PLAY IT SAFE!

INSTALLATION, OPERATION,
SERVICE, AND PARTS MANUAL

FOR MARATHON DEWATERING EXTRUDER
COMPACTOR M-100
SERIAL NUMBER: 51418591

MARATHON®
A DOVER COMPANY

VERNON, AL - YERINGTON, NV

Marathon Equipment Co. OMI Manual No. 0025 Rev. 12/12

INDEX

SECTION 1 - OPERATION

SECTION 2 - MAINTENANCE

SECTION 3 - INSTALLATION

WHAT TO DO WHEN YOU NEED ASSISTANCE

Your compactor should give you reliable service for years to come. However, in the event you have problems, we will need the following information in order to serve you better:

COMPACTOR SERIAL NUMBER: _____

INSTALLATION DATE: _____

ELECTRICAL SCHEMATIC NUMBER: _____

When you need assistance you may contact your distributor:

D i s t r i b u t o r

For safety concerns or other information you may contact us

at: Marathon Equipment Company
P.O. Box 1798
Vernon, Al 35592-1798

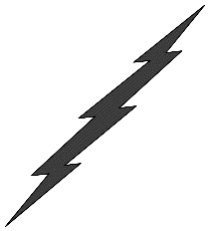
PRE-OPERATION INSTRUCTIONS

WARNING

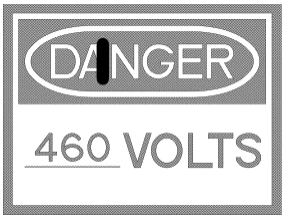
THE EMPLOYER SHOULD ALLOW ONLY AUTHORIZED AND TRAINED PERSONNEL TO OPERATE THIS COMPACTOR. THEREFORE, THIS COMPACTOR IS EQUIPPED WITH A KEY OPERATED LOCKING SYSTEM. THE KEY(S) SHOULD BE IN THE POSSESSION OF ONLY AUTHORIZED PERSONNEL.

<u>Never</u> enter any part of the compactor unless the disconnect switch has been turned off and padlocked. Before starting the compactor, be sure no one is inside. Be certain that everyone is clear of all points of operation and pinch point areas before starting. See Lock-Out & Tag-Out instructions in the Maintenance section.

Do not remove access covers except for servicing. Only authorized service personnel should be allowed inside. All access doors on the compactor body should always be secured in place when the unit is operating. See Lock-Out & Tag-Out instructions in the Maintenance section.



The panel box contains high voltage components. Only authorized service personnel should be allowed inside. See Lock-Out & Tag-Out instructions in the Maintenance section.



M-100 CONTROL PANEL

Key Operated On/Off Power Switch - The key operated power switch provides controlled access to the operation of the machine. When the keyswitch is in the off position the machine will not operate. Only qualified operators should have a key.

Keyed Man Off/Auto Operation Selector - This switch is used to select the mode of operation. In automatic mode, the photo cell controls the operation of the machine. When the material blocks the path between the photo cell and the reflector, the machine will start and cycle until the path is cleared between the photo cell and the reflector. In manual mode, the machine responds only to the manual operation of the controls.

Keyed Start Pushbutton – When this button is depressed, it initiates a complete cycle of the machine. The ram will move forward until it reaches the forward proximity switch and then reverse until it reaches the rear proximity switch.

Emergency Stop Pushbutton - Pushing this button will immediately shut down the machine.

Reverse Pushbutton - Pushing this button while the ram is moving forward will cause the ram to reverse direction.

Choker Up/Down Control - This switch allows the operator to manually move the choker up and down.

Reset - Reset pushbutton will reset all warning lights.

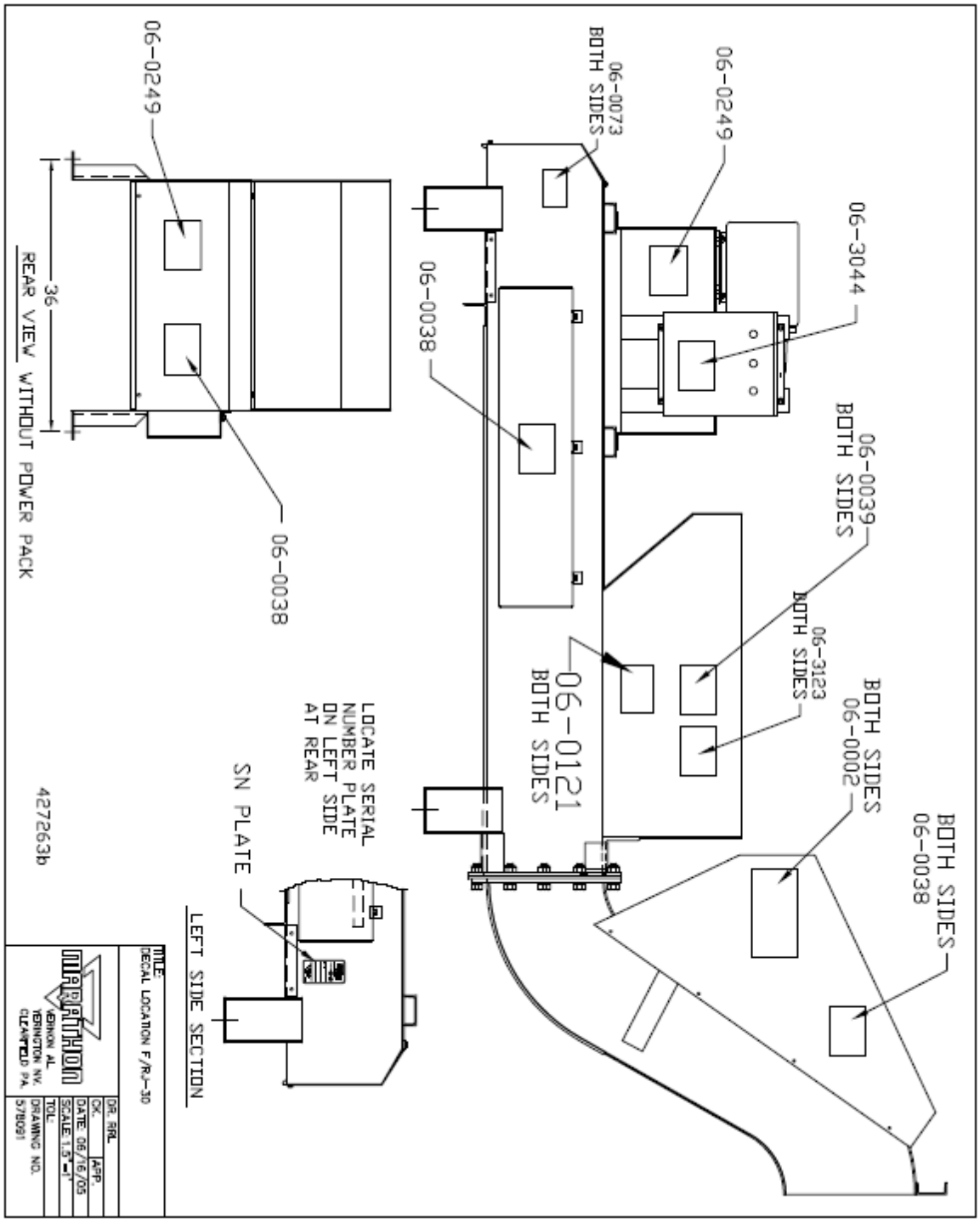
Jammed Tube - This light comes on when the ram can no longer push the material in the tube. 1500 psi for 5 seconds before ram reaches the front limit switch, power unit will shutdown.

Low Oil Level - When oil level is to low to operate the power unit this light will come on and shutdown the unit.

Oil Temp Shutdown - If oil temp reaches 165 degrees, power unit will shutdown.

Auto Shutdown - If photocell stays blocked in auto mode after allotted time the unit will shutdown.


MANUAL/AUTO
START
FORWARD/REVERSE
OFF/ON key
POWER ON
EMERGENCY STOP
OFF
ON
MAN
AUTO
POWER ON
START
EMERGENCY
STOP
CHOKER
UP
DOWN
RESET
JAMMED TUBE
AUTO SHUTDOWN
RESET
OIL TEMP SHUTDOWN
CHOKER UP/DOWN
LOW OIL LEVEL


06-0073
BOTH SIDES
06-0249
06-3044
06-0038
06-0039
BOTH SIDES
06-3123
BOTH SIDES
06-0121
BOTH SIDES
BOTH SIDES
06-0002
BOTH SIDES
06-0038
LOCATE SERIAL
NUMBER PLATE
ON LEFT SIDE
AT REAR
SN PLATE
LEFT SIDE SECTION
06-0249
06-0038
36
REAR VIEW WITHOUT POWER PACK
427263b
TITLE:
DECAL LOCATION F/R-30
DR. RRL
CK.
APP.
DATE: 06/16/05
SCALE: 1.5" = 1"
TOL:
DRAWING NO.
378091
VERNON AL
CLEARFIELD PA.
VERNON NY.

LOCK-OUT & TAG-OUT INSTRUCTIONS

LOCK-OUT & TAG-OUT

Never enter any part of the compactor unless the power is off and the compactor is locked-out and tagged out in accordance with OSHA requirements.

Remove the key from the switch. Move the main disconnect lever to the off position, padlock it, and place, with the padlock, an appropriate warning tag such as:

Warning - do not energize without the permission of _____.

Before entering any part of the machine, be sure that all sources of energy have been disabled and all potential hazards have been minimized. If the ram is pressing against a load, move the ram rearward before shutting the machine down. Make sure that all hydraulic pressure in the system has been relieved by manually depressing the solenoid valve pin located in the center of the coil end of the valve.
See Lock-out and Tag-out instructions above.

The panel box contains high voltage components. Authorized service personnel should be allowed inside only after the machine has been locked out and tagged out.
See Lock-out and Tag-out instructions above.

PERIODIC MAINTENANCE

MONTHLY

1. Check external hoses for chafing, rubbing, or other deterioration and damage.
2. Check for any obvious unsafe conditions.
3. Check oil level in hydraulic reservoir.

THREE MONTHS

1. Check functional operation of controls and options (stop button, timers, lights, etc.)
2. Check hydraulic cylinder, internal hoses, and connections for leakage; check hoses for chafing and wear.
3. Lubricate ram rear guidance system by applying general purpose grease at wear points.

Motor bearings should be lubricated once a year.

FILTER MAINTENANCE

1. The hydraulic filter should be cleaned at regular yearly intervals.
2. The filter may be removed from the unit by removing the four bolts retaining the cover plate to the reservoir, and lifting the filter from the reservoir. Check the wiring attached to the motor, it may have to be removed.
3. Care should be exercised in cleaning the filter to insure that the element is not torn. Clean the element with a soft brush and standard industrial solvent.
4. Replace the filter after cleaning and check fittings for tightness. Pump noise and a "crackle" sound are most often caused by air entering the pump suction line. Tightening the suction fittings will usually eliminate the problem.

RECOMMENDED OILS

1. Union - Unax-215, Unax-AW-215
2. Gulf - Harmony 47, Harmony 48-AW
3. Standard - EP Hydraulic 15
4. Exxon - Teresstic 47, Nuto 48
5. Texaco - Rando 215
6. Shell -Turbo 29, Tellus 29
7. Phillips - Mangus 215
8. Quaker State - Dextron ll (ATF)
9. Citgo - Pacemaker 46
10. Amoco (Rycon)

PROCEDURES

M-100 Pressure Setting Procedure:

Pressure Switch #1, Circuit #2	1500 PSI	(Shut Down)
Pressure Switch #1, Circuit #2	300 PSI	(Choker Down)
Pressure Switch #3	1200 PSI	(Choker Up)
Relief Valve (Packer)	1800 PSI	

The above pressure switches are located in “A” port of the DO-6 subplate (Packer). The relief valve is a cartridge type relief located in the DO-6 subplate.

Pressure Switch #2, Circuit #1	1000 PSI	(Choker Valve Center)
Pressure Switch #2, Circuit #2	400 PSI	(Choker Valve Center)
Sequence Valve	1350 PSI	(Choker Up Fast)
Choker Relief A Port	1800 PSI	
Choker Relief B Port	1800 PSI	

Pressure switch #2 is located in “A” port of the choker manifold block. The A & B port relief and the sequence valve is also located on the choker manifold block.

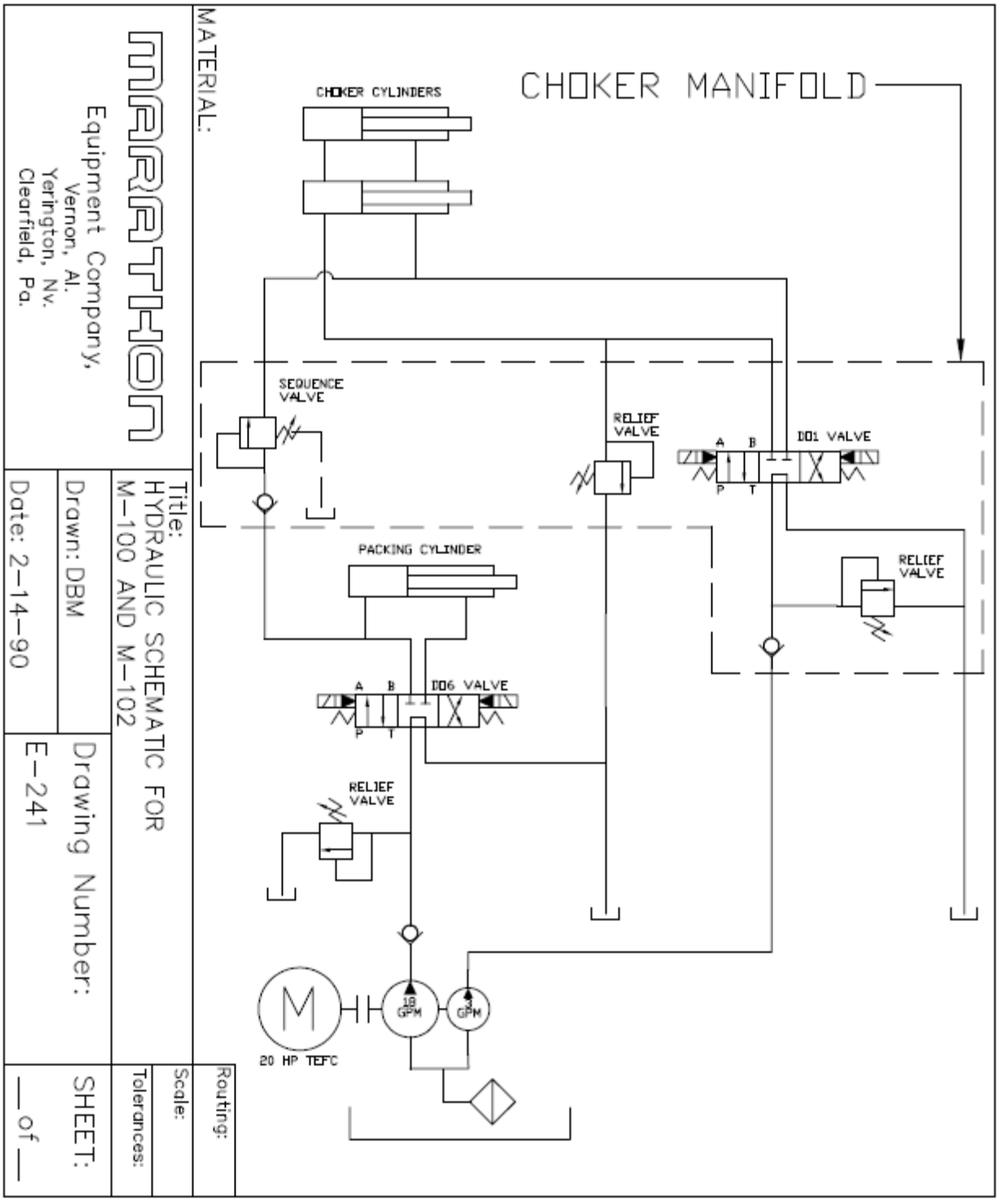
Setting Procedure

1. Remove the caps from the adjusting screws on pressure switch #1 and #3. Turn the adjusting screws CCW several turns.
2. Loosen the locknut on the packer relief and back off (CCW) several turns.
3. Use manual up switch and run choker all the way up.
4. Loosen the mounting nuts on the forward proximity switch (the one close to the charge box) and lower the switch from the mounting bracket.
5. Start unit up and allow the ram to bottom out in forward position.
6. Turn packer relief CW until the pressure gauge on the check valve reads 300 PSI.
7. Turn the adjusting screw on pressure switch #1 circuit #2 CW until the choker starts going down. (Allow choker to bottom out.)
8. Turn the packer relief CW until the pressure gauge reads 1200 PSI.
9. Turn the adjusting screw on pressure switch #3 CW until choker starts going up.
10. Turn the packer relief CCW until the pressure is below 1200 PSI. Turn the sequence valve CW all the way in.
11. Use the manual down switch and run the choker all the way down.
12. Turn the packer relief CW until the pressure gauge reads 1350 PSI.
    NOTE: Choker should start going up at 1200 PSI.
13. Before choker gets all the way up, turn sequence valve (located on the choker manifold block) CCW until the speed at which the choker is going up increases.

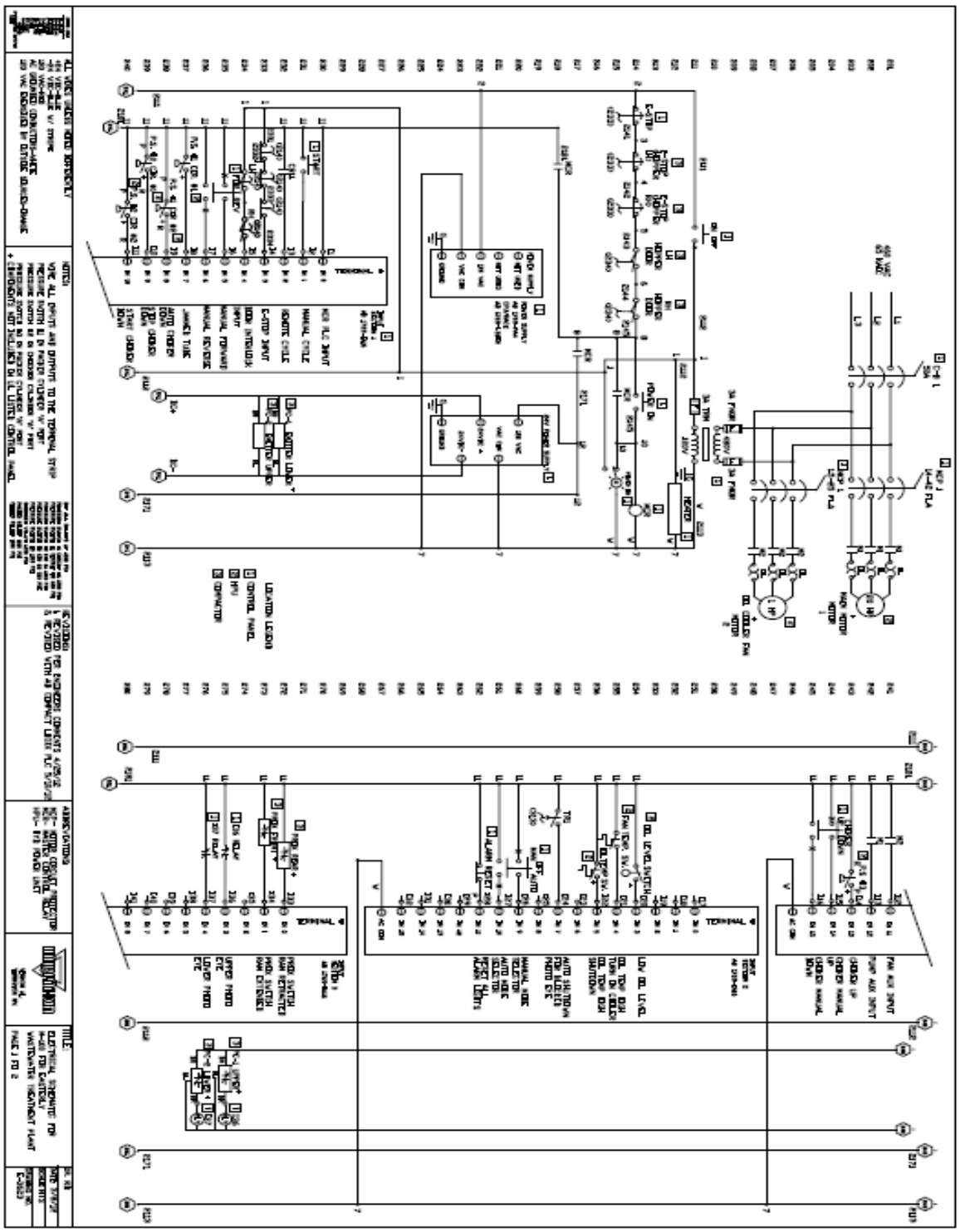
PROCEDURES

14. Turn the packer relief CW until the pressure gauge reads 1500 PSI.
15. Turn adjusting screw on pressure switch #1 circuit #1 CW until the unit shuts down.
16. Set the packer relief at 1800 PSI.
17. Remount proximity switch, replace pressure switch top and caps (pressure switch 1 and 3) and tighten locknut on the packer relief and sequence valve.
18. Use the manual up switch and run choker all the way up.
19. Adjust P port relief to 1800 PSI. Turn the power disconnect off and lock out and tag out in accordance with OSHA requirements.
    NOTE: See LockOut/TagOut Procedures in Section 2 of this manual.
20. Disconnect the red wire on pressure switch #2 circuit #1 from TB I10.
21. Remove lock out/tag out and restore power to the machine.
22. Use the manual down switch and run the choker all the way down and hold.
23. Set choker A port relief at 400 PSI (use gauge on choker manifold).
24. Turn the adjusting screw on pressure switch #2 circuit #2 CW until relay 3 is energized.
25. Turn disconnect off and lock out and tag out in accordance with OSHA requirements. Reconnect the red wire to TB I10.
    NOTE: See LockOut/TagOut Procedures in Section 2 of this manual.
26. Remove the lock out/tag out and restore power to the machine. Hold the choker in the down position with the down switch and set A port relief at 1000 PSI.
27. Turn adjusting screw on pressure switch #2 circuit #1 CW until relay 3 is energized.
28. Adjust A port relief to 1800 PSI.
29. Replace all pressure switch caps and tighten all locknuts on relief valves.

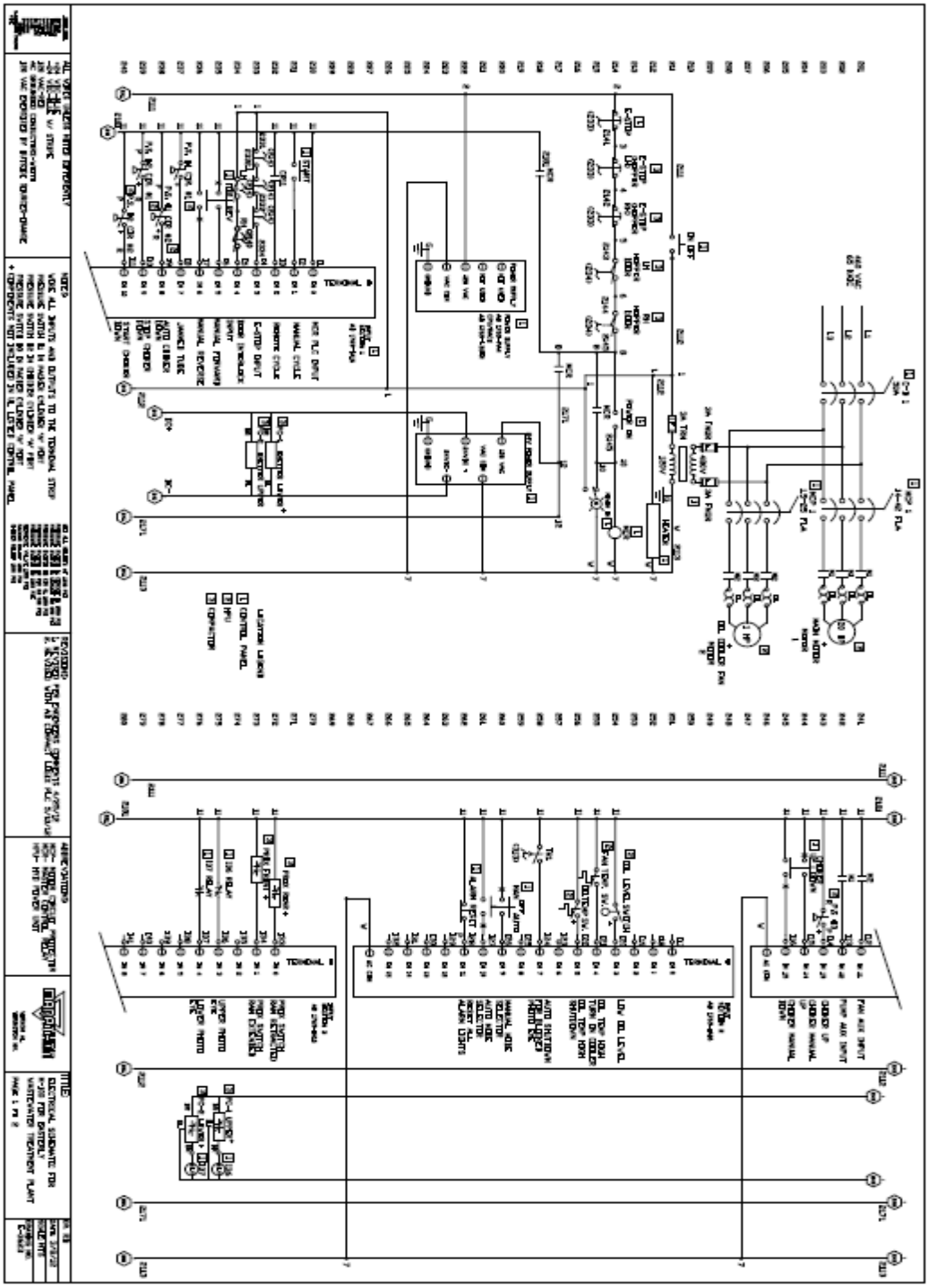
HYDRAULIC SCHEMATIC E-241 FOR M-100

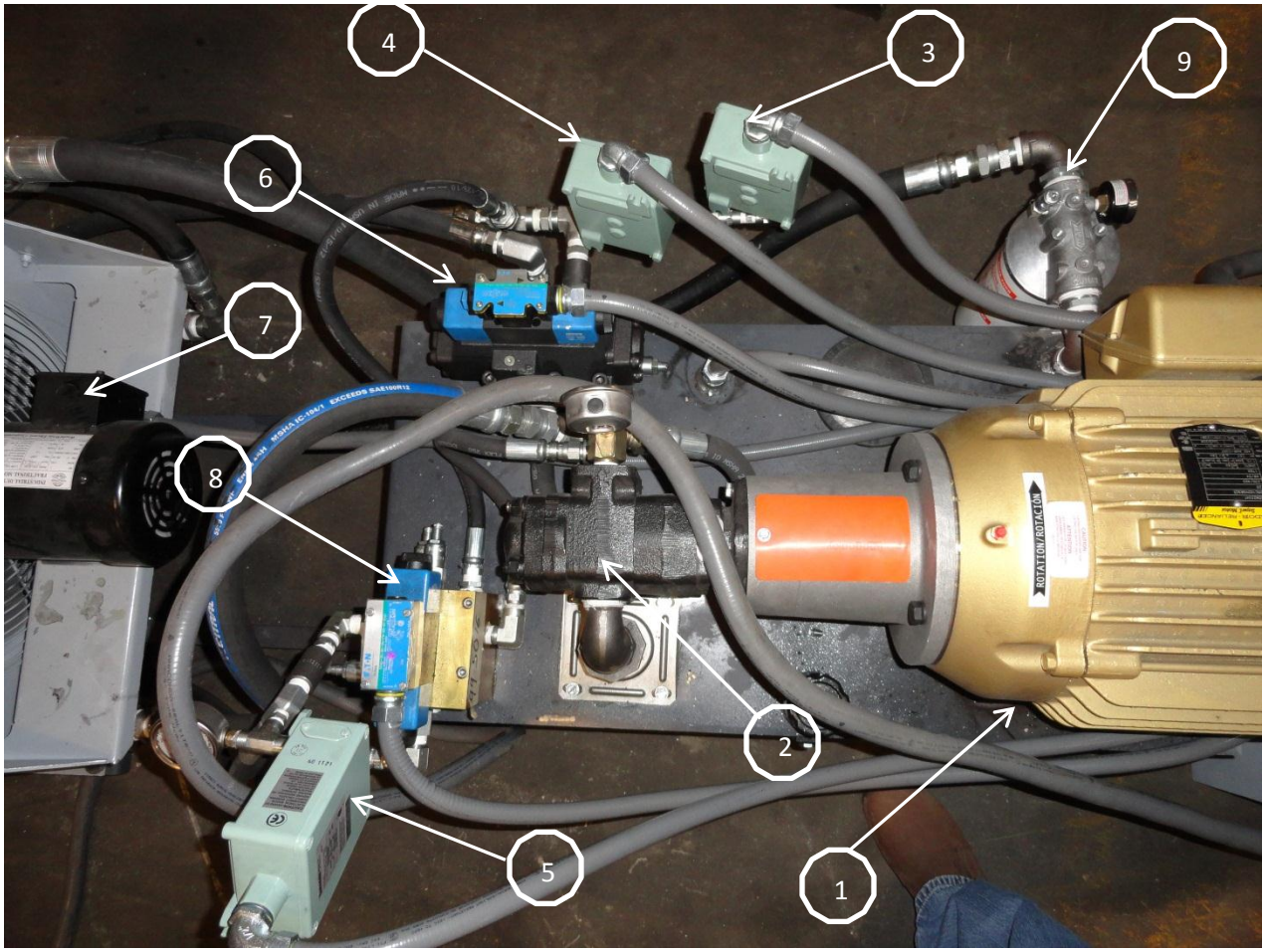


ELECTRICAL SCHEMATIC E-3623 FOR M-100 PAGE 1



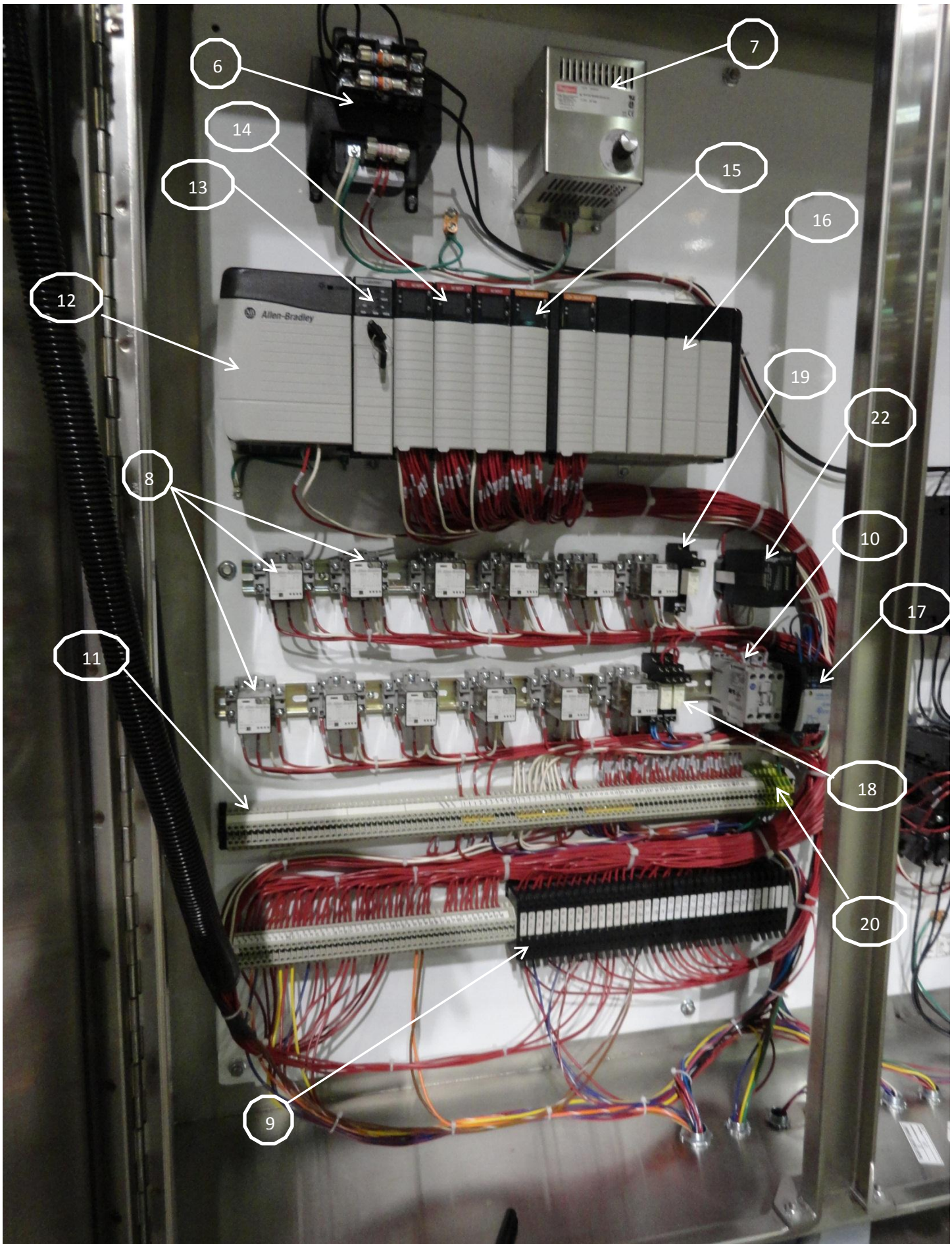
ELECTRICAL SCHEMATIC E-3623 FOR M-100 PAGE 2





Power Unit Components

ITEM NUMBER	DESCRIPTION	REF #
03-1071	MOTOR 20HP 208-230/460 256TC T	1
02-0592	PUMP 3/18 GPM DUAL SECT	2
03-6015	SWITCH PRESSURE #3	3
03-6016	SWITCH PRESSURE #1 DUAL	4
03-6016	SWITCH PRESSURE #2 DUAL	5
02-0680	VALVE 4-WAY 08 T 3-POS W/PILOT	6
02-0804	OIL COOLER AIR 208-230/460 AOC	7
99-5016	SUBPLATE 03 1 STN W/VALVES F/M100	8
02-0271	SUBPLATE 08 1 STN 3/4 NPTF	6
02-4222	FILTER IN LINE SPIN ON 10MICRO	9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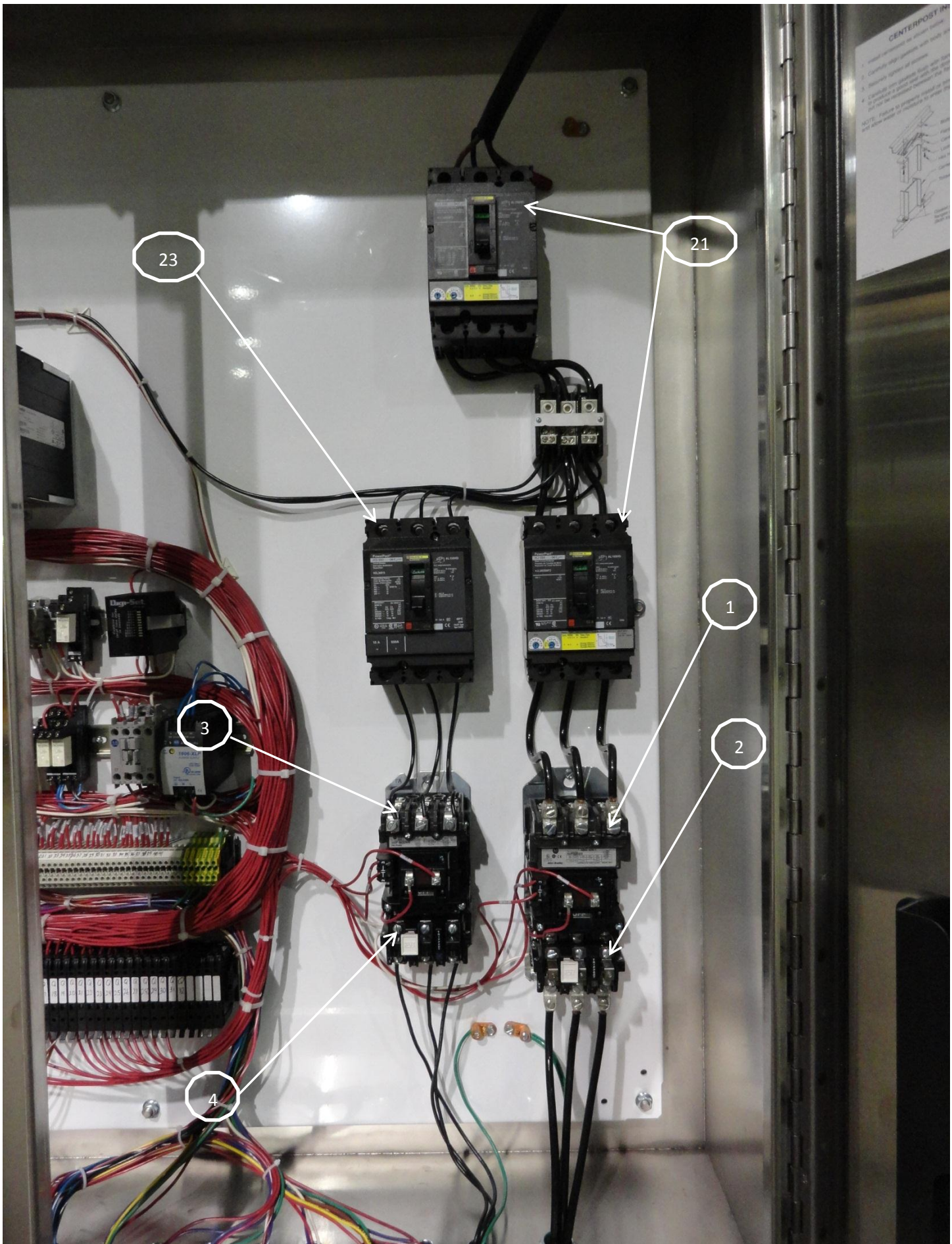
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21
1
3
2
4

Panel Box Components

ITEM NUMBER	DESCRIPTION	REF #
03-0148	MOTOR STARTER SIZE 2 AB	1
03-0157	HEATER ELEMENT W-61	2
03-0211	MOTOR STARTER SIZE 1 AB 509 BO	3
03-1323	HEATER ELEMENT W-36	4
03-6014	ENCLOSURE 48 X 48 X 12 NEMA 4XW/BACK PAN	5
03-0474	TRANSFORMER 300VA 208/230/460 120 SEC	6
03-0476	FUSE 3 AMP DUAL 1 1/4 BUSS	
03-0529	FUSE 3 AMP 600V FNQR	
03-0416	HEATER, ENCLOSURE 200 WATT ADAH2001FT	7
03-6011	RELAY 4 POLE 120 VAC 3PDT	8
03-6012	RELAY BASE F/036011	
03-0732	TERMINAL BLOCK W/FUSE AB 1492-H4 F/PLC	9
03-0735	FUSE 2 AMP AGC STYLE	
03-1540	RELAY 4 POLE 120 VAC 25 A NO CONTACT (MCR)	10
03-4437	TERMINAL BLOCK #22-10 35MM DIN	11
03-6008	PLC AB POWER SUPPLY 1756-PA75	12
03-6009	PLC AB 1756 IA16I INPUT MODULE	14
03-6010	PLC AB POWER SUPPLY 1606-XLP30E	17
03-2839	PLC AB OUTPUT MODULE 16PT RELAY 1756OW16	15
03-5319	PLC AB PROCESSOR CONTROL LOGIX 1756-L61	13
03-5115	PLC AB FILLER BLOCK 1756-N2	16
03-4938	BREAKER 50A 460V MAG ONLY TELE	21
03-3090	TIMER ON DELAY 10 TO 10,230 SECONDS	22
03-5568	RELAY 24VDC SINGLE POLE TELE	18
03-5495	RELAY BASE DIN RAIL MTD F/03-5568	
03-4967	RELAY 1 POLE 120V 12A 5PIN	19
03-4968	RELAY BASE 1 POLE DIN RAIL F/03-4967	
03-4172	TERMINAL BLOCK #24-10 35MM DIN GRD GREEN	20
03-5034	BREAKER 15 AMP TELE HDL36015	23

FUSE & CIRCUIT BREAKER CHART FOR MOTORS

MOTOR SIZE	VAC	FULL LOAD AMP.	DUAL ELEMENT FUSE MAX. SIZE	CIRCUIT BREAKER MAX. SIZE	SERVICE DISCONNECT AMP.
3 HP, 1 PH	208	18.7	30	45	30
	230	17.0	25	40	30
3 HP, 3 PH	208	10.6	15	20	30
	230	9.6	15	20	30
	460	4.8	10	15	30
	575	3.9	10	15	30
5 HP, 1 PH	208	30.8	50	80	60
	230	28.0	45	70	60
5 HP, 3 PH	208	16.7	30	40	30
	230	15.2	25	40	30
	460	7.6	15	20	30
	575	6.1	10	15	30
10 HP, 1 PH	208	55.0	100	125	100
	230	50.0	90	125	100
10 HP, 3 PH	208	30.8	50	80	60
	230	28.0	50	70	60
	460	14.0	25	35	30
	575	11.0	20	30	30
15 HP, 3 PH	208	46.2	80	110	60
	230	42.0	70	100	60
	460	21.0	40	50	30
	575	17.0	30	40	30
20 HP, 3 PH	208	51.0	100	125	100
	230	48.0	90	125	100
	460	24.0	45	60	60
	575	19.1	35	50	60

WIRE SIZE CHART

THW Copper 75°C (165°F)

MOTOR SIZE	VOLTAGE	LENGTH		
		TO 100’	TO 200’	TO 300’
3 HP, 1 PH	208	10	8	6
	230	10	8	6
3 HP, 3 PH	208	12	10	8
	230	12	10	8
	460	12	12	10
	575	12	12	12
5 HP, 1 PH	208	8	6	4
	230	8	6	4
5 HP, 3 PH	208	10	8	6
	230	10	8	6
	460	12	10	8
	575	12	12	10
10 HP, 1 PH	208	4	3	2
	230	4	3	2
10 HP, 3 PH	208	8	6	4
	230	8	6	4
	460	10	8	6
	575	12	10	8
15 HP, 3 PH	208	6	4	3
	230	6	4	3
	460	8	6	4
	575	10	8	6
20 HP ,3 PH	208	4	1	1/O
	230	4	2	1
	460	10	8	6
	575	10	10	8

MOTOR STARTER & HEATER ELEMENT CHART

MOTOR SIZE	VOLTAGE	STARTER SIZE	HEATER ELEMENT A-B	HEATER ELEMENT JOSLYN CLARK
3 HP, 1 PH	230	1	W-57	2447
3 HP, 3 PH	208	1	W-50	2443
	230	1	W-49	2442
	460	1	W-43	2434
	575	0	W-41	2432
5 HP, 1 PH	230	2	W-61	2451
5 HP, 3 PH	208	1	W-55	2446
	230	1	W-53	2445
	460	1	W-46	2436
	575	0	W-46	2432
10 HP, 1 PH	230	3	W-68	NA
10 HP, 3 PH	208	2	W-64	2455
	230	2	W-63	2454
	460	1	W-55	2447
	575	1	W-51	2444
15 HP, 3 PH	208	3	W-68	NA
	230	2	W-67	2460
	460	2	W-60	2452
	575	2	W-57	2448
20 HP, 3 PH	208	3	W-68	NA
	230	3	W-68	NA
	460	2	W-61	NA
	575	2	W-59	NA

CONCRETE PAD REQUIREMENTS

CAUTION:

REVIEW THIS MANUAL BEFORE MAKING THE INSTALLATION. STUDY THE JOBSITE AND INSTALLATION REQUIREMENTS CAREFULLY TO BE CERTAIN ALL NECESSARY SAFEGUARDS AND OR SAFETY DEVICES ARE PROVIDED TO PROTECT ALL PERSONNEL AND EQUIPMENT DURING THE INSTALLATION AND AS A COMPLETED SYSTEM. SPECIAL ATTENTION IS DIRECTED TO THE EXTRACT FROM AMERICAN NATIONAL STANDARDS INSTITUTE Z245.1 (GREEN BOOKLET, INSIDE ENVELOPE.) [THIS EXTRACT IS APPLICABLE TO STATIONARY COMPACTORS ONLY.]

These operating instructions are not intended as a substitute for training and experience in proper use and safety procedures in operating this equipment.

Marathon does not assume responsibility for the installation procedures of this equipment. Conformance to applicable local, state, and federal laws concerning installation rests with the customer.

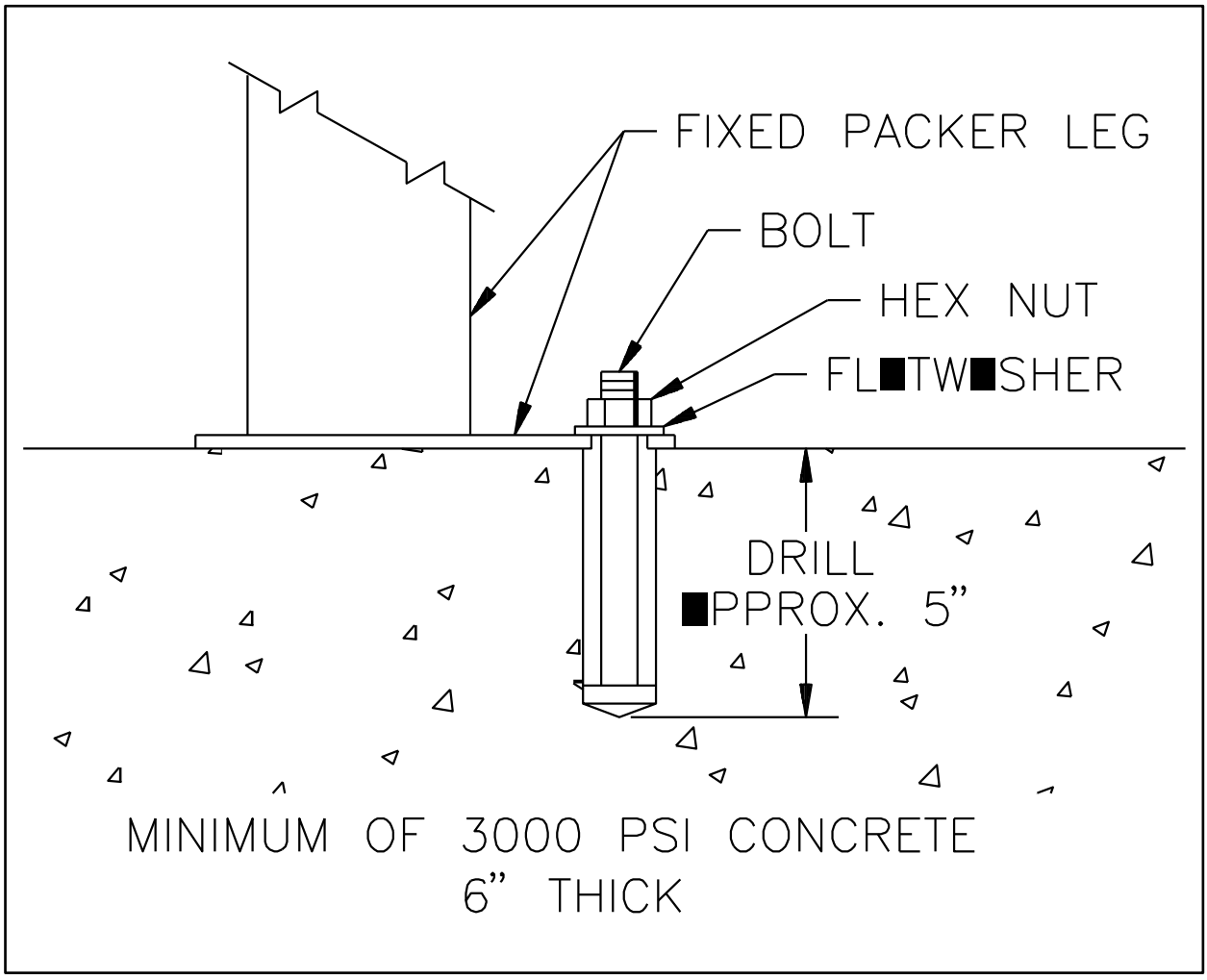
CONCRETE PAD

1. Preferred dimensions of the concrete pad are 10'0" wide and a length of 5'0" greater than combined length of compactor and receiver container. It should be of minimum
3,000 PSI concrete steel reinforced, 6" thick. For good housekeeping practices, it is recommended a drain beneath the area of the charge box be incorporated in the pad connecting to a sanitary sewer. It is preferred that the concrete pad be flush with the surrounding ground level. If it must be raised above surrounding ground level, pad at end opposite packer should be tapered to ground level.

2. To provide accessibility, concrete pad should be positioned to allow 2'0" between container and building wall if installed parallel with building. Allow a minimum of 45' of clear space from container-end of pad for container handling vehicle.

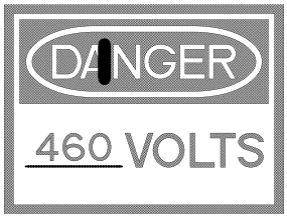
ANCHORING

1. The compactor should be anchored to the concrete pad using four (4) 3/4" X 6" (minimum) anchor bolts. These bolts can be secured to the concrete pad using special concrete anchors or expansion type anchor bolts. To allow for construction variations, it is best if these holes are drilled in the concrete after pre-locating the compactor in its desired location. When the compactor has been placed in position, leveled (using metal shims), and the anchor bolts have set, tighten all nuts securely.

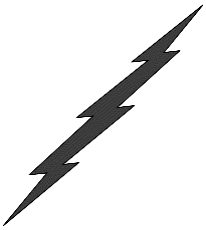


2. The container guide (optional) should be anchored in an identical manner; spacing between the guides is determined by the rail spacing of the container.

ELECTRICAL & HYDRAULIC INSTALLATION



The panel Box contains high voltage components. Only authorized service personnel should be allowed inside. See Lock-Out & Tag-Out instructions in the maintenance section.



A lockable fused disconnect switch (customer furnished) must be installed and be within sight of the compactor's electrical panel box location, not to exceed 50'0" from the compactor. This fused disconnect switch should be sized in accordance with the compactor (see Fuse and Circuit Breaker Chart).
CAUTION: All equipment should be grounded per National Electric Code.

REMOTE POWER PACK INSTALLATION

1. If a remote power pack is furnished (optional), it should be installed and anchored as required by the customer. If push buttons are mounted in the face of the panel box, be certain these controls are located as to be in a convenient, but not hazardous, location to the customer.

2. Connect the hydraulic hoses to the power pack, exercising care to follow the port decals (A or B) on the packer and the power pack. In the event the decals have been obliterated call the Marathon Service Department at 1-800-633-8974 for installation instructions.

3. The limit switch is connected to the remote power pack with Sealtite. To install, bolt the limit switch to the inside of the packer body (holes are pre-drilled) and adjust the arm. Other packer mounted electrical options are color coded and referenced to the electrical schematic inside the electrical panel box. Be certain wires are properly connected. (Check local codes to be certain Sealtite is acceptable.)

ELECTRICAL & HYDRAULIC INSTALLATION

PUSHBUTTON CONTROL STATION

If a remote push button station is furnished, it will be factory wired using Sealtite. If, in order to install this pushbutton station inside a building, it is necessary to disconnect it from the wires, exercise care that these wires are reconnected as originally furnished. (Check local codes to be certain that Sealtite is acceptable.)

CAUTION: Controls must be located so that the Mushroom (Emergency) Stop Button is readily accessible to the operator and within three (3) feet of the charging chamber access door. If installation requires this push button control station to be located in a more remote area, a second Emergency Stop Button should be added and installed in the manner described above.

ELECTRICAL CONNECTIONS

1. Run power lines between fused disconnect switch (customer furnished) and compactor's electrical panel box, in accordance with local electrical codes, using knock-outs in bottom of panel box. See Fuse & Circuit Breaker Chart for Motors and Wire Size Chart, in the Maintenance Section, to determine the proper service disconnect amperage rating and the proper wire size.
   NOTE: High legs should be installed to L3 on motor starter.

2. Check voltage at fused disconnect switch to be certain it is the same as is shown on compactor or remote power pack. If voltage is correct, put fused disconnect switch in "ON" position.

START-UP INSTRUCTIONS

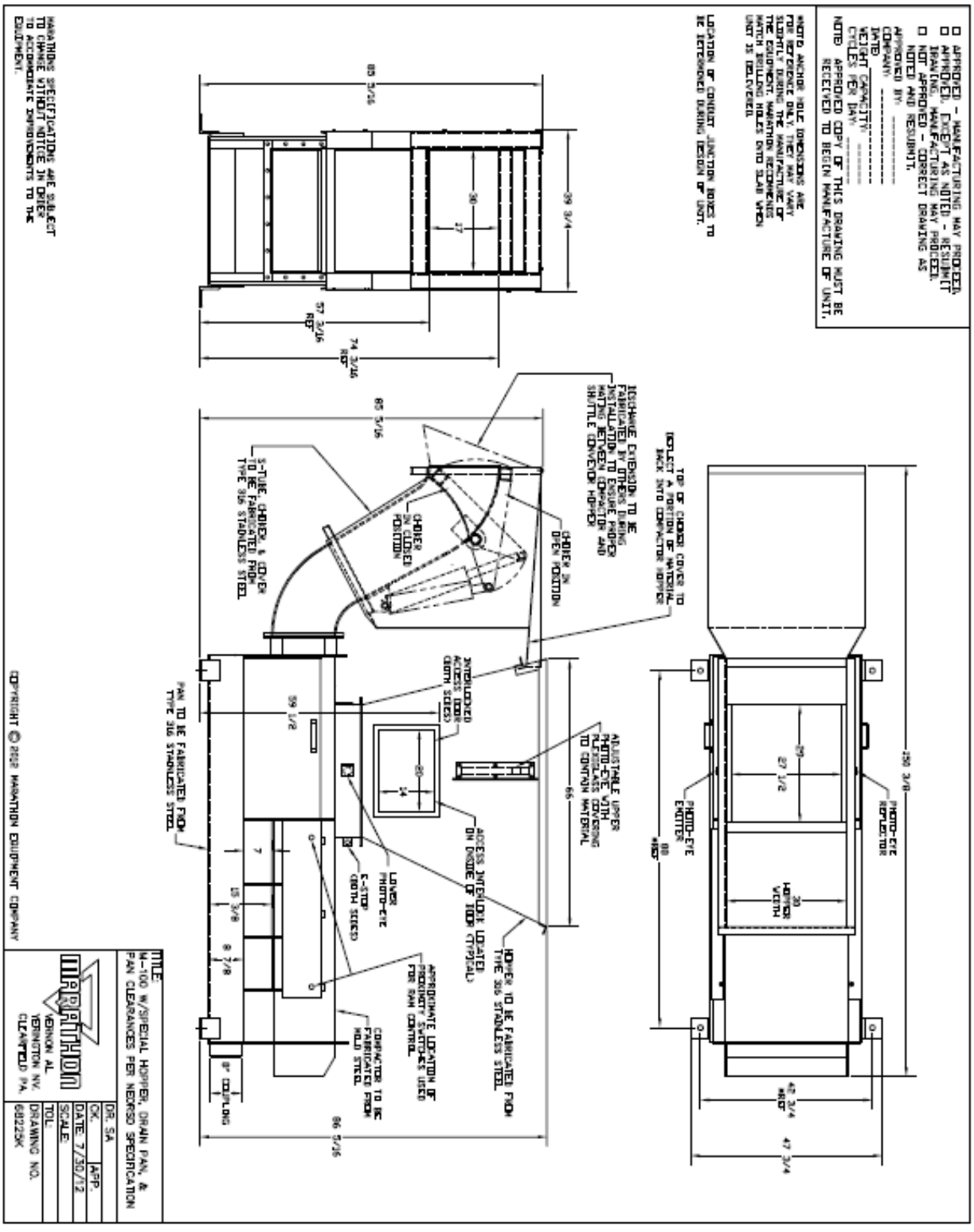
1. With the ram fully retracted, check to be sure the oil reservoir is full to the 3/4 level on the sight gauge (Refer to the maintenance chart for hydraulic oil recommendations). The hydraulic system pressure has been factory set and the entire unit has been operated prior to shipment.

2. CAUTION: MAKE SURE PERSONS AND MATERIAL ARE CLEAR OF CHARGE BOX AREA.

3. Depress the start button and check the pump shaft for proper rotation.

   CAUTION: If the pump rotates backward, stop immediately. The pump will be damaged if it is operated in reverse even for short periods. Reversing any two incoming power lines will change the motor/pump rotation.

4. Make sure that the operators are trained in the proper use of this equipment.


APPROVED - MANUFACTURING MAY PROCEED
APPROVED - EXCEPT AS NOTED - RESUBMIT
ERRORS. MANUFACTURING MAY PROCEED.
NOTED AND RESUBMIT.
APPROVED BY:
COMPANY:
DATE:
WEIGHT CAPACITY:
CYCLES PER DAY:
NOTE APPROVED COPY OF THIS DRAWING MUST BE RECEIVED TO BEGIN MANUFACTURE OF UNIT.
LOCATION OF CONDUIT JUNCTION BOXES TO BE DETERMINED DURING DESIGN OF UNIT.
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TITLE
M-100 W/SPECIAL HOPPER, DRAIN PAN, & PAN CLEARANCES PER NEXRSO SPECIFICATION
DR. SA
CK.
APP.
DATE 7/30/12
SCALE:
TOL
DRAWING NO.
68225K
MARATHON
VERNON AL
YERINGTON NV.
CLEARFIELD PA.