

## AGXCEL GX12i CHEMICAL INJECTOR

2% INJECTOR UNIT - PN#20202

5% INJECTOR UNIT - PN#20556



116 E 6TH ST  
KEARNEY NE 68847

**877.218.1981**

# Gx12i

**CHEMICAL INJECTOR**



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### **Please read this manual carefully before installing and operating your new GX12i.**

This booklet has the information you will need for the use and care of your new GX12i injector. If you have any further questions about your injector, the warranty, routine maintenance or proper usage, please contact your nearest distributor or Hydro Systems customer service.

These models are designed to inject liquid concentrate or soluble powder that are recommended and approved for injection into fluid systems.

It is the responsibility of the operator to determine the correct dosage settings of the unit using the chemical manufacturers' recommendation for dispensing their product, and to assure that proper dosage is being maintained.

### **Maintenance and Warranty**

Agxcel offers a one year limited warranty from the original date of purchase for manufacturing or materials defects only. With proper use and care, your injector should provide you long-term performance. Please review the complete warranty information on page 16.

#### **For Your Records**

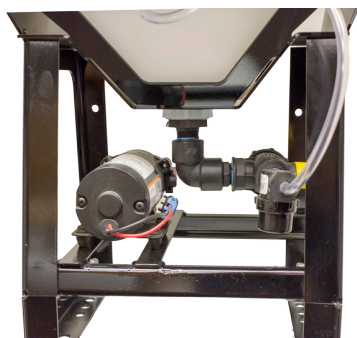
The serial number of your Hydro Systems injector is located on the injector body. Please record this number in the space below and reference it when calling Agxcel for information, parts and service.

Serial #.....

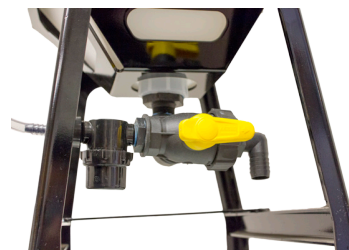
Date Purchased .....



## System Contents



Optional Agitation Kit  
(PN#54742)



# Specifications



Injector (90 max. psi)  
 Model 0.2% - 2% (1:500 - 1:50)  
 Model 0.78% - 5% (1:128 - 1:20)  
 Flow Rate: 0.04 - 11 gpm (10 - 2500 l/h)  
 Operating Pressure: 5 - 90 psi (0,3 - 6,2 bar)  
 Pipe Coupling: 3/4" npt/ght/bsp

Housing	Polyacetal (POM)
Dosing Accuracy	+/- 10% of ratio
Repeatability	+/- 5%
Maximum Temp.	100°F/38°C
Minimum Temp.	34°F/1°C
Maximum vertical suction of concentrate	13 Feet/396 Centimeters
Maximum horizontal suction of concentrate	49 Feet/1493 Centimeters
Self-Priming	Yes
Seal Material	Viton - acids, oils & pesticides
Maximum Viscosity	2000 cP (Ex. Honey)

2% RATIO TO SET %	
RATIO	SET%
50 - 57	2.0%
58 - 64	1.8%
65 - 80	1.5%
81 - 95	1.25%
96 - 130	1.0%
131 - 180	.75%
181 - 400	.50%
401 - 650	.20%

## STEPS TO CALCULATE YOUR %

1. TAKE YOUR CHEMICAL TOTAL OZ.
2. DIVIDE THAT NUMBER BY TOTAL OZ OF CARRIER
3. MOVE DECIMAL RIGHT 2 SPACES  
 EX: 6oz/640 = 0.009 = .9%

5% RATIO TO SET %	
RATIO	SET%
20 - 21	5.0%
22 - 23	4.5%
24 - 25	4.0%
26 - 30	3.5%
31 - 34	3.0%
35 - 42	2.5%
43 - 57	2.0%
58 - 75	1.5%
76 - 128	1.0%



## Safety Precautions and Tips

### **Before Applying Aggressive Chemicals**

Please consult your distributor, chemical manufacturer to confirm compatibility with your injector. Always wear proper safety protection as recommended by chemical supplier.

### **Label Fluid Lines, Valves and Connections**

If the solution that is being injected is not suitable for drinking, all fluid lines should be labeled, "Warning: Not for human consumption!"

### **Keep From Extreme Temperature**

Protect the injector from freezing temperatures or excessive heat.

### **Soluble Power Use**

Ensure the chemical is completely dissolved before injection. Failure to thoroughly dissolve the chemical will cause premature wear to the dosage piston/gasket and the inner cylinder.

### **Rinse Injector After Each Use**

Additive allowed to remain in injector can dry out, foul or damage the lower end at the next start-up. (See Maintenance page).

### **Avoid a Potentially Hazardous Chemical Accident**

Select a safe location. Chemical container should be kept away from children and/or high usage areas and the location must also not be susceptible to freezing temperatures.

### **Fluid Temperature - Maximum Pressure**

Min: 34° F (1°C)      Max: 100°F (38°)  
90 psi

### **Before Removing Injector From The System**

Release fluid pressure. While the system is in operation, turn off the incoming fluid valve. Leave the outgoing valve open. This will relieve the pressure at the injector. Injector is now safe to remove.

### **Injector Not in Use for an Extended Period**

If the injector has not been stored properly deposits may have dried onto the motor (see Maintenance page). Before operation, soak entire unit into room temperature water approx.. 72°F for a 24 hour period.

### **Never Use Petroleum Based Lubricants**

The injector is shipped with a thin coat of silicone around the seals for ease of assembly. Petroleum based lubricants such as baby oil, WD40®, or motor oil on the O-rings or any part of the injector should never be used as this can cause particles to adhere and clog or damage the injector.



# Operations

## Clicking Sound is Normal

Fluid flowing through the injector will automatically cause the injector to “click” and inject a set amount of solution into the fluid line. The higher the flow rate the more frequent the “clicking”. The injector is designed to inject solution proportionally (at the same set ratio) regardless of fluid flow. Maximum number of clicks per 15 seconds is 50.

## Change Injection Rate

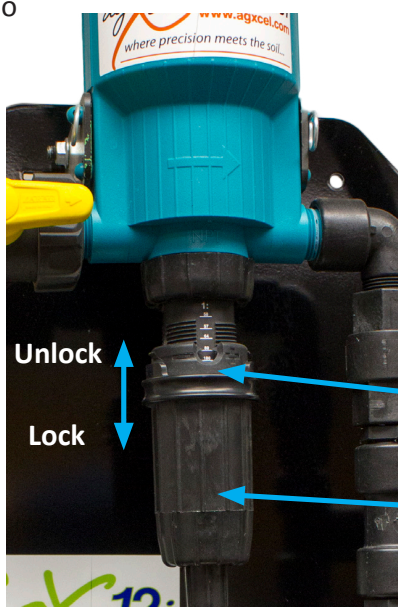
The feed rate on the injector is adjustable EVEN WHILE OPERATING AND UNDER PRESSURE. To change injection rate see Fig 1.

1. Lift lock ring
2. Rotate Ratio Adjuster up or down to the desired setting. Use arrows at the top of the Ratio Adjuster to line up with the desired feed rate.
3. Return ring to lock position by pushing down on ring.

## Bleed Port

Ensure all air is out of the unit by pressing the bleeder button in until water comes out. Release bleeder button to stop water from flowing out of bleed port.

Fig 1



Lock Ring

Ratio Adjuster  
Rotate left or right  
to select ratio



2% RATIO TO SET %	
RATIO	SET%
50 - 57	2.0%
58 - 64	1.8%
65 - 80	1.5%
81 - 95	1.25%
96 - 130	1.0%
131 - 180	.75%
181 - 400	.50%
401 - 650	.20%

## STEPS TO CALCULATE YOUR %

1. TAKE YOUR CHEMICAL TOTAL OZ.
2. DIVIDE THAT NUMBER BY TOTAL OZ OF CARRIER
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EX: 6oz/640 = 0.009 = .9%

5% RATIO TO SET %	
RATIO	SET%
20 - 21	5.0%
22 - 23	4.5%
24 - 25	4.0%
26 - 30	3.5%
31 - 34	3.0%
35 - 42	2.5%
43 - 57	2.0%
58 - 75	1.5%
76 - 128	1.0%



# Installation

- Step 1:** Locate a secure mounting position on the implement that allows the unit to stand upright and level. This will ensure that liquid in tank does not slosh and spill over during application.
- A.** The GX12i unit has mounting holes at the base of the unit for secure mounting.
- B.** AgXcel also has a universal mounting bracket that allows the unit to be mounted on any size bar to extend the unit out away for obstacles on the implement. This universal mounting bracket part number is #53649
- Step 2:** Once the GX12i has been installed, feed the unit with a 3/4" hose into the supplied 3/4" hose barb end marked "Feed In". This line should come from your liquid fertilizer system.
- Step 3:** Turn the YELLOW ball valve handle with the arrow pointed in the direction you want liquid to flow.
- Step 4:** Turn on the liquid fertilizer system to feed the GX12i system with liquid. This will enable the injector unit. A clicking sound will begin as the injector begins to operate. NOTE: On the top of the unit there is a button that you need to press to allow for any air to escape the system that may have been introduced during the installation process. (See previous page on "Bleed Port")



## Setting the Ratio

To determine your ratio use the following formula:

$$\text{Ratio} = \text{GPA (of carrier)} \times 128 \text{ oz} / \text{Rate (oz)}$$

Injection Rate in oz/acre	GX12i Ratio
5	128/1
5.5	116/1
6	106/1
6.5	98/1
7	92/1
7.5	85/1
8	80/1

*Example breakdown of ratios*

# Maintenance

## Rinse Injector After Each Use

Additive allowed to remain in injector can dry, foul or damage the lower end at the next start-up. Place suction tube into a 1 qt. or more container of fresh filtered water. Flow fresh water through the injector by operating until container is empty. This procedure is not needed for continuous operation.

## Clean Internal Check Valve

Clean the internal check valve twice a day to maintain a good flow. (See below for link to YouTube page)

## Clean Solution Container

Keep covered to prevent dirt and other debris from entering the container. Rinse container thoroughly and often. Do not mix chemicals together that might react and cause a precipitate. Use **FILTERED** fluid when filling container.

## Clean Inlet Filter

Clean or replace inlet filter as required to increase the life of the unit as well as reduce pressure loss.

## Bypass Injector

When not in use place the injector in bypass mode by positioning arrow away from injector.

## Storage

For extended storage rinse injector using a minimum of 1/2 gallon (see "Rinse Injector After Each Use"). Drain water from unit. Inspect lower end seals. Apply thin coat of silicone to seals and reassemble unit. Place plugs back into inlet/outlet and suction tube fitting. **KEEP FROM FREEZING.**

Perform these maintenance procedures to extend the life of your unit.

**NOTE: Maintenance intervals may vary depending on conditions of use and the chemicals being injected.**

Every 3-6 Months	Every 6-12 Months	Replace as Necessary
<ol style="list-style-type: none"><li>1. Clean seal areas. #44</li><li>2. Clean &amp; check #64 Seal, #68 Cylinder, clean and/or replace as necessary.</li><li>3. Clean Filters</li></ol>	<ol style="list-style-type: none"><li>1. Replace Dosage gasket #44.</li><li>2. Clean and/or replace Check Poppet, inside #11 Suction Tube Fitting.</li></ol>	<ol style="list-style-type: none"><li>1. #68 Cylinder</li><li>2. #64 O-ring/gasket</li><li>3. Motor Piston #9</li><li>4. #51 &amp; #44 Shaft Assembly Dosage gasket</li><li>5. Check Valve Assembly &amp; Tubing</li></ol>



Scan the QR code to see our GX12i videos on YouTube. Or visit [www.youtube.com/agxcelonline](http://www.youtube.com/agxcelonline)

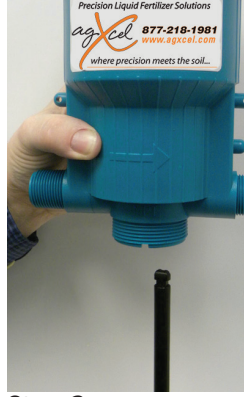




# Routine Maintenance Instructions



**Step 1.**  
Unscrew and remove lower end from assembly.



**Step 2.**  
Pull down on shaft, rotate shaft 90° and remove.



**Step 3.**  
Remove shaft with gasket and install new. If damage on sealing surface of shaft, replace shaft.



**Step 4.**  
Hold body firmly and unscrew the lid. If lid is tight, use 1" socket to loosen.



**Step 5.**  
Remove motor piston from pump body.



**Step 6.**  
Place new motor piston carefully into pump body and replace lid.



**Step 7.**  
Place shaft into the motor piston.



**Step 8.**  
Rotate shaft 90° to lock into place. Gently pull down to ensure shaft is locked.



**Step 9.**  
Replace lower end assembly onto the pump body.

## Troubleshooting

Problem	Cause	Solution
<b>No Clicking Sound</b>	Fluid not flowing through unit	Are the red plugs at the inlet, outlet and suction tube fitting openings removed?  Is the unit installed backward? The arrow on the unit must point in the direction of the fluid flow.  If still not clicking, do not open the upper body. Call AgXcel Systems Customer Service.
	Fluid flowing through unit	Fluid rate is below or exceeds rated service flow of injector. (see Specifications for maximum flow rate page 4). Maximum number clicks = 50 in 15 seconds.  Ensure all air is out of the unit by pressing the bleeder button in until water comes out.  If below increase flow rate, if above, reduce flow rate.  Operating pressure exceeds maximum limit. Install a pressure reducer valve. (see Specifications for maximum flow rate page 4).

### Injector in Operation or After Scheduled Maintenance

Problem	Cause	Solution
<b>No Clicking Sound</b>	Air trapped in unit	Release trapped air by pressing the bleeder button in until water comes out.
	By-Pass Valve not open	Set Valve to the closed position.
	Broken Springs	Replace Springs #18, Clean Fluid Filter.
	Dirty or plugged inlet filter	Ensure mesh size is correct for proper filtration. Clean filter.
	Main Piston Assembly #9 worn	Replace #9 Main Piston Assembly. Clean fluid filter.
	Main body #1 worn or scored	Replace Body & Piston.

Problem	Cause	Solution
<b>Clicking Sound No Suction Of Solution</b>	Cracked or loose Suction Hose	Check for proper fit and /or replace.
	Dosage gasket #44 worn or installed incorrectly	Replace. Ensure during maintenance replacement that #44 dosage gasket was installed correctly.
	Suction tube #25 or suction tube fitting #11 cracked, leaking or clogged suction tube filter	Replace and/or clean as necessary.
	Check valve #11 leaking	Clean and/or replace as necessary.

Problem	Cause	Solution
<b>Clicking Sound. Under Injecting or Unit operates at high-flow and not at low flow</b>	#44 Dosage gasket worn	Replace.
	#68 Inner Cylinder worn	Replace Inner Cylinder and Gasket #44
	Broken Springs	Replace Springs, Clean Fluid Filter.
	Main Piston Assembly #9 worn	Replace #9 Main Piston Assembly. Clean fluid filter.
	Main body #1 worn or scored	Replace Body & Piston

Problem	Cause	Solution
<b>Fluid Re-filling Solution Tank</b>	Check valve #11 leaking or dirty	Check seat area on suction tube fitting #11. Check valve and seal must fit loose in the suction tube fitting. Clean seal and inside fitting for debris.
	Washer seal on #11 is swollen or chemical attack	Replace with new check valve assembly.

# AGXCEL GX12i AGITATION KIT PN# 54742

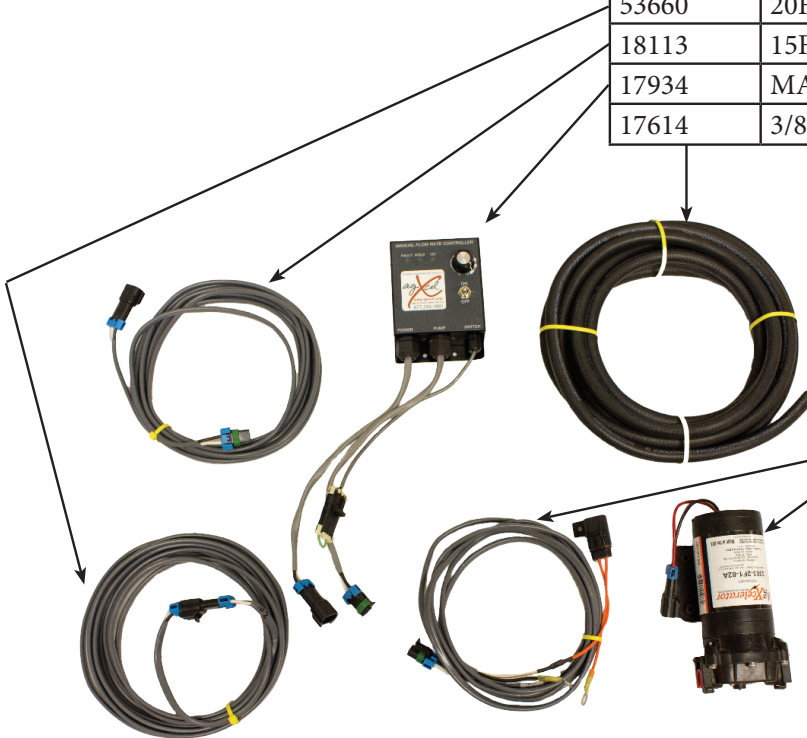


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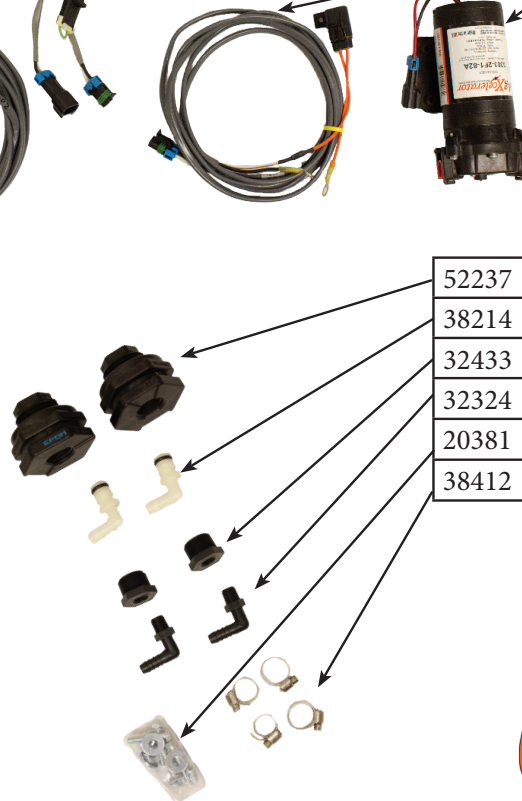
877.218.1981

## \*\*OPTIONAL KIT\*\*

GX12i AGITATION KIT PN# 54742		
PN#	ITEM	QTY
53660	20FT EXTENSION	1
18113	15FT EXTENSION	1
17934	MANX	1
17614	3/8 BLK HOSE	2FT



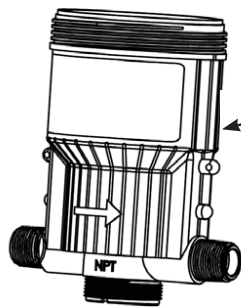
17944	BATTERY CABLE	1
20003	2.0 GPA PUMP	1



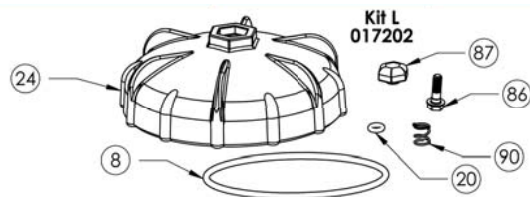
52237	REDUCER	2
38214	3/8 ELBOW HB	2
32433	3/4 REDUCER	2
32324	ELBOWS	2
20381	PUMP BOLT KIT	1
38412	#6 CLAMPS	4



# Repair Parts



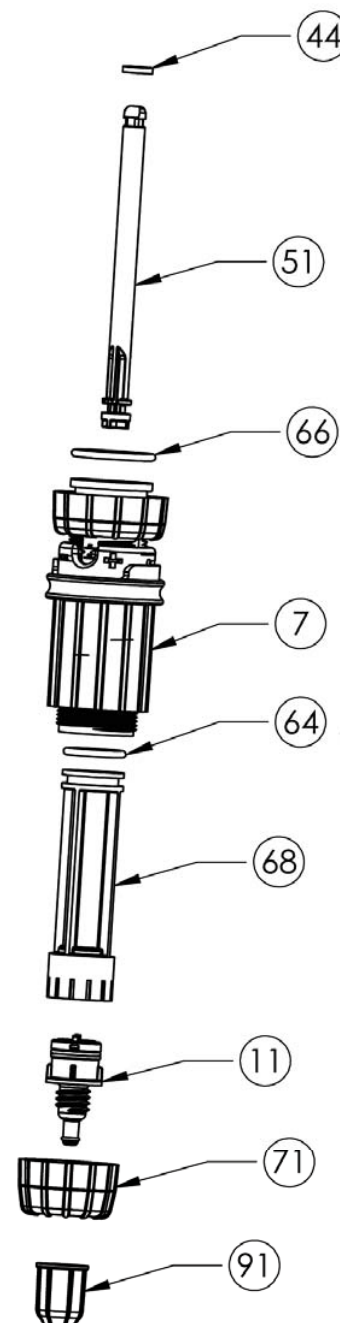
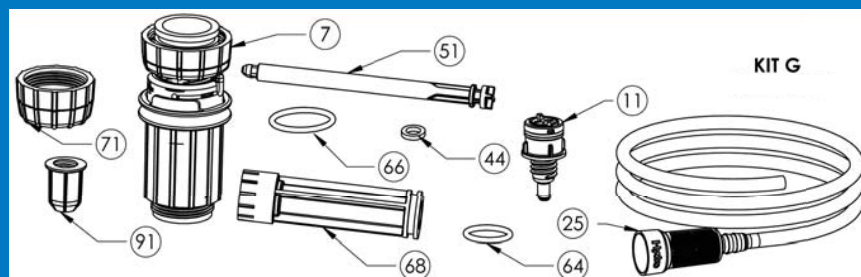
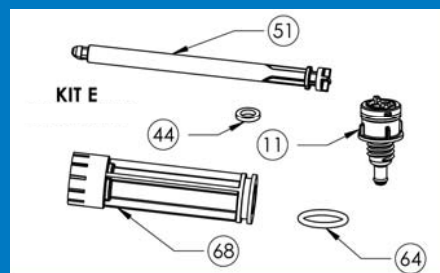
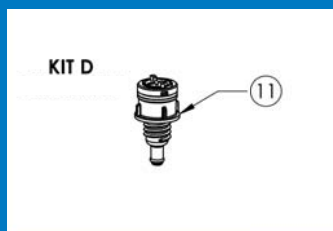
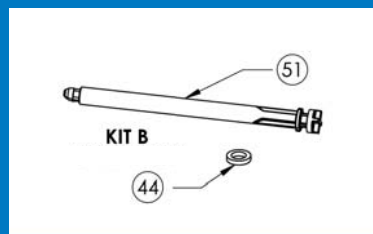
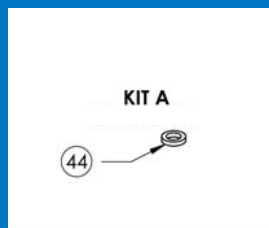
INJECTOR REPLACEMENT PARTS		
KIT#	PN#	ITEM
102801NPT	54496	BODY, ADJUSTABLE GX12i NPT
KIT H-017200	54492	MOTOR PISTON REPLACEMENT
KIT L-017202	54494	REPLACEMENT COVER KIT



**Kit H WSP: Motor piston kit**  
Motor piston assembly



Change  
as needed



# Repair Parts

## Kit A: Dosage gasket kit

Dosing gasket



### Light Usage:

Change every 6-12 months

### Medium Usage:

Change every 6 months

### Heavy Usage:

Change every 3-4 months

## Kit B: Wear kit

Dosing gasket, shaft



Change as needed

## Kit D WSP: Check valve kit

Suction tube fitting assembly (poppet, O-ring, spring, fitting)



Change as needed

## Kit E: Wear parts maintenance kit

Inner cylinder, shaft and check valve



Change as needed

## Kit G WSP: Complete lower end kit

Dosing gasket, O-ring, shaft, gasket, inner cylinder and check valve, outer cylinder, ratio adjuster, O-rings, pin, filter, solution tube with strainer filter



Change as needed

### Every 3 - 6 Months

1. Clean Seal areas #44.
2. Clean & Check #64 Seal, #68 Cylinder, clean and/or replace as necessary.
3. Clean Filters

### Every 6 - 12 Months

1. Replace Dosage gasket #44.
2. Clean and/or replace Check Poppet, inside #11 Suction Tube Fitting.

### Replace as Necessary

1. #68 Cylinder
2. #64 O-ring/Gasket
3. Motor Piston #9
4. #51 and #44 Shaft Assembly
5. Check Valve Assy and Tubing

**NOTE:** Maintenance intervals may vary depending on conditions of use and the chemicals being injected.

All references come with standard Viton seals.

## 2% INJECTOR MAINTENANCE KITS

KIT#	PN#	ITEM
KIT A-017210WSP	54527	AQUA BLEND 2% WSP WEAR KIT A VITON
KIT B-017211WSP	55532	AQUA BLEND 2% ADJ. WEAR KIT B VITON
KIT D-017213WSP	54528	AQUA BLEND 2% ADJ. WEAR KIT D CHECK VALVE VITON
KIT E-017214WSP	55541	AQUA BLEND 2% ADJ. WEAR KIT E VITON
KIT G-017216WSP	55542	AQUA BLEND 2% ADJ. WEAR KIT G LOWER REPLACEMENT VITON

## 5% INJECTOR MAINTENANCE KITS

KIT#	PN#	ITEM
KIT A-017220WSP	55524	AQUA BLEND 5% WSP WEAR KIT A VITON
KIT B-017221WSP	55540	AQUA BLEND 5% ADJ. WEAR KIT B VITON
KIT D-017223WSP	55525	AQUA BLEND 5% ADJ. WEAR KIT D CHECK VALVE VITON
KIT E-017224WSP	55526	AQUA BLEND 5% ADJ. WEAR KIT E VITON
KIT G-017226WSP	55527	AQUA BLEND 5% ADJ. WEAR KIT G LOWER REPLACEMENT VITON

### 2% RATIO TO SET %

RATIO	SET%
50 - 57	2.0%
58 - 64	1.8%
65 - 80	1.5%
81 - 95	1.25%
96 - 130	1.0%
131 - 180	.75%
181 - 400	.50%
401 - 650	.20%

### STEPS TO CALCULATE YOUR %

1. TAKE YOUR CHEMICAL TOTAL OZ.
2. DIVIDE THAT NUMBER BY TOTAL OZ OF CARRIER
3. MOVE DECIMAL RIGHT 2 SPACES  
EX: 6oz/640 = 0.009 = .9%

## DEFINITIONS:

**LIGHT USAGE:** Injector is used once a week

**MEDIUM USAGE:** Injector is used 3-4 times each week

**HEAVY USAGE:** Injector is used 24 hours a day, seven days a week

### 5% RATIO TO SET %

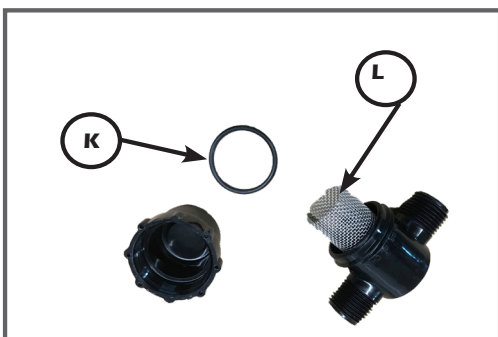
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76 - 128	1.0%



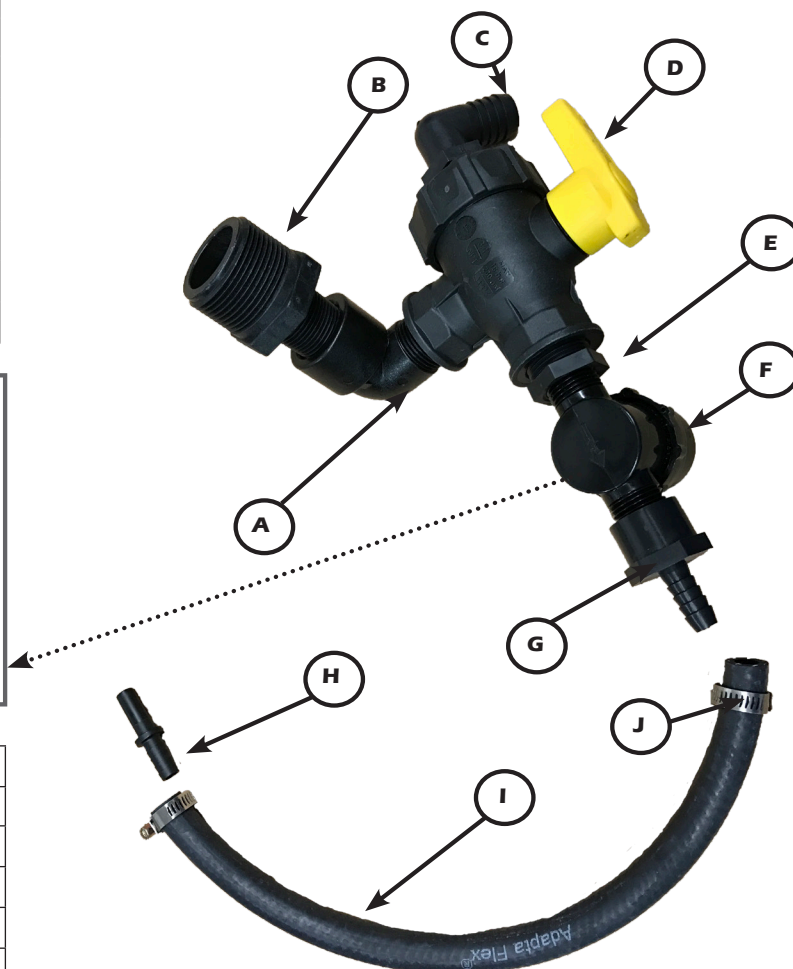


GX12INJECTOR - COMPLETE UNIT		
%	PN#	ITEM
2%	20202	2% COMPLETE UNIT WITH UBOLTS
5%	20556	5% COMPLETE UNIT WITH UBOLTS

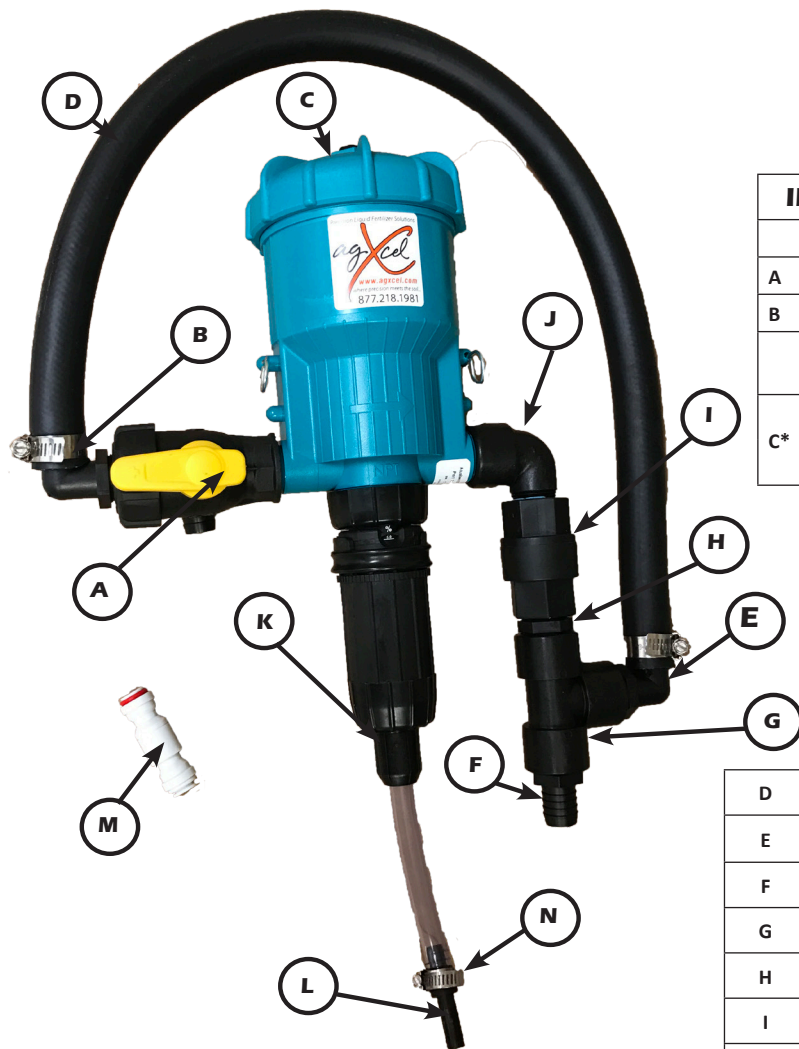
INJECTOR LOWER PLUMBING			
	PN#	QTY#	ITEM
A	52146	1	3/4 X 90D ELBOW
B	52108	1	1-1/4 X 3/4 REDUCER
C	32331	1	3EL34 POLY ELBOW
D	37667	1	3/4 3 WAY BALL VALVE
E	32432	1	3/4 X 1/2 BUSHING
F	31209	1	MINI STRAINER W/20MESH
G	32272	1	1/2" FEMALE TO 3/8" BARB
H	20808	1	3/8 STEM X 3/8 BARB
I	17614	3FT	3/8" BLACK HOSE
J	17649	2	SS HOSE CLAMPS #6



*PARTS INSIDE MINI STRAINER PN#31209			
K	30015	1	GASKET - BUNA
L	54426	1	20 MESH SCREEN
OPTIONAL MESH SCREEN/GASKET SOLD SEPARATELY			
30300			80 MESH SCREEN
30013			GASKET - VITON



INJECTOR COMPLETE UPPER PLUMBING		
%	PN#	ITEM
2%	20549	2% PLUMBING KIT - UPPER UNIT
5%	20555	5% PLUMBING KIT - UPPER UNIT



INJECTOR UPPER PLUMBING COMPONENTS			
	PN#	QTY#	ITEM
A	37667	1	3-WAY BALL VALVE
B	19646	2	CLAMP(S) #12
ONLY ONE OF THE BELOW FOR PART C DEPENDING ON PERCENT OF INJECTOR			
C*	54108	1	2% INJECTOR
	53513	1	5% INJECTOR

D	308	2FT	3/4" BLACK HOSE
E	32331	3	3EL34 POLY ELBOW
F	18005	1	AL34P-POLY HOSE BARB
G	52214	1	3/4" POLY PIPE TEE
H	32399	1	3/4 THREADED NIPPLE
I	54022	1	3/4" 1# IN LINE CHECK VALVE
J	52146	1	3/4 X 90D ELBOW
ONLY ONE OF THE BELOW FOR PART K DEPENDING ON PERCENT OF INJECTOR			
K*	55176	1	HOSE NUT FOR 2%
	55523	1	HOSE NUT FOR 5%
L	20808	1	3/8 STEM X 3/8 BARB
M	54207	1	3/8 CHECK VALVE .3PSI
N	17649	1	SS HOSE CLAMPS #6



### Keep From Extreme Temperature

Protect the injector from freezing temperature or excessive heat.

### Rinse Injector After Each Use

Additives allowed to remain in injector can dry out, foul or damage the lower end at the next start-up.

### Injector Not in Use for an Extended Period

If the injector has not been stored properly deposits may have dried onto the motor. Before operation, soak entire unit into room temperature water approximately 72°F (22°C) for a 24 hour period.

# Warranty

## Congratulations on Your Purchase

We make the best and most reliable fluid-driven injectors available. AgXcel will provide for replacement of all parts proven to be defective in material or workmanship from the date of purchase for the following periods:

1 year

**Covers your unit from manufacturing and material defects only.**

AgXcel products are warranted to be free from defects in materials and workmanship for the above time frames. AgXcel will at its sole option repair or replace any component that fails in normal use. Any repairs made under warranty shall not extend the initial warranty period.

## To Maintain Your Warranty

Your only responsibility is ordinary maintenance - filtering incoming fluid, replacing the O-ring and dosage piston/gasket when worn. Seals and O-rings are not covered under the warranty.

This warranty is not valid if the defects are found to be due to the product's misuse, lack of maintenance, fluid impurities such as sand or iron, defective installation, freezing, fluid hammer, abuse, unwanted side effects due to the chemicals you choose to inject or service provided by anyone who is not an authorized service provider. AgXcel declines any responsibility if the product is not used in compliance with the operating instructions and specifications as indicated in this owner's manual.

IN NO EVENT SHALL AGXCEL BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, WHETHER RESULTING FROM THE USE, MISUSE OR INABILITY TO USE THIS PRODUCT OR FROM DEFECTS IN THE PRODUCT.

There is no warranty expressed or implied relating in any way to products used in conjunction with AgXcel.

AgXcel or authorized distributor shall not be liable for incidental or consequential damage, such as any economic loss. AgXcel retains the exclusive right to repair or replace the product. Such remedy shall be your sole and exclusive remedy for any breach of warranty. There are no warranties, expressed or implied, which extend beyond those described above.

## To Return an injector for Warranty or Non-Warranty repair:

Contact AgXcel or your local distributor for return information.

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