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## OPERATION AND INSTRUCTION MANUAL

### JFD Series

#### Spring Return Diaphragm pneumatic actuator

### 1) INTRODUCTION

This instruction is a guide for general installation, operation, maintenance and storage for J Flow Controls pneumatic diaphragm actuators. Please follow instructions to ensure optimum performance and Safety.

### 2) IMPORTANT SAFETY PROCEDURES

JFD series actuators shall only be used as actuators on valves or damper application. Levers, racks and similar cannot be used to transmit movement without protective equipment.

**ALWAYS DISCONNECT AIR LINES AND ELECTRICAL SOURCES PRIOR TO PERFORMING MAINTENANCE ON THE ACTUATOR**

Relieve trapped medium pressure within ball valve or plug valve body cavities before removing the actuator from valve assemblies for maintenance.

### 3) OPERATING MEDIUM, PRESSURE AND TEMPERATURE

Operating medium:  
Use air, gas, oil, and water.

Operating pressure  
Do not exceed 100 PSI (7 bar)

### 4) LUBRICATION

Use standard seals and grease, the operating temperature range is -4 (-20 ) to +150 (+65C ).

For operating medium, pressure and temperature outside these ranges, please consult J Flow Controls.

### 5) OPERATING PRINCIPLE

Air (or Medium supplied) to the Diaphragm (17) casing pushes the actuator stem downward. This action compresses the spring, which in turn pushes the actuator shaft (12) back up when the supply pressure is decreased or lost.

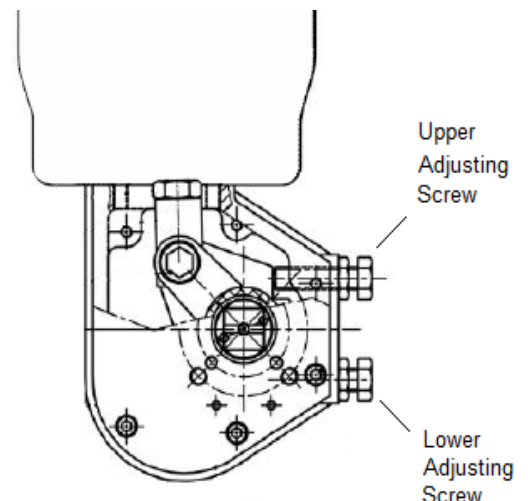
The spring shaft (12) turns the drive stem (3) 90 degrees and creates a rotary motion.

### 6) ACTUATOR STROKE ADJUSTMENT

Travel Stops and Settings

Travel Stop and settings. Actuator with 90° rotation, the stroke adjustment is +/- 4°

Upper and Lower Adjusting screws to set open and closed stops.



## 7) ACTUATOR DISASSEMBLY

Remove actuator from the valve and valve mounting bracket (if needed).

**EXTREME CAUTION SHOULD BE USED WHEN DISASSEMBLING**

**SPRING DISASSEMBLY SHOULD NOT BE ATTEMPTED.**

**THE SPRING ASSEMBLY IS UNDER TENSION AND COULD POSE A DANGER TO PERSONNEL.**

**It is recommended that the Spring assembly be removed by J Flow Controls, LLC. If the Spring Assembly must be removed, please contact J Flow Controls for detailed instructions on Safe Disassembly.**

Spring return actuator:  
Slowly remove the diaphragm cover screws (19).

Remove Diaphragm Bolt (27) and diaphragm washer (28) to remove the diaphragm.

Remove the diaphragm (21) as needed. Inspect the diaphragm for damage or wear and replace as needed.

### **Drive assembly / Drive Body Cover**

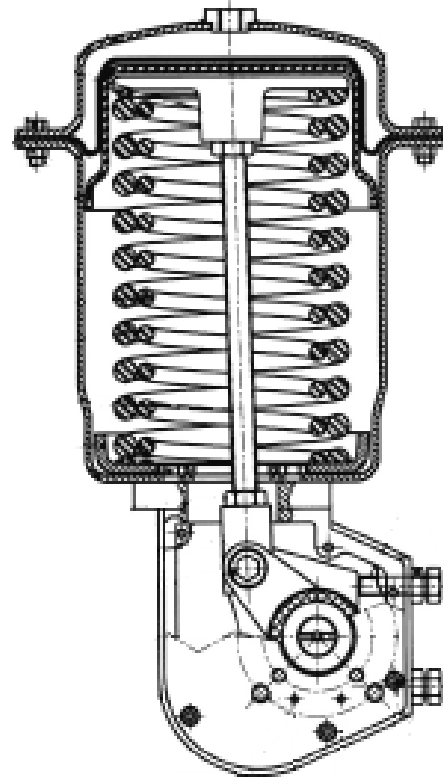
**CAUTION: TO REPAIR OR INSPECT THE LOWER ASSEMBLY, SUPPLY PRESSURE TO THE DIAHRAGM MUST BE APPLIED (50%).**

**THE FOLLOWING SECTION SHOULD ONLY BE ATTEMPTED IF THE ACTUATOR IS "STICKING" OR IS IN NEED OF INSPECTION**

Loosen the jam nuts (22) and Upper and Lower adjusting screws counter- clockwise (23) until the tension is removed.

Remove Indicator (32) and Indicator screws (31).

Remove Bolt Drive Body bolts (6) and drive cap (2) to remove the diaphragm.



Reverse side- Remove NAMUR Shaft (25). The bolt holding the NAMUR shaft in place may have to be removed from either side (26).

Inspect the bearings (5) for excessive wear. Replace as needed.

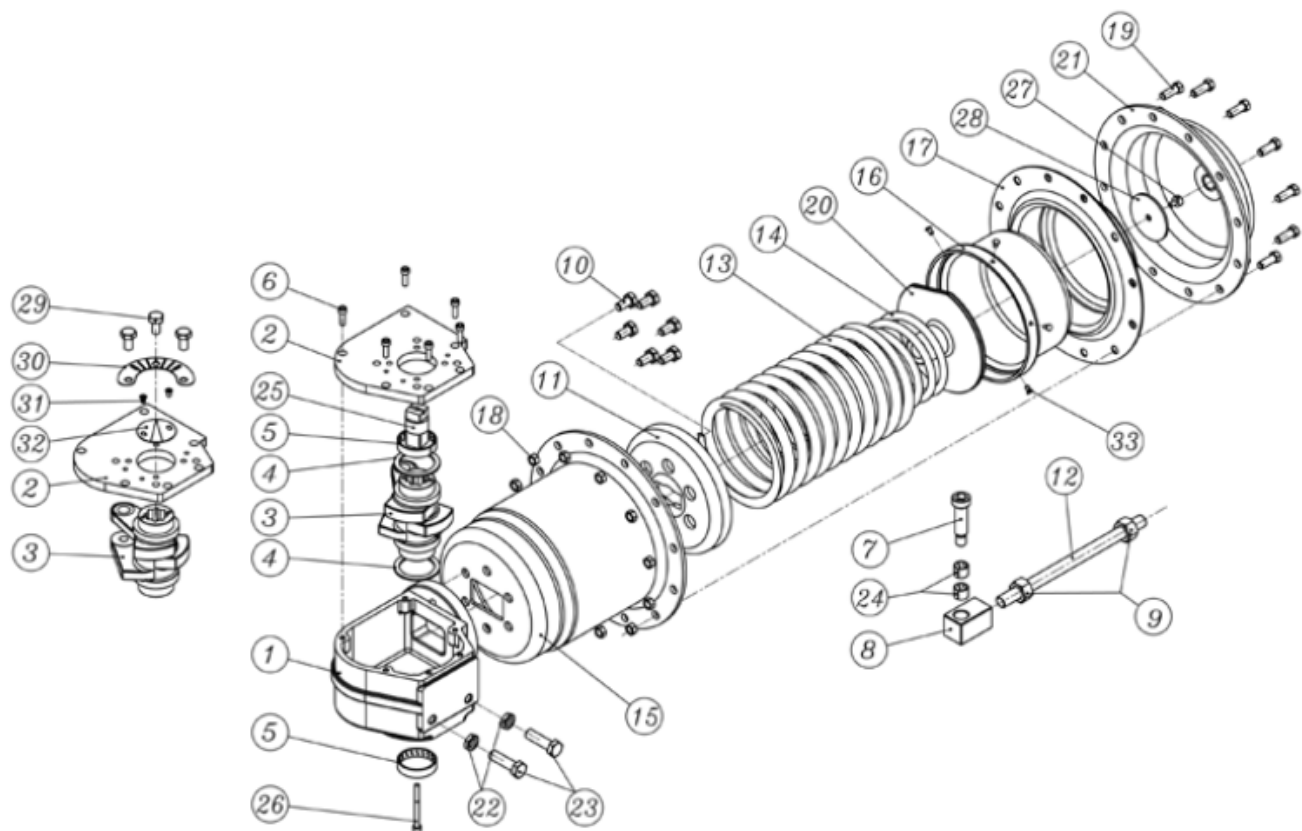
### **Drive Stem Removal**

Loosen the lower (9) jam nut on the stem. Using a wrench, hold the square block adapter (8).

Using a Hex wrench, loosen the Drive Pin (7). Using a wrench, hold the square block adapter (8).

Remove the Drive Pin (7). Rotate the drive arm away from the stem(8) and block (9). Remove from housing. Inspect the two TFE wear bearings (4). Replace if needed.

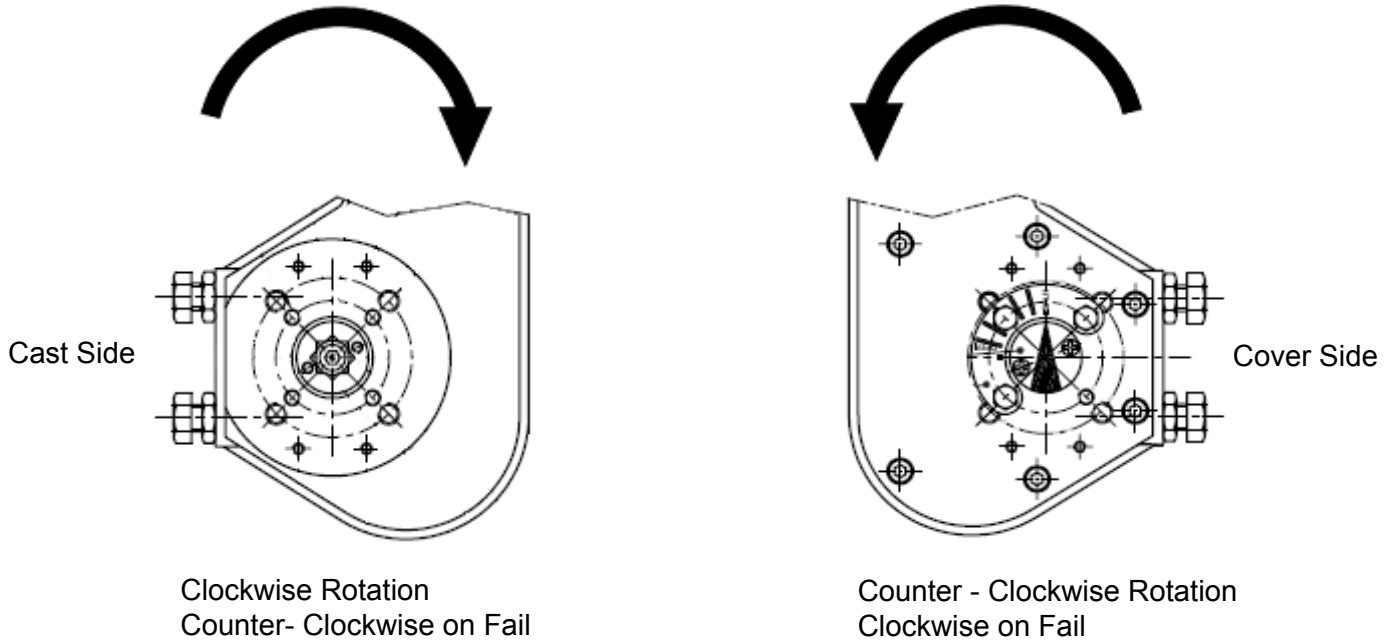
JFD ACTUATOR EXPLODED VIEW



NO.	NAME OF PARTS	MATERIALS	
1	DRIVE BODY	DUCTILE	1
2	DRIVE CAP	ANSI 1010	1
3	DRIVE STEM	DUCTILE	1
4	BEARING	-TFE-	2
5	THRUST WASHER	POM	2
6	BODY BOLTS	SS 304	3
7	DRIVE PIN	ANSI 4135	1
8	ADAPTER	ANSI 1045	1
9	NUT	2H	2
10	BOLTS	B7	6
11	SPRING (BASE)	ANSI 1010	1
12	SHAFT	ANSI 4135	1
13	SPRING (LARGE)	JIS SUP3	1
14	SPRING (SMALL)	JIS SUP3	1
15	SPRING BOX	ANSI 1010	1
16	SPRING COVER	ANSI 1010	1

NO.	NAME OF PARTS	MATERIALS	
17	DIAPHRAGM	RUBER	1
18	NUT	2H	12
19	BOLTS	B7	12
20	SPRING BRACKET	DUCTILE	1
21	DIAPHRAGM COVER	ANSI 1010	1
22	NUT	CARBON STEEL	2
23	ADJUST BOLT	CARBON STEEL	2
24	BEARING	--	2
25	ADAPTER	CARBON STEEL	1
26	BOLT	SS 304	1
27	BOLT	SS 304	1
28	DIAPHRAGM WASHER	SS 304	1
29	BOLTS	SS 304	3
30	INDICATOR PLATE	ALUMINUM	1
31	BOLTS	SS 304	2
32	INDICATOR POINTER	ALUMINUM	1
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## 8) Clockwise and Counter-Clockwise Rotation Set Up



## 9) Storage

To preserve the actuator, ensure the plastic caps are installed to prevent dust and other debris from entering the actuator. Ensure the Drive is covered with plastic or the unit is boxed. Avoid direct sun exposure.

## TORQUES (IN-LBS):

Part #	40 PSI		60 PSI		80 PSI	
	Spring End	Air End	Spring End	Air End	Spring End	Air End
JFD115	135 inch	259 Inch	309 inch	309 inch	465 inch	319 inch
JFD300	695 inch	795 inch	1,385 inch	995 inch	1,795 inch	1,409 Inch
JFD515	3,179 inch	3,695 inch	4,865 inch	5,509 inch	6,765 inch	7,095 inch

J-Flow's JFD Spring & Diaphragm Actuator for compact, precise control in easy field changeable fail open and fail closed. Actuator to valve mounting complies with ISO 5211 standard and positioner mounting complies with NAMUR standard. Three different sizes are available for actuation up through 12" J-Flow DM9900F segmented V-Ball control valves, and High Performance Butterfly Valves



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