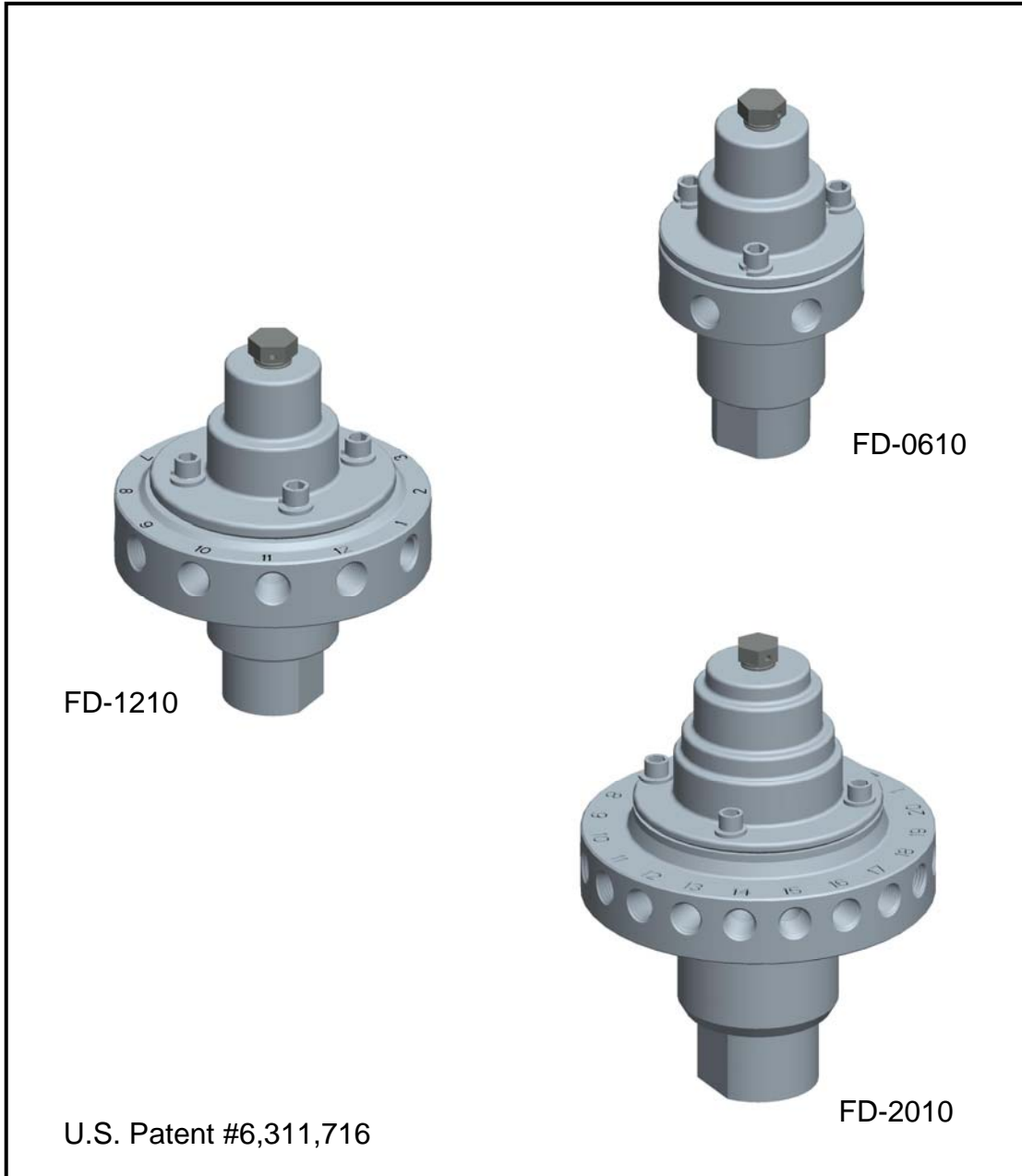




FD-0610, FD-1210, & FD-2010 Flow Divider Parts & Instruction Manual



FD-1210

FD-0610

FD-2010

U.S. Patent #6,311,716

CDS-John Blue Company
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Note to the Owner

Study this manual carefully. It will assist you in the care, installation and operation of your CDS – John Blue Flow Divider. Familiarize yourself with all parts before attempting to operate or service your flow divider.

Enter the serial number and date of purchase in the space provided for future reference. This information will be required for ordering replacement parts or servicing your flow divider.

CDS – John Blue Engineering Department constantly improves its products. We reserve the right to make design and specification changes without notice.

SERIAL NUMBER: _____ **DATE OF PURCHASE:** _____

WARNING: USE OF THIS PRODUCT FOR ANY PURPOSES OTHER THAN ITS ORIGINAL INTENT, ABUSE OF THE PRODUCT, AND/OR MODIFICATION TO THE ORIGINAL PRODUCT IS STRICTLY PROHIBITED BY CDS-JOHN BLUE COMPANY. CDS-JOHN BLUE COMPANY RESERVES THE RIGHT TO DENY WARRANTY OR LIABILITY CLAIMS IN ANY/ALL SITUATIONS INVOLVING MISUSE, ABUSE OR MODIFICATION.

THE ORIGINAL INTENT OF THIS PRODUCT DOES NOT INCLUDE USE WHERE THE MAXIMUM ALLOWED SPEED, PRESSURE, OR TEMPERATURE IS EXCEEDED, AND IT DOES NOT INCLUDE APPLICATIONS UTILIZING FLUIDS THAT ARE NOT COMPATIBLE WITH THE PRODUCT'S COMPONENT MATERIALS. DO NOT USE THIS PRODUCT WITH FLAMMABLE OR COMBUSTIBLE FLUIDS SUCH AS GASOLINE, KEROSENE, DIESEL, ETC..., AND DO NOT USE IN EXPLOSIVE ATMOSPHERES. FAILURE TO FOLLOW THIS NOTICE MAY RESULT IN SERIOUS INJURY AND/OR PROPERTY DAMAGE AND WILL VOID THE PRODUCT WARRANTY. IF IN DOUBT ABOUT YOUR APPLICATION, CONTACT YOUR STOCKING DEALER OR THE CDS-JOHN BLUE TECHNICAL STAFF AT 1-800-253-2583.



WARNING: FD series flow dividers are ONLY intended for use with the distribution of liquid fertilizer products. Using an FD series flow divider with anhydrous ammonia or any other unapproved product is expressly prohibited by the manufacturer and may result in fluid dispersion, causing serious injury and/or death.

Safety Precautions

- Safety Equipment such as gloves, goggles, etc. should be worn at all times while performing any repairs or maintenance to the flow divider.
- A careful operator is the best insurance against an accident
- Only qualified and responsible people should operate equipment.
- Check all valves, fittings, hose clamps, etc for tightness and soundness before admitting chemicals to the system. Also, check again at regular intervals. Replace hoses when worn, cracked, or if leaking.

Installation and Operation:

Installation should be made by mounting the flow divider vertically, with the cap of the unit at the top, either on top of a CDS-John Blue piston pump or remotely mounted on pipe. The FD-0610 and FD-1210 units have a 3/4" FPT inlet port, and the FD-2010 unit has a 1" FPT inlet port on the bottom of its body. *Note: the blue plastic thread protectors should be removed at installation as they are not plugs.*

Important note: If more than one flow divider is to be used with a single pump outlet, a spring balancing kit will be required to match the flow going through each flow divider. See page 4 and please call CDS-John Blue at 1-800-253-2583 for more information about the spring balancing kits or flow dividers with the kits already installed:

FD-0610-ADJ, FD-1210-ADJ, and FD-2010-ADJ



Each 1/4" FPT outlet port is to be connected to an applicator tube line. It is recommended that the length of the tubes be **approximately equal** to maximize accuracy. At a minimum, the shortest line length should be at least $\frac{1}{2}$ **the length** of the longest line. It is also important that the lines have **equal height drops** at each row, and that the excess hose is coiled up lying flat (**horizontal**).

If all of the ports are not required, simply plug the unused ports with 1/4" poly or stainless pipe plugs. **Evenly space** the plugged ports around the unit to maximize accuracy.

It is strongly recommended that you use 1 psi max. cracking pressure check valves near the end of each line for maximum accuracy. We recommend the CV-1101-xx check valves, which are available with both NPT and push-connect fitting ends. They are an accurate ball-type check and are cleanable in the field.



The flow divider eliminates the need for orifices in the applicator hose lines, and it is important that any orifices previously used in the system be removed to allow the flow divider to operate at maximum efficiency and accuracy.

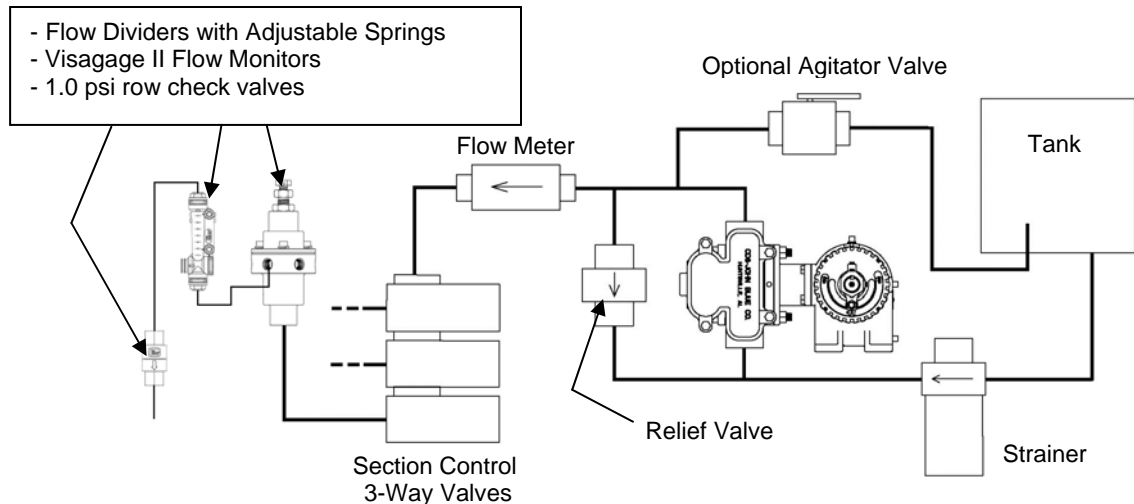
Cleaning and Storage:

The flow divider is recommended for use with CDS-John Blue Company piston pumps. The flow divider will automatically adjust for varying application rates and will evenly distribute an equal amount of liquid to each output flow port. The flow divider is self-cleaning of debris, however if large debris should enter the unit, it may be cleaned by simply removing the four screws retaining the cap, and then removing the cap, spring, seal, and needle. Use a soft cloth to clean the needle and body and re-assemble the unit in the reverse order, using anti-seize on the screw threads.

After use, the unit should be flushed out with a solution that will neutralize the product that was last used in it, and then it should be filled with RV anti-freeze and capped to avoid port clogging and/or a stuck needle.

Flow Divider Use With Section Control:

Adjustable spring flow dividers may be used to balance multiple branches of a liquid system with sectional control, but note that other components will be necessary to both set-up and run the system. The following diagram shows an example system with the necessary components:



Notes:

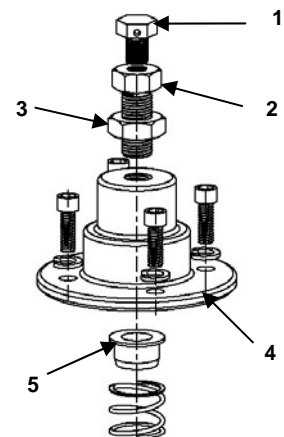
- It is recommended that CDS-John Blue CV-1101-xx (1 psi) check valves be used at the end of each row line.
- CDS-John Blue Visagage II flow monitors (or flowmeters) are required to adjust the flow dividers and balance the sections (see next page).

System Setup and Calibration Instructions:

1. Visagage II SMFD flow monitors, or some type of flow meter/totalizer for each branch will be required to calibrate the flow dividers.
2. The system should be run in setup or calibration mode and the flow through each section read to identify the higher flowing branches. Adjust the two flow dividers with higher readings by turning in the screws until the Visagage balls are equal.
3. **IMPORTANT:** Stop the pump, then restart and check the flow readings. This stop/start process will likely need to be repeated several times to finalize the adjustments.
4. Lock the adjustment shafts in place with the nut on each flow divider.

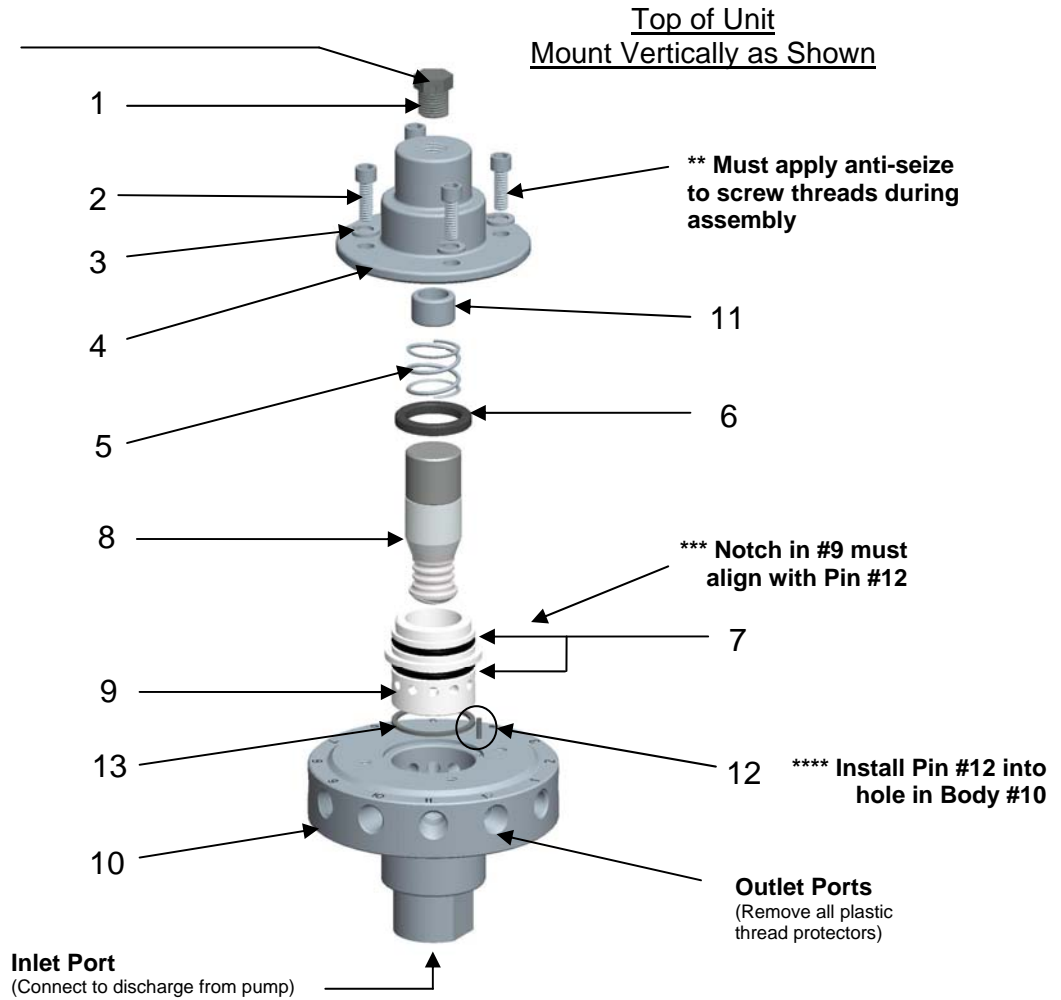
Adjustable Spring Parts Breakdown:

Item	Description	FD0610 Kit # 116064	FD1210 Kit # 116064	FD2010 Kit # 116065
1	VENTED PLUG	116067-01	116067-01	116067-01
2	ADJUSTMENT SHAFT	116059-01	116059-01	116059-01
3	ADJUSTMENT NUT	116060-01	116060-01	116060-01
4	CAP	116028-01	115146-01	115401-01
5	SPRING SEAT	116061-01	116061-01	116062-01



Assembly Drawing and Parts List:

* Plug must be vented for proper operation – do not replace with solid plug



Item	Description	FD-0610 Parts List		FD-1210 Parts List		FD-2010 Parts List	
		Part #	Quantity	Part #	Quantity	Part #	Quantity
1	Vented Cap Plug (* see note)	116024-01	1	116024-01	1	116024-01	1
2	Socket Head Screw (** see note)	90514	3	90514	4	90514	4
3	Lock Washer	93022	3	93022	4	93022	4
4	Cap	116028-01	1	115146-01	1	115401-01	1
5	Spring	115152-01	1	115152-01	1	115399-01	1
6	Needle Seal	115151-01	1	115151-01	1	115398-01	1
7	O-ring	115025-01	2	115025-01	2	115403-01	2
8	Needle	115106-91	1	115106-91	1	115109-91	1
9	Sleeve (***) see note)	116082-01	1	115387-A	1	115402-A	1
10	Body	116027-01	1	115102-01	1	115103-01	1
11	Spacer	115435-01	1	115435-01	1	115438-01	1
12	3/32 x 3/8 Roll Pin (**** see note)	115495-01	1	115495-01	1	115495-01	1
13	Sleeve Seal	116019-01	1	116019-01	1	116020-01	1
	115406-A FD-0610, FD-1210 Needle & Seal Kit	Includes 1 each of #5, 6, 8, 13, and two of #7					
	115407-A FD-0610, FD-1210 Seal Kit	Includes 1 each of #5, 6, 13, and two of #7					
	115433-A FD-2010 Needle & Seal Kit	Includes 1 each of #5, 6, 8, 13, and two of #7					
	115434-A FD-2010 Seal Kit	Includes 1 each of #5, 6, 13, and two of #7					

Troubleshooting:

ISSUE	PROBABLE CAUSE
Flow divider will not allow flow through	Vent hole in cap plug is clogged
	Needle stuck in down position due to dried or crystallized fertilizer/fluid (soak unit in hot water to free needle – then clean unit)
Flow out of tubes does not appear to be equal	End of line check valves or lines are plugged with debris
	Worn needle seal and/or needle
	Needle stuck in open position due to dried or crystallized fertilizer
	Distribution lines do not have approximately equal lengths, do not have equal drop heights, or do not have equal restrictions in each line
	End of line check valve spring pressure is too high (1.0 psi max. allowed)
	Ensure that plugged outlet ports are separated evenly from each other around the flow divider
	Sleeve seal is missing or damaged
Fluid leaking out of hole in vented plug	Worn needle seal (note that a small amount of seepage is normal – you may install a barb fitting in place of the plug if desired)

Notes

LIMITED WARRANTY

THIS WARRANTY IS IN LIEU OF ALL OTHER WRITTEN OR EXPRESS WARRANTIES AND REPRESENTATIONS. ANY IMPLIED WARRANTIES INCLUDING MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE ARE EXPRESSLY LIMITED TO THIS WRITTEN WARRANTY. CDS-JOHN BLUE COMPANY SHALL NOT BE LIABLE FOR CONSEQUENTIAL DAMAGES.

Use of this product for any purpose other than its original intent, abuse of the product, and/or any modification to the original product is strictly prohibited by the manufacturer, CDS-John Blue Company. Any modification to the product should be approved by CDS-John Blue Company prior to use. CDS-John Blue Company will deny Warranty claims and liability in any situation involving misuse, abuse or modification.

Each new machine or component manufactured by CDS-John Blue Company through original buyer is warranted by CDS-John Blue Company to buyer and to any party or parties to whom buyer may resell, lease or lend the equipment to be free from defects in material and workmanship under normal use and service. This obligation of CDS-John Blue Company under this warranty is limited to the repair or replacement of defective parts or correction of improper workmanship of any parts of such equipment which shall within one year from the date of CDS-John Blue's original delivery thereof, be returned to CDS-John Blue's factory, transportation charges prepaid and which CDS-John Blue Company shall determine to its satisfaction upon examination thereof to have been thus defective. When it is impractical to return the defective parts of such equipment to CDS-John Blue's factory, then CDS-John Blue shall have no liability for the labor cost involved in repairing or replacing any such parts and shall be liable solely for supplying the material necessary to replace or repair the defective parts, provided that prior thereto CDS-John Blue Company shall have determined to its satisfaction that any such parts are thus defective.

This warranty shall not apply to any equipment which shall have been repaired or altered outside CDS-John Blue's factory in any way so as to affect its durability, nor which has been subjected to misuse, abuse, negligence or accident, or operated in any manner other than in accordance with operating instructions provided by CDS-John Blue Company. This warranty does not extend to repairs made necessary by the use of inferior or unsuitable parts or accessories, or parts or accessories not recommended by CDS-John Blue Company.

CDS-John Blue Company makes no warranties in respect to parts, accessories or components not manufactured by CDS-John Blue Company, same ordinarily being warranted separately by their respective manufacturers.

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