

# OWNER'S MANUAL

## HYDRAULIC DRUM CRUSHER/COMPACTOR MODEL BHDC-900-IDC

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### WARNINGS & SAFETY INSTRUCTIONS

**Read owner's manual completely before operating unit!**

- Do not service unit unless power is disconnected.
- Do not operate drum crusher/compactor unless all cover plates are in place and all components are in proper working order.
- Do not clean out drum crusher unless power is disconnected.
- Do not bypass the safety interlocks.
- Keep hands and feet outside the unit at all times when operating.
- Do not allow personnel to stand on drum crusher.
- Do not stand in front of drum crusher door.
- Do not operate this unit with loading door open. **\*\***(Do not operate if safety switch is not functioning properly.)
- Do not change pressure relief valve setting.
- Do not clamp hydraulic cylinder in a vise as you may distort the drum.
- Use only maintenance parts either supplied or approved by the manufacturer.
- Consult factory if adding or performing any modification to the original equipment.
- Do not use brake fluids or jack oils. Use AW-32 Hydraulic oil or equal.
- Report all safety problems immediately.
- Make sure all operator safety labels (see p. 12) and guards are in place.

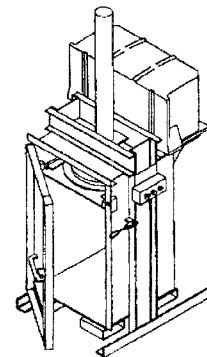
### RECEIVING INSTRUCTIONS

Every unit is thoroughly tested and inspected prior to shipment. However, it is possible that the unit may incur damage during transit. If you see damage when unloading make a note of it on the SHIPPER RECEIVER.

Remove all packing and strapping material, inspect for damage. **IF DAMAGE IS EVIDENT, FILE A CLAIM WITH THE CARRIER IMMEDIATELY!**

### SERIAL NUMBER AND CAPACITY

The serial number and capacity are inscribed on the nameplate (See p. 12 for location). Please remember to include these numbers in any correspondence with your dealer or the factory.



HYDRAULIC DRUM CRUSHER/COMPACTOR  
MODEL BHDC-900

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# **WARNINGS AND SAFETY INSTRUCTIONS**

## **for Hydraulic Drum Crusher/Compactor**

**\*\*\* Make copies of this page and post in a highly visible location where the unit is being operated and on the company bulletin board.**

- **Read Owner's Manual completely before operating or servicing this unit.**
- **Do not operate this unit unless all cover plate and guards are in place.**
- **Do not operate this unit with loading door open.**

**\*\* (Do not operate if safety switch is not functioning properly.)**

- **Do not stand in front of this unit's door when operating it.**
- **Do not allow personnel to stand on this unit.**
- **Do not place hands or feet in hopper openings.**
- **Keep hands and arms away from all moving parts of this unit.**
- **Do not go near leaks - High pressure oil easily punctures skin causing injury, gangrene, or death.**
- **Do not service this unit unless power is disconnected.**
- **Do not clean out this unit unless power is disconnected.**
- **Never use a damaged unit or one that is making unusual noises.**
- **Do not change pressure relief valve setting on pump.**
- **Do not clamp hydraulic cylinder in a vise as you may distort the drum.**
- **Do not perform any modification to the original equipment without written manufacturer's approval.**
- **Use only maintenance parts supplied or approved by the manufacturer.**
- **Do not use brake fluids or jack oils. Use AW-32 Hydraulic Oil or equal.**
- **Maintenance and repairs are to be done only by personnel qualified to perform the required work.**
- **Be sure all safety labels are in place (see Owner's Manual p.12).**
- **Report all safety problems immediately.**

For further information, Fax: 219-665-1339

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## OPERATING INSTRUCTIONS

The BHDC-900 is furnished with a momentary contact control. This prevents the operator from having to hold the "Start" button while the unit cycles.

### Sequence of Operation:

The operator places a drum inside the cabinet, closes the door, and locks back the door latch handle.

In order to operate, the unit's door must be locked closed, the key switch turned to the appropriate mode, select crush to crush/compact to compact, and the Emergency Stop button pulled outward. Only then, should a momentary press of the cycle start button will cause the crushing platen to move.

The initial direction of the platen's travel will be determined by its initial starting position -- if it is fully raised to the top of the cabinet, the platen will move down to crush a drum; otherwise, the cylinder will raise the platen until it finally is all the way up and in its starting ("home") position, at which point the power unit will turn off. Repressing the cycle start button again will then cause the platen to move downward.

When the crusher is in its "home" position and the cycle start button is depressed, the the cylinder pushes the platen down onto (or into) the drum. In order to achieve a short cycle time, both of the power unit's pump sections will drive oil to the cylinder until the cylinder pressure reaches approximately 1200 PSI. At that time the higher-displacement pump section will recycle back to the reservoir. This leaves only the low-displacement, high-pressure pump section providing oil to the cylinder.

As the platen crushes or compacts down to about an 6 inch height, the cylinder pressure increases until it reaches the setpoint of the appropriate pressure switch. At this pressure the directional valve shifts, reversing the direction of oil flow to the cylinder and thus raising the platen back up to its starting, or "home" position. When the cylinder returns the platen all the way to the top of the cabinet, the power unit turns off. At this point, the cabinet door can be opened to remove the drum.

In the event the unit needs to be stopped at any point during its cycle, the operator can depress the red emergency stop button located on the control panel. This stops the motor and prevent the unit from cycling any further. To return the platen to its starting ("home") position, turn the emergency stop button "clockwise" to release it and depress the cycle start button again. This will cause the platen to ascend back to the starting position. To cycle the unit again, simply depress the cycle start button.

## RESPONSIBILITIES OF OWNERS/USERS

*It is the responsibility of the owner/user for the following:*

- 1.) The unit must be inspected and maintained in accordance with the guidelines in this manual.
- 2.) Any unit not in safe operating condition must be removed from service until it is returned to proper operating condition.

*Unsafe condition may include, but is not limited to the following : excessive hydraulic or air leakage, missing pins, or fasteners, any cracked or deformed structural members, cut or frayed hydraulic, electric or air lines, and damaged controls or safety devices.*

All repairs and maintenance must be performed by qualified personnel.

- 3.) Unit may only be used by authorized personnel. All operators must have read and understood all operating procedures and safety guidelines in this Owner's Manual.
- 4.) Operator must ensure that all safety features of the unit are functioning properly before each use.
- 5.) Any modifications to the unit must be approved in writing by the manufacturer.

## Ordering Replacement or Spare Parts

Our company takes pride in using the finest available parts for our equipment. We are not responsible for equipment failure resulting from the use of unapproved replacement parts. To order replacement or extra parts for your equipment contact Customer Service at the factory. In any correspondence with the factory please include the **Serial Number** which is inscribed on the nameplate of the piece of equipment. Use only the part numbers provided in this Owner's Manual. When ordering parts for AC power units please indicate the motor phase and voltage that the equipment is operating on. **Ordering Replacement or Extra Parts.**

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## INSTALLATION INSTRUCTIONS

Review Complete Owner's Manual Before Commencing Installation.

For installation you will need the following:

- 1.) A fork truck.
- 2.) Lag bolts, masonry drill, masonry bit, wrench for lag bolt, grout, and steel shims.
- 3.) A power circuit with the specified voltage, including fuses and disconnect or circuit breakers. (See p. 8-9). Reference NEC 70.
- 4.) Minimize voltage drop by using adequate wire size. Reference NEC 70.

WARNING! ONLY INSTALL DRUM CRUSHER/COMPACTOR ON A STABLE MOUNTING SURFACE.

Move the unit with forks truck using fork tube pockets on frame.

Read all the warning labels on the unit and be sure all the labels on page 12 are on the unit.

The unit must be securely anchored to the floor before use.

Check local codes pertaining to your installation and/or application.

Connect power source as shown in electrical section. You must be a qualified electrician to do the electrical installaiton.

Operate unit through a few cycles. Check and add oil if necessary. See oil specification on page 5.

Clean up any debris or spilled oil.

## LOADING INSTRUCTIONS

The Hydraulic Drum Crusher/Compactor (BHDC-900) is designed to crush 55 gallon and smaller steel drums, and allows for compacting (soft materials) inside a standard 55 gallon drum.

When loading the unit always follow these guidelines:

- 1.) Always center the drum under the platen
- 2.) When crushing make sure the removeable drum crushing platen is properly installed and securely in place.

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## PERIODIC MAINTENANCE INSTRUCTIONS

WARNING! BEFORE PERFORMING ANY MAINTENANCE WORK ALWAYS EMPTY UNIT.

### (A) Before Each Use Check For The Following:

- 1.) Frayed wires
- 2.) Oil leaks
- 3.) Pinched or chafed hoses, loose fittings
- 4.) Structural deformation of frame
- 5.) Unusual noise or binding

**Do not use if you observe any of the above!**

### (B) Monthly Inspections

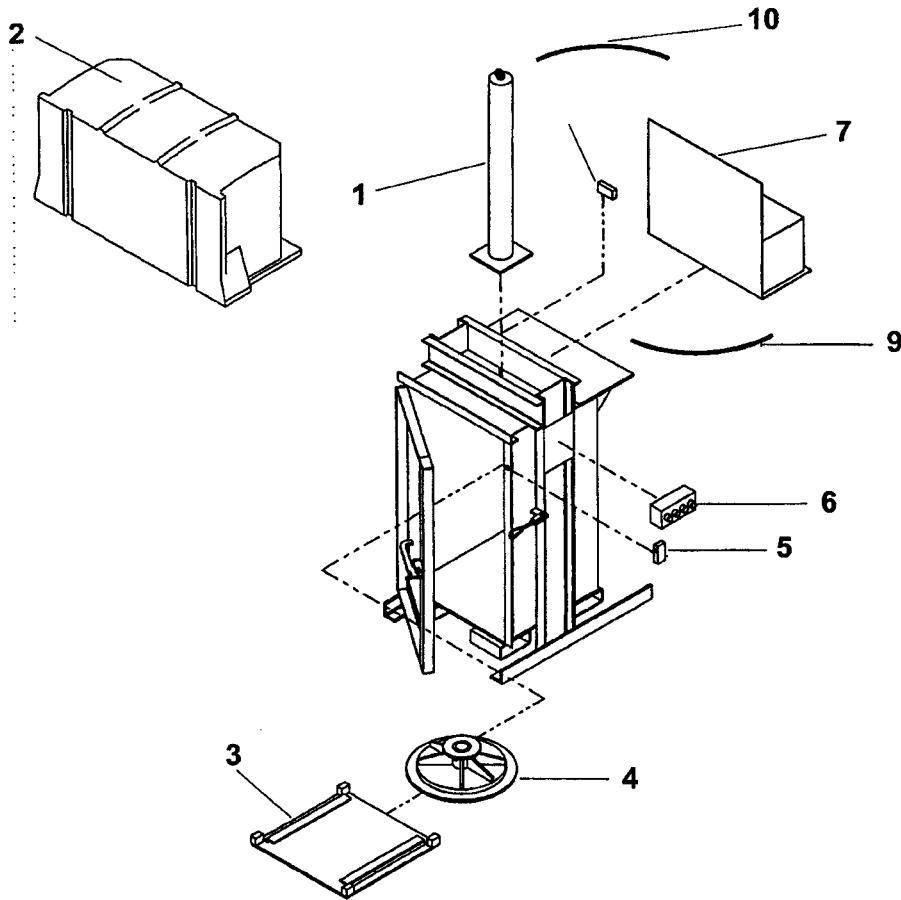
- 1.) Check oil level. Oil should be 1" to 1-1/2" below the top of the tank with the cylinder in the fully retracted position. Add as necessary.
- 2.) Check for oil leaks.
- 3.) Check for worn or damaged hydraulic hoses, electrical wires, and cords. Repair as necessary.
- 4.) Check for unusual noise.
- 5.) Make sure all warning labels are in place and in good condition. (See p. 12)
- 6.) Clean off dirt and debris.

### (C) Yearly Inspection

Hydraulic oil should be changed at least once a year, or sooner if the oil darkens or becomes gritty. Flush the reservoir before refilling. Presence of water is indicated if the oil turns milky. Recommended oil: Purity ISO AW-32 Hydraulic fluid or equal.

**All maintenance work must be performed by qualified personnel with training in the repair of electrical and hydraulic components.**

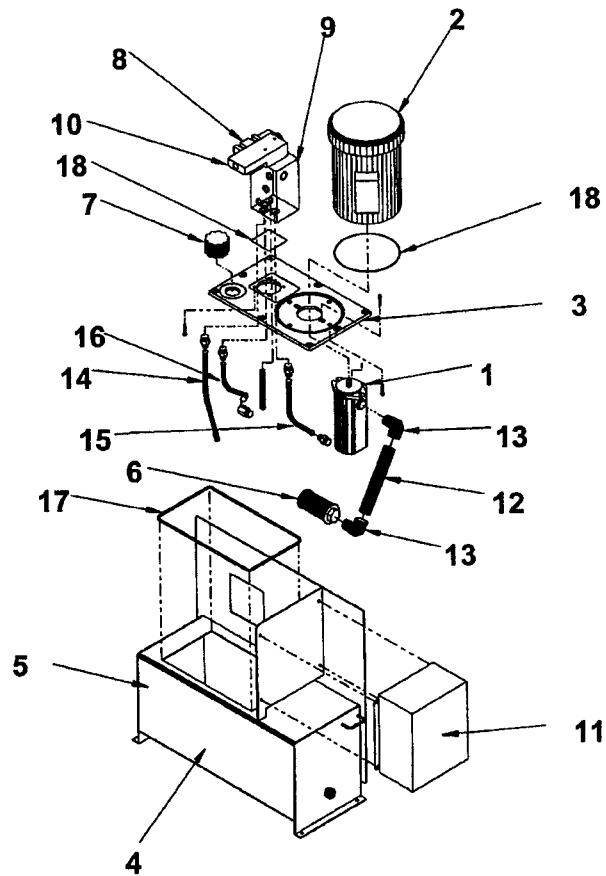
## HYDRAULIC DRUM CRUSHER/COMPACTOR Model BHDC-900



### PARTS IDENTIFICATION HYDRAULIC DRUM CRUSHER/COMPACTOR (Model BHDC-900)

KIT NO.	ITEM NO.	DESCRIPTION	ENGINEER NO.	PART NO.	QTY.
	1	Hydraulic cylinder (2-1/2" dia. x 36")	22-021-001	HDC9-CYL	1
	2	Weather cover	04-024-001	HDC9-WC	1
	3	Drum crushing platen	22-514-005	HDC9-DCP	1
	4	Drum compacting head	22-514-004	HDC9-DCH	1
A	5	Plunger switch	01-022-021	HDC9-PS	1
	6	Control box	22-529-001	HDC9-CB	1
	7	Power unit	SEE PAGE 7	SEE PAGE 7	1
A	8	Roller switch	01-022-001	HDC9-PU	1
B	9	Hydraulic hose, bottom	22-623-008	HDC9-RS	1
B	10	Hydraulic hose, top	22-623-009	HDC9-HHB	1
	11	Weather cover, power unit (not shown)	04-024-001	HDC9-HHT	1
A		Switch Kit (includes 5 & 8)	22-154-002	HDC9-KITA	1
B		Hose Kit (includes 9 & 10)	22-154-003	HDC9-KITB	1

## HYDRAULIC DRUM CRUSHER/COMPACTOR POWER UNIT



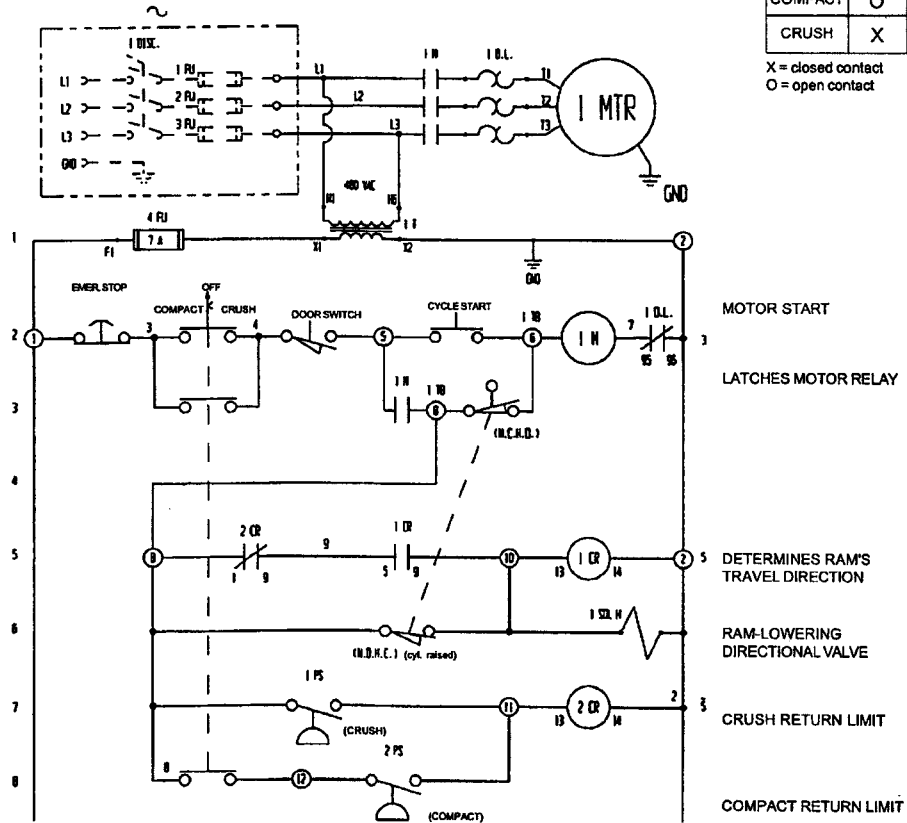
ITEM NO.	DESCRIPTION	ENGINEER NUMBER	PART NUMBER	QTY.
1	Two section hyd pump, .976/.499 (9T shaft) (after 5/98)	3329121111	HDC-HP	1
2	Motor, (1725 rpm), w/female, 9T shaft	22-135-004	HDC-M	1
3	Pump/Motor Adaptor	22-031-001-C	HDC-PMA	1
4	Hydraulic Reservoir	22-514-009-B	HDC-HR	1
5	Sight Gauge (3" centers)	LG-3T	HDC-SG	1
6	Suction Strainer	PEC-10-1-100	HDC-SS	1
7	Filler/Air Breather w/3" SS brackets	ABB-Z-40-3S	HDC-FAB	1
8	DO5, 2 pos/4 way, hydraulic valve	SHD-03G-2B3S-AC24V	HDC-HV	1
9	Manifold, drum crusher	22-127-001	HDC-MDC	1
10	Manifold, filter body	22-127-002	HDC-MFB	1
11	12 x 10 box w/screw cover, back plate and ss hinge	VJ1210HW	HDC-BOX	1
12	1" x 7" Nipple, black	1"X7"NIP/BLK	HDC-NB	1
13	1" Street El	1"ST/EL	HDC-SE	1
14	Tube assembly, return	22-623-001	HDC-TAR	1
15	Tube assembly, low volume	22-623-002	HDC-TALV	1
16	Tube assembly, high volume	22-623-003	HDC-TAHV	1
17	Gasket material w/pressure sensitive tape	XT113-HT	HDC-GASS	1
18	HDC-900 "O" ring kit (motor to plate/manifold to plate)	HDC-900-ORK	HDC-ORNG	1

# ELECTRICAL SCHEMATIC LADDER LOGIC DIAGRAM

Overcurrent & short-circuit protection and disconnect are to be per NFPA 70 (the NEC)

SWITCH POSITION	COMPACT LOCATION		
	LINE #2	LINE #3	LINE #6
OFF	O	O	O
COMPACT	O	X	X
CRUSH	X	O	O

X = closed contact  
O = open contact



• All components are shown with the unit in its normal starting position, which is defined to be when the ram is fully raised and the cabinet door is open.

\*\* ALL COMPONENTS ARE SHOWN WITH THE UNITS IN ITS NORMAL STARTING POSITION, WHICH IS DEFINED TO BE WHEN THE RAM IS FULLY RAISED AND THE CABINET DOOR IS OPEN.



**BE SURE ALL POWER IS OFF BEFORE ATTEMPTING TO WORK ON THIS EQUIPMENT!**  
CAUTION: SERVICE WORK SHOULD BE PERFORMED ONLY BY TRAINED & QUALIFIED PERSONNEL

# Electrical Information

Your new Hydraulic Drum Crusher/Compactor (Model BHDC-900) has been wired and tested at the factory with the voltage specified at the time of order. If your application requires a voltage which is different than the original specifications, the motor and control transformer must be rewired to the correct voltage. Failing to do this will cause extensive damage and will void all warranties. Only qualified electricians should attempt to make this voltage adjustment.

## Motor Wiring

### 208-230 3 Phase

- Motor Wire #1 & 7 - Connect to Contactor Lead T1
- Motor Wire #2 & 8 - Connect to Contactor Lead T2
- Motor Wire #3 & 9 - Connect to Contactor Lead T3
- Motor Wire #4, 5, and 6 tie together with a wire nut.

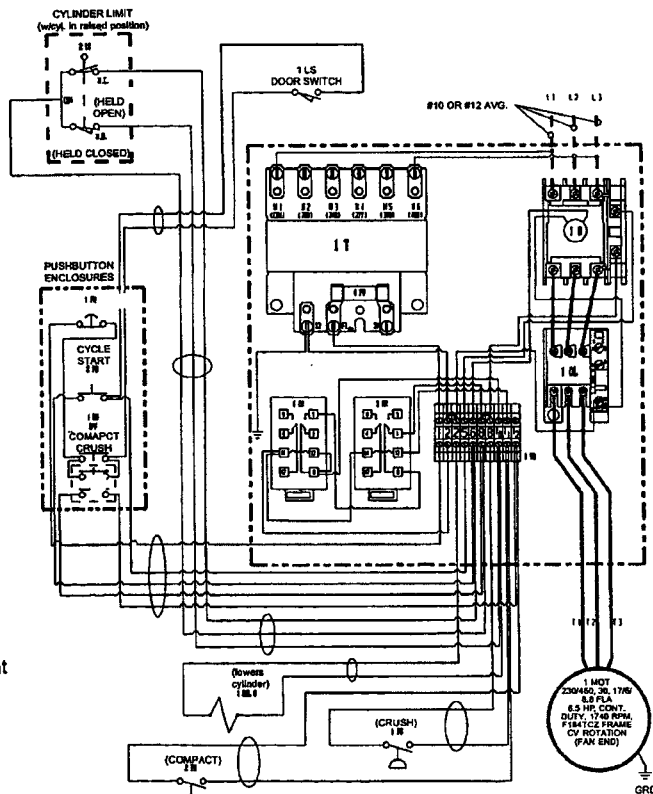
### 460 3 Phase

- Motor Wire #1 - Connect to Contactor Lead T1
- Motor Wire #2 - Connect to Contactor Lead T2
- Motor Wire #3 - Connect to Contactor Lead T3
- Motor Wire #4 & 7 - Tie Together
- Motor Wire #5 & 8 - Tie Together
- Motor Wire #6 & 9 - Tie Together

## Transformer

When the supply (motor) voltage is changed, the primary wires of the transformer must be changed too. Please refer to the Interconnection Diagram below. Consult the label on the transformer for proper connection to the voltage being supplied to it.

## INTERCONNECTION DIAGRAM

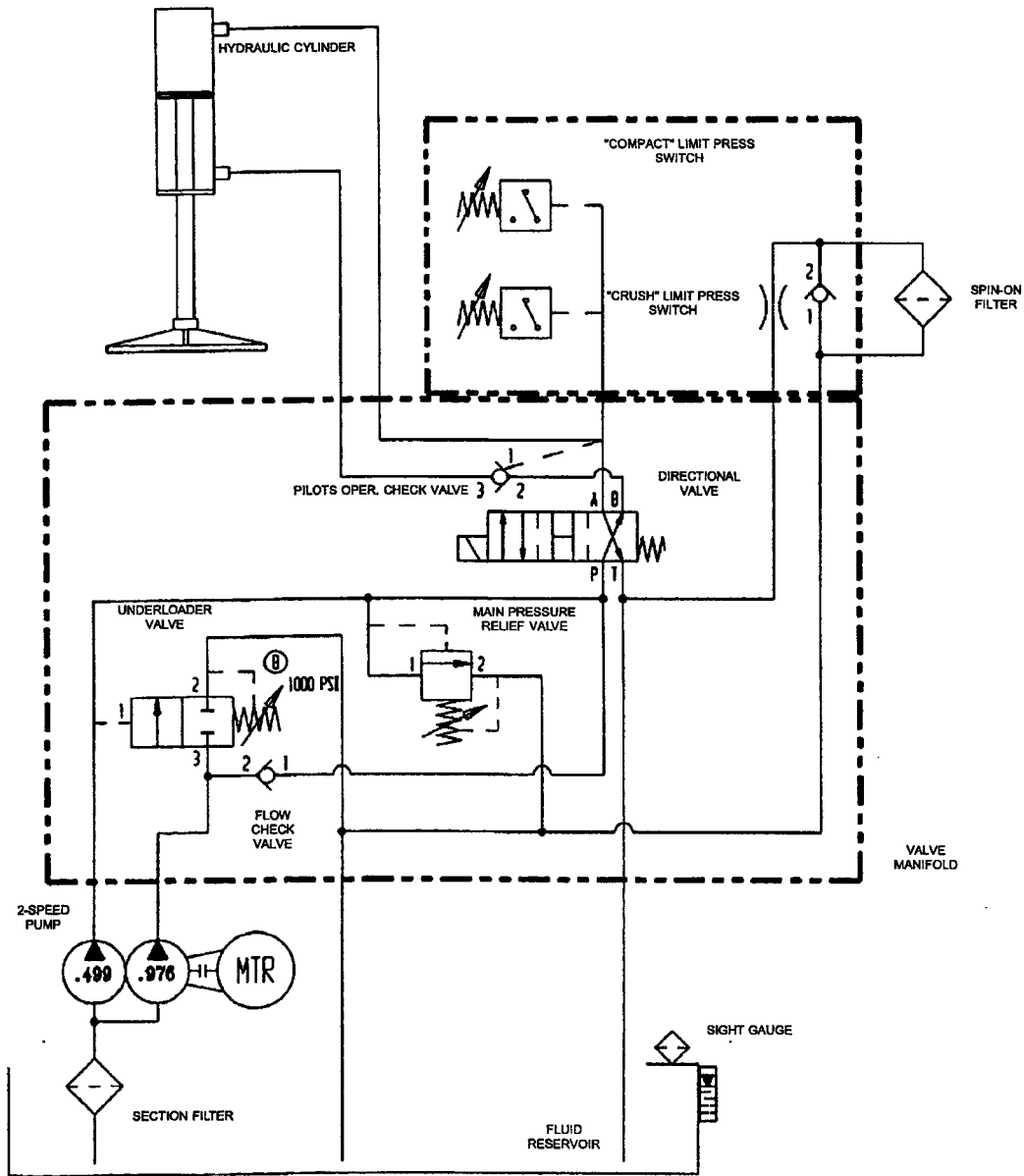


• Pushbutton control enclosure is rotated 90° counterclockwise from what is shown.



**BE SURE ALL POWER IS OFF BEFORE ATTEMPTING TO WORK ON THIS EQUIPMENT!**  
CAUTION: SERVICE WORK SHOULD BE PERFORMED ONLY BY TRAINED & QUALIFIED PERSONNEL.

# HYDRAULIC SCHEMATIC



# Troubleshooting Quick Reference Guide

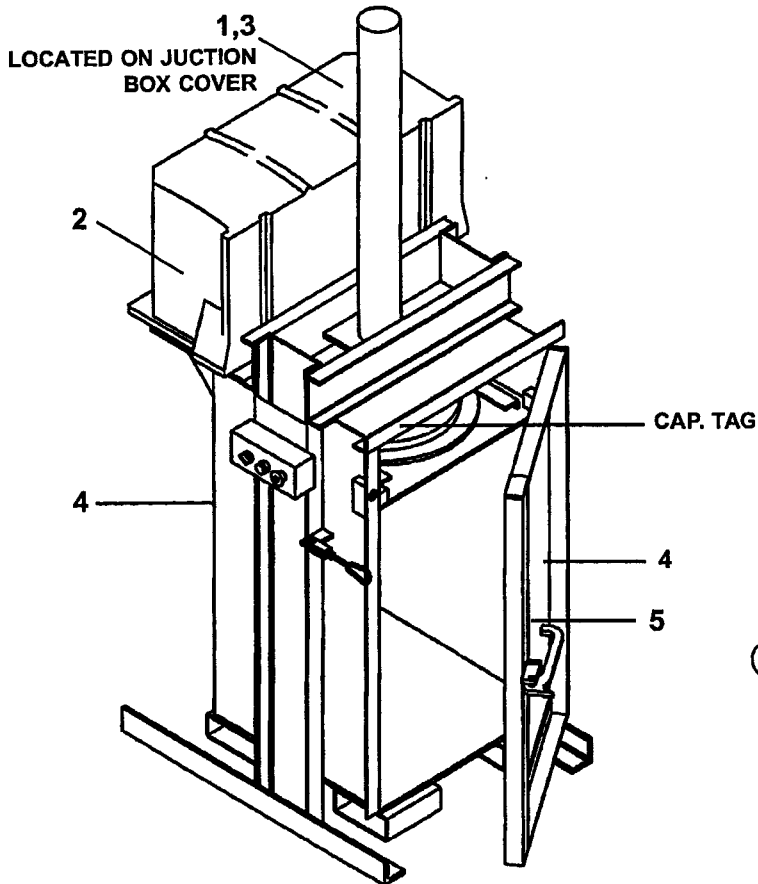
(For further information contact the factory)

**WARNING! BEFORE PERFORMING ANY MAINTENANCE WORK ALWAYS ENSURE THAT ALL SAFETY STOP(S) ARE IN POSITION**

Observation	Possible Cause	Remedy
1.) Power unit does not run when cycle start button is pressed.	<ul style="list-style-type: none"> <li>a. Door open; door switch not depressed, or bad.</li> <li>b. Key switch not turned to crush or compact.</li> <li>c. Emer. stop pushed in.</li> <li>d. Bad switch (door, key, emer. stop, start) or motor relay coil or blown fuse</li> <li>e. Overload relay tripped.</li> <li>f. Control transformer bad.</li> </ul>	<ul style="list-style-type: none"> <li>a. Close door; check and adjust the door switch.</li> <li>b. Turn to the appropriate position.</li> <li>c. Twist the knob to release.</li> <li>d. Test with meter; replace if bad.</li> <li>e. Find and fix cause of trip; reset.</li> <li>f. Check for 24 VAC; replace if bad.</li> </ul>
2.) Motor runs, platen does not move.	<ul style="list-style-type: none"> <li>a. Motor rotation is wrong. (3-phase)</li> <li>b. Main pressure relief set too low.</li> <li>c. Pump problem.</li> </ul>	<ul style="list-style-type: none"> <li>a. Reverse two wires at motor relay.</li> <li>b. Increase (CW) the relief setting.</li> <li>c. Consult factory.</li> </ul>
3.) Unit does not run without the cycle button being held in.	<ul style="list-style-type: none"> <li>a. Motor relay's auxiliary contact has come off the relay.</li> <li>b. The "cylinder raised" limit switch is not being made, or is bad.</li> <li>c. The cycle start pushbutton is being released too quickly.</li> </ul>	<ul style="list-style-type: none"> <li>a. Reattach the contact to the side of the motor relay.</li> <li>b. Adjust, or test and replace switch as necessary.</li> <li>c. Hold the cycle start pushbutton for at least one second to start.</li> </ul>
4.) Motor reverse before drum is completely crushed.	<ul style="list-style-type: none"> <li>a. Pressure switch is operating too early (set too low).</li> </ul>	<ul style="list-style-type: none"> <li>a. Adjust the pressure switch (CW) to a higher pressure setting.</li> </ul>
5.) Platen does not return to top of cabinet after crushing drum, though motor runs.	<ul style="list-style-type: none"> <li>a. Pressure switch is not functioning or is set too high</li> <li>c. Directional valve physically stuck in the operated position.</li> </ul>	<ul style="list-style-type: none"> <li>a. Check with meter; replace if bad.</li> <li>c. Operate valve manually with a small screwdriver; replace if it cannot be freed up.</li> </ul>
6.) Motor turns off during cycle (motor not humming).	<ul style="list-style-type: none"> <li>a. Motor relay "dropped out" due to low voltage.</li> <li>b. Motor overload relay "kicked out".</li> </ul>	<ul style="list-style-type: none"> <li>a. Check line voltage at the motor relay while the motor is running. Determine cause of excessive voltage drop and correct.</li> <li>b. Find and fix cause of overload; reset.</li> </ul>
7.) Motor or pumps hums or squeals, but does not move the platen, or the platen moves only slowly.	<ul style="list-style-type: none"> <li>a. See above, for when platen does not return to top.</li> <li>b. Excess voltage drop to motor, due to power wire size too small, wire run too long, or incoming voltage too long.</li> <li>c. Motor is "single-phasing". (3-phase)</li> <li>d. Hi-displacement pump section does not relieve to tank.</li> </ul>	<ul style="list-style-type: none"> <li>a. Same as above.</li> <li>b. Check power installation for adequacy. Check incoming voltage while motor is running. Correct problem found.</li> <li>c. Determine cause of loss of voltage on one phase; correct.</li> <li>d. Adjust the low-pressure relief valve down (CCW).</li> </ul>

# WARNING LABEL IDENTIFICATION

MAKE SURE ALL WARNING LABELS ARE IN PLACE!



\*Product safety signs or labels should be periodically inspected and cleaned by the product users as necessary to maintain good legibility for safe viewing distance . . . ANSI 535.4 (10.21)  
Contact manufacturer for replacement labels if needed.

⑤

<b>⚠ WARNING</b>
DO NOT OPERATE THIS MACHINE WITH LOADING DOOR UNLOCKED. KEEP HANDS, ARMS AND OTHER BODY PARTS AWAY FROM MOVING COMPONENTS. CRUSH EMPTY DRUMS ONLY. DO NOT OPERATE IF LOCK IS BROKEN. OPERATION BY TRAINED PERSONNEL ONLY.
<b>⚠ AVISO</b>
NO OPERE ESTA MÁQUINA CON LA PUERTA DE CARGA SIN CERRAR. MANTENGA LAS MANOS, BRAZOS Y OTRAS PARTES DEL CUERPO LEJOS DE COMPONENTES EN MOVIMIENTO. SOLO APLASTE CILINDROS VACIOS. NO OPERE SI LA CERRADURA ESTÁ ROTA SOLO OPERE POR PERSONAL ENTRENADO.
<b>⚠ AVERTISSEMENT</b>
NE PAS FAIRE FONCTIONNER CETTE MACHINE LORSQUE LA PORTE DE CHARGEMENT N'EST PAS VERROUILLÉE. ÉCARTER MAINS, BRAS ET AUTRES PARTIES DU CORPS DES PIÈCES EN MOUVEMENT. NE BROYER QUE DES FÛTS VIDES. NE PAS FAIRE FONCTIONNER CETTE UNITÉ SI LE SYSTÈME DE VERROUILLAGE EST CASSÉ SEULEMENT UN PERSONNEL QUALIFIÉ EST AUTORISÉ À FAIRE FONCTIONNER CETTE MACHINE.
<b>300</b>

①

<b>NOTICE</b>	<b>NOTA</b>	<b>AVIS</b>
POWER SUPPLY: 115 Volt/1 Phase/60 HZ		
CONTROL VOLTAGE: 24 VOLT AC		
CORRIENTE: 115 Volt/1 Fase/60 HZ		
VOLTAJE DE CONTROL: 24 VOLT CA		
ALIMENTATION ÉLECTRIQUE: 115 Volt/1 Phase/ 60 HZ		
VOLTAGE DE CONTRÔLE: 24 VOLT AC		
		<b>248</b>

ON HYDRAULIC TANK (NOT SHOWN)

②

<b>ISO AW-32</b>
<b>HYDRAULIC OIL OR EQUIVALENT</b>
<b>ACEITE HIDRÁULICO O EQUIVALENTE</b>
<b>HYDRAULIQUE OU ÉQUIVALENT</b>
<b>206</b>

③

<b>DANGER</b> ⚠	SHUT POWER OFF AND CONSULT OWNERS MANUAL BEFORE WORKING ON THIS EQUIPMENT
<b>PELIGRO</b> ⚠	CORTE LA CONSULTE Y CONSULTE EL MANUAL DEL PROPIETARIO ANTES DE TRABAJAR EN ESTE EQUIPO
<b>DANGER</b> ⚠	COUPER LE COURANT ET CONSULTER LE MANUEL D'UTILISATION AVANT DE TRAVAILLER SUR CET ÉQUIPEMENT
<b>221</b>	

④

<b>⚠ VARNING</b>	<b>⚠ VISO</b>	<b>⚠ AVERTISSEMENT</b>
KEEP CLEAR WHEN IN USE	ENGASE ALEJADO CUANDO SE ESTA OPERANDO	TENIR À DISTANCE LORS DU FONCTIONNEMENT
		<b>220</b>

**U.S. DEPARTMENT OF LABOR**  
Occupational Health and Safety Administration  
**MATERIAL SAFETY DATA SHEET**

Required under USDL Safety and Health Regulations for Ship Repairing,  
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

**SECTION I**

MANUFACTURER'S NAME <b>DR LUBRICANTS, INC.</b>		EMERGENCY TELEPHONE NUMBER <b>(219) 422-3240</b>
ADDRESS <b>2701 S. Coliseum Blvd., Suite 1139, Fort Wayne, IN 46803</b>		
CHEMICAL NAME AND SYNONYMS <b>Not applicable</b>		TRADE NAME AND SYNONYMS <b>HO 150/200/300/500/1000</b>
CHEMICAL FAMILY <b>Hydraulic Oil</b>	FORMULA <b>Complex Mixture</b>	

**SECTION II - HAZARDOUS INGREDIENTS**

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS <b>Not applicable</b>			BASE METAL <b>Not applicable</b>		
CATALYST <b>"</b>			ALLOYS <b>"</b>		
VEHICLE <b>"</b>			METALLIC COATINGS <b>"</b>		
SOLVENTS <b>"</b>			FILLER METAL <b>"</b>		
ADDITIVES <b>"</b>			OTHERS <b>"</b>		
OTHERS <b>"</b>					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)
Note: Ethyl Corp. has reported to the U.S. EPA that in preliminary tests, certain zinc dialkydithiophosphates, when applied to the skin of male rabbits over a period of time, adversely effected spermatogenic activity.					
Exxon Chemicals Americas has reported to the U.S. EPA that in preliminary test, certain calcium salts of alkylated phenol sulfides, when applied to the skin of male rabbits over a period of time, adversely effected spermatogenic activity.					

**SECTION III - PHYSICAL DATA**

BOILING POINT (°F)	ND	SPECIFIC GRAVITY (H <sub>2</sub> O = 1)	0.88
VAPOR PRESSURE (mm Hg)	NIL	PERCENT VOLATILE BY VOLUME (%)	NIL
VAPOR DENSITY (AIR = 1)	ND	EVAPORATION RATE (H <sub>2</sub> O = 1)	NIL
SOLUBILITY IN WATER	NIL		
APPEARANCE AND ODOR	<b>Bright and clear with little or no odor.</b>		

**SECTION IV - FIRE AND EXPLOSION HAZARD DATA**

FLASH POINT (Method used) <b>228° C (COC)</b>	FLAMMABLE LIMITS	Lel <b>ND</b>	Uel <b>ND</b>
EXTINGUISHING MEDIA <b>Dry chemical, water fog, foam, carbon dioxide</b>			
SPECIAL FIREFIGHTING PROCEDURES <b>Wear self-contained breathing apparatus if serious chemical fire</b>			
UNUSUAL FIRE AND EXPLOSION HAZARDS <b>None</b>			

Form OSHA 20

### SECTION V - HEALTH HAZARD DATA

THRESHHOLD LIMIT VALUE  
8 Hr. time weighted permissible exposure 5.0 mg/m<sup>3</sup> as oil mist

EFFECTS OF OVEREXPOSURE  
EYE: may cause slight irritation

INHALATION - none expected

SKIN - See notes in Section II

INGESTION - If large amount of material is swallowed, call physician.

EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT - Flush with water for 15 minutes. See a physician if irritation persists.

SKIN CONTACT - Wash with soap and water.

INGESTION - If large amount of material is swallowed, call physician.

### SECTION VI - REACTIVITY DATA

STABILITY	STABLE		CONDITIONS TO AVOID
	UNSTABLE	X	Heat and flame
INCOMPATIBILITY (Materials to avoid) Strong oxidizing agents			
HAZARDOUS DECOMPOSITION PRODUCTS Carbon Monoxide and asphyxiants			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	None known

### SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED  
Consult local spill plan. Contain spilled liquid and absorb on suitable medium.

WASTE DISPOSAL METHOD  
Incinerate in an approved manner or use approved land fill facility. Conform to local disposal regulations.

### SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)  
Usually not required

VENTILATION	LOCAL EXHAUST Usually not required in open area.	SPECIAL NA
	MECHANICAL (General) As needed to comply with exposure limit.	OTHER NA
PROTECTIVE GLOVES Neoprene or Nitrile Rubber	EYE PROTECTION Safety glasses, goggles optional	
OTHER PROTECTIVE EQUIPMENT None		

### SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE  
Normal handling and storage of petroleum products. Do not weld, heat, or drill container. Recap or bung, empty container still contains material which may ignite with explosive violence if heated suffuciently.

OTHER PRECAUTIONS

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## LIMITED WARRANTY

**ONE YEAR LIMITED WARRANTY.** The manufacturer warrants for the original purchaser against defects in materials and workmanship under normal use one year after date of purchase. (Not to exceed 15 months after date of manufacture.) Any part which is determined by the manufacturer to be defective in material or workmanship and returned to the factory, shipping costs prepaid, will be, as the exclusive remedy, repaired or replaced at our option. Labor costs for warranty repairs and/or modifications are not covered unless done at manufacturer's facilities. Any modifications performed without written approval of the manufacturer may void warranty. This limited warranty gives purchaser specific legal rights which vary from state to state.

**LIMITATION OF LIABILITY.** To the extent allowable under applicable law, the manufacturer's liability for consequential and incidental damages is expressly disclaimed. The manufacturer's liability in any event is limited to, and shall not exceed, the purchase price paid. Misuse or modification may void warranty.

**WARRANTY DISCLAIMER.** Our company has made a diligent effort to illustrate and describe the products shown accurately; however, such illustrations and descriptions are for the sole purpose of identification, and do not express or imply a warranty that the products are merchantable, or fit for a particular purpose, or that the products will necessarily conform to the illustrations or descriptions.

The provisions of the warranty shall be construed and enforced in accordance with the UNIFORM COMMERCIAL CODE and laws as enacted in the State of Indiana.

**DISPOSITION.** Our company will make a good faith effort for prompt correction or other adjustment with respect to any product which proves to be defective within the Limited Warranty. Warranty claims must be made in writing within said year.

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### SERVICE RECORD

DATE OF SERVICE: ____/____/____
WORK DONE BY: _____
SERVICE PERFORMED: _____
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DATE OF SERVICE: ____/____/____
WORK DONE BY: _____
SERVICE PERFORMED: _____
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DATE OF SERVICE: ____/____/____
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