BURFORD® CORP.

SERVICE MANUAL

FOR YOUR

BURFORD TOPPER

MODEL 9200 or 9300

MODEL #_____
SERIAL #_____
WIRING DIAGRAM_____

DATE: March 3, 2003

MANUAL PART No. A05501C

SAFETY PRECAUTIONS

AS BURFORD CORP. STRIVES TO PROMOTE SAFETY IN THE MAINTENANCE AND OPERATION OF BURFORD EQUIPMENT, WE REQUEST THAT THE FOLLOWING SAFETY FEATURES BE FOLLOWED, ALONG WITH ANY ADDITIONAL SAFETY PROCEDURES SET BY THE CUSTOMER'S IN-PLANT SAFETY OFFICERS OR LOCAL CODES.

1. **Read manual completely before attempting installation or operation of this unit.**

2. **Incoming electrical power must be properly shielded, routed, and grounded. All safety codes should be followed and only qualified personnel should attempt wiring terminations. Study wiring diagrams before attempting installation.**

3. **Disconnect power to equipment before removing any guards or covers. Replace guards or covers before resuming operation of the unit.**

4. **Loose clothing, jewelry and long hair should be considered a safety hazard around mechanical equipment. Ensure that they will not be entangled in the equipment.**

5. **Do not bypass safety switches.**

6. **Do not attempt repairs while equipment is running.**

7. **Use only original equipment parts designed to safely operate in the equipment.**

8. **Only authorized personnel should be allowed to operate or perform maintenance on the unit.**

9. **The equipment should only be used for the purpose for which it was sold, and should not be modified in any way without notifying the General Manager of Burford Corporation in writing of the modification.**

DISCLAIMER

The descriptions contained in this Service Manual were in effect at the time this manual was approved for printing. Our policy is one of continuous improvement, and we do hereby reserve the right to discontinue models at any time, or to change specifications, prices, or designs without notice and without incurring obligations.

Burford Corp. expressly disclaims any liability for damages and/or injuries caused as a result of negligence or misuse of its product. Such negligence or misuse includes, but is not limited to the removal of guards, or faulty wiring due to improper installation.

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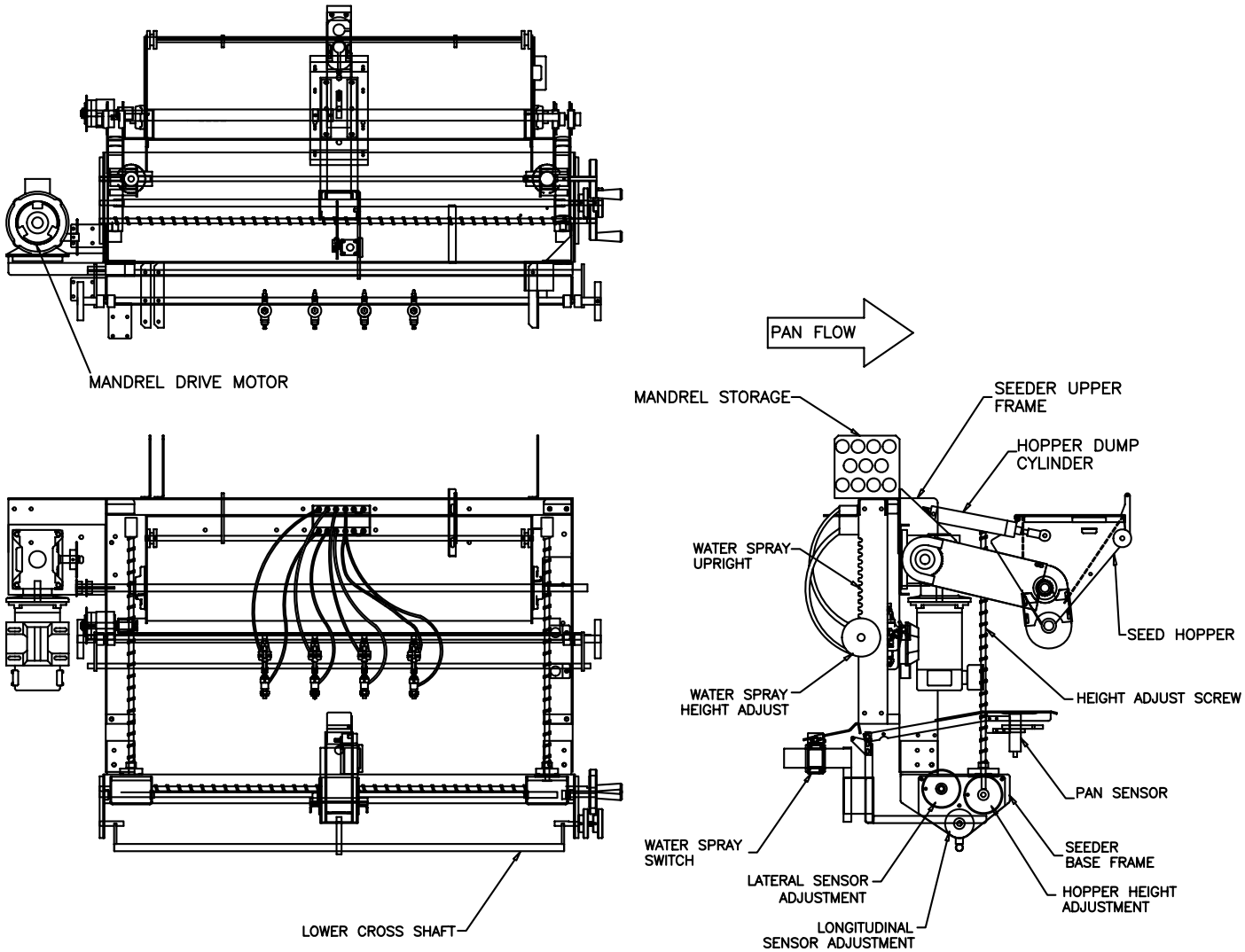
1.0 INTRODUCTION

The Burford Rotary Toppers have been designed to apply poppy, sesame, cracked wheat, bran, rough salt and other similar ingredients, that have been factory approved.

The unit that you received was manufactured to apply only the ingredients that were specified on your order. Your topper was factory tested with topping, into the pans that were furnished to us from your company.

The following pages contain installation, operation and maintenance instructions. To ensure maximum performance, these instructions should be followed with care.

1.1 BASIC IDENTIFICATION



Right Hand Unit Shown

2.0 THEORY OF OPERATION

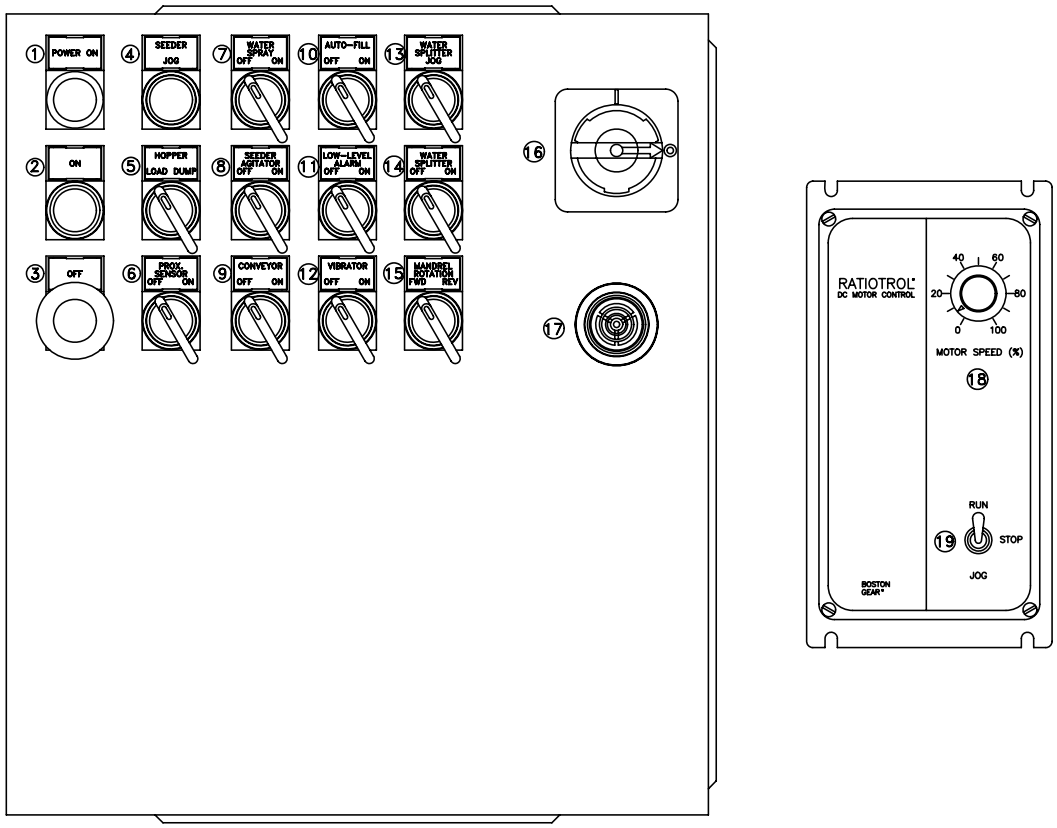
As the conveyor is started, and the pan is placed on it, it travels toward the water spray and topper.

The pan first encounters a proximity sensor. Once the cup has actuated the proximity sensor, an electrical signal is sent to the air valve to transfer air to the upper portion (black hose) of the nozzle. This air pulls the connecting pin upward to open the valve on the nozzle and allows the water to spray out. Once the signal is gone, the internal spring returns the valve to the “OFF” position and the water sprays stop until the signal is sent by the following cup.

The pan now travels downstream a little further, where it encounters another proximity switch. This is located under the conveyor in order to sense each cup of the pan. Once the cup has covered the proximity switch, an electrical signal is sent to the clutch valve to transfer air to the air clutch and begins to drive the mandrel. As the mandrel rotates, the topping is dispensed from the hopper onto the dampened product. The DC control motor controls the amount of topping dispensed in relation to the conveyor speed.

Once the cup has traveled off the proximity switch, the air clutch disengages the mandrel and the topping stops until the next cup travels over the proximity switch.

2.1 MAIN CONTROL ELECTRICAL PANEL



REF	ITEM	DESCRIPTION
1	Power On Light	Indicates electrical power to topper and spray system.
2	Start Switch	Supplies electrical power to unit to begin operation.
3	Stop Switch	Stops incoming power to topper and spray system.
4	Topper Jog	Depress to manually engage clutch to test topper coverage.
5	Hopper Selector	“Load Position” is normal operating position.
6	Proximity Sensor Selector	Turns topper proximity system “ON” or “OFF” only.
7	Water Spray Selector	Turns water spray system “ON” or “OFF” only.
8	Seeder Agitator	(IF EQUIPPED) Turns the topping agitator inside the hopper “ON” or “OFF”.
9	Conveyor Switch	Turns conveyor drive motor “ON” or “OFF”.
10	Auto-Fill Switch	(IF EQUIPPED) Controls power to Burford Auto-Fill system.
11	Low-Level Alarm Switch	(IF EQUIPPED) Enables auto-fill alarm system.
12	Vibrator Switch	(IF EQUIPPED) Controls power to Burford Hopper Vibrator system.
13	Water Splitter Jog	(IF EQUIPPED) Depress to manually turn “ON” splitter valves.
14	Water Splitter Selector	(IF EQUIPPED) Controls power to water splitter.
15	Mandrel Rotation	(IF EQUIPPED) Controls direction of mandrel rotation.
16	Main Disconnect	Controls incoming power to unit.
17	Audible Alarm	Signals operator when alarm condition occurs.
18	Speed Control	Controls the density of the topping in relation with conveyor speed.
19	Stop/Run	Controls power to DC motor.

3.0 INSTALLATION PROCEDURES

The Burford Rotary Topper was shipped to you completely assembled. Partial disassembly is required before the actual mounting. The disassembly of the unit should be done carefully to prevent damage to the unit.

A. UNPACKING PROCEDURE FOR UNITS TO BE INSTALLED ON EXISTING CONVEYOR.

1. Uncrate the topper and set upright onto the packing crate cushions. Keep the shafts below the lower cross frame cushioned.

2. Loosen and remove the bolts that hold the upper cross frame to the uprights and carefully lay aside. You should now have two separate assemblies of the topper. Remove pan sensor truck assembly.

3. Locate the four (4) mounting brackets, nuts and bolts in the Installation kit.

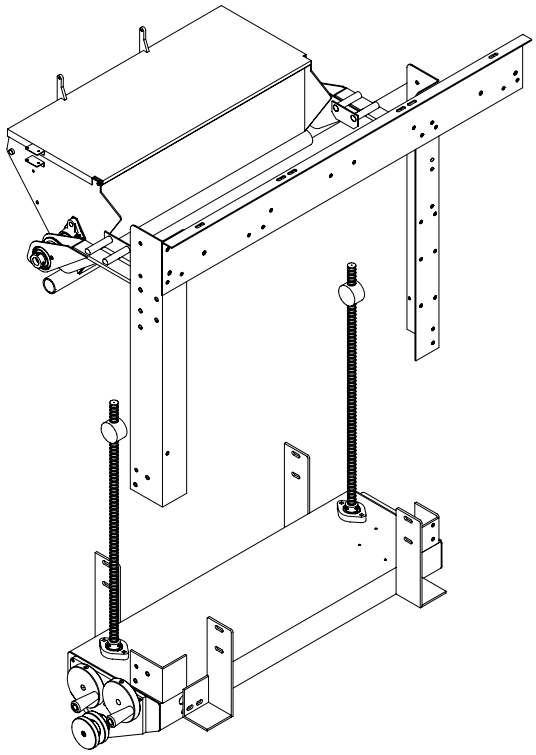


Fig. 3

3.0 INSTALLATION PROCEDURES (cont'd)

B. DETERMINING LOCATION

CONVEYOR REQUIREMENTS:

1. The conveyor used should have at least 60 inches of free length. This distance should be measured from the conveyor sides only, since some conveyor chains extend past the conveyor sides.

2. The sides of the conveyor should be free of any interference from bolts, conduit, motors, shafts, junction boxes, guarding, support members, etc.

3. The underside of the conveyor should also be clear of the interference's listed above in number 2.

4. The top of the conveyor should be an open style, so the actuation switches are free to move from side to side, upstream and downstream.

5. Pan guides must be used to keep the pans straight when traveling through the topper. The guides should not extend more than 1 1/2 inches above the top of the pan.

6. The conveyor chosen should not allow the pans to stop, turn, or back-up.

7. Area around the topper installation site should be clear of any obstructions and the topper shall not be installed in such a way as to create a safety hazard, or block a normal passage way. Clearance must conform to all local safety codes.

8. Installation site should have ample clearance on operator control side for:
    A. Easy access
    B. Removal of mandrel
    C. Normal maintenance

Consideration must be made for the possibility of product storage near installation site.

3.0 INSTALLATION PROCEDURES (cont'd)

C. UTILITY REQUIREMENTS

NOTE: This information is for standard toppers. See wiring diagram supplied with the topper in the event your machine was a custom order, has other voltage or special circumstance.

1. Air - 80 psi
2. Water - 50 psi
3. Electricity - 110 volt, 1 phase, 60 cycle.

D. TOPPER INSTALLATION

Measure the width of the conveyor and then bolt the four (4) mounting brackets onto the lower cross frame in the corresponding mounting holes. If the exact distance cannot be obtained, then spacers, between brackets and conveyor frame may be used.

With the mounting brackets in place, slide the lower cross frame under the conveyor and raise upward until the top of the cross frame is 3/4 of an inch from touching the conveyor frame. The holes in the mounting brackets are ready to be marked and drilled. The lower cross frame can now be held up and bolted on.

After the lower cross frame is in place, the hopper and upper cross frame can be bolted on the uprights, on each side of the lower cross frame.

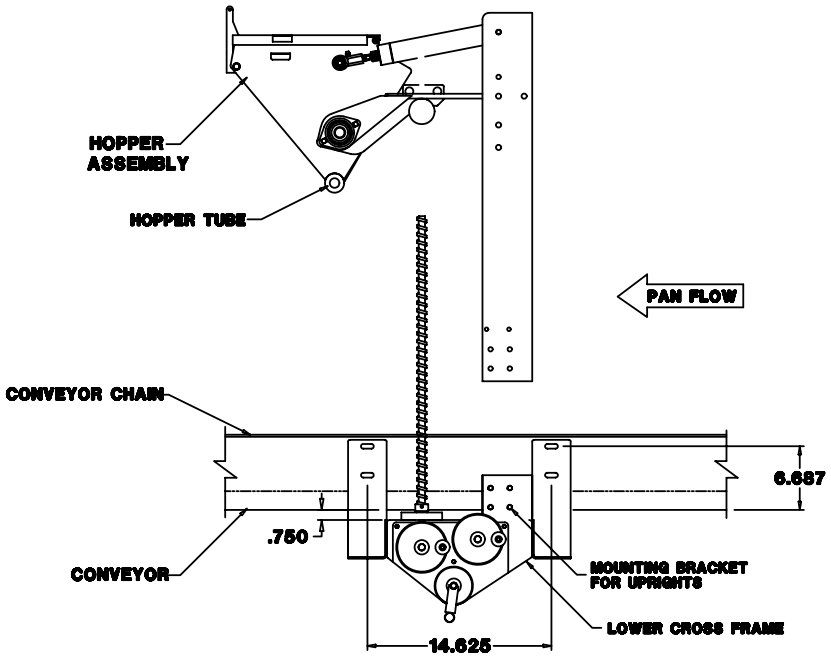


Fig. 4

NOTE: When mounting hopper, use extreme care so as not to damage the tube of the hopper.

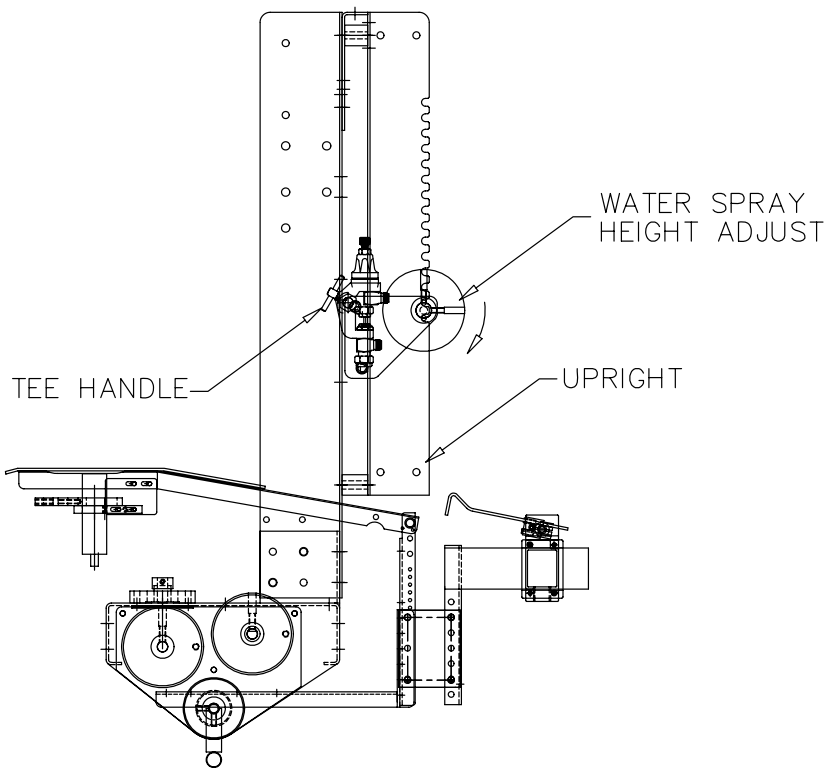
3.0 INSTALLATION PROCEDURES (cont'd)

E. UTILITY INSTALLATION

A qualified electrician must make all electrical hook-ups and must be incorporated into a suitable service with all safety requirements and compliance to local codes.

F. ACCESSORY INSTALLATION

Once the topper is mounted in place, the control boxes, water regulator and air filter can be mounted. The location is at your option, such as the conveyor, wall, post, etc. The operators control box should be mounted so the operator can have easy access to the controls.



4.0 SETUP PROCEDURES

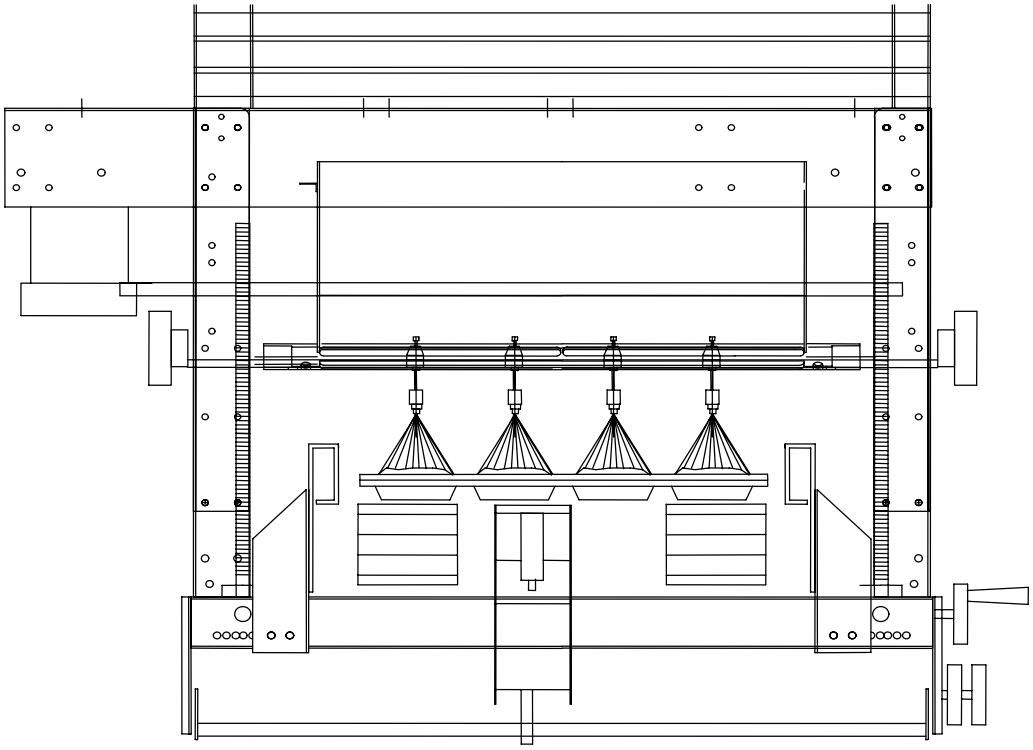
4.1 WATER SPRAY SYSTEM

1. NOZZLE HEIGHT:

The nozzle height should be set approximately 2 - 3 inches above the product. This distance may change for your particular product. The proper height can easily be determined by the first few pans run through.

The height can be raised or lowered by the use of the two control knobs, located on either side of the uprights.

CAUTION: ***DO NOT LIFT UP ON NOZZLE MOUNT ARM TO MAKE ADJUSTMENTS AS THIS WOULD CAUSE THE ADJUSTMENT TEETH TO DISENGAGE AND POSSIBLY DAMAGE THE ARM AND NOZZLES.***



FRONT VIEW

Fig. 6

4.0 SETUP PROCEDURES (cont'd)

2. NOZZLE POSITION

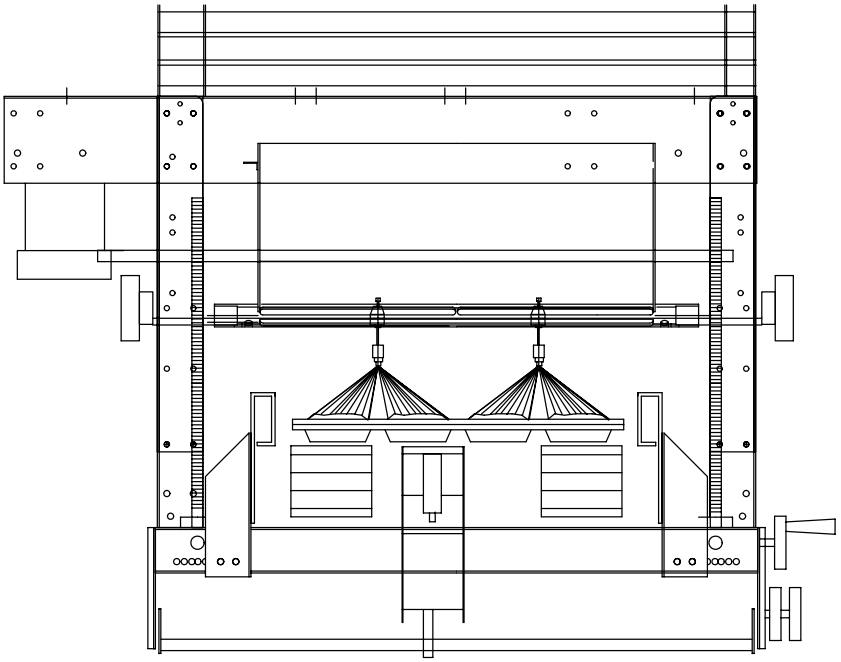
The position of the nozzles should be set so the spray is directly over the cups in the pan. All the nozzles should be set in a direct line with one another. The nozzles can easily be moved by the use of the T-handle lock on each nozzle. (See figure on page 5-4 for T-handle location.)

3. NOZZLE DAMPNESS OUTPUT

The degree of dampness obtained on the product will be determined by the number of nozzles used, water pressure, and orifice size used in each nozzle.

3a. Each nozzle has its own manual cut off and should be used accordingly to the number of cups in the pan.

3b. The recommended pressure settings are 40 psi for water and 60 psi for air, minimum.



1 NOZZLE FOR 2 ROWS
FRONT VIEW

Fig. 7

4.0 SETUP PROCEDURES (cont'd)

3c. The orifice size of each nozzle as it came from factory is .012. This size should be sufficient for your product, but larger or smaller sizes may be obtained if needed. (See drawing C03245 for part numbers)

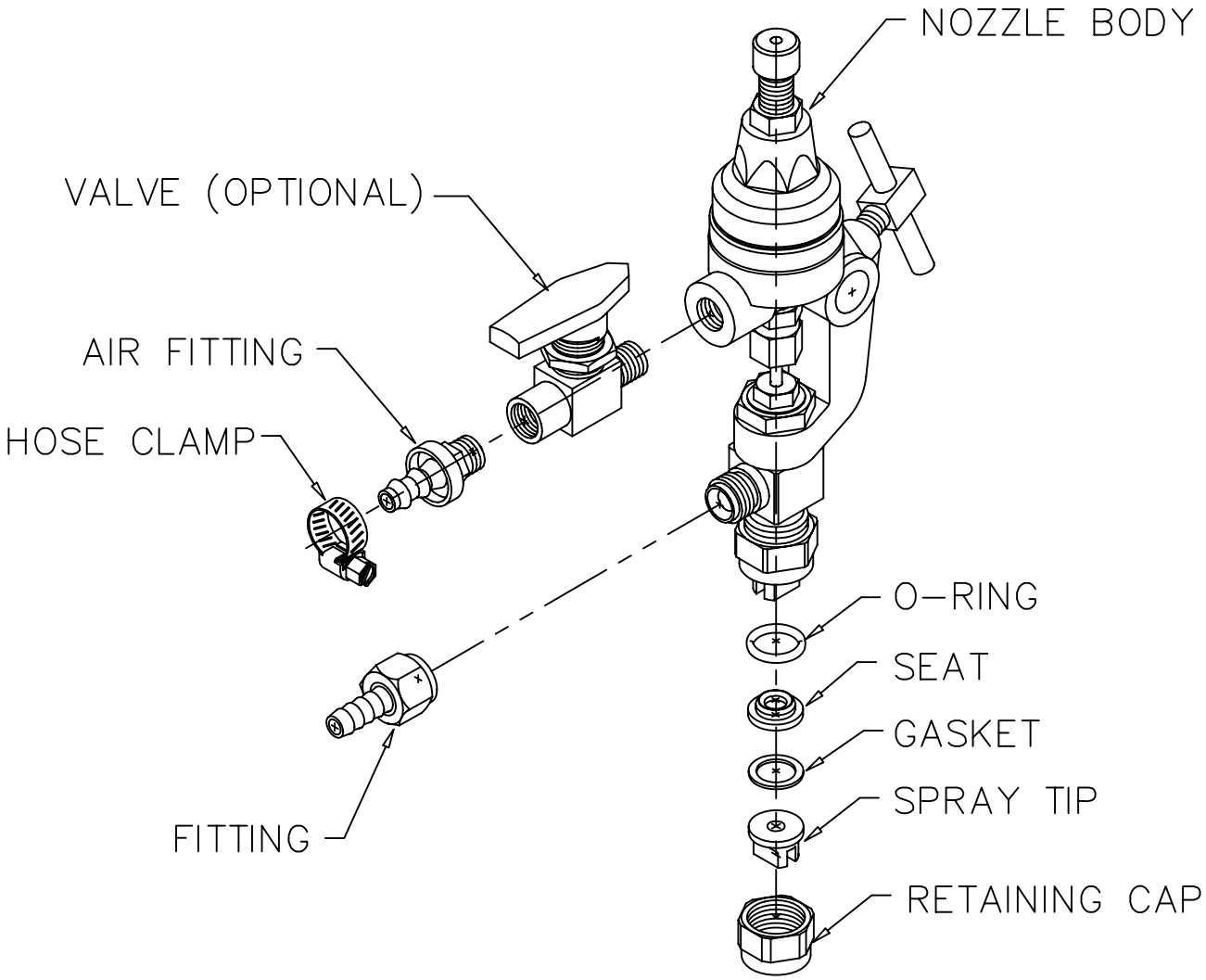


Fig. 8

4.0 SETUP PROCEDURES (cont'd)

4.2 PRODUCT SENSORS

1. Mount the switch arm support bracket to the adjusting bracket of the lower cross frame, so the window of the switch arm is ¼ of an inch above the conveyor chain.

   For fine adjustments, loosen screws on the height adjustment plate and move up and down in slot as required, then re-tighten.

   For large adjustments, loosen the height adjustment mounting screws and slide the entire arm assembly up and down into a different set of mounting holes as required and re-tighten.

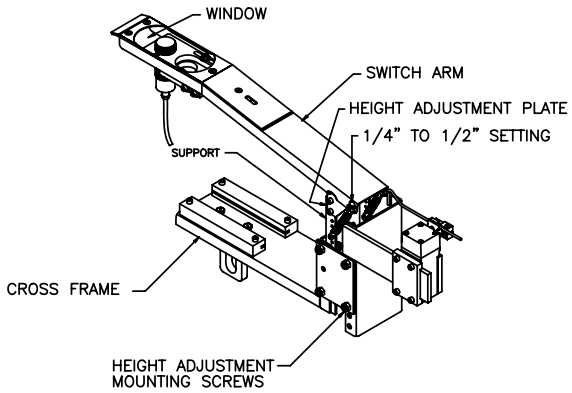


Fig. 9

2. Set forward and back adjustment knob to center position. Switch arm should be able to move forward and back ±2 inches.

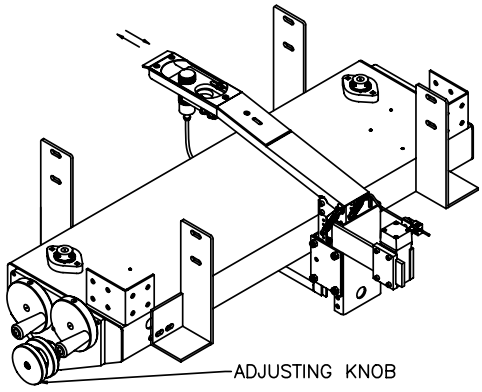


Fig. 10

4.0 SETUP PROCEDURES (cont'd)

FOR CONVEYOR SPEEDS OF 80 FEET PER MINUTE OR LESS

3. The measurement from the centerline of the spray nozzle tips* or hopper, to the first micro switch should be ¾ of an inch. Adjust the arm forward or back by loosening the arm adjusting screws and sliding the arm, re-tighten and check the ¾ of an inch dimension.

   NOTE: This setting is for initial setup only and for a conveyor speed of approximately 80 feet per minute, with the hopper approximately three (3) inches above the conveyor chain.

   *These figures will change due to the increase or decrease of conveyor speed and the height of the hopper.

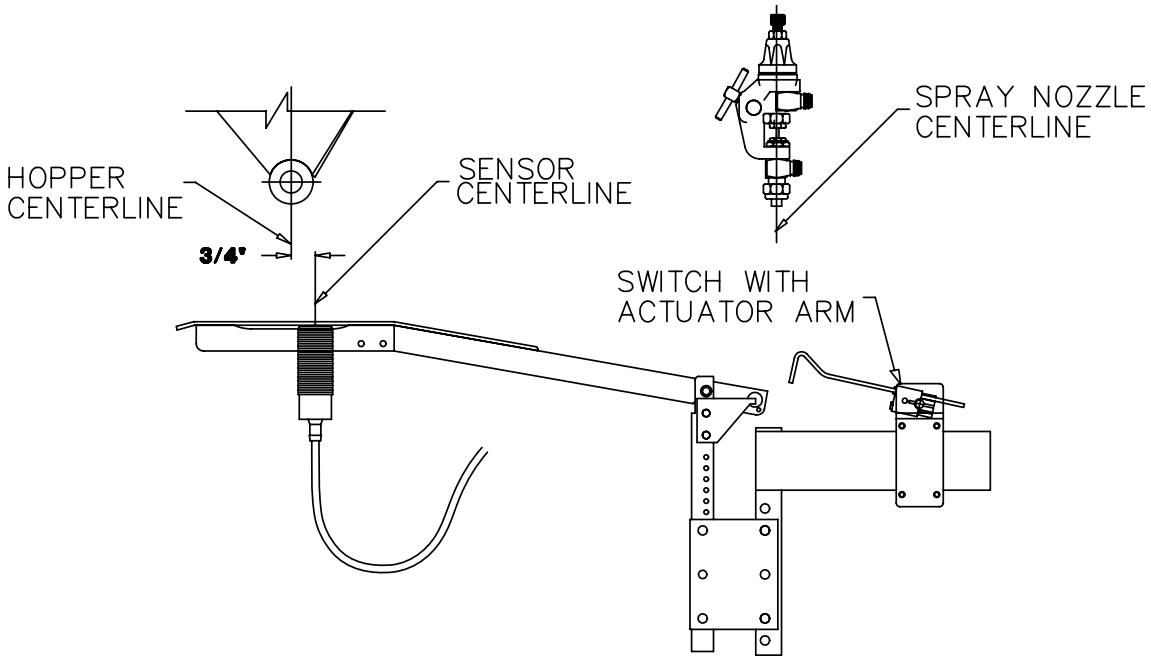


Fig. 11

1. Water Spray Actuator – The limit switch is independently adjustable upstream or downstream in order to obtain the correct starting and stopping point of the water spray.

2. Actuator Arm – The arm can be raised or lowered in order to make the switch more or less sensitive.

4.0 SETUP PROCEDURES (cont'd)

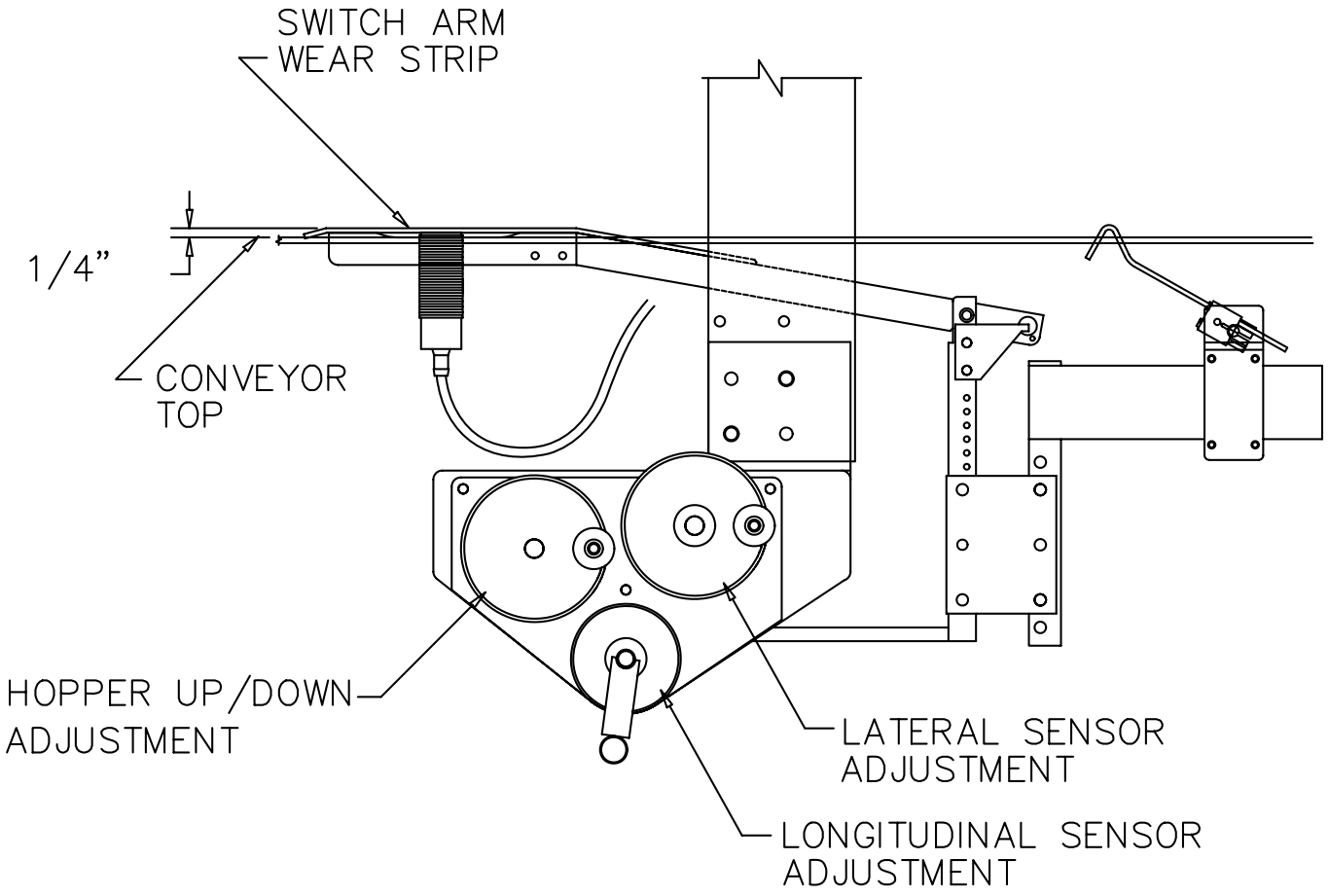


Fig. 12

4.0 SETUP PROCEDURES (cont'd)

SWITCH SENSITIVITY

5. The sensitivity of each proximity switch may be regulated by raising or lowering the proximity switch as it sits in its holder.

   When running pans with cups, that only have a small distance between each other, it may be necessary to lower the proximity switch in order to sense each separate cup or offset as shown below.

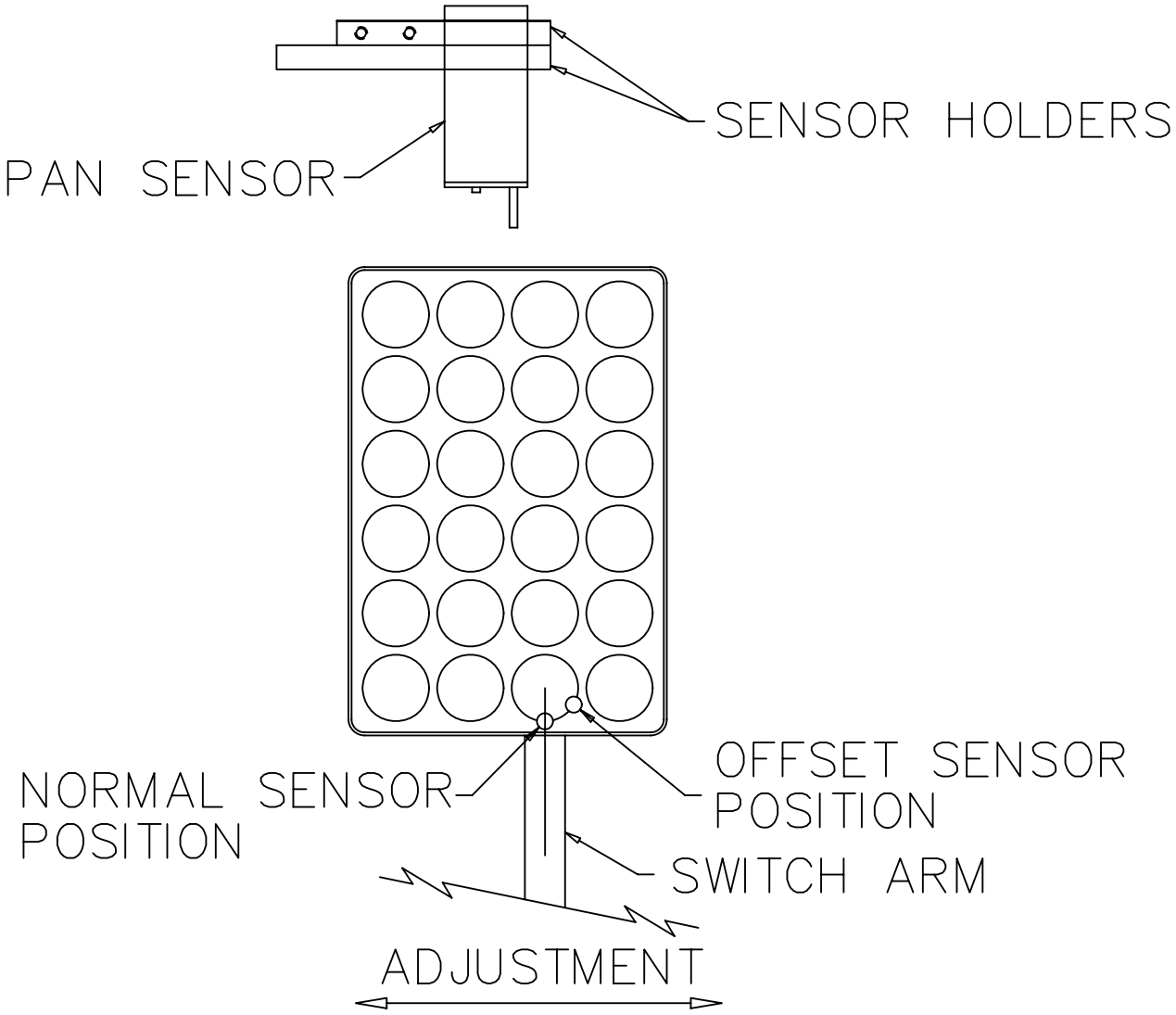


Fig. 13

4.0 SETUP PROCEDURES (cont'd)

4.3 SETUP PROCEDURES FOR SEED-SAVINGS ON THE BURFORD TOPPER

1. The first step is to place the pan below the hopper and set the pan guides so there is No more than ¼" of gap on the side and also that the pan is square beneath the pattern mandrel.
2. As shown in the diagram on page 5-11, confirm that the proximity switch is at the top of its adjustment.
3. Next, offset the proximity switch as shown at on page 5-11 approximately ¼" – 3/8" behind the centerline of the pan by using the adjustment handle on the operator side of the topper base.
4. The hopper should be approximately 2" – 3" above the product to be topped.
5. Also note the Dump Valve can be removed from the clutch for quicker response.

4.4 HOPPER

The proper height of the hopper should be approximately 3 inches above the product. The "vertical hopper adjustment" knob should be used to raise or lower the hopper.

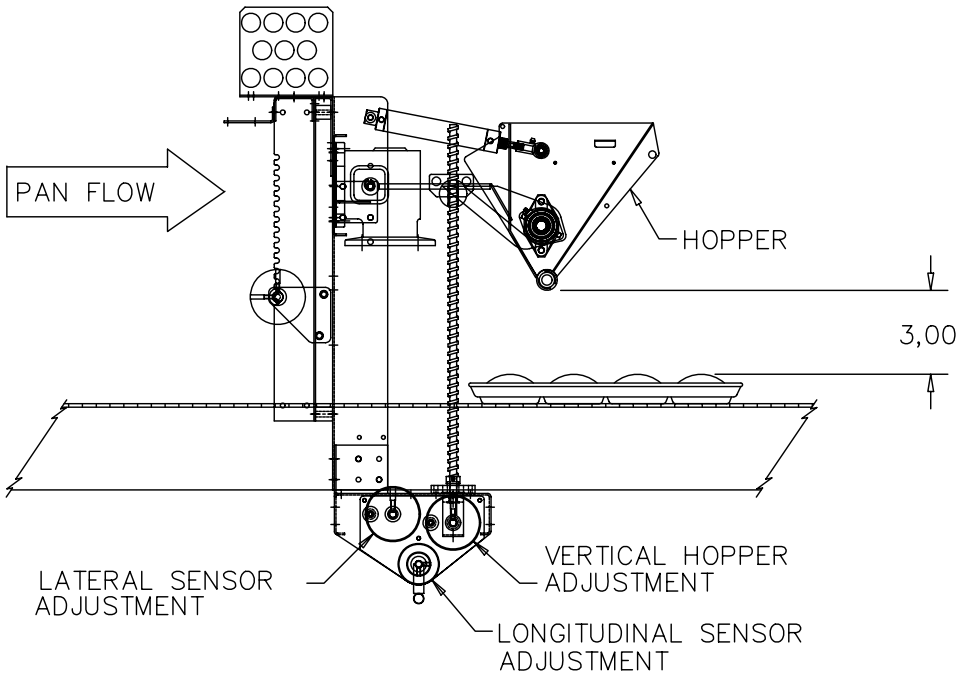


Fig. 14

NOTE: This setting is for initial setup only and for a conveyor speed of 125 feet per minute.

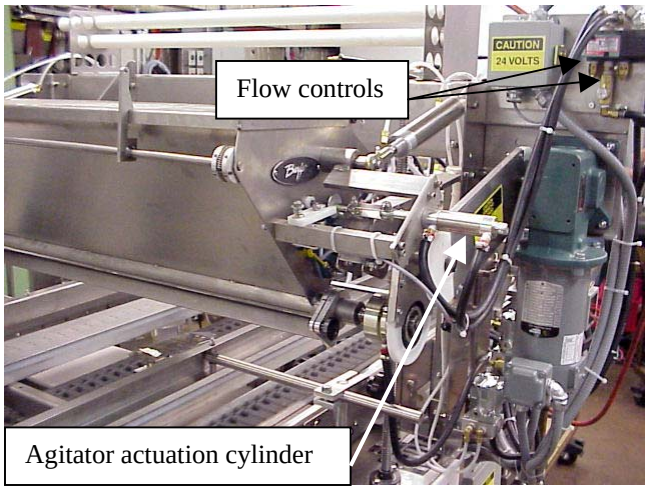
*These figures will vary according to conveyor speed.

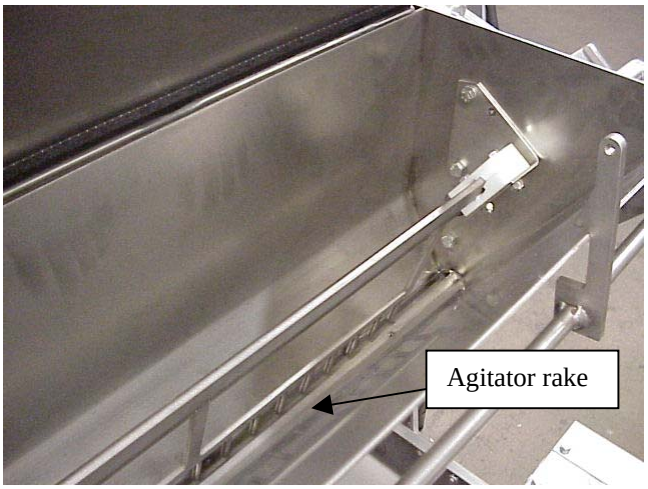
CAPACITY: The hopper is capable of holding approximately 60 pounds of sesame.

4.0 SETUP PROCEDURES (cont'd)

4.4.1 HOPPER AGITATOR

An optional hopper agitator is available for models which apply cracked oat, wheat, bran or other toppings that "bridge" as the hopper empties. The agitator is turned on from the main control panel. Once activated an air cylinder cycles the agitator rake inside the hopper to assure uniform topping application.





NOTE: The agitator should be set for smooth operation using the flow controls on the agitator's air valve. Hopper damage may result if agitator action is excessive.

4.4.2 HOPPER VIBRATOR

Some topping materials respond well to the dual vibrator. This optional equipment is attached to the hopper wall and performs a similar function as the agitator.

NOTE: Hopper damage may result from excessive vibrator settings.

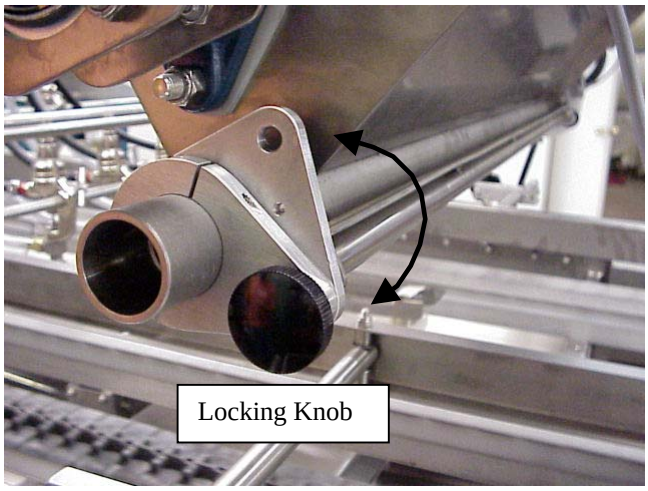
4.4.3 MANDREL ROTATION

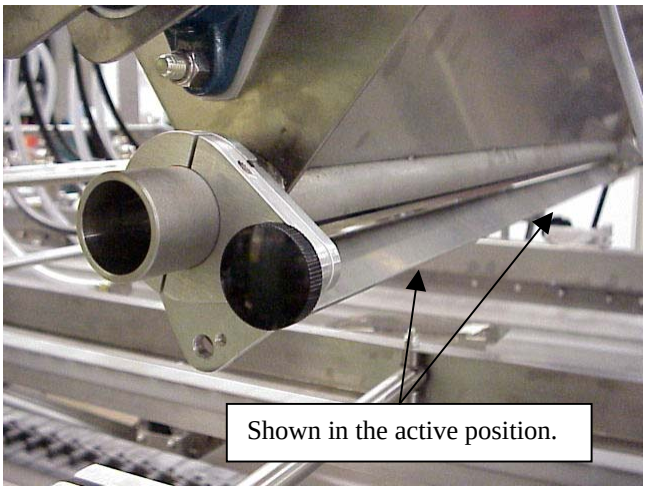
An optional Mandrel Rotation switch may be located on the main operator panel (see section 2.1). This switch will change the direction the topping mandrel is rotating. By changing the direction, which the mandrel is rotating, the topping's application and appearance may improve. This is a particular advantage when applying thin, large diameter material.

4.0 SETUP PROCEDURES (cont'd)

4.4.4 DEFLECTOR BAR

The deflector bar is available to provide optimal product coverage. With the deflector bar in the active position, topping is dispensed by the mandrel onto the deflector bar, which allows the topping to be applied more evenly to the product.





To change deflector bar position, unscrew locking knobs on both ends of hopper. Rotate to desired position then securely tighten locking knobs.

5.0 STARTUP PROCEDURES

1. Set pan guides to hold pan straight during the travel under water spray and topper.

2. Check proximity switch location. Make sure cups in pan are covering switches properly.

3. Set spray nozzles to proper height.

4. Set hopper to proper height.

5. Install proper size mandrel.

6. Fill hopper with topping.

7. Close lid – Make certain lid is properly closed. (Topper will not run with lid up or partially open).

8. Turn main power on to operator control panel. Turn main power on to DC controller.

9. Set DC controller to proper speed.

10. Turn on proximity sensor switch, water spray switch and start switch of DC controller (and conveyor switch if used).

6.0 TROUBLESHOOTING

PROBLEM

Product not damp enough for topping to stick.

Possible Causes	Solutions
Nozzles set too high from product.	Decrease height.
Water or air pressure too low.	Increase water pressure.
Nozzles not centered over cups of pan.	Re-adjust nozzles.
Nozzle tips too small.	Order larger tips.
Conveyor moving too fast.	Slow conveyor speed.

PROBLEM

Spot spray system not activating.

Possible Causes	Solutions
Water spray control switch is turned off.	Check switch control.
Micro switches not sensing cups.	Check switch.
Pan guides allowing pans to turn and not activating proximity switches.	Re-adjust pan guides.

PROBLEM

Nozzles not dispensing water.

Possible Causes	Solutions
Water or air pressure too low.	Increase air pressure.
Manual cut off closed.	Open cut off.
Obstruction in nozzle tip.	Clean tip.

PROBLEM

Not enough topping on product.

Possible Causes	Solutions
DC controller set too low.	Speed DC controller up.
Hopper set too high over product.	Lower hopper height.

6.0 TROUBLESHOOTING (cont'd)

PROBLEM

Too much topping on product

Possible Causes	Solutions
DC controller set too fast.	Slow DC controller down.
Pans slowing down when going over switches.	Re-adjust pan guides.

PROBLEM

Topper not activating.

Possible Causes	Solutions
Proximity control switch turned off.	Turn control on.
Proximity switches not sensing cups, switches set too low in holder.	Raise switch height.
Pan guides allowing pans to turn and miss proximity switch.	Re-adjust pan guide.

PROBLEM

Topping not dispensing.

Possible Causes	Solutions
Air pressure too low.	Increase air pressure.
Mandrel not engaged in air clutch.	Engage mandrel.
Foreign material in hopper.	Clean hopper.
Pinched air line to clutch or main supply.	Check and replace if necessary.

PROBLEM

Streaks showing on product.

Possible Causes	Solutions
Foreign material in hopper, restricting flow of topping	Clean out hopper.
Pan guides off.	Re-adjust pan guides to center cups of pan to pattern mandrel.

6.0 TROUBLESHOOTING (cont'd)

PROBLEM

Product not topped from one end to the other.

Solutions
Move proximity switch forward until coverage is obtained.
Check that proximity switches are the same height.
Raise or lower hopper.
Make sure proximity mount is able to move up and down.
Check pans for warped bottom.

7.0 RECOMMENDED SPARE PARTS LIST

QTY.	PART NUMBER	DESCRIPTION
1	* A04965	Bushing
1	A04674	Air Clutch
4	C00534	Tips
6	* C00592	Gaskets
1	* 610678	Proximity Switch 24 vdc
2	* 959416	Roll Pin
2	* C07048	Fuse
1	C00498	Nozzle
2	* C00499	Nozzle Repair Kit
4	* C00579	Filter
1	C00005	Switch
1	C02125	Arm
1	* C07104	Valve 24 vdc

***Must be kept in stock. All other parts are optional.**

8.0 PREVENTIVE MAINTENANCE

We strongly recommend the following be done periodically to ensure proper performance of the 9200 and 9300.

1. Check oil in main air supply.

2. Change water filter once a month.

3. Remove and clean nozzle tips once a month.

4. Visually inspect air and water lines. Replace when needed.

5. Clean topping out of tube at end of production run.

6. Keep proximity switch windows clean.

9.0 ASSEMBLY DRAWINGS / PARTS LIST

9.1 FRAME AND HOPPER ASSEMBLY

Quantity	ITEM No.	PART No.	DESCRIPTION
2	1	959418	PIN, ROLL 3/16 DIA. X 1 1/8" LG.
REF	2	A04640	COVER HOPPER A/W ASS'Y
1	3	A04648	BASE A/W ASS'Y
1	4	A04658	UPRIGHT, HOPPER
1	5	A04659	UPRIGHT, HOPPER
1	6	A04660	HOPPER ASS'Y W/ BUSHING
1	7	A04661	UPRIGHT WATER SPRAY
1	8	A04662	UPRIGHT WATER SPRAY
2	9	A04670	GEAR-BOX ASS'Y
1	10	A04673	CLUTCH SPROCKET
REF	11	A04674	AIR CLUTCH
REF	12	A04678	DC MOTOR
REF	13	A04681	AIR CYLINDER
1	14	A04679	GEAR REDUCER 25:1
1	15	A04691	ARM A/W ASS'Y
1	16	A04692	ARM A/W ASS'Y
1	17	A04698	CLUTCH DRIVE SHAFT
2	18	A04699	SPROCKET 25-B-45
1	19	A04730	LATCH A/W ASS'Y
2	20	A04732	CHAIN GUARD DRIVE 2:1
2	21	A04671	CHAIN GUARD, CLUTCH
1	22	A04734	SHAFT NOZZLE MOUNTING
1	23	A04735	HANDLE
REF	24	A04747	BRACKET VALVE MOUNTING
1	25	A04752	STEP ADJUSTMENT A/W ASS'Y
1	26	A04755	TRAY
2	27	A04756	RACK MANDREL
1	28	A04757	STOP MANDREL STORAGE
4	29	A04764	SPACER MOTOR
2	30	A04767	MOUNTING PLATE A/W, L.H.
2	31	A04768	MOUNTING PLATE A/W, R.H.
2	32	A04770	BEARING PLATE HOPPER
2	33	A04772	CHAIN GUARD 20T
1	34	A04773	CHAIN GUARD 45T
3	35	A04774	SPROCKET 20T
1	36	A04779	SCREW SWITCH ADJ.
REF	37	A04780	HANDLE NUT
REF	38	A04783	SCREW – HEIGHT ADJ.
2	39	A04784	NUT HEIGHT ADJ.
2	40	A04785	BEVEL GEAR – 16T

A05502 ISSUE "B"

9.1 FRAME AND HOPPER ASSEMBLY, cont'd.

Quantity	ITEM No.	PART No.	DESCRIPTION
2	41	A04787	SPACER BEVEL GEAR
2	42	A04788	SHAFT CYL. MOUNT
2	43	A04792	COLLAR LATCH RETURN (POR)
1	44	A04793	CRANK
2	45	A04794	CRANK KNOB, STEP ADJ. KNURLED
1	46	A04797	SHAFT HEIGHT ADJ.
1	47	A04800	SHAFT AGITATOR
1	48	A04926	SHAFT WATER SPRAY
REF	49	A04952	SET COLLAR ECCENTRIC
REF	50	A04961	TUBE – MANDREL STORAGE
2	51	152105	COLLAR, ¾" SET
1	52	A04968	CHAIN SECTION (POR)
1	53	A04969	CHAIN SECTION (POR)
2	54	A04978	BEVEL GEAR – 48T ASS'Y
2	55	152303	CHAIN CONNECTOR LINK #25
2	56	A05015	BEARING SEAL
1	57	A05327	LID STOP PLATE
1	58	A05514	CHANNEL MOTOR MOUNT
1	59	A05517	BRACKET MANDREL SUPPORT
1	60	A05520	GUSSET A/W ASS'Y
2	61	A05521	SPACER
1	62	A05522	CHANNEL MANIFOLD MTG
2	63	A05526	ARM WATER SPRAY SHORT
REF	64	A05536	ECCENTRIC A/W ASS'Y
2	65	A05544	SPACER LOWER
2	66	C00128	BEARING 7/16" ROD END
2	67	C01105	RETAINING RING 7/16" EXTERNAL
1	68	C01121	RETAINING RING #5100-62, EXT.
1	69	C01122	RETAINING RING #5100-75
2	70	C02447	SPACER ARBOR
2	71	100378	BEARING ¾" FLANGE
2	72	101665	COLLAR, REWORKED, 33/64" BORE
2	73	111910	BEARING ½" DIA. 2 BOLT FLANGE
REF	74	112122	MACHINE BUSHING ¾" ID X 1 ¼" OD
4	75	115168	SPACER HOPPER COVER
4	76	152082	BEARING ¾" ROLLER
8	77	152085	BEARING FLANGE 2 HOLE
4	78	152102	BUSH, BRZ, ½ ID X 5/8 OD X ½ LG
2	79	152186	SPRING EXTENSION
REF	80	A04998	BRACKET FLOW CONTROL MOUNTING
4	81	A04745	CRATING ANGLE A/W ASS'Y

A05502 ISSUE "B"

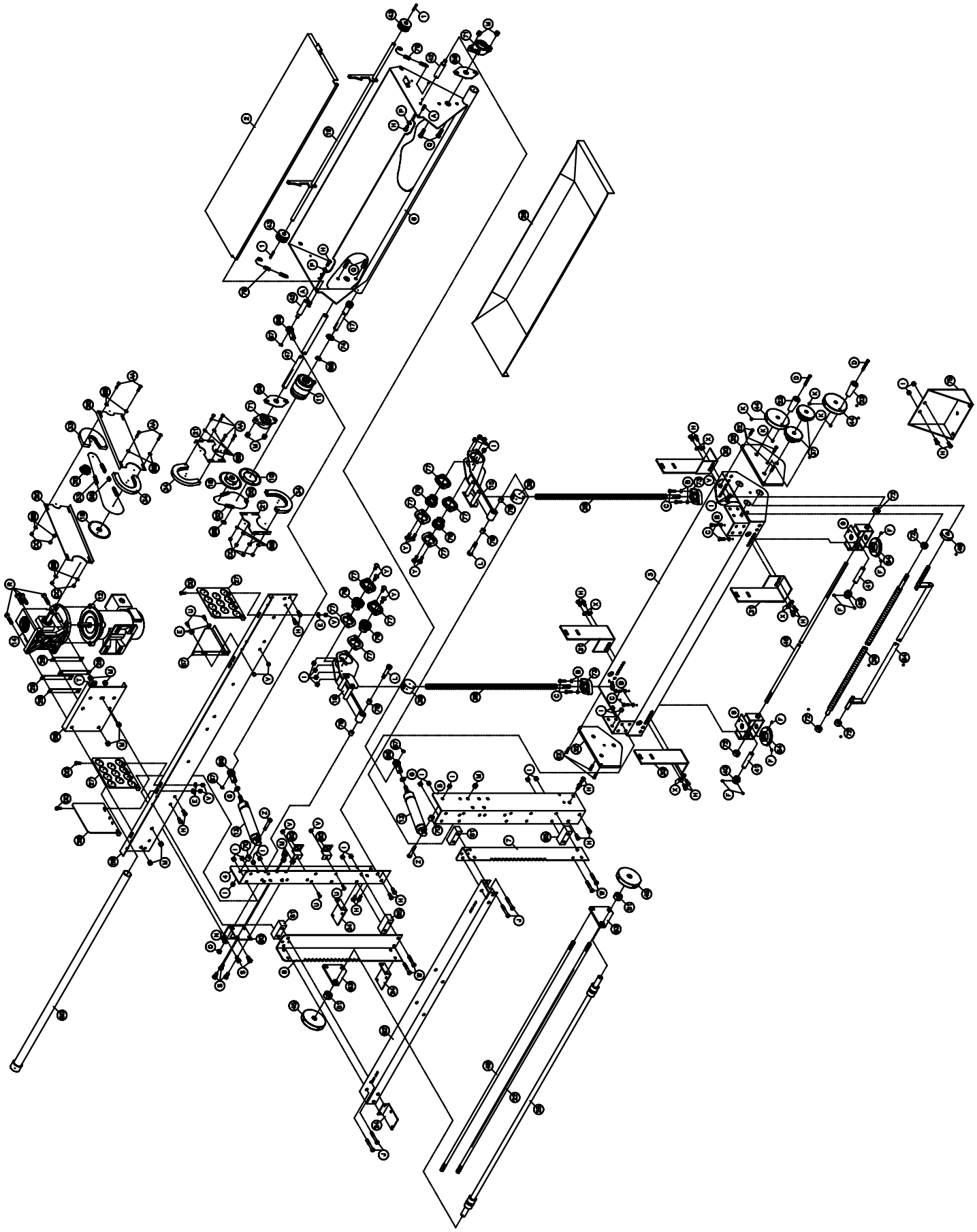
9.1 FRAME AND HOPPER ASSEMBLY, cont'd.

Quantity	ITEM No.	PART No.	Description
2	A	975906	SCREW, SHDLR, ¼ X 3/8, #10-24
8	B	955962	WASHER, LOCK ¼
8	C	990216	SCREW, FIN HEX, ¼-20 UNC X 1
2	D	978032	SCREW, SOC HD CP, 5/16-18 X 2
8	F	971104	SCREW, SET SOC, ¼-20 UNC X ¼
2	G	955759	NUT, JAM, 7/16-20 UNF PLATED
30	H	989412	SCREW, FIN HEX, 5/16-18 X ¾
32	I	955648	NUT, HEX NYLOC, 5/16-18 UNC
4	J	989736	SCREW, FIN HEX, 5/16-18 X 2-1/4
4	K	970504	SCREW, SET SOC, 5/16-18 UNC X ¼
2	L	975624	SCREW, SHLDR, ½" X 1-1/2", 3/8"-16
14	M	955646	NUT, HEX NYLOC, 3/8"-16 UNC
1	N	955960	WASHER, LOCK, 3/8"
1	O	955765	NUT, JAM 3/8-16 UNC PLATED
2	P	955961	WASHER, LOCK, 5/16"
4	Q	988620	SCREW, FIN HEX, 3/8-16 X 1-1/4"
4	R	988628	SCREW, FIN HEX, 3/8-16 X 1-3/4"
5	S	988612	SCREW, FIN HEX, 3/8"-16 X ¾"
1	T	955991	WASHER, FLAT, 3/8" SAE PLATED
4	U	990210	SCREW, FIN HEX, ¼"-20 UNC X 5/8"
13	V	955650	NUT, HEX NYLOC, ¼-20 UNC
4	W	989432	SCREW, FIN HEX, 5/16-18 UNC X 2"
8	X	955992	WASHER, FLAT, 5/16" SAE PLATED
8	Y	965416	SCREW, CARR, 5/16-18 UNC X 1
2	Z	975724	SCREW, SHLDR, 3/8" X 1-1/2", 5/16"-18
8	AA	991016	SCREW, FIN HEX, #10-24 X 1"
16	BB	955995	WASHER, FLAT, #10 (.190)
8	CC	955634	NUT, HEX NYLOC, #10-24 UNC
6	DD	990212	SCREW, FIN HEX, ¼"-20 UNC X ¾"
6	EE	986016	SCREW, BUTT HD SOC, ¼"-20 X 1"

A05502 ISSUE "B"

NOTE: One mandrel and storage tube provided standard. Additional tubes provided with additional mandrels when ordered.

NOTE: Opposite Hand Drawing A05503



9.2 TRIGGER ASSEMBLY, PROXIMITY LIMIT

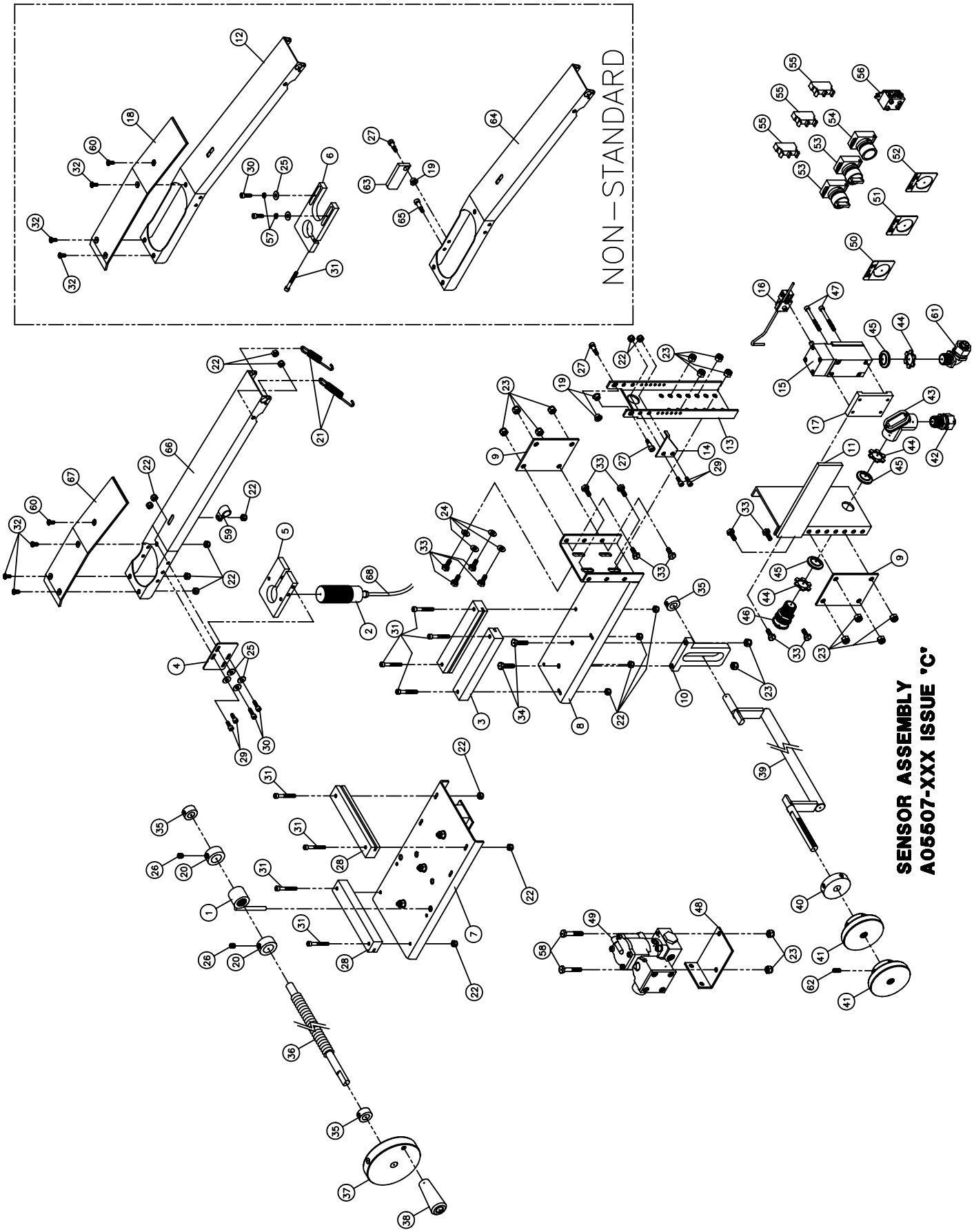
ITEM No.	PART No.	QTY	DESCRIPTION
1	A04677	1	NUT A/W ASSEMBLY
2	610678	1	PROXIMITY SWITCH , (110 PROX. A04682)
3	119508	2	SLIDE BLOCK, TRUCK ASSEMBLY
4	A04995	1	PLATE PROX. MOUNTING
5	A04996	1	MOUNT PROXIMITY SWITCH
6	A04997		CLAMP LOWER SWITCH (NON-STANDARD)
7	A05529	1	TRUCK UPPER (SUB-ASSEMBLY)
8	A05532	1	TRUCK A/W ASSEMBLY
9	A05533	2	PLATE VERTICAL SW ADJ.
10	A05534	1	YOKE
11	A07910	1	TRUCK SWITCH A/W ASSEMBLY
12	A05541		SWITCH ARM (NON-STANDARD)
13	A05542	1	CHANNEL SWITCH ARM PIVOT
14	A05543	1	STOP TRIGGER
15	C00005	1	SWITCH MICRO
16	C02125	1	TRIGGER ARM REWORKED
17	C03846	1	MOUNT MICRO SW (VERT)
18	C03467		COVER SWITCH (NON-STANDARD)
19	110479	2	BUSH, BRZ, FLG, ¼" ID X 3/8" OD X ¼" L
20	152105	2	COLLAR, ¾" SET
21	152193	2	SPRING EXTENSION
22	955634	18	NUT HEX NYLOC #10-24 UNC
23	955650	16	NUT HEX NYLOC ¼-20 UNC
24	955993	4	WASHER FLAT ¼" SAE PL
25	955995	6	WASHER FLAT #10
26	970504	2	SCREW SET SOC, 5/16-18 X ¼"
27	975908	2	SCREW SHLDR ¼" X ½", #10-24
28	119509	2	SLIDE BLOCK, TRUCK ASSEMBLY
29	979210	4	SCREW SOC HD CP #10-24 X 5/8"
30	979212	4	SCREW SOC HD CP #10-24 X 3/4"
31	979220	9	SCREW SOC HD CP #10-24 X 1-1/4
32	982608	3	SCREW FLT HD SOC #10-24 X ½"
33	990210	12	SCREW FIN HEX ¼-20 X 5/8"
34	990216	2	SCREW FIN HEX ¼-20 X 1
35	101665	3	COLLAR, ¾" SET
36	119338	1	SCREW SWITCH ADJ.
37	A04793	1	CRANK
38	A04735	1	HANDLE
39	119335	1	ECCENTRIC A/W ASSEMBLY
40	A04952	1	SET COLLAR ECCENTRIC

A05507-XXX ISSUE "C"

9.2 TRIGGER ASSEMBLY, PROXIMITY LIMIT, cont'd.

ITEM No.	PART No.	QTY	DESCRIPTION
41	A04780	2	HANDLE NUT
42	142051	1	CONNECTOR STRAIGHT CONDUIT
43	C00067	1	CONNECTOR ½" ELL
44	142072	3	DRIVENUTS – CONDUIT ½"
45	103533	3	SEAL ½" ID HOLE
46	C01020	1	CONNECTOR ¼" ELECTRICAL
47	979232	2	SCREW SOC HD CAP #10-24 X 2
48	A04747	2	BRACKET VALVE MTG.
49	C07104	2	VALVE, SOLENOID, 24 VDC (110 VAC (C00401))
50	C07264	1	NAMEPLATE SEEDER JOG
51	C07265	1	NAMEPLATE WATER SPRAY OFF/ON
52	C07266	1	NAMEPLATE PROX. SENSOR OFF/ON
53	C07088	2	SWITCH, SELECTOR, 2 POSITION, BLACK
54	C01246	1	SWITCH, PUSHBUTTON, YELLOW
55	C07102	3	CONTACT CARTRIDGE (1 N.O.)
56	C07192	1	RELAY, SSR, DC-DC 3-30 VDC
57	955964	2	WASHER, LOCK, #10
58	990224	2	SCREW, FIN HEX, ¼-20 X 1-1/2"
59	118517	1	CLAMP, CORD
60	982612	1	SCREW, FLT HD SOC, #10-24 X 1-1/2"
61	142052	1	CONNECTOR, 90° CONDUIT
62	971108	1	SCREW, SET SOC, ¼-20 X ½"
63	A04478	1	GUIDE (NON-STANDARD)
64	303135		SWITCH ARM, REWORK, TAB (NON-STANDARD)
65	975906	1	SCREW, SHOULDER, ¼ X 3/8, #10-24
66	303793	1	CHANNEL, SWITCH ARM, 4 DEGREE (STANDARD)
67	303794	1	COVER, SWITCH, LEXAN, 4 DEGREE (STANDARD)

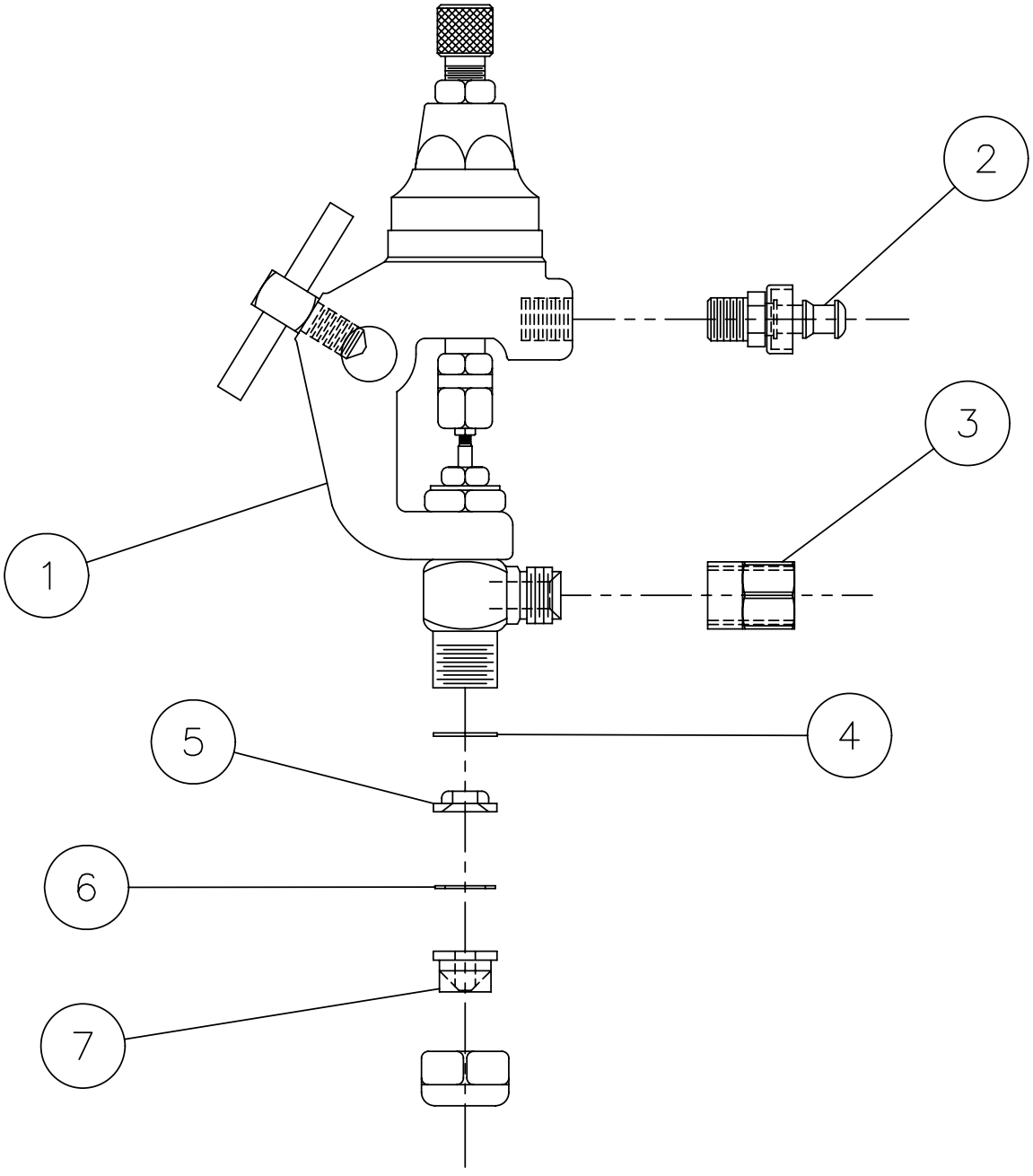
A05507-XXX ISSUE "C"


NON-STANDARD
SENSOR ASSEMBLY
A05507-XXX ISSUE 'C'

9.3 WATER SPRAY NOZZLE

ITEM No.	PART No.	QTY	DESCRIPTION
1	C00498	1	SPRAY GUN, DRIPLESS
2	110410	1	FITTING, HOSE BARB, 1/8 MPT X ¼ HOSE, BRASS
3	C01952	1	FITTING, ¼ NPS X ¼ NPT, ADAPTER
4	C00592	1	GASKET, TEFLON, .593 OD X .433 ID
5	C00507	1	TEFLON VALVE SEAT
6	C00516	1	SEAL
7	C00534		STANDARD SPRAY TIP
			ORIFICE DIAMETER = .012
			GMP @ 40 PSI = .023
	C00591		OPTIONAL SPRAY TIP
			ORIFICE DIAMETER = .021
			GMP @ 40 PSI = .067
	C00571		OPTIONAL SPRAY TIP
			ORIFICE DIAMETER = .026
			GMP @ 40 PSI = .10
	C00545		OPTIONAL SPRAY TIP
			ORIFICE DIAMETER = .028
			GMP @ 40 PSI = .116
	C00568		OPTIONAL SPRAY TIP
			ORIFICE DIAMETER = .040
			GMP @ 40 PSI = .231
	C00566		OPTIONAL SPRAY TIP
			ORIFICE DIAMETER = .072
			GMP @ 40 PSI = .80

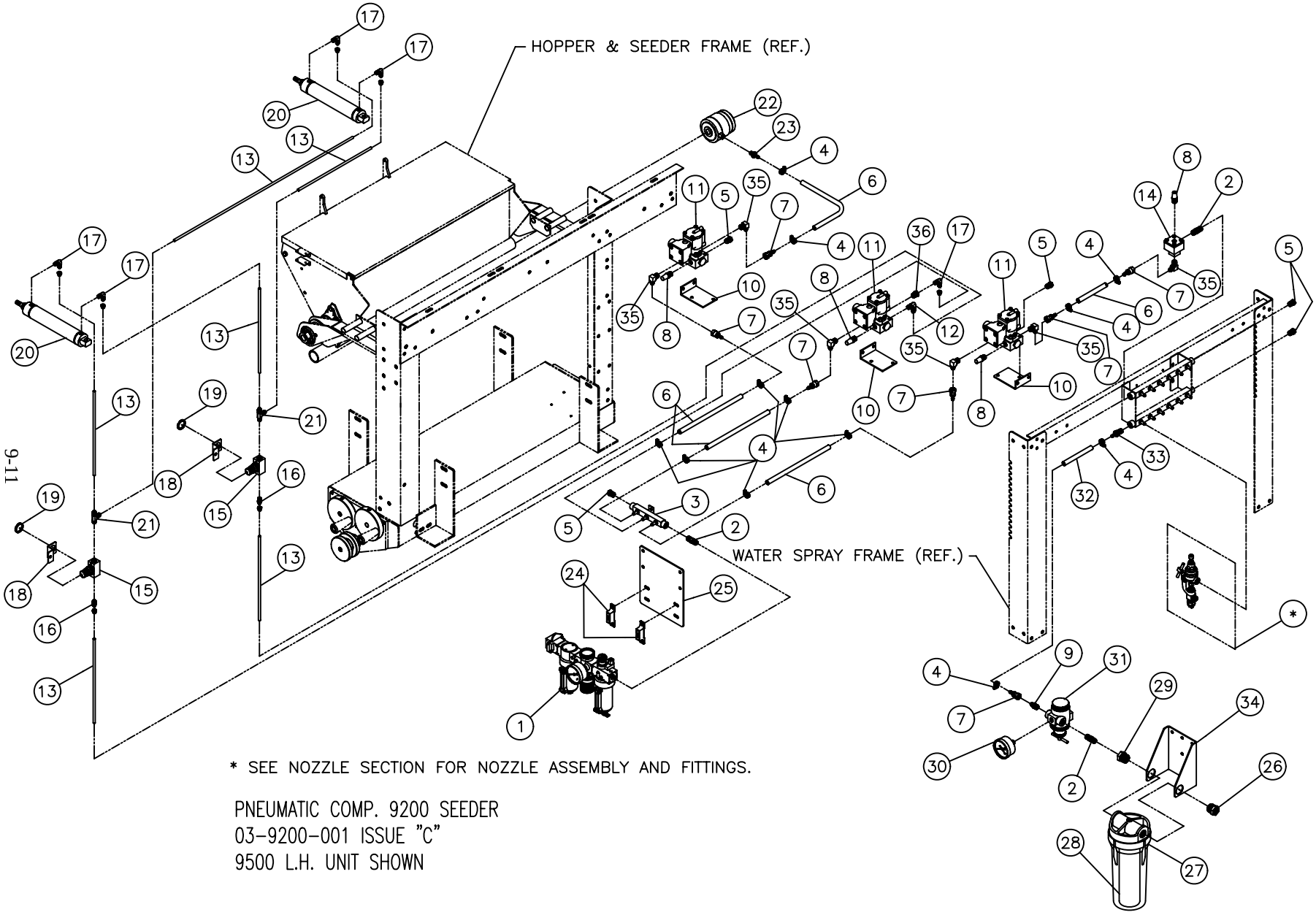
C03245 ISSUE “E”


1
2
3
4
5
6
7

9.4 PNEUMATIC COMPONENTS

ITEM No.	PART No.	QTY	DESCRIPTION
1	C00404	1	FILTER / REGULATOR / LUBRICATOR ASSEMBLY
2	110414	3	FITTING, NIPPLE ¼" NPT BRASS
3	A07470	1	MANIFOLD
4	C00414	9	CLAMP, 1/16" TO 5/8", SST.
5	110423	5	FITTING, HEX PLUG, ¼" NPT, BRASS
6	103878	12'	HOSE, ¼" BLACK NEOPRENE
7	C01915	7	FITTING, 7/16-20, FLAIR
8	111498	4	MUFFLER, ¼"
9	C01916	1	FITTING, ¼" NPT X 7/16-20
10	A04747	REF	VALVE MOUNTING BRACKET
11	C07104	3	VALVE, 24 VOLT (REF.)
12	110420	1	FITTING, 90° ¼" X ¼", TUBE
13	113589	15'	HOSE, ¼" OD, POLY NATURAL
14	C00443	1	VALVE, QUICK DUMP, ¼"
15	C00402	2	VALVE, FLOW CONTROL
16	110402	2	FITTING
17	110404	5	FITTING, 1/8" NPT X ¼" TUBE
18	A04998	2	BRACKET, FLOW CONTROL
19	A04894	2	NUT, PANEL MOUNT, FLOW CONTROL
20	A04681	2	CYLINDER, AIR, 6" STROKE
21	110409	2	FITTING, TEE, 1/8" X ¼" X ¼"
22	A04674	1	CLUTCH, PNEUMATIC, .625 BORE
23	110410	1	FITTING, 1/8" NPT, PUSH ON
24	C00399	1	UNIVERVAL MOUNTING KIT
25	C03335	1	PLATE, FRL MOUNTING BRACKET
26	C01947	1	FITTING, BUSHING ¾" X ½" BRASS
27	C00578	1	FILTER, ASS'Y, WATER
28	C00579	1	FILTER, REPLACEMENT
29	C01948	1	FITTING, BUSHING ¾" X ¼"
30	118873	1	GAUGE, REGULATOR 0-60, ¼" BRASS
31	C00594	1	REGULATOR, WATER, ¼" BRASS
32	C00437	12'	HOSE, ¼", CLEAR, REINFORCED.
33	110415	1	FITTING, ¼" NPT, PUSH ON
34	C02343	1	MOUNTING. BRACKET, WATER REGULATOR
35	C00998	6	FITTING, 90°, ¼" X ¼", BRASS
36	111616	1	FITTING, BUSHING REDUCER, ¼" X 1/8"

03-9200-001 ISSUE "C"



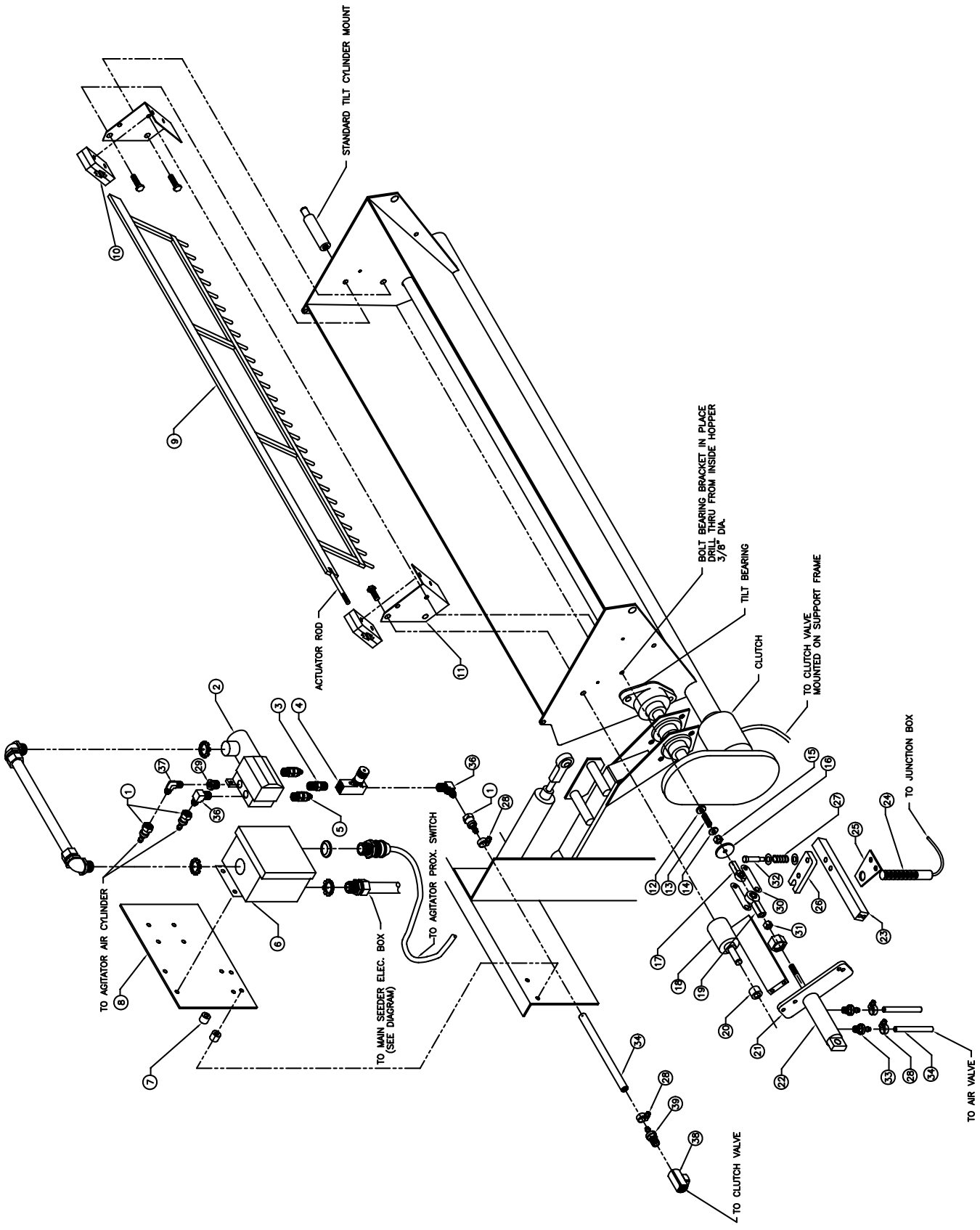
* SEE NOZZLE SECTION FOR NOZZLE ASSEMBLY AND FITTINGS.

PNEUMATIC COMP. 9200 SEEDER
03-9200-001 ISSUE "C"
9500 L.H. UNIT SHOWN

9.5 HOPPER, AGITATOR 40”

ITEM No.	PART No.	QTY	DESCRIPTION
1	C01915	3	FITTING 7/16-20 F FLAIR
2	C07105	1	VALVE, SOLENOID 24 VDC
	C06459	REF	VALVE, SOLENOID 110 VAC
3	110414	2	FITTING ¼” NPTM BRASS NIPPLE
4	111748	1	NEEDLE VALVE ¼”
5	110345	2	RESTRICTOR SPEED CONTROL
6	C01022	1	ELECTRICAL BOX 4X4X3, GREY PAINTED
7	504709	2	SPACER
8	A04343	1	VALVE MOUNT PLATE
9	A04353	1	RAKE A/W ASS’Y 40”
10	A04348	4	BEARING BLOCK
11	A04341	1	BRACKET SLIDE BLOCK MOUNT
	A04342	1	BRACKET SLIDE BLOCK MOUNT
12	152124	1	NYLON ROLLER
13	C00823	1	SPRING #C-15
14	955977	1	WASHER FLAT ¼”
15	955771	1	NUT JAM ¼-28 UNF PLATED
16	C03247	1	WASHER COVER
17	152074	1	BEARING ¼” ROD END
18	A04350	1	CYLINDER MOUNT A/W ASSY
19	152075	1	BEARING 5/16” ROD END
20	A04363	1	SPACER, CYLINDER PYLON
21	A04346	1	CYLINDER MOUNT
22	C00423	1	CYLINDER #091-DP
23	A04345	1	STAND OFF
24	C07270	1	SWITCH, SMALL PROXIMITY
25	A04347	1	PROXIMITY MOUNT
26	A04344	1	SHUTTLE ARM
27	C05780	1	SPRING COMPRESSION
28	C00414	6	CLAMP 1/16” TO 5/8” SST.
29	111616	1	FITTING REDUCER ¼ X 1/8 BRASS
30	A04349	2	LINK PLATE
31	955767	1	NUT JAM 5/16-24 UNF PLATED
32	975816	1	SCREW SHLDR 5/16 X 1, ¼-20
33	110410	2	FITTING 1/8 NPTM PUSH ON
34	103878	10’	HOSE AIR ¼” DIA. NEOPRENE
35	C06815	1	NAMEPLATE SEED AGITATOR OFF/ON
36	C00998	2	FITTING 90° ¼ X ¼ ELL
37	112030	1	FITTING 90° 1/8 X 7/16-20
38	110412	1	FITTING TEE BRASS ¼ FPT
39	110415	1	FITTING ¼ NPT M PUSH ON

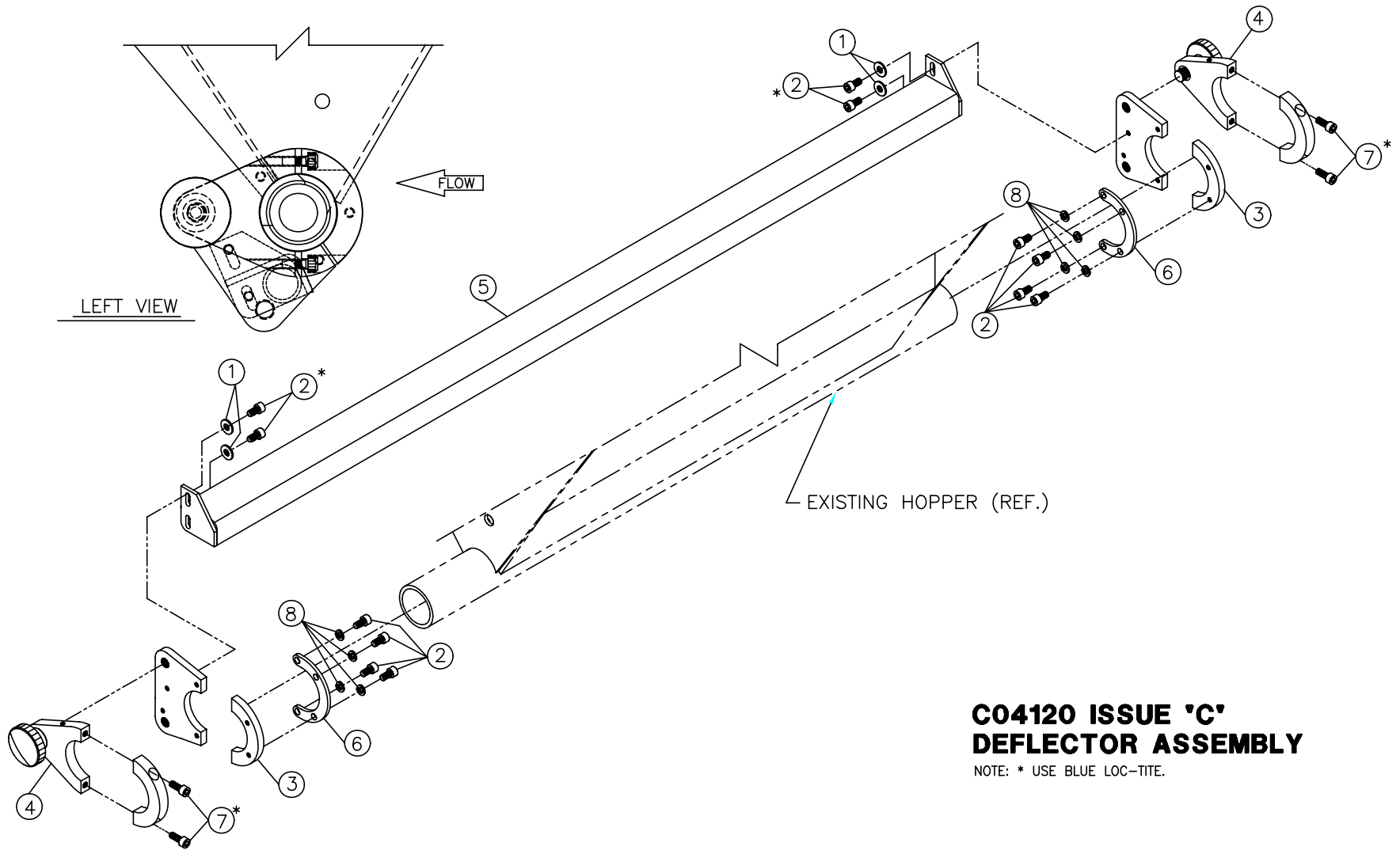
A0434021 ISSUE “B”


STANDARD TILT CYLINDER MOUNT
ACTUATOR ROD
BOLT BEARING BRACKET IN PLACE
DRILL THRU FROM INSIDE HOPPER
3/8" DIA.
TILT BEARING
CLUTCH
TO CLUTCH VALVE
MOUNTED ON SUPPORT FRAME
TO JUNCTION BOX
TO AGITATOR AIR CYLINDER
TO MAIN SEEDER ELEC. BOX
(SEE DIAGRAM)
TO AGITATOR PROX. SWITCH
TO CLUTCH VALVE
TO AIR VALVE

9.6 DEFLECTOR ASSEMBLY

ITEM No.	PART No.	QTY	DESCRIPTION
1	955995	4	WASHER FLAT #10 (.190)
2	978906	12	SCREW SOC HD #10-24 X 3/8 SS
3	C04105	2	PIVOT PLATE
4	C04108	2	KNOB & PLATE ASSY
5	C04110	1	DEFLECTOR A/W ASSY
6	C04113	2	CONNECTOR – PIVOT PLATE
7	979208	REF	SCREW SOC HD CP #10-24 X ½
8	955941	8	WASHER, FLAT, #10

C04120 ISSUE "C



C04120 ISSUE 'C'
DEFLECTOR ASSEMBLY

NOTE: * USE BLUE LOC–TITE.