

SOUTHWORTH

Owner's Manual Air Bag Lift Tables

Airbag Lift Manual for PPA, GTA, GLSA & GLTA Models



SOUTHWORTH PRODUCTS CORP

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Please note: This manual was current at the time of printing. To obtain the latest, most updated version, please contact Southworth's Customer Service Department or go to our website: www.SouthworthProducts.com, under Parts & Service you will find a complete list of current owner's manuals to print.

Contents

INTRODUCTION	4
Things to Know	4
As a General Rule	4
RESPONSIBILITY OF OWNERS AND USERS	5
SAFETY ALERT SYMBOLS AND SIGNAL WORDS.....	6
RISE TIMES	7
AIR BAG REFERENCE CHART	7
SAFETY.....	8
Safety Considerations	8
Signal Words	8
Safe Servicing of the Lift	9
INSTALLATION INSTRUCTIONS	10
MAINTENANCE	11
TROUBLESHOOTING	12
ORDERING REPLACEMENT PARTS.....	13
WARRANTY	19

List of Figures

Figure 1: Safe Servicing of Lift	9
Figure 2: Lift Assembly - 2,000	14
Figure 3: Tilt Assembly - 2,000	15
Figure 4: Lift/Tilt Assembly- 2,000	16
Figure 6: Foot Control Schematic.....	17

INTRODUCTION

This manual contains information to acquaint you with the safe and proper installation, use and upkeep of the machine. You should ensure that this manual is available to personnel working with the machine and require its use by these personnel.

In the interest of safety, please read this entire manual carefully and be familiar with its contents before you install, use or service the machine. If you have any questions about any instructions in this manual, please contact your dealer or Southworth Products Corp.

Southworth's product warranty is provided in the back of this manual. This instruction manual is not intended to be or to create any other warranty, expressed or implied, including any implied warranty of merchantability or fitness for a particular purpose, all of which are hereby expressly excluded.

As set forth more specifically in the product warranty, Southworth's obligation under that warranty is limited to the repair or replacement of defective components, which shall be the buyers sole remedy. Southworth shall not be liable for any loss, injury or damage to persons or property, not for any defect, indirect or consequential damage of any kind resulting from the lift table.

Things to Know

- 1.) Capacity on pneumatic lift/tilt tables is affected by plant air psi (pounds per square inch of pressure).
- 2.) Plant air pressure is typically 80 to 90 psi.
- 3.) Speed on lift/tilt tables is affected by the cfm available (cubic feet per minute or air volume flow).
- 4.) The cfm is a function of the air compressor's capacity and the pressure and the size of the lines leading to the lift/tilt table.
- 5.) The cfm is best expressed as "free air." Meaning it is measured (or calculated) as a volume blowing out an open line.
- 6.) Southworth capacity ratings and speed estimates on all models are based on 80 psi at 80 cfm, free air.

As a General Rule

- 1.) Increasing cfm will increase up speed.
- 2.) Increasing psi will increase capacity and up speed.
- 3.) Capacity and speed are a function of the air compressor and the associated airline network, not the equipment.
- 4.) If a pneumatic lift/tilt is not fully raised or lowered and a load is removed from the unit, the unit will raise slightly as the pressure on the air inside the airbag is reduced.
- 5.) If a pneumatic lift/tilt is not fully raised or lowered and a load is put on the unit, the unit will lower slightly as the air is compressed inside the airbag.

Responsibility of Owners and Users

Inspection and Maintenance

The device shall be inspected and maintained in proper working order in accordance with Southworth's owner's manual.

Removal from Service

Any device not in safe operating condition such as, but not limited to, excessive leakage, missing rollers, pins, or fasteners, any bent or cracked structural members, cut or frayed electric, hydraulic, or pneumatic lines, damaged or malfunctioning controls or safety devices, etc. shall be removed from service until it is repaired to the original manufacturer's standards.

Deflection

It is the responsibility of the user/purchaser to advise the manufacturer where deflection may be critical to the application.

Repairs

All repairs shall be made by qualified personnel in conformance with Southworth's instructions.

Operators

Only trained personnel and authorized personnel shall be permitted to operate the lift.

Before Operation

Before using the device, the operator shall have:

- Read and/or had explained, and understood, the manufacturer's operating instructions and safety rules.
- Inspected the device for proper operation and condition. Any suspect item shall be carefully examined and a determination made by a qualified person as to whether it constitutes a hazard. All items not in conformance with Southworth's specification shall be corrected before further use of the equipment.

During Operation

The device shall only be used in accordance with this owner's manual.

- Do not overload.
- Ensure that all safety devices are operational and in place.

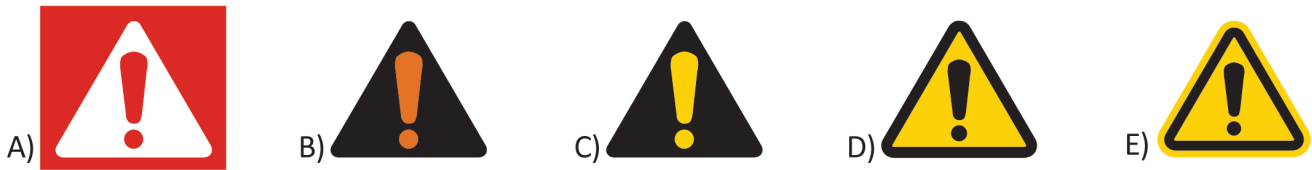
Modifications or Alterations

Modifications or alterations to any Southworth industrial positioning equipment shall be made only with written permission from Southworth.

SAFETY ALERT SYMBOLS AND SIGNAL WORDS

The safety of all persons operating, maintaining, repairing, or in the vicinity of this equipment is of paramount concern. This is a powerful machine with moving parts, and is capable of causing personal injury if proper precautions are not taken. Therefore, throughout this manual, certain hazards have been identified which may occur in the use of the machine, and there are appropriate instructions or precautions which should be taken to avoid these hazards. In some cases, there are consequences which may occur if instructions or precautions are not followed. Below are the symbols and signal words along with their definitions referenced from ANSI Z535.4 - Product Safety Signs and Labels.

4.11 Safety Alert Symbols: A symbol that indicates a hazard. It is composed of an equilateral triangle surrounding an exclamation mark. The safety alert symbol is only used on hazard alerting signs. It is not used on safety notice and safety instructions signs.



A): for use with DANGER signal word; (safety white triangle, safety red exclamation mark, safety red background)

B): for use with WARNING signal word; (safety black triangle, safety orange exclamation mark)

C): for use with CAUTION signal word; (safety black triangle, safety yellow exclamation mark)

D) and E): for use with DANGER, WARNING, or CAUTION signal word; (D: is a safety yellow triangle with a black border and safety black exclamation mark; E: is a safety yellow triangle with a safety black exclamation mark and a safety yellow border around a safety black band)

NOTE: D and E are provided to allow for consistency with certain ISO standards such as ISO 3864-1 and ISO 3864-2.

4.14 Signal Words: The words used in the signal word panel. The signal words for hazard alerting signs are “DANGER,” “WARNING,” and “CAUTION.” Safety notice signs use the signal word “NOTICE.” Safety instruction signs use signal words that are specific to the situation.



DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.



WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.



NOTICE is used to address practices not related to physical injury.



SAFETY INSTRUCTIONS (or equivalent) signs indicate specific safety-related instructions or procedures.

NOTE: DANGER, WARNING or CAUTION should not be considered for property damage accidents unless personal injury risk appropriate to these levels is involved.

RISE TIMES

Pneumatic lifts/tilts are directly affected by weight that is on the platform.
Pressure compensation, such as we use on hydraulic machines is not applicable.
The following chart should be helpful. These speeds are all approximate.

CONDITION

RAISE-LOADED
LOWER-EMPTY

RAISE-EMPTY
LOWER-LOADED

LIFT

30 SECONDS
30 SECONDS

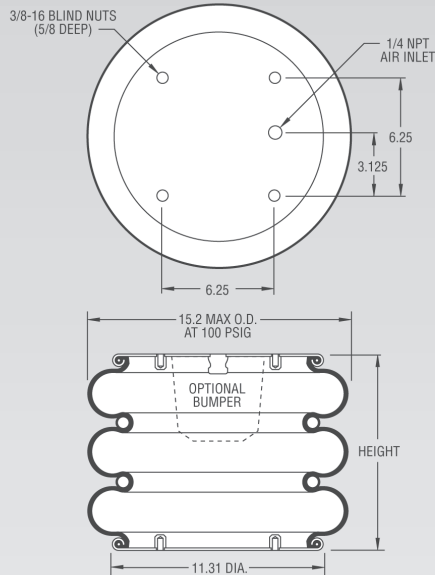
15 SECONDS
15 SECONDS

TILTER

20 SECONDS
30 SECONDS

15 SECONDS
20 SECONDS

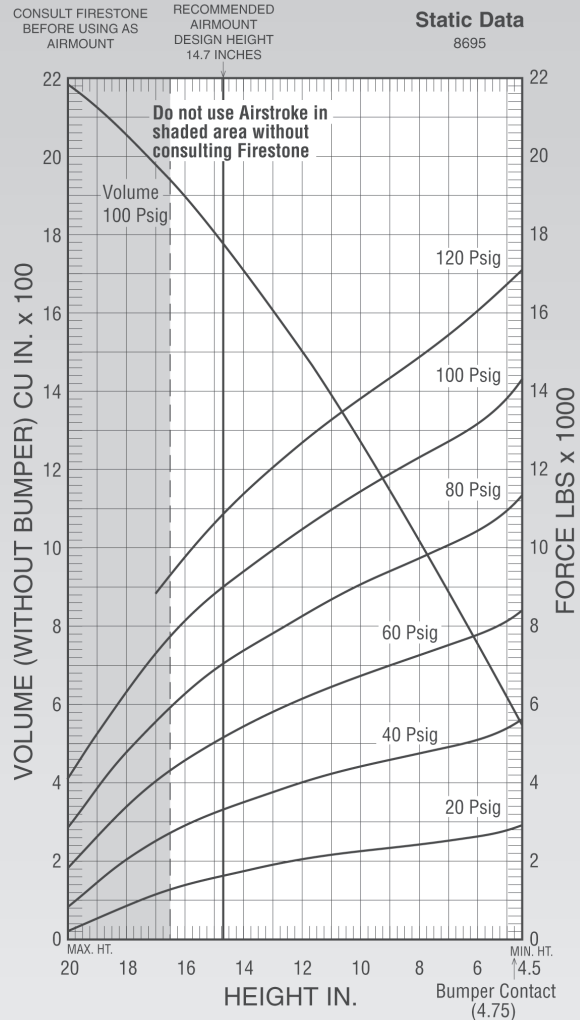
Air Bag Reference Chart



NOTE: A bead plate part is shown. This part is also available with bead rings. See pages 8-10 for explanation.

Dynamic Characteristics at 14.70 in. Design Height (Required for Airmount isolator design only)

Volume @ 100 PSIG = 1,786 in ³			Natural Frequency	
Gage Pressure (PSIG)	Load (lbs.)	Spring Rate (lbs./in.)	CPM	HZ
40	3,282	685	86	1.43
60	5,167	933	80	1.33
80	7,000	1,179	77	1.28
100	8,940	1,425	75	1.25



See page 12 for instructions on how to use chart.

Force Table (Use for Airstroke® actuator design)

Assembly Height (in.)	Volume @ 100 PSIG (in ³)	Pounds Force				
		@20 PSIG	@40 PSIG	@60 PSIG	@80 PSIG	@100 PSIG
16.0	1,904	1,338	2,866	4,524	6,241	8,062
14.0	1,718	1,706	3,478	5,388	7,325	9,338
12.0	1,507	1,981	3,955	6,083	8,200	10,405
10.0	1,274	2,208	4,376	6,698	9,003	11,400
8.0	1,022	2,389	4,733	7,220	9,710	12,278
6.0	754	2,574	5,087	7,724	10,396	13,139
4.0	473	3,049	5,871	8,787	11,827	14,918

SAFETY

The safety of all persons operating, maintaining, repairing or in the vicinity of the machine is of paramount concern to Southworth. This is a powerful machine with moving parts and is capable of causing personal injury if proper precautions are not taken. Therefore, throughout this manual, Southworth has identified certain hazards that may occur in the use of this machine and provided appropriate instruction or precautions that should be taken to avoid these hazards. In some cases, Southworth has also pointed out the consequences that may occur if Southworth's instructions or precautions are not followed. Southworth uses the following system of identifying the severity of the hazards associated with its products.

Southworth pneumatic lift/tilt tables are equipped with a pressure safety relief valve so overloading will not "burst" the air bag.

Southworth pneumatic lift/tilt tables have a safety orifice speed control. This regulates the down speed. Should an air line rupture, the unit will descent at about the normal rate. This orifice is not adjustable.

All Southworth pneumatic lift/tilt tables can be fitted (optional) with industrial, high quality dampers to provide smooth movement even when loads are abruptly introduced to the platform.

Southworth units are also equipped with safe, reliable Firestone air spring actuators rather than vinyl air bags.

All Southworth models are designed with a generous safety factor of three to one.

Safety Considerations

Southworth pneumatic lift/tilt tables are designed and manufactured to meet the safety requirements of the *ANSI Standard MH29*. Southworth pneumatic lift/tilt tables are equipped with a pressure safety relief valve so overloading will not "burst" the air bag.

Southworth pneumatic lift/tilt tables have a safety orifice speed control. This regulates the down speed. Should an air line rupture, the unit will descent at about the normal rate. This orifice is not adjustable.

All Southworth pneumatic lift/tilt tables can be fitted (optional) with industrial, high quality dampers to provide smooth movement even when loads are abruptly introduced to the platform. Southworth units are also equipped with safe, reliable Firestone air spring actuators rather than vinyl air bags.

All Southworth models are designed with a generous safety factor of three to one.

SIGNAL WORD

The word or words that designates a degree or level of hazard seriousness. The signal words for product safety signs are "**DANGER, WARNING and CAUTION.**"



Immediate hazard which will result in severe personal injury or death.



Hazardous or unsafe practice which could result in severe personal injury or death.



Hazardous or unsafe practice that could result in minor personal injury or property damage.

Please read and follow the instructions in this manual, including all safety instructions and precautions carefully and completely.

Safe Servicing of the Lift

⚠ WARNING

Only authorized personnel should perform inspection or maintenance and service procedures. Unauthorized personnel attempting these procedures do so at the risk of severe injury or death.

⚠ DANGER

Failure to properly adhere to lift blocking procedures is to risk the sudden and uncontrolled descent of the lift during maintenance or inspection. A falling lift can cause severe injury or death.

This procedure describes the only factory-approved method of working under a lift. Follow these instructions **EVERY** time you plan to reach or crawl beneath the lift to perform service or maintenance – no matter how momentary that might be.

If the factory-provided maintenance device is damaged or missing, stop immediately and consult the factory for assistance. The manufacturer is not liable for your failure to use the approved maintenance device(s) and procedures that have been provided.

1. Any load must be removed from the lift prior to engaging the maintenance device(s). These devices are designed to support an unloaded lift only. Failure to remove the load from the lift prior to blocking could cause the failure of the maintenance device(s) and allow the lift to fall unexpectedly. This can result in personal injury or death, or permanent damage to the maintenance device(s) and/or the lift.

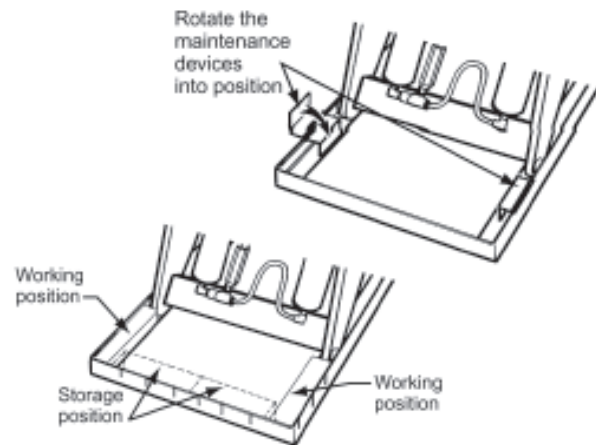


Figure 1 – Safe Servicing of Lift

2. Raise the lift to its fully raised position. If you do not, the maintenance device(s) may not be able to be placed properly in its/their designed blocking position.
3. Remove the maintenance device(s) from its/their storage location and place it/them into the engaged position as shown in Figure 1. (Note: further information may be useful here to provide additional instructions as to the location and method of storage and engaged positions).
4. Lower the lift until it makes complete contact with the maintenance device(s). Re-check to ensure that all provided devices are fully and securely engaged. If the device(s) is/are not fully engaged the lift could fall unexpectedly, resulting in permanent damage to the device(s) or the lift.

⚠ DANGER

If for any reason you are unable to lower the lift completely onto the maintenance device(s), stop immediately and consult the factory. Failure to properly use the factory approved maintenance device(s) could result in severe injury or death.

5. Once the maintenance device(s) is/are properly and securely engaged, continue to press the down valve for an additional 5-10 seconds to relieve all pressure in the operating system.

⚠ WARNING

Failure to relieve operating system pressure could result in the sudden and unexpected release of air during maintenance and/or repair of the lift and may result in severe injury or death.

6. Follow OSHA lock-out/tag-out procedures. Disconnect and tag all power sources to prevent an unplanned or unexpected actuation of the lift.
7. Once inspection or work is complete, reverse the performance of the steps above to raise the lift off the maintenance device(s) and place the device(s) back into its/their designated storage position(s).

INSTALLATION INSTRUCTIONS

Preparations:

1. Before you start to install the lift, check for local codes and ordinances which may apply in your area. It is your responsibility to obtain any necessary permits.
2. Read all of these installation instructions carefully. Be sure to read and understand all of the warnings!
3. Prepare air supply to have filter regular that provides psi.

Positioning the lift:

1. Remove the shipping material and unskid the lift.
2. Move the lift into position, supporting the base frame of the lift. Mount the lift on a firm level surface and, if necessary, insert shims to level the lift. Install lag bolts to hold the lift in place. Make sure to shim or grout under the base frame to prevent any flexing.

NOTICE

Machine base lag anchors need to be sized for a minimum of 5000# pull-out force for each lag.

⚠ WARNING

If the lift is mounted on an unstable surface, it may tip over when in use. You may be hurt and the lift and/or load may be damaged.

Air Line (if equipped): Connect airline between actuator device and supply lines.

⚠ WARNING

Be sure the air line will not be pinched by the lift during operation. If you allow the line to be pinched, the lift may not work properly. A hose may break, the lift may drop suddenly and someone may be hurt.

Testing

1. Check all connections and make sure that they are tight and do not leak air.
2. Clear the area around the lift. Remove any loose wires, lumber or other material which might get in the way of the lift as it is in use.
3. Operate the lift through its full range of travel. The lift should rise and lower smoothly and quietly. Raise and lower the lift a few times to check the clearances around the lift table.

⚠ WARNING

As the lift moves, “pinch points” are created. If you are standing too close to the lift when it is moving, your arm or leg may be caught in the moving parts and you may be hurt. Stay away from the pinch points when the lift is moving.

Complete Installation

1. Test the lift with the rated load. If the lift does not move contact Southworth for instructions.

⚠ WARNING

Do not continue to use the lift if this happens. This can cause the lift to fail suddenly and you may be hurt.

MAINTENANCE

All service should be done by qualified personnel. Qualified personnel should be able to read and understand wiring and pneumatic diagrams. They should be able to troubleshoot live pneumatic circuits safely and in accordance with accepted practice. FOR SAFETY'S SAKE, if in doubt, please contact your dealer or Southworth Products Corporation Customer Service Department at (207)878-0700 or (800)743-1000.

Before servicing the lift, read and understand this entire section and the section entitled "Operating Instructions."

Hazards

There are several hazards you should be aware of as you service the lift:

Before working on the lift be sure to insert and all maintenance devices.

WARNING

As the lift moves, "pinch points" are created. Keep hands, feet and loose clothing away from these pinch points. If your arms, hands or your clothing is caught, you may be hurt.

CAUTION

The warning labels on the lift are there for the safety of the operator. If the labels are worn or missing, replace them

Routine Periodic Maintenance

Every month:

Visually inspect the leg rollers, center pivot bushings and the upper and lower hinge pins and bushings.

Apply oil or WD-40 to all parts listed above.

Note: Although the bearings are "lifetime lubricated," their performance may be extended by additional periodic lubrication (WD-40).

Every six months:

Check all of the pneumatic fittings and hoses and repair the connections if necessary. Occasionally, the fittings can be worked loose by vibrations from the lift.

Check all lag anchors to make sure they are tight.

WARNING

If a pneumatic fitting becomes loose or if a pneumatic hose breaks, the air will escape from the system under pressure. If the lift is elevated when this happens, it will drop very quickly. Someone may be hurt or the product or the lift may be damaged.

TROUBLESHOOTING

All service should be done by qualified personnel. Qualified personnel should be able to read and understand wiring and hydraulic diagrams. They should be able to troubleshoot circuits safely and in accordance with accepted practice. FOR SAFETY'S SAKE, if in doubt, please contact your dealer or Southworth Products Corporation Customer Service Department at (207) 878-0700 or (800) 743-1000.

Before servicing the lift, read and understand this entire section and the section entitled "Operating Instructions."

Before working on the lift be sure to insert any and all maintenance devices. Failure to do so may result in damage to the machine and severe personal injury!

The lift fails to elevate:

1. The machine may be overloaded. Check the actual weight of the load. The rated capacity of the machine is shown on the table skirt.
2. Check the air supply to see if it has enough pressure. Using an external lifting mechanism, such as a crane or a fork lift. Raise the lift and insert the maintenance devices.
3. Check the lines in the airbag for leaks.
4. If the lift raises but does not raise completely, you may have to check the psi setting on the gauge at the supply line.

The lift elevates, but fails to hold the load:

Before working on the lift, be sure to insert any and all maintenance devices. Failure to do so may result in damage to the lift and severe personal injury!

1. The line going between the lift and the control, (if equipped) the relief valve or up/down control valve may be leaking. Dirt on the valve seat will prevent the valve from closing fully. Contact the local distributor or Southworth Products for assistance.

The lift fails to lower:

Before working on the lift, be sure to insert any and all maintenance devices. Failure to do so may result in damage to the lift and severe personal injury!

1. Be sure lever is connected and adjusted to actuate the down (exhaust) valve (if equipped).
2. Make sure nothing is blocking the lift from lowering.

If the steps listed above do not solve the problem,
please call the Customer Service Department at
Southworth Products Corp at (207) 878-0700
or (800) 743-1000.

ORDERING REPLACEMENT PARTS

Southworth has carefully chosen the components in your lift to be the best available for the purpose. Replacement parts should be identical to the original equipment. Southworth will not be responsible for equipment failures resulting from the use of incorrect replacement parts or from unauthorized modifications of the machine.

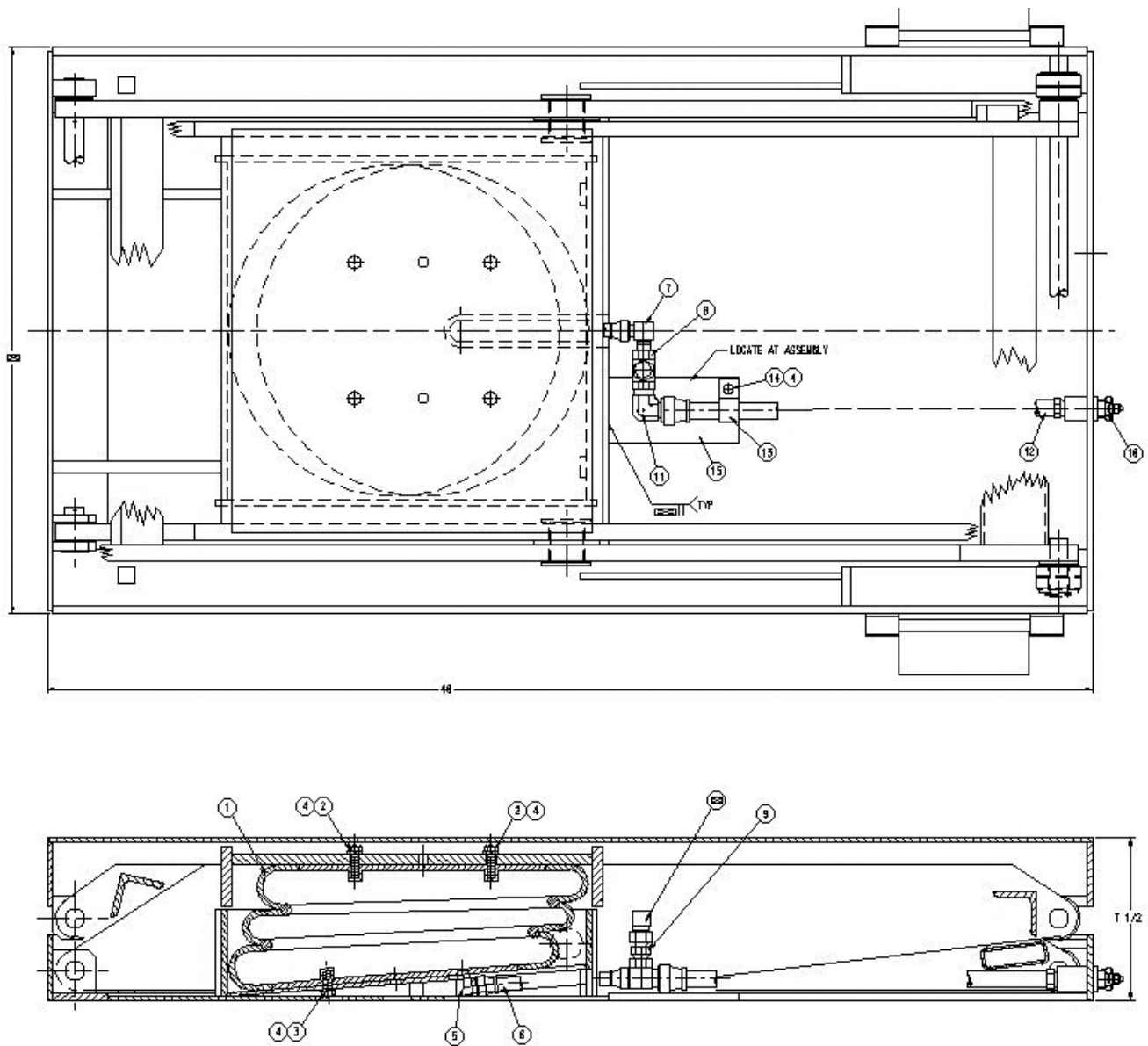
Southworth will gladly supply you with replacement parts for your Southworth lift. With your order, please include the model number and the serial number of the lift. You may find these numbers on the nameplate, which is located on the crossbar at the base of the cylinder(s). When you are ordering parts for a cylinder, also include the cylinder number. This is stamped on the base of the cylinder housing.

To order replacement parts, please call the Parts Department at (207)878-0700 or (800)743-1000. Parts are shipped subject to the following terms:

- FOB factory
- Returns only with the approval of our parts department
- Payment net 30 days (except parts covered by warranty)
- Freight collect (except parts covered by warranty)
- The warranty for repair parts is 30 days from date of shipment

Parts replaced under warranty are on a "charge-credit" basis. We will invoice you when we ship the replacement part, then credit you when you return the worn or damaged part, and we verify that it is covered by our warranty. Labor is not covered under warranty for Parts orders.

SOUTHWORTH PRODUCTS CORP
Parts Department
Telephone: (207) 878-0700
(800) 743-1000
Fax: (207) 797-4734
repairparts@southworthproducts.com



ITEM	QTY	DESCRIPTION
1	2	AIRBAG
2	8	SCREW
3	8	SCREW
4	16	WASHER
5	2	FITTING
6	1	RELIEF VALVE
7	1	FITTING
8	1	HOSE
9	1	TEC FITTING
10	1	FITTING
11	2	CLIP
12	1	FITTING
13	2	HOSE
14	1	FITTING

Figure 2: Lift Assembly - 2,000

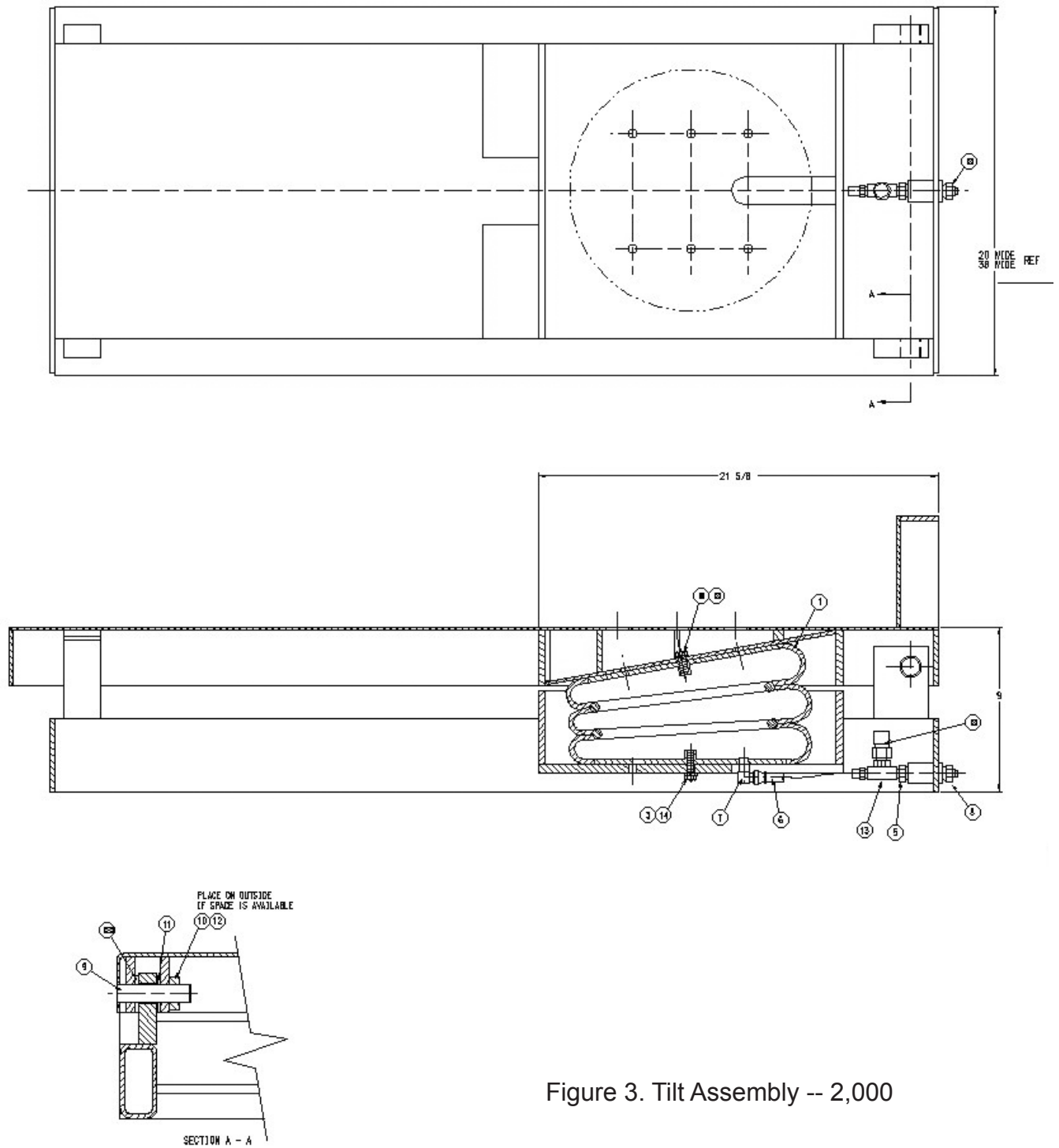
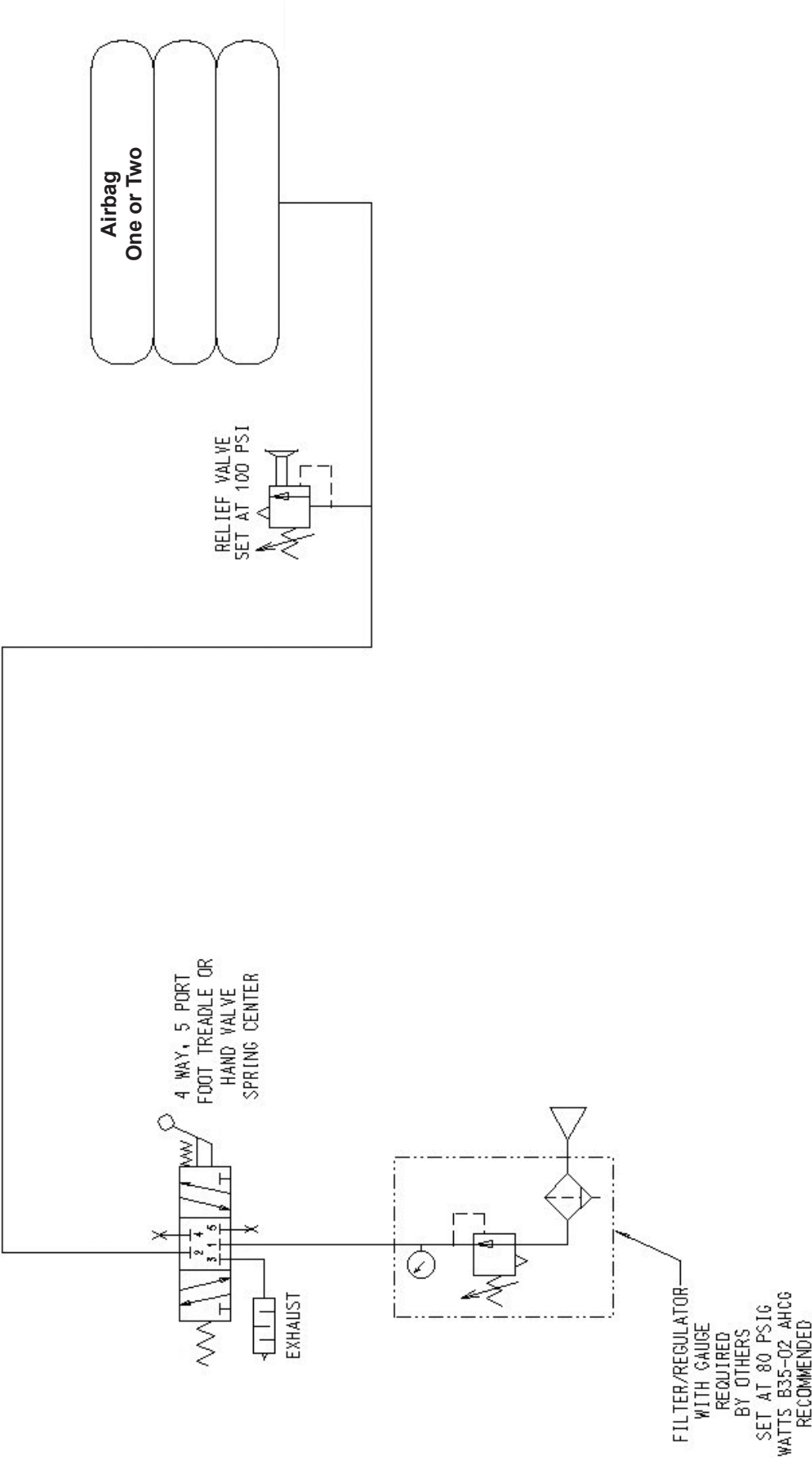


Figure 3. Tilt Assembly -- 2,000



Figure 6.
Foot Control
Schematic



2 YEAR WARRANTY

Southworth Products Corp warrants this product to be free from defects in material or workmanship for a period of **2 years** of single shift usage from date of shipment, providing claim is made in writing within that time period. This warranty shall not cover modified designs for special applications, failure or defective operation caused by misuse, misapplication, negligence or accident, exceeding recommended capacities, failure to perform required maintenance or altering or repairing, unless alteration is authorized by Southworth Products Corp. Except as set forth herein, there are no other warranties, express or implied, including the warranties of merchantability and fitness for a particular purpose, all of which are hereby excluded.

All **batteries have a 90 day parts and labor** warranty, this warranty covers any defects in material and workmanship from the date of shipment.

Southworth Products Corp makes no warranty or representation with respect to the compliance of any product with state or local safety or product standard codes, and any failure to comply with such codes shall not be considered a defect of material or workmanship under this warranty. Southworth Products Corp shall not be liable for any direct or consequential damages arising out of such noncompliance.

Southworth Products Corp's obligation under this warranty is limited to the replacement or repair of defective components at its factory or another location at Southworth Products Corp's discretion. The Southworth Warranty is for product sold with in North America. For products shipped outside of North America the warranty will be for replacement of defective parts only. Labor is not included. This is buyer's sole remedy. Except as stated herein, Southworth Products Corp will not be liable for any loss, injury or damage to persons or property, nor for direct, indirect, or consequential damage of any kind, resulting from failure or defective operation of said product.

This warranty may be altered only in writing by Southworth Products Corp, Portland, Maine.

SOUTHWORTH

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