



## Instruction Sheet

### Pow'r-Riser® Lifting Jacks JA and JAS Series Air-Operated Models

L4226 Rev. A 01/18

#### 1.0 IMPORTANT RECEIVING INSTRUCTIONS

Visually inspect all components for shipping damage. Shipping damage is not covered by warranty. If shipping damage is found, notify carrier at once. The carrier is responsible for all repair and replacement costs resulting from damage in shipment.

#### 2.0 SAFETY ISSUES



Read all instructions, warnings and precautions carefully. Follow any recommended safety precautions to avoid personal injury or damage to the jack. Simplex cannot be responsible for any damage or injury from unsafe use, lack of maintenance or incorrect operation. Do not remove warning labels, tags, or decals. In the event any questions or concerns arise, contact SIMPLEX or a local Simplex distributor for clarification.

The maximum working pressure of the jack hydraulic system varies between 6,000 and 10,200 psi [414 and 703 bar], depending on jack model. Refer to pressure listings in Table 1, General Specifications.

If you have never been trained on high-pressure hydraulic safety, consult your distributor or service center for information about a Simplex hydraulic safety course.

A **CAUTION** is used to indicate correct operating or maintenance procedures and practices to prevent damage to, or destruction of equipment or other property.

A **WARNING** indicates a potential danger that requires correct procedures or practices to avoid personal injury.

A **DANGER** is only used when your action or lack of action may cause serious injury or even death.

Failure to comply with the following safety precautions could result in equipment damage and/or personal injury:



**WARNING:** Wear proper personal protective gear when operating hydraulic equipment.



**WARNING:** The jack is to be used for lifting only! Support the load after completing the lift using approved accessories or by other appropriate means. Never get under a load being supported only by the jack.



**WARNING:** Never exceed the rated capacity of the jack. Allow for a margin of safety that accounts for possible shifting loads or side loading conditions.



**DANGER:** To avoid serious personal injury, keep hands and feet away from hydraulic cylinder and related components during jack operation.



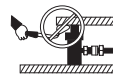
**DANGER:** Do not handle pressurized lines. Escaping oil under pressure can penetrate the skin, causing serious injury. If oil is injected under the skin, see a doctor immediately.



**WARNING:** The jack's internal relief valve must not be repaired or adjusted except by an authorized service center. Never tamper with overload protection devices. Higher settings may result in equipment damage and/or personal injury.



**CAUTION:** When jack is not in use, fully retract the cylinder and protect the entire unit from external damage. Keep the jack clean, avoid weld splatter, and store in a clean dry area. **INSPECT ALL JACK COMPONENTS BEFORE USE.**



**CAUTION:** Keep the jack away from flames and heat. For optimum performance, do not expose the jack to temperatures above 150 °F [65 °C].



**WARNING: BE SURE LIFTING ARRANGEMENT IS STABLE BEFORE LIFTING LOAD.** Use jack only on a solid and level surface, capable of supporting the load and the base of the jack. Always center the load on the lifting saddle of the jack. If the jack is not perpendicular to the load, slipping or loss of load is possible.



**WARNING:** Distribute the load evenly when performing lifts with multiple jacks. Failure to heed this warning may cause loss of load and/or failure of the jack, resulting in property damage and/or personal injury.



**IMPORTANT:** Hydraulic equipment must only be serviced by a qualified hydraulic technician. For repair service, contact the Authorized SIMPLEX Service Center in your area. To protect your warranty, use only SIMPLEX oil.



**WARNING:** Immediately replace worn or damaged parts with genuine SIMPLEX parts. Standard grade parts will break causing personal injury and property damage. SIMPLEX parts are designed to fit properly and withstand high loads.



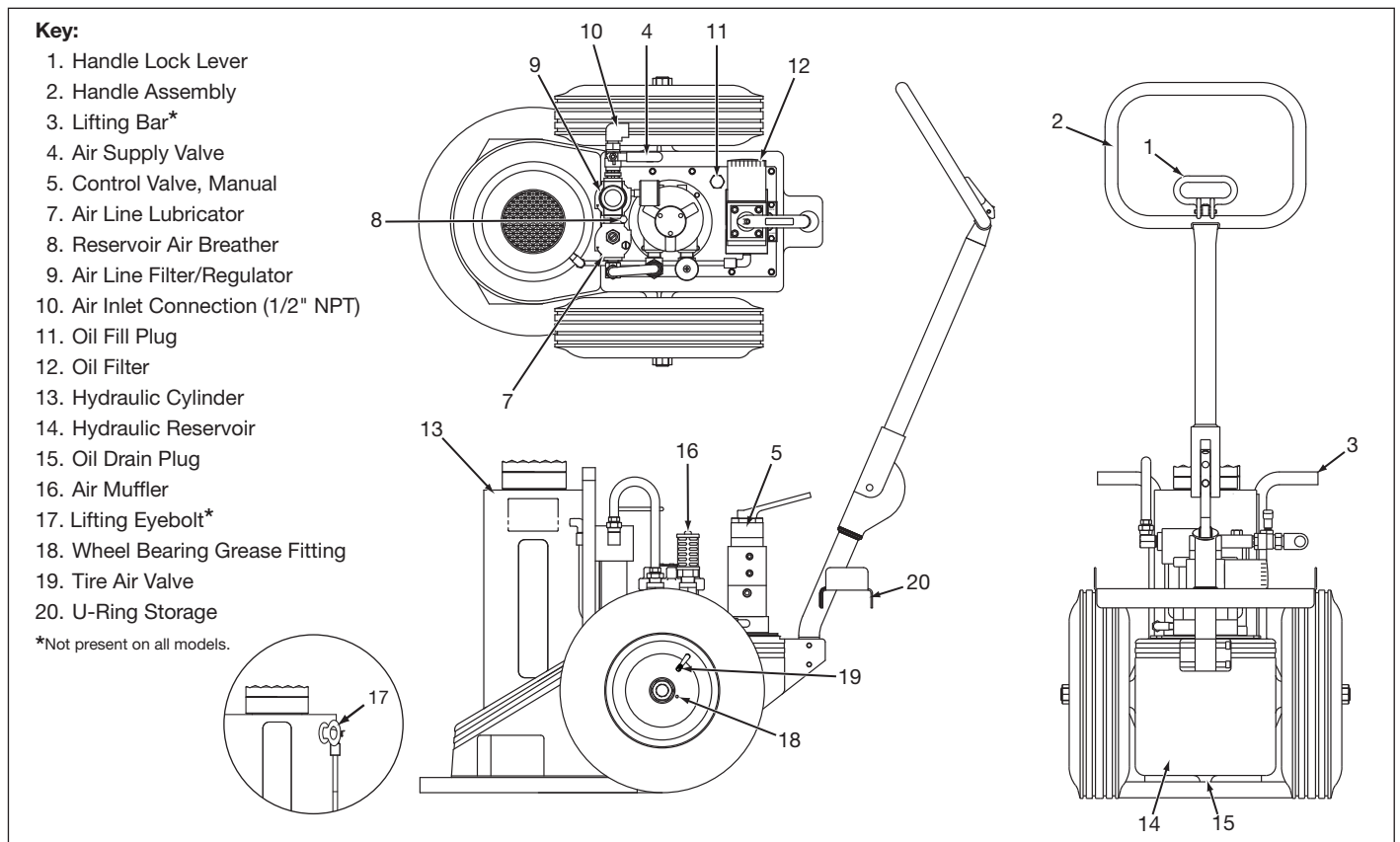
**CAUTION:** To avoid damage to jack internal components, do not continue pressurizing the jack cylinder after it reaches maximum extension or retraction.

### 3.0 PRODUCT DATA

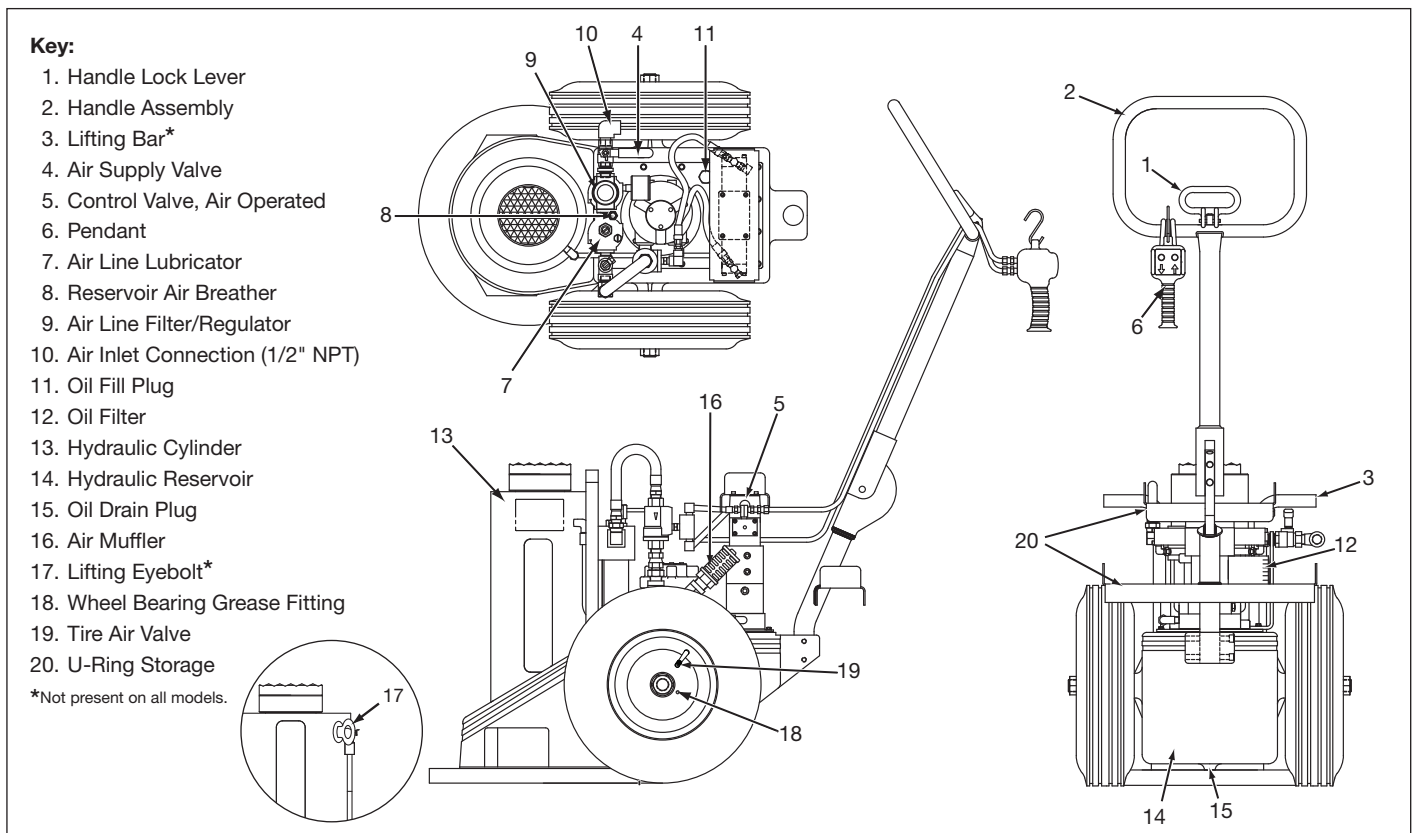
| Table 1 - General Specifications  |   |                |                    |           |
|---|---|----------------|--------------------|-----------|
| <b>Maximum Operating Pressure</b>   | <b>Model</b>  | <b>psi</b>     | <b>bar</b>         |           |
|   | JA6024, JA6037  | 6,000          | 414                |           |
|   | JA10026, JAS10026, JA10037, JAS10037                            | 9,700          | 669                |           |
|   | JAS15026, JAS15037  | 10,200         | 703                |           |
| <b>Load Rating</b>  | <b>Model</b>  | <b>US Tons</b> | <b>Metric Tons</b> | <b>kN</b> |
|   | JA6024, JA6037  | 60             | 54                 | 533       |
|   | JA10026, JAS10026, JA10037, JAS10037                            | 100            | 90                 | 889       |
|   | JAS15026, JAS15037  | 150            | 136                | 1333      |
| JAS20026, JAS20037  | 200   | 181            | 1778               |           |
| <b>Hydraulic Oil Type</b>   | Simplex Hydraulic Oil (Refer to Table 8 for oil specifications) |                |                    |           |
| <b>Maximum Hydraulic Oil Temperature</b>  | 170 °F [76 °C]  |                |                    |           |
| <b>Hydraulic Reservoir Oil Capacity (approximate - when filled to proper level)</b> | 4.2 gallons [15,9 liters]                                       |                |                    |           |
| <b>Air Requirements (minimum)</b>   | 50 CFM @ 80 psi [1416 l/min @ 5,5 bar]                          |                |                    |           |

| Table 2 - Stroke Lengths and Weights |               |     |        |     |                    |               |     |        |     |
|--------------------------------------|---------------|-----|--------|-----|--------------------|---------------|-----|--------|-----|
| Short Stroke Models                  | Stroke Length |     | Weight |     | Long Stroke Models | Stroke Length |     | Weight |     |
|                                      | inches        | mm  | pounds | Kg  |                    | inches        | mm  | pounds | Kg  |
| JA6024                               | 14            | 356 | 390    | 177 | JA6037             | 27            | 686 | 600    | 272 |
| JA10026                              | 16            | 406 | 510    | 231 | JA10037            | 27            | 686 | 600    | 272 |
| JAS10026                             | 16            | 406 | 510    | 231 | JAS10037           | 27            | 686 | 600    | 272 |
| JAS15026                             | 15.5          | 394 | 570    | 258 | JAS15037           | 26.5          | 673 | 708    | 321 |
| JAS20026                             | 15.5          | 394 | 640    | 290 | JAS20037           | 26.5          | 673 | 825    | 374 |

**Note:** Refer to Simplex catalog for product external dimensions.



**Figure 1, Major Features and Components - JA Series Models**



**Figure 2, Major Features and Components - JAS Series Models**

## 4.0 INITIAL SETUP

### 4.1 Adding Oil

Before startup, remove the oil fill plug (callout #11) and check oil level. Oil level should be about 1 inch [25 mm] below top of reservoir. Add Simplex hydraulic oil to reservoir if necessary. See Section 6.1 for additional information.

### 4.2 Air Requirements

Lubricated air is necessary to provide shaft seal lubrication for the air motor, and to prevent rust. All models are equipped with an automatic air line lubricator set to feed approximately 3 drops per minute.

Before startup, check the level in the air line lubricator (callout #7) and add additional lubricant if needed. Use an SAE 10 [ISO 32] detergent oil or an approved antifreeze lubricant. See Section 6.4 for additional information.

A filter/regulator with moisture trap (callout #9) is installed in the air line ahead of the motor. For efficiency of output and control of speed, use an air line of not less than 3/4 inch pipe size. Air pressure and flow must be at least 50 CFM @ 80 psi [1416 l/min @ 5,5 bar]. The air inlet connection is a 1/2" NPT female thread.

Be certain that compressed air is clean and dry. Moisture in the air line can cause rust formation in the air motor and may result in reduced performance. Allowing excessive moisture or foreign particles to enter the air motor will void the Simplex warranty.

### 4.3 Using the Jack for The First Time

**Note:** Refer to Section 5.0 for detailed jack operation instructions.

1. On JA Series models, be sure that the control valve lever is in the center (neutral/hold) position.

**Note:** On JAS Series models, the air operated control valve automatically returns to the center (neutral/hold) position when the pendant buttons are not depressed.

2. Connect an air hose at the air inlet connection (callout #10).

**Note:** On JA Series models, the motor will start immediately when the air supply valve is opened. On pendant controlled JAS Series models, the motor will start automatically when either pendant button is depressed.

3. Open the air supply valve (callout #4). Using the regulator knob, adjust the air pressure to a minimum of 80 psi [5,5 bar].

**IMPORTANT:** Perform the following step with no load on jack.

4. Check for proper operation by fully extending and retracting the cylinder (callout #13). Use the lever on the manual control valve (callout #5 - JA Series models) or the buttons on the pendant (callout #6 - JAS Series models) to control cylinder movement. To remove air from system, cycle the cylinder as needed until operation is smooth.

### 4.4 Using the Handle Assembly to Position the Jack

1. Push handle lock lever (callout #1) to release lock pin.
2. With lock pin released, position handle assembly (callout #2) to desired location and release handle lock lever (callout #1) to engage lock pin.
3. The jack can now be tilted back onto the wheels and pushed or pulled to the work area. Use caution when walking backwards.
4. If needed, the jack can be lifted using the lifting bar (callout #3 - if equipped) or the lifting eyebolt(s) (callout #17 - if equipped).

**Note:** Lifting bars are installed on jack models JA6024, JA10026, JAS10026 and JAS15026. Lifting bars are not used on any models ending in "37" or on model JAS20026.

All models ending in "37" are equipped with one lifting eyebolt. Model JAS20026 is equipped with two lifting eyebolts. The other models ending in "24" and "26" are not equipped with lifting eyebolts.



**WARNING:** Lift the jack using only lifting eyebolt(s) or lifting bar. Never attempt to lift the jack by using the handle assembly. The handle assembly is to be used only for transporting the jack on its wheels and for positioning the jack under the jacking point.

- Using the handle assembly, adjust the jack position so that the cylinder load cap is centered under the jacking point of the load.



**WARNING:** Be sure that the jack is positioned on a solid and level support surface, with the lifting cylinder perpendicular to the ground. Jacking at an angle can allow the jack to slip out of position, resulting in loss of load. As required, use a swivel load cap to properly engage angled lifting points. Refer to Section 5.5 for additional information.

## 5.0 OPERATION

### 5.1 Control Valves (See Figure 3)

#### 4-Way Manual Valve:

With pump motor running:

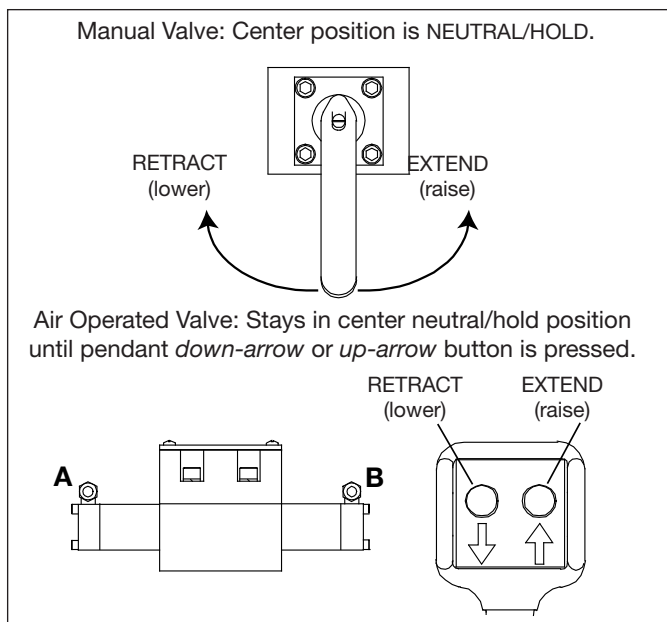
- Move lever to the extend position to raise the cylinder.
- Move lever to the retract position to lower the cylinder.
- Center position is neutral/hold. Cylinder stops and holds the load. This is also referred to as the “idle” position.

#### 4-Way Air Operated Valve with Pendant:

- To start motor and extend cylinder - press up-arrow button.
- To start motor and retract cylinder - press down-arrow button.
- For neutral/hold - release both pendant buttons. Motor will stop.

Lifting speed and torque can be regulated by using the air pressure regulator. The regulator should be adjusted to 100 psi [7 bar] *maximum* with air motor running and air supply valve completely open.

**IMPORTANT:** Pressure settings of above 100 psi [7 bar] will result in reduced air motor life and will void product warranty.



**Figure 3, Control Valve and Pendant Details**

## 5.2 Jacking Safely

You must know the weight of what you intend to lift and choose a jack with **at least 20 percent** additional capacity.

All persons operating the jack should obtain and be familiar with the *American National Standards Institute* rules that apply to hydraulic rams and jacks (ASME ANSI B30.1) or the equivalent standards used in your country or region.



**WARNING:** Never place any part of your body under the load at any time while it is being lifted, lowered, or hydraulically supported by the Pow'r-Riser jack.



**WARNING:** The Pow'r-Riser jack is intended for lifting purposes only and should not be used to hydraulically support the load for any period of time after the lift has been completed. Support the load with U-Rings or other suitable load supports immediately after it has been lifted to the desired height.



**WARNING:** Never leave the Pow'r-Riser jack unattended during operation, even for a brief period of time. Closely monitor jack operation at all times and be prepared to stop lifting or lowering immediately.



**WARNING:** Do not use the Pow'r-Riser jack outdoors in windy conditions. Changes in wind direction or velocity could cause the load to become unstable and fall.

## 5.3 Operating Instructions (See Figures 3, 4 and 5)

### TO RAISE THE LOAD:

- Be certain that the jack is positioned on a solid and level surface, capable of supporting the load and the base of the jack. Be sure that the lifting cylinder is perpendicular to the ground. See Section 4.4 for additional jack positioning instructions.
- If a high jacking point requires a taller jack, install extensions and spacers (optional accessories) on the cylinder as required. Refer to Section 5.4 for installation instructions and additional information about extensions and spacers.
- Place a piece of plywood or other compression material (approximately 1/4" [6,3 mm] thick with good friction characteristics) between the cylinder load cap and the jacking point. This will provide a small amount of cushioning and will also help prevent damage to the jacking point.
- To raise the load, open the air supply valve to start the motor. Then, move the control valve lever to the extend position. If jack is equipped with pendant, depress the up-arrow button to start motor and extend cylinder.



**CAUTION:** When lifting with more than one jack, be especially careful to keep the load level. Leveling is best accomplished by throttling with the air supply valve or by alternating and stopping jacks to keep the load level enough so it remains stable.

- When load has reached the desired height, move the control valve lever to the center (neutral/hold) position. If jack is equipped with pendant, release up-arrow button to return valve back to the center (neutral/hold) position.
- Be sure that the proper Simplex U-Rings are installed on the cylinder (refer to Section 5.6 for U-Ring installation and stacking instructions). If U-Rings are not used, be sure that other load supports of appropriate load rating are in place.
- Move the control valve lever to the retract position. Allow the load to lower until it is supported by the U-Rings or other load supports. Then, return the lever to the center (neutral/hold) position. If jack is equipped with pendant, depress and release the down-arrow button as required, until the load is supported by the U-Rings or load supports.



**WARNING:** After lifting is completed, always support the load using the proper Simplex U-Rings or appropriately rated load supports. Never rely on the cylinder's hydraulic pressure to support the lifted load.



**WARNING:** Wait an appropriate amount of time before working under the load after it is supported by U-Rings or load supports. Any settling of jack base or load supports into the ground below must not exceed 1/4 inch [6.4 mm]. If additional settling occurs, reposition jack or load supports on solid ground.

**IMPORTANT:** if there is to be no cylinder movement for more than one minute, it is recommended that the motor be turned off to prevent overheating of pump and air motor (models with manual control valve only).

**TO LOWER THE LOAD:**

1. Be sure the control valve lever is in the center (neutral/hold) position. If jack is equipped with pendant, be sure that both buttons are released (not pressed) so that valve returns back to the center position.
2. Open the air supply valve. On models equipped with a manual control valve, the motor will start.
3. Move the control valve lever to the extend position or depress the pendant up-arrow button. Allow cylinder to advance a small amount, so that load is lifted off of U-Rings or clears the load supports. Then place the control valve lever in the center (neutral/hold) position or release the up-arrow button.
4. After the U-Rings or load supports are removed, move the control valve lever to the retract position or depress the pendant down-arrow button to retract the cylinder.



**CAUTION:** Be careful while lowering to ensure that the load is lowered evenly, so that load shifting does not occur.

5. When load has been fully lowered, place the control valve lever in the center (neutral/hold) position or release the pendant down-arrow button. On models with manual control valve, close the air supply valve to stop the motor.

**AFTER COMPLETING THE JOB:**

Fully retract the cylinder and close the air supply valve. With the motor off, shift the control valve several times between the extend and retract positions to relieve system pressure.

Disconnect the air supply hose and remove any extensions or spacers from the cylinder. Place U-Rings (if used) on the storage rack provided on the jack.

Always store the jack and its accessories in a clean and dry area, free of moisture and direct sunlight.

**5.4 Stacking Instructions - Extensions and Spacers (See Figure 4)**

Extensions and spacers are available as optional accessories from your Simplex authorized distributor. They may be ordered individually or in sets. Refer to tables 3 and 4 for additional information.

JE Series extensions allow the jack's useful lifting height to be increased in increments of 5, 7, 9 or 11 inches [127, 178, 229 or 279 mm]. On short stroke Pow'r-Riser models only, larger extensions can also be used, allowing the useful lifting height to be increased in increments of 14 or 18 inches [356 or 457 mm].

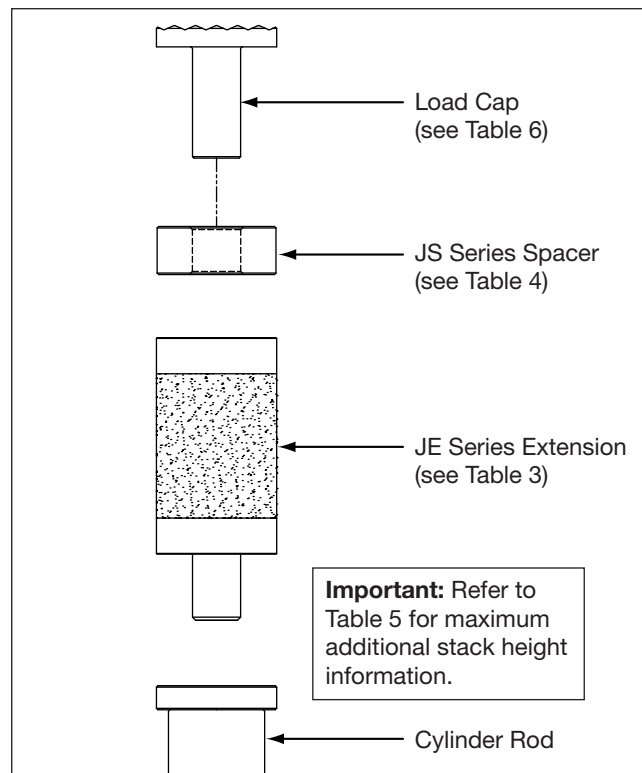
JS Series spacers allow additional fine adjustment of the extension stack height. They may be used alone or in conjunction with JE Series extensions.

| Table 3 - JE Series Extensions (optional accessories)                |   |     |
|--|---|-----|
| Extension Model  | Thickness (each)                            |     |
|  | inches                                      | mm  |
| JE5  | 5   | 127 |
| JE7  | 7   | 178 |
| JE9  | 9   | 229 |
| JE11   | 11  | 279 |
| JE14*  | 14  | 356 |
| JE18*  | 18  | 457 |
| ES6024 Extension Set   | Includes JE5, JE7, JE11, and JE18 (1 each). |     |
| * For use on short stroke jacks only (models ending in "24" or "26") |   |     |

| Table 4 - JS Series Spacers (optional accessories) |  |    |
|--|--|----|
| Spacer Model                                       | Thickness (each)                         |    |
|  | inches                                   | mm |
| JS1  | 1  | 25 |
| JS2  | 2  | 51 |
| JS3  | 3  | 76 |
| JS4 Spacer Set                                     | Set includes JS1, JS2, and JS3 (1 each). |    |



**CAUTION:** Never exceed the maximum additional stack height for your jack model. Refer to Table 5 for additional information.



**Figure 4, Extension and Spacer Installation (typical)**

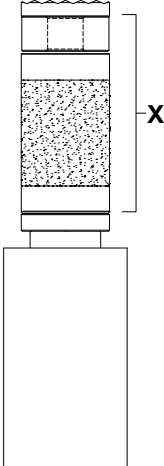


**WARNING:** Failure to observe the following instructions could allow load to shift or drop. Serious personal injury and/or property damage may result.

When using JE Series extensions and/or JS Series spacers, always obey the following rules:

- For loads up to 60 tons [54 metric tons]: Any *two* JE Series extensions may be included in the stacking arrangement, provided that the maximum stack height (See Table 5) is not exceeded and the following exceptions are observed:
  - 1) Jack model JA6024:** Only *one* JE18 extension can be included in the stacking arrangement.
  - 2) All jack models ending in “26”:** Only *one* JE11, JE14 or JE18 extension can be included in the stacking arrangement.
  - 3) All jack models ending in “37”:** Extensions JE14 and JE18 cannot be included in the stacking arrangement. These extensions are designed for short stroke jacks only (models ending in “24” and “26”).
- For loads over 60 tons [54 metric tons], or strokes over 14 inches [356 mm]: Only *one* JE Series extension and *one* JS Series spacer can be included in the stacking arrangement.
- Never exceed 3 inches [76 mm] in total spacer height.
- Never exceed the maximum additional stack height for your jack model. Refer to Table 5, dimension “X”.

| Jack Model | Maximum Additional Stack Height (dimension “X”) |     |
|------------|---|-----|
|            | inches  | mm  |
| JA6024     | 32  | 813 |
| JA6037     | 11  | 279 |
| JA10026    | 21  | 533 |
| JA10037    | 11  | 279 |
| JAS10026   | 21  | 533 |
| JAS10037   | 11  | 279 |
| JAS15026   | 21  | 533 |
| JAS15037   | 11  | 279 |
| JAS20026   | 21  | 533 |
| JAS20037   | 11  | 279 |



### 5.5 Load Caps

A non-swivel load cap is included with the jack as standard equipment. A swivel load cap is available as an optional accessory. Refer to Table 6 for a list of load cap model numbers.

**IMPORTANT:** Use a swivel load cap to properly engage angled lifting points. A swivel load cap should always be used when the amount of misalignment between the standard load cap and the lifting point is too large to be compensated for by use of plywood or other suitable compression material alone.

| Jack Model | Load Cap Model Numbers         |                                      |
|------------|--------------------------------|--------------------------------------|
|            | Non-Swivel Load Cap (standard) | Swivel Load Cap (optional accessory) |
| JA6024     | S42208                         | JTS60                                |
| JA6037     |                                |                                      |
| JA10026    | S42208                         | JTS60                                |
| JA10037    |                                |                                      |
| JAS10026   |                                |                                      |
| JAS10037   |                                |                                      |
| JAS15026   | S42208                         | JTS150                               |
| JAS15037   |                                |                                      |
| JAS20026   | S42208                         | JTS200                               |
| JAS20037   |                                |                                      |

### 5.6 U-Ring Stacking Instructions (See Figure 5)

Pow'r-Riser U-Rings (optional accessories) allow positive mechanical load holding of a lifted load. The U-Rings are placed on top of the cylinder housing and around the extended cylinder rod. They are available in five different lengths for each Pow'r-Riser model.

To help ensure proper alignment and installation, the top surface of the cylinder housing and the top surface of each U-Ring contains a raised locator. The bottom surface of each U-Ring contains a mating recess.

The U-Rings are made of steel and aluminum. A steel U-Ring must always be positioned at the top and bottom ends of the U-Ring stack. The aluminum U-Rings must always be located in the middle of the stack, between the two steel U-Rings. This stacking arrangement helps prevent damage to the aluminum U-Rings.



**CAUTION:** Never position an aluminum U-Ring at the top or bottom end of the U-Ring stack.

Install U-Rings as described in the following steps:

1. Using the jack, raise the load to the desired lifting height. Refer to the instructions in Section 5.3 of this manual.
2. Place one steel U-Ring on top of the cylinder housing, around the extended cylinder rod.
3. As required, place one or more aluminum U-Rings on top of the steel U-Ring, around the extended cylinder rod. The quantity of aluminum U-Rings to be installed will vary, depending on jack model, lifting height and the U-Ring set being used. Refer to Table 7 for additional information.
4. Place a second steel U-Ring at the top of the U-Ring stack.

**IMPORTANT:** Be sure the arrow on each U-Ring is pointing up. Be sure all locators are fully engaged in the mating recesses of the U-Rings.



**CAUTION: Pinch point hazard:** In the following step, keep hands and fingers clear of area between load support ring and top of U-Ring stack.

| Table 7 - U-Ring Information |                              |                |                     |                     |                  |                         |                                   |       |       |        |       |
|------------------------------|------------------------------|----------------|---------------------|---------------------|------------------|-------------------------|-----------------------------------|-------|-------|--------|-------|
| Jack Model                   | U-Ring Size and Model Number |                |                     |                     |                  | U-Ring Set Model Number | Items Included in Each U-Ring Set |       |       |        |       |
|                              | 1 inch [25 mm]               | 3 inch [76 mm] | 4-1/2 inch [114 mm] | 5-1/2 inch [140 mm] | 10 inch [254 mm] |                         | 2x                                | 1x    | 2x    | 1x     | 4x    |
| JA6024                       | JU11                         | JU13           | JU14                | -                   | -                | JUS126                  | JU11                              | JU13  | JU14  |        | -     |
| JA6037                       | JU11                         | JU13           | JU14                | -                   | JU110            | JUS137                  | JU11                              | JU13  | JU14  | JU110  | -     |
| JA10026                      | JU11                         | JU13           | JU14                | -                   | -                | JUS126                  | JU11                              | JU13  | JU14  | -      | -     |
| JA10037                      | JU11                         | JU13           | JU14                | -                   | JU110            | JUS137                  | JU11                              | JU13  | JU14  | JU110  | -     |
| JAS10026                     | JU11                         | JU13           | JU14                | -                   | -                | JUS126                  | JU11                              | JU13  | JU14  | -      | -     |
| JAS10037                     | JU11                         | JU13           | JU14                | -                   | JU110            | JUS137                  | JU11                              | JU13  | JU14  | JU110  | -     |
| JAS15026                     | JU151                        | JU153          | -                   | JU155               | -                | JUS1526                 | JU151                             | JU153 | JU155 | -      | -     |
| JAS15037                     | JU151                        | JU153          | -                   | JU155               | JU1510           | JUS1537                 | JU151                             | JU153 | JU155 | JU1510 | -     |
| JAS20026                     | JU201                        | JU203          | -                   | JU205               | -                | JUS2026                 | JU201                             | JU203 | JU205 | -      | -     |
| JAS20037                     | JU201                        | JU203          | -                   | JU205               | -                | JUS2037                 | JU201                             | JU203 | -     | -      | JU205 |

- Slowly lower the cylinder rod until the weight of the load is supported by the U-Rings. Refer to the information in Section 5.3 for jack operating instructions.

**IMPORTANT:** Follow all applicable work rules and regulations in effect at your facility or worksite. The use of auxiliary stands, blocking or other additional load supports may be required even when U-Rings are installed.

## 6.0 MAINTENANCE

### 6.1 Maintain Oil Level in Hydraulic Reservoir

Check the hydraulic oil level every 30 days. Oil level should be approximately 1 inch [25 mm] below top of reservoir, with cylinder fully retracted and motor off.

If oil level is low, add Simplex hydraulic oil as required. If Simplex hydraulic oil is not available at the work site, use an equivalent hydraulic oil that meets the specifications shown in Table 8.

| Table 8 - Oil Specifications |  |
|------------------------------|--|
| ISO Grade                    | 32   |
| Viscosity Index              | 100 minimum  |
| Viscosity at 210 °F          | 42 S.U.S.  |
| Viscosity at 100 °F          | 165 S.U.S.   |
| Viscosity at 0 °F            | <12000 S.U.S.  |
| Specific Gravity             | 0.86   |
| Flash, C.O.C. °F             | 400  |
| Pour Point, °F               | -35  |
| ASTM D-943                   | 2600 hours   |
| Additives                    | Oxidation inhibitor, foam inhibitor, anti-wear inhibitor |



**CAUTION:** Failure to use the proper oil may result in damage to jack hydraulic components and will void the product warranty. Use of Simplex hydraulic oil is strongly recommended.

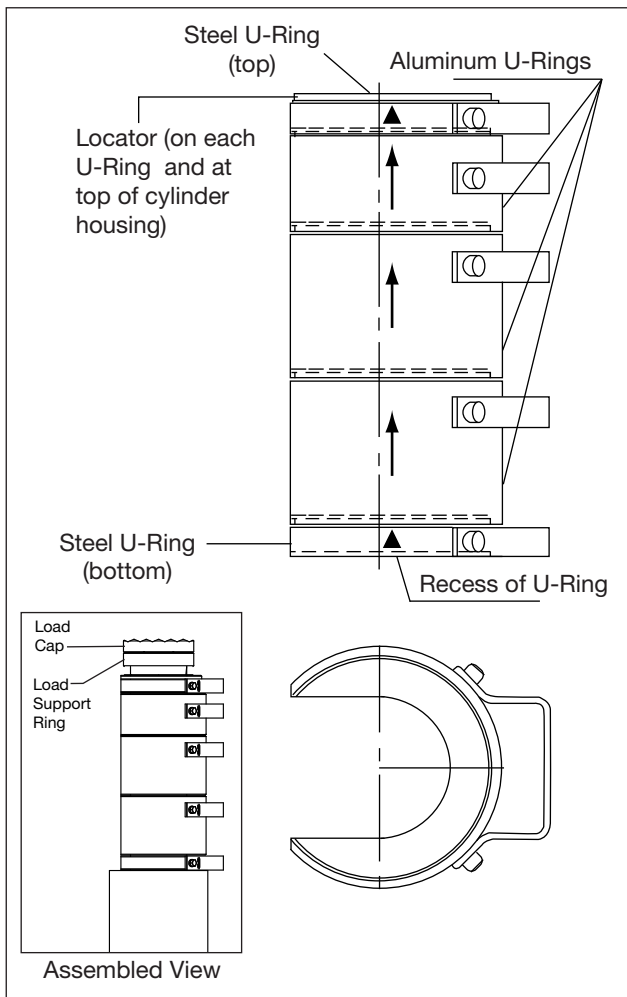
**IMPORTANT:** Be sure that the oil is clean. If the oil has a milky, cloudy or dark appearance, it should be changed immediately as described in Section 6.2.

### 6.2 Changing the Oil (See Figure 6)

Change the oil at least every 12 months.

**Note:** The following conditions will require more frequent oil changes:

- Rigorous duty, where oil temperature may reach 150 °F [60 °C].
- A high humidity environment and/or extreme changes in temperature that can result in condensation inside the reservoir.
- Dirty or dusty environments that may contaminate the oil.



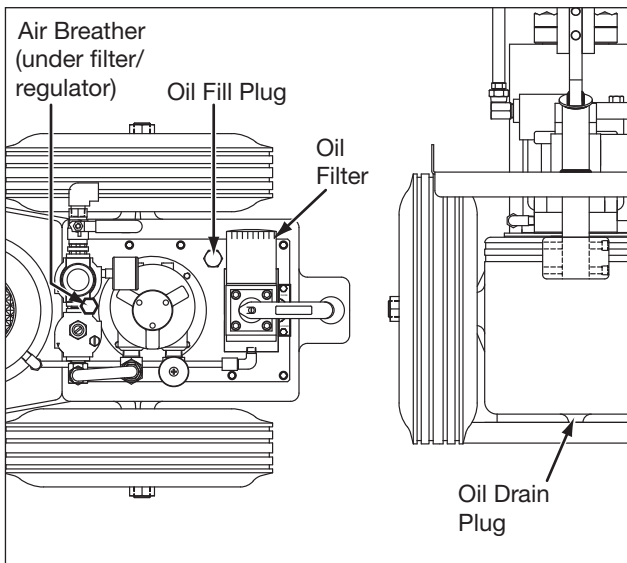
**Figure 5, U-Ring Stacking Arrangement (typical)**

Change the oil as described in the following steps:

1. Be sure that cylinder is fully retracted and that the air line is disconnected.

**IMPORTANT:** The 5 gallon [18,9 liter] hydraulic reservoir holds approximately 4.2 gallons [15,9 liters] of oil when filled to the proper level with cylinder fully retracted and motor off. Dispose of used oil in accordance with all applicable laws and regulations.

2. Loosen and remove oil drain plug at bottom of reservoir. Allow used oil to drain into a suitable container.
3. Clean and reinstall oil drain plug.
4. Remove, clean and reinstall the reservoir air breather. It is located on the reservoir top cover plate, under the air filter/regulator assembly.
5. Loosen oil fill plug at top of reservoir. Slowly fill the reservoir until the oil level is about 1 inch [25 mm] below top of reservoir. Use Simplex hydraulic oil or a suitable equivalent that meets the specifications shown in Table 8.
6. Reinstall oil fill plug.
7. Remove the old oil filter and replace it with a new one of the proper specifications. Catch any spilled oil in a suitable container.
8. Raise and lower the cylinder several times to check for proper operation before placing the jack back into service.



**Figure 6, Oil Change**

### 6.3 Air Line Filter/Regulator (See Figure 7)

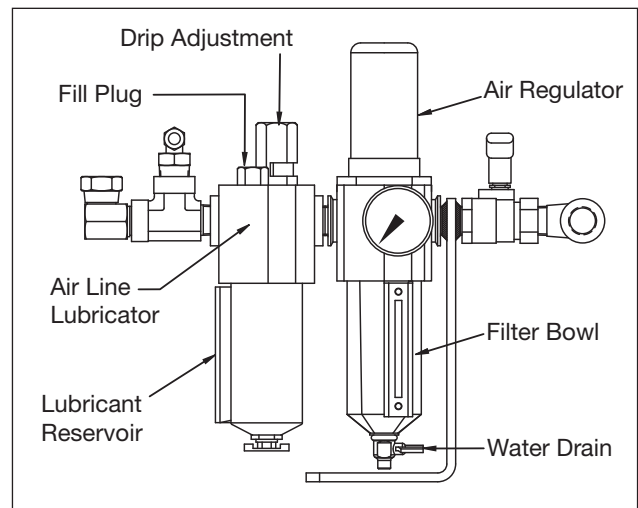
Every 30 hours of operation:

- Check the filter bowl for water. Drain any water if present.
- Inspect air filter element (inside filter bowl). Replace filter element if dirty.

### 6.4 Air Line Lubricator (See Figure 7)

Before each use, check the fluid level in the air line lubricator and add additional lubricant if needed. Use an SAE 10 [ISO 32] detergent oil or an approved antifreeze lubricant.

Check for an oil drip speed of approximately 3 drops per minute. Adjust if necessary.



**Figure 7, Air Line Lubricator and Filter/Regulator**

### 6.5 Air Muffler (See Figure 8)

Every 30 hours of operation:

- Check the air muffler for dirt or debris. If clogged, replace the muffler with a new one of the same specifications.

**Note:** Air muffler design and appearance will vary. On jacks equipped with a Gast manufactured air motor, the felt pads inside the muffler can be removed, cleaned and replaced.

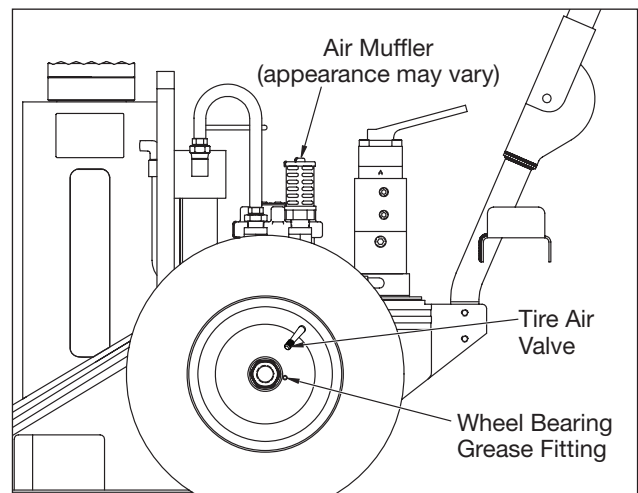
### 6.6 Wheels and Tires (See Figure 8)

Every 30 hours of operation:

- Check the tires for wear or damage. Replace as required.
- Check the tire inflation pressure. Each tire should be inflated to 90 psi [6,2 bar].

Every 12 months:

- Lubricate both wheel bearings with a high quality wheel bearing grease. Each wheel hub contains a grease fitting.



**Figure 8, Additional Maintenance Items**



## 7.0 TROUBLESHOOTING

The information in the Troubleshooting Guide (refer to Table 9) is intended as an aid to help diagnose and correct various possible problems that may occur.

For repair service, contact your local Simplex authorized service center. Only a Simplex authorized service center should service the jack and its components.



**CAUTION:** Never tighten or loosen hydraulic fittings while jack hydraulic system is pressurized.

**Table 9 - Troubleshooting Guide**

| Symptom   | Possible Cause  | Solution   |
|---|---|--|
| 1. Sporadic cylinder action.  | Air trapped in hydraulic system.  | Cycle cylinder up and down several times to bleed trapped air.   |
|   | Low oil level in hydraulic reservoir.                                       | Add Simplex hydraulic oil as required.   |
|   | Seal wear and/or other internal damage.                                     | Have hydraulic system inspected by a Simplex Authorized Service Center. Repair or replace components as required.  |
| 2. Noisy operation.   | Air trapped in hydraulic system.  | Cycle cylinder up and down several times to bleed trapped air.   |
|   | Low oil level in hydraulic reservoir.                                       | Add Simplex hydraulic oil as required.   |
|   | Air leaks in hydraulic system.  | Check all points where air might leak into system.   |
|   | Clogged or blocked pump intake screen.                                      | Have hydraulic reservoir and intake screen flushed and cleaned by a Simplex Authorized Service Center.   |
| 3. Oil is overheating.  | Low oil level in hydraulic reservoir.                                       | Add Simplex hydraulic oil as required.   |
|   | Oil viscosity too high or too low.  | Drain and refill reservoir with Simplex hydraulic oil.   |
|   | High pressure leakage at the pump.  | Have hydraulic system inspected by a Simplex Authorized Service Center. Repair or replace components as required.  |
| 4. Pump runs but will not pump oil.<br><br>OR<br>Cylinder moves but will not lift load. | Seal wear and/or other internal damage.                                     | Have hydraulic system inspected by a Simplex Authorized Service Center. Repair or replace components as required.  |
|   | Control valve needs repair.   | Have control valve inspected by a Simplex Authorized Service Center. Repair or replace as required.  |
| 5. Cylinder extends but will not retract.   | Insufficient compressed air volume.   | Check air regulator setting. Increase volume of compressed air or increase size of supply air line to meet airflow and pressure requirements.  |
|   | Internal pressure leaks, or leaking retract hoses.                          | Have hydraulic system inspected by a Simplex Authorized Service Center. Repair or replace components as required.  |
|   | Internal relief valve setting or retract side relief valve setting too low. | Have hydraulic system inspected by a Simplex Authorized Service Center. Repair or replace components as required.  |
|   | Defective over-center valve, secondary lock valve or control valve.         | Have hydraulic system inspected by a Simplex Authorized Service Center. Repair or replace components as required.  |
|   | Pump not developing enough pressure.  | Have hydraulic system inspected by a Simplex Authorized Service Center. Repair or replace components as required.  |
| 6. Pump does not run.   | Insufficient compressed air volume.   | Check air regulator setting. Increase volume of compressed air or increase size of supply air line to meet airflow and pressure requirements.  |
|   | Moisture in compressed air.   | Be sure that compressed air is clean, dry and free of water.   |
|   | Air muffler frozen or clogged with ice.                                     | Clean the air muffler. Be sure compressed air is clean, dry and free of water. Check lubricant level in air line lubricator. Use only SAE 10 [ISO 32] detergent oil or an approved antifreeze lubricant. |
|   | Air motor frozen or clogged with ice.                                       | Be sure compressed air is clean, dry and free of water. Check lubricant level in air line lubricator. Use only SAE 10 [ISO 32] detergent oil or an approved antifreeze lubricant.                        |
|   | Air motor corroded, damaged, worn or seized.                                | Have air motor inspected by a Simplex Authorized Service Center. Repair or replace as required.  |
|   | Pump element damaged, worn or seized.                                       | Have pump element inspected by a Simplex Authorized Service Center. Repair or replace as required.   |
| 7. Jack is difficult to roll on wheels.   | Low tire inflation pressure.  | Check tire inflation pressure. Add air if low. Pressure should be 90 psi [6,2 bar].  |
|   | Wheel bearings need lubrication.  | Apply grease to wheel bearings. See Section 6.6.   |
|   | Wheel locknut out of adjustment.  | Loosen locknut until wheel rotates freely.   |







N86 W12500 Westbrook Crossing  
Menomonee Falls, WI 53051  
Phone - USA Only: 1 (800) 323-9114  
Phone - Inside/Outside USA: 1 (262) 293-1575  
Fax: 1 (262) 597-1127  
[www.tksimplex.com](http://www.tksimplex.com)