



WAM-5500-375/500

WAM-5520-375/500

WILS-MATIC AUTO TUBE PUNCHER



OPERATING INSTRUCTIONS & SERVICE MANUAL

Rev: A, 2/22/2007

**TO REDUCE THE RISK OF INJURY AND EQUIPMENT DAMAGE
USER MUST READ AND UNDERSTAND OPERATOR'S MANUAL.**

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SAFETY INSTRUCTIONS



WARNING!

READ AND UNDERSTAND ALL INSTRUCTIONS

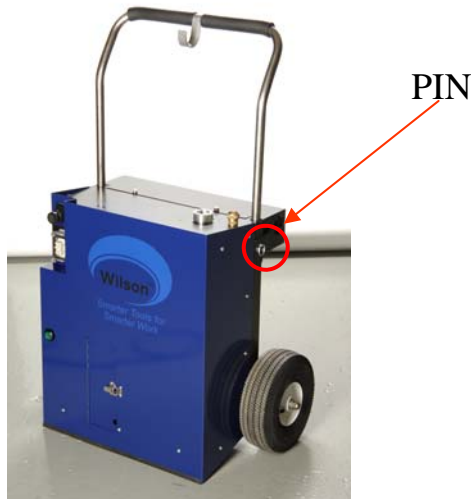
Failure to follow all instructions listed below, may result in accident, fire and/or personal injury.

SAVE THESE INSTRUCTIONS

1. **KNOW YOUR POWER TOOL.** Read this service manual carefully.
2. **GROUNDING INSTRUCTIONS.** This product is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.
3. **KEEP GUARDS IN PLACE** and in working order.
4. **KEEP WORK AREA CLEAN.** Cluttered areas and benches invite accidents.
5. **AVOID DANGEROUS ENVIRONMENT.** Keep work areas well lit.
6. **STORE IDLE TOOLS.** When not in use, tools should be stored in dry, high or locked-up place – out of reach of children.
7. **DON'T FORCE TOOLS.** It will do the job better and safer at the rate for which it was designed.
8. **USE RIGHT TOOLS.** Don't force small tool or attachment to do the job of a heavy-duty tool.
9. **WEAR PROPEL APPAREL.** No loose clothing or jewelry to get caught in moving parts. Rubber gloves and footwear are recommended when working outdoors.
10. **USE SAFETY GLASSES** with most tools. Also face or dust mask if cutting operation is dusty.
11. **DON'T ABUSE CORD.** Never carry tool by cord or yank it to disconnect from receptacle. Keep cord from heat, oil and sharp edges.
12. **SECURE WORK.** Use clamps or a vise to hold work. It's safer than using your hands to operate tool.
13. **DON'T OVERREACH.** Keep proper footing and balance at all times.
14. **MAINTAIN TOOL WITH CARE.** Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
15. **DISCONNECT TOOLS:** When not in use; before servicing; when changing accessories such as blades, bits, cutters, etc.
16. **REMOVE ADJUSTING KEYS AND WRENCHES.** Form habit of checking that keys and adjusting wrenches are removed from tool before turning it on.
17. **AVOID ACCIDENTAL STARTING.** Don't carry plugged-in tool with finger or switch.
18. Remove the plug from the socket before carrying out any adjustment, servicing or maintenance.
19. Do not use unit with combustible fluids or where combustible fluids or fumes may be present.

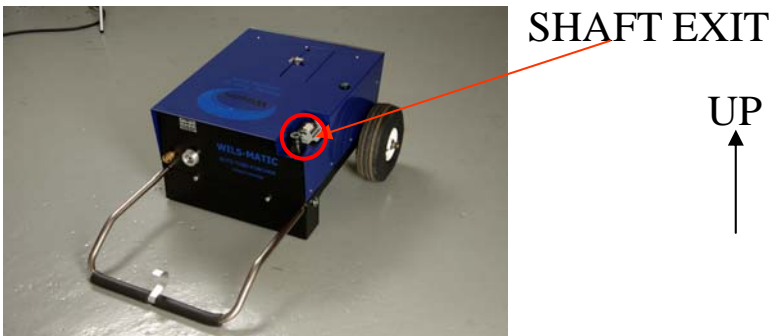
ASSEMBLY

1. Place the drive unit on its wheels and bumper.
2. Take the handle and slide in to the slots.
3. Insert the quick-release pins thru the handle as shown below.

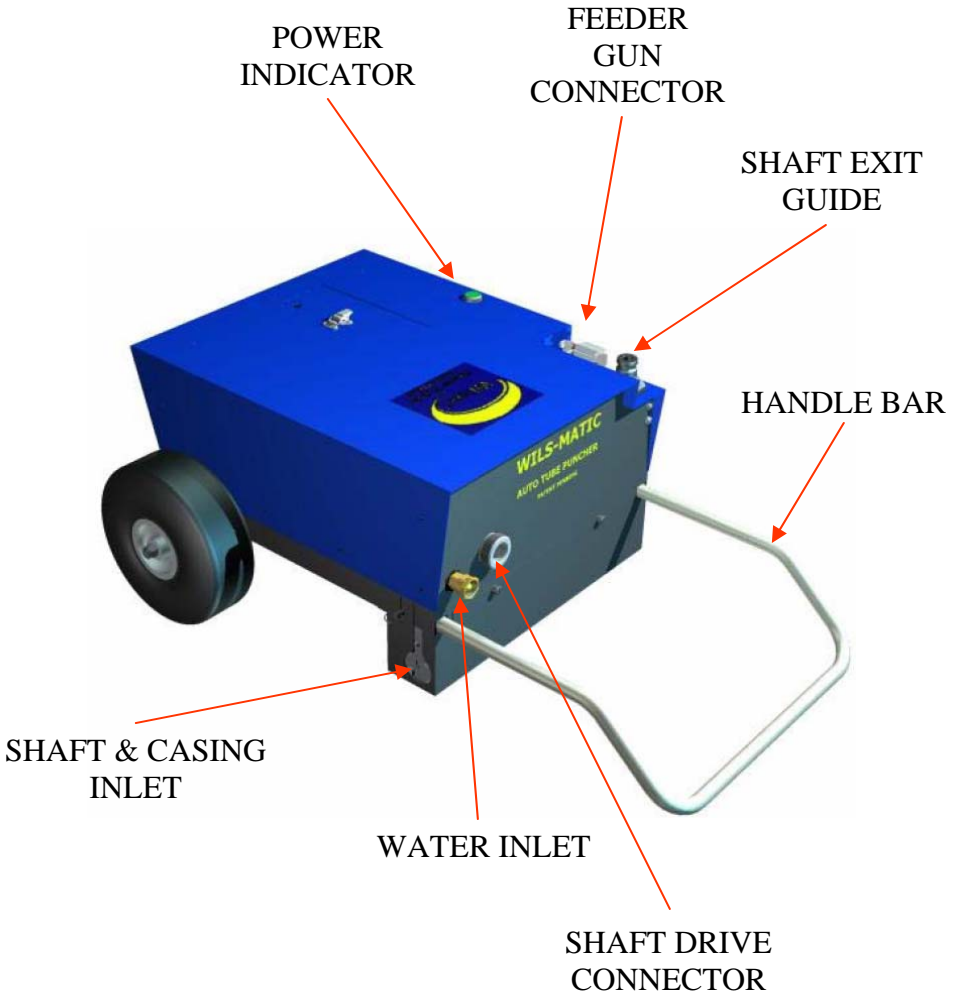


OPERATING POSITION

The WILS-MATIC tube cleaner at all times **should be operated with the covers in place. In addition, it should be operated only with the top side (side with shaft exit) up**, as illustrated below:



OPERATION 1

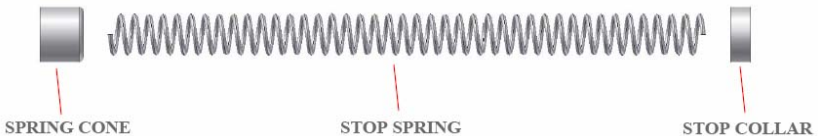


OPERATION 2

| Action | Green Light On | Shaft & Casing Not Connected | Shaft & Casing Fed Thru the machine and connected to the motor drive unit |
|------------------------|-----------------------|---|---|
| Forward Trigger | Unit is powered up | <ul style="list-style-type: none"> The shaft connector will rotate counter-clockwise when looking onto the unit from the handle side and it will splash water. | <ul style="list-style-type: none"> Will send the brush forward, until the stop collar on the shaft & casing hits the stop switch plate. Will spin the brush clockwise |
| Reverse Trigger | Unit is powered up | <ul style="list-style-type: none"> The shaft connector will rotate clockwise when looking onto the unit from the handle side and it will splash water. | <ul style="list-style-type: none"> Will pull back the brush, until the trigger is released. Will spin the brush counter-clockwise |

OPERATION 3

- Un-coil electrical cord from inside the front cover and plug it in a properly grounded outlet. Press the reset button on the GFCI plug.
- Un-coil Feeder Gun Assembly and connect it to the unit using the shaft connector and electrical connector.
- At this point the green light will come on to show that you have power inside the unit.
- Install the Shaft & Casing Length Stop Unit on to the Shaft & Casing:
 1. Remove Shaft Stop Nut from the New Shaft & Casing (might be already removed)
 2. Insert the Stop Collar
 3. Insert the Stop Spring
 4. Insert the Spring Cone



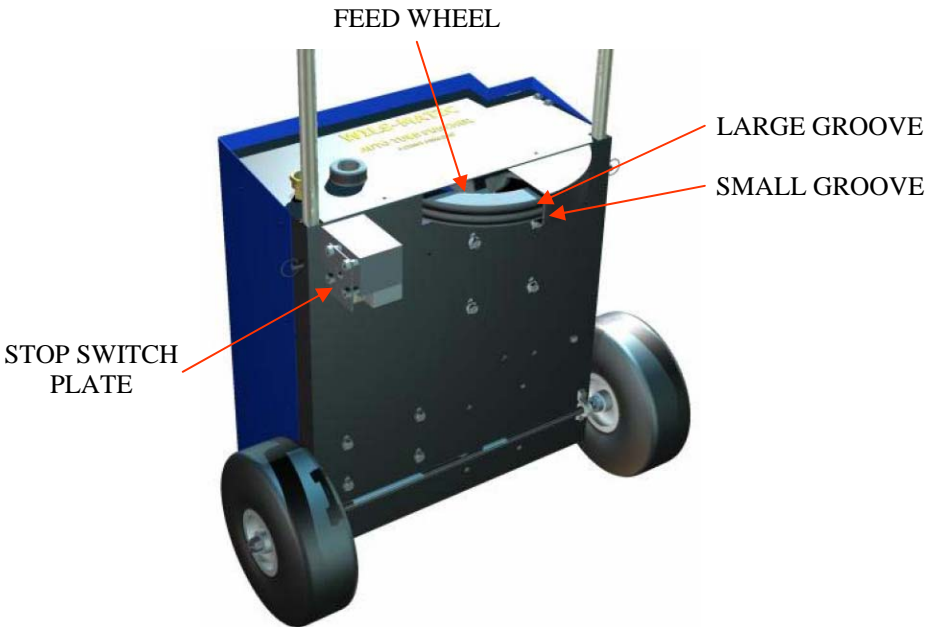
The Spring and the Spring Cone must be on the brush side of the Stop Collar.

- At this point place the unit on its wheels and bumper so that there is an easy access to the shaft & casing inlet on the bottom of the unit. Now remove the bottom protection cover with 5 thumb screws. (must also remove handle pins to remove the bottom cover) Then feed the Shaft in to the Shaft & Casing Inlet, thru the stop switch plate and housing and guide the tip to the feed wheel.
 - If using 1/2" Dia. Shaft guide it into the large groove.
 - If using 3/8" Dia. Shaft guide it into the small groove.
- Attach the Shaft & Casing to the Shaft Drive Connector. Once the tip is grabbed between the feed wheel and the edge, Press the "Forward Trigger" **in pulses** until the tip of the Shaft & Casing comes out from the tip of the Gun.

*At this point, to make the initial feeding easier make sure the shaft is spinning and that the flex hose on the feeder gun is straight. It is easier to go in pulses and guide the tip of the shaft & casing thru the flex hose. If there is any resistance going forward then reverse with a pulse or two and then go forward again.

OPERATION 4

- Screw back on the bottom protection cover, re-install the handle pins and lay down the unit in operation position.
- Connect water hose to water inlet, with the strainer within. Turn water supply on. *Solenoid valve only opens to allow water through when the motor is running.
- Attach the appropriate brush on to the shaft tip.
- Send the brush inside the tube to be cleaned and make the final adjustment for the Shaft & Casing Length Stop Unit on the Shaft & Casing. To adjust the stop unit, loosen the hex screws on the stop collar and slide it to the desired position. Retighten screws.
- After the length of the tube to be cleaned is decided with the stop collar. Just send in the brush by pressing the top of the trigger. Once the Stop Collar on the shaft and casing hits the stop switch plate the unit will stop sending the shaft & casing forward. So at this time Press the bottom of the trigger and bring back the brush out of the tube. When exiting the tube, hold the gun a few inches from the tube head and when you see the brush passing by, release the trigger.
- Repeat the cycle by just holding the forward trigger until the shaft & casing doesn't move forward anymore and then reversing the brush until it comes out of the tube.



| KEY | DESCRIPTION | PART NO. | QTY. |
|-----|---------------------------|-----------|-------|
| 34 | Shaft Stop Housing | 9992-1121 | 1 |
| 35 | Shaft Stop Plate | 9992-1122 | 1 |
| 36 | Stop Plate Spring | 9992-1123 | 4 |
| 37 | Open End Round Foam Grip | 9992-1124 | 1.5ft |
| 38 | Guide Bushing | 9992-1125 | 1 |
| 39 | Wheel Axle Bearing | 9992-1148 | 2 |
| 40 | Wheel Axle | 9992-1149 | 1 |
| 41 | Shaft Exit Guide | 9992-1180 | 1 |
| 42 | BHSCS, #5/16-18 | 9992-1182 | 2 |
| 43 | Back Cover | 9992-1200 | 1 |
| 44 | Square Fan | 9992-1217 | 1 |
| | for 220V Model: | 9992-1222 | 1 |
| 45 | Square Fan Guard | 9992-1218 | 1 |
| 46 | PHMS, #6-32 | 9992-1219 | 4 |
| 47 | Hex Locknut, #6-32 | 9992-1221 | 8 |
| 48 | Nut, Lock # 1/4-20 | 9992-2130 | 4 |
| 49 | Nut, Clip-On # 5/16-18 | 9992-2131 | 4 |
| 50 | THPMS, #4-40 | 9992-2140 | 4 |
| 51 | Switch, Stop | 9992-2156 | 1 |
| 52 | Metal Conduit, RA 1/2 NPT | 9992-2158 | 2 |
| 53 | Grommet, Rubber | 9992-2159 | 1 |
| 54 | Control Box V2 | 9992-2190 | 1 |
| | for 220V Model: | 9992-2192 | 1 |
| 55 | V Belt | 9992-5111 | 1 |
| 56 | V Pulley | 9992-5121 | 2 |
| 57 | Coupling Hub | 9992-5132 | 2 |
| 58 | Coupling Spider | 9992-5133 | 1 |
| 59 | Shaft | 9992-5140 | 1 |
| 60 | HFCS, #5/16-18 | 9992-5150 | 4 |
| 61 | Keyway | 9992-5170 | 2 |
| 62 | Feed Unit Assembly | 9992-5200 | 1 |
| 63 | Motor, Electrical | 9992-6911 | 1 |
| 64 | Gear Reducer | 9992-6920 | 1 |

| KEY | DESCRIPTION | PART NO. | QTY. |
|-----|---------------------------------|------------|------|
| 1 | Washer, Plain | 30573-0000 | 8 |
| 2 | Washer | 30575-0000 | 2 |
| 3 | Washer | 30577-0000 | 1 |
| 4 | Shoulder Bolts | 38070-0000 | 4 |
| 5 | Elastic Stop Nut | 38614-0000 | 2 |
| 6 | Washer, Plain | 44076-0006 | 7 |
| 7 | SHCS, 4-40 | 46000-5170 | 4 |
| 8 | Lock Washer, 10-32 | 53853-0000 | 11 |
| 9 | Brass Nipple | 9540-0000 | 1 |
| 10 | Filter Washer | 9570-0000 | 1 |
| 11 | Washer, Lock | 9595-0000 | 4 |
| 12 | Hose Coupling | 9600-0007 | 1 |
| 13 | Pipe Bushing | 9600-0008 | 1 |
| 14 | Solenoid Valve | 9600-0010 | 1 |
| 15 | RA Tube Fitting, 1/8" NPT | 9600-0011 | 2 |
| 16 | Phillips Pan Head Screw, 10-32 | 9600-0037 | 32 |
| 17 | 1/2" Lock Nut | 9600-0051 | 1 |
| 18 | HHCS, #5/16-18 | 9600-0078 | 4 |
| 19 | Motor Connector Assembly | 9600-0106 | 1 |
| 20 | Pin, Quick-Release | 9600-0124 | 2 |
| 21 | Push-On Rubber Edge Trim (N.S.) | 9600-0129 | 8ft |
| 22 | Nut, Lock # 5/16-18 | 9618-0000 | 4 |
| 23 | Nylon Tubing, | 9626-8000 | 1ft |
| 24 | HHCS, #1/4-20 | 9629-0000 | 4 |
| 25 | Rivet (N.S.) | 9661-0000 | 4 |
| 26 | Etched Nameplate (N.S.) | 9848-0000 | 1 |
| 27 | Frame Base | 9992-1112 | 1 |
| 28 | Cover | 9992-1113 | 1 |
| 29 | Handle | 9992-1114 | 1 |
| 30 | Storage Box | 9992-1117 | 1 |
| 31 | Latch | 9992-1118 | 1 |
| 32 | PHMS, #6-32 | 9992-1119 | 4 |
| 33 | Wheel, Pneumatic | 9992-1120 | 2 |

SHAFT & CASING REPLACEMENT

In order to replace the shaft and casing follow these steps:

1. Remove the brush from the Shaft & Casing.
2. Un-screw the shaft from the “Shaft Drive Connector”
3. Reverse the Shaft & Casing until it comes back out from the feed wheel.
4. Remove the “Stop Collar”, “Stop Spring” and the “Spring Cone” from the worn Shaft & Casing then replace it onto the new Shaft & Casing.
5. Feed the new Shaft & Casing in to the machine and then screw the back end of the shaft & casing on to the “Shaft Drive Connector”
6. Attach the new brush and continue on with your cleaning cycle.

MAINTENANCE

- Note: Remove the plug from the power outlet before carrying out any adjustment service or maintenance.
- Safety coupling replacement: A 80 in-lb Safety Coupling (#9600-0102) is supplied within the motor connection assembly as standard. This will break if the shaft is overloaded by forcing cleaning tool within the tube. A hook type removal tool (#9600-0055) is supplied for removing this broken unit. Engage the far end of the broken coupling with this tool and pull the coupling out.
- Storage: To store, disconnect water supply hose and gun assembly. Disconnect flexible shaft from machine. Dry out the shaft with an air blast through a hose fitting (optional #9614) attached to large aluminum coupling. Store the tube cleaner in a dry, heated place.
- Lubrication: Periodically, grease ball bearing inside motor connector housing through grease fitting, usually every 200 hours of services.
- Replacement of cords or electrical components: If supply cord is damaged, it must be replaced by a special cord or an assembly available from the factory.

TROUBLE-SHOOTING

| PROBLEM | CAUSE & SOLUTION |
|--|--|
| <ul style="list-style-type: none"> • No power • Green Light not lit up when unit is first plugged into power outlet | <ul style="list-style-type: none"> • GFCI Plug not reset —press reset button on GFCI • GFCI Plug defective • Power cord defective • Green Light (Power On) defective |
| <ul style="list-style-type: none"> • Power up but motor not turning when activated | <ul style="list-style-type: none"> • Blown Fuse —replace fuse #1 • Defective motor • Defective wiring in unit • Overload protection engaged on the motor —reset the motor by pressing OLP reset button from the back of the unit. (use the hole next to the fan) |
| <ul style="list-style-type: none"> • Power up but motor not turning forward when activated | <ul style="list-style-type: none"> • Stop switch plate damaged and is constantly hitting the forward stop switch. |
| <ul style="list-style-type: none"> • Motor running but Flexible Shaft not turning | <ul style="list-style-type: none"> • Broken Safety Coupling • Broken Shaft Cable |
| <ul style="list-style-type: none"> • Motor running but no water output at end of Flexible Shaft | <ul style="list-style-type: none"> • Water supply not turn on • Defective Solenoid Valve |
| <ul style="list-style-type: none"> • Flexible Shaft turning but not feeding out | <ul style="list-style-type: none"> • Feed wheel not grabbing the shaft • Broken belt • Brush head is getting resistance from inside the tube —Reverse couple of inches and feed forward |
| <ul style="list-style-type: none"> • Motor running and water drips inside unit <p data-bbox="55 1159 474 1365">Note: Some water coming back from the rotating brush that is collected inside the Feeder Gun Assembly will come out from under the unit. There are 4 drainage holes for this water to drain out of the control unit.</p> | <ul style="list-style-type: none"> • Worn Teflon seal inside Motor Connector • Leakage in tube or tube fittings |
| <ul style="list-style-type: none"> • Unit running rough and/or noisy | <ul style="list-style-type: none"> • Lack of lubrication in Motor Connector —grease ball bearings inside Motor Connector —replace worn or corroded ball bearings in Motor Connector • Loose Covers on the unit |

SPECIFICATIONS

| MODEL | WAM-5500-500 WAM-5520-500 | WAM-5500-375 WAM-5520-375 |
|---------------------------|---|---|
| VOLTAGE | 115 220 | 115 220 |
| FREQUENCY | 60 50/60 | 60 50/60 |
| HORSEPOWER | 1 | 1 |
| RPM | 1725 1425 | 1725 1425 |
| SELF FEED RATE | 4.2 FT PER SECOND (1.3 m/s) | 4.2 FT PER SECOND (1.3 m/s) |
| SHAFT & CASING | 1/2" O.D. (12.70 mm) | 3/8" O.D. (9.52 mm) |
| DIMENSION | 42 in x 30 in x 16 in (1067mm x 762mm x 406mm) *excluding gun assembly | 42 in x 30 in x 16 in (1067mm x 762mm x 406mm) *excluding gun assembly |
| WEIGHT | 85 lbs (38kgs) | 85 lbs (38kgs) |

LIST OF ACCESSORIES

| <u>Item</u> | <u>Part No.</u> | <u>Description</u> |
|-----------------------------|-----------------|--------------------------------|
| • Flexible Shaft Lubricator | 9675-0000 | |
| • Safety Shaft Coupling | 9600-0102 | includes removal tool |
| • Flexible Shaft & Casing | 9722-0045 | Shaft & Casing, 3/8in OD, 45ft |
| • | 9724-0045 | Shaft & Casing, 1/2in OD, 45ft |
| • Spiral Brushes | 61746-x0xx | (Max. Speed = 1725/min.) |
| • | 62501-x0xx | (Max. Speed = 1725/min.) |

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