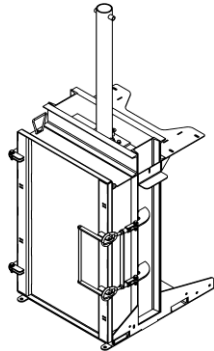


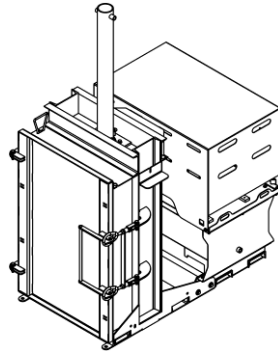


Vestil Manufacturing Co.
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HDC-905 SERIES HYDRAULIC DRUM CRUSHERS



HDC-905-IDC



HDC-905-HC

IMPORTANT NOTE

HDC-900 series crusher-compactors are designed to compact *non-hazardous* and *low level hazardous* waste materials. They do not include air filtration systems (e.g. HEPA filters) to remove particulates, aerosols, volatile compounds, et al. that might be released from waste materials as a result of compaction. Review safety messages and instructions printed on, or provided with, waste materials (e.g. empty containers or packaging) before compacting them. If waste material indicates that it should not be compacted, or should only be compacted where air filtration is applied, do not use this machine to compact the material.

Receiving Instructions

After delivery, remove the packaging from the product. Inspect the product closely to determine whether it sustained damage during transport. If damage is discovered, record a complete description of it on the bill of lading. If the product is undamaged, discard the packaging.

NOTE: The end-user is solely responsible for confirming that product design, use, and maintenance comply with laws, regulations, codes, and mandatory standards applied where the product is used.

Technical Service & Replacement Parts

For answers to questions not addressed in these instructions and to order replacement parts, labels, and accessories, call our Technical Service and Parts Department at (260) 665-7586. The department can also be contacted online at <https://www.vestil.com/page-parts-request.php>.

Electronic Copies of Instruction Manuals

Additional copies of this instruction manual may be downloaded from <https://www.vestil.com/page-manuals.php>.

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SIGNAL WORDS

This manual uses SIGNAL WORDS to direct the reader's attention to important safety-related messages. These messages describe uses of the product that could result in personal injury or property damage. Each signal word corresponds to a specific hazard level.



Identifies a hazardous situation which, if not avoided, COULD result in DEATH or SERIOUS INJURY.



Identifies practices likely to result in product/property damage, such as operation that might damage the product.

SAFETY INSTRUCTIONS

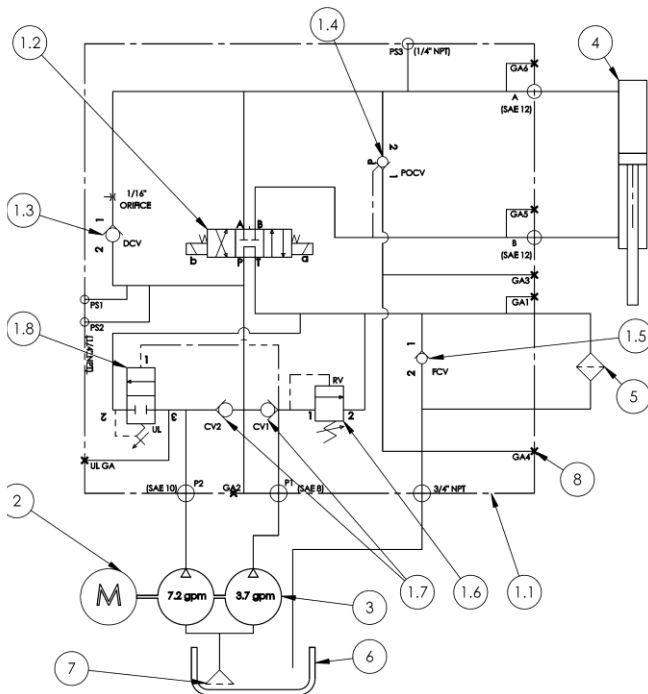
Vestil strives to identify foreseeable hazards associated with the use of its products. However, material handling is dangerous and no manual can address every conceivable risk. Ultimately, the most effective way to avoid injury is for the operator to exercise sound judgment whenever using this machine.

⚠ WARNING

Improper or careless operation might result in serious personal injuries or death.

- Failure to read and understand the entire manual before installing, using or servicing the product constitutes misuse.
- Read the manual to refresh your understanding of proper use and maintenance procedures.
- Do not operate the crusher with the loading door open.
- Do not operate the machine if the emergency stop switch does not function properly.
- Do not stand in front of the door during operation.
- Keep clear of all moving parts during operation.
- High pressure oil easily punctures skin which can cause injury such as gangrene. If a hose or coupling develops a leak, repair the leak before operating the crusher.
- Do not continue to use the crusher if it is damaged or makes unusual noises during operation.
- Do not change the pressure relief valve setting! In particular, do not increase the setting.
- Do not clean out drum crusher unless power is disconnected.
- Do not attempt to crush smooth-walled drums with this machine. Drums must be ribbed to crush properly.
- Do not attempt to crush drums filled with items or materials. Only use this unit to crush empty drums.
- Do not use brake fluids or jack oils in the hydraulic system. Only use AW-32 hydraulic oil or its equal.
- Do not modify the product in any way. Unauthorized modifications might make the lifter unsafe to use and automatically void the **LIMITED WARRANTY** on either [p. 18](#) or [19](#).
- DO NOT use this device unless every label is in place and easily readable. See [LABELING DIAGRAM](#) on [p. 17](#).

HYDRAULIC CIRCUIT DIAGRAM 22-125-016 REV. C



Item	Part no.	Description	Qty.
1	22-627-017	ASSEMBLY, MANIFOLD	1
1.1	22-127-021	MANIFOLD, HDC_905 W/ DECOMPRESSION CHECK	1
1.2	99-153-065	4-WAY, 3-POS, TANDEM CENTER, A & B BLOCKED, DO5	1
1.3	99-153-077	check valve, nose in, side out, size 08	1
1.4	22-153-003	VALVE, CHECK, PILOT-TO-OPEN, 30 PSI CRACK, 3:1, SIZE 10	1
1.5	99-153-068	VALVE, CHECK, NOSE-IN/SIDE-OUT, 25 PSI CRACK	1
1.6	99-153-078	RELIEF VALVE, 200-350 BAR, SIZE 10	1
1.7	99-153-035	VALVE, CHECK, NOSE-IN/SIDE-OUT, 5 PSI CRACK, VC10	2
1.8	99-153-028	VALVE, SEQUENCE, INTERNAL PILOT AND DRAIN	1
2	22-135-010	6.5HP, 3 PH, 1740/1440 RPM, 184T, 9T SPLINE 230/460, TEFC	1
3	22-143-001	PUMP, .977.499 CU IN, .9T SPLINE SHAFT, 2 SECTION	1
4	99-021-926-001	PISTON CYLINDER, 4 x 36, FLANGE MOUNT	1
5	22-031-023	SPIN-ON FILTER, 10 MICRON	1
6	22-023-004	RESERVOIR, HYDRAULIC, PLASTIC	1
7	99-031-035	SCREEN, SUCTION, 1" NPT	1
8	99-116-005	FITTING, HYDRAULIC, 04MORB HOLLOW HEX PLUG	7

GA2 = System operating pressure; should never exceed 3000psi. **GA1** = Filter head pressure; should never exceed 25psi. **GA3** = No need to test. **GA4** = No need to test. **GA5** = Pressure required to raise cylinder to home position. **GA6** = Pressure required to extend cylinder (crush or compact). **UL-GA** = Pressure at which large pump unloads. **PS3** = (NC switch) Coil b disabled when pressure >300psi.

SPECIFICATIONS

Specifications for the model HDC-905 series products are provided on Vestil's website. To access the appropriate specifications document, navigate to this webpage: <https://www.vestil.com/product.php?FID=755>. Click the "Product Specifications Table" drop-down menu bar partway down the page. Scroll down to the entry for the model you purchased and click the button in the column titled "PDF's" that looks like a pencil inside a box. A PDF file will open. This file is the specifications document. Print a copy of the document and keep it with your copy of this manual. The following are exemplar specifications documents for the 208VAC model HDC-905-IDC and 208VAC model, high-cycle HDC-905-HC. **NOTE:** Contact [TECHNICAL SERVICE](#) if a specifications document is not available for your model.

HYDRAULIC DRUM CRUSHER/ COMPACTOR- HDC-905-IDC/208V APPROX WEIGHT: 1099.53 lbs. DOES NOT INCLUDE WEIGHT OF POWER OR PACKAGING!!

*** ANY ADDITIONS, DELETIONS, OR OMISSIONS MUST BE CORRECTED ON THIS DRAWING AS THIS DRAWING WILL BE CONSIDERED ALL INCLUSIVE ***
ALL GRAPHICS PROVIDED ARE FOR REFERENCE ONLY. IF CERTAIN DIMENSIONS ARE CRITICAL PLEASE VERIFY THOSE DIMENSIONS WITH YOUR SALESPERSON

STANDARD FEATURES
 MODEL NUMBER IS HDC-905-IDC/208V
 DRUM CRUSHER AND COMPACTOR
 STD. 55 GAL. DRUM CAPACITY
 POSITIVE DRUM POSITIONING
 DRUM HEAD PIERCER TO RELEASE INTERNAL DRUM PRESSURE
 6.5 HP, THREE PHASE (PREWIRED FOR 208V)
 2-SPEED HYD. GEAR PUMP -- 11 GPM
 4\" DIA. PISTON CYLINDER W/ 38\" OF STROKE -- FULL CYCLE TIME OF 25 SECONDS (CRUSH AND RETRACT)
 HYD SYSTEM PRESS. RATING: 3000 PSI, W/ HYD. SYSTEM RELIEF VALVE
 38,000 LBS. OF CRUSHING FORCE -- REDUCES STEEL DRUMS TO ONLY 6\" HIGH
 24V CONTROL CIRCUIT, WITH:
 ON/OFF KEY SWITCH;
 CYCLE START BUTTON;
 CRUSH / COMPACT SELECTOR SWITCH;
 TWO PRESSURE SWITCHES;
 HIGH PRESSURE FOR CRUSHING,
 LOW PRESSURE FOR COMPACTING
 MATERIALS INSIDE A DRUM;
 DOOR INTERLOCK SWITCH
 DURABLE LIQUID PAINT BLUE FINISH

SPECIAL FEATURES
 NONE

FOR INTERNAL USE ONLY
 PROJECT SIGN OFF

SALES	
ENG.	
FAB.	
POWER	

DISTRIBUTOR'S NAME: VESTIL MANUFACTURING
 DRAWN BY: TAW DATE: 8/8/2016
 REFERENCE: X SCALE: 1:22
 QUOTED LEAD TIME: X QUOTE #: X
 FILE NAME: 22-007-017-001

I, THE UNDERSIGNED, AGREE THAT THE PRODUCT AS REPRESENTED SATISFIES DESIGN AND DIMENSION REQUIREMENTS. I ALSO ACKNOWLEDGE MY DUTY TO CONFIRM PRODUCT AND INSTALLATION COMPLIANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS AND STANDARDS.
ANY MODIFIED UNITS ARE NON-RETURABLE
 [] As drawn [] As marked
 Signed: _____ Date: _____
 Printed Name: _____
 LEAD TIME WILL START UPON RECEIPT OF SIGNED APPROVAL DRAWING

HIGH-CYCLE HYDRAULIC DRUM CRUSHER/ COMPACTOR - HDC-905-HC/208V APPROX WEIGHT: 1140.46 lbs. DOES NOT INCLUDE WEIGHT OF POWER OR PACKAGING!!

*** ANY ADDITIONS, DELETIONS, OR OMISSIONS MUST BE CORRECTED ON THIS DRAWING AS THIS DRAWING WILL BE CONSIDERED ALL INCLUSIVE ***
ALL GRAPHICS PROVIDED ARE FOR REFERENCE ONLY. IF CERTAIN DIMENSIONS ARE CRITICAL PLEASE VERIFY THOSE DIMENSIONS WITH YOUR SALESPERSON

STANDARD FEATURES
 MODEL NUMBER IS HDC-905-HC/208V
 DRUM CRUSHER AND COMPACTOR
 STD. 55 GAL. DRUM CAPACITY
 POSITIVE DRUM POSITIONING
 DRUM HEAD PIERCER TO RELEASE INTERNAL DRUM PRESSURE
 6.5 HP, THREE PHASE (PREWIRED FOR 208V)
 2-SPEED HYD. GEAR PUMP -- 11 GPM
 4\" DIA. PISTON CYLINDER W/ 38\" OF STROKE -- FULL CYCLE TIME OF 25 SECONDS (CRUSH AND RETRACT)
 HYD SYSTEM PRESS. RATING: 3000 PSI, W/ HYD. SYSTEM RELIEF VALVE
 38,000 LBS. OF CRUSHING FORCE -- REDUCES STEEL DRUMS TO ONLY 6\" HIGH
 24V CONTROL CIRCUIT, WITH:
 ON/OFF KEY SWITCH;
 CYCLE START BUTTON;
 CRUSH / COMPACT SELECTOR SWITCH;
 TWO PRESSURE SWITCHES;
 HIGH PRESSURE FOR CRUSHING,
 LOW PRESSURE FOR COMPACTING
 MATERIALS INSIDE A DRUM;
 DOOR INTERLOCK SWITCH
 DURABLE LIQUID PAINT BLUE FINISH

SPECIAL FEATURES
 NONE

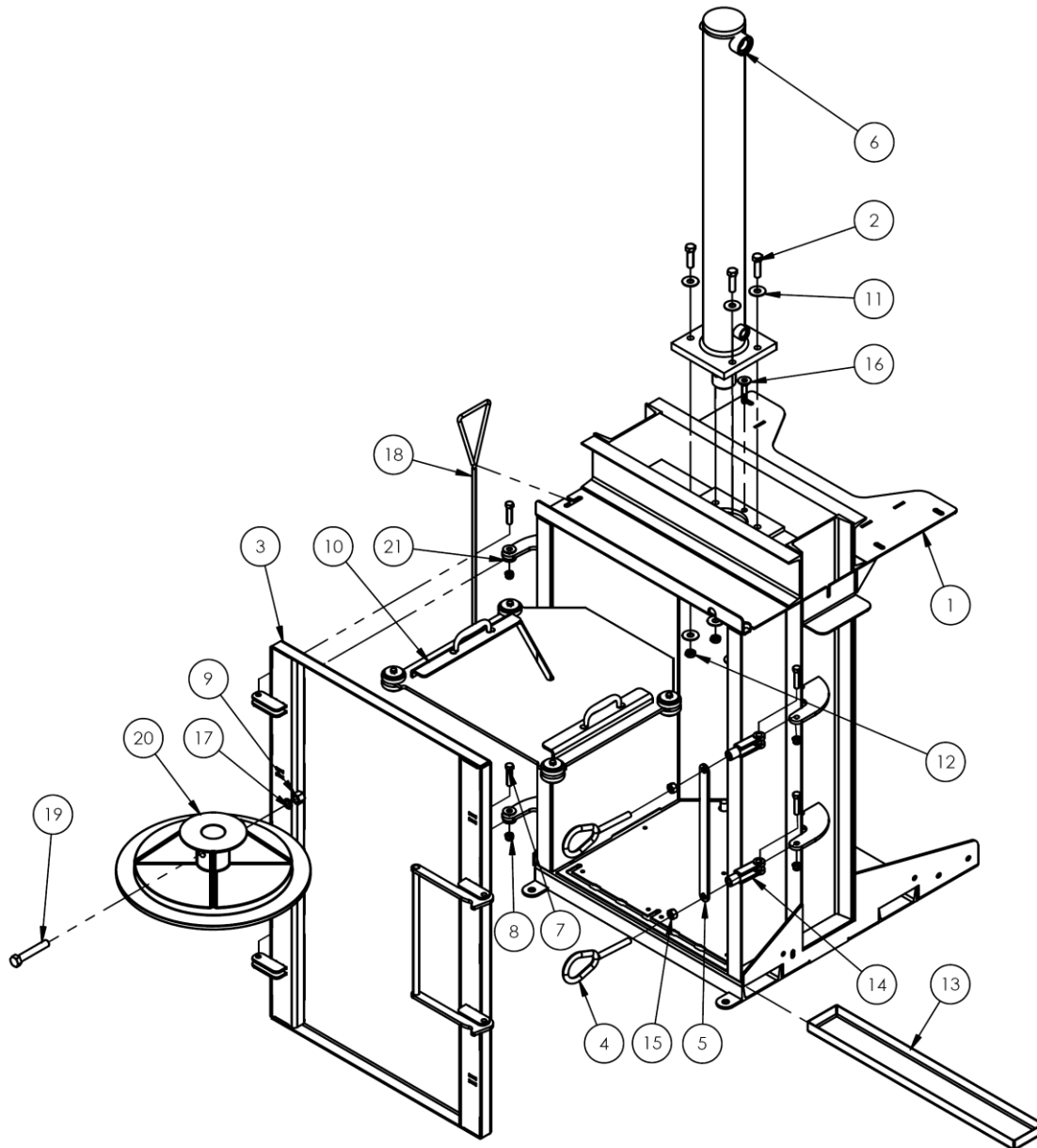
FOR INTERNAL USE ONLY
 PROJECT SIGN OFF

SALES	
ENG.	
FAB.	
POWER	

DISTRIBUTOR'S NAME: VESTIL MANUFACTURING
 DRAWN BY: TAW DATE: 08/08/2016
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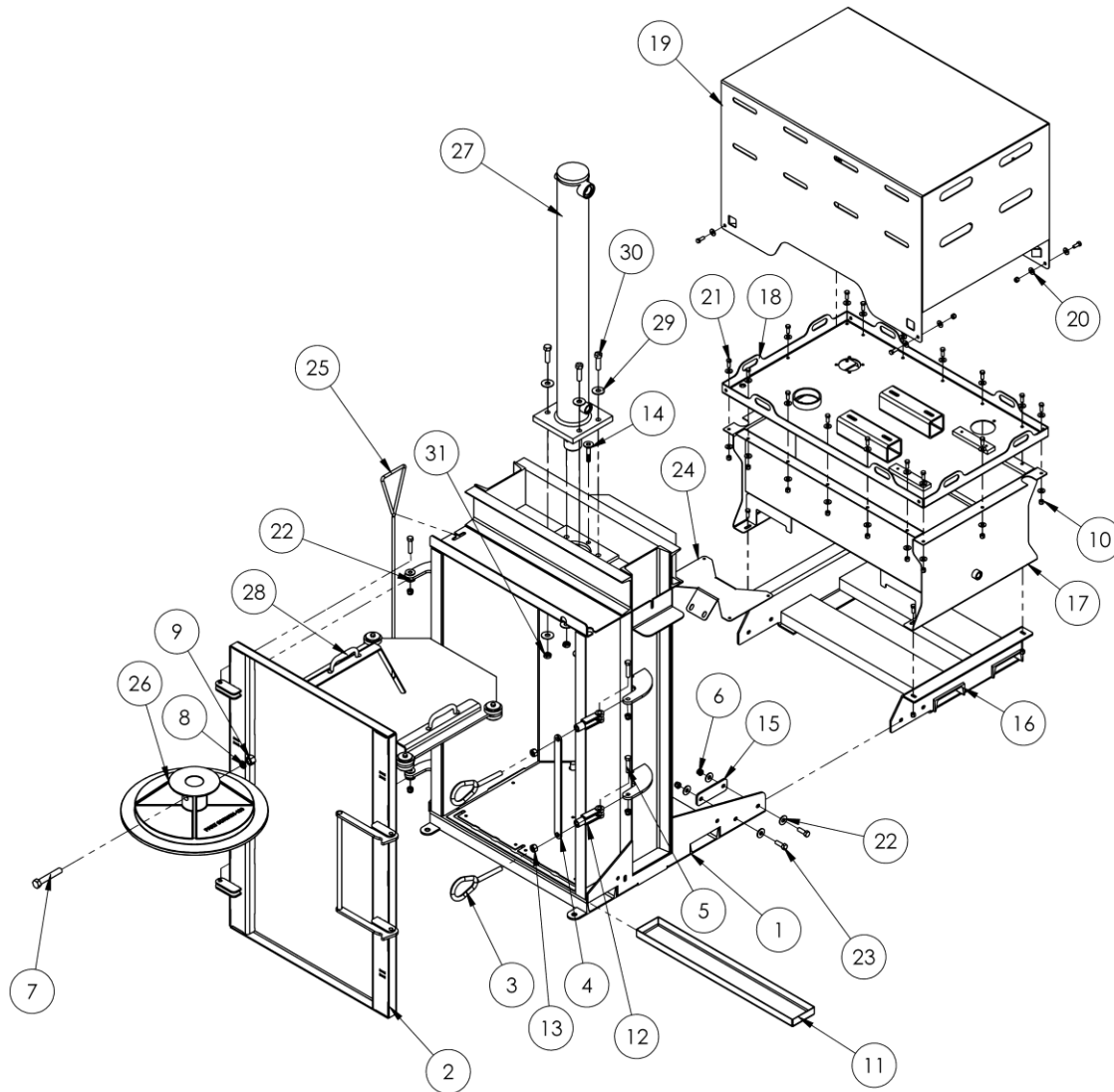
I, THE UNDERSIGNED, AGREE THAT THE PRODUCT AS REPRESENTED SATISFIES DESIGN AND DIMENSION REQUIREMENTS. I ALSO ACKNOWLEDGE MY DUTY TO CONFIRM PRODUCT AND INSTALLATION COMPLIANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS AND STANDARDS.
ANY MODIFIED UNITS ARE NON-RETURABLE
 [] As drawn [] As marked
 Signed: _____ Date: _____
 Printed Name: _____
 LEAD TIME WILL START UPON RECEIPT OF SIGNED APPROVAL DRAWING

FIG. 1: HDC-905-IDC EXPLODED VIEW AND BILL OF MATERIALS (22-006-017)



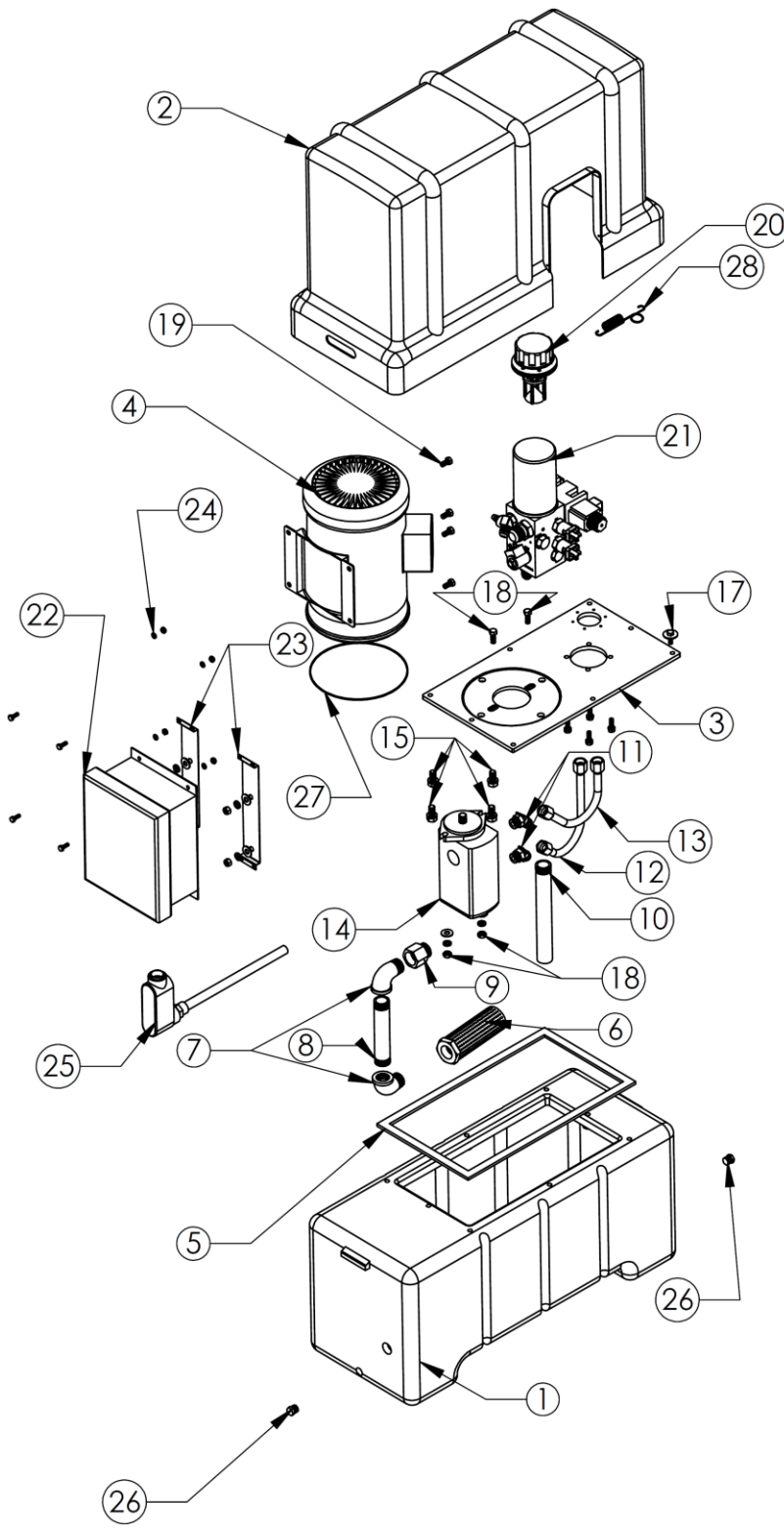
Item	Part no.	Description	Qty.	Item	Part no.	Description	Qty.
1	22-514-042	WELDMENT, FRAME, HULL	1	12	37036	NYLOCK NUT Z PLATED, 5/8 - 11	4
2	13312	HHCS, #5 Z PLATED, 5/8 - 11 x 2 1/4 LG.	4	13	22-014-105	DRIP PAN, FORMED	1
3	22-514-040	WELDMENT, DOOR	1	14	22-037-004	ADJUSTABLE YOKE END	2
4	22-514-039	WELDMENT, DOOR LATCH	2	15	36114	HEX NUT Z-PLATED, Ø5/8 - 11 UNC	2
5	22-014-108	FRAME, TIE BAR	1	16	22-645-003	ACTUATOR, BOLT, LIMIT SWITCH	1
6	99-021-926-001	CYLINDER, HYDRAULIC, Ø4" x 36" PISTON STYLE, W/ FLANGE MOUNT	1	17	33632	3/4 lock washer	1
7	11212	HEX BOLT, GRADE A, ZINC FINISH, 1/2"-13 x 2 1/4"	4	18	07-025-001	HANDLE, DECK POSITIONER	1
8	37030	1/2"-13 NYLON INSERT LOCK NUT	5	19	10371	HEX BOLT, GRADE A, PLAIN FINISH, 3/4"-10 X 4-1/2"	1
9	36116	3/4-10 HEX NUT	1	20	22-014-056	FRAME, CASTING	1
10	22-514-054	WELDMENT, PLATEN	1	21	33012	FLAT WASHER, LOW CARBON, ZINC FINISH, 1/2"	4
11	33016	FLAT WASHER, LOW CARBON, USS, ZINC PLATED, 5/8"	8				

FIG. 2: HDC-905-HC EXPLODED VIEW AND BILL OF MATERIALS (22-006-015)



Item	Part no.	Description	Qty.	Item	Part no.	Description	Qty.
1	22-514-052	Weldment, frame, hull	1	17	22-514-050	Weldment, tank	1
2	22-514-040	Weldment, door	1	18	22-514-051	Weldment, top motor mount plate	1
3	22-514-039	Weldment, door latch	2	19	22-524-003	Weldment, cover	1
4	22-014-108	Frame, tie bar	1	20	33008	Flat washer, low carbon, USS zinc-plated, 3/8"	40
5	11212	Hex bolt, grade A, zinc-finish, 1/2"-13x2 1/4"	4	21	11105	Hex bolt, grade A, zinc-plated, 3/8"-16 x1"	24
6	37030	1/2"-13 Nylon insert lock nut	9	22	33012	Flat washer, low carbon, zinc finish, 1/2"	12
7	10371	Hex bolt, gr. A, plain finish, 3/4"-10 x 4 1/2"	1	23	11209	1/2"-13x1 1/2" HHCS, ASTM A307 grade A, zinc-plated	4
8	33632	3/4" lock washer	1	24	22-016-075	Bracket, power box, formed	1
9	36116	3/4"-10 hex nut	1	25	07-025-001	Handle, deck positioner	1
10	37024	Nylon insert lock nut, grade 2, zinc finish, 3/8"-16	24	26	22-014-056	Frame casting	1
11	22-014-105	Drip pan, formed	1	27	99-021-926-001	Cylinder, hydraulic, 4"x36" piston style with flange mount	1
12	22-037-004	Adjustable yoke end	2	28	22-514-054	Weldment, platen	1
13	36114	Hex nut, zinc-plated, 5/8"-11UNC	2	29	33016	Flat washer, low carbon, USS, zinc-plated, 5/8"	8
14	22-645-003	Actuator, bolt, limit switch	1	30	13312	Bolt, HHCS, #5 zinc-plated, 5/8"-11x2 1/4"	4
15	22-016-074	Bracket, shim	2	31	37036	Nylock nut, zinc-plated, 5/8"-11	4
16	22-514-049	Weldment, base frame	1				

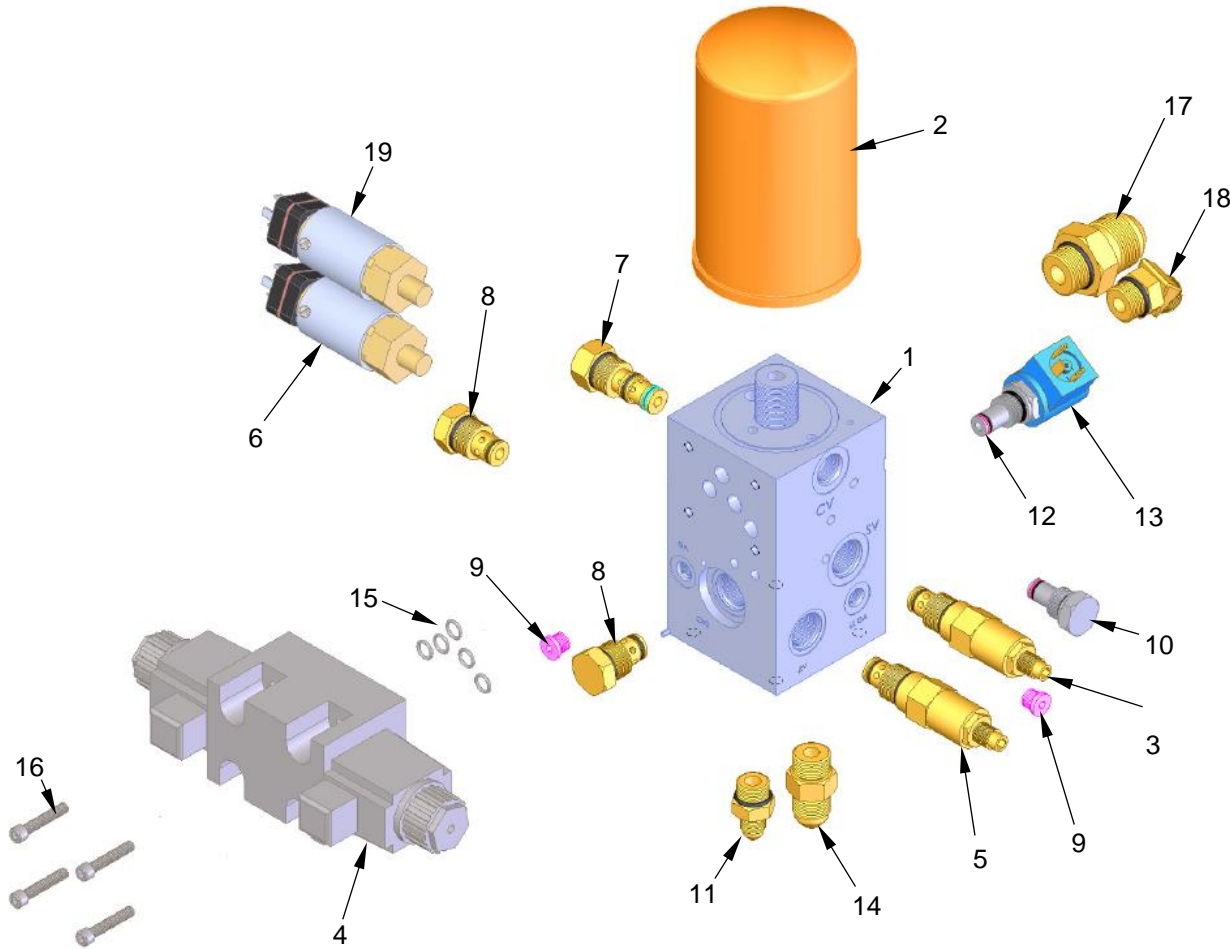
FIG. 3: POWER UNIT EXPLODED VIEW & BILL OF MATERIALS



Item	Part no.	Description	Qty.
1	22-023-004	Reservoir	1
2	22-024-003	Cover	1
3	22-031-010	Adapter plate	1
4	22-135-010	6.5HP, 3-phase Motor	1
5	LP-113	Gasket	1
6	PS-08	1" NPT thread inlet strainer	1
7	1STEL	1" street elbow	2
8	JDN2000065	1"x7" NIP pipe nipple	1
9	6405-16-16-0	Adapter	1
10	JDN2000066	³ / ₄ " x 7" NIP pipe nipple	1
11	6802-10-10NWO	Fitting	2
12	22-623-019	Tube	1
13	22-623-018	Tube	1
14	SPD11608-1H9R	Pump	1
15	11207	¹ / ₂ "-13x1 ¹ / ₄ " zinc-plated bolt	4
	33625	¹ / ₂ " lock washer	4
16	11055	⁵ / ₁₆ "-18x1" hex bolt	4
	33620	⁵ / ₁₆ " lock washer	4
17	11055	⁵ / ₁₆ "-18x1" hex bolt	8
	33006	⁵ / ₁₆ " flat washer	8
	33620	⁵ / ₁₆ " lock washer	8
18	11107	³ / ₈ "-16x1 ¹ / ₄ " hex head bolt	2
	33008	³ / ₈ " flat washer	2
	33622	³ / ₈ " lock washer	2
	36106	³ / ₈ "-16 hex nut	2
19	11005	¹ / ₄ " lock washer	4
	33618	¹ / ₄ " lock washer	4
	36102	¹ / ₄ "-20 hex nut	4
	33004	¹ / ₄ " flat washer	8
20	AB-1164S	Filler breather	1
*21	22-127-021	Manifold assembly	1
22	22-529-003	Electrical panel	1
23	22-016-017	Bracket	2
24	11005	¹ / ₄ "-20x1" hex bolt	4
	33618	¹ / ₄ " lock washer	4
	36102	¹ / ₄ "-20 hex nut	4
	33004	¹ / ₄ " flat washer	4
25	ET2L-252	230V heater	1
25	ET3L-504	460V heater	1
26	5406-P-06	Pipe plug	2
27	OR-172-N70	O-ring	1
28	121201JY	Spring	1

*Shown in detail in FIG. 4 on p.7.

FIG. 4: DETAILED PARTS BREAKDOWN OF MANIFOLD ASSEMBLY (ITEM NO. 21 ON P. 6)
 22-127-021 Rev. O



Item	Part no.	Description	Quantity
1	22-127-021	Manifold	1
2	22-031-007	Filter	1
3	99-153-028	Unloading valve	1
4	SHD-03G-3C60-A24D	4-way valve	1
5	99-153-037	Relief valve	1
6	99-022-004	Pressure switch	1
7	1710	PO check	1
8	99-153-035	Check valve	2
9	6408-H-04	Plug	2
10	1808-25	25psi check valve	1
11	6400-10-10	Fitting	1
12	99-153-015	2-way valve	1
13	99-034-008	24VAC coil	1
14	6400-10-08-0	Fitting	1
15	2-154	O-ring	4
16	23209	¼ in. – 20 x 1 ½ in. SHCS bolt	4
17	6400-16-12	Fitting	1
18	10/10/6802	Fitting	1
19	99-022-005	Pressure switch	1

MANIFOLD, PRESSURE SWITCHES, AND VALVES

Reference Diagrams for [VALVE AND PRESSURE SWITCH ADJUSTMENT PROCEDURE](#) on p. 9.
 Manifold assembly shown below in Figures 5 – 8 below corresponds to [item no. 21](#) on p. 6 and to [Fig. 4](#) on p. 7.

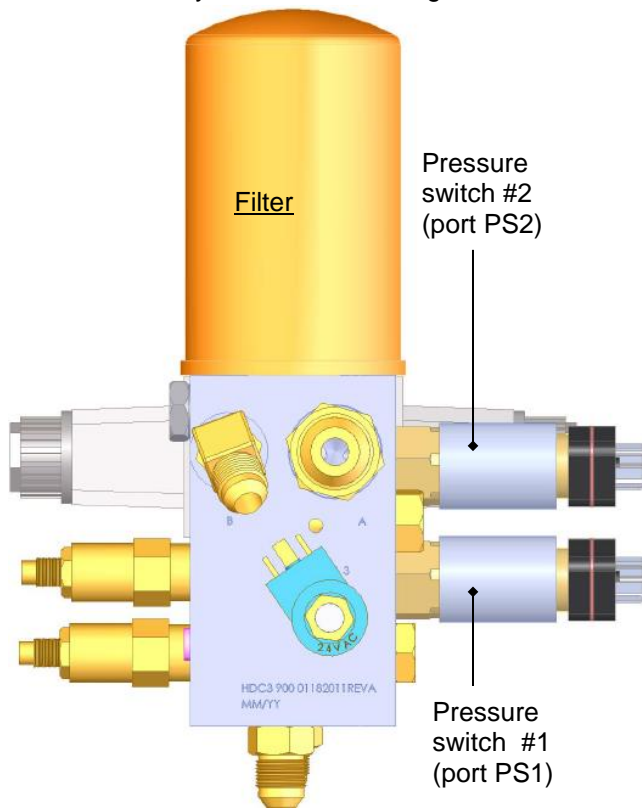


FIG. 5: Front view

Set screw on knurled knob of pressure switch 1 [NOTE: The knurled knob of PS2 also has a set screw.]

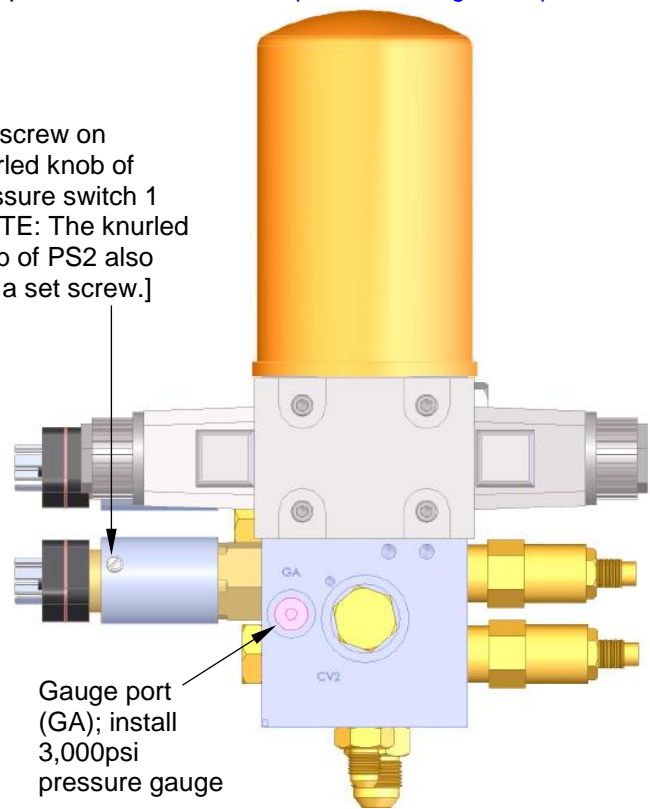


FIG. 6: Rear view

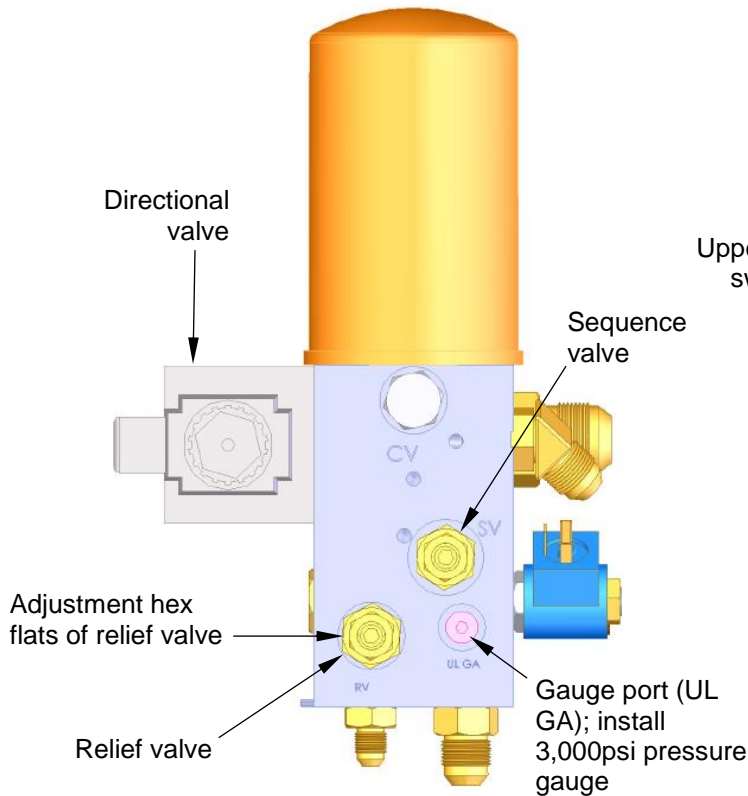


FIG. 7: Left side view

Upper pressure switch (PS2)

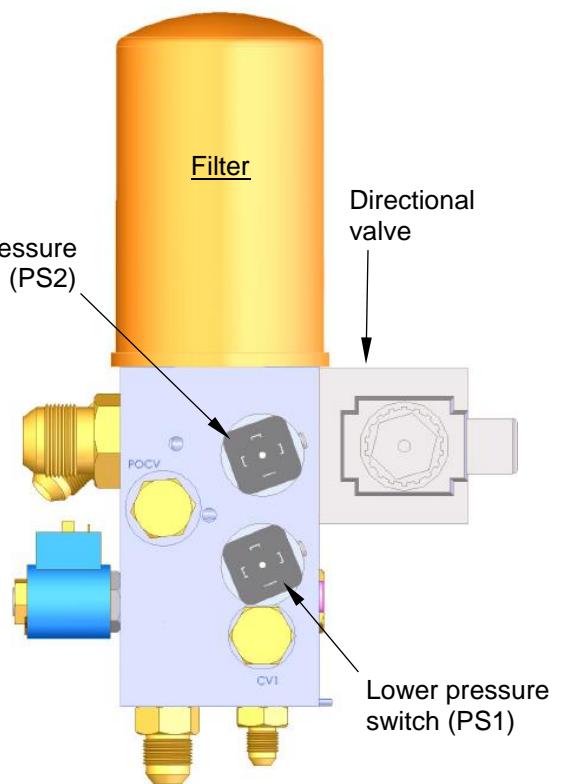


FIG. 8: Right side view

VALVE AND PRESSURE SWITCH ADJUSTMENT PROCEDURE

For locations of valves and switches mentioned to in the following instructions, refer to the figures on [page 8](#).

NOTE: These instructions apply to all HDC-900-IDC units manufactured after June 2011, i.e. units equipped with manifold 22-127-008 rev C and wired according to electrical circuit diagram 22-124-024 rev D.

1. Install pressure gauges in ports GA and UL GA. [NOTE: Hose fittings and adapters might be necessary to connect gauges to these ports.]
 - a. Remove cap plug from GA port (located under directional valve; see [FIG. 6](#)) and install a 3000 psi gauge.
 - b. Remove cap plug from UL GA port (located under sequence valve and pointing towards motor; see [FIG. 7](#)) and install a 3000 psi gauge.
2. Prepare the pressure switches. See [FIGS. 5 & 6](#).
 - a. Using a standard screwdriver, loosen the set screws on both of the pressure switches (connected to ports PS1 and PS2);
 - b. Turn the knurled knobs of both pressure switches clockwise by hand until they stop.
3. Adjust the relief valve, which is connected to port RV as shown in [FIG. 7](#). Turn the relief valve counterclockwise using an adjustable wrench on the adjustment hex of the valve.
4. Turn the selector-switch on the control box to “COMPACT”
5. Press the “CYCLE START” button on the control box and hold it until the motor engages. As the motor operates, the piston rod extends causing the platen to descend towards the bottom of the drum enclosure.
6. Turn the relief-valve clockwise until the pressure at the GA port is 1100 psi.
7. While the motor continues to run and the piston rod is fully extended (platen at the bottom of its cycle), adjust the unload valve. The valve is connected to port SV. See [FIG. 7](#).
 - a. Turn the unload valve with an adjustable wrench on the adjustment hex. Typically, adjustment requires turning the valve clockwise. Turn the valve until the UL GA pressure gauge shows 1000 psi.
 - b. At this point, the gauge pressure drops approximately to zero, which indicates that the valve shifted. The shift is also indicated by a change in the sound produced by the motor.
 - c. The large pump section is now “unloaded”, allowing fluid to return to the tank. The small pump section, however, remains loaded.
8. Adjust the compacting force:
 - a. Observe the pressure on the gauge connected to the GA port. Turn the relief-valve clockwise until the GA gauge shows 1500 psi. The power unit is now operating at 1500 psi pressure.
 - b. Decrease the setting on PS2—the upper pressure switch shown in [FIGS. 5 & 6](#). Rotate the knurled knob counterclockwise until it clicks. The click indicates that the directional valve shifted. Consequently, the piston rod retracts and the platen returns to the raised position. When the platen is fully retracted, the power unit turns off. The compacting force is now adjusted.
9. Adjust the crushing force:
 - a. Turn the selector switch on the control box to “CRUSH”;
 - b. Press the cycle-start button and hold it until the motor engages.
 - c. While the power unit operates:
 - i. Increase the relief valve (RV) setting. Turn the valve clockwise until the GA port gauge displays 3000 psi.
 - ii. As the power unit runs, turn the knurled knob on the lower pressure switch connected to port PS1 (see [FIGS. 5 & 6](#)) counterclockwise until it “clicks”. The click indicates that the switch is open. Simultaneously, the valve shifts and the piston retracts (platen rises).
 - iii. Turn the knob counterclockwise an additional full turn.
 - iv. Cycle the crusher. As the platen descends, hydraulic pressure will increase until it matches the pressure switch setting. The goal of this procedure is to adjust the switch setting to 2,500psi. As the crusher cycles, observe the pressure gauge. Make note of the highest pressure reading achieved during the cycle. If the highest pressure is not within the range of 2,500psi \pm 100psi, adjust the pressure setting: turn the knob counterclockwise to decrease the setting or clockwise to increase the setting.
 - d. The crushing force is now adjusted.
10. Return the unit to service:
 - a. Run the unit through a complete cycle in both modes (COMPACT and CRUSH) to confirm that the machine is functioning properly.
 - b. Remove the pressure gauges and reinstall the cap plugs in ports GA and UL GA.
 - c. Tighten the set screws of the pressure switches PS1 and PS2 to fix the positions of the knurled knobs.

ELECTRICAL CONTROLS SEQUENCE OF OPERATION

NOTE: These instructions apply to all HDC-905-IDC units manufactured after June 2011, i.e. units equipped with manifold 22-127-021 rev. C and wired according to electrical circuit diagram 22-124-024 rev. G.

- 1) Press “Cycle start” button
 - 1M energizes;
 - Aux. contacts 13 and 14 close;
 - Terminal 8 energizes;
 - Power at CR2 9&1;
 - Power reaches 2LS normally open, held closed switch (NO, HC);
 - Power on 11 to CR1, 13 and 14;
 - CR1, 5 and 9 close (latch);
 - CR1, 2 and 10 open (timer);
 - Energize 2 SOL H (4-way, 3-position);
 - Ram and platen descend.
- 2) As the ram and platen descend:
 - 2 LS normally closed, held open switch (NC, HO) closes;
 - 2 LS NO, HC opens;
 - Motor runs without button contact.
- 3) At full extension of piston rod and platen:
 - PS1 (if in “CRUSH” mode) or PS2 (if in “COMPACT” mode) make;
 - Energizes CR2, 13 and 14;
 - CR2, 9 and 1 open;
 - 2 SOL H de-energizes;
 - CR1, 13 and 14 de-energize;
 - CR1, 2 and 10 close and the timer starts.
- 4) Timer cycle:
 - CR1, 3 and 11 close;
 - Power reaches decompression valve 3 SOL H;
 - 1-2 second delay after which power reaches CR3, 13 & 14;
 - CR3, 2 and 10 open;
 - 3 SOL H de-energizes and closes;
 - CR3, 5 and 9 close;
 - Power to 1 SOL H causing the ram and platen to ascend.
- 5) As the piston rod retracts and returns the platen to the ready position:
 - 2 LS normally closed switch opens; and
 - 1M de-energizes.

ELECTRICAL SYSTEM SPECIFICATIONS

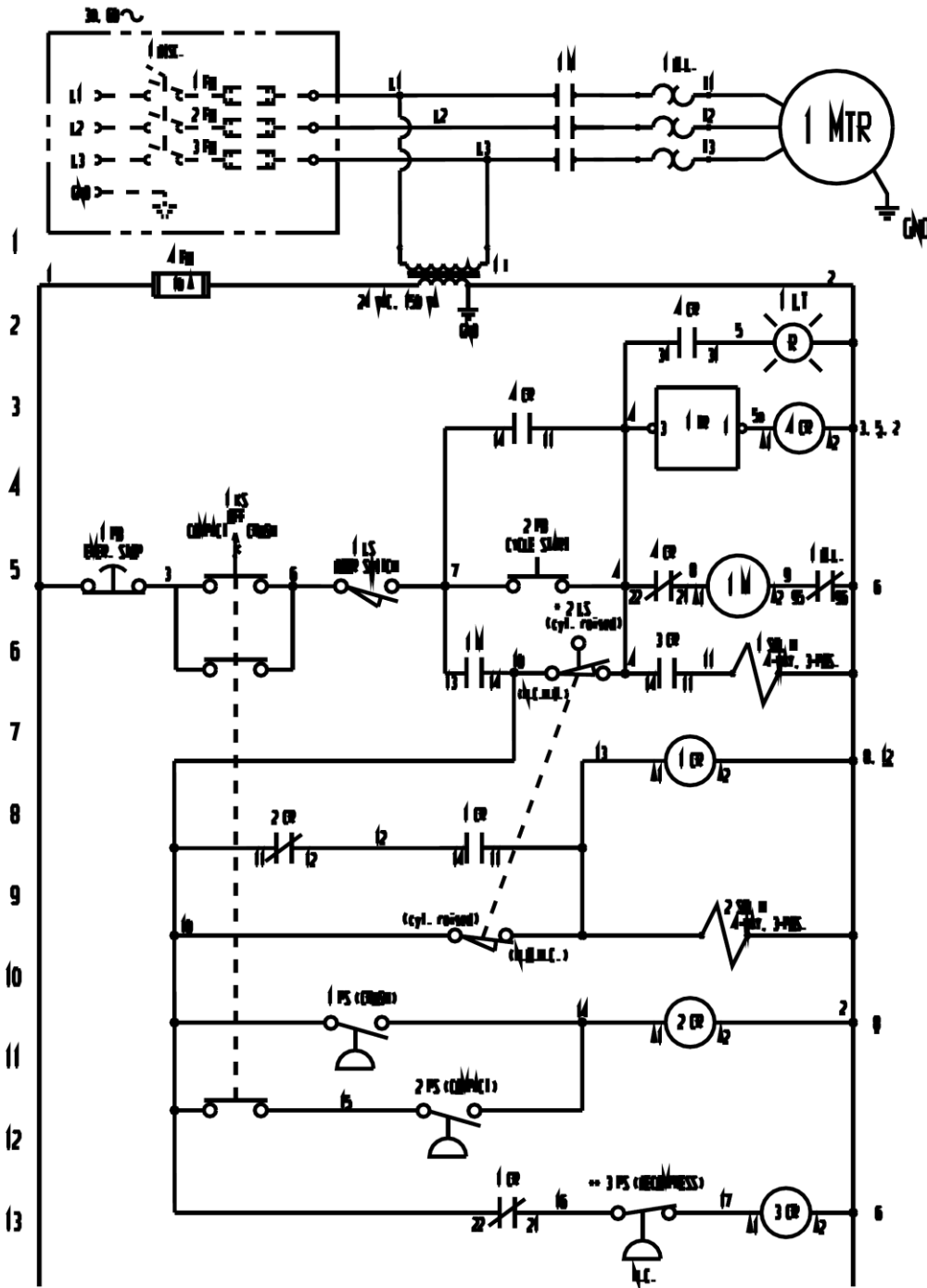
This drum crusher was tested at the voltage specified at the time of order. To adapt to applications requiring voltages that differ from your original specifications requires rewiring the motor and control transformer. Refer to the appropriate electrical circuit diagram on pp. 11-14. Failure to rewire the motor and/or transformer automatically voids the [LIMITED WARRANTY](#) (p. 18 or 19) and might significantly damage the electrical system.

This table indicates how to wire 3-phase motors for 208-230VAC and 460VAC:

208-230VAC, 3-phase		460VAC, 3-phase	
Motor wire	Connect to contactor lead	Motor wire	Connect to contactor lead
1 & 7	T1	1	T1
2 & 8	T2	2	T2
3 & 9	T3	3	T3
4,5, & 6	Tie together with wire nut	4 & 7	Tie together
		5 & 8	Tie together
		6 & 9	Tie together

WASH-DOWN (-WD) MODELS: Wash-down units are NOT waterproof! Only install and use wash-down units indoors. Wash the crushing chamber only with warm or cold, non-caustic, low-corrosivity solutions applied at low pressure (<100 psi).

FIG. 9: STANDARD 3-PHASE ELECTRICAL CIRCUIT DIAGRAM (22124024 REV. G)



208-230/460V, 3-phase,
16.8/8.4FLA, 6.5HP,
15min. duty, 1740RPM,
F184TCZ frame, CW
rotation (fan end)

Motor stuck on--Contact
factory immediately!

Watchdog Timer:
Delay-on-make timer
latches on after delay if
motor sticks from faulty
pressure switch

Motor start

Latches motor relay /
raises ram

Latches to lower
ram

Lowers ram

Crush return limit

Compact return limit

Decompress

NOTES:

----- Indicates wire and/or components not included with unit

*All components shown with unit in normal starting position, i.e. ram fully raised and cabinet door open.

1TR is ICM Controls: part no. ICM1028; Delay-on-make set for 2 minutes.

1T is ACME part no. TB-81324; 150VA control transformer or equivalent. Manifold part no. 22-127-021

**When pressure exceeds 350PSI, switch is open to allow compression before ram rises.

Ferrule used for wire terminations.

PHOENIX

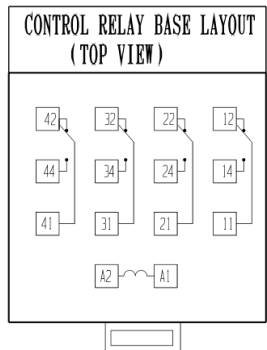
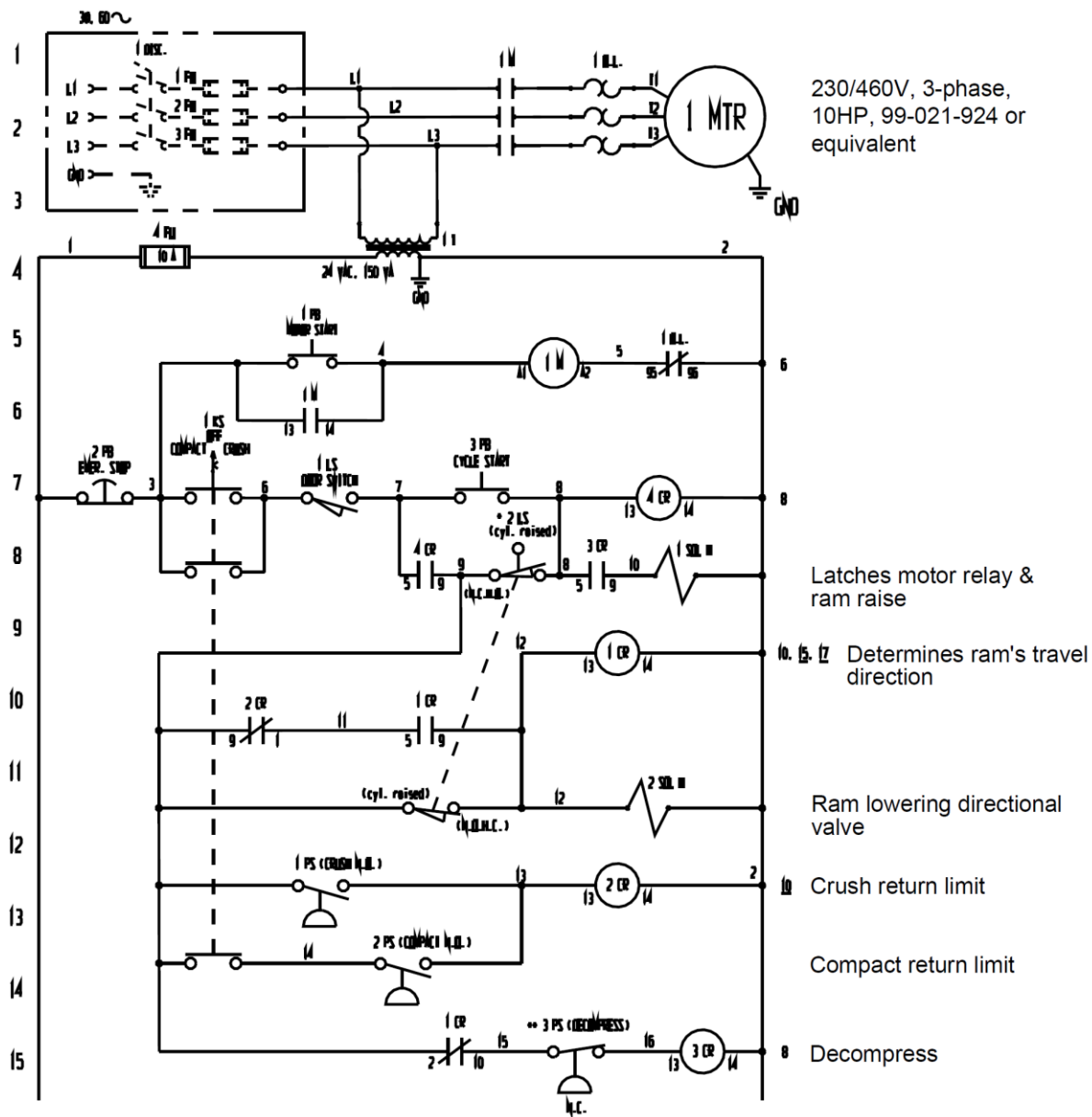


FIG. 10: 3-PHASE CONTINUOUS RUN ELECTRICAL CIRCUIT DIAGRAM (22124025 rev. D)



NOTES:

- Indicates wire and/or components not included with unit
- *All components shown with unit in normal starting position, i.e. ram fully raised and cabinet door open. All part numbers are for reference.
- 1T is ACME part no. TB-81324; 150VA control transformer.
- Oil cooler: Emmegi 2024K-MM-IP-JE
- Reservoir: Sentinel 031815-SA2
- Pump: 22-143-001
- Special motor/pump adapter & coupling
- Manifold 040615-SA1
- Oil filter assembly in tank: SLF212SO
- **When pressure exceeds 350PSI, switch is open to allow compression before ram rises.
- Ferrule terminations used for wiring

PHOENIX

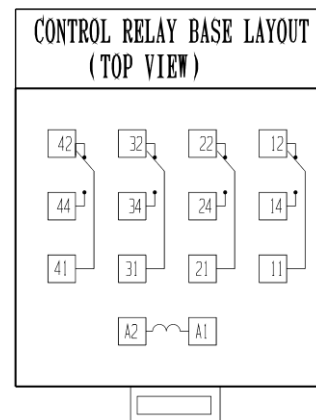
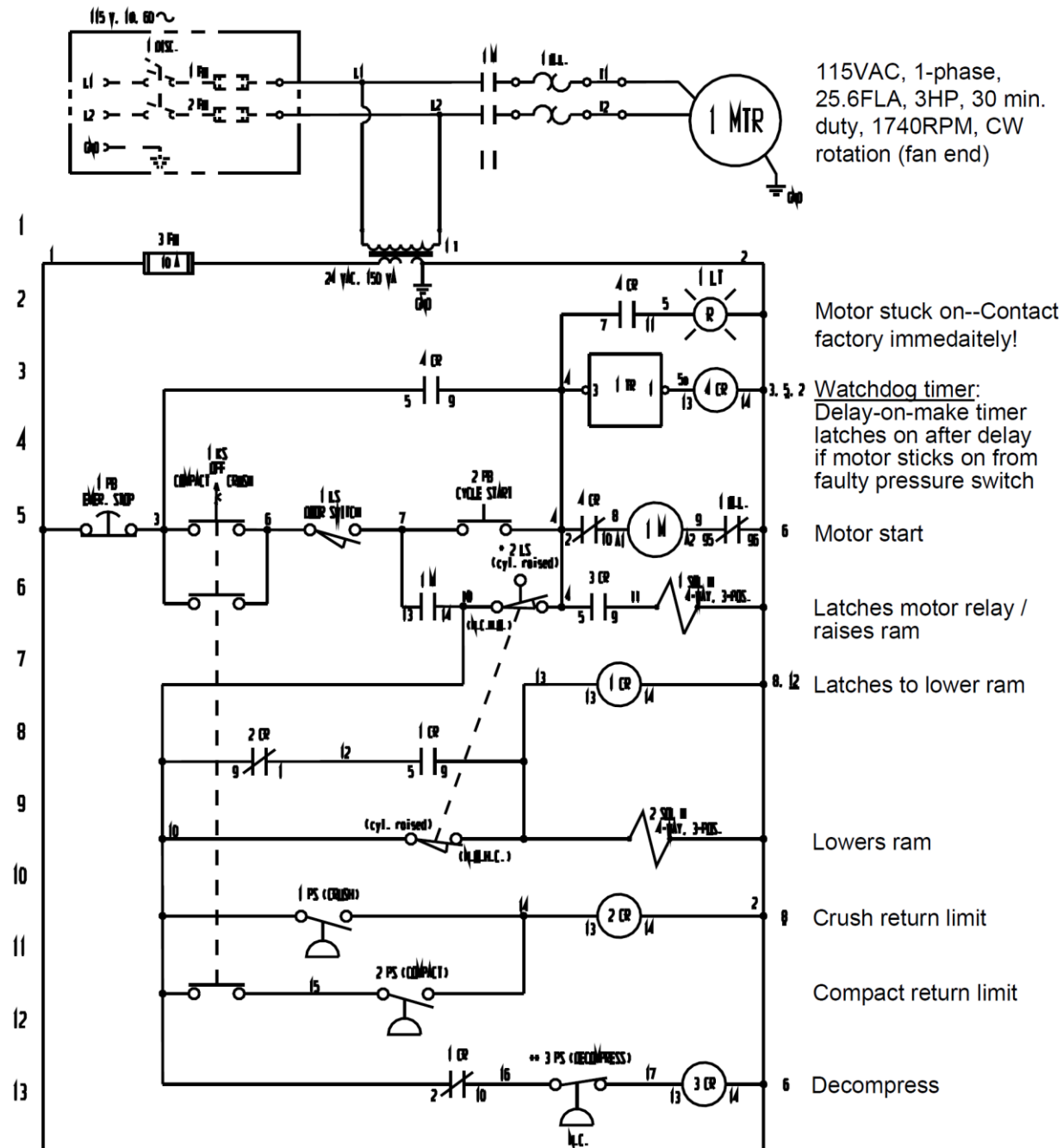


FIG. 11: SINGLE PHASE 115VAC ELECTRICAL CIRCUIT DIAGRAM (22124026 REV. E)



NOTES:

- Indicates wire and/or components not included with unit
- *All components shown with unit in normal starting position, i.e. ram fully raised and cabinet door open.
- 1TR is ICM Controls: part no. ICM1028; Delay-on-make set for 2 minutes.
- 1T is ACME part no. TB-81324; 150VA control transformer or equivalent.
- Manifold part no. 22-127-015.
- **When pressure exceeds 350PSI, switch is open to allow compression before ram rises.

PHOENIX

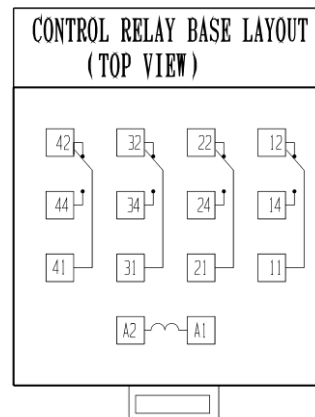
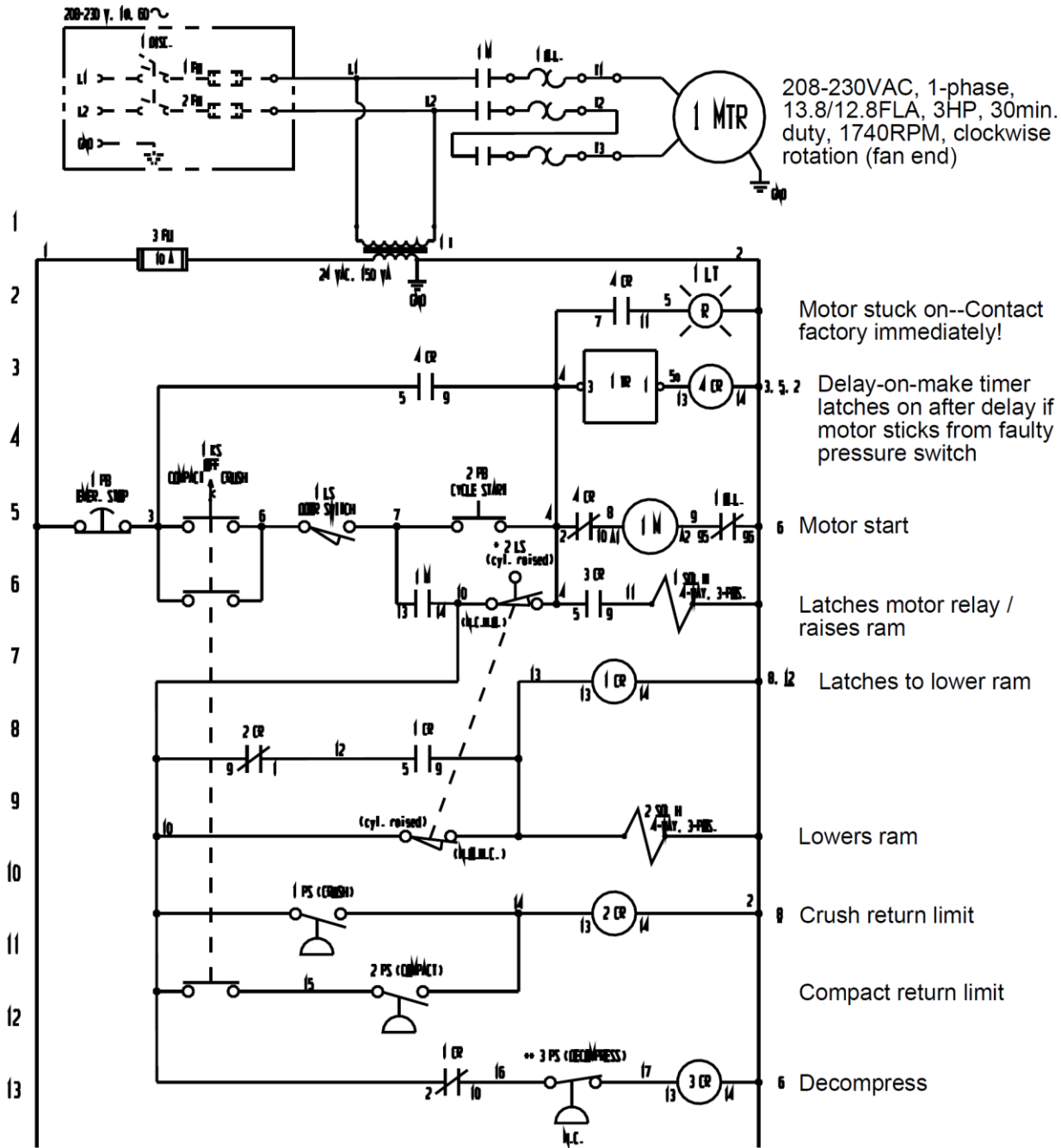
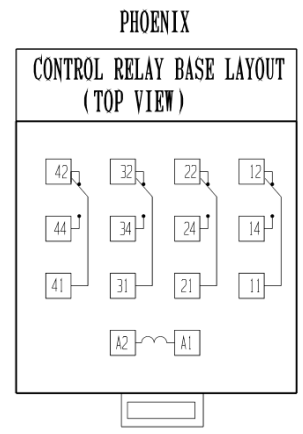


FIG. 12: SINGLE PHASE, 208/230VAC ELECTRICAL CIRCUIT DIAGRAM (22124027 Rev. F)



NOTES:

- Indicates wire and/or components not included with unit
- *All components shown with unit in normal starting position, i.e. ram fully raised and cabinet door open.
- 1TR is ICM Controls: part no. ICM1028; Delay-on-make set for 2 minutes.
- 1T is ACME part no. TB-81324; 150VA control transformer or equivalent.
- Manifold part no. 22-127-015.
- **When pressure exceeds 350PSI, switch is open to allow compression before ram rises.



INSTALLATION

The following items are necessary to install the device:

- Fork truck.
- Lag bolts, masonry drill, masonry bit, and wrench for lag bolt, grout, and steel shims.
- Power circuit with voltage matching the voltage of the unit including fuses and disconnect or circuit breakers.

Minimize voltage drop by using adequate wire size. Refer to NEC 70 for power circuit specifications.

Move the crusher to its installation location. If using a fork truck, insert the forks into the fork tubes. Drive as far forward as possible while being careful not to damage the door hinges or door closure mechanism. Once the unit is placed in its installation location, anchor it to the floor with anchor bolts selected by your building engineer. To complete the installation:

1. Connect the power source as shown in the appropriate electrical circuit diagram on pp. 11-14.
2. Cycle the unit a few times; then check the oil level in the reservoir. Add oil, if necessary. NOTE: Only use ISO AW-32 hydraulic fluid or its equivalent.

WASH-DOWN (-WD) MODELS: Wash-down units are NOT waterproof! Only install and use wash-down units indoors. Wash the chamber only with warm or cold, non-caustic, low-corrosivity solutions applied at low pressure (<100 psi).

LOADING THE CHAMBER

Read *IMPORTANT NOTE* on cover page before loading the chamber. In crushing mode, this device will crush standard 55 gallon (or smaller) ribbed steel drums. It should not be used to crush smooth-walled drums (without ribs), which are more resistant to crushing and require much higher crushing forces. **NOTE:** The machine might not crush a particular ribbed steel drum. It is also possible that the crusher will sustain minor damage during typical operation.

In compaction mode, the machine should be used to reduce easily compressible materials loaded inside a drum. **NOTE:** Crushing and compacting operations must be performed independently. Do not attempt to crush drums loaded with material. For instance, do not fill drums with scrap metal, paint cans, oil filters, etc. and then attempt to crush the drum and the contents. The crusher might be severely damaged in the process.

Before operating the machine:

1. Confirm that the platen is properly configured for the task. Platen configurations are discussed on [p. 16](#).
2. Carefully center the item to be crushed or compacted below the platen. An offset can cause uneven loading and damage the cylinder rod.
3. Make sure the drum is *empty* if operating in CRUSH mode.

OPERATION

Read *IMPORTANT NOTE* on cover page before operating the machine. To operate the crusher: 1) select the appropriate platen configuration (see "Platen configurations" on p. 16); 2) place a drum inside the crusher and center it beneath the platen; 3) close the door and latch the door; 4) turn the key switch on the control box to the appropriate mode, i.e. either CRUSH or COMPACT; 5) pull out the red emergency stop button; 6) press the "CYCLE START" button and hold it until the motor engages. **NOTE:** Each unit is equipped with a momentary contact control. To begin a crushing or compacting cycle, simply press the START button and hold it until the motor engages. The ram will extend and retract without having to hold down the button.

The direction of travel is determined by the starting position of the platen. If the platen is fully raised to the top of the cabinet (cylinder fully retracted), the cylinder will extend when the start button is pressed causing the platen to move downwards. Otherwise, the cylinder will retract and raise the platen to the "Home" position. The power unit will turn off at that point. Pressing the cycle start button again will begin a new cycle. The operator must hold the button for a few seconds to latch the circuit (wait until you hear the motor turn on) and begin the cycle.

When the crusher is in home position and the cycle start button is pressed, the cylinder pushes the platen down onto (or into if operating in COMPACT mode) the drum. In order to achieve a short cycle time, both sections of the pump in the power unit drive oil to the cylinder until the cylinder pressure reaches approximately 1000 PSI. At that time, the higher-displacement section recycles oil to the reservoir while the low-displacement, high-pressure section continues to pump oil to the cylinder. This arrangement creates a typical High-Low circuit.

As the platen crushes a drum, or compacts the contents of a drum, the cylinder pressure increases until it reaches the set-point of a particular pressure switch. The valve shifts to center and a timer activates to control the period of decompression. When the decompression period ends, the directional valve shifts and reverses the direction of oil flow to the cylinder. Reversing the flow of oil causes the cylinder to retract and raise the platen to the 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 empty the chamber.

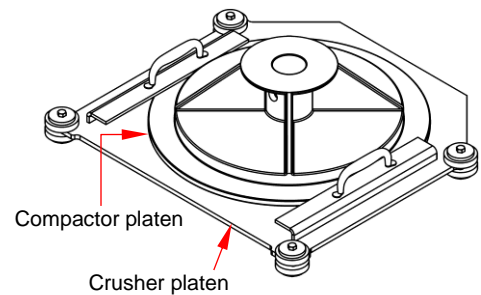
The ram can be stopped at any point during a cycle. To stop the ram, press the red emergency stop button located on the control panel. Pressing the button instantly stops the motor and prevents the cylinder from cycling any further. To disengage the stop button, pull it out. Press the cycle start button again to retract the cylinder and returns the platen to the home position. The crusher is again ready for operation.

PLATEN CONFIGURATIONS

Configure the platen to match your application. The compactor platen is circular and fastens to the end of the cylinder rod; the crusher platen slides onto the edge of the compactor platen and is roughly square shaped.

Compaction Mode: Remove the crusher platen. Press the START button and lower the platen to an ergonomic level. Then, press the red emergency stop button to make the ram stop. Remove the crusher platen by sliding it off of the circular compactor platen. The crusher platen is heavy, so we recommend that at least 2 people perform this task together.

Crush mode: Install the crusher platen by sliding it onto the compactor platen. Center the crusher attachment on the circular platen as shown in the graphic to the right.



RECORD OF SATISFACTORY CONDITION (THE “RECORD”)

Record the condition of the crusher before putting it into service. Thoroughly photograph the unit from multiple angles. Include close range photographs of the power unit with and with the cover making sure to adequately visualize internal components (do not disassemble any part of the power unit), door hinges and latches/closures, the interior of the drum chamber, the crusher and compactor platens, labeling, the hydraulic cylinder, frame elements, and anchoring sites (stationary units). Close the door and cycle the cylinder all the way down and back to home position. Describe the motion of the cylinder, e.g. smooth and at a constant rate, as well as sounds produced by the power unit and cylinder during the cycle. Collate all photographs and writings into a single file. Identify the file appropriately. This file is a record of the unit in satisfactory condition. Compare the results of all inspections to this record to determine whether the unit is in satisfactory condition. Do not use the machine unless it is in satisfactory condition. Purely cosmetic changes, like damaged paint/powdercoat, do not constitute changes from satisfactory condition. However, touchup paint should be applied to all affected areas as soon as damage occurs to prevent rusting and/or corrosion from occurring. Left untreated, rusting and/or corrosion could become a safety concern.

INSPECTIONS & MAINTENANCE

Inspections and repairs should be performed by qualified persons. Compare the results of each inspection to the [RECORD OF SATISFACTORY CONDITION](#). Do not use the machine unless all parts are in satisfactory condition. Replace parts that are not in satisfactory condition before returning the unit to service. Only use manufacturer-approved replacement parts to restore the unit to satisfactory condition. **DON'T GUESS! If you have any questions about the condition of your lifter, contact the TECHNICAL SERVICE department.** The phone number is provided on the cover page of this manual. *Never make temporary repairs of damaged or missing parts.*

At least once per month (once per week for units used more than 5 times per week), evaluate the condition of the crusher. Repair all issues *before* returning it to service.

- Electrical system:** Examine the electrical system for damaged wires/cables.
- Hoses:** Inspect hydraulic hoses and fittings for cuts, bulges, tears, kinks, punctures, or other damage causing oil leaks or that could cause leaks.
- Ram:** Empty the crushing chamber and cycle the ram. Listen for unusual noises and watch for cylinder binding during the cycle. Check the cylinder to make sure that it is not bent or cracked.
- Oil:** Check the oil level in the reservoir. With the ram in the home position (cylinder fully retracted), oil should be 2" – 2½" below the top of the tank. If oil is needed, add ISO AW-32 hydraulic fluid or its equal. *Change the oil at least once per year. Immediately change oil if it darkens, looks milky, or becomes gritty. Replace the oil by removing the oil fill plug. Drain oil from the reservoir. Then, flush the reservoir with fresh hydraulic fluid before filling it. Install the drain plug and fill the reservoir with new hydraulic fluid. Only use ISO AW-32 hydraulic oil or its equal.*
- Labels:** All labels must be in place and easily readable. See [LABELING DIAGRAM](#) on p. 17.
- Crushing system:** Disconnect the crusher from the electrical power source. Open the door. Inspect the platens, cylinder, and crushing chamber. Make sure that the circular compactor platen is securely pinned to the end of the cylinder. Determine the condition of whichever platen(s) will be used. Look for broken welds, cracks, and other damage. Clean the chamber surfaces as needed.
- Fork tubes:** Inspect the fork tubes. Tubes should be square and rigid and free of significant rust and corrosion.
- Finish:** Exposed metal rusts. Apply touchup paint wherever the finish is damaged as soon as damage occurs. Use steel wool or a steel bristle brush to remove rust before applying touchup paint to the affected areas.
- WASH-DOWN (-WD) MODELS:** Wash the crushing chamber only with warm or cold, non-caustic, low-corrosivity solutions applied at low pressure (<100 psi). Exposed metal rusts. Apply touchup paint wherever the finish is damaged as soon as damage occurs to prevent rusting.

LABELING DIAGRAM

Label content and location are subject to change so your product might not be labeled exactly as shown. Compare the diagram below with the **RECORD**. If you have any questions about labeling, contact **TECHNICAL SERVICE**. Replace all labels that are damaged, missing, or not easily readable (e.g. faded). To order replacement labels, contact the technical service and parts department online at http://www.vestilmfg.com/parts_info.htm. Alternatively, request replacement parts and/or service by calling (260) 665-7586 and asking the operator to connect you to **TECHNICAL SERVICE**.

NOTICE	NOTA	AVIS
POWER SUPPLY: 208-230V/3 Phase/60 HZ		
CONTROL VOLTAGE: 24V AC		
CORRIENTE: 208-230V/3 Fase/60 HZ		
VOLTAJE DE CONTROL: 24V CA		
ALIMENTATION ELECTRIQUE: 208-230V/3 Monophasé/60 HZ		
VOLTAGE DE CONTRÔLE: 24V AC		

249-251, under yellow cover

NOTICE
Do not operate this machine unless you are at least 18 years old. No exceptions.

1193

⚠ WARNING
LOCK LOADING DOOR before operation DO NOT OPERATE if door lock is broken KEEP AWAY during operation Operation by trained personnel only
⚠ ATENCIÓN
LOCK LOADING DOOR before operation DO NOT OPERATE if door lock is broken KEEP AWAY during operation Operation by trained personnel only
⚠ ATTENTION
LOCK LOADING DOOR before operation DO NOT OPERATE if door lock is broken KEEP AWAY during operation Operation by trained personnel only
Vestil Manufacturing Corporation Phone (260) 665-7586 • www.vestil.com

300

⚠ DANGER	ELECTRICAL SHOCK Shut power off and consult owners manual before working on this equipment.
⚠ PELIGRO	EI GOLPE ELECTRICO Corte la corriente consulte el manual de propietario antes de trabajar en este equipo.
⚠ DANGER	CHOC ELECTRIQUE Couper le courant et consulter le manuel d'utilisation avant de travailler sur cet équipement.

936, under yellow cover

← ROTATION, LA ROTACION

305, under yellow cover

ISO 32 / 150 SUS
HYDRAULIC OIL OR NON-SYNTHETIC TRANSMISSION FLUID ACEITE HIDRAULICO O LIQUIDOS DE TRANSMISION NO SINTETICOS HUILE OU LIQUIDE HYDRAULIQUE NON-SYNTHEIQUE
VESTIL MANUFACTURING CORPORATION • Phone (260) 665-7586 • www.vestil.com

206, by oil fill

MODEL/MODÉLO/MODÈLE _____
STATIC CAPACITY (evenly distributed) _____ lbs.
LA CAPACIDAD CONSTANTE (distribuida uniformemente) _____ kgs.
CAPACITÉ STATIQUE (distribuée régulièrement) _____ kgs.
SERIAL/SERIE/SÉRIE _____

287

CYCLE	OFF	WARNING LIGHT
START	COMPACT CRUSH	

480

⚠ WARNING	⚠ ADVERTENCIA	⚠ AVERTISSEMENT
KEEP CLEAR WHEN IN USE	MANTENGASE ALEJADO CUANDO SE ESTA OPERANDO	SE TENIR À DISTANCE LORS DU FONCTIONNEMENT

220, front

⚠ WARNING	⚠ ADVERTENCIA	⚠ AVERTISSEMENT
SECURE FRAME TO FLOOR	ASEGURE EL BASTIDOR AL PISO	FIXER SOLIDEMENT LE CADRE AU PLANCHER

204, BOTH SIDES



LIMITED WARRANTY

Vestil Manufacturing Corporation (“Vestil”) warrants HDC-905 drum crushers excluding “wash-down” model HDC-905-WD (see *LIMITED WARRANTY* on following page) to be free of defects in material and workmanship during the warranty period. Our warranty obligation is to provide a replacement for a defective, original part covered by the warranty after we receive a proper request from the Warrantee (you) for warranty service.

Who may request service?

Only a warrantee may request service. You are a warrantee if you purchased the product from Vestil or from an authorized distributor AND Vestil has been fully paid.

Definition of “original part”?

An original part is a part used to make the product as shipped to the Warrantee.

What is a “proper request”?

A request for warranty service is proper if Vestil receives: 1) a photocopy of the Customer Invoice that displays the shipping date; AND 2) a written request for warranty service including your name and phone number. Send requests by one of the following methods:

US Mail	Fax	Email
Vestil Manufacturing Corporation 2999 North Wayne Street, PO Box 507 Angola, IN 46703	(260) 665-1339 <u>Phone</u> (260) 665-7586	info@vestil.com Enter “Warranty service request” in subject field.

In the written request, list the parts believed to be defective and include the address where replacements should be delivered. After Vestil receives your request for warranty service, an authorized representative will contact you to determine whether your claim is covered by the warranty. Before providing warranty service, Vestil will require you to send the entire product, or just the defective part (or parts), to its facility in Angola, IN.

What is covered under the warranty?

The warranty covers defects in the following original, dynamic parts: motors, hydraulic pumps, motor controllers, and cylinders. It also covers defects in original parts that wear under normal usage conditions (“wearing parts”), such as bearings, hoses, wheels, seals, brushes, and batteries.

How long is the warranty period?

The warranty period for original dynamic components is 1 year. For wearing parts, the warranty period is 90 days. Both warranty periods begin on the date Vestil ships the product to the Warrantee. If the product was purchased from an authorized distributor, the periods begin when the distributor ships the product. Vestil may, at its sole discretion, extend a warranty period for products shipped from authorized distributors by up to 30 days to account for shipping time.

If a defective part is covered by the warranty, what will Vestil do to correct the problem?

Vestil will provide an appropriate replacement for any *covered* part. An authorized representative of Vestil will contact you to discuss your claim.

What is not covered by the warranty?

The Warrantee (you) are responsible for paying labor costs and freight costs to return the product to Vestil for warranty service.

Events that automatically void this Limited Warranty.

- Misuse;
- Negligent assembly, installation, operation or repair;
- Installation/use in corrosive environments;
- Inadequate or improper maintenance;
- Damage sustained during shipping;
- Collisions or other accidents that damage the product;
- Unauthorized modifications: Do not modify the product IN ANY WAY without first receiving written authorization from Vestil.

Do any other warranties apply to the product?

Vestil Manufacturing Corp. makes no other express warranties. All implied warranties are disclaimed to the extent allowed by law. Any implied warranty not disclaimed is limited in scope to the terms of this Limited Warranty. Vestil makes no warranty or representation that this product complies with any state or local design, performance, or safety code or standard. Noncompliance with any such code or standard is not a defect in material or workmanship.



LIMITED WARRANTY

Vestil Manufacturing Corporation (“Vestil”) warrants this HDC-905-WD “Wash-down” hydraulic drum crusher to be free of defects in material and workmanship during the warranty period. Our warranty obligation is to provide a replacement for a defective, original part covered by the warranty after we receive a proper request from the Warrantee (you) for warranty service.

Who may request service?

Only a warrantee may request service. You are a warrantee if you purchased the product from Vestil or from an authorized distributor AND Vestil has been fully paid.

Definition of “original part”?

An original part is a part used to make the product as shipped to the Warrantee.

What is a “proper request”?

A request for warranty service is proper if Vestil receives: 1) a photocopy of the Customer Invoice that displays the shipping date; AND 2) a written request for warranty service including your name and phone number. Send requests by one of the following methods:

<u>US Mail</u>	<u>Fax</u>	<u>Email</u>
Vestil Manufacturing Corporation 2999 North Wayne Street, PO Box 507 Angola, IN 46703	(260) 665-1339 <u>Phone</u> (260) 665-7586	info@vestil.com Enter “Warranty service request” in subject field.

In the written request, list the parts believed to be defective and include the address where replacements should be delivered. After Vestil receives your request for warranty service, an authorized representative will contact you to determine whether your claim is covered by the warranty. Before providing warranty service, Vestil will require you to send the entire product, or just the defective part (or parts), to its facility in Angola, IN.

What is covered under the warranty?

The warranty covers defects in the following original, dynamic parts: motors, hydraulic pumps, motor controllers, and cylinders. It also covers defects in original parts that wear under normal usage conditions (“wearing parts”), such as bearings, hoses, wheels, seals, brushes, and batteries.

How long is the warranty period?

The warranty period for original dynamic components is 30 days. For wearing parts, the warranty period is 30 days. Both warranty periods begin on the date Vestil ships the product to the Warrantee. If the product was purchased from an authorized distributor, the periods begin when the distributor ships the product. Vestil may, at its sole discretion, extend a warranty period for products shipped from authorized distributors by up to 30 days to account for shipping time.

If a defective part is covered by the warranty, what will Vestil do to correct the problem?

Vestil will provide an appropriate replacement for any *covered* part. An authorized representative of Vestil will contact you to discuss your claim.

What is not covered by the warranty?

The Warrantee (you) are responsible for paying labor costs and freight costs to return the product to Vestil for warranty service.

Events that automatically void this Limited Warranty.

- Misuse;
- Negligent assembly, installation, operation or repair;
- Installation/use in corrosive environments;
- Inadequate or improper maintenance;
- Damage sustained during shipping;
- Collisions or other accidents that damage the product;
- Unauthorized modifications: Do not modify the product IN ANY WAY without first receiving written authorization from Vestil.

Do any other warranties apply to the product?

Vestil Manufacturing Corp. makes no other express warranties. All implied warranties are disclaimed to the extent allowed by law. Any implied warranty not disclaimed is limited in scope to the terms of this Limited Warranty. Vestil makes no warranty or representation that this product complies with any state or local design, performance, or safety code or standard. Noncompliance with any such code or standard is not a defect in material or workmanship.

