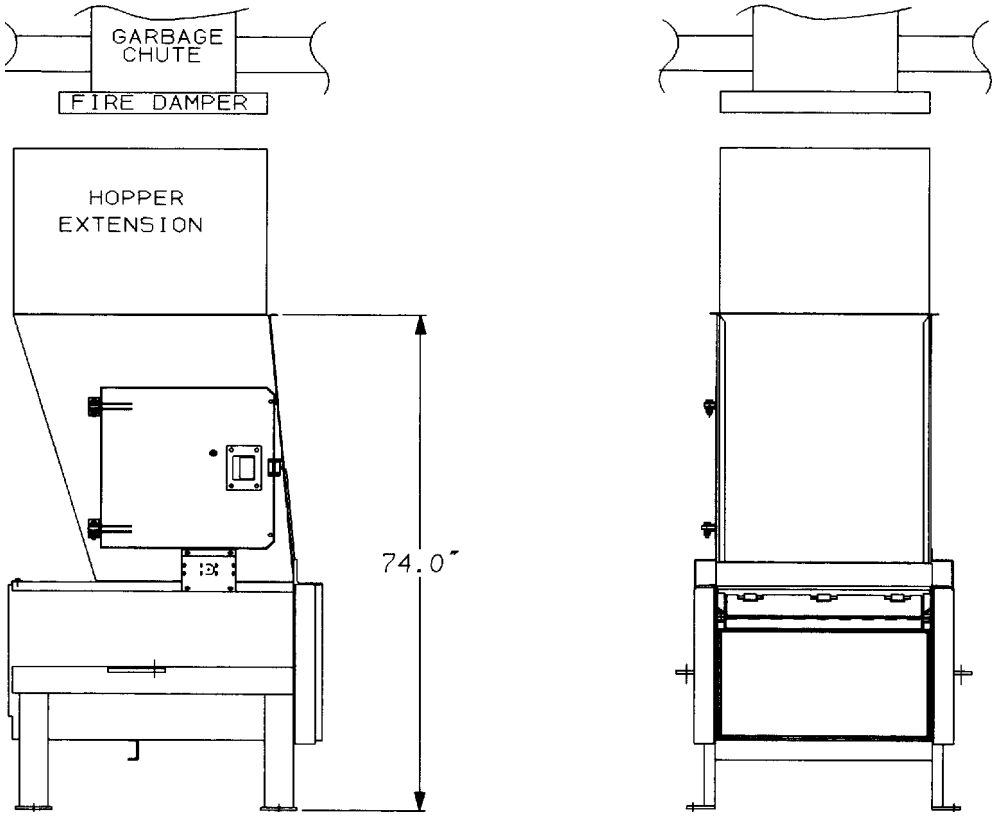
I. INSTALLATION INSTRUCTIONS

IT SHALL BE THE RESPONSIBILITY OF THE INSTALLER OF THE STATIONARY COMPACTORS TO INSTALL COMPACTORS IN ACCORDANCE WITH CURRENT ANSI Z245 SAFETY STANDARD AND OTHER APPLICABLE CODES. **K-PAC DOES NOT ASSUME RESPONSIBILITY FOR INSTALLATION PROCEDURES OF THIS EQUIPMENT**. CONFORMANCE TO APPLICABLE LOCAL, STATE AND FEDERAL LAWS CONCERNING INSTALLATION RESTS WITH THE CUSTOMER.

Warning: All involved personnel shall study this manual completely before proceeding. Study the installation carefully to be certain that all safety guards, and safety devices are provided and in the proper place to protect personnel and equipment during and after the installation.

INSTALLATION SITE

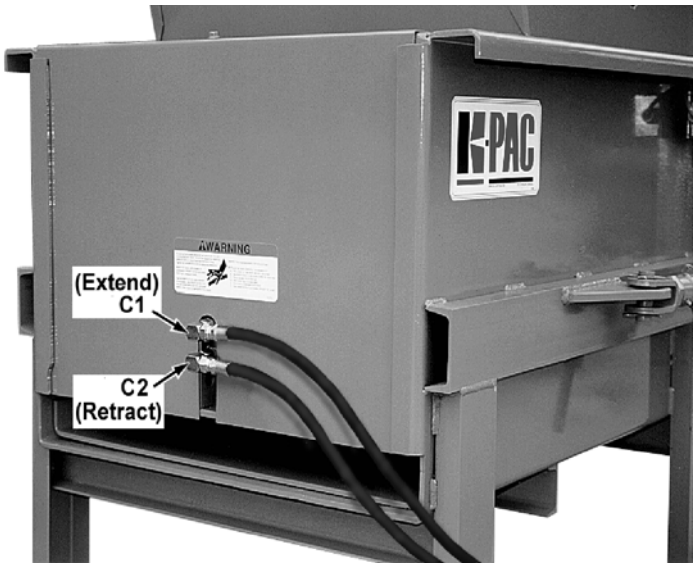
- Careful consideration should be given to the site selected for the K-PAC Compactor.
- **Concrete Pad**: Ample room should be provided to maneuver. For good housekeeping practices, it is recommended that a drain beneath the platform be incorporated in the pad or room to allow for wash-down, etc. An overhead chute should be located to allow adequate maintenance room around the compactor on all sides. See installation illustration for typical arrangement. The overhead trash chute must be provided with a fire damper and anything else deemed necessary by the local fire codes.



- **Anchoring:** Compactor should be anchored to concrete pad using 3/4" Diameter anchor bolts. The use of "Red Head" Phillips Drill Co. or equivalent anchor bolts is recommended. To allow for manufacturing variations, it is best if the concrete holes are drilled after prelocating the compactor in its desired location. Holes in compactor leg plates are 13/16" diameter to permit use of a 3/4" concrete drill bit. When compactor has been permanently located, SHIM TO COMPENSATE FOR CONCRETE PAD UNEVENNESS, and anchor bolts set, tighten all nuts securely.

NOTE: It is very important that the shimming is done carefully so as not to twist the compactor, affecting life and / or operation.

- **Power Unit**: Special care should be exercised to protect the hoses from riding sharp corners and from abrading due to flexing during operation. Connect hoses provided from power unit (**See "HYDRAULIC SAFETY" on page O7**.) C1 (extend) to compactor. Connect C2 (retract) to compactor. Connect hoses to power unit exercising care to follow C1 and C2 as shown. See photographs below.



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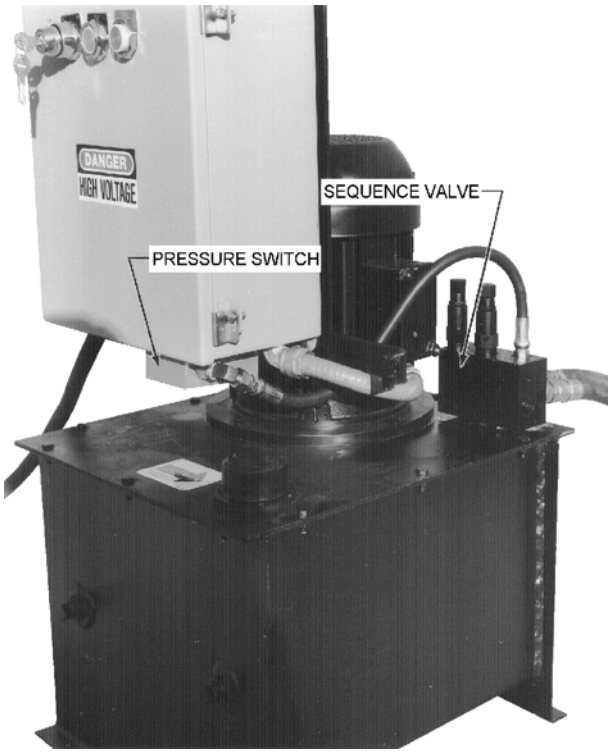

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- **Chute Installation**: The compactor is furnished with a hopper to adapt to an overhead trash chute. Install to add extension as necessary. Make sure that a fire damper is provided and that all local fire codes have been followed by installer. Make sure the chute is closed off during any maintenance activity.
- Make sure that an appropriate hopper is installed to ensure safe operation. The type of compacted material should be considered to protect operator and any nearby personnel from possible flying debris. It is also very important that reliable safety interlocks are installed. To install safety interlock, remove jumper between electrical terminals #5 & #6 and replace with interlock wires. **(Review Electrical Schematics in the Parts Section)**

SAFETY DECAL REQUIREMENTS

Be certain appropriate decals are applied in their proper locations. It is recommended that a decal "DANGER - - DO NOT ENTER" K-PAC #74-319 is applied to any access door (such as a security chute).

When your compactor leaves the factory, SAFETY DECALS are installed for everyone's protection. The decals are subject to wear and abuse due to the nature of operation. These decals must be maintained. Additional decals may be purchased through your K-PAC dealer or directly from the K-PAC factory. See decal placement drawing on page P33 of this manual.

ELECTRICAL INSTALLATION

Check the voltage and frequency marking at the installation site main supply disconnect box, so that it is certain that the electrical current characteristics (voltage, etc.) are compatible with those in the K-PAC Power Unit. If not, a qualified electrician must take whatever steps are necessary to make the voltage compatible.

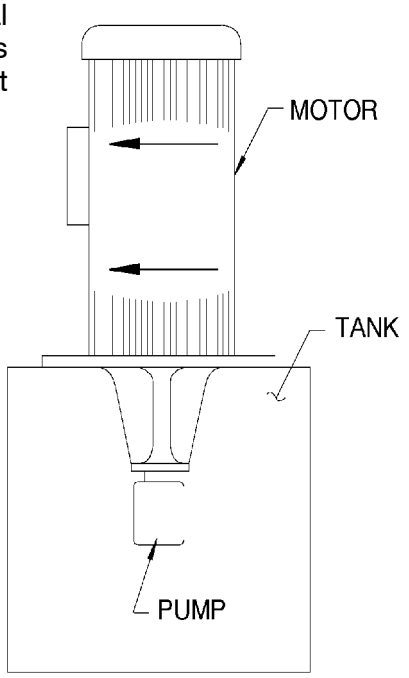
Warning: Before wiring changes are made, make sure that the disconnect switch is padlocked in the "OFF" position. Place an appropriate warning tag *"UNDER REPAIR, DO NOT ENERGIZE WITHOUT THE PERMISSION OF _____"*, on the disconnect switch so that the switch will not be energized without notifying the person making the wiring changes.

All wiring should be in accordance with Local and National Electric Code regulations. After making sure that all wiring is correct, run power lines between the customer's disconnect switch and motor starter for the K-PAC compactor.

See the Parts Section of this owner's manual for the wiring schematics.

Quickly start and stop, and then observe the direction of the electric motors rotation. If the pump rotates BACKWARDS, STOP IMMEDIATELY! The pump will be damaged if it is run in reverse even for short periods of time. If the direction of rotation is not in agreement with the marking on the motor, (See illustration to the right) correct motor rotation.

NOTE: The instruction plate on the motor will show wire numbers which will reverse the motor for the single phase. On 3-Phase motors, reversing any two incoming power lines will reverse the pump motor rotation.



SIDE VIEW M9060-5

ELECTRICAL REQUIREMENTS

A separate branch circuit for the power unit must be installed by a qualified electrician. Check the supply voltage and frequency on the power unit before connecting to main supply disconnect device (Customer furnished). The actual voltage must be within ±5% of the name plate rating when unit is subject to maximum relief setting.

All wiring should be in accordance with Local and National Electric Code regulations. Recommended fuses and wire sizes are listed on a chart below, but the ratings must always meet or exceed any local code. Use copper 60° Celsius wire insulation.

See the inside of the control panel door on the Power Unit for the electrical schematic. Electrical schematics are also included in the Parts Section of this manual.

Motor Horsepower	Line Voltage	Motor Overload Amps	Connection	Screw Size	Torque Inch-Lb. Minimum - Maximum
3 Horsepower 3 Phase	208	11.0	Line Terminals:	M4	9 - 13.3
	230	10.0	Load Terminals:	M4	9 - 13.3
	460	5.0	Control Terminals:	M3.5	7 - 10.6
1 Horsepower 1 Phase	110	16.0	Auxiliary Contact:	M3.5	7 - 9
	220	8.0	Terminal Block:		7 - 9

Motor Horsepower	Line Voltage	Dual Element Time Delay Fusetron - Amps	Minimum copper Wire Size to 100'
3 Horsepower 3 Phase	208	30	10 Ga.
	230	30	10 Ga.
	460	20	12 Ga.
1 Horsepower 1 Phase	110	30	10 Ga.
	220	15	12 Ga.

IMPORTANT: AS A FINAL CHECK CAREFULLY INSPECT FOR LEAKY HYDRAULIC CONNECTIONS, LOOSE ELECTRICAL CONNECTIONS, AND LOOSE OR MISSING BOLTS AND NUTS.

II. START-UP AND TESTING INSTRUCTIONS

Warning: Make sure that all access covers, tank lid, and loading chamber lid are closed and secured.

Before proceeding with this test, make sure that all persons are clear of the loading chamber and the container.

Do not test this unit until you have read and understood the operating and maintenance instructions in this manual.

- With the main disconnect switch OFF, visually inspect all hydraulic, mechanical, and electrical connections on power unit and compactor. All connections must be tight.
- Check oil level in the reservoir to be sure it is adequate. The oil must be within 4" to 5" of the top of the reservoir.
- Close the main power supply switch, BE ALERT for smoking, electrical arcing, or fuse failure. If any irregularity is observed, open main supply switch IMMEDIATELY. Find the source of trouble and make the necessary corrections.
- Insert the key and turn clockwise, depress "START" key momentarily, (1-2 seconds), turn key off and remove to prevent unauthorized use. When released, the ram will move, and continue to move forward until it reaches full extension, then the ram will automatically shift to retract. Upon reaching the retracted position, the power will shut off.
- OBSERVE MOTOR ROTATION. It must rotate in the same direction as the arrow on the motor housing (Clockwise). If motor rotation is incorrect, depress the "STOP" button and immediately open the main disconnect switch. If motor is 3-Phase, reverse any two wires on box. If motor is single phase, exchange wires as shown on the instruction plate on the motor.
- Depress the "STOP" button while the ram is moving. The electric motor will stop. NOTE: When restarted, the ram will move forward even if the "STOP" button was depressed while the ram was retracting.
- After completion of the packing cycle, the power unit should stop automatically. If it does not, press the "STOP" button. Check the pressure switch in the cylinder "retract" line. It may be faulty or incorrectly adjusted.

Caution: With electric eye option and multi-cycle option, unit may cycle more than one cycle.

Warning: THE UNIT WILL START *WITHOUT* WARNING!

Warning: Make sure the interlocks are installed and functioning properly.

With the factory electric interlock installed, opening of the hopper access door or gate will shut down the power unit. Doors or gate must be closed for power unit to operate.

III. OPERATING INSTRUCTIONS

Warning: Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic lines. Tighten all connections before applying pressure.

Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result.

EMPLOYER RESPONSIBILITY FOR STATIONARY COMPACTORS

The employer shall provide properly maintained stationary compactors that meet all applicable regulatory safety standards and shall be responsible for:

- Ensuring that the installation of stationary compactors is in conformance with local codes, ordinances, and manufacturer's recommendations.
- Providing for instruction and training in safe methods of work to employees before assigning them to operate, clean, service, maintain, or repair the equipment. Such instruction and training shall include procedures provided by the manufacturer.
- Monitoring the employee's operation of stationary compactors and taking appropriate action to ensure proper use of the equipment, including adherence to safe practices.
- Repairing, prior to placing the stationary compactors into service, any mechanical malfunctions or breakdowns that affect the safe operation of the equipment.
- Establishing and following a program of periodic and regular inspections of all stationary compactors to ensure that all parts, component equipment, and safeguards are in safe operating condition and adjusted in accordance with the manufacturer's recommended procedures. This shall include keeping all malfunction reports and records of inspections and maintenance work performed.

  Caution: Employers should allow only authorized and trained personnel to operate the compactor. Therefore, this compactor is equipped with a key operated locking system, and the key(s) shall be in the possession of only authorized personnel.

- **No one should ever be permitted in the charge chamber unless the power disconnect switch has been turned off and locked with key in possession of person doing maintenance in the charge chamber. An appropriate tag "UNDER REPAIR, DO NOT USE" should be attached to the disconnect switch so that the switch will not be energized without notifying the person doing the service work. Before restarting compactor, be sure box is clear of all personnel.**
- Operator shall be certain that all individuals are clear of point of operation and pinch point area before actuating controls.
- All access doors on compactor body should always be secured in place.
- If compactor is equipped with safety door or gate, this door or gate MUST BE CLOSED BEFORE OPERATING COMPACTOR.

  BEFORE OPERATING, check to see that the loading chamber is empty and free to operate. Make sure that the two hydraulic hoses are completely connected. **See "Hydraulic Safety" page O7.**

OPERATING INSTRUCTIONS FOR STANDARD COMPACTORS

- Place material to be discarded into charge chamber or hopper.
- Insert key in keylock switch, turn clockwise, press "START" button, and then release. After release, key can be turned to "OFF" position and removed to prevent unauthorized use. DO NOT reposition or adjust material being compacted after compaction cycle has been started.
- Upon start-up of unit, ram extends until the ram reaches a pre-set force determined by sequence valve setting which pilots the valve spool to shift, making ram retract until the shut down pressure switch setting is reached.
- All compactors must and do have a maintained stop button. It consists of a red mushroom style head and by activating (depressing) it you will immediately shut unit down regardless of ram's position. STOP button must be pulled out before compactor can be restarted.

  IMPORTANT: STOP BUTTON MUST BE PULLED OUT BEFORE COMPACTOR CAN BE RESTARTED.

Optional Features:

1. Electric Eye – because most of these compactors are used in high rise apartment buildings fed by chutes, an electric eye option is used to activate the compactor and cycle until chamber is cleared. To test this option, block the eye with a paper or cardboard by inserting it in front of the eye outside the chamber. There should be a delay time before the unit starts after the eye has been blocked. If the eye remains blocked at end of cycle, the power unit should shut down, but restart after a time delay which allows the hydraulic valve to reset for forward movement. This will allow multiple cycles as necessary until the chamber is cleared.
2. Electric Eye with Visible and Audible Alarm – provide additional safety in areas with a greater risk exposure. Upon activation of the system an audible alarm will sound for 5 seconds. The alarm should be set to 10 dBA above the ambient noise level. The visible warning alarm is activated as long as the automatic starting control system is energized. A delay of 20 seconds upon activating the circuit prevents unsuspected unit start-up. To test the electric eye, see #1 above.

OPERATION

- Switch key to "AUTO" and press the "RESET" button.
- The audible alarm will sound for 5 seconds
- The visible alarm will flash
- 20 second delay before photo eye is energized.

DEACTIVATING THE AUTOMATIC SYSTEM

- Opening the door interlock switch will de-energize the automatic control circuit.
- Turning the power off or pressing the "STOP" button will de-energize the automatic control circuit.
- Turning the key switch to "OFF" will de-energize the automatic control circuit.
  - **NOTE**: In the event any of the above, make sure the switch is set to "AUTO" and the "RESET" button is pressed to re-activate the Automatic Control Circuit.

IV. MAINTENANCE INSTRUCTIONS

It shall be the responsibility of the employer who operates the equipment to ensure the proper caring for, cleaning, inspecting, and maintaining of compaction equipment, in the case of employers who maintain their own equipment, the training of competent personnel for this purpose.

It shall be the responsibility of the employer to establish and follow a program of periodic and regular inspections of compaction equipment, and to ensure that all parts, auxiliary equipment, and safeguards are in safe operating condition and adjusted in accordance with the manufacturer's recommended procedures. The employer shall maintain records of these inspections and of maintenance work performed.

Warning: **Before removing any access panels or entering charge chamber, make absolutely sure that main disconnect power box is shut off and locked, with key to said lock in possession of person entering charge chamber or area behind bolted access covers. A tag should also be attached to the disconnect that reads: *"UNDER REPAIR, DO NOT USE".***

WORK AREA AROUND COMPACTORS: It shall be the responsibility of the employer to provide adequate work area around the compactor to permit safe maintenance, servicing, and cleaning practices. It shall be the responsibility of the employer to keep all surrounding floors free from obstructions, from accumulation of waste water, and from grease, oil or water.

HYDRAULIC SAFETY: PLEASE READ CAREFULLY!

Warning: **Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic lines. Tighten all connections before applying pressure.**

Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result.

AVOID HEATING NEAR PRESSURIZED HYDRAULIC HOSES

Flammable spray can be generated by heating near pressurized hydraulic hoses, resulting in severe burns to yourself and bystanders. Do not heat by welding, or using a torch near hoses. Hose can be accidentally cut when heat goes beyond the immediate flame area.

Caution: **If replacing hydraulic hose, use only hose that meets or exceeds 3,000 PSI working pressure.**

IMPORTANT: REPAIR OF HYDRAULIC CYLINDERS SHOULD BE MADE BY AN AUTHORIZED DEALER.

THE FOLLOWING WARNINGS PERTAIN TO THE MORE COMMON ABUSES OF HYDRAULIC HOSE:

1. **INSPECT** the hose assembly before each use.
2. **REPLACE** the hose assembly immediately if:
   a. The jacket of the hose appears abnormal.
   b. You have reason to believe it may be abnormal.
   c. There is fluid leakage.
   d. The couplings are damaged.
   e. The hose is damaged or kinked.
   f. The reinforcement is visible through the jacket.
3. DO NOT **EXCEED** maximum recommended working pressure.
4. DO NOT **KINK** the hose assembly.
5. DO NOT **BEND** the hose assembly beyond it minimum recommended bend radius.
6. DO NOT **EXPOSE** to temperatures in excess of 225° Fahrenheit.
7. DO NOT USE AS A **STRENGTH MEMBER** for pulling or lifting equipment.

FILTER MAINTENANCE:

Suction filter should be cleaned after first 3 months of operation and annually along with replacement of hydraulic fluid (high quality Dexron III transmission fluid).

ANNUAL COMPACTOR INSPECTION:

Check hydraulic cylinder pins for freedom of rotation. Lubricate the pins with EP grease. Pins must be removed to lubricate. This is very important to ensure that pins do not freeze up causing serious damage to components.

Inspect compactor for damage, especially in the slide cover area. Repair any damage to ensure efficient operation and eliminate the potential for material build-up behind the ram, causing serious hydraulic or structural damage.

IMPORTANT: CLEAN OUT ANY MATERIAL BUILT-UP BEHIND THE RAM, AND KEEP THIS AREA CLEAN AT ALL TIMES.

PREVENTIVE MAINTENANCE

We recommend that the user of the K-PAC compactors adopt a program of regularly scheduled maintenance procedures. This schedule below should be followed to insure against premature failure of mechanical or hydraulic components.

INITIAL CHECK	All nuts and bolts during the first week of use, and then monthly after.
	Hydraulic reservoir oil level should be visible in basket of fill cap with ram retracted. Use a good quality Dexron III Automatic Transmission Fluid.
	Hydraulic lines for leaks.
	Hydraulic hose condition. (Check for damage, kinks, etc.)
	Access covers to be sure fasteners are in place.
	Power unit. Remove dust and dirt from outside of control box. Wipe off any dirt, grease, oil or moisture.
MONTHLY CHECK	Lubricate ram bottom and sides with EP grease. DO NOT ENTER CHAMBER TO LUBRICATE. See Item 6 pg O10
	Check external hoses for chafing, rubbing or other deterioration and damage.
	Check for any obvious unsafe conditions, such as electrical lines or operator obstructions, in compactor area.
	Check oil level in hydraulic reservoir.
	Clean unit out and each down if a floor drain is provided.
3 MONTH CHECK	Check functional operation of standard controls and options (stop button, timers, lights, etc.)
	Open back cover and clean out behind ram. **Clean out** any accumulation of waste material.
	Check hydraulic cylinder and internal hoses for leakage; hoses for chafing and wear.

SEQUENCE VALVE, RELIEF VALVE AND PRESSURE SWITCH - - SETTING AND ADJUSTING PROCEDURES

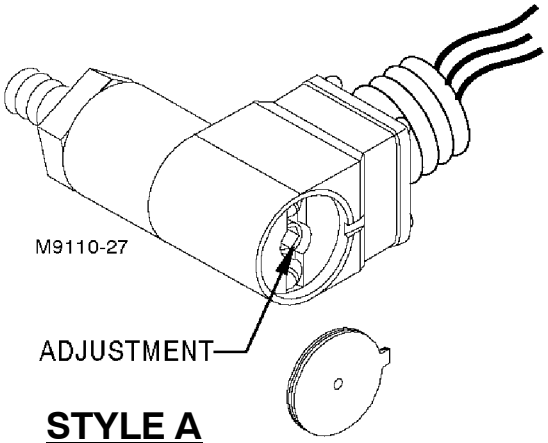
The Pressure Switch's function is to turn the unit off after a cycle is complete. The Main Relief Valve (R) and the Sequence Valve (S) are located on top of the valve block. The Main Relief Valve protects the pump and motor if the Sequence Valve or Pressure Switch should fail to function. The Sequence Valve controls the packing force and reverses the ram direction.

NOTE: The Sequence Valve is preadjusted at the factory and should never need adjusting. However, if the need should arise, the following procedures must be followed.

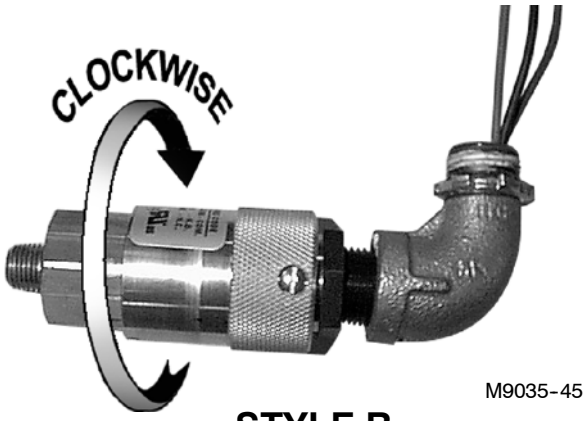
PRESSURE SETTING AND ADJUSTING PROCEDURES

1. Install a 0 to 3000 PSI gauge in pressure port (PG).
2. Turn pressure switch adjustment screw clockwise one (1) full turn (800 PSI).
3. Remove the caps and loosen the lock nuts on Main Relief Valve (4) and Sequence Valve (S). See illustration above.
4. Turn the Sequence Valve (S) adjusting screw clockwise approximately two (2) full turns and turn Relief Valve (R) adjusting screw counter-clockwise approximately two (2) full turns.
5. Start Machine. The ram will extend completely and the oil will dump over the Relief Valve (R). Adjust Relief Valve (R) clockwise until Pressure Gauge reads 1,850 PSI. Turn Sequence Valve (S) counter-clockwise until the ram starts retracting. Tighten the lock nut on the Sequence Valve (S). (THIS OPERATION SHOULD BE PERFORMED AS QUICKLY AS POSSIBLE WITH THE MACHINE RUNNING AND THE RAM RETRACTING.)
6. Upon the ram fully retracting, adjust the Relief Valve (R) by turning clockwise one-half (1/2) turn. Tighten the Lock Nut on the Relief Valve (R). Relief pressure should be 2100 PSI.
7. 3-PHASE POWER UNITS: With the motor running and the oil dumping over the relief valve; turn pressure switch adjustment screw counter-clockwise until the motor stops, then turn an additional one and one-half (1-1/2) turns.
8. SINGLE PHASE POWER UNITS: With motor running; turn pressure switch adjustment screw counter-clockwise until the motor stops. Then turn an additional three-quarters (3/4) turn. This should set the switch at 700 PSI or 900 PSI. Check by operating a complete cycle.
9. Install and tighten the caps on Relief Valve (R) and the Sequence Valve (S), and remove the gauge. Cycle the machine five (5) or six (6) times as a final check-out before installing the cover.

NOTE: If ambient temperature is below 0° Fahrenheit, the pressure switch setting may have to be increased. Increase setting only if problem of ram returning exists.



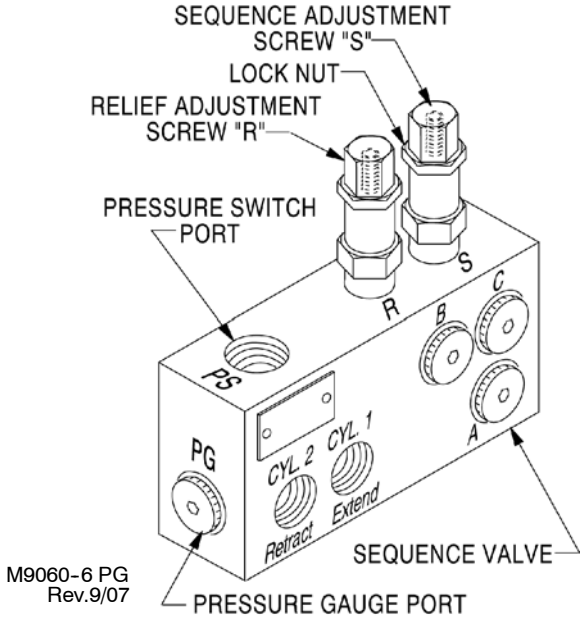
STYLE A

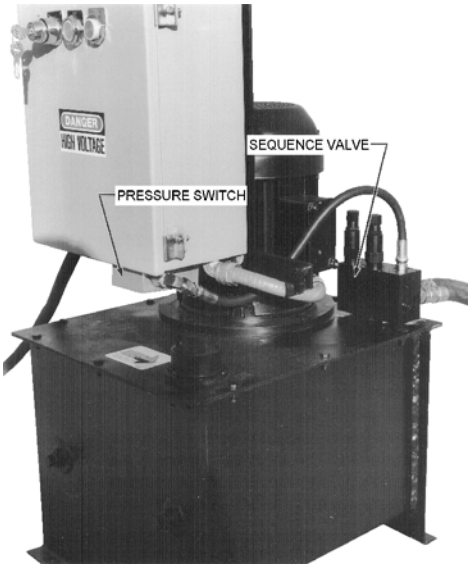


STYLE B

SPECIAL ITEMS NEEDED TO ADJUST VALVES:

1. **0-3000 PSI Glycerine filled hydraulic gauge hydraulic gauge adaptable to 1/8NPT.**
2. **1/4" Allen Wrench**
3. **8" Adjustable Wrench**
4. **Screwdriver**
5. **Thin 3/4" Open End Wrench**
6. **3/16" Allen Wrench**
7. **1/8" Allen Wrench**





ELECTRIC CONTROL VALVE PRESSURE SETTING

OPERATION PRESSURE SETTING PROCEDURE

1. Connect hoses to compactor.
2. Install pressure gauge into extend and retract porting.
3. Loosen relief valve lock nut and adjust pressure to 1850 PSI.
4. STYLE A – Turn pressure switch PSA & PSB (clockwise) to insure settings are higher than 1850 PSI.
   STYLE B – Turn both PSA & PSB pressure switch knurled collars counter-clockwise (away from hydraulic fitting end) four (4) full turns to insure settings are higher than 1850 PSI.

   PSA (REVERSE) Set @ 1850 PSI

   PSB (SHUT-DOWN) Set @ 1200 PSI

   Relief (SAFETY) Set @ 2100 PSI
5. Reconnect main power and start unit. Ram should advance to forward position and allow oil to flow over relief.

6. STYLE A – Turn pressure switch PSA adjustment slowly (counter-clockwise) until ram reverses, (PSA) setting is now set at 1850 PSI.
   STYLE B – Turn pressure switch PSA knurled collar slowly clockwise (toward hydraulic fitting end) until ram reverses; PSA is now set at 1850 PSI. Tighten one (1) lock screw on the knurled collar.
7. After ram reaches rear reverse position and oil flows and oil flows over relief, readjust relief valve (counter-clockwise) to 1200 PSI.
8. STYLE A – Now turn pressure switch PSB adjustment (counter-clockwise) until unit shuts down. (PSB is now set at 1200 PSI)
   STYLE B – Now turn pressure switch PSB knurled collar slowly clockwise (toward hydraulic fitting end) until unit shuts down; PSB is now set at 1200 PSI. Tighten one (1) lock screw on knurled collar.

9A. **Non Multi-Cycle Units:**

1. Restart unit, then reverse ram travel by pushing "REVERSE" button.
2. Hold "START" button in and allow oil to flow over relief.
3. While continuing to hold button in , adjust relief to 2100 PSI and tighten lock nut.

NOTE: On Multi-cycle models holding the "START" button in will not work.

9B. **Multi-Cycle Relief Valve Setting Procedures:**

1. Disconnect main power and lock-out per warning on electrical installation.
2. Remove black wire from PSA pressure switch terminal 4. (See electrical schematic. This eliminates PSA from reversing unit)
3. Reconnect power and start unit. When ram is fully extended, oil will flow over relief. Increase relief valve setting until 2100 PSI is reached and tighten lock-nut.
4. Disconnect main power and lock-out as in Step 1 above.
5. Reinstall black PSA wire into terminal 4.
6. Reconnect power.

V. GENERAL MAINTENANCE TIPS

OIL: Even if high-grade oil was installed at start-up, oil does become contaminated in time. Watch for discoloration, foaming, or change in viscosity. Ambient conditions as to heat or foreign materials will contribute to problems. Dust and chemicals can be drawn into system vents.

FILTERS: After the start-up of a new system, filter and strainers need very special attention. Chips from pipe threads, metal particles, and other foreign materials can be introduced during hook-up. Clean or replace filter elements after the first month of operation.

RELIEF VALVES: The relief valve is the greatest source of pump and system protection. Likewise, the relief valve is usually the first item to give a warning of other problems. This valve is designed to fail open, or "fail-safe". Relief valve malfunction is most often due to contaminants in the fluid. This is a good time to clean up the system; flush-out, change filter, open and clean any valve passages if necessary.

PUMP: Pump noise is a definite sign of trouble. Check shaft alignment and condition of coupler first. Cavitation is another cause of pump noise. Check for a restricted suction line, undersized pipes if altered, or dirty filter or strainer. Look for a suction line leak, air getting into the suction line by way of the plumbing or low oil supply will cause pump noise as well as erratic and noisy valves. Finally, a worn pump will also feel hotter than the surface of the reservoir. System pressures will drop and cycle rates will become slower. If pump is replaced, be sure to change filters and check out the entire system during down time. Also, check cleanliness of oil at this time.

HEAT: Heat will be developed by all mechanical devices. The amount of heat will depend upon the use, duty cycle, proper adjustment, age, etc. Hydraulic power units usually can throw off any excess heat by way of the surfaces of the plumbing and reservoir. Hydraulic power units should operate in the range of 140° maximum, 160° absolute maximum.

VI. TROUBLE-SHOOTING

Warning: Trouble-shooting to be performed by a qualified maintenance technician only.

PROBLEM	POSSIBLE CAUSE	SUGGESTED REMEDY
Packer does not develop full packing force	Sequence valve set too low	Re-adjust valve. See pressure switch adjustment instructions.
Motor and pump run, but compactor does not operate	Low oil level	Add oil.
	Hoses not properly connected	Check connections at quick couplers.
	Incorrect pump and motor rotation	Reverse any two motor leads on the starter (3-Phase only). Reverse wires at motor for Single Phase.
	Pump suction screen plugged	Clean suction screen
	Key sheared on pump or motor shaft	Replace key and any damaged parts
Cycle time too long	Restriction or kink in hydraulic hose	Check hose. See Hydraulic Safety on page O7
	Pump worn or damaged	Replace pump
	Pump suction screen plugged	Clean suction screen
	NOTE: The cycle time will become longer as compaction in container increases. If cycle time becomes longer than 2 minutes, check for one of the problems listed above or pump sequence valve set too low.	
Pump makes noise	Partly clogged intake strainer or restricted intake pipe	Pump must receive intake fluid freely or cavitation results. Flush the system. Clean intake pipe and clean or replace the strainer. Add clean fluid.
	Defective bearing	Replace pump.
Power unit does not shut off at end of packing cycle.	Pressure switch setting too high	Adjust pressure setting. See page O8 for instructions.
	Main Relief Setting too low	Adjust main relief. See page O8 for instructions.
System operates continuously over main relief and ram does not operate	Main relief set too low	Adjust main relief. See page O8 for instructions.
	Sequence valve set too low or stuck in "pack" position	Adjust sequence valve or disassemble and clean. See page O8 for instructions.

VII. ELECTRIC MOTOR TROUBLE-SHOOTING

PROBLEM	POSSIBLE CAUSE	SUGGESTED REMEDY
Motor runs excessively hot	Block ventilation	Clean external and internal ventilation system
	High ambient temperature of over 105° Fahrenheit	Provide outside source of cooler air
		Reduce number of cycles per hour
Motor won't start or makes growling noise	Very low voltage	Check power source. Check motor nameplate (motor wiring vs. line voltage for low volts or high volts.)
	Single phased	Check power source (3-Phase only)
	Open motor leads	Check continuity. Clean and tighten.
	Rotor or bearings locked	Check shaft for freeness of rotation
	Thermal overload tripped	Reset. Be sure proper sized overload relays are used and amp setting is correct.
	Starter coil burned out	Replace starter coil.
Motor runs noisy	Bad bearings	Disconnect from pump coupling and check. If noise does not stop, replace bearings
	Bad pump or coupler	Disconnect from coupling and check
Thermal over relays tripping	Incoming leads to incorrect terminals	Correct lead terminal locations
	Low voltage at motor terminals	Improve power supply and/or increase line size
	Single phasing	Check power source, must have all 3 phases. (For 3-phase models only)
	Excessive voltage drop	Eliminate
	Overload amps set too low	Correct setting per nameplate current on motor
	Loose electrical connections	Clean and retighten
Power unit shuts off on return of ram prior to complete return	Low ambient temperature	Increase setting on pressure switch
	Pressure switch set too low	Increase setting on pressure switch
Excessive vibration (out of balance)	Motor mounting	Check alignment between motor and pump. Be sure motor mounting is tight and solid.
	Pump	Disconnect pump from coupling and restart motor. If vibration stops, the unbalance is in the pump. Replace the pump.
	Coupling	Remove coupling and restart motor. If the vibration stops, the unbalance is in the coupling. Replace coupling spider.
Thermal overload does not trip soon enough	Overload setting too high	Set correctly.
	Line voltage too high for motor	Rewire motor and starter. Match line voltage. Replace overload with correct one or reset if applicable.
	Avoid the following: Excessive greasing of motor, misalignment of motor and pump, and contamination on motor and electrical components.	
Control fuse blowing prematurely or excessively	Water in flex conduit at bottom joint	Drill hole in lower fitting
	Incorrect incoming voltage (also check 3-Phase vs. single phase, they are incompatible)	Match power unit and voltage

INSTRUCTION TO CONVERT 9003 (3-PHASE) POWER UNIT VOLTAGE

(<u>CANNOT</u> convert 3-Phase to Single Phase)

See correct wiring schematic in addition to these instructions.

1. What voltage to convert to? See Column I on the chart below.

2. Read conversion steps and chart below. Order parts as necessary.

3. Steps in making conversion. (All steps are very important)
   a. Change motor starter to transformer wire on transformer to agree with the chart below for voltage desired. (See Columns II and III) This step sets the proper voltage for control circuit and oil heater.

   b. Change overload heater pack per chart below (Column III). This step is necessary for proper motor protection. NOTE: SAME HEATER PACK IS USED FOR 208 VOLT and 230 VOLT (460 VOLT IS DIFFERENT).

   c. Set overload relay to correct amperae (Column IV). This step is necessary for proper motor protection.

   d. Check wiring of control panel to motor at motor (*high voltage vs. low voltage*), and change to correspond if necessary. See nameplate on motor for correct wiring (208V and 230V are ***low voltage***, 460V is ***high voltage***).

   e. Change electrical schematic in control panel. (Column VII)

   f. Change voltage decal on outside of control panel per chart. (See Column V)

4. Double check that all steps were taken and are correct before connecting to power. Check wire routing per proper electrical schematic.

I.	II.	III.		IV.	V.	VI.
VOLTAGE	WIRE FROM STARTER TO TRANSFORMER	OVERLOAD HEATER PACK		AMPERAGE SETTING	MOTOR WIRES	ELECTRICAL SCHEMATIC
		K-PAC	CUTLER#			
- - - - -	L1 - H4 COMMON	- - - - -	- - - - -	- - - - -	See Motor Name Plate	- - - - -
208	L2 - - H3	79-518	H2010B-3	11		9003-208-0*S
230	L2 - - H2	79-518	H2010B-3	10		9003-230-0*S
460	L2 - - H1	79-567	H2010B-3	5		9003-460-0*S

9060-100-3C
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INSTRUCTION TO CONVERT 9001 (SINGLE-PHASE) POWER UNIT VOLTAGE

(CANNOT convert Single Phase to 3-Phase)

See correct wiring schematic in addition to these instructions.

1. What voltage to convert to? See Column I on the chart below.

2. Steps in making conversion. (All steps are very important)
   a. Change overload heater pack per chart below (Column III). This step is necessary for proper motor protection.

   b. Rewire controls per proper electric schematic (Column VI). NOTE: 16" white wire from L3 to terminal strip #2 will be added or removed per schematic (Column VII).

   c. Set overload heater pack to correct amperage (Column IV). This step is necessary for proper motor protection.

   d. Change leads from the control panel to the motor at the motor. (Column V) See plate on motor for instructions. Note instructions on the motor name plate to reverse rotation.

   e. Change electrical schematic in control panel. (Column VI)

   f. Change voltage decal on outside of control panel per chart. (Column II)

I.	II.	III.		IV.	V.	VI.	VII.
VOLTAGE	VOLTAGE DECAL	OVERLOAD HEATER PACK		AMPERAGE SETTING	MOTOR WIRES	ELECTRICAL SCHEMATIC	WIRE
		K-PAC	CUTLER#				
110 - 120	74-280	79-335	H2012B-3	16	See Motor Plate	9001-110-0MLLES	16" White
220 - 240	74-281	79-518	H2012B-3	8		9001-220-0MLLES	----

3. Double check that all steps were taken and are correct before connecting to power. Check wire routing per proper electrical schematic.

4. Note wiring schematic will need to have 9001-110-3 clear seal for installation.

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