Jandy Valve Actuator

Installation Manual

H0555900A

Jandy®

Table Of Contents

JVA 1240

VOLTAGE:	12 VAC
AMPERAGE:	1.75 AMPS
CYCLES:	60Hz
WIRE:	3 conductor
BLACK	COMMON
RED / WHITE	SWITCH LEGS

JVA 2440

VOLTAGE:	24 VAC
AMPERAGE:	0.75 AMPS
CYCLES:	60Hz
WIRE:	3 conductor
BLACK	COMMON
RED / WHITE	SWITCH LEGS

⚠ WARNING

This product must be installed and serviced by authorized personnel, qualified in pool/spa installation. Improper installation and/or operation can create an unwanted electrical hazard which can cause serious injury, property damage, or death. Improper installation and/or operation will void the warranty.

⚠ WARNING

This manual contains important information about the installation, operation and safe use of this product. This information should be given to the owner/operator of this equipment.

SECTION 1.
General Information

1A. Introduction

This manual contains information for the proper installation and operation of Jandy™ Valve Actuators. Procedures in this manual must be followed exactly. To obtain additional copies of this manual contact us at 707-776-8200, ext. 237. For address information see back cover.

1B. Description

Jandy™ Valve Actuators are designed to meet the needs of today's more advanced, automatic pool equipment. These fully adjustable actuators offer versatile pool/spa automation with easy setups. All actuators work with the Jandy AquaLink® RS Control Systems and are available in 12 and 24 volt units.

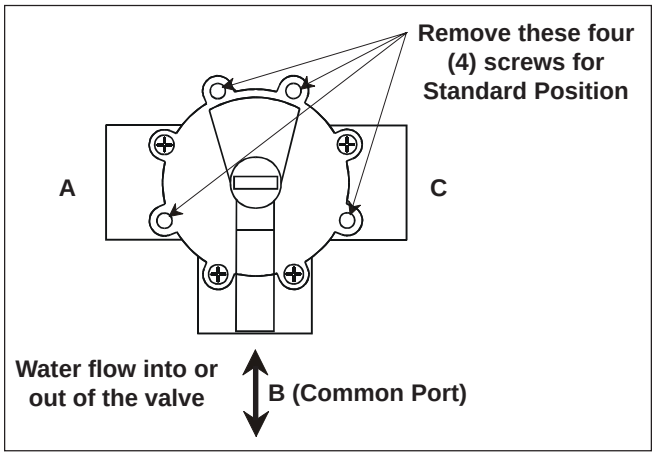


Figure 1. Standard Plumbing.

SECTION 2.
JVA (Jandy Valve Actuator) Mounting Positions

2A. Standard JVA Position

1. **Standard Plumbing** position is with the middle port (B) as the incoming or common port to the valve (see fig. 1).
2. **Standard Mounting** position is with the main body of the actuator over port B (see fig.2).
   Note: If the valve(s) are plumbed with port B as the common port (Standard Plumbing) and the main body of the actuator(s) are mounted over port B (Standard Mounting), there is no need to adjust the actuator cams.

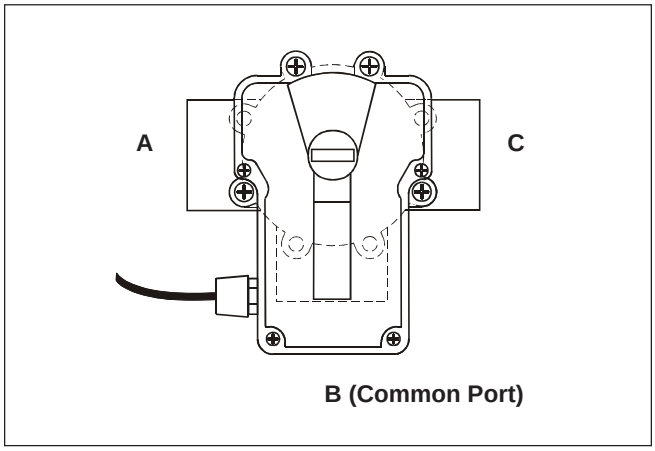


Figure 2. Standard JVA Mounting.

2B. Actuator Mounting

JVA's mount directly on all full-size Jandy Valves (8 screws on lid) and can be adapted to mount on Jandy Space Saver Valves (4 screws on lid). Water Pik Technologies recommends motorizing Jandy NeverLube® Valves only.

JVA's may be mounted onto valves in any of the four (4) positions in Figure 3.

1. Unscrew (counterclockwise) the locking knob. Remove the locking knob and valve handle (see Fig. 4).

2. Remove the four (4) large Phillips head screws from the valve. Which screws you remove depends on how the actuator is to be mounted (see Fig. 4).

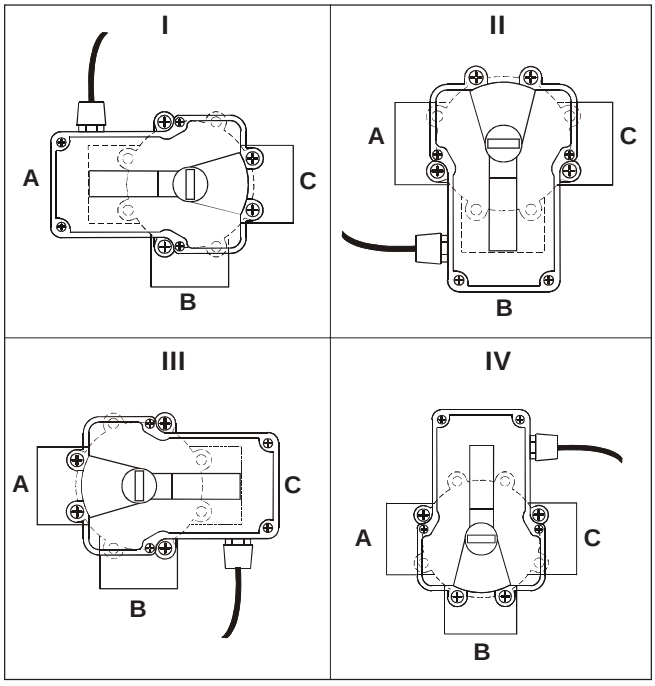


Figure 3. JVA Mounting Positions.

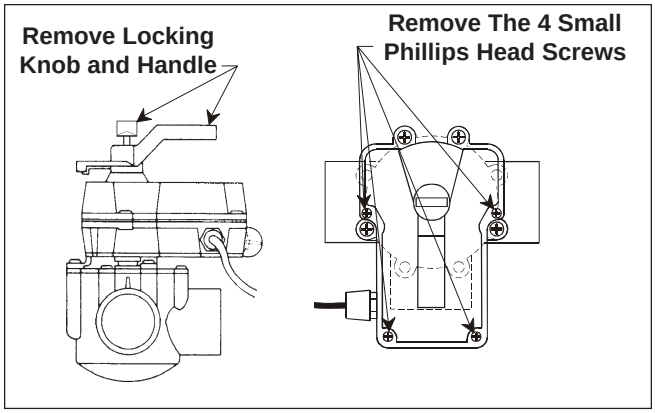


Figure 4. Remove Locking Knob and Lid Screws

3. Turn the actuator over so you can see into the brown actuator shaft. There are four (4) "teeth" on the inside of the shaft. Locate the "tooth" which is smaller than the others, align this "tooth" with the smallest "tooth" on the valve (see Fig. 5).

4. Place the actuator onto the valve

5. Rotate the actuator while keeping the two shafts engaged until the screw holes on the actuator legs align with the empty screw holes (from step 2) in the valve (see Fig. 6).

6. Use the four (4) 2" Phillips head screws (packaged with the JVA) to secure the JVA to the valve.

7. Put the valve handle on the actuator shaft. Put the knob on the shaft and tighten (finger tighten only).

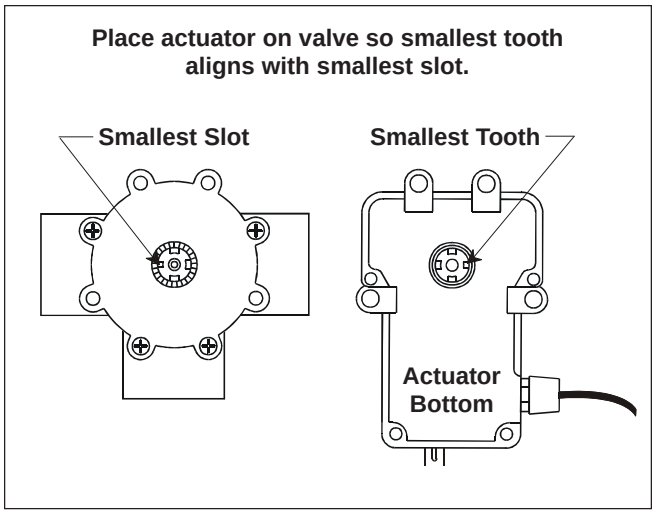


Figure 5. Actuator Mounting

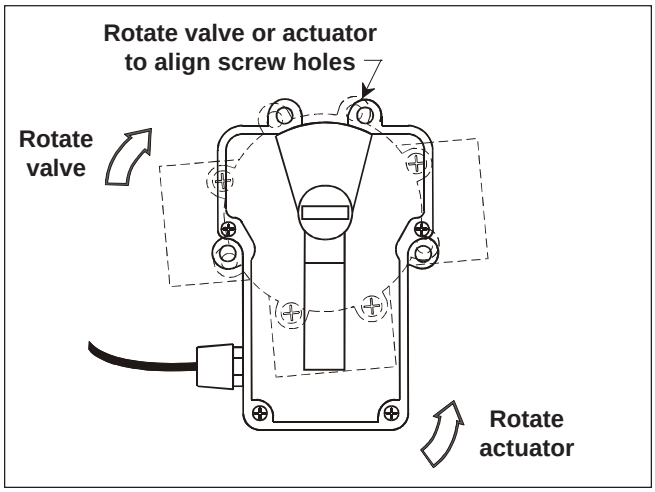


Figure 6. Actuator Mounting

SECTION 3. Synchronization

3A. Synchronization Methods

If the valve is plumbed in Standard Plumbing position and the actuator is mounted in Standard Mounting position you do not have to change the cam settings from the factory settings. But you may have to synchronize them.

Out of synchronization refers to the situation where either the actuator is rotating in the wrong direction in relation to its controller (as in a solar system), or one actuator is rotating incorrectly in relation to another actuator (as in pool/spa combination). An example of how actuators can be out of synchronization is shown in the following paragraph.

The example below (Fig. 7) represents the valves and actuators for a pool/spa combination. The valve on the left (suction) is plumbed with the spa line on the left and the pool line on the right; whereas, the valve on the right (return) is plumbed just the opposite (pool on left and spa on right). If the actuators are now activated, one will turn to spa while the other is turning to pool. Changing the cam settings within the actuator will not correct this problem. To synchronize the actuators, choose <u>one</u> of the following methods.

1. Flip the toggle switch at the rear of the actuator which is out of synchronization <u>down</u> to the ON 2 position. Retry the system.

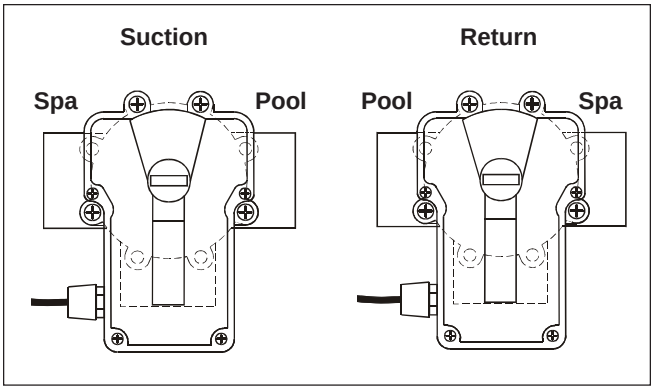


Figure 7. JVA Synchronization, Example

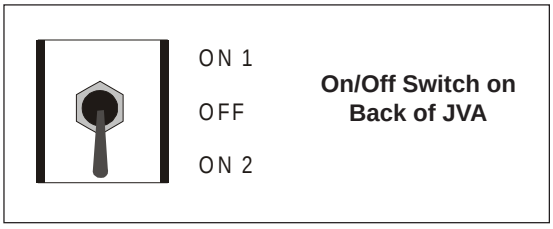
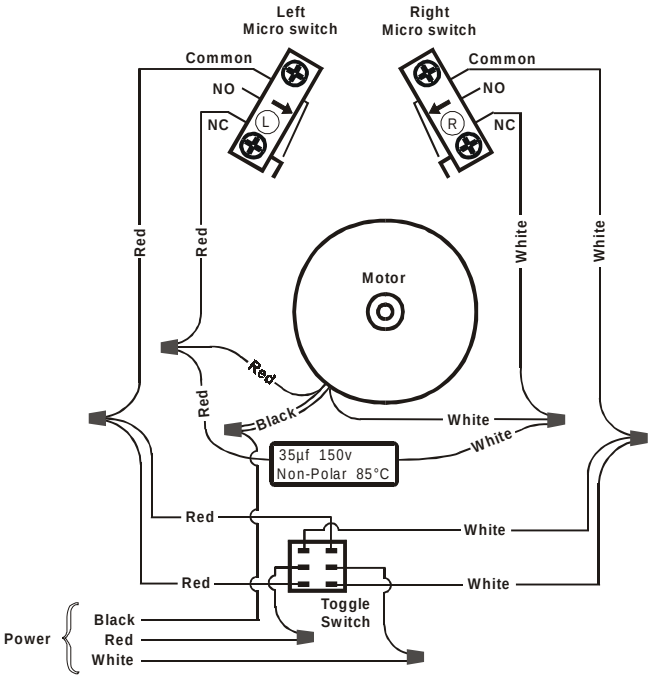


Figure 8. JVA Synchronization, Toggle



3B. Resetting the Cams

Before resetting cams, note that if the valve is plumbed in Standard Plumbing position and the actuator is in Standard Mounting position there is no need for resetting the cams (see Fig. 9). If a port other than "B" is plumbed as the common port or if the actuator is mounted other than Standard Mounting, the cam setting must be changed so the actuator shaft and the valve diverter rotate properly (see Cam Setting Chart for proper settings).

1. Unscrew (counterclockwise) the locking knob. Remove the locking knob and valve handle.

2. Remove the four (4) small Phillips head screws which hold the actuator lid and remove lid.

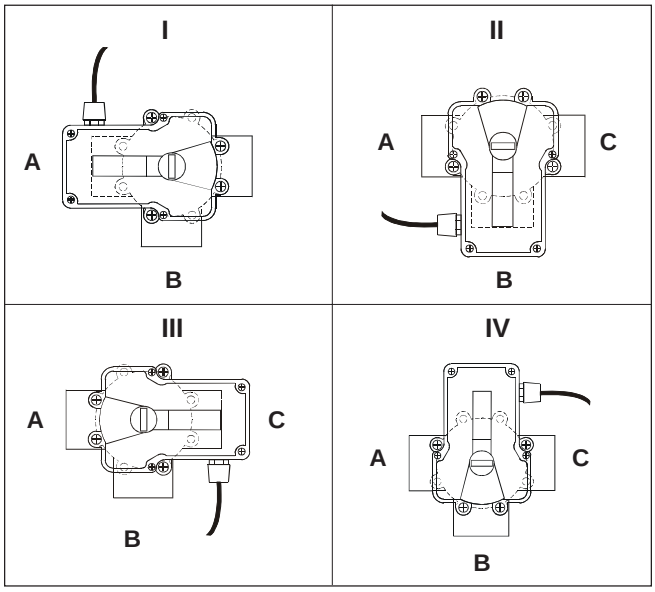


Figure 9. JVA Mounting Positions.

Important

3. Rotate the actuator shaft so the 0° mark on the top cam aligns with the arrow above the top microswitch (bottom cam 0° mark should also align with arrow above the bottom microswitch)(see Fig. 10). Turn OFF actuator power. Refer to the Cam Setting Chart and figure 9, locate the mounting position for the actuator you are working on (it will be either I, II, III, or IV). Next, determine what valve port is the common or inlet port (it will be either A, B, or C). Now refer to the line on the chart which coincides with your mounting position number and common port letter to determine what the cam settings should be. For example, if the actuator was mounted as in Figure 9, roman numeral I, and the common port on the valve is "A", the cam settings would be, top cam 90° and the bottom cam 180°.

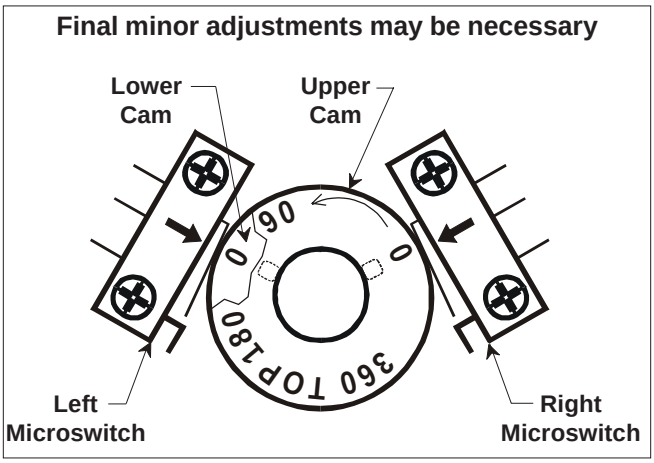


Figure 10. JVA Cams

NOTE: Before resetting cams, always rotate the actuator shaft so the “0” mark on each cam sticker aligns with the pointer above its microswitch.

Cam Setting Chart

Actuator Mounting	Water Enters Port Common Port	Cam Setting Top Cam	Cam Setting Bottom Cam	Water Exits Valve Port	or	Port
*I	A	90	180	B		C
I	B	90	270	A		C
I	C	180	90	A		B
*II	A	180	90	B		C
II	B	0	0	A		C
II	C	90	180	A		B
*III	A	90	180	B		C
III	B	270	90	A		C
III	C	0	270	A		B
*IV	A	0	270	B		C
IV	B	180	180	A		C
IV	C	270	0	A		B

***Two Port Valve Settings**

4. To set the cams, first loosen the locking ring (approximately ¼ turn, counterclockwise) with a pair of pliers. Rotate the cam(s) until the appropriate number on the cam(s) align with the arrow above the microswitch.

   Note: the upper cam stops counterclockwise rotation and the lower cam stops clockwise rotation

5. Retighten the locking ring while holding both cams so their settings do not change.

6. Turn power ON to the actuator and use the toggle switch at the rear of the actuator to check rotation. Move the toggle switch to either ON 1 or ON 2 (if it doesn't move in either position refer to the Troubleshooting Section). Allow the actuator shaft to move until it stops. Check valve diverter position*, if the position is correct flip the toggle switch in the opposite direction and allow the shaft to stop again. If the stop positions are correct, go to step 7. If they are not, reset the cams until correct.

7. Replace the lid and tighten screws. Replace the handle and locking knob.

   * The end of the handle which has the word OFF embossed on it exactly duplicates the shape of the valve diverter. When the handle is placed on a valve or actuator shaft the word OFF will be directly over the center of the valve diverter.

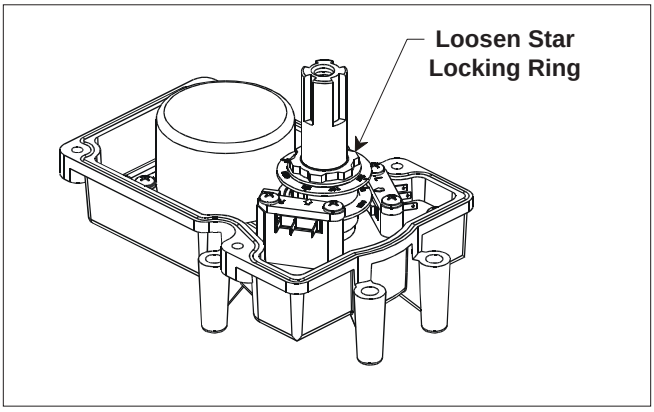


Figure 11. JVA Cam Adjustment

SECTION 4.
Manual Operation

4A. Manual Override

It is sometimes necessary to rotate a valve(s) without using the system controller. This occurs when the controller is not accessible/operational or when the spa or pool/spa combination require filling or draining.

There are two (2) methods of manually rotating the JVA; one with power on (system operational) and one with power off (no power to the control system).

4B. Manual Override, Power On

1. Move the toggle switch at the rear of the actuator to the opposite position (ON 1 switch to ON 2 or visa versa). This will rotate the motor to the opposite position.

2. Return the toggle switch to the original position after use.

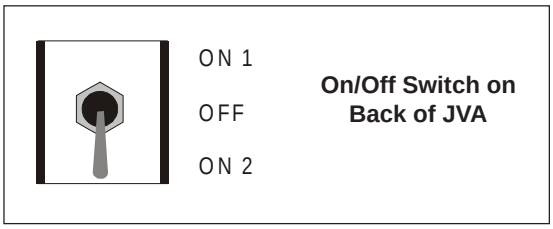


Figure 12. JVA Synchronization, Toggle

⚠ WARNING
If the pool filtration pump is ON, turn it OFF before rotating the valve handle.

4C. Manual Override, Power Off

1. Move toggle switch at rear of actuator to the OFF (center) position.

2. Unscrew (counterclockwise) the locking knob above the handle four (4) full turns.

3. Push down on the locking knob (not the handle). This will disengage the gear train and allow the handle, and thus the valve diverter, to be moved to any position.
4. To return the actuator to automatic position, pull up on the handle while turning it clockwise or counterclockwise until you feel the shaft slide up into the gear train. Turn the locking knob down (clockwise) until snug.

5. Put toggle switch back to the original position.

SECTION 5. Maintenance

5A. Actuator

The JVA has two seals which should be lubricated once a year. A lip seal located under the actuator where the plastic shaft exits the housing and two (2) O-rings located in the lid near where the shaft exits the top of the housing. Use the following steps to lubricate the seals:

1. Turn OFF power to the actuator.
2. Remove the locking knob and handle.
3. Spread a small amount of Jandy Lube or other silicone base lubricant around the actuator shaft just above the lock out ring (see Fig. 13).
4. Reinstall handle and locking knob. Only tighten knob one (1) turn.
5. Push down on the locking knob to force the actuator shaft into manual.
6. Wipe a small amount of lubricant around the actuator shaft where it protrudes from the bottom of the actuator.
7. Turn handle once around to spread the lubricant.
8. Pull up on the handle and tighten locking knob.

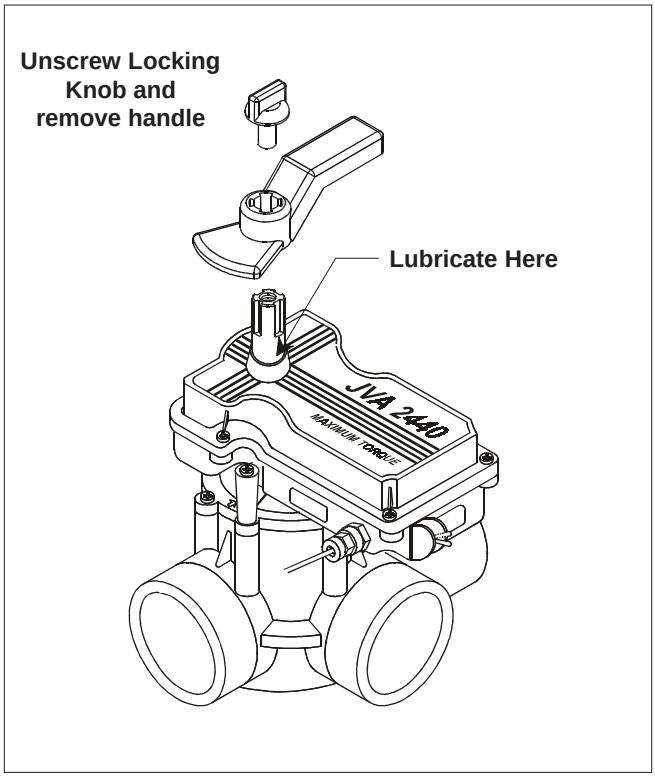


Figure 13. JVA Shaft Seal

5B. Valve

This section does not apply to Jandy NeverLube Valves and non-positive seal valves. NeverLube Valves and non-positive seal valves can be identified by the absence of a grease cap. NeverLube Valves can also be identified by the name "NeverLube" on the handle.

Since the actuator rotates the valve diverter which redirects the flow of water, it is imperative that the seals and the O-rings within the valve body be lubricated often (at least every three (3) months). The following direction are for lubricating the valve diverter seals.

1. Turn off all pool/spa equipment.
2. Rotate valve handle so the OFF on the handle is over the word GREASE on the valve body.
3. Unscrew (counterclockwise) and remove the black cap of the grease fitting.
4. Fill cap with lubricant (Jandy Lube).
5. Replace cap on fitting and turn in (clockwise) until all of the lubricant has been forced into the valve.
6. Use manual operation to move the handle from side to side to spread the lubricant across the seal.
7. Reset the valve handle to its original position and start equipment.

Once a year the valve should be disassembled and the O-ring and valve body inspected for damage. Thoroughly lubricate the square seal and the O-ring. Reassemble the valve.

SECTION 6.
Troubleshooting

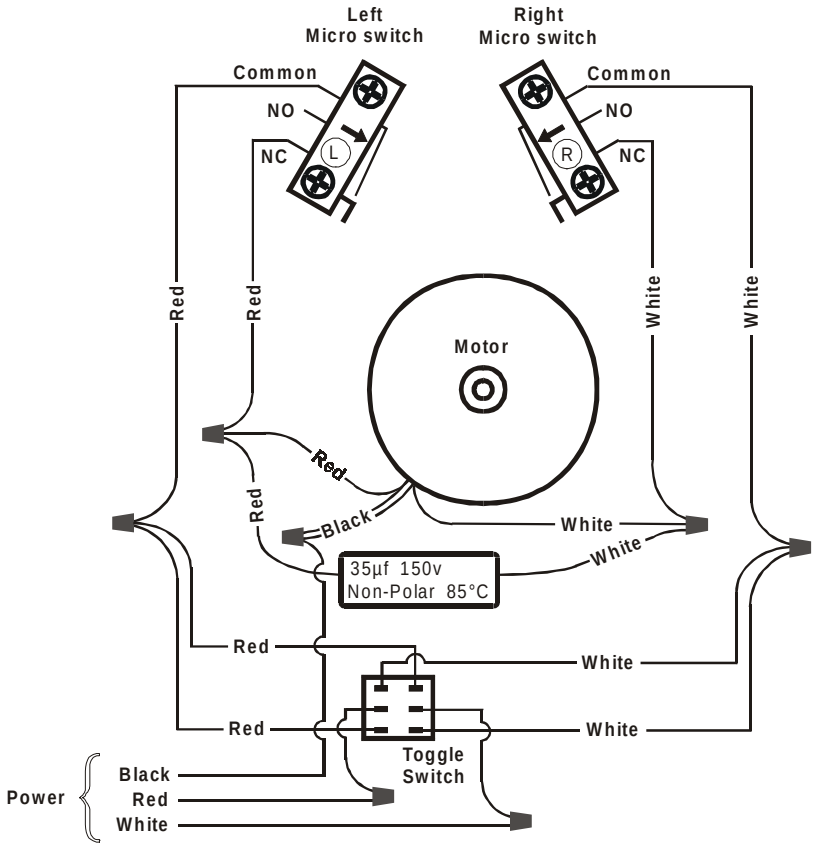
6A. Troubleshooting

All major components, including the power cord, are replacable without replacing the entire actuator. Each item may be replaced as a separate piece allowing easy infield repair. See Section 8, Exploded Views, for actuator replacement part numbers.

Problem	**Cause**	**Solution/Check**
Actuator handle oscillates.	Lack of valve seal lubrication. Obstruction in valve body.	Lubricate valve. Remove actuator and valve lid and inspect.
Actuator motor works but the valve diverter does not turn. **Note:** On a pool/spa combination, the problem would be spa draining or overflowing.	Actuator shaft broken.	Replace actuator shaft. Refer to Shaft Replacement Kit instructions for disassembly.
Actuator motor works but the valve diverter does not turn.	Valve diverter broken.	Replace valve diverter.
Actuator motor works but the valve diverter does not turn.	Actuator in manual position.	Pull up on the handle while rotating counterclockwise.
Actuator motor works but the valve diverter does not turn.	Gear train damaged.	Refer to Shaft Replacement Kit instructions for disassembly.
Actuator motor does not turn.	A) No power to the actuator. B) Toggle switch in OFF position. C) Motor has failed. D) Failed or broken microswitch. E) Both cams in contact with their microswitches.	A) Check voltage between black (common) wire and each switch leg (red then white) B) Move toggle switch to AUTO position. C) Replace motor. D) Replace microswitch. E) Check Cam Setting section.
Actuator rotates in one direction but not back again.	A) Broken or damaged micro-switch. B) Bad connection(s). C) Bad control relay switch. D) Broken wire.	A) Replace microswitch. B) Check all connections. C) At the power source check the operation of the control relay or switch. D) Check red and white wires.
Water inside valve actuator.	Damaged seals.	Replace top lid and grease seals.

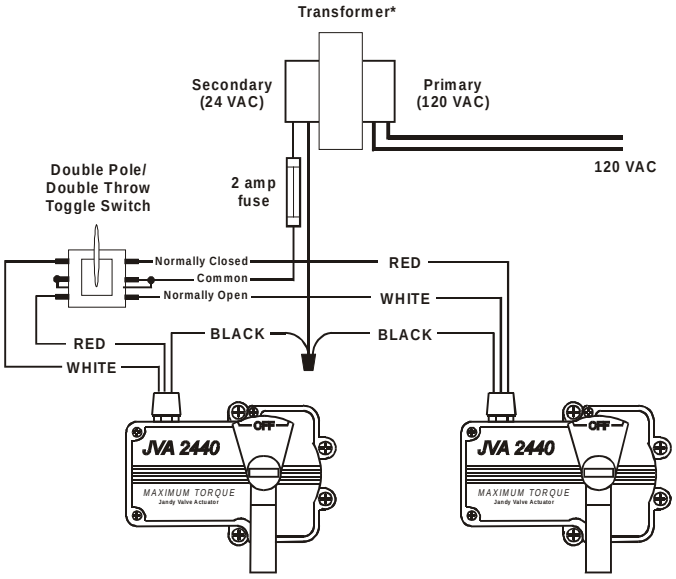
SECTION 7.
Wiring Diagrams

7A. JVA Wiring Schematic 2440



7B. JVA's with Toggle Switch

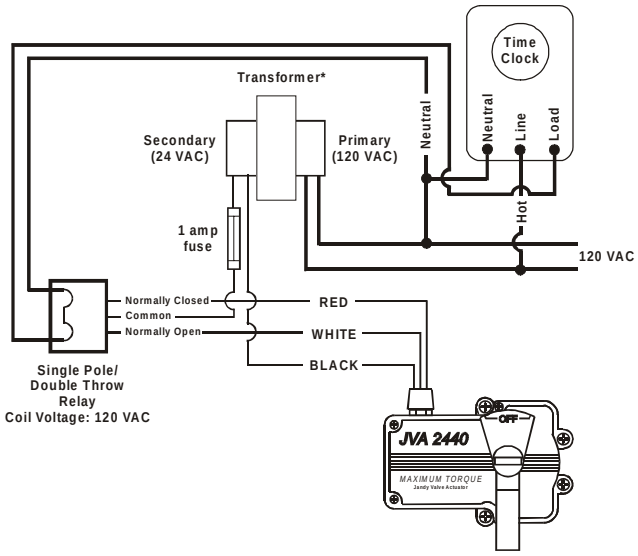
This diagram is for two (2) JVA 2440s.
To operate more JVA's, additional poles and a higher amperage fuse are needed. Do not double lug the JVA switch leg wires (red and white wires).



* Transformer must be sized for the number of JVA's. Each JVA requires .75 amp. at 24 VAC.

7C. JVA's with Time Clock

This diagram is for a single JVA 2440.
To operate more JVA's, additional poles and a higher amperage fuse are needed. Do not double lug the JVA switch leg wires (red and white wires).



* Transformer must be sized for the number of JVA's. Each JVA requires .75 amp. at 24 VAC.

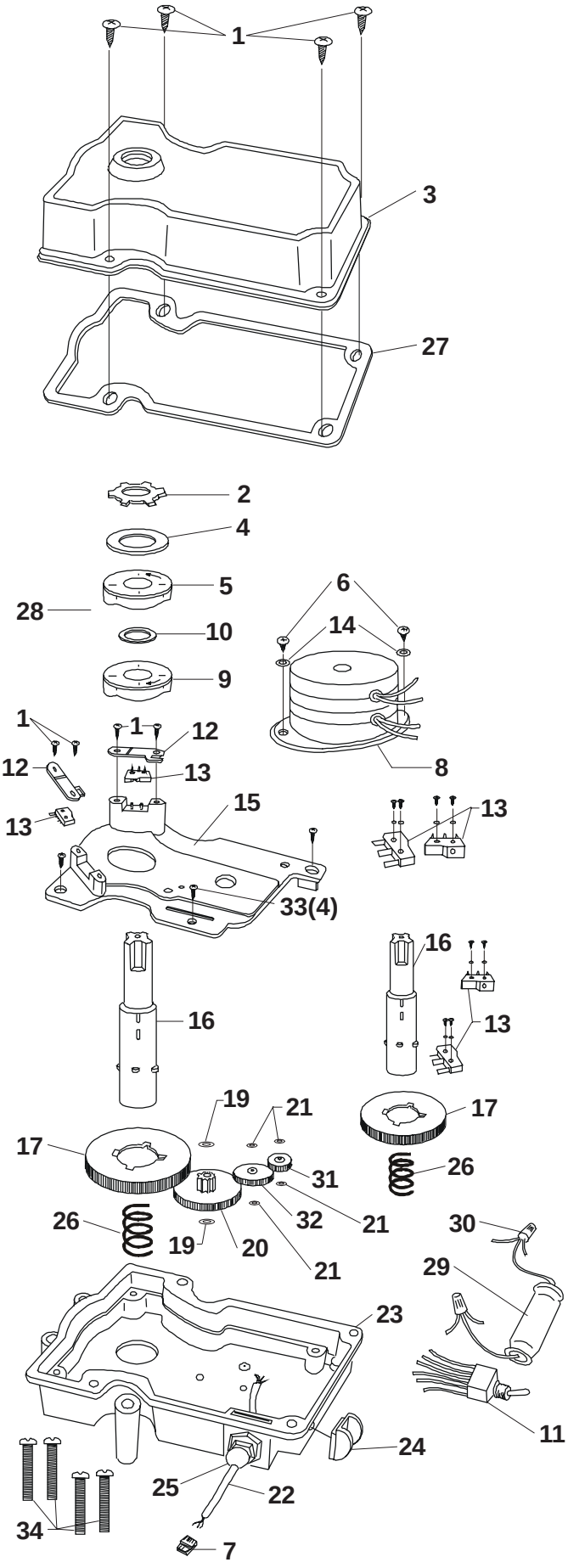
SECTION 8.
JVA Exploded View and Replacement Kits

8A. Jandy Valve Actuator

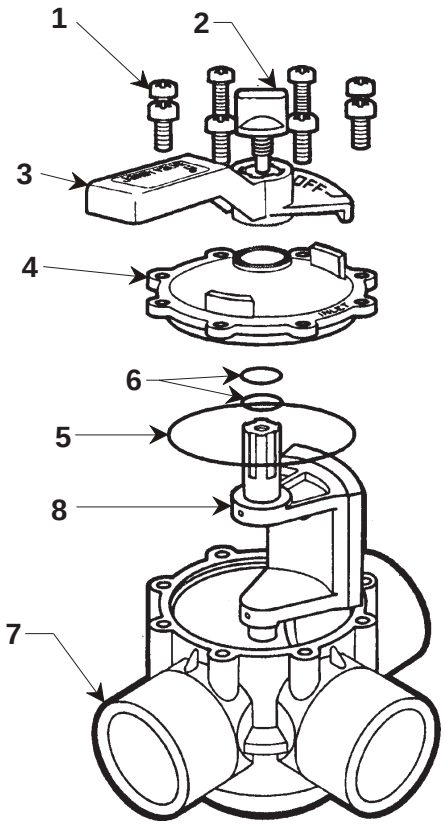
Dwg.#	Kit#	Description	Qty/Unit
1	4068	Screw, #8 x 5/8", Cover	8
2	3553	Star Lock Nut, 1/2"	1
3	4068	Housing Top GFP w/Seal Kit	1
4	3553	Cam Washer	1
5	3553	Top Cam	1
6	NEW	Screw, #8.32 x 1/4"	2
7	4700	Connector 3-pin	1
8	NEW	Motor 24V	1
or	4059	Motor 12V w/capacitor	
9	3553	Bottom Cam	1
10	3553	O-rings	2
11	NEW	Toggle Switch	1
12	3659	Micro Switch Cover (right)	1
or	3659	Micro Switch Cover (left)	1
13	3659	Micro Switch (Kit #3659)	2
14	NEW	Lock Washer, #8	2
15	?	Mounting Plate w/Pins Plastic	1
16	2848	Output Shaft Threaded	1
17	2848	Output Gear	1
18	2848	Shaft Replacement Kit	
19	NEW	Washer, 312 x 195, ss	2
20	NEW	Large Pinion Gear	1
21	NEW	Washer, 312 x 135, ss	4
22	4700	Power Cord, 20'	
23	?	Case Bottom w/Seal Bushing	1
24	NEW	Switch Guard	1
25	4700	Strain Relief	1
26	2848	Spring	1
27	4068	Gasket	1
28	3553	Cam Kit	
29	NEW	Capacitor 24V	1
30		Wire Nut	7
31	NEW	Motor Gear	1
32	NEW	Primary Gear	1
33		Screw, #8 x 5/8", Mounting Plate	4
34	4725	Screw, #14 x 2", ss	4
35	3659	Micro Switch Kit	1

* Optional

** Item purchased as a kit

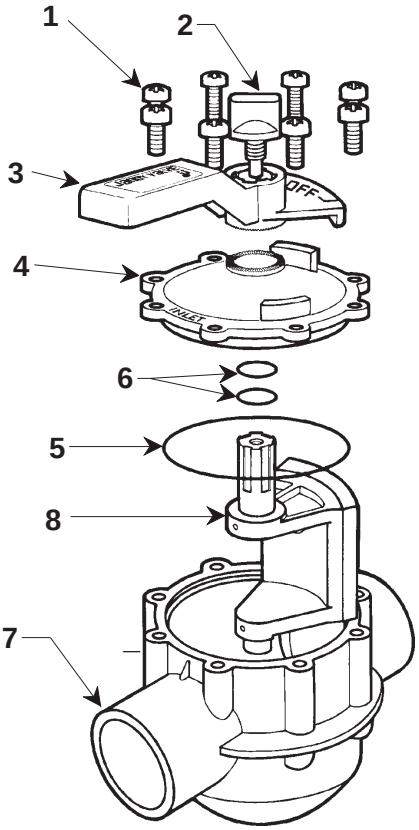


SECTION 9.
Jandy NeverLube Valve Exploded View and Replacement Kits



9A. 3 Port NeverLube Valve

Dwg.#	Part#	Description
1	1298	Screw, #14 x ¾", Valve Housing
2	4603	Knob, ABS, Black
3	4733	Handle, NeverLube, Black
4	4606	Cover, 3 Port, Black
5	1132	O-ring, -151, Valve Cover
6	1307	O-ring, -116, Valve Shaft
7	4728	Housing, 1½"-2", 3 Port, Black
or	4730	Housing, 2"-2½", 3 Port, Black
8	4720	NeverLube Diverter Kit



9B. 2 Port NeverLube Valve

Dwg.#	Part#	Description
1	1298	Screw, #14 x ¾", Valve Housing
2	4603	Knob, ABS, Black
3	4733	Handle, NeverLube, Black
4	4734	Cover, 2 Port, Black
5	1132	O-ring, -151, Valve Cover
6	1307	O-ring, -116, Valve Shaft
7	4727	Housing, 1½"-2", 2 Port, Black
or	4729	Housing, 2"-2½", 2 Port, Black
8	4720	NeverLube Diverter Kit

NOTES:

LIMITED WARRANTY

These warranties extend only to the first retail purchaser of Laars and Jandy products that have not been moved from their original installation sites. Laars and Jandy warrants all parts to be free from manufacturing defects in material and workmanship as detailed below for the designated time frame, commencing from the date of installation. If any parts are found to have manufacturing defects, Laars and Jandy will provide replacement of such defective parts.

	1 year	2 years	3 years	5 years	Lifetime
Cleaners:					
Ray-Vac®		X			
Others	X				
Control Systems:					
AquaLink® RS and Accessories	X				
AquaLink® RS (w/Surge Protection)	X	X($50 Deductable)	X($75 Deductable)		
AquaSwitch®, Pool Control, Ji, and Solar Control	X				
Filters:	X			Tank	
Heaters:					
Lite2		Controls, Firebox Panels, Heat Exchanger, Burners		All Other Parts	
LX, Hi-E2		Controls, Firebox Panels, Heat Exchanger, Fan Motor, Burners		All Other Parts	
Hot Shot	X				
Oil-Fired, XL-2, XL-3	Oil Burner, Controls Heat Exchanger, Firebox			All Other Parts	
Pumps:	X	Motor (from Manufacturer)			
Jandy Valve Actuator:	X				
Valves:					
NeverLube®					X
Others	X				
Water Features:	X				

EXCLUSIONS:

The liability of Laars and Jandy shall not exceed the repair or replacement of defective parts and does not include any costs for labor to remove and reinstall the defective part, transportation to or from the factory, and any other materials required to make the repair.

This warranty does not cover failures or malfunctions resulting from the following:

1. Failure to properly install, operate or maintain the product(s) in accordance with our published Installation, Operation and Maintenance Manuals provided with the product(s);
2. The workmanship of any installer of the product(s);
3. Not maintaining a proper chemical balance [pH level between 7.2 and 7.8, Total Alkalinity (TA) between 80 to 120 ppm, Total Dissolved Solids (TDS) less than 2000];
4. Abuse, alteration, accident, fire, flood, lightning, rodents, insects, negligence or acts of God;
5. Scaling, freezing, or other conditions causing inadequate water circulation;
6. Operating the product(s) at water flow rates outside the published minimum and maximum specifications;
7. Use of non-factory authorized parts or accessories in conjunction with the product(s);
8. Chemical contamination of combustion air or improper use of sanitizing chemicals such as, introducing sanitizing chemicals upstream of the heater and cleaner hose or through the skimmer;
9. Overheating, incorrect wire runs, improper electrical supply, collateral damage caused by failure of O-Rings, DE grids, or cartridge elements, damage caused by running the pump with insufficient water;
10. The installation of a surge protection kit does not extend the warranty of the original product(s).

LIMITATION OF LIABILITY:

This is the only warranty given by Laars and Jandy. No one is authorized to make any other warranties on Laars and Jandy behalf. **THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY. LAARS AND JANDY EXPRESSLY DISCLAIMS AND EXCLUDES ANY LIABILITY FOR CONSEQUENTIAL, INCIDENTAL, INDIRECT OR PUNITIVE DAMAGES FOR BREACH OF ANY EXPRESS OR IMPLIED WARRANTY**. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state or by province.

WARRANTY CLAIMS:

For prompt warranty consideration, contact your dealer and provide the following information: proof of purchase, model number, serial number and date of installation. The installer will notify the factory for instructions regarding the claim and for the location of the nearest Laars and Jandy designated service center. If the dealer is not available, you can locate a service center in your area by visiting www.jandy.com or you can call the Technical Support Department at (707) 776-8200 ext. 260 for assistance. All returned parts must have a Returned Material Authorization number in order to be considered for warranty evaluation. If there are any questions about the coverage of this warranty, please contact Laars and Jandy at the address below.

NQA ISO9002 REGISTERED COMPANY *

Jandy® Valve Actuator

waterpik Technologies, Inc.

*P.O. Box 6000, Petaluma, CA, USA 94955 • 707.776.8200 FAX 707.763.7785

480 S. Service Road West, Oakville, Ontario, Canada L6K 2H4 • 905.844.8233 FAX 905.844.2635

For Technical Support call 707-776-8200, ext. 260

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