

HitchHoist®

Portable Truck Crane

ASSEMBLY AND OPERATING INSTRUCTIONS

IMPORTANT NOTICE

FAILURE TO READ AND COMPLY WITH THE INSTRUCTIONS PRINTED IN THIS MANUAL COULD RESULT IN SERIOUS INJURY!

IT IS STRONGLY RECOMMENDED THAT PERSONNEL ASSEMBLING AND OPERATING ANY LIFTING DEVICE WEAR PROPER PRETECTIVE HEADGEAR AND FOOTWEAR.

1. LIFTING CAPACITY

The HitchHoist® portable truck crane is designed to work only with a 2" square trailer hitch receiver that has been designed and manufactured to meet the V5 specification for trailer hitch receivers. Use of the HitchHoist® portable truck crane with any receiver that has not been manufactured to meet the V-5 specification, could result in serious injury.

The maximum load capacity of the crane depends on the rating of the hitch receiver. The following procedure will ascertain the maximum safe crane load for your vehicle.

- i) Locate the weight rating label on the trailer hitch receiver.
- ii) Find the maximum tongue weight rating.
- iii) Cross reference this number on the following chart to obtain the maximum safe crane load rating.

LOAD LIMIT	
V5 HITCH WEIGHT RATING	MAXIMUM CRANE LOAD
1000 - 1200 LBS	750 LBS
750 LBS.	560 LBS
500 LBS	375 LBS

2. POSITIONING VEHICLE

Find a section of level ground for lifting loads onto or off of the vehicle. Back vehicle up so that the load to be lifted is directly behind the centre of the vehicle. The boom of the crane is restricted in its ability to swing and the vehicle must be positioned so that the boom is directly over the load before lifting.

3. HitchHoist® PORTABLE TRUCK CRANE ASSEMBLY

- i) Inspect the trailer hitch receiver and ensure that it is securely fastened to the truck frame and that no bolts are missing and that there is no excessive corrosion anywhere on the receiver where it is attached to the frame of the vehicle.
- ii) To assemble the unit, first take the special draw bar (#305), and make sure that the centering drive screw (#316) is adjusted so that the same number of threads are showing on both the top and bottom of the draw bar. Next, insert the draw bar into the receiver and secure it with a hitch pin (part #306) and retainer clip (#307).
- iii) Remove the slack adjusting bar (#317) located at the end of the draw bar and temporarily place it and its retainer clip (#307) on the bumper or other convenient place where it will not get lost.
- iv) Next, take the round base tube (#304) and slide it onto the draw bar with the small leveling vial (#321) facing up. Gently slide it forward onto the two half round trunnion plates of the draw bar as far as possible. Then slide the slack adjusting bar that we removed earlier, into the end of the draw bar and secure it with the retainer clip. Do not tighten the slack adjusting screw (#318) at this time.

- v) With the rectangular post assembly (#302) in your left arm resting on your chest and the 1" kingpin (#312) in the other hand, slide the bottom of the post assembly onto the left end of the round base tube (#304). A guide bracket is welded to the bottom of the lower post bracket that is designed to align it with the bushing on the base tube. When the hole on the top bracket of the post assembly lines up with the bushing tube, drop the king pin into place and secure it with the retainer clip (#307).
- vi) Align the mounting bracket holes on the bottom of the hydraulic ram (#303) with the holes on the mounting clip about half way up on the post assembly. Make sure that the round jack tube and release valve are facing away from the rear of the truck. Attach the ram to the post with the hitch pin (#306) and secure it with the retainer clip (#307). Gently lower the other end of the ram and let it hang from its bracket.
- vii) The horizontal boom (#301) can now be mounted to the bracket at the top of the post assembly. Lower the end of the boom into the mounting bracket on the post until it rests on the alignment brackets. Then slide a hitch pin (#306) through the holes and secure it with a retainer clip (#307).
- viii) While supporting the boom with one hand, reach down and lift the free end of the hydraulic ram and align it with the mounting bracket near the center of the boom. Gently rest the boom on your shoulder, install the hitch pin (#306) and secure it with a retainer clip (#307).

4. LEVELLING

In order to safely operate this device, the vehicle must be parked on an area that provides level side to side footing and the parking brake must be engaged.

Once all of the components have been assembled, it is now time to check the crane to make sure that it will be operating in a level position by checking the bubble level vial (#321) mounted on the topside of the base tube (#304) near the draw bar. This is extremely important since a heavy load will have a tendency to swing toward you or toward the truck by itself if the system is not level. Such a situation could potentially cause damage to the vehicle and/or the load. Even worse, serious injury to the operator could possibly result.

There is one procedure for leveling the Hitch Hoist prior to lifting an object onto the truck and another procedure when removing a load from the truck.

Typically, when a truck is empty and sitting on level ground, it will be in a level position with the bed of the truck parallel to the ground.

However, as soon as you begin lifting a heavy object onto the bed of the truck, the rear end of the truck will dip due to the weight of the load. The amount that the truck will dip depends on both the weight of the object(s) being lifted onto the truck and the type of suspension system on the truck itself. A heavy duty suspension will cause the truck to dip less than a regular suspension.

PROCEDURE FOR LEVELING PRIOR TO LIFTING A LOAD ONTO THE TRUCK

If the bubble is not centered in the vial (#321), insert the "T" handled allen key tool (#315) into the slot at the front of the base tube and engage it in the hex head of the drive screw (#316) that is located at the bottom of the slot.

Turn the allen key (#315) until the bubble begins to center itself in the vial. Once the bubble is centered, turn the allen key in a counter clockwise direction until the bubble starts to move away from the truck. Continue adjusting the level until the bubble is on the outside of the black line on the vial furthest away from the truck. This position will be the first position that we will use to test the HitchHoist® to see if it lifts in a level position. Remove the allen key and insert it into the slack adjusting screw (#316) that is mounted on the end of the draw bar (#305) and tighten it snugly. This will remove any slack between the draw bar and the base tube.

IMPORTANT NOTE

If you plan to use a metal chain for lifting purposes, the chain and all fittings (shackles, hooks, pins, links etc.) must be made of Grade 80 Alloy steel.

Grade 80 Alloy is the only grade of chain approved for vertical lifting and is marked with an "8" or "80" to indicate Grade 80 Alloy.

Attach the load to the Hitch Hoist with the appropriate chain or sling. Make sure that the sling or chains are properly attached before attempting to lift. Close the pressure relief valve at the base of the hydraulic ram (#303) by turning in a clockwise direction with the slotted end of the pump handle (#311).

Remove the pump handle from the relief valve and turn it around so that the slotted end is now pointing away from the ram and insert it into the round slot located to the right of and above the release valve.

IMPORTANT NOTE

Never insert the slotted end of the pump handle into the jack at the base of the hydraulic ram for pumping up the ram.

Doing so will compress the slotted end so that it will not fit onto the pressure relief valve.

Slowly begin pumping the handle in a direction parallel to the body of the ram to raise the load. Observe that the back of the truck is starting to come down as you start to raise the load. Check the bubble level to see if it is in the center position as you start to lift. If it is not in the center of the vial before it comes off the ground, lower the load back onto the ground and repeat the leveling procedure to adjust the HitchHoist® in the appropriate direction.

Continue making these adjustments until the bubble level is centered when the load is lifted off the ground.

PROCEDURE FOR LEVELING PRIOR TO REMOVING A LOAD FROM THE TRUCK

When removing a load from a truck, the procedure is very straightforward since the truck is already at its lowest position. Simply make sure that the bubble level is centered in the middle of the vial before lifting the load from the bed of the truck. If you are lifting more than one item from the truck, check and re-adjust the level before lifting each item from the truck.

IMPORTANT NOTE

If the bubble cannot be centred in the vial before removing loads from the truck, - DO NOT OPERATE THE CRANE.

If this occurs, move the truck to more level ground where the bubble can be centred.

5. HOISTING

Once the load is ready for lifting, close the release valve on the hydraulic ram by turning it clockwise with the slotted end of the pump handle until it stops. **Do not over tighten the release valve.** Insert the solid end of the pump handle and

begin to pump to extend the ram and raise the load. Once the load has been raised above the bed of the truck, gently swing the load onto the truck.

6. LOWERING

To lower the load, once the load has been swung into position, turn the release valve counter clockwise **very slowly**. Care must be taken to ensure that the load is lowered slowly. Turning the valve too much can result in the load coming down too fast and damaging the load or bed of the truck.

7. GENERAL SAFETY PRECAUTIONS

- * Shut off engine and engage parking brake before assembling or using the HitchHoist ® crane.
- * Never put feet, hands or any part of the body under the load.
- * Never stand between the load and the vehicle or any solid object.
- * Use only Grade 80 Alloy or better chain and hardware
- * Make sure the load is securely rigged
- * Never open the release valve fully. Lower the load slowly by opening the release valve **very slowly**.
- * Know the weight of the load before lifting to insure that it is within the safe operating limits of the crane.

IMPORTANT NOTICE

IF THE GRABLIFT PORTABLE TRUCK CRANE IS TO BE USED ON A CONSTRUCTION SITE, THEN EACH OPERATOR MUST BE TRAINED IN THE PROPER AND SAFE OPERATION OF THE DEVICE AS PER SECTION 150, SUBSECTIONS 2 AND 3 OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS.

MAINTENANCE

Your HitrchHoist portable truck crane has been ruggedly designed for use in a variety of applications. No scheduled maintenance is required but the following tips should help you to enjoy years of trouble free use.

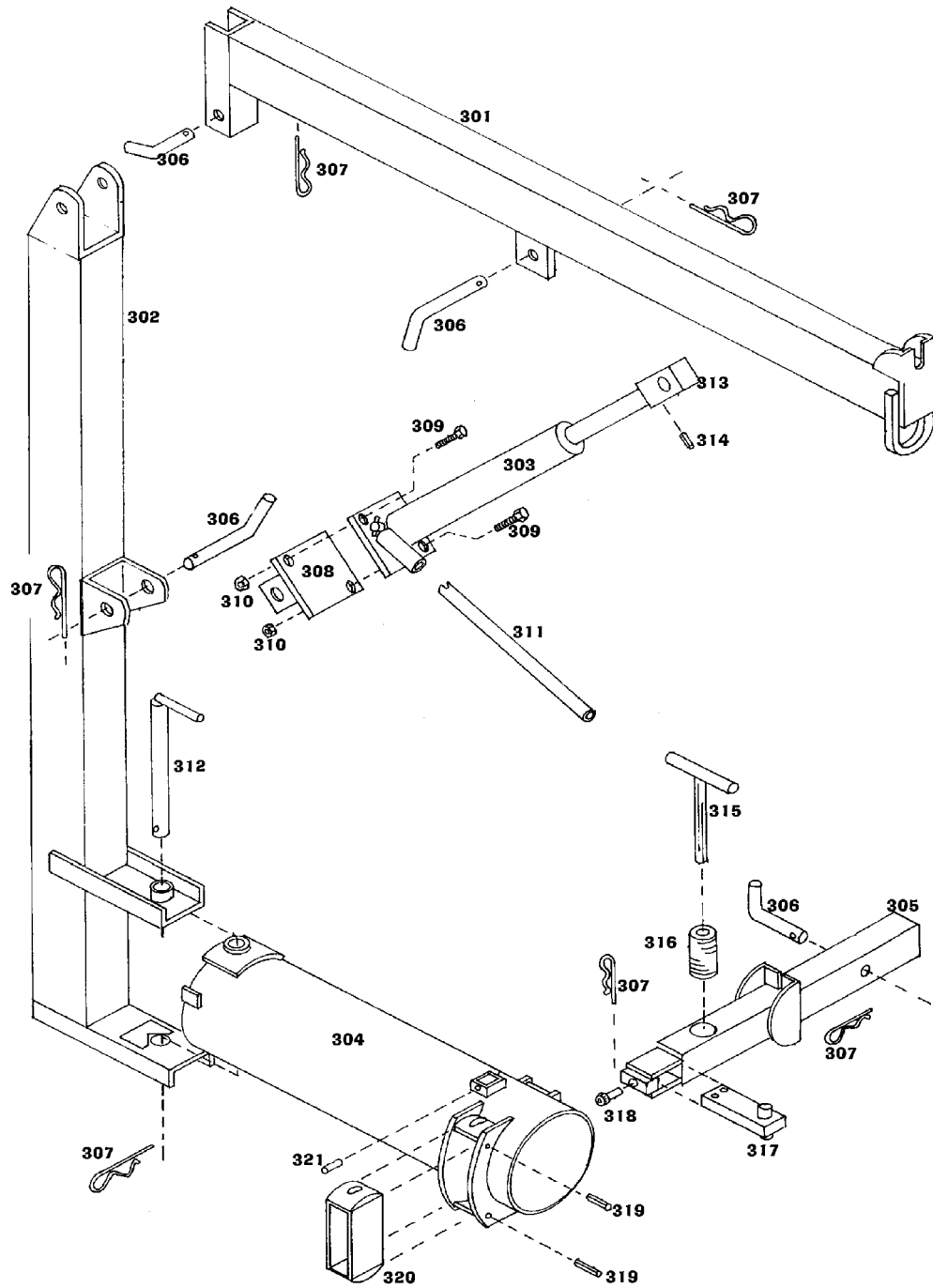
- i) Be sure to keep all mating surfaces clean and free of dust and dirt
- ii) Periodically apply a light coat of grease to the Kingpin (#312) Crescent Cage (#320), and Drive Screw (#316)
- iii) Store the Ram (#302) in the cab of the vehicle when not in use.
- iv) Sometimes, when the Ram (#302) has been stored on its side for a period of time, it can develop an air pocket and will not extend when pumped. If this should occur, place the ram in a vertical position (or mount it on the Hitchhoist®), open the pressure release valve and pump the handle several times. Then close the release valve and begin normal operation.

Bill of Materials

- 1 Draw Bar Assembly (#305)
- 1 Base Tube Assembly (#304)
- 1 Slack Adjuster Pin with Retainer Clip (#317, #307)
- 1 Vertical Post Assembly (#302)
- 1 1" x 11" Kingpin with Retainer Clip (#312, #307)
- 1 Boom Assembly (#301)
- 1 Hydraulic Ram (#303)
- 1 Hydraulic Ram Pump Handle (#311)
- 1 Allen Key (#315)
- 4 5/8" hitch pin with hairpin retainer clip (#306, #307)
- 1 Operator's manual

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|-------------------|--------------------------|---------------------------|
| 301 BOOM | 308 RAM BASE PLATE | 315 3/8" ALLEN KEY |
| 302 POST | 309 RAM BASE PLATE BOLTS | 316 DRIVE SCREW |
| 303 RAM | 310 RAM BASE PLATE NUTS | 317 SLACK ADJUSTER PIN |
| 304 BASE TUBE | 311 RAM PUMP HANDLE | 318 SLACK ADJUSTER SCREW |
| 305 DRAWBAR | 312 KINGPIN | 319 AFT RECEIVER ROLL PIN |
| 306 HITCH PIN | 313 RAM BLOCK | 320 CRESCENT CAGE |
| 307 RETAINER CLIP | 314 RAM BLOCK ROLL PIN | 321 BUBBLE LEVEL VIAL |

