Pierce CP271MTE.

NOTE: Place breaker as close to battery as install allows. Use #4 gauge cable for all connections. Use a 5/16-18" x 3/4" bolt for the ground connection. Wiring not included.

WIRING CHART

Connect the wires to the corresponding signs.





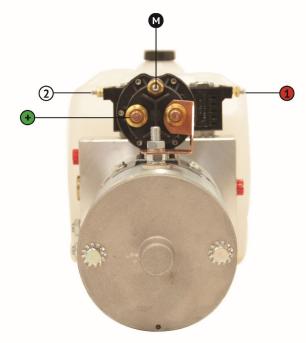






BUCHER PUMP with TWO-WAY VALVE

PM-3551 Bucher Pump with CP077K wired control



Pierce Arrow Inc. • www.piercearrowinc.com • 1-940-538-5643 549 U.S. HWY 287 S. • Henrietta, Texas 76365

CATEGORY

PUMP

PART NO.

PM-3551

PRODUCT DESCRIPTION

Bucher Pump with Two-way Valve

WIRING DESCRIPTION

This chart depicts wiring of a Bucher PM-3551

NOTE: Use #16 or #18 gauge wires for all connections. Use a $5/16-18^{\circ} \times 1/2^{\circ}$ bolt for the ground connection. Wiring not included.

WIRING CHART

Connect the wires to the corresponding signs.



12V (green)



2 LEFT COIL (white)



MASTER (black)
Compatible with CPO77K, 38901155

REAR BUMPER:

The rear bumper is only decorative and provides no function when the hoist kit is installed. Trailers should NOT be towed by the bumper. If there is no receiver hitch, the bumper brackets should be welded to the hinge arms so the bumper will rotate with the bed. The warning label provided with the kit should be applied to the bumper where it is clear and visible.

TOWING:

Receiver hitches should be removed before installing your hoist kit. Upon completion, raise the bed to the highest point, place your receiver hitch near the frame where it is clear of the bed and bumper. You will need to cut and modify the receiver hitch to fit in this new, closer to the front, location. The receiver should be reinforced and welded in place. Note that any modification to the receiver hitch MUST result in a unit that is as strong as in its original configuration. A longer ball mount must be purchased or fabricated from a 2" x 2" flat bar. Check for clearance; This way the bed cannot be inadvertently raised and damaged by the ball mount.

Alternate options:

- Leave receiver hitch in the original location. Remove the OE bumper.
- Leave receiver hitch in the original location. Remove the OE bumper. Fabricate a 1/3 length bumper for the left and right, attach to the hinge arms. The center 1/3 is open to clear the receiver hitch.
- Leave the receiver hitch in the original location. Remove the OE bumper.
 Install a 2" x 4" rectangular tube just above the receiver hitch and weld it to the frame. It will be a stationary bumper. The 2" dimension is up/down, the 4" dimension is left/right. This choice results in the strongest bumper system and does not interfere with any towing function.

MAINTENANCE:

- Grease all pins, scissor assembly and hinges monthly.
- Fluid should be changed yearly. Once the reservoir is drained, remove
 the reservoir. Using a mild solvent, clean the screen filter on the suction
 tube. While the reservoir is off, clean out any debris. Re-install the
 reservoir, making sure to lubricate the sealing o-ring with hydraulic oil
 before seating to assist in re-installation. Tighten all screws/ clamps.

Check wiring, all connections, terminals and battery yearly. Corrosion
will cause voltage drops. When corrosion is found, remove any
corroded wire and replace any terminals when necessary. If any wire is
found frayed or cut, it must be replaced.

TROUBLESHOOTING:

Bed will not lift:

- First, check your voltage at the pump. Make sure that there is 12V at the solenoid terminal. Operate the pump and check the voltage again. Power should stay near 12V, but should not drop below 12V. If this is not achieved, check all wiring and all connections.
- On Power down pumps, make sure that the pump is plumbed properly. The PM-3551 pump has two hydraulic ports. The port labelled C1 should be plumbed to the base end of the cylinder. The port labelled C2 should be plumbed to the rod end of the cylinder.

Pump is slow

- First, check your voltage at the pump. Make sure that there is 12V at the solenoid terminal. Operate the pump and check the voltage again. Power should stay near 12V, but should not drop below 12V. If this is not achieved, check all wiring and all connections.
- Check suction tube filter for blockage (refer to maintenance).

Leaks

- Upon installation, there may be a bit of fluid seeping from the cylinder vent. This is not a leak, but merely residual fluid from pressure testing the cylinder.
- If fluid is leaking from any fittings or hose, simply tighten the fitting. DO NOT use pipe thread sealant tape on any fittings. Only use pipe thread sealant paste. Tape can break loose and cause blockages in the hydraulic system.

Call Pierce

o In the event you need any assistance please call 800-658-6301.

Official Pierce Arrow Inc. Product Limited Warranty

Pierce Arrow Inc. warrants that the goods, equipment, and merchandise manufactured by Pierce Arrow Inc. are free from defects in material and workmanship. The limited warranty includes replacement or repair of defective mechanical and electrical parts for a period of two years from the date of shipment by Pierce Arrow Inc.

OBTAINING PIERCE WARRANTY SERVICE

Pierce Arrow Inc. must be notified of any defect before repair or replacement may be granted. The merchandise must be delivered by the purchaser to Pierce Arrow Inc. in Henrietta, Texas at the purchaser's expense. Any repairs not made by Pierce Arrow Inc. are not covered by the limited warranty and are the responsibility of the purchaser. Pierce Arrow Inc. reserves the right to repair or replace defective parts or products in its sole discretion. The cost of any repairs not covered by the warranty will be charged to the purchaser.

EXCLUSIONS

All Pierce products are manufactured for a specific intended purpose. The Pierce Arrow Inc. limited warranty does not cover, and Pierce Arrow Inc. is not liable for, damage arising from any use other than the specific intended use of each product.

The Pierce Arrow Inc. limited warranty does not cover: Ongoing maintenance parts or repair due to normal wear and tear, and any change or defect due to accident, misuse or any use for which the equipment was not intended, improper or unauthorized repair, failure to provide regular maintenance, and deterioration due to weather or road conditions. Purchasers should consult their owner's manual for safety, installation, operation, and maintenance guidelines.

The Pierce Arrow Inc. limited warranty does not cover purchaser's cost of labor, transportation, shipping damages, installation or removal costs, down time, loss of profit or goodwill, or any other special, incidental, indirect, or consequential damages, concerning or related to any product or part, whether based upon negligence, strict liability, breach of contract, breach of warranty, misrepresentation, or any other legal theory. Merchandise manufactured by Pierce Arrow Inc. is not designed or intended for the movement of people and are not to be used in the operation of elevators or other improper uses. Any improper use of the product may void the warranty.

OTHER MANUFACTURERS' WARRANTIES

Pierce Arrow Inc. makes no warranty, expressed or implied, to finished products manufactured or supplied by other manufacturers, and sold by Pierce Arrow Inc. to the purchaser, including but not limited to, any vehicle to which our products is affixed and any accessories. Such merchandise is subject to the manufacturer's warranty only, which will be provided upon request.

CONDITIONS OF SALE

When placing an order with Pierce Arrow Inc., the terms and conditions provided for payment, shipping, delivery and claims create an agreement between the purchaser and Pierce Arrow Inc. The agreement is to be performed in Clay County, Texas.

RETURNS

No returns are accepted without prior authorization. All items must be returned in their entirety. Please contact a sales representative for authorization. Upon authorization, returns must be shipped freight prepaid and may be subject to a 15% restocking fee. Please do not send returns COD. No returns will be accepted later than 30 days from the date of invoice.

DAMAGED GOODS

Pierce Arrow Inc. is not responsible for, and has no liability for:

Damage arising during shipment, damage arising during purchaser's assembly, installation, or construction of or with the products, and damage arising from accident, misuse or any use for which the equipment was not intended, improper or unauthorized repair, or weather or road conditions.

CLAIMS

Claims for breakage or damages during shipment must be made to the carrier at the time of delivery. If a signature is required, you must notify the driver and sign that there was damage. You must notify Pierce Arrow Inc. of the damage promptly so that a claim can be filed.