

INSTALLATION, OPERATION AND SERVICE MANUAL

SERIES 35 “ROVER”



12VDC PORTABLE LIFT



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Item #830SRV

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IMPORTANT

Please read and understand this manual prior to installation or operation of this lift. Failure to do so could lead to property damage and/or serious personal injury. If any questions arise, call a local representative or *Autoquip Corporation* at 1-888-811-9876 or 405-282-5200.

PLANNED MAINTENANCE PROGRAM

A local *Autoquip* representative provides a Planned Maintenance Program (PMP) for this equipment using factory-trained personnel. Call a local representative or *Autoquip Corporation* at 1-888-811-9876 or 405-282-5200 for more information.

IDENTIFICATION & INSPECTION

IDENTIFICATION

When ordering parts or requesting information or service on this lift, PLEASE REFER TO THE MODEL AND SERIAL NUMBER. This information is on a nameplate attached to the leg assembly. Replacement parts are available from a local *Autoquip* distributor.

INSPECTION

Immediately upon receipt of the lift, a visual inspection should be made to determine that it has not been damaged in transit. Any damage found must be noted on the delivery receipt. In addition to this preliminary inspection, the lift should be carefully inspected for concealed damage. Any concealed damage found that was not noted on the delivery receipt should be reported in writing to the delivering carrier within 48 hours.

The following is a checklist that will aid you in the inspection of this lift:

1. Examine entire unit for any signs of mishandling. Pay special attention to the power unit and pushbuttons.
2. Thoroughly examine all connections, making sure they have not vibrated loose during transit, and inspect wiring for any signs of damage.
3. After installation, raise the lift and inspect the base frame, platform, scissors assembly, and cylinder plumbing connections.

RESPONSIBILITY OF OWNERS/USERS

DEFLECTION

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

INSPECTION & MAINTENANCE

The lift shall be inspected & maintained in proper working order in accordance with Autoquip's operating/maintenance (O&M) manual and with other applicable safe operating practices.

REMOVAL FROM SERVICE

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

REPAIRS

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

OPERATORS

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

BEFORE OPERATION

Before using the lift, the operator shall have:

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

DURING OPERATION

The lift shall only be used in accordance with Autoquip's O&M manual.

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

MODIFICATIONS OR ALTERATIONS

Modifications or alterations to industrial lifting equipment shall be made only with written permission of Autoquip. Autoquip does not foresee and does not anticipate unauthorized modifications, and these changes or alterations are grounds for voiding all warranties.

SAFETY SIGNAL WORDS

SAFETY ALERTS (Required Reading!)

The following SAFETY ALERTS are intended to create awareness of owners, operators, and maintenance personnel of the potential safety hazards and the steps that must be taken to avoid accidents. These same alerts are inserted throughout this manual to identify specific hazards that may endanger uninformed personnel. Identification of every conceivable hazardous situation is impossible. Therefore, all personnel have the responsibility to diligently exercise safe practices whenever exposed to this equipment.



DANGER!

Identifies a hazardous situation which, if not avoided, will result in death or or severe personal injury.



WARNING!

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



CAUTION!

Identifies a hazardous situation which, if not avoided, may result in minor or moderate personal injury.

CAUTION!

Caution used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property or equipment damage.

SAFETY PRACTICES

Read and understand this manual and all labels prior to operating or servicing the scissors lift. All labels are provided in accordance with ANSI Z535.4.



DANGER!

Do not work under lift without Maintenance Device! To avoid personal injury, NEVER go under the lift platform until the load is removed and the scissors mechanism is securely blocked in the open position. See "Lift Blocking Instructions" section.



DANGER!

To avoid personal injury, stand clear of scissors mechanism while the lift is in motion.



DANGER!

HIGH VOLTAGE!! Disconnect and/or lock out the electrical supply to the power unit prior to any maintenance being performed.



DANGER!

Scissors lifts are designed individually for a specific load and application. To avoid personal injury, do not change the load or application from the original design.

SAFETY PRACTICES



WARNING!

NEVER stand, sit or ride on the lift!



WARNING!

All warning and information decals should be in place as outlined in the “Label Identification” section. If decals are missing or damaged, they should be replaced with new ones. Contact *Autoquip* for replacements.



WARNING!

Do not attempt to remove the velocity fuse until the maintenance block securely supports the lift and all hydraulic pressure has been removed from the lifting cylinders and hydraulic hoses. Failure to do so could result in personal injury or death!



WARNING!

To avoid injury, use the floor lock when the unit is in use. Failure to use the floor lock may cause the unit to roll when it is in use.

CAUTION!

Do not continue to depress the “UP” button on the controller if the lift is not raising or if the lift has reached the fully raised position. To do so may result in permanent damage to the motor or pump.

SAFETY PRACTICES

CAUTION!

Never run the pump for more than a couple of seconds without pumping oil. This applies to low oil conditions, improper motor rotation, running the pump against the relief pressure after the lift is fully raised against the physical stops, running overloaded beyond capacity, or running at reduced speed because of pinched or obstructed hydraulic lines.

CAUTION!

Do not operate the power unit on relief for more than a few seconds. When on relief, the valve will make a squealing sound.

CAUTION!

Precautions should be taken to prevent the introduction of contaminants such as dirt or other foreign material into the system through open fittings, pipes or disassembled components. Contamination will ruin the hydraulic system.

CAUTION!

Use only approved oils in the lift. See “Specifications” section.

LABEL IDENTIFICATION

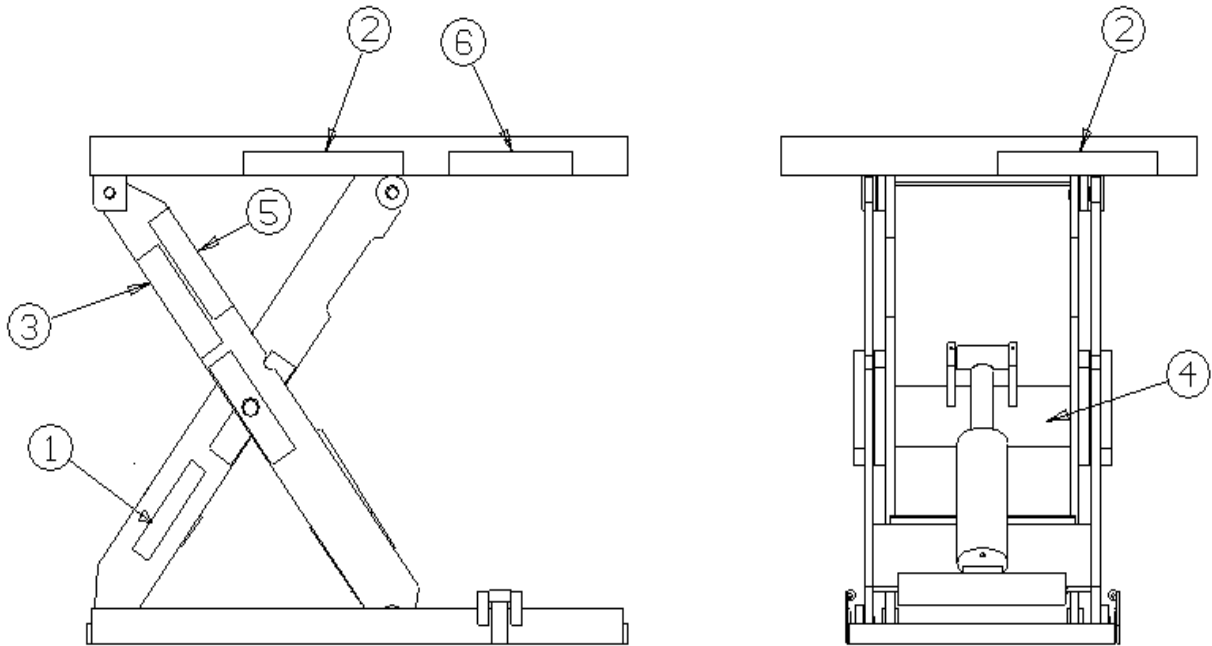


Figure 1 Label Placement - Oversized Platform

Series 35 Rover			
Item No.	Qty	Description	Part No.
1	2	Caution – Familiarize Yourself With Operators Manual	36401487
2	4	Danger – Do Not Put Hands or Feet . . .	36430050
3	1	<i>Autoquip</i> Serial Number Nameplate	36401511
4	1	Fill with Recommended Oils Only	36400661
5	2	Series 35 Label	36402980
6	2	Capacity	36401586

LABEL IDENTIFICATION

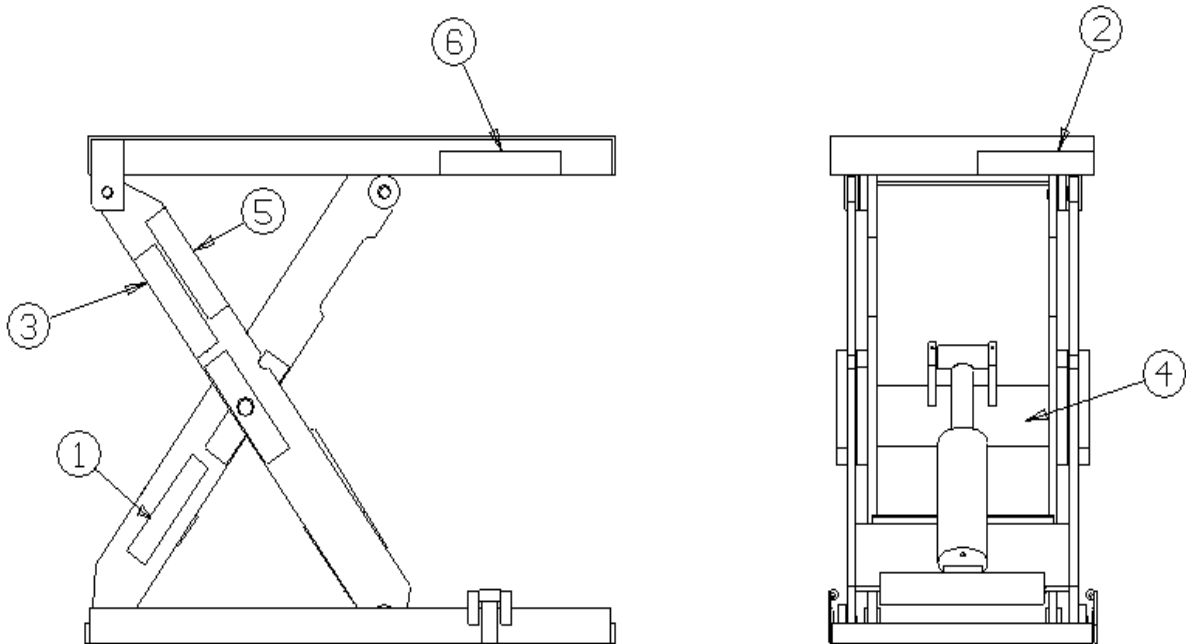


Figure 2 Label Placement - Standard Platform

Series 35 Rover			
Item No.	Qty	Description	Part No.
1	2	Caution – Familiarize Yourself With Operators Manual	36401487
2	2	Danger – Do Not Put Hands or Feet . . .	36430050
3	1	<i>Autoquip</i> Serial Number Nameplate	36401511
4	1	Fill with Recommended Oils Only	36400661
5	2	Series 35 Label	36402980
6	2	Capacity	36401586

LABEL IDENTIFICATION

Note: Labels shown here are not actual size.



Figure 3 Label 36401487



Figure 4 Label 36430050



Figure 5 Label 36401511

LABEL IDENTIFICATION



Figure 6 Label 36400661

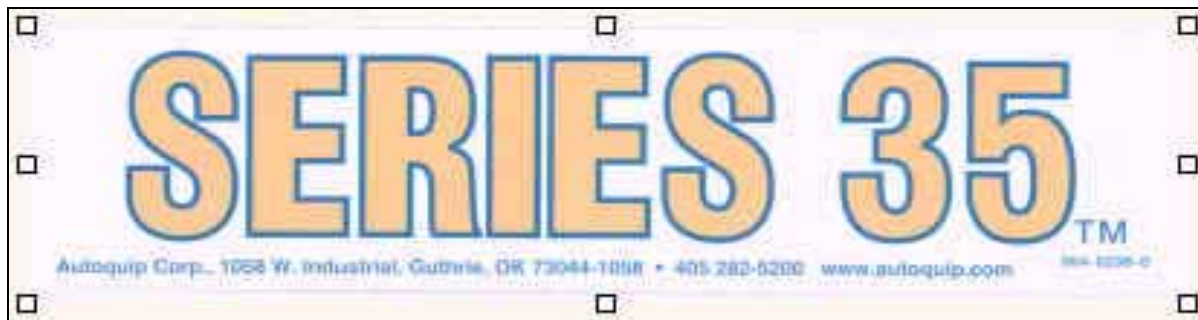


Figure 7 Label 36402980



Figure 8 Label 36401586

SPECIFICATIONS

Series 35 Model	Capacity (lbs)	Travel (In.)	Lowered Height (Inches)	Raised Height (Inches)	Max End Load (lbs)	Max Side Load (lbs)	Standard Platform (Inches)	Raise Time (sec)	No of Cyl	Ship Wt (lbs)
24SRV25	2500	24	14	38	2500	1500	24 x 36	8*	1	910
24SRV40	4000	24	14	38	3000	1500	24 x 36	11*	1	950
24SRV60	6000	24	14	38	3500	1500	24 x 36	16*	2	1000
36SRV25	2500	36	14	50	2500	1500	24 x 48	12*	1	1000
36SRV40	4000	36	14	50	3000	1500	24 x 48	17*	1	1050
36SRV60	6000	36	14	50	3500	1500	24 x 48	25*	2	1100
48SRV25	2500	48	14	62	2500	1500	24 x 64	16*	1	1200
48SRV40	4000	48	14	62	3000	1500	24 x 64	22*	1	1250
48SRV60	6000	48	14	62	3500	1500	24 x 64	33*	2	1300

* Varies depending on amp draw in battery

LOAD CAPACITY

The load capacity rating is stamped on a metal plate attached to the lift. This figure is a net capacity rating for a lift furnished with the standard platform. **Lifts should not be overloaded beyond the established capacity as damage and/or personal injury may result.**



DANGER!

Do not make modifications to the lift without authorization from the manufacturer. Autoquip is not responsible for injury or damage which results from the unauthorized & unforeseen misuse of the lift.

UNBALANCED LOADING

The stabilization provided is basically for balanced loads. If special attachments are required which extend beyond the length and/or width dimensions of the platform, contact Autoquip for a recommended & safe solution.

PUMP PRESSURE

The pump can operate efficiently at intermittent pressures up to 3200 PSI and continuous duty to 2500 PSI. The safety relief valve in the pump assembly is factory-set to stay within the parameters of the pump and lift requirements.

LIFT BLOCKING INSTRUCTIONS



WARNING !

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



DANGER !

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

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

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

1. All load must be removed from the lift prior to engaging the maintenance devices. 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 devices and allow the lift to fall unexpectedly. This can result in personal injury or death, or permanent damage to the maintenance devices and/or the lift.
2. Raise the lift to its fully raised position. If you do not, the maintenance devices may not be able to be placed properly in their designed blocking position.
3. Locate both hinged maintenance locks permanently welded outside the base frame on the roller end of the lift base legs. Both locks must be flipped over and resting inside the base frame and thus in the roller path of the lift (See Figure 9).
4. Lower the lift platform until the leg rollers make contact with both maintenance locks. Re-check to ensure that both devices are fully and properly engaged with the leg rollers. If both left and right maintenance locks are not fully engaged the lift could fall unexpectedly, resulting in permanent damage to the devices or the lift.

LIFT BLOCKING INSTRUCTIONS

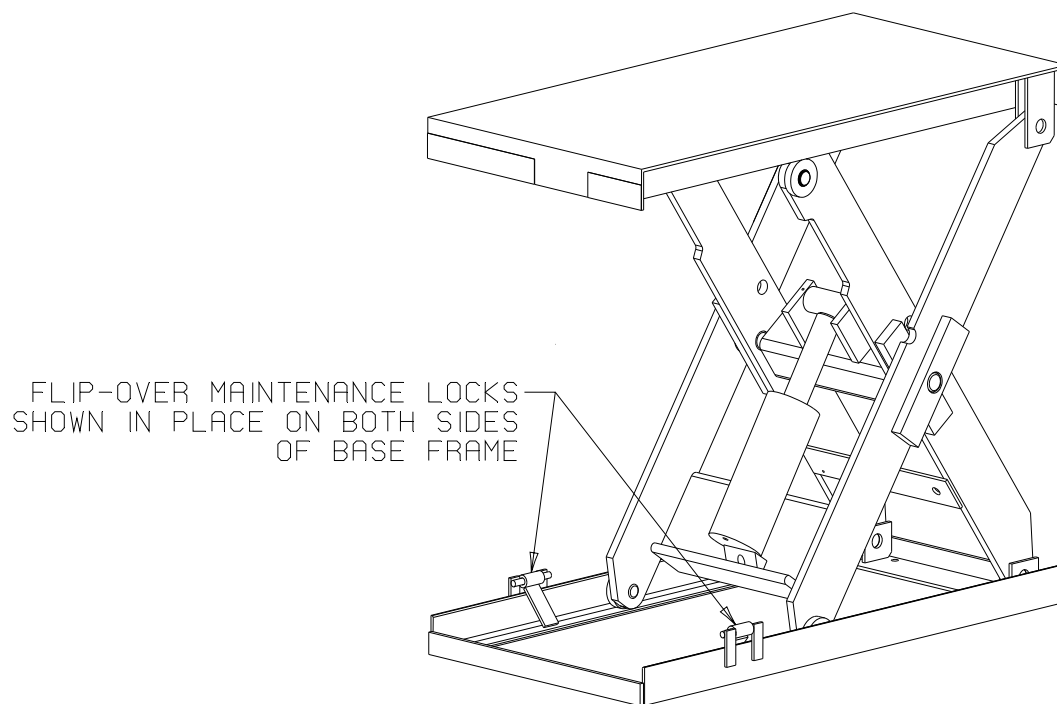


Figure 9 Maintenance Locks

LIFT BLOCKING INSTRUCTIONS



DANGER !

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

5. Once the maintenance devices 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 hydraulic system (it could take longer in a pneumatic system).



WARNING !

Failure to relieve operating system pressure could result in the sudden and unexpected release of high pressure fluids (or air) during maintenance and/or repair of the lift and result in 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 devices and flip the devices back into their designated storage positions outside the base frame.



DANGER !

HIGH VOLTAGE!! – Disconnect and/or lock out the electrical supply to the power unit per OSHA regulations prior to any installation or maintenance being performed.

INSTALLATION INSTRUCTIONS

OIL

The Rover is shipped with oil in the power unit. There is no need to fill it.

STANDARD DC UNIT



WARNING!

Read and understand all of the instructions carefully before proceeding with the installation process.

1. The area where the Rover is to be used must be level, solid, and smooth. The unit should roll around freely without obstruction.



DANGER!

To avoid personal injury, NEVER use the unit in or around water or where flammable gasses may be present.

2. Remove the material the lift was shipped in. Remove the banding and the pallet from under the unit.
3. Connect the red positive battery cable. It may be necessary to charge the battery before the lift can be used. If the unit was purchased with the optional battery charger, it may be placed next to the battery.
4. Test the operation of the lift by pressing the “UP” button. Then push the “DOWN” button to lower the platform. If the lift does not work, see the “Troubleshooting” section in this manual.



WARNING!

All warning and information decals should be in place as outlined in the “Label Identification” section. If decals are missing or damaged, they should be replaced with new ones. Contact *Autoquip* for replacements.

INSTALLATION INSTRUCTIONS

OPTIONAL 115/60 AC UNIT



WARNING!

Read and understand all of the instructions carefully before proceeding with the installation process.

1. The area where the Rover is to be used must be level, solid, and smooth. The unit should roll around freely without obstruction.



DANGER!

To avoid personal injury, NEVER use the unit in or around water or where flammable gasses may be present.

2. Remove the material the lift was shipped in. Remove the banding and the pallet from under the unit.
3. Plug the power cord into a suitable 20 amp grounded 115/60 receptacle.
4. Test the operation of the lift by pressing the “UP” button. Then push the “DOWN” button to lower the platform. If the lift does not work, see the “Troubleshooting” section in this manual.



WARNING!

All warning and information decals should be in place as outlined in the “Label Identification” section. If decals are missing or damaged, they should be replaced with new ones. Contact *Autoquip* for replacements.

INSTALLATION INSTRUCTIONS

OPTIONAL AIR POWER UNIT UNIT



WARNING!

Read and understand all of the instructions carefully before proceeding with the installation process.

1. The area where the Rover is to be used must be level, solid, and smooth. The unit should roll around freely without obstruction.



DANGER!

To avoid personal injury, NEVER use the unit in or around water or where flammable gasses may be present.

2. Remove the material the lift was shipped in. Remove the banding and the pallet from under the unit.
3. Connect the power unit to the air supply. Make sure that the minimum working pressure is 80 psi @ 110 cfm.
4. Test the operation of the lift by moving the lever in the “UP” position. Then move the lever to the “DOWN” position to lower the platform. If the lift does not work, see the “Troubleshooting” section in this manual.



WARNING!

All warning and information decals should be in place as outlined in the “Label Identification” section. If decals are missing or damaged, they should be replaced with new ones. Contact *Autoquip* for replacements.

INSTALLATION INSTRUCTIONS

PROCEDURE FOR A LIFT ORDERED WITH AN ACCORDION SKIRT

1. Position the platform in the raised position. Install the maintenance locks (see “Lift Blocking Instructions” section). Position the accordion with the weight rod pocket at the bottom and the mounting collar at the top. The breathable material when provided must be positioned at the top of the skirt with the mounting collar.
2. Slip the skirt over the end of the platform. Turn the skirt as required to slide over the other end of the platform and leg assembly. The skirt should be in position under the platform while enveloping the base assembly.
3. See the drawing below and select the correct mounting configuration (Figure 1, 2, or 3 from the drawing).

Figure #1: Mounting an Accordion Skirt Onto the Platform Side

Raise one side of the skirt along with a skirt -mounting bar (1/8" x 1") to (1) side of the platform. When possible, center the skirt-mounting collar and skirt-mounting bar (1/8" x 1") on the platform side. Align the pre-drilled holes in the side of the platform with the skirt-mounting bar holes and punch holes in the skirt-mounting collar. Push a nylon drive rivet through each hole in the skirt-mounting bar. Hammer the aluminum pin into the rivet until flush with the rivet head. Repeat mounting process for the remaining sides of the accordion skirt.

Figure #2: Mounting an Accordion Skirt Underneath the Platform

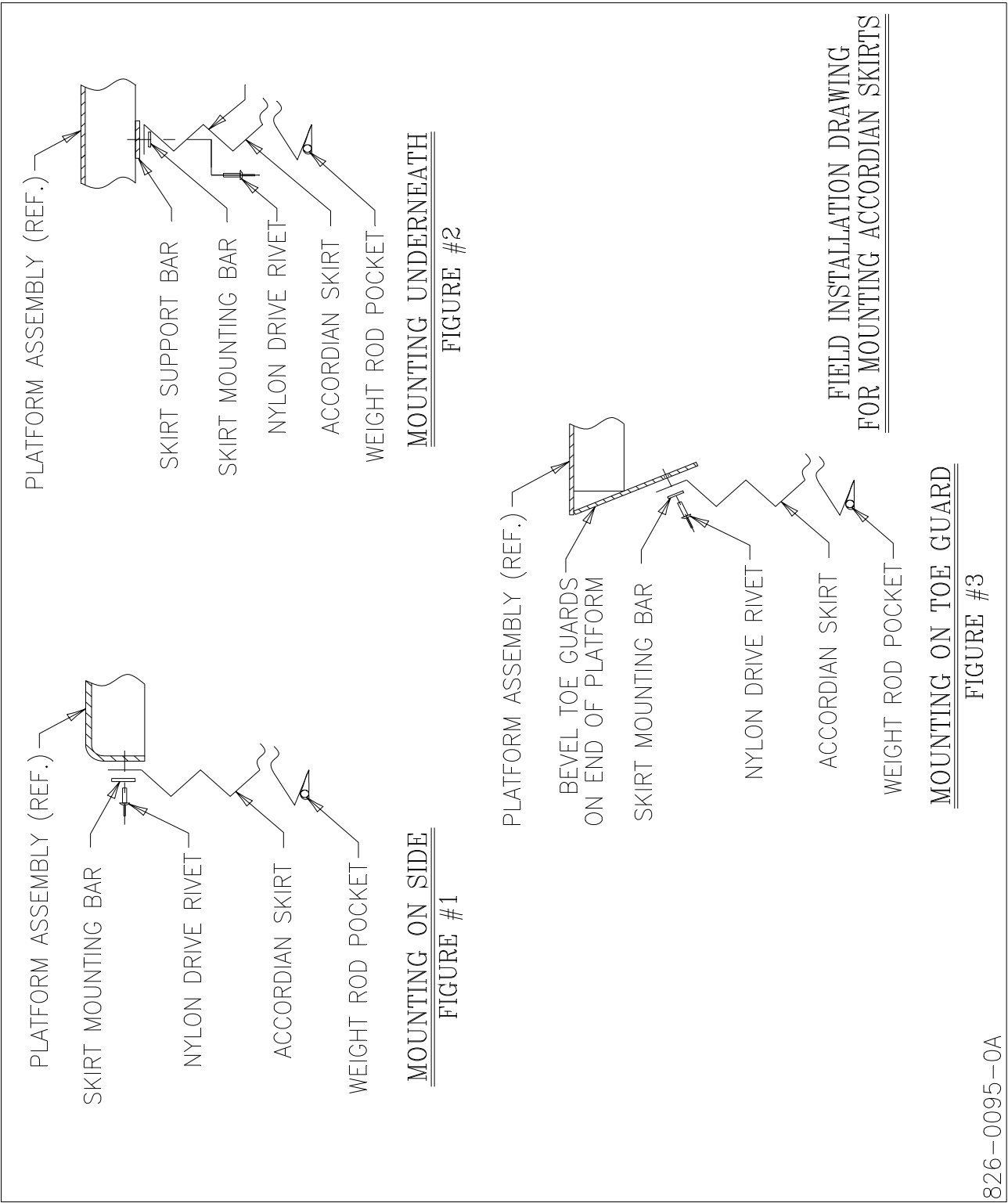
Raise one side of the skirt along with a skirt-mounting bar (1/8" x 1") to the underside of the platform skirt support bar. When possible, center the skirt mounting collar and the skirt-mounting bar (1/8" x 1") on the platform support bar. Align the pre-drilled holes in the skirt support bar (picture frame) with the skirt -mounting bar holes and punch holes in the skirt-mounting collar. Push a nylon drive rivet through each hole in the skirt-mounting bar. Hammer the aluminum pin into the rivet until flush with the rivet head. Repeat mounting process for the remaining sides of the accordion skirt.

Figure #3: Mounting an Accordion Skirt Onto the Bevel Toe Guard

Raise one side of the skirt along with a skirt-mounting bar (1/8" x 1") to the side of the bevel toe guard. When possible, center the skirt mounting collar and the skirt-mounting bar (1/8" x 1") on the platform bevel toe guard. Align the pre-drilled holes in the bevel toe guard with the skirt-mounting bar holes and punch holes in the skirt-mounting collar. Push a nylon drive rivet through each hole in the skirt-mounting bar. Hammer the aluminum pin into the rivet until flush with the rivet head. Repeat mounting process for the remaining sides of the accordion skirt.

4. Install weight rods into the weight rod pockets at the bottom of the accordion skirt. Install the spring tempered wire rods into the pocket of black convolutions.

INSTALLATION INSTRUCTIONS



826-0095-0A

Figure 10 Skirt Installation

OPERATING INSTRUCTIONS

1. Operate this lift only on a firm, flat & level surface.
2. Place the lift in loading position and lock the floor lock when not being transported.
3. Scissors lifts have maximum lifting capacity ratings (See the "Specifications" section). The safety relief valve has been factory set to open at a point slightly above the rated load and allows the oil to bypass into the reservoir. **The safety relief valve should not be adjusted for any reason as it could cause the motor to prematurely burn out.** Applying loads exceeding the rated capacity of the lift may result in excessive wear and damage to the lift.
4. This lift is furnished with a constant pressure foot switch or pushbutton controls. Actuating the "UP" button will cause oil to enter the cylinders and the lift will rise.
5. When the desired height or upward travel of the platform is attained, removing the operator's hand from the switch deactivates the "UP" circuit button. The oil stops flowing and the upward movement will stop.
6. To lower the lift, activate the "DOWN" button. Opening the down control valve allows the oil in the cylinders to flow through the down valve at a controlled rate and return oil to the reservoir.
7. When the desired height or downward travel of the platform is attained, removing the operator's foot or hand from the switch deactivates the "DOWN" circuit. The oil stops flowing from the cylinders and the downward movement will stop.



CAUTION !

Personnel should always maintain a safe operating distance of at least 36" any time the lift is operated up or down.

CAUTION!

Do not operate the power unit on relief for more than a few seconds. When on relief, the valve will make a squealing sound.

ROUTINE MAINTENANCE



WARNING!

Before installing lift, read & follow the recommended safety practices in the Safety Practices section. Failure to follow these safety practices could result in death or serious injury.

Normally scissors lifts will require very little maintenance. However, a routine maintenance program could prevent costly replacement of parts and/or downtime.



WARNING!

Do not work under lift without Maintenance Device! To avoid personal injury, NEVER go under the lift platform until the load is removed and the scissors mechanism is securely blocked in the open position and the appropriate OSHA lock-out/tag-out procedure is followed . See "Lift Blocking Instructions" section.

MONTHLY INSPECTION

1. Check oil level and add oil as necessary (see recommendations this section).
2. Check for any visible leaks. Correct as necessary.
3. Check any unusual noise when it occurs, take any necessary corrective action.
4. Check snap rings at all rollers. If missing or loose, replace/repair at once.
5. Check all rollers for signs of wear. Replace as necessary.
6. Do not grease roller or axles; they have lifetime-lubricated bearings.
7. Check all wiring for looseness or wear. Repair at once.
8. Check the set screws which capture cylinder trunnion pins. Tighten as needed.

OIL REQUIREMENTS

Change oil yearly, or more frequently if it darkens materially or feels gummy or gritty. Do not use hydraulic-jack oil, hydraulic fluids, brake fluids, or automatic transmission fluid.

ROUTINE MAINTENANCE

Oil Viscosity Recommendations

Environment (Ambient Temperatures)	Recommended Oil
Indoor location, variable temperatures (30 - 100° F)	10W30 or 10W40 Multiviscosity motor oil
Indoor location, consistent Temperatures (70° F)	SAE-20W motor oil
Outdoor location, (-10 - 100° F)	SAE 5W30 Multiviscosity motor oil
Cold-storage warehouse (10 - 40° F)	5W30 Multiviscosity motor oil
Freezer (-40° F to 0° F)	Consult Factory

OIL CAPACITY

Standard polyethylene tank capacity is approximately five quarts.

POWER UNIT

Battery (DC) Standard

- 12 volt battery operated
- Internal power unit

Electric (AC)

- 115/60 single phase ¾ hp “super-torque” motor
- Full load AMP draw - 16.6
- Fuse size – 45 AMPs
- Circuit breaker – 40 AMPs

Pneumatic

- Internal air power unit
- Minimum working pressure 80 psi @ 110 cfm

GENERAL MAINTENANCE



WARNING!

Before installing lift, read & follow the recommended safety practices in the Safety Practices section. Failure to follow these safety practices could result in death or serious injury.

CYLINDER REMOVAL AND REPACKING

1. Raise the lift to its full height and block securely. See “Lift Blocking Instructions”.
2. Cut off the electricity to the power unit (lock out-tag out).
3. Disconnect the cylinder hose at the power unit end and insert it into the oil-fill hole of reservoir.
4. Loosen the setscrew in the cylinder upper clevis.
5. Remove the cylinder pin from the upper clevis.
6. Lift the cylinder out of the leg assembly.
7. Push the piston rod into the cylinder to eject as much oil as possible into a container.
8. Insert a Spanner wrench and turn the upper bearing assembly clockwise until the tip of the retainer appears in the slot. Place a small screwdriver under the retainer and turn it until the retainer is completely removed.
9. Be sure the hose port is open to allow air into the cylinder. Pull the piston rod out to remove the upper bearing.
10. After all of the internal components have been removed, use a bright light to inspect the inner walls of the barrel. Use a cylinder hone to remove any apparent nicks or scratches. Clean and flush the barrel after honing.
11. Remove the piston head nut from the rod. The upper clevis and pin may be used to prevent rotation of the rod while loosening. Remove the old piston.
12. Inspect the groove for nicks or scratches that could affect the seal or barrel walls; remove as necessary.
13. Install the new piston, seals, and rod wiper.

GENERAL MAINTENANCE

14. Check the piston head nut for tightness and torque to 600-650 ft. lbs on 3 ½” bore cylinders or 850-950 ft. lbs. on 4” bore cylinders. The upper clevis and pin may be used to prevent the rotation of the rod while tightening.
15. Liberally lubricate the piston and seal with CLEAN grease or oil.
16. Reinsert the piston into the barrel, taking care not to pinch or nick the new seal.
17. Slip the bearing assembly into place and align the retainer hole with the slot in the barrel.
18. Turn the bearing with the Spanner wrench until the retainer is reinserted completely.
19. Pull up the rod and reinstall the upper clevis pin and setscrew.
20. Reconnect the cylinder hose.
21. Check that the lag bolts are secure after checking all pins and other mechanical and hydraulic components.
22. Restore the oil level (see oil recommendations in the “Routine Maintenance” section).
23. Turn on the electrical power and press the “UP” button. It may take a few seconds to fill the empty cylinders. Raise the tilter approximately one inch and remove the maintenance block.
24. Lower the lift completely and hold the “DOWN” button for 60 seconds to allow air in the cylinders to bleed back into the tank.
25. Raise the lift to 25 – 50% of its full travel, then lower fully holding the “DOWN” button for an additional 60 seconds. Repeat this step 8 – 10 times.
26. Check the oil level (see oil requirements).
27. Clean the oil fill breather cap.

PIPE THREAD SEALANT

Loctite PST #567 pipe thread sealant or equivalent is recommended. **Do not use Teflon tape.** Tape fragments can cause malfunctioning of the hydraulic system.

GENERAL MAINTENANCE

VELOCITY FUSE REPLACEMENT



DANGER!

Do not attempt to remove the velocity fuse until the lift is securely supported with the maintenance locking devices and all hydraulic pressure has been removed from the lifting cylinders and hydraulic hoses. Failure to follow these instructions could result in personal injury or death!

Never attempt to take a velocity fuse apart and repair it. These are precision devices that are factory assembled under exacting conditions. Velocity fuses should always be replaced.

1. The arrow on the exterior surface of the velocity fuse shows the direction of the restriction to the oil flow. The arrow should always point away from the cylinder.
2. **Do not use Teflon tape on the threaded connections of a velocity fuse.** Tape fragments can cause malfunctioning of the fuse.
3. Check all fitting connections for hydraulic leaks and tighten as necessary.

HOSE ORIENTATION

To prevent damage to the cylinder hose and possible failure of lift, it is necessary to establish a correct hose shape and pattern of movement as follows:

1. Raise the lift to its full height and block securely. See "Lift Blocking Instructions".
2. Install one end of the new hose to the cylinder elbow fitting.
3. Since the hose is fixed at both ends, it is possible to put a twist in the hose that will allow it to describe the same pattern each time the lift is operated. This twist will allow the hose to travel about half way between the cylinder on the right side and the inner leg on the right side.
4. Lower the lift carefully and check to see that the hose is free and clear of the cylinder and the inner leg assembly. If not, twist the hose in the direction necessary to clear it of any obstruction and then lock the swivel fitting securely.

GENERAL MAINTENANCE

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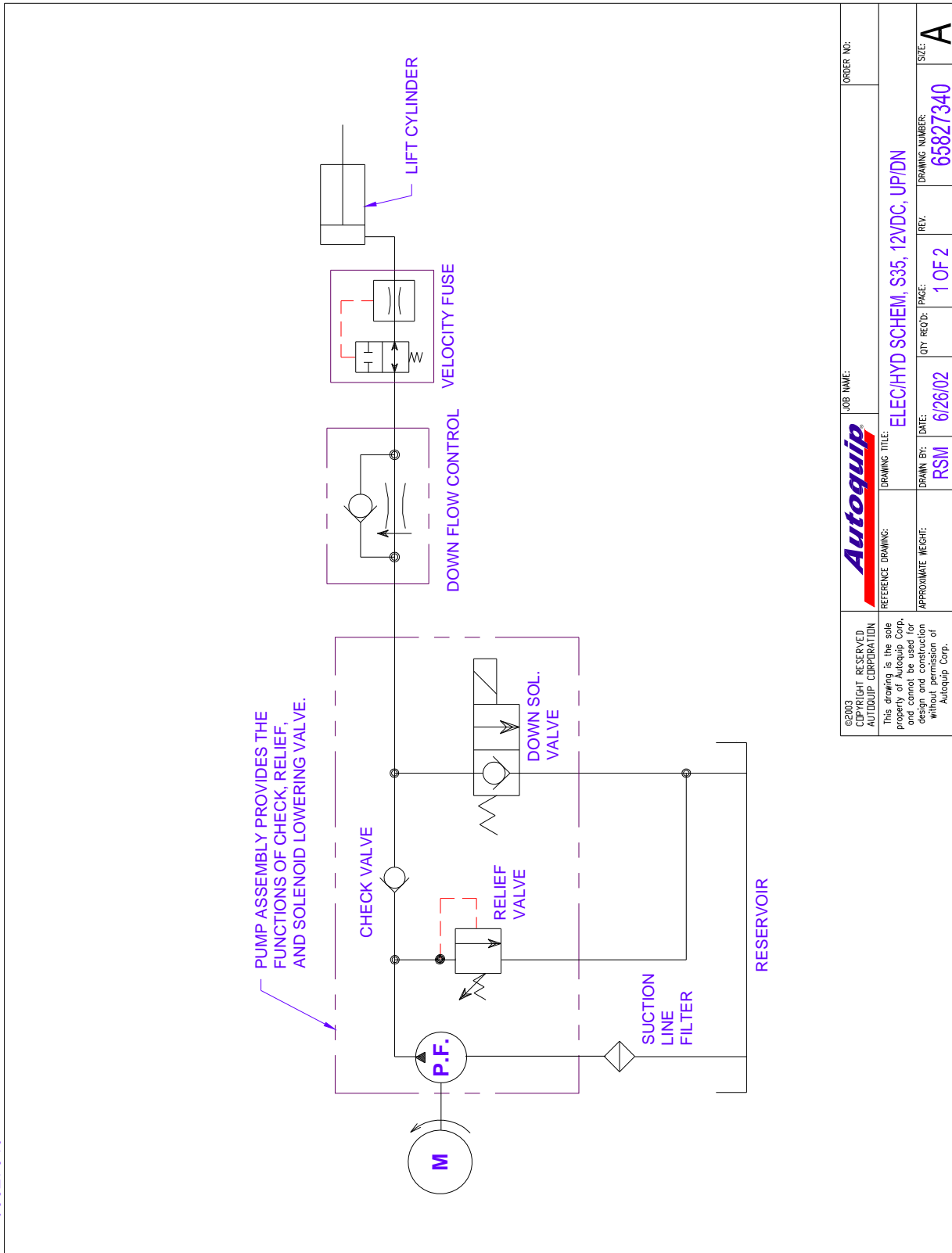


Figure 11 Hydraulic Schematic

GENERAL MAINTENANCE

WIRING AUTOQUIP "SUPER TORQUE" MOTORS

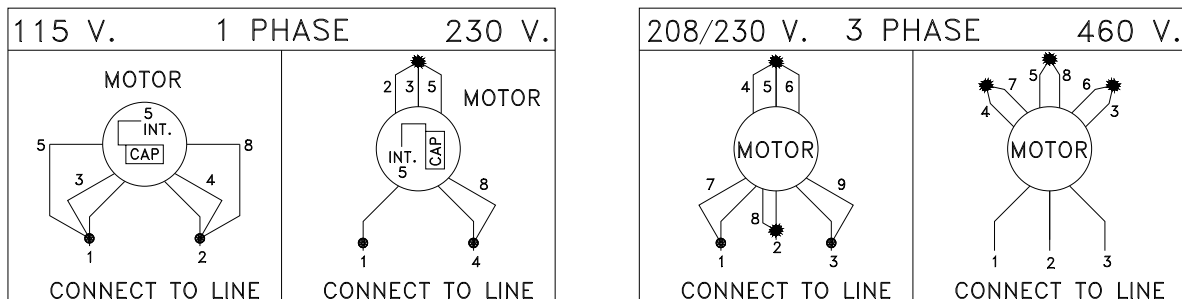
Because *Autoquip* "Super-Torque" motors actually deliver substantially more horsepower than their nameplate rating, they must always be wired for heavier current-draw than standard motors of the same nameplate rating. However, because of the "Super-Torque" motor's starting efficiency and superior running characteristics, circuit components do not have to be as large as for standard motors of equal delivered horsepower.

The following chart should be observed in connecting these motors to power sources, remembering that, where 115-Volt operation is contemplated, the current-draw is too heavy for plugging into ordinary lighting circuits. Heavy wire must be used all the way to the power-source.

HP and Source	Fuse Size	Circuit Breaker
½ HP / 115 V/60 CY/1 PH	45 A	40 A
¾ HP / 115 V/60 CY/1 PH	45 A	40 A
¾ HP / 230 V/60 CY/1 PH	25 A	20 A
1½ HP / 208-230 V/60 CY/3 PH	15 A	10 A
1½ HP / 460 V/60 CY/ 3 PH	7.5 A	5 A

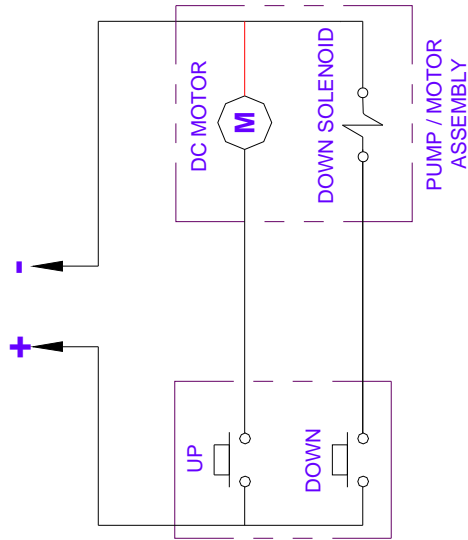
NOTE: For larger horsepower motors, consult factory.

MOTOR CONNECTION DIAGRAMS



GENERAL MAINTENANCE

65827340

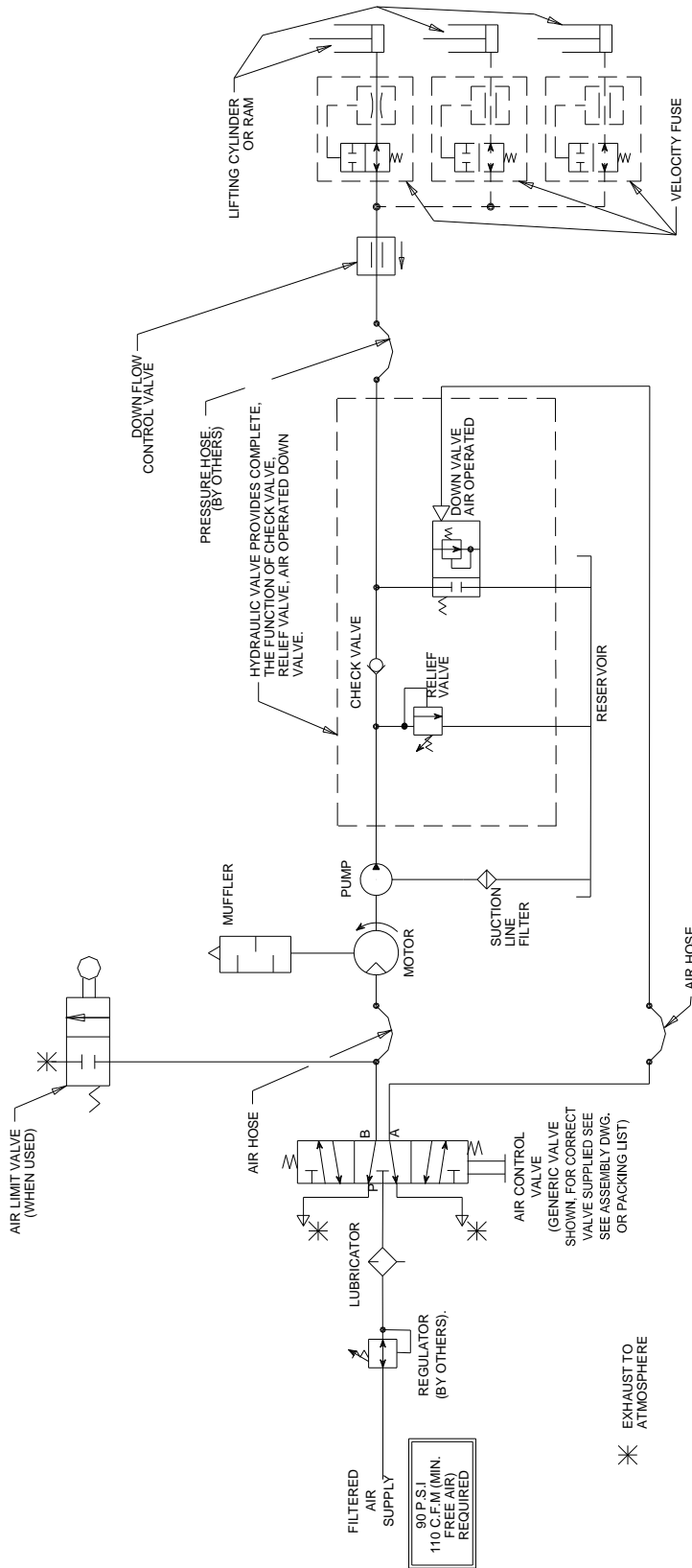


©2003 COPYRIGHT RESERVED AUTOQUIP CORPORATION This drawing is the sole property of Autoquip Corp. and cannot be used for design and construction without permission of Autoquip Corp.	Autoquip REFERENCE DRAWING:		JOB NAME:		ORDER NO:		
	DRAWING TITLE: ELEC/HYD SCHEM, S35, 12VDC, UP/DN		DRAWN BY: RSM		DATE: 6/26/02		
APPROXIMATE WEIGHT:		QTY RECD: 2 OF 2		REV:		DRAWING NUMBER: 65827340	
SIZE:		A		SIZE:		A	

Figure 12 Electric Schematic; 12VDC

GENERAL MAINTENANCE

65825000



QUANTITY OF CYLINDER / RAMS AND VELOCITY FUSES DEPENDS ON THE MODEL OF LIFT USED.
(1) VELOCITY FUSE PER CYLINDER / RAM.

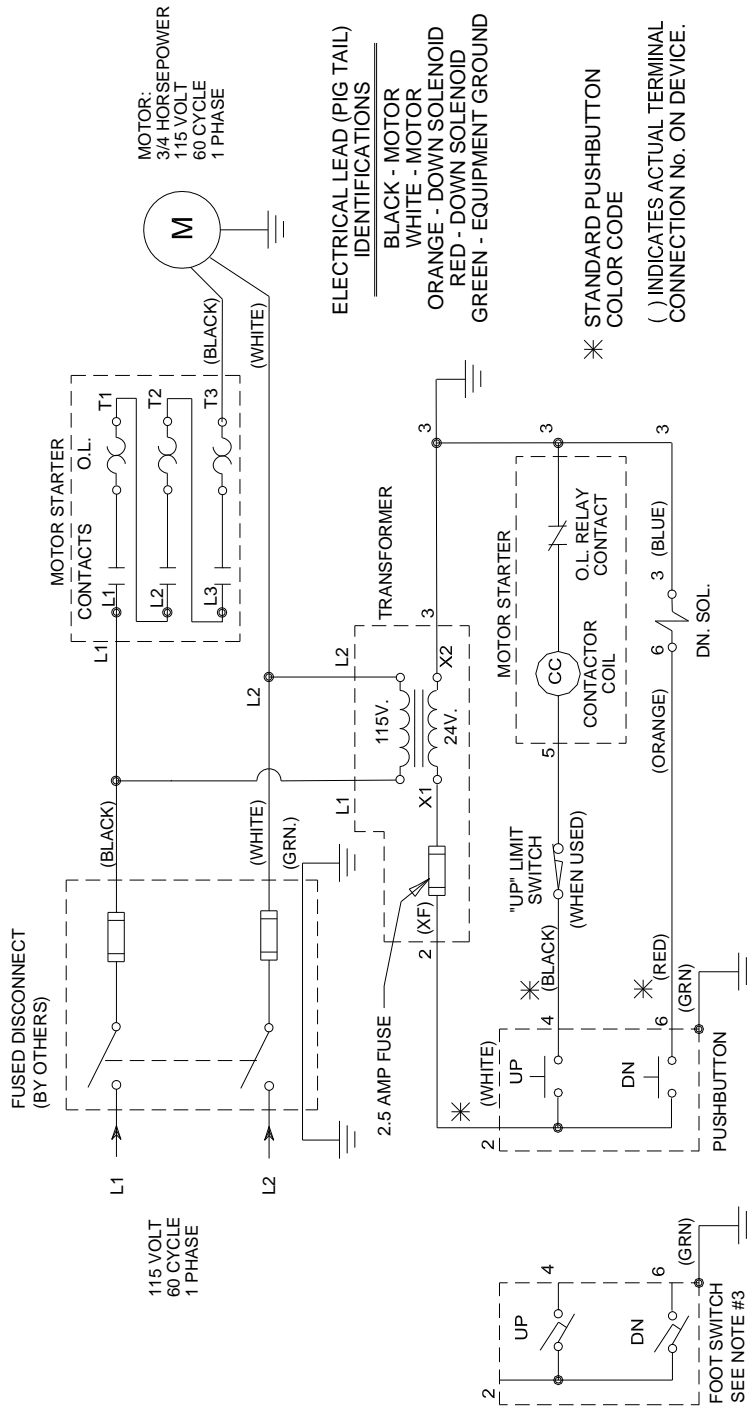
AIR / HYDRAULIC SCHEMATIC

©2002 COPYRIGHT RESERVED AUTOQUIP CORPORATION This drawing is the sole property of Autoquip Corp. and may not be used for design and construction without permission of Autoquip Corp.	REFERENCE DRAWING: 65808750	DRAWING TITLE: AIR/HYD. SCHEM FOR AIR MOTOR P.U. - DELTA	ORDER NO.:
	APPROXIMATE WEIGHT: TB	DRAWN BY: DATE: TB 8/22/00	QTY. REQ'D: PAGE: 1 OF 1
			SIZE: A

Figure 13 Air Schematic

GENERAL MAINTENANCE

65807448



NOTES:

1. MOTOR STARTER, CONTROL TRANSFORMER, OVERLOADS, AND FUSES TO BE MOUNTED IN NEMA 1 ENCLOSURE, PRE-WIRED, AND MOUNTED TO POWER UNIT.
2. TRANSFORMER PRIMARY CONNECTION DIAGRAMS ARE LOCATED ON INSIDE OF FRONT COVER.
3. OPTIONAL FOOTSWITCH W/ GUARD (NEMA 1) SHIPPED LOOSE WHEN ORDERED. TO BE INSTALLED AND WIRED (BY OTHERS)

ELECTRICAL SCHEMATIC

TYPICAL PILOT CONTROLS ONLY

1	REDRAWN, PUT ON CAD, REVISED THRU-OUT FOR ABB.	SS	7/22/94
REV DESCRIPTION		BY	DATE
JOB NAME: _____ ORDER NO: _____			
REFERENCE DRAWING: _____		DRAWING TITLE: _____	
APPROXIMATE WEIGHT: _____		DATE: _____	REV: _____
SC	3/31/88	1 OF 1	1
DRAWN BY: _____		DRAWING NUMBER: _____	SIZE: _____
DATE: _____		65807448	A
STD WIRING SCHEMATIC, SERIES 35,3/4 HP/115 V/1 PH			



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Figure 14 Electric Schematic; 115V/1Ph

GENERAL MAINTENANCE

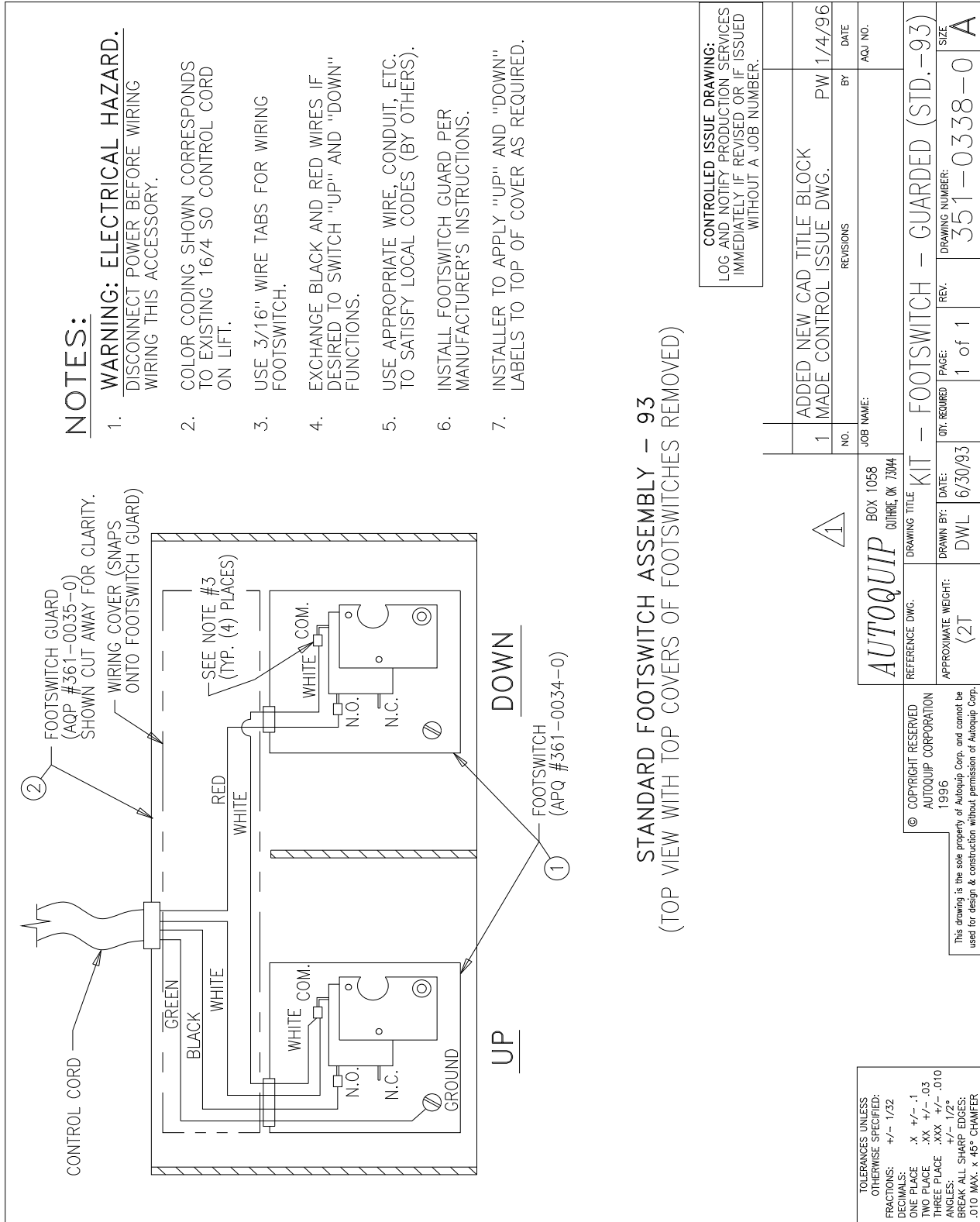


Figure 15 Guarded Footswitch Assembly

REPLACEMENT PARTS LIST

PART #	DESCRIPTION
MECHANICAL	
20046320	Swivel Caster with 5" Dia. Wheel
20046314	Rigid Caster with 5" Dia. Wheel
20079430	Floor Lock (Must have mounting bracket on base)
22688154	Cylinder Pin Set Screw
24002016	MolyKote Washer, 1 1/8" x 1/64" thick
24094518	Plastic Washer, 1 1/2"
45400082	Retaining Ring, 1 1/8"
52500253	Roller Pin, 1 1/8" diameter x 1 3/4" long
52502705	Clevis Pin, 1 1/8" diameter x 2" long
52503141	Cylinder Pin, 1 1/8" diameter x 6 1/4" long
52600269	Roller Assembly, 3" OD x 1 1/8" ID
60950003	"T" Handle Assembly
POWER UNITS - DC	
64309400	Internal 12V DC Power Unit Complete (For 36" & 48" Travel) With Pendant Pushbutton
64309405	Internal 12V DC Power Unit Complete (For 36" & 48" Travel) With Foot Switch
37200242	Battery Charger, 115VAC to 12V DC
37200220	Battery, 12V DC
37200320	Battery 'Hold Down' Cross Bar
37200330	Bolt, for Cross Bar
37200310	Battery Cable, Red
36202150	Pendant Pushbutton UP-DOWN' on Straight Cord
35103380	Foot switch with Foot Guard
30400310	12V DC Motor & Pump for above Power Unit
37200219	Battery Cable- 1/0 Ga. (per foot)
35000579	Electrical Junction Box
POWER UNITS - AIR	
20019006	Air Mite Cylinder
28003234	Pneumatic Lubricator
40800013	Air Motor with Muffler
40900029	Muffler
41400755	4-Way Valve, Lever Operated

REPLACEMENT PARTS LIST

PART #	DESCRIPTION
POWER UNITS - AC	
20001137	Tongue & Groove Coupling
32701290	Down Solenoid Coil, 24 VAC
35105130	Pump, 1.4 GPM/3450 RPM with 24VAC coil
41050139	Suction Strainer
41501776	Flow Control
30000020	Motor, ¾ HP/1 PH
30300016	Motor, 1 ½ HP/3 PH
33000680	Transformer
34000018	Limit Switch
34000257	Limit Switch Arm
35103380	Foot Switch and Guard
35107910	Control Assembly 115V/1PH
36201730	Pushbutton Assembly, NEMA-4, Pendant with magnets
CYLINDERS & COMPONENTS	
41800566	Velocity Fuse, 2 cylinder models
41800681	Velocity Fuse, 1 cylinder models
42700741	Cylinder Assembly, Models 24S25, 24S60; 3 ½" Bore x 4 ¼" Stroke
42700751	Cylinder Assembly, Models 36S25, 36S60; 3 ½" Bore x 7" Stroke
42700761	Cylinder Assembly, Models 48S25, 48S60; 3 ½" Bore x 9" Stroke
42800861	Cylinder Assembly, Models 24S40; 4" Bore x 4 ¼" Stroke
42800871	Cylinder Assembly, Models 36S40; 4" Bore x 7" Stroke
42800881	Cylinder Assembly, Models 48S40; 4" Bore x 9" Stroke
45503080	Packing Kit, 3 ½" Bore Cylinder
45503150	Packing Kit, 4" Bore Cylinder
47900006	Vent Plug

TROUBLESHOOTING ANALYSIS



DANGER!

To avoid personal injury, **NEVER** go under the lift platform until the load is removed and the scissors mechanism is securely blocked in the open position. See "Lift Blocking Instructions" section.

PROBLEM	POSSIBLE CAUSE AND SOLUTION
Lift raises, then lowers back slowly.	<ul style="list-style-type: none"> • The "Down" solenoid may not be seating. Remove the solenoid coil and check again. If the lift does not hold with the solenoid coil removed, the down valve cartridge should be removed and cleaned or replaced as necessary. • The oil line, hose, or fitting may be leaking. Check and repair if necessary. • The "check valve" in the pump assembly may not be seating. This is indicated by the pump shaft and motor turning backward on their own with no power applied. Generally, this condition can be heard. Replace the pump assembly.
Lift lowers very slowly.	<ul style="list-style-type: none"> • The battery may not be charged. Charge battery. • The down-solenoid is not operating properly due to dirt or damage. • Check for pinched tubing or hose. Where pipe is used, check for obstruction in the line. • The oil is extremely viscous due to low ambient temperatures. Add or replace with lower weight oil that stays thinner in cold conditions (5W-15, etc.)

TROUBLESHOOTING ANALYSIS

PROBLEM	POSSIBLE CAUSE AND SOLUTION
Lift does not raise.	<ul style="list-style-type: none"> • The battery may not be charged. Charge battery. • Check for a line or hose leak. • Check for oil shortage in the reservoir. Add oil as necessary (See Oil Requirements in the “Routine Maintenance” section.) • The load may exceed the rating. (See the “Specifications” section.) Remove the excess load. • The suction screen may be clogged, starving the pump. Remove and clean the screen. Drain and replace the oil. • The suction line may be leaking air due to a loose fitting. Tighten as needed. • The breather holes in the reservoir fill plug may be clogged. Remove and clean. • The voltage at the motor terminals may be too low to run the pump with the existing load. Check by measuring the voltage at the motor terminals, or as near as possible, <u>while the pump is running under load</u>. Reading the source voltage or pump-idling voltage is meaningless. Inadequate or incorrect wiring can starve the motor when the source voltage is ample. Correct as necessary. • The "Down" valve may be energized by faulty wiring or stuck open. Remove the solenoid and check. • The motor may be single phasing. Check wiring, fuses, etc. • The pump may be seized if motor is humming or blowing fuses on overload protection devices. Remove the pump. The pump should be able to be rotated by hand. Check for cracks in the housing. • The down solenoid valve stem may be bent, causing the valve to be stuck open. Replace the down solenoid valve.

TROUBLESHOOTING ANALYSIS

PROBLEM	POSSIBLE CAUSE AND SOLUTION
Lift won't lower.	<ul style="list-style-type: none"> • The solenoid coil may be incorrectly wired, burned out, not rated for the voltage, or the line voltage may be excessively low. Check voltage near the coil. • The velocity fuse may be locked. Do not attempt to remove the velocity fuse. The following steps should be followed: <ol style="list-style-type: none"> 1. Remove the load from the lift. Inspect all fittings, hoses, and other hydraulic components for leaks or damage. 2. If no leak or damage is noticed, attempt to pressurize the lifting cylinder by depressing the "UP" button on the controller for a few seconds. Immediately up releasing the "UP" button, depress the "DOWN" button. If the lift starts to lower, continue pressing the "DOWN" button until the lift is in the fully lowered position. 3. If the lift does not lower after trying Step 2, wait approximately 10 – 15 minutes for the pressure in the hydraulic system to equalize. Then, depress the "DOWN" button until the lift is in the fully lowered position. 4. Once the lift is in the fully lowered position, bleed the air from the hydraulic system by depressing the "DOWN" button. Hold the "DOWN" button for approximately 60 seconds. This step may need to be repeated several times to fully remove the air in the system by raising the lift to 50% of its travel and lowering. • Should the above steps not correct the problem, contact <i>Autoquip</i> to obtain instruction for further action.

TROUBLESHOOTING ANALYSIS

PROBLEM	POSSIBLE CAUSE AND SOLUTION
Lift seems bouncy during operation.	<ul style="list-style-type: none"> • Battery connections may be loose. Check connections. • Lower the lift to collapsed position and continue to hold "DOWN" button an additional 10-30 seconds to bleed air from the cylinder. Do not confuse spongy or jerky operation with small surges that may occur when operating on rough or uneven floors • Check for oil starvation.
Motor labors or heats excessively.	<ul style="list-style-type: none"> • The voltage may be low. Check at the motor terminals while the pump is <u>running loaded</u>, not at the line source or while the pump is idling. Inadequate wiring can starve the motor even when the source voltage is ample. • Most of <i>Autoquip's</i> standard motors are rated for intermittent duty (two minute run times with two minute rests). If a single-phase motor is being run more than 15 – 20 motor starts per hour, or a 3-phase motor more than 200 starts per hour, the problem may be motor over-heating. • Running against relief pressure unnecessarily due to over loaded lift or hitting physical stops. • Failure to observe wiring diagram on nameplate for proper voltage connections. • The pump may be binding from oil starvation, which develops high internal heat. Check for low oil level or closed breather holes in the reservoir fill plug. The pump can be irreparably damaged by oil starvation and may have to be replaced.

LIMITED WARRANTY

The user is solely responsible for using this equipment in a safe manner and observing all of the safety guidelines provided in the Owner's Manual and on the warning labels provided with the lift. If you are unable to locate either the manual or the warning labels, please contact Autoquip or access www.autoquip.com for replacement downloads or information.

Autoquip Corporation expressly warrants that this product will be free from defects in material and workmanship under normal, intended use for a period of Two (2) Years for Labor and all electrical, mechanical, and hydraulic components, parts or devices, and warrants the structure of the lift against breakage or failure for a period of Five (5) years. The warranty period begins from the date of shipment. When making a claim, immediately send your dealer or Autoquip notice of your claim. All claims must be received by Autoquip within the warranty time period. The maximum liability of Autoquip, under this Limited Warranty, is limited to the replacement of the equipment.

This warranty shall not apply to any Autoquip lift or parts of Autoquip lift that have been damaged or broken in transit/shipping, or due directly or indirectly to misuse, abuse, vehicle impact, negligence, faulty installation, fire, floods, acts of God, accidents, or that have been used in a manner contrary to the manufacturer's limitations or recommendations as stated in the manual, or that have been repaired, altered or modified in any manner outside of Autoquip Corp's manufacturing facility or which have not been expressly authorized by Autoquip.

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

Autoquip Corporation's obligation under this warranty is limited to the replacement or repair of defective components at its factory or another location at Autoquip Corp's discretion at no cost to the owner. This is owner's sole remedy. Replacement parts (with exception of electrical components) will be warranted for a period of ninety (90) days. Except as stated herein, Autoquip Corporation will not be liable for any loss, injury, or damage to persons or property, nor for direct, indirect, or consequential damage of any kind, resulting from failure or defective operation of said equipment. All parts used to replace defective material must be genuine Autoquip parts in order to be covered by this Limited Warranty.



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