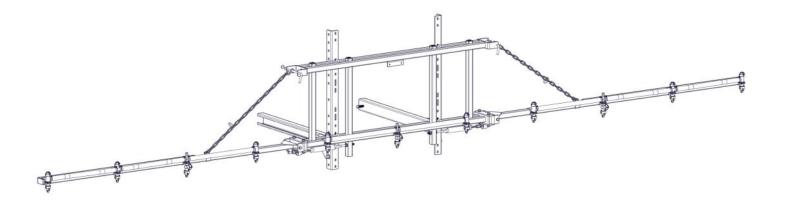
# **OWNER'S MANUAL**

# Model: BK-20 (5300716)

(11-Nozzle Boom Assembly)



### **General Information**

Thank you for purchasing this product. The purpose of this manual is to assist you in operating and maintaining your boom assembly.

BEFORE RETURNING THIS PRODUCT FOR ANY REASON, PLEASE CALL

# 1-800-831-0027

MONDAY-FRIDAY, 8:00 AM TO 5:00 PM CST

If you should have a question or experience a problem with your Fimco Industries Product: Visit our website @ www.fimcoindustries.com or call the Toll free number above. Our technical support representatives will be happy to help you. In most cases a customer service rep. can resolve the problem over the phone.

To obtain prompt, efficient service, always remember to give the following information....
Correct Part Description and/or part number
Model number and Serial Number
Part descriptions and numbers can be obtained from the illustrated parts list section(s) of this manual.

Retain a copy of your receipt for your unit, as it will be required to validate any warranty service.

Warranted against manufacturer or workmanship defects from date of purchase with copy of receipt:

Homeowner Usage: One Year.

Commercial Usage: 90 Days.



**WARNING:** To reduce the risk of injury, the user must read and understand the operator's manual before using this product.



WARNING: Cancer and Reproductive Harm. www.P65Warnings.ca.gov



www.fimcoindustries.com 1000 FIMCO Lane, P.O. Box 1700, North Sioux City, SD 57049 Toll Free Phone: 800-831-0027 : Toll Free Fax: 800-494-0440 [5004397 (11/22)]

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# Model: BK-20 (5300716)

(11-Row Boom Assembly)

#### **Technical Specifications**

- 11-Nozzle Boom Assembly (18' Spray Coverage)
  - Height Adjustment
- Tips/Caps/Strainers are Standard (Tips: 'AIXR' series) (Air Induction eXtended Range)
  - Diaphragm Check Valve Nozzles

#### 

It is <u>VERY</u> important to test the sprayer, after attaching any boom, with plain water before actual spraying is attempted. This will enable you to familiarize yourself with the sprayer and check for leaks without the possibility of losing any expensive chemicals.

#### ~~~~~~~~~~~~~WARNING~~~~~~~~~~~~~~~~~~~~~~~~

Read and Understand the Owner's Manual before using this boom. Test and use in accordance to instructions. Read and Follow chemical label instructions and wear protective gear when filling, using, cleaning and servicing the boom.

**Exercise Caution** in vehicle handling when towing/hauling a filled sprayer to avoid loss of control or overturning. **Keep Sprayer and Spray materials** away from other people, children and pets.

Do Not Turn on Power to the sprayer, until ready to spray in order to avoid unintentional spray release.

**Do Not Use** on steep slopes. A full sprayer could cause loss of control or overturn sprayer and vehicle.

Always operate up and down a slope, never across the face of a slope.

Keep all movement on slopes slow and gradual. Do not make sudden changes in speed, directions or turning. Do not start or stop suddenly when going uphill or downhill.

Stop on level ground, set the parking brake and shut off engine before leaving the operator's position for any reason.

Keep all parts in good condition and properly installed. Fix damaged or worn parts immediately.

**Caution should be taken** when towing and/or using any sprayer. The sprayer combined with the weight distribution, turning radius and speed of vehicle can result in damage to vehicle, sprayer and/or boom or severe injury or death, if not used properly.

Improper use or handling of chemicals could result in serious injury or illness, or could cause damage to the environment.

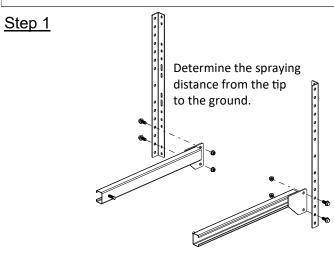
## **Assembly Procedure**

Remove the parts to the boom assembly from the carton. Refer to the parts list and exploded view drawing to help identify all the components.

Follow the steps on pages 3 and 4 to properly assemble the boom and refer to the exploded view/parts list for part numbers.

• Make sure all hose clamps are tight before testing or spraying for the first time.

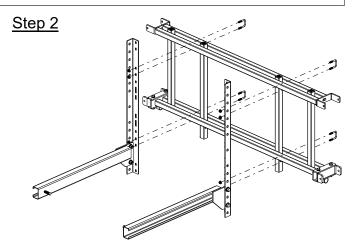
## **Assembly Procedure**



Slide the boom mounting brackets into the trailer frame side tubes. Secure in place with the square head set screws. Attach the boom mounting angles to the brackets with (4) bolts and whiz locknuts.

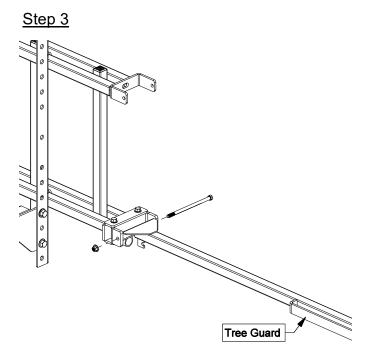
Height adjustment may be achieved by the following instructions:

- 1. Switch the boom mounting brackets from the right side to the left side and from left side to right side, they will turn over in doing so. Always keep the flat side of the channel to the inside.
- 2. Move the boom mounting angles up or down.
- 3. Move the boom center section up or down on the mounting angles.



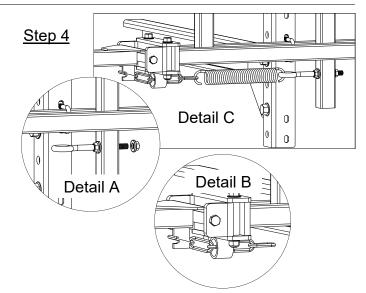
Center the center boom section and mount to the boom mounting angles using (4) u-bolts and whiz locknuts. The top tube that is flush with the clevis and has the valve mounting angle welded to it goes to the rear of the unit.

Note: Be sure the hinge for the break-away boom folds to the rear.



Typically, left and right hand sides are determined standing behind the unit, looking forward.

Connect the outer boom sections to the center boom section using (1)  $3/8'' \times 7''$  bolt and locknut per end boom. The tree guard on the booms go towards the front.



Thread a 3/8'' whiz locknut, flat side out onto each eyebolt. Insert the eyebolts through the hole(s) in the vertical tube of the center section (Detail A). Now start a 3/8'' whiz locknut onto the end of the eyebolt. **Do Not Tighten.** 

To make this step easier, allow the outer end of the booms to go down to the ground.

Hook a short chain (5 links) to the hook slot on the bottom side of the outer boom(s). Extend the chain through the tube on the lower hinge connector (Detail B).

Next, join the chain and eyebolt with a 6" spring (Detail C).

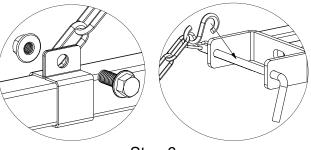
## Assembly Procedure



### <u>Step 5</u>

Place the hinge pin into each of the holes in the upper clevis on the center frame. Hold the pins in place with hairpin cotters.

These pins will hold the outer booms up when transporting.

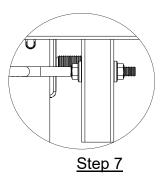


<u>Step 6</u>

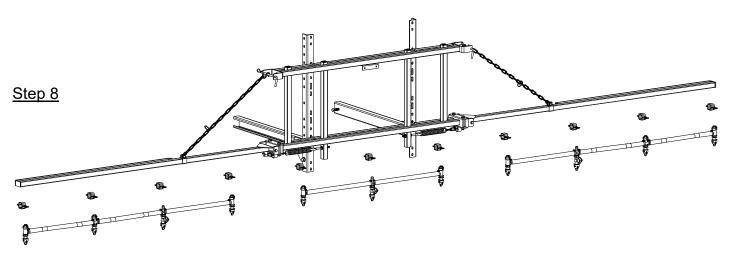
Attach a slide clamp and boom chain to each of the outer booms. The chain goes in between the clamp ears. Use a  $3/8" \times 1"$  bolt and whiz locknut to hold the chain to the clamp. Do not tighten.

Lift the outer end of the boom and connect the chain to the S-hook at the top end of center frame. Level the boom at this time by sliding the slide clamp until level and then tighten the slide clamp.

Squeeze the end of the S-hooks, with pliers, closed to hold the parts in place.



Tighten the spring to the desired tension by tightening the outer whiz locknut on the eyebolt further. When you have reached the desired tension, tighten the inner whiz locknut against the vertical tube to lock the eyebolt in place.



Starting with the center boom section center the nozzle harness on the boom and secure in place with the nozzle clamps provided. Next attach the outer boom nozzle harness, starting with the nozzle closest to the center frame and keeping approx. a 20" spacing between the end nozzle on the center frame and the start of the nozzle on the outer boom. Repeat for other side.

Attach your feeder hoses. Place a hose clamp over the end of the feeder hose loosely. Slip the end of the hose over the hose barb on the 'CROSS' fitting on the nozzle harness. Use a twisting motion, if necessary, to get the hose fully onto the barb. Bring the hose clamp to the connection point and tighten securely.

# After completion, sprayer will be ready to TEST w/plain water before actual use.

#### **Testing the Sprayer/Operation**

**NOTE:** It is VERY important to test your sprayer with plain water before actual spraying is attempted. This will enable you to familiarize yourself with the sprayer and boom and to check for leaks, without the possibility of losing any expensive chemicals. Follow the instructions in your sprayer manual for testing your sprayer.

Always have the pressure line open to the tips so that the air which may be trapped in the line will be forced (or purged) out. Start the tractor PTO. Check the entire system for leaks. Once the pump is primed, the pressure may be increased by turning the handle of the pressure relief valve. Keep the pressure line open to the tips when setting the pressure. Set the pressure and then lock the relief valve handle in place. Pressure will increase when the pressure line valve is closed and then return to the pressure when the valve is opened again.

The bypass valve is the "pressure control" for the entire plumbing system. The more the valve is open, the lower your line pressure. Almost fully closed provides maximum pressure to boom and/or handgun. **NEVER run your system with this valve 100% closed**.

During the testing period, be sure to observe the spray pattern given by the spray nozzles. If there is any pattern distortion, it will be necessary to remove and clean the affected tips.

**Caution:** Never use a metal object or other sharp item for cleaning a nozzle tip. It is better to use a nozzle brush (NOT wire brush) or compressed air for tip cleaning.

Conditions of weather and terrain must be considered when setting the sprayer. Do not spray on windy days. Protective clothing must be worn in some cases.

#### Be sure to read the chemical label(s) before application!

#### Calibration

The performance of any agricultural sprayer depends upon the proper application of the correct amount. Be sure that your equipment has been calibrated before spraying. This spray boom is equipped with 11 nozzles at 20" spacing.

Chemical labels may show application rates in gallons per acre, gallons per 1000 square feet or gallons per 100 square feet. You will note that the tip chart shows 2 of these rating systems.

Once you know how much you are going to spray, then determine (from the tip chart) the spraying pressure (PSI) and the spraying speed (MPH).

Determining the proper speed of the pulling vehicle can be done by marking off 100, 200 and 300 feet. The speed chart indicates the number of seconds it takes to travel the distances. Adjust the throttle until you travel the distances in the number of seconds indicated by the speed chart. Once you have reached the throttle setting needed, mark the throttle location, so you can stop and go again, returning to the same speed.

AIXR11003VP Spray Tip Rate Chart (20" Spacing)									
	Pressure (psi)	Capacity (GPM)	1 MPH	2 MPH	3 MPH	4 MPH	5 MPH	6 MPH	8 MPH
. Per e Water	15	.18	53.6	26.8	17.8	13.4	10.7	8.9	6.7
ons Per Acre on Wat	20	.21	62.4	31.2	20.8	15.6	12.5	10.4	7.8
Gallons I Acre sed on V	30	.26	77.2	38.6	25.8	19.3	15.4	12.9	9.7
Gallo A Based	40	.30	88.0	44.0	29.8	22.0	17.8	14.9	11.1
. Per <sub>q</sub> . Ft. Water	15	.18		.61	.41	.31	.24		
ıs Per ઠզ. Ft. n Wat	20	.21		.71	.48	.36	.29		
Gallons P 1000 Sq. ased on W	30	.26		.88	.59	.44	.35		
G 1( Basi	40	.30		1.0	.68	.51	.41		

Add water and proper amount of chemical to the tank and drive to the starting place for spraying.

Speed Chart					
Speed in M.P.H.	Time Required in seconds to travel a distance of				
(Miles Per Hour)	100 Ft.	200 Ft.	300 Ft.		
1.0	68 sec.	136	205		
2.0	34	68	102		
3.0	23	45	68		
4.0	17	34	51		
5.0	14	27	41		
6.0	11	23	34		
7.0	9.7	19	29		
8.0	8.5	17	26		

When selecting pressure from the tip chart, it is a good idea to try for the 20 or 30 PSI range as this allows an excellent nozzle pattern. 10 PSI begins to break up the pattern and at 40 PSI, you may notice some drift.

Four things must be considered before spraying with the boom.

- 1. How much chemical must be mixed in the tank.
- 2. Rate of spray (gallons per acre to be sprayed).
- 3. What pressure (p.s.i.) will be used.
- 4. Speed traveled (mph) while spraying.
- \* Refer to the chemical label to determine your chemical mixture

\* See the tip chart to determine the pressure to be used. The chart will also show the speed used when spraying.

If the towing vehicle does not have a speedometer, speed can be determined as per the directions above. Once you know how much you are going to spray, then determine (from the tip chart) the spraying pressure (PSI) and the spraying speed (MPH). The pressure can be set by running the sprayer with the boom nozzles "on" and then adjusting the relief valve until the gauge reads the desired pressure. Notice that the pressure will go up when the boom lines are shut off. This is normal and the pressure will return as before when you open the boom lines.

#### **Tip Selection**

**Important Note:** The tips supplied as standard with this boom assembly are number AIXR11003VP tips and can be used for a wide variety of spraying applications, when you refer to the spray tip rate chart found in this owner's manual. The speed and pressure charts shown, indicate the rates can be changed considerably by changing speed and pressure. These rates are based on water. Quick Teejet nozzles with diaphragm check valves make checking tips and strainers fast and easy. The diaphgragm check system eliminates excessive dripping from the tips. You will note that they have a GPA range of 10.7 to 17.8 GPA (Gallons Per Acre). This is tabulated at 5 MPH and from 15-40 psi and 20" nozzle spacing. These rates are based on water. Please read this tip selection section carefully before attempting to operate your boom assembly.

The selection of proper tips for the boom is determined by the gallon per acre (GPA) requirement, which is specified on the chemical label. The following characteristics also have a determining factor and must be considered:

- 1. Speed of spraying (MPH)
- 2. Boom nozzle spacing (specified in inches)
- 3. Solution weight and conversion factor (CF)
- 4. Gallons of solution to be sprayed per acre
- 5. Spraying pressure

#### **Useful Formulas:**

GPM—Gallons Per Minute GPA—Gallons Per Acre MPH—Miles Per Hour

#### **Flow Rate**

Nozzle flow rate varies with spraying pressure. In general, the relationship between GPM and pressure is as follows: Simply stated, to double the flow through a nozzle, the pressure be increased four times.

Higher pressure not only increases the flow rate of the nozzle, but it also influences the droplet size and the rate of orifice wear. As pressure is increased, the droplet size decreases and the rate of orifice wear is increased. The values given in the tabulation section of this owner's manual indicate the most commonly used pressure ranges for the associated spray tips.

#### Angle and Coverage

Depending on the nozzle type and size, the operating pressure can have a significant effect on spray angle and quality of spray distribution. Example, lowing the pressure results in a smaller spray angle and a significant reduction in spray coverage.

Tabulations for spray tips shown in this owner's manual are based on spraying water. Generally, liquids more viscous than water form relatively smaller spray angles. Whereas, liquids with surface tensions lower than water will produce wider spray angles. In situations where the uniformity of spray distribution is important, be careful to operate your spray tips within the proper pressure range.

#### NOTE: Suggested minimum spray heights for broadcast spraying are based upon nozzles spraying water at the rated spray angle.

#### **Nozzle Spacing**

If the nozzle spacing on your boom is different from those tabulated, multiply the tabulated GPA coverage by one of the following factors.

Where Tables are Based on 20" Nozzle Spacing									
Other Spacing	8"	10"	12"	14"	16"	18"	22"	24"	30"
Conversion Factor	2.5	2	1.67	1.43	1.25	1.11	.91	.83	.66
	Where Tables are Based on 30" Nozzle Spacing								
Other Spacing	26"	28"	32"	34"	36"	38"	40"	42"	44"
Conversion Factor	1.15	1.07	.94	.88	.83	.79	.75	.71	.68
	Where Tables are Based on 40" Nozzle Spacing								
Other Spacing	28"	30"	32"	34"	36"	38"	42"	44"	48"
Conversion Factor	1.43	1.33	1.25	1.18	1.11	1.05	.95	.91	.83

Suggested Minimum Spray Heights						
	Nozz	le Height				
Spray	20"	30"	40"			
Angle	Spacing	Spacing	Spacing			
65°	22"-24"	33"-35"	NR*			
80°	17"-19"	26"-28"	NR*			
110°	12"-14"	16"-18"	NR*			
120° *** *** ***						
	Spray Angle 65° 80° 110°	Nozz           Spray         20"           Angle         Spacing           65°         22"-24"           80°         17"-19"           110°         12"-14"	Nozzle Height           Spray         20"         30"           Angle         Spacing         Spacing           65°         22"-24"         33"-35"           80°         17"-19"         26"-28"           110°         12"-14"         16"-18"			

\* Not Recommended

\*\*\* Wide Angle Spray Tip is influenced by nozzle orientation. The critical factor is to achieve a double spray patter overlap.

#### **Spraying Solutions Other Than Water**

Since all the tabulations are based on spraying water, which weights 8.34 lbs. per USA gallon, conversion factors must be used when spraying solutions which are heavier or lighter than water. To determine the proper size nozzle for the solution to be sprayed, first multiply the desired GPM or GPA of solution by the rate conversion factor. Then use the new converted GPM or GPA rate to select the proper size nozzle.

Example: Desired application rate is 20 GPA of 28% Nitrogen. Determine the correct nozzle size as follows:

GPA (Solution) x Conversion Factor = GPA 20 GPA (28%) x 1.13 = 22.6 GPA (Water)

The applicator should choose a nozzle size that will supply 22.6 GPA of water at the desired pressure.

#### **Miscellaneous Conversion Factors**

- One Acre = 43,560 square feet = 0.405 Hectacre
- One Hectacre = 2.471 Acres

One Gallon Per Acre = 9.35 Liters Per Hectacre

One Mile = 5280 Feet = 1610 Meters = 1.61 Kilometers

One Gallon = 128 Fluid Ounces = 8 Pints = 4 Quarts = 3.79 Liters = 0.83 Imperial Gallons

One Pound Per Square Inch = 0.069 bar. = 6.895 Kilo-Pascals

One Mile Per Hour = 1.609 Kilometers Per Hour

Weight of Solution	Specific Gravity	Conversion Factors
7.0 lbs. per gallon	.84	.92
8.0 lbs. per gallon	.96	.98
8.345 lbs. per gallon (Water)	1.00	1.00
9.0 lbs. per gallon	1.08	1.04
10.0 lbs. per gallon	1.20	1.10
10.66 lbs. per gallon (28% Nitrogen)	1.28	1.13
11.0 lbs. per gallon	1.32	1.15
12.0 lbs. per gallon	1.44	1.20
14.0 lbs. per gallon	1.68	1.30

#### Maintenance During/After Spraying

After use, fill your sprayer tank part way with water. Start the sprayer and allow the clear water to be pumped through the plumbing system and out through the spray nozzles.

Refill the tank about half full with plain water and use FIMCO Tank Neutralizer and Cleaner and repeat cleaning instructions above. Flush the entire sprayer with the neutralizing/cleaning agent, then flush out one more time with plain water. Follow the chemical manufacturer's disposal instructions of all wash or rinsing water. For the boom, remove the tips and screens from the nozzle assemblies. Wash these items out thoroughly. Blow the orifice clean and dry. If the orifice remains clogged, clean it with a fine bristle (NOT WIRE) brush or with a toothpick. Do not damage the orifice. Water rinse and dry the tips before storing.

#### Winterizing your Sprayer

It is essential that you winterize your sprayer to avoid damage and to allow for optimal performance. The winterization process should be undertaken before freezing conditions and/or after each season of use.

Drain all water out of your sprayer, paying special attention to the pump, handgun and valve(s). These items are especially prone to damage from chemicals and freezing weather.

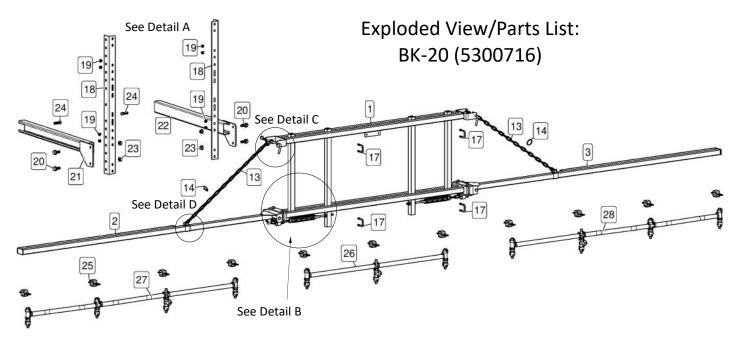
The sprayer should be winterized before storage by pumping a solution of automotive antifreeze (containing a rust inhibitor) through the entire plumbing system. This antifreeze solution should remain in the plumbing system during the winter months.

1. Verify that the tank is empty and rinsed out. Pour 1-2 gallons of antifreeze into the tank.

Using a solution of automotive antifreeze (containing a rust inhibitor).

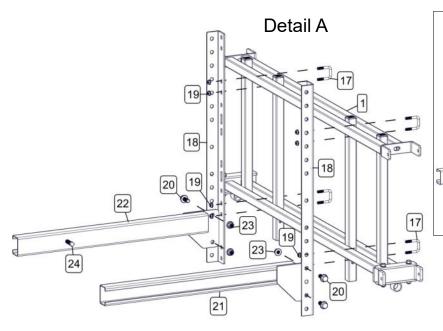
- 2. Engage the pump and spray with the boom and spray gun (if applicable). Make sure that the antifreeze has been pumped through the entire system, including all spray nozzles.
- 3. Before spraying in the spring, it is recommended to flush the sprayer with fresh water to cleanse it of the antifreeze and any other buildup. It would also be beneficial to do a thorough inspection of all sprayer components before spraying.

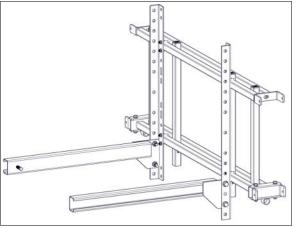
Proper care and maintenance will prolong the life of your sprayer.

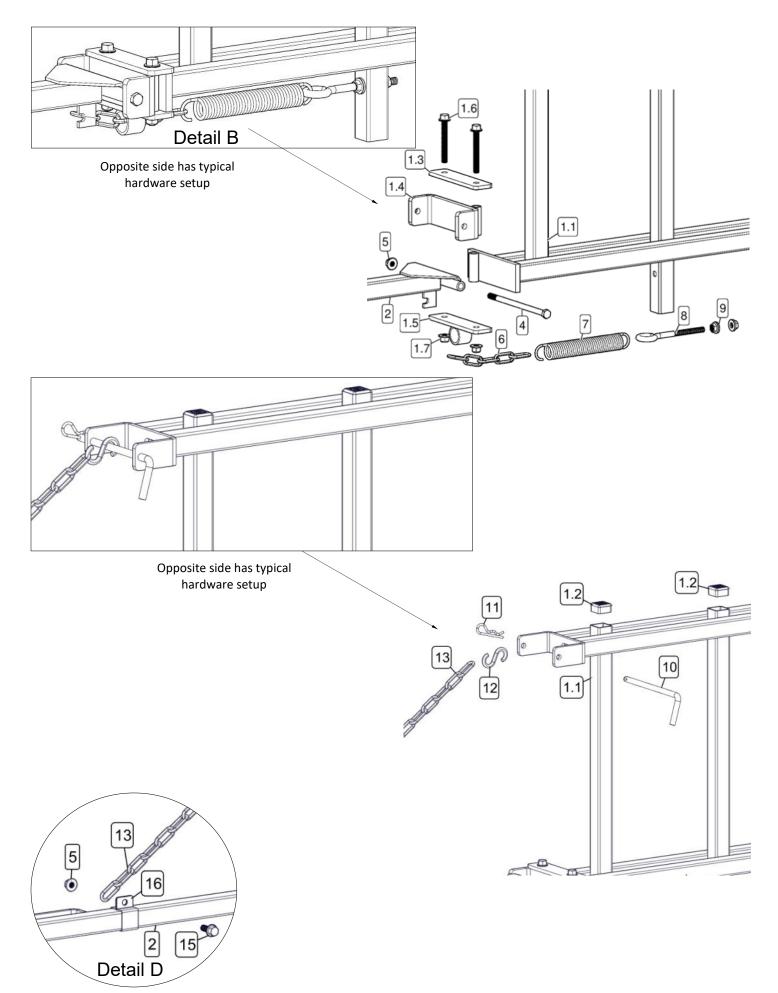


Ref. #	Part #	Description	Qty
1	5275093	Center Boom Assembly	1
1.1	5272193-BLK	Center Frame Weldment	1
1.2	5046344	Square Cap, Black (1 1/4" Square)	4
1.3	5080018-BLK	Hinge Connector	2
1.4	5272195-BLK	Hinge Clevis Weldment	2
1.5	5272194-BLK	Lower Hinge Connector Weldment	2
1.6	5034669	H.H.C.S. Flanged 3/8"-16nc x 3"	4
1.7	5006345	3/8-16nc Hex Flanged Toplock Nut	4
2	5273337-BLK	Outer Boom Weldment (L.H.)	1
3	5273336-BLK	Outer Boom Weldment (R.H.)	1
4	5034187	H.H.C.S., 3/8"-16 x 7"	2
5	5006345	3/8-16nc Hex Flanged Toplock Nut	4
6	5049031	Spring Chain (5 Links)	2
7	5019142	Turf Spring, 6"	2
8	5034107	3/8" x 4" Eyebolt, Turned, Zinc-Plated	2
9	5006259	3/8"-16 Hex Whiz (Flange) Locknut	4
10	5101096-BLK	Hinge Pin	2
11	5101065	#211 Hitch Pin Clip (Zinc Plated)	2

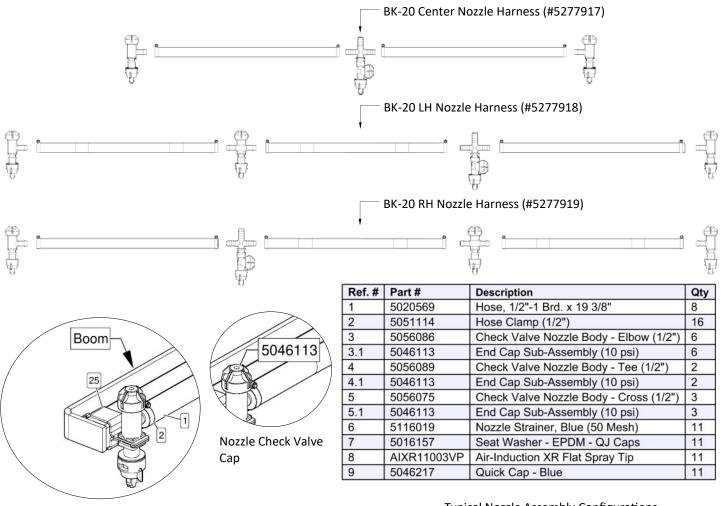
Ref. #	Part #	Description	Qty
12	5082006	"S" Hook	2
13	5049037	Chain (4 Ft.) (22 Links)	2
14	5110125	Steel Split Ring	2
15	5117307	H.H.C.S. Flanged 3/8"-16nc x 1"	2
16	5051085-BLK	Slide Clamp	2
17	5034159	Square U-Bolt, 5/16" x 1 5/16" x 1 7/8"	4
18	5022255-BLK	Boom Upright Angle	2
19	5006307	5/16"-18 Hex Whiz (Flange) Locknut	8
20	5034691	H.H.C.S. Flanged 1/2"-13nc x 1 1/4"	4
21	5274061-BLK	Boom Mounting Bracket (L.H.)	1
22	5274060-BLK	Boom Mounting Bracket (R.H.)	1
23	5006365	1/2-13nc Hex Flanged Toplock Nut	4
24	5117104	1/2"-13 x 1 1/2" Sq. Head Set Screw	2
25	5272165	Vari-Quick Clamp (1 1/4" Sq. Tube)	11
26	5277917	Center Nozzle Harness (QJD - 1/2")	1
27	5277918	LH Nozzle Harness (QJD - 1/2")	1
28	5277919	RH Nozzle Harness (QJD - 1/2")	1







## **BK-20 Harness Parts List**



#### NOTES:

All hoses in this boom assembly are part #5020569 (Item 1) All hose clamps (2 per hose) are #5051114 (Item 2) All Nozzle Clamps are #5272165 (Item 25 on Parts List, Page 8)

The AIXR TeeJet Flat Spray Tip offers the benefits of obtaining excellent drift resistance without compromising spray coverage. Tips producing very coarse droplets do minimize drift but do not provide the same surface coverage as tips that produce smaller droplets. In some applications, inadequate coverage decreases the effectiveness of the applied chemicals. AIXR Features and Benefits

- 110° wide, tapered flat spray angle with air induction technology for better drift management
- Made of 2-piece UHMWPE polymer construction which provides excellent chemical resistance, including acids, as well as exceptional wear life
- Compact size to prevent tip damage
- Removable pre-orifice
- Excellent for systemic products and drift management

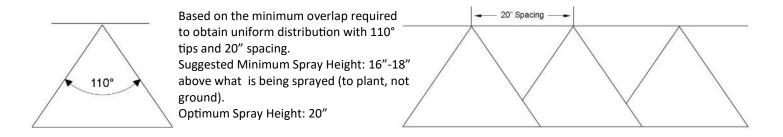
#### Typical Nozzle Assembly Configurations

i ypicai i	NOZZIE ASSEIIIDIY CC	ingulations
Elbow	Тее	Cross
Assembly	Assembly	Assembly
#5277717	#5277718	#5277719
₿ P		



Nozzle Assemblies consist of "Elbow", "Tee" & "Cross" style nozzles.

Assemblies include: Nozzle Body, Strainer, Seat Washer, AIXR11003VP Nozzles & Nozzle Cap



- 110° wide, tapered flat spray angle with air induction technology for better drift management
- Made of 2-piece UHMWPE polymer construction which provides excellent chemical resistance, including acids, as well as exceptional wear life
- Compact size to prevent tip damage
- Excellent for systemic products and drift management

# NOTES:

# Warranty

#### LIMITED WARRANTY FOR NEW FIMCO, IND. EQUIPMENT

WHO MAY USE THIS LIMITED WARRANTY. This limited warranty (the "Limited Warranty") is provided by Fimco, Ind. to the original purchaser ("you") of the Equipment (as defined below) from Fimco, Ind. or one of Fimco, Ind.'s authorized dealers. This Limited Warranty does not apply to any subsequent owner or other transferee of the Equipment. THIS LIMITED WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

WHAT THIS LIMITED WARRANTY COVERS AND FOR HOW LONG. Finco, Ind. warrants that any new Equipment will be free from defects in material and workmanship for a period of **one (1) year** (homeowner), **90 days** (commercial user), after delivery of the Equipment to you (the "Warranty Period"). The Warranty Period is not extended if Finco, Ind. repairs or replaces the Equipment.

WHAT IS NOT COVERED BY THIS LIMITED WARRANTY. This Limited Warranty does not apply to: (1) used Equipment; (2) any Equipment that has been altered, changed, repaired or treated since its delivery to you, other than by Fimco, Ind. or its authorized dealers; (3) damage or depreciation due to normal wear and tear; (4) defects or damage due to failure to follow Fimco, Ind.'s operator's manual, specifications or other written instructions, or improper storage, operation, maintenance, application or installation of parts; (5) defects or damage due to misuse, accident or neglect, "acts of God" or other events beyond Fimco, Ind.'s reasonable control; (6) accessories, attachments, tools or parts that were not manufactured by Fimco, Ind., whether or not sold or operated with the Equipment; or (7) rubber parts, such as tires, hoses and grommets.

HOW TO OBTAIN WARRANTY SERVICE. To obtain warranty service under this Limited Warranty, you must (1) provide written notice to Fimco, Ind. of the defect during the Warranty Period and within **thirty (30)** days after the defect becomes apparent or the repair becomes necessary, at the following address: Fimco, Ind., 1000 Fimco Lane, North Sioux City, SD 57049; and (2) make the Equipment available to Fimco, Ind. or an authorized dealer within a reasonable period of time. For more information about this Limited Warranty, please call: **800-831-0027**.

WHAT REMEDIES ARE AVAILABLE UNDER THIS LIMITED WARRANTY. If the conditions set forth above are fulfilled and the Equipment or any part thereof is found to be defective, Fimco, Ind. shall, at its own cost, and at its option, either repair or replace the defective Equipment or part. Fimco, Ind. will pay for shipping and handling fees to return the repaired or replacement Equipment or part to you.

LIMITATION OF IMPLIED WARRANTIES AND OTHER REMEDIES. THE REMEDIES DESCRIBED ABOVE ARE YOUR SOLE AND EXCLUSIVE REMEDIES, AND FIMCO, IND.'S SOLE LIABILITY, FOR ANY BREACH OF THIS LIMITED WARRANTY. TO THE EXTENT APPLICABLE, ANY IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL BE LIM-ITED IN DURATION TO THE WARRANTY PERIOD, AND THE REMEDIES AVAILABLE FOR BREACH THEREOF SHALL BE LIMITED TO THE REMEDIES AVAILABLE UNDER THIS EXPRESS LIMITED WARRANTY. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. IN NO EVENT SHALL FIMCO, IND.'S LIABILITY UNDER THIS LIMITED WARRANTY EX-CEED THE ACTUAL AMOUNT PAID BY YOU FOR THE DEFECTIVE EQUIPMENT, NOR SHALL FIMCO, IND. BE LIABLE, UNDER ANY CIRCUMSTANCES, FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL OR PUNITIVE DAMAGES OR LOSSES, WHETHER DIRECT OR INDIRECT. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.