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I. INTRODUCTION

Your new Sani-Touch egg-processing machine is designed and engineered to provide many years of dependable service. It has been precision built and tested before shipment. If careful operation and maintenance is provided, it will give trouble-free service and long life.

Sani-Touch machines are unique in their method of egg processing. The eggs are candled before sanitizing to reduce the possibility of egg contamination. The gentle sanitizing system uses fresh, non-re-circulated, hot water mixed with a sanitizing detergent to further control egg contamination. Aquamagic pioneered this system.

The following installation and maintenance procedure will enable you to minimize possible problems in egg room operation. Study them and use suggestions to your advantage. Any part numbers shown refer to Sani-Touch parts list.

A. MACHINE RECORD

The following information will provide ready reference when seeking operation help or ordering parts. When ordering parts, always provide the machine model number, serial number, and type of candler.

Date Purchased: _____ **Purchased From:** _____

Distributor's Address: _____

Phone: _____ **Salesman's Name:** _____

Model No.: _____ **Serial No.:** _____

Cases /Hour _____ **Type of Candler** _____

B. WARRANTY

The warranty for the equipment listed by Serial Numbers above is 120 days from date of purchase against defects in material. This warranty excludes all other warranties, expressed or implied, is not transferable and shall be limited to the part or parts necessary to repair or replace those acknowledged by us to be defective. It does not include labor, transportation, shipping, or miscellaneous costs.

This warranty shall not apply if our factory inspection reveals the machine was:

1. Damaged by misuse.
2. Damaged by causes beyond our control.
3. Installed or operated other than in accordance with installation and operation instructions.
4. Operated other than in accordance with periodic bulletins.

This warranty shall not apply if the equipment has been repaired or altered.

C. SHIPPING

All goods are shipped F.O.B. factories at Osage, Iowa, U.S.A. All goods should be examined carefully by the buyer before the transportation receipt is signed. If material is received in bad condition, the buyer should require the agent of the Transportation Company to make a notation of delivery condition on freight bill and immediately file a damage claim with the carrier. National poultry equipment co. is not responsible for damage incurred during shipping.

I. INTRODUCTION (Cont.)

D. SAFETY

Installation, operation, and maintenance of a power-driven machine require certain rules of safety. Please see that they are known and followed by all personnel likely to operate the machine.

1. Follow all local electrical and safety codes.
2. Install and maintain a positive electrical ground wire to the machine.
3. Disconnect electrical power source before servicing or cleaning machine. If power sources disconnect is out of sight, lock it in the "off" position and attach warning tag to prevent accidental application of power.
4. Do not remove drive chain or belt guards or insert any object into moving parts while machine is running.
5. Do not touch any operating electric motors. Modern motors operating normally will be hot enough to cause burns.
6. Do not wear loose fitting clothing or jewelry, or lengthy hairstyles which might become caught in moving parts of machinery.

II. INSTALLATION AND START-UP

A. INSTALLATION

1. Uncrating
 - a. Remove plywood cover and upper portion of shipping crate-leaving machine on skid.
 - b. Move machine to approximate location.
 - c. Remove steel bands holding machine skid.
 - d. Remove machine from skid.
 - e. Position machine permanently in exact location on solid concrete or wood floor.
2. Reinstall all parts removed at factory for shipping.
 - a. Check carefully for all parts packaged separately using the enclosed table. See Illustration #1.
 - b. Install sanitizer cover and blower panels as shown in enclosed illustration. See Illustration #2.
 - c. Vent exhaust blower to outside of egg room if desired.
3. Level machine frames accurately to assure grader scale accuracy and eliminate vibration.
 - a. Adjust leg bolts to level machine length wise and cross wise.
 - b. Check that all leg bolts are firmly seated on floor.
 - c. Tighten leg bolt lock nuts.
4. Attach all major sub-assemblies (i.e. Vac-Pak, Cross Loader) per instructions for each Assembly under Section III General Operation & Maintenance.
5. Remove all tape and ties from parts tied down for shipping.
6. Tighten all fasteners, which may have vibrated loose during transportation.
7. Provide a protected main line power source to the circuit breaker panel on the machine. Sani-Touch machines require single phase, 60 cycle, and 120/240 volt, 4 wire service.
 - a. Provide power source sufficient to supply amperage as shown for your particular model. See Illustration #3.
 - b. Connect incoming wiring to appropriate terminal in breaker panel. (See diagram in breaker panel cover).
 - c. Install and maintain a positive electrical ground wire to the machine.

II. INSTALLATION AND START-UP (Cont.)

A. INSTALLATION (Cont.)

8. Provide incoming fresh water piping to all cleaners.
 - a. Connect incoming water supply to ¼" female pipe thread connection in water heater.
 - b. Provide shut off valve for incoming fresh water supply near machine.
 - c. Insure an incoming water pressure to the heater of 60 P.S.I. or less. If over 60 P.S.I., a pressure-reducing valve may be required.
 - d. Insure minimum incoming water flow of one gallon for each case per hour of machine speed.
 - e. Water usage will vary with the amount of contamination on incoming eggs, however, approximate water requirements are as follows:

<u>Machine Speed</u>	<u>Water Requirements</u>
5 to 7- ½ cases per hour	5 to 15 gallons per hour
10 to 15 cases per hour	10 to 30 gallons per hour
20 to 24 cases per hour	20 to 50 gallons per hour

9. Provide outgoing drain piping from all cleaners.
 - a. Connect drain pipe to 1-1/4" female pipe thread drain connection located at the bottom of the water drain channel at the center of the sanitizer chamber.
 - b. Connect drain to trapped sewer in a manner to allow access for clean out.
10. Provide 5 or 10-gallon plastic container for detergent or sanitize pre-mixture.

B. START-UP

The following instructions are for start-up of a machine equipped with a cross loader, spool spinner candler, sanitizer, grader, and wire belt table or Vac-Pak packer. Disregard any instructions that pertain to optional equipment not included on your machine.

1. Lubricate all shaft bearings and roller chains with food grade lubrication or mineral oil. Be careful that excess oil does not get on any runway.
2. Open valve turning on water supply to machine.
3. Close main power source providing power to machine.
4. Check brush-bearing hold down brackets (C-201 and C-202) for tightness.
5. Check all belts and chains for proper tension. (See III D.1.a.)
6. Turn all circuit breakers to "on" position. The cross loader, belt feed candler spools, chem. feed, egg conveyor and brushes will operate, and water will pass through the spray tube, dry fan will also operate.
 - a. If for any reason the machine binds: turn off, check cause, and refer to applicable section.
 - b. Check grader kickers to see that none are stuck in the "on" position (extended as if to kick an egg). See Section III H.
 - c. Allow water to run until all air is out of water system and water flow is constant.
 - d. Check piping for leaks.
 - e. Check spray tubes to see that all holes are open.
7. Insert suction tube and foot valve into pre-mixed sanitizer or detergent. See Section III G. 2e.
8. Turn "Vac-Pak" circuit breaker to "on" position and close toggle switch on Vac-Pak electrical panel.

II. INSTALLATION AND START-UP

B. START-UP (Cont.)

9. Turn “water heater” switch to “on” position.

CAUTION: Never turn on heater until water is flowing visibly.

10. Load one flat of eggs on candler spools or cross loader.
11. Check to be sure eggs are flowing smoothly through the machine. If problems arise, check causes and see applicable section for adjustment.
12. Set machine in full operation.

C. SHUT DOWN

1. Turn all circuit breakers to “off” position.
2. Open main power source preventing power to machine for added safety.
3. Clean machine thoroughly as described in Section III.

CAUTION: Do not clean machine when electric power to the machine is on.

4. Close valve turning off water supply to machine.

III. GENERAL OPERATION AND MAINTENANCE

Sani-Touch machines consist of several assemblies installed on or attached to the main machine frame. These instructions discuss installation, operation, maintenance and cleaning, and common problems of the components individually, including: hand loading or in-feed cross loader, main egg conveyor drive, candler and belt feed, egg conveyor, sanitizer, water system, grader, out-feed wire belt table and Vac-Pak packer, vacuum equipment, lubrication and cleaning. Any part numbers shown refer to Sani-Touch parts list.

A. HAND LOADING OR IN-FEED CROSS LOADER

Eggs are loaded onto the machine by: placing eggs onto the chute loader candler or candler spools manually or, placing eggs onto candler spools or cross loader using a vacuum lifter.

1. Installation

- a. Place cross loader at 90-degree angle to belt feed unit on unguarded side.
- b. Bolt cross loader to bracket provided at side of belt feed. This may require drilling of two ¼" holes in mount bracket.
- c. Level cross loader
 - (1) Adjust leg bolts to level machine lengthwise and crosswise.
 - (2) Check that both leg bolts are firmly seated on floor.
 - (3) Tighten leg bolt lock nuts.
- d. Insert cross loader electrical cord cap into receptacle on candler unit.

2. Operation

The cross loader consists of a flat stainless wire belt. Eggs should be placed on the cross loader in rows of (6) six. Care must be taken not to load cross loader beyond the belt feeds capacity to transfer eggs to the candling spools.

3. Maintenance and Cleaning

- a. Oil all shaft bearings with food grade lubrication once each week.
- b. Torn Wire Belt
 - (1) Loosen wire belt take-up bearing (XLW-31)
 - (2) Replace damaged material (XLW 24 or 25)
 - (3) Lace wire belt material per manufacturer's instructions in back of this manual.
 - (4) Tighten wire belt take-up bearing (XLW-31)

B. CHUTE LOADER CANDLER

1. Operation

- a. Load eggs on runway wear strip manually by placing them crosswise on the runway wear strips. Chute loader should be kept loaded its entire length throughout operation.
- b. Eggs will roll smoothly the length of the candler and onto the in-feed rails to the conveyor chain.

2. Maintenance and Cleaning

- a. Clean candler runways daily.
- b. Prevent broken eggs and dirt from dripping on candler lamps.
- c. Clean candler lamps weekly. Note: disconnect electric power source before servicing or cleaning machine.

GENERAL OPERATION AND MAINTENANCE (Cont.)

C. SPOOL SPINNER CANDLER AND BELT FEED

The spool spinner candler with belt feed is designed to provide efficient candling in higher capacity machinery and to allow attachment of automatic or semi-automatic loading equipment. This type of candler is equipped with three (3) 500-watt Quartz Halogen lamps.

1. Operation

Operation requires only that egg feed smoothly from belt feed to candler spools, oscillate across candler lights while being visually inspected, and roll smoothly to the lead-in rails of the egg conveyor chain. See Section II B.10 and II C. for start up and shut down. See Section III A. for loading.

2. Maintenance and Cleaning

- a. Check to see that stainless steel egg guards are pressed down in proper position beside spools.
- b. Lubricate chains daily after clean up with food grade lubrication.
- c. Lubricate flange bearings in candler side plates daily with food grade lubrication.
- d. Lubricate chains weekly with food grade lubrication.
 - (1) Open candler door.
 - (2) Brush food grade lubrication on bottom side of chain allowing excess oil to drip into drain trough. Lubricate one section of chain at a time. Do not oil chain while it is in motion.
- e. Lubricate weekly all oil-impregnated bushings with food grade lubrication.
- f. Clean Pyrex cover glass (S-618-2 or -2) daily.
 - (1) Disconnect electric power source.
 - (2) Open candler door.
 - (3) Slide Pyrex cover glass out of spring clip holding glass between lamps and spools.
 - (4) Clean glass and replace.
- g. Clean accumulated dirt and dust from chains, sprockets, candler fan and all moving parts weekly.
- h. Clean belt feed belt runway periodically to minimize wear.
- i. Clean belt feed tail sheave assemblies (S-649 & S-649-1) weekly.
CAUTION: Do not indiscriminately use water to clean spool spinner and belt feed unit. It may cause chain to rust and seize.
- j. Check take-up sprocket (S-639) on timing chain to maintain proper tension.
- k. Check take-up sprockets on oscillator drive chain to maintain proper tension.
- l. Check main drive belt to maintain proper tensions weekly.
- m. Check all setscrews for tightness weekly.
- n. Check spool chain periodically to see that spools are running in the center of the candler and are at 90 degrees to the direction of travel. Spool chains sometime jump a tooth on one side only.
- o. Inspect the belt feed neoprene chute (S-657) used to cushion eggs between belt feed and candler spools monthly and replace as needed.
- p. Inspect aluminum transfer (S-653) monthly and replace as needed.
 - (1) Check to see that it is not bent or twisted.
 - (2) Check rubber covers for wear.
 - (3) Adjust location by:
 - (a) Loosen mounting bolts.
 - (b) Rotate transfer so that edge is 1/32" above front; top edge of lead-in rails. Be sure not to twist transfer.
 - (c) Tighten mounting bolts.
- q. Inspect lead in rails (E-530 and E-531) monthly and replace as needed. Be sure to check mounting screws for tightness.

GENERAL OPERATION AND MAINTENANCE (Cont.)
MAINTENANCE & CLEANING (Cont.)

- r. Check tension of egg conveyor chain periodically. Tension should be continuously maintained by weighted take-up and the chain should mesh properly in the 5" plastic conveyor sprockets.
- s. Check location of plastic triangle (S-652). It should be centered in the spool pocket with above 1/8" clearance from the rear spool. To adjust:
 - (1) Remove main drive gear belt.
 - (2) Loosen all three (3) set screws in triangle.
 - (3) Move spool chain ahead until one spool is at top-dead center over shaft.
 - (4) Locate triangle in center of spool (crosswise on drive shaft).
 - (5) Rotate triangle back until it touches rear spool.
 - (6) Rotate triangle forward about 1/32" away from rear spool.
 - (7) Check location of triangle. Top corner should be 1/8" from spool. (see illustration #4)
 - (8) Tighten all three (3) set screws in triangle.
 - (9) Reinstall main drive gear belt.
- t. Check Delrin slide blocks (under oscillator slide) for wear every six months.
- u. Inspect all roller chains and sprockets including spool chains every six months and replace as needed.
- v. Check timing of egg transfer periodically.
 - (1) Eggs passing through the transfer point between candler spools and egg conveyor chain are first lifted from the candler pocket by the plastic triangle. They are then laid on the aluminum transfer and roll across it and onto the lead-in rails. Use the following procedure to set timing:
 - (1) Disconnect electric power source
 - (2) Remove chain guard.
 - (3) Disconnect timing chain (S-602) at connecting link. Do not allow chain to slip out of contact with either drive or driven (timing) sprockets.
 - (4) If eggs contact the back of the pushers, move-timing sprocket in the direction of the egg flow one tooth at a time.
 - (5) If eggs are pushed before they are well onto the lead-in rails, move timing sprocket against the egg flow one tooth at a time.
 - (6) When the timing is correctly set, the egg pusher will make contact with egg from behind without being hit hard enough to cause the egg to bounce or turn.
- w. Check spool pins for missing snap rings monthly.

CAUTION: Disconnect electric power sources before servicing or cleaning machine.

- 3. Common Problems
 - a. Lamp breakage due to overheating.
 - Dirty or inoperative candler fan.
 - b. Candler spools deformed or misshapen.
 - Spools are softened by heat resulting from conveyor being stopped while lights are left on. See II. B.10.
 - c. Lamps not bright enough.
 - (1) Pyrex covers glass dirty.
 - d. Pyrex covers glass breakage.
 - (1) Caused by broken egg accumulating and being baked on glass.
 - e. Candler spool chain and sprockets rusted, seized, or excessively worn.
 - (1) Lack of proper lubrication.
 - (2) Excessive use of water in candler/belt feed area.

**SPOOL SPINNER AND CANDLER Cont.
COMMON PROBLEMS Cont.**

- f. Eggs checking, cracking, or jumping off runway.
 - (1) Worn or damaged neoprene chute (S-657).
 - (2) Worn or damaged aluminum transfer (S-653)
 - (3) Worn or damaged lead-in rails (E-530 & E-531).
 - (4) Timing out of adjustment.
 - (5) Excessive wear in sprockets and chains causing inaccurate timing.
- g. Eggs turning and rolling end over end through sanitizer.
 - (1) Worn or damaged aluminum transfer (S-653).
 - (2) Worn or damaged lead-in rails (E-530 & E-531).
 - (3) Timing out of adjustment.
 - (4) Excessive wear in sprockets and chains causing inaccurate timing.
 - (5) Excessive wear in conveyor chain or sprockets causing chain to jump.

D. MAIN CONVEYOR DRIVE

The main drive on your machine is the main power source for driving the conveyor chain, candler spool chain, and belt feed belts. Machinery equipped with chute loader candler use a v-belt drive located on the outlet end of the machine. Machines equipped with spool spinner candler use a gear-belt drive located near the candler.

1. Maintenance and Cleaning
 - a. Check main drive belt for proper tension weekly.
 - (1) All main drive motor mounts are designed to slide, swing, or move in some way to tighten the main drive belts. See pages 12-6A and 12-6B in parts book.
 - (2) Proper tension is achieved when belt is tight enough to drive without slipping and yet not tight enough to stretch or wear excessively.
 - b. Check all motor mount fasteners periodically for tightness.
 - c. Insure main drive pulleys are kept in line. See Illustration #5.
 - (1) Place a straight edge against both pulleys. The straight edge should be flat against both pulleys.
 - (2) Adjust pulley location by:
 - (a) Loosen set screw-holding pulley to shaft.
 - (b) Slide pulley along shaft as necessary to bring pulleys in line.
 - (c) Tighten set screw.
 - d. Clean main drive belts and pulleys weekly to prevent build up of dirt. Be sure to clean "v" in v-belt pulleys and teeth in gear pulleys.
 - e. Prevent oil from coming into contact with drive belts.
 - f. Inspect belts for wear periodically and replace as necessary.
2. Common Problems
 - a. Belt breakage or excessive wear.
 - (1) Improper belt adjustment (belt too tight).
 - (2) Drive pulleys not in line.
 - b. Main drive motor hot or smoking.
 - (1) Excessive drag in conveyor chain or candler/belt feed unit. See III.C.2. & III.E.2
 - (2) Main drive motor worn out.
 - c. Main drive motor runs but shaft does not turn.
 - (1) Fibre gear in gear head stripped.

E. EGG CONVEYOR SYSTEM

The white, plastic egg conveyor chain carries eggs through the sanitizer and grader portions of the machine. The chain, the runway channel, and the egg pushers on the chain, roll the egg along the micarta runway rails. Tension on the conveyor chain, is maintained by a weighted take-up assembly located on the lower chain return. The chain is driven and held in alignment by large (5" diameter) white plastic sprockets.

1. Installation (of replacement chain)
 - a. Remove lead in rail fasteners and lead in rails.
 - b. Remove sanitizer splash panels.
 - c. Insert chain in channel in direction shown in parts book page 12-8.
 - d. Pull end of chain through channel and back toward candler under sanitizer. Be sure to mesh chain properly in all white, plastic sprockets.
 - e. Connect chain under in-feed end of sanitizer.

2. Maintenance and Cleaning
 - a. Lubricate two flange bearings at each end of the conveyor chain daily with food grade lubrication.
 - b. Lubricate oil-impregnated bushings in idler sprockets on lower chain return weekly.
 - c. Do not oil conveyor chain pins.
 - d. Check set screws in sprocket hubs at each end of conveyor chain for tightness weekly.
 - e. Insure weighted take-up is maintaining proper tension. If chain is dragging in drain channel or if the balance weight is down and not balancing, remove one chain link.
 - f. Check white plastic sprockets for excessive wear monthly. Elongated slots will cause erratic movement in chain.
 - g. Inspect each pin (E-522-1) in the conveyor chain monthly to be sure there is a snap ring (E-519) in both grooves.
 - h. Inspect aluminum spacer (E-523) monthly for wear and replace as needed.
 - i. Inspect conveyor chain links for wear monthly. Pinholes will wear and elongate to a point where the chain no longer meshes properly into the white, plastic sprockets causing erratic movement in chain. At this point chain must be replaced.

3. Common Problems
 - a. Chain jumps, catches, or skips tooth in sprocket.
 - (1) Snap rings missing in pins causing pin to slide out one side and catch.
 - (2) Excessive wear in white, plastic sprockets.
 - (3) Excessive wear in conveyor chain.
 - (4) Obstruction in channel or runway.

F. SANITIZER (Cleaner & Dryer)

Sani-Touch machines are furnished in three (3) models, each equipped with a combination of cleaning and drying brushes designed to thoroughly sanitize eggs. The brush shafts are flexed and the runway wear ribs are tilted in a manner designed to achieve complete sanitizing of eggs.

1. Installation
See II A.
2. Operation
See II B.
3. Maintenance and Cleaning
 - a. Brush Shaft Assemblies.
 - (1) Lubricate brush shaft bearings (C-203) daily with food grade lubrication.
 - (2) Clean brush shaft assemblies, runway rails, and inner surfaces of sanitizer chambers daily after operation.
 - (a) Remove brush shaft assemblies
 - (i) Disconnect main power source to machine.
 - (ii) Remove brush drive gear belt by:
 - a. Loosen hold down hand nuts on brush drive motor
 - b. Remove belt guard.
 - c. Slide motor mount plate to loosen belt.
 - d. Remove belt
 - (iii) Remove all brush shaft hold down brackets by: (G-201 & 202)
 - a. Loosen thumbnuts.
 - b. Slide straight up and out of sanitizer tank.
 - (iv) Identify brush shafts in such a manner that they can be replaced in the same location. (Right or left side) they were removed from. See Illustration #6.
 - (v) Lift the brush assemblies from the machine.
CAUTION: Use care to avoid bending shafts. Do not lay brush shaft assemblies on any flat surface-bristles that are flattened, may not return to original shape.
 - (b) Clean all rough surfaces thoroughly with a vinegar and water mixture applied with a stiff brush and scrubbed thoroughly.
 - (c) Clean smooth surfaces with steel wool soap pad.
 - (d) Rinse away all residues completely.
 - (e) Reinstall brushes in reverse of removal order with the following exceptions:
 - (i) Insure proper brush shims (C-203-3, -4, & -5) are in place under brush shaft bearings. These shims are to vary pressure of sanitizing (i.e. sanitizing turkey eggs, use of abrasive brushes, sanitizing thin-shelled eggs, etc.). Excessive pressure may cause egg to “turn” and roll end over end down runway. See Illustration #6 for brush shim thickness and location.
 - (ii) Check end clearance of shaft. Total clearance of each shaft should be 1/16”. To adjust:
 - a. Loosen setscrew in set collar (C-205)
 - b. Slide brush shaft collar shaft to achieve correct end clearance.
 - c. Tighten setscrew.

SANITIZER (cont.)
Maintenance (Cont.)

- (3) Replace worn brushes as needed. New brushes touch each other over the runway at the ends, towards the center of the sanitizer. As the brushes wear, a gap will form between the brushes. If, after removing shims, this gap measures ½” or greater, and eggs are not being cleaned satisfactorily, brushes must be replaced. Note: Brushes must be replaced in pairs.
- (a) Order new brushes for your machine. Refer Illustration #8 for recommended size. When brushes arrive, they will be marked as to whether they are “Right” or “Left” and whether they are “wash” or “dry”. Do not remove brushes from boxes until ready to install
- (b) Remove brush shaft assemblies from machine. (See III F.3.a.)
- (c) Remove brush shaft collar (C-205) from end of brush shaft as follows;
- (i) Loosen set screw.
 - (ii) Slide set collar off end of shaft.
 - (iii) File set screw burr from shaft.
- (d) Remove brushes from shafts as follows:
- (i) Remove nut and threaded portion of brush clamps (C-204).
 - (ii) Loosen set screw in brush clamp
 - (iii) Slide brush clamp off end of shaft.
 - (iv) File set screw burr from shaft.
 - (v) Slide brushes, bearings, (C-203) and remaining clamps off end of shaft.
- NOTE: If brushes or brush clamps are seized to brush shaft and cannot be knocked loose, it may require overnight soaking in hot water and detergent or penetrating oil.**
- (e) Install new brushes on shafts.
- (i) Lay shaft on blocks side by side as they would be installed in machine.
 - (ii) Slide components on brush shaft in following sequence:
 - a. Bearing (C-203)
 - b. Brush clamp (C-204) **NOTE: Flat side of brush clamp should face brush.**
 - c. Correct brush (right or left – wash or dry)
 - d. Brush clamp (C-204)
 - (iii) Tighten brush clamp set screw in approximate location on shaft.
 - (iv) Install and tighten nut and threaded portion of brush clamp.
 - (v) Install brush shaft assemblies in washer. See II F. 3a (s).
 - (vi) Loosen brush clamp set screw and adjust location on shaft so that clamp is 1” from bearing at each end of brush and re-tighten set screw. **NOTE: Ends of brush tapers should line up across machine. If they do not, readjustment may be required. (See Illustration #6).**
 - (vii) Oil brush shaft bearings with 2 or 3 drops of food grade lubrication.
 - (viii) Rotate shafts by hand and inspect bristles. Trim with scissors any bristles that stick out beyond normal diameter of brush.
- (4) Inspect brush bearings (C-203) periodically for wear and replace as necessary.
- b. Conveyor Bar

Inspect runway micarta rails periodically and replace as necessary. They must be kept smooth with no sharp corners between rail sections. If cracked or broken they must be replaced as a pair with the opposite side rail section.

SANITIZER (Cont.)
Maintenance & Cleaning (Cont.)

c. Brush Shaft Drives

Brush Shafts are rotated by a gear belt drive from a brush drive motor. There are individual brush shaft drives on all models.

- (1) Check brush-drive belts for tightness after each cleaning.
- (2) Check all motor mount fasteners periodically for tightness.
- (3) Insure brush drive pulleys are kept in line. (See III D.1c)
- (4) Clean brush-drive belts and pulleys weekly to prevent build up of dirt. Be sure to clean teeth in belt and gear pulleys.
- (5) Prevent oil from coming in contact with gear belts.
- (6) Inspect gear belts periodically for wear and replace as necessary.

G. WATER SYSTEM

The Sani-Touch water system consists of a rheostatically controlled heater, and electric shut-off valve, chemicals feed unit, a fluid flow meter, and dial thermometer, and interconnecting pipes and hoses.

Also available, for customers whose temp range and chemical concentration is extremely critical, is a water temperature alarm/shut-off system with in-line injector system for more precise metering of sanitizing chemicals. This system also eliminates the need for the customer to premix chemicals.

1. Installation

See II A.

2. Operation

See II B.

a. Heater

- (1) Turn on "Main" circuit breaker.
- (2) Turn "water heater" circuit breaker to "on" position.
- (3) Adjust water flow to constant point. (see III G.2c below)
- (4) Determine what water temperature you wish to use. Most Sani-Touch users find a temperature from 110-degrees Fahrenheit to 120-degrees Fahrenheit satisfactory.
- (5) Set rheostat in water heater control box halfway between high and low. Allow 5 minutes for temperature to stabilize.
- (6) If necessary-adjust rheostat higher or lower to achieve desired temperature.
- (7) Allow 5-10 minutes for temperature to stabilize.
- (8) Check thermometer, in end of water spray tube.

b. Flow Regulating Valve (W-104)

- (1) Loosen lock nut.
- (2) Turn valve handle clockwise to decrease or counterclockwise to increase flow until:
 - (a) All orifices in water spray tube are emitting a full stream of water. To gauge approximate water usage without flow meter, place a (5) five-gallon container under machine drain. It should fill in approximately the lengths of time listed below.

<u>Machine Cap. Cases/Hour</u>	<u>Time required filling 5 Gal. Bucket</u>
5 to 7-1/2	20 to 60 minutes
10 to 15	10 to 30 minutes
20 to 24	6 to 15 minutes

- (b) Indicator on models equipped with flow meters rises and remains at desired level. (See II A.8d)
- (3) Tighten Lock nut.

WATER SYSTEM (Cont.)

- c. Electric shut-off valve (W-103)-operates automatically with “Water Heater” circuit breaker.
- d. Chemical feed unit (W-102)-operates automatically with “Water Heater” circuit breaker.
 - (1) Provide a 5 or 10-gallon plastic container for detergent-sanitizer solution. Detergent should be mixed well and bucket kept clean of any non-dissolved residue that might clog chem. feed unit. Liquid detergents are preferable to powders.
 - (2) Set chem. Feed unit at desired capacity as listed on following table:

<u>CAM SETTING</u>	<u>GALLONS/HOUR</u>
#1	Approx. .30
#2	Approx. .83
#3	Approx. 1.25
#4	Approx. 1.52
#5	Approx. 1.67
#6	Approx. 1.75

- (a) Loosen cam assembly wing nut.
- (b) Hold motor drive shaft stationary by inserting an Allen wrench in extended set screw.
- (c) Turn cam scale so that desired setting number is aligned with extended set screw.
- (d) Tighten wing nut.
- (3) Attach foot valve and suction tubing to adapter on bottom of chem. feed head block.
- (4) Submerge foot valve in solution bucket so that it rests near, but not on, the bottom of the solution bucket.
- (5) Prime chem. feed pump (if it does not begin to prime itself in the first few minutes).
 - (a) Remove suction tubing from adapter on bottom of chem. feed head block.
 - (b) Fill suction tubing with water.
 - (c) Re-attach suction tubing (still filled with water).
 - (d) Raise foot valve above pump for several strokes while pump is running.
 - (e) Return foot valve to solution bucket when water begins to fill discharge tubing.
 - (f) If pump still does not prime, check for leaks in system and repeat above procedure.

NOTE: Over tightening of plastic fittings can cause damage.

3. Maintenance and Cleaning

- a. Chemical Feed Unit (W-102)
 - (1) Clean accumulated detergent residue from foot valve, tubing and pump body weekly.
 - (2) Check all hoses for cracks or leaks monthly.
- b. Clean water spray tube (W-109) monthly as follows:
 - (1) Remove pipe plug from end of tube.
 - (2) Scrape residue from inside of tube with ¼” diameter dowel or rod of appropriate length.
 - (3) Clean orifice holes with small wire or #60 drill.
 - (4) Flush system until water runs clear.
 - (5) Replace pipe plug in tubes.
- c. Interconnecting Pipes and Hoses
 - (1) Check system for leaks monthly. If found:
 - (a) Disassemble joint.
 - (b) Clean threads.
 - (c) Apply sealant.
 - (d) Reassemble and tighten.
 - (2) Check hoses for kinks, cracks, or leaks monthly.

WATER SYSTEM (Cont.)

4. Common Problems
 - a. Water does not flow when "Water Heater" circuit breaker is on.
 - (1) Water source not turned on.
 - (2) Electric shut-off valve (W-103) required replacement or repair.
 - b. Water not heated.
 - (1) Power not established to heater.
 - (2) Heating element requires replacement.
 - (3) Rheostat not functioning.
 - c. Water too hot as related to rheostat setting.
 - (1) Rheostat (W-116) not functioning properly.
 - d. Water flow varies greatly and is difficult to set.
 - (1) Flow regulating valve (W-104) faulty.
 - e. Chem. feed unit does not run when machine is started.
 - (1) Power not established to chem. feed.
 - (2) Components damaged in gear head.
 - (3) Motor requires repair or replacement.
 - f. Chem. feed unit runs but solution does not flow smoothly.
 - (1) Bullet Cartridges are dirty or need replacing.
 - g. Chem. feed unit runs but solution does not flow at all.
 - (1) Prime not established.
 - (2) Clogged foot valve (C-340-6) or tubing.
 - (3) Tubing or fittings cracked or broken allowing air to enter system.
 - (4) Diaphragm (C-406) requires replacement.
 - h. Chem. feed unit leaks solution on motor side of head block.
 - (1) Diaphragm (C-406) requires replacement.

H. GRADER

Sani-Touch graders consist of 5 scales set for an average of 3 ounces per dozen differences between grades. Approximate factory setting is as follows:

- JUMBO-above 30 ounce/dozen (2.5 ounces per egg)
- EXTRA LARGE-above 27 ounces/dozen (2.25 ounces per egg)
- LARGE-above 24 ounces/dozen (2.00 ounces per egg)
- MEDIUM-above 21 ounces/dozen (1.75 ounces per egg)
- SMALL-above 18 ounces/dozen (1.5 ounces per egg)
- PEE-WEE-below 18 ounces/dozen (1.5 ounces per egg)

Care in accurately setting the scales and a clean runway will assure accuracy.

1. Installation
See II A.
2. Operation
See II B.
 - a. Adjust location of all scale baskets (L-406) in relation to micarta runway.
 - (1) Place straight edge on top of micarta runway.
 - (2) Adjust scale basket so that its top edge is level or at a very slight downhill slope with the top of the slope being the part of the basket the egg touches first. **It is important that the basket is not sloped uphill as this can result in inaccurate grading.** The scale basket should be no more than 1/32" below the micarta runway. A greater distance can lead to erratic grading.

GRADER (Cont.)

- b. Adjust location of all solid-state switches (L-483-1). Machines built after June 1984 and replacement solid state grader units have these mercury switches.
 - (1) Switch is adjusted by the adjusting nuts on the switch. Always tighten the nuts after each adjustment.
 - (2) Adjust switch height so that the solenoid fires when scale basket is depressed and brass counterweight is lifted about ¼” off its stop post. Activator magnet should be near the center of the switch when scale basket is depressed but should not touch the switch at any time.
 - (3) Tighten locking nuts to secure proper position.
 - c. Adjust timing of each egg kick off. The centerline of the rubber kicker (L-479) is normally set in line with the edge of scale basket as shown in diagram. It may be adjusted to suit varying conditions by loosening mounting screws in upper solenoid channel and sliding grader solenoids (L-477) in adjusting slots.
 - d. Adjust strength of each egg kick off.
 - (1) Loosen set screw in kicker mount stud (L-478).
 - (2) Rotate kicker mount stud on shaft of grader solenoid until it is approximately ¼” from scale yoke.
 - (3) Tighten set screw.
 - (4) Repeat above operation as necessary to achieve desired strength of kick, varying the ¼” distance to suit conditions.
 - e. Adjust all scale weight settings.
 - (1) Allow egg conveyor to repeatedly roll a rolling test weight or egg of the proper minimum weight over scale.
 - (2) Adjust scale weight counter clockwise until scale does not kick as test weight crosses it.
 - (3) Adjust scale weight slowly clockwise until test weight is kicked consistently.
3. Maintenance and Cleaning
- a. Check all fasteners and electrical connections in grader assemblies periodically for tightness.
 - b. Check all scale weight settings weekly.
 - c. Clean scale assemblies weekly. Do not allow water to spray directly on grader solenoids.
 - d. Check pivot points (L-412) periodically for proper alignment and wear.
 - e. The grader unit must be maintained in a clean condition. There must never be broken eggs or calcium build-up on the grader system. Guaranteed accuracy is dependent on unobstructed movement of the scale. Any other condition voids the warranty.
4. Common Problems
- a. All grader solenoids fail to operate.
 - (1) Check fuses or reset buttons in grader control box.
 - b. Grader solenoid fails to fire in only one grade.
 - (1) Switch not operating-check by interchanging with that of another grade.
 - (2) Solenoids not operating-check by interchanging with that of another grade.

I. **OUTFEED CONVEYORS AND TRAYS**

The out-feed apparatus for Sani-Touch machinery varies with the model designation. Many models have simple plastic receiving trays only and need not be discussed in this section. Sani-Touch machines equipped with graders have moving wire belt conveyors either used alone or as a part of Sani-Touch's Vac-Pak Semi-Automatic packing system. These two out-feed styles will be covered in this section.

1. Installation

- a. Wire Belt Table
 - (1) Reinstall all parts removed at factory for shipping.
 - (2) Level table surface and trays by adjusting supporting rods between Wire Belt Table frame and main machine frame.
- b. Vac-Pak
 - (1) Place (3) three rubber vibration mount studs in 3/8" holes in grader base plate.
 - (2) Install 3/8" nuts and lock-washers on studs and tighten.
 - (3) Level Vac-Pak
 - (a) Adjust leg bolts to level machine lengthwise and crosswise.
 - (b) Check that both leg bolts are firmly seated on floor.
 - (c) Tighten leg bolt lock nuts.
 - (4) Reinstall all parts removed at factory for shipping.
 - (a) Stainless steel transfer plates attach to grader at junction of grader and Vac-Pak.
 - (b) Grader dividers attach to Vac-Pak and 1/2" posts on transfer plate.
 - (c) Drip trays slide-in supports under grid area.
 - (d) Raise carton shelf supports to upright position and fasten.
 - (e) Place wire carton shelf in brackets.
 - (5) Insert Vac-Pak electrical cord cap in outlet located on main machine frame or provide other outlet capable of supplying 9.0 amps.
 - (6) Tighten all fasteners, which may have vibrated loose during transportation.

2. Operation

- a. Wire belt table comes on with the "main conveyor" switch and conveys eggs to receiving tray to be packed by hand.
- b. Vac-Pak conveys eggs to a vibrating grid system, which orients the eggs so that they may be packed using a vacuum egg lifter.
 - (1) Turn "Vac-Pak" circuit breaker on main electrical panel to "on" position.
 - (2) Close toggle switch on Vac-Pak electrical panel.
 - (3) Allow graded eggs to flow into grid system and be oriented.
 - (a) Apply pressure with the finger to right any eggs, which may remain pointed side up in grid.
 - (b) Remove checked or cracked eggs manually.
 - (c) Push leakers down through the grid into drip tray below.
 - (4) Pack eggs from each grid as soon as sufficient eggs are in the grid as follows:
 - (a) Bring lifter down horizontally toward grid until cups touch eggs and vacuum takes hold, then lift.
 - (b) Bring loaded lifter down horizontally toward carton or flat, when eggs just touch carton, release vacuum and allow eggs to settle in carton.
 - (c) Pack from grade with most backed up eggs first. Try to keep an even reservoir of eggs in all grades.
 - (d) Do not allow a small quantity of eggs to remain in grid for long periods of time while higher volume grades are packed.
 - (e) Do not apply any downward pressure on eggs with vacuum lifter at any time.

3. Maintenance and Cleaning
 - a. Wire Belt Table or wire belt conveyor portion of Vac-Pak.
 - (1) Oil bearings on drive shaft (CT-102) with food grade lubrication.
 - (2) Tighten set-screws in all drive sprockets and shaft collars periodically.
 - (3) Adjust tension of drive chain and lubricate monthly.
 - (4) Check wire belt support wear strips (CT-106, CT 106-1, or VP-42) periodically for wear. Replace if worn through.
 - (5) Check wire-belt material periodically for wear or stretch. If wire belt must be shortened, refer to manufacturer's instructions in rear of this manual.
 - (6) Clean wire belt material weekly with warm water and detergent. Avoid applying water directly to electric motors or connections.
 - b. Oscillating grid system of Vac-Pak.
 - (1) Lubricate oscillator shaft bearings (VP-9) twice daily with SAE-30.
 - (2) Check set screw holding oscillating shaft bearing (VP-9) in place for tightness periodically.
 - (3) Lubricate surface of cam (VP-19) with one or two drops of SAE-30 twice daily.
 - (4) Check cam (VP-19) for excessive wear weekly and replace if necessary. Always install new cams with beveled end to left. When replacing cam it is usually best to replace cam follower (VP-17) also.
 - (5) Check cam follower (VP-17) for worn or frozen bearing weekly. Always install new follower with bearing perpendicular to camshaft.
 - (6) Check all fasteners in Vac-Pak for tightness periodically.
 - (7) Check grid fingers monthly for wear. If pockets are visible in fingers they should be replaced. Refer to Illustration #11.
 - (8) Maintain proper adjustment of cam follower pressure against each cam. See Illustration #10.
 - (a) Loosen tension lock bolt.
 - (b) Adjust tension with tension adjusting set screw; Clockwise to decrease pressure-counter-clockwise to increase pressure.
 - (c) Tighten tension lock bolt.
 - (d) Check for proper tension by applying a slight amount of pressure to the oscillating grid just above each cam. The cam should "rattle" when pressure is applied and returns to running quietly when pressure is released. In short, spring pressure should be just tight enough to prevent excessive noise. Too much pressure will quickly ruin both cam and cam followers.
 - (e) Clean fingers with warm water and detergent daily.
 - (f) Clean drip trays with warm water and detergent daily.
4. Common Problems
 - a. Wire belt table or wire belt conveyor portion of Vac-Pak
 - (1) Torn or damaged wire belt material.
 - (a) Replace damaged material.
 - (2) Wire belt jumps teeth on its drive sprockets.
 - (a) Shorten wire belt.
 - b. Oscillating grid system of Vac-Pak.
 - (1) Excessive noise.
 - (a) Cam follower tension requires adjustment.
 - (b) Cams and cam followers worn or damaged.
 - (2) Cams or cam followers wear out rapidly.
 - (a) Excessive or improper tension on cam.
 - (b) Lack of lubrication.

J. VACUUM EQUIPMENT

Refer to manufacturer's information.

IV. MAINTENANCE SCHEDULE

A. TWICE DAILY

Lubricate Vac-Pak Oscillator shaft with SAE-30.
Lubricate Vac-Pak Cam surface with SAE-30.

B. DAILY

Lubricate candler chains with food grade lubrication.
Lubricate all oil-impregnated bushings with food grade lubrication.
Clean sanitizer chambers with brush shaft assemblies.
Clean cross loader and Vac-Pak drip trays.
Clean chute loader runway wear strips.
Clean Pyrex candler glass.
Clean all vacuum lifters.

C. WEEKLY

Lubricate candler chains with food grade lubrication.
Check all chain and belt drives for proper tension.
Check Vac-Pak cams and cam followers for wear.
Check scale weight settings.
Check all fasteners for tightness.
Clean all wire belt material.
Clean all gear belt pulleys and belts.
Clean chem. feed unit and foot valve.
Clean belt feed tail sheave assembly.
Clean grader scale assemblies.
Clean all interior and exterior surfaces of machine and provide thorough general clean up.

D. MONTHLY

Check main conveyor system for: missing snap rings, excessive wear in links, spacers, and sprockets.
Check candler spool pins for missing snap rings.
Check brush drive idler pulley bearing for wear. (Model 5C only)
Check all hoses and plumbing connections for leaks.
Check all wire belt conveyors for proper tension.
Check Vac-Pak grid fingers for wear
Clean water spray tube.

E. EVERY SIX (6) MONTHS

Lubricate all Dayton fans with 10-20 drops food grade lubrication.
Clean vents of all electric motors.
Check Delrin slides for wear.
Check all roller chains and sprockets for wear.