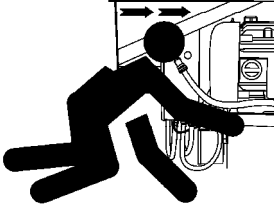


SAFETY DECALS

⚠ WARNING



PINCH POINT BETWEEN SIDE OF RAM AND CONTROL PANEL COULD RESULT IN SERIOUS BODILY INJURY.

STAY CLEAR OF PINCH POINT AREA WHILE PERFORMING MAINTENANCE ADJUSTMENTS.

74-447

⚠ CAUTION

OPERATORS - ALL PERSONS OPERATING THIS COMPACTOR ARE TO READ THE OPERATOR'S MANUAL AND UNDERSTAND THE SAFETY MESSAGES ON THIS MACHINE.

1. Keep compactor area clean and clear of obstructions.
2. Inspect hydraulic hoses, fittings and electrical hook-up before cycling compactor. Do not use if repairs are needed.
3. Periodic inspection and maintenance is required, safety shields, access doors, and safety devices shall be functionally maintained.
4. DO NOT fill with heavy material, check with hauler for maximum capacity. Manual unloading may be required if overloaded.
5. Obey all warnings and safety instructions.
6. Obey all manufacturer's operating instructions.

KEEP BYSTANDERS CLEAR

74-270

⚠ CAUTION

DO NOT REMOVE ACCESS COVER EXCEPT FOR SERVICING.

BEFORE REMOVING ACCESS COVER YOU MUST:

- LOCKOUT & TAGOUT DISCONNECT SWITCH
- TURN CONTROL PANEL KEY SWITCH TO "OFF" POSITION
- REMOVE KEY

74-216

CAUTION

KEEP OUT

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DANGER

DO NOT ENTER

74-319

DANGER



HIGH VOLTAGE

74-265

⚠ WARNING

THESE CONTROLS SHALL BE LOCATED OUTSIDE THE AREA AND BEYOND THE REACH OF THE COMPACTOR.

DO NOT OPERATE OR SERVICE THIS EQUIPMENT UNTIL YOU HAVE BEEN PROPERLY TRAINED AND INSTRUCTED IN ITS USE AND HAVE READ THE OPERATION AND SERVICE MANUAL.

74-274


⚠ DANGER

DO NOT OPERATE MACHINE UNLESS CONTAINER IS PROPERLY ATTACHED.

74-399

⚠ 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.


INSPECT the hose assembly before each use.

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 any fluid leakage.
- D. The couplings are damaged.
- E. The hose is damaged or kinked.
- F. The reinforcement is visible through the jacket.

74-276

⚠ CAUTION



DEBRIS MAY BE EJECTED DURING PRE-CRUSH CYCLE. STAND BACK FROM MACHINE TO AVOID INJURY.



CHARGE HOPPER MUST BE OF ADEQUATE HEIGHT TO PROTECT OPERATOR AND/OR BYSTANDERS FROM FLYING DEBRIS.

74-446

See decal placement drawing on page P18 in this manual for proper locations.

I. INSTALLATION INSTRUCTIONS

IT SHALL BE THE RESPONSIBILITY OF THE INSTALLER OF THE STATIONARY COMPACTORS TO INSTALL COMPACTORS IN ACCORDANCE WITH ANSI Z245.2 - 1992 SAFETY STANDARDS 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.



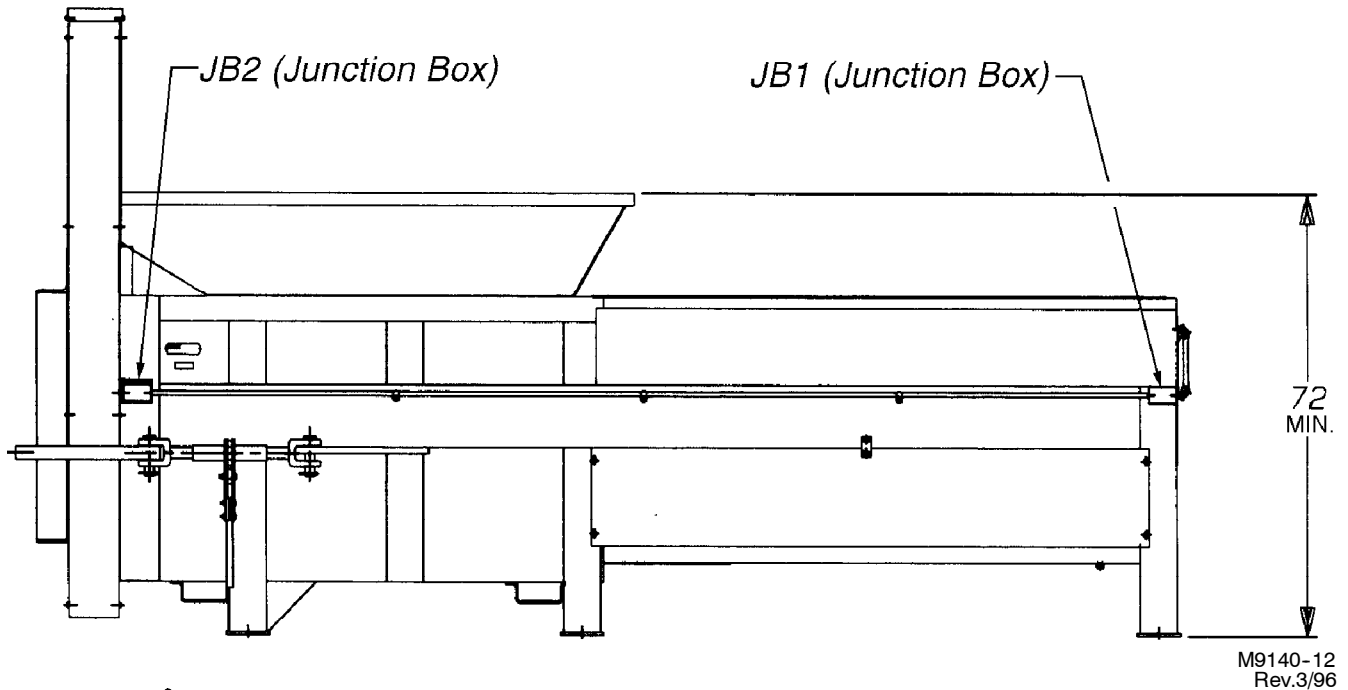
Warning: All involved personnel shall study this manual completely before proceeding. Study the installation carefully to be certain that all safety guards, and safety devices are provided and in the proper place to protect personnel and equipment during and after the installation.

INSTALLATION SITE

1. Careful consideration should be given to the site selected for the K-PAC Compactor.
2. **Lifting The Compactor Properly:** The compactor can be off loaded or moved either from the side or from the chamber end by securing it to the fork lift truck with a chain around to handle the weight of the compactor. Fork pockets are provided from the side. If the fork lift will not lift the unit, or if the unit teeters when lifted, the compactor must be lifted with a larger fork lift or two fork lifts on opposite sides. Once the compactor is in its approximate position, its position can be adjusted without lifting it completely off the concrete. Lift one end of the compactor and shift it into position with the fork lift.
3. **Concrete Pad:** Ample room should be provided for the collecting vehicle to maneuver, including room to avoid OVERHEAD ELECTRIC AND TELEPHONE LINES. The unit should be placed on a reinforced concrete pad. Preferred dimensions of the concrete pad are 10'0" wide and length of 5'0" greater than the length of stationary compactor and roll-off receiver container. It should be minimum of 3,000 PSI concrete, steel reinforced, 6" thick. For good housekeeping practices, it is recommended that a drain beneath the platform be incorporated into the pad to allow for wash-down, etc. Concrete should be flush with the surrounding ground level. This is important for roll-off truck access. NOTE: The pad must be level on outside 2' to allow contact of all four platform rollers.
To provide accessibility, the concrete pad should be positioned to allow 2'0" between the container and the building wall if installed parallel with the building. Allow a minimum of 45' of clear space from container end of pad for container handling vehicle.
Container guide (optional) should be anchored with bolts grouted in with setting compound approximately 5" deep. Spacing between guides is determined by rail spacing of the containers.
4. **Anchoring:** Compactor should be anchored to concrete pad using (1) 3/4" Diameter anchor bolt per leg or a total of 6 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. When the 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.
5. **Dock installation:** If the compactor cannot be directly abutted to the dock, or if there is any difference in height between dock and compactor, an appropriately sturdy transition section should be provided (by the customer) and securely affixed to both dock and compactor. Hand and toe rails should be extended as required to suit this transition. (See ANSI Z245.1 Safety Standards) Be sure proper gates and interlock switches are installed. A full enclosure is recommended for maximum safety.

6. **Chute-fed installation:** Compactors installed in this arrangement are normally fed "through-the-wall". The lower edge of the access hole in the wall should be a minimum of 42" (and, if possible, not more than 58") from the inside floor level. A security door (in accordance with local code) should be installed in the wall opening. In the absence of local code, this door should be constructed of 3/16" steel plate or steel hollow core design and be lockable from the inside of the building. NOTE: When compactor is equipped with a photoelectric cycle control (or any automatic cycling device -- See ANSI Z245.2-1992,7.2), an interlock must be installed on security door which prevents compactor from cycling whenever door is open.

7. **Hopper or Enclosure**



⚠ Caution: Make sure that an appropriate hopper is installed to ensure safe operation. The type of compacted material should be considered to protect operator from possible flying debris. It is also very important that reliable safety interlocks are installed.

REMEMBER, safety is #1 and should never be compromised for any reason!

8. **Power Unit:** Can be located under the compactor, behind the side shield. Remote control must be installed within 3' of loading chamber or loading door. Power unit to be anchored as required by the customer. Connect hydraulic hoses and fittings and clamp to prevent flex at fittings and rubbing on corners of components **THIS IS VERY CRITICAL TO PREVENT PREMATURE HOSE FAILURE.** Hose must be strapped to side or bottom of cylinder.

Special care should be exercised to protect the hoses from riding sharp corners and from abrading due to flexing during operation.

BLADE CYLINDER HYDRAULICS: (See parts illustration on P4 in this manual)

Connect hydraulic hoses from port 'A' on the blade valve to ROD END of blade cylinder; and from port 'B' on the blade valve to the head end of the blade cylinder.

RAM CYLINDER HYDRAULICS: (See parts illustration on P4 in this manual)

Connect one hose from **extend port 'A'** of power unit to **BASE end port** of ram cylinder; and one hose from **retract port 'B'** of power unit to **ROD end port** of ram cylinder.

For 'through-the-wall' power unit installation, make sure that the remote station is installed within the 3' limit above.

CONTAINER & COMPACTOR ALIGNMENT

One inch clearance all around the container opening should be observed when the container is connected to the compactor charge opening. The compactor mating surface of the container should fit flush with the mating surface of the compactor. If a gap is present on the top or bottom, the front or rear legs of the compactor and/or the wheels of the container, must be shimmed until proper alignment is reached. **DO NOT OVER-TIGHTEN THE CONTAINER HOOKS.** The container should only be drawn snug against the compactor.


SAFETY DECAL REQUIREMENTS

Be certain appropriate decals are applied in their proper locations. See ANSI Z245.2-1992 section 7 for safeguards and features. IT IS VERY IMPORTANT THAT ANSI Z245.2 STANDARD BE THOROUGHLY STUDIED TO BE SURE OF LATEST COMPLIANCE.

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 pages P18 of this manual.

ELECTRICAL INSTALLATION

A separate lockable 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). Must be within sight of compactor remote control (not to exceed 50' from compactor). The actual voltage must be within 5% of the nameplate rating when the unit is subject to maximum relief setting. If voltage is not compatible, a qualified electrician must take whatever steps are necessary to make the voltage compatible. (See page for converting power unit voltage.

 **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. Recommended fuses and wire sizes are listed on a chart below, but the ratings must always meet or exceed any local code.

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 inside of the control panel door on the power unit for the electrical schematic. Check that power unit is set up for supply voltage being used.

Motor Horsepower	Line Voltage	Full Load Amp	Dual Element Time Delay Fusetron - Amps	Minimum Wire Size to 100' Copper	Minimum Wire Size to 200' Copper
20 HP 3 Phase	208	60	100	3 Ga.	2 Ga.
	230	56	90	4 Ga.	3 Ga.
	460	28	45	8 Ga.	6 Ga.

Quickly start and stop, and then observe the direction of the electric motor rotation (see arrow on motor fan housing). If the motor runs 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, correct the motor rotation. NOTE: On 3-Phase motors, reversing any two incoming power lines will reverse the pump motor rotation.

PUSH-BUTTON CONTROLS

Remote push-button station is furnished, and will be factory wired using Sealtite. Locate the controls per ANSI Z245.2-1992 (or latest current STD.). If, in order to install this push-button station inside the building, it is necessary to disconnect it from the wires, exercise care that these wires are reconnected as originally furnished.

Above standard item 7.5.3 states 'for emergencies, a means of stopping and controlling the movement of the ram at any point shall be provided. Emergency stop controls shall be readily accessible to the operator and shall be located within 3 Ft. of the point of operation, or if chute fed, within 3 Ft. of the access door.' NOTE: The complete ANSI Z245.2 standard should be studied to clarify all necessary requirements and term definitions.



Caution: Controls must be located so that MUSHROOM (Emergency) STOP BUTTON is readily accessible to the operator and within three (3) feet of charging chamber access door, or opening. If installation requires this push-button control station to be located in a more remote area, a second emergency stop should be added and installed in the manner described above.

II. START-UP AND TESTING INSTRUCTIONS



Warning: Make sure that all access covers, hopper door or gates are closed and secured.

Before proceeding with this test, make sure that 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.

1. With the main disconnect switch OFF and LOCKED OUT, visually inspect all hydraulic, mechanical, and electrical connections on power unit and compactor. All connections must be tight.
2. Check oil level in the reservoir to be sure it is adequate. The oil must be to the 3/4 level or full on the sight gage. Check when compactor ram is retracted. Use Dexron II oil.
NOTE: If oil level is too low power unit will not operate.
3. Lubricate all oil and grease points on the compactor as instructed under "Monthly Check" in the Preventive Maintenance Section of this manual. See pages 11 and 12.
4. 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.
5. OBSERVE MOTOR ROTATION. Turn key to manual and depress 'START' button momentarily then quickly depress 'STOP' button and observe motor rotation. It must rotate in the direction of the arrow on the motor housing (Clockwise). If motor rotation is incorrect, open the main disconnect switch. If motor is 3-Phase, reverse any two power wires at the control box.
6. If rotation is correct, jog the electric motor to prime the pump. If the pump makes excessive noise, shut the system down and check the suction line for leaks or an obstruction. Remember the suction side of the pump will have to lift the fluid, so leaks will generally not appear as oil running down a pipe line. IT MAY BE NECESSARY, after all fittings have been checked for tightness, to run the system and apply oil to plumbing junctions and observe whether the oil is being drawn into the system, indicating a leak.
7. Insert key and turn switch to manual. Turn ram switch to 'forward', the ram will move, and continue to move until it reaches full extension, then release ram switch and turn to 'reverse'. Upon reaching the retracted position, release ram switch. Next operate blade.



Caution: With multi-cycle option, unit may be set to cycle more than one cycle.

8. For automatic cycle, insert key and turn switch to auto, push start button and ram will begin to extend. Ram should compress against blade, reverse momentarily, blade will move upwards, ram will again extend into container, then reverse and return to retracted position, blade will then move downward. If multi-cycle set at one cycle, unit will shut off after blade hits bottom of compactor. See multi-cycle setting (page 9) for instructions on setting number of cycles.
9. After the 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 blade cylinder 'retract' line. It may be faulty or incorrectly installed.

 **Warning:** Make sure all 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

EMPLOYER RESPONSIBILITY FOR STATIONARY COMPACTORS

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

1. Ensuring that the installation of stationary compactors is in conformance with local codes, ordinances, and manufacturer's recommendations.
2. 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. Be aware of minimum age per current local or national code, for operation of this type of equipment.
3. Monitoring the employee's operation of stationary compactors and taking appropriate action to ensure proper use of the equipment, including adherence to safe practices.
4. Repairing, prior to placing the stationary compactors into service, any mechanical malfunctions or breakdowns that affect the safe operation of the equipment.
5. 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.
6. **No one should ever be permitted in the charge chamber unless power disconnect switch has been turn 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. Also, place sign on hopper door or chute door not to throw trash into compactor, service being done. Lock door if possible.**
7. Operator shall be certain that all individuals are clear of point of operation and pinch point area before actuating controls.
8. All access doors on compactor body should always be secured in place.
9. 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 hydraulic hoses are connected.

OPERATING INSTRUCTIONS FOR STATIONARY COMPACTORS

1. Place material to be discarded into charge chamber.

DO NOT ENTER THE CHARGING CHAMBER.

DO NOT throw solid objects such as steel plate, castings, concrete blocks, etc. into the chamber. This type of material may seriously damage the compactor and/or container.

DO NOT operate dumping devices unless area is clear of all personnel. OSHA and the manufacturer require erection of suitable barriers when these devices are used.

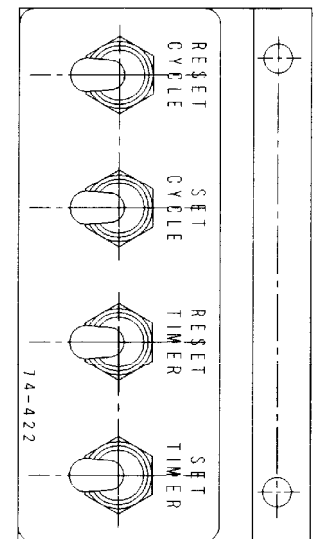
2. Insert key in keylock switch, turn to AUTO or MAN as desired, push green start button and desired type of cycle will start. If keylock switch is on MAN, then operator must turn FWD-REV switch to move ram and turn UP-DOWN switch to move blade. If keylock switch is on AUTO then ram will automatically start forward when unit is started.

DO NOT reposition or adjust material being compacted after unit has been started.

3. Upon AUTO startup of unit, ram extends until the ram reaches a pre-set force determined by pressure switch (PSA) setting which applies power to the reversing solenoid, making ram retract, the PLC controls retracting time, the blade solenoid is activated, which begins upward movement until a cam switch (SW#2) is contacted, this signal is then processed by the PLC and the ram solenoid causes forward movement of the ram. Upon reaching the pressure switch setting (PSA) again, the ram will reverse and return to its completely retracted position. In this position the ram contacts a cam switch (SW#1) and sends a signal to the PLC and causes blade solenoid to activate downward movement of the blade. When the blade contacts something causing pressure build-up, a pressure switch (PSC) will be activated causing the power unit to shut down. If the compactor is set for more than one cycle, another cycle will start instead of shutting the power unit off. After the pre-set number of cycles is reached, the unit will shut down.
4. All compactors must and do have a MUSHROOM STOP BUTTON. It is activated by depressing and will immediately shut unit down regardless of ram's position.
5. If it becomes necessary for specific ram or blade movement due to jamming or for any other reason, turn key switch to MAN and control ram and blade by turning the FWD-REV switch for ram or turning UP-DOWN switch for blade movement. Switches are spring return to OFF so operator must hold control in desired position for movement to continue. If released movement will stop.

Optional Features:

1. Container Full Light - If the amount of ram penetration into the container is reduced, the cycle time will be reduced, and if this time becomes less than the preset time on the return stroke of the ram, the full light will come on. This preset time is changed by switches inside the control panel. The third switch down (SW#5) resets this full light time, and the fourth switch (SW#6) sets the time. The reset time is 4.6 sec and each switching of switch #6 increases this time by 0.2 second. NOTE: if the container becomes too full before activating the light, increase the time by switching (SW#6) switch. When setting this time, it is advisable to record setting. (Example: Reset +2)
2. Multi-cycle function - when more than one cycle is required, this can be set by switching the top switch (SW#3) (inside the control panel) which will reset cycles to one. Then switch (SW#3) is switched one time, setting cycles at two, each switching increases the number of cycles by one.
3. Safety Control - this is a safety option requiring a compactor operator to remain at the push-button station while compactor is in use (commonly referred to as 'Deadman' control). Actuation of this control requires depressing 'SAFETY' and 'START' buttons. After unit has started, 'START' button is released. If the 'SAFETY' button is released, unit will stop instantly.
4. Photo Electric Eye - mount reflector opposite the eye to reflect the light beam. Light beam must be free from obstructions.



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IV. MAINTENANCE INSTRUCTIONS

MAINTENANCE SAFETY: PLEASE READ CAREFULLY!



Warning: Before any maintenance is performed, 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 performing the maintenance.

Also, be aware of contained energy when pre-crusher blade is up. Move blade down or position an adequate support under the blade before disconnecting any hydraulic hoses or fittings.

NOTICE:


1. All affected employees shall be notified that equipment must be shut down and locked out prior to performing servicing or maintenance.
2. The equipment, if operating, shall be shut down by normal means and the energy isolating device shall be de-activated to isolate the equipment from the energy source. Isolation shall include:
 - a. Removing the key from the key-lock ON-OFF switch;
 - b. Installing a tag at the lock-out station and on the control panel;
 - c. Placing operating equipment in such a position as not to be subject to possible free fall and / or installing additional blocking devices to prevent free-fall;
 - d. Relieving stored hydraulic pressure, after blocking devices are installed.
3. Equipment isolation shall be verified by activating the normal operating controls, ensuring first that no personnel are exposed (ensure operating controls are returned to the neutral or 'OFF' position after verifying the isolation of the equipment.)
4. When the servicing or maintenance is completed, only after checking that the equipment is ready to operate, ensuring that the surrounding area is clear and that employees are safely positioned or removed from the area, and verifying that controls are in neutral, shall the lock-out devices be removed and the equipment be re-energized.
5. Affected employees shall be notified that the servicing or maintenance has been completed and the equipment is ready for use.

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.

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.

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 any 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** the maximum recommended working pressure.
4. DO NOT **KINK** the hose assembly.
5. DO NOT **BEND** the hose assembly beyond its maximum recommended bend radius of 3.25 inches.
6. DO NOT **EXPOSE** to temperatures in excess of 225° Fahrenheit.
7. DO NOT USE AS A **STRENGTH MEMBER** for pulling or lifting equipment.

 **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.

PREVENTIVE MAINTENANCE

We recommend that the user of the K-PAC compactors adopt a program of regularly scheduled maintenance procedures.

This schedule should be followed to insure against premature failure of mechanical or hydraulic components.

1. INITIAL CHECK:
 - a. All safety interlocks on factory installed or customer installed hoppers or chutes.
 - b. All nuts and bolts during the first week of use, and then monthly thereafter.
 - c. Hydraulic reservoir oil level should be at mid to upper range of sight glass with ram retracted. Use a good quality Dexron II Automatic Transmission Fluid.
 - d. Hydraulic lines for leaks.
 - e. Hydraulic hose condition. (Check for damage, kinks, etc.)
 - f. Access covers to be sure fasteners are in place.
 - g. Power unit. Remove dust and dirt from outside of control box. Wipe off any dirt or grease, oil or moisture.
2. MONTHLY CHECK
 - a. All safety interlocks.
 - b. Lubricate the wear surfaces of the guide area with general purpose EP grease. DO NOT ENTER chamber to lubricate. See item 6, page 11.
 - c. Check external hoses for chafing, rubbing, or other deterioration and damage.
 - d. Check for any obvious unsafe conditions, such as electrical lines or operator obstructions, in compactor area.
 - e. Check oil level in hydraulic reservoir.
 - f. Wash unit out.

3. 3 MONTH CHECK:

- a. Check functional operation of standard controls and options.
- b. Open side cover and clean out behind ram. Clean out any accumulation of waste material.
- c. Check hydraulic cylinder and internal hoses for leakage; hoses for chafing and wear.

4. FILTER MAINTENANCE:

- a. Hydraulic suction strainer should be cleaned after one (1) month of operation and then at regular intervals of not more than six (6) months
- b. Strainer may be removed from unit by disconnecting hose on suction side of pump, removing lower 90° fitting and unscrewing junction filter from reservoir.
NOTE: Be sure to drain oil or tip reservoir before disconnecting hose.
- c. Care should be exercised in cleaning strainer to insure that the element is not torn. Clean with soft brush and standard industrial solvent.
- d. Replace strainer after cleaning; tighten union securely. Pump noise and "crackle" sound is most often caused by air entering pump suction line. Tightening the suction fittings will usually eliminate such problems. Use a high grade of thread sealant.

5. YEARLY CHECK:

- a. Electrician to check all electrical connections, check motor resistance (recording successive readings helps to prevent future failure). Under heavy use, grease the motor. (DO NOT OVER-GREASE)
- b. Hydraulic system - prior to winter season, drain and clean inside of reservoir by removing clean-out cover. Check and clean filter, replace cover and refill. Check for tightness. Refill reservoir with Dexron II Automatic Transmission Fluid (high quality).
- c. Check structure of compactor for potential trouble areas and repair as needed.
- d. Check hoses to insure that they do not become severely worn before being replaced.
- e. Check condition of ram guide graphite phenolic wear strips. Replace if necessary.
- f. Check condition of cylinder pins. Replace as necessary. (See section titled "CYLINDER PIN INSPECTION")

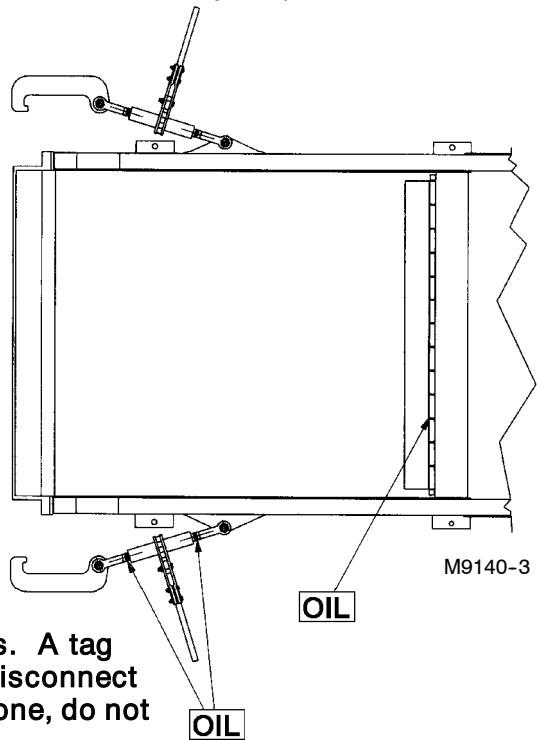
6. LUBRICATION:

NOTE: Clean-out or maintenance behind the ram require the main side shield to be removed. Before removing this shield run ram forward if possible to give more room to work. **Follow the CAUTION instructions below.** Clean out any built up debris and lubricate the area that the slide blocks travel on with grease. (The slide block area is shown in item 7 page 12.)

Lubricate the turnbuckle threads and ram flap with oil as shown in illustration to the right.



Caution: Before removing any access panels or entering charge chamber, make absolutely sure 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 stating that 'maintenance' is being done, do not connect power.



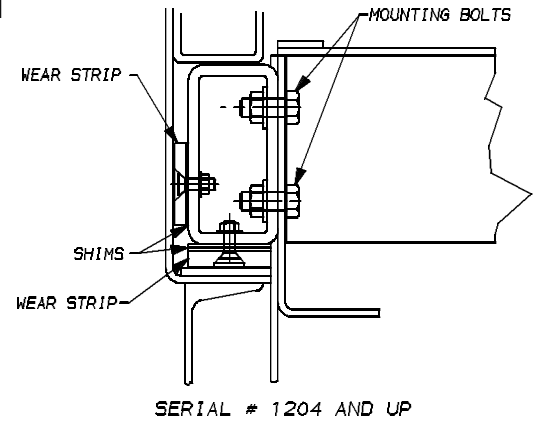
Open the access cover on the side of the compactor by removing the attaching bolts. When lubrication or maintenance is complete, replace the cover before any operation.



Caution: This procedure is for maintenance only. All access covers shall be replaced and bolted in position after lubrication or clean-out.

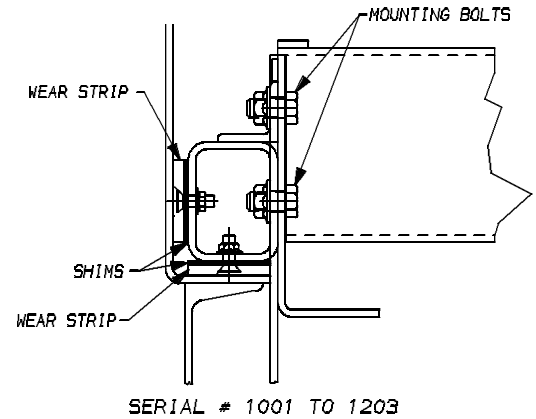
7. SLIDE BLOCK REPLACEMENT & ADJUSTMENT

- Check condition of graphite phenolic wear strips and replace if less than 1/4" thick.
- If replacement is necessary replace wear strips with genuine K-PAC Special Graphite Phenolic wear strips. Install with existing shims. Check through entire cycle to make sure side blocks do not become too tight. Add shims if necessary if too loose. Do not over-tighten strip attaching bolts. Use Loctite and new Lock Nuts to secure.
- Make sure block mounting bolts are torqued properly, using Loctite to secure. Be sure to clean bolt & nut before applying Loctite.



8. CYLINDER PIN INSPECTION

- See **WARNING** at the beginning of 'MAINTENANCE INSTRUCTIONS' section, concerning disconnecting power before maintenance or inspection.
- Remove butt end of cylinder by removing cotter pin (2). Check condition of cylinder pin (3). If the cylinder pin shows significant wear, replace.
- If pin on butt of cylinder needs replacement, check rod end and replace pin as necessary.
- When re-installing pins, make sure retaining pin is secured.



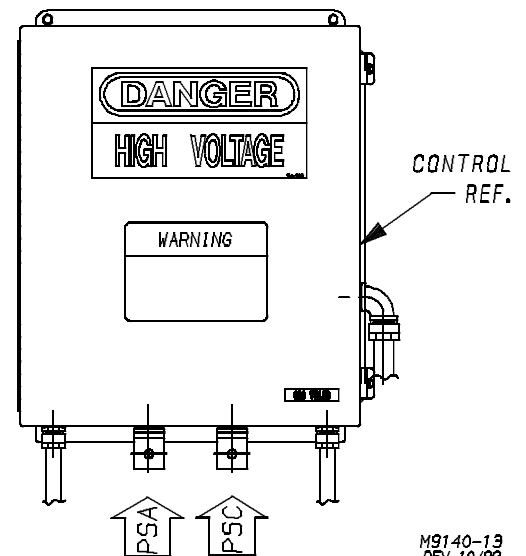
M9140-2
Rev.10/99

9. POWER UNIT PRESSURE ADJUSTMENT PROCEDURE

- Disconnect main power. Use caution at all times while servicing a compactor.
- Turn pressure switches PSA & PSC (clockwise) to insure settings are higher than relief (see accompanying chart). Install pressure gage in gage port 'GP'.
- Reconnect main power and start unit. Ram should advance to forward position against blade and allow oil to flow over relief.
- Loosen relief valve lock nut and adjust pressure to compaction setting (see chart).

20 HP POWER UNIT PRESSURE SETTINGS				
MODEL	CYLINDER SIZE	RELIEF SETTING	COMPACTION SETTING	SHUT-DOWN SETTING
KP4PC	6"	2,500 PSI	2,350 PSI	1,650 PSI
KP6PC	6"	2,500 PSI	2,350 PSI	1,650 PSI

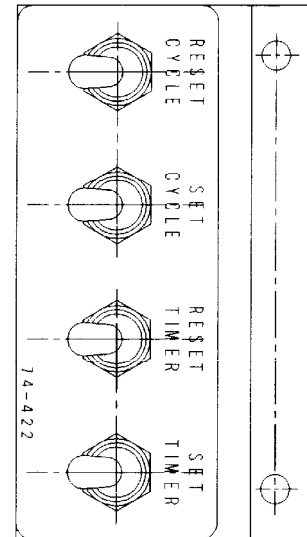
- Turn pressure switch PSA adjustment slowly (counter-clockwise) until ram reverses. (PSA is now set).
- Continue cycle until blade is in down position and oil flows over relief. Readjust relief valve to 1650 PSI, turn pressure switch PSC (counter-clockwise) until unit shuts off. PSC is now set.
- Now turn selector to MAN, start unit, then turn FWD-REV selector to FWD and hold until ram contacts blade. Allow oil to flow over relief and readjust relief setting per chart.
- While continuing to hold switch over, adjust relief valve and tighten lock nut.



M9140-13
REV 10/99

10. POWER UNIT ADJUSTMENT 80% / 100% FULL LIGHT ADJUSTMENT

- a. The timing must be adjusted after customer installation. When the container has filled and is in 'packed-out' state, the ram will not fully extend without reversing. This creates a shorter cycle time and is what the full light activation is determined by. The shorter the cycle time the fuller the container.
- b. The time measured on the pre-crusher is the time from fully extended to fully retracted. this time is set by the bottom two of the four switches inside the control panel. The third switch down from the top is the time reset switch. The fourth switch is the set switch. The time after reset is 4.8 seconds and two seconds are added for each toggle of switch for up to a maximum of 6.0 seconds.
- c. It should be noted that is a jam occurs this will simulate a full condition. The full light should be turned off after the jam is cleared, allowing reactivation by a truly full condition. The full light is turned off by depressing the 'STOP' button.



M9014-14

V. GENERAL MAINTENANCE TIPS

OIL: High-grade oil was installed at start-up, but 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.

NOTE: Power unit is equipped with low oil shut-down switch. Unit will not operate when oil low.

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 become noisy. Usually this 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.

If your new power unit operates too hot, be sure you are using a high-grade oil in the viscosity range of 100-300 SSU (Dexron II is recommended) and that the oil level is up in the reservoir. Check for any partially open by-pass valves. Check for worn directional valves or leaking cylinders. Internal-system leaks at high pressure are the greatest source of heat.

VI. TROUBLE-SHOOTING

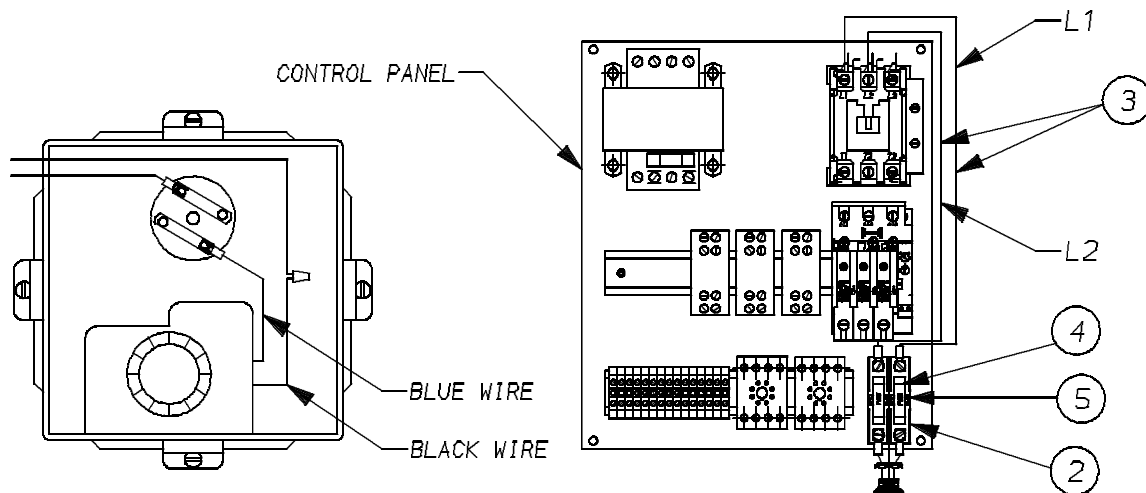
NOTE: check all other possibilities before replacing the 'PLC'. Typically, the problem is found to be poor connections or something in the limit switch area.

PROBLEM	POSSIBLE CAUSE	SUGGESTED REMEDY
Motor won't start or makes growling noise	Start switch turned but nothing happens	Replace or turn
		Check wiring to panel
		Check for defective switch block
		Check control circuit fuse
		Check control wiring connections
	No electrical power to unit	Turn on main disconnect
		Replace fuses or reset breakers
	No electrical power to control circuit Power light not illuminated on PLC	Check primary and secondary sides of transformer
		Check for correct voltage, check control fuses
		Check wire connections
		Check oil level
	Thermal overload tripped	Reset. Be sure proper sized overload relays are used and amp setting is correct
	Open motor leads	Check continuity. Clean and tighten
	Very low voltage	Check power source
Single phased	Check power source (3-Phase)	
Rotor or bearings locked	Check shaft for freeness of rotation	
Starter coil burned out	Replace starter coil	
Oil level too low	Add oil	
PLC run light not on	There is a few second delay after power is on before run light is on	
Motor runs excessively hot	Blocked ventilation	Clean external and internal ventilation system
	High ambient temperature of 105° Fahrenheit	Provide outside source of cooler air Reduce number of cycles per hour
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 overload 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
	Incorrect overload for voltage used	Replace per nameplate current on motor
	Loose electrical connections	Clean and retighten

PROBLEM	POSSIBLE CAUSE	SUGGESTED REMEDY
Thermal overload does not trip soon enough	Overload setting too high	Set correctly
	Line voltage too high for motor	Rewire motor and starter. Match to line voltage. Replace overload with correct one or reset if applicable.
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.
Packer does not develop full packing force	Packing pressure switch	Re-adjust. See pressure switch adjustment instructions
Motor runs, but compactor does not operate	Incorrect pump motor rotation	Reverse any two motor leads on the starter (3 Phase only)
	Pump suction screen plugged	Clean suction screen
	Key sheared or lost on pump or motor shaft	Replace any key and any damaged parts. Make sure set screw is tight and Loctited.
Cycle time too long	Restriction or kink in hose	Check hose. See warning page 10
	Pump worn or damaged	Replace pump
	Pump suction screen plugged	Clean suction screen
Power unit does not shut off at end of packing cycle	Pressure switch setting too high	Adjust pressure setting. See page 13
	On multi-cycle units the setting may be incorrect	Readjust timer to desired cycles.
	Main relief setting too low	Adjust main relief. See page 13
System operates continuously over main relief and ram does not operate	Main relief set too low	Adjust main relief. See page 13
	Pressure switch set too low or solenoid stuck in "pack" position	Adjust pressure switch or disassemble and clean solenoid valve
		Check electrical leads to solenoid
Power unit shuts off before end of cycle	PSB shut down pressure switch set too low	Increase pressure setting
	Pressure snubber missing	Install pressure snubber (see power unit parts pages)
	Something jammed behind ram	Check behind ram and clean out as necessary
Erratic operation	Valve sticking or binding	Disassemble and clean as necessary
	Viscosity of oil too high	Change oil to factory recommended viscosity
	Air in system	Check for leaks, tighten fittings. See warning on page 10
	Low oil	Fill reservoir
	Low voltage	Check primary & secondary sides of transformer for correct voltage

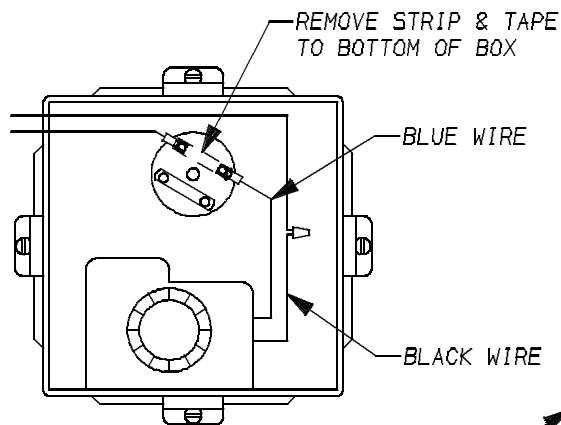
PROBLEM	POSSIBLE CAUSE	SUGGESTED REMEDY
Pump makes noise (sounds like gravel)	Partly clogged intake strainer or restricted intake pipe	Pump must receive intake fluid freely or cavitation results. Flush the system. Clean intake pipe and clean or replace strainer. Add clean fluid.
	Defective bearing	Replace pump
	Air leak at pump intake pipe joints	Tighten joints are required
Pump shaft seal leak	Seal worn or damaged	Replace seals or pump
Rapid pump wear	Abrasive matter in hydraulic oil bearing circulated through pump	Install adequate filter or clean
	Viscosity of oil too low	Replace with factory recommended oil
	Pressure too high	Reduce pump pressure to factory specifications
	Air recirculation causing pump noise	Tighten all fittings.
Excessive heat	Continuous running	When over 140° or hot in comparison with circuit lines, pump should shut down immediately before restarting, insure that fluid cooling capacity is adequate to remove system generated heat
		Install cooler oil
		Install oil temperature shut down switch
	Undersize hydraulic lines added; power unit too far from compactor for hose size	Replace with larger hoses
	High ambient temperature in relation to oil temperature	Use lower viscosity oil
	Excessive system leakage	Check system for bypassing or relief valve set too low
Container 'FULL' light is on before container is full	Time not set correctly	Readjust time
	Start contactor not activating timer	Check & replace contact block if necessary
	Material jammed between ram and breaker bar	Work jam loose and run complete cycle. Hit stop button to turn light off.
Container 'FULL' light does not come on when container is full	Time not set correctly	Readjust time
	Light bulb burned out	Replace bulb
Crush cycle does not operate thru the complete cycle	Wire loose on a particular function	Check connection
	Switch at ram back position not functioning	Check switch adjustment
		Replace switch
	Switch at blade up not functioning	Check switch adjustment
Replace switch		
AVOID THE FOLLOWING: EXCESSIVE GREASING OF MOTOR, MISALIGNMENT OF MOTOR AND PUMP, AND CONTAMINATION ON MOTOR AND ELECTRICAL COMPONENTS.		

INSTALLATION INSTRUCTIONS OIL HEATER KIT (4000 WATTS)



230 VOLT

NOTE: USE FUSE #79-460



460 VOLT

NOTE: USE FUSE #79-461

OIL HEATER INSTALLATION PROCEDURE:

1. Determine voltage of power pack for heater compatibility.
2. Use 230 wiring schematic and illustration for 208 Volt and 230 Volt. Assembly (Item 1) is pre wired per 230 Volt. Also note the proper fuse size to use.
3. If 460 Volt is needed, rewire per schematic shown. Also, note the proper fuse size to use. 79-460 is 20 Amp for 230V & 208V. 79-461 is 10 Amp for 460V. Proper fuse must be used.
4. Tip hydraulic reservoir with 2 pipe port to top at enough of an angle to clear oil from hole. Remove pipe plug and install heater and tighten. Make sure heater control is oriented correctly.
5. Install fuse block (Item 2) with screws provided (Item 5).
6. Connects wires to bottom screws of the fuse block (Item 2), routing them thru bottom of electric control panel as shown. Tighten nuts to secure liquidite conduit.
7. Install wires (Item 3) to top of fuse block (Item 2) and route around starter to top side L1 and L2 terminals.
8. Install correct size fuses (Item 4) for voltage of power pack and heater. Use 10 Amp for 460 Volt, or 20 Amp for 230 Volt and 208 Volt.
9. Check temperature setting of heater thermostat and set at 65 degrees Fahrenheit.
10. Make sure enclosure for heater control is replaced and tightened securely.

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