Vestil Manufacturing Co.
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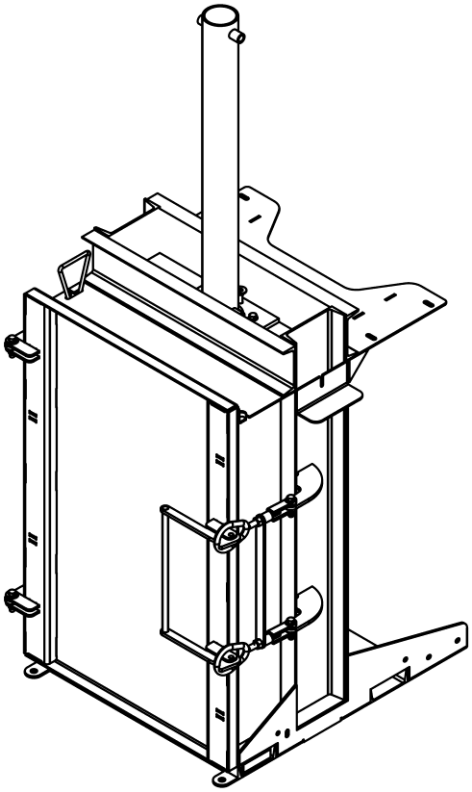
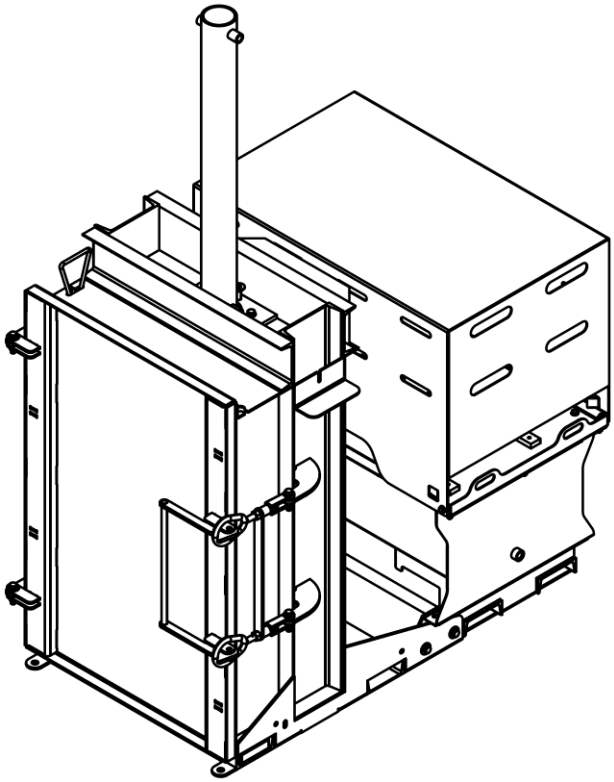
HDC-905 SERIES HYDRAULIC DRUM CRUSHERS



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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APPLICABLE STANDARDS

This product is a type of stationary compactor used for crushing drums or compacting materials inside drums. The following US national consensus standards, laws, regulations, and codes apply to its design, installation, operation, maintenance, and use:

- **ANSI Z245.2-1997: American National Standard for Equipment Technology and Operations for Wastes and Recyclable Materials - Stationary Compactors - Safety Requirements**. This standard provides safety requirements for the manufacture, modification, operation, cleaning, maintenance, service, or repair of stationary compacting equipment, including guarding, warnings, inspections, and operator training.
- **OSHA 29 CFR 1910.212: General Requirements for All Machines**. Requires machine guarding to protect operators and other employees from hazards such as those created by point of operation, ingoing nip points, rotating parts, flying chips, and sparks.
- **OSHA 29 CFR 1910.147: The Control of Hazardous Energy (Lockout/Tagout)**. Applies to servicing and maintenance activities where unexpected energization or startup could cause injury, requiring procedures to disable machinery and prevent energy release.
- **OSHA 29 CFR 570.63: Occupations Involved in the Operation of Balers, Compactors, and Paper-Products Machines**. Prohibits certain operations by minors and references ANSI Z245 standards for safety requirements.
- **Other Relevant Regulations**: If used for handling hazardous waste, comply with EPA regulations under 40 CFR Part 264/265 for container management. General workplace safety under OSHA 29 CFR 1910 Subpart O (Machinery and Machine Guarding) and Subpart P (Hand and Portable Powered Tools and Other Hand-Held Equipment) may also apply.

Users must ensure compliance with all local, state, and federal regulations, including any specific to hazardous materials if applicable. This compactor should only be used to compact non-hazardous and low level hazardous materials or crush drums that contained non-hazardous or low level hazardous materials.

SIGNAL WORDS

SIGNAL WORDS appear in this manual to direct attention to important safety-related messages.

⚠ DANGER	**Identifies a hazardous situation which, if not avoided, WILL result in DEATH or SERIOUS INJURY. Use of this signal word is limited to the most extreme situations.**
⚠WARNING	**Identifies a hazardous situation which, if not avoided, COULD result in DEATH or SERIOUS INJURY.**
⚠ CAUTION	**Indicates a hazardous situation which, if not avoided, COULD result in MINOR or MODERATE injury.**
NOTICE	**Identifies practices likely to result in product/property damage, such as operation that might damage the crusher-compactor.**

SAFETY INSTRUCTIONS

Reduce the likelihood of injuries by being mindful of the hazards identified below, & by inspecting & maintaining the product as instructed in the *INSPECTIONS & MAINTENANCE* section.

⚠ DANGER

- 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. The machine must have all guards, interlocks, and safety devices in place and functioning properly.
- Do not operate the machine if the emergency stop switch does not function properly. Test all safety devices, including interlocks and emergency stops, before each use.
- Do not stand in front of the door during operation. Keep clear of all moving parts, including the ram and platen, to avoid crushing or pinching hazards.

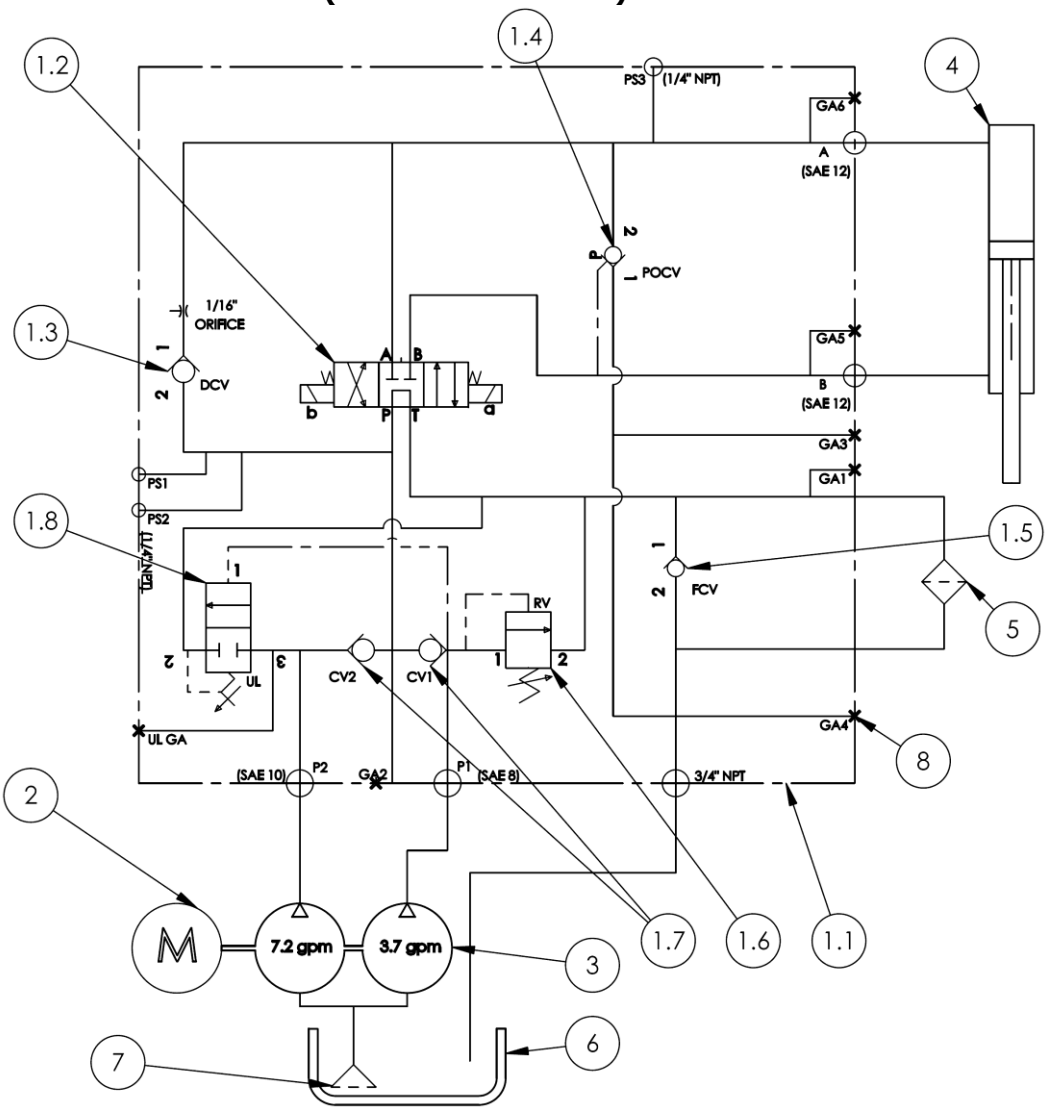
⚠WARNING

- 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. Depressurize the system before any maintenance.
- Do not continue to use the crusher if it is damaged or makes unusual noises during operation. Immediately shut down and secure the machine if malfunctions occur.
- Do not change the pressure relief valve setting! In particular, do not increase the setting.
- Do not clean out the drum crusher unless power is disconnected and lockout/tagout procedures are followed per OSHA 29 CFR 1910.147.
- 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 crush containers under pressure, aerosol cans, or those containing flammable, explosive, or hazardous materials, as this may cause explosions or flying debris.
- 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 applicable *LIMITED WARRANTY* on p. 29 or p. 30. Any alterations could invalidate compliance with applicable standards.
- DO NOT use this device unless every label is in place & easily readable. See *LABELING DIAGRAM*, p. 28.

⚠ CAUTION

- Only trained and authorized personnel over the age of 18 may operate this machine. Provide regular training on safe operation and hazards.
- Wear appropriate personal protective equipment (PPE), including safety gloves, eye protection, and steel-toed boots, when operating or maintaining the machine. Avoid loose clothing or jewelry that could get caught in moving parts.
- Ensure the area around the machine is clear of personnel and obstructions before operation. Do not allow unauthorized persons near the machine.
- If used for hazardous materials, comply with environmental regulations for disposal and handling.

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, .97/.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, HYDRAUILC, PLASTIC	1
7	99-031-035	SCREEN, SUCTION, 1" NPT	1
8	99-116-005	FITTING, HYDRAULIC, 04MORB HOLLOW HEX PLUG	7

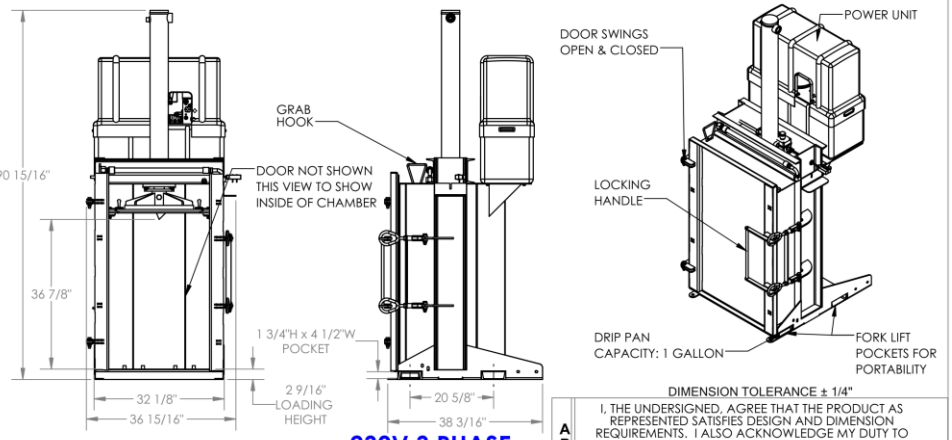
GA2 = System operating pressure; should never exceed 3000psi. **GA1** = Filter head pressure; should never exceed 25psi. **GA3** = No need to test. **GA4** = No need to test. **GA5** = Pressure required to raise cylinder to home position. **GA6** = Pressure required to extend cylinder (crush or compact). **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: 1203.99 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



DIMENSION TOLERANCE ± 1/4"

STANDARD FEATURES

DRUM CRUSHER AND COMPACTOR MODEL NUMBER HDC-905-IDC/280V
FITS STEEL AND FIBER DRUMS WITH MAX Ø 23-1/2" x 35-1/2" HIGH
POSITIVE DRUM POSITIONING
DRUM HEAD PIERCER TO RELEASE INTERNAL DRUM PRESSURE
4" DIA. PISTON CYLINDER W/ 36" OF STROKE
FULL CYCLE TIME OF 25 SECONDS (CRUSH AND RETRACT)
STANDARD DUTY CYCLE ALLOWS MAX 250 CYCLES PER WEEK IN NORMAL ENVIRONMENT W/ 3PH POWER
HYDRAULIC SYSTEM PRESSURE RATING: 3000 PSI W/ HYDRAULIC 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
Ø 21" COMPACTING PLATE COMPACTS CONTENTS INSIDE A 55 GALLON DRUM
DOOR INTERLOCK SWITCH
6.5 HP MOTOR (PREWIRED FOR 280V 3PH) & 2-SPEED HYD. GEAR PUMP (11 GPM)
STEEL CONSTRUCTION WITH DURABLE LIQUID PAINT BLUE FINISH

230V 3 PHASE AC POWER
CONTACT FACTORY FOR OTHER POWER OPTIONS

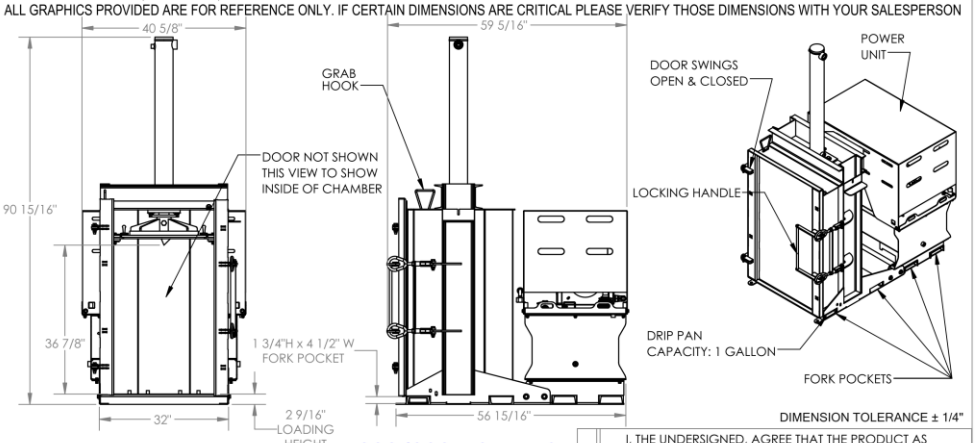
SPECIAL FEATURES
NONE

APPROVAL
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.
UNITS REQUIRING APPROVAL DRAWINGS OR MODIFIED ARE NON-RETURNABLE
[ ] As drawn [ ] As marked
Signed:_____ Date:_____
Printed Name:_____
LEAD TIME WILL START UPON RECEIPT OF SIGNED APPROVAL DRAWING

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

HIGH-CYCLE HYDRAULIC DRUM CRUSHER/ COMPACTOR - HDC-905-HC/208V APPROX WEIGHT: 1961.60 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



DIMENSION TOLERANCE ± 1/4"

STANDARD FEATURES

DRUM CRUSHER AND COMPACTOR MODEL NUMBER HDC-905-HC/208V
FITS STEEL AND FIBER DRUMS WITH MAX Ø 23-1/2" x 35-1/2" HIGH
POSITIVE DRUM POSITIONING
DRUM HEAD PIERCER TO RELEASE INTERNAL DRUM PRESSURE
4" DIA. PISTON CYLINDER W/ 36" OF STROKE
FULL CYCLE TIME OF 25 SECONDS (CRUSH AND RETRACT)
HYDRAULIC SYSTEM PRESSURE RATING: 3000 PSI W/ HYDRAULIC 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
Ø 21" COMPACTING PLATE COMPACTS CONTENTS INSIDE A 55 GALLON DRUM
DOOR INTERLOCK SWITCH
7.5 HP MOTOR (PREWIRED FOR 208V 3PH) & 2-SPEED HYD. GEAR PUMP (11 GPM)
STEEL CONSTRUCTION WITH DURABLE LIQUID PAINT BLUE FINISH

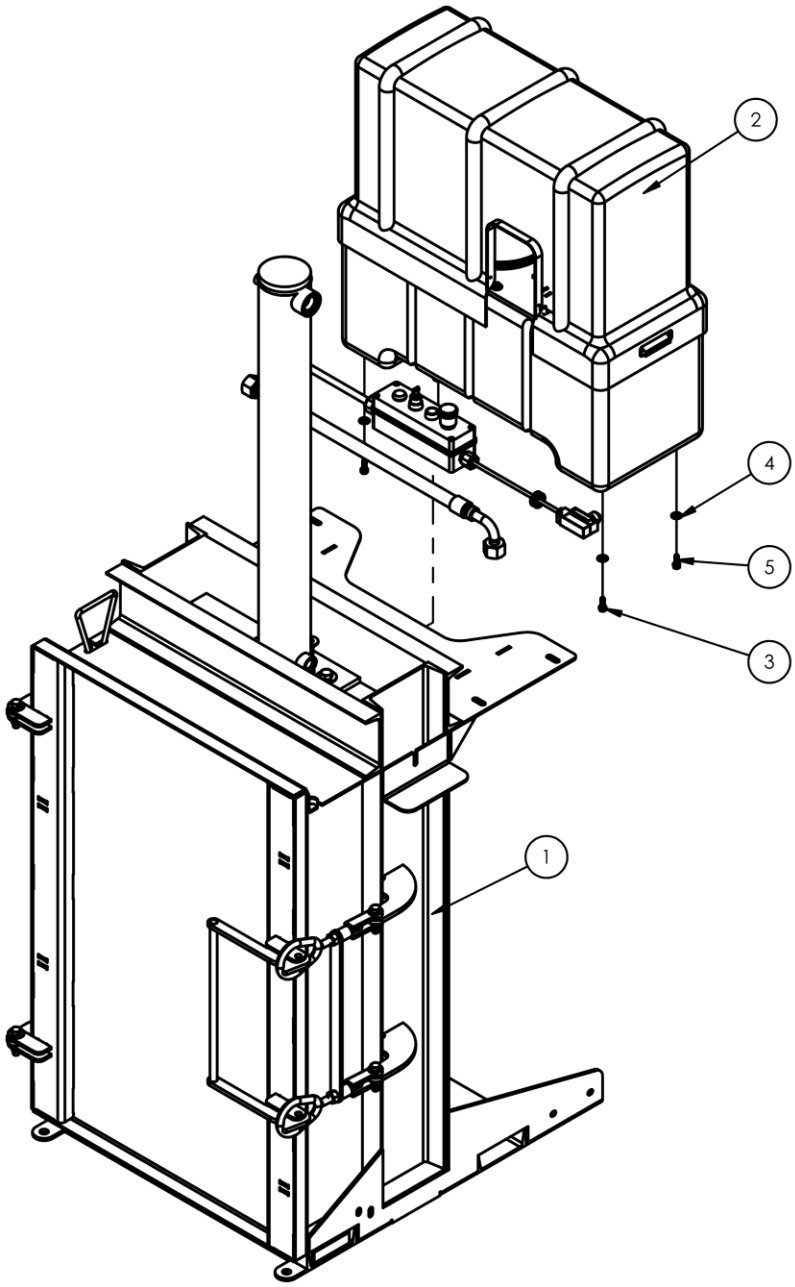
208/230V 3 PHASE AC POWER
CONTACT FACTORY FOR OTHER POWER OPTIONS

SPECIAL FEATURES
NONE

APPROVAL
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.
UNITS REQUIRING APPROVAL DRAWINGS OR MODIFIED ARE NON-RETURNABLE
[ ] As drawn [ ] As marked
Signed:_____ Date:_____
Printed Name:_____
LEAD TIME WILL START UPON RECEIPT OF SIGNED APPROVAL DRAWING

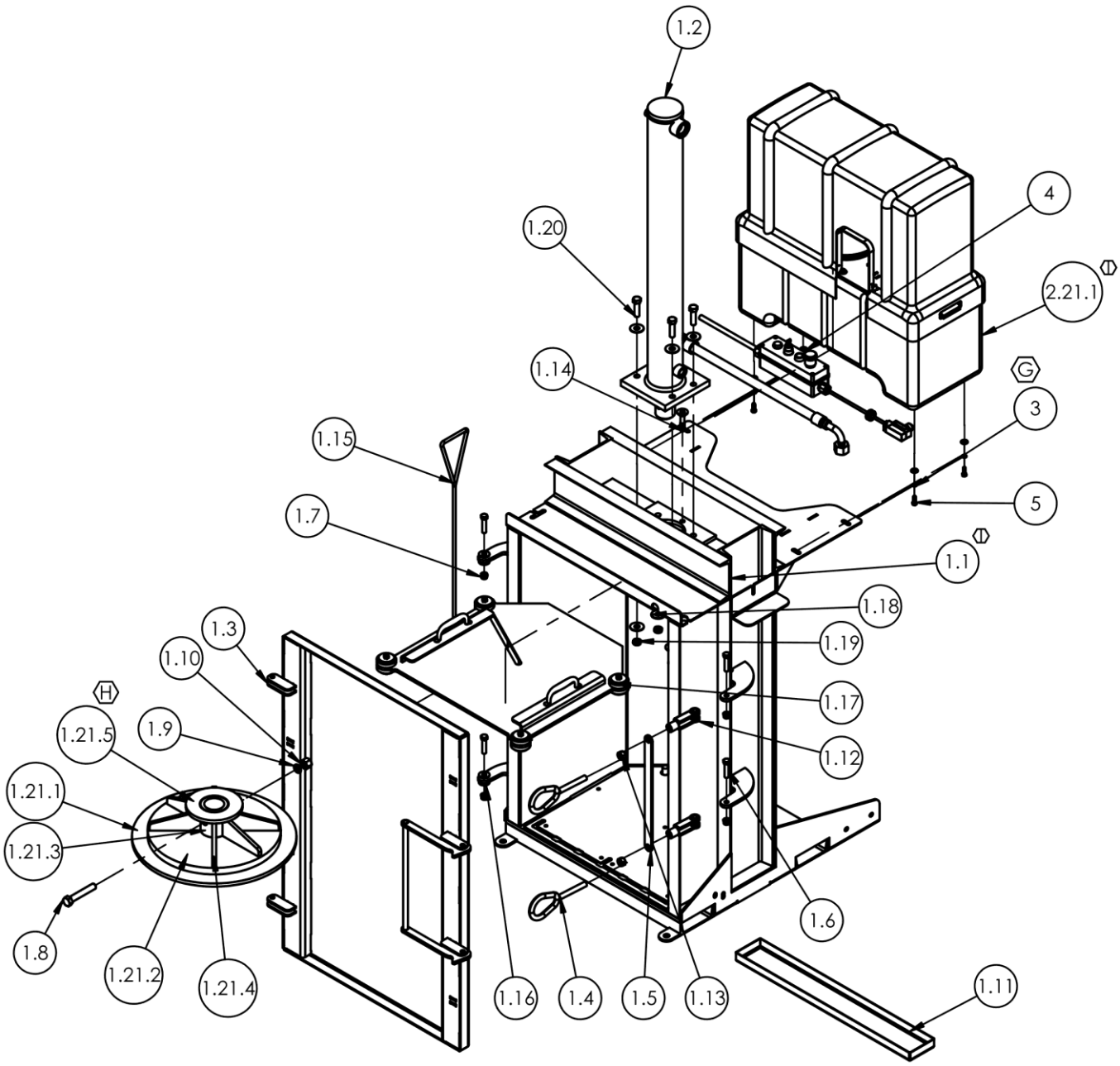
DISTRIBUTOR'S NAME: VESTIL MANUFACTURING		P.O.# X	
		W.O.# X	
DRAWN BY: TAW	DATE: 08/08/2016	SALES: X	
REFERENCE: X	SCALE: 1:22	FILE NAME: 22-007-015-001	
QUOTED LEAD TIME: X	QUOTE # X		

HDC-905-IDC TOP LEVEL EXPLODED VIEW
BILL OF MATERIALS PROVIDED
22-006-017



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	22-002-017	HDC-905-IDC FINAL ASSEMBLY W/O POWER UNIT	1
2		SUB-ASSEMBLY, REMOTE POWER UNIT,	
	22-660-009	208-230/460V AC, 1PH, 3.0HP, 1750 RPM, 6CC/4CC DISP., DA PLC	1
	22-660-007	208-230/460V AC, 3PH, 6.5 HP, 1750 RPM, .97/.499 DISP., DA, PLC	1
3	33620	LOCK WASHER, MEDIUM SPLIT, Ø5/16"	4
4	33006	FLAT WASHER,ZINC PLATED,USS, Ø5/16"	4
5	11055	HEX BOLT, GRADE A, ZINC PLATED, 5/16"-18 X 1"	4

HDC-905-IDC FINAL ASSEMBLY WITHOUT POWER UNIT
BILL OF MATERIALS ON PAGES 9 & 10
22-008-017 Rev. I

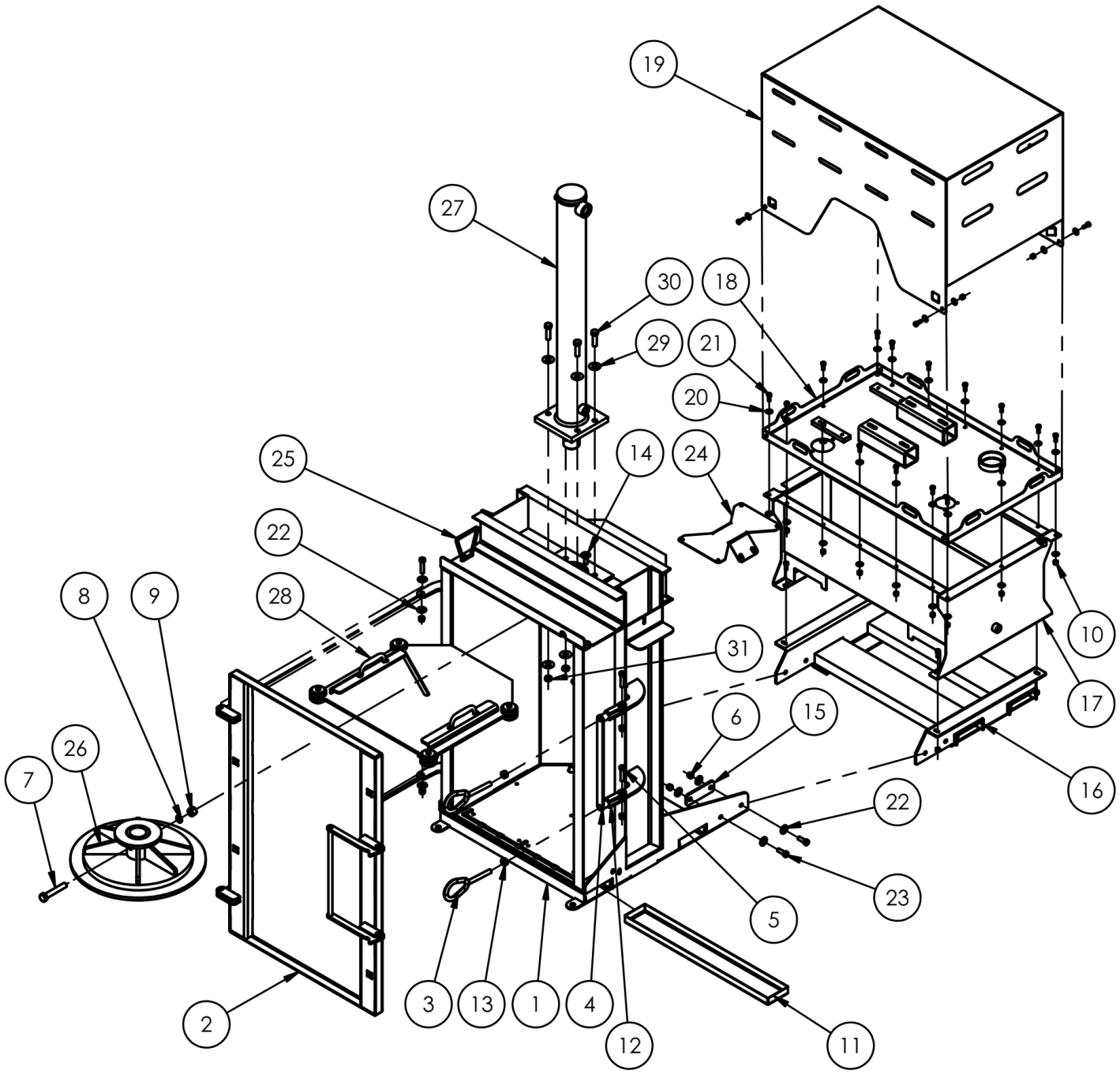


HDC-905-IDC: BILL OF MATERIALS (22-002-017 Rev. I)

Item	Part no.	Description	Qty.
1	22-002-017	FINAL ASSEMBLY W/O POWER UNIT	1
1.1	22-514-042	WELDMENT, FRAME, HULL	1
1.1.1	22-514-041	WELDMENT, BASE	1
1.1.1.1	22-014-117	FRAME, BASE	1
1.1.1.2	22-014-066	CHANNEL, FRAME DRUM CRUSHER	3
1.1.1.3	22-014-116	FRAME, ANGLE, LEFT, FORMED	1
1.1.1.4	22-014-115	FRAME, ANGLE, RIGHT, FORMED	1
1.1.1.5	22-016-067	HOLD DOWN	2
1.1.1.6	22-112-010	STOP,PIN	4
1.1.1.7	22-017-015	BAR STIFFENER, BASE	2
1.1.2	22-014-114	FRAME, DRUM CHAMBER, FORMED	1
1.1.3	22-014-113	FRAME, PLATE, TOP, FORMED	1
1.1.4	22-014-118	FRAME, ANGLE	2
1.1.5	22-014-111	FRAME, CHANNEL	2
1.1.6	22-014-066	CHANNEL, FRAME DRUM CRUSHER	2
1.1.7	22-011-021	BRACKET, CYL. MOUNT	1
1.1.8	22-012-010	HINGE, HINGE PLATE	4
1.1.9	22-016-066	BRACKET, CONTROL BOX MT	1
1.1.10	22-014-106	FRAME, DRAIN PLATE	1
1.1.11	22-131-005	BASE, GUSSET, 1/4 x 8 x 8	2
1.2	99-021-926-001	CYLINDER, HYDRAULIC, Ø4" x 36" PISTON STYLE, W/ FLANGE MOUNT	1
1.3	22-514-040	WELDMENT, DOOR	1
1.3.1	22-014-110	FRAME, DOOR, FORMED	1
1.3.2	22-014-109	FRAME, DOOR, STIFFENER, FORMED	2
1.3.3	22-037-015	LOCK, LATCH, PLATE	8
1.3.4	22-112-011	PIN	2
1.3.5	22-037-014	LOCK, LATCH	2
1.3.6	22-025-019	LATCH HANDLE, BRACING ROD	1
1.4	22-514-039	WELDMENT, DOOR LATCH	2
1.4.1	22-037-006	LOCK, ADJUSTING ROD	1
1.4.2	22-037-005	WELDABLE PEAR LINK	1
1.5	22-014-108	FRAME, TIE BAR	1
1.6	11212	HEX BOLT, GRADE A, ZINC FINISH, 1/2"-13 x 2 1/4"	4
1.7	37030	1/2"-13 NYLON INSERT LOCK NUT, GRADE 2	5
1.8	10371	HEX BOLT, GRADE A, PLAIN FINISH, 3/4"-10 X 4-1/2"	1
1.9	33632	3/4" Lock Washer	1
1.1	36116	3/4-10 HEX NUT, GRADE A	1
1.11	22-014-105	DRIP PAN, FORMED	1
1.12	22-037-004	ADJUSTABLE YOKE END	2
1.13	36114	HEX NUT Z-PLATED, GRADE A, Ø5/8 - 11 UNC	2
1.14	22-645-003	ACTUATOR, BOLT, LIMIT SWITCH	1
1.14.1	11213	HHCS #2 Z PLATED, GRADE A, 1/2-13 x 2 1/2	1
1.14.2	33012	FLAT WASHER, LOW CARBON, ZINC FINISH, 1/2"	1
1.15	07-025-001	HANDLE, DECK POSITIONER, FORMED	1
1.16	33012	FLAT WASHER, LOW CARBON, ZINC FINISH, 1/2"	4
1.17	22-514-054	WELDMENT, PLATEN	1
1.17.1	22-514-053	WELDMENT, PLATEN	1
1.17.2	22-113-017	SPACER, UHMW	8
1.17.3	11113	HEX BOLT, GRADE A, PLAIN FINISH, 3/8"-16 X 2-1/2"	4
1.17.4	37024	NYLON INSERT LOCK NUT, GRADE 2, ZINC FINISH, 3/8"-16	4
1.17.5	22-113-018	SPACER, STEEL	8
1.18	33016	FLAT WASHER, LOW CARBON, USS, ZINC PLATED, 5/8"	8
1.19	37036	NYLOCK NUT Z PLATED, 5/8 - 11	4
1.2	13312	HHCS, #5 Z PLATED, GRADE 5, 5/8 - 11 x 2 1/4 LG.	4
1.21	22-514-004	WELDMENT, ROUND DRUM COMPACTOR OPTION	1
1.21.1	22-014-023	FRAME, PLUNGER BOTTOM	1
1.21.2	22-014-024	FRAME, PLUNGER BOTTOM	1
1.21.3	22-011-001	BRACKET, CYLINDER, MOUNT	1
1.21.4	15-131-001	GUSSET, FRAME	6
1.21.5	22-016-008	BRACKET, LIMIT SWITCH ACTUATOR	1
2	22-660-007	SUB-ASSEMBLY, REMOTE POWER UNIT, 208-230/460V AC, 3PH, 6.5 HP, 1750 RPM, .97/.499 DISP., DA, PLC	1

Item	Part no.	Description	Qty.
2.1	22-160-007	POWER UNIT, SUB ASSEMBLY, 208-230/460V AC, 3PH, 6.5 HP, 1750 RPM, .97/.499 DISP., DA	1
2.1.1	22-031-034	HYDRAULIC PUMP ADAPTER, 20"	1
2.1.2	99-137-043	MOTOR/PUMP, 208-230/460V, 6.5 HP, 3 PH, 1750 RPM, .97/.499 DISP.	1
2.1.2.1	99-135-036	AC Motor, 3Ø, 60/50 Hz, 6.5Hp,(208-230/190V, 460/380V), 1725/1440RPM, 1.15SF, 184T, TEFC	1
2.1.2.2	22-143-001	PUMP, HYDRAULIC GEAR, TANDEM, .97/.499 DISP	1
2.1.2.3	11107	HEX BOLT, GRADE A, ZINC FINISH, 3/8"-16 x 1-1/4"	2
2.1.2.4	11205	HEX BOLT, GRADE A, ZINC PLATED, 1/2"-13X 1"	4
2.1.2.5	33008	FLAT WASHER, LOW CARBON, USS, ZINC PLATED, 3/8"	2
2.1.2.6	33622	SPLIT LOCK WASHER, CARBON STEEL, MEDIUM ZINC FINISH, 3/8"	2
2.1.2.7	33626	LOCK WASHER Z PLATED, Ø 1/2	4
2.1.2.8	36106	HEX NUT, GRADE A, ZINC PLATED, 3/8-16	2
2.1.3	11055	HEX BOLT, GRADE A, ZINC PLATED, 5/16-18 X 1	4
2.1.4	33620	LOCK WASHER, MEDIUM SPLIT, Ø5/16"	4
2.1.5	22-627-017	ASSEMBLY, MANIFOLD	1
2.1.5.1	22-127-021	MANIFOLD, HYDRAULIC	1
2.1.5.2	99-153-065	DO5, 3 POS/4 WAY, TANDEM CENTER, 24 VAC COILS	1
2.1.5.3	99-153-035	VALVE, CHECK, NOSE-IN / SIDE-OUT, SIZE 10, 5 PSI	2
2.1.5.4	99-153-028	VALVE, CARTRIDGE, SEQUENCE VALVE, SIZE 10	1
2.1.5.5	99-153-077	VALVE, CHECK, DIRECT-ACTING BALL-TYPE ZERO-PROFILE	1
2.1.5.6	22-153-003	VALVE, CHECK, PILOT TO OPEN, VC-10-3	1
2.1.5.7	99-153-078	VALVE, CARTRIDGE, RELIEF, NOSE-IN/SIDE-OUT, SIZE 10	1
2.1.5.8	99-022-004	SWITCH, PRESSURE, 1200-4500 PSI, SPDT	1
2.1.5.9	99-022-005	SWITCH, PRESSURE, 500-2000 PSI, SPDT	1
2.1.5.10	99-022-022	SWITCH, PRESSURE, NON-ADJ, 300 PSI	1
2.1.5.11	99-153-068	VALVE, CHECK, NOSE-IN/SIDE-OUT, 25 PSI	1
2.1.5.12	22-031-023	FILTER, HYDRAULIC, SPIN ON HIGH CYCLE 1"-12 THREAD, 10 MICRON	1
2.1.5.13	99-116-005	FITTING, HYDRAULIC, 04MORB HOLLOW HEX PLUG	10
2.1.5.14	99-031-078	ACCESSORIES, PIPE, 3/4" NPT	1
2.2	99-031-036	ACCESSORIES,FILLER BREATHER	1
2.2.1	99-031-036B	CAP	1
2.2.2	99-031-036C	GASKET	1
2.2.3	99-031-036A	FILTER	1
2.2.4	27553	#10-32 x 1/2 LG SLOTTED MACHINE SCREW	6
2.3	99-116-167	FITTING, HYDRAULIC, 16MORB-16FP STRAIGHT	1
2.4	99-031-035	ACCESSORIES ,1" NPT STRAINER	1
2.5	99-116-123	FITTING, HYDRAULIC, 08MJ-10MAORB 90° ELBOW	1
2.6	22-016-017	BRACKET, ELECTRICAL BOX	2
2.7	11055	HEX BOLT, GRADE A, ZINC PLATED, 5/16-18 X 1	4
2.8	36104	HEX NUT, GRADE A, ZINC PLATED, 5/16-18	4
2.9	33620	LOCK WASHER, MEDIUM SPLIT, Ø5/16"	12
2.1	33006	FLAT WASHER,ZINC PLATED,USS, Ø5/16"	12
2.11	99-116-044	FITTING, HYDRAULIC, 08MJ-08MORB STRAIGHT	2
2.12	11005	BOLT, GRADE A, Ø1/4-20 UNC x 1 LG, HHCS #2 Z-PLATED	12
2.13	33004	FLAT WASHER, USS, ZINC PLATED, Ø1/4"	8
2.14	33618	MEDIUM SPLIT LOCK WASHER, Ø1/4"	4
2.15	36102	HEX NUT, GRADE A, ZINC PLATED, 1/4-20	4
2.16	05-031-011	ACCESSORIES, HYDRAULIC, GASKET SEALANT, 20", FORMED	2
2.17	05-031-009	ACCESSORIES, HYDRAULIC, GASKET SEALANT, 11", FORMED	2
2.18	99-116-130	FITTING, HYDRAULIC, 08MJ-10MAORB 45° ELBOW	1
2.19	99-031-055	ACCESSORIES, PIPE, NIPPLE, 1" X 7"	1
2.2	99-031-039	ACCESSORIES, PIPE, 1" NPT STREET ELBOW	2
2.21	99-523-108-1101	ASSEMBLY, RESERVOIR, 32 x 13 x 14, NATURAL	1
2.22	22-024-003	GUARD, PLASTIC COVER, POWER UNIT	1
2.23	22-529-002-001	ASSEMBLY, CONTROL BOX, HDC-905, 460V 3PH	1
2.24	05-623-013	ASSEMBLY, HOSE, POWER UNIT Ø1/2" X 21" LONG	2
2.24.1	05-123-002	HOSE, HYDRAULIC, RUBBER HOSE, 1/2", 19", FORMED	1
2.24.2	99-116-036	FITTING, HYDRAULIC, HOSE, 08G-08FJX STRAIGHT	2
2.25	22-529-001	ASSEMBLY, CONTROL, PUSHBUTTON, HDC-905	1
2.26	22-623-038	SUB-ASSEMBLY, HOSE, PRESSURE, 12G-16FJX-16FJX90-30	1
3	33620	LOCK WASHER, MEDIUM SPLIT, Ø5/16"	4
4	33006	FLAT WASHER,ZINC PLATED,USS, Ø5/16"	4
5	11055	HEX BOLT, GRADE A, ZINC PLATED, 5/16-18 X 1	4

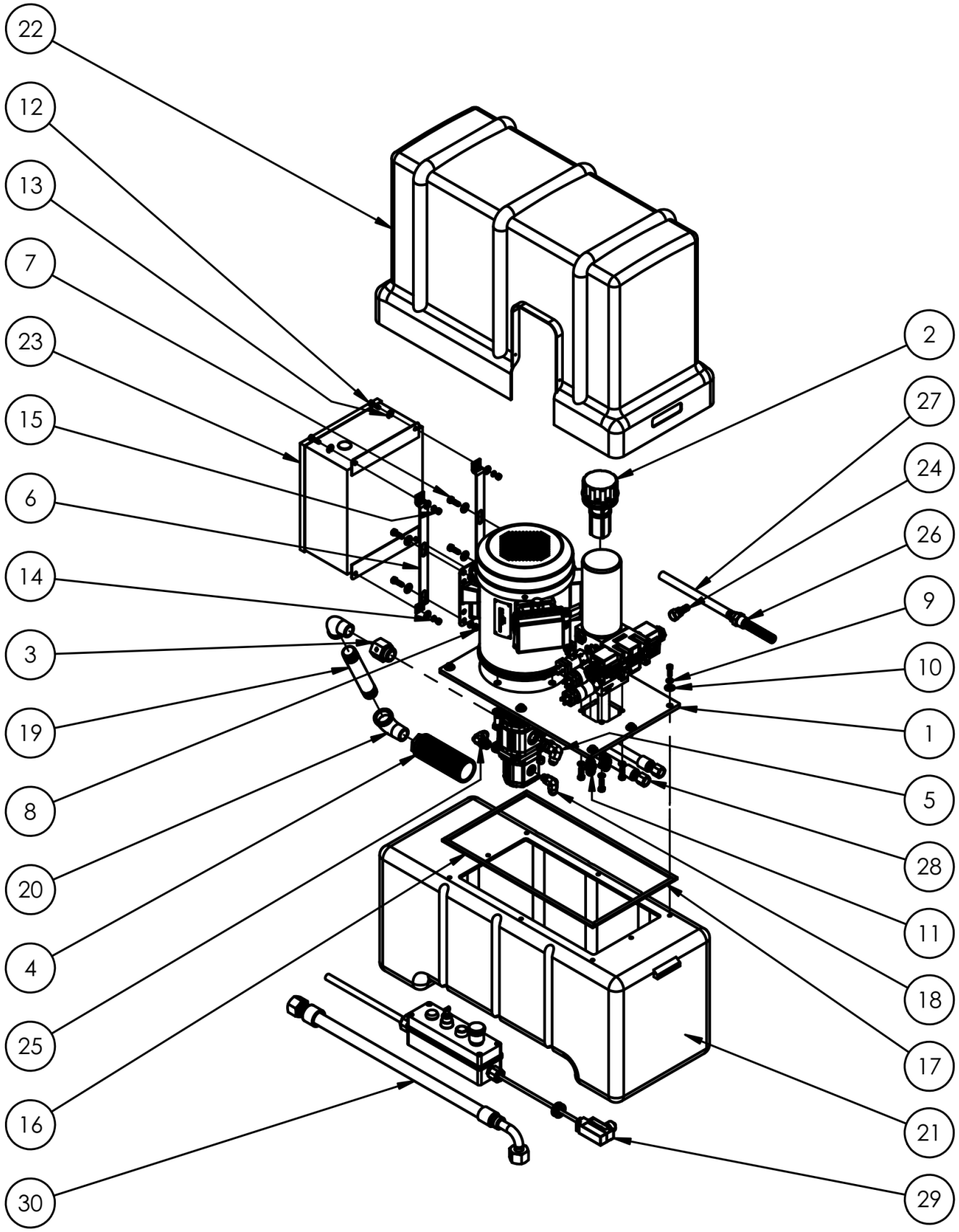
HDC-905-HC (HIGH CYCLE) EXPLODED VIEW WITHOUT POWER UNIT
BILL OF MATERIALS PROVIDED ON PAGE 12
22-006-015



HDC-905-HC EXPLODED VIEW WITHOUT POWER UNIT BILL OF MATERIALS (22-006-015)

Item	Part no.	Description	Qty.
1	22-514-052	WELDMENT, FRAME, HULL	1
2	22-514-040	WELDMENT, DOOR	1
3	22-514-039	WELDMENT, DOOR LATCH	2
4	22-014-108	FRAME, TIE BAR	1
5	11212	HEX BOLT, GRADE A, ZINC FINISH, 1/2"-13 x 2 1/4"	4
6	37030	1/2"-13 NYLON INSERT LOCK NUT, GRADE 2	9
7	10371	HEX BOLT, GRADE A, PLAIN FINISH, 3/4"-10 X 4-1/2"	1
8	33632	3/4" Lock Washer	1
9	36116	3/4-10 HEX NUT, GRADE A	1
10	37024	NYLON INSERT LOCK NUT, GRADE 2, ZINC FINISH, 3/8"-16	24
11	22-014-105	DRIP PAN, FORMED	1
12	22-037-004	ADJUSTABLE YOKE END	2
13	36114	HEX NUT Z-PLATED, GRADE A, Ø5/8 - 11 UNC	2
14	22-645-003	ACTUATOR, BOLT, LIMIT SWITCH	1
15	22-016-074	BRACKET, SHIM	2
16	22-514-049	WELDMENT, BASE FRAME	1
17	22-514-050	WEDMENT, TANK	1
18	22-514-051	WELDMENT, TOP MOTOR MOUNT PLATE	1
19	22-524-003	WELDMENT, COVER	1
20	33008	FLAT WASHER, LOW CARBON, USS, ZINC PLATED, 3/8"	40
21	11105	HEX BOLT, GRADE A, ZINC PLATED, 3/8"-16 X 1"	24
22	33012	FLAT WASHER, LOW CARBON, ZINC FINISH, 1/2"	12
23	11209	1/2-13 X 1 1/2" LG HHCS - ASTM A307 GRADE A, ZINC PLATED	4
24	22-016-075	BRACKET, POWER BOX, FORMED	1
25	07-025-001	HANDLE, DECK POSITIONER, FORMED	1
26	22-514-004	WELDMENT, ROUND DRUM COMPACTOR OPTION	1
27	99-021-926-001	CYLINDER, HYDRAULIC, Ø4" x 36" PISTON STYLE, W/ FLANGE MOUNT	1
28	22-514-054	WELDMENT, PLATEN	1
29	33016	FLAT WASHER, LOW CARBON, USS, ZINC PLATED, 5/8"	8
30	13312	HHCS, #5 Z PLATED, GRADE 5, 5/8 - 11 x 2 1/4 LG.	4
31	37036	NYLOCK NUT Z PLATED, 5/8 - 11	4

208-230/460VAC, 1-PHASE POWER UNIT EXPLODED VIEW
BILL OF MATERIALS ON FOLLOWING PAGE
22-660-009

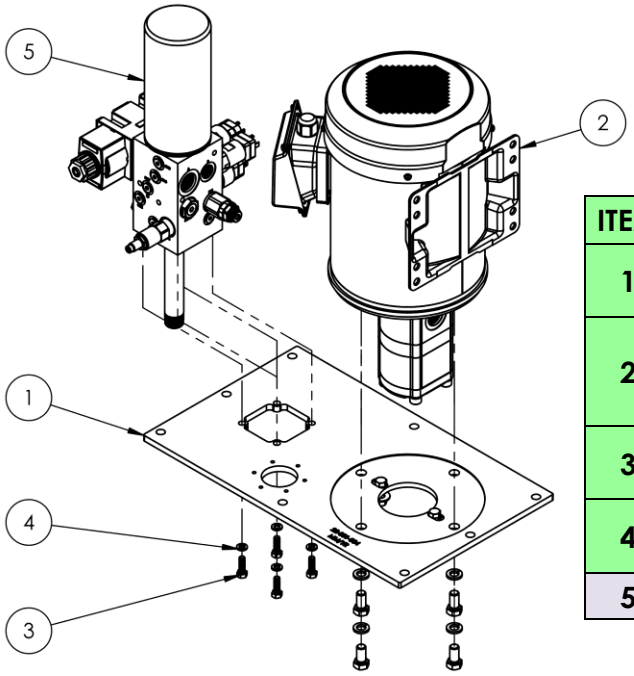


208-230/460VAC, 1-PHASE POWER UNIT BILL OF MATERIALS (22-660-009)

ITEM	PART NO.	DESCRIPTION	QTY.
1	22-160-009	POWER UNIT, SUB ASSEMBLY, 208-230V, 3.0HP, 1 PH, 1750 RPM, 6CC/4CC DISP, DA, PLC	1
2	99-031-036	ACCESSORIES,FILLER BREATHER	1
3	99-116-167	FITTING, HYDRAULIC, 16MORB-16FP STRAIGHT	1
4	99-031-035	ACCESSORIES ,1" NPT STRAINER	1
5	99-116-123	FITTING, HYDRAULIC, 08MJ-10MAORB 90° ELBOW	1
6	22-016-017	BRACKET, ELECTRICAL BOX	2
7	11055	HEX BOLT, GRADE A, ZINC PLATED, 5/16-18 X 1	4
8	36104	HEX NUT, GRADE A, ZINC PLATED, 5/16-18	4
9	33620	LOCK WASHER, MEDIUM SPLIT, Ø5/16"	12
10	33006	FLAT WASHER,ZINC PLATED,USS, Ø5/16"	12
11	99-116-044	FITTING, HYDRAULIC, 08MJ-08MORB STRAIGHT	2
12	11005	BOLT, GRADE A, Ø1/4-20 UNC x 1 LG, HHCS #2 Z-PLATED	12
13	33004	FLAT WASHER, USS, ZINC PLATED, Ø1/4"	8
14	33618	MEDIUM SPLIT LOCK WASHER, Ø1/4"	4
15	36102	HEX NUT, GRADE A, ZINC PLATED, 1/4-20	4
16	05-031-011	ACCESSORIES, HYDRAULIC, GASKET SEALANT, 20", FORMED	2
17	05-031-009	ACCESSORIES, HYDRAULIC, GASKET SEALANT, 11", FORMED	2
18	99-116-121	FITTING, HYDRAULIC, 08MJ-06MAORB 90° ELBOW	1
19	99-031-055	ACCESSORIES, PIPE, NIPPLE, 1" X 7"	1
20	99-031-039	ACCESSORIES, PIPE, 1" NPT STREET ELBOW	2
21	99-523-108-1101	ASSEMBLY, RESERVOIR, 32 x 13 x 14, NATURAL	1
22	22-024-003	GUARD, PLASTIC COVER, POWER UNIT	1
23	22-529-002-003	ASSEMBLY, CONTROL BOX, HDC-905, 208/230V 1PH	1
24	99-116-136	FITTING, HYDRAULIC, 08HB-08FJX, STRAIGHT	2
25	99-116-122	FITTING, HYDRAULIC, 08MJ-08MAORB 90° ELBOW	1
26	01-031-005	FILTER, RESERVOIR HYDRAULIC	1
27	99-123-025	HOSE, CLEAR BRAIDED, 1/2" ID	1
28	05-623-013	ASSEMBLY, HOSE, POWER UNIT Ø1/2" X 21" LONG	2
29	22-529-001	ASSEMBLY, CONTROL, PUSHBUTTON, HDC-905	1
30	22-623-038	SUB-ASSEMBLY, HOSE, PRESSURE, 12G-16FJX-16FJX90-30	1

EXPLODED VIEW OF 1-PHASE POWER UNIT SUBASSEMBLY

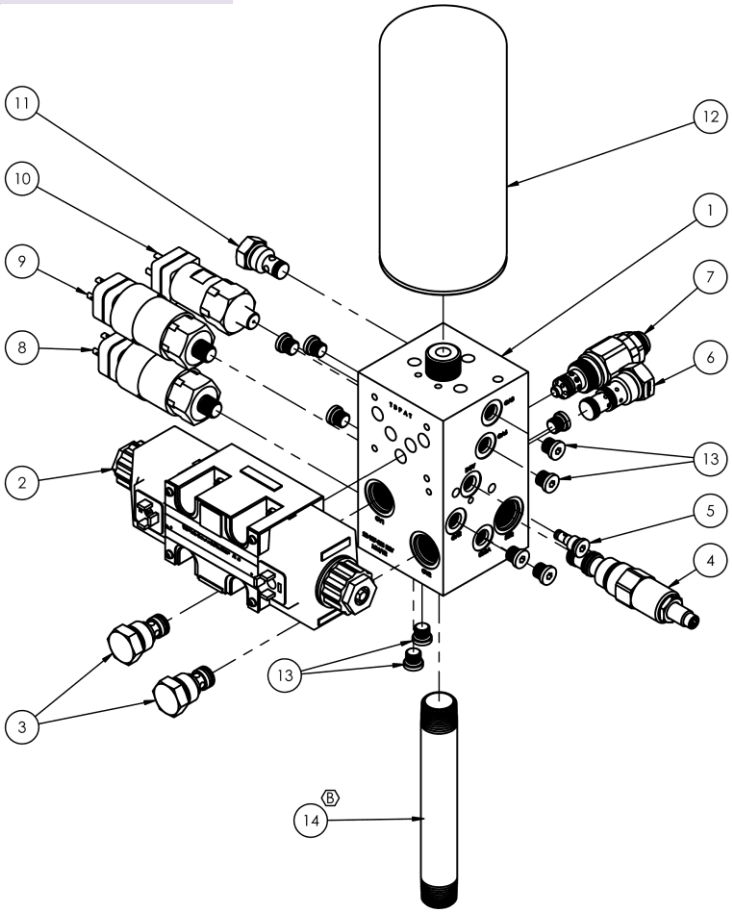
22-160-009 Rev. A



ITEM	PART NO.	DESCRIPTION	QTY.
1	22-031-034	HYDRAULIC PUMP ADAPTER, 20"	1
2	99-137-043	MOTOR/PUMP, 208-230/460V, 6.5 HP, 3 PH, 1750 RPM, .97/.499 DISP.	1
3	11055	HEX BOLT, GRADE A, ZINC PLATED, 5/16-18 X 1	4
4	33620	LOCK WASHER, MEDIUM SPLIT, Ø5/16"	4
5	22-627-017	ASSEMBLY, MANIFOLD	1

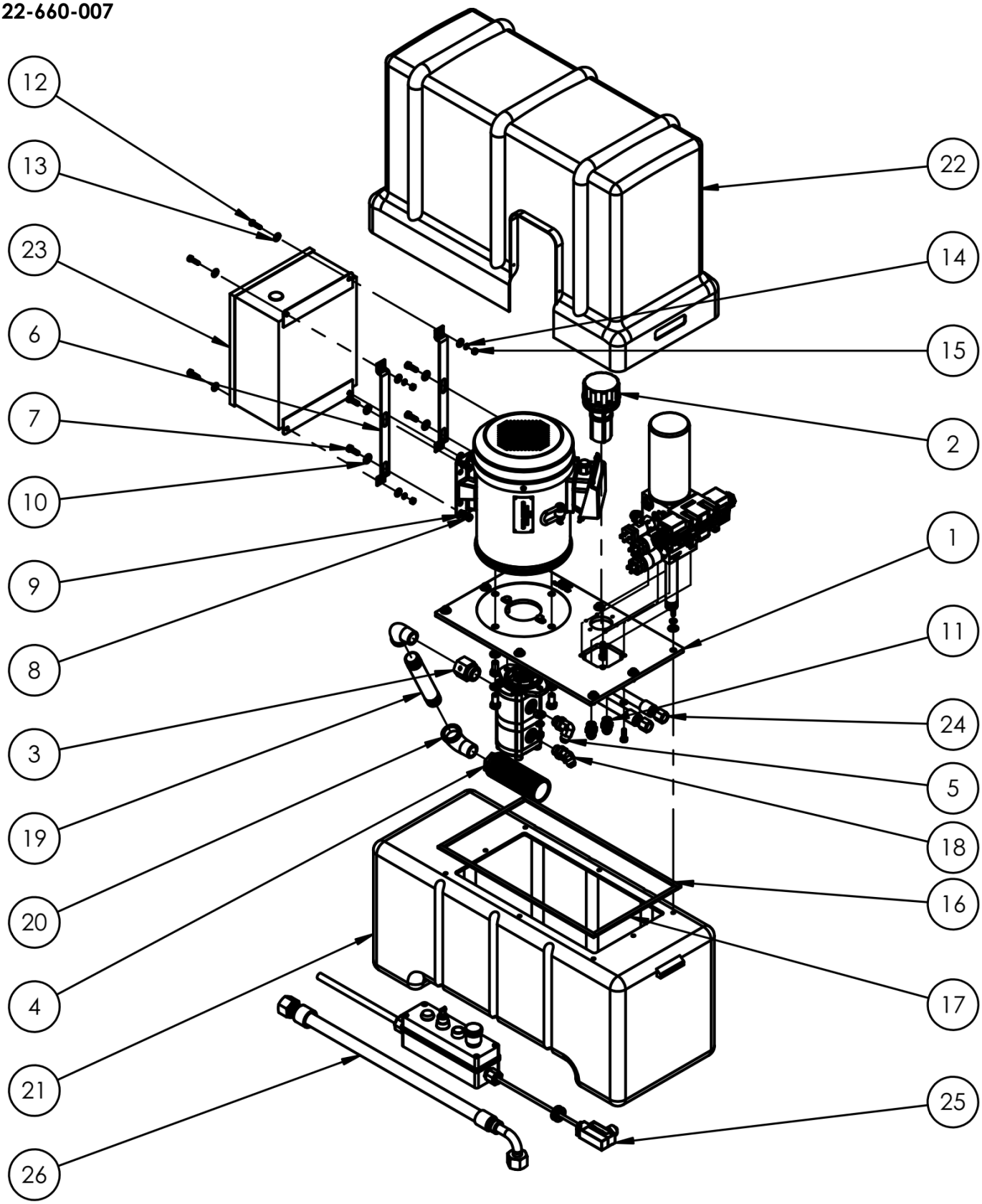
EXPLODED VIEW OF 1-PHASE MANIFOLD SUBASSEMBLY

22-627-017 Rev. B



ITEM	PART NO.	DESCRIPTION	QTY.
1	22-127-021	MANIFOLD, HYDRAULIC	1
2	99-153-065	DO5, 3 POS/4 WAY, TANDEM CENTER, 24 VAC COILS	1
3	99-153-035	VALVE, CHECK, NOSE-IN / SIDE-OUT, SIZE 10, 5 PSI	2
4	99-153-028	VALVE, CARTRIDGE, SEQUENCE VALVE, SIZE 10	1
5	99-153-077	VALVE, CHECK, DIRECT-ACTING BALL-TYPE ZERO-PROFILE	1
6	22-153-003	VALVE, CHECK, PILOT TO OPEN, VC-10-3	1
7	99-153-078	VALVE, CARTRIDGE, RELIEF, NOSE-IN/SIDE-OUT, SIZE 10	1
8	99-022-004	SWITCH, PRESSURE, 1200-4500 PSI, SPDT	1
9	99-022-005	SWITCH, PRESSURE, 500-2000 PSI, SPDT	1
10	99-022-022	SWITCH, PRESSURE, NON-ADJ, 300 PSI	1
11	99-153-068	VALVE, CHECK, NOSE-IN/SIDE-OUT, 25 PSI	1
12	22-031-023	FILTER, HYDRAULIC, SPIN ON HIGH CYCLE 1"-12 THREAD, 10 MICRON	1
13	99-116-005	FITTING, HYDRAULIC, 04MORB HOLLOW HEX PLUG	10
14	99-031-078	ACCESSORIES, PIPE, 3/4" NPT	1

208-230/460VAC, 3-PHASE POWER UNIT EXPLODED VIEW
BILL OF MATERIALS ON FOLLOWING PAGE
22-660-007

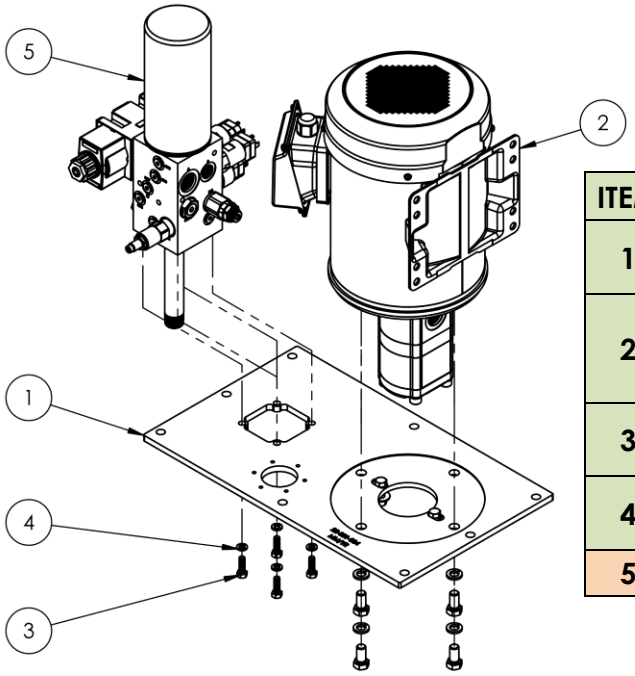


208-230/460VAC, 3-PHASE POWER UNIT BILL OF MATERIALS

ITEM	PART NO.	DESCRIPTION	QTY.
1	22-160-007	POWER UNIT, SUB ASSEMBLY, 208-230/460V AC, 3PH, 6.5 HP, 1750 RPM, .97/.499 DISP., DA	1
2	99-031-036	ACCESSORIES,FILLER BREATHER	1
3	99-116-167	FITTING, HYDRAULIC, 16MORB-16FP STRAIGHT	1
4	99-031-035	ACCESSORIES ,1" NPT STRAINER	1
5	99-116-123	FITTING, HYDRAULIC, 08MJ-10MAORB 90° ELBOW	1
6	22-016-017	BRACKET, ELECTRICAL BOX	2
7	11055	HEX BOLT, GRADE A, ZINC PLATED, 5/16-18 X 1	4
8	36104	HEX NUT, GRADE A, ZINC PLATED, 5/16-18	4
9	33620	LOCK WASHER, MEDIUM SPLIT, Ø5/16"	12
10	33006	FLAT WASHER,ZINC PLATED,USS, Ø5/16"	12
11	99-116-044	FITTING, HYDRAULIC, 08MJ-08MORB STRAIGHT	2
12	11005	BOLT, GRADE A, Ø1/4-20 UNC x 1 LG, HHCS #2 Z-PLATED	12
13	33004	FLAT WASHER, USS, ZINC PLATED, Ø1/4"	8
14	33618	MEDIUM SPLIT LOCK WASHER, Ø1/4"	4
15	36102	HEX NUT, GRADE A, ZINC PLATED, 1/4-20	4
16	05-031-011	ACCESSORIES, HYDRAULIC, GASKET SEALANT, 20", FORMED	2
17	05-031-009	ACCESSORIES, HYDRAULIC, GASKET SEALANT, 11", FORMED	2
18	99-116-130	FITTING, HYDRAULIC, 08MJ-10MAORB 45° ELBOW	1
19	99-031-055	ACCESSORIES, PIPE, NIPPLE, 1" X 7"	1
20	99-031-039	ACCESSORIES, PIPE, 1" NPT STREET ELBOW	2
21	99-523-108-1101	ASSEMBLY, RESERVOIR, 32 x 13 x 14, NATURAL	1
22	22-024-003	GUARD, PLASTIC COVER, POWER UNIT	1
23	22-529-002-001	ASSEMBLY, CONTROL BOX, HDC-905, 460V 3PH	1
24	05-623-013	ASSEMBLY, HOSE, POWER UNIT Ø1/2" X 21" LONG	2
25	22-529-001	ASSEMBLY, CONTROL, PUSHBUTTON, HDC-905	1
26	22-623-038	SUB-ASSEMBLY, HOSE, PRESSURE, 12G-16FJX-16FJX90-30	1

EXPLODED VIEW OF 3-PHASE POWER UNIT SUBASSEMBLY

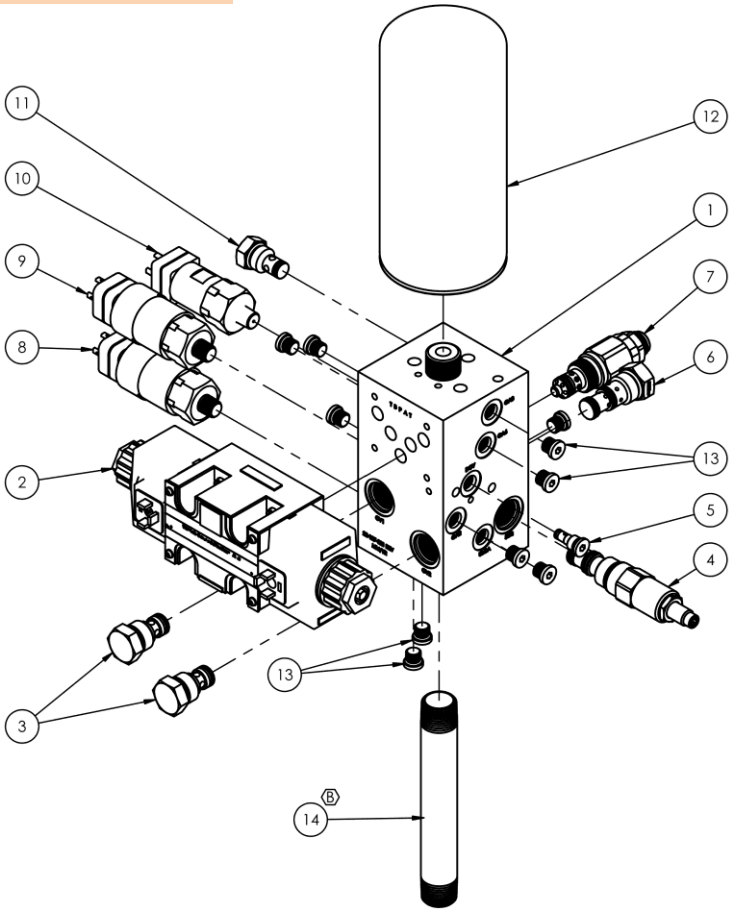
22-160-007



ITEM	PART NO.	DESCRIPTION	QTY.
1	22-031-034	HYDRAULIC PUMP ADAPTER, 20"	1
2	99-137-043	MOTOR/PUMP, 208-230/460V, 6.5 HP, 3 PH, 1750 RPM, .97/.499 DISP.	1
3	11055	HEX BOLT, GRADE A, ZINC PLATED, 5/16-18 X 1	4
4	33620	LOCK WASHER, MEDIUM SPLIT, Ø5/16"	4
5	22-627-017	ASSEMBLY, MANIFOLD	1

EXPLODED VIEW OF 3-PHASE MANIFOLD SUBASSEMBLY

22-627-017 Rev. B



ITEM	PART NO.	DESCRIPTION	QTY.
1	22-127-021	MANIFOLD, HYDRAULIC	1
2	99-153-065	DO5, 3 POS/4 WAY, TANDEM CENTER, 24 VAC COILS	1
3	99-153-035	VALVE, CHECK, NOSE-IN / SIDE-OUT, SIZE 10, 5 PSI	2
4	99-153-028	VALVE, CARTRIDGE, SEQUENCE VALVE, SIZE 10	1
5	99-153-077	VALVE, CHECK, DIRECT-ACTING BALL-TYPE ZERO-PROFILE	1
6	22-153-003	VALVE, CHECK, PILOT TO OPEN, VC-10-3	1
7	99-153-078	VALVE, CARTRIDGE, RELIEF, NOSE-IN/SIDE-OUT, SIZE 10	1
8	99-022-004	SWITCH, PRESSURE, 1200-4500 PSI, SPDT	1
9	99-022-005	SWITCH, PRESSURE, 500-2000 PSI, SPDT	1
10	99-022-022	SWITCH, PRESSURE, NON-ADJ, 300 PSI	1
11	99-153-068	VALVE, CHECK, NOSE-IN/SIDE-OUT, 25 PSI	1
12	22-031-023	FILTER, HYDRAULIC, SPIN ON HIGH CYCLE 1"-12 THREAD, 10 MICRON	1
13	99-116-005	FITTING, HYDRAULIC, 04MORB HOLLOW HEX PLUG	10
14	99-031-078	ACCESSORIES, PIPE, 3/4" NPT	1

MANIFOLD, PRESSURE SWITCHES, AND VALVES (22-627-017 REV. B)

Reference Diagrams for *VALVE AND PRESSURE SWITCH ADJUSTMENT PROCEDURE* on p. 20.
Also refer to *EXPLODED VIEW OF MANIFOLD SUBASSEMBLY* on either page 15 or 18.

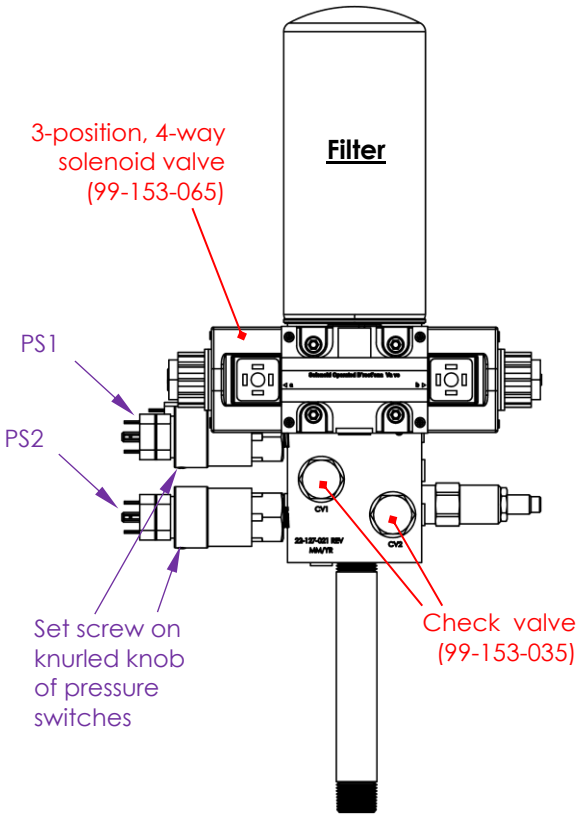


FIG. A: Front view

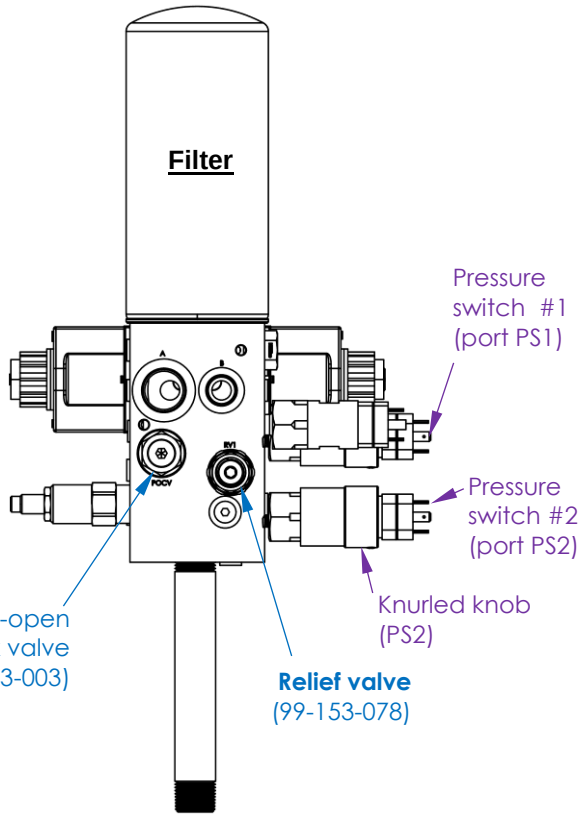


FIG. B: Rear view

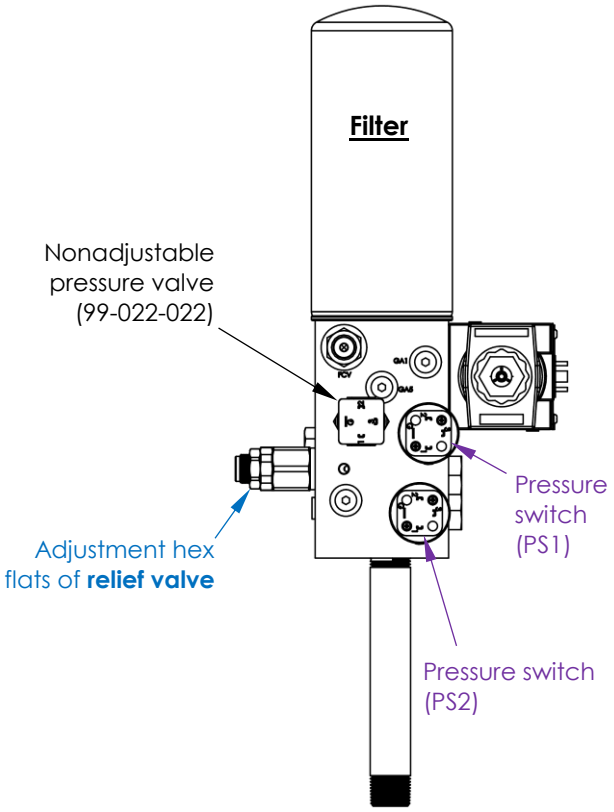


FIG. C: Left side view

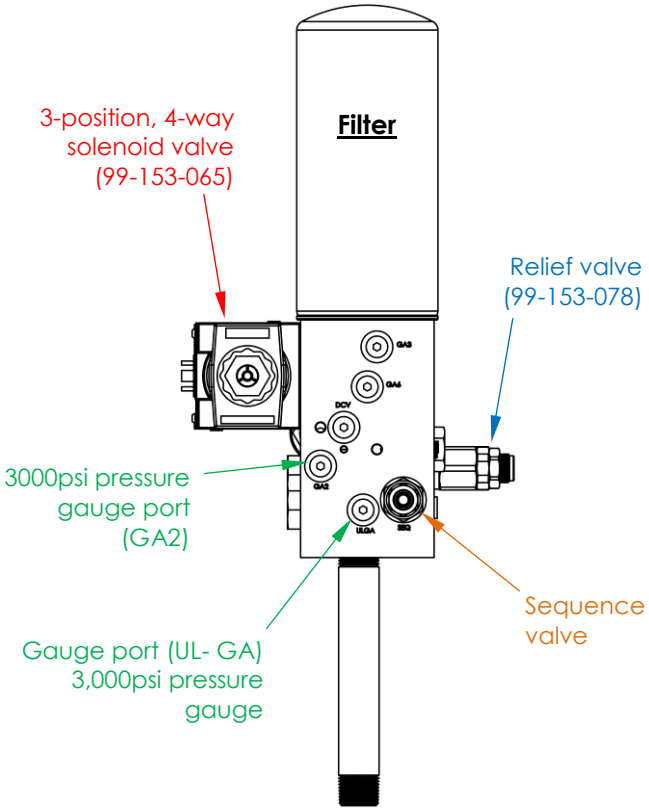


FIG. D: Right side view

VALVE AND PRESSURE SWITCH ADJUSTMENT PROCEDURE

These instructions apply to all HDC-900-IDC units featuring decompression check valves (22-627-017). Locations of valves and switches mentioned to in the following instructions are shown in the figures on p. 19.

1. Install 3,000psi pressure gauges in ports **GA2** and **UL-GA**. Hose fittings & adapters might be necessary to connect gauges to these ports.
   a. Remove hollow hex plug from **GA2** port (see FIG. D) and install a 3000 psi gauge.
   b. Remove hollow hex plug from **UL-GA** port (see FIG. D) and install a 3000 psi gauge.
2. Prepare the pressure switches.
   a. Using an Allen wrench, loosen set screws on both of the pressure switches (in 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 **RV1** as shown in FIG. B and FIG. C. Turn the adjustment hex of the relief valve counterclockwise using an adjustable wrench.
4. Turn the mode 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 runs, the compacting platen moves 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 cylinder is fully extended (platen at the bottom of its cycle), adjust the unload valve. The valve is connected to port **SEQ V**. See FIG. D.
   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 hydraulic fluid to return to the reservoir/tank.
   d. The small pump section remains loaded.
8. Adjust the **COMPACTING FORCE**:
   a. Observe the pressure on the gauge connected to the **GA2** port. Turn the relief valve clockwise (increase the pressure setting) until the GA gauge shows 1500 psi. The power unit is now operating at 1500 psi pressure.
   b. Decrease the setting on **PS2**—the lower pressure switch shown in FIG. A, B, & C. Rotate the knurled knob counterclockwise until it clicks. The click sounds when the directional valve shifts. Consequently, the cylinder retracts and the platen returns to the raised position. When the platen is fully retracted, the power unit turns off. **COMPACTING FORCE IS NOW ADJUSTED.**
9. Adjust the **CRUSHING FORCE**:
   a. Turn the mode selector switch on the control box to **CRUSH**.
   b. Press the CYCLE-START button and hold it until the motor engages and the platen begins to descend.
   c. While the power unit runs and the platen is fully lowered, increase the relief valve (**RV1**) setting. Turn the valve clockwise until the **GA2** port gauge displays 2500 psi.
   d. While power unit continues to run, turn the knurled knob on **PS1** (upper pressure switch connected to port PS1; see FIG. A, B, & C) counterclockwise until it clicks. The clicking sound indicates that the switch is open. Simultaneous with the clicking sound, the valve shifts and the platen retracts (platen rises). The power unit turns off automatically when the platen is fully retracted.
   e. Wait for the power unit to turn off. Then, mark the position of the knurled knob, e.g. with a pencil or felt tip pen.
   f. Turn the knob clockwise approximately one full turn.
   g. Press the CYCLE START button. Pressure increases as the platen descends until it matches the pressure switch setting (2500 psi). As the crusher cycles, observe the pressure gauge. Note of the highest pressure reading of the cycle. If it is not within the range of 2,500psi ± 100psi, turn the knob counterclockwise to decrease the setting or clockwise to increase the setting.
   h. Increase the **release valve (RV1)** setting so the pressure on **GA2** is 3000 psi. Turn the knurled knob counterclockwise on **PS1** back to the marked position (2500 psi). The valve shifts and the platen retracts/rises. Continue turning the knurled-knob until you reach the 2500 psi mark. **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 proper operation.
    b. Remove the pressure gauges and reinstall the hollow hex 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

1. When the CYCLE START pushbutton is pressed:
    a. 1 M and 1 SOL H energize
    b. which turns on the motor, and
    c. the platen begins to move downward.
2. Once the platen lowers slightly:
    a. The PLATEN RAISED limit switch (2 LS) opens;
    b. At that point the CYCLE START pushbutton can be released.
3. When either the CRUSH or the COMPACT hydraulic pressure switch's set point is reached:
    a. Either 1 PS or 2 PS opens
    b. Causing 1 SOL H to de-energize.
4. Hydraulic pressure at the cylinder decreases:
    a. The DECOMPRESS pressure switch (3 PS) closes once the system pressure is below 300 psi;
    b. Then 2 SOL H energizes and the platen raises.
5. When the platen engages the PLATEN RAISED limit switch (2 LS):
    a. 1 M and 2 SOL H de-energize and
    b. The motor turns off.

ELECTRICAL SYSTEM SPECIFICATIONS

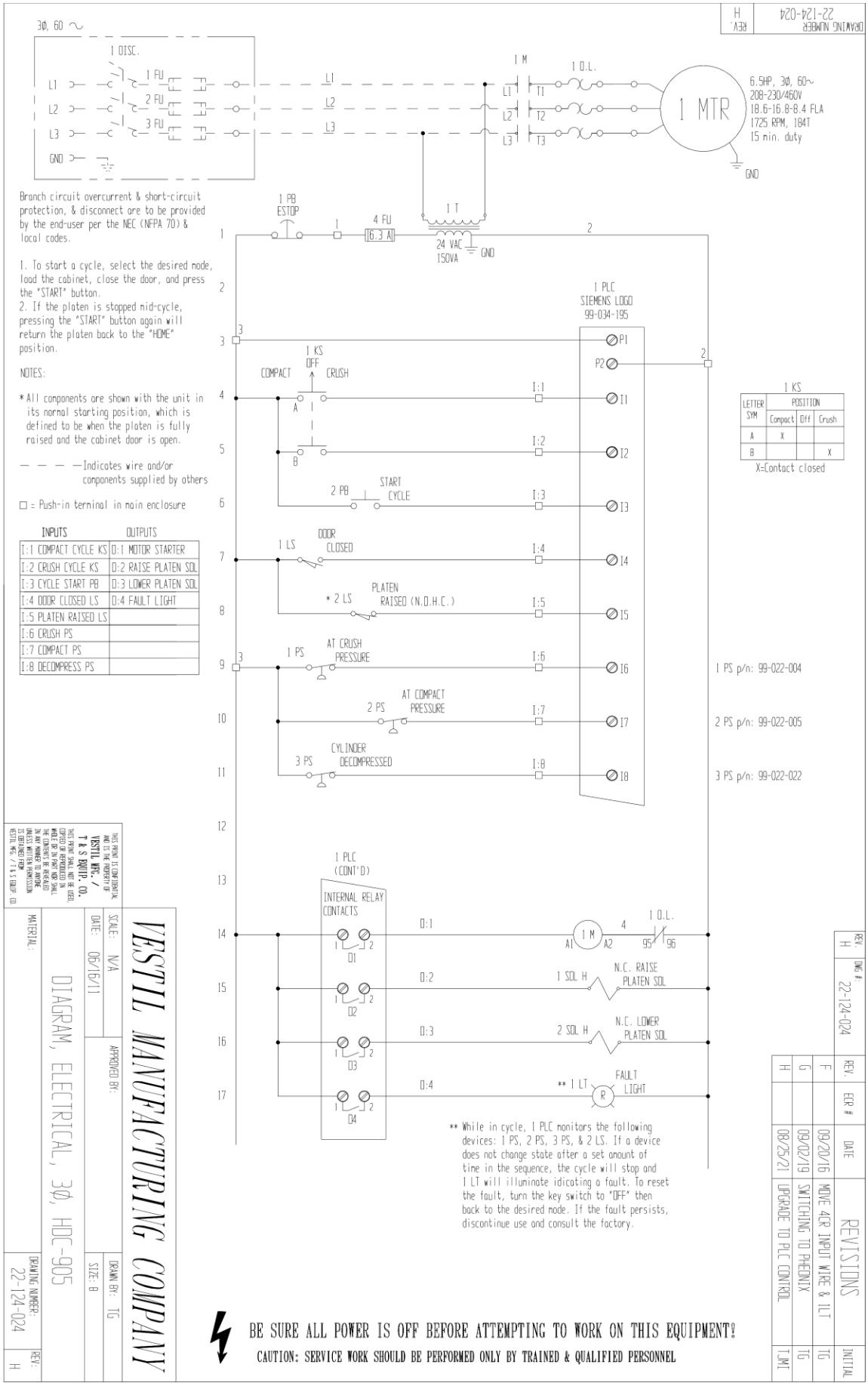
This drum crusher was tested at the voltage specified at the time of order. To adapt to applications requiring voltages that differ from your original specifications requires rewiring the motor and control transformer. Refer to the appropriate electrical circuit diagram on pp. 20-22. Failure to rewire the motor and/or transformer automatically voids the *LIMITED WARRANTY* (p. 29 or 30) and might significantly damage the electrical system.

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

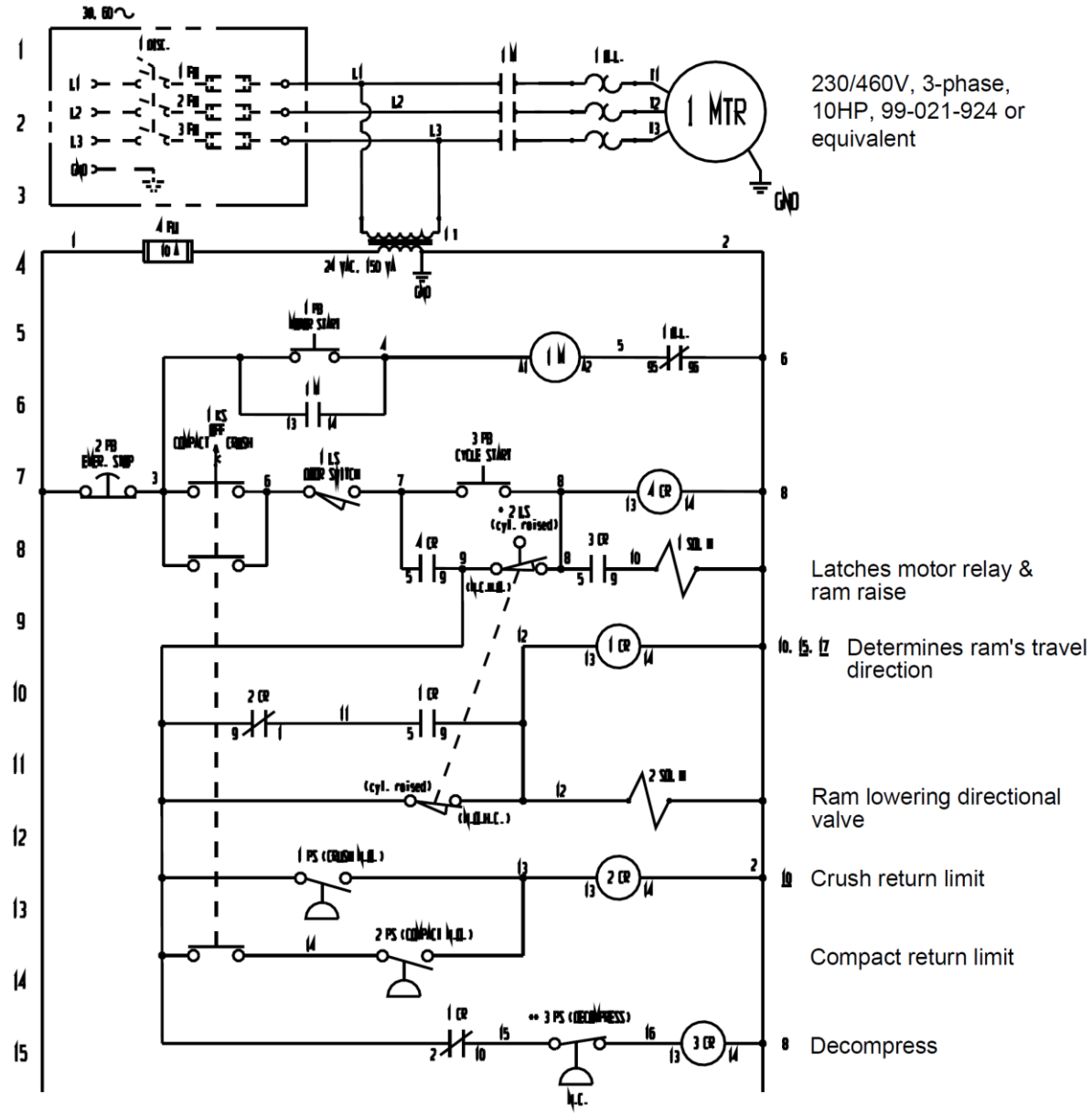
208-230VAC, 3-phase		**460VAC, 3-phase**	
Motor wire	**Connect to contactor lead**	**Motor wire**	**Connect to contactor lead**
1 & 7	T1	1	T1
2 & 8	T2	2	T2
3 & 9	T3	3	T3
4,5, & 6	Tie together with wire nut	4 & 7	Tie together
		5 & 8	Tie together
		6 & 9	Tie together

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).

STANDARD 3-PHASE ELECTRICAL CIRCUIT DIAGRAM (22124024 REV. H)



3-PHASE CONTINUOUS RUN ELECTRICAL CIRCUIT DIAGRAM (22124025 Rev. E)

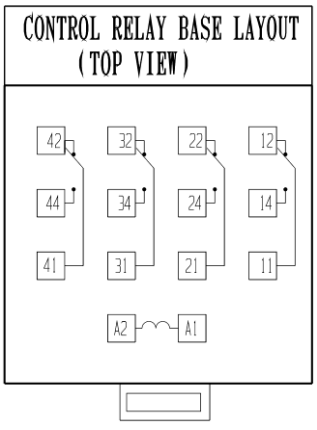


NOTES:

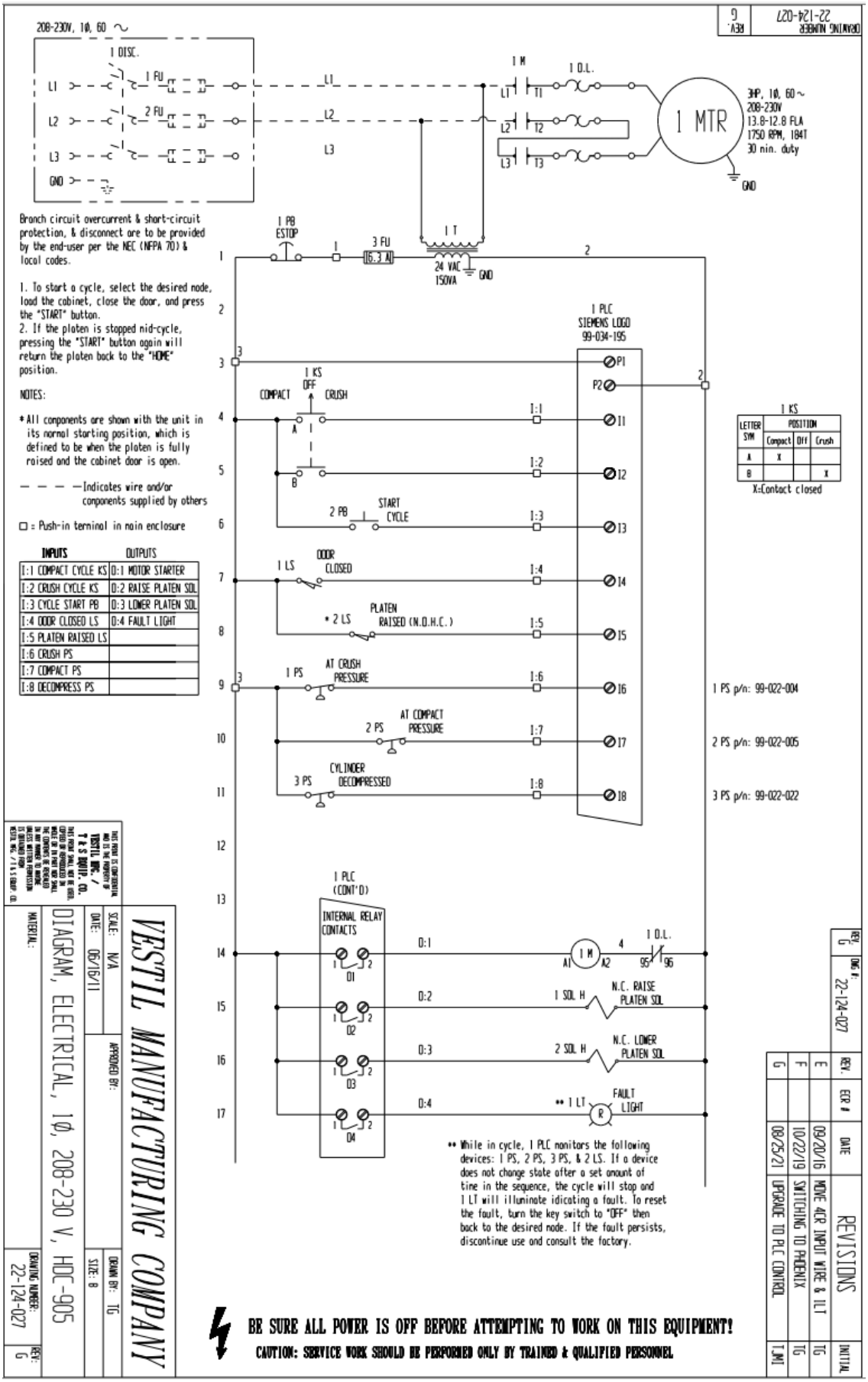
– – – - Indicates wire and/or components not included with unit

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



SINGLE PHASE, 208/230VAC ELECTRICAL CIRCUIT DIAGRAM (22124027 Rev. G)



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. 22-24.
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. 26.
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. 26); 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.

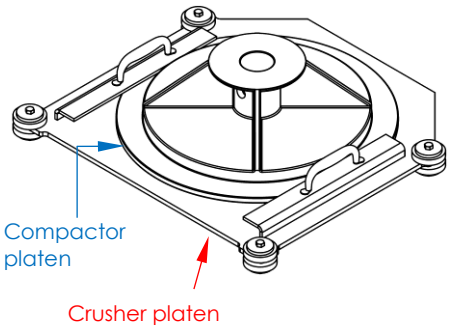
The ram can be stopped at any point during a cycle. To stop the ram, press the red emergency stop button located on the control panel. Pressing the button instantly stops the motor and prevents the cylinder from cycling any further. To disengage the stop button, pull it out. Press the cycle start button 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 rectangular.

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 unto 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

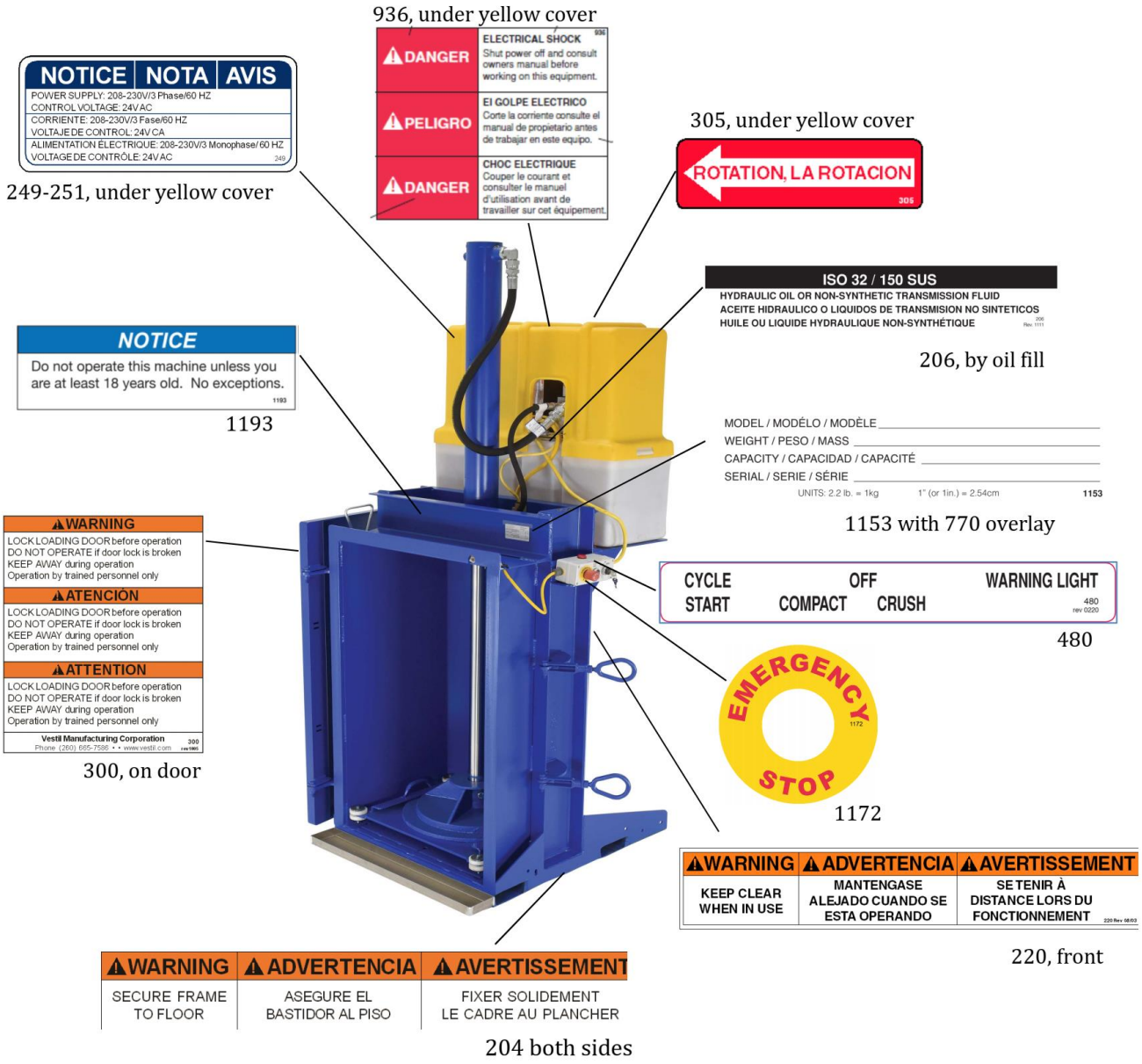
Inspections and repairs should be performed by qualified persons. Compare the results of each inspection to the *RECORD OF SATISFACTORY CONDITION*. Do not use the machine unless all parts are in satisfactory condition. Replace parts that are not in satisfactory condition before returning the unit to 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.

1. **Electrical system**: Examine the electrical system for damaged wires/cables.
2. **Hoses and Hydraulic System**: Inspect hydraulic hoses and fittings for cuts, bulges, tears, kinks, punctures, or other damage causing oil leaks or that could cause leaks.
3. **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.
4. **Oil**: Check the oil level in the reservoir. With the ram in the home position (cylinder fully retracted), oil should be 2" – 2$^{1}/_{2}$" 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.*
5. **Labels**: All labels must be in place and easily readable. See *LABELING DIAGRAM* on p. 28.
6. **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.
7. **Fork tubes**: Inspect the fork tubes. Tubes should be square and rigid and free of significant rust and corrosion.
8. **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.
9. **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.
10. **Maintenance Procedures**: Follow lockout/tagout before any work. Inspect mechanical and hydraulic elements every six months by qualified staff for wear and function. Clean the machine only when powered off. Dispose of waste fluids per environmental regulations.

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 https://www.vestil.com/page-parts-request.php. Alternatively, request replacement parts and/or service by calling (260) 665-7586 and asking the operator to connect you to *TECHNICAL SERVICE*.



LIMITED WARRANTY

Vestil Manufacturing Company ("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 Company	(260) 665-1339	info@vestil.com
2999 North Wayne Street, PO Box 507	Phone	Enter "Warranty service request"
Angola, IN 46703	(260) 665-7586	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 Co. 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 Company ("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:

US Mail	Fax	Email
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2999 North Wayne Street, PO Box 507	Phone	Enter "Warranty service request"
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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.

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- 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 Co. 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.