



Installation and Maintenance for the Doyle Cup Cleaner Training Workbook



Name: _____

Date: _____

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Why do you want a cup cleaner?

As you know the single most important aspect to running an efficient paint line is cleanliness. This cleanliness extends to the paint applicator as well. Dirty cups cause drips, spits and KV faults, costing millions in wasted time, paint, parts and man-hours.

All coating applicator manufacturers and painting experts agree that clean dry parts and equipment are fundamental to high first run capability. As paint leaves the applicator the tip becomes contaminated with over spray and paint defects are the result.

The solution to paint line defects caused by dirty cups is a robotic cup cleaner that is:

1. Effective
2. Easily installed
3. Low maintenance

How the Doyle Bell Applicator Cleaner Works

The dirty applicator passes down through the opening in the top of the cleaner at 100mm per second, to a maximum depth of 100mm from the top of the lid to the face of the cup.

Air is turned on to create a vacuum. Air must always be on when the applicator is in the cleaner.

Solvent is turned on and the applicator moves up and is washed down from top to bottom. The applicator should move up out of the cleaner at a speed of 50mm per second for effective cleaning and drying.

When the face of the cup is flush with the top of the cleaner, turn off the solvent.

The applicator proceeds up to a point 35mm from the top of the lid to the face of the cup where drying is completed.

Air is now turned off.

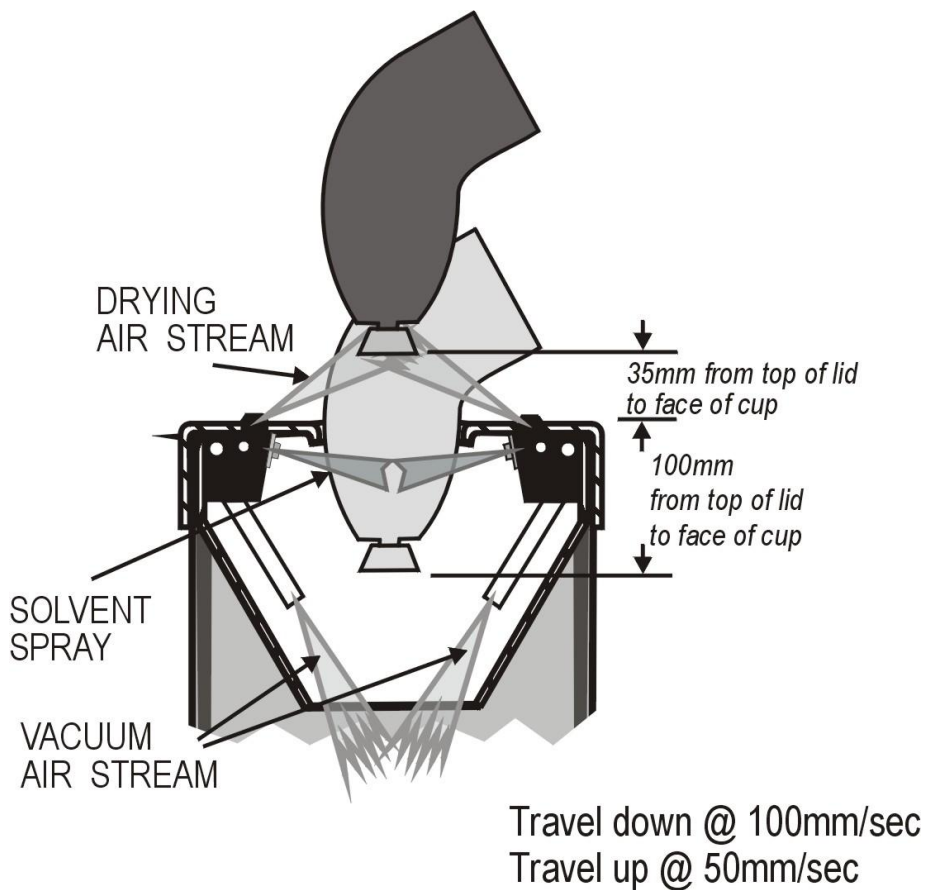


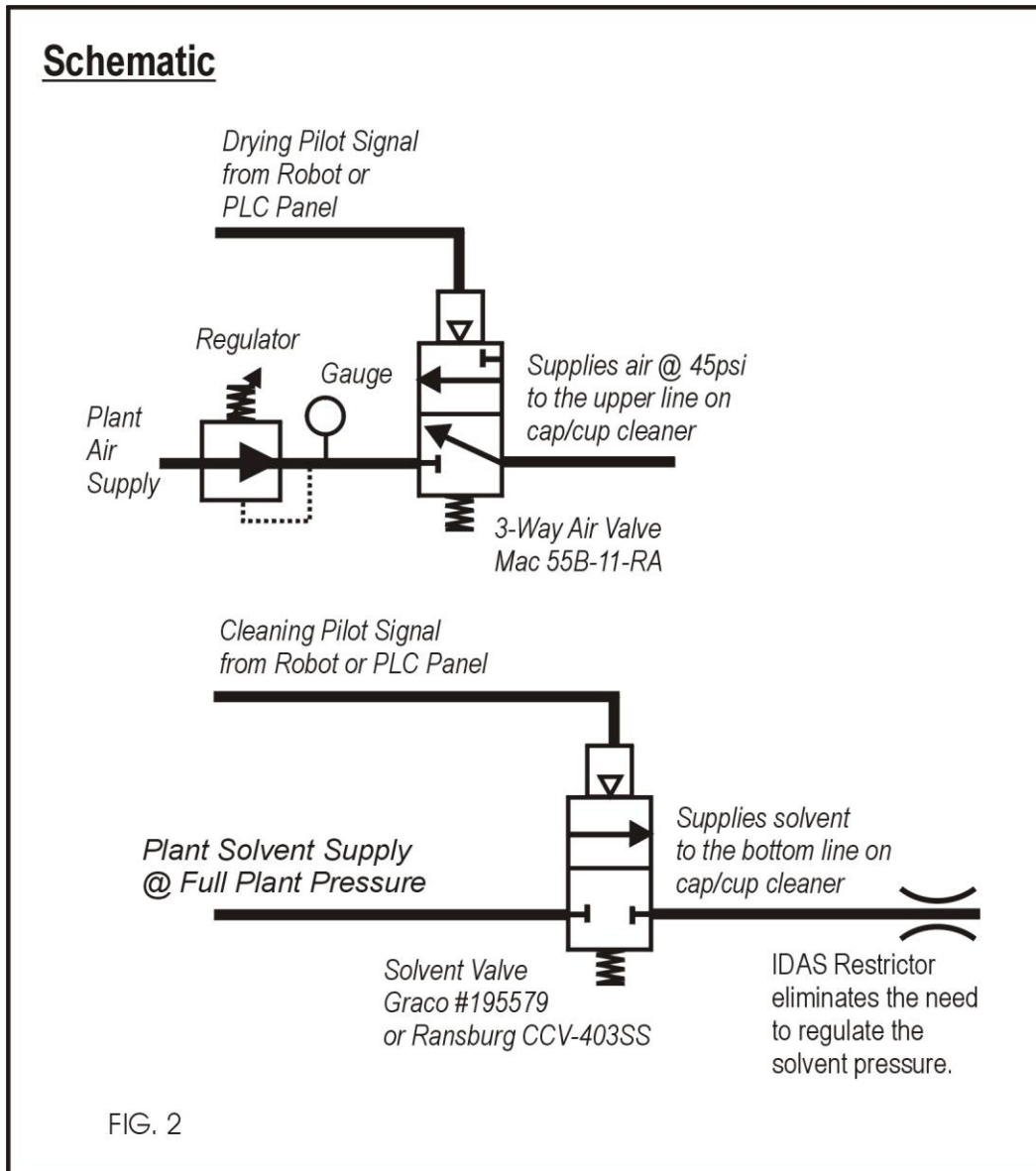
FIG. 1

Installing the Cleaner

Install a 3/8" non-regulated purge solvent supply line.

Install a two-way solvent supply valve. The Doyle cup cleaner contains a check valve in the spray block and will not allow siphoning of solvent.

Install a three-way regulated air valve.

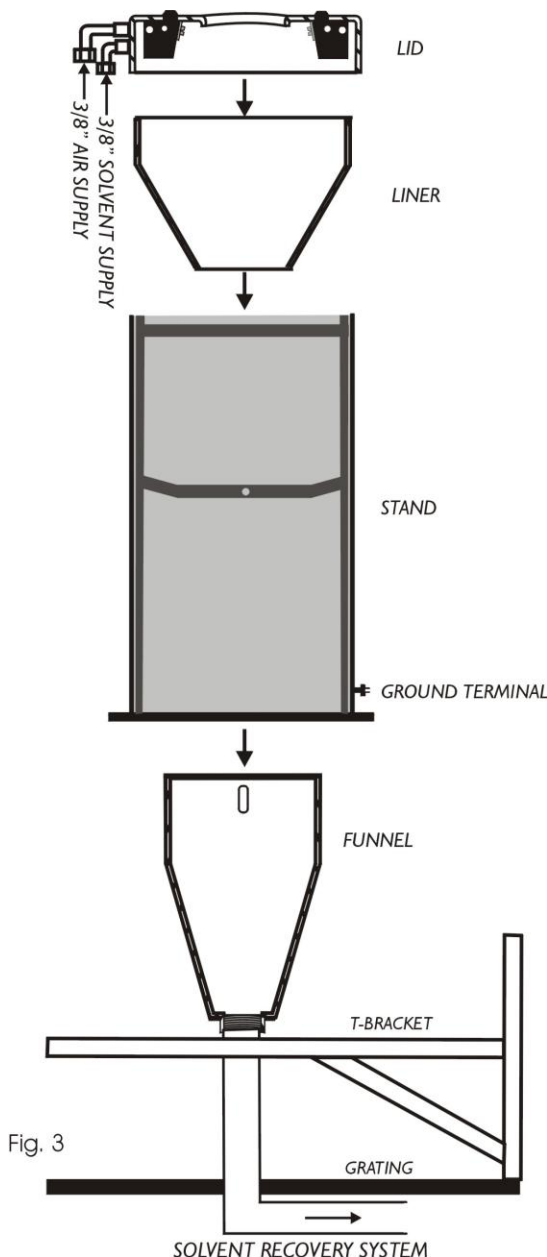


The Doyle cup cleaner has a footprint of 14" x 14" (35cm x 35cm) and should be securely installed over grating in a location convenient to the robot. Optional T-Bracket, Part Number 500-041 is available from IDAS.

If a solvent recovery system is not being used, take the cleaner from the box and bolt it to its mount. Connect a ground strap to the ground terminal.

Connect a 3/8" air supply line from the three-way regulated air valve to the uppermost line on the cleaner. Set the air pressure to 45 psi*.

Connect the solvent supply line from solvent color change valve to the bottom line on the cleaner.



If you recover solvent add a 2" npt nipple to attach funnel.

Attach the funnel to solvent recovery, at a height that will center the slots in the funnel with the mounting holes in the cleaner stand, 16.5" from the top of the T-Bracket to the top of the funnel.

Lower the stand over the funnel and bolt funnel to stand. Bolt the stand to the T-Bracket. Connect a ground strap to the ground terminal. Lower the liner inside the cleaner stand.

Install the lid using the pull down catches.

Set the air pressure to 45 psi*.

Connect the solvent supply line from the solvent color change valve to the bottom line on the cleaner.

Connect a 3/8" air supply line from the three way regulated air valve to the uppermost line on the cleaner.

*NOTE: This pressure setting is very important and must be set properly for the cleaner to function correctly and perform its self-cleaning.

Flow Restrictor

The flow restrictor is supplied to eliminate the need for solvent regulation.

At 100 psi supply the:

#60 restrictor will allow 20cc/sec.

#55 restrictor will allow 30cc/sec.

#50 restrictor will allow 40cc/sec.

Maintenance

Maintenance on the Doyle Cup Cleaner requires replacing the balls, springs, o-rings and nozzles in the spray heads. This only needs to be done once per year or after a million cycles.

Do Not Remove Spray Block Head from the Lid.

Remove the 2 screws (7)

Remove the retainer plate (6)

Remove the nozzle (5), o-ring (4), spring (3) and check ball (2).

Discard parts 2, 3, 4 and 5.

Using the repair kit Part Number 500-030:

Replace the check ball (2) with new ball

Replace the spring (3) with new spring

Replace the o-ring (4) with new o-ring*

Replace the nozzle (5) with new nozzle

Reinstall the original retainer plate (6) and original screws (7)

*NOTE: Do not reuse Teflon o-ring.

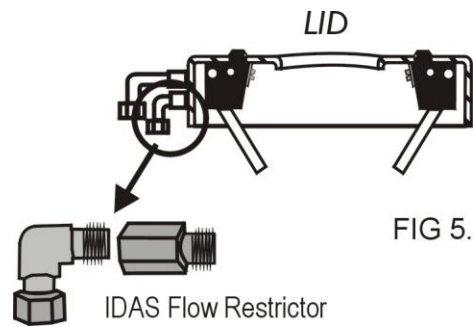
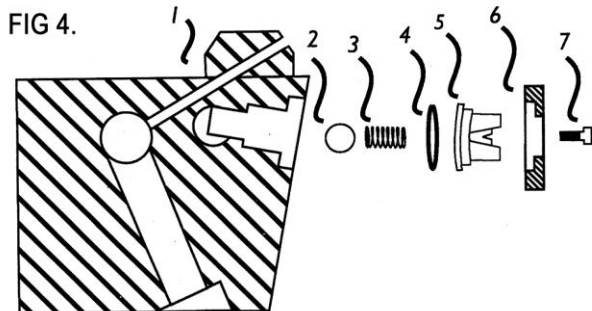


FIG 5.



1 - SPRAY BLOCK

2 - CHECK BALL*

3 - SPRING*

4 - O-RING*

5 - NOZZLE*

6 - RETAINER PLATE

7 - SCREW

*REPAIR KIT ITEMS

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What The Cup Cleaner Will do for You

The Doyle robotic cup cleaner will eliminate all problems and paint defects caused by dirty cups. Trouble shooting paint line problems and defects, requires identifying the cause of the problem. By eliminating all problems related to dirty cups, identifying the real problem becomes much easier contributing to the success and morale of the paint line group.

With our assistance the Doyle cup cleaner is designed to be installed, by the plant's paint line group, in a few hours with minimal disruption to the line. After the initial installation the paint line group will be empowered to install the rest of the cup cleaners between shifts, and will benefit from instant, direct, measurable improvements.

Review

- | | | |
|---|---|---|
| 1. The same Doyle cleaner will clean conventional, dual and and large or small bell applicators. | T | F |
| 2. The depth of the applicator into the cleaner must not exceed 100mm. | T | F |
| 3. The Doyle cleaner requires regular cleaning. | T | F |
| 4. The speed of the applicator movement out of the cleaner may be as fast as possible. | T | F |
| 5. The Doyle cup cleaner will not allow solvent to siphon. | T | F |
| 6. The air pressure should be set at 45 psi for initial set-up. | T | F |
| 7. When installing a Doyle cleaner, the height of the funnel should be 16.5" from the top of the T-Bracket. | T | F |
| 8. The cup cleaner will usually only require service once a year. | T | F |
| 9. The schematic does not need to be followed during installation. | T | F |
| 10. The cup cleaner is simple and quick to install. | T | F |

Parts List

Doyle Cap/Cup Cleaner Model 5000

DWG. #	Part Number	Description
	1 500-001	Spray Block Aluminum - small
	2 500-002	Ball-Check Nylon
	3 500-003	Spring-Check SS
	4 500-004	O-Ring Teflon
	5 500-005	Nozzle
	6 500-006	Retainer Plate Aluminum
	7 500-007	Screw - 8-32 x 1/2 Socket Head Hex SS
	8 500-008	10-24 x 1/2 Socket Flat Head Brass Screw
	25 500-025	Pull Down Catch SS
	9 500-009	Pull Down Strike SS
	10 500-010	Lid
	500-110	Lid with circuitry
	500-210	Lid with insert
	500-310	Lid with insert with circuitry
	500-410	Retro Lid
	500-510	Retro Lid with circuitry
	500-610	Retro Lid with insert
	500-710	Retro Lid with insert with circuitry
	11 500-011	Fittings - Supply 1/4 npt m x 1/4 npt f Brass
	12 500-012	Fittings - Air 1/4 npt m x 3/8 Tube SS
	13 500-013	Tube - Air 3/8 Teflon
	14 500-014	Tube - Solvent 1/4 Teflon
	15 500-015	Tube - Solvent 1/4 Teflon
	16 500-016	Tube - Air 3/8 Teflon
	17 500-017	Fittings - Solvent 1/8 npt m x 1/4 Tube SS
	18 500-018	Supply Spray block Aluminum - Big
	19 500-019	Liner - Standard SS
	20 500-020	Funnel SS
	21 500-021	Bolt 1/4 -20 x 3/4 lg. Hex Head SS
	22 500-022	Nut 1/4 -20 Hex SS
	23 500-023	Washer 1/4 " Plate SS
	28 500-029	Rivet - Tubular SS 1/8 x 5/16
	29 500-028	Rivet - Tubular SS 1/8 x 1/4
	24 500-024	Stand with cover 24" SS
	500-030	Repair Kit (contains number 2, 3, 4, 5)

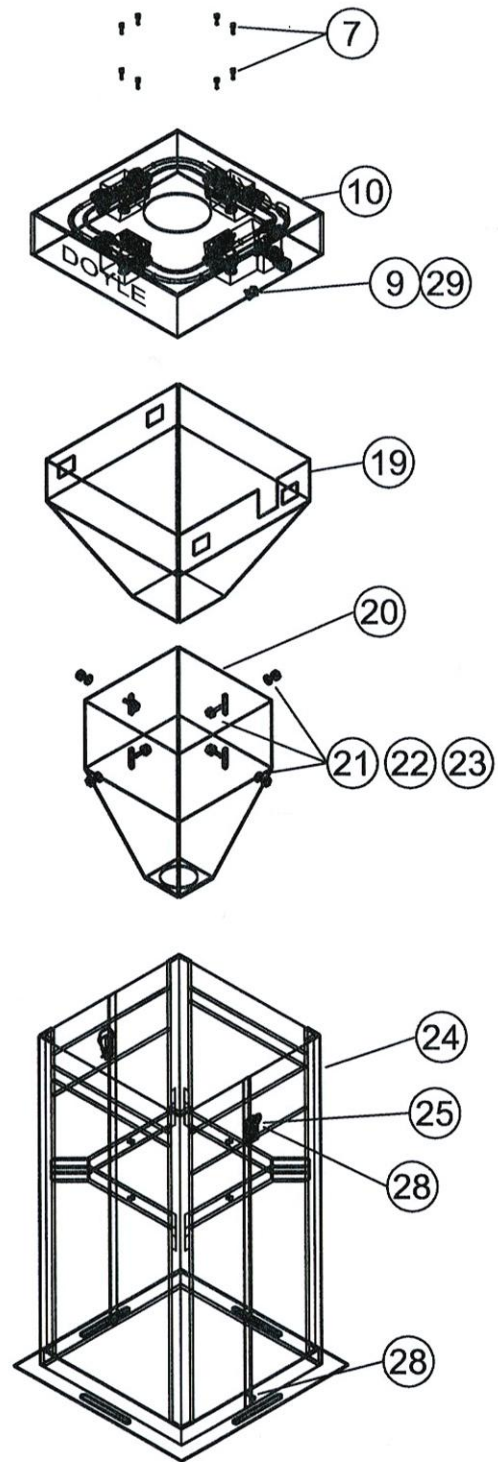
Parts List

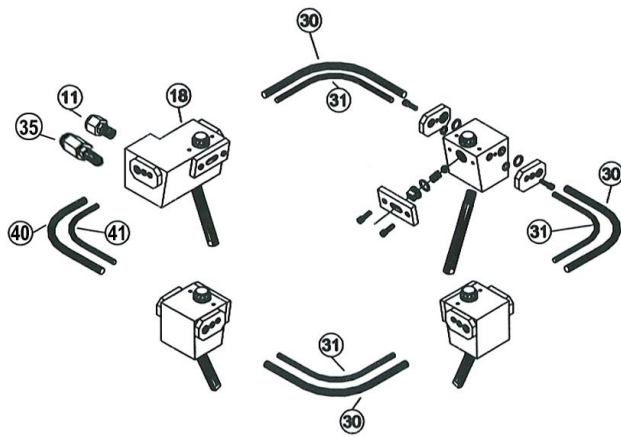
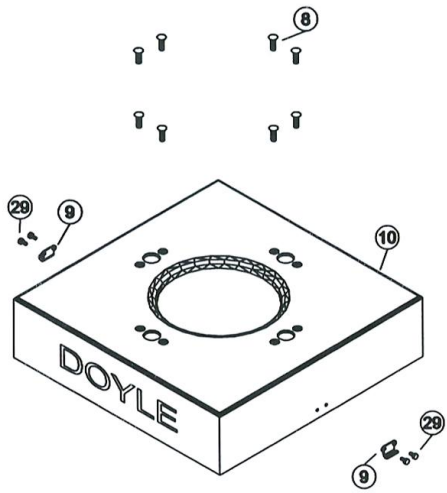
Doyle Cap/Cup Cleaner Model 5000 *continued*

DWG. #	Part Number	Description
36	500-031	Right Hand Keeper Plate
39	500-032	Left Hand Keeper Plate
35	500-044	#50 Fixed Solvent Regulator (Flow Restrictor)
35	500-045	#55 Fixed Solvent Regulator (Flow Restrictor)
35	500-046	#60 Fixed Solvent Regulator (Flow Restrictor)
37	500-047	O-Ring 010
38	500-048	O-Ring 012
41	500-049	Short circuit tubing 1/4"
40	500-050	Short circuit tubing 3/8"
31	500-051	Long circuit tubing 1/4"
30	500-052	Long circuit tubing 3/8"
34	500-053	Drive Extension

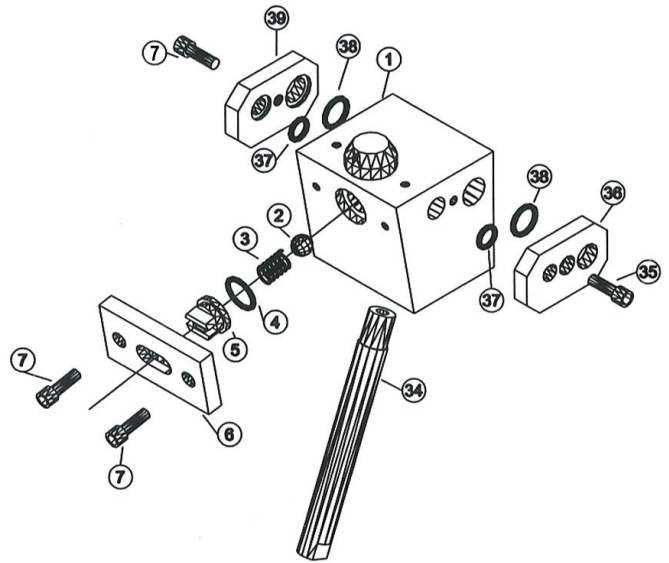
Optional IDAS Accessories

500-033	Control Panel Base
500-034	Air Valve Mac 55-B-11-RA
500-035	Solvent Regulator DeVilbiss DVHGS
500-036	Solvent Supply Graco 195-579
500-037	Air Supply Regulator Norgren R736-3AK-RMN
500-038	Air Regulator Mounting Bracket Norgren 4461-50
500-039	Air Gauge 2" Winters E1407 100psi
500-140	Control Panel Complete 500-033,034,035,036,037,038,039
500-040	Solvent Valve Graco GR218-964
500-141	Water Borne Solvent Valve Assembly
500-142	Water Borne Control Panel 500-033,034,035x2,037,038,039
500-041	T-Bracket for wall mount
500-042	Strainer Basket
500-043	Delrin Safety Cover





Spray Block Head Detail



One Year Limited Warranty

PRODUCT LIMITED WARRANTY: Manufacturer Circle Dynamics warrants its product to be free from defects in workmanship and/or material for one (1) year from date of shipment from factory. Manufacturer shall have no liability under the warranty or otherwise if: 1. The product is not inspected by Buyer within ten (10) days after delivery; 2. The product is used other than in accordance with current operating instructions; 3. The product is subjected to any abuse or abnormal or unintended use; 4. A claim in writing under this warranty is not presented to manufacturer at Peterborough, Ontario, Canada address on or before ninety (90) days after the date of alleged defect was first known or could reasonably have been known, whichever is sooner, or; 5. The product is not returned unaltered to Manufacturer within such ninety (90) day period for inspection. Any warranty extends only to the first user of the product.

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