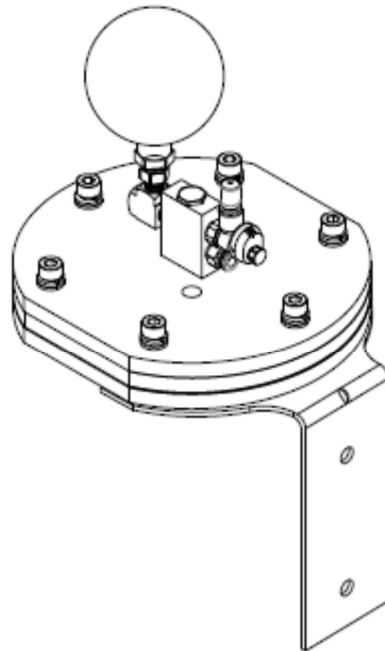

INSTRUCTION MANUAL

LEVEL CONTROLLER

MODEL: YALC-51015

MODEL: YALC-202532

MODEL: YALC-405080



WARNING

Prior to operating this pump, be sure to read this operation manual for safety. After reading the manual, please keep it at hand any time for your quick reference.

YAMADA AMERICA

Introduction

This booklet is intended to be used with the YALC series of level controllers, as an explanation of its installation and operation.

Please do not operate this product before reading this manual. Make special note of any cautions or warnings, as they relate specifically to your safety and the safe use of the product.

Please keep manual on hand while using the controller and contact your source of purchase or our office, should any issues, troubles, or questions arise from the usage of this product.

- If the manual becomes destroyed or the label on the product is stained, destroyed, or lost, please contact your source of purchase or our office for a replacement.

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1. Purpose

The liquid level in the vessel (any storage device or container) at hand is controlled by the limits set on the YALC controller. The controller can be used to maintain this level, either in normally closed or open configurations. Normally closed would be used when emptying the source and normally open would be used to re-fill the vessel when emptied of liquids.

Because it's exclusively air operated and is made from chemically resistant materials, it can handle negative operational environments well, such as high temperatures, humidity levels and dirty surroundings. It does well with flammable liquids as well, due to the pneumatic nature of its operation. For additional chemical resistance, contact the manufacturer, as alternative tubing and sensing tubes are available.

2. Warnings and Cautions

For safe use of this product, be sure to note the following: In this document, warnings and cautions are indicated by symbols. These symbols are for those who will operate the product and for those who will be nearby. These symbols are intended to ensure the safe operation of the unit and to prevent personal injury and/or property damage. The following warning and caution symbols are described here:



WARNING :

If you ignore the warning described and operate the product in an improper manner, there is danger of serious bodily injury or death.



CAUTION :

If you ignore the caution described and operate the product in an improper manner, there is danger of personal injury or property damage

To highlight the potential for harm or damage, the following pictures will be displayed as a reflection of what is noted above.



This reflects something prohibited, do not do. This symbol will be displayed to the side of the noted content.



This reflects something one should follow, something one should do. They symbol will be displayed to the side of the noted content.

3. Directions

The following notes are very important, read and follow please.

CAUTION



- Pay attention to the environment around the unit, as it is not corrosion resistant to all chemicals and fumes that may be present in its area of operation. If corrosion is present, inspect unit for safe operation regularly and repair as necessary.



- Make sure the pump is in good working condition when operating level controller. A pump's diaphragm can fail at any time, allowing liquid pumped to exit the exhaust port of the pump. Preventative measures and caution should be taken to ensure no damage to the working environment or peoples can happen, should diaphragm failure occur.



- Contact your local vendor or the manufacturer should any erratic operation or visual issues be noted during regular operation and/or inspection.



- Please limit supply air pressure to 100 psi (.7MPa) or less with a filter regulator.



- Do not discharge materials directly onto the ground or into the atmosphere. Dispose of harmful or regulated materials according to the requirements specified in set SDS or local laws, rules, and regulations. This includes any residual material found inside the unit during maintenance.

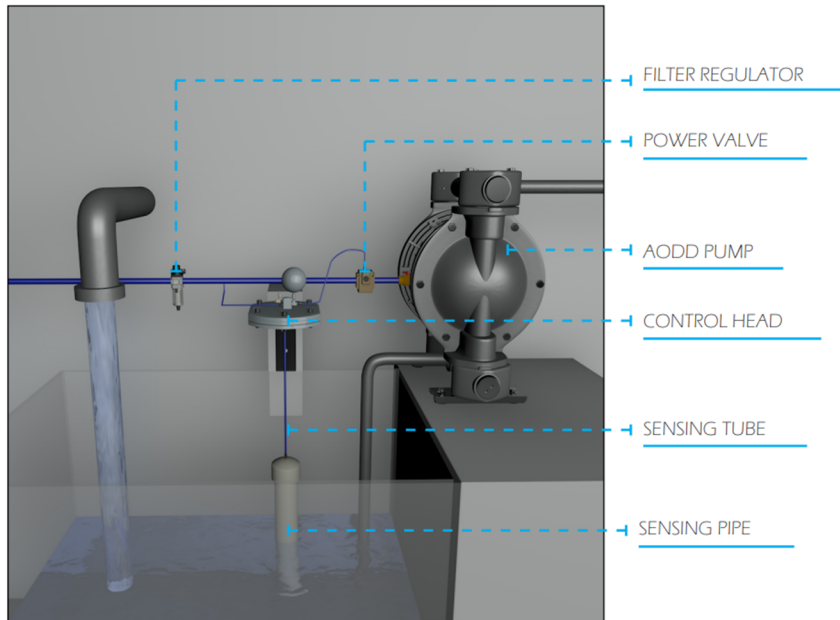


- If not using for a prolonged period, to be determined by the user, remove operational air from the unit by turning off the air supply. Having air stay on to the control unit or the pump can only lead to long term problems, like air leaks. So, when not using the system for some time, please turn the air off.

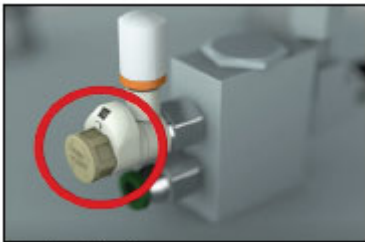
4. Operating Principle

1. The sensing pipe is affixed to the side of the fluid container or reservoir, as needed.
2. As the fluid rises, the pressure in the pipe rises.
3. The sensing tubing is connected from the sensing pipe to the control head. As the pressure in the tubing increases, so does the pressure on the one side of the diaphragm in the control head.
4. The pressurized diaphragm actuates a normally closed pilot valve.
5. The activated pilot valve allows air to the power valve, which controls the main supply of the air to the Air Operated Double Diaphragm (AODD) pump.
6. When the fluid level goes down, the pressure in the sensing pipe and tubing is reduced, ultimately closing the pilot valve and turning off the pump.
7. The pressurized air in the reservoir (pressure globe) keeps the air valve actuated, allowing the pump to continue running longer.
8. The speed at which the air in the reservoir bleeds off is controlled by adjusting the lockable needle valve on the control head completely (the smaller the # on the control knob, the longer the pump will run).
9. Once the pressure has bled off, the power valve is completely de-activated, closing the valve and shutting off air to the AODD pump.
10. Minimum operating pressure is 30 psi.

5. Part Names



YALC Installation



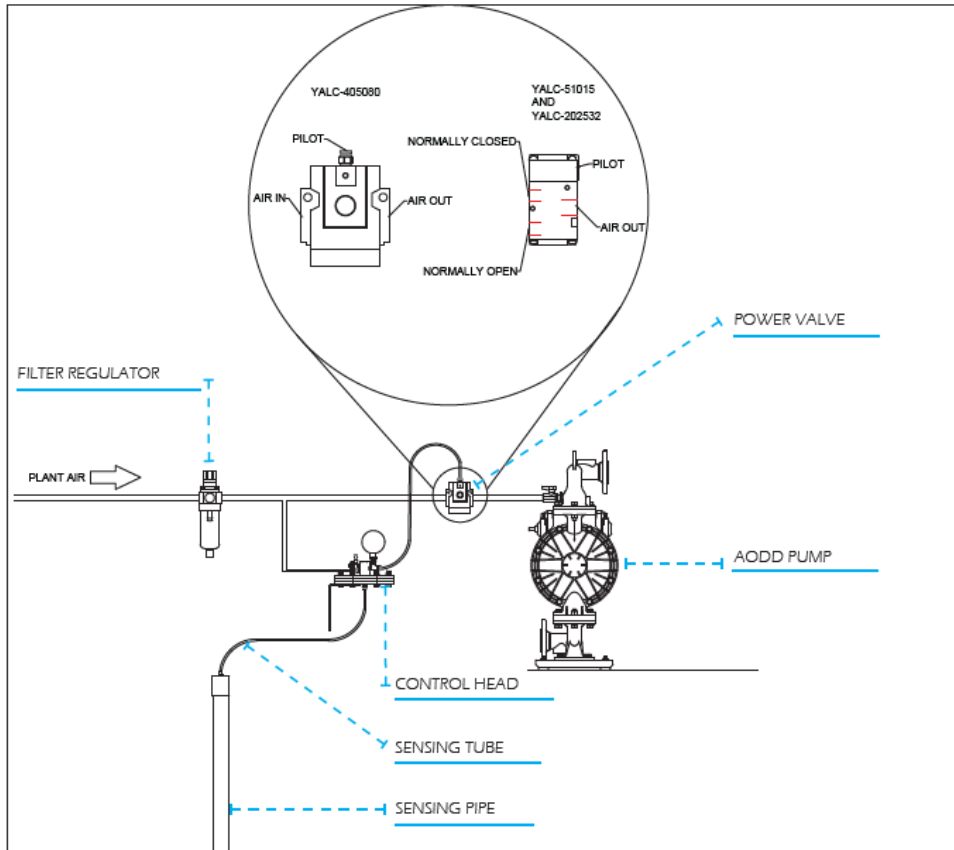
Control Knob

- a. *Filter Regulator:* A minimum of 30 psi is required to operate the unit effectively. The regulator allows for control of incoming air pressure and will clean the air some.
- b. *Power Valve:* This device is actuated by the control head and allows operating air to flow to the pump when opened.
- c. *Control Head:* Opens or closes the power valve based on pressure in the sensing pipe.
- d. *Control Knob:* Controls the speed in which the air is exhausted off the control head when operating. The more closed the knob gets, the closer to zero, the longer the pump will operate when turned on. This knob ultimately controls the depth of liquid level control for the unit and is responsible for when the power valve is turned on/off.
- e. *Sensing Tube:* Connected from the sensing pipe to the control head. This allows the pressure from the sensing pipe to be transferred to the control head itself.
- f. *Sensing Pipe:* While mounted in the vessel (any storage device or container) it will see the liquid rising or falling and the pressure trapped inside of it will be transferred up the sensing tube and into the control head. Alternate materials are available, for corrosion resistance, consult the factory.

5-1 Contents of a Package

Please make sure no damage was done during shipping and there are no missing components after unpacking. While the units are tested before shipping, still check there are no loose screws, piping connections or other fastener components needing attention before installation.

6. Installation Method



6-1 Connecting the Control Head, Sensing Tube, and Sensing Pipe



CAUTION



- Be sure to install a filter and a mist separator on the air supply



- The dust, oil mist, and the like included in the supply air may prevent the element from being operated

- 1) Sensing Pipe: Attach the sensing pipe inside the vessel (any storage device or container) at a level it will see liquid rising or falling.
- 2) Control Head: Mount control head in a safe permanent place, as close to the sensing pipe as possible.
- 3) Sensing Tubing: Connect sensing tubing from the control head to the sensing pipe. Make sure there are no leaks, or the unit will not function as designed.

6-2 Connecting the Filter Regulator, Power Valve and Pump

- 1) Filter Regulator: Connect a regulator from the main air source, main plant air run to the location, to the power valve and then onto the pump. This will be the main air used to operate the pump. After the regulator, install a T so you can run an airline to the Control Head (see diagram). A minimum of 30 psi is required for optimal operation and only set incoming air pressure as high as is required by the flow rate needed. Running any pump at a higher air pressure than is required for the application, will lead to shorter pump lives.
- 2) Power Valve: Is installed between the Filter Regulator and the pump. It is connected to the Control Head, via airline tubing, so the Control Head can turn the valve on/off (see diagram).
- 3) Pump: Air is connected from the Power Valve to the pump, allowing for operation based on the liquid level itself. Also, suction and discharge lines must be appropriately installed on the pump, according to local rules and regulations governing the operation.

6-3. Adjusting the Liquid Level with the Control Knob

- 1) Control Knob: Located on the Control Head, it bleeds air off the system, allowing for longer pump operation. With a range from 0-12, the operator can open or close this knob (0 being closed and 12 being all the way open) allowing the pump to run longer or shorter based on the level of the liquid desired. Several test runs will be required to calibrate the setting, as all installations are unique. The closer to 0 the unit is set, the longer the pump will operate when actuated.

7. Operational Checks

- 1) Inspect for Leaks: As the system relies on pressure to actuate, it is important none of the connections are leaking. Periodical inspection of the tubing and its connecting points to the sensing tube, control head, and power valve might be needed. Tighten as necessary, as leaks in the system can cause erratic level control or system failure.
- 2) Inspection for corrosion or contamination: Periodically inspect the system and all its components to ensure a clean working environment free from contaminants and environmental pollutants present in the area. This will prolong the life of the unit and ensure proper operation.

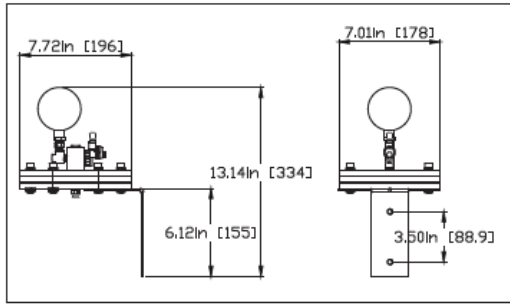
8. Troubleshooting, Maintenance and Corrective Measures

When any trouble or erratic operation occurs, stop the level controller at once and perform equipment inspection, including the pump (see pump manual).

- Check whether the air supply pressure is between 30-100 psi.
- Check to make sure all airline tubing is secure with no leaks.
- Check to make sure the sensing tube didn't get clogged with debris
- Check control head to ensure integrity of the unit, including controls and any visible damage
- Re-adjust the control knob to ensure effective run times for your application
- Inspect filter regulator to ensure it isn't clogged and is working properly
- If a solution can't be easily identified, contact your local vendor, or reach out to the manufacturer

9. Specifications and Dimensions

POWER VALVE ASSEMBLIES		
Model:	Pump Series:	Includes:
YALC-HEAD	ALL	Control Head Only
YALC-51015	DP-10, NDP-5/15	Tubing, Power Valve & Filter Regulator
YALC-202532	NDP-20/25/32	
YALC-405080	NDP-40/50/50	



WEIGHT: 20 Lb.s
 DIMENSIONS: 7.01"L x 7.72"W x 13.14"H

CAUTION



- If the unit ever breaks down and needs maintenance, please stop the device and request repair at your local vendor's facility or at the factory. Factory repair of the control head itself is recommended.

10. Limited Warranty

YAMADA'S ONE-YEAR LIMITED WARRANTY.

Yamada products are warranted by YAMADA to the original user against defects in workmanship or materials under normal use for one year from date of purchase.

Any part which is determined by Yamada to be defective in material or workmanship and returned to an authorized service location, as Yamada designates, shipping costs pre-paid, will be, as the exclusive remedy, repaired or replaced at Yamada's option. For limited warranty claim procedures, see PROMPT DISPOSITION below.

WARRANTY DISCLAIMER AND LIMITATION OF REMEDIES.

Yamada neither makes nor authorizes anyone else to make any warranties other than those herein.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED, OR STATUTORY, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

THE REMEDIES SET FORTH HEREIN ARE EXCLUSIVE. YAMADA SHALL NOT BE RESPONSIBLE FOR INCIDENTAL CONSEQUENTIAL, OR SPECIAL DAMAGES OR LOST PROFITS.

IN NO EVENT SHALL YAMADA'S LIABILITY EXCEED THE PURCHASE PRICE PAID.

PRODUCT SUITABILITY.

Many states and localities have codes and regulations governing sales, construction, installation, and/or use of products for certain purposes, which may vary from those in neighboring areas. Yamada 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, national and local codes, and regulations to be sure that the product, installation, and use will comply with them.

PROMPT DISPOSITION.

For any product believed to be defective, first write or call the dealer from whom the product was purchased. The dealer will give additional directions. If the dealer cannot correct the defect, write to Yamada, citing dealer's name, address, date, and number of dealer's invoice, and describe the nature of the defect.

Title and risk of loss pass to buyer on delivery to common carrier. If a product was damaged in transit to you, file a claim with the carrier.

Manufactured by:

YAMADA AMERICA, INC.

955 E. ALGONQUIN RD., ARLINGTON HEIGHTS, IL 60005, USA

PHONE : 1-847-631-9200 or 1-800-990-7867 (Toll Free)

FAX : 1-847-631-9273

E-mail : sales@yamadapump.com

Web : www.yamadapump.com

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