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## MODEL 86006 6000 LBS. CAPACITY OPEN CENTER PIT LIFT

### **SETUP • OPERATING • MAINTENANCE INSTRUCTIONS**

Note: Revision letters (A, B, C, D etc.) after model numbers have been omitted as they do not affect the setup, operating and maintenance instructions of a particular jack unless otherwise noted.

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### **IMPORTANT: READ THESE INSTRUCTIONS BEFORE INSTALLING & OPERATING**

**BEFORE USING THIS LIFT, READ THIS MANUAL COMPLETELY AND THOROUGHLY, UNDERSTAND ITS OPERATING PROCEDURES, SAFETY WARNINGS AND MAINTENANCE REQUIREMENTS. FAILURE TO DO SO COULD CAUSE ACCIDENTS RESULTING IN SERIOUS OR FATAL PERSONAL INJURY AND/OR PROPERTY DAMAGE.**

The use of open center pit lifts is subject to certain hazards that cannot be prevented by mechanical means, but only by the exercise of intelligence, care, and common sense. It is therefore essential to have owners and personnel involved in the use and operation of equipment who are careful, competent, trained, and qualified in the safe operation of the equipment and its proper use. Examples of hazards are dropping, tipping or slipping of loads caused primarily by improperly securing loads, overloading and off-centered loads, use on other than hard level surfaces, and using equipment for a purpose for which it was not designed. Other hazards such as risk

of explosion or electrical shorts can happen if warning, installation, setup, operating and maintenance instructions are not followed.

It is the responsibility of the owner to make sure all personnel read this manual prior to using this device. It is also the responsibility of the device owner to keep this manual intact and in a convenient location for all to see and read. If the manual is lost or not legible, contact Norco Industries, Inc. for a free replacement. If the operator is not fluent in English, the product and safety instructions shall be read to and discussed with the operator in the operator's native language by the purchaser/ owner or his designee, making sure that the operator comprehends its contents.

#### **WARRANTY**

This product is covered by a Limited Lifetime Warranty. For details see the back cover of Norco's product catalog.

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### **⚠ WARNING**

- This lift should only be installed by qualified lift installers who are familiar with this type of lift.
- Lift must be installed on a level concrete surface.
- Choose a lift site where there is plenty of work room around the vehicle once it is on the lift. Always keep the lift area free of obstructions, tools, debris, grease and oil spills.
- Do not install power unit in an environment that includes flammable materials, flammable vapors, wet or damp conditions.
- Power unit connection requires a dedicated 25 amp circuit breaker or time delay fuse to protect circuit.
- Inspect the lift for mechanical fitness before using. Do not use the lift if any lift component is cracked, broken, bent, shows signs of damage or excessive wear, leaks hydraulic fluid, has loose or missing hardware or components, or is modified or altered in any way. Take corrective action before using the lift again.
- Do not use lift beyond its rated capacity.
- Never allow untrained persons to operate the lift or be in the lift work area. Lift to be used by trained operator only.
- Remove passengers before raising vehicle.
- Keep clear of lift during raising and lowering operations.
- Keep entire personal body, electrical and hydraulic lines clear of pinch points when lift is moving.
- Never attempt to lift one end of a vehicle.
- Never attempt to lift a vehicle by its wheels and tires.
- Never remove wheels off a vehicle and lower the lift to the ground.
- Use vehicle manufacturers' recommended lift points only.
- Position vehicle with center of gravity midway between lift pads or riser blocks. Always position riser blocks as far apart as possible for maximum stability.
- Do not attempt to work on a vehicle unless the lift is locked into one of the three locking height positions.
- Use only optional equipment and adapters approved by Norco
- Riser blocks can only be used with the grooved grip side facing up to make contact with vehicle frame.
- Make sure setup is stable and secure before lifting.
- Avoid excessive vehicle rocking or movement while on the lift.
- Clear area if vehicle is in danger of falling.
- Always lower lift completely and disconnect power source before disconnecting hydraulic lines.
- No modifications or alterations of this lift can be made without prior written consent of Norco Industries.

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### **SELECTING AN INSTALLATION SITE**

1. Consult the building engineer before installing lift at a particular site to make sure the concrete floor is capable of sustaining the weight of the lift and the heaviest vehicle suitable for the lift capacity. Some installations require hydraulic hoses be routed through the floor. Check for hose routing clearance and possible obstructions for lift anchors before site selection.
2. Make sure the lift is positioned in the site where the center line of the lift is at least 12 feet from any obstruction fore and aft and the center line of the site's width is at least 5 feet from any

obstruction from side to side.

3. The lift must be installed on a level concrete floor.
4. The recommended pit width is between 36" and 38". Each lift pad can overhang the edge of the pit a maximum of one inch as long as the inside anchor bolts can be installed properly. It may be necessary to remove the pit tire rails in order for the lift to overhang the edge of the pit. This would only be necessary if the pit width exceeds 38". The lift cannot be installed on a pit that is wider than 40".

## SELECTING AN INSTALLATION SITE (Continued)

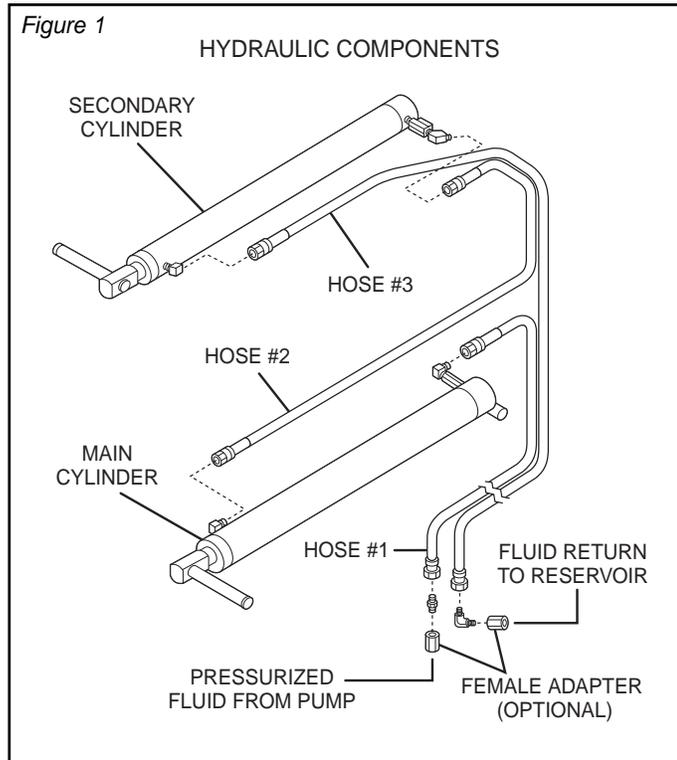
5. Although a vehicle can be loaded at either end of the lift, the hinged ramp end of the lift is considered the rear and the vehicle approach end. Consider the front and rear ends of the lift when selecting a site.

6. This lift is equipped with an electro-hydraulic power supply with integrated wall mount bracket. The power unit can be mounted on a wall or the optional model 86013 pump stand that mounts to the floor. Regardless of the mount type, the power unit must be positioned 18" above the floor and where the pump operator has a

full and unobstructed view of the entire lift. Wiring and power unit locations must be in accordance with local electrical codes. Make sure all wiring is protected from damage.

**WARNING: DO NOT INSTALL THE POWER UNIT INSIDE OR NEAR A PAINT BOOTH OR ANY PLACE WHERE IT CAN BE EXPOSED TO FLAMMABLE MATERIALS OR VAPORS. THE POWER UNIT CANNOT BE EXPOSED TO WET OR DAMP ENVIRONMENT.** The power unit requires a dedicated separate 25 amp circuit breaker or time delay fuse to protect the circuit.

## UNDERSTANDING THE HYDRAULIC SYSTEM



Many systems require flow dividers, flow control valves or load equalizers to guarantee that both lift pads raise the vehicle relatively level. The model 86006 eliminates the need for a load equalizing device by using double acting cylinders equipped with internal bypass valving. Refer to figure 1 for identification of hydraulic components and an explanation of the system.

Pressurized hydraulic fluid is pumped through hose #1 and into the bottom of the main cylinder assembly. The main cylinder assembly can be identified by its larger diameter.

As the pressurized fluid extends the ram in the main cylinder, the fluid in front of the ram is simultaneously transferred through hose #2 from the front of the main cylinder into the bottom of the secondary cylinder thus extending the secondary cylinder ram.

As both rams meet their maximum extension, the pressurized fluid in the secondary cylinder is bypassed by way of an internal bypass valve through to the front of the cylinder and returned back to the pump reservoir via hose #3.

**IMPORTANT:** When the system is originally installed there is not sufficient fluid in either cylinder and the main cylinder will sometimes reach maximum height before the secondary cylinder is activated. When both lift pads are at their maximum height continue to depress the pump button for about 15 more seconds. This will insure that hydraulic fluid is in both cylinders and air is purged from the system.

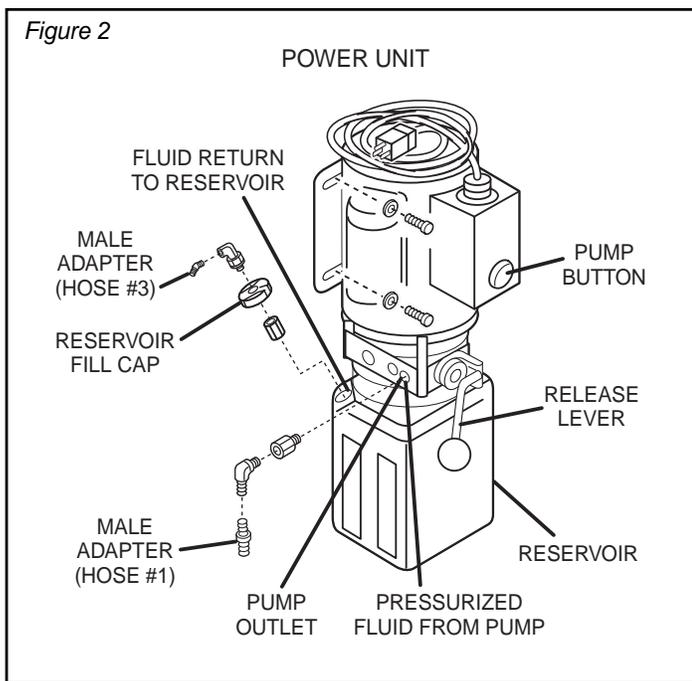
## UNDERSTANDING HOSES & FITTINGS

The model 86006 comes with three hydraulic hoses which are at 8-1/2, 12 and 18 foot lengths. The 8-1/2 foot long hose is hose #2 in the figure 1 drawing. The 12 foot hose is represented by hose #1 and the 18 foot hose is represented by hose #3. This lift is equipped with PT 1/4 threads on all hoses and fittings. PT 1/4 threads are British pipe threads that are not to be confused with 1/4 NPT threads. If the supplied hose lengths are adequate for the installation there will be no need to be concerned about 1/4 NPT threads for fittings and hoses. If longer hoses are required and PT 1/4 fittings are not available, make sure all new hose ends are equipped with 1/4 NPT threads and you use the female adapters (5 ea.) included with this lift. The female adapters have PT 1/4 threads at one end and 1/4 NPT threads at the opposite end. Marks on the corners of the hexagonal portion of the female adapter indicate 1/4 NPT threads at that end of the adapter. To change from PT 1/4 threads to 1/4 NPT, screw the PT 1/4 threaded end of the female adapters on the cylinders' elbow fittings. Use

pipe dope tape on the threads to prevent seal leaks and make sure no pieces of pipe dope tape become loose and enter the hydraulic system. Now screw in 1/4 NPT male pipe connectors (not included) into the female adapters using pipe dope tape and tighten the connections. Hoses with 1/4 NPT female fittings can now connect to the cylinders. When connecting hoses with 1/4 NPT threads to the pump you must first remove the male adapters (1/4 NPT to PT 1/4) from the reservoir fill cap and pump outlet fittings and replace them with 1/4 NPT male connector fittings (See figure 2).

**IMPORTANT:** Always use a pipe dope or pipe dope tape on 1/4 NPT connections to prevent fluid leakage. Regardless of the sealing material used, never allow excess material to enter the hydraulic system. A contaminated hydraulic system will render the pump ineffective and is not eligible for warranty consideration.

## SETUP



**TOOLS REQUIRED:** measuring tape, black felt tip marker, hammer, hammer drill, 1/2" diameter concrete drill bit, 2 adjustable wrenches, torque wrench, 19 mm socket.

REFER TO THE EXPLODED VIEW DRAWING FOR COMPONENT IDENTIFICATION.

1. Install the power unit in accordance with step 6 under "SELECTING AN INSTALLATION SITE."

2. Position the lift pads on either side of the pit. The lift pads' locking bars (Index #50 & 62) must be positioned in their respective outboard sides. All hydraulic hoses must be temporarily attached prior to final installation. The power unit's reservoir fill cap (Figure 2) must be unscrewed and the plastic covering removed and discarded. The plastic covering prevented fluid leakage during shipment. The lift pads must be extended to maximum height in order to expose all anchor hole locations (5 per lift pad), and this requires the power unit to be operational. Attach the two hoses to the power unit in accordance with figure 2. The power unit includes an electric motor with standard power cord and 3 pronged grounded plug (110 volts, 60 HZ, single phase). Plug the power cord into the electrical supply and then depress the pump button (Figure 2). The lift pad with main cylinder (Index #1 & 23) will lift first and the pad with secondary cylinder (Index #2 & 49) will follow. Continue to depress the pump button until both lift pads reach their maximum height.

3. Make sure the lift pads are lined up directly across from one another and the distance between them is within 1/4" the whole length of the lift pads. Using a black felt tip marker and the anchor mounting holes on the pad lift frames as a template, mark each hole location on the concrete floor. Determine the routing of the hydraulic hoses and where the holes through the floor will be located and mark the locations accordingly. Surface mounted hydraulic hoses will require protective coverings (not provided) in order to prevent splitting, cutting or crushing of hoses.

4. Lower the lift pads, remove the plug from the power supply and disconnect the hoses from the cylinders and power unit. It will be necessary to manually disengage both locking bars (one per lift pad) by pulling them to their respective outboard sides so the lift pads can be lowered. NOTE: Lift will lower slowly without a vehicle on it.

5. Determine required hose lengths and prepare hoses in accordance with the guidelines under "UNDERSTANDING HOSES AND FITTINGS".

6. Move the pad lifts far enough away to expose the markings for the anchor mounting holes. Drill anchor mounting holes (1/2" diameter) into the concrete and approximately 2-1/4" deep so that only the threads of the anchor bolts are exposed above the surface of the concrete. Drill any other holes required in preparation for routing the hydraulic hoses. Clean all holes after drilling.

7. The elbow fittings (Index #47, 4 each) in the cylinders are assembled where they are parallel to the floor. This is desirable for preliminary setup and surface mounted hose installation. Through the floor installation would require the elbow fittings to be facing down towards the floor. It may be necessary to unscrew the elbow fittings, apply new pipe dope tape to their threads and reinstall them in their desired positions. Route the hydraulic hoses and connect them to the cylinders. Hook the hoses up to the power unit. Connect the power cord into the power supply and depress the pump button to raise the lift pads to maximum height. Slide the pad lifts back into position so the mounting holes in the lifts line up with mounting holes in the concrete. Put the nonthreaded ends of the anchor bolts (Index #13) through the lift pad mounting holes and into the concrete mounting holes. Make sure the anchor bolts are seated down all the way in the concrete mounting holes. The lift pad mounting holes are located in the lift pad bases (Index #11 & 12). Make sure these lift pad bases sit relatively flat on the concrete. It may be necessary to use 1/2" flat washers under the bases and in alignment with the lift pad base mounting holes that are not flat with the concrete floor. Starting from the center mounting hole locations, hammer the anchor bolt pins down until the pin heads touch the anchor bolts. Be careful not to damage the threads on the anchor bolts. Perform this same operation on the remaining anchor bolts and then screw the flange nuts on the anchor bolts. Tighten the flange nuts (25 to 30 ft. lbs.) with a 19mm socket and torque wrench. Never use an impact wrench to tighten the anchor bolt nuts.

8. Before using lift to raise a vehicle, depress the pump button so the lift pads are raised to maximum height. Continue to depress the button for 15 seconds even after the lift pads reach maximum height. This will eliminate any air trapped in the hydraulic system and completely fill both cylinders with hydraulic fluid.

9. When lowering the lift pads it will be necessary to manually disengage both locking bars (one per lift pad) by pulling their handles to their respective outboard sides. Disengagement is achieved when the locking bars are pulled which transfers the locking bars from their locking tracks to their slide tracks. When raising the lift the locking bars will automatically follow their locking tracks. Apply a thin coat of general purpose grease on the slide tracks only. NOTE: The lift lowers extremely slow with no load due to velocity fuses on the cylinders. Velocity fuses provide slow lowering of load in the event of hose failure due to accidental bursting. The lift lowers at an acceptable rate of speed when under load. It may be necessary to add weight to the lift pads when lowering without a load.

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## OPERATING INSTRUCTIONS

### RAISING

1. Before lifting a vehicle make sure its weight (including cargo) does not exceed the capacity of the lift.
2. Before lifting a vehicle, check the lift for fluid leaks, mechanical binding of lift pad components, broken and worn parts and make the appropriate changes or repairs before use.
3. Make sure hydraulic hoses and electrical lines are free from pinch points.
4. Lift pads must be completely lowered and riser blocks (Index #21 or 22) removed from pads before vehicle is brought over lift.
5. Clear area of personnel prior to lifting.
6. Consult the vehicle manufacturer to find out the center balance point of the vehicle.
7. Check to make sure the vehicle ground clearance will clear the lift and there are no undercar components that will come in contact with the lift pads before driving vehicle over lift.
8. Drive the vehicle over the lift so the center-line of the vehicle (lengthwise) is aligned with the center-line of the pit and the lift pads will come in contact with the vehicle frame. Align the vehicle's center balance point as close to the center of the lift pads as possible. Never attempt to lift one end of a vehicle by its wheels and/or tires. Never remove wheels off a vehicle and lower the lift to the ground.
9. Sometimes it will be necessary to use riser blocks between the lift pads and the vehicle frame in order to clear undercar components or to save lift travel. Trucks have higher ground clearance, therefore riser blocks should be used in order to obtain an acceptable lift travel height. Riser blocks should be placed on the lift pads as far apart as possible to provide more vehicle stability. Be sure the riser blocks make good contact with the lift pads and vehicle frame before lifting. This lift includes a set of four

model 86011, 1-1/2" high riser blocks. Optional 3-1/8" high riser blocks are available upon request (model 86012, set of four). Do not stack riser blocks to gain additional height.

10. Depress the pump button just enough to raise the lift pads or lift pads with riser blocks up to meet the vehicle frame and slightly raise the vehicle. Visually inspect the relationship between the lift pads or riser blocks and the vehicle frame to make sure there is solid contact and the setup is secure. Make sure the vehicle is properly balanced on the lift before continuing to raise the vehicle. If the lift with vehicle contact points, setup or balance seem marginal or unstable, lower the lift and make necessary corrections.

11. Raise the vehicle to the desired work height. The locking bars will lock into any one of three lift heights (14-1/2", 19", or 24"). As the vehicle is lifted you will hear when the locking bars clear each locking dog on the locking tracks. Once both locking bars have cleared the desired locking dogs, stop depressing the pump button and slowly depress the release lever (Figure 2) so the locking bars are seated on their respective locking dogs. Always make sure the locking bars are engaged with the locking dogs before working on or near a vehicle.

### LOWERING

1. Clear pit and floor area of personnel, obstructions and tools before lowering lift.
2. Depress the pump button just enough to disengage the locking bars from their respective locking dogs.
3. Disengage the locking bars from their locking tracks by manually pulling their handles to their respective outboard sides. The locking bars should now be in their slide tracks.
4. Depress the release lever to lower the lift all the way down. Always stay clear of the lift area when the lift is moving. Remove any obstructions including riser blocks and tools from the lift pads and work area before driving the vehicle off the lift.

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## MAINTENANCE & INSPECTION

Permit only qualified lift service personnel to perform maintenance on this equipment.

### DAILY

1. Check the condition of all moving parts and replace or repair when necessary.
2. Check the condition of all riser blocks and adapters for damage or excessive wear. Replace as required with Norco parts.
3. Check for external hydraulic fluid leakage and correct the problem immediately.
4. Check the condition of the electrical cord and plug before plugging into an approved 110v outlet.
5. Check all anchor bolts to make sure they have not come loose from their anchor holes and their nuts are tightly securing the lift pad bases to the concrete floor.

### WEEKLY

1. Check to make sure all hardware and fasteners are tight.
2. Check and grease all hinge points and all mating bearing surfaces. Do not lubricate or apply grease to the locking dogs on the locking tracks.
3. Apply thin film of general purpose grease on slide tracks.
4. Keep lift and lift area clean. Always raise lift when cleaning floor area.
5. Inspect main metal lift pad structure for excessive wear, signs of metal fatigue or fractures. Repair or replace components or structure as required.

### QUARTERLY

Check hydraulic fluid level in power unit reservoir and refill as required with Dexron III hydraulic fluid. If fluid is required, inspect all hydraulic hoses, fittings and seals for leakage. Repair or replace as required.

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## REPAIR SERVICE

If your Norco product requires service or repair, contact the Norco Customer Service Department for the location of the nearest Norco Authorized Service Center.

Norco Industries, Inc.  
365 West Victoria St.  
Compton, CA 90220  
(310) 639-4000 • Fax: (310) 639-7411  
[www.norcoindustries.com](http://www.norcoindustries.com)

It will be necessary to provide the Norco Authorized Service Center with a copy of the bill of sale if requesting warranty repair. If the authorized service center determines your product is eligible for warranty repair, the repair will be made at no charge and returned freight prepaid. The cost of non-warrantable service, repair, and return freight is the customer's responsibility.