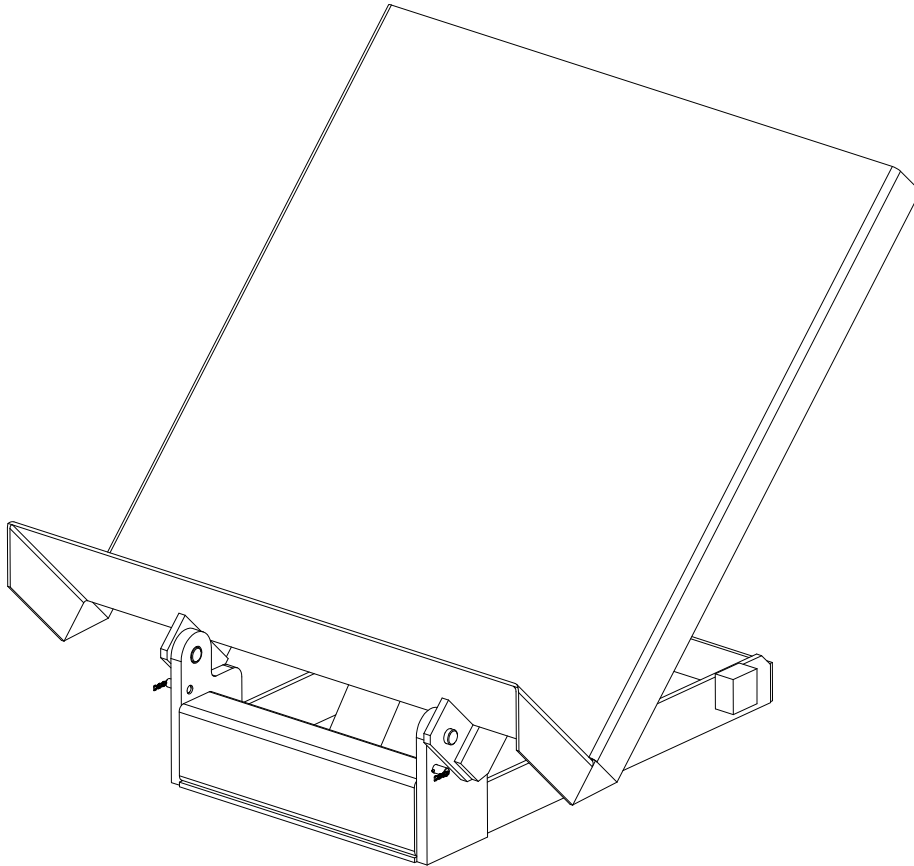


INSTALLATION, OPERATION AND SERVICE MANUAL

SERIES 35 TILTER



P.O. Box 1058 • 1058 West Industrial Avenue • Guthrie, OK 73044-1058 • 888-811-9876
405-282-5200 • FAX: 405-282-3302 • www.autoquip.com

Item # 830STE

Version 2.0
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IMPORTANT

Please read and understand this manual prior to installation or operation of this tilter. 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

PLEASE HAVE THE MODEL NUMBER AND SERIAL NUMBER of the tilter, when ordering parts or requesting information or service. This information is on the nameplate attached to the tilter assembly. Replacement parts are available from a local *Autoquip* distributor.

INSPECTION

Immediately upon receipt of the tilter, 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 tilter 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 equipment:

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 tilter and inspect the base frame, platform, 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 tilter shall be inspected and maintained in proper working order in accordance with Autoquip's operating & maintenance manual (O&M) and with other applicable safe operating practices.

REMOVAL FROM SERVICE

Any tilter not in safe operating condition such as, but not limited to, excessive leakage, missing 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 tilter.

BEFORE OPERATION

Before using the tilter, the operator shall have:

- Read and/or had explained, and understood, the manufacturer's operating instructions and safety rules.
- Inspected the tilter 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 tilter.

DURING OPERATION

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

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

MODIFICATIONS OR ALTERATIONS

Modifications or alterations to industrial tilting 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 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 this tilter. All labels are provided in accordance with ANSI Z535.4.



DANGER!

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



DANGER!

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



DANGER!

Do not install the tilter in a pit unless it has a bevel toe guard or other approved toe protection. A shear point can exist which can cause severe injury to the foot.



DANGER!

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

SAFETY PRACTICES



DANGER!

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



WARNING!

NEVER stand, sit or ride on the tilter.



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 down flow control valve or any type of hydraulic component until the both maintenance pins are securely supporting the tilter and all hydraulic pressure has been removed from the tilting cylinders and hydraulic hoses. Failure to do so could result in personal injury or death!



WARNING!

Tilter platforms traveling below floor levels may create openings, and the shape of the load and how the load is arranged on the tilter may create a toe hazard as the load passes the top edge of the pit. Both situations may require guarding (by others) in accordance with Federal Regulations. Any such guarding must be installed prior to operating the tilter.

SAFETY PRACTICES

CAUTION!

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

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 tilter 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 tilter. See “Specifications” section.

LABEL IDENTIFICATION

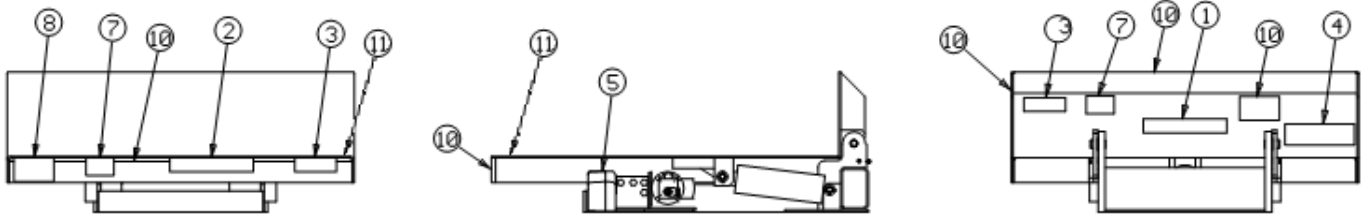


Figure 1: Label Placement Diagram

Series 35 Tilter Label Information			
Item No.	Qty	Description	Part No.
1	2	Caution – Familiarize Yourself with Operators Manual	36401487
2	2	Caution – Do Not Go Under Platform . . .	36400679
3	2	Warning – No Riders	36403707
4	1	Autoquip Serial Number Nameplate	36401560
5	1	Fill with Recommended Oils Only	36400661
7	2	Capacity	36401586
8	1	Warning – Stay Clear When Tilted	36403822
9	1	Warning – Stand Clear When Tilting	36403830
10	1	Safety Striping	06100010
11	1	Decal, 4x4, Wire Code Identification	36403343

LABEL IDENTIFICATION

Note: Labels shown here are not actual size.



Figure 2: Label 36401487



Figure 3: Label 36400679

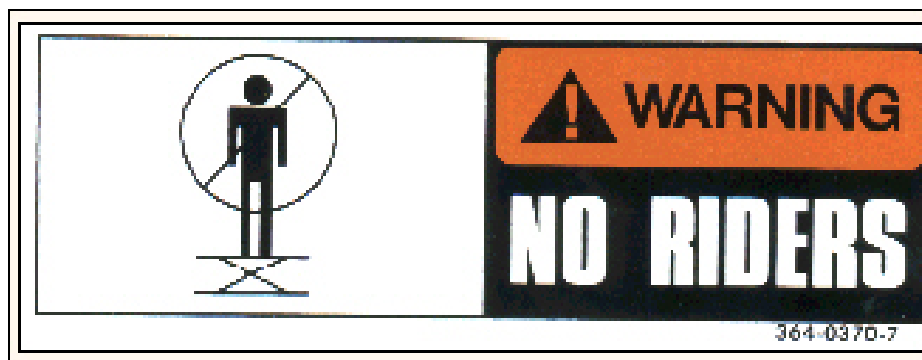


Figure 4: Label 36403707

LABEL IDENTIFICATION

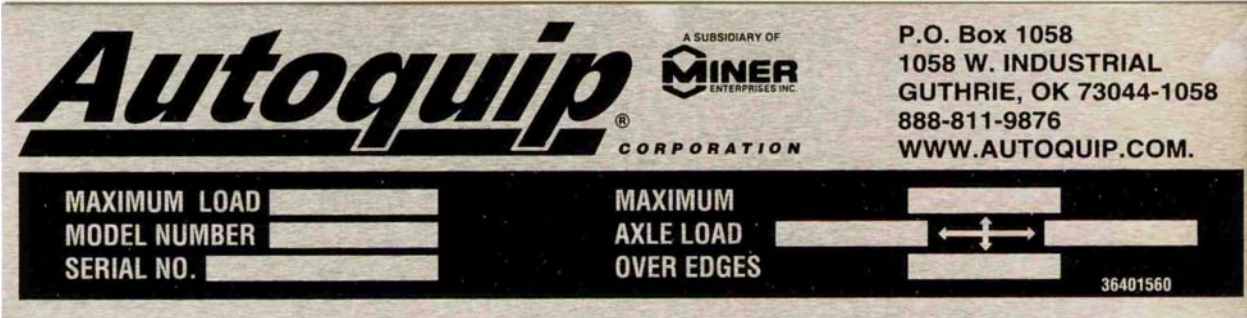


Figure 5: Label 36401560



Figure 6: Label 36400661



Figure 7: Label 36401586

LABEL IDENTIFICATION



Figure 8: Label 36403822



Figure 9: Label 36403830

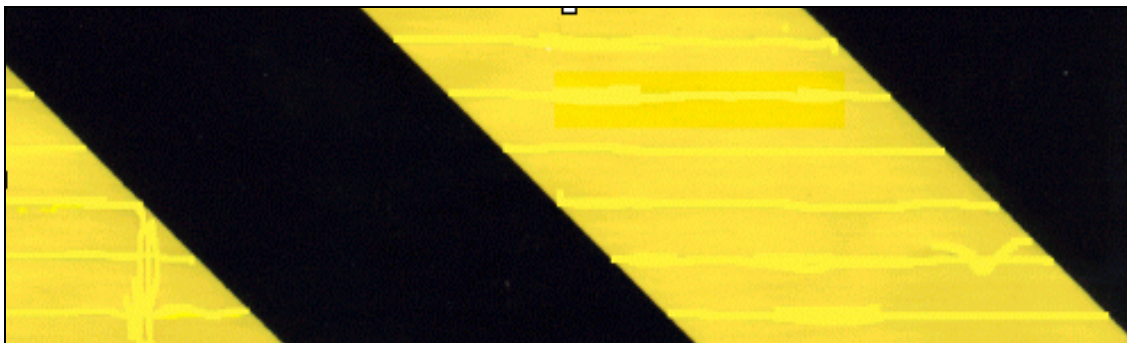


Figure 10: Label 06100010

SPECIFICATIONS

Series 35 Model #	Capacity (pounds)	Travel	Lowered Height (Inches)	Standard Platform (Inches) (W x L)	Base Size	Raising/Lowering Time (seconds)	Electric Motor (hp)	Shipping Weight (Pounds)
STE-30-25-4	2500	30	8	44 x 44	24 x 41	5	1.5	500
STE-45-25-4	2500	45	8	44 x 44	24 x 41	8	1.5	225
STE-30-25-5	2500	30	8	50 x 50	24 x 41	5	1.5	530
STE-45-25-5	2500	45	8	50 x 50	24 x 41	8	1.5	600
STE-30-40-4	4000	30	8	44 x 44	24 x 41	5	1.5	525
STE-45-40-4	4000	45	8	44 x 44	24 x 41	8	1.5	550
STE-30-40-5	4000	30	8	50 x 50	24 x 41	5	1.5	625
STE-45-40-5	4000	45	8	50 x 50	24 x 41	8	1.5	650
STE-30-60-4	6000	30	8	44 x 44	24 x 41	5	1.5	550
STE-45-60-4	6000	45	8	44 x 44	24 x 41	8	1.5	575
STE-30-60-5	6000	30	8	50 x 50	24 x 41	5	1.5	650
STE-45-60-5	6000	45	8	50 x 50	24 x 41	11	1.5	675
STE-90-20	2000	90	8	50 x 50	24 x 41	11	1.5	750
STE-90-40	4000	90	8	50 x 50	24 x 41	22	1.5	800
STE-90-60	6000	90	8	50 x 50	24 x 41	33	1.5	850

LOAD CAPACITY The load capacity rating is stamped on a metal plate attached to one side of the tilter. This figure is a net capacity rating for a tilter furnished with the standard platform. The relief valve of the pumping unit has been set to raise the weight, plus a small amount for overload.



DANGER!

Do not make modifications to the tilter without authorization from the manufacturer. Autoquip cannot foresee and is not responsible for injury or damage which results from the unauthorized modifications or misuse of the tilter.

SPECIFICATIONS

UNBALANCED LOADING The stabilization provided is basically for balanced loads. If special attachments extend beyond the length and/or width dimensions of the platform, the end and/or side load capacity is reduced. If the load is rolling onto the platform (in any but the fully-lowered position) the end and/or side load capacity is also reduced.

PUMP PRESSURE

This tilter incorporates a positive displacement pump machined to a high degree of accuracy and specially adapted to requirements of higher-pressure ranges over that of a standard pump. Therefore, standard factory models of the same manufacture cannot replace it.

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 tilter requirements.

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

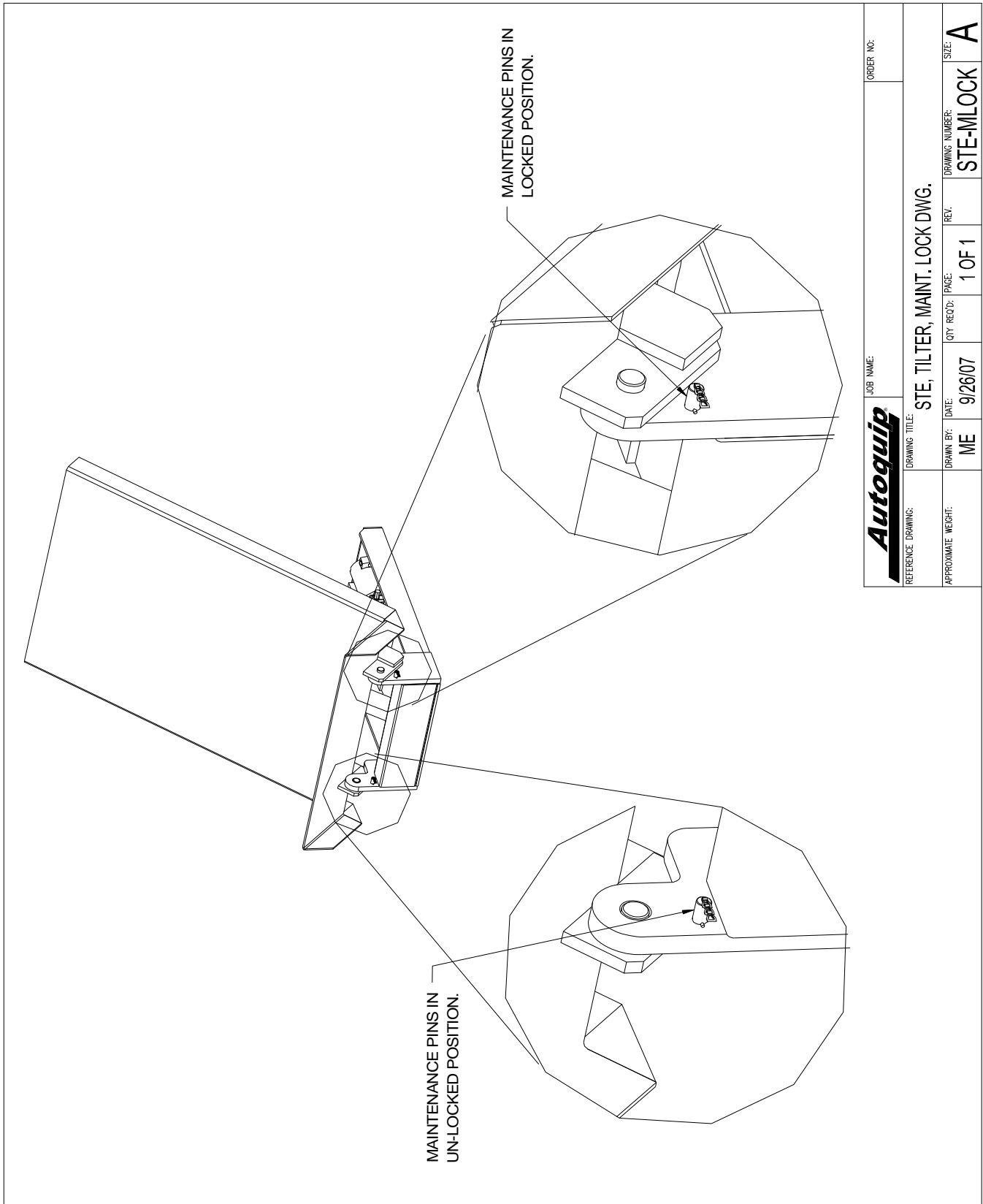
This procedure describes the only factory-approved method of working under a tilter. Follow these instructions EVERY time you plan to reach or crawl beneath the tilter to perform service or maintenance – no matter how momentary that might be.

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 loads must be removed from the tilter prior to engaging the maintenance devices. These devices are designed to support an unloaded unit only. Failure to remove the load from the tilter prior to blocking could cause the failure of the maintenance devices and allow the tilter to fall unexpectedly. This can result in personal injury or death, or permanent damage to the maintenance devices and/or the equipment.
2. Raise the platform sufficiently to insert both maintenance pins in the Base Clevis outside hole. (See Figure 11). Use this same hole in the base clevis to store the pin on the inside hole.
3. Lower the tilter platform until the platform clevises make contact with both maintenance devices. Re-check to ensure that both devices are fully and properly engaged.
4. Always hold the down button, valve or switch for an additional 5-10 seconds to relieve all pressure in the hydraulic system, and the platform is supported entirely and safely on the maintenance pins.

BLOCKING INSTRUCTIONS

STE-MLOCK



Autoquip		JOB NAME:		ORDER NO.:
REFERENCE DRAWING:	DRAWING TITLE:	STE, TILTER, MAINT. LOCK DWG.		
APPROXIMATE WEIGHT:	DRAWN BY:	DATE:	QTY. REQ'D:	PAGE:
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			DRAWING NUMBER:	SIZE:
			STE-MLOCK	A

Figure 11: Tilter Blocking

BLOCKING INSTRUCTIONS



DANGER !

If for any reason you are unable to lower the tilter 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.



WARNING !

Failure to relieve operating system pressure could result in the sudden and unexpected release of high-pressure fluids during maintenance and/or repair of the tilter and result in severe injury or death.

5. 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.
6. 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



WARNING!

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

FLOOR INSTALLATION

1. Make sure installation area is clean before starting.
2. If the permanent electrical work is not complete, some means of temporary lines with an on-off device for the power supply should be set up for testing purposes.
3. Place the tilter in the installation area.

CAUTION!

When moving the tilter, do not attempt to pick it up by the platform; it is hinged and could be damaged. Pick up the tilter from under the base frame ONLY using a strap sling.

4. Make temporary electrical connections and permanent hydraulic connections. Raise the tilter approximately one foot using the “UP” button. Then lower it back to fully collapse, holding the “DOWN” button for approximately 60 seconds. Repeat this process five to seven times to bleed any air out of the hydraulic system.
5. Raise the tilter to the top of its travel and make positioning adjustments. Check for the proper height. If needed, shim to the desired height. **DO NOT** “spot” shim. Shim the full length of the base frame. This will prevent the frame from sagging under an exceptionally heavy load.
6. The base frame of the tilter has pre-drilled holes for lagging it securely to the floor. Mark the holes, drill, and install with anchors. Tilters with oversize platforms have minimum pull out requirements of 2,000 lbs. for each anchor.
7. Make permanent electrical connections and operate the tilter through a few cycles.

INSTALLATION INSTRUCTIONS



DANGER!

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

PIT INSTALLATION -- MODELS WITH BEVEL TOE GUARDS.



DANGER!

Do not install the tilter in a pit unless it has a bevel toe guard or other approved toe protection. A shear point can exist which can cause severe injury to the foot.

1. Check the pit dimensions. Length and width should be 2" minimum longer and wider than the tilter platform. See pit drawing for pit dimensions (Figure 12).
2. Check the case entrance into the pit. The diameter should be 3". If the permanent electrical work is not complete, some means of temporary lines with an on-off device for the motor should be set up for testing purposes.
3. Lower the tilter into the pit and check for proper height. The tilter should be solid and flush with the pit angle framing. If needed, shim to the desired height. DO NOT "spot" shim. Shim the full length of the base frame. This will prevent the frame from sagging under an exceptionally heavy load.

CAUTION!

When moving the tilter, do not attempt to pick it up by the platform; it is hinged and could be damaged. Pick up the tilter from under the base frame ONLY using a strap sling.

INSTALLATION INSTRUCTIONS

4. Make temporary electrical connections and permanent hydraulic connections. Raise the tilter approximately one foot using the “UP” button. Then lower it back to fully collapse, holding the “DOWN” button for approximately 60 seconds. Repeat this process five to seven times to bleed any air out of the hydraulic system.
5. Raise and lower the tilter to make positioning adjustments and align the platform in the pit with a proper clearance of $\frac{3}{4}$ ” minimum around the edges from the platform to the pit angle.



DANGER!

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

6. The base frame of the tilter has pre-drilled holes for lagging it securely to the floor. Mark holes, drill, and install with anchors. Tilters have minimum pull out requirements of 2,000 lbs. for each anchor.
7. Make the permanent electrical connections and operate the tilter through a few cycles.

CLEAN UP

1. Clean up any debris from the area. A clean installation makes a good impression and creates a much safer environment!
2. Touch-up paint is available from *Autoquip* for repair of damaged paint surfaces.



WARNING!

All DANGER, WARNING, and CAUTION labels and informational decals and plates must be intact and in place on the tilter. Contact an Autoquip representative if labels are missing or damaged. See “DANGERS, WARNINGS, and CAUTIONS” section of this manual.

SKIRT INSTALLATION

1. Position the tilter platform in the raised position. See Tilter Blocking Instructions.
2. The STE skirt is a (3) sided accordion skirt. Place the skirt on the floor in front of the tilt platform. If the tilter is mounted on a scissor lift, place the skirt on Lift Platform in front of the tilter. The Open End of the skirt should be positioned at the tilter clevis end (Lip end of the platform). Slide the skirt toward the tilter clevis end and position the open end of the skirt, even (flush) with the end of the tilt platform (Lip End). The skirt mounting collar should be at the top of the skirt and the skirt weight rod pockets placed on the bottom.

This initial skirt setup is typical for the Standard Inboard STE Skirt (as shown in Figures 12, 13 & 14) and Special STE Skirts as shown in Figures 15 and 16. (Drawing 82600950)

3. **Standard STE Skirt (Inboard Accordion Skirt) Mounted Underneath the Tilter Platform. (See Figures 12, 13 & 14)**

The skirt should be positioned directly under the platform mounting frame as described in paragraph 2 above. The first side mounting hole on the tilter platform (clevis end or Lip end of the platform) uses a 1/4"x 2"LG. bolt for skirt attachment. (See Detail B on Figure 13). Install this bolt at final skirt assembly. Raise the skirt top mounting collar to the underside of the platform skirt mounting frame. Position the skirt mounting bar (1/8" x 1" bar) over the mounting collar and align the mounting holes. (If available use spring loaded clamps to hold the skirt mounting collar in place). Punch holes in the skirt-mounting collar. Push a nylon drive rivet through each hole of the skirt mounting bar and platform mounting frame. Hammer the aluminum pin into the rivet until flush with the rivet head. Repeat mounting process for the remaining sides of the accordion skirt. After installation of the drive rivets, you need to install (1) 1/4" x 2"LG. bolt at the first side mounting hole (See Figure 13 Detail B). Gather 3 or 4 skirt top convolutions and raise them to the platform side mounting bar. Punch a hole in the (3 or 4) skirt convolutions and install the 1/4" x 2"LG bolt through the skirt and platform mounting bars. Install the 1/4" lock washer & hex nut above the platform mounting frame and tighten to retain the skirt. (Typical 2 places, see Figure 13 Detail B).

4. **Mounting 'Special' Outboard Perimeter Skirts: See Figure 15 & 16: Mounting the Accordion Skirt on the Platform Side.**

Raise one side of the skirt to (1) side of the platform. When possible, center the skirt-mounting collar and skirt-mounting bar (1/8" x 1") on each 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

SKIRT INSTALLATION

**5. Mounting 'Special' Inboard Perimeter Skirts: See Figure 15 & 16:
Mounting the Accordion Skirt Underneath the Platform along the Platform perimeter**

The skirt should be positioned directly under the platform mounting frame as described in paragraph 2 above. The first side mounting hole on the tilter platform (clevis end or Lip end of the platform) uses a 1/4"x 2"LG. bolt for skirt attachment. (See Detail B on Figure 15). Install this bolt at final skirt assembly. Raise the skirt top mounting collar to the underside of the platform skirt mounting frame. Position the skirt mounting bar (1/8" x 1" bar) over the mounting collar and align the mounting holes. (If available use spring loaded clamps to hold the skirt mounting collar in place). Punch holes in the skirt-mounting collar. Push a nylon drive rivet through each hole of the skirt mounting bar and platform mounting frame. Hammer the aluminum pin into the rivet until flush with the rivet head. Repeat mounting process for the remaining sides of the accordion skirt. After installation of the drive rivets, you need to install (1) 1/4" x 2"LG. bolt at the first side mounting hole (See Figure 15 Detail B). Gather 3 or 4 skirt top convolutions and raise them to the platform side mounting bar. Punch a hole in the (3 or 4) skirt convolutions and install the 1/4" x 2"LG bolt through the skirt and platform mounting bars. Install the 1/4" lock washer & hex nut above the platform mounting frame and tighten to retain the skirt. (Typical 2 places, see Figure 15 Detail B).

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

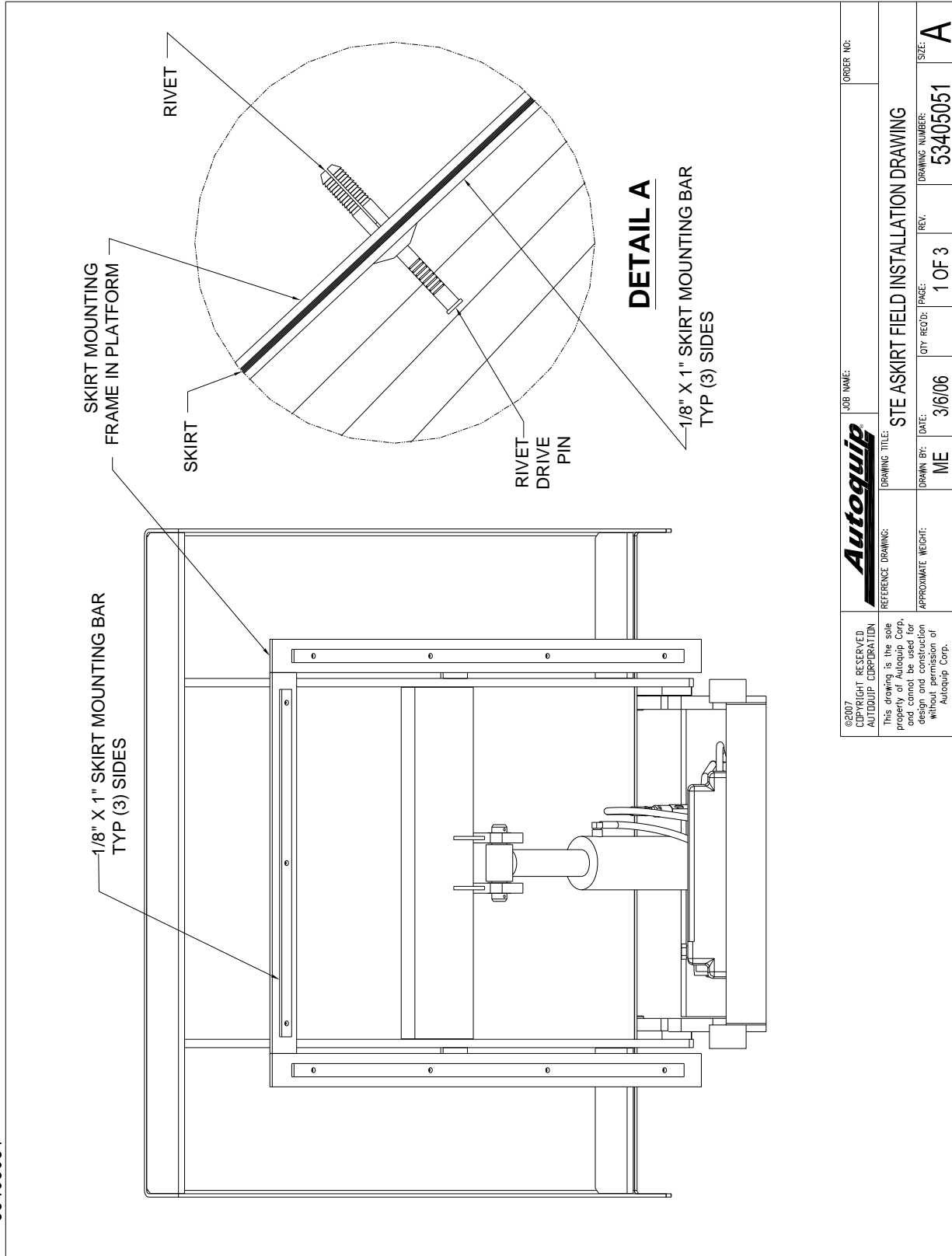
7. Mounting the Skirt to a Lift Platform: See Figure 16 Detail C.

Mount the skirt to the Tilter Platform prior to mounting the Lift Platform.

Mount the end of the skirt to the Lift Platform using the Bottom Skirt 'END' mounting collar only. Position the skirt mounting bar (1/8" x 1" bar) over the mounting collar and align with the platform mounting holes. Punch holes in the skirt-mounting collar. Push a nylon drive rivet through each hole of the skirt mounting bar and platform. Hammer the aluminum pin into the rivet until flush with the rivet head. Slide the Bottom Side Retainer Bar (Bolted to the Lift Platform) into the Skirt, Bottom Side mounting collar. This will retain the Bottom Side mounting collar of the skirt.

SKIRT INSTALLATION

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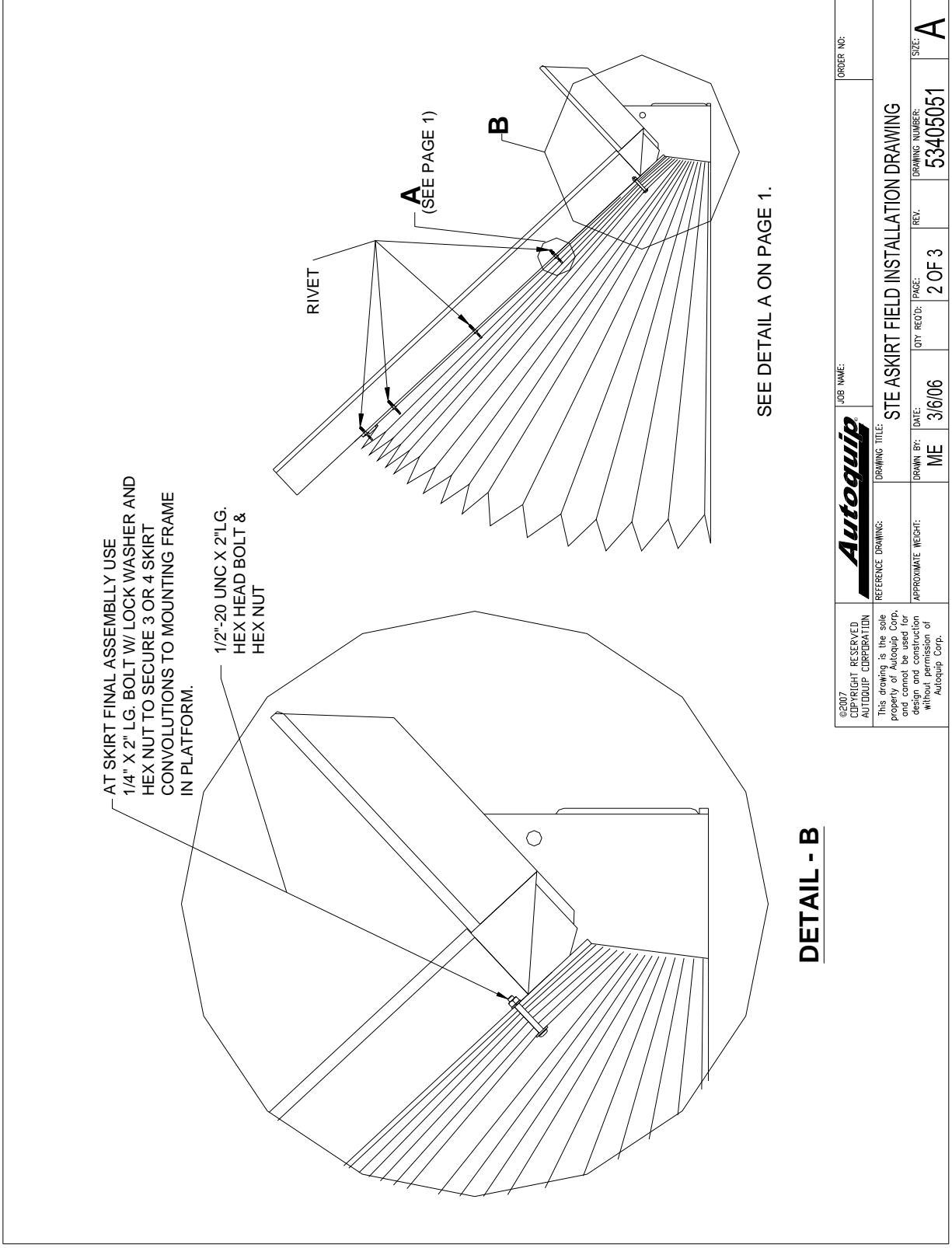


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Figure 12: Standard STE (Inboard) Skirt Installation

SKIRT INSTALLATION

53405051



SEE DETAIL A ON PAGE 1.

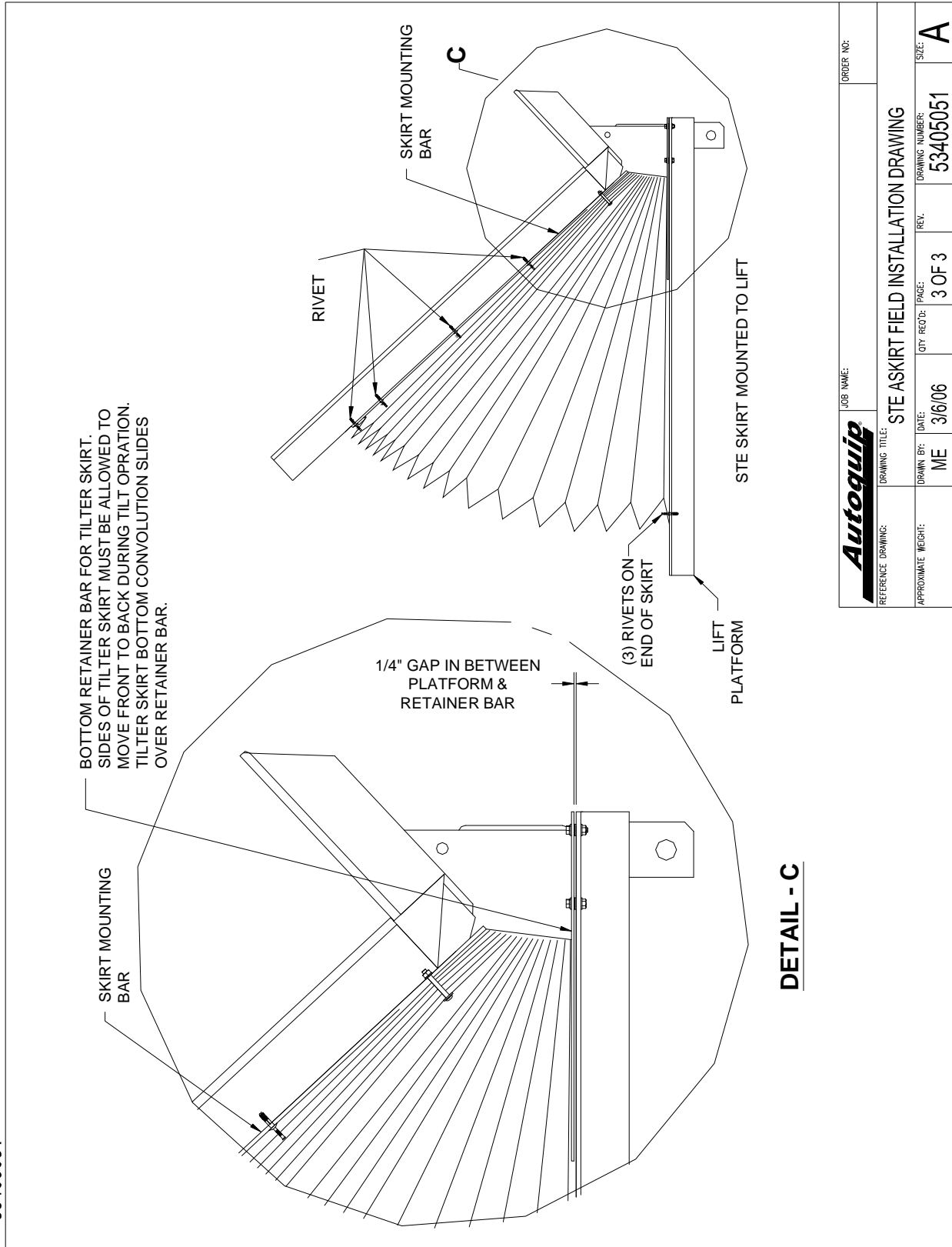
DETAIL - B

©2007 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.	<b style="font-size: 1.2em;">Autoquip REFERENCE DRAWING:	JOB NAME:	ORDER NO:
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DRAWN BY: ME	QTY. REC'D:	PAGE: 2 OF 3	SIZE: A

Figure 13: Standard (Inboard) Skirt Installation

SKIRT INSTALLATION

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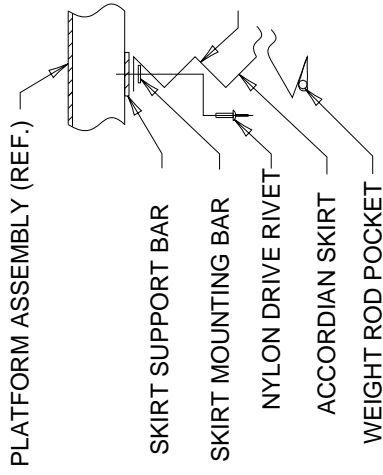


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SIZE: A					

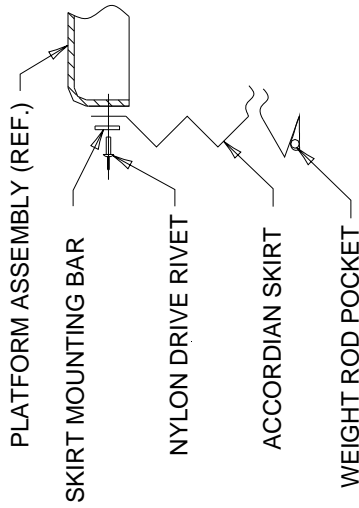
Figure 14: Standard (Inboard) Skirt Installation

SKIRT INSTALLATION

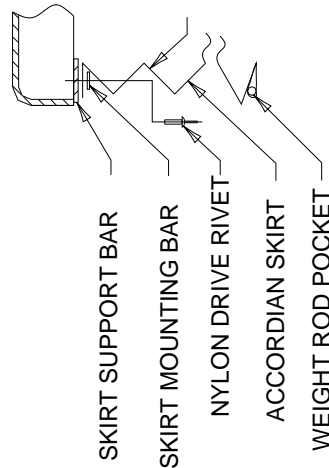
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STANDARD INBOARD
FIGURE #2



OUTBOARD PERIMETER
FIGURE #1



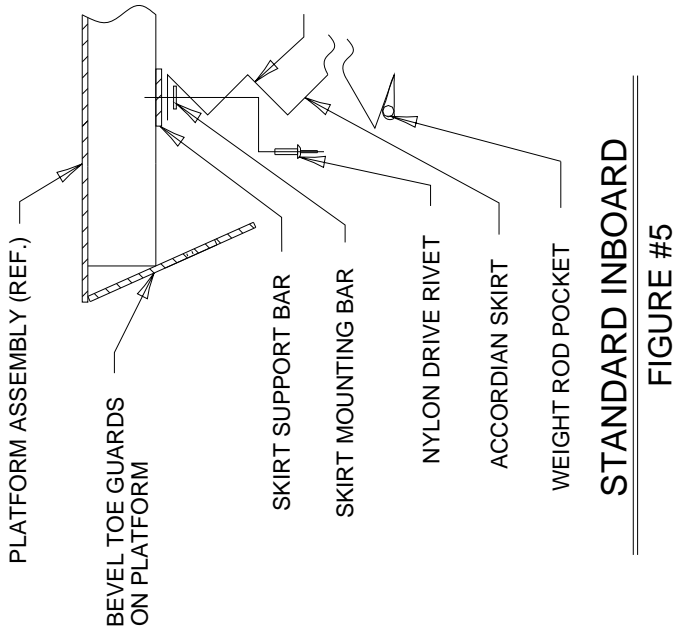
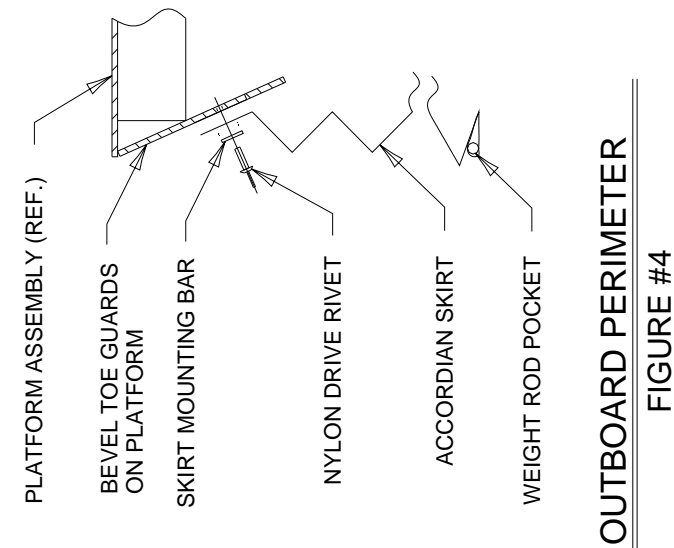
INBOARD PERIMETER
FIGURE #3

Autoquip	REV	DESCRIPTION	BY	DATE
	JOB NAME:			
©2006 RESERVED COPYRIGHT CORPORATION AUTOQUIP CORPORATION	DRAWING TITLE:			
REFERENCE DRAWING:	FIELD INSTALLATION DWG. FOR MTG. ACCORDIAN SKIRTS			
This drawing is the sole property of Autoquip Corp. and cannot be used for design and construction without permission of Autoquip Corp.	APPROXIMATE WEIGHT:	DRAWN BY:	DATE:	SIZE:
	WA	2/02	1 OF 2	A
			1	82600950
			REV.	DRAWING NUMBER:
			1	82600950
			1 OF 2	

Figure 15: Special STE Skirt Installation

SKIRT INSTALLATION

82600950



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	JOB NAME:			
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REFERENCE DRAWING:	FIELD INSTALLATION DWG. FOR MTG. ACCORDIAN SKIRTS			
APPROXIMATE WEIGHT:	DRAWN BY:	DATE:	QTY REQD:	PAGE:
	WA		2 OF 2	1
			DRAWING NUMBER:	SIZE:
			82600950	A

Figure 16: STE Skirt Installation for Bevel Toe Guards

OPERATING INSTRUCTIONS

1. Tilters 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 tilter may result in excessive wear and damage.

CAUTION !

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

2. This type of tilter is designed primarily for in-plant applications and is furnished with a constant pressure foot switch or pushbutton controls. Actuating the "UP" button will cause oil to enter the cylinders and the tilter platform will tilt.
3. When the desired height or upward travel of the platform is attained, removing the operators' foot or hand from the switch deactivates the "UP" circuit button. The oil stops flowing and the upward movement will stop.
4. To lower the tilter, 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.
5. 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!

Do not continue to activate the "UP" button if the tilter is not raising or if it has reached the fully raised position. To do so may result in permanent damage to the tilter.

ROUTINE MAINTENANCE



WARNING!

Before maintaining the tilter, 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 tilters will require very little maintenance. However, a routine maintenance program could prevent costly replacement of parts and/or downtime.



DANGER!

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

MONTHLY INSPECTION

1. Check oil level (see oil recommendations in this section) and add appropriate oil when necessary.
2. Check for any visible leaks. Correct as necessary.
3. Check any unusual noise when it occurs. Determine the source and correct as necessary.
4. Check all wiring for looseness or wear. Repair at once.

ROUTINE MAINTENANCE

Oil Viscosity Recommendations

Environment (Ambient Temperatures)	Recommended Oil
Indoor location, variable Temperatures (30 to 100° F)	10W30 or 10W40 Multiviscosity motor oil
Indoor location, consistent Temperatures (70° F)	SAE-20W motor oil
Outdoor location, variable Temperatures (-10 to 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 Series 35 Polyethylene Tank: Oil capacity is approximately 1.25 gallons or (5) quarts.

Contractor polyethylene Tank: Oil capacity is approximately: (5.5) gallons or (22) quarts.

Vertical Steel Tank: Oil capacity is approximately: (10) gallons or (40) quarts.

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.

GENERAL MAINTENANCE



WARNING!

Before maintaining the tilter, 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 tilter to its full height and block securely. See “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 tilter 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 to remove the maintenance block.
24. Lower the tilter completely and hold the “DOWN” button for 60 seconds to allow air in the cylinders to bleed back into the tank.
25. Raise the tilter 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

DOWN FLOW CONTROL VALVE -- REPLACEMENT



DANGER!

Do not attempt to remove the Down Flow Control Valve until the tilter is securely supported with the maintenance locking devices and all hydraulic pressure has been removed from the tilting cylinders and hydraulic hoses. Failure to follow these instructions could result in personal injury or death!

Never attempt to take a down flow control valve apart and repair it. These are precision devices that are factory assembled under exacting conditions. Down Flow Control Valves should always be replaced.

1. The arrow on the exterior surface of the down flow control valve shows the direction of the oil flow restriction. 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.

GENERAL MAINTENANCE

WIRING AUTOQUIP "SUPER TORQUE" MOTORS

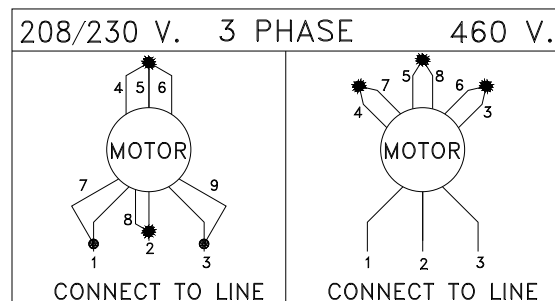
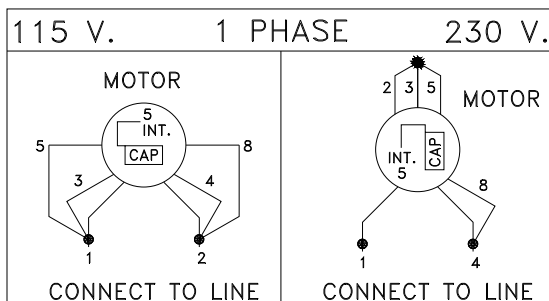
Because *Autoquip* "Super-Torque" motors actually deliver substantially more horsepower than their nameplate rating, they must always be wired for heavier current-draw than standard motors of the same nameplate rating. However, because of the "Super-Torque" motors starting efficiency and superior running 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.

NOTE: For larger horsepower motors, consult factory.

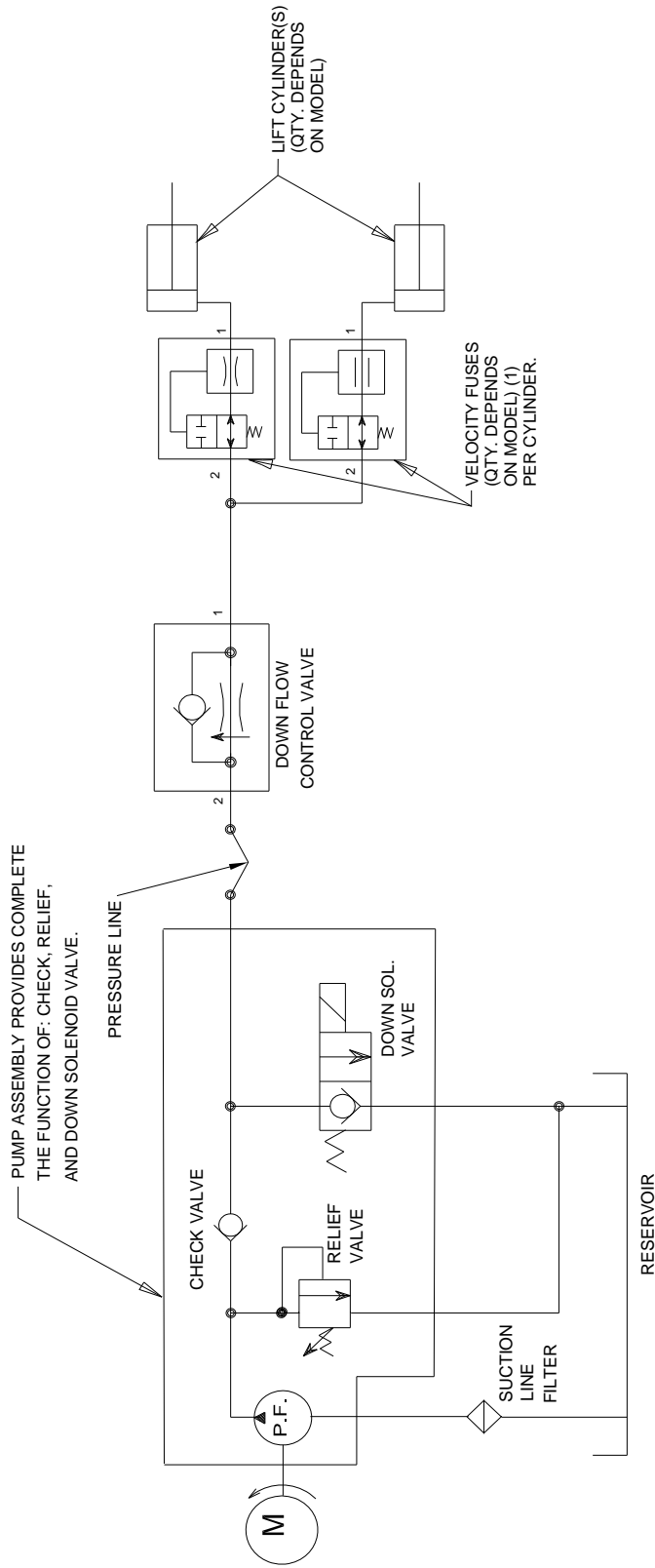
HP and Voltage	Full Load Amperages	
3/4 HP: 115 V /60 CY/1 PH	115 Volts = 16.6 Amps	
3/4 HP: 230 V /60 CY/1 PH	230 Volts = 8.3 Amps	
1-1/2 HP: 208 / 230 V /60 CY/3 PH	208 or 230 V = 5.3 Amps	
1-1/2 HP: 460 V /60 CY/ 3 PH	460Volts = 2.85 Amps	
5 HP: 208 / 230 V /60 CY/3 PH Contractor Motor; Special Remote Power Unit	208 V =15.8 Amps	230 V =14.8 Amps
5 HP: 460 V /60 CY/3 PH Contractor Motor; Special Remote Power Unit	460 Volts = 7.4 Amps	
5 HP: 208 / 230 V /60 CY/3 PH Vertical Motor; Special Power Unit – 90 Deg. Tilter	208 V =16 Amps	230 V =15.2 Amps
5 HP: 460 V /60 CY/3 PH Vertical Motor; Special Power Unit – 90 Deg. Tilter	460 V =7.6 Amps	

MOTOR CONNECTION DIAGRAMS



GENERAL MAINTENANCE

657-5004-0



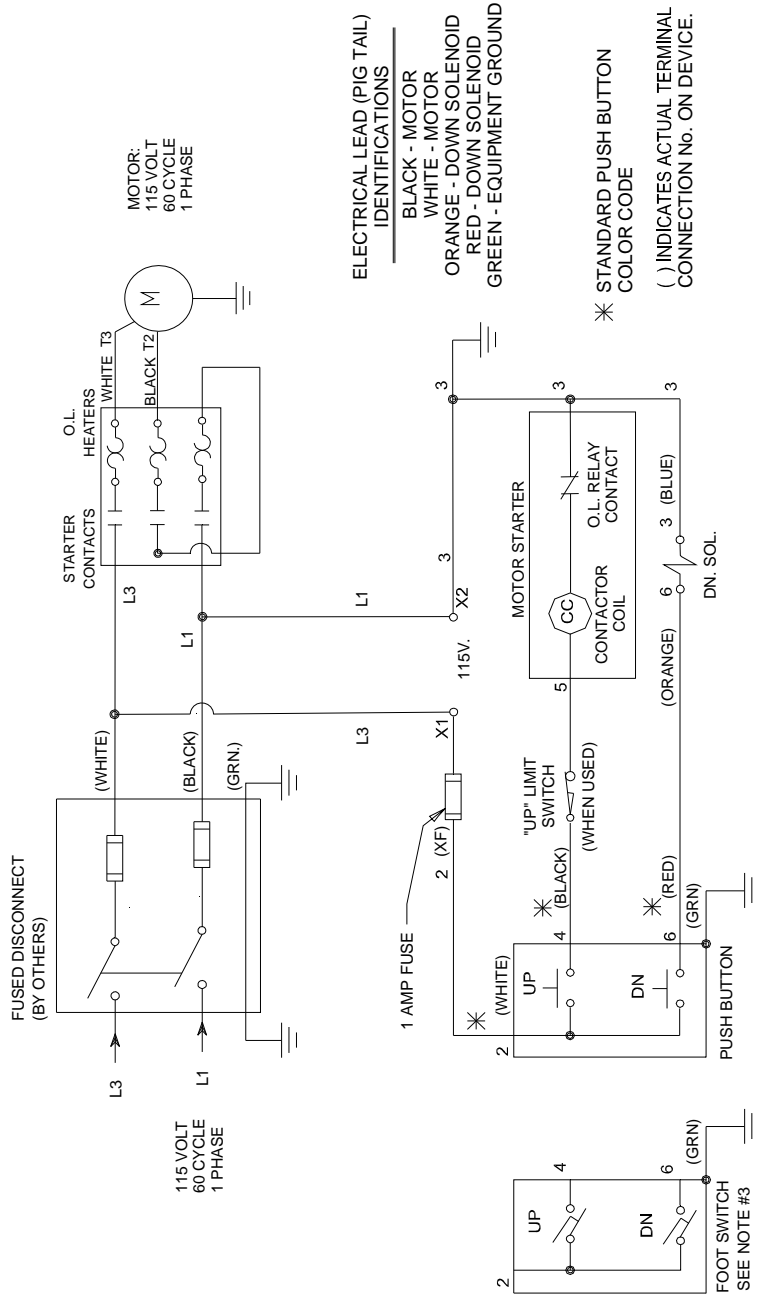
HYDRAULIC SCHEMATIC

REV		DESCRIPTION	BY	DATE
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©2005 COPYRIGHT RESERVED AUTOQUIP CORPORATION		Autotquip		
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658-0732-3		HYD SCH FOR SM & PLT-C		
APPROXIMATE WEIGHT:		DRAWN BY:		DATE:
N/A		DWL		9/11/95
QTY REQD:		PAGE:		REV.
1 OF 1		2		DRAWING NUMBER:
657-5004-0		SIZE:		
A				

Figure 17: STE-30/45 Hydraulic Schematic

GENERAL MAINTENANCE

65/50500



NOTES:

1. MOTOR STARTER, OVERLOADS AND FUSES TO BE MOUNTED IN NEMA 1 ENCLOSURE, AND INTERNALLY PRE-WIRED.
2. WIRING DIAGRAM IS LOCATED ON INSIDE OF FRONT COVER.
3. OPTIONAL FOOT SWITCH W/ GUARD (NEMA 1) SHIPPED LOOSE WHEN ORDERED. TO BE INSTALLED AND WIRED (BY OTHERS)

ELECTRICAL SCHEMATIC

TYPICAL PILOT CONTROLS ONLY

REV DESCRIPTION		BY	DATE
JOB NAME:			ORDER NO:
REFERENCE DRAWING:		DRAWING TITLE:	
65807448		ELECT SCH, SERIES 35; 115V/ 1PH/ 115CV	
APPROXIMATE WEIGHT:	DRAWN BY:	DATE:	DRAWING NUMBER:
	ME	1/4/05	65750500
QTY REQ'D:	PAGE:	REV:	SIZE:
1 OF 1			A

Autogrip

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Figure 18: STE-30/45 Electric Schematic; 115V / 1Ph / 115 V Control

GENERAL MAINTENANCE

65807448

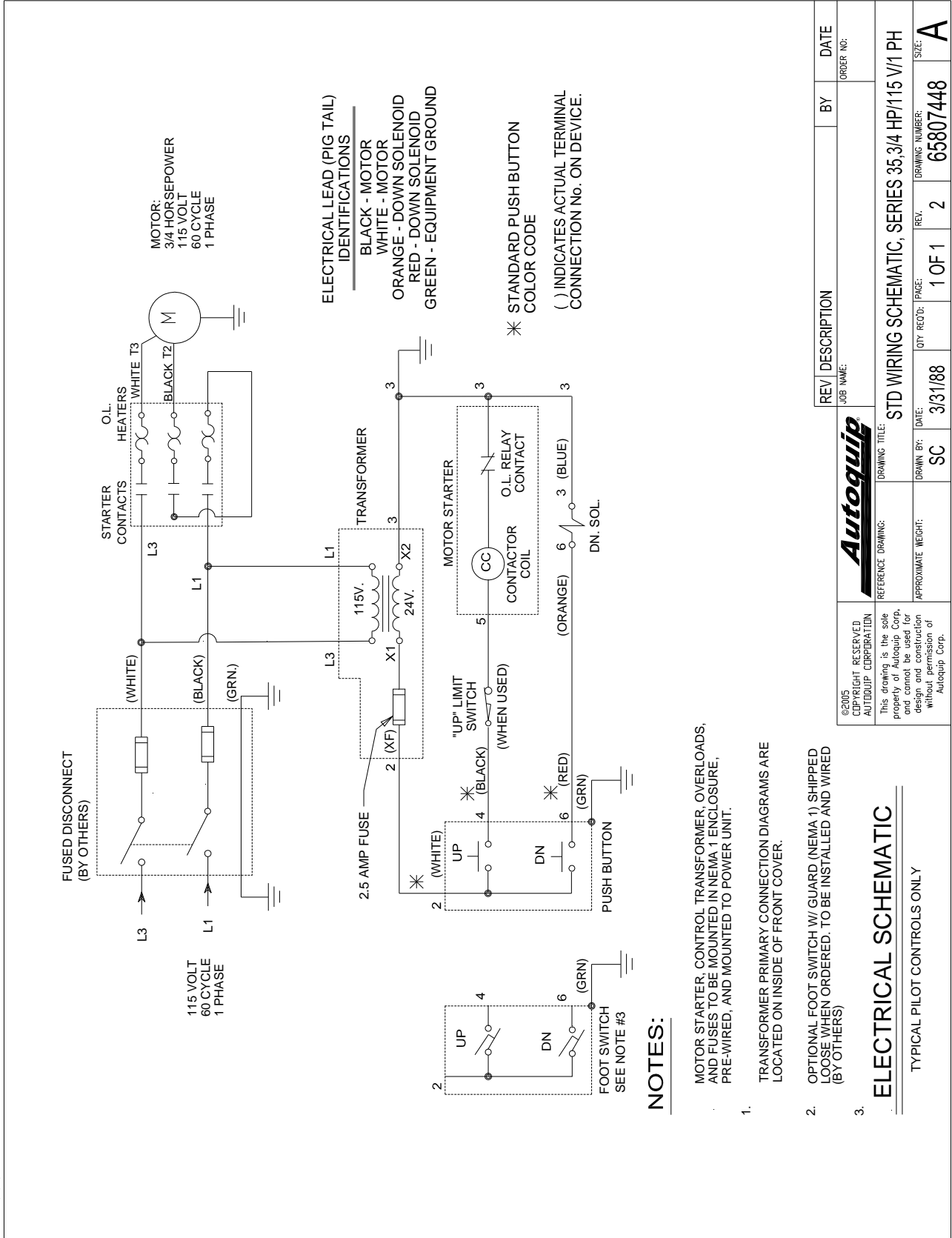


Figure 19: STE-30/45 Electric Schematic; 115V / 1Ph / 24 V Control

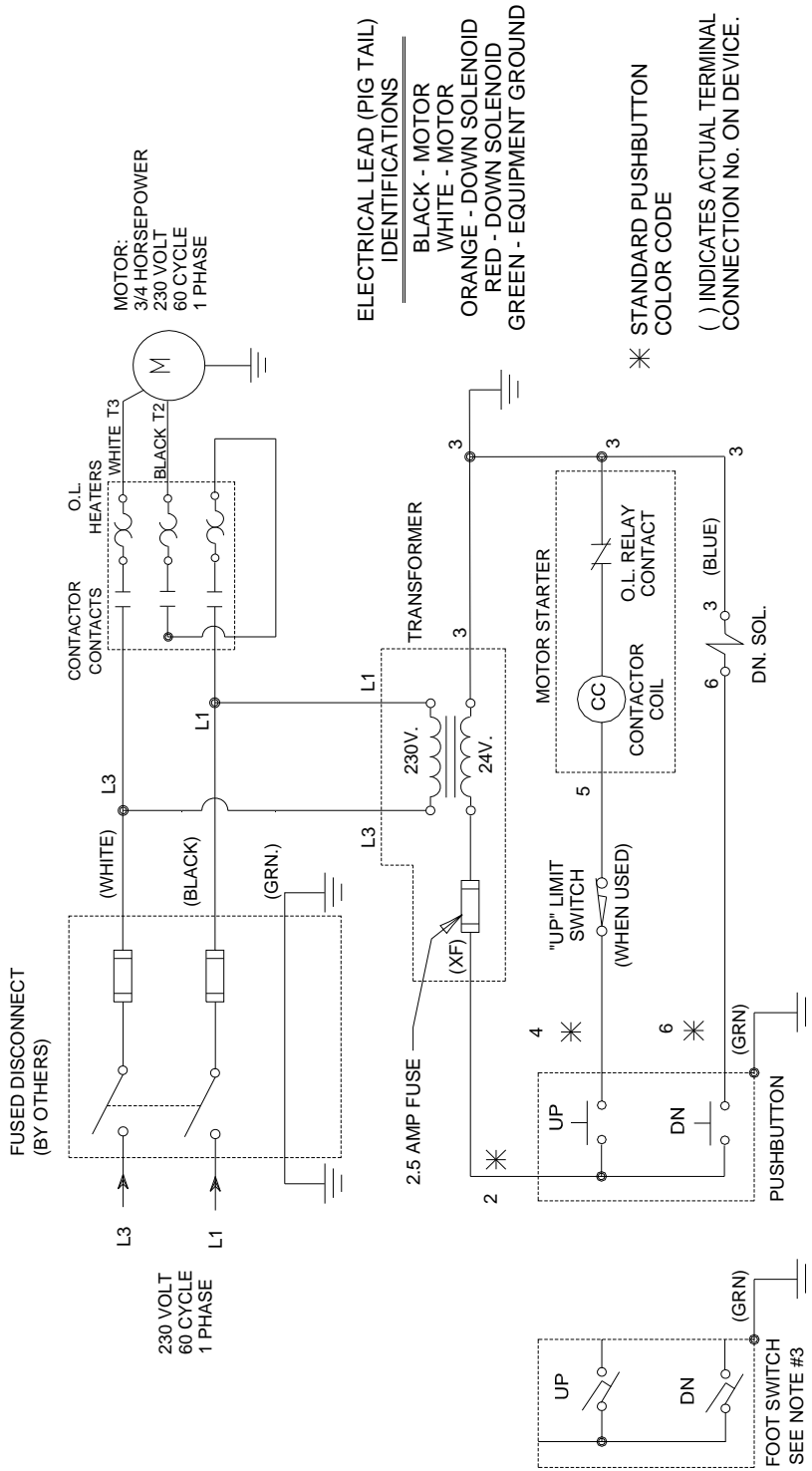
REV	DESCRIPTION	BY	DATE
	JOB NAME:		ORDER NO:
	Autoquip®		
	REFERENCE DRAWING:	DRAWING TITLE:	
	STD WIRING SCHEMATIC, SERIES 35,3/4 HP/115 V/1 PH		
	APPROXIMATE WEIGHT:	DRAWN BY:	DATE:
	SC	SC	3/31/88
	QTY REQ'D:	PAGE:	SIZE:
	1 OF 1	2	A
	DRAWING NUMBER:		
	65807448		

ELECTRICAL SCHEMATIC

TYPICAL PILOT CONTROLS ONLY

GENERAL MAINTENANCE

65807430



ELECTRICAL LEAD (PIG TAIL) IDENTIFICATIONS

- BLACK - MOTOR
- WHITE - MOTOR
- ORANGE - DOWN SOLENOID
- RED - DOWN SOLENOID
- GREEN - EQUIPMENT GROUND

* STANDARD PUSHBUTTON COLOR CODE

() INDICATES ACTUAL TERMINAL CONNECTION No. ON DEVICE.

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

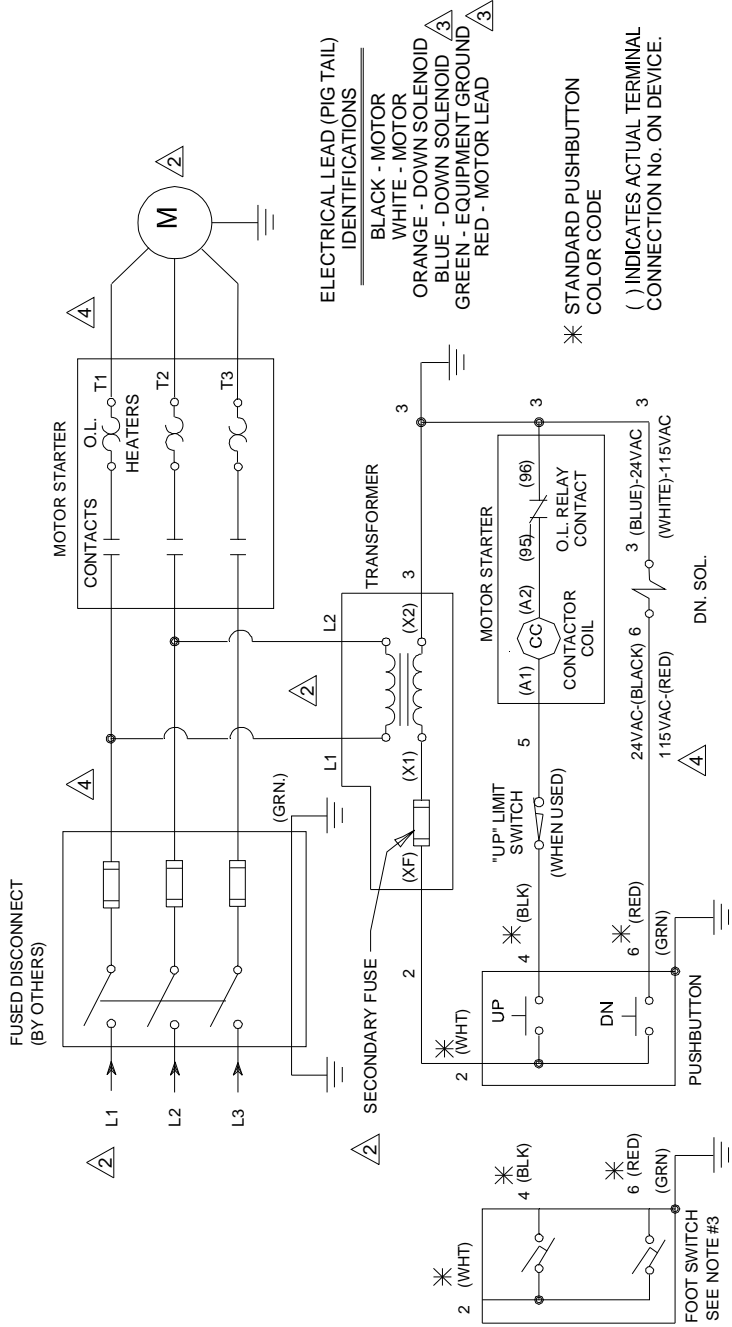
TYPICAL PILOT CONTROLS ONLY

REV DESCRIPTION		BY	DATE
JOB NAME:			
Autoquip			
REFERENCE DRAWING:	DRAWING TITLE:	QTY REQD:	PAGE:
©2005 COPYRIGHT RESERVED AUTOQUIP CORPORATION	STD WIRING SCHEMATIC, SERIES 35, 3/4 HP/230 V/1 PH	1 OF 1	2
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APPROXIMATE WEIGHT:	SC	65807430	A
	DATE:		
	3/31/88		

Figure 20: STE-30/45 Electric Schematic; 230V / 1Ph

GENERAL MAINTENANCE

65807422



NOTES:

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

ELECTRICAL SCHEMATIC

TYPICAL PILOT CONTROLS ONLY

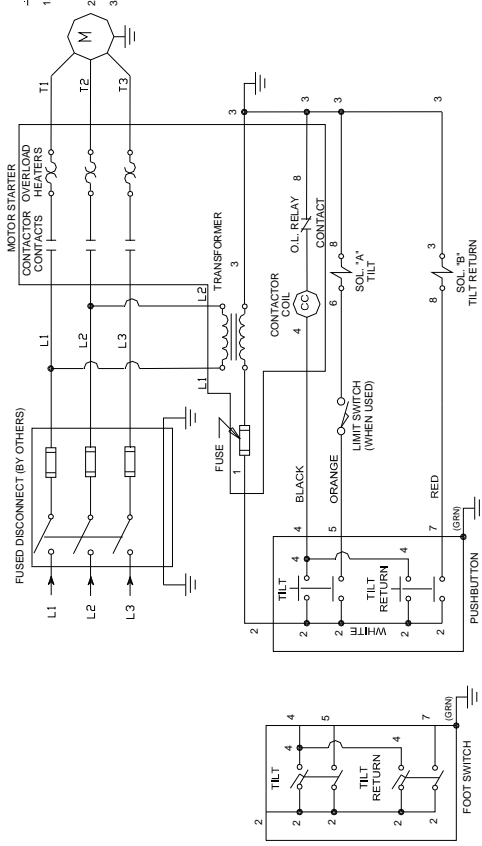
REV	DESCRIPTION	BY	DATE
Autoquip			
©2005 COPYRIGHT RESERVED AUTOQUIP CORPORATION		DRAWING TITLE: STANDARD WIRING SCHEMATIC, SERIES 35	
This drawing is the sole property of Autoquip Corp. and may be used for design and construction without permission of Autoquip Corp.			
APPROXIMATE WEIGHT:	SC	DATE:	3/30/88
QTY REQ'D:	1 OF 1	REV:	4
DRAWING NUMBER:	65807422	REV:	4
ORDER NO:		REV:	4
DATE:		REV:	4
SIZE:		REV:	4

Figure 21: STE-30/45 Electrical Schematic: 208-230-460V / 3Ph

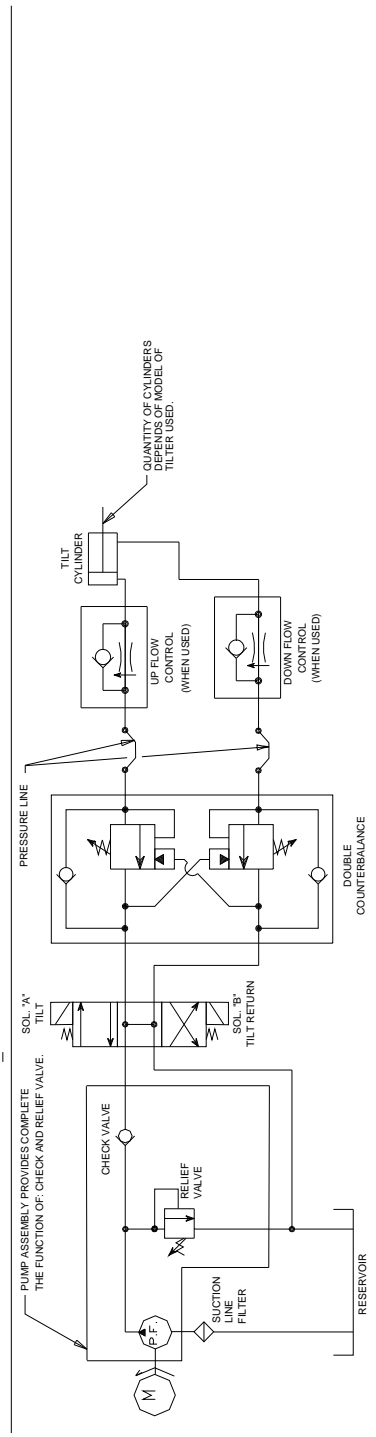
GENERAL MAINTENANCE

STE-90 EHS

- NOTES:**
- SEE ASSEMBLY AND/OR SPECIFICATION SHEET FOR WIRING AND CONTROL CONFIGURATION.
 - PUSHBUTTON SHOWN AS TYPICAL PILOT DEVICE. TRANSFORMER PRIMARY CONNECTION DIAGRAMS ARE LOCATED ON INSIDE OF FRONT COVER OR ON DEVICE.



ELECTRICAL SCHEMATIC



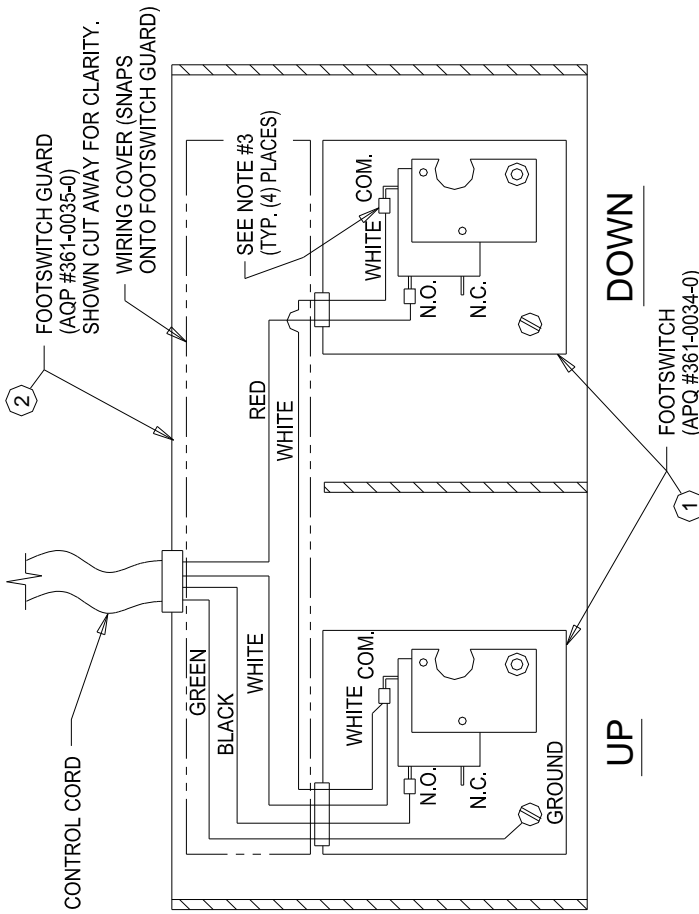
HYDRAULIC SCHEMATIC

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: 65812737		JOB NAME: EHS FOR STE TILTER W/ POWERED TILT RETURN		ORDER NO:
	APPROXIMATE WEIGHT: <2T	DRAWN BY: DWL	QTY REQD: 1 OF 1	REV. 7	DRAWING NUMBER: STE-90 EHS

Figure 22: STE-90 Electrical & Hydraulic Schematic:208-230-460V/3Ph

GENERAL MAINTENANCE

351-0338-0



STANDARD FOOTSWITCH ASSEMBLY
(TOP VIEW WITH TOP COVERS OF FOOTSWITCHES REMOVED)

NOTES:

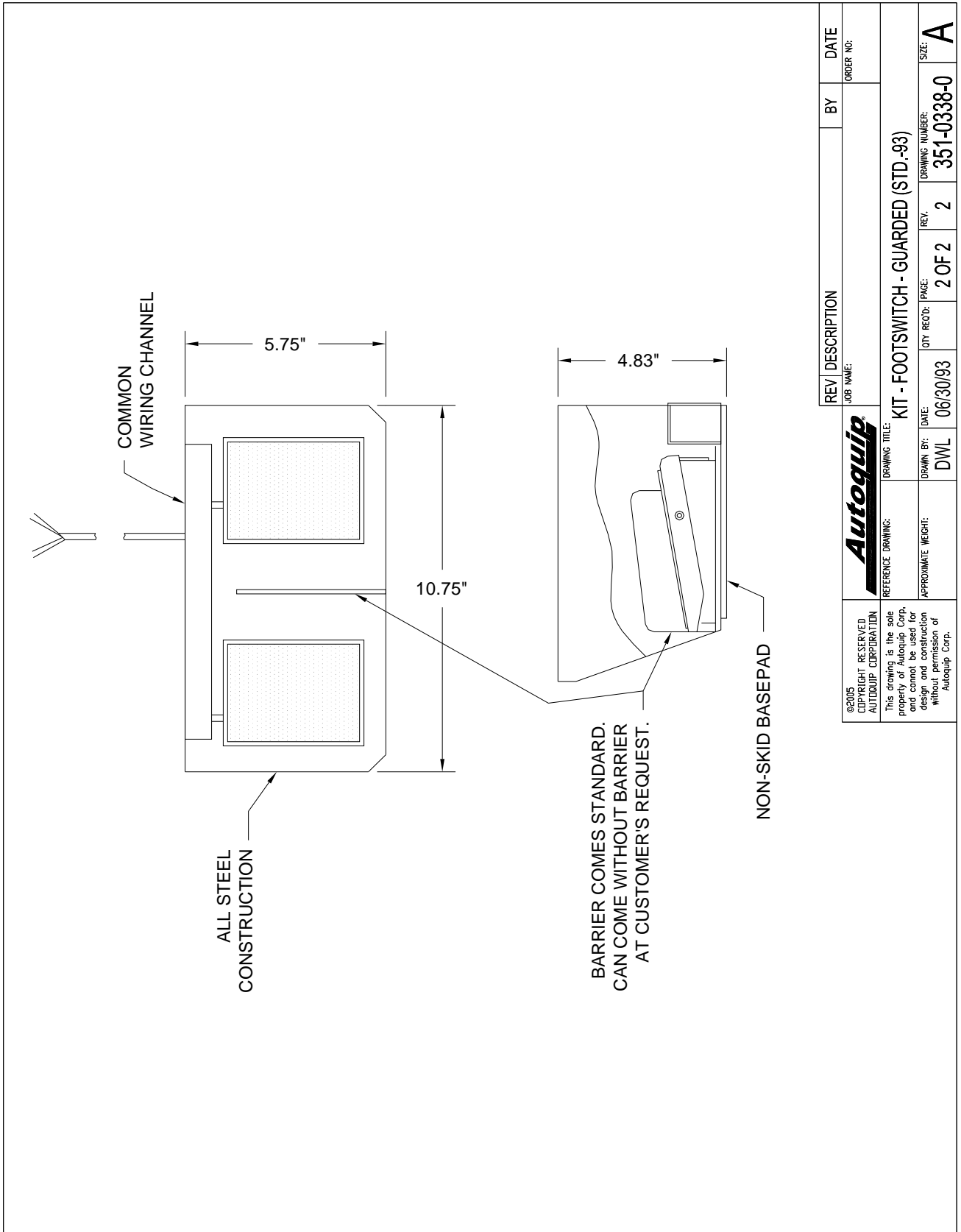
- WARNING: ELECTRICAL HAZARD.**
DISCONNECT POWER BEFORE WIRING THIS ACCESSORY.
- COLOR CODING SHOWN CORRESPONDS TO EXISTING 16/4 SO CONTROL CORD ON LIFT.
- USE 3/16" WIRE TABS FOR WIRING FOOTSWITCH.
- EXCHANGE BLACK AND RED WIRES IF DESIRED TO SWITCH "UP" AND "DOWN" FUNCTIONS.
- USE APPROPRIATE WIRE, CONDUIT, ETC. TO SATISFY LOCAL CODES (BY OTHERS).
- INSTALL FOOTSWITCH GUARD PER MANUFACTURER'S INSTRUCTIONS.
- INSTALLER TO APPLY "UP" AND "DOWN" LABELS TO TOP OF COVER AS REQUIRED.
- ELECTRICAL RATING WITHOUT CORD 15 AMP, 115/230VAC
- FOOT GUARD PAINTED YELLOW

REV	DESCRIPTION	BY	DATE
	JOB NAME:		ORDER NO:
Autoquip			
DRAWING TITLE: FOOTSWITCH - GUARDED			
DRAWN BY: DWL	DATE: 06/30/93	QTY REQ'D: 1 OF 2	REV: 2
REFERENCE DRAWING:	APPROXIMATE WEIGHT:	DRAWING NUMBER: 351-0338-0	SIZE: A
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Figure 23a: Guarded Foot Switch Wiring Diagram

GENERAL MAINTENANCE

351-0338-0



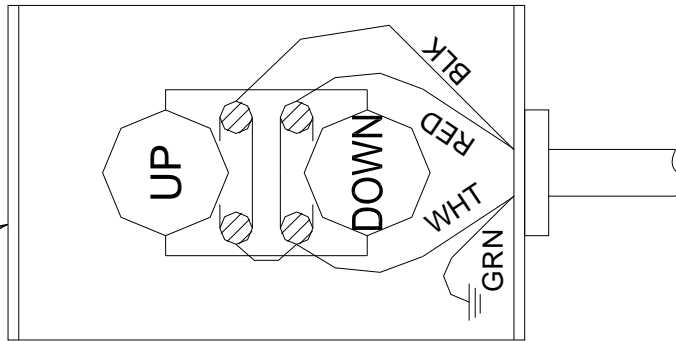
REV	DESCRIPTION	BY	DATE
	JOB NAME:		ORDER NO:
	Autogrip		
	DRAWING TITLE:		
	KIT - FOOTSWITCH - GUARDED (STD.-93)		
	REFERENCE DRAWING:		
	DRAWN BY: DWL	DATE: 06/30/93	
	APPROXIMATE WEIGHT:		
	QTY REQD: PAGE: 2 OF 2	REV: 2	DRAWING NUMBER: 351-0338-0
			SIZE: A

Figure 23b: Guarded Foot Switch Assembly

GENERAL MAINTENANCE

658-0734-9

STANDARD WALL MOUNT PUSHBUTTON SWITCH
(FRONT VIEW, COVER REMOVED)



NOTES:

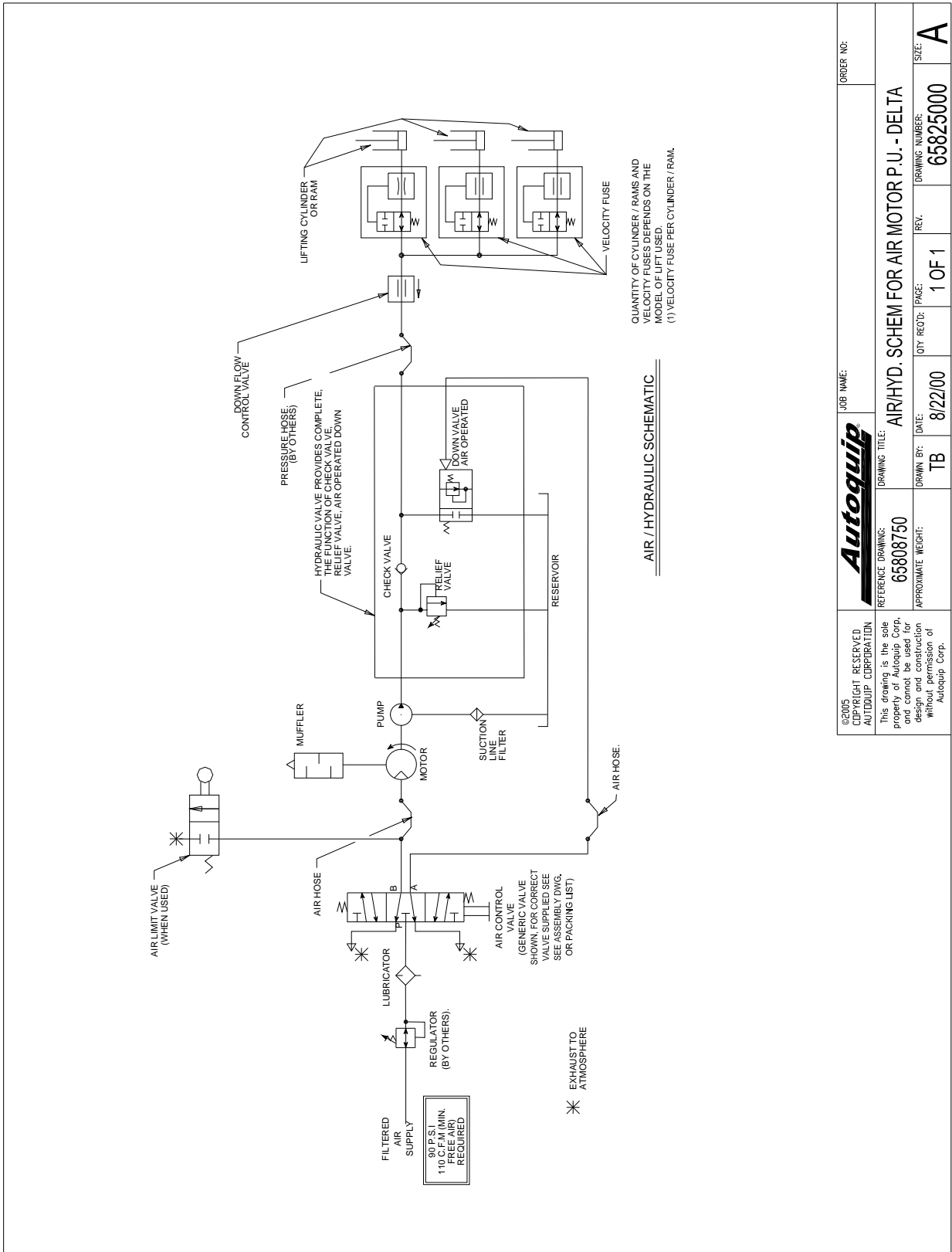
1. WARNING: ELECTRICAL HAZARD
DISCONNECT POWER BEFORE
WIRING THIS ACCESSORY.
2. COLOR CODING SHOWN CORRESPONDS TO
EXISTING 16/4 SO CONTROL CORD ON
LIFT.
3. USE APPROPRIATE WIRE, CONDUIT, ETC.
TO SATISFY LOCAL CODES. (BY OTHERS.)

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	DRAWING TITLE: STD WALL MOUNT PUSHBUTTON WIRING DIAGRAM	DRAWING NUMBER: 658-0734-9	SIZE: A					

Figure 24: Push Button Wiring Diagram

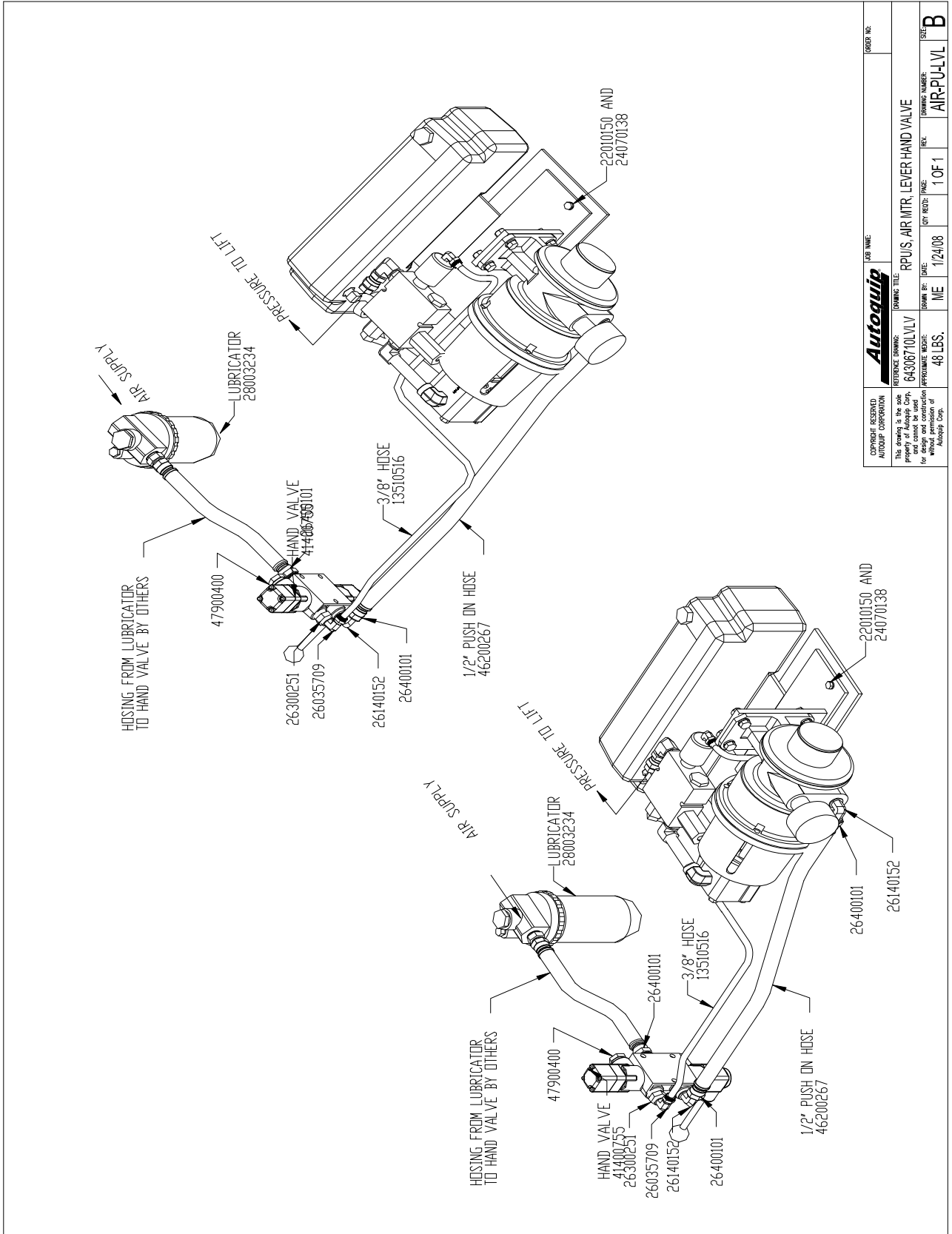
GENERAL MAINTENANCE

65825000



**Figure 25: STE-30/45 Air Power Unit Schematic
Air Requirement: 90 PSI & 110 CFM**

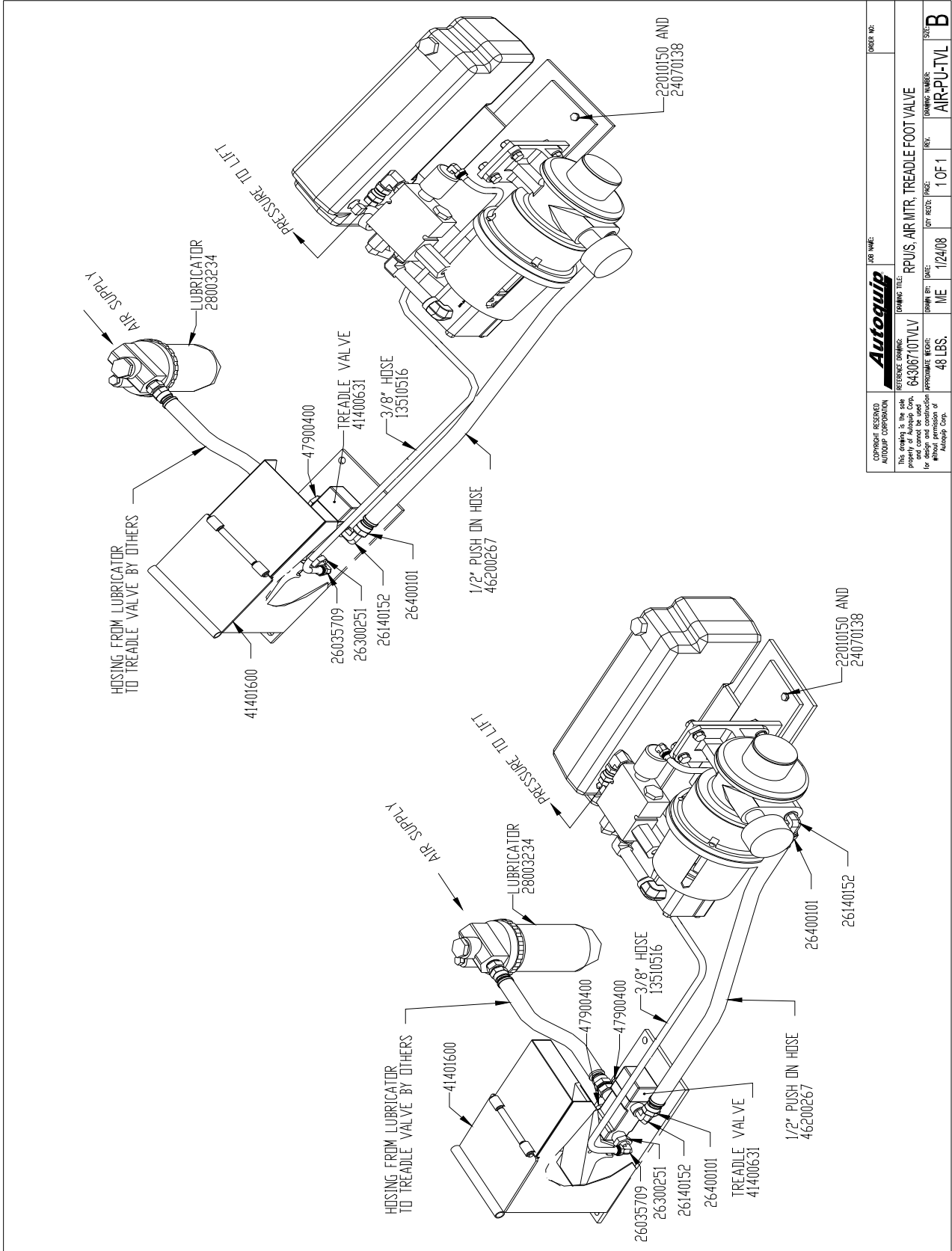
GENERAL MAINTENANCE



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	DRAWING TITLE: RPUIS, AIR MTR, LEVER HAND VALVE	DRAWING NUMBER: AIR-PU-LVL B
APPROXIMATE WEIGHT: 48 LBS.	DRAWN BY: ME	DATE: 1/24/08
REV.	1 OF 1	PAGE:

Figure 26: Hand Air Valve Hose Diagram for Air Power Unit

GENERAL MAINTENANCE



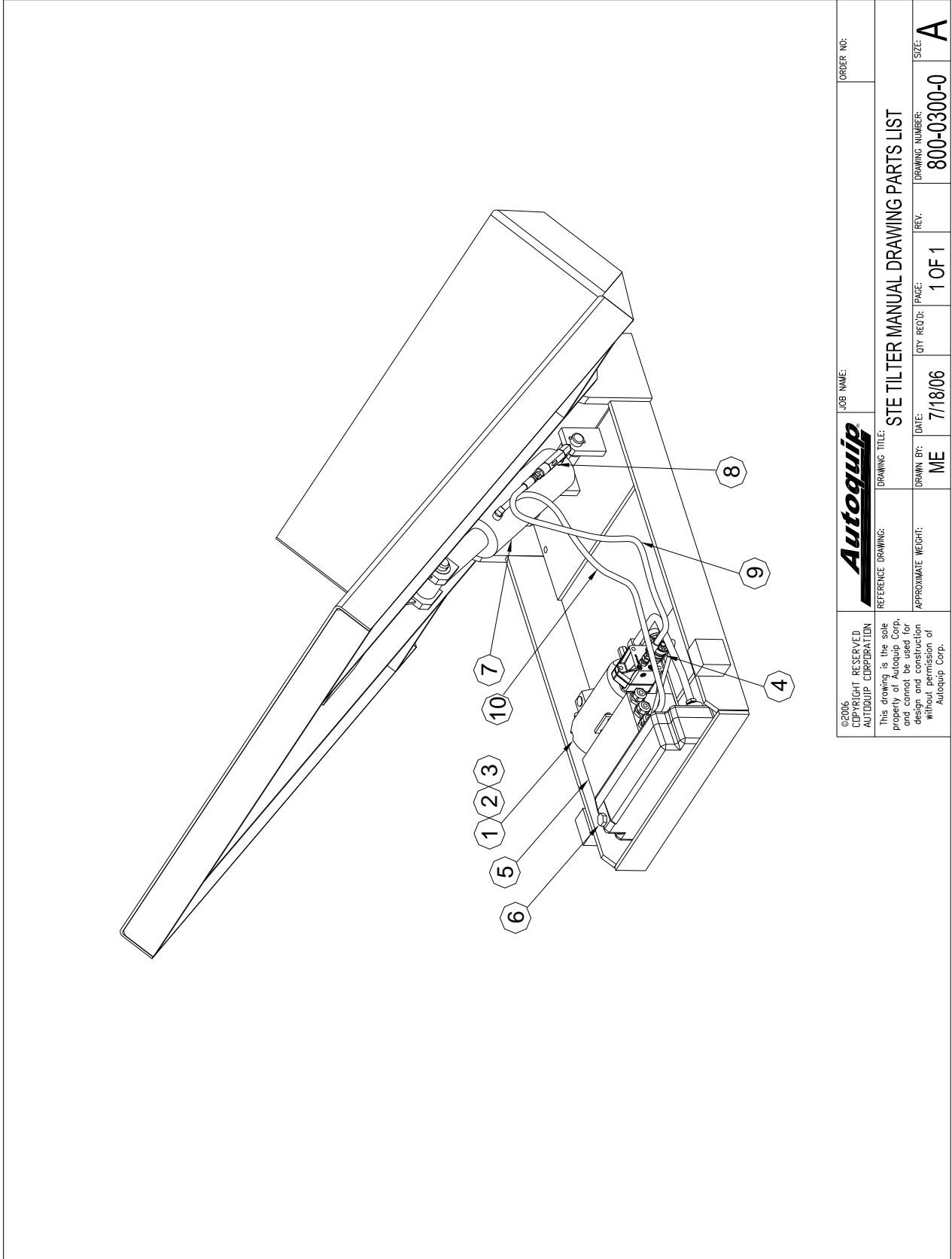
Autogrip		ORDER NO.
COMPACT DESIGN AUTOGRIP CORPORATION	REFERENCE NUMBER 64306710TVLV	ISSUE NO. B
THIS PART IS THE PROPERTY OF Autogrip Corp. and cannot be used for design and construction of other equipment without Autogrip Corp. approval.		ISSUE NO. B
DATE 1/24/08	REV. 1 OF 1	ISSUE NO. B
DESIGN BY ME	QTY. REQD. 1	ISSUE NO. B
PERFORMANCE REQD. 48 LBS.	REV. 1 OF 1	ISSUE NO. B
DRAWING NUMBER AIR-PU-TVL		ISSUE NO. B

AIR-PU-TVL

Figure 27: Treadle Air Valve Hose Diagram for Air Power Unit

REPLACEMENT PARTS LIST

800-0300-0



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<p>This drawing is the sole property of Autoquip Corp. and cannot be used for any other purpose without the written permission of Autoquip Corp.</p>	<p>STE TILTER MANUAL DRAWING PARTS LIST</p>		
<p>APPROXIMATE WEIGHT:</p>	<p>DRAWN BY: ME</p>	<p>DATE: 7/18/06</p>	<p>QTY RECD: 1 OF 1</p>
<p>REV.:</p>	<p>REV.:</p>	<p>REV.:</p>	<p>REV.:</p>
		<p>PAGE: 1 OF 1</p>	<p>DRAWING NUMBER: 800-0300-0</p>
			<p>SIZE: A</p>

Figure 28: STE Tilter Parts Diagram

REPLACEMENT PARTS LIST

ITEM #	PART #	DESCRIPTION
STE: MOTOR & PUMP COMPONENTS:		
1	30000020	Motor, 3/4 HP (1725 RPM): 115-230V / 60CY/ 1PH
1	30300016	Motor, 1-1/2 HP (3450 RPM): 208-230-460V / 60CY / 3 PH
2	40200640	Pump, (Tang shaft w/ valves) ---- (0.7gpm: 3/4 HP Motor) OR (1.4gpm: 1-1/2 HP & 5HP Contr. Motor):
3	20001137	Tongue & Groove Coupling -- Tang shaft (For motors listed above)
ELECTRICAL COMPONENTS:		
(CV = 'AC' Control Voltage; PB = Pushbutton)		
4	32701290	Down Solenoid Coil, 24 v. CV (STE & Contr Pump)
4	32701300	Down Solenoid Coil, 115 v. CV (STE & Contr Pump)
5	35107910	Controller, 3/4HP,115v.1PH/24v.CV (PB on 10' cord)
5	35108050	Controller, 3/4HP ,208-230v,1PH/24v.CV (PB on 10' cord)
5	35107980	Controller, 1.5HP,208-230v,3PH/24v.CV (PB on 10' cord)
5	35107990	Controller, 1.5HP,460v,3PH/24v.CV (PB on 10' cord)
NA	35101393	Limit Switch Kit; consisting of (mounting bracket, fasteners and
	34000018	(1) Limit Switch
	34000257	(1) Limit Switch Arm
NA	35103380	Foot Switch with Foot Guard
NA	36202140	Pushbutton, Pendant 'Yellow' (Nema 4) No Cord
NA	36201820	Pushbutton, Wall Mount (Nema 4) No Cord
NA	33000680	Transformer: 45va (S-35 & s35 Contr Controller)
MISC. COMPONENTS:		
6	47900006	Hex Filler/Breather Cap(1/2" npt); 1/2HP, 3/4HP and 1-1/2HP PU's
7	42700780PH	STE Cylinder: (3-1/2" x 6")
NA	45503520	Cylinder Seal Kit; (3-1/2" CYL.)
8	41501776	Flow Control Valve: (1.5gpm x 3/8"npt)
NA	41050139	Suction Strainer (1/2" npt)
NA	20022828	18DU10 Bushing
NA	20022877	18DU16 Bushing
NA	24002016	Washer, 1 1/8" x 1/64" thick
Optional Contractor (Contr.) PU Components		
NA	35150140	Controller, 5HP Contr - 208-230 V/24v. CV (Remote PU)
NA	35150145	Controller, 5HP Contr - 208-230 V/115v. CV (Remote PU)
NA	35150150	Controller, 5HP Contr, - 460 V/24v. CV (Remote PU)
NA	35150155	Controller, 5HP Contr - 460 VAC/115v. CV (Remote PU)
NA	30600613	Motor, 5 HP-Contr. (3450 RPM): 208-230-460V / 60CY/3 PH
NA	40200650	Pump, (Tang shaft w/ valves) 2.9 gpm (5 HP-Contr. Motor -- ONLY)
NA	47701640	Filler/Breather Cap (Contractor Tank)

REPLACEMENT PARTS LIST

ITEM #	PART #	DESCRIPTION
PINS & Misc. Components		
NA	52503729	Cylinder Pin (Base): 1-1/8 x 7-7/8 w/ (2) Holes for Roll Pins
NA	52503711	Cylinder Pin (Platform): 1-1/8 x 5-3/4 w/ (2) Holes for Roll Pins
NA	27000322	Roll Pin (for Cylinder Pins): 3/16 x 1-1/2" LG.
NA	52502705	Clevis Pin (Base): 1-1/8 x 2-3/16, (No Holes – welds to base)
NA	52505271	Maintenance Pin: 5/8 x 2" LG, (1) Hole for Roll Pin
NA	27000041	Roll Pin (for Maintenance Pin)
NA	24002008	Washer: 1/64" thick x 1.140 ID x 1-5/8" OD
HYDRAULIC HOSES		
9	46000097	Cylinder Hose: 1/4" x 36"L (1/4" npt)
10	46000410	Cylinder Capillary Hose: 1/4" x 36"L (Optional Equipment)
NA	46000410	Hose (for Pump return hose): 1/4 ID x 1/2 OD x 14" LG.
NA	28080700	Hose Clamp: (for Pump return hose to tank): 1/2" OD
NA	46200267	Hose (Pump Suction hose): 1/2 ID x 13" LG.
NA	28080695	Hose Clamp: (for Pump suction hose): 3/4" OD
STE-90 REPLACEMENT PARTS		
	65812737	STE-90 Electrical & Hydraulic Schematic Drawing
NA	NA	Motor & Pump: See STE parts list on previous page.
NA	NA	Hoses: Call Autoquip Service Department
NA	42700780PH	STE Cylinder: (3-1/2" x 6")
NA	45503520	Cylinder Seal Kit; (3-1/2" CYL.)
NA	46000410	Hose (for Pump return hose): 1/4 ID x 1/2 OD x 14" LG.
NA	28080700	Hose Clamp: (for Pump return hose to tank): 1/2" OD
NA	46200267	Hose (Pump Suction hose): 1/2 ID x 13" LG.
NA	28080695	Hose Clamp: (for Pump suction hose): 3/4" OD
NA	41620410	Counterbalance Valve Cartridge (2 per valve assembly)
NA	41620480	Counterbalance Valve Manifold Block
NA	41401970	Solenoid Valve without Coil
NA	32701380	Coil, Solenoid Valve: 24Volt AC
NA	32701370	Coil, Solenoid Valve: 120Volt AC
NA	41320003	Cavity Plug for Pump (used on 40200640 Pump)
NA	36100360	Twin Footswitch w/ Guard (2 NO)
NA	36203080	Pushbutton Up / Down (2 NO)

REPLACEMENT PARTS LIST

Standard Electric Power Unit

643STEPU 1 OF 1

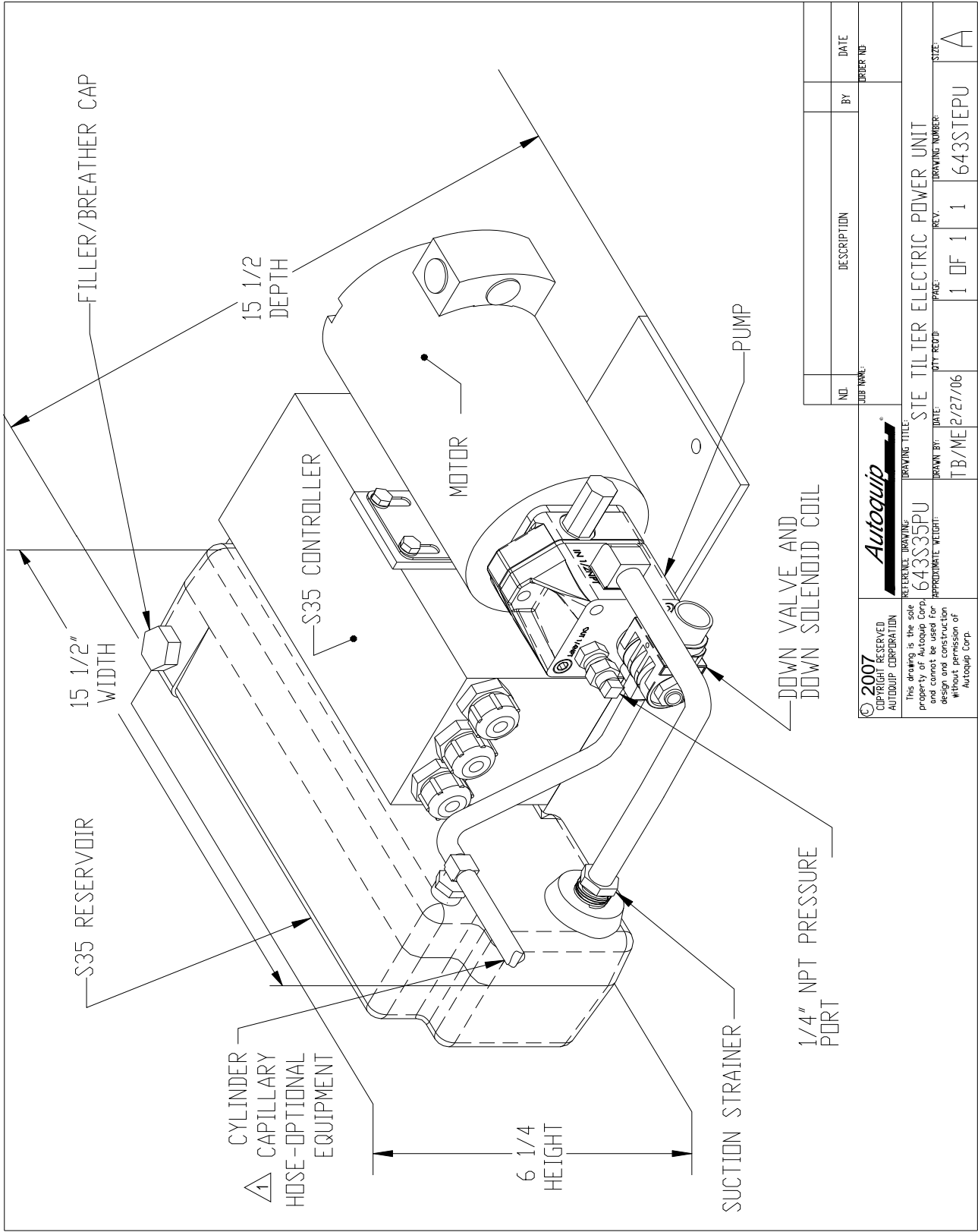
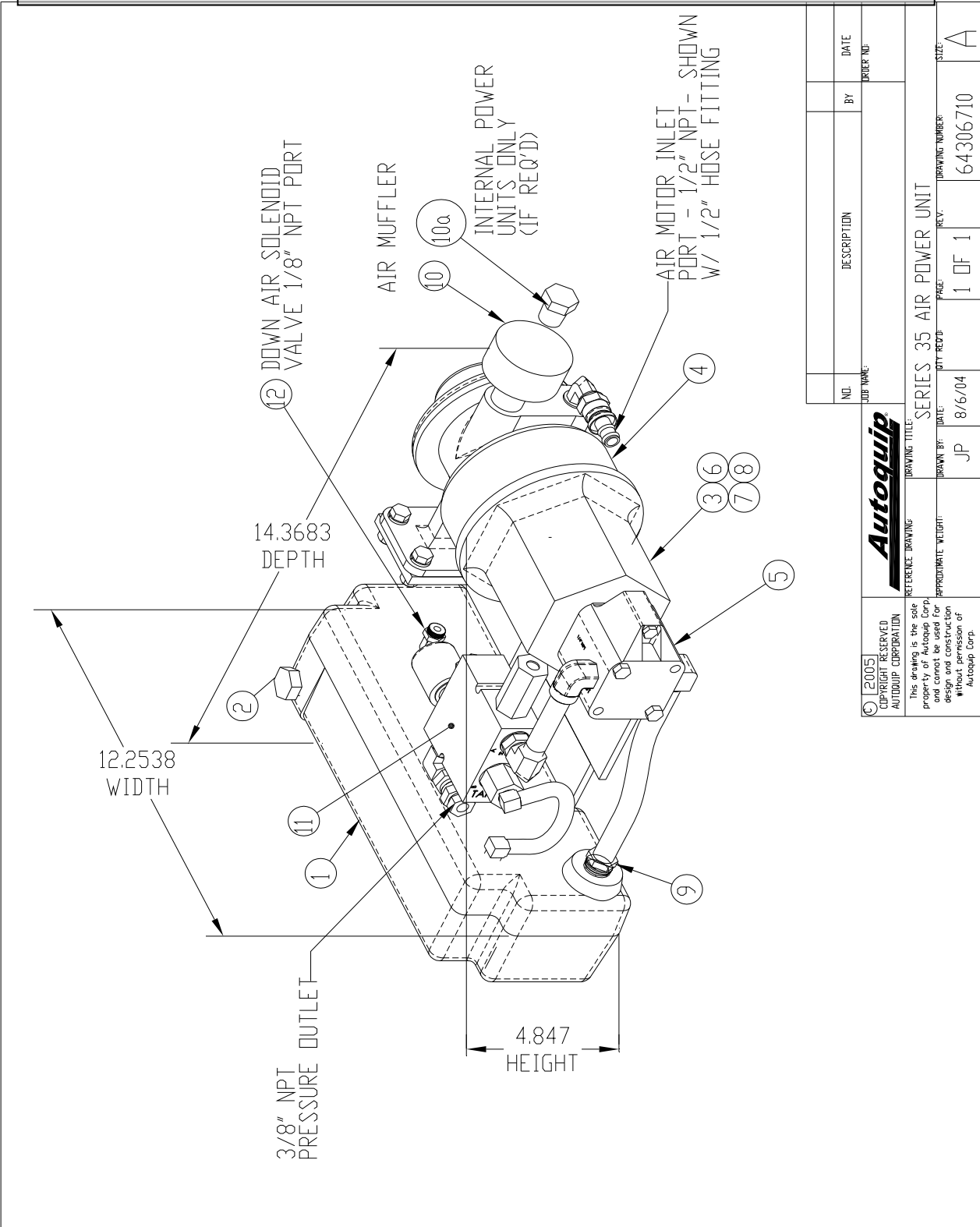


Figure 28: STE-30/45 Tilter Power Unit Diagram

REPLACEMENT PARTS LIST

Standard Air Power Unit

64306710 1 OF 1



NO.		DESCRIPTION		BY	DATE
JOB NAME:				ORDER NO.	
Autoquip					
REFERENCE DRAWING: SERIES 35 AIR POWER UNIT					
DRAWING TITLE:		DATE:		REV.:	
DRAWN BY: JP		8/6/04		PAGE: 1 OF 1	
APPROXIMATE WEIGHT:				DRAWING NUMBER:	
				64306710	
					SIZE: A

Figure 29: STE-30/45 S35 Air Power Unit (P/N 64306710)
Air Requirement: 90 PSI & 11

REPLACEMENT PARTS LIST

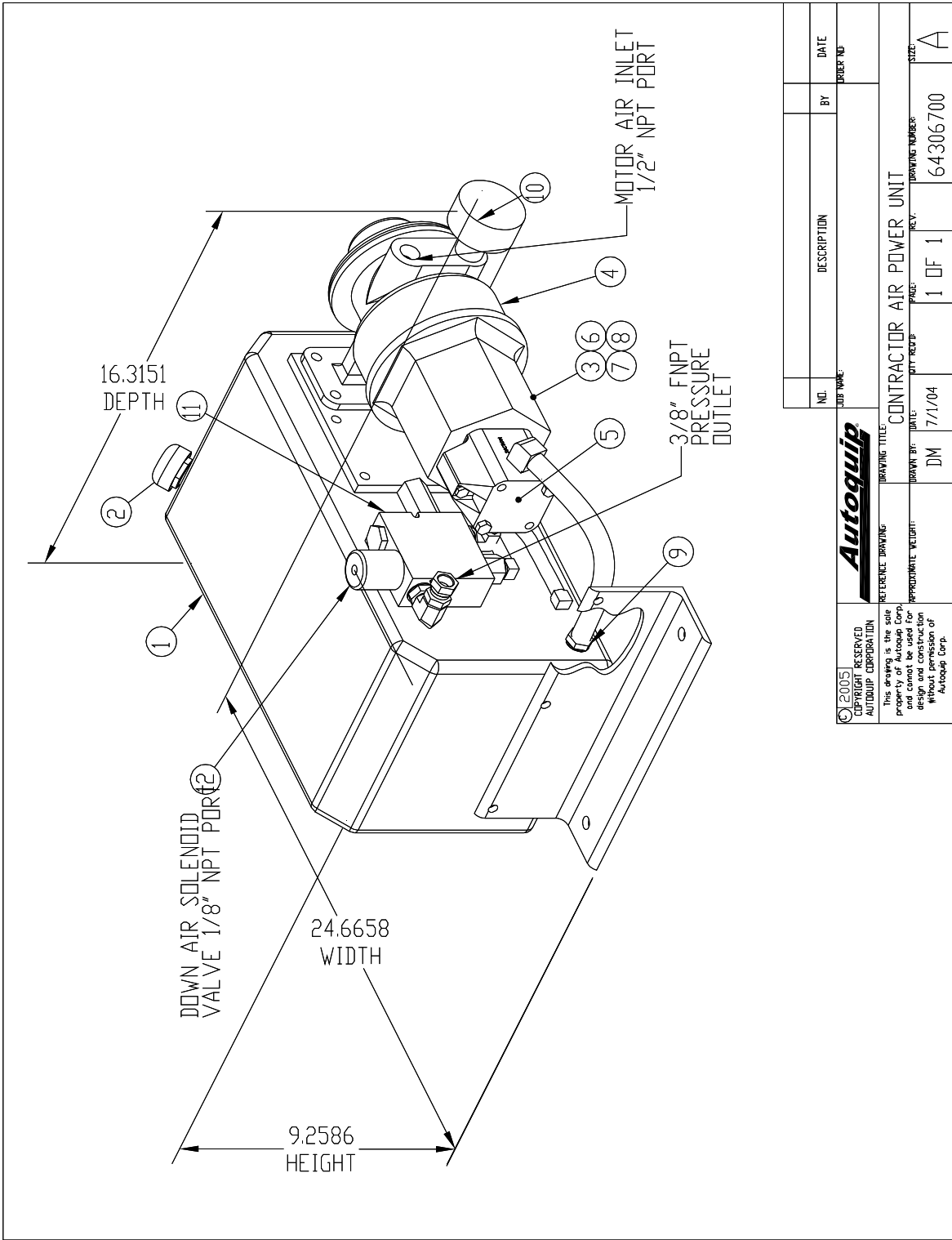
Standard Air Power Unit

ITEM #	PART #	DESCRIPTION
	65825000	Schematic
	64306710	Air Power Unit Assembly - Complete
1	64201603	3.5x5.5x15.25, POLY Reservoir
2	47701640	Hex Filler Breather; 1/2" npt
3	47303810	Motor/Pump Mounting Bracket
4	40800110	Air Motor
5	40200222	1.3 G.P.M. Pump; Str. shaft
6	20000162	Spider for Coupling
7	20000139	Motor Coupling 7/8" Bore (Air Motor)
8	20000030	Pump Coupling 7/16" Bore (Pump)
9	41050140	Suction Strainer (1"L) (Reservoir Strainer)
10	40900029	Muffler for Air Motor
11	41550490	Valve Manifold (w/ Check & Adj. Relief Valve)
12	41420150	Air Solenoid Down Valve Cartridge
	28003234	Lubricator, Air Motor (Ship Loose)
		Optional Controls: 41400631 Treadle Foot Valve 41401600 Foot Guard for Treadle Valve 41400755 Hand Valve 35105280 Hose Kit for above valves
		See attached Power Unit drawing & Schematic

REPLACEMENT PARTS LIST

Remote Contractor Air Power Unit

64306700 1 DF 1



NO.	DESCRIPTION	BY	DATE

Autoquip	
<small>© 2005 ALL RIGHTS RESERVED AUTOQUIP CORPORATION This drawing is the sole property of Autoquip Corp. and is not to be reproduced or used for design and construction without permission of Autoquip Corp.</small>	REFERENCE DRAWING DRAWING TITLE: CONTRACTOR AIR POWER UNIT DRAWN BY: DM DATE: 7/1/04 APPROXIMATE WEIGHT: 1 DF 1 PART NUMBER: 64306700 DRAWING NUMBER: A

Figure 30: STE-30/45 Remote Contractor Air Power Unit (P/N 64306700). Air Requirement: 90 PSI & 11

REPLACEMENT PARTS LIST

Remote Contractor Air Power Unit

ITEM #	PART #	DESCRIPTION
	65825000	Schematic
	64306700	Air Power Unit Assembly - Complete
1	64201020	9 x 9 x 18, POLY Reservoir
2	47701640	Hex Filler Breather; 1/2" npt
3	47303810	Motor/Pump Mounting Bracket
4	40800110	Air Motor
5	40200222	1.3 G.P.M. Pump; Str. shaft
6	20000162	Spider for Coupling
7	20000139	Motor Coupling 7/8" Bore (Air Motor)
8	20000030	Pump Coupling 7/16" Bore (Pump)
9	41050139	Suction Strainer (4"L) (Reservoir Strainer)
10	40900029	Muffler for Air Motor
11	41550490	Valve Manifold (w/ Check & Adj. Relief Valve)
12	41420150	Air Solenoid Down Valve Cartridge
	28003234	Lubricator, Air Motor (Ship Loose)
		Optional Controls: 41400631 Treadle Foot Valve 41401600 Foot Guard for Treadle Valve 41400755 Hand Valve 35105280 Hose Kit for above valves
		See attached Power Unit drawing & Schematic

REPLACEMENT PARTS LIST

- STE Accordion Skirts -

Tilter Platform must be Factory Equipped with Accordion Skirts for components listed below.

AQ PART	DESCRIPTION
53408050	ACCORDION SKIRT (ASKIRT)
53425720	MOUNTING BAR KIT (ASKIRT)
53800800	WEIGHT ROD (ASKIRT) (1/2" DIA. X 24"LG)
22070056	SKIRT MOUNTING BOLT (LIFT PLATF Mounting)
24050106	SKIRT MOUNTING WASHER (LIFT PLATF Mounting)
24070104	SKIRT MOUNTING LOCK WASHER (LIFT PLATF Mounting)
23510100	SKIRT MOUNTING NUT (LIFT PLATF Mounting)
22890206	SKIRT MOUNTING RIVET (TILT PLATF Mounting)

TROUBLESHOOTING ANALYSIS



DANGER!

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

PROBLEM	POSSIBLE CAUSE AND SOLUTION
Tilter 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 tilter 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. • The counter balance valve may be out of adjustment. Adjust per the factory recommendations (Double-Acting Models)
Tilter lowers very slowly.	<ul style="list-style-type: none"> • 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
<p>Tilter does not raise.</p>	<ul style="list-style-type: none"> • The motor rotation for a 3-phase motor may be reversed. Reverse only two motor electrical leads. • 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
<p>Tilter won't lower.</p>	<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 tilter. 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 tilter starts to lower, continue pressing the "DOWN" button until it is in the fully lowered position. 3. If the tilter 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 it is in the fully lowered position. 4. Once the tilter 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 tilter 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
<p>Tilter seems bouncy during operation.</p>	<ul style="list-style-type: none"> • Lower the tilter 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.
<p>Motor labors or heats excessively.</p>	<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</i>’s 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 tilter 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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