



VACUMASTER PUMP OUT SYSTEM 290 35 2310

Installation and Operations Manual

Index

Page 1 Description	Page 7 Installation:Electrical
Page 2 Components & Dimensions	Page 14 Installation: Pump Out Hose
Page 3 Installation:Guidelines	Page 15 Operation
Page 3 Installation:Pump Unit	Page 17 Part
Page 5 Installation:Plumbing	Page 19 Maintenance

The Pump Out System

VacuMaster 290 35 2310 - Specifies that this Edson VacuMaster was built with a 35 gallon, stainless steel transfer tank and Model 02, rotary vane, vacuum pump driven by a .5 hp electric motor with an automatic reversing control system. This VacuMaster will develop 23" hg of vacuum (25 ft of suction lift) and 10 psi (23 ft of discharge head) and automatically cycle from suction to discharge when the tank is full. The system is complete with hose stand and pump out hose assembly.



ENTER YOUR SYSTEM DATA HERE

SYSTEM SERIAL #

From Edson Serial # Sticker On Pump Frame

VACUUM PUMP

Motor

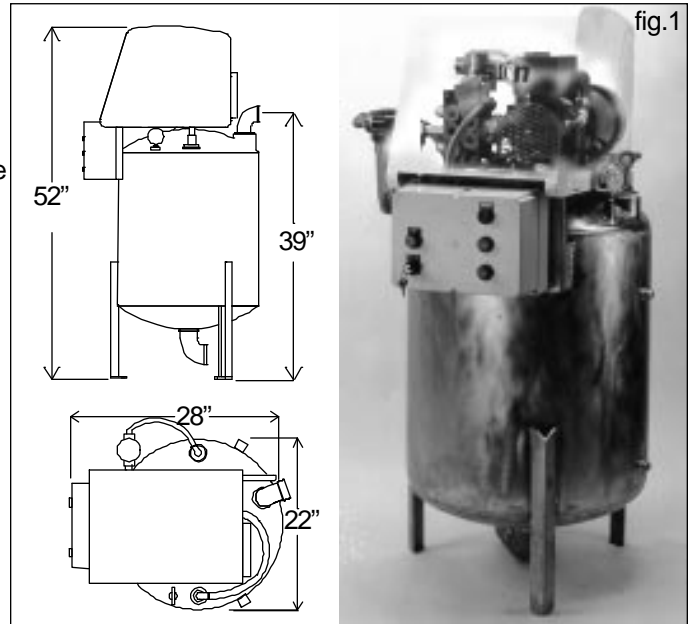
From Plates On Motor and Reducer. i.e. 2hp/1ph/120/230V/TEFC



Components Description & Dimensions

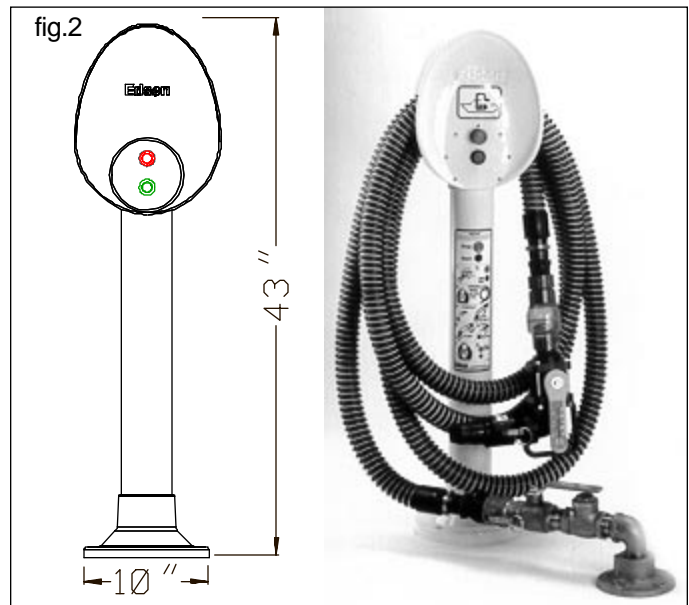
Pump Unit: 290 35 2510. fig. 1

1/2hp/1ph/110v/60hz/tefc Motor
 Model 02 Air Pump
 Automatic Continuous Pumping Control Package
 Nema 4X Control Panel with Key Switch
 35 Gallon Stainless Steel Tank with Cover

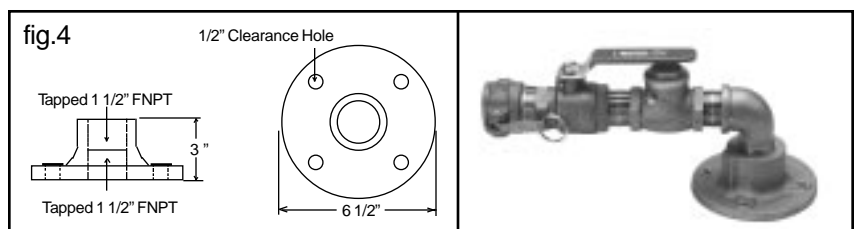


Hose Stand: White Powder Coated Aluminum with Start/ Stop Buttons Installed, Operating Instruction Sign and (4) 1/2" X 7" Aluminum Hex Head Mounting Bolts. fig. 2

Hose Assembly: 25' X 1 1/2" Polyflex Hose, 90° Ball Valve, Sight Glass/Check Valve, Quick Clamp Adapter, fig. 2. Complete Set of Waste Deck Fitting Adapters fig. 3



Hydrant: (Optional) 1 1/2" Bronze Check Valve, Ball Valve and Quick Clamp Hose Adapter with Bronze Elbow and Close Nipple with Mounting Flange. fig. 4



WARNING

It is the responsibility of the purchaser to have the electrical service installed by a licenced electrician in accordance with the power requirements of the motor, the electrical service available and local electrical codes.

Failure to have the electricity installed correctly will result in damage to the pump and potential bodily injury, loss of life and property damage from electrical shock and fire.

CAUTION

**Use Recommended Biodegradable Hydraulic Oil or Quality 10W-30 or 10W-40 Motor Oil Only
Using the wrong oil or dirty oil can cause loss of vacuum or pump failure.**

CAUTION

Bolt Pump Securely To Level Surface

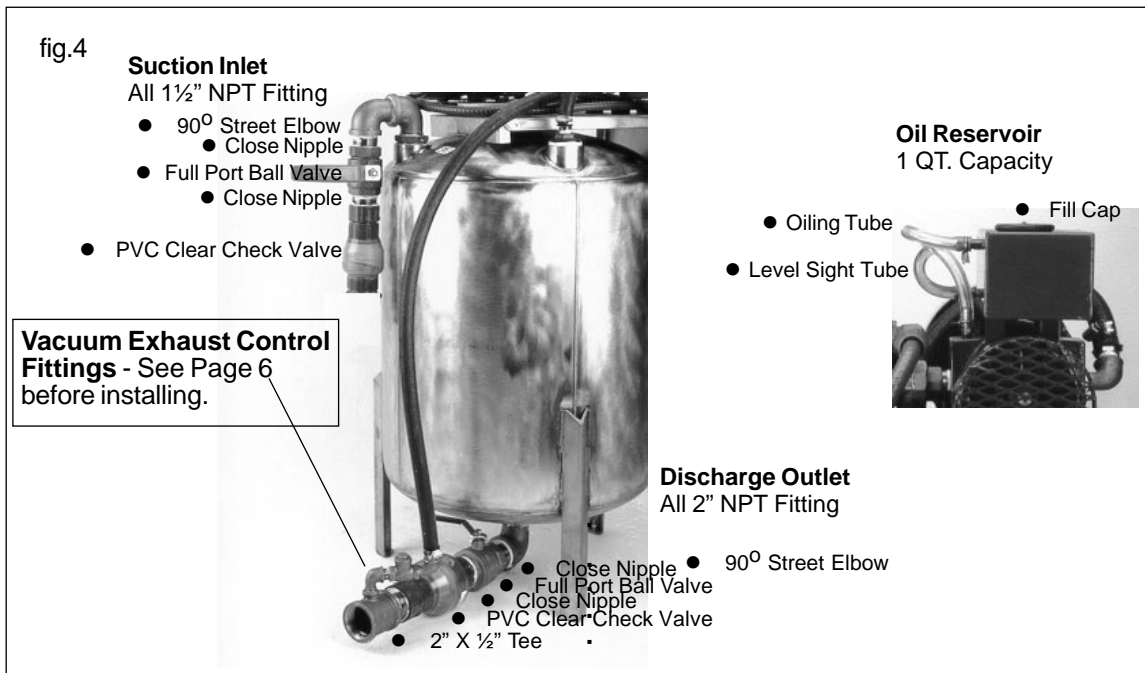
ATTENTION

All Plumbing Fittings Must Be Air Tight. Installed With Thread Sealant.

The Pump Unit:

1. Inspect and Setup the Pump Unit

- Fill Oil Reservoir with A Biodegradable Hydraulic Oil (Mobil EAL 224H) or Any 10W-30/40 Motor Oil
- Install Factory Supplied Plumbing To Tank. fig. 4



2. Locate and Orient the Pump Unit:

- Position Pump Unit between the pump out hose stand and the sewage disposal location.
- Install the pump unit in accordance with the performance specification. fig 5
- Plan Plumbing - Suction plumbing between hose stand and suction inlet of pump unit should be 1½". Discharge plumbing between pump unit and sewage disposal sight should be 2".fig 4 page 3

IMPORTANT

Plan for Vacuum Exhaust Plumbing

- Plan Vacuum Exhaust Plumbing fig 6 - When using a vacuum air pump to pump sewage the vacuum exhaust is very unpleasant. In order to direct the vacuum exhaust into the sewer line the pump unit is equipped at the factory with fittings that will direct the vacuum exhaust air into the discharge line. See page 6 for details. **For negative** head installations the ½" exhaust air line and ½" check valve are connected to the 2" X ½" tee right at the tank discharge just after the 2" check valve. fig 7 **For positive** head installations the exhaust air line must be extended parallel to the discharge line and is connected to the ½" check valve and the 2" X ½" tee at a point where the discharge line will gravity drain.fig 8
 - Plan for Electricity - Electrical cable between hose stand start/stop station and the control panel on the pump unit should be 3 wire + ground rated in accordance with the installation environment and 24 volt power. Electrical cable between the pump unit and main power source should be 2 wire + ground rated in accordance with code for the installation environment and the operation of a 1/2hp 110V 60 hz motor rated at 6.5 Full Loaded Amps.
 - Install for Maintenance - Install the pump in a manner that allows easy access for inspection & maintenance. Connect plumbing to the pump using unions or easily removed couplings.
 - Install the Pump On a Smooth & Level Surface -In order to prevent unnecessary vibration and frame distortion, the pump unit must be installed on a relatively smooth and level surface.
- ## 3. Bolt Pump Frame To Surface:
- Pump frame has 3 bolt down flanges. Use these to secure the unit to the surface with lag bolts or similar fasteners. fig 9

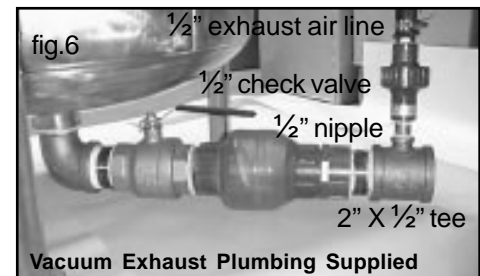
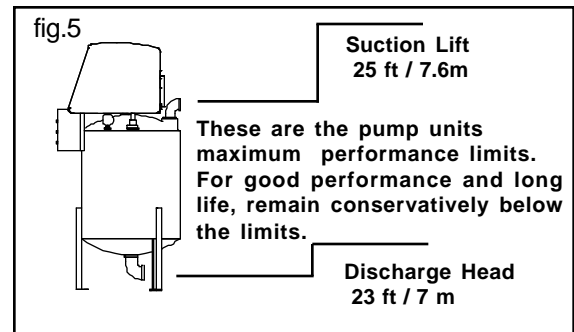


fig. 7 Negative Head Vacuum Exhaust

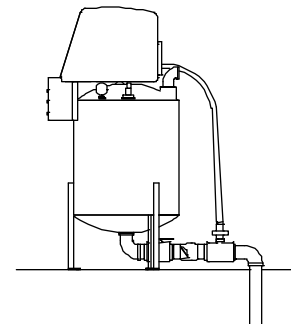
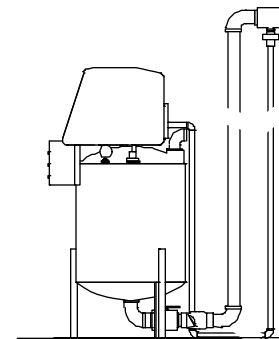


fig. 8 Positive Head Vacuum Exhaust



The Hose Stand & Hydrant:

1. Inspect the Hose Stand

- Check the hose stand and 4 mounting bolts. Make sure stop/start switches are installed and are secure. fig. 10

2. Assemble The Hydrant per fig 11 (Optional)

- Use thread sealant on all components to insure all fittings are air tight.

IMPORTANT
Plan for Electrical Cable for Start/Stop

3. Arrange the Stand and Hydrant at Pump Out Location:

- Position the hose stand and the hydrant so the hose can be easily wound and unwound from the stand. fig 11
- Position the hose stand and hydrant so that the 25 ft. hose can easily reach the boats to be pumped.
- Support hydrant with a plumbing hanger if necessary.
- Use the aluminum mounting bolts to secure the hose stand to the surface. If the 7" mounting bolts supplied can not be used, use appropriate substitutes. Aluminum is recommended.
- Secure hydrant to surface with appropriate hardware.

Install the Plumbing:

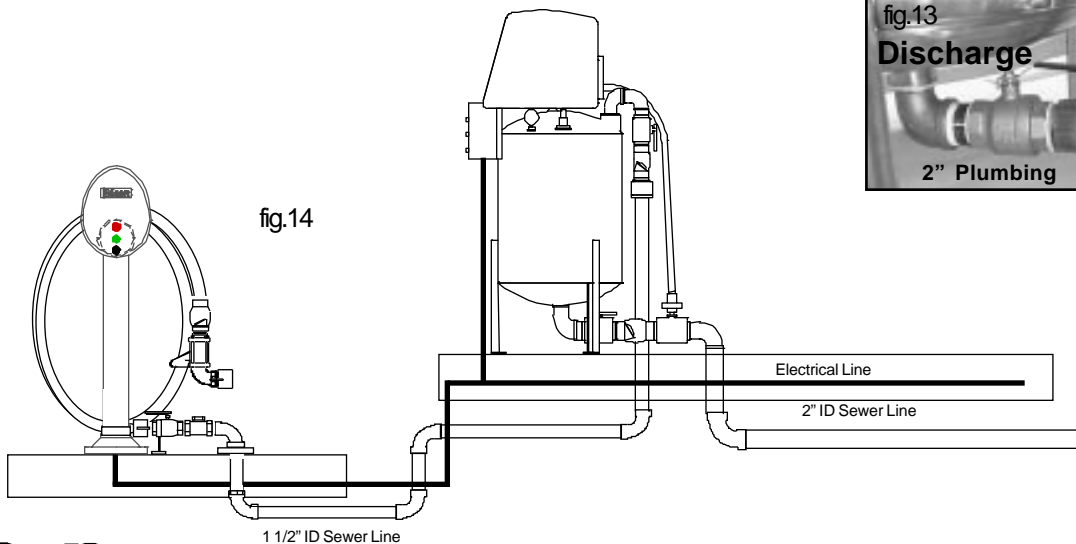
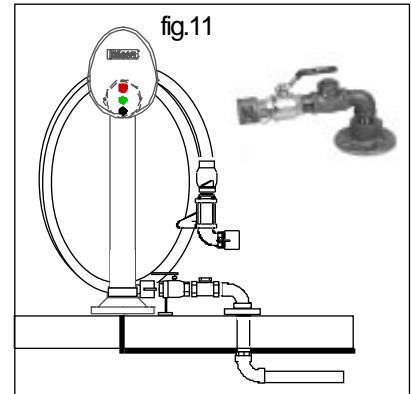
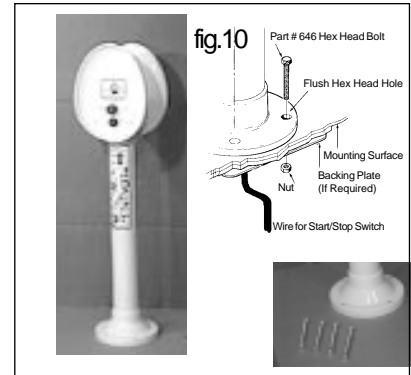
1. Install in Accordance with Local Codes & Standard Plumbing Practices

2. Use 1 1/2" ID Hose and/or Pipe on The Inlet and 2" ID On the Discharge fig. 12, 13, 14

- Make all connections air tight. Use pipe sealant.
- Use long radius sewer sweep fittings for all elbows.
- Install clean outs at appropriate locations.
- Use unions when connecting to the pump unit.

3. Prevent Vapor locks

- Prevent vapor locks. If possible install plumbing so air travel up and out and is not trapped in pipes or fittings.



Install the Plumbing: Continued

IMPORTANT

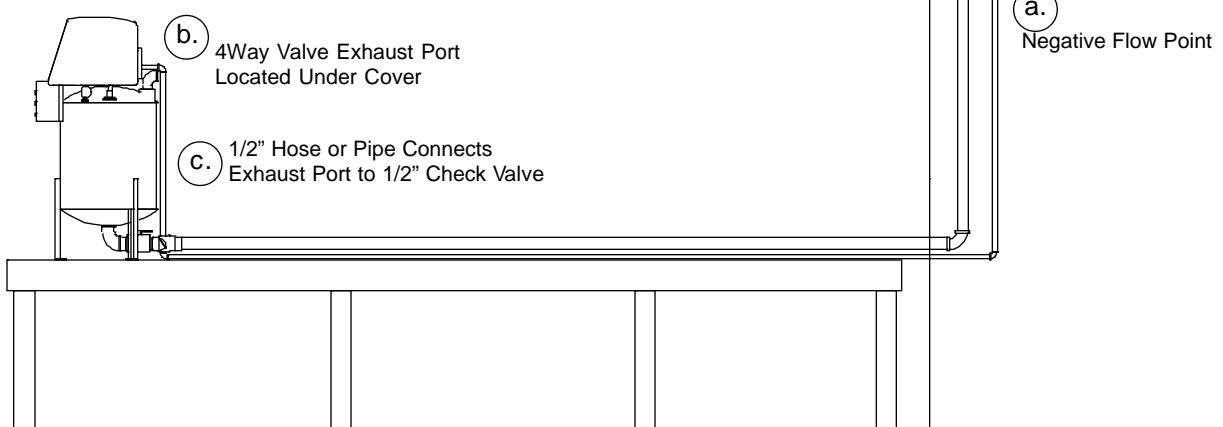
In Some Applications Such As Pumping Sewage Vacuum Exhaust Is Very Unpleasant. Vacuum Exhaust Plumbing Can Be Used To Direct The Unpleasant Exhaust Air Into The Discharge Line Or To An Area Where Unpleasant Odors Do Not Effect Anyone.

4. Install Vacuum Exhaust Plumbing

- Make all connections air tight. Use pipe sealant.
- Use 1/2" Pipe or Hose for exhaust line.
- Use factory supplied 2" X 1/2" tee in tank discharge line to connect exhaust to sewage line.
- Use factory supplied 1/2" check valve to prevent back flow into air exhaust line when pump unit is in discharge mode.
- **For negative** head installations the 1/2" exhaust air line is plumbed from the vacuum exhaust port on the four way valve to the 1/2" check valve on the 2" X 1/2" tee right at the tank discharge just after the 2" check valve. All plumbing supplied by factory. fig 15
- **For positive** head installations: fig 16
 - a. Install the 1/2" check valve and the 2" X 1/2" tee at the point in the 2" discharge line where the discharge line is no longer under positive back pressure.
 - b. Remove the short section of factory installed 1/2" hose from the vacuum exhaust port of the 4way valve located under the cover.
 - c. Connect this port to the 1/2" check valve using 1/2" hose or pipe.



An alternative is to pipe the vacuum exhaust to a location where the odor does not bother anyone.


fig 16 **Positive Head Vacuum Exhaust Plumbing**

CAUTION
All Electrical Connections Must Be Installed By a License Electrician In Accordance With Local Codes

IMPORTANT
1/2 HP Motor Operating On 120 Volt Are Rated At Full Load AMPS of 6.5

- 1. Wire The Pump Out Station:** See pages 8,9 & 10
 - Wire Single Phase, 120Volt, 60 HZ electrical power to L1 & L2 on terminal strip inside control panel enclosure. See wiring diagram page 8
 - Insure all components, main control panel and any remote start/stop stations are properly grounded.
 - Insure all connections to the enclosure are water tight.
- 2. Check and/or Set Timers:**
 - TM1 Motor Timer acts as a self-monitoring Shut-Off for the motor. It prevents excessive amounts of water from being pumped into a sewer system because of an inattentive customers or operators. It is factory set to shut the motor off after 10 minutes. fig 17
 - TM2 4way Valve Timer sets the time the 4way valve is in the pressure mode after it automatically switches from vacuum because the transfer tank is full. It is factory set for 1 minute before the system will automatically switch back to vacuum. fig 18
 - 24Hr Pressure Timer can be used to start the pump unit automatically in the pressure mode once a day for a minimum of 15 min. The objective is insure that the tank and discharge line is drained completely once a day. fig 19 See page 17 for instructions for setting this timer.
- 3. Install Remote Start/Stop Station(s):**
 - Single Remote Station fig. 21
 - Multiple Remote Stations fig. 22

fig.17 TM1 Motor Timer

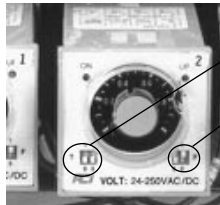


Timer Settings
 T Switches 1 & 0
 F Switches 0 & 1

Turn Timer Dial Full Clockwise for 10 Minutes Run Time

See Page 16 For Manufacturers Data Sheet

fig.18 TM2 4 Way Valve Timer




Timer Settings
 T Switches 0 & 0
 F Switches 0 & 1

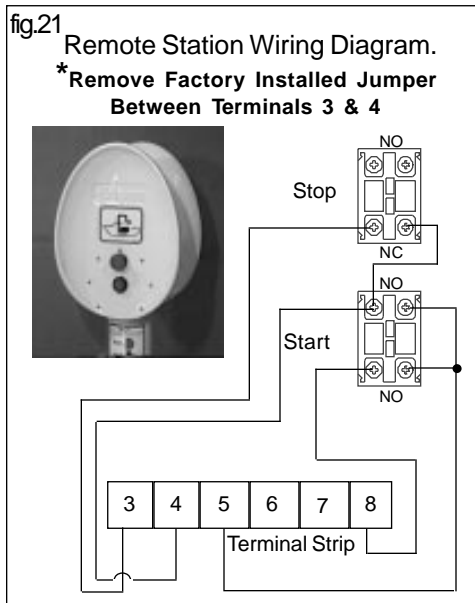
Turn Timer Dial To Setting That Allows Enough Time to Empty The Tank.

See Page 16 For Manufacturers Data Sheet

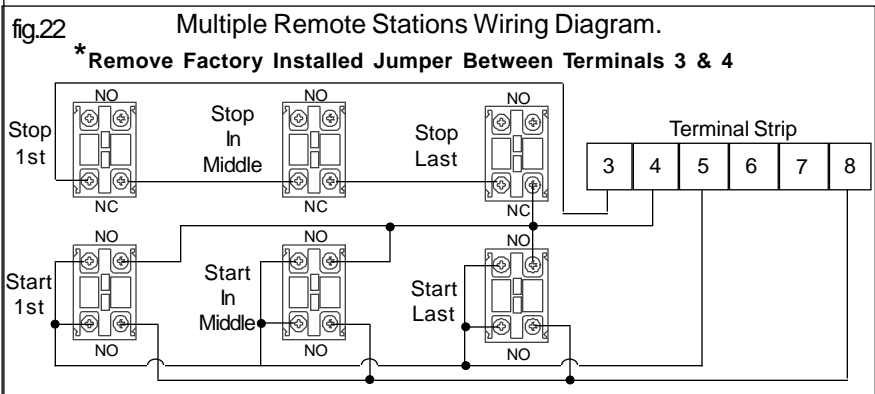
fig.19 24 Hr Pressure Timer

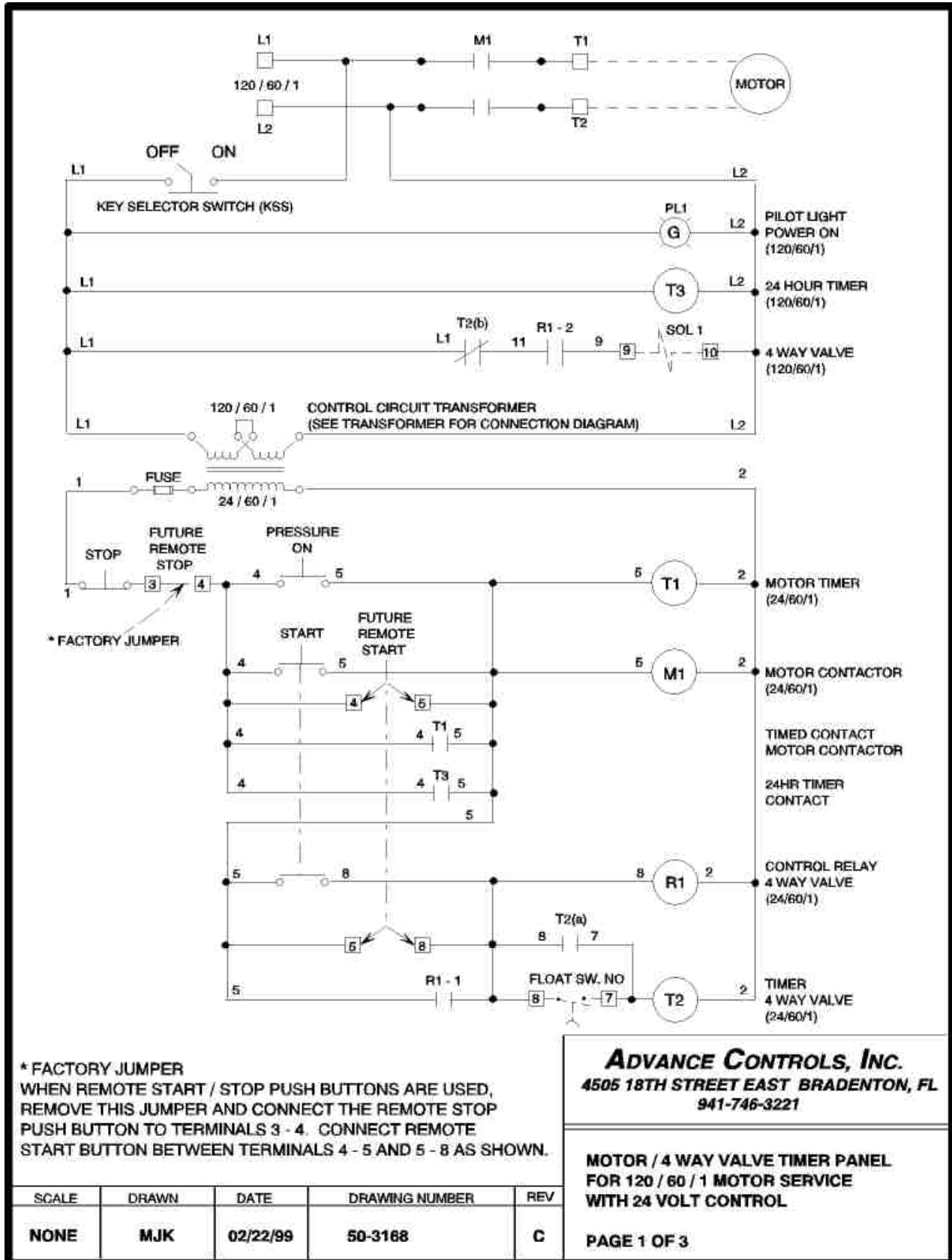


Set this timer to run pump unit automatically in the pressure mode once a day. Set Run Time for The Minimum of 15 Minutes. See Page 17 For Manufacturers Instructions On Setting The Timer.

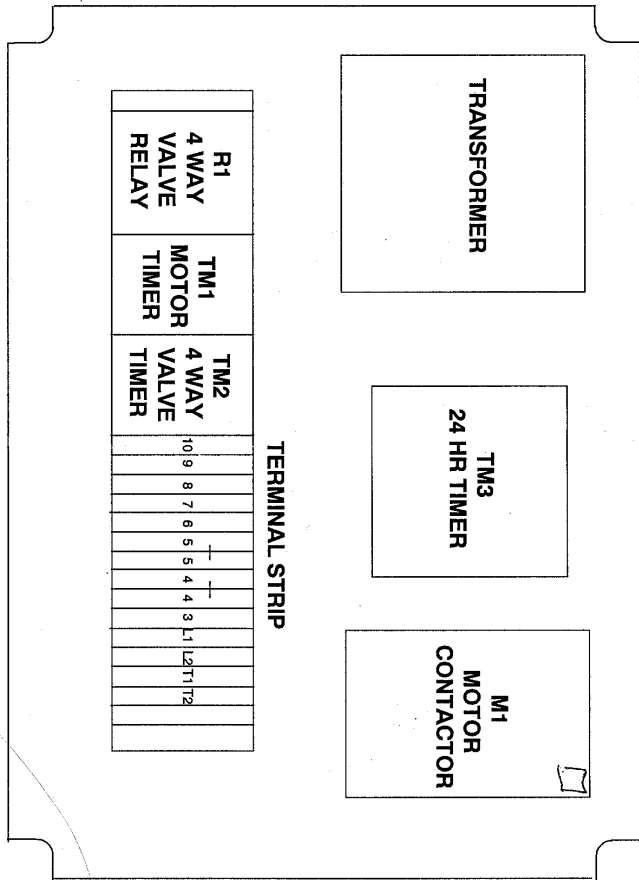


Note: 4 wires are being used to wire the remote stations to the main panel terminal strip.





GENERAL LAYOUT OF ENCLOSURE BACK PLATE



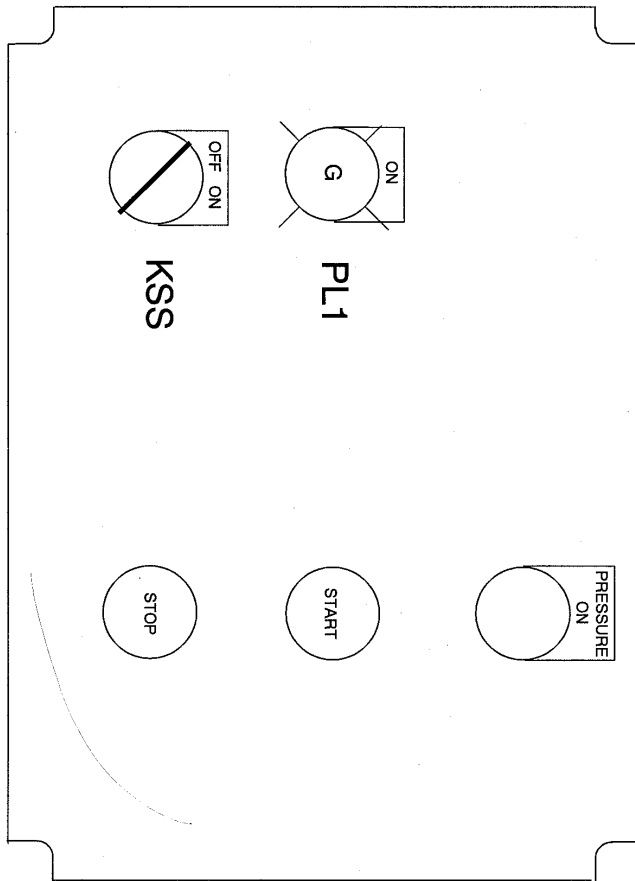
PAGE 2 OF 3

SCALE	DRAWN	DATE	DRAWING NUMBER	REV
NONE	MJK	02/24/99	50-3168	

ADVANCE CONTROLS, Inc.
 4505 18TH STREET EAST BRADENTON, FL
 941-746-3221

MOTOR / 4 WAY VALVE TIMER PANEL
 FOR 120 / 60 / 1 MOTOR SERVICE
 WITH 24 VOLT CONTROL

GENERAL LAYOUT OF ENCLOSURE COVER



PAGE 3 OF 3

SCALE	DRAWN	DATE	DRAWING NUMBER	REV
NONE	MJK	02/23/99	50-3168	

ADVANCE CONTROLS, Inc.
 4505 18TH STREET EAST BRADENTON, FL
 941-746-3221

**MOTOR / 4 WAY VALVE TIMER PANEL
 FOR 120 / 60 / 1 MOTOR SERVICE
 WITH 24 VOLT CONTROL**

85 SERIES TIMER • MULTI FUNCTION/RANGE/VOLTAGE

ADVANCE CONTROLS' 85 SERIES MULTI FUNCTION/RANGE VOLTAGE TIMERS OFFER A CHOICE OF FOUR (4) TIMING FUNCTIONS, FOUR (4) TIMING RANGES, AND A WIDE RANGE OF INPUT VOLTAGES



MULTI FUNCTION: WITH THE PROPER SETTING OF THE "F" (FUNCTION) DIP SWITCH, THIS ACI TIMER CAN FUNCTION EITHER AS AN ON DELAY, REPEAT CYCLE, INTERVAL (REVERSE ON DELAY) OR A REVERSE REPEAT CYCLE TIMER.

MULTI RANGE: WITH THE PROPER SETTING OF THE "T" (TIME) DIP SWITCH, THE ACI TIMER OFFERS A CHOICE OF FOUR (4) TIMING RANGES (0.05 / 1 SEC : 0.12/10 SEC : 0.6 SEC/1 MIN : 6 SEC/10 MIN. OR 0.05/1 MIN : 0.12/10 MIN : 0.6 MIN/1 HOUR : 1 MIN/10 HOUR).

WIDE RANGE INPUT VOLTAGE: A WIDE RANGE OF INPUT VOLTAGES ARE ALLOWED (24 VAC/VDC THROUGH 240 VAC/VDC, 50/60 HZ) WITHOUT WIRING CHANGES OR DIP SWITCH SETTINGS.



THE FEATURES OF THE ADVANCE CONTROLS TIMER MINIMIZE INVENTORY WHILE MAXIMIZING THE BENEFITS FOR TIMER APPLICATIONS.

CATALOG NUMBERS / TIME RANGES

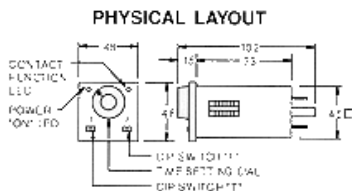
CATALOG NUMBER	MODEL NUMBER	OUTPUT	TIMING RANGE	DIP SWITCH "T" (TIME RANGE) SETTING				LIST PRICE
				0 0	1 0	0 1	1 1	
104214	8511A240	11 PIN	SEC [s] - MIN [m]	0.05s - 1s	0.12s -10s	0.6s-1m	6s-10m	\$ 64.00
104216	8521A240	DPDT	MIN [m] - HOUR [h]	0.05m - 1m	0.12m-10m	0.6m-1h	1m-10h	64.00
104217	8542A240	8 PIN	SEC [s] - MIN [m]	0.05s - 1s	0.12s-10s	0.6s-1m	6s-10m	62.00
104218	8552A240	SPDT	MIN [m] - HOUR [h]	0.05m - 1m	0.12m-10m	0.6m-1h	1m-10h	62.00

FUNCTION CHART

FUNCTION	DIP SWITCH "F" (FUNCTION) SETTING	DESCRIPTION
"ON" DELAY	0 0	TIMING BEGINS WHEN POWER IS APPLIED TO THE UNIT. THE OUTPUT CONTACTS TRANSFER WHEN THE TIME DELAY SETTING IS REACHED TO RESET THE TIMER. REMOVE THE INPUT POWER OR OPERATE THE CUSTOMER SUPPLIED EXTERNAL "RESET" SWITCH.
REPEAT CYCLE	1 0	TIMING BEGINS WHEN POWER IS APPLIED TO THE UNIT. THE OUTPUT CONTACTS TRANSFER WHEN THE TIME DELAY SETTING IS REACHED. THE OUTPUT CONTACTS REMAIN TRANSFERRED UNTIL THE TIME DELAY SETTING IS AGAIN REACHED. THE OUTPUT CONTACTS ARE THEN RELEASED AND RETURN TO THE ORIGINAL STATE. THE TIMER THEN AUTOMATICALLY RESETS AND REPEATS THE TIMING CYCLE UNTIL THE INPUT POWER IS REMOVED.
INTERVAL (REVERSE ON DELAY)	0 1	APPLYING POWER TO THE TIMER IMMEDIATELY TRANSFERS THE OUTPUT CONTACTS AND TIMING BEGINS. ONCE THE TIME DELAY SETTING IS REACHED, THE OUTPUT CONTACTS ARE RELEASED. THE TIMER IS RESET EITHER BY REMOVING THE INPUT POWER OR OPERATING THE CUSTOMER SUPPLIED EXTERNAL "RESET" SWITCH.
REVERSE REPEAT CYCLE	1 1	APPLYING POWER TO THE TIMER IMMEDIATELY TRANSFERS THE OUTPUT CONTACTS AND TIMING BEGINS. THE OUTPUT CONTACTS REMAIN TRANSFERRED UNTIL THE TIME DELAY SETTING IS REACHED. THE OUTPUT CONTACTS ARE THEN RELEASED AND WHEN THE DELAY SETTING IS AGAIN REACHED, THE OUTPUT CONTACTS TRANSFER AND REMAIN TRANSFERRED UNTIL THE TIME DELAY SETTING IS AGAIN REACHED. THE TIMER CONTINUES TO AUTOMATICALLY REPEAT THE CYCLE UNTIL THE POWER IS REMOVED.

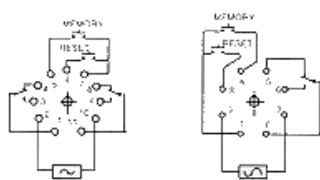
RESET SWITCH: RESETS THE TIMER TO ZERO. REQUIRES CUSTOMER SUPPLIED MOMENTARY SWITCH.

MEMORY SWITCH: PAUSES THE TIMING CYCLE AT THAT POINT IN THE CYCLE. WHEN RELEASED, IT ALLOWS THE CYCLE TO RESUME FROM THE SAME POINT. REQUIRES A CUSTOMER SUPPLIED MOMENTARY SWITCH.



- NOTE:
- 1) SQUARE PANEL MOUNT ADAPTOR (IDIN 48 MM) AVAILABLE FOR SNAP MOUNTING INTO A PANEL CUTOUT
 - 2) ALL DIMENSIONS ARE IN MILLIMETERS (INCHES = MM/25.4)

CONNECTION DIAGRAM



INPUT VOLTAGE: 24 - 240 VAC/VDC 50/60 HZ

SOCKET: ZVR11 OR ZVD11 SOCKET: ZVR8 OR ZVD8

SPECIFICATIONS

INPUT VOLTAGE: 24-240 VAC/VDC 50/60 HZ
 CONTACT RATING: 10A/250 VAC 10A/30 VDC
 MOUNTING: 8 OR 11 PIN OCTAL BASE
 INPUTS: POWER, MEMORY (OPTIONAL), RESET (OPTIONAL)
 ELECTRICAL LIFE: 250,000 CYCLES
 REPEATABILITY: +/- 1%
 SETTING TOLERANCE: +/- 10%
 RESET TIME: 0.1 SEC MAX
 OPERATING TEMP: +15 +120 DEG. F (-10 +50 DEG. C)
 OPERATING HUMIDITY: 85% RH MAX





OPERATING INSTRUCTIONS

PROGRAMMABLE INDUSTRIAL TIME SWITCHES

MODELS TA4150 THRU TA4153

FORM 5S2826
03475
0591/188/10M

READ CAREFULLY BEFORE ATTEMPTING TO ASSEMBLE, INSTALL, OPERATE OR MAINTAIN THE PRODUCT DESCRIBED. PROTECT YOURSELF AND OTHERS BY OBSERVING ALL SAFETY INFORMATION. FAILURE TO COMPLY WITH INSTRUCTIONS COULD RESULT IN PERSONAL INJURY AND/OR PROPERTY DAMAGE! RETAIN INSTRUCTIONS FOR FUTURE REFERENCE.

Description

Diehl programmable industrial time switches are for applications where it is required that electric circuits be switched on/off in periodically occurring cycles, e.g., electrical appliances, heating and ventilation systems, furnaces, annealing and drying ovens, automatic feeding machines, testing apparatus, laboratory equipment, protection and alarm systems.

Models are available with weekly or daily programs. Available with or without a rechargeable battery time reserve.

▲ WARNING ▲

DO NOT USE THIS TIME SWITCH IN AN EXPLOSIVE ATMOSPHERE!

ADDITIONAL TIME SWITCH FEATURES

- Models with battery time reserve driven by quartz controlled step motor.
- Program disc with non-detachable switch actuators.
- Easy and fast program setting.
- Display of switch-on time period by orange time section.
- Daily models have 96 switch actuators which give switching intervals of 15 minutes.
- Weekly models have 84 switch actuators which give switching intervals of 2 hours.
- Time reserve models have approximately a 90 hour reserve.
- The ambient temperature range for the time reserve models is -10°C to +55°C.
- The ambient temperature range for the standard models is -10°C to +85°C.

Specifications & Dimensions

MODEL	PROGRAM	SWITCH	TIME RESERVE	MOTOR INPUT	CONTACT RATINGS @ 120AC		
					HP	TUNGSTEN WATTS	PILOT DUTY VA
TA4150	Daily	SPST	No	120vac	1/2	1000	470
TA4152	Daily	SPST	Yes	120vac	1/2	1000	470
TA4151	Weekly	SPST	No	120vac	1/2	1000	470
TA4153	Weekly	SPST	Yes	120vac	1/2	1000	470

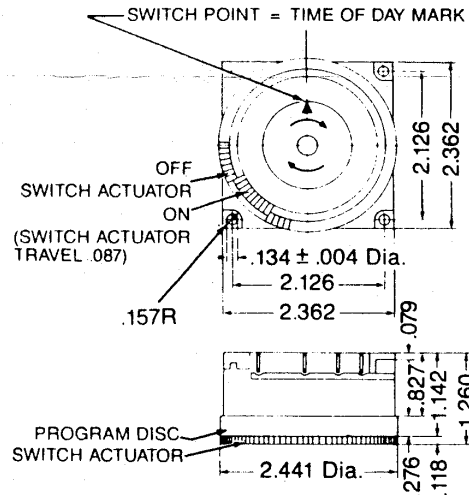


Figure 1 — Dimensions

General Safety Information

▲ WARNING ▲

DO NOT USE THIS TIME SWITCH IN AN EXPLOSIVE ATMOSPHERES!

1. These devices should be used within their recognized ratings as shown on device.
2. These devices shall be mounted in a suitable enclosure complying with the requirements of the National Electrical Code and all local codes and ordinances.
3. The connections to the device are intended to be accomplished with the use of the proper quick disconnect terminals.

4. Wire should have a temperature rating of 105C minimum.
5. The suitability of the dial as part of the enclosure, should be determined in the application.
6. The overall temperature of the device shall not exceed 85°C (55°C for time reserve models).
7. Clock operated time switches have a finite life. Normal failure modes include contact sticking and improper operation. Installation where property damage, and/or personal injury might result due to a possibility of improper operation, requires the further installation of backup systems designed to prevent personal injury and/or property damage.



Installation

1. Crimp 1/4" quick disconnect terminals (not furnished) to wires.

NOTE: All wiring should be done in accordance with the National Electrical Code and all local requirements.

2. Align template on mounting plate (not furnished) and center punch the center of the dial clearance hole and the centers of the three mounting holes. (See Figure 2)

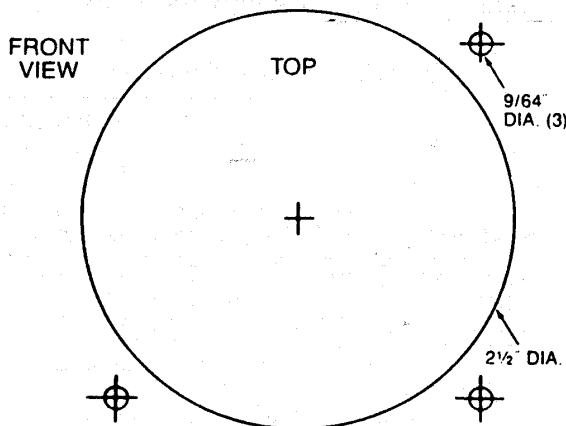


Figure 2 — Template (Actual Size)

3. Drill the three mounting holes 9/64" diameter. Punch out the center dial clearance hole 2 1/2" diameter (standard conduit punch may be used).
4. Mounting the unit onto the mounting plate, as shown, using the enclosed hardware. (See Figure 3).

CAUTION

The spacers must be used between the timer and the mounting plate to prevent the timer housing from cracking.

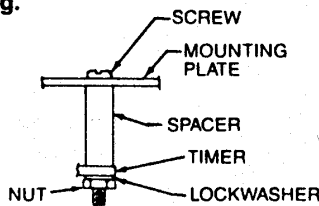


Figure 3 — Mounting Detail

5. Connect the previously prepared wires to the unit.

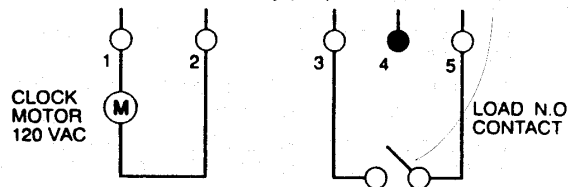


Figure 4 — Wiring Diagrams

6. Install the assembled timer and mounting plate into an NEMA approved enclosure, following all local electrical and safety codes, as well as the National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).

Operation

1. Rotate the program disc, in the direction of the arrows, to align the correct time of day (the correct day of the week for weekly models) with the time of day mark.
2. Set the desired switching program by pushing the switch actuators toward the center of the time switch. Each actuator provides a 15 minute on time (2 hour on time for weekly models). The now visible orange area(s) indicate the switch on period.

IMPORTANT: MODELS WITH BATTERY RESERVE

These models utilize a nickel cadmium battery to provide power during power outages. This battery has a normal operating life of 6 to 8 years and it is not user replaceable.

For maximum battery life the unit should not be disconnected from the power source and stored for long periods of time (over two weeks) in a discharged condition. The maximum battery life is realized by maintaining a constant float charge in normal service operation. Normal power interruptions or disconnections of less than five days are considered to be normal service.

Troubleshooting Chart

SYMPTOM	POSSIBLE CAUSES	CORRECTIVE ACTION
Time switch does not run	Proper power not reaching unit	Check that time switch is connected to a live power line with good fuses, and that the voltage at the terminals is correct

LIMITED WARRANTY

Diehl ONE-YEAR LIMITED WARRANTY. Programmable industrial time switches, Models TA4150 Thru TA4153 are warranted by Diehl to the original user against defects in workmanship or materials under normal use for one year after date of purchase. Any part which is determined by Diehl to be defective in material or workmanship and returned to an authorized service location, as Diehl designates, shipping costs prepaid, will be, as the exclusive remedy, repaired or replaced at Diehl's option. For limited warranty claim procedures, see PROMPT DISPOSITION below. This limited warranty gives purchasers specific legal rights which vary from state to state.

LIMITATIONS OF LIABILITY. To the extent allowable under applicable law, Diehl's liability for consequential and incidental damages is expressly disclaimed. Diehl's liability in all events is limited to, and shall not exceed, the purchase price paid.

WARRANTY DISCLAIMER. Diehl has made a diligent effort to illustrate and describe the products in this literature accurately, however, such illustrations and descriptions are for the sole purpose of identification, and do not express or imply a warranty that the products are merchantable, or fit or fit for a particular purpose, or that the products will be necessarily conform to the illustrations or descriptions.

Except as provided below, no warranty or affirmation of fact, expressed or implied, other than as stated in "LIMITED WARRANTY" above is made or authorized by Diehl.

PRODUCT SUITABILITY. Many states and localities have codes and regulations governing sales, construction, installation, and/or use of products for certain purposes, which vary from those in neighboring areas. While Diehl attempts to assure that its products comply with such codes, it cannot guarantee compliance, and cannot be responsible for how the product is installed or used. Before purchase and use of a product, please review the product application, and national and local codes and regulations, and be sure that the product, installation, and use will comply with them.

Certain aspects of disclaimers are not applicable to consumer products; e.g., (a) some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you; (b) also, some states do not allow limitations on how long an implied warranty lasts, consequently the above limitation may not apply to you; and (c) by law, the period of this limited warranty, any implied warranties of merchantability or fitness for a particular purpose applicable to consumer products purchased by consumers, may not be excluded or otherwise disclaimed.

PROMPT DISPOSITION. Diehl will make a good faith effort for prompt correction or other adjustment with respect to any product which proves to be defective within limited warranty. For any product believed to be defective within limited warranty, first write or call dealer from whom product was purchased. Dealer will give additional directions. If unable to resolve satisfactorily, write to Diehl, giving dealer's name, address, date and number of dealer's invoice, and describing the nature of the defect. Title and risk of loss pass to buyer on delivery to common carrier. If product was damaged in transit to you, file a claim with carrier.

BORG GENERAL CONTROLS, LLC
1008 E. NORTHWEST HWY., MT. PROSPECT, IL 60056

Install the Pump Out Hose Assembly

1. Assemble and Install the Pump Out Hose

- **Use Pipe Sealant On All Threads When Assembling Hose Components.**
- Hose Adapter is a female cam lock fitting. Screwed into the Ball Valve to provide a secure air tight connection to a boat waste deck adapter.
- 90° Ball Valve keeps the hose from dripping when connected and disconnected from waste deck fittings.
- Check Valve/Sight Glass allows visual confirmation of flow and also prevents back flushing.
- Pump Out Nozzle is a flexible adapter for use when the threaded waste deck adapters can not be used. It is clamped onto the Hose Adapter on the suction end of the hose and then held into the boat waste deck fitting.
- Deck Adapters are threaded waste deck fitting adapters. They are screwed into a boat waste deck fitting so the Hose Adapter can be clamped in place.
- Potty Wand is a nozzle extension for use when pumping out portable toilets.
- Hydrant Adapter is a fitting used to adapt the thread on the end of the hose to male quick clamp for use with hydrants

fig.23

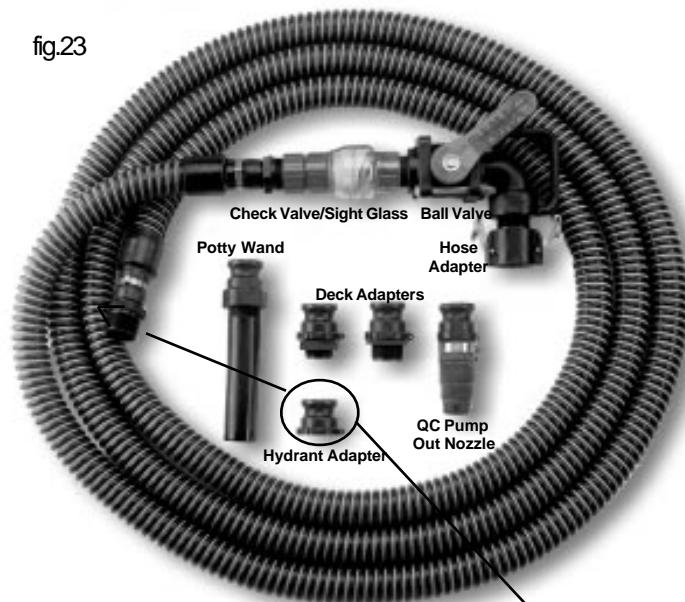


fig.24



IMPORTANT

**All Testing Should Be Carried Out Using Available Clean Water.
Do Not Pump Waste Liquids Until You Are Sure Unit Is Operating Properly**

Pump Unit Test:

1. Turn Key Switch On:

- Green light on front of enclosure comes on.
- Power is on to start/stop and pressure switches on enclosure and start/stop switches on remote stations.

2. Press Any Green Start Switch:

- Motor starts and drives the air pump.
- 4way valve is turned on so that vacuum side of the air pump connects to the tank depressurizing the tank.
- A small amount of oil from the reservoir is drawn into the pump lubricating it.
- With the tank check valves in place and the ball valves open vacuum should be felt on the inlet side of the tank but the tank gauge will read zero.
- Close the inlet ball valve and watch the pressure/vacuum gage. The gauge should record vacuum (Hg) pressure. Open the inlet ball valve and the gauge should drop back to zero.
- Press the red stop button to stop the motor and turn off the 4way valve or let the unit run till the TM1 timer times out and the motor turns off automatically.

3. Press Any Red Stop Switch With The Motor Running:

- Motor stops and 4way valve turn off.

4. Press Black Pressure Switch:

- Motor starts and drives the air pump.
- The pressure side of the air pump is connected to the tank pressurizing the tank.
- A small amount of oil from the reservoir is drawn into the pump lubricating it.
- With the tank check valves in place and the ball valves open pressure should be felt on the discharge side of the tank but the tank gauge will read zero.
- Close the discharge ball valve and watch the pressure/vacuum gage. The gauge should record pressure (psi). Open the discharge ball valve and the gauge should drop back to zero.
- Press any red stop button to stop the motor or let the unit run till the TM1 timer times out and the motor turns off automatically.

5. Float Switch Controls The Automatic Switching of The Pump Unit From Vacuum to Pressure:

- Press any green start switch and vacuum clean water into the tank.
- When tank is full normally closed float switch will go horizontal. This turns off the 4way valve. The pressure side of the air pump is now connected to the tank and the pressure empties the tank through the discharge line.
- When the TM2 timer times out the 4way valve comes back on and the vacuum side of the air pump starts to depressurize the the tank again.
- This cycle will continue until the TM1 timer times out or any red stop switch is pushed.

6. Necessary For Good Pumping Operation:

- All electrical components operating properly.
- Tank inlet and discharge check valves installed correctly and sealing properly. fig 4 page 3
- Float switch positioned at correct height inside the tank.
- Suction and discharge plumbing air tight.

fig.25



fig.26

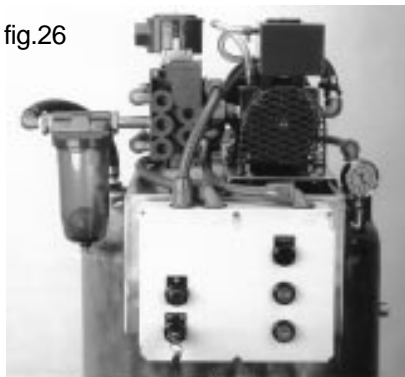


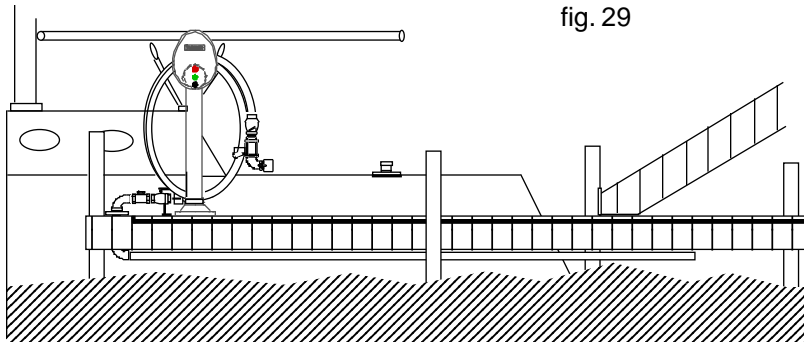
fig.27



Pumping Out

1. **Make Sure Hydrant Ball Valve Is Open & Hose 90° Ball Valve is Closed.**
2. **Prepare The Waste Deck Fitting On the Boat.**

- Remove the cap from the deck fitting.
- Screw in a deck adapter, 1 1/2" or 1 1/4".
- If neither fit, clamp the pump out nozzle to the hose.
- If pumping out a portable holding tank or bucket, clamp the potty wand to the hose.

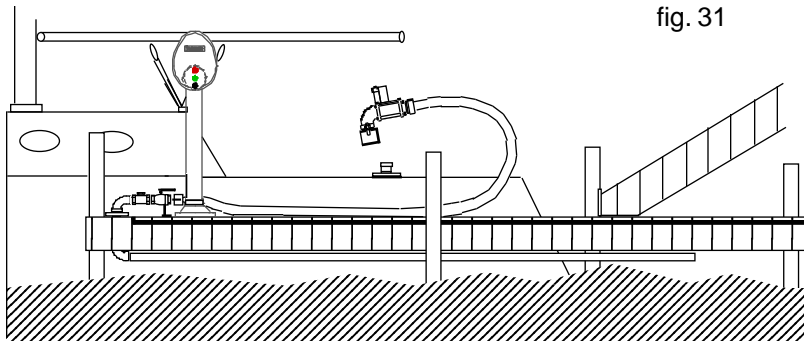


3. **Turn On The Pump Out System.**

- Push the green start button

4. **Connecting The Hose To The Boat**

- Unwind the hose all the way from the hose stand.
- Clamp the hose to the deck adapter or hold the pump out nozzle in the deck fitting.



5. **Open The Ball Valve Slowly & Pump Out.**

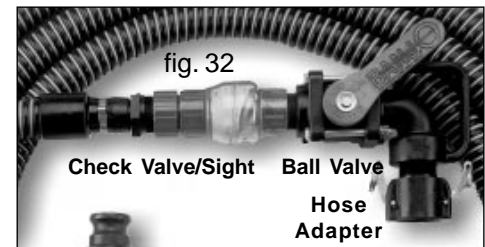
- When the holding tank is empty, close the ball valve.
- Pump water through your toilet into the holding tank.
- Pump out again. This procedure rinses the entire system and helps to prevent odor.
- Close The Ball Valve & Disconnect The Hose

6. **Flush the Hose.**

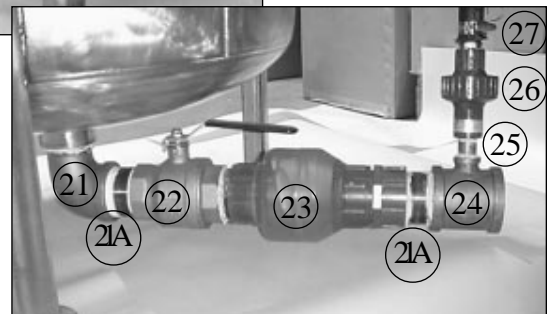
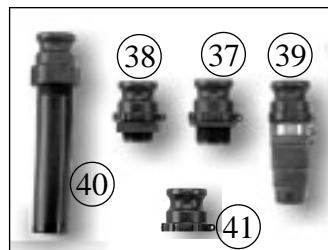
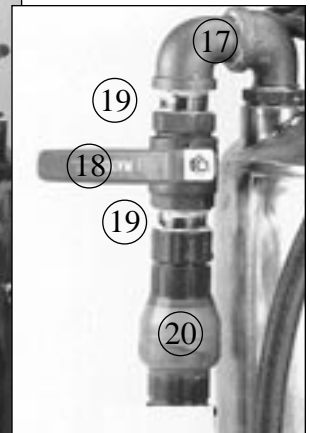
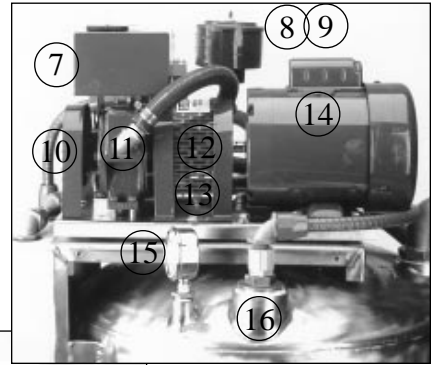
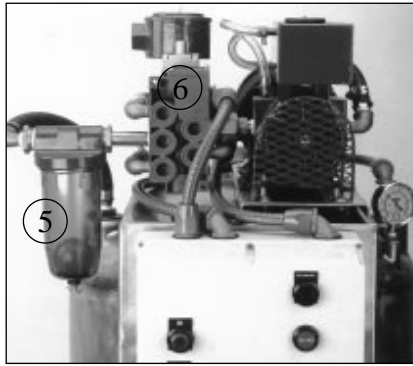
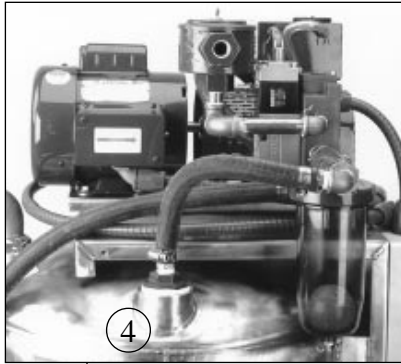
- Put the hose into water & open the ball valve for 10 sec.
- Lift the hose and close the ball valve.
- Push the Red Stop Button.

7. **Clean Up.**

- Curl the hose onto the hose stand.
- Secure the boat deck fitting.
- Rinse the deck and pump out with water.
- Wash your hands.



Parts



Edson
INTERNATIONAL

Parts List

Pump Unit 290-35-2310

1	-----	Tank,Stainless 35 Gallon
2		Panel, Electrical (See Wiring Diagram for Details)
3		Cover, Main Pump Assembly
4		Trap, Primary 2" (Inside Tank, Not Shown)
5		Trap, Poly With Ball 1"
6		Valve, 4 Way Electric 1/2"
7		Reservoir, Oil
8		Filter, Canister Air
9		Filter Cartridge for Air Filter Canister (Inside Canister, Not Shown)
10		Cover, Pump Fan
11		Pump, Vacuum 02 Conde
12		Coupling, Motor
13		Cover, Motor Coupling
14		Motor, 1/2HP/1 Phase/120V/60HZ/1725RPM/TEFC
15		Gauge, Vacuum/Pressure
16		Switch, Float (Inside Tank, Not Shown)
17	160-A-1711-150	Elbow , 90 Street 1 1/2" Bronze (Qty 2)
18	264-150BR	Valve, Ball Full Port 1 1/2" Bronze
19	160-A-1708	Nipple, Close 1 1/2" Brass
20	269CL-150	Check Valve/Sight Glass Clear 1 1/2"
21	160-A-1711-200	Elbow , 90 Street 2" Bronze
21A	160-A-1708-200	Nipple, Close 2" Brass (Qty 2)
22	264-200BR	Valve, Ball Full Port 2" Bronze
23	269CL-200	Check Valve/Sight Glass Clear 2"
24		Tee Reducer 2" X 1/2" Bronze
25		Nipple, Close 1/2" Brass
26		Valve, Air Union Check 1/2"
27		Hose, 1/2" X 46" Gates 12C5C

Hose Stand 260-284

28	646-7Hex	Hex Head Aluminum Bolts
29	161-A-1705	Momentary Mushroom Switch Red
30	161-A-1704	Momentary Switch Green
31	161-A-1693-2	Pump-Out Instruction Sign
32	1610-A-1693-3	Pump-Out Logo Sign

Hose Assembly 261-25-150

33	262-25-150	Hose
34	269CL-150	Clear Swing Check Valve
35	264-90-150	90 Degree Ball Valve 1.5"
36	152FM-150NY	Quick Clamp Adapter 1 1/2" FQC X MNPT
37	273-150	1 1/2" Deck Adapter
38	273-125	1 1/4" Deck Adapter
39	272QC-150	QC Pump Out Nozzle
40	274-150	Potty Wand
41	158MF-150NY	Adapter, Quick Clamp X Female NPT 1 1/2"

Bronze Hydrant 270BR-150

42	152MF-150BR	Adapter, Quick Clamp Female QC X MNPT 1 1/2" Bronze
43	269BR-150	Valve, Swing Check Bronze
44	264-150BR	Valve, Ball Full Port 1 1/2" Bronze
45	160-A-1711	Elbow , 90 Street 1 1/2" Bronze
46	160-A-1708-150	Nipple, Close 1 1/2" Brass (Qty 2)
47	160-B-468	Flange, Size 0 Bronze Tapped 1 1/2" FNPT Both Ends

Caution

Turn System Off At Main Power Source When Doing Any Maintenance That Requires Undoing Or Opening Parts Of VacuMaster. Failure To Lock Out Power Could Result In Injury.

Maintenance Schedules:

1. Daily When In Use:

- Flush tank with fresh water.
- Rewind hose.

2. As required:

- Check oil level. Refill when low. Use biodegradable hydraulic oil or 10W-30 or 10W-40 oil.
- Drain and clean secondary trap.
- Do pressure test.
- With the tank check valves in place and the ball valves open vacuum should be felt on the inlet side of the tank but the tank gauge will read zero.
- Close the inlet ball valve and watch the pressure/vacuum gage. The gauge should record vacuum (Hg) pressure. Open the inlet ball valve and the gauge should drop back to zero.
- Press the red stop button to stop the motor and turn off the 4way valve or let the unit run till the TM1 timer times out and the motor turns off automatically.

3. Press Any Red Stop Switch With The Motor Running:

- Motor stops and 4way valve turn off.

4. Press Black Pressure Switch:

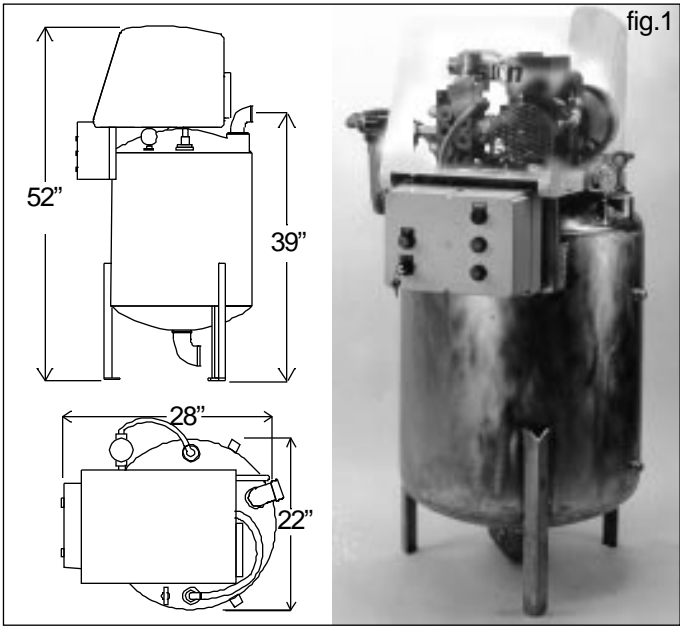
- Motor starts and drives the air pump.
- The pressure side of the air pump is connected to the tank pressurizing the tank.
- A small amount of oil from the reservoir is drawn into the pump lubricating it.
- With the tank check valves in place and the ball valves open pressure should be felt on the discharge side of the tank but the tank gauge will read zero.
- Close the discharge ball valve and watch the pressure/vacuum gage. The gauge should record pressure (psi). Open the discharge ball valve and the gauge should drop back to zero.
- Press any red stop button to stop the motor or let the unit run till the TM1 timer times out and the motor turns off automatically.

5. Float Switch Controls The Automatic Switching of The Pump Unit From Vacuum to Pressure:

- Press any green start switch and vacuum clean water into the tank.
- When tank is full normally closed float switch will go horizontal. This turns off the 4way valve. The pressure side of the air pump is now connected to the tank and the pressure empties the tank through the discharge line.
- When the TM2 timer times out the 4way valve comes back on and the vacuum side of the air pump starts to depressurize the tank again.
- This cycle will continue until the TM1 timer times out or any red stop switch is pushed.

6. Necessary For Good Pumping Operation:

- All electrical components operating properly.
- Tank inlet and discharge check valves installed correctly and sealing properly. fig 4 page 3
- Float switch positioned at correct height inside the tank.
- Suction and discharge plumbing air tight.



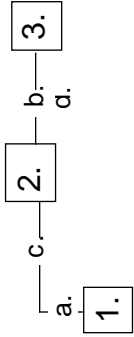
Page 13 Installation: Electrical 24 Hr. Timer Data Sheet 2-2

1/2" Hose Parts List

Better Copy Of Timer Control Page11

Page 5 Pedestal Installatio

Distances



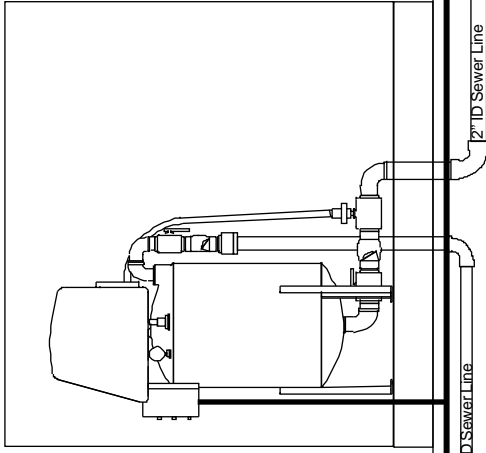
Legend
Elevation:
a. 13 ft
b. 0 ft
Horizontal:
c. 500 ft
d. 100 ft

All dimensions are approximate.
Should **not** be used for Contractor estimating.

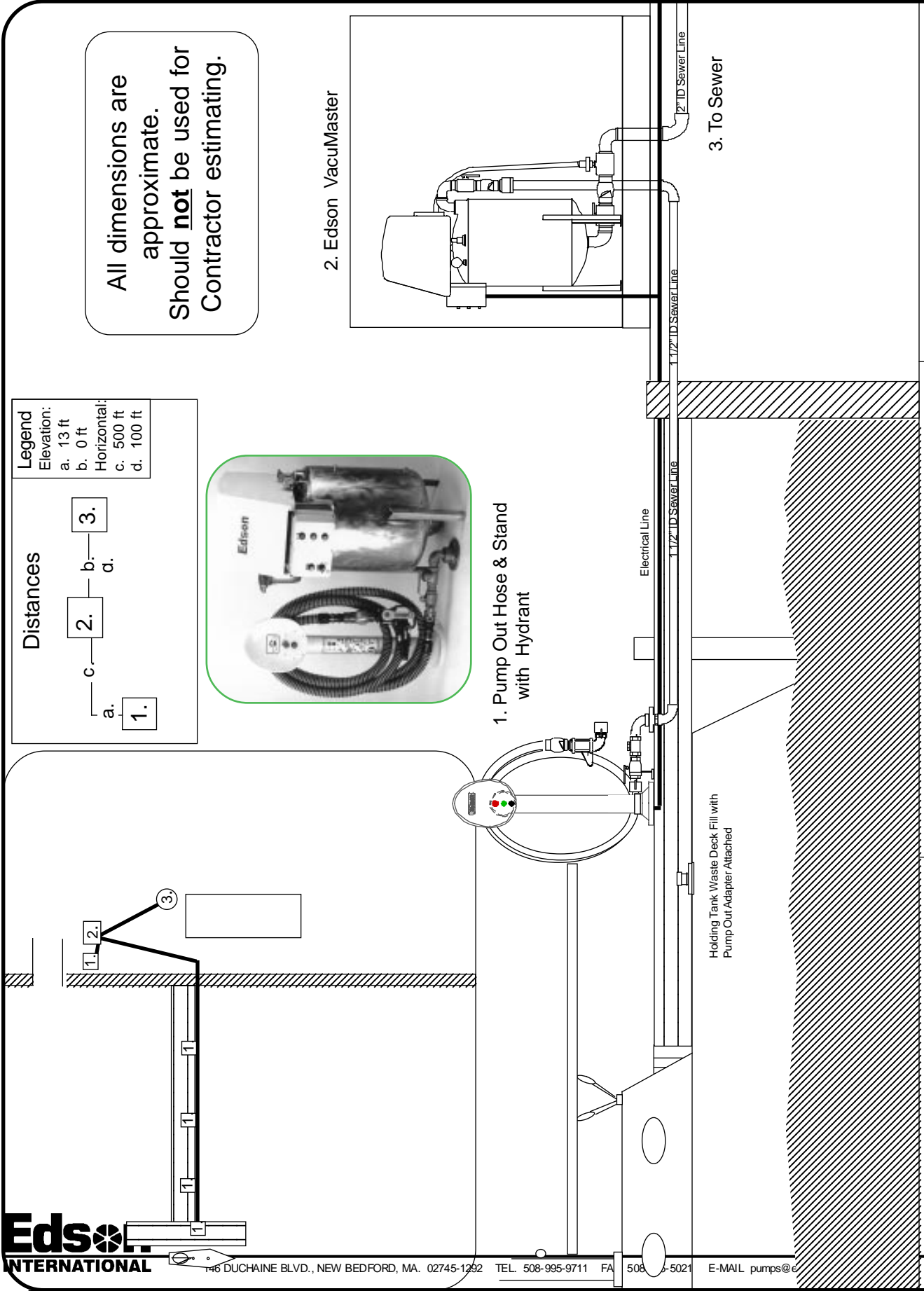


1. Pump Out Hose & Stand with Hydrant

2. Edison VacuMaster



3. To Sewer



Proposed Pump Out with
Edson's VacuMaster

146 Duchaine Blvd.
New Bedford, MA 02745
Tel:508-995-9711 Fax:508-995-5021