ADVANCE LIFTS

Dock Lift Owners Manual

MODEL 1045/1055

NOTICE

This manual is an important document. Keep it with the machine or located where readily available to operators and maintenance personnel for reference purposes.

ADVANCE LIFTS

Dock Lift Installation, Operation, and Maintenance Manual

In any correspondence with your distributor or the factory, you will need the following information:

Model Number_____ Serial Number_____

Installation location: _____

_____

_____

NOTICE

At Initial Installation, determine proper motor/pump rotation by starting the motor in very short intervals to prevent permanent pump damage. Running the pump backwards will damage it. See the Installation Instructions, Section 4, for proper procedure.

Distributor Information: _____

_____

_____

_____

Advance Lifts, Inc.
701 S. Kirk Road
St. Charles, IL 60174-3428
Toll Free 1-800-843-3625
Sales Fax 1-630-584-9405
Parts and Service Fax 1-630-584-6837
E-mail: Parts@advancelifts.com

*Advance Lifts, Inc. furnishes one manual with each unit. Additional manuals are available at $25.00 each.

SECTION 2 INDEX & INTRODUCTION

INTRODUCTION

Congratulations, the equipment that you have purchased is of the highest quality. Your Advance Lift will provide you with many years of trouble free service in return for the minimal maintenance described in this manual.

Please be sure that no individual is allowed to operate the lift until they have been fully familiarized with operating instructions in this manual. Also insure that at least one person at the lift site is familiar with the maintenance section of this manual and is assigned responsibility for doing the maintenance on a regular basis.

Please note that the lift has a metal nameplate attached to it that contains information such as the model number, capacities, and the serial number. Do not remove the nameplate. Be sure that no operator ever exceeds the capacities shown on the nameplate or they may cause damage to the lift or injure personnel. Also, be sure to have the serial number of the lift handy if you have to call the factory. That serial number identifies your specific lift and will allow factory personnel to give you the most thorough and timely assistance possible.

This manual is under constant review and we would appreciate any constructive suggestions that may enhance its usefulness. Please send your suggestions to Advance Lifts, Inc Attn: Service Manager

Thank you for purchasing our product.

*Mandatory reading before attempting installation.

SECTION 3. RESPONSIBILITIES OF OWNERS & USERS

Basic Principles: Owners/users shall apply sound principles of safety**,** training, inspection, maintenance, and expected operating environment.
It shall be the responsibility of the owner/user to advise the manufacturer where deflection may be critical to the application.
Manuals: Owners/users shall keep and maintain a copy of the operating and maintenance manual(s) and ensure its availability to operating and maintenance personnel.
Inspection and Maintenance: It shall be the responsibility of the users to inspect and maintain the industrial scissors lift as required to ensure proper operation. The frequency of inspection and maintenance shall be based upon the manufacturer's recommendations and be compatible with operating conditions and the severity of the operating environment.
Industrial scissors lifts that are not in proper operating condition shall be immediately removed from service until repaired. Maintenance and repairs shall be made by a qualified person and the repairs shall be in conformance with the manufacturer's recommendations.
Maintenance Safety Precautions: Before adjustments and repairs are started on an industrial scissors lift, the following precautions shall be taken as applicable:

1. Remove the load from the platform.
2. Lower platform to the full down position, if possible or secure by maintenance device and/or blocking as described by the manufacturer to prevent unintended platform movement.
3. Relieve system pressure from all circuits before loosening or removing any components.
4. All controls in the "off' position and all operating features secured from inadvertent motion by brakes, blocks, or other means.
5. Disconnect power and follow established owner/user lockout/tag out policies.
6. Follow precautions and directions as specified by the manufacturer.

Replacement Parts: When parts or components are replaced, they shall be replaced with parts or components approved by the original manufacturer of the industrial scissors lift.
Maintenance Training: The owner/user shall ensure only qualified personnel inspect and maintain the industrial scissors lift in accordance with the sections: Inspection and Maintenance, Replacement Parts and Operator Training and the manufacturer's recommendations as described in the maintenance manual.
Operator Training: An owner/user, who directs or authorizes an individual to operate an industrial scissors lift, shall ensure that the individual has been:

1. Trained in accordance with the manufacturer's operating manual.
2. Made aware of the responsibilities of operators as outlined under the Operators Section of this manual.
3. Retrained, if necessary, based on the owners/user's observation and evaluation of the operator.

Modifications: Modifications and additions shall not be performed without the manufacturer's prior written approval. Where such authorization is granted, capacity, operation, and maintenance instruction plates, tags, or decals shall be changed accordingly.

Responsibility of Operators

Basic Principles: Operators shall apply sound principles of safety and good judgment in the application and operation of the scissors lift, with consideration given to its intended use and expected operating environment. Since the operator is in direct control of the industrial scissors lift, conformance with good safety practices is the responsibility of the operator. The operator shall make decisions on the consideration for the fact that his or her own safety as well as the safety of other personnel on or near the scissors lift is dependent on those decisions.

General Training: Only personnel who have received general instructions regarding the inspection, application and operation of industrial scissors lifts, including recognition and avoidance of hazards associated with their operation, shall operate an industrial scissors lift. Such topics covered shall include, but not necessarily be limited to, the following issues and requirements:

1. A pre-start inspection
2. Responsibilities associated with problems or malfunctions affecting the operation of the industrial scissors lift
3. Factors affecting stability
4. The purpose of placards and decals
5. Workplace inspection
6. Safety rules and regulations
7. Authorization to operate
8. Operator warnings and instructions
9. Actual operation of the industrial scissors lift. Under the direction of a qualified person, the trainee shall operate the industrial scissors lift for a sufficient period of time to demonstrate proficiency in actual operation of the industrial scissors lift.

Prestart Inspection: Before use each day or at the beginning of each shift, the industrial scissors lift shall be given a visual inspection and functional test including but not limited to the following:

1. Operating and emergency controls
2. Safety devices
3. Air or hydraulic system leaks
4. Electrical cables and wiring harness
5. Loose or missing parts
6. Wheels and casters
7. Nameplates, precautionary and instructional markings and/or labeling
8. Guardrail system
9. Items specified by the manufacturer

Problem or Malfunctions: Any problems or malfunctions that affect the safety of operations shall be repaired prior to the use of the industrial scissors lift.

Before Operations: The operator shall:

1. Read and understand the manufacturer’s operating instruction(s) and user’s safety rules or have them explained
2. Understand all labels, warnings, and instructions displayed on the industrial scissors lift or have them explained

Responsibility of Operators

Workplace Inspections: Before the industrial scissors lift is used and during use, the operator shall check the area in which the industrial scissors lift is to be used for possible hazards such as, but not limited to:

1. Bumps, floor obstructions and uneven surfaces
2. Overhead obstructions and electrical hazards
3. Presence of unauthorized persons
4. Other possible unsafe conditions as noted in the operating manual.

Operator Warnings and Instructions: The operator shall ensure the operation of the industrial scissors lift is in compliance with the following:

1. **Slope**. The industrial scissors lift shall only be operated on flat and level surfaces.
2. **Guardrail system**. Guardrails shall be installed and positioned, and access gates or openings shall be secured per the manufacturer's instructions.
3. **Distribution of load**. The load and its distribution on the platform and any platform extension(s) shall be in accordance with the manufacturer's rated capacity for that specific configuration.
4. **Maintaining overhead clearance**. The operator shall ensure that adequate clearance is maintained from overhead obstructions and energized electrical conductors and parts.
5. **Point of Operation.** The operator shall not place any part of their body under the platform.
6. **Personnel footing**. Personnel shall maintain firm footing on dock lifts and work access lifts while working thereon. Climbing by occupants on the guardrail system is prohibited. The use of planks, ladders, or any other devices on the platform for achieving additional height is prohibited.
7. **Precaution for moving equipment**. When other moving equipment or vehicles are present, special precautions shall be taken to comply with the safety standards established for the workplace.
8. **Reporting problems or malfunctions**. The operator shall immediately report to a supervisor any problem(s) or malfunction(s) that become evident during operation. The operator shall ensure all problems and malfunctions that affect the safety of operations are repaired prior to continued use.
9. **Capacity limitation**. Rated capacity shall not be exceeded when loads are transferred to the platform at any level.
10. **Work area**. The operator shall ensure the area surrounding the industrial scissors lift is clear of personnel and equipment before lowering the platform.
11. **Securing the industrial scissors lift.** The operator shall comply with the means and procedures provided to protect against use by an unauthorized person(s).
12. **Altering safety devices**. Safety devices shall not be altered or disabled.
13. **Modifications**. Modifications or alterations of an industrial scissors lift or the fabrication and attaching of frameworks or the mounting of attachments for holding tools or materials onto the platform or the guardrail system shall only be accomplished with prior written permission of the manufacturer.
14. **Assistance to the operator**. If an operator encounters any suspected malfunction or any hazard or potentially unsafe condition relating to capacity, intended use or safe operation the operator shall cease operation of the industrial scissors lift and request further instruction from the owner/user.
15. **Problems or malfunctions**. Any problem(s) or malfunction(s) that affect the safety of operations shall be repaired prior to the use of the industrial scissors lift.

SECTION 4. INSTALLATION INSTRUCTIONS

Model 1045 & 1055

Equipment and Supplies Required:

1. Equipment to maneuver the Advance Lift into position. Nylon slings are preferred, but padded alloy chains will also work as rigging.
2. Material for shimming and grouting.
3. If unit was ordered with the lag down option, we recommend “Rawl-Stud Wedge Anchors”, “Wej-It” or equivalent bolts in the 5/8” x 6” size. The studs must be embedded at least 4 ½” into the concrete.
4. Properly wired receptacle, refer to local electrical codes.
5. Standard hand tools for electrical work and hydraulic maintenance.
6. A heavy pry bar for shifting the equipment and a drill for installing the lag down studs (if required).
7. Maintenance device, this is supplied by Advance Lifts on all units. Check the maintenance section of this manual for proper usage.

Installation Procedure:

1. Read the Installation, Operating, and Maintenance instructions completely before attempting installation. You may also find it helpful to read the remaining sections of the manual for a better understanding of how the equipment works.
2. Also be sure whatever surface the base frame will sit on is flat and level or is shimmed to achieve that end. (See p 4-4 for a typical slab drawing).
3. Following the electrical diagrams in the electrical section of this manual, make the electrical connection. **On three phase units, be sure that you have correct motor rotation!** Continued operation of a hydraulic pump in reverse rotation will destroy it! You can detect the rotation by making short motor jogs and watching the clear suction line from the reservoir to the pump. If the rotation is correct, the fluid will leap up the line into the pump. If the rotation is reversed, there will be no fluid in the suction line. You may change the rotation of a 3-phase motor by simply exchanging the positions of any two of the three power wire connections. With single-phase motors, rotation is set at the factory.

Note: Some installers try to arrange all of the above work to be completed before they ever bring a lift to the job site. This allows them to use the crane that is used to offload and position the lift for as short a time as possible.

4. This lift, if equipped with a 3-phase motor, is pre-wired at the factory but must still be checked for proper motor rotation upon start up because rotation is strictly a function of each individual building's wiring. **NOTE:** Do not run the motor backward. If the lift does not begin to rise immediately, check the motor rotation.

5. Figure out the proper orientation of the lift. Surface mounted units are equipped with a Bridge for truck to dock transfer and an Approach Ramp for transitioning on and off the unit from the ground level. **NOTE: The ramps are marked with a "GROUND ACCESS ONLY" sticker and shall not be used as a bridge to the truck or dock surface.**

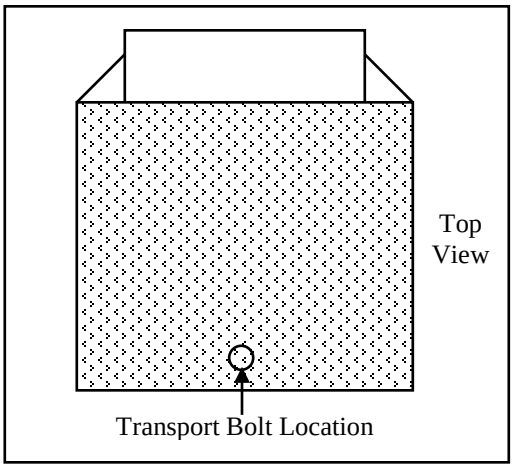
⚠WARNING

When installing the lift against the vertical face of a loading dock, it is necessary to leave a 4" gap between the lift and dock wall for safety clearance. Failure to do so could result in serious injury.

6. You may now break the shipping restraints (banding) and remove the shipping bolt located on the platform before operating, see illustration below. Use the lifts power unit to open the lift a few feet, this will allow you to remove your chains or slings and the banding material from beneath the unit's base frame.

⚠ DANGER

Do not allow anyone to get under the unit during installation. Serious injury or death could occur.



Note: Model 1045 & 1055 Only: This transport bolt must be removed before attempting to operate the unit or damage may occur.

7. Raise the unit and position the maintenance device or bar as shown in the maintenance section of this manual pages P 6-3 through P 6-5. Lower the unit onto the maintenance device and press the down button for an extra 10 seconds to relieve all hydraulic pressure. Check the unit for side-to-side level and then shim or grout the base frame for continuous support. The shimming should enhance the match between the platform and the surrounding surfaces when fully lowered, but not at the expense of side-to-side levelness. A slight slope from clevis end to roller end is not a problem, but side-to-side slope will cause premature wear on all the moving parts of the lift.

8. If ordered with the Lag Down Option, install the lag bolts at this time.

9. Check that there are no tools or debris beneath the unit, raise the unit and remove the maintenance device, then fully lower the unit.

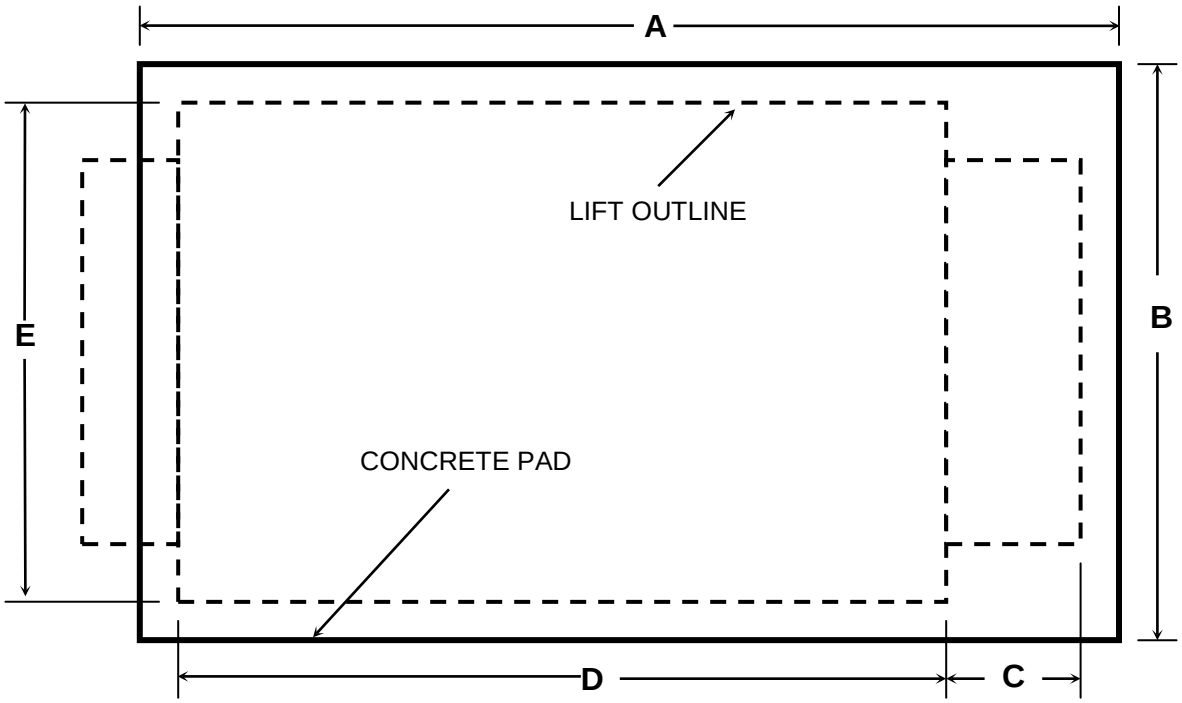
10. Operate the equipment through several cycles, holding the down button an extra 20 seconds after the lift is fully lowered to bleed air from the cylinders. Reservoir is filled at the factory so it is not necessary to check fluid level upon start up.

11. Adjust accessories such as limit switches.

12. Raise the unit one final time, install the maintenance device and thoroughly clean the entire area. Check hose connections for leaks and be sure any fluid spills are cleaned up.

13. Meet with the facility manager or maintenance foreman and turn over this maintenance manual with the reminder that no one should be allowed to operate the unit unless they are familiar with the operating instructions. Show them the maintenance device and any other safety devices. Point out the metal nametag on the unit with the serial number and capacity ratings. Make it clear that some specific person in their organization must be charged with responsibility for the maintenance of the unit and if they have no further questions, lower the unit and consider your job complete.

ADVANCE LIFTS CONCRETE PAD DIAGRAM



*MODEL NUMBER	A = CONCRETE PAD LENGTH	B = CONCRETE PAD WIDTH	C = RAMP LENGTH	D = LIFT LENGTH	E = LIFT WIDTH
1045/1055	**9'-6"**	**8'-6"**	**2'-6"**	**6'**	**7'-8"**

Bill of Materials*

1. One (1) Advance Model Number 1045 or 1055
2. One (1) electric disconnect switch for 2 horsepower motor.
3. One (1) plug receptacle.
4. Concrete anchor bolts and material for shimming and/or grouting, (if required).

*Seller furnishes items 1 – 4 only unless otherwise agreed to in writing.

Notes:

A. Reinforce concrete to suit local soil conditions.
B. All concrete work is the responsibility of the owner or his agent.
C. Concrete pad must be flat and level.
D. Models 1045 and 1055 used in face of dock applications must be held off the vertical face of the dock 4” to maintain safety clearances.

SECTION 5. OPERATING INSTRUCTIONS

Hydraulic scissors lifts have an excellent safety record overall, but as with all moving equipment they can be dangerous. Operators must use common sense and take responsibility for the safety of everyone near the lift. They must use the devices provided and be careful not to surprise anyone in the area with the movement of the lift.

To prevent accidents, always use the guardrails and safety chains, and be alert to the position of the bridge at all times.

Pre-operational checks:

1. Check all electrical wiring and connections to be sure that they are completed properly and are operational.
2. Check for the proper operating condition of all safety devices such as guardrails, safety chains, warning bells and flashing lights.
3. Check for obstructions or debris that may interfere with the safe operation of the lift.
4. Be sure that all personnel in the area are a safe distance away from the lift and aware that you are about to move it.
5. Know the capacity of the lift to be sure not to overload it.

Test operate the equipment:

1. Station yourself so that you always see the equipment and surrounding area when it is in operation. Never operate the equipment in the blind.
2. Raise the equipment and note that the pushbutton is a constant pressure, “dead-man” type. When you release the up or down button, the unit should stop moving immediately and maintain its elevation. If it does not, notify your maintenance personnel immediately.
3. Cycle the equipment several times to be sure that it is operating smoothly with no jerking or sudden movement. On initial start up there may be some air in the lines or the cylinders may be dry due to storage so it may take several cycles to smooth out the operation. If the operation is not smooth after several cycles, contact your maintenance personnel. If there is any evidence of binding or scraping in the operation you should immediately stop using the lift.
4. Check all safety devices for proper operation.
5. If you elect to test load the equipment be sure that you do not exceed the capacities shown on the nameplate. Overloading may cause structural stresses that may not show up for some time, but will diminish the life and capacity of the unit. If you have any questions about testing the unit, call the engineering department at the factory at 1-800-843-3625.

COMPATIBLE LOADING EQUIPMENT GUIDE:

Each Advance lift is designed with a weight capacity and platform design for specific types of loading equipment. Using the wrong type of loading equipment on a given series of lifts will invite unintentional overloading. For safe operation, follow these guidelines and never exceed the nameplate capacity.

UNIT	TYPE OF LOADING EQUIPMENT
1045 & 1055	Hand carts, four wheeled carts & manual pallet jacks.

Calculate the weight of the heaviest types of loads you expect to handle to be sure that they are within the rated capacity. Beware of surprisingly heavy materials such as liquids, grains, powder and paper; all of which can weigh much more than you suspect because of their density.

A little effort to determine the true weight of your heaviest loads before you start to use your equipment can save damage to your equipment and possible injury to your personnel. If you discover that some loads will exceed the capacity of the unit, arrange to have the loads split. All operating personnel should be warned about heavy loads, warning signs should be placed in the dock lift area as a reminder.

Daily operation:

1. Every operator shall be required to read and understand Sections 3 & 5 of this manual prior to operating the lift.
2. Operators must know the capacity of the unit and be aware of any loads that may exceed capacity. Stickers with the unit capacity are located on all four sides of the lift.
3. Operators must be alert to all personnel in the vicinity of the lift and avoid any surprises to these personnel in regard to movement of or the position of the lift at any time. Never operate the unit if you cannot see it and the personnel around it.
4. On the first use of the lift each day, each operator should check to see that the lift is operating properly and smoothly. All safety devices should be in place and operating properly and the hinged bridge should be swung through its full arc of movement. The bridge stops should prevent the bridge from drooping more than 45 degrees below the horizontal in the forward position and the bridge should swing back 20 degrees beyond vertical toward the platform in the upright position. Any problems should be immediately reported to the maintenance personnel.

Daily Operation (Continued)

5. This unit has a traveling electrical cord; the operator must insure that it is kept away from the lift as it rises and lowers.

6. When raising or lowering the lift, the load should be centered on the platform (that is, the load should be evenly distributed and its center of gravity should be at the center of the platform).

7. If a unit is equipped with both a hinged bridge and a hinged ramp, be sure that the operators know the difference and never use the ramp for load transfer in the raised position. The ramps are usually much longer than the bridges, which mean they can work as a long lever creating severe eccentric loads and they are often positioned on the weakest side of the lift for load movement in the fully lowered position only. **Use ramps in the fully lowered position only!**

8. Do not allow bridges or ramps to “free fall” from near vertical positions to the position against their hinge stops. This type of abuse will definitely cause damage to the stops, hinges, and platform edges, eventually rendering the unit unsafe. Lower ramps by hand and lower bridges to the down stop position with the restraining chains.

Efficient lift usage:

The following procedures will help you maximize the efficient use of your lift in your loading and unloading operations.

1. First, it should be noted that there is a long restraining chain on each lift that is designed to run from the hinged bridge to the guardrail post farthest away from the bridge. The purpose of this chain is to allow an operator to pull the hinged bridge back from anywhere on the platform with minimal movement, once the bridge is raised to the near vertical position by the truck bed as the lift is lowered.

2. This means that the hinged bridge only has to be manually lifted once in a loading or unloading sequence. It should be raised to the vertical standing position before the lift is raised to truck height. Once the top of the bridge is just above the truck bed height, the bridge can be pushed against the truck and allowed to cam into truck.

3. Then when you lower the unit, the bridge is allowed to cam up on the truck bed to the near vertical position and then pulled back to a safe resting position with the chain. There is a second snap on the chain that allows you to lock the bridge in the raised position whenever the load or guardrails prevents the bridge from swinging back at least 20º beyond vertical. (See illustration at end of section.)

4. If your unit is equipped with an approach ramp, do not raise the ramp on each cycle. In fact, the ramp is to be raised only when the lift is being moved to a new location. The ramps on 1045/1055 models are designed with built in wheel chocks which help prevent a wheeled vehicle from rolling off the platform and only work properly when the ramp is lowered.

How To Use Superdoks Efficiently

Palletized Loads One (1) man removes pallet from truck places it in storage area and returns for next pallet until truck is offloaded

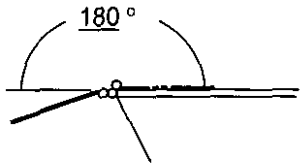
Non Palletized Loads One (1) man in truck stacks material on pallet or 4 wheeled cart Second (2nd) man removes pallet or cart from truck places it in storage area and returns for next load until truck is unloaded

Objective

"TO FREE UP THE TRUCK AS QUICKLY AS POSSIBLE"

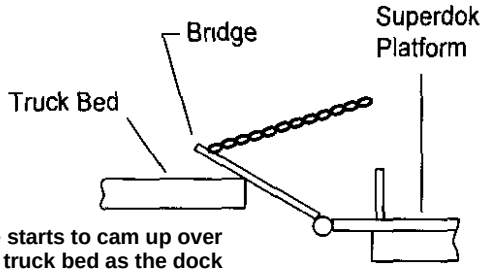
CAUTION

With 180 Degree movement bridges exercise care in steps 5 & 7 as bridge will continue to pivot back flat on the platform



Placing Bridge in Truck

With bridge folded back toward platform raise the dock lift until the top the bridge is just above the opening of the truck, push the bridge against the truck with your foot while controlling the fall with the safety chains. As the dock lift is raised, the bridge will cam over onto the truck bed and lay flat for loading and unloading.



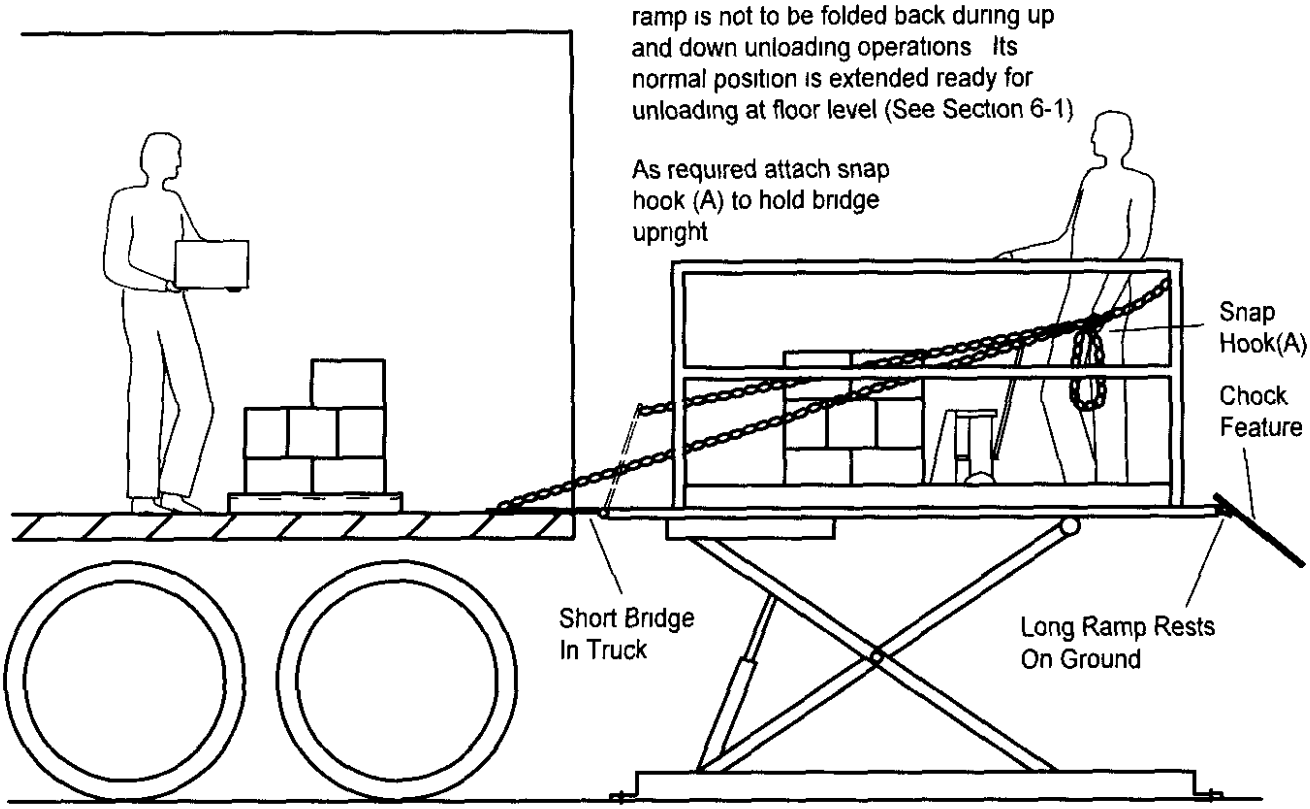
Bridge starts to cam up over end of truck bed as the dock lift raises or lowers.

Removing Bridge from Truck and Securing

Begin to lower the dock lift until the bridge starts to cam up over the end of the truck bed. With foot, chain, or hand, flip bridge back toward platform. Once bridge is folded back toward platform attach safety hook (A) to secure the bridge in place and continue lowering the unit.

If a unit has a chock ramp the chock ramp is not to be folded back during up and down unloading operations Its normal position is extended ready for unloading at floor level (See Section 6-1)

As required attach snap hook (A) to hold bridge upright

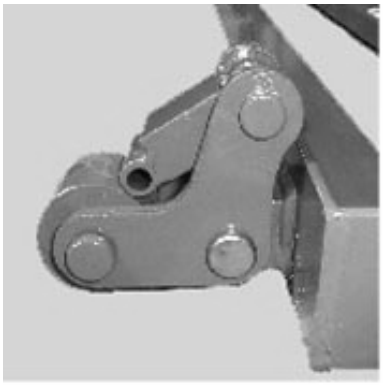


⚠WARNING Do not remove bridge stops or allow bridge to hang vertically. Doing so creates a shear hazard that could cause serious injury.

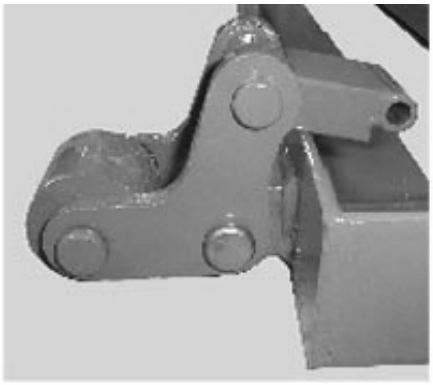
Moving the Equipment with the Casters and Dolly Handle:

1. Raise the lift approximately 3 feet (with no load on the platform) and flip the two caster bars into the caster position as shown. Lower the lift fully, and the lift will raise 1" off the floor on the caster end.

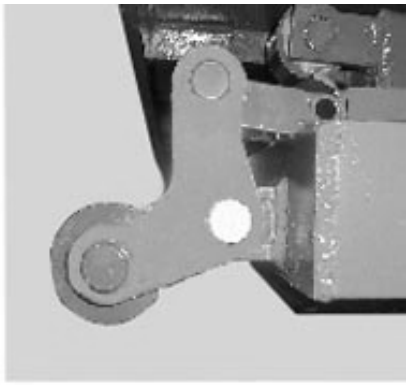
2. Use the Dolly Handle as shown to raise and move the entire lift.



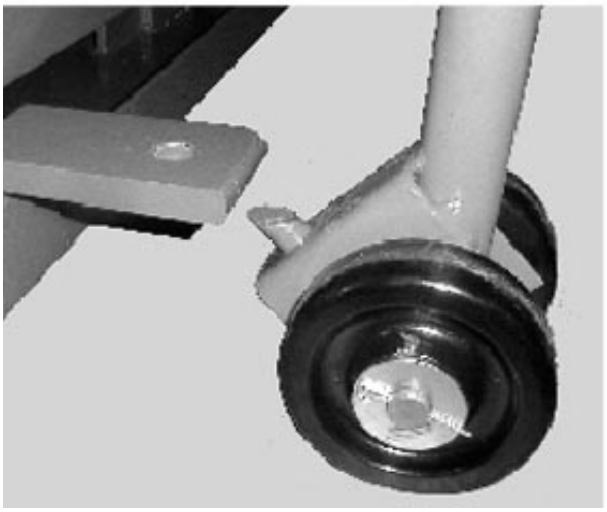
Normal Caster Bar Position



Caster bars in position to raise lift. (BOTH CASTERS MUST BE USED!)



With the platform fully lowered, the lift is automatically raised 1" off the floor.



Insert the dolly handle into the tongue on the base frame

The unit is now portable. Never load the unit when casters are in use. Casters are for transporting the unit only.

SECTION 6. MAINTENANCE INSTRUCTIONS

The routine maintenance of this equipment is minor and consists of periodic checks.

Weekly: Once a week, or after repetitive operation, the lift should be raised to its full height. This will rid of cylinder oil seepage build-up and lubricate the upper cylinder barrel.

Monthly: Check that the hydraulic fluid level in the reservoir is 1" from the top of the tank with the unit fully lowered. It is strongly urged that a maintenance log be maintained with the dates of monthly inspections, the name of the inspector and results of the inspection.

Be sure the maintenance device is properly engaged before performing maintenance checks 2 through 6 or reaching beneath a raised lift. **Read all of section 6 for proper maintenance device procedures.**

1. Clean all debris from the vicinity of the lift to avoid interference with the lift mechanism or rollers.
2. Check for presence and proper seating of all snap rings and clips on all axles, cylinders, and rollers.
3. Check rollers, pins and bushings for any signs of wear such as flat spots, missing fasteners, or dislodged bearing material.
4. Check the hydraulic fittings for cracks or leaks and clean up any seepage on or beneath the cylinders.
5. Check hoses and electrical lines for abrasions or other abuse and check for snug connections.
6. Operate the unit and check for any abnormal noise or vibrations.
7. Check all safety devices on the unit such as guardrails, safety chains, etc. including any options such as travel limit switches or warning devices, for proper operation.
8. Check the hinged bridge to insure that its stops are not damaged, allowing it to droop more than 45 degrees below horizontal, check the hinge spools for cracks and or broken welds, be sure the bridge leans back over the platform at least 20 degrees beyond vertical.

Seasonal or semiannual maintenance:

Change hydraulic fluid for ambient temperature changes if appropriate. Check the fluid reservoir to see if there is any evidence of accumulated condensation creating water contamination. The fluid will appear "milky" and light pink in color. Water accumulation will damage the hydraulic pump.

Maintenance Cautions:

1. Always remember that this is a piece of machinery with large moving parts that can seriously hurt you.
2. Read this manual in its entirety before attempting service work.
3. Always use the maintenance device if you are going to work on the unit in the elevated position or reach under the platform. (See the illustrations at the end of this section for proper positioning and engagement of the maintenance device.)
4. It may be necessary to bypass travel limit switches in order to properly position the maintenance device.
5. When using the maintenance device observe the following rules:
   A. There shall be no load on the platform
   B. The maintenance device shall be properly engaged.
   C. Hold the down button an extra 10 seconds when lowering onto the maintenance device to be sure that all the weight of the lift is on the support.
   D. Use shoring or blocking as a backup to the maintenance device.
   E. Disconnect and tag the electricity to the unit to prevent accidental movement of the lift by other personnel.
   F. Spend as little time as possible under the lift.
6. Use only replacement parts recommended by the manufacturer.
7. Do not let the equipment stay in disrepair; fix little problems while they are little problems or some of them may get severe very quickly.
8. Inspect the equipment on a regular schedule, preferably monthly.
9. Never work on the hydraulics or electrical systems unless the unit is fully lowered or properly sitting on a maintenance device.
10. Never apply a load to the equipment unless the base is continuously supported and non-portable units are securely lagged to the ground.
11. Never expect to hold leg assemblies open by simply lifting one end of a platform.
    A. The roller end of most lifts are not gibbed or captured in any way, so lifting on the roller end simply tilts the platform.
    B. Even if you raise the clevis end of the platform, if the base frame is not firmly lagged to the ground or held down by some other means, the legs will come up with the platform in a spongy and unpredictable manner and could cause serious injury.
    C. If the maintenance device is unusable or missing, contact the factory (800-843-3625) for other methods of blocking the lift up.

Recommended Lift Blocking Procedures

⚠ DANGER

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 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.

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 Figures 1-9. Read and understand the specific instructions for your equipment before proceeding.

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. *(For single-acting hydraulic, and pneumatic lifts)* Once the maintenance device(s) is/are properly and securely engaged, continue to press the down button, valve or switch for an additional 5-10 seconds to relieve all pressure in the operating system.

⚠ 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.

⚠ WARNING

Failure to relieve operating system pressure could result in the sudden and unexpected release of high-pressure fluids. In extreme circumstances, this could cause severe injury or death.

6. Follow OSHA electrical lock-out/tag-out procedures. Disconnect and tag all electrical and/or other 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).

⚠ DANGER

HIGH VOLTAGE! – Disconnect and/or lock out the electrical supply to the power unit prior to any installation or maintenance being performed. Hazardous voltage will cause severe injury or death.

⚠WARNING

Read the entire lift blocking procedure and all warnings before attempting to use the maintenance bar.

ALL MODELS

Never use the maintenance bar when the platform has a load. Remove the load first, then brace for service or maintenance. Check that the maintenance bar is well seated and remains so during heavy wrenching or maintenance operations.

SERIES 1045, 1055

Raise the equipment about 42” with no load on the platform. Retrieve the maintenance device from stored location in base frame. Insert the maintenance device vertically into the holding socket on the base frame. Lower the lift until the maintenance device supports it. (Fig. 1)

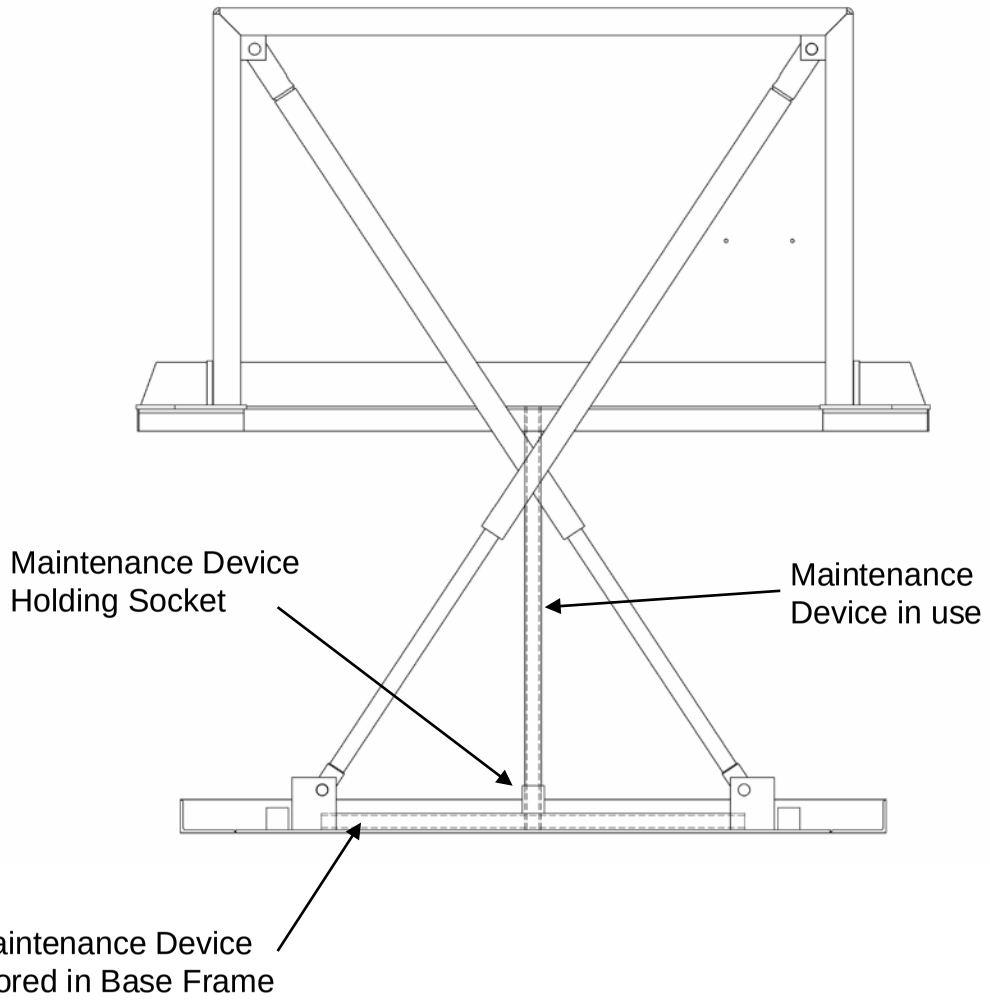


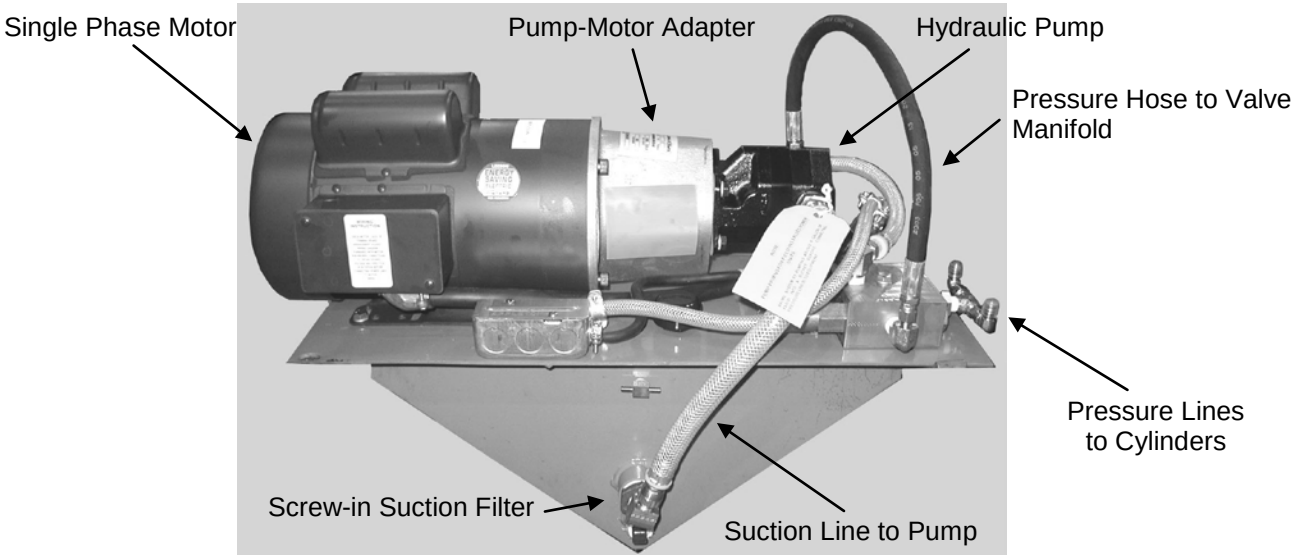
Fig.1

MODEL 1045 & 1055 MAINTENANCE DEVICE

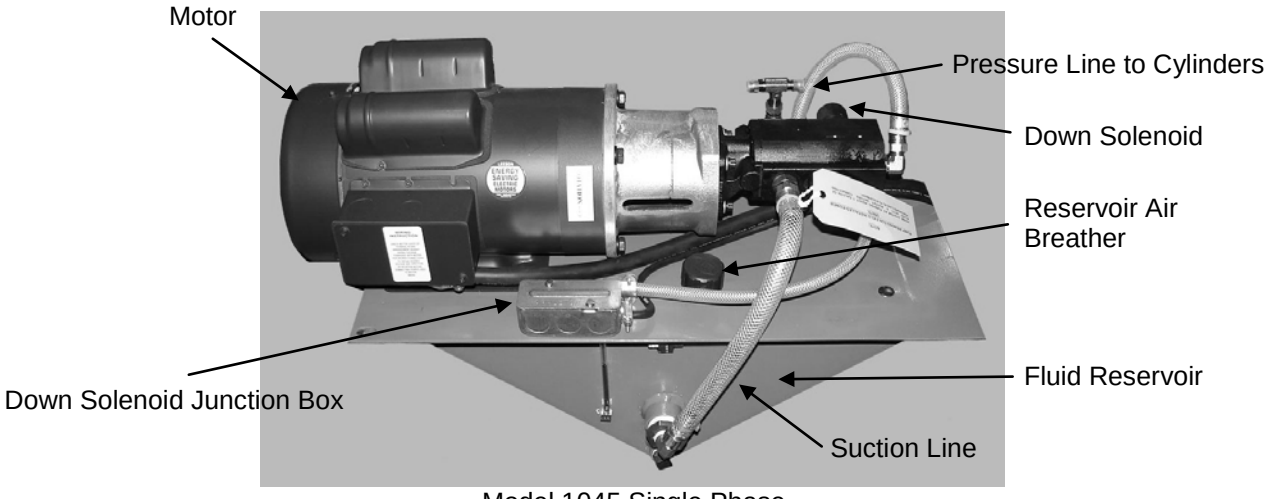
SECTION 7. POWER UNIT ASSEMBLIES

This section contains drawings and photos of completed power units to aid service personnel in identifying each component. Please be careful to match the correct voltage and horsepower as well as model number, when you are trying to identify the power unit for your lift. Advance Lifts uses several different brand name motors and pumps, so the ones shown in the pictures may not be the same exact brands as on your unit. More information about individual components may be available in the hydraulic or electrical sections of this manual. Also note that these illustrations may show options that were not included on your particular unit and the components used may be changed at any time without notice.

Model 1045/1055 Power Units



Model 1055 (115V, 1Ø only)



Model 1045 Single Phase

See Page 8-6 for Hydraulic Diagram and Pages 9-3, 4 for Electrical Diagram

SECTION 8. HYDRAULIC DETAILS

1. **General Hydraulic Information:**
   A. All hydraulic cylinders will require the replacement of packing's and seals after a period of time, depending on usage and environmental conditions. It is normal maintenance just like changing oil in an automotive engine. However, maintenance personnel should recognize the difference between leakage and weepage:
   B. Weepage is the normal accumulation of fluid that passes the seals in the course of operations, as the hydraulic fluid properly performs its lubrication function on cylinder walls and piston rods. It may be occasionally observed squirting from cylinder breathers, but should stop squirting after several cycles of full stroke when the small accumulation is cleared.
   C. Leakage is the fluid that leaks past worn or cut packing's and seals. It too may be observed squirting but does not stop after several cycles and the lift will probably not hold position under load.
   D. See repacking under cylinder repair procedures.
   E. Always be careful when working around cylinders, not to nick the extended rod or dent the cylinder casing, as this may cause damage to cylinder seals or packing's.
   F. If you elect to repaint or retouch part of the lift, cover exposed rods with plastic or soluble grease that can be removed after painting to insure that no paint sticks to the rods and damages packing's or seals.

2. General precautions:
   A. Be sure that all pressure is relieved from the hydraulic system before disassembling any components. Continue to hold the down button for several seconds after fully lowering the unit on its maintenance device or the ground, before opening a line or component.
   B. Always be careful to avoid contamination entering the system. Be especially careful with the ends of hoses that may fall into oil dry or dirt. If you suspect contamination, flush the system and components.

3. Hydraulic fitting sealant and torque:
   A. Advance lifts may be equipped with either NPT fittings (tapered) or SAE fittings (with "O" ring seals, depending on age, know the difference!
   B. Be careful when tightening NPT fittings not to over tighten and crack them. Swivel fittings are especially vulnerable and should only be snug enough to stop leaking.
   C. If leakage persists after tightening the fittings fairly hard, inspect fittings for burrs on the mating edges or the possibility of a 37 degree SAE fitting being mixed with the standard 30 degree NPT fittings, or either one being mixed with SAE 45 degree fittings.
   D. When using Teflon tape on NPT fittings, be sure the tape is started 1-1/2 threads back from the leading edge and only use 2 wraps to be sure that tape does not break off and contaminate the system. You may substitute pipe sealant with Teflon paste from Pro Lock or Locktite, but again don't over apply. Never use sealant or tapes on swivel fittings or SAE o-ring fittings.
   E. Never reuse old Teflon tape. Once a connection has been opened, remove all old tape and apply fresh tape.

Fluids:

The current standard hydraulic fluid an ISO 46, (group II base) hydraulic fluid. This is the fluid normally supplied by the factory and is suitable for a temperature range of –10 to +100 degrees Fahrenheit. When replacing or adding fluid to an Advance Lift, use only ISO 46 hydraulic fluid that is manufactured with a group II base oil. ISO 46 hydraulic fluid can be identified by its purple color.

Seals:

Generally, the seals in the unit are Buna-N-Nitrile and polyurethane. The hoses are composed of either PVC for suction lines or braided wire. Always call the factory about special fluids rather than make assumptions on your own.

Options:

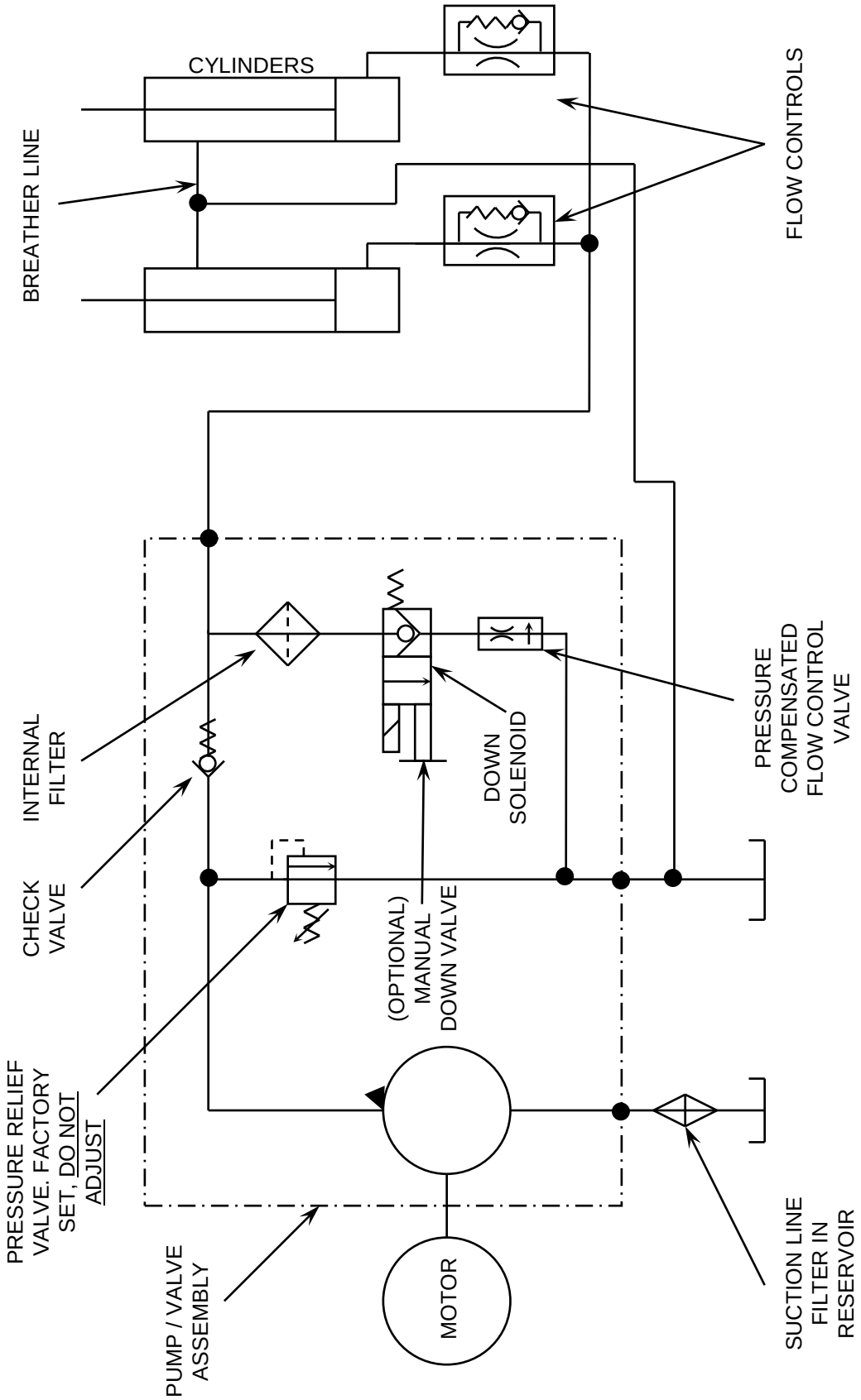
1. For extremely cold applications we recommend an oil immersion heater which simply fits in the drain coupling on most units, replacing the drain plug, these are available in appropriate sizes from the factory. **NOTE: A separate 120V, 20 Amp circuit is required for all oil immersion heaters.**

2. For extremely warm temperature ranges over +100 degrees Fahrenheit consult the factory.

Standard Oil Capacities of Listed Equipment

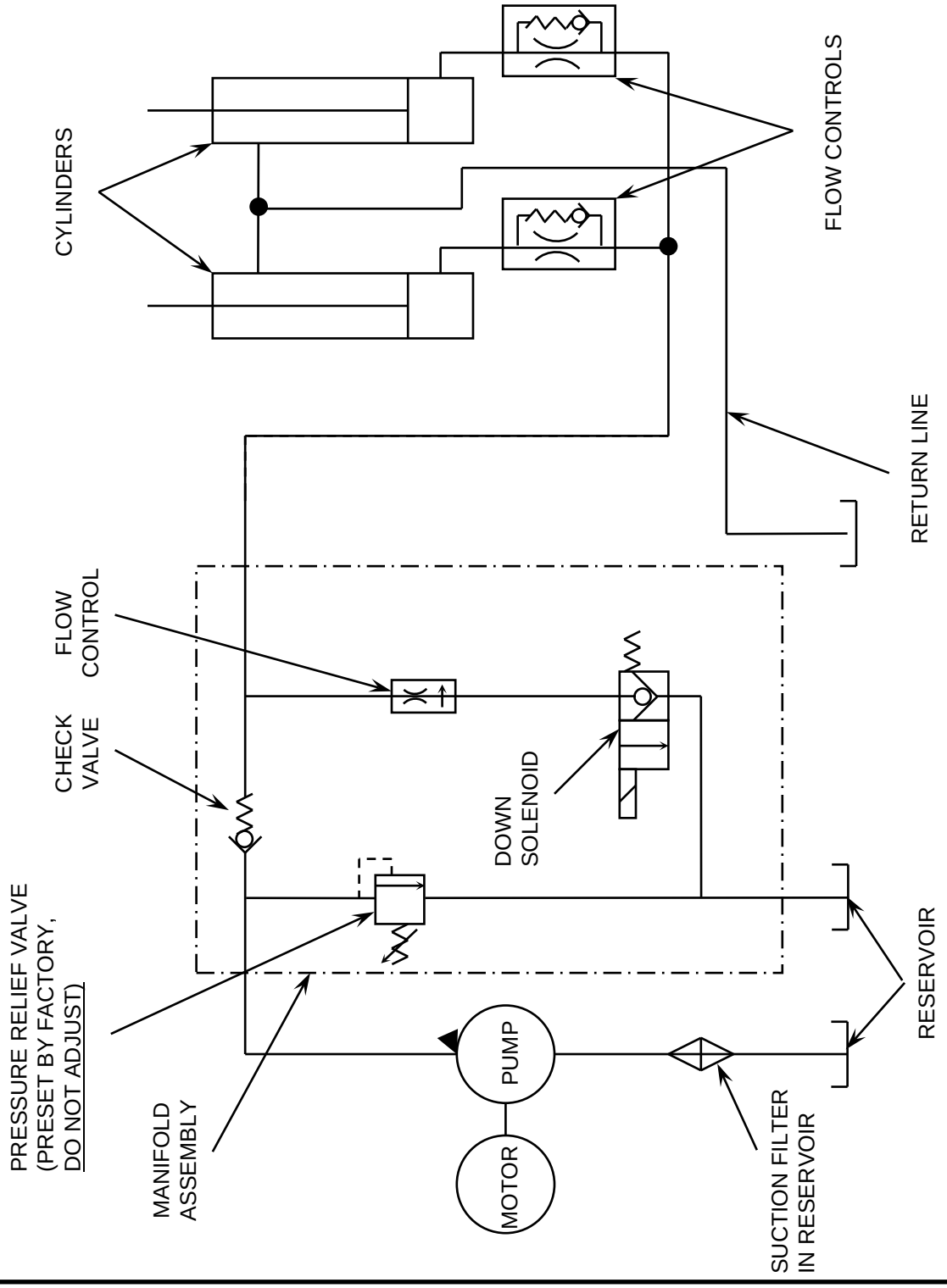
Model 1045/1055	2.66 Gallons

HYDRAULIC DIAGRAM FOR UNITS WITH INTERNALLY VALVED PUMPS



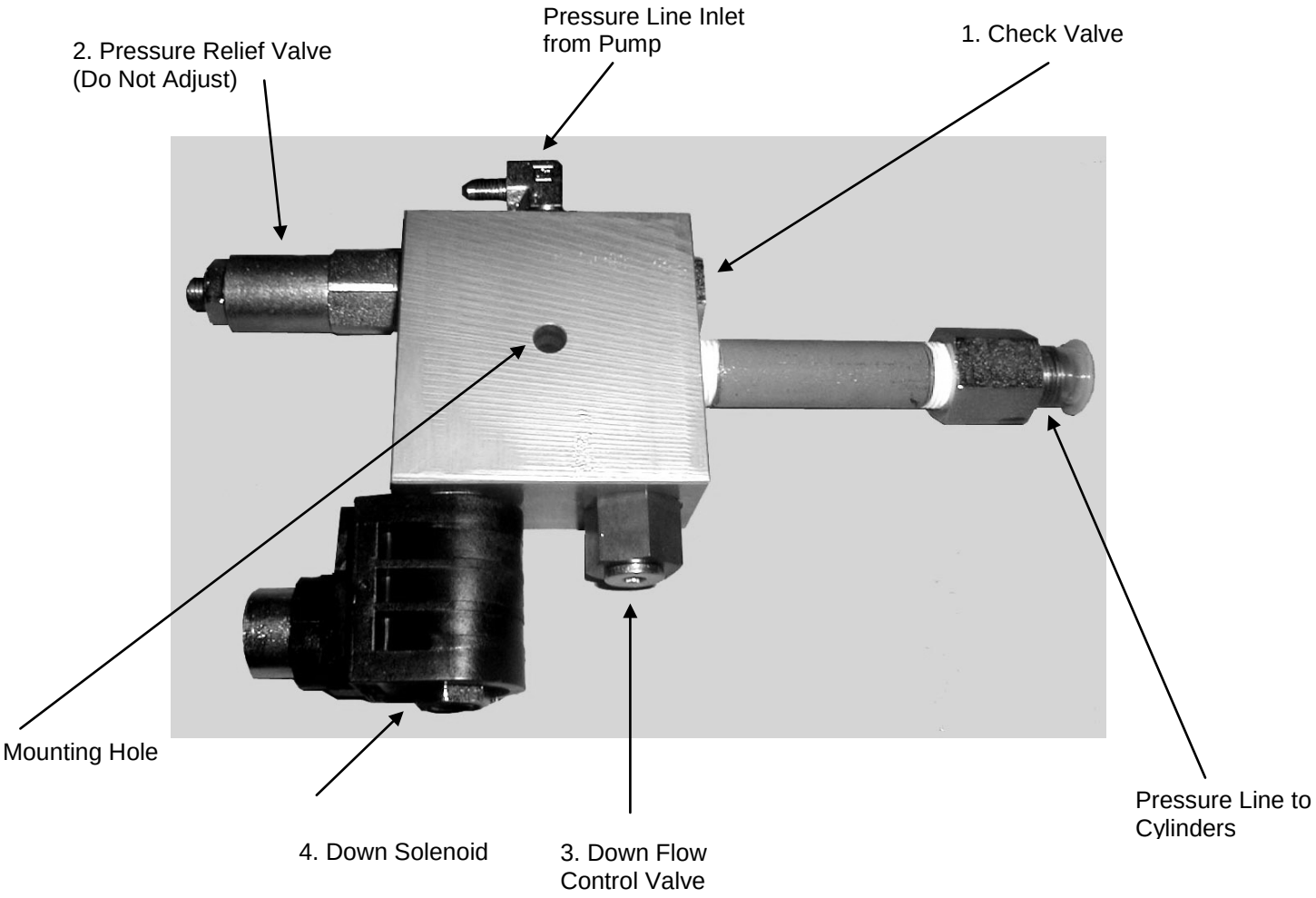
1045/1055 HYDRAULIC DIAGRAM

HYDRAULIC DIAGRAM FOR UNITS WITH ONE-PIECE MANIFOLDS



HYDRAULIC DIAGRAM FOR MODEL 1055 (115V 1Ø ONLY)

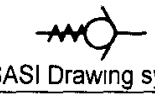
Model 1055 (115V 1Ø ONLY)
Standard Valve Manifold (Typical)



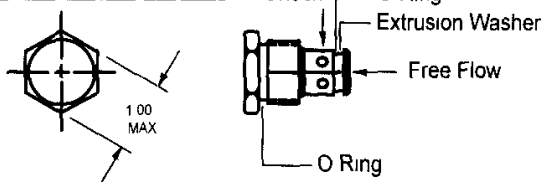
Reference Page 8-10 for Valve Cartridge Details

Part Number Reference

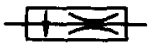
Description	Part Number
1. Check Valve	001-262
2. Pressure Relief Valve	001-263
3. Down Flow Control Valve	001-293
4. Down Solenoid Valve	001-279



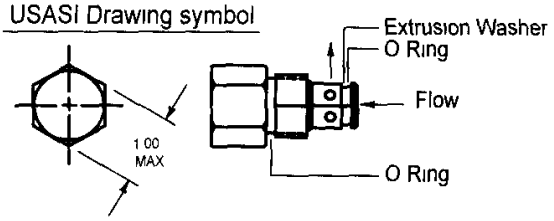
USASI Drawing symbol



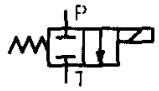
CHECK VALVE POPPET TYPE



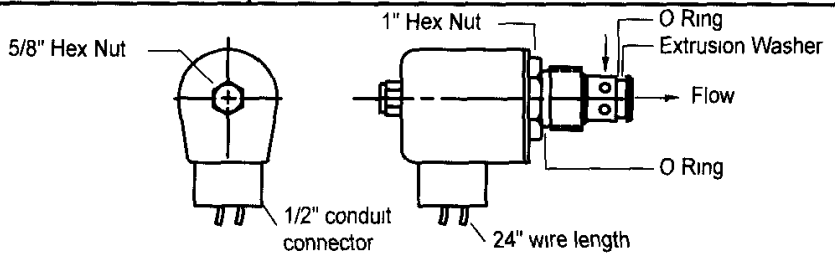
USASI Drawing symbol



FIXED FLOW CONTROL PRESSURE COMPENSATED



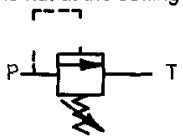
USASI Drawing symbol



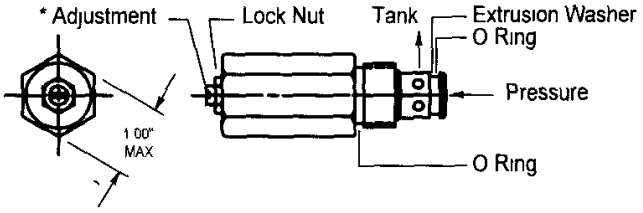
Coil can be removed with 5/8" Hex Nut
without disturbing Hydraulic System
integrity
1" Nut then removes entire valve
To clean Flow Control Down Solenoid Valve and check Valve, use pencil w/ eraser or other
Non-shedding nor sharp object Push in seat at free flow end, repeat several times while
immersed in kerosene then blow dry Inspect O Rings and teflon extrusion washer, then
Re-install

SOLENOID VALVE POPPET TYPE

In the event the Relief Valve setting has been changed the following procedure will approx-
mate the correct setting Lower the equipment completely and hold the down button a few extra
seconds Loosen the locking nut without changing the screw setting Gently turn the screw
clockwise counting the turns until the screw gently bottoms out Return to the original
setting Place a test load on the equipment (if applicable) not exceeding the nameplate
rated load With the equipment fully lowered
turn the adjustment clockwise in 1/8 turn steps
counting the turns until the equipment lifts the rated load
DO NOT bottom out the screw adjustment
lock the nut at the setting



USASI Drawing symbol

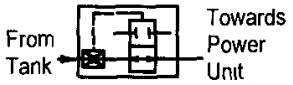


* DO NOT CHANGE FACTORY SETTING
Relief Valve is used to Prevent Overloading Equipment

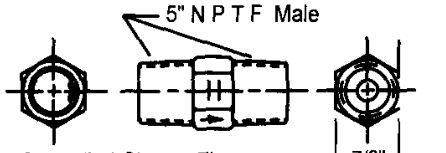
ADJUSTABLE PRESSURE RELIEF VALVE POPPET TYPE

NOTES Velocity Fuse will close in controlled direction
at nominal flow (plus 15% minus 0%) and remain
closed at pressure above 50 PSI
Rated 3000 PSI service material-steel
If Velocity Fuse actuates support the equipment securely
and correct the cause of the high flow rate ie cracked
hose loose fitting etc Then put the hydraulic system
under pressure again to re-set the Velocity Fuse Raise
the equipment remove supports then operation is normal
If Velocity Fuse is to be field installed
Velocity Fuse is piped into Base of each Ram Use elbows
and adapters as needed to hose hydraulic line 90 from
Velocity Fuse laying the hydraulic hose so it will not be
pinched when the equipment is lowered (by installer)

(OPTIONAL)
VELOCITY FUSE



USASI Drawing symbol



Controlled Closing Flow
(towards Power unit)
Free Flow (Towards Rams)

Tools & Supplies Required:

Basic hand tools
Snap ring tool (Waldes Truarc external type #S-660 or Industrial pliers #P-104.)
A (5) gallon bucket to collect fluid from the cylinders.
Wrenches to disconnect hydraulic fittings.
Clean lint free cloths and hose caps.
Maintenance device supplied with each Advance unit.

Cylinder Removal:

1. Remove back panel from power unit assembly.
2. Fully lower the unit, once lowered; depress the down button an additional 20 seconds to relieve any pressure from the cylinders. Remove the power connection to the power unit and mark with a warning label or lock the connection out to prevent unintended reconnection.
3. Disconnect the hydraulic hoses from the cylinders and cap the hose ends to prevent contamination.
4. Remove the cylinder from the lift by freeing the upper and lower pins.
5. Note that if you are going to repack one cylinder on a lift, it is usually a good idea to do all cylinders at the same time. Packing's generally wear at the same rate and if you only repack one cylinder, you may have to pull the lift out of service soon thereafter to do the others.

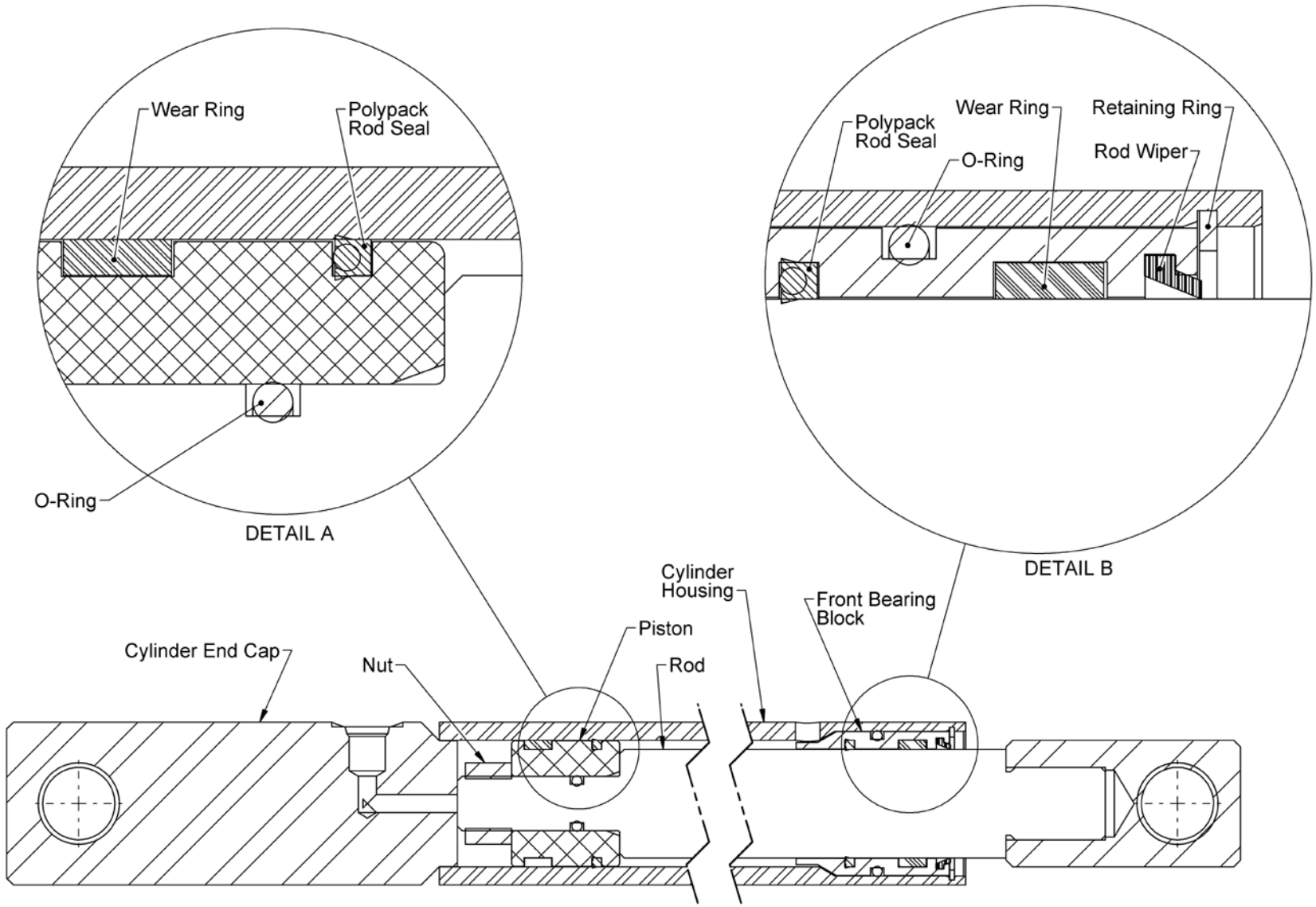
Cylinder Repair:

All Advance Lifts cylinders use a high-grade PolyPak® seal. These seals are not replaceable in the field without specialized tools. Advance recommends that you consult with a professional who has the necessary tools to install the seals.

Reinstallation:

1. Remount the cylinders in the lift.
2. Reattach the hoses with special care to avoid contamination.
3. Clean up any spilled oil to insure that it is not later misinterpreted as a new oil leak.
4. Connect the electrical power and cycle the lift several times, holding the down button an extra 20 seconds each time to help bleed air from the hydraulic system. This will eliminate any "Spongy" operation. Check the oil level and top off ½" from the top of the reservoir with the same type fluid originally used.
5. The lift is now ready to go back into service.

Model 1045/1055 Cylinder



If supplied with a 208/230/460V 3-phase motor, the connection diagrams on the outside of the motor for low voltage, 230V or high voltage, 460V. This motor connection is also rated for 208V. As any standard motor is rated for +/-10% of voltage variation, this motor will operate properly, within ratings, at 208, 220, 230, 240, 440, 460, and 480V, 3-phase supply. There are other motor configurations including single phase 115V & 230V. If you are unsure of the correct voltage or phase, contact the factory before applying line voltage.

If the unit is intended for 208V 3∅ usage, some caution is advised. If your motor is a 230V motor, and your 208V line voltage drops to 207V, (a drop of only ½%), the motor will be operating at -10% in a marginal region. Wiring runs and actual 208 voltages become very important. If your line voltage varies (due to loads elsewhere in the system, etc.) you may have an advantage by ordering as an option a specific 208V +/-10% motor.

To reverse the direction of rotation on a 3∅ motor, reverse any two of the three power leads to the motor. On single-phase motors, see wiring diagram on motor.

Field Changes in Voltage:

Advance Lifts' model 1045 & 1055 can be ordered for the following voltages: 115V 1∅, 230V 1∅, 230V 3∅ and 460V 3∅. Any field change in supply voltage would entail the following changes.

115V 1∅ to 230V 1∅

A. Change transformer primary connections to 230V
B. Temporally adjust the motor overload to the lowest value until a correct motor overload can be installed. Adjust the replacement overload to match the FLA value on the motor tag.
C. Change motor connections for high voltage, see diagram on motor or section 9 of this manual.
D. Change plug to match proper receptacle if required.

230V 1∅ to 115V 1∅

A. Change transformer primary connections to 115V
B. Temporally adjust the motor overload to the highest value until a correct motor overload can be installed. Adjust the replacement overload to match the FLA value on the motor tag.
C. Change motor connections for high voltage, see diagram on motor or section 9 of this manual.
D. Change plug to match proper receptacle if required.

Field Changes in Voltage, continued

230V 3∅ to 460V 3∅

A. Change transformer primary connections to 460V.
B. Change overload protection to proper value as per currents in motor tables. Order new overload; adjust new overload to motor full load current (FLA) setting. Insure the overload is set to “manual” reset, not “automatic” to insure the equipment cannot re-start automatically.
C. Change motor connections for high 460V.
D. Change plug and receptacle for power, if required.

460V 3∅ to 230V 3∅

A. Change transformer primary connections to 230V.
B. Change overload protection to proper value as per currents in motor tables. Order new overload; adjust new overload to motor full load current (FLA) setting. Insure the overload is set to “manual” reset, not “automatic” to insure the equipment cannot re-start automatically.
C. Change motor connections for low 230V.
D. Change plug and receptacle for power, if required.

IMPORTANT: When changing voltages, insure motor rotation is correct.

Specifications:

Motor Starter with adjustable thermal overload.

50VA transformer with 24 VAC secondary fused at 4 amps (Standard)

100VA transformer with 115 VAC secondary fused at 1.6 amps (Optional)

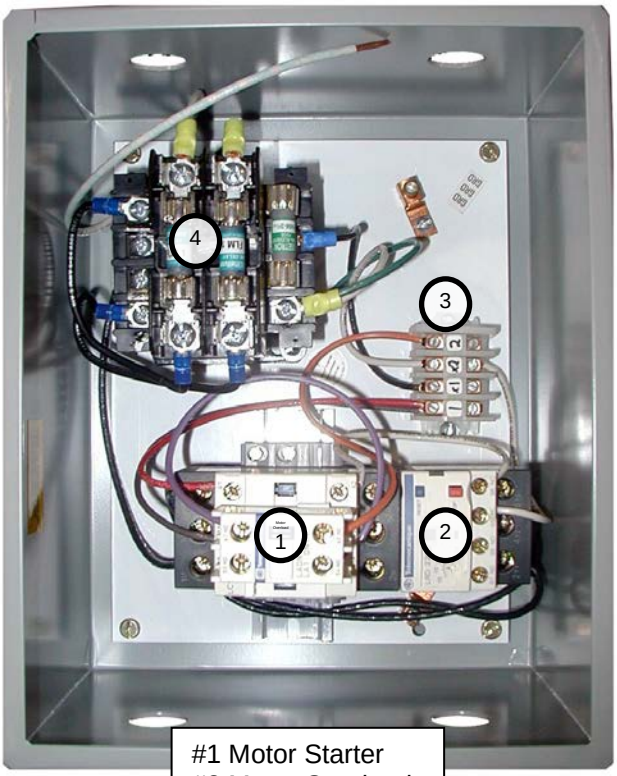
Reset is manual or automatic (manual is standard, automatic is not to be used)

Enclosure is NEMA 12 JIC supplied with (4) conduit openings (motor, down solenoid, power and push button station)

Completely wired with terminal strips for final secondary voltage control connections
All components UL, CSA

Overall dimensions: (approximate)
Metal Enclosures: 9”w x 12”h x 8”d

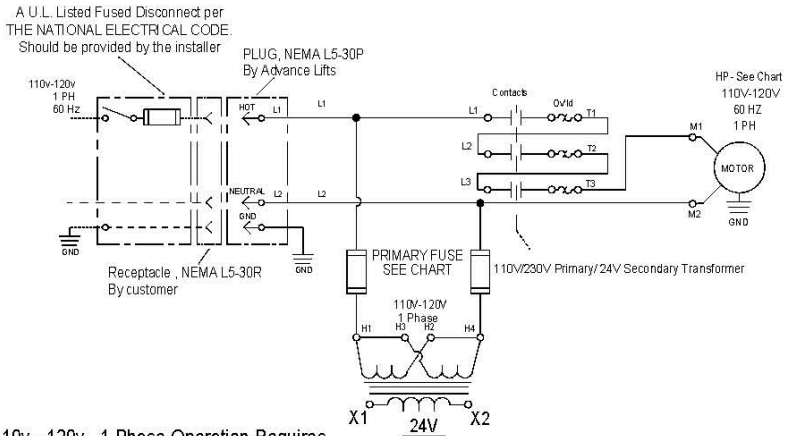
Typical motor controller – appearance may vary.



#1 Motor Starter
#2 Motor Overload
#3 Terminal Strip
#4 Transformer

Decal on front of control box

110v - 120v , 1 Phase Change DETAIL

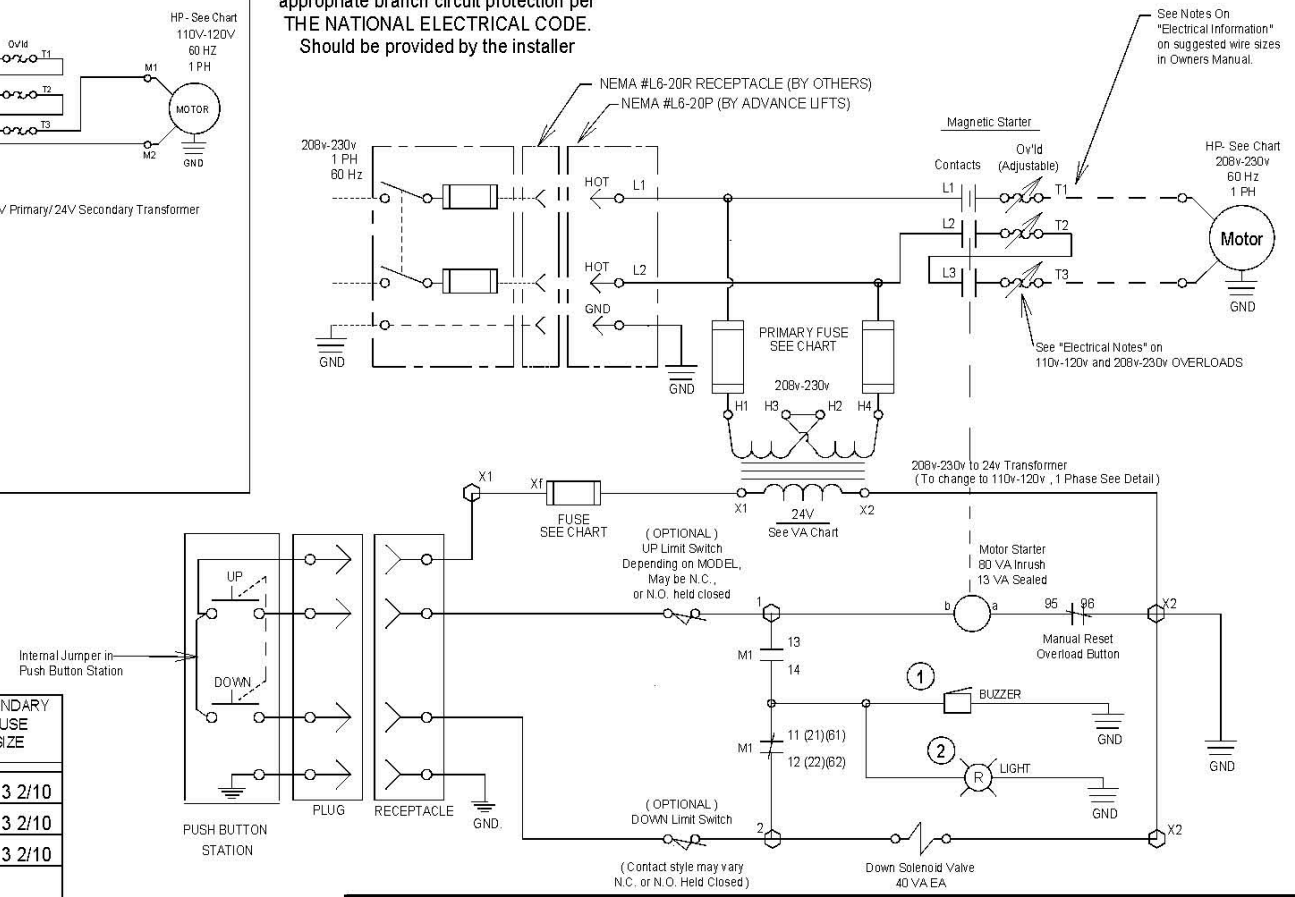


110v - 120v , 1 Phase Operation Requires Changing Plugs, Receptacles, Transformer Jumper Clips, Motor wiring, changing Motor Overload Protection, and replacing voltage sticker.

208v - 230v , 1 Phase

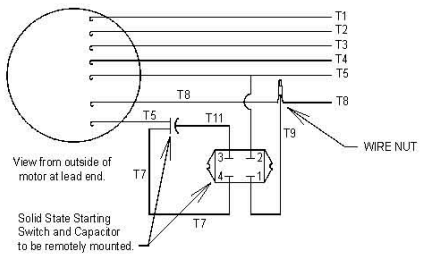
ROTATION FACING LEAD END		L1	L2	JOIN
230V 1Ø	C.C.W.	T1	T4,T5	T2,T3,T8
	C.W.	T1	T4,T8	T2,T3,T5
115V 1Ø	C.C.W.	T1,T3,T8	T2,T4,T5	---
	C.W.	T1,T3,T5	T2,T4,T8	---

A U.L. Listed Fused Disconnect and the appropriate branch circuit protection per THE NATIONAL ELECTRICAL CODE. Should be provided by the installer



H.P.	MOTOR R.P.M.	FULL LOAD AMPERAGE (115v / 208v-230v)	TRANSFORMER SIZE	PRIMARY FUSE SIZE (115v / 208v-230v)	SECONDARY FUSE SIZE
1	1725	18.4 / 9.2	50 VA	FLM 1	FNM 3 2/10
2	1740	18.4 / 9.2	50 VA	FLM 1	FNM 3 2/10
2	1725	20.4 / 10.2	50 VA	FLM 1	FNM 3 2/10

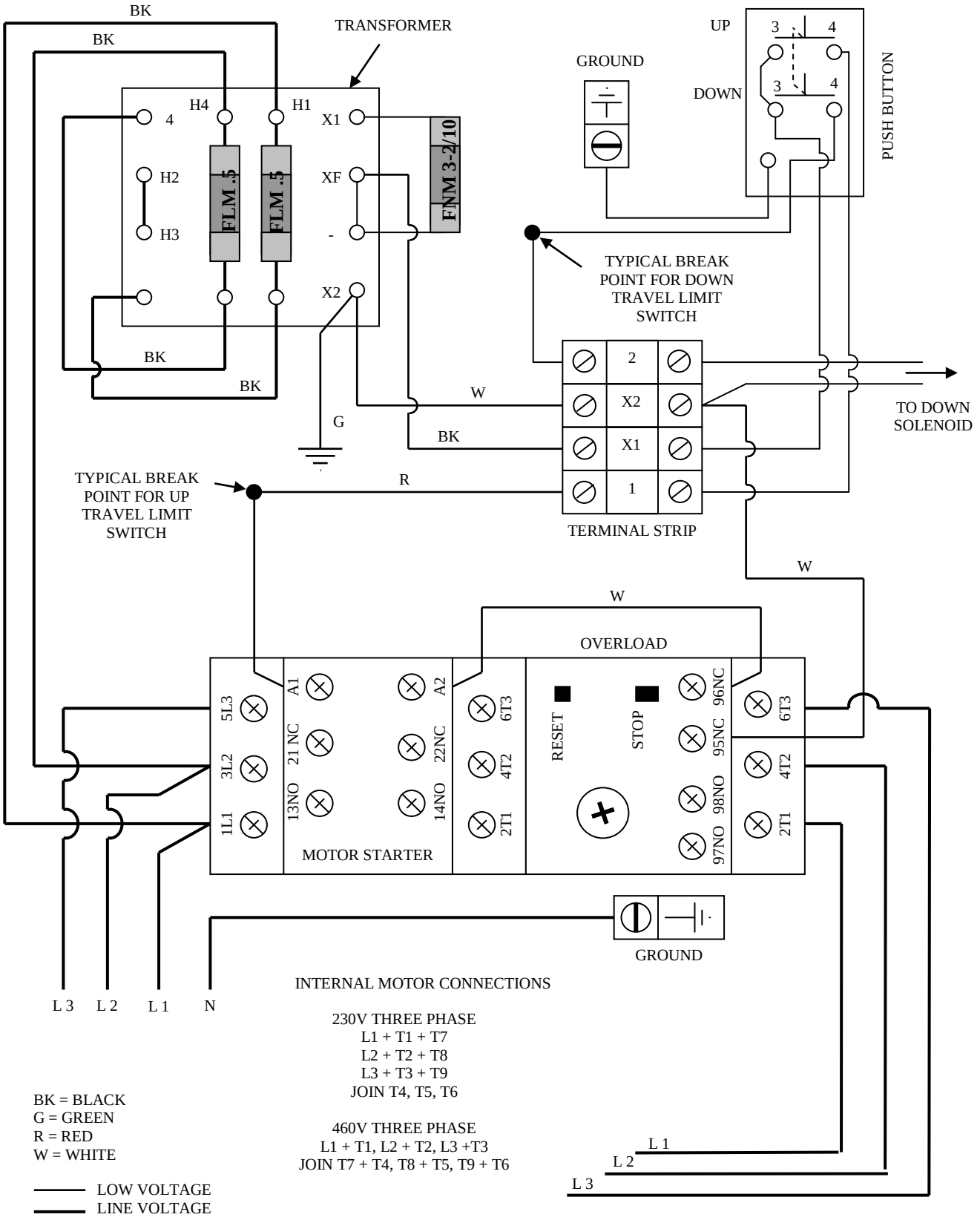
LEESON MOTORS



ELECTRICAL SCHEMATIC FOR THE FOLLOWING MODELS
1045 & 1055 (SINGLE PHASE ONLY)

ADVANCE LIFTS WIRING DIAGRAM

230/460 VOLT THREE PHASE



TYPICAL MOTOR INFORMATION

MOTORS

SERIES	HORSEPOWER	SPEED
1045	2	1800
1055	2	1800

230 VOLT 3 PHASE					460 VOLT 3 PHASE				
HORSEPOWER	APPROX FULL LOAD AMPS	MIN COPPER WIRE SIZE (75C) THW,THHN,THWN,XHHW	CIRCUIT BREAKER AMPS	DUAL ELEMENT TIME DELAY FUSE AMPS	HORSEPOWER	APPROX FULL LOAD AMPS	MIN COPPER WIRE SIZE (75C) THW,THHN,THWN,XHHW	CIRCUIT BREAKER AMPS	DUAL ELEMENT TIME DELAY FUSE AMPS
1	3.6	14	15	5.6	1	1.8	14	15	2.8
1-1/2	5.2	14	15	8	1-1/2	2.6	14	15	4
2	6.8	14	15	10	2	3.4	14	15	5.6
3	9.6	14	20	15	3	4.8	14	15	8
5	15.2	12	30	25	5	7.6	14	15	12
7-1/2	22	10	45	30	7-1/2	11	14	20	17.5
10	28	8	60	40	10	14	12	25	20

115 VOLT 1 PHASE					230 VOLT 1 PHASE				
HORSEPOWER	APPROX FULL LOAD AMPS	MIN COPPER WIRE SIZE (75C) THW,THHN,THWN,XHHW	CIRCUIT BREAKER AMPS	DUAL ELEMENT TIME DELAY FUSE AMPS	HORSEPOWER	APPROX FULL LOAD AMPS	MIN COPPER WIRE SIZE (75C) THW,THHN,THWN,XHHW	CIRCUIT BREAKER AMPS	DUAL ELEMENT TIME DELAY FUSE AMPS
1/2	9.8	14	20	15	1/2	4.9	14	15	8
3/4	13.8	12	25	20	3/4	6.9	14	15	10
1	16	12	30	25	1	8	14	15	12
1-1/2	20	10	40	30	1-1/2	10	14	20	15
2	24	10	50	30	2	12	14	25	17.5
3	34	8	70	50	3	17	10	35	25
5	56	-	-	-	5	28	8	60	40

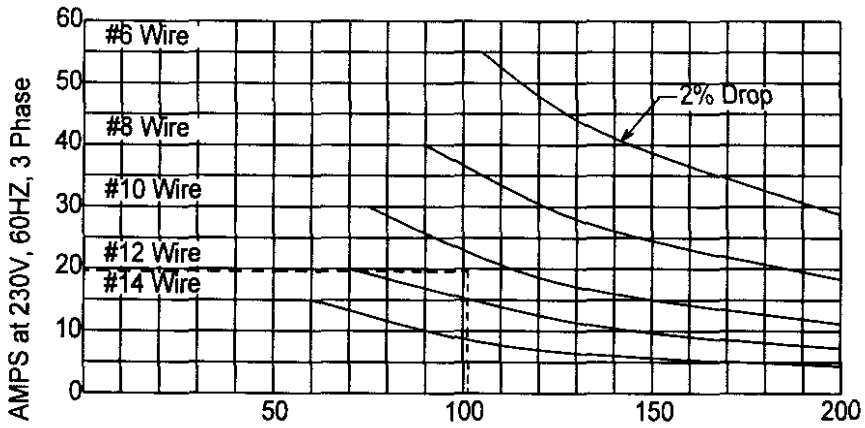
NOTE: These tables are intended as a guideline. not to supersede national or local electrical codes.

Branch Circuit Wire Sizes For 230V & 460V, 3 Phase, 60HZ.*

(Calculated for 2% maximum allowable line voltage drop with copper conductors Table is a guideline, not intended to supersede the National Electrical or local codes)

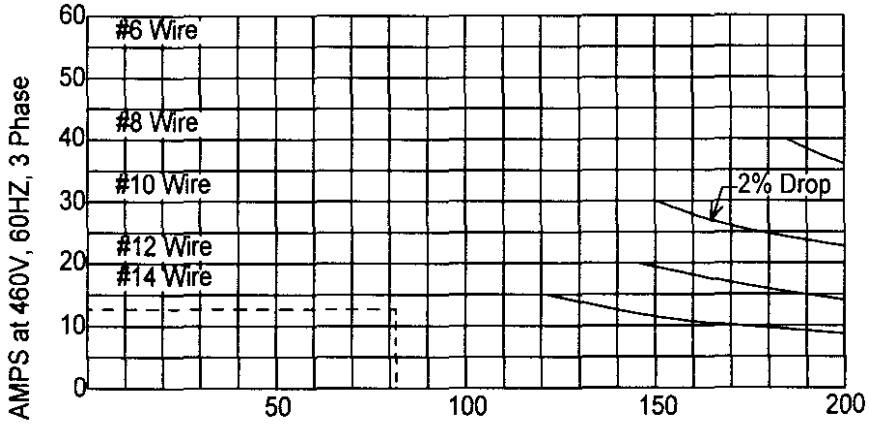
Directions Locate Current on vertical axis, locate wire length on horizontal axis Use wire size above point of intersection

*Note See table listing minimum wire sizes and fusing on motor data page



Length of Wire in Feet

Example 5HP, 230V, 3 phase, 19 6A motor, length of wire run is 102 FT Wire size above point of intersection is #10 (#12 wire would have more than 2% drop)



Length of Wire in Feet

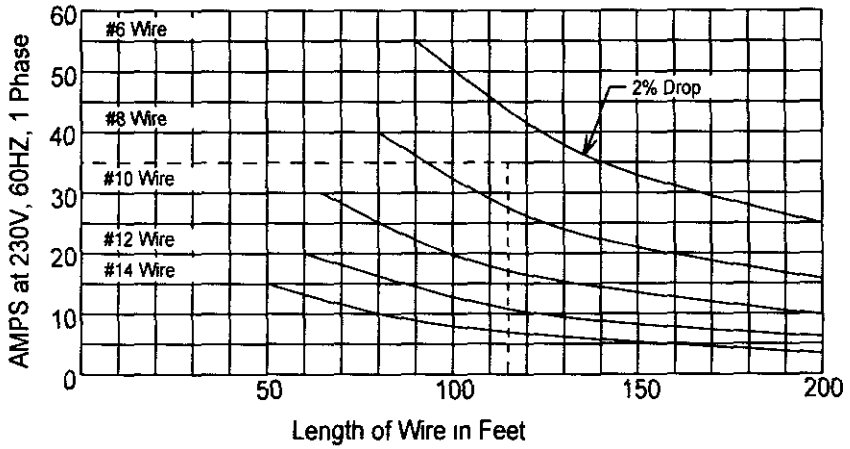
Example 7 5HP, 460V, 3 phase, 12 6A motor, length of wire run is 82 FT Wire size above point of intersection is #14

Long wiring runs with undersized wire will cause voltage drops Voltage measurements should therefore be made at the motor terminals, so that the true voltage supplied to the motor is determined Measure the voltage when the motor is fully loaded (load on lifting equipment and lift leaving the fully lowered position) Measurements with the motor idling (no load) is at low current, and voltage drops will not be apparent under those circumstances Consult the table in this manual for guidelines on wire run sizes Note importance of 208V wire runs as noted in Motor Data

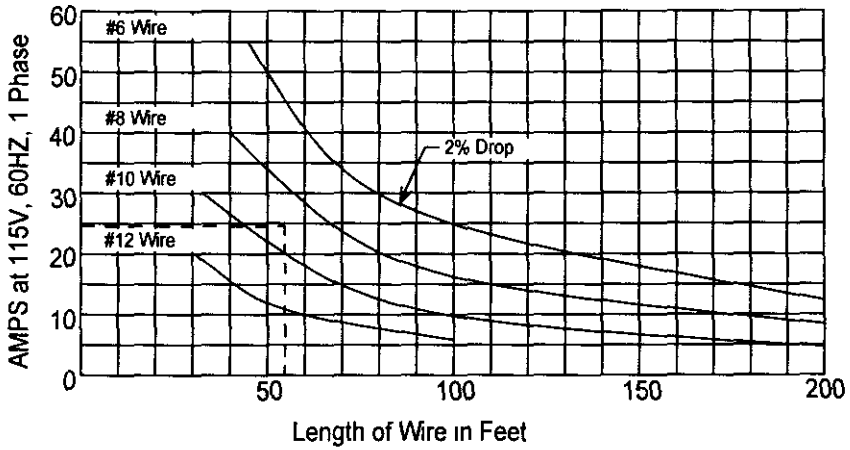
Branch Circuit Wire Sizes For 230V & 115V, 1 PHASE, 60HZ

(Calculated for 2% maximum allowable line voltage drop with copper conductors Table is a guideline, not intended to supersede the National Electrical or local codes)

Directions Locate Current on vertical axis, locate wire length on horizontal axis Use wire size above point of intersection

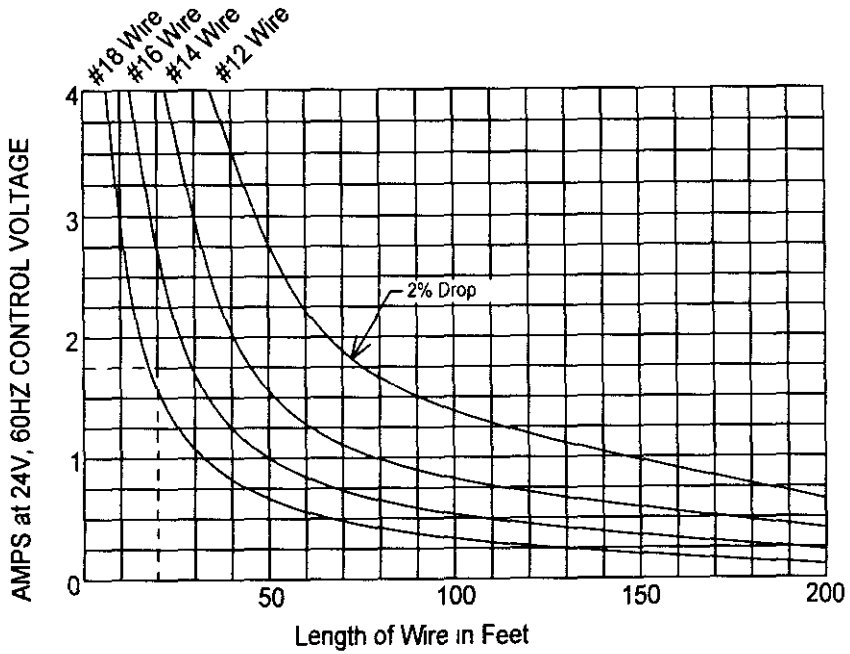


Example 5HP, 230V, 1 phase, 35A motor, length of wire run is 115FT Wire size above point of intersection is #6



Example 1 5HP, 115V, 1 phase, 24A motor, length of wire run is 55FT Wire size above point of intersection is #8

CONTROL CIRCUIT WIRE SIZE FOR 24V, 1 PHASE, 60HZ



Example Down Solenoid Drawing 40VA

$$\left(I = \frac{W}{E}\right) \quad \frac{40VA}{24A} = 1.7A$$

Length of coil cord is 20FT Wire size above point of intersection is #16

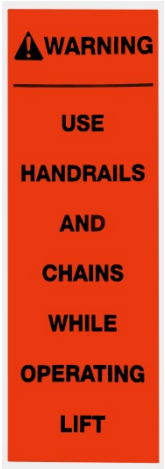
Advance Lifts uses #16-4 wire size when 20FT coil cord is ordered for push button station control

*Graph calculated for 4 wire copper cord, types S, SO, SJ, SJO

Label #1 placed on both sides of power unit housing

Label #2 placed on center of middle rail (Not Shown)

Label #3 placed on both sides of power unit housing



Label #4 placed on all guardrail uprights. (Not Shown)

CAPACITY LABELS, placed on all sides of the power unit housing

Label #5 placed on both sides of power unit housing

#6 Advance Lifts identification and data plate.

Label #7 placed on outside scissors legs.

SECTION 11. TROUBLESHOOTING

A. Equipment does not rise; pump is running: (see also Section M)

1. The motor rotation may be reversed. See the installation procedure on how to jog the motor to check for proper rotation. If the lift has been installed for some time and the motor is 3-phase, it is possible that the plant wiring “upstream” has been changed during plant maintenance or alteration, and the motor is now running reversed. A hydraulic pump can only run reversed for a short time (possibly 10 to 20 seconds) without causing permanent pump damage.
2. Motor may be single phasing. Check wiring and overloads to be certain that each three-phase line is present at the motor.
3. Voltage at motor terminals may be too low to run the pump at existing load. Check voltage directly at motor terminals while pump is running under load. (Reading source voltage with the pump idling will not give accurate results). Inadequate or incorrect wiring can starve the motor of voltage and current and will show up at the motor terminals when the motor is drawing the higher current that is required while motor is loaded.
4. Check for a hydraulic hose leak or pinching, and correct as necessary.
5. Check under the pump coupling to insure the key way has not slipped off the pump shaft.
6. Check for oil shortage in the reservoir and correct by filling the reservoir. Refer to “Fluid Recommendations” in this manual for the correct fluid for your ambient temperature.
7. The suction filter in the reservoir or the pressure line filters in the pipe outlet of the power unit or the breather cap on the reservoir may be clogged. Clean as required.
8. Check if the load is exceeding equipment ratings causing the relief valve to bypass the fluid back to the reservoir. Never change the relief valve setting, these are 100% tested, adjusted, and locked at the factory. Any change in the relief valve setting could cause your equipment either not to lift its capacity, or cause dangerous forces in the equipment, and void your warranty.
9. Check that the suction line fittings are not loose, causing the pump to pull in air instead of fluid. Check for a hairline crack on the suction port of the pump. The clear suction line should stay full of oil at all times, clear, and no air. Check that the natural curve of the suction hose in the reservoir doesn’t cause the filter to rise out of the fluid. Re-install the suction line without rotating it and the tension of the hose will free the suction hose to lie against the reservoir wall and the filter to lay flat near the reservoir bottom. If you have the short round “pancake” type of filter with the filter screen on the bottom of the filter, insure that it does not rest against the bottom of the reservoir, as this will restrict the flow to the pump.

10. The down solenoid may be energized due to incorrect wiring, or mechanically stuck open, bypassing fluid.
    A. Check the wiring. Hold a non-magnetized screwdriver to the top of the down solenoid coil and press the up button. If you can feel magnetism, the wiring is faulty.
    B. Lightly tap the down solenoid to seat it properly. Do not bang it hard, as internal stem parts may be permanently damaged. The solenoid coil can be removed, and the down valve removed for cleaning as explained in the hydraulic "Component Information" section.
    C. Disconnect the pressure line from the valve manifold to the equipment. Place a pressure gauge at the valve output, using high-pressure reducers. Press the up button in a short jog and read the pressure. Press the down button to relieve the pressure. If the system will not put out the pressure indicated on the hydraulic diagram, the trouble is either the valves or pump. If a load is not available, then the maximum hydraulic system pressure can be checked on a gauge by raising the unit to its full height momentarily against its physical stops. Proceed to step 11 to determine which place the trouble exists.

11. The hydraulic pump may be inoperative. Disconnect a hydraulic line at the power unit, use a large bucket (5-gallon) and run the pump a short time. If no flow appears either the pump or pump motor coupling inside motor mounting flange is defective, or pump rotation is reversed. Connect a pressure gauge to the outlet of the pump, through a high-pressure tee and bleeder valve with hose to a bucket. Slowly turn the bleeder valve and see if the produces specified pressure. Do not close the valve all the way as the pressure buildup of a good pump could cause the pump to explode. If the pump does not put out the required pressure, then the problem is in other areas, such as a down solenoid valve leaking fluid back to the reservoir, allowing pressure not to be built up in the system. If the pump will not put out the required pressure, replace the pump.

12. Repeated continuous type operation of the equipment may cause thinning of oil due to heat buildup. Feel the side of the reservoir to check the temperature of the oil. The equipment is intended for dock type operation, not elevator type operation that would make the equipment cost several times as much. The thin oil can cause the equipment not to rise, and in time, ruin the hydraulic pump. This type of operation could void the warranty considerations.

B. Equipment raises too slowly:

1. Small amounts of foreign material could stick in the down solenoid, bypassing some of the fluid. Lower equipment and clean the down solenoid valve.
2. Foreign material clogging the suction filter, breather cap, pressure line filter, or a hose that is pinched. See A-4, 5, 6, 7 and 9.
3. Low motor voltage. See A-3.
4. Load exceeding equipment ratings. See A-8.
5. Oil may be too thick (ambient temperature) for proper operation. Refer to " Fluid Recommendations".

6. Equipment in which the cylinders are field installed may have incorrect alignment of cylinders, causing binding. Measure and ascertain that the cylinders are in the correct alignment with the equipment and with each other. Binding cylinders will often cause a “shuddering” vibration when the equipment is operating.
7. Oil may be too thin for ambient temperatures. See A-12

C. Motor labors or heats excessively:

1. Voltage may be too low. See A-3.
2. Wiring may be incorrect. Check that one leg of the motor lines is not open or grounded.
3. Pump may be overheating from oil starvation that develops high internal heat, heating both the motor and the pump, eventually causing pump failure. See A-1 through A-9.
4. Oil may be too thick for ambient temperature. See “ Fluid Recommendations”. Binding cylinders. See B-6.
5. Pump may be overheating due to insufficient lubrication caused by oil being too thin. See A-12.

D. Operation is “spongy”:

1. Bleed the cylinders to release trapped air by lowering the equipment to the fully down position and hold the down button depressed for an additional 20 seconds. Raise lift and repeat this procedure several times. Check that the oil completely fills the clear suction hose at all times. If the level falls back to the reservoir oil level, check suction lines and fittings for an air leak.
2. Check for oil starvation. See A, 1-9.
3. Do not confuse “spongy” operation with small surges caused by foreign material on equipment wheel roller plates.

E. Equipment lowers too slowly:

1. Pressure filter in pipe outlet of power unit may require cleaning. See “ Component Information” for proper procedure.
2. Check for pinched hose, tubing, or obstruction in piping lines.
3. Check “Fluid Recommendations” for your ambient temperature type. Oil may be too thick. See also H-6.
4. Foreign material in flow control valve. With equipment fully lowered, remove and flush out any foreign material. Do not change flow control setting, as equipment could be damaged by high speeds. See “ Component Information” for proper way to remove, clean, and install the flow control valve.
5. Equipment having two down solenoid valves and/or flow control valves may have one valve inoperative.
6. Binding cylinders. See B-6.

F. Equipment lowers too fast:

CAUTION! This can develop into a dangerous condition, the equipment reaching destructive speed. Find and correct this condition before allowing use of this equipment.

1. Check for leaking hoses, particularly cracked fittings or other damage caused by equipment motion near the equipment and power unit, over-tightening of fittings until they develop hairline cracks. Check underground conduits for evidence of fluid leaks.
2. Inspect the check valve. The combination of the flow rates of the down flow control valve and a check valve stuck open due to foreign material, could increase the lowering speed. See G-2.
3. If the equipment lowers initially at a normal rate, then speeds up as the equipment lowers, check the flow control valve(s). Foreign material could stick, not allowing the pressure compensated function of the control to operate normally. See “Component Information” for the method of removal and replacement.
4. Oil may be too thin. See A-12.

G. Lift raises then lowers back down:

1. Down valve may be incorrectly wired or stuck open due to dirt in the system. See A-10, a. & b.
2. Check valve may be stuck open due to dirt in the system. See “Component Information” for removal, cleaning and installation. If pump and motor turns backward while the lift is lowering back down, the check valve is certainly inoperative.
3. Cylinder packing may be leaking. Check for oil leakage, see “ General Hydraulic Information” and section on “Cylinder Repair Procedures”.
4. Check for leaking hoses, fittings, or evidence of oil in underground conduit runs.

H. Equipment has raised but will not lower, or lowers partly:

1. Check both main and transformer secondary fuses.
2. Incorrect down solenoid wiring.
3. Stuck down solenoid valve. See A-10b, however do not remove the down solenoid body, as the equipment will come down with nothing to hold it in place.
4. Faulty down solenoid coil. Coil can be removed safely for replacement. As in step 3, do not remove valve body.
5. Down limit switch (if used) or electric toe guards (if used) inoperative or incorrectly wired. If you have electric toe guards, check that the hydraulic hose is secured to the bottom of the pit so it cannot accidentally trip the electric toe guard.
6. Maintenance bar or leg or other object blocking down travel. Do not pry out any object blocking down travel, because the hydraulic pressure has already been removed when the down button was pressed, and the equipment will fall at a dangerous speed. Raise the equipment slightly using the up button, remove object, then press the down button.

7. Improper oil for ambient temperatures. Oil may be too thick, causing improper operation of velocity fuses (if used). See “Component Information’ on velocity fuses. Warm the cylinders by wrapping heat tape (of the type used for water pipes) around the cylinder. Later, after operation is normal, change to proper oil as per “Fluid Recommendations”.
8. Binding Cylinders. See B-6

I. Equipment raises slightly, then equipment stops and motor stalls:

Check the suction line filter. Filter may be clogged, allowing slight movement until grime seals off filter. Check the suction filter for buildup of “varnish”. If necessary, remove the suction filter, hold the suction hose down into the oil, and try normal up operation of equipment. If operation returns to normal either clean or replace the suction line filter. See the “Component Information” section for procedure and proper placement of the suction hose.

J. Oil leaking or spraying out of the reservoir:

1. Reservoir may be over filled with hydraulic fluid. Drain fluid from tank until the fluid level is 1” from the top of the reservoir.
2. Clogged air breather allowing reservoir to build up positive pressure, then spraying oil. Try unit operation with air breather removed and clean or replace the air breather if this corrects the condition.

K. Equipment will not raise, motor will not run:

1. Control fuse has blown.
2. Motor starter overload has tripped. Depress reset button on controller.
3. Line fuse blown, single phasing motor or motor starter overload tripping. See #2 above.
4. Initial installation: Line voltage 230V and transformer wired for 460V. This will give 12V-control voltage instead of 24V, and motor starter will not operate. Check to make sure motor was not wired for 460V before trying operation. The same situation applies to 115V control voltage. Use a good AC voltmeter to check for proper control voltage.
5. Check transformer for loose screw terminals at the various connection points including jumpers and under the fuse clips.
6. Check push button station for proper operation and its wiring to the controller.

L. Down solenoid or Magnetic Starter Coil burns out routinely:

1. Transformer may be wired wrong. As an example, a 460V line with the transformer and primary wired for 230V will give the control voltage of 48V instead of 24V. (Same doubling voltage applies to 115V control transformers.) This will burnout coils ranging from immediately to several month intervals, depending on the stamina of the coil. Correct the condition. P 10-5
2. The transformer may be defective. Check control voltage with a good AC voltmeter.

3. Although very rare, high voltage spikes may be coming in on the power lines at random, burning out coils. This cannot be detected with a power company recorder, A “Varistor” can be purchased and easily installed on control systems to protect the coils. More severe cases on both 115V or 24V control systems may need a special “ High Insulation Transformer” in place of the standard control transformer.

M. Equipment does not lift rated load, or raises load about 1” then stops:

1. Check troubleshooting section (A), 2 through 11. Check if platform roller wheels roll freely with no binding as lift raises and lowers.
2. Lift may be overloaded. If a lift is listed as capable of fork truck loading, bear in mind that most “sit-down” rider fork trucks weigh at least 5,000 to 7,500 pound empty.
3. Platform may be shifted or damaged from transit or unintentional abuse.
   A. Check if the inside edge of the bevel toe guard is rubbing against the base frame in the fully lowered position. Look for scratch marks on the base frame. Bend back bevel toe guards as required and see “b” below.
   B. Check if the platform roller wheels are running straight on their platform members as the lift raises and lowers and legs or wheels are not rubbing on nearby platform members. Consult Advance Lifts on how to straighten out a platform.
   C. Check that the platform roller wheels are actually rolling as unit rises.
4. There may actually be no problem. Many shipping tickets contain estimated weights much lower than the actual weight. The lift may be seeing a load based on shipping tickets, well above lift capacity. In this case the lift would not generally raise the 1” and stop, generally it will not lift at all from the full lowered position.

N. Breather lines do not stay connected.

1. Be certain that the lines are not pinched.
2. Check that there is no debris in the lines.
3. Once a line has been removed from the fitting, the hose must be cut back before reinstallation.
4. If lines are completely filled with oil, drain oil out and test cylinders for seal failures.

SECTION 12. ADVANCE LIFTS INC. PARTS AND LABOR WARRANTY

For a period of two years from date of shipment from the Company's plant, the Company agrees to replace or repair, free of charge, any defective parts, material or workmanship on new equipment. This shall include electrical and hydraulic components.

For a period of ten years from date of shipment from Company's plant, the Company agrees to replace or repair any defective structure.

Company authorization must be obtained prior to the commencement of any work. The Company reserves the right of choice between effecting repairs in the field or paying all freight charges and effecting the repairs at the Company's plant. The Company further reserves the right of final determination in all warranty considerations. Evidence of overloading, abuse, or field modification of units without Company approval shall void this warranty. No contingent liabilities or freight damage will be accepted.

Damage incurred in transport is the responsibility of the carrier and is not covered by this warranty. any damage detected upon receipt of equipment should be immediately reported to the carrier. If you need assistance filing your claim, place contact Advance Lifts.

ADVANCE LIFTS INC PART LISTS
1045/1055 PARTS LIST

GENERAL DESCRIPTION	PART #
MECHANICAL:	
WHEEL	A-0074
WHEEL PIN (3/4" x 3-3/4")	A-0075
WHEEL PIN SNAP RING	001-877
MAIN AXLE PIN (1-3/4" x 10-13/16")	A-0073
MAIN AXLE PIN SNAP RING	001-063
HANDRAIL	004-440
SNAP RING FOR HANDRAIL	001-876
SAFETY CABLE 67" SPAN	004-387
HINGED STEEL BRIDGE (18" x 60")	025-037
HINGED RAMP (30" x 60")	D-2764S6
BASE MOUNTED FLIPPER WHEEL ASSEMBLY	D-2764S5
DOLLY HANDLE ASSEMBLY	D-1465S11
COVER PANEL FOR POWER UNIT	005-778

GENERAL DESCRIPTION	PART #
CYLINDER:	
CYLINDER, 1045/1055	D-12752
CYLINDER PACKING KIT FOR 1045/1055	026-183
CYLINDER ROD (1-3/4" x 53-1/16")	A-10403
CYLINDER BEARING ASSEMBLY	A-10405
LOWER CYLINDER PIN (1" x 4-1/8")	A-8606
UPPER CYLINDER PIN (1" x 3-5/8")	A-0548
CYLINDER PIN SNAP RING	001-876
FLOW CONTROL CARTRIDGE (6 GPM)	001-305
HYDRAULIC HOSE (1/4"x19.25 ")	015-551
HYDRAULIC HOSE (1/4"x 27")	015-437

GENERAL DESCRIPTION	PART #
HYDRAULIC: (COMMON TO ALL POWER UNITS)	
HYDRAULIC PUMP	000-356
MANIFOLD VALVE ASSEMBLY	004-420
MANIFOLD BLOCK ONLY	D-1140
CHECK VALVE	001-262
24V DOWN SOLENOID VALVE AND COIL ASM	001-259
24V DOWN SOLENOID COIL ONLY	001-260
DOWN SOLENOID VALVE 24V/115V	001-279
RELIEF VALVE	001-263
SUCTION LINE FILTER	001-280

GENERAL DESCRIPTION	PART #
COMPLETE POWER UNIT:	
115 VOLT, 1 PH, 24VA, WITH PUSHBUTTON	004-403
23O VOLT, 1 PH, 24VA, WITH PUSHBUTTON	004-797
230 VOLT, 3 PH, 24VA, WITH PUSHBUTTON	004-798
460 VOLT, 3 PH, 24VA, WITH PUSHBUTTON	004-799

GENERAL DESCRIPTION	PART #
COMPLETE CONTROL BOX:	
115V,PRI,1PH,24V,SEC, NO OPTIONS	004-399
230V,PRI,1PH,24V,SEC, NO OPTIONS	004-800
230V,PRI,3PH,24V,SEC, NO OPTIONS	004-802
480V,PRI,3PH,24V,SEC, NO OPTIONS	004-806

TRANSFORMER: (SELECT BY VOLTAGE AND OPTIONS)	
100VA transformers with a warning light or bell.	
115-230V,24V, 1 PHASE	001-845
240-480V,24V, 3 PHASE	001-844
115-230V,24V, 1 PHASE, WITH A BELL OR LIGHT	000-746
240-480V,24V, 3 PHASE, WITH A BELL OR LIGHT	000-399

CONTACTOR, MOTOR STARTER:	
115V,1PH CONTACTOR	000-692
230V,1PH CONTACTOR	000-692
230V,3PH CONTACTOR	000-690
480V,3PH CONTACTOR	000-690

OVERLOAD: (SELECT BY VOLTAGE AND PHASE)	
115V/1PH OVERLOAD	000-700
230V/1PH OVERLOAD	000-698
230V/3PH OVERLOAD	000-696
460V/3PH OVERLOAD	000-694

MOTOR: (SELECT BY VOLTAGE AND PHASE)	
115/208/230 VOLT, 1 PH, LEESON, 1202274-00	000-319
208/230/460/480 VOLT, 3 PH, LEESON 120276-00	000-318

OPTIONS:	
BELL AND LIGHT COMBO	023-651
BELL AND LIGHT CAGE	027-946
STROBE LIGHT, 24V	000-805
STROBE LIGHT, 110V	001-422
OIL IMMERSION HEATER	000-803
BLUE SPRAY PAINT, 4.5 oz	028-672
YELLOW SPRAY PAINT, 4.5 oz	028-673
POWER UNIT DECAL KIT	003-868
COMPLETE DECAL KIT FOR A 1045	004-407
REPLACEMENT NAME/SERIAL NUMBER TAG	001-448

TO ORDER PARTS CALL 800-843-3625
OR E-MAIL PARTS@ADVANCELIFTS.COM

SAFETY DATA SHEET

Dual Range HV 46

Section 1. Identification

GHS product identifier Dual Range HV 46

Product code 460278-CA01

SDS # 460278

Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/ mixture Hydraulic fluid.
For specific application advice see appropriate Technical Data Sheet or consult our company representative.

Manufacturer BP Lubricants USA Inc.
1500 Valley Road
Wayne, NJ 07470
Telephone: +1-888-CASTROL
Product Information: +1-877-641-1600

Supplier Wakefield Canada Inc.
3620 Lakeshore Blvd West
Toronto, Ontario, Canada M8W 1P2
Phone Number - 416-252-5511

EMERGENCY HEALTH INFORMATION: +1-800-447-8735

EMERGENCY TELEPHONE NUMBER 1 (613) 996-6666 CANUTEC (Canada)
+1-800-424-9300 (CHEMTREC USA)
+1-703-527-3887 (CHEMTREC outside the US)

Section 2. Hazard identification

Classification of the substance or mixture Not classified.

GHS label elements

Signal word No signal word.

Hazard statements No known significant effects or critical hazards.

Precautionary statements

Prevention Not applicable.

Response Not applicable.

Storage Not applicable.

Disposal Not applicable.

Other hazards which do not result in classification Defatting to the skin.
Note: High Pressure Applications
Injections through the skin resulting from contact with the product at high pressure constitute a major medical emergency.
See 'Notes to physician' under First-Aid Measures, Section 4 of this Safety Data Sheet.

Section 3. Composition/information on ingredients

Substance/mixture Mixture

Ingredient name	CAS number	% (w/w)
Base oil - highly refined	Varies - See Key to abbreviations	≥90
Base oil - highly refined	Varies - See Key to abbreviations	≤3

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First-aid measures

Description of necessary first aid measures

Eye contact In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Check for and remove any contact lenses. Get medical attention.

Skin contact Wash skin thoroughly with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if symptoms occur.

Inhalation If inhaled, remove to fresh air. Get medical attention if symptoms occur.

Ingestion Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Protection of first-aiders No action shall be taken involving any personal risk or without suitable training.

Most important symptoms/effects, acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician Treatment should in general be symptomatic and directed to relieving any effects.

Note: High Pressure Applications
Injections through the skin resulting from contact with the product at high pressure constitute a major medical emergency. Injuries may not appear serious at first but within a few hours tissue becomes swollen, discolored and extremely painful with extensive subcutaneous necrosis.
Surgical exploration should be undertaken without delay. Thorough and extensive debridement of the wound and underlying tissue is necessary to minimize tissue loss and prevent or limit permanent damage. Note that high pressure may force the product considerable distances along tissue planes.

Specific treatments No specific treatment.

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media In case of fire, use foam, dry chemical or carbon dioxide extinguisher or spray.

Unsuitable extinguishing media Do not use water jet.

Specific hazards arising from the chemical In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products Combustion products may include the following:
carbon oxides (CO, CO_2) (carbon monoxide, carbon dioxide)

Section 5. Fire-fighting measures

Special protective actions for fire-fighters — Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters — Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel — No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment. Floors may be slippery; use care to avoid falling.

For emergency responders — If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions — Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill — Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill — Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

Precautions for safe handling

Protective measures — Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene — Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Wash thoroughly after handling. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities — Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Store and use only in equipment/containers designed for use with this product. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Base oil - highly refined	**CA Alberta Provincial (Canada).** 15 min OEL: 10 mg/m³ 15 minutes. Issued/Revised: 7/2009 Form: Mist 8 hrs OEL: 5 mg/m³ 8 hours. Issued/Revised: 4/2004 Form: Mist **CA Quebec Provincial (Canada).** STEV: 10 mg/m³ 15 minutes. Issued/Revised: 1/2000 Form: mist TWAEV: 5 mg/m³ 8 hours. Issued/Revised: 1/2000 Form: mist

Section 8. Exposure controls/personal protection

Ingredient name	Exposure limits
Base oil - highly refined	Form: mist **CA Alberta Provincial (Canada).** 15 min OEL: 10 mg/m³ 15 minutes. Issued/Revised: 7/2009 Form: Mist 8 hrs OEL: 5 mg/m³ 8 hours. Issued/Revised: 4/2004 Form: Mist **CA Quebec Provincial (Canada).** STEV: 10 mg/m³ 15 minutes. Issued/Revised: 1/2000 Form: mist TWAEV: 5 mg/m³ 8 hours. Issued/Revised: 1/2000 Form: mist

Appropriate engineering controls — All activities involving chemicals should be assessed for their risks to health, to ensure exposures are adequately controlled. Personal protective equipment should only be considered after other forms of control measures (e.g. engineering controls) have been suitably evaluated. Personal protective equipment should conform to appropriate standards, be suitable for use, be kept in good condition and properly maintained.
Your supplier of personal protective equipment should be consulted for advice on selection and appropriate standards. For further information contact your national organisation for standards.
Provide exhaust ventilation or other engineering controls to keep the relevant airborne concentrations below their respective occupational exposure limits.
The final choice of protective equipment will depend upon a risk assessment. It is important to ensure that all items of personal protective equipment are compatible.

Environmental exposure controls — Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures — Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection — Safety glasses with side shields.

Skin protection

Hand protection — Wear protective gloves if prolonged or repeated contact is likely. Wear chemical resistant gloves. Recommended: Nitrile gloves. The correct choice of protective gloves depends upon the chemicals being handled, the conditions of work and use, and the condition of the gloves (even the best chemically resistant glove will break down after repeated chemical exposures). Most gloves provide only a short time of protection before they must be discarded and replaced. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. Gloves should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Body protection — Use of protective clothing is good industrial practice.
Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Cotton or polyester/cotton overalls will only provide protection against light superficial contamination that will not soak through to the skin. Overalls should be laundered on a regular basis. When the risk of skin exposure is high (e.g. when cleaning up spillages or if there is a risk of splashing) then chemical resistant aprons and/or impervious chemical suits and boots will be required.

Section 8. Exposure controls/personal protection

Other skin protection
Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection
In case of insufficient ventilation, wear suitable respiratory equipment.
The correct choice of respiratory protection depends upon the chemicals being handled, the conditions of work and use, and the condition of the respiratory equipment. Safety procedures should be developed for each intended application. Respiratory protection equipment should therefore be chosen in consultation with the supplier/manufacturer and with a full assessment of the working conditions.

Section 9. Physical and chemical properties

Appearance

Physical state Liquid.

Color Purple.

Odor Not available.

Odor threshold Not available.

pH Not available.

Melting point Not available.

Boiling point Not available.

Flash point Closed cup: >190°C (>374°F) [Pensky-Martens.]

Pour point -42 °C

Drop Point Not available.

Evaporation rate Not available.

Flammability (solid, gas) Not applicable. Based on - Physical state

Lower and upper explosive (flammable) limits Not available.

Vapor pressure Not available.

Vapor density Not available.

Density <1000 kg/m³ (<1 g/cm³) at 15°C

Relative density Not available.

Solubility insoluble in water.

Partition coefficient: n-octanol/water Not available.

Auto-ignition temperature Not available.

Decomposition temperature Not available.

Viscosity Kinematic: 45.9 mm²/s (45.9 cSt) at 40°C
Kinematic: 8.15 mm²/s (8.15 cSt) at 100°C

Section 10. Stability and reactivity

Reactivity No specific test data available for this product. Refer to Conditions to avoid and Incompatible materials for additional information.

Chemical stability The product is stable.

Possibility of hazardous reactions Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous polymerization will not occur.

Conditions to avoid Avoid all possible sources of ignition (spark or flame).

Incompatible materials Reactive or incompatible with the following materials: oxidizing materials.

Section 10. Stability and reactivity

Hazardous decomposition products Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Aspiration hazard

Name	Result
Base oil - highly refined	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure Routes of entry anticipated: Dermal, Inhalation.

Potential acute health effects

Eye contact No known significant effects or critical hazards.

Skin contact Defatting to the skin. May cause skin dryness and irritation.

Inhalation Vapor inhalation under ambient conditions is not normally a problem due to low vapor pressure.

Ingestion No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact No specific data.

Inhalation No specific data.

Skin contact Adverse symptoms may include the following:
irritation
dryness
cracking

Ingestion No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects Not available.

Potential delayed effects Not available.

Long term exposure

Potential immediate effects Not available.

Potential delayed effects Not available.

Potential chronic health effects

General No known significant effects or critical hazards.

Carcinogenicity No known significant effects or critical hazards.

Mutagenicity No known significant effects or critical hazards.

Teratogenicity No known significant effects or critical hazards.

Developmental effects No known significant effects or critical hazards.

Fertility effects No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

No testing has been performed by the manufacturer.

Persistence and degradability

Expected to be biodegradable.

Bioaccumulative potential

This product is not expected to bioaccumulate through food chains in the environment.

Mobility in soil

Soil/water partition coefficient (K_{OC})	Not available.
Mobility	Spillages may penetrate the soil causing ground water contamination.

Other ecological information Spills may form a film on water surfaces causing physical damage to organisms. Oxygen transfer could also be impaired.

Section 13. Disposal considerations

Disposal methods The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	TDG Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-
Transport hazard class(es)	-	-	-	-
Packing group	-	-	-	-
Environmental hazards	No.	No.	No.	No.
Additional information	-	-	-	-

Special precautions for user Not available.

Section 14. Transport information

Transport in bulk according to Annex II of MARPOL and the IBC Code Not available.

Section 15. Regulatory information

Other regulations

Australia inventory (AICS)	All components are listed or exempted.
Canada inventory	All components are listed or exempted.
China inventory (IECSC)	All components are listed or exempted.
Japan inventory (ENCS)	All components are listed or exempted.
Korea inventory (KECI)	All components are listed or exempted.
Philippines inventory (PICCS)	All components are listed or exempted.
Taiwan Chemical Substances Inventory (TCSI)	Not determined.
United States inventory (TSCA 8b)	All components are listed or exempted.
REACH Status	For the REACH status of this product please consult your company contact, as identified in Section 1.

Section 16. Other information

History

Date of issue/Date of revision	30/10/2017
Date of previous issue	06/01/2017.
Version	2.03
Prepared by	Product Stewardship
Key to abbreviations	ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor CAS Number = Chemical Abstracts Service Registry Number GHS = Globally Harmonized System of Classification and Labelling of Chemicals HPR = Hazardous Products Regulations IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation [Regulation (EC) No. 1907/2006] UN = United Nations Varies = may contain one or more of the following 101316-69-2, 101316-70-5, 101316-71-6, 101316-72-7, 64741-88-4, 64741-89-5, 64741-95-3, 64741-96-4, 64741-97-5, 64742-01-4, 64742-44-5, 64742-45-6, 64742-52-5, 64742-53-6, 64742-54-7, 64742-55-8, 64742-56-9, 64742-57-0, 64742-58-1, 64742-62-7, 64742-63-8, 64742-64-9, 64742-65-0, 64742-70-7, 72623-85-9, 72623-86-0, 72623-87-1, 74869-22-0, 90669-74-2
References	Not available.

Indicates information that has changed from previously issued version.

Notice to reader

Section 16. Other information

All reasonably practicable steps have been taken to ensure this data sheet and the health, safety and environmental information contained in it is accurate as of the date specified below. No warranty or representation, express or implied is made as to the accuracy or completeness of the data and information in this data sheet.

The data and advice given apply when the product is sold for the stated application or applications. You should not use the product other than for the stated application or applications without seeking advice from BP Group.

It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations. The BP Group shall not be responsible for any damage or injury resulting from use, other than the stated product use of the material, from any failure to adhere to recommendations, or from any hazards inherent in the nature of the material. Purchasers of the product for supply to a third party for use at work, have a duty to take all necessary steps to ensure that any person handling or using the product is provided with the information in this sheet. Employers have a duty to tell employees and others who may be affected of any hazards described in this sheet and of any precautions that should be taken. You can contact the BP Group to ensure that this document is the most current available. Alteration of this document is strictly prohibited.